BOSTON EDISON COMPANY

PILGRIM NUCLEAR GENERATING STATION

INVESSEL VISUAL INSPECTION
EIGHTH REFUEL OUTAGE



FINAL REPORT

GE INSPECTION SERVICES

PILGRIM NUCLEAR POWER STATION BUSTON EDISON COMPANY IVI REACTOR INTERNAL COMPONENTS RFO 8 - AUGUST 1991

FINAL REPORT

GE NUCLEAR ENERGY 999 WEST VALLEY ROAD WAYNE, PENNSYLVANIA 19087 (215) 975-6000

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PROJECT MANAGER

INSPECTION SERVICES

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FINAL REPORT FOR
INVESSEL INSPECTIONS
OF REACTOR INTERNAL COMPONENTS
PERFORMED AT
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PILGRIM NUCLEAR POWER STATION

INVESSEL VISUAL INSPECTIONS

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SECTION I

WORK SCOPE

PILGRIM NUCLEAR POWER STATION BOSTON EDISON COMPANY IVI REACTOR INTERNAL COMPONENTS RFO 8 - AUGUST 1991

WORK SCOPE

The invessel visual examination performed during RFO 8 included selected portions of the following components:

VESSEL CLADDING

TOP GUIDE OF CORE

GUIDE RODS AND BRACKETS

JET PUMP ASSEMBLY AND BRACES

SHROUD SHELF AND WELDS

SURVEILLANCE SAMPLES AND BRACKETS

CORE SPRAY SPARGERS

CORE SPRAY PIPING

FEEDWATER SPARGERS

CLOSURE HEAD CLADDING AND STEAM DRYER BRACKETS

STEAM DRYER SUPPORT BRACKETS

SRM IRM DRY TUBES

TOP GUIDE BOLTING

FLANGE SEALING SURFACE

CRD RETURN NOZZLE

CORE PLATE

STEAM DRYER

MOISTURE SEPARATOR

The examination also included areas that were examined as surveillance of indications detected during previous outages.

PILGRIM NUCLEAR POWER STATION

INVESSEL VISUAL INSPECTIONS

EIGHTH REFUELING AND INSPECTION OUTAGE

SECTION II

SUMMARY

PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

IVI REACTOR INTERNAL COMPONENTS

RFO 8 - AUGUST 1991

EXAMINATION SUMMARY

During the period of May 28 through June 14, 1991, GE Nuclear Energy personnel performed Invessel Visual Inspections on internal components of the Pilgrim Nuclear Power Station RPV. This section details the techniques used and the results of the inspection.

EXAMINATION TECHNIQUES

The examinations were performed using Remote CCTV Equipment, underwater lighting, hand held camera mounted lighting, and VHS videotape recording equipment. System resolution was verified using an 18% neutral gray card with both a 1/32" line and a 1 mil wire. Resolution was verified on each videotape recorded.

EXAMINATION RESULTS AND RELEVANT INDICATIONS

There was no evidence of degradation of the RPV Internal Components detected during this examination other than the indication noted on the steam dryer. There were two (2) cracks recorded on the dryer leveling screws. The first is located at 35° by the lifting lug and is approximately 2" long. The second is at 215° and is approximately 1 3/4" long, reference Tape PILG-91-15, tape counts 00 through 178. Both leveling screw tack welds were reported cracked in 1987, reference Tape #1. An underwater weld repair was also done in 1987. GE Nuclear located in San Jose, CA has recommended to run as is. Reference GE letter "Evaluation of Steam Dryer Leveling Screw Cracks", June 19, 1991. Reference GE NCR #E-68645-008. Previous data recorded an indication approximately 3" long on B Core Spray Sparger between the "T" box and the B 25 noszle. No indications were recorded this outage. This area was then wire brushed and videotaped, reference Tape PILG-91-14, tape counts 00 through 1415. No indications were detected. An extensive review of the previous data shows the following:

No indications were recorded on videotape #1 by Southwest Research in 1987.

The 1980, 1981 and 1984 videotapes show linear indications of different lengths, sizes and orientation which could possibly indicate scale or some other phenomena. Camera resolution and film quality was excellent in 1987 and 1991. Previous film quality was not as good, and in some cases poor.

The following set screws on the shroud side of the jet pumps had a gap.

Jet Pump #2 Jet Pump #20

LOOSE PARTS

This examination revealed the following loose parts. A "J" hook was located on the shroud ledge between Jet Pump #8 and #9. This hook was later removed along with a 3/8" s.s. nut.

A small screw on the top guide periphery at 45°.

A small screw on the top guide hold down bolt ring at 45°.

A small washer on the core plate as well as string.

NON-RELEVANT INDICATIONS

There were many areas that contained indications that were proven to be non-relevant. Both the 0° and 180° guide rods have scratches. There were also scratches noted on the sensing line Jet Pump \$16 and the shroud head bolts. Rub and stain marks were also recorded on the steam dryer lifting lugs.

Hydrolazing was performed prior to the IVVI Inspection which resulted in excessive debris covering much of the vessel internals. The debris was so thick on the shroud ledge that the man-way covers could not be detected. The man-way covers were brushed off and re-inspected.

PILGRIM NUCLEAR POWER STATION

INVESSEL VISUAL INSPECTIONS

EIGHTH REFUELING AND INSPECTION OUTAGE

SECTION III

DATA SHEETS

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PROJECT NUMBER: 91. V. 04	UNIT:	PROCEDURE NO. GE- REVISION NO. O FRR NO. N/A	VT- 204	P14 G - 91
Color Underwater camers B/W Underwater camers Requir VHS Recorder Super VHS Recorder Underwater Lights Color Lights Examination Service Plat Refueling Box Color: Fax Color: Fax	on: CAI	MERA RESOLUTION erfied 0.007 Diameter wire arfied V32" Black line on n 18% Neutral Gray Card	TYPE OF VISUA	VT-3
Component Description	Tape Number	Tape Counts	Examina	tion Results
(4) LUGS IN THE TOP	NIA	NA		CONDITIONS
IO. CLAO AT THE VERT. AND CARC WELDS ONLY	214	2/9	ABNOOMA	CONDITIONS
(3) DIENO RADIUS VENT AND SPRAY NOZZLES	2/4	2/9		CONDITIONS
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SITE: PILGRIM	UNIT: /	PROCEDURE No. GE-	V7- 204 REPORT NO.
PROJECT NUMBER: 91-V-046	8	FRR No. N/A	P166-91
Equipment used During the Examination		MERA RESOLUTION	TYPE OF VISUAL EXAMINATION
Color Underwater camera Sarvice Piati Sarvice Piati Refueling Bri Requiar VHS Recorder Super VHS Recorder Underwater Lights Color Underwater Lights Sarvice Piati	dge 🛭 🛱 V	erfied 0.00° Diameter wire erfied V32° Black line on in 18% Neutral Gray Card	
Component Description	Tape Numbe	Tape Counts	Examination Results
I MIL WAS & TITLE	P16-91-1	00 - 1.30	I MIL WIRE RESOLUTED
45° STEAM DRYER SURPORT BRACKET	P146-81-1	1.3.7.19	NO APPARENT ADMONTIONS
135 * STEAM DRYER SUMPLET BRACKET	P16-91-1	7.19-8.48	NO AMPRIMY ASNOWNAL CONDITIONS
2250 STEAM DRYER SUPPORT BEACAST	P166-51-1	8.48- 11.03	The second secon
315° STEAM DRYER SUPPORT BRACKET	P16-91-1	11.03-12.17	NAMES OF THE PARTY
O" FUIDE ROD AND BARCKET	P146-81-1	12.17 - 18.22	THE RESERVE OF THE PARTY OF THE
180. CHIOC HOD AND	P123-91.	19.22-25.15	NO MARATENT ABNOAMAL CONDITIONS NO MARAGENT
FLANGE SEALING SLEAGER	P16.91.	1 25.15-44.13	ACTIONAL COMPLETE
AND DRACKETS 135° FEED WATER SMARLER	P166-81.	CONTRACTOR OF THE REAL PROPERTY OF THE PERSON OF THE PERSO	NA ARRAPENT
2250 FEED WATER SMALER	P16.91.		NO AGARRET
AND BRACKETS AND BRACKETS	P16-91-		NO REMARKY
CORE SPARY PRINE OF THR. 180'	P16.91.	1 219.49-220.	
EXAMINER LEVEL DATE EXAMINER LEVEL DATE EXAMINER LEVEL DATE EXAMINER LEVEL DATE	0.	ATCHES WERE AND 180' G	-9/
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01E	CHIL	PROCEDURE No. GE-	
ROJECT NUMBER: 91- 4-046	8	FRR No. al/A	7726-77
quipment used During the Examination Color Underwater camera B/W Underwater camera Refueling Br Regular VHS Recorder Super VHS Recorder Underwater Lights Contert	form 🗵 Veri	ERA RESOLUTION lied 0.007 Diameter wire lied V32' Black line or 18% Nautral Gray Ard	TYPE OF VISUAL EXAMINATION VI-1 & VI-3 DIRECT & REMOTE
Component Description	Tape Number	Tape Counts	Examination Results
I MIL WIRE AND TITLE	P16.81.02	00-/19	I MIL WHE ASSOLVED
CORE SPRRY PIPING 180° THRNGA O°	P16-91-02	119-1884	ABNORMAL CONDITIONS
CORE SPRAY SPARERA NOSSEES O' THROUGH 180'	P16-81.02	1884. 2378	NO AMPARENT ASNORMAL CONDITIONS
OFFER CORE SPARY SPARGER OF THROUGH 180', NOTECES BRACKETS AND "T" BOX	P16-91.02	2378-3820	NO AMMARENT ABNORMAL CONDITIONS
UPPER CORE SMEAY SMARERA 180° THROVEN 360°, NORZEES BRACKEYS AND "T" BOX	P16-91-02	3820. 4458	ADNOMAN TONOITIONS
O" THOUGH 180"	P126-91.02	4458- 4932	NO APARALUT.
LOWER CASE SMAY SMARERA	P166-81.02	4932- 5852	ABADAMAL COMOLYDOUS
LOWER CARE SPART SPARERA	P16.31.02	5852-5906	ABNORMAL CONDITIONS
M. A. Hadh III 5.28.9	COMMENTS:		
EXAMINER LEVEL DATE		NONE	
EXAMINER LEVEL DATE	REF. 1	& BULLETIN 80	-13 ADO GE
EXAMINER LEVEL DATE	M.63	Ent III 6-1-91	
EXAMINER LEVEL DATE	REVIEWED	PM 6/12	PAGE 6 OF 61
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SITE: PILGRIM		ROCEDURE No. GE- U?	REPORT NO.	
PROJECT NUMBER: 91- V- 94		RR No. ~/4	P166.91	
Equipment used During the Examination of Color Underwater camera Bornica Pla Bornica Pla Bornica Pla Britania Box Super VHS Factor of Colors	Horm & Vertie	RA RESOLUTION TO	PE OF VISUAL EXAMINATION VI-1 & VI-3 D DIRECT & REMOTE	
Component Description	Tape Number	Tape Counts	Examination Results	
LOWER CANE SPRAY	P116.91.03	1N MIN.	NO APPARENT ABNORMAL CONDITIONS	
LEWER CORE SPRAY SPARGER 180° THROVEN 360°	P16.8403	15:00. 38.28	NO APPARENT	
UPPER CARE SPRAY SPRACER & THROUGH 180'	P116.91.03	32.28.57.28	NO APPARENT AGNORMAL CONDITIONS	
SPANOEN 180' THROUGH 360'	PILG. 81 03	51.29- 107.26	NO APPARENT ABNORMAL CONDITIONS	
I MIL WIRE	P16.81.03	107.26.108.12	I MIL WHE RESOLVED	
50175 (360°)	P16.81.03	108.12-130.51	NO STATE AMERICATIONS	
1 MIL WAE	P1:6.91-03	130.51-131.33	I MIL WIRE RESOLVED	
JET PUMP # 20	P16-91.03	131.33-145.39	SCAFE STATE SET	
JET PUMP # 19	P16.91.03	145.37. 157.19	NO MARABULT	
JET PUMPE 18	P16-81.03	159.19-203.07	ABNORMAL CONDITIONS CONT. ON THE WOY	
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REF. GE 516 289 ANS	2 E BVI	LETIN 80-13		
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EXAMINER LEVEL DATE	m.424	4		
EXAMINER LEVEL DATE	MATERIA DE	PAM 6/12/21	PAGE 7 OF 61	
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SITE: PILGRIM	UNIT:_	E PRO	OCEDURE NO. GE . I	REPORT NO.	
ROJECT NUMBER: 91- V-	0468		A No. N/A	P166-91	
quipment used During the Examina Color Underwater camera B/W Underwater camera Requist VHS Recorder Super VHS Recorder Underwater Lights Super VHS Recorder Underwater Lights	Platform Q g Bridge	S Vertied S Vertied	A RESOLUTION 0.000 Diameter wire 1.732' Block line on 6. Neutral Grey Card	TYPE OF VISUA VI-1 D DIRECT	L EXAMINATION VT-3 REMOTE
Component Description	Tape Nur	mber	Tape Counts	Examina	tion Results
JET PUMP # 18	P16.9	1.04	20. 16.30	1 1 1 1 1 1 1	APPARENT AL CONDITIONS
JET PUMP # 17	P146.81	1.04	16.30 - 26.5	9 AB NORMA	APPARTING W CONDITIONS
JET PUMP # 16	P126.9	1.04	26.59. 52.17		AMARENT UNICONOITMA
I MIL WIRE AND TITLE	P16.9	1.04	52.17 - 53.05	-	E AFSOLVED
JET PUMP # 15	P16-9	1.04	53.05-112.5	2 ADNOMM	AMMATAT L CONDITIONS
JET PUMP & 14	P166.91	1.04	112.52- 128.50	ABADAM	AMMARWY ALCONDITIONS AMMARWY
JET PUMP # 13	F146.81	. 04	128.50-144.2	P NO NORM	AL CONDIFIONS
JET PUMP # 12	P16-9	1.04	144.29- 158.3		AMPARENT SC COMPITIONS
JET PUMP # 11	P116.5	1.04	158.30 - 203.	OY AGNORMA	CONDITIONS
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EXAMINER LEVEL DI	A.9. 9/ 5 £	REK. (5 EN S.	W SCRATENES LINE JET GE SIL YZO FW ING LINES. IE RICSIL YS	PUMP SE	14 PUMP
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PROJECT NUMBER: 91- V-	UNIT:/	PROCEDURE No. GF - VT - 204 REPORT REVISION No. O PILG - 1			
Equipment used During the Exeminal Color thiderwater camera B.W Underwater camera Regular VHS Recorder Super VHS Recorder Underwater Lights Super VHS Recorder Underwater Lights	latterm 🚫 Ve Bridge	MERA RESOLUTION Intend 0.00° Diameter wire Intend V32° Black line on 18% Neutral Gray Card	TYPE OF VISUAL EXAMINATION VT-1 & VT-3 Direct & Remote		
Component Description	Tape Number	Tape Counts	Examination Results		
JET PUMP #1	PILG-91-05		ABNORMAL CONDITIONS		
I MIL WIRE AND TITLE	PILG-91-05	7.10-7.51	MIL WIRE RESOLVED		
* SET PUMP # 10	PILG-91-05	7.51-19.45	NO APPARENT ABNORMAL COMPITENS		
180° MANWAY COVER	PILG-91-05	19.45-22.12	COVERED WITH SEDIMENT		
O' MANWAY COVER	P.LG-91-05	22.1225.29	COVERED WITH SEDIMENT		
JET PUMP # 01	PILG-91-05	25.29-40.39	NO APPARENT ABNORMAL CONDITIONS		
JET PUMP # 02	PILG-91-05	40.39-54.03	SHROUD SIDE		
JET PUMP # 03	PILG-91-05	54.03-105.01	ABNORMAL CONDITION		
JET PUMP # 04	PILE-91-05	105.01-116.23	NO APPARENT		
JET PUMP #05	P16-91-05	116.23-125.49	ABNOZMAL INDITIONS		
JET AUMP # 06	PLG-91-05	5 125.49-133.19	ABNORMAL CONDITIONS		
JET PUMP#07	PILG-91-05	133.19-143.16			
JET ALMP #08	The state of the s	143.16-155.26	ABNORMAL CONDITIONS		
EXAMINER LEVEL DATE	- REF. SENS - REF. RISE	Track III 06.01.9	SET PUMP & 02 FOR THE SET PUMP FOR THE SET PUMP		
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SITE: PILGAM	UNIT:	REVISION No.	F. VT - EOV	REPORT NO.
PROJECT NUMBER: 91- V-0	468	FRR No. N/A		- PILG. 91
Color Underwater camers Strice Pi	attorm ()2 Bridge	Vertied 0.00° Diameter wire Vertied V32° Black line on an 18% Neutral Gray Card	TYPE OF VISU	AL EXAMINATION E-TV S REMOTE
Compt is t Description	Tape Numb	er Tape Counts	Examina	ation Results
JET PUMP #09	P16-91-0		11 ABNORM	APPARENT ONDITIONS
JET PUMP # 10	PILG-91-0	5 206.11-206.5	50 ABNOEN	TAPE # 06
1 MIL WIRE	PILG-91-0	5 206-50-207	25 1 hill	WIEE RESOLVE
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EXAMINER LEVEL DATE EXAMINER LEVEL DATE EXAMINER LEVEL DATE	- 20 PUM.	S. REF. GE SI O SENSING LIN GER GE RICSIL & SER BRACKETS T" HOOK ON S	s FOR THE	
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SITE: PILGRIM	WHIT I whose	REVISION No. 0	UT- 204 REPORT NO.
PROJECT NUMBER: 91. V- 046		RR No. N/A	P126-91
Equipment used During the Examination Color Underwater camers 8/W Underwater camers Regular VHS Recorder Super VHS Recorder Underwater Lights Equipment used During the Examination Returned Box Other Other	offerm Veri	ERA RESOLUTION 1 LS 0.007 Diameter wire led 1/32" Black line on lets Neutral Gray Card	PYPE OF VISUAL EXAMINATION VT-1
Component Description	Tape Number	Tape Counts	Examination Results
BOTTOM SIDE OF THE	P16.91-06	00-508	HONDAMAL CONDITIONS
CORE PLATE	P16.81.06	508-1049	NO APPRESIONS NO APPRACENT
JET FUMPE 10	P16-81.06	1049. 1380	ASNORMAL COMPITIONS
1 MIL WIRE	P166.81.06	1390-1450	1 MIL WAS RESENCED
280° SURVEILLANCE SAMPLE AND BRACKET	P16.91.06	1450-1658	A SNORMAL CONDITIONS
1850 SURVEILLANCE SAMPLE AND BRACKET	P166.91-06	1658-1816	NO AMPARENT ADNORMAL CONDITIONS
95° SURVEILL ANGE SAMPLE AND BRACKET	P16-91-06	1816-1847	SAMPLE IS REMOVED
I MIL WIRE	F:46.91.06	1847-1920	I MIL WHE RESOLVES
THE GLADE CENTER COUS	P16.91.06	1920-3236	ARNORMAL Y AND THENS
TWO GUNGE PERIPHERAL O' THROUGH 180'	P16.91.06	3236. 4418	
TOP GUIDE PERIPHERAL	P16-91-06	4418. 5077	ABNORMAL CONCISIONS
CRO NOZZEE	P166.81.06	5077- 5166	ABNORMAL CUNDITIONS
I MIL WIRE	P166-91-06	5166. 5180	I MIL WHE RESILVED
EXAMINER LEVEL DATE EXAMINER LEVEL DATE EXAMINER LEVEL DATE EXAMINER LEVEL DATE	PERIPH HAER - REF. (GE RICSIL 059 GE SIL. 420 F UE LINES GE AISSIL VS RISER DEACH	TOP GUME
EXAMINER LEVEL DATE	11 1 1	- pm date	PAGE // OF 6/

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SITE: PILGRIM		UNIT:	PROCEDURE No. GE.	VT. 204 REPORT NO.
PROJECT NUMBER: _	91-1.0	468	FRR No. N/M	P166.91
Equipment used During	the Examination	n: CA	MERA RESOLUTION	TYPE OF VISUAL EXAMINATION
Color Underwater camera 8/W Underwater camera Regular VHS Recorder Super VHS Recorder Underwater Lights	Service Plat Refueling Br Float Box Other:	idge K v	erfied 0.00° Diameter wire erfied V32° Black line on n 18% Neutral Gray Card	D DIRECT & REMOTE
Component Des	cription	Tape Numbe	Tape Counts	Examination Results
I MIL WHE AND	71848	PH6. 9/ 0)	00.1.02	I MIL WAS ALLOWED
IRM 36.09	NW 5108 BULY	P16-91.0	1.02 . 2.34	NO AMPAGENT ASSISTIONS
IRM 36.41	NW 4 56 5106 ONLY	P166.81.0	2 2.34.6.47	NO AMPARENT MOMERNA CONDITIONS
SAM 36-33		P16.81.0	2 6.47. 15.4	NO MERRAUMY ABNORMAL SOLDITION
IRM 28.33		P16.910	7 15.41.33.	to ABA'SAMAL SONDIFIONS
IRM 28.25	36 8106 00 LY	P16.91.0	33.20.35.4	Comment and the last of the la
SRM 28.17	30, 50, NO	P16.91.	07 35:41-43.	THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, OF THE OWNER, WHEN PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, WHEN PERSON NAMED IN COLUMN TRANSPORT OF THE OWNER, WHEN PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, WHEN PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, WHEN PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, WHEN PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, WHEN PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, WHEN PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, WHEN PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, WHEN PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TRANSPORT OF THE OWNER, WHEN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUM
IRM 20.25	36 8 NW	PILG-51.	09 43.18.48.	13 ADNORMAL CONDITIONS
IRM 20.33	36 6 NE 3100 ONLY	P16.91.	0) 40.13-52.	NAME OF THE OWNER
sem 20.41	36 8 NW 3100 00LY NN 83E	P166.81.	07 52.84.56.	14 ADNOGHAL CONDITION
IRM 12.41	SIDE ONLY	P16.91.	07 56.14.101.	II ACHMAL COMPITIONS
SRM 12.25	5105 ONLY	P16.81.	07 10111 - 106.2	The second secon
IRM 12-09	SIDE ONLY	P166-91-1	7 106.25-108.	28 ASNORMAL CONDITIONS
mh dant	TZ. 5.30.	P/ # /	evo mates a	ee on IAM 28-33
According to the second	LEVEL DATE		SRM 12.25 1	
EXAMINER	LEVEL DATE	7	THRE AS I	PM 12-25
EXAMINER	LEVEL DATE			
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EXAMINER	LEVEL DATE	PAEVIEV		TAME OF UP

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INVESSE	L VISUAL EXAMIN	NATION DATA SHEET
UNIT: 1	PROCEDURE No. GE REVISION No. C FRA No. W/A	F- V7- 204 REPORT NO. P16-91
kiform ⊠ v widge ⊠ v	erfied 0.0.7 Diameter wire	TYPE OF VISUAL EXAMINATION VT-1 & VT-3 D DIRECT & REMOTE
Tape Numbe	Tape Counts	Examination Results
P166.91.	07 108.28.109.	DESCRIPTION AND THE PROPERTY OF THE PROPERTY O
P16.91.0	7 107.34. 111.	03 ABNORMAL COND MONEY NO APPRACENT
P16.81-0	7 111.03.121.	
	a company of the control of the cont	TE ABNORMAL CLASSITIONS
	AND ADDRESS OF THE PARTY OF THE	NO AMMARKE
1	7 /44. 17. /47	38 MG NORMAL CONDITIONS
Language		
9/	LOOK OF MA	NWAY COUFRS
AF	TER SEDIME	NT NAS REMOVED
P. 4 -	24 Ab - 5 616	9,
MEYENE	pm 6/n/4	CONTRACTOR OF THE PARTY OF THE
	UNIT: 1 768 Ion: CA Istorm Widge R In pe Numbe P16-91.	COMMENTS: PAGE REVISION NO. COMMENTS: RELOCK OF MAR.

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	UNIT:	REVISION No.	F. VT. 204 REPORT NO.
PROJECT NUMBER: 91- V- 04	68	FAR No. ~/A	P/26-4/
Equipment used During the Examination Cotor Underwater camers B/W Underwater camers Regular VHS Recorder Super VHS Recorder Underwater Lights Equipment used During the Examination Service Pial Returning to Returning to Cotor Other	form & idge	MERA RESOLUTION Verlied 0.007 Diameter wire Verlied V32* Black line on an 18% Neutral Gray Card	TYPE OF VISUAL EXAMINATION VI-1 & VI-3 D DIRECT & REMOTE
Component Description	Tape Numbe	r Tape Counts	Examination Results
I MIL WARE AND TITLE	P16.91.0	8 00-29	I MIL WHE RESOLVED
NONE	P16.91.0	8 79. 928	
STEAM ORYER 45° LIFTING LUG	116.91.0	v 928-1370	NO AMOTRENT ABNORMAL CONDITIONS
315° LIFTING LUG	P16-81-0	8 1350- 1860	ABNORMAL CONDITIONS
225 - LIFTING LUG	P16-91-	8 1860- 2864	AND THE RESIDENCE OF THE PARTY
135° 21577NG LUG	P16.91.0	# 2264. 2500	NO APPARENT
WELD REF. MA. 6.22.9	P16.91.0	8 2500 - 266	
WHELD REF. PAR. 6.27.9	P16-91-0	8 2660 - 279.	LANGE LANGE OF THE PARTY OF THE
WELDS REF. PAR. 6.27.6	P16.91.	04 2793-305	The second secon
WEW- WHE SUPPORT RING TO SER WELD 6.27.10	P16.91-	05 3050. 356	
WSU- WAW SKIRT TO SKIRT HORZ, WELD 6.27, 15	P166.91.	8 3563. 379	THE RESIDENCE OF THE PARTY OF T
WELD 6.27.3	P16.81-		77.3
NO SNELL NOALE ONTAL WELD 6. E. Y.	P16.91.	08 4295. 4410	NO AMMENT
M. Chall 21 6.4.9	COMMENTS:	Car 6. 4.91	
EXAMINER LEVEL DATE		None	
EXAMINER LEVEL DATE			
EXAMINER DEVEL DATE		<i>W</i>	
EXAMINER LEVEL DATE	REVIEW	EQ LEVEL DATE	/
EXAMINER LEVEL DATE	REVIEW	PM 6/12/	PAGE 14 OF 6/





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SITE: PILGRIM	MARKET CAMMAN	PROCEDURE No. GE V	7. 204 REPORT NO.
PROJECT NUMBER: 91- V- 0	468	FRR No. W/A	P16-91
Equipment used During the Examinati		ERA RESOLUTION T	TYPE OF VISUAL EXAMINATION
SE/W Underweier camera Requiar VHS Recorder Super VHS Recorder Underweier Lights Super VHS Recorder Underweier Lights	vidge & Veri	ied V32" Black Ene on 18% Neutral Gray Card	D DIRECT & REMOTE
Component Description	Tape Number	Tape Counts	Examination Results
NW SEAL TO BANK WELD REF. PAR. 6.87.9 NW UPPER SUPPORT SEAL	P16.91.08	4410. 4565	NO AMARENT ACHERNAL CONDITIONS
TO RING WELD 6.27.10	P16.91.08	4565- 4709	ABADEMAL COMOTTONS
NW SAMP TO STIAT MORE. WELD REF. PAR 6.27.13	P116-91-08	4708. 4808	MO NORMAL CONCIPONS
NW SKIRT TO SKIRT WELD REF. 6.27.15	P16.41.06	4809. 5018	ABNORNAL CONDITIONS
BELOW LIFTING LUE SW VERTICAL WELDS	P16-81-08	5018-5237	MO APPARENT MINERIAL CONFIDED NO APPARENT
REF. G. 87. 3 SW SEAL TO GANT	P166-81.08	5237-5928	AGNORMAL CONDITION NO AMORAGENT
WELD 6.27.9 5W NHZ WILD	P166.81.08	5928- 5972	NO AMATEUT
REF. 6.87.4 AND 6.27.6	P116.81.08	5972-6140	ME NORMAL CONDITION
TO SHELL WELD 6.27. 10	P16.91.08	6233-6485	NO AMMAGNIT
TO SKIRT WELD 6.27.13 5W. 35W MORE. SKIRT TO	P16.81.08	6485-6718	NE AMMENT
34147 6660 6.27.15		773.6776	188 N BRIME (LONDI 18100) \$
	COMMENTS:		
EXAMINER LEVEL DATE	<u>'</u>	NONE	
EXAMPLES LEVEL DATE			
EXAMINER DATE	w 1.34	W 121	
EXAMINED LEVEL DATE	REVIEWED	LEVEL DATE	
EXAMBLER LEVEL DATE	REVIEWED	TITLE DATE	PAGE 15 OF 61

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SITE: PILGRIM	UNIT: _/_	PROCEDURE No. GE		REPORT NO.
PROJECT NI JER: 91- V-076	8	FRR No. N/A		P116-91
Equipment used During the Examination		MERA RESOLUTION	TYPE OF VISU	AL EXAMINATION
B/W Underwater camera Refueling Br Regular VHS Recorder Float Box Super VHS Recorder Other: FK# Underwater Lights Other:	idge X	Vertied V32" Black line on an 18% Neutral Gray Card	DIRECT	■ REMOTE
Component Description	Tapo Numbe	er Tape Counts	Examina	tion Results
STEAM DRYER I MIL WIRE AND TITLE	P166. 91.	09 00-65	And in case of the last of the	46 18501460
NW PERTICAL BANK WELD	P16.91.0	9 65-211	ABNOAM	AMMARKY AL CONDITIONS
O" VEATICAL WELD	P16-91-	09 211. 410	AONOAM	AMARENT SC CONDITIONS
NE VERTICAL BANK NELOS / THROVER Y	P166.91.0	10- 1016	MANNA	APPARENT AL CONDITIONS 10 - 1170
NE TO NEW SUPPORT RINK AND VERTICAL WELDS	P16.91.0	9 1016-2668	* 22	100 2370 10. 2370
NW TO NE SKIRT TO SKIRT WELD	P16.91.	09 2668- 298	to Administra	A AGGATINT
NE VERY CHANNEL WELD DELOW LIFTING LUL	P166.91.	01 2980 - 232	0 43000	A MORRENT
OF GUIDE RED CHANNEL WELD SOUTH GARK WE TO SEAL	P16.91.	01 3370- 356	O AGNORMA	A MANAGENT
HORIZONTAL WELD SW TO SE SEAL TO SUPPLIES	P16.91-		No	AMERICAN F
SW TO SE SUMMET RING	P116.91.		No	ARRAGENT
TO SKIRT WELD	P166.91.		,m1 @	AMARENT
HORIBOUTAL WELD	P166.91.	AND ADDRESS OF THE PARTY OF THE	No	AMPARENT
150° VIRTICAL BANK WELD		09 4658.490 15.# THERE 13	A O A AA	est completed
Jamoitene II 6.4.0 EXAMINER LEVEL DATE	NEY		O. STEAM	DRYER)
EXAMINER LEVEL DATE	CHA	NEL AND SI	(ATT VO) 3 WEDGET RI	NEAM PRYEA
EXAMINER LEVEL DATE	M. C.	Hotel C-10		
EXAMINER LEVEL DATE	140	to py 6/12	F/ PAGE	16 OF 61



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SITE: PILGRIM	UNI	T:	LUCKERALIS INC. MANAGEMENT	0 VT. 204	REPORT NO.
PROJECT NUMBER: 91- V.	0468		FAR No. N/A	P16.91	
Equipment used During the Examinati	on:	CAM	ERA RESOLUTION	TYPE OF VISUA	AL EXAMINATION
B/W Underwater camers Retueling B	er camers Retveling Bridge Neporder Float Box Conder Solher: PLATFORM an		fied 0.00° Diameter wire fied V32° Black line on 18% Neutral Gray Card	U VT-1	Ø VT-3 Ø REMOTE
Component Description	Tape I	Number	Tape Counts	Examinat	tion Results
SE VERTICAL DANK WELDS WY AND 5	PILG	91.09	4907. 5025		MARENT L CONSTINAL
GUIDE RODE CHANNEL AND VERTICAL BANK WELD # 2	PILG	91.09	5025- 5298		A CONDITIONS
BELOW LUG SW CORNER	P16.	91.09	5298.5454	/	A MARAGENT L CONDITIONS
DEMIND LUG SE CORNER	PILG.	91.09	5454-5491	ABNORMA	ARRAGENT CONDITIONS
BELOW ING SE COANER	P126	. 81. 09	5491.5615	ASNOAMU	AMMATUF CONDITIONS APMATENT
HORIZONTAL BANK WELD #5	P166	91.01	5615.578		CONDITIONS
1 MIL WIRE	P116.	\$1.09	5796 - 58/1	0 1211 61	AE RESOLVED
	_				
		Serve Instrumental		**************************************	
				-	
M. 4. 26 alf 20 6.4.91		WENTS!	E. GE 516	474 (ATT	40) STEAM
EXAMINER LEVEL DATE	-		ER CHANNEL		
EXAMINER LEVEL DATE	-	Rial	G ,		
EXAMINER SEVEL DATE	201	400	ef .ze 6-10.)	,	
EXAMINER LEVEL DATE	K	LEVIEWED THE	PELLE DATE	_	7 OF 6/

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SITE: PILGRIM	UNIT: _	PROCEDURE No. GE+ F	7- 804 REPORT NO.
PROJECT NUMBER: 91- V-0	468	FRE No. 23/4	P16-91
Equipment used During the Examination	n: CAM	ERA RESOLUTION T	YPE OF VISUAL EXAMINATION
Color Underwater camers B/W Underwater camers Requier VHS Recorder Super VHS Recorder Underwater Lights Citer: PLAT Other:	Idge 🗵 Ver	fied 0.00° Dismeter wire fied V32° Black line on 10% Neutral Gray Card	□ VT-1
Component Description	Tape Number	Tape Counts	Examination Results
MOISTURE SEPERATOR	P126-91-10	00 - 126	I MIL WAS RESELVED
SHROVD HEAD COLTS 48 THROVEH 43	PILG-91-10	126. 14/2	# NO AMMENT ABNORMAL CONDITIONS
1 MIL WIRE	P16.91-10	1412-1458	I MIL WIRE RESOLVED
STAND TUBES STANTING AT	P16.81.10	1458-3485	NO AMMENT ADNORMAL CONDITIONS NO AMMARENT
STAND TUBS 19 THENCH 24	P16-91-10	3495 - 4680	ABNORMAL CONDITIONS
STEAM DRYER	P126-91-10	4630-4700	I MIL WIRE RESOLVED
NE VERTICAL WELD # 5" SE VERTICAL WELD # 1	P16-91-10	4700- 4856	ABNORMAL CONDITIONS
EAST STAL TO BANK WELD	P126-91-16	4856-4960	NO MANAGENT
SE-NE SEAL TO SUMPORT SE-NE UPPER SUMPORT	P16.91.10	4960.5123	ABROAMEL CONDITIONS
SE-NE UPPER SUPPORT RING TO SAMT WELD	P16-91- A	5123. 5312	ABNAMA CENDITIONS
LOWER SEAL TO BANK WELD	P16.91-11	5318-5430	ABNORMAL CONDITIONS
SAMET TO SAMET NORE WELD	P16.91-10	5480-5736	ABAGAMAL CONDITIONS
1 MIL WHE	P16.81-10	5736- 5745	NO APPARENT ABNOAMAL CONDITIONS
EXAMINER LEVEL DATE	SCRATCH - REF		T VO) STEAM DRYER
EXAMINER LEVEL DATE EXAMINER LEVEL DATE	MEVIEWED AEVIEWED	pm 6/n/s)	PAGE 18 OF 61

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SITE: PILGRIM	UNIT:	PROCEDURE No. GF	- VT. 204	REPORT NO.
PROJECT NUMBER: 91- V- 0	468	FRR No. 2/A		P16-91
Quipment used During the Examinati Color Underwater camers S.W Underwater camers Regular VhS Recorder Super VHS Recorder Underwater Lights Super VHS Recorder	itorm & vi	MERA RESOLUTION orlied 0.00° Diameter wire orlied V32° Black line on n 18% Neutral Gray Card	TYPE OF VISUA	L EXAMINATION VT-3 REMOTE
Component Description	Tape Numbe	r Tape Counts	Examinat	ion Results
MOISTURE SEPERATOR	PILG-91-1	00-30	The second secon	RE RESOLVED
SHROVO HEAD BUTS OI THROUGH 24	P16-91-11	30.4606	AND RESIDENCE AND PARTY OF THE	concernant
BOLT 24 AND 25	P126-91-11	4606.4829	RONDAM	AMPARENT AL CONDITION AMPARENT
SHROUD HEAD OOLTS 25 THROUGH 28	P116.91.	11 4829. 5518	* ASWORMA	APPARENT
:15" LIFTING LUE	P126-91-		NO	AL COMOTTO AMARENT
10° LIFTING LUG	P126-91-			k caroma
1 MIL WIRE	P16-91-			UIRE RESOLUTI
EXAMINER LEVEL DATE EXAMINER LEVEL DATE EXAMINER LEVEL DATE	× .	STAINS AND	RUB/W E.AR	MARKS
EXAMINER LEVEL DATE	276	The STE G-H VEG LEVEL DATE PM 6/10	-	19 OF 61
EXAMINER LEVEL DATE	E hevit	Contraction of the Contraction o		FORM 89 4-

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		The second second	VT. 204 REPORT NO.
SITE: PILGRIM	UNIT:	REVISION No.	S
ROJECT NUMBER: 91- V- O	468	FRR No. A/A	PILG-91
Quipment used During the Examination Color Underwater camera E/W Underwater camera Regular VHS Recorder Super VHS Recorder Underwater Lights Super VHS Recorder Underwater Lights	form (2 Ve	MERA RESOLUTION If led 0.001' Diameter wire If led V32' Black line on 18% Neutral Gray Card	TYPE OF VISUAL EXAMINATION VT-1
Component Description	Tape Number	Tape Counts	Examination Results
RELOOK OF JET PUMP # 10	P126-91-12	00- 542	NO AMPARENT ASSIGNAL CONDITIONS
I MIL WIRE	P126-91-12	542-562	I MIL WIRE RESOLVED
CORE SPRAY SPANGEA NOTTIE B-25	P16.91-12	562- 818	ADNOTHAL CONDIT MY
I MIL WIRE	PUG- 91-12	8/8-870	I MIL WIRE RESOLVED
MOISTURE SEPERATOR SHROUD HEAD BOXT # 42	P16.91-12	870-1039	HE NO MACRETAT
SHADOD HEAD BOLTEY!	P16-91-1	2 1039- 1188	MY NO AMPRETATIONS
NW LISTING LUG	PILG. 51.1	2 1188-1535	HE NO APPARENT ABNORMS CONDITIONS
SHROUD HEAD BOXTS 40 THROVEH 29	P126-91-1	2 1535-3164	
STAND TUBES 25 THROUGH 42	P16-91-12	3/64. 57/5	TO NORMAL CONDITIONS
I MIL WIRE	P16-91-12	5715 - 5726	I MIL WAS RESOLVES
			THE PERSON OF TH
EXAMINER LEVEL DATE EXAMINER LEVEL DATE EXAMINER LEVEL DATE	PREVIO	NOTZLE AND " OUSLY RECORDER INDICATIONS WERE UB AND STAIN	maers
EXAMINER LEVEL DATE	M. G. REVIEWE	pm 6/0/2	The same of the sa





GE Nuclear Energy	INVESSEL	VISUAL EXAMINAT	ION DATA SHEET
SITE: PILGRIM PROJECT NUMBER: 91- V- C		PROCEDURE No. GE-V REVISION No. O FRA No. N/A	7- 204 REPORT NO. P126-91
Equipment used During the Examination of the Examin	itterm (2) Vert	ERA RESOLUTION TY Tied 0.00° Diameter wire Tied V32° Black line on 18% Neutral Gray Card	PE OF VISUAL EXAMINATION VT-1 & VT-3 D DIRECT & REMOTE
Component Description	Tape Number	Tape Counts	Examination Results
STEAM DRYER I MIL WIRE AND TITLE	P16.91-13	00-52	I ME WAR RESOLUED
BANK # 3 O*	P116-91-13	52- 755	ABNORMAL CONDITIONS
BANK # 2 AND 3, TIF	P16.91.13	755-1084	ABNORMAL CONDITIONS
MANWAY COVER	P166-91-13	1084- 1136	ABNORMAL CONDMISMS
BANK # 3	P16.81.13	1136-1175	ABNORMAL CONDITION
0. 19 180.	P166-91-13	1175-1291	NO APPRATANT ASSIGNATIONS
BANK TO VERT, WELD 180'	P16.91-13	1291- 1402	AM AMMARENT AM NOMMAL CONDITIONS NO AMPRICAT
BANK #1 # 2 TIE BAR 0° TO 180'	F126-91-13	1408 - 1468	ABNORMAL CONDITIONS
BANK # 2 TIE BARS 180° TO 0° BANK # 1	P166.81.13	1468-1543	AR NORMAL CONDITIONS AN APPRACUS
DAWK #1 DAWK TO	P16.81.13		ABNORMAL CONDITIONS NO APPARENT
VERTICAL WELD O'	P16-51-13		ADNORMAL CONDITIONS
BANK # 2 COSNER WILL	P16-91-13		I MIL WHE RESOLVED NO APPARENT
79. 4 JE 6. 160.	COMMENTS:	GE 512 5	Y 74 (ATT 40)
EXAMINER LEVEL DATE	STEA	M DRYFR CHA	NUEL AND
EXAMINER LEVEL DATE	SUP	POAT RING.	
EXAMMER DEVEL DATE	m1.31	TIT 6-18.91	PART THE RESERVE OF THE PART O
EXAMINER LEVEL DATE EXAMINER LEVEL DATE	NEVIEWED ACTIONED	DAM 6/10/4,	PAGE 21 OF 61

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SITE: PILGRIM	UNIT: /	REVISION No.	0 - VT- 204	REPORT NO.
PROJECT NUMBER: 91- V. O	+68			
Equipment used During the Examination Color Underwater camers S.W Underwater camers Requisit VHS Recorder Super VHS Recorder Underwater Lights Examination Service Pict Retrieting is Float Box Other	Itom (2) i	MERA RESOLUTION Vertied 0.007 Dismeter wire Vertied V32' Binok Brie on an 18% Heutral Gray Card	TYPE OF VISUA	L EXAMINATION S VT-3 REMOTE
Component Description	Tape Numbe	er Tape Counts	Examinat	ion Results
BANK # 8 COANER WELD	P16-91-1	3 1953- 2231	ADNORMAL	CONDITIONS
BANK # 3 BANK TO VEST PLATE WELD O'	#16.91 m	3 2231-2446	ABNORMA	CONDITIONS
180 " 73 0" WER WELD	P146-81.1	3 2446.344	8 MONDAME	CONDITIONS TONDITIONS
BANK # 4 MANNAY EAST SIDE	P16. 91.1	3 3448-3509		CONDITIONS
	_			many of comments
			-	
CANADAMA CANADA BANCA AND AND AND AND AND AND AND AND AND AN			S MARKET STORE STATE OF THE STA	NAMES AND ADDRESS OF THE PARTY NAMES
				A MANAGEMENT
m. d. Broth III c.c.	COMMENT	s. EF. GE 516	474 (AT)	· vo)
EXAMINER LEVEL DATE		TEAM DRYER		AND
EXAMINER LEVEL DATE	5	UMFORT RING		
EXAMMER DEVEL DATE		THE 21 6.12	.81	
EXAMINER LEVEL DATE	AFVIE TO	MED LEVEL DATE	-	22 of 61
EXAMINER LEVEL DATE	ABVIET	WED TITLE DATE		FORM 169 4-2-9

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SITE: PILGRIM	UNIT:	PROCEDURE No	PT. COY REPORT NO.
PROJECT NUMBER: 91- V-		FRA No.	PILG 91-
Equipment used During the Examinat Color Underwater camers E.W Underwater camers Regular VHS Recorder Super VHS Recorder Underwater Lights Super VHS Recorder Other:	tion: CAh sattorm So ve Bridge So ve	MERA RESOLUTION ried 0.00° Diameter were ried V32° Black the on 18% Neutral Gray Card	TYPE OF VISUAL EXAMINATION VT-1 & VT-3 Direct & Remote
Component Description	Tape Number	Tape Counte	Examination Results
B' cont spay spaces	P16- 91-14	00. 1415	NO APARINT ASNORMAL CONDITIONS
I MIL WIRE	P116.81.19	1415-1484	I MIL WHE PISOLVED
	THE RESERVE AND PARTY AND PARTY.		
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August A. Marcon of the Contraction of the Contract			
M/ First I 6.6.	COMMENTS:	B' CORF SPRAY	SPARCER "T" BOX,
EXAMINER LEVEL DATE	BETH	VEEN THE 7 B	OX AND THE 825 NOZZLE
EXAMINER LEVEL DATE	WERE	WHED BRUSNED	AND NIDEOF WITH SENSITIVITY, TO VERIFY
EXAMINER SEVEL DATE	NO INDIS	ATANS WORE OSSER	160
EXAMINER LEVEL DATE	Mita	Den 6/12/	
EXAMINER LEYEL DATE	> 1 / / / /		FORM 69 4-2-1

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SITE: PILGRIM	UNIT:/_	PROCEDURE No GE REVISION No	- VT- 204	REPORT NO.
PROJECT NUMBER: 91. V. 0	468	FAR No. N/A		PILG-91
Equipment used During the Examination Color Underweter camera Refusing the Examination Survice Pte Recorder Super VHS Recorder Super VHS Recorder Underwater Lights Citer: Fee	kitorm & v	MERA RESOLUTION erfied 0.007 Diameter wire erfied V32" Black fine on in 18% Neutral Gray Card	TYPE OF VISUA	R REMOTE
Component Description	Tape Numbe	r Tape Counts	Examinet	don Results
I MIL WIRE AND TITLE	PILG-81-1	5 00 - 24	1 100 0	ME RESOLVED
35 LIFTING SCREW OF THE	P16.91.13	24. 135	e 2" 4	ONE CARCA
LEVELING SCREW BY THE 215" LIFTING LUG	P16.91.1.	5 135-178		AMBASTUT
LEVELING SCAEW BY THE	1160.41.11	5 178-203	AGNORMA	NOPARENT 6
SEVELING SEARN BY THE	P126.91.1	5 203- 232		AL CONDITION
M. Zant 211 6-14	COMMENTS.		ESULTS FOR	COMMENTS
EXAMINER LEVEL DATE		(NONE)		
EXAMMER LEVEL DATE				A
EXAMINER LEVEL DATE		2640 27 6.14		
EXAMMER LEVEL DATE	MEYEN		A CONTRACTOR OF THE PARTY OF TH	2 4 OF 61
EXAMBLER LEVEL DATE	REVIEW		70 Lbs: -2	FORM 159 4-2-90

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-01 Date: 5/28/91

Description of Recordable Indications 1 MIL WIRE RESOLVED NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL CONDITIONS	Accept YES YES YES	Review Required NO NO	Tape Counts 000000-001:30 001:30-007:48
NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL	YES	NO NO	001:30-007:48 007:19-008:48
NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL	YES	NO	007:19-008:48
NO APPARENT ABNORMAL			
	YES		
CONDITIONS		NO	008:48-011:03
NO APPARENT ABNORMAL CONDITIONS	YES	NO	011:03-012:1
NO APPARENT ABNORMAL CONDITIONS	YES	NO	012:17-019:2
NO APPARENT ABNORMAL CONDITIONS	YES	NO	019:22-025:1
NO APPARENT ABNORMAL CONDITIONS	YES	NO	025:15-044:1
	NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL	NO APPARENT ABNORMAL YES NO APPARENT ABNORMAL YES CONDITIONS NO APPARENT ABNORMAL YES	NO APPARENT ABNORMAL YES NO NO APPARENT ABNORMAL YES NO CONDITIONS NO APPARENT ABNORMAL YES NO

Reviewed by: M. A. Thouse

Level:

Date: 05-28-91

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PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-01

Date: 5/28/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	Tape Counts
45° FEEDWATER SPARGER AND BRACKETS	NO APPARENT ABNORMAL CONDITIONS	YES	NO	044:13-059:46
135" FEEDWATER PARGER AND BRACKETS	NO APPARENT ABNORMAL CONDITIONS	YES	NO	059:48-114:14
25" FEEDWATER PARGER AND BRACKETS	NO APPARENT ABNORMAL CONDITIONS	YES	NO	114:14-127:0
115" FEEDWATER PARGER AND BRACKETS	NO APPARENT ABNORMAL CONDITIONS	YES	NO	127:00-140:2
ORE SPRAY PIPING 0'	NO APPARENT ABNORMAL CONDITIONS	YES	NO	140:25-219:4
HIL WIRE	1 MIL WIRE RESOLVED	YES	NO	219:49-220:2
1 MIL WIRE	1 MIL WIRE RESOLVED	YES	NO	219:49-220:

Reviewed by: gn. A. Frank

Level:

and the same

Date: 05-28-9/

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-82 Date: 05/28/91

LEVEL	EQUIPMENT - CALIBRATION - TECHNIQUE				
111	TECHNIQUE DESCRIPTION	ALL RESOLUT	CAMERA, ST	TRAIGHT ON	
and/or	Description of Recordable Indications	Accept	Review Required	Tape Counts	
TION D TITLE	1 MIL WIRE RESOLVED	YES	NO	0000-0119	
PING 0°	NO APPARENT ABNORMAL CONDITIONS	YES	NO	0119-1884	
ARGER ROUGH	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1884-2378	
RAY ROUGH *T*	NO APPARENT ABNORMAL CONDITIONS	YES	NO	2378-3820	
PRAY THROUGH , *T* BOX	NO APPARENT ABNORMAL CONDITIONS	YES	NO	3820-4458	
PRAY HROUGH	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4458-4932	
	and/or TION D TITLE PING O' ARGER ROUGH RAY ROUGH TT*	III CAMERA: ETV-1250 III 1 MIL WIRE VISIBLE ON TECHNIQUE DESCRIPTION LENS, 90 LENS, TWIN ! BND/OF DESCRIPTION OF RECORDADIE INDICATIONS TION 1 MIL WIRE RESOLVED PING NO APPARENT ABNORMAL CONDITIONS ARGER NO APPARENT ABNORMAL CONDITIONS PRAY NO APPARENT ABNORMAL CONDITIONS	III CAMERA: ETV-1250 RECORDER III 1 MIL WIRE VISIBLE ON ALL RESOLUT TECHNIQUE DESCRIPTION: HAND HELI LENS, 90 LENS, TWIN 50'S ON CAME And/OF Description of Recordable Indications Accept TION 1 MIL WIRE RESOLVED YES TION 0 APPARENT ABNORMAL YES PING NO APPARENT ABNORMAL YES ARGER NO APPARENT ABNORMAL YES PRAY NO APPARENT ABNORMAL YES	III CAMERA: ETV-1250 RECORDER: PANISONO 1 MIL WIRE VISIBLE ON ALL RESOLUTION CHECKS TECHNIQUE DESCRIPTION: HAND HELD CAMERA, S. LENS, 90 LENS, TWIN 50'S ON CAMERA FOR LIGH ACCEPT REQUIRED TION 1 MIL WIRE RESOLVED YES NO PING NO APPARENT ABNORMAL YES NO ARGER NO APPARENT ABNORMAL YES NO PRAY NO APPARENT ABNORMAL YES NO	

Reviewed by: m. h. Thank Level: 7

REF. IE BULLETIN 80-13, AND GE SIL 289.

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-02 Date: 5/28/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	Tape Counts
OWER CORE SPRAY SPARGER 180* THROUGH	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4932-5852
OWER CORE SPRAY PARGER 0° THROUGH 80°	NO APPARENT ABNORMAL CONDITIONS	YLS	NO	5852-5906

Reviewed by: M. A. Thank

Level:

Date: 06-0/- 9/

REF. IE BULLETIN 80-13, AND GE SIL 289.



PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-03 Date: 6/01/91

PERSONNEL	LEVEL	EQUIPMENT - CALIBRATION - TECHNIQUE					
M. HEATH M. STAMM S. MONTICONE	111	CAMERA: ETV-1250 1 MIL WIRE VISIBLE ON A TECHNIQUE DESCRIPTION: LENS, 90 LENS, TWIN 50	HAND HELT	TION CHECKS D CAMERA, S	TRAIGHT ON		
Component(s) Area Viewed	and/or	Description of Recordable Indications	Accept	Review Required	Tape Counts		
LOWER CORE SPE SPARCER 0° THE		NO APPARENT ABNORMAL CONDITIONS	YES	NO	000:00-015:00		
LOWEP CORE SPR SPARGER 180° T 360°		NO APPARENT ABNORMAL CONDITIONS	YES	NO	015:00-032:20		
UPPER CORE SPR SPARGER 0" THE		NO APPARENT ABNORMAL CONDITIONS	YES	NO	032:28-051:2		
UPPER CORE SPE SPARGER 180" T 360"		NO APPARENT ABNORMAL CONDITIONS	YES	NO	051:29-107:2		
CAMERA PESOLUT 1 MIL WIRE	NOIT	1 MIL WIRE RESOLVED	YES	NO	107:26-108:1		
TOP GUIDE HOLD BOLTS (360°)		LOOSE SCREW ON GUIDE NO OTHER APPARENT ABNORMAL CONDITIONS	YES	NO	108:12-130:5		
CAMERA RESOLUT	TION	1 MIL WIRE RESOLVED	YES	NO	130:51-131:3		

Reviered by: M. A. Thouse

Level: Date: Of ov- 9/

SCREW WAS NOTED ON TOP GUIDE.

REF. IE BULLETIN 80-13, AND GE SIL 289.

29 05 61

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-03

Date: 6/01/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	Tape Counts
ET PUMP # 20	NO CONTACT WITH THE SHROUD SIDE SET SCREW	YES	NO	131:33-145:37
ET PUMP * 19	NO APPARENT ABNORMAL CONDITIONS	YES	NO	145:37-159:19
ET PUMP # 18	NO APPARENT ABNORMAL CONDITIONS	YES	NO	159:19-203:0 CONT. ON TAP:

Reviewed by: 77. 6. Theres

Level: 77

Date: 06-01-91

NO CONTACT WITH THE SHROUD SIDE SET SCREW ON JET PUMP # 20. REF. GE SIL 420 FOR THE JET PUMP SENSING LINES. REF. GE RICSIL 45 FOR THE JET PUMP RISING BRACES.

30 0161

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILO-91-84 Date: 5/29/91

PERSONNEL	LEVEL	EQUIPMENT - C	ALIBRATION	- TECHN	IQUE
M. HEATH M. STAMM S. MONTICONE	111	CAMERA: ETV-1250 1 MIL WIRE VISIBLE ON A TECHNIQUE DESCRIPTION: LENS, 90 LENS, TWIN 58	LL RESOLU!	CAMERA, S	TRAIGHT ON
Component(s) Area Viewed	and/or	Description of Recordable Indications	Accept	Review Required	Tape Counts
JET PUMP # 18	8	NO APPARENT ABNORMAL CONDITIONS	YES	NO	000:00-016:3
JET PUMP # 1	7	NO APPARENT ABNORMAL CONDITIONS	YES	NO	016:30-026:5
JET PUMP * 1	6	* NO APPARENT ABNORMAL CONDITIONS	YES	NO	026:59-052:1
CAMERA RESOLU 1 MIL WIRE AN		1 MIL WIRE RESOLVED	YES	NO	0J2:17-053:0
JET PUMP * 1	5	NO APPARENT ASNORMAL CONDITIONS	YES	NO	053:02-112:5
JET PUMP * 1	4	NO APPARENT ABNORMAL CONDITIONS	YES	NO	112:52-128:
JET PUMP * 1	3	NO APPARENT ABNORMAL CONDITIONS	YES	NO	128:50-144:
JET PUMP * 1	2	NO APPARENT ABNORMAL CONDITIONS	YES	NO	144:29-158:
JET PUMP * 1	1	NO APPARENT ABNORMAL CONDITIONS	YES	NO	158:30-203:0

Reviewed by: M.A. Thinks

Level: Date: 06-03-91

* SCRATCHES WERE NOTED ON THE SENSING LINE JET PUMP * 16. REF. GE SIL 420 FOR THE JET PUMP SENSING LINES.

REF. GE RICSIL 45 FOR THE JET PUMP RISER BRACES.

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PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-05 Date: 5/29/91

M. HEATH M. STAMM S. MONTICONE Component(s) ard/or Area Viewed JET PUMP # 81 CAMERA RESOLUTION 1 MIL WIRE AND TITLE	CAMERA: ETV-1250 1 MIL WIRE VISIBLE ON A TECHNIQUE DESCRIPTION: LENS, 90 LENS, TWIN 56 Description of Recordable Indications NO APPARENT ABNORMAL CONDITIONS 1 MIL WIRE RESOLVED	ALL RESOLU:	D CAMERA, S	TRAIGHT ON
Area Viewed JET PUMP * 01 CAMERA RESOLUTION 1 MIL WIRE AND TITLE	NO APPARENT ABNORMAL CONDITIONS	YES	Required	Counts
CAMERA RESOLUTION 1 MIL WIRE AND TITLE	CONDITIONS		NO	000:00-007:16
1 MIL WIRE AND TITLE	1 MIL WIRE RESOLVED	VEC		
		120	NO	007:10-007:5
* JET PUMP * 10	NO APPARENT ABNORMAL.	YES	NO	007:51-019:4
160" MANWAY COVER	COVERED WITH SEDIMENT	YES	NO	019:45-022:1
e" MANWAY COVER	COVERED WITH SEDIMENT	YES	NO	022:12-025:2
JET PUMP * 01	NO APPARENT ABNORMAL CONDITIONS	YES	NO	025:29-040:3
JET PUMP # 02	* GAP IN SET SCREW SHROUD SIDE	YES	NO	040:39-054:0
JET PUMP * 03	NO APPARENT ABNORMAL CONDITIONS	YES	NO	054:03-105:0
JET PUMP # 04	NO APPARENT ABNORMAL CONDITIONS	YES	NO	105:01-116:2
JET PUMP * 05	NO APPARENT ABNORMAL CONDITIONS	YES	NO	116:23-125:4

Reviewed by: 371.

Level:

Date:

06.01.91

* THERE IS A GAP IN THE SHROUD SIDE SET SCREW JET PUMP # 2 REF. GE SIL 420 FOR THE JET PUMP SENSING LINES. REF. GE RICSIL 45 FOR THE JET PUMP RISER BRACKETS.

32 05 61



PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-05

Date: 5/29/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	Tape Counts
JET PUMP * 06	NO APPARENT ABNORMAL CONDITIONS	YES	NO	125:49-133:19
JET PUMP # 07	NO APPARENT ABNORMAL CONDITIONS	YES	NO	133:19-143:16
JET PUMP 0 08	NO APPARENT ABNORMAL CONDITIONS	YES	NO	143:16-155:26
JET PUMP # 09	** NO APPARENT ABNORMAL CONDITIONS	YES	NO	155:26-206:11
JET PUMP # 10	NO APPARENT ABNORMAL CONDITIONS	YES	NO	206:11-206:50 CONT. ON TAPE
CAMERA RESOLUTION 1 MIL WIRE	1 MIL WIRE RESOLVED	YES	NO	206:50-207:25

Reviewed by: M. G. Charles

Level: 7

Date:

06-01-91

** *J* HOOK ON SHROUD LEDGE BETWEEN 8 AND 9.
THIS *J* HOOK HAS BEEN REMOVED ALONG WITH A 3/8* NUT. REF. GE SIL 420 FOR THE JET PUMP SENSING LINES.

33 05 61

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-06 Date: 5/30/91

M. HEATH M. STAMM S. MONTICONE	111 111	CAMERA: ETV-1250 1 MIL WIRE VISIBLE ON A		R: PANASON	C AG-6200
		TECHNIQUE DESCRIPTION: LENS, 90 LENS, TWIN 50	HAND HELI	CAMERA, S	TRAIGHT ON HTING
Component(s) Area Viewed	and/or	Description of Recordable Indications	Accept	Review Required	Tape Counts
BOTTOM SIDE OF TOP GUIDE	THE	NO APPARENT ABNORMAL CONDITIONS	YES	NO	0000-0508
CORE PLATE		NO APPARENT ABNORMAL CONDITIONS	YES	NO	0568-1049
JET PUMP # 10		NO APPARENT ABNORMAL CONDITIONS	YES	NO	1049-1390
CAMERA RESOLUT	ION	1 MIL WIRE RESOLVED	YES	NO	1390-1450
230 SURVEILLA SAMPLE AND BRA		NO APPARENT ABNORMAL CONDITIONS	YES	NO	1450-1658
185" SURVEILLA SAMPLE AND BRA		NO APPARENT ABNORMAL CONDITIONS	YES	NO	1658-1816
95" SURVEILLANCE SAMPLE AND BRACKET		SAMPLE IS REMOVED	YES	NO	1816-1347
CAMERA RESOLUT 1 MIL WIRE	ION	1 MIL WIRE RESOLVED	YES	NO	1847-1920

Reviewed by: m. A. Zaoth

'evel: 777

Date: 06-0/-9/

REF. GE SIL 420 FOR THE JET PUMP SENSING LINGS. REF. GE RICSIL 45 FOR THE JET PUMP RISER BRACKET.



PILGRI NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-06

Date: 5/30/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	Tape Counts
TOP GUIDE CENTER CELLS	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1920-3236
TOP GUIDE PEPIPHERAL O" THROUGH 180'	SMALL SCREW ON THE TOP GUIDE AT 45	YES	NO	3236-4418
TOP GUIDE PERIPHERAL 189° THROUGH 360°	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4418-5077
CRD NOZZLE	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5077-5166
CAMERA RESOLUTION 1 MIL WIRE	1 MIL WIRE RESOLVED	YES	NO	5166-5180

Reviered by: M. 4. That

Level: _____ Date: 06-01-91

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-07

Date: "'30/91

M. HEATH III M. STAMM III S. MONTICONE II	CAMERA: ETV-1250 1 MIL WIRE VISIBLE ON A TECHNIQUE DESCRIPTION: LENS, 90 LENS, TWIN 50	LL RESOLUT	CAMERA, S	TRAIGHT ON
Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	keview Required	Tape Counts
CAMERA RESOLUTION	1 MIL WIKE RESOLVED	YES	NO	800:00-001:02
IRM 36-09 NW SIDE	NO APPARENT ABNORMAL CONDITIONS	YES	NO	801:02-002:34
IRM 36-41 NW & SE SIDE ONLY	NO APPARENT ABNORMAL CONDITIONS	YES	NO	002:34-006:47
SRM 36-33	NO APPARENT AFNORMAL CONDITIONS	YES	NO	006:47-015:41
IRM 28-33	* NO APPARENT ABNORMAL CONDITIONS	YES	NO	615:41-033:20
1RM 28-25 SE SIDE ONLY	NO APPARENT ABNORMAL CONDITIONS	YES	NO	033:20-035:41
SRM 28-17 SE, SW AND NW SIDES ONLY	NO APPARENT ABNORMAL CONDITIONS	YES	NO	035:41-043:18
1RM 20-25 SE AND NW SIDES ONLY	NO APPARENT ABNORMAL CONDITIONS	YES	NO	043:18-048:13
1RM 20-33 SE AND NE SIDES ONLY	NO APPARENT ABNORMAL CONDITIONS	YES	NO	048:13-052:3
SRM 20-41 SE AND NW SIDES ONLY	NO APPARENT ABNORMAL CONDITIONS	YES	NO	052:34-056:1

Reviewed by: M. A. The

Level:

Date: 06-06-41

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-07 Date: 5/30/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	Tape Counts
1RM 12-41 NW AND SE SIDES ONLY	NO APPARENT ABNORMAL CONDITIONS	YES	NO	056:14-101:11
SRM 12-25 SE AND SW SIDES ONLY	NO APPARENT ABNORMAL CONDITIONS	YES	NO	101:11-106:2
IRM 12-09 NW SIDE ONLY	NO APPARENT ABNORMAL CONDITIONS	YES	NO	106:25-108:28
CLAD PATCH AT 0°	NO APPARENT ABNORMAL CONDITIONS	YES	No	108:28-109:3
CLAD PATCH AT 180"	NO APPARENT AUNORMAL CONDITIONS	YES	NO	109:34-111:0
COLE PLATE	NO APPARENT ABNORMAL CONDITIONS	YES	NO	111:03-121:4
CAMERA RESOLUTION 1 MIL WIRE	1 MIL WIRE RESOLVED	YES	NO	121:42-171:5
180" MANWAY COVER	NO APPARENT ABNORMAL CONDITION	YES	NO	121:58-126:4
e" MANWAY COVER	NO APPARENT ABNORMAL CONDITION	YES	NO	126:49-129:3

Reviewed by: 77.4.

Level:

III Date: 06-06-9/

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-08 Date: 6/04/91

M. HEATH M. STAKM S. MONTICONE	111 111 11	CAMERA: ETV-1250 1 MIL WIRE VISIBLE OF TECHNIQUE DESCRIPTION LENS, 90 LENS, TWIN	N ALL RESOLUT	CAMERA, ST	RAIGHT ON
Component(s) Area Viewed	and/or	Description of Recordable Indications	Accept	Review Required	Tape Counts
CAMERA RESOLUTION 1 MIL WIRE AND TITLE		I MIL WIRE RESOLVED	YES	NO	0000-0079
NONE		NO VIDEO PICTURE	YES	NO	0079-0928
STEAM DRYER 45 LIFTING LUG		NO APPARENT ABNORMAL CONDITIONS	YES	МО	0928-1390
315* LIFTING I	.ug	NO APPARENT ABNORMAL COLDITIONS	YES	NO	1390-1960
225" LIFTING I	.UG	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1960-2264
135 LIFTING I	LUG	NO APPARENT ABNORMAL CONDITIONS	YES	NO	2264-2500
WSW SEAL TO BAREF. PAR. 6.2	DECEMBER OF STREET	NO APPARENT ABNORMAL CONDITIONS	YES	NO	2500-2660
WNW SEAL TO BE REF. PAR. 6.2	and the same of th	NO APPARENT ABNORMAL CONDITIONS	YES	NO	2660-2793
WNW - WSW BAN WELDS REF. PA		NO APPARENT ABNORMAL CONDITIONS	YES	NO	2793-3050
WSW - WNW SUP RING TO SEAL REF. PAR. 6.2	WELDS	NO APPARENT ADDORMAL CONDITIONS	YES	NO	3050-3563

Reviewed by: M. A. Thank Level: II Date: 06-08-91

REF. GE SIL 474 (ATT 40) STEAM DRYER CHANNEL AND SUPPORT RING.

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-08 Date: 6/04/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	Tape Counts	
KSW - WNW SKIRT TO EKIRT HORZ. WELD REF.	1 MIL WIRE RESOLVED	YES	NO	3563-3794	
PAR. 6.27.15 NW VERTICAL BANK WELD REF. PAK. 6.27.3	NO APPARENT ABNORMAL CONDITIONS	YES	NO	3794-4295	
NW SHELL HORZ. WELD REF. PAR. 6.27.4	NO APPARENT ABNORMAL CONDITIONS	Yr.S	NO NO	4295-4410	
NW SEAL TO BANK WELDS REF. PAR. 6.27.9	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4410-4565	
NW UPPER SUPPORT SEAL TO KING WELD REF. PAR. 6.27.10	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4565-4709	
NW SKIRT TO SKIRT WELD HORZ. WELD REF. PAR. 6.27.13	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4709-4809	
NW SKIRT TO SKIRT WELD REF. FAR.6.27.15 BRACKET	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4809-5018	
NW BELOW LIFTING LUG	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5018-5237	
SW VERTICAL WELDS REF. PAR. 6.27.3	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5237-5928	

Reviewed by: 77./. That Level: 777 Date: 06-08-9/

REF. GE SIL 474 (ATT 40) STEAM DRYER CHANNEL AND SUPPORT RING.

IN VESSEL VIGUAL EXAMINATION DATA SHEET PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-08 Date: 05/28/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Required	Tape Counts
SW SEAL TO BANK WELD REF. PAR. 6.27.9	1 MIL WIRE RESOLVED	YES	NO	5928-5972
SW HORZ. WELL REF. PAR. 6.27.4 6 6.27.6	NO APPARENT ABNORHAL CONDITIONS	YES	NO	5972-6140
SW HORZ. UPPER RING TO SEAL WELD REF. PAR.6.27.10	NO APPARENT ABNORMAL CONDITIONS	YES	NO	6140-6233
SW HORZ. UPPER SUPPORT TO SKIRT WELD REF. PAR. 6.27.13	NO APPARENT ABNORMAL CONDITIONS	YES	NO	6233-6485
SW-SSW HORZ. SKIRT TO	NO APPARENT ABNORMAL CONDITIONS	YES	NO	6485-6718
SKIRT WELD REF. PAR. 6.27.15	CONDITIONS			

Reviewed by: M4. 2000 Level: 2 Date: 06-08-91 REF. GE SIL 474 (ATT 40) STEAM DRYER CHANNEL AND SUPPORT RING.

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-09 Date: 6/04/91

PERSONNEL	LEVEL	L EQUIPMENT - CALIBRATION - TECHNIQUE					
M. HEATH M. STAMM S. MONTICONE	III III II	TECHNIQUE	TV-1250 VISIBLE ON A DESCRIPTION: LENS, TWIN 50	ALL RESOLU!	CAMERA, ST	RAIGHT ON	
Component(s) Area Viewed	and/or	Description Recordable		Accept	Review Required	Tape Counts	
STEAM DRYER CA RESOLUTION 1 M AND TITLE		1 MIL WIRE F	RESOLVED	YES	NO	0000-0065	
NW VERTICAL BAREF. PAR. 6.27		NO APPARENT CONDITIONS	ABNORMAL	YES	NO	0065-0211	
" VERTICAL WE	ELD	NO APPARENT CONDITIONS	ABNORMAL	YES	NO	0211-0416	
RE VERTICAL BA		NO APPARENT CONDITIONS	ABNORMAL	YES	NO	0410-1016	
E TO NW SUPPO		* SEE BELOW PILG-91-15	AND TAPE	NO	YES	1016-2668	
W TO NE SKIRT	r TO	NO APPARENT CONDITIONS	ABNORMAL	YES	NO	2668-2986	
NE VERTICAL CH VELD BELOW LIE LUG		NO APPARENT CONDITIONS	ABNORMAL	YES	NO	2980-3376	
" GUIDE AND (CHANNEL	NO APPARENT CONDITIONS	ABNORMAL	YES	NO	3379-3566	
OUTH BANK (5)		NO APPARENT CONDITIONS	ABNORMAL	YES	NO	3560-3986	
SW TO SE SEAL SUPPORT RING		NO APPARENT	ABNORMAL	YES	NO	3980-4186	

Reviewed by: 71.4. The Level: Date: 06-10-91

* THERE IS A 2" LONG CRACK ON THE 35 LEVELING SCREW SEE TAPE PILG-91-15 FOR DETAILS. 41 00 61

REF. GE SIL.474 (ATT 40) STEAM DRYER CHANNEL AND SUPPORT RING.

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-09

Date: 6/04/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Required	Tape Counts
SE TO SW SUPPORT RING TO SKIRT WELD	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4180-4433
SW TO SE SKIRT TO SKIRT HORIZ. WELD	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4433-4658
180 VERTICAL BANK WELD	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4658-4907
SE VERTICAL BANK WELDS #4 AND #5	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4907-5025
GUIDE ROD CHANNEL AND VERTICAL BANK WELD #2	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5025-5298
BELOW LUG SW CORNER	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5298-5454
BEHIND LJG SE CORNER	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5454-5491
BELOW LUG SE CORNER	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5491-5615
HORIZ. WELD BANK *5	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5615-5796
CAMERA RESOLUTION 1 MIL WIRE	1 MIL WIRE RESOLVED	YES	NO	5615-5796

Reviewed by: M. A. The Level: Date: 06-10-91

REF. GE SIL 474 (ATT 46) STEAM DRYER CHANNEL AND SUPPORT RING.



PILGRIM NULEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-10 Date: 6/04/91

PERSONNEL	LEVEL	EQUIPMENT - C	ALIBRATIO	N - TECHNI	QUE
M. HEATH M. STAMM S. MONTICONE	III	CAMERA: ETV-1250 1 MIL WIRE VISIBLE ON A TECHNIQUE DESCRIPTION: LENS, 90 LENS, TWIN 50	LL RESOLU	D CAMERA, ST	RAIGHT ON
Component(s) Area Viewed	and/or	Description of Recordable Indications	Accept	Review Required	Tape Counts
MOISTURE SEPER		1 MIL WIRE RESOLVED	YES	NO	0000-0126
SHROUD HEAD BO	LT *48	RUB MARKS AND SCRATCHES	YES	NO	0126-0547
SHROUD HEAD BO	LT #47	RUB MARKS	YES	NO	0547-0740
SHROUD HEAD BO	LT #46	NO APPARENT ABNORMAL CONDITIONS	YES	NO	0740-1020
SHROUD HEAD BO	LT #45	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1020-1145
SHROUD HEAD BO)LT #44	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1145-1246
SHROUD HEAD BO	LT #43	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1240-1412
CAMERA RESOLUT	TION	1 MIL WIRE RESOLVED	YES	NO	1412-1458
STAND TUBES ST AT 0° #1	CARTING	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1458-1576
STAND TUBE #2		NO APPARENT ABNORMAL CONDITIONS	YES	NO	1570-1620
STAND TUBE #3		NO APPARENT ABNORMAL CONDITIONS	YES	NO	1620-1740

Reviewed by: M. A. Thouse

Level: _____ Date: 06-10-91

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-10

Date: 6/04/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	Tape Counts
STAND TUBE #4	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1740-1820
STAND TUBE #5	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1820-1880
STAND TUBE *6	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1880-1945
STAND TUBE #7	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1945-2099
STAND TUBE *8	NO APPARENT ABNORMAL CONDITIONS	YES	NO	2099-2223
STAND TUBE *9	NO APPARENT ABNORMAL	YES	NO	2223-2355
STAND TUBE #10	NO APPARENT ABNORMAL CONDITIONS	YES	NO	2355-2460
STAND TUBE #11	NO APPARENT ABNORMAL CONDITIONS	YES	NO	2460-2637
STAND TUBE #12	NO APPARENT ABNORMAL CONDITIONS	YES	NO	2637-2767
STAND TUBE #13	NO APPARENT ABNORMAL CONDITIONS	YES	NO	2767-2920
STAND TUBE #14	NO APPARENT ABNORMAL CONDITIONS	YES	NO	2920-3029

Reviewed by: M. A. House Level: III Date: 06-10-91

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-10 Date: 6/04/91

Description of Recordable Indications	Accept	Review Required	Tape Counts
NO APPARENT ABNORMAL CONDITIONS	YES	NO	3029-3153
NO APPARENT ABNORMAL CONDITIONS	YES	NO	3153-3277
NO APPARENT ABNORMAL CONDITIONS	YES	NO	3277-3495
NO APPARENT ABNORMAL CONDITIONS	YES	NO	3495-3660
NO APPARENT ABNORMAL CONDITIONS	YES	NO	3660-3860
NO APPARENT ABNORMAL CONDITIONS	YES	NO	3860-4183
NO APPARENT ABNORMAL CONDITIONS	YES	NO	4183-4326
NO APPARENT ABNORMAL CONDITIONS	YES	NO	4326-4542
NO APPARENT ABNORMAL CONDITIONS	YES	NO	4542-4686
1 MIL WIRE RESOLVED	YES	NO	4689-4706
	Recordable Indications NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL CONDITIONS	Recordable Indications Accept NO APPARENT ABNORMAL YES NO APPARENT ABNORMAL YES NO APPARENT ABNORMAL YES CONDITIONS NO APPARENT ABNORMAL YES NO APPARENT ABNORMAL YES CONDITIONS NO APPARENT ABNORMAL YES NO APPARENT ABNORMAL YES NO APPARENT ABNORMAL YES CONDITIONS NO APPARENT ABNORMAL YES CONDITIONS	Recordable Indications Accept Required NO APPARENT ABNORMAL YES NO NO APPARENT ABNORMAL YES NO CONDITIONS NO APPARENT ABNORMAL YES NO CONDITIONS NO APPARENT ABNORMAL YES NO CONDITIONS NO APPARENT ABNORMAL YES NO NO APPARENT ABNORMAL YES NO CONDITIONS NO APPARENT ABNORMAL YES NO NO APPARENT ABNORMAL YES NO

Reviewed by: 77. 1. That Level: III Date: 06-10-91

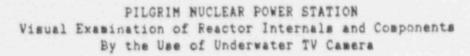
PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-10 Date: 6/84/91

Description of Recordable Indications	Accept	Review Required	Tape Counts
NO APPARENT ABNORMAL CONDITIONS	YES	NO	4700-4856
NO APPARENT ABNORMAL CONDITIONS	YES	NO	4856-4960
NO APPARENT ABNORMAL CONDITIONS	YES	NO	4960-5123
NO APPARENT ABNORMAL CONDITIONS	YES	NO	5123-5312
NO APPARENT ABNORMAL CONDITIONS	YES	NO	5312-5430
NO APPARENT ABNORMAL CONDITIONS	YES	210	5430-5736
1 MIL WIRE RESOLVED	YES	NO	5736-5745
	NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL CONDITIONS	Recordeble Indications Accept NO APPARENT ABNORMAL YES CONDITIONS NO APPARENT ABNORMAL YES CONDITIONS	Recordable Indications Accept Required NO APPARENT ABNORMAL YES NO NO APPARENT ABNORMAL YES NO CONDITIONS NO APPARENT ABNORMAL YES NO CONDITIONS

Reviewed by: M. G. Thank Level: III Date: 00-10-91

REF. GE SIL 474 (ATT 46) STEAM DRYER CHANNEL AND SUPPORT RING.



Video Tape No.: PILG-91-11 Date: 6/05/91

M. HEATH III M. STAMM III S. MONTICONE II		ALL RESOLUT	CAMERA, ST	RAIGHT ON
Component(s) and/	Description of Recordable Indications	Accept	Review Required	Tape Counts
MOISTURE SEPERATOR CAMERA RESOLUTION 1 MIL WIRE AND TIT	1 MIL WIRE RESOLVED	YES	NO	0000-0030
SHROUD HEAD BOLT *	NO APPARENT ABNORMAL CONDITIONS */**	YES	NO	0030-0470
SHROUD HEAD BOLT *	02 NO APPARENT ABNORMAL CONDITIONS **	YES	NO	0470-0743
SHROUD HEAD BOLT *	03 NO APPARENT ABNORMAL CONDITIONS **	YES	NO	0743-1016
SHROUD HEAD BOLT	04 NO APPARENT ABNORMAL CONDITIONS **	YES	NO	1010-1198
SHROUD PEAD BOLT :	05 NO APPARENT ABNORMAL CONDITIONS **	YES	NO	1198-137
SHROUD HEAD BOLT	000 NO APPARENT ABNORMAL CONDITIONS **	YES	NO	1373-1488
SHROUD HEAD BOLT	07 NO APPARENT ABNORMAL CONDITIONS **	YES	ОМ	1488-171
SHROUD READ BOLT	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	1714-187
SHROUD HEAD BOLT	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	1874-201

Reviewed by: M. A. Track

Date: 06-11-91

47 0861

* SCRATCHES

** STAIN MARKS AND PUB/WEAR MARKS

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

V-leo 'ape No.: PILG-91-11 Date: 6/05/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	County
SHROUD HEAD BOLT #18	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2018-2165
SHROUD HEAD BOLT *11	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2165-2307
SHROUD HEAD BOLT #12	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2307-2460
SHROUD HEAD BOLT #13	NO APPARENT ABNORMAL CONDITIONS	YES	NO	2460-2583
SHROUD HEAD BOLT #14	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2583-2732
SHROUD HEAD BOLT *15	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2732-2849
SHROUD HEAD BOLT #16	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2849-2943
SHROUD HEAD BOLT *1	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2943-3203
SHROUD HEAD BOLT *1	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	3203-3400
SHROUD HEAD BOLT #19	NO APPARENT ABNORMAL CONDITIONS */**	YES	NO	3400-3637
SHROUD HEAD BOLT #20	NO APPARENT ADNORMAL CONDITIONS */**	YES	NO	3637-3772

Reviewed by: M. A. Thank Date: 06-11-91 Level:

^{*} SCRATCHES

^{**} STAIN MARKS AND RUB/WEAR MARKS



PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-11

Date: 6/01/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	Tape Counts
SHROUD HEAD BOLT #21	NO APPARENT ABNORMAL CONDITIONS */**	YES	NO	3772-4098
SHROUD HEAD BOLT #22	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	4098-4283
SHROUD HEAD BOLT #23	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	4283-4420
SHROUD HEAD BOLT #24	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	4420-4606
LIFTING LUG BETWEEN BOLTS #24 AND #25	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	4606-4829
SHROUD HEAD BOLT #25	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	4829-4965
SHROUD HEAD BOLT #26	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	4965-5230
SHROUD HEAD BOLT #27	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	5230-5401
SHROUD HEAD BOLT #28	NO ATPARENT ABNORMAL	YES	NO	5401-5518
115° LIFTING LUG	NO APPARENT ABNORMAL CONDITIONS */**	YES	NO	5518-5699
10° LIFTING LUG	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	5699-5946
CAMERA RESOLUTION 1 MIL WIRE	1 MIL WIRE RESOLVED	YES	NO	5946-5956

Reviewed by: m. 4. Zunch

[·] SCRATCHES

^{**} STAINS AND RUB/WEAR MARKS.

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-12 Date: 6/06/91

PERSONNEL	LEVEL	EQUIPMENT - (CALIBRATION	N - TECHNI	QUE	
M. HEATH M. STAMM S. MONTICONE	111 111 11	CAMERA: ETV-1250 RECORDER: PANASONIC AG- 1 MIL WIRE VISIBLE ON ALL RESOLUTION CHECKS TECHNIQUE DESCRIPTION: HAND HELD CAMERA, STRAIGH LENS, 90 LENS, TWIN 50'8 ON CAMERA FOR LIGHTING				
Component(s) Area Viewed	and/or	Description of Recordable indications	Accept	Review Required	Tape Counts	
RE LOOK OF JET PUMP * 18	r	NO APPARENT ABNORMAL CONDITIONS	YZS	NO	0000-0542	
CAMERA RESOLUT	TION	1 MIL WIRE RESOLVED	YES	NO	0542-0562	
NOZZLE B-25 CO SPRAY SPARGER	ORE	NO APPARENT ABNORMAL CONDITIONS *	YES	NO	0562-9818	
CAMERA RESOLUT	TION	1 MIL WIRE RESOLVED	YES	NO	0818-0870	
MOISTURE SEPER		NO APPARENT ABNORMAL CONDITIONS **	YES	NO	6870-1039	
SHROUD HEAD BO	OLT *41	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	1039-1188	
NW LIFTING LUC	G	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	1188-1535	
SHROUD HEAD BO	OLT #40	NO APPARENT ASNORMAL CNDITIONS **	YES	NO	1535-1723	
SHROUD HEAD B	OLT #39	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	1723-1881	
SHROUD HEAD B	OLT #38	NO APPARENT ABNORMAL CONDITIONS **	YES	ОМ	1881-2042	
SHROUD HEAD B	OLT #37	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2042-2244	

Reviewed by: 87. 4. 22-06-12-91

[.] RELOOK AT THE B-25 NOZZLE AREA AND T BOX FOR PREVIOUSLY RECORDED INDICATIONS. NO INDICATIONS WERE FOUND. 50 of 61

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-12 Date: 6/66/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	Tape Counts
SHROUD HEAD BOLT *36	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2244-2375
SHROUD HEAD BOLT #35	NO APPARENT ABNORMAL CONDITIONS **	YES	110	2375-2520
SHROUD HEAD BOLT #34	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2520-2616
SHROUD HEAD BOLT #33	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2616-2692
SHROUD HEAD BOLT #32	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2692-2776
SHROUD HEAD BOLT #31	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2776-2934
SHROUD HEAD BOLT 630	NO APPARENT ABNORMAL CONDITIONS **	YES	NO	2934-3038
SHROUD HEAD BOLT #29	NO APPARNT ABNORMAL CONDITIONS **	YES	NO	3838-3164
STAND TUBE #25	NO APPARENT ABNORML CONDITIONS +	YES	NO	3164-3545
STAND TUBE #26	NO APPARENT ABNORMAL CONDITIONS	YES	NO	3545-3781
STAND TUBE #27	NO APPARENT ABNORMAL CONDITIONS	YES	NO	3781-4014

Date: 06-12-91 Level: Pevsewed by: M. A. The

[.] STAIN MARKS

^{**} WEAR RUB MARKS AND STAIN MARKS

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Casera

Viuno Tape No.: PILG-91-12 Date: 6/06/91

Component(s) and/or Area Viewed	Description of Recordable Indications	Accept	Review Required	Tape Counts
STAND TUBE #28	NO APPARENT ABNORMAL CONDITIONS *	YES	310	4014-4227
STAND TUBE #29	NO APPARENT ABNORMAL CONDITIONDS	YES	NO	4227-4422
STAND TUBE #30	NO APPARENT ABNORMAL CONDITIONS .	YES	NO	4422-4542
STAND TUBE #31	NO APPARENT ABNORMAL CONDITIONS *	YES	NO	4542-4659
STAND TUBE #32	NO APPARENT ABNORMAL CONDITIONS *	YES	NO	4659-4808
STAND TUBE #33	NO APPARENT ABNORMAL CONDITIONS	YES	NO	4808-4898
STAND TUBE #34	NO APPARENT ABNORMAL CONDITIONS *	YES	No	4898-5011
STAND TUBE #35	NO APPARENT ABNORMAL CONDITIONS *	YES	NO	5011-5076
STAND TUBE #36	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5076-5183
STAND TUBE #37	NO APPARENT ABNORMAL CONDITIONS *	YES	NO	5183-5295
STAND TUBE #38	NO APPARENT ABNORMAL CONDITIONS *	YES	NO	5295-5386

Reviewed by: M. A. Thank Level: Date: 06-12-81

. STAIN MARKS

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-12 Date: 6/86/91

Component(#) and/or Area Viewed	Description of Recordable Indications	Accept	Required	Tape Counts
STAND TUBE #39	NO APPARENT ABNORMAL CONDITIONS	YES	NO.	5386-5440
STAND TURE #40	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5440-5522
STAND TURE *41	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5522-5590
STAND TUBE #42	NO APPARENT ABNORMAL CONDITIONS	YES	NO	5590-5715
CAMERA RESOLUTION 1 MIL WIRE	1 MIL WIRE RESOLVED	YES	NO	5715-5726

Reviewed by: M. A. That's Level: Date: 06-12-91

* STAIN MARKS

PILGRIM NUCLEAR POWER STATION Visual Emmination of Reactor Internals and Components By the Use of Undernater TV Camera

Video Tape No.: PILG-91-13

Date: 6/86/91

PERSONNEL	LEVEL	EQUIPMENT -	CALIBRATION	- TECHNIO	UE .
M. HEATH M. STAMM S. MONTICONE	111	CAMERA: ETV- 1250 1 MIL WIRE VISIBLE ON TECHNIQUE DESCRIPTION LENS, 90 LENS, TWIN	ALL RESOLUT: : HAND HELD	CAMERA, STR	AIGHT ON
Component(s) Area Viewed	and/or	Description of Recordable Indications	Accept	Review Required	Tape Counts
AMERA RESOLUT		1 MIL WIRE RESOLVED	YES	NO	9000-0052
STEAM DRYER BANK #3 0°		NO APPARENT ABNORMAL CONDITIONS	YES	NO	0052-0755
BANK #2 AND #3		NO APPARENT ABNORMAL CONDITIONS	YES	NO	0755-1084
BANK #3 AND M	ANWAY	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1084-1136
BANK #3		NO APPARENT ABNORMAL CONDITIONS	YES	NO	1136-117
BANK #2 TIE B	AR WELD	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1175-1291
BANK #2 BANK VERTICAL WELD		NO APPARENT ABNORMAL CONDITIONS	YES	NO	1291-140
BANK #2 TIE B	AR WELD	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1407-1460
BANK #2 AND #1 TIE BAR WELD @ TO 180"		NO APPARENT ABNORMAL CONDITIONS	YES	NO	1468-154
BANK #1 TIE B 180° TO 0°	AR WELD	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1543-161
BANK #1 BANK VERTICAL WELL	TO	NO APPARENT ABNORMAL CONDITIONS	YES	NO	1615-169

Reviewed by: M. J. The Level: Date: 06-12-91

REF. GE SIL 474 (ATT 40) STEAM DRYER CHANNEL AND SUPPORT RING.

54 07 61

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-13 Date: 6/06/91

Description of Recordable Indications	Accept	Review Required	Tape Counts
1 MIL WIRE RESOLVED	YES	, NO	1693-1700
NO APPARENT ABNORMAL CONDITIONS	YES	NO	1700-1953
NO APPARENT ABNORMAL CONDITIONS	YES	NO	1953-2231
NO APPARENT ABNORMAL CONDITIONS	YES	NO	2231-2446
NO APPARENT ABNORMAL CONDITIONS	YES	NO	2446-3448
NO APPARENT ABNORMAL CONDITIONS	YES	NO	3448-3504
	Recordable Indications 1 MIL WIRE RESOLVED NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL CONDITIONS NO APPARENT ABNORMAL CONDITIONS	Recordable Irdications Accept 1 MIL WIRE RESOLVED YES NO APPARENT ABNORMAL YES CONDITIONS NO APPARENT ABNORMAL YES CONDITIONS NO APPARENT ABNORMAL YES NO APPARENT ABNORMAL YES NO APPARENT ABNORMAL YES NO APPARENT ABNORMAL YES	Recordable Indications Accept Required 1 MIL WIRE RESOLVED YES NO NO APPARENT ABNORMAL YES NO CONDITIONS NO APPARENT ABNORMAL YES NO NO APPARENT ABNORMAL YES NO CONDITIONS NO APPARENT ABNORMAL YES NO NO APPARENT ABNORMAL YES NO NO APPARENT ABNORMAL YES NO NO APPARENT ABNORMAL YES NO

Reviewed by: M. A. Zook Level: ZI Date: 06-12-91

REF. GE SIL 474 (ATT 40) STEAM DRYER CHANNEL AND SUPPORT RING.

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-14

Date: 6/06/91

PERSONNEL	LEVEL	EQUIPMENT - C	ALIBRATIO	N - TECHNI	QUE
M. HEATH M. STAMM S. MONTICONE	111 111 11	CAMERA: ETV-1250 1 MIL WIRE VISIBLE ON A TECHNIQUE DESCRIPTION: LENS, 90 LENS, TWIN 50	LL RESOLU HAND HELD	CAMERA, STI	RAIGHT ON
Component(s) Area Viewed	and/or	Description of Recordable Indications	Accept	Review Required	. Tape Counts
B* CORE SPRAY	(*1*	NO APPARENT ABNORMAL CONDITIONS	YES	NO .	0000-1415
CAMERA RESOLUT	TION	1 MIL WIRE RESOLVED	YES	NO	1415-1484

Reviewed by: M. A. Zand Level: Date: 02-13-91

THE "B" CORE SPRAY SPARGER, "T" BOX, BETWEEN "T" BOX AND THE B25 NOZZEL WERE WIRED, BRUSHED AND VIDEO TAPED WITH CLOSE HIGH RESOLUTION AND SENSITIVITY TO VERIFY DEFUNDING RECORDED DATA. NO INDICATIONS WERE OBSERVED.

PILGRIM NUCLEAR POWER STATION Visual Examination of Reactor Internals and Components By the Use of Underwater TV Camera

Video Tape No.: PILG-91-15

Date: 6/14/91

PERSONNEL	LEVEL	EQUIPMENT - (CALIBRATIO	N - TECHNI	QUE
M. HEATH M. STAMM S. MONTICONE	III III	CAMERA: ETV-1250 1 MIL WIRE VISIBLE ON A TECHNIQUE DESCRIPTION: LENS, 90 LENS, TWIN 50	HAND HEL	D CAMERA, ST	RAIGHT ON
Component(s) Area Viewed	and/or	Description of Recordable Indications	Accept	Review Required	Tape Counts
CAMERA RESOLUT		1 MIL WIRE RESOLVED	YES	NO ·	8888-8824
EVELING SCREW	The second second	• 2° LONG CRACK	YES	YES*	0024-0135
EVELING SCREW		@ 1 3/4* LONG CRACK	YES	YES*	0135-017
EVELING SCREW 55 LIFTING L		NO APPARENT ABNORMAL CONDITIONS	YES	NO	0178-020
LEVELING SCREW 335 LIFTING L		NO APPARENT ABNORMAL CONDITIONS	YES	NO	0203-0232

Revlewed by: M. 4. Zimen Level: III Date: 06-14-91

REF. GE NCR-E-68645-008
REF. GE LETTER (EVALUATION OF STEAM DRYER LEVELING SCREW CRACKS 19 JUNE 91),
RECOMMENDS TO RUN AS IS.



General Clettin Company 175 Cartier Avenue San Julia: CA 95125

19 June 1991

M. E. Shepherd Site Services Manager Pilgrim Station

SUBJECT: Evaluation of Steam Dryer Leveling Screw Cracks

REFERENCES:

1. DRF B13-01538-19

2. FDDR MK1-0505 Rev 3 Pilgrim Dryer Repair

3. EAS 97-0887 August 1987, Pilgrim Nuclear Power Station Steam Dryer Evaluation

GE Nuclear Energy has reviewed and evaluated video tapes of the visual inspection of the steam dryer at the Pilgrim Station. The purpose of this letter is to report the results of that avaluation. The verification for this letter is contained in Reference 1.

BACKGROUND:

In the 1987 refueling outage cracks were observed adjacent to the tack welds for two of the four steam dryer leveling screws. The leveling screws with cracked tack welds were located at 35 and 215 degrees. The cracks extended for the full length of the tack welds. There was no evidence that the leveling screws had retated due to the cracked welds. The cracked tack welds had performed like a mechanical locking device. These cracks were repaired per Reference 2 and evaluated in Reference 3. The repair consisted of adding two new tack welds to each of the two leveling screws with cracked tack welds. The welding was performed underwater.

The original construction tack weld design was one 0.25 inch fillet weld 0.50 inch long for each leveling screw. The repair tack weld design was two 0.375 inch fillet welds 1.0 inch long for each leveling screw. The cracked original construction tack welds were not removed.

DISCUSSION:

During the 1991 refueling outage cracks were observed adjacent to the same two leveling screws. Since the original cracks were not removed, this by itself was to be expected. However, the current cracks are longer than those in 1987. The cracks have propagated into the new tack welds.

The current length of the cracks is difficult to accurately determine as no measurement device was lowered and included in the video. The design size of welds per AWS is a minimum. Thus the actual tack welds could be larger than the drawing specified valus. It is judged that all three tack welds are significantly larger than the design length. The tack welds are the only visible feature that can be used to estimate the length of the cracks. It is judged that the crack adjacent the 35 degree leveling screw is approximately 150 to 180 degrees around the circumference of the screw. One end of the crack can be clearly seen. It is judged that the crack adjacent the 215 degree leveling screw extends the full length of the inspection. Neither end of the crack is visible. It is judged that the crack length is greater than 180 degrees. The ends of the tack welds behind the leveling screws are not visible. Thus the total length of the welds can not be quantified. For both the 35 and the 215 degree leveling screws, the cracks are open a small amount adjacent to the original tack welds and are much tighter adjacent to the repair tack welds.

The cracks are primarily located in the dryer support ring at the toe of the tack welds. Since the repair tack welds are larger than the original tack weld, the cracks do not follow a circular path. Instead the cracks follow the irregular contour of the tack welds.

The cause of the cracks was stated in Reference 3 to be fatigue. The current judgement is that the cause of the cracks is intergranular stress corrosion cracking (IGSCC). The bases for the revised judgement are as follows. (1) A fatigue crack would follow a smooth well defined path along the region of maximum alternating stress. These cracks do not follow a smooth path. These cracks are not located in the region of highest alternating stress, which for a fillet weld is through the throat of the weld. These cracks instead follow the irregular path of lower stress at the toe of the fillet weld. (2) Many BWR's have reported IGSCC cracks in the steam dryer support ring. All of these cracks have been located within approximately one inch of a weld. These cracks have been shown to be IGSCC through the use of metallographic examination of crack samples. The support ring is fabricated by cold rolling a piece of flat plate. Then many pieces are welded to the support ring without any heat treatment. Thus the support ring is sensitized due to both cold work and welding. The support ring also has significant residual stress due to both rolling and welding.

The leveling screws are used to transmit the weight of the steam dryer to the four reactor pressure vessel (RPV) brackets. At initial reactor assembly the four leveling screws were installed to be in contact with their respective RPV bracket and then tack welded to lock them in position. The only purpose of the tack welds is to prevent turning of the leveling screws. The leveling screws are loaded in compression. Thus the highest loaded threads are at the bottom of the screw (the end opposite the tack welds).

The steam dryer is classified as not safety related and is not under the jurisdiction of the ASME Code.

RECOMMENDATION:

GE recommends that the cracks be dispositioned as accept as is. GE also recommends that the cracks be visually inspected during the next refueling outage to determine if there had been any leveling screw rotation or significant crack extansion. The bases for these recommendations are as follows. (1) There currently is adequate uncracked weld on the 35 degree leveling (2) The growth rate of the cracks since 1987 has been slow enough such that sufficient tack weld should remain on the 35 degree leveling screw at least until the next refueling outage to perform the locking function. (3) It is not known if the crack adjacent to the 215 degree leveling screw extends the full length of the tack welds because the ends of the crack and the ends of the tack weld are not visible. Since the crack adjacent to the repair tack welds is tight, it is judged that the crack has not propagated through the full thickness of the tack welds. (4) Even if the crack should propagate completely through the weld thickness and all the way around the leveling screw, the weld will perform its function because the crack contour will not allow the screw to turn. In essence the completely cracked tack weld would become a mechanical locking device. This was demonstrated by the lack of leveling screw rotation that was observed in 1987. (5) Even if it is postulated that the leveling screws turn sufficiently to take them out of contact with the RPV brackets, there will be no effect on dryer performance and there will be no safety consequences. Of course, in this extreme case the repair necessary during the next refueling outage may be more extensive.

Prepared by

J. E. Charnley

Of Clanky

Principal Engineer

Reactor Design Engineering

Verified by

Mail O. Kem

M. O. Lenz

Engineer

Reactor Components Design

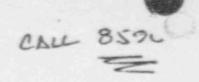
ILGRIM NUCLEAR POWER STATION

INVESSEL VISUAL INSPECTIONS

EIGHTH REFUELING AND INSPECTION OUTAGE

SECTION IV

TRAVELER



PILGRIM NUCLEAR POWER STATION RFO #8 GE TRAVELER ISI

DESC	CRIPTION: In Vessel Visual	Inspection							D. REL	FASED	FOR PRODU	UCTION
PAGI	SELER NO.: 19101307-1			PRO	_	T N		IL KPO	1/3-	ERING. Y ASSOL	1 5	DA DA
if REG	OPERATION	PROCESARE	MEI APP	EDLE 7		x P011	et .	NCR NO.	int	SECULE NO	COMPLETED	DATE S/LY/FI
Seq.	EXAMENATION OR TEST	ENSTRUCTION and REV.	,	ec	α	ANI	HCR	RELEASED BY DATE	PROD BY DATE	OC 87 DATE	CLIENT BY DATE	ANT BY DATE
16	Review Procedure	Prisc TP91-080 REV ()	8	14 91%	C.				139991		Thive 78. 520/91	
18	Review MR	HR 19101307	н	S.K W	C W				18%1		18 5/29/4)	
2	Notify Watch Engineer that Inspections are starting		×	if	C Wik 9249				TD941		utaine - 34.5/29/1	
3A	Verify all Required Insp. Equip. is in place and operating properly	Proc 1P01-080 REV D	#	SI-M	Cy				极物		XI. Stoffe	

these) W: Noting one prior to starting each stp. thosever it is not necessary to hold up tob. 1. K. 5/23/91

GE Nuclear Energy

TRAVELER FOLLOW PAGE

Rev.:3

TRAVELER NO: 19101307-1

Q

2 OF 4

	OPERATION EXAMINATION	PROCEDURE		MOKED O	R CHE	HOLD OR CHE'X POINT		HC2 NO.		SEGRENCE BY/	SEGRENCE COMPLETED SY/DATE	
Seq.	OR TEST	end REV.		8	ರ	AKET	ğ	RELEASED BY DATE	72.73 72.7 DATE	OC 8Y/ BATE	CLIENT RY/ DATE	ANT ET/ DATE
無	Perform Calibration Requirements Per Sec. 5.0 of Proc. (Verify as req.)	Proc 11-91-080 AEV O	*	١	NA CAN				10 %,	skely!	2/29/91	
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18	Review Procedure	1P91-086 Rev.0	5						M.CH 6-3-91			*
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TRAVELER No: 19054010-1

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1	Verify safety requirements are met. Reference Sec. 6.0 of procedure	1991-086 Rev. 0	æ						6-3-51			
-	Establish all prerequisites are net (es applicable) per Sec. 7.0 of procedure	1991-086 Rev0	8						6-3-91			
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SPECIAL PROCESS CONTROL SHEET

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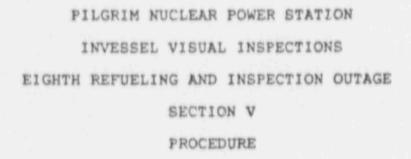
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VERIFY ALL PERSONNEL ARE TRAINED IAW TP91-086 Rev. 0

DOCUMENT THIS TRAINING ON ATTACHMENT 1 of TP91-086 Rev. 0

Review By: Initial/Date Approved By: QC Initial/Date



BOSTON EDISON

PILGRIM NUCLEAR POWER STATION

Temporary Procedure No. TP91-080

INVESSE! VISUAL INSPECTION (IVVI) PROCEDURE FOR BHR-3 REACTOR PRESSURE VESSEL INTERNALS

OC REVIEW REQUIRED

OR PROGRAM RELATED

SAFETY REVIEW REQUIRED

NOT REQUIRED

NOT REQUIRED

Charles 157

REVIEWERS AND APPPOV	ERS
Procedure Writer	5/6/41 Date
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B Perkins	5/7/9/ Date
Technical Reviewer	Date
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PROCEDURE NO .: GE-VT-204

TITLE

REVISION NO .: 8

INVESSEL VISUAL INSPECTION (IVVI) PROCEDURE FOR BWR-3 REACTOR PRESSURE VESSEL INTERNALS

PREPARED BY

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DATE 4/0/91 GELEVEL ZIT

REVIEWED BY:

DATE: APRIL 10, 199 NELEVEL TIT

APPROVED FOR USE BY:

DATE APRIL 10, 1991

COMMENTS:

PORM BJ 4-06-90



NO. GE-YT-204 REV. 0 PAGE 1 OF 24 TITLE: INVESSEL VISUAL INSPECTION (IVVI) PROCEDURE FOR BYR 3 RPV INTERNALS

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1.0 SCOPE

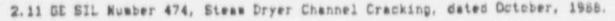
- 1.1 This procedure defines the method and requirements for VT-1 and VT-3, Invessel Visual Inspection (IVVI) of the Reactor Pressure Vossel (RPV), General Electric Boiling Water Reactor (BVR), type TKREE (3) internals which are made accessible during scheduled refucing and spintenance outages. This procedure meets the requirements of the American Ecciety of Mechanical Engineers (ASME) Boiler and Pressure Code, Table IVB-2500, Examination Categories B-N-1 and B-N-2. Augmented inspection requirements are also defined in this procedure.
- 1.2 This procedure can be utilized in its entirety or portions thereof. **s directed by the Inservice Inspection (ISI) Program or the specified outage workscope. The inspections can be conducted in any order so as to allow for increase in production or to support other operations during refueling and saintenance outages.

2.0 REFERENCES

- 2 1 American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section V and XI.
- 2.2 General Electric Procedure, FQP-03, *Procedure for Qualification and Certification of Mondestructive Examination Personnel, which meets the requirements of the *American Society of Mondestructive Testing (ASNT), Recommended Practice No. SNT-TC-1A, 1975 and 1980 Edition.
- 2.3 American National Standard Institute (ANSI), "Qualification of Personnel," ANSI N45.2.6, 1978 Edition.
- 2.4 United States Nuclear Regulatory Commission (USNRC), I.E. Bulletin Number 60-13, dated May 12, 1960.
- 2.5 USHRC MUREG-0619, "BWR Feedwater Nozzle and CRD Return Line Wozzle Cracking."
- 2.6 USNRC Regulatory Guide 1.147. *Inservice Inspection Code Case Acceptability, ASKE Section XI, Division 1.*
- 2.7 GE Service Information Letter (SIL) Number 289, Core Spray Sparger Visual Inspection, dated February, 1979.
- 2.8 GE SIL Number 409, Incore Dry Tube Cracks, dated July, 1986.
- 2.9 BE SIL Number 428, Inspection of Jet Pump Sensing Line, dated March, 1985.
- 2.10 GE SIL Number 465, Jet Pump Mixer Unusual Surface Chaervation, dated May, 1988.



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- 2.12 GE SIL Number 515, Reactor Pressure Vessel Head Linear Indications, dated May 3, 1990.
- 2.13 GE RICSIL Number @50, Reactor Pressure Jessel Head Clad Cracking, dated April 12, 1990.
- 2.14 DE RICSIL Number 854, Core Support Shroud Crack Indications, dated November, 1990.
- 2.15 ASNE Code Case N-424, *Qualification of visual examination personnel, Section XI, Division 1.*
- 2.16 ASKE Code Case 1738, *Examination Acceptance standards for surface indications in cladding, Section XI.*

3.0 PERSONNEL

- 3.1 All personnel performing VT-1 visual examinations shall be trained, qualified and certified to at least a VT-1 Level II in accordance with the GE Procedure FQP-03 or equivalent.
- 3.2 All personnel performing VT-3 visual examinations shall be trained, qualified and certified to at least a VT-3 Level II in accordance with the GE Procedure FQP-03 or equivalent.
- 3.3 The visual examiners are required to complete the appropriate data sheets for the examinations that are performed and record the examination results of those examinations.
- 3.4 Personnel performing the visual examination shall additionally be knowledgeable regarding the component being examined and be able to identify deleterious indications relative to that component.
- 3.5 Personnel whall be knowledgeable in the underwater remote visual examination process and equipment. The underwater camera technicians shall be knowledgeable and have experience with the underwater camera equipment. The technicians may be required to demonstrate their proficiency of the underwater camera handling capabilities to the lead visual examiner prior to performing any work over the Reactor Cavity.
- 3.6 All personnel performing examinations per this procedure shall be trained in the handling of Radioactive materials and special precautions necessary when working in a radiation or a radioactively contamination area.

4.0 EQUIPMENT

MOTE: Certain equipment is required to perform particular IVVI examinations. The following checklist provides a list of equipment that may be used during particular IVVI examinations:

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- 4.1 Refueling bridge or service platfors.
- 4.2 Underwater closed circuit Television Camera System.
 - a) Two (2) Underwater Cameras
 - b) Two (2) Underwater Casera Control Units, backup boards and tubes.
 - c) Two (2) 125 foot cable harness.
 - d) Lighted straight view lens attachment.
 - e) Lighted right angle sirror attachment.
 - f) Two (2) High resolution TV monitors (regular monitors if required) ...
- 4.3 An IVVI resolution fixture, holding the 0.001 inch disseter wire and/or a 18% neutral grey card (GE visual comparator card) with a 1/32 inch black line.
- 4.4 Character generator with power supply.
- 4.5 Connecting cables.
- 4.6 Two (2) Microphones.
- 4.7 Video tapes (super o. regular VHS) as required.
- 4. B Float box for a viewing aid.
- 4.9 Work table for electronics.
- 4.10 Two (2) High resolution (super or regular) video tape recorders as required.
- 4.11 General area light(s) (required for resolution).
- 4.12 Local area light(s) (required for resolution).
- 4.13 Ny : : rope (250 feet).
- 4.14 Small handling poles (100 feet).
- 4.15 Small set of air pliers.
- 4.16 Inspection fixture (optional):
 - a) Core spray sparger inspection fixture.
 - b) Camera holding fixture (general use).
 - c) Dry tube inspection fixture.



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TITLE: INVESSEL VISUAL INSPECTION (IVVI)
PROCEDURE FOR BWR 3 RPV INTERNALS



d) Steam dryer inspection fixture.

e) Resote operated vehicles.

5. 8 CALIBRATION

- 5.1 When performing the IVVI of the core spray piping internal brackets, core spray internal piping, core spray spargers and core spray sparger brackets, the IVVI resolution requirements shall be considered adequate and qualified when the combined lighting, access and angle of vision is sufficient to resolve a 0.001 inch dismeter wire. This resolution wire may be located in an IVVI resolution fixture.
- 5.2 When performing the IVVI of the remaining components that are listed in this procedure, the IVVI resolution shall be considered adequate and qualified when the combined lighting, access and angle of vision is sufficient to resolve a 1/32 inch black line on a 16% neutral gray card. This resolution standard may be located in an IVVI resolution fixture.
- 5.3 There are no specific VT-3 resolution requirements; however, when performing examinations in accordance with this procedure, the resolution requirements of the VT-3 examinations shall be at least equal to that of a VT-1 resolution as identified in paragraph 5.2.
- 5.4 The IVVI camera resolution shall be performed only once on each major component or every twelve (12) hours or when changes are made to the equipment. The camera to component distance should remain as constant as possible during the examination after the resolution has been verified.

NDTE: IVVI video casera resolution is required on both the live video images as well as the recorded video tape image.

6. 8 EXAMINATION

- 6.1 Procedure General Requirements
 - 6.1.1 Reactor shut down and resovable (Reactor Vessel internals) items resoved for normal refueling.
 - 6.1.2 Reactor cavity water level at the normal full level for IVVI performed from the refuel bridge, or just below the RPV Flangs when performing the IVVI from the service platform.
 - 6.1.3 Reactor water temperatures should be maintained at less than 90 degrees Fahrenheit and water clarity shall be sufficient for the examiners to view the camera position and to establish the necessary resolution with camera system.



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NOTE: The water temperature of 90 degrees Fahrenheit or less is recommended for a higher quality examination. Water temperature affects the examination in several ways:

- a) Temperatures above 140 degrees Fahrenheit and 122 degrees Fahrenheit may adversely affect the B/W (Westinghouse Model ETV-1250) and color camera (Westinghouse Model ETV-1256) heads respectively.
- b) Thermal distortion (heat waves) of the visual examination begin around 188 deprees Fahrenheit and progressively worsen, at which time the IVVI examination may be impossible to perform.
- Humidity on the refuel floor generally increases with an increase in the water temperature. The Westinghouse ETV-1250 and ETV-1256 Camera Control Units operate with relative humidity in the range from 0 to 95% (non-condensing).
- 6.1.4 Assure the required equipment is available, set up, operationally tested and ready for use during the examination.
- 6.1.5 Reactor water clarity shall be established and judged satisfactory for the examination by the lead GE Level II or Level III examiner.
- 6.1.6 Access for performing visual examination of the dry tubes and control cell components requires the appropriate fuel assemblies to be removed.
- 6.1.7 Access for performing IVVI below the top guide and the core plate requires the appropriate control cells to be disassembled. (ie, removal of the 4 fuel assemblies, control rod drive (CRD), CRD thermal sleave, placement of a valve flange over the CRD housing flange, fuel support casting, control rod blade and guide tube.
- 6.1.8 All work shall be performed in accordance with the owner's Health Physics Procedures and industrial safety requirements.
- 6.1.9 Ensure that proper health physics coverage is provided during the resoval or installation of any items from the RPV.
- 6.1.10 All tools, equipment and materials used in a designated tool control area shall be logged into and out of the area. Tools and associated equipment to be used over the reactor cavity or RPV shall be tied off to prevent anything dropping into the RPV. Specific requirements for such control are beyond the scope of this procedure, but must be consistent with owner's requirements and/or procedures.
- 6.1.11 Prior to examination, all parts of the invessel camera or manipulator(s) (nuts, bolts, etc.) shall be captured or properly retained to prevent loss in the Reactor Vessel.

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- 6.1.13 Where required, particular attention shall be given to each welded joint and the heat affected zone (HAZ) associated with each welded joint.
- 6.1.14 When using optical aids to improve the angle of vision and/or resolution, care must be taken to ensure that the equipment does not shadow the area of interest or otherwise mask the examination area.
- 6.1.15 The video tape recorded during the examination should be reviewed by an independent Level II or Level III IVVI Visual Examiner.

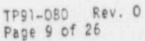
 Timely review of those tapes could resolve any questions prior to IVVI equipment being disassembled or removed from the area of examination.
- 6.1.16 All areas and components examined by the remote underwater television system shall have the system qualified by verifying the live resolution requirements appropriate to the examination being performed, per paragraph 5.0.

6.2 Resote Television Techniques - 1VV1

- 6.2.1 When a video recorder is used during the examination, do not run the recorder constantly. Achieve the best resolution and focus possible. When the examiner is satisfied with the picture, begin the recording. Record still images for about 20 meconds. During scans, continue to record at the end of the scan for about 20 meconds. At the end of an image recording, press the pause button on the recorder. This will provide for a smooth transition from one image to another without loss of any previously taped images. Additionally, it will eliminate excessive reviewing and editing time.
- 6.2.2 Perform a visual scan of components by moving the television camera slowly across the component surface, pausing at each weld so that the examiner can verify whether or not flaw indications are present.

6.3 Examiner's Duties

- 6.3.1 Examiners shall sign off the invessel visual examination data sheet(s) as required (See Exhibit 11 and III).
- 6.3.2 Review the video tape as each component is examined and check the tape for quality, completeness and accuracy. Fill in the appropriate information on the invessel visual examination data sheet (s). (See Exhibit II and III).





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6.3.3 Using the underwater television system and adequate lighting, examine those areas as outlined in the procedure for conditions listed on each component. Any abnormalities should be documented with video recording and appropriate supplemental documentation shall be attached to the data package. (See Exhibit II and III).

6.4 ASME Code Requirements - JUVI

- 6.4.1 ASME Section XI Code, Subsection IWA-2211 Visual Examination VT-1:
 - a) The VT-1 visual examination shall be conducted to determine the condition of the part, component, or surface examined, including such conditions as cracks, wear, corrosion, erosion or physical damage on the surface of the part or component.
 - Direct visual examination may be conducted when access is sufficient to place the eye within 24 inches (61 cm) of the surface to be examined and at an angle not loss than 30 degrees to the surface. Mirrors may be used to improve the angle of vision and aids such as a sagnifying lens say be used to assist examinations. The specific part, component, or section thereof, under issediate examination, shall be illuminated, as necessary, with a flashlight or other auxiliary lighting, to attain a minimum of 15 foot candles (fc) for peneral examination and a minimum of 50 fc for the detection or study of small indications. In addition, illumination of the area to be examined way be required at right or oblique angles to expose cracks or evidence of corrosion or erosion. Resolution shall be considered adequate and qualified when the combined lighting, access and angle of vision is sufficient to resolve a 1/32 inch black line on a 18% neutral gray (GE visual comparator) card.
 - Respte visual examination may be performed where conditions exist that prevent direct visual examination. Remote visual examination may include visual mids such as telescopes, periscopes, binoculars, fiber optics, television cameras and aphitoring systems or other suitable instruments. Remote techniques shall demonstrate the ability to provide a resolution at least equivalent to that obtained by direct visual examination. Mirrors, movemble lights, rotating optics or any combination thereof may be utilized to display cracks, surface scratches, or evidence of corrosion, moving, misalignment or movement. In the event remote visual examination is required utilizing remote equipment, evaluations shall be performed by personnel with experience in the method selected.



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- 6.4.2 ASME Section XI Code, Subsection IWA-2213 Visual Examination VT-3:
 - a) The visual examination shall be conducted to determine the general mechanical and structural condition of components and their supports, such as the presence of loose parts, debris, or abnormal corrosion products, wear, erosion, corrosion and the loss of integrity at bolted or welded connections.
 - b) The VT-3 visual examination may require, as applicable to determine structural integrity, the measurement of clearances, detection of physical displacement, structural adequacy of supporting elements, connection between load carrying structural members and tightness of bolting.
- 6.4.3 For component supports and component interiors, the visual examinations may be performed remotely with or without optical aids to verify the structural integrity of the component.

6.5 Examination Areas - General

- 6.5.1 The following components, when required to be examined using this procedure, shall be examined per the methods indicated and the results of the IVVI examination noted on the data sheets.
- 6.5.2 Visual examinations are required to be performed on the accessible areas which are defined as the space above and below the Reactor Core that is made accessible for examinations by removal of components during normal refueling outages.

6.6 Above Thre Plate Examination (ACPE) General

- 6.6.1 The steam dryer hold down lugs and the top head examinations should be performed by the direct visual method.
- 6.6.2 The shroud, shroud support welds, jet pump diffuser welds, jet pump sensing line brackets and the access cover welds should be inspected during the jet pump assembly examination. It will be difficult to view any large areas within the shroud and vessel wall due to limited accessibility.
- 6.6.3 The examination of the steam dryer and separator are performed while in the flooded equipment storage pool. This will require some form of access for the camera holders from above, such as the refueling bridge.
- 6.6.4 The following components shall be examined in accordance with the ISI Program or outage workscope and the following conditions recorded as a minimum on the applicable data sheet:
- 6.7 Cladding Patches ACPE (if required)
 - 6.7.1 Condition of cladding patches.



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6.7.2 Note general condition of cladding observed.

6.8 Guide Rod - ACPE

- 6. B. 1 Condition of bracket to vessel wall weld.
- 6.8.2 General condition of upper guide rod bracket.
- 6.8.3 Condition of plug weld.
- 6.8.4 General condition of guide rod including the lower plug and bracket attachment to the shroud.
- 6.8.5 Record the guide rod azieuth examined.

6.9 Steam Dryer Support Bracket - ACPE

- 6.9.1 Condition of bracket to vessel wall weld.
- 6.9.2 Condition of dryer seating surface for wear.
- 6.9.3 Record the steam dryer support brackets examined.

6.10 Steam Dryer Hold Down Bracket - ACPE

- 6.10.1 Condition of dryer hold down brackets.
- 6.10.2 Condition of the seating surface.
- 6.18.3 Condition of the attachment weld to the RPV head.
- 6.18.4 Record the steas dryer hold down bracket azisuth examined.

NOTE: This inspection is performed using direct visual techniques while the RPV head is on its storage pedestals.

6.11 Reactor Pressure Vessel Head - ACPE

- 6.11.1 General Condition of the inside surface adjacent to the top head vertica? and horizontal pressure vessel welds (clad or uncladded).
- 6.11.2 Record the location of the head weld examined.

NOTE: This inspection is performed using direct visual techniques while the RPV nead is on its storage pedestals.

6.12 Feedwater Sparper End Bracket - ACPE

- 6.12.1 Condition of bracket to vessel wall weld.
- 6.12.2 General condition of branket.
- 6.12.3 Record the feedwater sparger end bracket azimuth examine: TP91-080 Rev. O Page 12 of 26



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6.13 Feedwater Sparger - ACRE

- 6.13.1 Beneral condition of feedwater sparger.
- 6.13.2 Condition of sparger welds.
- 6.13.3 Condition of nozzle welds or flow holes as applicable.
- 6.13.4 Condition of end bracket pins and tack welds.
- 6.13.5 Condition of end bracket welds
- 6.13.6 Record the Feedwater Sparger azisuth examined.

6.14 Feedwater Nozzle - ACDE

- 6.14.1 Condition of the nozzle inner radius accessible areas.
- 6.14.2 Condition of nozzle bore accessible areas.
- 6.14.3 Record the Feedwater Nozzle azimuth examined.

6.15 Core Spray Intgunal Piping Wall Bracket - ACPE

- 6.15.1 Condition of bracket to vessel wall welds.
- 6.15.2 Condition of the bolt head tack welds.
- 6.15.3 General condition of the bracket.
- 6.15.4. Record the core spray internal piping wall brackets examined.

6.16 fore Spray Internal Piping - ACPE

- 6.16.1 General condition of core spray header piping.
- 6.16.2 Condition of core spray header welds.
- 6.16.3 Beneral condition of core spray downcomer piping.
- 6.16.4 Condition of core spray downcomer welds.
- 6. . 5 Condition of elbow welds.
- 6.16.6 Condition of junction (tee) box welds with particular attention to the heat affected zone of the flow divider welds.
- 6.16.7 condition of junction (tee) box to thereal sleeve area.
- 6.16.8 Record the azisuth or loop examined.



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6.17 Core Spray Sparger - ACPE

- 6.17.1 Examine the four core spray spargers in at least four camera passes for the following:
 - a) Doe pass concentrating on the upper sparger tack welds and nozzle conditions.
 - b) One pass concentrating on the lower sparger tack welds and nozzle conditions.
 - c) Two passes of different angles covering as much of the sparger pipe surface as possible including the tee welds.
 - d) The examination should concentrate for cracks in the welds and the weld heat affected zones. Cracks have also been found in the sparger piping.
 - e) Condition of the sparger supported brackets to sparger and top guide.
- 6.17.2 Record the arras examined.

6.18 Jet Pump Assembly - ACPE

- 6.18.1 Condition of beas bolt keeper and tack welds.
- 5.18.2 Condition of lock plate, flat head screws and tack welds.
- b. 18.3 Alignment and condition of hold down bear.
- 6.18.4 Condition of beas retainer.
- 6.18.5 Seating of ras head, nozzles and condition of inlet suction area.
- 6.18.6 Condition of riser brace and attachment weld to vessel wall
- 6.18.7 Condition of riser brace to riser weld.
- 6.18.8 Condition of wedge assembly.
- 6.18.9 Condition of the restrainer bracket, set screws and tack welds.
- 6.18.10 Condition of slip joint.
- 6.18.11 Condition of diffuser to adapter weld.
- 6.18.12 Condition of diffuser weld to shroud plate.
- 6.18.13 Record the jet pump assembly examined.



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6.19 Jet Puep Sensing Line - ACPE

- 6.19.1 Condition of sensing line attachment welds to brackets.
- 6.19.2 Condition of bracket weld to diffuser.
- 6.19.3 Condition of the sensing line coupling welds.
- 6.19.4 Record the jet pump sensing line examined.

6.20 Shroud Support Plate Weld - ACPF.

- 6.20.1 Condition of accessible enroud support plate weld to reactor vessel wall.
- 6.20.2 Condition of accessible shroud support plate weld to shroud.
- 6.20.3 Condition of accessible shroud stiffer welds (if applicable).
- 6.20.4 Record the section of shroud support plate weld examined.

6.21 Shroud - ACPE

- 6.21.1 Beneral condition of the shroud/separator flange mating surface.
- 6.21.2 Record the section of the shroud/separator flange mating surface examined.
- 6.21.3 Condition of the inside surface accessible portion of the circusferential weld in the main cylinder section of the shroud.

 This weld is located between the core plate and the top guide (see Figure 1).
- 6.21.4 If indications are identified during the examination as required in paragraph 6.21.3, examine the outside area of the shroud weld that contains the suspect indications.
- 6.21.5 Record the section of the shroud circusferential weld examined.
- 6.21.6 Condition of the inside surface accessible portion of the two vertical welds in the main cylinder section, upper portion of the shroud (see Figure 1).
- 6.21.7 Condition of the inside surface accessible portion of the two vertical welds in the main cylinder section, lower portion of the shroud (see Figure 1).
- 6.21.8 If indications are identified during the examination as required in paragraph 6.21.5 and 6.21.6, examine the outside area of the shroud weld that contains the suspect indications.
- 6.21.9 Record the section of the shroud vertical welds examine: TP91-D80 Rev. D Page 15 of 26



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6.21.9 If during the examinations of paragraphs 6.21.3, 6.21.6 or 6.21.7 indications are identified, other shroud welds may be required to be examined by the owner. Record these additional shroud welds examined.

6.22 Shroud Support Access Cover - ACPE

- 6.22.1 Condition of the shroud access cover weld to shroud support plate.
- 6.22.2 General condition of the access cover.
- 6.22.3 Record the azimuth of the access cover examined.

6.23 Instrument Dry Tube - ACPE

- 6.23.1 Condition of the upper two (2) feet of the dry tube.
- 6.23.2 Check for cracks in the spring housing.
- 6.23.3 Record the X-Y coordinates of the dry tubes examined.

NOTE: The four (4) fuel assemblies surrounding the dry tube should be removed to allow camera access. Be careful not to bump the dry tube. Inspect dry tubes from all four (4) directions (if accessible).

6.24 Surveillance Sample Holder - ACPE

- 6.24.1 Condition of the upper sounting bracket and weld.
- 6.24.2 Condition of the lower sounting bracket and weld.
- 6.24.3 Beneral condition of the sample holder.
- 6.24.4 Record the sample holder examined.

6.25 Control Rod Drive Nozzle - ACPE

- 6.25.1 Condition of the nozzle inner radius area.
- 6.25.2 Record the aziauth of the CRD nozzle examined.

6. 26 Top Buide Hold Downs - ACPE

- 6.26.1 Condition of bolt, keeper, wedge and tack welds.
- 6.26.2 Examine one pass around peripheral top guide and 2 center fuel cells and all 4 corners of each cell.
- 6.26.3 Record the location of the area examined.

6.27 Steam Dryer - ACPE

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6.27.1 General condition of the lifting eye assemblies.



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- 6.27.2 Condition of the attachment welds to the lifting eye and the dryer wall.
- 6.27.3 Condition of the bank vertical welds.
- 6.27.4 Condition of the small horizontal welds between the vertical welds near the bottom of the vertical welds and top of the upper support ring.
- 6.27.5 Condition of the upper and lower plugs in the bank area between the bank vertical welds (if required).
- 6.27.6 Condition of the bank horizontal welds.
- 6.27.7 Condition of the bank tie bar welds.
- 6.27.8 Condition of the manway cover weld.
- 6.27.9 Condition of the seal to bank weld.
- 6.27.10 Condition of the upper support ring to the seal weld.
- 6.27.11 Condition of the support lugs adjacent on the supper support ring..
- 6.27.12 Condition of the upper support ring consternating on the upper 2" looking for horizontal indictions.
- 6.27.13 Condition of the upper support ring to the skirt weld.
- 6.27.14 Condition of the drain channel welds consternating on the bottom 2" of the vertical welds.
- 6.27.15 Condition of the skirt to skirt horizontal weld.
- 6.27.16 Condition of the lower support ring to skirt weld.
- 6.27.17 Condition of the upper and lower guides and welds.
- 6.27.18 Record the azimuth or location of the dryer that was examined.

6.28 Steas Separator - ACPE

- 6.28.1 General condition of separator.
- 6.28.2 Condition of lifting eye assemblies.
- 6.28.3 Condition of puter peripheral (top and bottom) standpipes and welds.
- 6.28.4 Record the area examined.



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6.29 Steam Separator Shroud Head Bolt - ACPE

- 6.29.1 Condition of the annoud head bolt.
- 6.29.2 Condition of the locking collar assembly for wear.
- 6.29.3 Record the number of bolts examined.

6.30 Below Core Plate Examination (BCPE) - GENERAL:

6.30.1 The IVVI examination is required when the components are made accessible during the normal refueling outage activities. Access for performing IVVI below the core plate requires the appropriate control cells to be disassembled, (ie, removal of the 4 fuel assemblies, support costing, control rod guide tube, CRD, unlatching of the CRD thermal sleeve and the placement of a valved flarry over the CRD housing flange.).

5.31 Fuel Support Casting - BCPE

- 6.31.1 Condition of the tack welds securing the flow orifices.
- 6.31.2 General condition of the casting.
- 6.31.3 Check for proper seating in the guide tube.
- 6.31.4 Check the alignment pin in the core plate for excessive bending.
- 6.31.5 Condition of lower tie plate seating area in fuel support casting.
- 6.31.6 Record the location of the castings examined.

6.32 Control Rod Guide Tube - BCPE

- 6.32.1 General condition of guide tubes.
- 6.32.2 Check for debris inside the guide tube.
- 6.32.3 Condition of the spud fingers and pin located at the top of the CRD housing, inside of the control rod guide tube.
- 6.32.4 Check for proper seating of the guide tube.
- 6.32.5 Condition of guide tube seating surface when it contacts core plate.
- 6.32.6 Record the location of the guide tube examined.

6.33 Control Rod Drive Housing - BCPE

6.33.1 Condition of the weld between the CRD stub tube and the ves-el bottom head.



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- 6.33.2 Condition of the weld between the CRD housing and the stub tube.
- 6.33.3 General condition of the CRD housing.
- 6.33.4 Check for debris around the CRD housing.
- 6.33.5 Record the X-Y coordinates of the CRD's examined.

6.34 In-Core Guide Tube - BCPE

- 6.34.1 Condition of the weld between the in-core and the vessel bottom head.
- 6.34.2 Check the weld joining the in-core guide tube to the in-core housing.
- 6.34.3 General condition of the in-core guide tube.
- 6.34.4 Condition of the stabilizers.
- 6.34.5 Check for debris around the in-core guide tubes.
- 6.34.6 Record the X-Y coordinate of the in-core guide tube.

6.35 Standby Liquid Control Piping and RPV Differential Pressure Instrument Piping - BCPE

- 6.35.1 Condition of the weld between the pipe and the vessel wall.
- 6.35.2 Condition of the SLC support bracket welds.
- 6.35.3 General condition of the SLC piping.
- 6.35.4 Condition of the DPI support bracket welds.
- 6.35.5 General condition of the DPI piping.
- 6.35.6 Record the SLC or DOI piping examined.

6.36 Bottom Head Drain - BCPE -

- 6.36.1 General condition of the drain line openings.
- 6.36.2 Check for debris around drain line opening.
- 6.36.3 Record the bottom head drain examined.

6.37 Core Plate Supp. t - BCPE

- 6.37.1 Condition of the fillet welds between the core plate and the support beams.
- 6.37.2 Record the section of core plate supports that are examine Page 19 of 26



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PROCEDURE FOR BWR 3 RP. INTERNALS

- 6.38 Shroud Support Pillars BCPE (if applicable)
 - 6.38.1 Condition of support pillar to lower vessel head weld:
 - 6.38.2 Condition of support pillar to shroud weld.
 - 6.38.3 Check for debris and piller erosion.
 - 6.38.4 Record the shroud support pillars examined.
- 6.39 Completion of Examination
 - 6.39.1 Remove all inspection equipment from the reactor pressure wessel and plean up the area.
 - 6.39.2 View and edit examination video tapes.
 - 6.39.3 Complete all of the examination data sheets.
 - 6.39.4 Verify no lost parts from the inventory list.

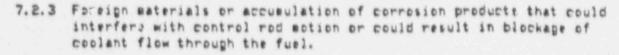
7.0 RECORDING

- 7.1 The visual examiner shall be responsible for recording of examination results that provide a boxis for evaluation and facilitate comparison with the results of subsequent examinations.
- 7.2 The following melevant conditions bust be reported as a minimum to the Dwner as unertable.
 - 7.2.1 Structural autortion or displacement of parts to the extent the compon at junction may be impaired.
 - 7.2.2 Loose, missing, cracked, or fractured parts, bolting or fasteners.



ND.

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- 7.2.4 Corrosion or erosion that reduces the nominal section thickness by sore than 5x.
- 7.2.5 Wear of mating surfaces that may lead to loss of function.
- 7.2.6 Structural degradation of interior attachments such that the original cross sectional area is reduced sore than 5%.
- 7.2.7 The components previous VT examination results shall be reviewed to verify that indications have not changed. If indications have changed, the visual examiner shall insure that the change is identified on the Examination Summary Sheet (Exhibit I).
- 7.3 Abnormalities detected shall be documented with sketches, photographs or other forms which will aid in the evaluation process.

8. 0 EVALUATION

- B. I Co ponents where examination either reveals indications that are in ext & of the Dwner's specification(s) or previously recorded indications that are significant larger than recorded shall be unacceptable for service. If Dwner's specification is not provided, Paragraph 7.2 shall apply.
- B.2 Visual examinations that detect surface flaws where practical, should be supplemented by either surface or volumetric examinations to determine the character of the flaw (size, shape and orientation).
- 8.3 The Lead Visual Examiner shall evaluate examination results to the inspection criteria specified in the Evaluation Section. The video tapes and recorded examination results shall be reviewed and evaluated by at least a Level II independent reviewer other than the examiners that performed the examination. This evaluation shall be documented on the Examination Susmary Sheet (See Exhibit I).



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8.4 The lead visual IVVI examiner shall notify the Dwner's representative of any defects that will require additional engineering evaluation or any abnormalities that are unacceptable within 1 hour after the completion of the evaluation process.

9. @ REPORTS

- 9.1 The examination results shall be recorded on the Invessel Visual Examination Data Sheets (See Exhibit II and III). Alternative data sheets may be used if the minimum information is recorded in accordance with the procedure requirements. After the IVVI examination is completed, the Examination Summary Sheet (Exhibit I) shall be filled out summarizing the examination that was performed.
- 9.2 The Invessel Visual Examination Data Sheets shall be prepared for all components examined. The format of the data sheet exhibits are subject to change as may be required. The Visual Examination Data Sheet shall include the following information as a minimum:
 - a) Visual Examiner(s) signature(s) and level(s)
 - b) Date of Examination
 - c) Procedure Number, Revision Number, Field Revision Request Number
 - d) Type of visual examination (direct/remote)
 - e) Illumination Used, if any
 - f) Direct Visual Aids Used, if any
 - g! Remote Visual Equipment Used, if any
 - h Identification of Cosponents Examined
 - i) Examination Results
 - j) Location and Size of any indications
- 9.3 Should Owner request a report in addition to the Examination Sussary Sheet and the Invessel Visual Examination Data Sheets, the report should be prepared and subsitted to the Owner as specified by the contract.

PILGRIM NUCLEAR POWER STATION

Temporary Procedure No. TP91-080

INVESSEL VISUAL INSPECTION (IVVI) PROCEDURE FOR BWR-3 REACTOR PRESSURE VESSEL INTERNALS

C O Limbo
SSUED 00T 1 1991

QC REVIEW REQUIRED

QA PROGRAM RELATED

SAFETY REVIEW REQUIRED

NOT REQUIRED

NOT REQUIRED

REVIEWERS AND APPROV	ERS
The Heater	5/4/91
Procedure Writer	Date
B Beckins	5/7/9/ Date
Technical Reviewer	Date
(/ hul Genow -	5/7/41 Date
(Validator	Date
C/ Muto	6/8/91 Date
/ Procedure Owner	Date
Example per BERAM 5:2.5	5/7/91
QAD Manager	Date
NOT ROD JAS ORC Chairman	5-10-91
ORC Chairman	Date
D.Eur	5-13-91
Pranning & Outage Manager	Date

Effective	Date:	5-14-91	
Expiration	n Date:	11-10-91	



PROCEDURE NO .: GE-VT-204

TITLE

REVISION NO .: Ø

INVESSEL VISUAL INSPECTION (IVVI) PROCEDURE FOR BWR-3 REACTOR PRESSURE VESSEL INTERNALS

PREPARED BY:

DATE 4/6/91 GELEVEL ZIT

REVIEWED BY:

DATE: APRIC 10, 1991GE LEVEL TIT

APPROVED FOR USE BY:

DATE APRIL 10, 1991

COMMENTS:

PORM ISJ 4-08-90



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1.0 SCOPE

- 1.1 This procedure defines the method and requirements for VT-1 and VT-3, Invessel Visual Inspection (IVVI) of the Reactor Pressure Vessel (RPV), General Electric Boiling Vater Reactor (BWR), type THREE (3) internals which are made accessible during scheduled refueling and maintenance outages. This procedure meets the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Code, Table IWB-2500, Examination Categories B-N-1 and B-N-2. Augmented inspection requirements are also defined in this procedure.
- 1.2 This procedure can be utilized in its entirety or portions thereof, as directed by the Inservice Inspection (ISI) Program or the specified outage workscope. The inspections can be conducted in any order so as to allow for increase in production or to support other operations during refueling and maintenance outages.

2.0 REFERENCES

- 2.1 American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section V and XI.
- 2.2 General Electric Procedure, FQF-03, "Procedure for Qualification and Certification of Nondestructive Examination Personnel, which meets the requirements of the "American Society of Nondestructive Testing (ASNT), Recommended Practice No. SNT-TC-1A, 1975 and 1980 Edition.
- 2.3 American National Standard Institute (ANSI), "Qualification of Personnel," ANSI N45.2.6, 1978 Edition.
- 2.4 United States Nuclear Regulatory Commission (USNRC), I.E. Bulletin Number 80-13, pated May 12, 1980.
- 2.5 USNRC NUREG-0619, *BWR Feedwater Nozzle and CRD Return Line Nozzle Cracking.*
- 2.6 USNRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASNE Section XI, Division 1."
- 2.7 GE Service Information Letter (SIL) Number 289, Core Spray Sparger Visual Inspection, dated February, 1979.
- 2.8 GE SIL Number 409, Incore Dry Tube Cracks, dated July, 1986.
- 2.9 GE SIL Number 420, Inspection of Jet Pump Sensing Line, dated March, 1985.
- 2.10 GE SIL Number 465, Jet Pump Mixer Unusual Surface Observation, dated May, 1988.



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- 2.11 GE SIL Number 474, Steam Dryer Channel Cracking, dated October, 1988.
- 2.12 GE SIL Number 515, Reactor Pressure Vessel Head Linear Indications, dated May 3, 1990.
- 2.13 GE RICSIL Number 050, Reactor Pressure Vessel Head Clad Cracking, dated April 12, 1990.
- 2.14 GE RICSIL Number @54, Core Support Shroud Crack Indications, dated November, 1990.
- 2.15 ASME Code Case N-424, *Qualification of visual examination personnel, Section XI, Division 1.*
- 2.16 ASME Code Case 1738, *Examination Acceptance standards for surface indications in cladding, Section XI.*

3. 0 PERSONNEL

- 3.1 All personnel performing VT-1 visual examinations shall be trained, qualified and certified to at least a VT-1 Level II in accordance with the GE Procedure FQP-03 or equivalent.
- 3.2 All personnel performing VT-3 visual examinations shall be trained, qualified and certified to at least a VT-3 Level II in accordance with the GE Procedure FQP-03 or equivalent.
- 3.3 The visual examiners are required to complete the appropriate data sheets for the examinations that are performed and record the examination results of those examinations.
- 3.4 Personnel performing the visual examination shall additionally be knowledgeable regarding the component being examined and be able to identify deleterious indications relative to that component.
- 3.5 Personnel shall be knowledgeable in the underwater remote visual examination process and equipment. The underwater camera technicians shall be knowledgeably and have experience with the underwater camera equipment. The technicians may be required to demonstrate their proficiency of the underwater camera handling capabilities to the lead visual examiner prior to performing any work over the Reactor Cavity.
- 3.6 All personnel performing examinations per this procedure shall be trained in the handling of Radioactive materials and special precautions necessary when working in a radiation or a radioactively contamination eres.

4.0 EQUIPMENT

NOTE: Certain equipment is required to perform particular IVVI examinations. The following checklist provides a list of equipment that may be used during particular IVVI examinations:

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- 4.1 Refueling bridge or service platfors.
- 4.2 Underwater closed circuit Television Casera System.
 - a) Two (2) Underwater Caseras
 - b) Two (2) Underwater Camera Control Units, backup boards and tubes.
 - c) Two (2) 125 foot cable harness.
 - d) Lighted straight view lens attachment.
 - e) Lighted right angle sirror attachsent.
 - f) Two (2) High resolution TV conitors (regular conitors if required) ...
- 4.3 An IVVI resolution fixture, holding the 0.001 inch diameter wire and/or a 18% neutral grey card (GE visual comparator card) with a 1/32 inch black line.
- 4.4 Character generator with power supply.
- 4.5 Connecting cables.
- 4.6 Two (2) Microphones.
- 4.7 Video tapes (super or regular VHS) as required.
- 4.8 Float box for a viewing aid.
- 4.9 Work table for electronics.
- 4.10 Two (2) High resolution (super or regular) video tape recorders as required.
- 4.11 General area 1: ht(s) (required for resolution).
- 4.12 Local area light(s) (required for resolution).
- 4.13 Nylon rope (250 feet).
- 4.14 Small handling poles (100 feet).
- 4.15 Small set of air pliers.
- 4.16 Inspection fixture (optional):
 - a) Core spray sparger inspection fixture.
 - b) Casera holding fixture (general use).
 - c) Dry tube inspection fixture.



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d) Steam dryer inspection fixture.

e) Resote operated vehicles.

5. 8 CALIBRATION

- 5.1 When performing the IVVI of the core spray piping internal prickets, core spray internal piping, core spray spargers and core spray sparger brackets, the IVVI resolution requirements shall be considered adequate and qualified when the combined lighting, access and angle of vision is sufficient to resolve a 0.001 inch disseter wire. This resolution wire may be located in an IVVI resolution fixture.
- 5.2 When performing the IVVI of the respining components that are listed in this procedure, the IVVI resolution shall be considered adequate and qualified when the combined lighting, acress and angle of vision is sufficient to resolve a 1/32 inch black line on a 18% neutral gray card. This resolution standard may be located in an IVVI resolution fixture.
- 5.3 There are no specific VT-3 resolution requirements; however, when performing examinations in accordance with this procedure, the resolution requirements of the VT-3 examinations shall be at least equal to that of a VT-1 resolution as identified in paragraph 5.2.
- 5.4 The IVVI casera resolution shall be performed only once on each major component or every twelve (12) hours or when changes are made to the equipment. The casera to component distance should remain as constant as possible during the examination after the resolution has been verified.

NOTE: IVVI video camera resolution is required on both the live video images as well as the recorded video tape image.

6.8 EXAMINATION

- 6.1 Procedure Beneral Requirements
 - 5.1.1 Reactor shut down and removable (Reactor Vessel internals) items removed for normal refueling.
 - 6.1.2 Reactor cavity water level at the normal full level for IVVI performed from the refuel bridge, or just below the RPV Flange when performing the IVVI from the service platform.
 - 6.1.3 Reactor water temperatures should be maintained at less than 90 degrees Fahrenheit and water clarity shall be sufficient for the examiners to view the camera position and to establish the necessary resolution with camera system.



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NOTE: The water temperature of 90 degrees Fahrenheit or less is recommended for a higher quality examination. Water temperature affects the examination in several ways:

- a) Temperatures above 140 degrees Fahrenheit and 122 degrees Fahrenheit may adversely affect the B/W (Westinghouse Model ETV-1250) and color camera (Westinghouse Model ETV-1256) heads respectively.
- b) Thermal distortion (heat waves) of the visual examination begin around 100 degrees Fahrenheit and propressively worsen, at which time the IVVI examination may be impossible to perform.
- c) Humidity on the refuel floor generally increases with an increase in the water temperature. The Westinghouse ETV-1250 and ETV-1256 Camera Control Units operate with relative humidity in the range from 0 to 95% (non-condensing).
- 6.1.4 Assure the required equipment is available, set up, operationally tested and ready for use during the examination.
- 6.1.5 Reactor water clarity shall be established and judged satisfactory for the examination by the lead BE Level II or Level III examiner.
- 6.1.6 Access for performing visual examination of the dry tubes and control cell components requires the appropriate fuel assemblies to be removed.
- 6.1.7 Access for performing IVVI below the top guide and the core plate requires the appropriate control cells to be disasseabled. (ie, removal of the 4 fuel assemblies, control rod drive (CRD), CRD thermal sleeve, placement of a valve flange over the CRD housing flange, fuel support casting, control rod blade and guide tube.
- 6.1.8 All work shall be performed in accordance with the owner's Health Physics Procedures and industrial safety requirements.
- 6.1.9 Ensure that proper health physics coverage is provided during the resoval or installation of any items files the RPV.
- 6.1.10 All tools, equipment and materials used in a designated tool control area shall be logged into and out of the area. Tools and associated equipment to be used over the reactor cavity or RPV shall be tied off to prevent anything dropping into the RPV. Specific requirements for such control are beyond the scope of this procedure, but must be consistent with owner's requirements and/or procedures.
- 5.1.11 Prior to examination, all parts of the invessel camera or manipulator(s) (nuts, bolts, etc.) shall be captured or properly retained to prevent loss in the Reactor Vessel.
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- 6.1.12 The examination shall be recorded on video tape with voice recording and character generator, unless otherwise indicated by owner.
- 6.1.13 Where required, particular attention shall be given to each welded joint and the heat affected zone (HAZ) associated with each welded joint.
- 6.1.14 When using optical aids to improve the angle of vision and/or resolution, care sust be taken to ensure that the equipment does not shadow the area of interest or otherwise mask the examination area.
- 6.1.15 The video tape recorded during the examination should be reviewed by an independent Level II or Level III IVVI Visual Examiner. Timely review of those tapes could resolve any questions prior to IVVI equipment being disassembled or removed from the area of examination.
- 6.1.16 All areas and components examined by the remote underwater television system shall have the system qualified by verifying the IVVI resolution requirements appropriate to the examination being performed, per paragraph 5.0.

6.2 Reacte Television Techniques - IVVI

- 6.2.1 When a video recorder is used during the examination, do not run the recorder constantly. Achieve the best resolution and focus possible. When the examiner is satisfied with the picture, begin the recording. Record still images for about 20 seconds. During scans, continue to record at the end of the scan for about 20 seconds. At the end of an image recording, press the pause button on the recorder. This will provide for a smooth transition from one image to another without loss of any previously taped images. Additionally, it will eliminate excessive reviewing and editing time.
- 6.2.2 Perfore a visual scan of components by moving the television camera slowly across the component surface, pausing at each weld so that the examiner can verify whether or not flaw indications are present.

6.3 Exaginer's Duties

- 6.3.1 Examiners shall sign off the invessel visual examination data sheet(s) as required (See Exhibit II and III).
- 6.3.2 Review the video tape as each component is examined and check the tape for quality, completeness and accuracy. Fill in the appropriate information on the invessel visual examination data sheet (s). (See Exhibit II and III).



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6.3.3 Using the underwater television system and adequate lighting, examine those areas as outlined in the procedure for conditions listed on each component. Any abnormalities should be documented with video recording and appropriate supplemental documentation shall be attached to the data package. (See Exhibit II and III).

6.4 ASME Code Requirements - 1001

- 6.4.1 ASME Section XI Code, Subsection IWA-2211 Visual Examination VT-1:
 - a) The VT-1 visual examination shall be conducted to determine the condition of the part, component, or surface examined, including such conditions as cracks, wear, corrosion, erosion or physical damage on the surface of the part or component.
 - Direct visual examination may be conducted when access is sufficient to place the eye within 24 inches (61 cm) of the surface to be examined and at an angle not less than 30 degrees to the surface. Mirrors say be used to improve the angle of vision and aids such as a magnifying lens may be used to assist examinations. The specific part, component, or section thereof, under issediate examination, shall be illuminated, as necessary, with a flashlight or other auxiliary lighting, to attain a minimum of 15 foot candles (fc) for general examination and a minimum of 50 fc for the detection or study of small indications. In addition, illumination of the area to be examined may be required at right or oblique angles to expose cracks or evidence of corrosion or erosion. Resolution shall be considered adequate and qual: .ed when the combined lighting, access and angle of vision is sufficient to resolve a 1/32 inch black line on a 18% neutral gray (GE visual comparator) card.
 - Resote visual examination may be performed where conditions exist that prevent direct visual examination. Remote visual examination may include visual mids such as telescopes, periscopes, binoculars, fiber optics, television cameras and monitoring systems or other suitable instruments. Remote techniques shall demonstrate the ability to provide a resolution at least equivalent to that obtained by direct visual examination. Mirrors, moveable lights, rotating optics or any combination thereof may be utilized to display cracks, surface scratches, or evidence of corrosion, erosion, misalignment or movement. In the event remote visual examination is required utilizing remote equipment, evaluations shall be performed by personnel with experience in the method selected.



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- 6.4.2 ASME Section XI Code, Subsection IWA-2213 Visual Examination VT-3:
 - a) The visual examination shall be conducted to determine the general mechanical and structural condition of components and their supports, such as the presence of loose parts, debris, or abnormal corrosion products, wear, erosion, corrosion and the loss of integrity at bolted or welded connections.
 - b) The VT-3 visual examination say require, as applicable to determine structural integrity, the measurement of clearances, detection of physical displacement, structural adequacy of supporting elements, connection between load carrying structural members and hightness of bolting.
- 6.4.3 For component supports and component interiors, the visual examinations may be performed resotely with or without optical aids to verify the structural integrity of the component.

6.5 Examination Areas - General

- 6.5.1 The following components, when required to be examined using this procedure, shall be examined per the methods indicated and the results of the IVVI examination noted on the data sheets.
- 6.5.2 Visual examinations are required to be performed on the accessible arers which are defined as the space above and below the Reactor Core that is made accessible for examinations by removal of components during normal refueling outages.

6.6 Above Core Plate Examination (ACPE) General

- 6.6.1 The steam dryer hold down lugs and the top head examinations should be performed by the direct visual method.
- 5.6.2 The shroud, shroud support welds, jet pusp diffuser welds, jet pusp sensing line brackets and the access cover welds should be inspected during the jet pusp assembly examination. It will be difficult to view any large areas within the shroud and vessel wall due to limited accessibility.
- 6.6.3 The examination of the steam dryer and separator are performed while in the flooded equipment storage pool. This will require some form of access for the camera holders from above, such as the refueling bridge.
- 6.6.4 The following components shall be examined in accordance with the ISI Program or outage workscope and the following conditions recorded as a minimum on the applicable data sheet:
- 6.7 Cladding Patches ACPE (if required)
 - 6.7.1 Condition of cladding patches.



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- 5.7.2 Note general condition of cladding observed.
- 6.8 Suide Rod ACPE
 - 6.8.1 Condition of bracket to vessel wall weld.
 - 6.8.2 General condition of upper guide rod bracket.
 - 6.8.3 Condition of plug weld.
 - 6.8.4 General condition of guide rod including the lower plug and bracket attachment to the shroud.
 - 6.8.5 Record the guide rod arisuth examined.
- 6.9 Steam Dryer Support Bracket ACPE
 - 6.9.1 Condition of bracket to vesse wall weld.
 - 6.9.2 Condition of dryer seating surface for wear.
 - 6.9.3 Record the steam dryer support brackets examined.
- 6.10 Steam Dryer fold Down Bracket ACPE
 - 6.10.1 Condition of dryer hold down brackets.
 - 6.18.2 Condition of the seating surface.
 - 6.18.3 Condition of the attachment weld to the RPV head.
 - 6.18.4 Record the steam dryer hold down bracket azimuth examined.

NOTE: This inspection is performed using direct visual techniques while the RPV head is on its storage pedestals.

- 6.11 Reactor Pressure Vessel Head ACPE
 - 6.11.1 General Condition of the inside surface adjacent to the top head vertical and horizontal pressure vessel welds (clad or uncladded).
 - 6.11.2 Record the location of the head weld examined.

NDTE: This inspection is performed using direct visual techniques while the RPV head is on its storage pedestals.

- 6.12 Feedwater Sparger End Bracket ACPE
 - 6.12.1 Condition of bracket to vessel wall weld.
 - 6.12.2 General condition of bracket.
 - 6.12.3 Record the feedwater sparger end bracket azisuth examine: TP91-080 Rev. Page 12 of 26



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6.13 Feedwater Sparper - ACPE

- 6.13.1 General condition of feedwater sparger.
- 6.13.2 Condition of sparger welds.
- 6.13.3 Condition of nozzle welds or flow holes as applicable.
- 6.13.4 Condition of end bracket pins and tack welds.
- 6.13.5 Condition of end bracket welds
- 6.13.6 Record the Feedwater Sparger azisuth examined.

6.14 Feedwater Nozzle - ACPE

- 6.14.1 Condition of the nozzle inner radius accessible areas.
- 6.14.2 Condition of nozzle bore accessible areas.
- 6.14.3 Record the Feedwater Nozzle azimuth examined.

6.15 Core Spray Internal Piping Wall Bracket - ACPE

- 6.15.1 Condition of bracket to vessel wall welds.
- 6.15.2 Condition of the bolt head tack welds.
- 6.15.3 General condition of the bracket.
- 6.15.4 Record the core spray internal piping wall brackets examined.

6.16 Core Spray Internal Piping - ACPE

- 6.16.1 General condition of core spray header piping.
- 6.16.2 Condition of core spray header welds.
- 6.16.3 Beneral condition of core spray downcoser piping.
- 6.16.4 Condition of core spray downcomer welds.
- 6.16.5 Condition of albow welds.
- 6.16.6 Condition of junction (tee) box welds with particular attention to the heat affected zone of the flow divider welds.
- 5.16.7 condition of junction (tee) box to thereal sleeve area.
- 6.16.8 Record the azisuth or loop examined.



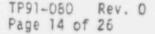
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6.17 Core Spray Sparger - ACPE

- 6.17.1 Examine the four core spray spargers in at least four camera passes for the following:
 - a) One pass concentrating on the upper sparger tack welds and nozzle conditions.
 - b) One pass concentrating on the lower sparger tack welds and nozzle conditions.
 - c) Two passes of different angles covering as such of the sparger pipe surface as possible including the tee welds.
 - d) The examination should concentrate for cracks in the welds and the weld heat affected zones. Cracks have also been found in the sparger piping.
 - e) Sondition of the sparger supported brackets to sparger and top guide.
- 6.17.2 Record the areas examined.

6.18 Jet Pugo Assembly - ACPE

- 6.18.1 Condition of beas bolt keeper and tack welds.
- 6.18.2 Condition of lock plate, flat head screws and tack welds.
- 6.18.3 Alignment and condition of hold down beam.
- 6.18.4 Condition of beas retainer.
- 6.18.5 Seating of ras head, nozzles and condition of inlet suction area.
- 6.18.6 Condition of riser brace and attachment weld to vessel wall
- 6.18.7 Condition of riser brace to riser weld.
- 6.18.8 Condition of wedge assembly.
- 6.18.9 Condition of the restrainer bracket, set screws and tack welds.
- 6.18.10 Condition of slip joint.
- 6.18.11 Condition of diffuser to adapter weld.
- 6.18.12 Condition of diffuser weld to shroud plate.
- 6.18.13 Record the jet pump assembly examined.





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6.19 Jet Pump Sensing Line - ACPE

- 6.19.1 Condition of sensing line attachment welds to brackets.
- 6.19.2 Condition of bracket weld to diffuser.
- 6.19.3 Condition of the sensing line coupling welds.
- 6.19.4 Record the jet pusp sensing line examined.

6.20 Shroud Support Plate Weld - ACPE

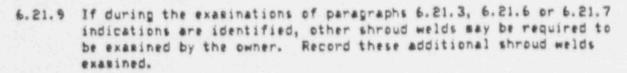
- 6.20.1 Condition of accessible shroud support plate weld to reactor vessel wall.
- 6.20.2 Condition of accessible shroud support plate weld to shroud.
- 6.20.3 Condition of accessible shroud stiffer welds (if applicable).
- 6.20.4 Record the section of shroud support plate weld examined.

6.21 Shroud - ACPE

- 6.21.1 General condition of the shroud/separator flange sating surface.
- 6.21.2 Record the section of the shroud/separator flange sating surface examined.
- 6.21.3 Condition of the inside surface accessible portion of the circumferential weld in the main cylinder section of the shroud. This weld is located between the core plate and the top guide (see Figure 1).
- 6.21.4 If indications are identified during the examination as required in paragraph 6.21.3, examine the outside area of the shroud weld that contains the suspect indications.
- 6.21.5 Record the section of the shroud circusferential weld examined.
- 6.21.6 Condition of the inside surface accessible portion of the two vertical welds in the main cylinder section, upper portion of the shroud (see Figure 1).
- 6.21.7 Condition of the inside surface accessible portion of the two vertical welds in the main cylinder section, lower portion of the shroud (see Figure 1).
- 6.21.8 If indications are identified during the examination as required in paragraph 6.21.5 and 6.21.6, examine the outside area of the shroud weld that contains the suspect indications.
- 6.21.9 Record the section of the shroud vertical welds examiner TP91-080 Rev. D Page 15 of 26



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6.22 Shroud Support Access Cover - ACPE

- 6.22.1 Condition of the shroud access cover weld to shroud support plate.
- 5.22.2 Seneral condition of the access cover.
- 6.22.3 Record the azimuth of the access cover examined.

6.23 Instrument Dry Tube - ACPE

- 6.23.1 Condition of the upper two (2) feet of the dry tube.
- 6.23.2 Check for cracks in the spring housing.
- 6.23.3 Record the X-Y coordinates of the dry tubes examined.

NOTE: The four (4) fuel assemblies surrounding the dry tube should be removed to allow camera access. Be careful not to bump the dry tube. Inspect dry tubes from all four (4) directions (if accessible).

6.24 Surveillance Sasple Holder - ACPE

- 6.24.1 Condition of the upper sounting bracket and weld.
- 6.24.2 Condition of the lower sounting bracket and weld.
- 6.24.3 General condition of the sample holder.
- 6.24.4 Record the sample holder examined.

6.25 Control Rod Drive Nozzle - ACPE

- 6.25.1 Condition of the nozzle inner radius area.
- 6.25.2 Record the azieuth of the CRD nozzle examined.

6.26 Top Guide Hold Downs - ACPE

- 6.26.1 Condition of bolt, keeper, wedge and tack welds.
- 6.26.2 Examine one pass around peripheral top guide and 2 center fuel cells and all 4 corners of each cell.
- 6.26.3 Record the location of the area examined.
- 6.27 Stees Dryer ACPE

6.27.1 Beneral condition of the lifting eye assemblies.

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- 6.27.2 Condition of the attachment welds to the lifting eye and the dryer wall.
- 6.27.3 Condition of the bank vertical welds.
- 6.27.4 Condition of the small horizontal welds between the vertical welds near the bottom of the vertical welds and top of the upper support ring.
- 6.27.5 Condition of the upper and lower plugs in the bank area between the bank vertical welds (if required).
- 6.27.6 Condition of the bank horizontal welds.
- 6.27.7 Condition of the bank tie bar welds.
- 6.27.8 Condition of the sanway cover weld.
- 6.27.9 Condition of the seal to bank weld.
- 6.27.10 Condition of the upper support ring to the seal weld.
- 6.27.11 Condition of the support lugs adjacent on the supper support ring..
- 6.27.12 Condition of the upper support ring consternating on the upper 2" looking for horizontal indictions.
- 6.27.13 Condition of the upper support ring to the skirt weld.
- 6.27.14 Condition of the drain channel welds consternating on the bottom 2" of the vertical welds.
- 6.27.15 Condition of the skirt to skirt horizontal weld.
- 6.27.16 Condition of the lower support ring to skirt weld.
- 6.27.17 Condition of the upper and lower guides and welds.
- 6.27.18 Record the azisuth or location of the dryer that was examined.

6.28 Steam Separator - ACPE

- 6.28.1 General condition of separator.
- 6.28.2 Condition of lifting eye assemblies.
- 6.28.3 Condition of outer peripheral (top and bottom) standpipes and welds.
- 6.28.4 Record the area examined.



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6.29 Steam Separator Shroud Head Bolt - ACPE

- 6.29.1 Condition of the shroud head bolt.
- 6.29.2 Condition of the locking collar assembly for wear.
- 6.29.3 Record the number of bolts examined.

6.38 Below Core Plate Examination (BCPE) - BENERALI

6.30.1 The IVVI examination is required when the components are made accessible during the normal refueling outage activities. Access for performing IVVI below the core plate requires the appropriate control cells to be disassembled, (ie, removal of the 4 fuel assemblies, support casting, control rod guide tube, CRD, unlatching of the CRD thermal sleeve and the placement of a valved flange over the CRD housing flange.).

b. 31 Fuel Support Casting - BCPE

- 6.31.1 Condition of the tack welds securing the flow orifices.
- 6.31.2 General condition of the casting.
- 6.31.3 Check for proper seating in the guide tube.
- 6.31.4 Check the alignment pin in the core plate for excessive bending.
- 6.31.5 Condition of lower tie plate seating area in fuel support casting.
- 6.31.6 Record the location of the castings examined.

6.32 Control Rod Guide Tube - BCPE

- 6.32.1 General condition of guide tubes.
- 6.32.2 Check for debris inside the guide tube.
- 6.32.3 Condition of the spud fingers and pin located at the top of the CRD housing, inside of the control rod guide tube.
- 6.32.4 Check for proper seating of the guide tube.
- 6.32.5 Condition of guide tube seating surface when it contacts core plate.
- 6.32.6 Record the location of the guide tube examined.

6.33 Control Rod Drive Housing - BCPE

6.33.1 Condition of the weld between the CRD stub tube and the vessel bottom head.



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- 6.33.2 Condition of the weld between the CRD housing and the stub tube.
- 6.33.3 General condition of the CRD housing.
- 6.33.4 Check for debris around the CRD housing.
- 6.33.5 Record the X-Y coordinates of the CRD's examined.

6.34 In-Core Guide Tube - BCPE

- 6.34.1 Condition of the weld between the in-core and the vessel bottom head.
- 6.34.2 Check the weld joining the in-core guide tube to the in-core housing.
- 6.34.3 General condition of the in-core guide tube.
- 6.34.4 Condition of the stabilizers.
- 6.34.5 Check for debris around the in-core guide tubes.
- 6.34.6 Record the X-Y coordinate of the in-core guide tube.

6.35 Standby Liquid Control Piping and RPV Differential Pressure Instrument Piping - BCPE

- 6.35.1 Condition of the weld between the pipe and the vessel wall.
- 6.35.2 Condition of the SLC support bracket welds.
- 5.35.3 General condition of the SLC piping.
- 6.35.4 Condition of the DPI support bracket welds.
- 6.35.5 General condition of the DPI piping.
- 6.35.6 Record the SLC or DPI piping examined.

6.36 Bottom Head Drain - BCPE -

- 6.36.1 General condition of the drain line openings.
- 6.36.2 Check for debris around drain line opening.
- 6.36.3 Record the bottom head drain examined.

6.37 Core Plate Support - BCPE

- 6.37.1 Condition of the fillet welds between the core plate and the support bears.
- 6.37.2 Record the section of core plate supports that are examine Page 19 of 26



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- 6.38 Shroud Support Pillers BCPE (if applicable)
 - 6.38.1 Condition of support pillar to lower vessel head weld.
 - 6.38.2 Condition of support pillar to shroud weld.
 - 6.38.3 Check for debris and pillar erosion.
 - 6.38.4 Record the shroud support pillars examined.
- 6.39 Completion of Examination
 - 6.39.1 Remove all inspection equipment from the reactor pressure vessel and clean up the area.
 - 6.39.2 View and edit examination video tapes.
 - 6.39.3 Complete all of the examination data sheets.
 - 6.39.4 Verify no lost parts from the inventory list.

7. P RECORDING

- 7.1 The visual examiner shall be responsible for recording of examination results that provide a basis for evaluation and facilitate comparison with the results of subsequent examinations.
- 7.2 The following relevant conditions sust be reported as a minimum to the Owner as unacceptable.
 - 7.2.1 Structural distortion or displacement of parts to the extent the component function may be impaired.
 - 7.2.2 Loose, missing, cracked, or fractured parts, bolting or fasteners.



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- 7.2.3 Foreign materials or accumulation of corresion products that could interfere with control rod motion or could result in blockage of coolant flow through the fuel.
- 7.2.4 Corrosion or erosion that reduces the nominal section thickness by more than 5%.
- 7.2.5 Wear of mating surfaces that may lead to loss of function.
- 7.2.6 Structural degradation of interior attachments such that the (riginal cross sectional area is reduced more than 5%.
- 7.2.7 The components previous VT examination results shall be reviewed to verify that indications have not changed. If indications have changed, the visual examiner shall insure that the change is identified on the Examination Summary Sheet (Exhibit I).
- 7.3 Abnormalities detected shall be documented with sketches, photographs or other forms which will aid in the evaluation process.

8.0 EVALUATION

- B.1 Components where examination either reveals indications that are in excess of the Dwner's specification(s) or previously recorded indications that are significant larger than recorded shall be unacceptable for service. If Owner's specification is not provided, Paragraph 7.2 shall apply.
- B.2 Visual examinations that detect surface flaws where practical, should be supplemented by either surface or volumetric examinations to determine the character of the flaw (size, shape and prientation).
- 8.3 The Lead Visual Examiner shall evaluate examination results to the inspection criteria specified in the Evaluation Section. The video tapes and recorded examination results shall be reviewed and evaluated by at least a Level II independent reviewer other than the examiners that performed the examination. This evaluation shall be documented on the Examination Summary Sheet (See Exhibit I).



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8.4 The lead visual IVVI examiner shall notify the Dwner' representative of any defects that will require additional enginee in a evaluation or any abnormalities that are unacceptable with. I hour after the completion of the evaluation process.

9. 8 REPORTS

- 9.1 The examination results shall be recorded on the Invessel Visual Examination Data Sheets (See Exhibit II and III). Filternative data sheets may be used if the minimum information is recorded in accordance with the procedure requirements. After the IVVI examination is completed, the Examination Summary Sheet (Exhibit I) shall be filled out summarizing the examination that was performed.
- 5.2 The Invessel Visual Examination Data Sheets shall be prepared for all components examined. The format of the data sheet exhibits are subject to change as may be required. The Visual Examination Data Sheet shall include the following information as a minimum:
 - a) Visual Examiner(s) signature(s) and level(s)
 - b) Date of Examination
 - c) Procedure Number, Revision Number, Field Revision Request Number
 - d) Type of visual examination (direct/remote)
 - e) Illumination Used, if any
 - f) Direct Visual Aids Used, if any
 - g) Remote Visual Equipment Used, if any
 - h Identification of Components Examined
 - i) Examination Results
 - j) Location and Size of any indications
- 9.3 Should Owner request a report in addition to the Examination Summary Sheet and the Invessel Visual Examination Data Sheets, the report should be propared and submitted to the Owner as specified by the contract.



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