Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

August 10, 2006

L-2006-152
10 CFR 50.4

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

RE: St. Lucie Unit 2
Docket No. 50-389
NRC Order EA-03-009 – Reactor Vessel Head and
Vessel Head Penetration Nozzle Inspection Results SL2-16

In April 2006, St. Lucie Unit 2 commenced refueling outage SL2-16. Based on the results of the visual examinations, UT examinations, supplemental OD NDE and leak path assessments (including ECT of the vent), FPL concludes that the RVHP nozzles are not degraded and no wastage has occurred of the RPV head.

In accordance with Section IV.E of the NRC Order (EA-03-009), the attachment submits the FPL inspection results for St. Lucie Unit 2 for the spring 2006 refueling outage (SL2-16).

Please contact Ken Frehafer at (772) 467-7748 if there are any questions about this submittal.

Very truly yours,

Gordon L. Johnston
Site Vice President
St. Lucie Plant

GLJ/KWF

Attachment

A101

**FIRST REVISED NRC ORDER EA-03-009:
REACTOR PRESSURE VESSEL HEAD AND VESSEL HEAD
PENETRATION NOZZLE POST REFUELING OUTAGE INSPECTION RESULTS
FOR ST. LUCIE UNIT 2 – Spring 2006**

The First Revised NRC Order EA-03-009 [i] was issued on February 20, 2004, establishing interim inspection requirements for reactor pressure vessel heads of pressurized water reactors. In Section IV.E. of the NRC Order, the NRC required that the results of the inspection be provided within 60 days of the plant being returned to operation. Florida Power and Light Company (FPL) hereby submits the inspection results for St. Lucie Unit 2 (PSL-2) for the spring 2006 (SL2-16) refueling outage (RFO).

St. Lucie Unit 2 Spring 2006 (SL2-16) Post Outage Reactor Vessel Upper Head Inspection Results:

1. Plant Susceptibility Category:

The St. Lucie Unit 2 reactor pressure vessel (RPV) closure head had approximately 16.3 effective degradation years (EDY) at the start of the Spring 2006 refueling outage. The inspection category identified in the Order is High. The corresponding inspection method for the High Category is specified in Section IV.C.(1) of the NRC Order.

2. Inspection Scope and Method:

2.a. RPV Bare Metal Head Surface Visual: A bare metal visual inspection (VT) of the RPV head top surface, including 360° around each RPV head penetration nozzle, was performed in accordance with section IV.C.(5)(a) of the NRC Order and supplemented by Relaxation Request Number 4 [ii] approved by the NRC on December 27, 2004 [iii] and January 10, 2005. [iv] The VT was performed under the insulation by delivering a video probe under the shroud support ring after removal of flashing panels. Limitations to the bare metal visual inspection were identified in the Relaxation Request. [ii] These limitations included a partial area under 32 insulation support feet (<118 square inches) and the inaccessible areas under the ~2 ¼" wide vertical leg of the reflective metal insulation that contacts the twelve 6-inch wide shroud lugs. In addition, the areas inside the 54 RV stud holes were limited. The total area of limitation is less than 1% of the total reactor vessel head surface area available for inspection.

2.b. RPV Head Penetration Non Visual Inspection: The ultrasonic (UT) examination technique option, identified in section IV.C.(5)(b)(i) of the First Revised NRC Order, was performed on all of the 102 reactor vessel head penetration (RVHP) nozzles, including the vent line. The examination area was planned to meet the NRC Order required area for the ICI, vent and previously repaired CEDM penetrations. For the 86 CEDMs with the original threaded guide cone configuration, the inspection was planned to include the nozzle base material 2 inches above the J-groove weld to the bottom of the weld. However, below the weld the UT

examination was planned to the maximum extent possible. If the area below the weld coverage was less than 0.50 inches, non visual NDE from the outside diameter (OD) would be used to extend the coverage to the maximum extent possible, but not less than 0.50 inches below the weld toe. The methods used for the OD NDE were automated UT and manual PT. The limitations associated with the threaded guide funnels in the original CEDM penetrations were the subject of Relaxation Request Number 3 [ii] and corresponding NRC approval [iii&iv] of the relaxation.

As part of the UT examinations, the 101 RVHPs with interference fits were assessed to determine if leakage had occurred into the interference fit zone (annulus between the RPV head and the penetration above the pressure boundary weld). This assessment used the Areva/Framatome-ANP proprietary "leak path" technique, which was described in the post outage inspection report for a previous FPL St. Lucie Unit 1 RPV head inspection. [v]

The UT inspection procedure and essential variables used on the 101 RVHPs with interference fits has been demonstrated as part of the industry demonstration program conducted by the EPRI NDE Center. The personnel qualification requirements that were described in Reference [v] remain unchanged.

An eddy current examination (ECT) was performed on the vent nozzle weld surface to ensure weld integrity in lieu of the UT method to assess if leakage has occurred into the clearance fit annulus between the vent nozzle and RPV head steel. The ECT procedure had been successfully demonstrated on RVHP J-groove attachment welds as part of the industry demonstration program conducted by the EPRI NDE Center. All essential variables (Examination Technique Specification sheets, ETSS) and procedural requirements used during the vent nozzle weld examination remained essentially the same as those previously demonstrated.

3. Inspection Results Summary:

3.a. RPV Head Visual Results: The overall condition of the St. Lucie Unit 2 RPV head surface was clean with no evidence of leakage occurring from the RV head to penetration interface of the 102 RVHPs. No wastage or boric acid buildup was observed on the reactor vessel head surface.

Some thin film boric acid stains were observed on the vertical surfaces and insulation overhead of penetrations #2, 13, 49, 51, 74, and 83, and in-core instrument (ICI) column # 97. The thin film nature of the stains and lack of buildup is indicative of non operational leakage. The source of the stains was attributed to CEDM venting and past ICI column leakage prior to startup. There was no degradation of the RPV head surface associated with the boric acid stains. These conditions were addressed as part of our boric acid corrosion control program and the corrective action program.

3.b. RPV Head Penetration Non Visual Inspection Results: There were no relevant indications identified by the ID UT in any of the 102 RVHPs in the St. Lucie Unit 2 RPV head.

Supplemental OD NDE was required on 17 CEDM nozzles to obtain the required examination area of 0.50 inches below the weld. The OD NDE method included UT and manual dye penetrant (PT). A limitation was experienced on 15 CEDM nozzles, where the OD UT was utilized to extend the coverage below the weld toe. These limitations were caused by lift off at the funnel plug weld on the high hillside of the nozzle. The small lift off limitations were $\geq$ 3.80 inches below the weld toe. The supplemental OD NDE (UT and PT) did not reveal any relevant indications. The details of the ID coverage, supplemental OD coverage, and limitations associated with the funnel plug weld are described in Tables 1 and 2 and Figure 1.

An assessment to determine if leakage has occurred into the interference fit zone was performed for the 101 interference fit RVHPs. There was no evidence of a "leak path" signature for any of the 101 interference fit RVHPs examined. The "leak path" assessment is performed using the Areva/Framatome-ANP demonstrated method that utilizes UT in the interference fit zone above the pressure boundary weld. The assessment results are confirmed by the results of the bare metal visual examination. Since the vent line is a clearance fit nozzle, the clean visual examination provides a direct determination that no leakage has occurred into the annulus. However, as an added conservatism, the flush pressure boundary surface inside of the RPV head associated with the vent line (the head vent line, alloy 600 attachment weld, and a portion of the adjacent stainless steel clad weld) was examined using a surface eddy current examination (ECT) method. The reporting criteria utilized for the ECT examination was to report all indications. The acceptance criteria utilized for this ECT examination was "no identified flaws or degradation." There were no flaws or degradation detected by the ECT technique in the inspected area of the weld associated with the head vent nozzle. This examination provides additional confirmation for the assessment that the vent nozzle has no leakage into the annulus.

4. Corrective Actions:

With no indications of cracking in the penetrations and no evidence of boric acid buildup associated with pressure boundary leakage, no corrective actions were required to address the integrity of the reactor vessel upper head and penetrations.

5. Conclusion:

FPL has met the requirements of the First Revised NRC Order (EA-03-009) as modified by NRC approved relaxation requests [iii&iv] for the St. Lucie Unit 2 Spring 2006 refueling outage by performing the required RPV head inspection.

Based on the results of the visual examinations, UT examinations, supplemental OD NDE, leak path assessments (including ECT of the vent), FPL concludes that the RVHP nozzles are not degraded, and no wastage has occurred of the RPV head.

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[i] US NRC Letter EA-09-009, "Issuance Of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements For Reactor Pressure Vessel Heads At Pressurized Water Reactors," from William Borchardt (NRC) to all Pressurized Water Reactor Licensees, Dated February 20, 2004.

[ii] FPL letter L-2004-095, "St. Lucie Unit 2, Docket No. 50-389, Order (EA-03-009) Relaxation Requests 3 and 4, Examination Coverage of Reactor Pressure Vessel Head Penetration Nozzles," W. Jefferson to NRC, May 6, 2004.

[iii] US NRC Letter (Adams Accession No. ML043430268), "St. Lucie Plant, Unit 2, First Revised Order EA-03-009 Relaxation Requests No. 3 Regarding Examination Coverage of Reactor Pressure Vessel Head Penetration Nozzles, and Relaxation Request No. 4 Regarding Examination Coverage of Reactor Pressure Vessel Head Bare Metal Visual Examination, (TAC Nos. MC3107 and MC3108)," E. M. Hackett (NRC) to J.A. Stall, December 27, 2004.

[iv] US NRC Letter (Adams Accession No. ML050070085), "St. Lucie Plant, Unit 2, Correction to NRC Safety Evaluation for First Revised Order EA-03-009 Relaxation Requests No. 3 Regarding Examination Coverage of Reactor Pressure Vessel Head Penetration Nozzles, (TAC No. MC3107)," E. M. Hackett (NRC) to J.A. Stall, January 10, 2005.

[v] FPL letter L-2002-233, "St. Lucie Units 1 and 2, Docket Nos. 50-335, 50-389, Reactor Pressure Vessel Head (RPVH) Inspection, NRC Bulletin 2002-02 Supplemental Response, " D. E. Jernigan to NRC, November 21, 2002.

TABLE 1: St. Lucie, Unit 2, RVHP Examination Summary SL2-16

Penetration Type	Nozzle #	Required Coverage Below Weld	"A" ID Coverage below weld on downhill side of weld (in.)	"B" ID Coverage below weld on uphill side of weld (in.)	"C" ID Coverage above weld on uphill side of weld (in.)	Circ. ID Coverage (deg.)	Coverage Limitations Due to Funnel Plug Weld				Leak Path Detected	UT Results	Scans Complete	Comments
							Angular Extent			Axial Extent (in.)				
							Min	Max	Total					
CEDM	1	0.5	1.02	1.02	4.44	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	2	0.5	1.08	1.79	4.31	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	3	0.5	1.09	1.85	4.09	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	4	0.5	0.91	2.02	4.07	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	5	0.5	0.90	1.97	4.36	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	6	0.5	1.02	2.20	4.23	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	7	0.5	0.91	2.15	4.09	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	8	0.5	0.79	2.21	3.40	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	9	0.5	0.90	2.44	2.92	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	10	0.5	0.91	2.44	3.86	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	11	0.5	0.78	2.26	3.74	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	12	0.5	0.91	2.55	4.00	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	13	0.5	1.10	2.67	3.90	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	14	0.5	0.90	2.38	3.14	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	15	0.5	1.02	2.55	4.12	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	16	0.5	0.91	2.62	4.19	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	17	0.5	1.03	2.56	4.05	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	18	0.5	6.10	6.10	6.40	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Previous IDTB Repair
CEDM	19	0.5	1.08	2.20	4.17	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	20	0.5	0.84	2.91	3.30	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	21	0.5	0.95	2.91	2.81	360	n/a	n/a	n/a	n/a	NO	NRI	YES	

TABLE 1: St. Lucie, Unit 2, RVHP Examination Summary SL2-16

Penetration Type	Nozzle #	Required Coverage Below Weld	"A" ID Coverage below weld on downhill side of weld (in.)	"B" ID Coverage below weld on uphill side of weld (in.)	"C" ID Coverage above weld on uphill side of weld (in.)	Circ. ID Coverage (deg.)	Coverage Limitations Due to Funnel Plug Weld: Angular Extent Min	Angular Extent Max	Angular Extent Total	Axial Extent (in.)	Leak Path Detected	UT Results	Scans Complete	Comments
CEDM	22	0.5	0.96	3.02	3.54	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	23	0.5	0.67	2.85	3.69	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	24	0.5	0.79	2.79	3.36	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	25	0.5	0.83	2.97	3.00	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	26	0.5	0.75	2.85	3.91	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	27	0.5	6.10	6.10	8.30	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Previous IDTB Repair
CEDM	28	0.5	0.85	3.15	3.41	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	29	0.5	0.91	3.03	3.24	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	30	0.5	0.90	3.20	3.00	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	31	0.5	1.02	3.21	3.90	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	32	0.5	5.10	5.10	6.02	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Previous IDTB Repair
CEDM	33	0.5	0.85	3.09	3.96	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	34	0.5	0.84	3.08	3.98	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	35	0.5	0.79	3.03	3.83	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	36	0.5	0.67	3.32	3.02	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	37	0.5	0.85	3.56	2.70	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	38	0.5	0.90	3.44	2.40	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	39	0.5	0.85	3.50	2.99	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	40	0.5	0.90	3.56	3.60	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	41	0.5	0.50	3.27	3.38	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	42	0.5	0.73	3.44	3.49	360	n/a	n/a	n/a	n/a	NO	NRI	YES	

TABLE 1: St. Lucie, Unit 2, RVHP Examination Summary SL2-16

Penetration Type	Nozzle #	Required Coverage Below Weld	"A" ID Coverage below weld on downhill side of weld (in.)	"B" ID Coverage below weld on uphill side of weld (in.)	"C" ID Coverage above weld on uphill side of weld (in.)	Circ. ID Coverage (deg.)	Coverage Limitations Due to Funnel Plug Weld: Angular Extent Min	Angular Extent Max	Angular Extent Total	Axial Extent (in.)	Leak Path Detected	UT Results	Scans Complete	Comments
CEDM	43	0.5	0.73	3.32	3.30	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	44	0.5	0.80	3.79	2.70	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	45	0.5	0.84	3.97	5.96	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	46	0.5	0.60	3.67	3.16	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	47	0.5	0.62	3.79	3.57	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	48	0.5	0.62	3.73	3.04	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	49	0.5	0.70	3.91	2.90	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	50	0.5	0.62	3.86	5.33	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	51	0.5	0.73	4.09	5.80	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	52	0.5	0.55	4.03	3.79	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	53	0.5	0.50	3.79	3.80	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	54	0.5	0.43	3.91	4.10	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**144**	**207**	**63**	**0.07**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	55	0.5	0.67	3.80	3.11	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	56	0.5	7.30	7.30	7.00	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Previous IDTB Repair
CEDM	57	0.5	0.91	3.97	2.83	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	58	0.5	0.85	4.26	3.47	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	59	0.5	0.32	3.80	3.79	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**169**	**229**	**60**	**0.18**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	60	0.5	0.73	4.21	2.85	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	61	0.5	0.60	4.14	2.46	360	n/a	n/a	n/a	n/a	NO	NRI	YES	

TABLE 1: St. Lucie, Unit 2, RVHP Examination Summary SL2-16

Penetration Type	Nozzle #	Required Coverage Below Weld	"A" ID Coverage below weld on downhill side of weld (in.)	"B" ID Coverage below weld on uphill side of weld (in.)	"C" ID Coverage above weld on uphill side of weld (in.)	Circ. ID Coverage (deg.)	Coverage Limitations Due to Funnel Plug Weld: Angular Extent Min	Angular Extent Max	Angular Extent Total	Axial Extent (in.)	Leak Path Detected	UT Results	Scans Complete	Comments
CEDM	62	0.5	0.68	4.44	5.25	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	63	0.5	0.79	4.32	3.38	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	64	0.5	0.96	4.38	3.25	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	65	0.5	0.61	4.38	3.54	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	66	0.5	0.44	4.08	3.68	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**166**	**220**	**54**	**0.06**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	67	0.5	0.73	4.20	3.00	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	68	0.5	0.70	4.98	2.97	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	69	0.5	0.56	4.80	3.40	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	70	0.5	0.43	4.68	4.80	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**146**	**207**	**61**	**0.07**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	71	0.5	0.67	4.85	4.62	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	72	0.5	3.66	3.66	3.71	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Previous IDTB Repair
CEDM	73	0.5	0.56	4.97	3.80	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	74	0.5	0.61	5.09	3.31	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	75	0.5	0.43	4.26	3.70	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**157**	**208**	**51**	**0.07**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	76	0.5	0.61	5.20	3.87	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	77	0.5	0.43	4.97	3.82	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**138**	**192**	**54**	**0.07**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	78	0.5	0.56	4.85	3.71	360	n/a	n/a	n/a	n/a	NO	NRI	YES	

TABLE 1: St. Lucie, Unit 2, RVHP Examination Summary SL2-16

Penetration Type	Nozzle #	Required Coverage Below Weld	"A" ID Coverage below weld on downhill side of weld (in.)	"B" ID Coverage below weld on uphill side of weld (in.)	"C" ID Coverage above weld on uphill side of weld (in.)	Circ. ID Coverage (deg.)	Coverage Limitations Due to Funnel Plug Weld: Angular Extent Min	Angular Extent Max	Angular Extent Total	Axial Extent (in.)	Leak Path Detected	UT Results	Scans Complete	Comments
CEDM	79	0.5	0.43	4.68	3.40	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**117**	**211**	**94**	**0.07**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	80	0.5	0.44	4.80	3.50	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**161**	**220**	**59**	**0.06**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	81	0.5	0.48	4.62	3.30	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**150**	**208**	**58**	**0.02**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	82	0.5	0.50	5.21	2.82	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	83	0.5	0.43	4.91	3.14	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**156**	**212**	**56**	**0.07**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	84	0.5	0.61	5.20	3.19	360	n/a	n/a	n/a	n/a	NO	NRI	YES	
CEDM	85	0.5	0.45	4.97	3.58	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**139**	**197**	**58**	**0.05**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	86	0.5	0.40	4.86	3.19	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**151**	**206**	**55**	**0.10**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	87	0.5	0.34	4.91	3.10	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**149**	**200**	**51**	**0.16**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	88	0.5	0.32	5.80	3.00	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**145**	**209**	**64**	**0.18**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	89	0.5	0.20	5.62	2.56	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**135**	**188**	**53**	**0.30**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	90	0.5	0.49	6.33	3.34	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT

TABLE 1: St. Lucie, Unit 2, RVHP Examination Summary SL2-16

Penetration Type	Nozzle #	Required Coverage Below Weld	"A" ID Coverage below weld on downhill side of weld (in.)	"B" ID Coverage below weld on uphill side of weld (in.)	"C" ID Coverage above weld on uphill side of weld (in.)	Circ. ID Coverage (deg.)	Coverage Limitations Due to Funnel Plug Weld: Angular Extent Min	Angular Extent Max	Angular Extent Total	Axial Extent (in.)	Leak Path Detected	UT Results	Scans Complete	Comments
			n/a	n/a	n/a	n/a	**159**	**213**	**54**	**0.01**	n/a	NRI		**OD UT Scan, See Table 2 for details**
CEDM	91	0.5	0.32	5.51	3.28	360	n/a	n/a	n/a	n/a	NO	NRI	YES	ID UT to be Supplemented by OD UT
			n/a	n/a	n/a	n/a	**169**	**223**	**54**	**0.18**	n/a	NRI		**OD UT Scan, See Table 2 for details**
ICI	92	N/A	n/a	n/a	4.78	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Needs Supp. Scan With Single Element Head
		N/A	n/a	n/a	n/a	360	n/a	n/a	n/a	n/a	n/a	NRI		**Single Element Head Supplemental Scan**
ICI	93	N/A	n/a	n/a	3.40	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Needs Supp. Scan With Single Element Head
		N/A	n/a	n/a	n/a	360	n/a	n/a	n/a	n/a	n/a	NRI		**Single Element Head Supplemental Scan**
ICI	94	N/A	n/a	n/a	4.15	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Needs Supp. Scan With Single Element Head
		N/A	n/a	n/a	n/a	360	n/a	n/a	n/a	n/a	n/a	NRI		**Single Element Head Supplemental Scan**
ICI	95	N/A	n/a	n/a	3.90	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Needs Supp. Scan With Single Element Head
		N/A	n/a	n/a	n/a	360	n/a	n/a	n/a	n/a	n/a	NRI		**Single Element Head Supplemental Scan**
ICI	96	N/A	n/a	n/a	4.80	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Needs Supp. Scan With Single Element Head
		N/A	n/a	n/a	n/a	360	n/a	n/a	n/a	n/a	n/a	NRI		**Single Element Head Supplemental Scan**
ICI	97	N/A	n/a	n/a	5.60	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Needs Supp. Scan With Single Element Head
		N/A	n/a	n/a	n/a	360	n/a	n/a	n/a	n/a	n/a	NRI		**Single Element Head Supplemental Scan**
ICI	98	N/A	n/a	n/a	5.37	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Needs Supp. Scan With Single Element Head
		N/A	n/a	n/a	n/a	360	n/a	n/a	n/a	n/a	n/a	NRI		**Single Element Head Supplemental Scan**
ICI	99	N/A	n/a	n/a	4.42	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Needs Supp. Scan With Single Element Head
		N/A	n/a	n/a	n/a	360	n/a	n/a	n/a	n/a	n/a	NRI		**Single Element Head Supplemental Scan**
ICI	100	N/A	n/a	n/a	4.53	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Needs Supp. Scan With Single Element Head
		N/A	n/a	n/a	n/a	360	n/a	n/a	n/a	n/a	n/a	NRI		**Single Element Head Supplemental Scan**

TABLE 1: St. Lucie, Unit 2, RVHP Examination Summary SL2-16														
Penetration Type	Nozzle #	Required Coverage Below Weld	"A" ID Coverage below weld on downhill side of weld (in.)	"B" ID Coverage below weld on uphill side of weld (in.)	"C" ID Coverage above weld on uphill side of weld (in.)	Circ. ID Coverage (deg.)	Coverage Limitations Due to Funnel Plug Weld: Angular Extent Min	Angular Extent Max	Angular Extent Total	Axial Extent (in.)	Leak Path Detected	UT Results	Scans Complete	Comments
ICI	101	N/A	n/a	n/a	4.40	360	n/a	n/a	n/a	n/a	NO	NRI	YES	Needs Supp. Scan With Single Element Head
		N/A	n/a	n/a	n/a	360	n/a	n/a	n/a	n/a	n/a	NRI		**Single Element Head Supplemental Scan**
Vent	102	N/A	n/a	n/a	2.97	360	n/a	n/a	n/a	n/a	n/a	NRI	YES	UT of bore performed
		N/A	n/a	n/a	n/a	360	n/a	n/a	n/a	n/a	n/a	NRI	YES	ET performed on J-Groove Weld

NRI – No Recordable Indications

IND - Indications

TABLE 2: Coverage Assessment for Nozzles Examined with Coverage Limitations

Nozzle #	Required Coverage Below Weld	ID UT COVERAGE					OD UT COVERAGE			OD UT EXCLUSION ZONE				
		"A" ID Coverage below weld on downhill side of weld (in.)	ID Coverage shortage below weld on downhill side of weld (in.)	"B" ID Coverage below weld on uphill side of weld (in.)	"C" ID Coverage above weld on uphill side of weld (in.)	Circ. ID Coverage (deg.)	"D" OD Coverage height from end of nozzle (in.)	ID/OD Axial Coverage Overlap (in.)	ID/OD Axial Coverage Gap (in.)	Coverage Impacted ?	Funnel plug weld exclusion zone (deg.)			Axial height of weld plug exclusion in 1/2" band (in.)
											Min	Max	Total	
54	0.5	0.43	0.07	3.91	4.10	360	1.10	0.225	None	Yes	144	207	63	0.07
59	0.5	0.32	0.18	3.80	3.79	360	1.08	0.205	None	Yes	169	229	60	0.18
66	0.5	0.44	0.06	4.08	3.68	360	1.10	0.225	None	Yes	166	220	54	0.06
70	0.5	0.43	0.07	4.68	4.80	360	1.13	0.255	None	Yes	146	207	61	0.07
75	0.5	0.43	0.07	4.26	3.70	360	1.11	0.235	None	Yes	157	208	51	0.07
77	0.5	0.43	0.07	4.97	3.82	360	1.06	0.185	None	Yes	138	192	54	0.07
79	0.5	0.43	0.07	4.68	3.40	360	1.04	0.165	None	Yes	117	211	94	0.07
80	0.5	0.44	0.06	4.80	3.50	360	1.05	0.175	None	Yes	161	220	59	0.06
81	0.5	0.48	0.02	4.62	3.30	360	1.18	0.305	None	Yes	150	208	58	0.02
83	0.5	0.43	0.07	4.91	3.14	360	1.06	0.185	None	Yes	156	212	56	0.07
85	0.5	0.45	0.05	4.97	3.58	360	1.19	0.315	None	Yes	139	197	58	0.05
86	0.5	0.40	0.10	4.86	3.19	360	1.10	0.225	None	Yes	151	206	55	0.10
87	0.5	0.34	0.16	4.91	3.10	360	1.03	0.155	None	Yes	149	200	51	0.16
88	0.5	0.32	0.18	5.80	3.00	360	0.98	0.105	None	Yes	145	209	64	0.18
89	0.5	0.20	0.30	5.62	2.56	360	0.75	-0.125	0.125	Yes	135	188	53	0.30
90	0.5	0.49	0.01	6.33	3.34	360	1.20	0.325	None	Yes	159	213	54	0.01
91	0.5	0.32	0.18	5.51	3.28	360	1.10	0.225	None	Yes	169	223	54	0.18

TABLE 2: Coverage Assessment for Nozzles Examined with Coverage Limitations

Note: Nozzle 79 coverage is limited for 94 degrees in the area of the funnel plug weld due to a mechanical restriction and the funnel plug weld itself that prevents the OD UT tooling from scanning this location. The limitation is due to localized deformation of the funnel that was caused by repair activities of adjacent nozzle 59 during the last refueling outage. The incident that caused the funnel deformation is documented in FPL condition report #2005-2263. Because of this restriction a PT examination was performed on the affected area starting on a plane located approximately 1/16" inch below the low hill J-groove weld toe and progressing to the end of the nozzle. The PT results were free of recordable indications.
Note: Nozzle 89 coverage is limited for 66 degrees centered at the low hill side starting at a position measured 0.2 inches below the downhill toe of the weld and extending for a distance of 0.125" toward the end of the nozzle. The limitation is due an unusually large fillet radius at the low hill side of the nozzle that restricts the OD UT probe travel and prevents the OD UT from obtaining complete coverage in this area. A limitation also exists at the site of the funnel plug weld for the dimensions listed in the table. Because of these restrictions a PT examination was performed on the entire nozzle circumference starting on a plane located approximately 1/16" inch below the low hill J-groove weld toe and progressing to the end of the nozzle. The PT results were free of recordable indications.
Note: The angular coordinate for the OD UT was established visually by placing the transducer module at the uphill side and declaring that position 180 degrees.
Position accuracy is estimated to be + - 20 degrees.

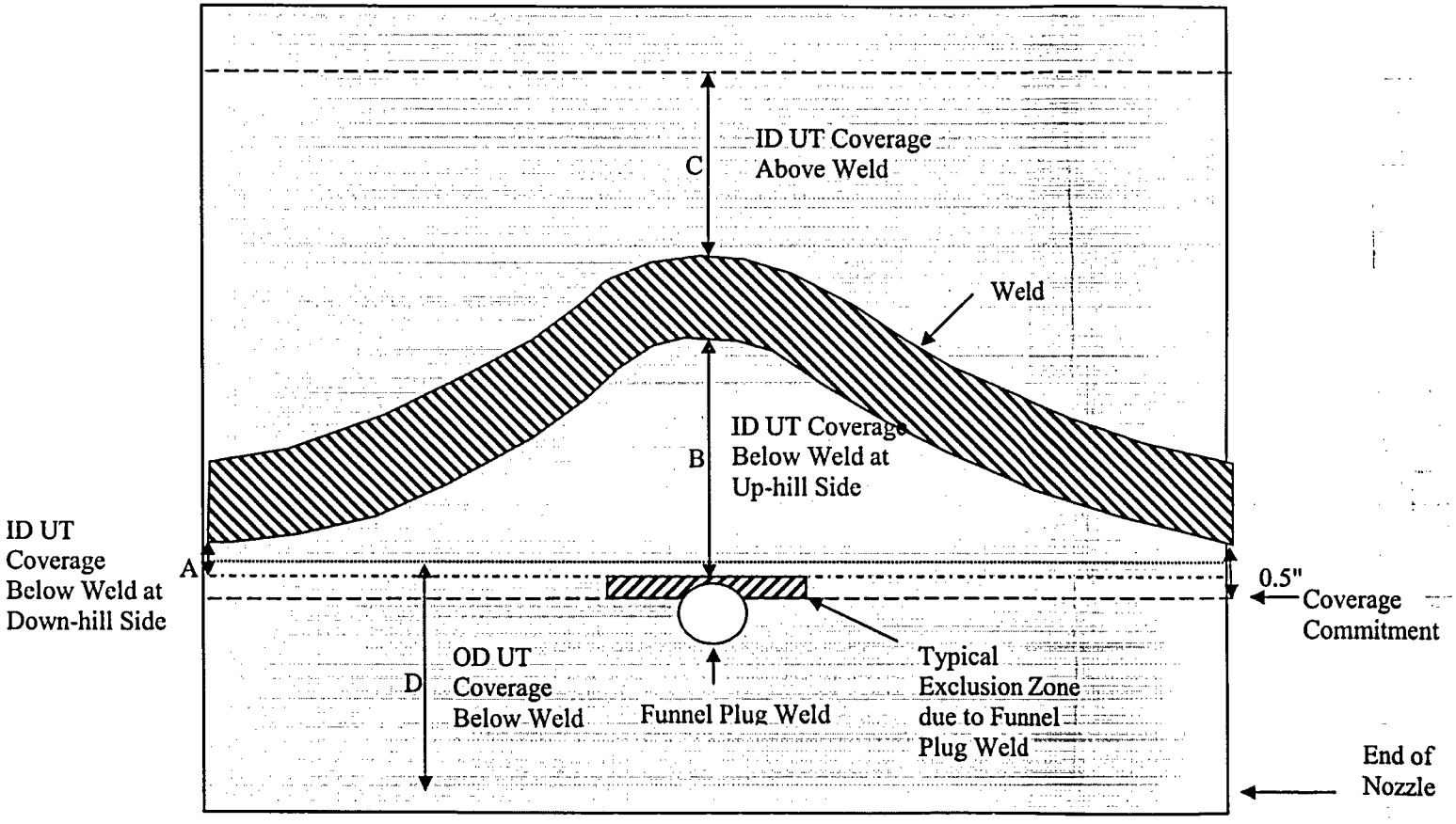

Figure 1: St. Lucie 2 CEDM Examination Coverage Parameters