9.0 WIRE INSPECTION AND TESTING

9.1 One tendon from each group (Vertical, Hoop, Dome) was completely detensioned. A single wire was removed from each detensioned tendon for inspection and testing. Each removed wire was examined over its entire length for corrosion and mechanical damage. Three samples from each wire were tested for diameter, yield strength, ultimate tensile strength and elongation. PSC Procedures SQ 10.2 and SQ 10.3 outline the details and acceptance criteria pertaining to the wire removal and testing. All data was recorded on Data Sheets SQ 10.2 and SQ 10.3 and the results summarized in Table 48.

9.1.1 All wire diameters were within the acceptance criteria of 0.2756 ± 0.002".

9.1.2 The corrosion level for all of the test wires were:

1 - Bright metal; no visible oxidation.

9.1.3 No mechanical damage was noted on any of the wires.

9.1.4 The yield strength of the wires tested exceeded the minimum acceptance criteria of 192,000 psi at 1% elongation. The lowest recorded yield strength was 225,678 psi.

9.1.5 The Ultimate Strength of the wires tested exceeded the minimum strength criteria of 240,000 psi on all samples. The lowest recorded ultimate strength was 257,305 psi.

9.1.6 The percent elongation at sample failure exceeded the required minimum of 4.0% on all samples tested. The recorded elongation on the samples varied from 4.5% to 5.3%.

TABLE 48: SQ10.2 & SQ10.3 – VISUAL INSPECTION AND TENSILE TESTING OF WIRE

TENDON	SAMPLE NUMBER	CORROSION LEVEL	SAMPLE LOCATION (ft)	DIAMETER (in.)	YIELD STRENGTH (ksi)	ULTIMATE STRENGTH (ksi)	ELONGATION (%)	ACCEPT?
51H34	1	1	10'-20'	.276	227.805	259.164	4.6	YES
	2	1	70'-80'	.276	226.210	262.353	5.1	YES
	3	1	140'-150'	.276	225.678	260.227	4.8	YES
61V17	1	1	10'-20'	.275	230.535	263.194	4.6	YES
	2	1	90'-100'	.275	229.464	263.194	5.0	YES
	3	1	170'-180'	.275	230.000	265.871	5.3	YES
D238	1	1	10'-20'	.275	230.000	260.517	4.7	YES
	2	1	50'-60'	.275	229.464	257.305	4.5	YES
	3	1	100'-110'	.275	228.393	263.194	5.0	YES

10.0 TENDON RETENSIONING AND RESEALING

10.1 TENDON RETENSIONING

10.1.1 The tendons that were detensioned for wire removal were retensioned per PSC Procedure SQ 11.0 in order to restore them to acceptable working force. The results of the retensioning process were recorded on PSC Data Sheet SQ 11.0 and the results summarized in Table 49. On Table 49, "N/A" indicates restressing occurred from the opposite end.

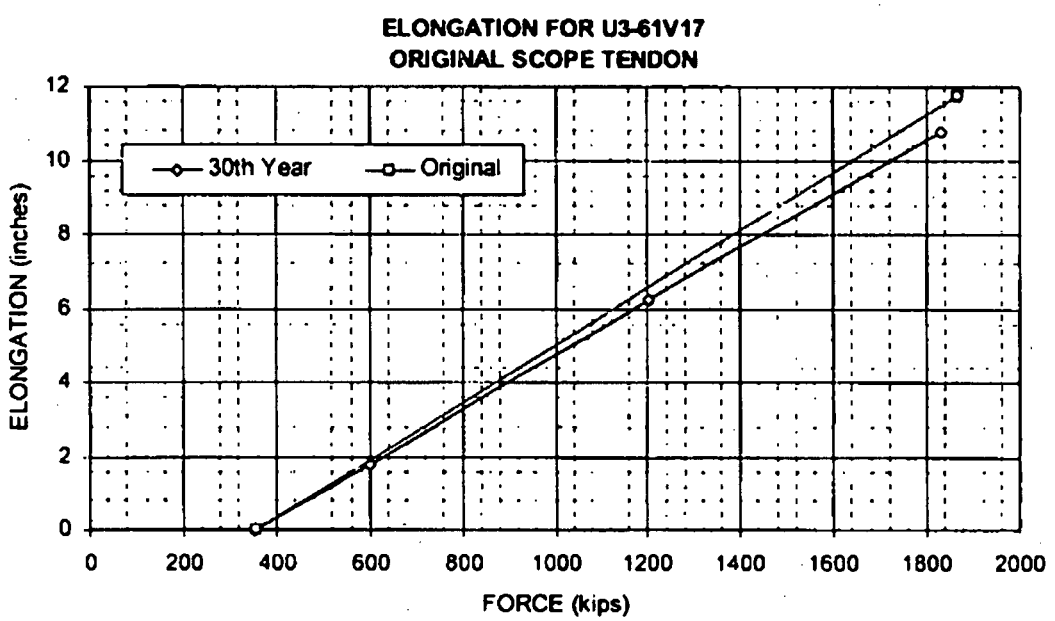
10.1.2 All new elongations were compared to original elongations and found to be acceptable (within ± 10%). A force versus elongation graph of each retensioning is plotted to verify that the elongation is linear and that no distortions of the tendon elongation are evident through bind or friction points. All plots trended similar to original installation and were acceptable.

10.1.3 All tendons were retensioned to acceptable force limits greater than as found. Tendon 51H34 as found liftoff was below Predicted Force and consequently it was restored to Predicted Force –0%, +6% per PSC Procedure. All tendons were locked off below the maximum of 70% G.U.T.S. (Guaranteed Ultimate Tensile Strength).

TABLE 49 - SQ11.0 – TENDON RETENSIONING

UNIT	TENDON	END	ORIGINAL ELONGATION TOTAL (in)	OBSERVED ELONGATION		% VARIATION	AS-FOUND LIFTOFF			RETENSIONING			% VARIATION	ACCPET ?
				EACH	TOTAL		JACK	LOCK OFF (kips)	AALV (kips)	JACK	LOCK OFF (kips)	AALV (kips)		
3	61V17	TOP	11.75	10.75	10.75	-8.51	8784	1580.18	1580.18	8784	1597.05	1597.05	+1.07	YES
		BOT		N/A			N/A	N/A		N/A	N/A			
3	51H34	BT 1	10.25	4.50	9.25	-9.75	8784	1532.96	1464.70	8784	1585.80	1558.18	+4.79 *	YES
		BT 5		4.75			8780	1396.45		8780	1530.56			
3	D238	BT 4	8 25	3.6	7.8	-5.45	8780	1527.21	1511.23	8780	1613 8	1566.6	+3.66	YES
		BT 6		4.2			8784	1495.86		8784	1519.47			

* +4.79 OF B.V.P.F. PER CR03ENG APPROVED PROCEDURE



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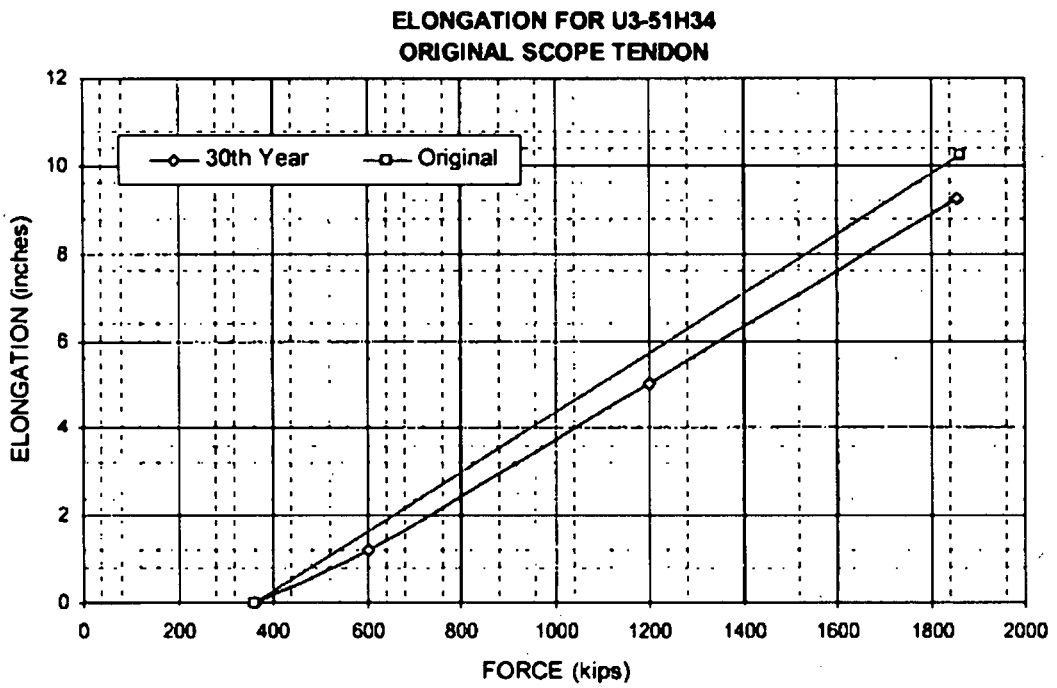

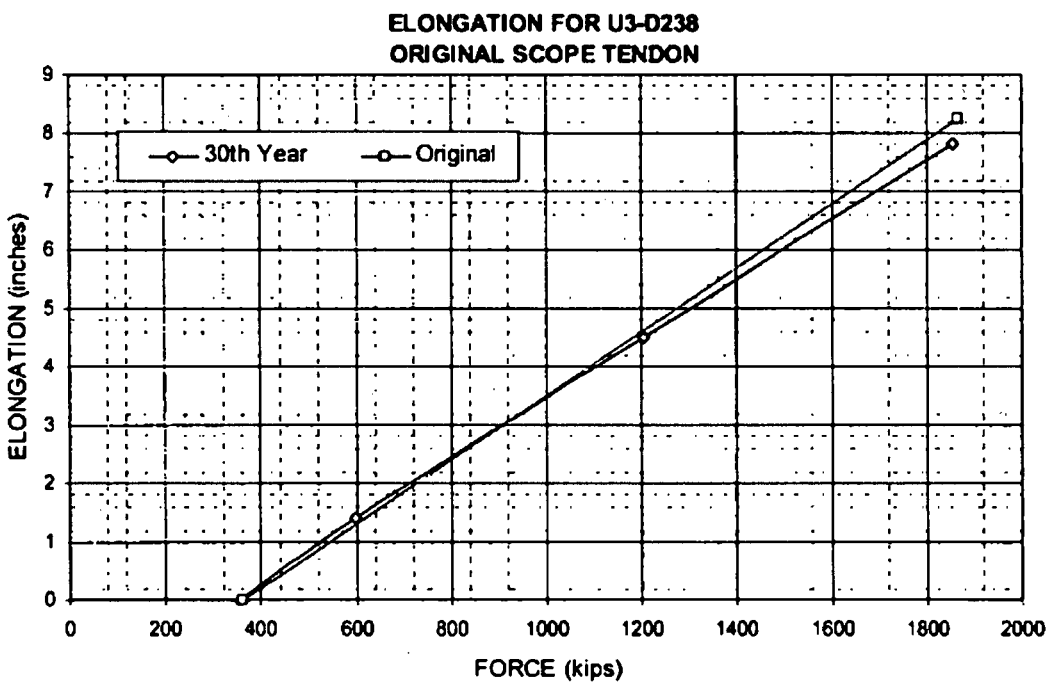

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10.2 TENDON CAP RESEALING AND GREASING

10.2.1 After completion of all inspections, the anchorage components were hand coated with cold grease to ensure complete coverage. The caps were reinstalled with new gaskets and the results of the grease cap replacement were recorded on Data Sheet SQ 12.0 and are summarized in Tables 50 thru 55.

10.2.2 Upon acceptable cap replacement, the necessary amount of sheathing filler (grease) was added. All of the inspected tendons were refilled within the acceptable limits as stated in the PSC Procedure SQ12.1. The results of the grease replacement were recorded on Data Sheet SQ 12.1 and are summarized in Tables 56 thru 60.

10.2.2.1 The absolute difference between the amount of grease removed/lost and the amount of grease replaced in the subject tendon shall not exceed 10% of the net duct volume per PSC Procedure SQ 12.1. No tendon accepted above 10% of the net duct volume more than was lost, and all refills were acceptable.

TABLE 50: VERTICALS – SQ12.0 – GREASE CAP REPLACEMENT

TENDON	END	BEARING PLATE SURFACE CLEAN AND ACCEPTABLE	ANCHORAGE ASSEMBLY COATED W/ GREASE	CAP FLANGE AND GASKET SEALING SURFACE IS CLEAN AND DRY	NEW GASKET IS BEING USED FOR FINAL INSTALLATION OF GREASE CAP	ANCHORAGE NUTS EVENLY TIGHTENED AND GASKET COMPRESSED	TOUCH-UP OF HARDWARE, CAP OR BEARING PLATE REQUIRED	ACCEPTABLE ?
12V01	TOP	YES	YES	YES	YES	YES	NO	YES
	BOT	YES	YES	YES	YES	YES	NO	YES
45V20	TOP	YES	YES	YES	YES	YES	NO	YES
	BOT	YES	YES	YES	YES	YES	NO	YES
61V08	TOP	YES	YES	YES	YES	YES	NO	YES
	BOT	YES	YES	YES	YES	YES	NO	YES
61V17	TOP	YES	YES	YES	YES	YES	NO	YES
	BOT	YES	YES	YES	YES	YES	NO	YES

TABLE 51: DOMES – SQ12.0 – GREASE CAP REPLACEMENT

TENDON	END	BEARING PLATE SURFACE CLEAN AND ACCEPTABLE	ANCHORAGE ASSEMBLY COATED W/ GREASE	CAP FLANGE AND GASKET SEALING SURFACE IS CLEAN AND DRY	NEW GASKET IS BEING USED FOR FINAL INSTALLATION OF GREASE CAP	ANCHORAGE NUTS EVENLY TIGHTENED AND GASKET COMPRESSED	TOUCH-UP OF HARDWARE, CAP OR BEARING PLATE REQUIRED	ACCEPTABLE ?
D129	BT 3	YES	YES	YES	YES	YES	NO	YES
	BT 5	YES	YES	YES	YES	YES	NO	YES
D212	BT 1	YES	YES	YES	YES	YES	NO	YES
	BT 3	YES	YES	YES	YES	YES	NO	YES
D238	BT 4	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES

TABLE 52: HOOPS – SQ12.0 – GREASE CAP REPLACEMENT

TENDON	END	BEARING PLATE SURFACE CLEAN AND ACCEPTABLE	ANCHORAGE ASSEMBLY COATED W/ GREASE	CAP FLANGE AND GASKET SEALING SURFACE IS CLEAN AND DRY	NEW GASKET IS BEING USED FOR FINAL INSTALLATION OF GREASE CAP	ANCHORAGE NUTS EVENLY TIGHTENED AND GASKET COMPRESSED	TOUCH-UP OF HARDWARE, CAP OR BEARING PLATE REQUIRED	ACCEPTABLE ?
13H36	BT 1	YES	YES	YES	YES	YES	NO	YES
	BT 3	YES	YES	YES	YES	YES	NO	YES
42H46	BT 2	YES	YES	YES	YES	YES	NO	YES
	BT 4	YES	YES	YES	YES	YES	NO	YES
46H21	BT 4	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES
51H34	BT 1	YES	YES	YES	YES	YES	NO	YES
	BT 5	YES	YES	YES	YES	YES	NO	YES
62H30	BT 2	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES

TABLE 53: 13H36 ADJACENTS – SQ12.0 – GREASE CAP REPLACEMENT

TENDON	END	BEARING PLATE SURFACE CLEAN AND ACCEPTABLE	ANCHORAGE ASSEMBLY COATED W/ GREASE	CAP FLANGE AND GASKET SEALING SURFACE IS CLEAN AND DRY	NEW GASKET IS BEING USED FOR FINAL INSTALLATION OF GREASE CAP	ANCHORAGE NUTS EVENLY TIGHTENED AND GASKET COMPRESSED	TOUCH-UP OF HARDWARE, CAP OR BEARING PLATE REQUIRED	ACCEPTABLE ?
13H33	BT 1	YES	YES	YES	YES	YES	NO	YES
	BT 3	YES	YES	YES	YES	YES	NO	YES
13H34	BT 1	YES	YES	YES	YES	YES	NO	YES
	BT 3	YES	YES	YES	YES	YES	NO	YES
13H35	BT 1	YES	YES	YES	YES	YES	NO	YES
	BT 3	YES	YES	YES	YES	YES	NO	YES
13H37	BT 1	YES	YES	YES	YES	YES	NO	YES
	BT 3	YES	YES	YES	YES	YES	NO	YES
13H38	BT 1	YES	YES	YES	YES	YES	NO	YES
	BT 3	YES	YES	YES	YES	YES	NO	YES

TABLE 54: 46H21 ADJACENTS – SQ12.0 – GREASE CAP REPLACEMENT

TENDON	END	BEARING PLATE SURFACE CLEAN AND ACCEPTABLE	ANCHORAGE ASSEMBLY COATED W/ GREASE	CAP FLANGE AND GASKET SEALING SURFACE IS CLEAN AND DRY	NEW GASKET IS BEING USED FOR FINAL INSTALLATION OF GREASE CAP	ANCHORAGE NUTS EVENLY TIGHTENED AND GASKET COMPRESSED	TOUCH-UP OF HARDWARE, CAP OR BEARING PLATE REQUIRED	ACCEPTABLE ?
46H19	BT 4	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES
46H20	BT 4	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES
46H22	BT 4	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES
46H23	BT 4	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES
46H24	BT 4	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES

TABLE 55: 62H30 ADJACENTS – SQ12.0 – GREASE CAP REPLACEMENT

TENDON	END	BEARING PLATE SURFACE CLEAN AND ACCEPTABLE	ANCHORAGE ASSEMBLY COATED W/ GREASE	CAP FLANGE AND GASKET SEALING SURFACE IS CLEAN AND DRY	NEW GASKET IS BEING USED FOR FINAL INSTALLATION OF GREASE CAP	ANCHORAGE NUTS EVENLY TIGHTENED AND GASKET COMPRESSED	TOUCH-UP OF HARDWARE, CAP OR BEARING PLATE REQUIRED	ACCEPTABLE ?
62H29	BT 2	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES
62H31	BT 2	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES
62H32	BT 2	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES
62H33	BT 2	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES
62H34	BT 2	YES	YES	YES	YES	YES	NO	YES
	BT 6	YES	YES	YES	YES	YES	NO	YES

TABLE 56: VERTICALS - SQ 12.1 - GREASE LOSS VS GREASE REPLACEMENT

TENDON	END	GREASE REMOVED (GALLONS)		GREASE REPLACED (GALLONS)		DIFF. (GAL.)	DUCT VOLUME (GAL.)	% DIFF.	ACCEPT
		END	TOTAL	END	TOTAL				
12V01	TOP	2.5	78.5	0	82.19	3.69	143.97	2.56	YES
	BOT	76		82.19					
45V20	TOP	3	88	0	91.04	3.04	144.47	2.10	YES
	BOT	85		91.04					
61V08	TOP	2.5	55	7.08	56.64	1.64	144.12	1.13	YES
	BOT	52.5		49.56					
61V17	TOP	2.5	98.5	1	107.2	8.7	144.74	6.01	YES
	BOT	96		106.2					

Depending on the amount of grease loss during the inspection, grease can be replaced by pouring it back into the grease cap.

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TABLE 57: HOOPS – SQ12.1 – GREASE LOSS vs. GREASE REPLACEMENT

TENDON	END	GREASE REMOVED (GALLONS)		GREASE REPLACED (GALLONS)		DIFF. (GAL.)	DUCT VOLUME (GAL.)	% DIFF.	ACCEPT
		END	TOTAL	END	TOTAL				
13H36	BT 1	2.5	5	3.54	7.08	2.08	121.67	1.70	YES
	BT 3	2.5		3.54					
42H46	BT 2	2.5	5.5	3.09	5.74	0.24	122.57	0.19	YES
	BT 4	3.0		2.65					
46H21	BT 4	2.5	5	3.54	7.08	2.08	122.06	1.70	YES
	BT 6	2.5		3.54					
51H34	BT 1	2.5	5	2.65	6.19	1.19	120.88	0.98	YES
	BT 5	2.5		3.54					
62H30	BT 2	2.5	5.	3.54	7.08	2.08	121.75	1.70	YES
	BT 6	2.5		3.54					

TABLE 58: DOMES – SQ12.1 – GREASE LOSS vs. GREASE REPLACEMENT

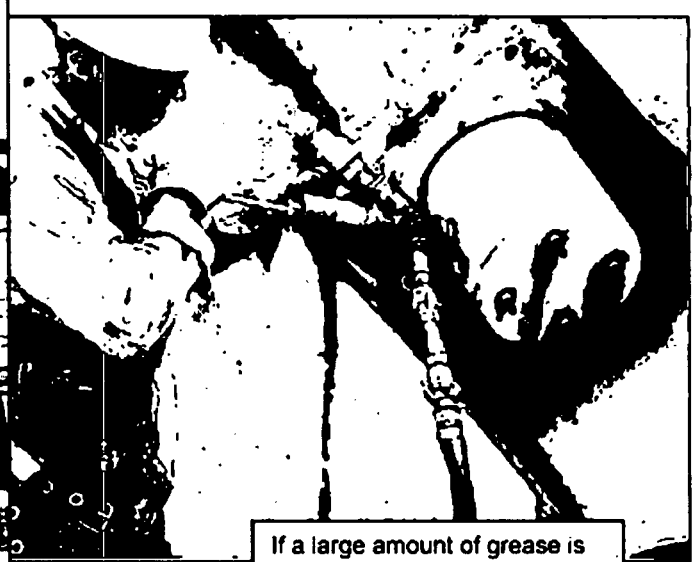
TENDON	END	GREASE REMOVED (GALLONS)		GREASE REPLACED (GALLONS)		DIFF. (GAL.)	DUCT VOLUME (GAL.)	% DIFF.	ACCEPT
		END	TOTAL	END	TOTAL				
D129	BT 3	13.5	36.5	0	39.71	3.21	116.41	2.75	YES
	BT 5	23		39.71					
D212	BT 1	2.5	20.	0	23.78	3.78	115.99	3.25	YES
	BT 3	17.5		23.78					
D238	BT 4	62.5	69.5	73.34	73.34	3.84	102.59	3.74	YES
	BT 6	7		0					

TABLE 59: ADJACENTS - SQ124 - GREASE LOSS vs GREASE REPLACEMENT

TENDON	END	GREASE REMOVED (GALLONS)		GREASE REPLACED (GALLONS)		DIFF. (GAL.)	DUCT VOLUME (GAL.)	% DIFF.	ACCEPT
		END	TOTAL	END	TOTAL				
13H33	BT 1	2	4	2.65	5.3	1.3	121.57	1.06	YES
	BT 3	2		2.65					
13H34	BT 1	2	4	2.65	5.3	1.3	121.25	1.07	YES
	BT 3	2		2.65					
13H35	BT 1	2	4	2.65	5.3	1.3	121.77	1.06	YES
	BT 3	2		2.65					
13H37	BT 1	2	4	2.65	5.3	1.3	122.18	1.06	YES
	BT 3	2		2.65					
13H38	BT 1	2	4	2.65	5.3	1.3	121.53	1.06	YES
	BT 3	2		2.65					
46H19	BT 4	2	4	2.21	4.86	0.86	121.25	0.70	YES
	BT 6	2		2.65					
46H20	BT 4	2	4	2.65	5.3	1.3	121.37	1.07	YES
	BT 6	2		2.65					
46H22	BT 4	2	4	2.65	5.74	1.74	122.43	1.42	YES
	BT	2		3.09					
46H23	BT 4	2	4	2.65	5.3	1.3	122.63	1.06	YES
	BT 6	2		2.65					
46H24	BT 4	2	4	2.65	5.74	1.74	121.57	1.43	YES
	BT 6	2		3.09					

TABLE 60 ADJACENTS – SQ121 – GREASE LOSS vs GREASE REPLACEMENT

TENDON	END	GREASE REMOVED (GALLONS)		GREASE REPLACED (GALLONS)		DIFF. (GAL.)	DUCT VOLUME (GAL.)	% DIFF.	ACCEPT
		END	TOTAL	END	TOTAL				
62H29	BT 2	2	4	2.65	5.3	1.3	121.93	1.06	YES
	BT 6	2		2.65					
62H31	BT 2	2	2	2.65	2.65	0.65	122.13	0.53	YES
	BT 6	0		0					
62H32	BT 2	2	2	2.65	2.65	0.65	121.45	0.53	YES
	BT 6	0		0					
62H33	BT 2	2	4.5	2.65	5.3	0.80	122.07	0.65	YES
	BT 6	2.5		2.65					
62H34	BT 2	2	4	2.65	5.3	1.3	121.47	1.07	YES
	BT 6	2		2.65					



If a large amount of grease is lost during the inspection, then grease must be replaced by pressure pumping it back into the tendon duct.

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11.0 COMPARISON WITH ORIGINAL INSTALLATION DATA

11.1 A comparison of the As-Found liftoff forces from this surveillance to the original installation lock-off forces for the tendons physically inspected is made in an effort to detect any evidence of system degradation. The forces are compared in order to detect any abnormal force loss that would possibly indicate an underestimation of the creep, shrinkage and/or elastic shortening effects in the Containment Building. This comparison is summarized in Table 61.

11.2 The losses since original installation for each tendon group are reported as: 6.7% for the vertical tendons, 17.1% for the hoop tendons and 16.5% for the dome tendons. These losses coincide with what is expected when comparing to other containments of this style and age. Based upon this data PSC concludes that the results do not indicate any degradation of the post tensioning system.

TABLE 61: COMPARISON WITH ORIGINAL INSTALLATION DATA

TENDON	LIFTOFF FORCE		LOSS (KIPS)	% LOSS	GROUP AVERAGE LOSS %
	ORIGINAL	@30 YEARS			
12V01	1675	1559.95	115.05	6.9%	6.7%
45V20	1624	1456.80	167.20	10.3%	
61V08	1598	1505.98	92.02	5.8%	
61V17	1646	1580.18	65.82	4.0%	
13H33	1623	1306.46	316.54	19.5%	17.1%
13H34	1641	1368.61	272.39	16.6%	
13H35	1631	1244.25	386.75	23.7%	
13H36	1650	1385.23	264.77	16.0%	
13H37	1629	1289.87	339.13	20.8%	
13H38	1612	1395.05	216.95	13.5%	
42H46	1644	1558.63	85.37	5.2%	
46H19	1617	1358.61	258.39	16.0%	
46H20	1644	1298.13	345.87	21.0%	
46H21	1653	1330.02	322.98	19.5%	
46H22	1665	1311.48	353.52	21.2%	
46H23	1637	1329.97	307.03	18.8%	
46H24	1654	1425.85	228.15	13.8%	
51H34	1651	1464.70	186.30	11.3%	
62H29	1629	1369.63	259.37	15.9%	
62H30	1597	1290.84	306.16	19.2%	
62H33	1665	1313.39	351.61	21.1%	
62H34	1616	1378.71	237.29	14.7%	
D129	1619	1289.64	329.36	20.3%	16.5%
D212	1600	1277.81	322.19	20.1%	
D238	1664	1511.53	152.47	9.2%	

12.0 STRESSING TREND ANALYSIS

12.1 A regression analysis was conducted on each of the tendon groups for the Crystal River Unit 3 Surveillance Scope. The graphs are shown on the following pages, along with the input data for force and age (time since stressed). The data used for the force values is the As-Found Lift-Off values recorded during physical inspection.

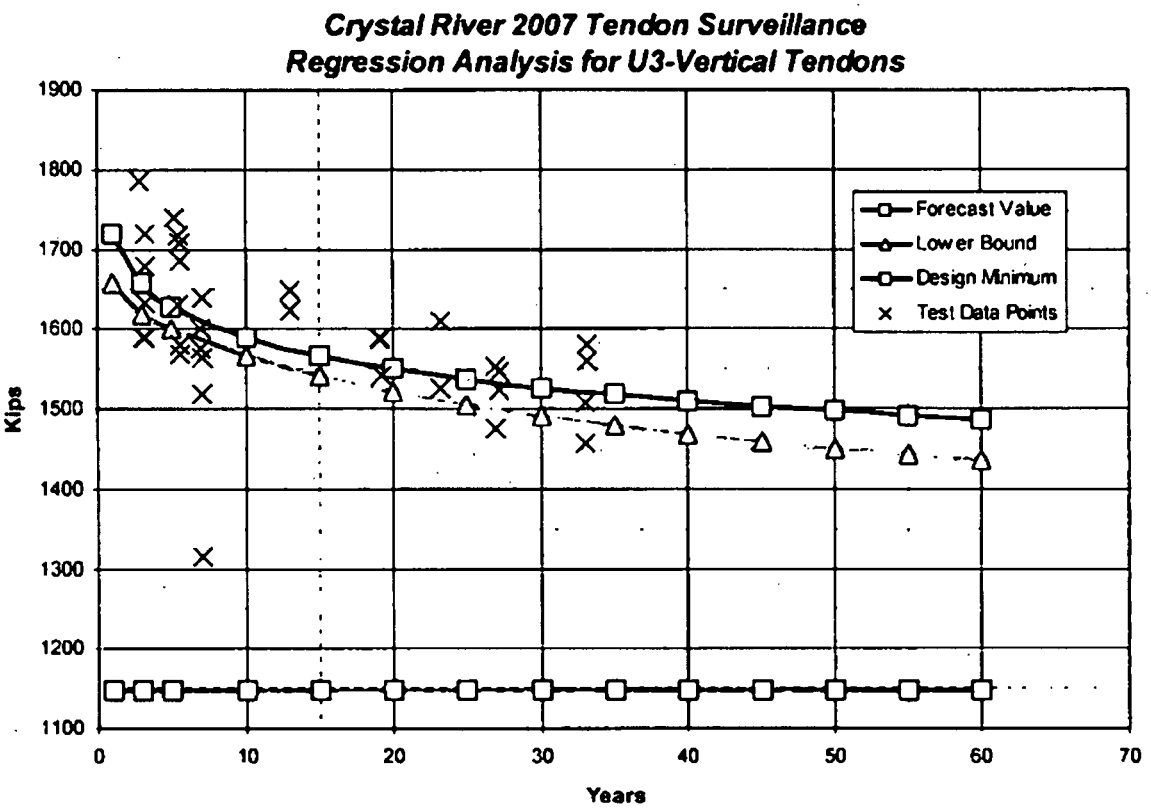
12.1.1 The analysis determined the vertical, hoop and dome tendons will remain above the minimum force requirements well beyond the next surveillance period as well as beyond 60 years. The Forecasted Value at 60 years is +29.4% above the design minimum for the vertical tendons, +5.8% above the design minimum for the hoop tendons and +9.9% above the design minimum for the dome tendons.

TABLE 62 - VERTICALS - REGRESSION ANALYSIS INPUT DATA

TENDON	TIME (YEARS)	FORCE (KIPS)	Ln(t)		TENDON	TIME (YEARS)	FORCE (KIPS)	Ln(t)
12V20	2.87	1785	1.054312		12V01	7.07	1315	1.95586
34V06	3.16	1590	1.150572		61V05	7.07	1519	1.95586
45V03	3.19	1678	1.160021		56V02	13.04	1648	2.568022
23V15	3.22	1589.5	1.169381		34V04	13.07	1623	2.57032
12V19	3.26	1589.5	1.181727		34V08	19.08	1590	2.948641
12V21	3.26	1632.5	1.181727		61V14	19.08	1587	2.948641
56V01	3.28	1718.5	1.187843		56V15	19.18	1541	2.953868
12V20	5.2	1740	1.648659		23V02	23.15	1609	3.141995
12V12	5.47	1718	1.699279		61V21	23.25	1525	3.146305
56V20	5.48	1630	1.701105		61V08	26.91	1476	3.292498
45V06	5.53	1685	1.710188		45V14	26.94	1552	3.293612
34V01	5.54	1569	1.711995		12V02	27.12	1546	3.300271
23V05	5.57	1580	1.717395		23V24	27.14	1521.8	3.301009
56V01	5.59	1707	1.720979		45V20	33.03	1456.8	3.497416
34V06	6.99	1600	1.944481		45V20	33.03	1456.8	3.497416
45V16	7.01	1575	1.947338		61V08	33.05	1505.98	3.498022
34V19	7.02	1640	1.948763		61V17	33.11	1580.18	3.499835
56V11	7.04	1565	1.951608		12V01	33.14	1559.95	3.500741

TABLE 63: VERTICALS REGRESSION ANALYSIS OUTPUT DATA

REGRESSION		Forecast Years	Forecast Value	Lower Bound	Design Minimum
Slope:	-56.9072	1	1720	1657	1149
Intercept	1719.676	3	1657	1620	1149
Sigma	77.14252	5	1628	1600	1149
Count	36	10	1589	1567	1149
T-value	1.690923	15	1566	1541	1149
Mean Ln(t)	2.296047	20	1549	1521	1149
Var Ln(t)	0.734191	25	1536	1505	1149
		30	1526	1491	1149
		35	1517	1479	1149
		40	1510	1468	1149
		45	1503	1459	1149
		50	1497	1451	1149
		55	1492	1443	1149
		60	1487	1436	1149



RETAINED IN HARD COPY
REC # 3831069

TABLE 64: HOOPS - REGRESSION ANALYSIS INPUT DATA

TENDON	TIME (YEARS)	FORCE (KIPS)	Ln(t)		TENDON	TIME (YEARS)	FORCE (KIPS)	Ln(t)
51H26	6.569	1424	1.882362		62H46	22.736	1485	3.12395
13H46	6.592	1546	1.885857		42H38	22.744	1408	3.124301
35H40	6.608	1458	1.888281		42H33	22.772	1361	3.125532
42H20	6.614	1544	1.889189		42H31	22.775	1338	3.125663
62H34	6.617	1546	1.889642		42H37	22.775	1401.5	3.125663
42H40	6.636	1466	1.892509		42H35	22.781	1296.5	3.125927
46H10	6.678	1478	1.898819		42H29	22.786	1448	3.126146
13H19	6.739	1424	1.907912		53H02	22.797	1611	3.126629
35H35	6.786	1328	1.914862		62H41	22.797	1426	3.126629
51H45	6.792	1492	1.915745		51H25	22.822	1363	3.127725
13H20	12.575	1456	2.531711		51H27	22.836	1265.5	3.128338
13H40	12.606	1471	2.534173		46H36	26.608	1343.5	3.281212
51H26	12.608	1411	2.534332		46H34	26.619	1424.7	3.281625
64H19	12.728	1470	2.543804		46H38	26.625	1353.4	3.281851
51H41	12.817	1362	2.550772		46H32	26.628	1366.8	3.281963
46H28	18.728	1375	2.93002		53H16	26.628	1475.4	3.281963
46H29	18.769	1300	2.932207		46H37	26.644	1293.5	3.282564
46H30	18.781	1382	2.932846		46H39	26.647	1356.2	3.282677
62H08	18.814	1435	2.934601		46H35	26.653	1376.8	3.282902
46H47	18.817	1468	2.934761		46H21	26.656	1388	3.283014
46H21	18.833	1425	2.935611		46H33	26.664	1357.8	3.283314
42H01	18.928	1560	2.940642		46H31	26.667	1343.3	3.283427
35H01	18.942	1572	2.941382		62H02	26.672	1551.6	3.283614
51H26	22.628	1320	3.119188		46H30	26.694	1355.6	3.284439
51H28	22.647	1450.5	3.120027		62H09	26.814	1431.8	3.288924
53H46	22.667	1459.5	3.12091		46H20	32.619	1298.13	3.484895
42H18	22.692	1476	3.122012		46H22	32.622	1311.48	3.484987
42H32	22.703	1355.5	3.122497		13H36	32.622	1385.23	3.484987
42H44	22.711	1471.5	3.122849		46H24	32.638	1425.85	3.485416
42H30	22.733	1389	3.123818		13H34	32.636	1368.61	3.485416
42H34	22.733	1377.5	3.123818		13H38	32.639	1395.05	3.485508
51H34	32.644	1464.7	3.485661		46H19	32.711	1358.61	3.487711
62H30	32.681	1290.84	3.486794		62H33	32.733	1313.39	3.488384
62H34	32.686	1378.71	3.486947		62H29	32.736	1369.63	3.488475
62H32	32.689	1332.75	3.487039		62H31	32.739	1269.04	3.488567
42H46	32.692	1558.63	3.48713		13H35	32.814	1244.25	3.490855
46H21	32.694	1330.02	3.487192		13H33	32.817	1306.46	3.490947
46H23	32.708	1329.97	3.48762		13H37	32.825	1289.87	3.49119

TABLE 65: HOOPS - REGRESSION ANALYSIS OUTPUT DATA

REGRESSION		Forecast Years	Forecast Value	Lower Bound	Design Minimum
Slope:	-72.3215	1	1621	1535	1252
Intercept	1620.855	3	1541	1486	1252
Sigma	73.53939	5	1504	1463	1252
Count	76	10	1454	1430	1252
T-value	1.665708	15	1425	1408	1252
Mean Ln(t)	3.029117	20	1404	1390	1252
Var Ln(t)	0.254936	25	1388	1373	1252
		30	1375	1357	1252
		35	1364	1343	1252
		40	1354	1331	1252
		45	1346	1320	1252
		50	1338	1310	1252
		55	1331	1300	1252
		60	1325	1292	1252

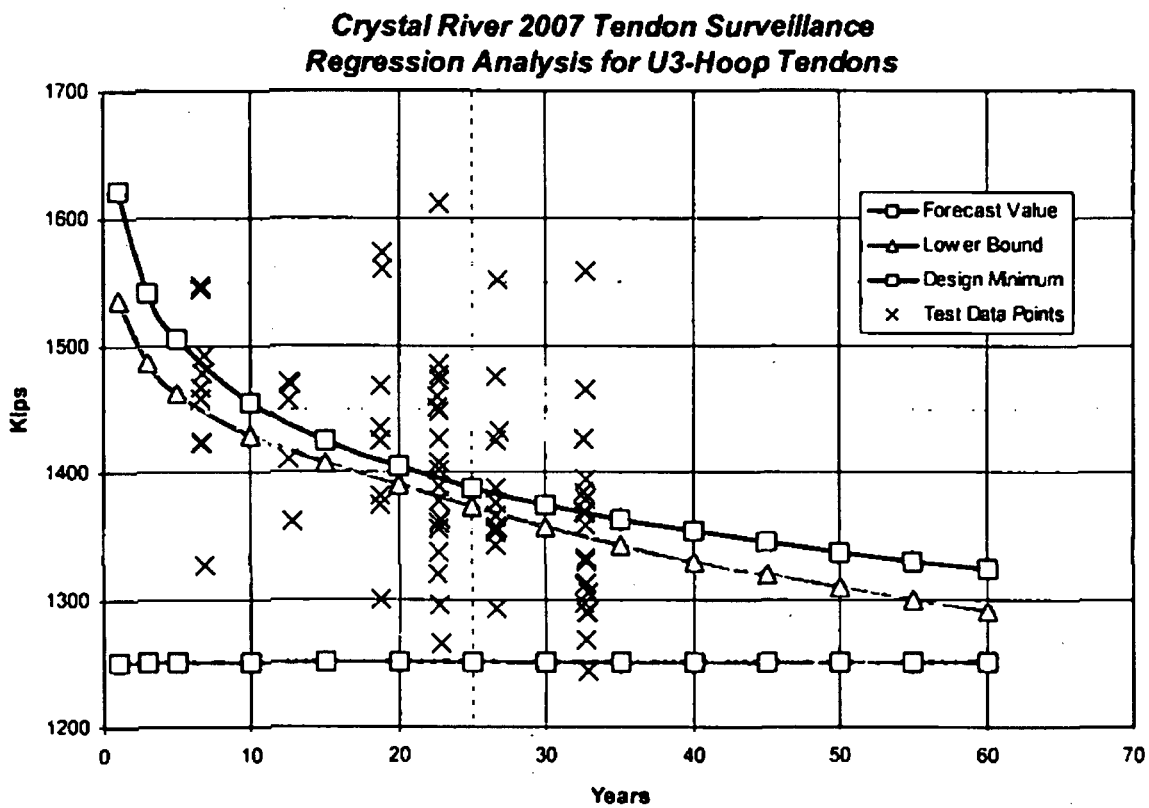


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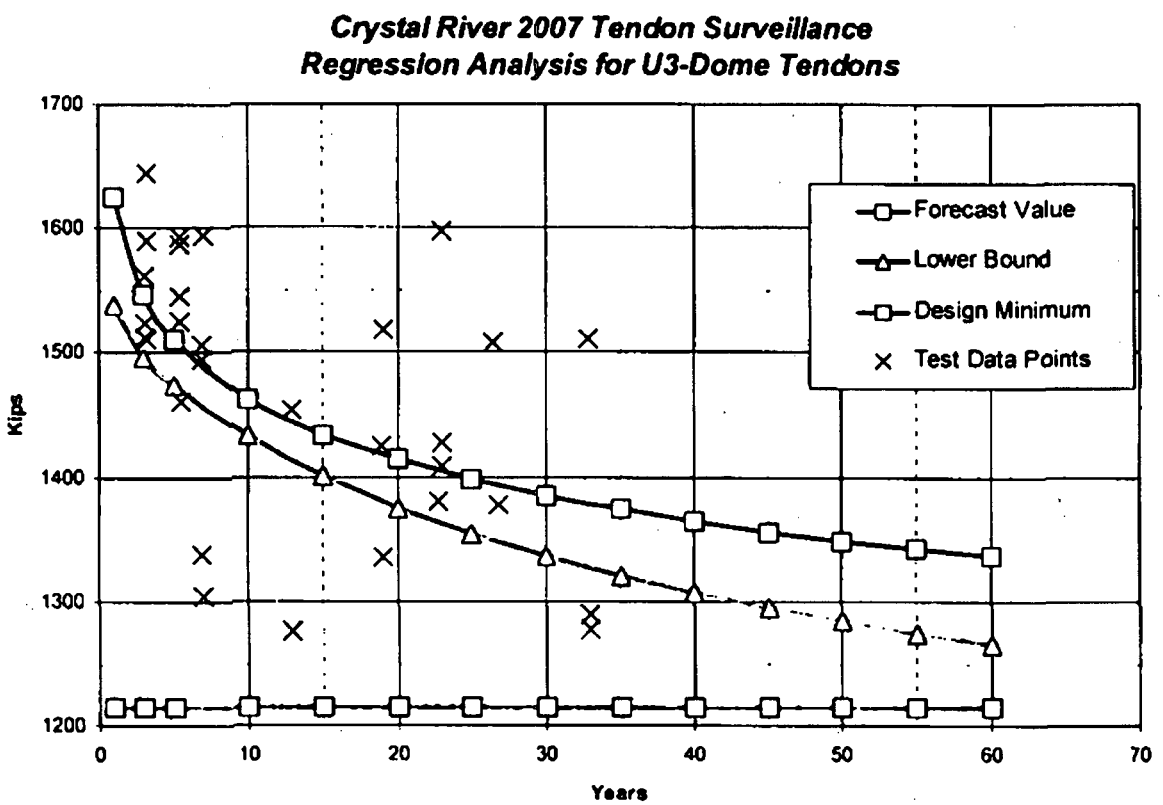
TABLE 66: DOMES - REGRESSION ANALYSIS INPUT DATA

TENDON	TIME (YEARS)	FORCE (KIPS)	Ln(t)		TENDON	TIME (YEARS)	FORCE (KIPS)	Ln(t)
D234	3.1	1513	1.131402		D328	12.89	1276	2.556452
D228	3.11	1524	1.134623		D212	12.9	1276	2.557227
D340	3.11	1562	1.134623		D105	12.92	1453	2.558776
D221	3.14	1511	1.144223		D224	18.96	1425	2.942331
D139	3.22	1590	1.169381		D215	19.01	1518	2.944965
D215	3.25	1644	1.178655		D231	19.06	1335	2.947592
D208	5.4	1593.5	1.686399		D115	22.7	1380	3.122365
D140	5.41	1587	1.688249		D113	22.99	1427	3.135059
D122	5.41	1546.5	1.688249		D304	23	1598	3.135494
D323	5.47	1525.5	1.699279		D311	23.03	1408	3.136798
D331	5.5	1460.5	1.704748		D339	26.47	1507.3	3.276012
D212	6.9	1338	1.931521		D126	26.81	1376.9	3.288775
D322	6.91	1494	1.93297		D238	32.89	1511.53	3.493169
D329	6.92	1506	1.934416		D212	32.92	1277.81	3.49408
D215	6.98	1594	1.943049		D129	32.96	1289.84	3.495295
D123	6.99	1304	1.944481					

TABLE 67 :DOMES - REGRESSION ANALYSIS OUTPUT DATA

REGRESSION		Forecast Years	Forecast Value	Lower Bound	Design Minimum
Slope:	-70.6794	1	1625	1539	1215
Intercept	1625.15	3	1548	1496	1215
Sigma	95.32039	5	1511	1474	1215
Count	31	10	1462	1433	1215
T-value	1.699127	15	1434	1401	1215
Mean Ln(t)	2.294537	20	1413	1375	1215
Var Ln(t)	0.673477	25	1398	1354	1215
		30	1385	1336	1215
		35	1374	1321	1215
		40	1364	1307	1215
		45	1356	1295	1215
		50	1349	1284	1215
		55	1342	1275	1215
		60	1336	1266	1215



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13.0 CONCLUSION

A review of this surveillance was conducted per IWL-3220 Unbonded Post-Tensioning Systems and is outlined below:

IWL-3221 Acceptance by Examination

IWL-3221.1 Tendon Force. *Tendon forces are acceptable if:*

(a) *The average of all measured tendon forces, including those measured in IWL-3221.1(b)(2), for each type of tendon is equal to or greater than the minimum required prestress specified at the anchorage for that type of tendon;*

Results: The average tendon force for each type of tendon measured this inspection period was above the minimum design. The average percent above the minimum design for tendon group is as follows: Verticals, +33.6%, Hoops, +7.6% and Dome, +12.5%

(b) *The measured force in each individual tendon is not less than 95% of the predicted force unless the following conditions are satisfied:*

(1) *The measured force in not more than one tendon is between 90% and 95% of the predicted force;*

(2) *The measured forces in two tendons located adjacent to the tendon in IWL-3221.1(b)(1) are not less than 95% of the predicted forces; and*

(3) *The measured forces in all the remaining sample tendons are not less than 95% of the predicted force.*

Results: All vertical and dome tendons tested this inspection period were found to have forces greater than 95% of the corresponding predicted force. Of the hoop tendons, 42H46 and 51H34 were observed with forces above 95% of their predicted force. Tendons 62H30, 46H21 and 13H36 were found to have forces below 95% but above 90% of their corresponding predicted forces. While monitoring the forces of tendons adjacent to the respective surveillance tendons, NCR's FN1002-001, 002, 003, 006, 007, 008, 009, 011 and 012 were generated to document the conditions and are being dispositioned by CR03ENG. After the completion of testing the adjacent tendons, all tendons with an as-found force below 95% were restored to an as-left force –0%, +6% of their corresponding predicted force in accordance with PSC Procedure SQ9.0.

IWL-3221.2 Tendon Wire or Strand Samples. *The condition of wire or strand samples is acceptable if:*

(a) *samples are free of physical damage;*

Results: All of the tendon wire test samples were free of physical damage.

(b) *sample ultimate tensile strength and elongation are not less than minimum specified values.*

Results: All of the tendon wire test samples were found to be acceptable for diameter (0.2756 ±0.002), ultimate tensile strength (>240 ksi) and elongation(>4%).

IWL-3221.3 Tendon Anchorage Areas. *The condition of tendon anchorage areas is acceptable if:*

(a) *there is no evidence of cracking in anchor heads, shims, or bearing plates;*

Results: Detailed inspections did not reveal any cracks in the anchorage components for any inspected tendon end.

(b) *there is no evidence of active corrosion;*

Results: Detailed inspections did not reveal any active corrosion on the anchorage components for any inspected tendon end. All corrosion conditions were level 1 or 2 (on a scale of 5) and acceptable.

(c) *broken or unseated wires, broken strands, and detached buttonheads were documented and accepted during a preservice examination or during a previous in-service examination;*

Results: The VT-1 inspection of 12V01 Field/Bottom detected 3 additional missing buttonheads from the previous examination. The VT-1 inspection of 61V17 Shop/Top detected 2 additional missing buttonheads from the original installation data. These two conditions were documented on NCR's FN1002-004 and FN1002-005, respectively, and are being dispositioned by CR03ENG.

(d) *cracks in the concrete adjacent to the bearing plates do not exceed 0.01 in. in width.*

Results: No cracks observed were greater than 0.010" on any of the concrete 24" around the bearing plates of the inspected tendons.

IWL-3221.4 Corrosion Protection Medium.

Corrosion protection medium is acceptable when the reserve alkalinity, water content and soluble ion concentrations of all samples are within the limits specified in Table IWL-2525-1.

Results: The sheathing filler (grease) samples were tested and found to have acceptable levels of water-soluble ions, (Chlorides, Nitrates, and Sulfides). All tendon samples had a moisture content well within acceptable limits. All neutralization numbers were above the IWL requirement of 0.0 mg KOH/g value and acceptable. No visible breakdown of the grease was noted either by color or consistency for all grease samples tested.

IWL-3222 Acceptance by Evaluation.

Items with examination results that do not meet the acceptance standards of IWL-3221 shall be evaluated as required by IWL-330.

Results: All conditions that did not meet the corresponding inspection criteria were documented and are being evaluated via the Progress Energy Condition Report process. All of the condition reports generated during this inspection period are included in Appendix C of this report.

Based upon the evaluation of the In-Service Inspection results for the 30th Year Containment IWL Inspection of the Progress Energy Florida Crystal River Unit 3 Containment Structure, reported herein, PSC concludes that the containment structure has experienced no abnormal degradation of the post-tensioning system. The containment post-tensioning system is performing in accordance with the design requirements and are expected to continue to do so for the life of the unit.

14.0 REFERENCE DOCUMENTS:

14.1 Crystal River Unit 3 Final Safety Analysis Report (FSAR), latest revision.

14.2 Crystal River Unit 3 SP-182, latest revision.

14.3 American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components", 1992 Edition, with 1992 Addenda.

14.4 NRC Regulatory Guide 1.35, Revision 3. Dated July 1990, "Inservice Inspection of Ungrouted Tendons in Prestressed Concrete Containment"

14.5 Code of Federal Regulation 10 CFR 50.55a

14.6 AISC Manual of Steel Construction – Allowable Stress Design, 9th Edition.

14.7 ASCE Standard SEI/ASCE 7-02 – Minimum Design Loads for Buildings and Other Structures, 2nd Edition.

14.8 ASME Standard A120.1-2001 – Safety Requirements for Powered Platforms for Building Maintenance

14.9 PSC Engineering Document E-GEN-500 – Rail Clamp Capacity Test

14.10 PSC Engineering Document CR-N991-100, "Predicted Base Forces For The 30th Year Containment IWL Inspection"

14.11 PSC Engineering Document CR-N1002-010, "SQ 11.1 Restressing"

14.12 PSC Engineering Document CR-N1002-010, "SQ 12.1 Grease Void Volumes"

14.13 PSC Engineering Document CR-N1002-100, "Upper Support Frame Set Position Design"

14.14 PSC Engineering Document CR-N1002-101, "Upper Support Frame Moving Position Design"

14.15 PSC Engineering Document CR-N1002-102, "Work Platform Design"

14.16 PSC Post Tensioning System In-Service Inspection Manual (N1002) for Crystal River Nuclear Unit 3, 30th Year 8th Period Containment Building Tendon Surveillance.

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 12V01 Tendon End: Shop/top

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 11-5-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp of Concrete: 66 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 64 °F Thermometer No.: PK50 Re-Cal Date: 8-30-08	BL 11-5-07
(8.5.1) Anchorhead I.D. CR650 Anchorhead Verification: ☒ Match ☐ No-Match	BL 11-5-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BL 11-5-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BL 11-5-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown	
Comments: None	BL 11-5-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BL 11-5-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BL 11-5-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BL 11-5-07
(10.2) Method of Tendon Protection: replaced cap w/ new gasket	BL 11-5-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BL 11-5-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL	BL 11-5-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BL 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 13V01 Tendon End: Shop/top

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [signature] Level: II Date: 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 12V01 Tendon End: shop/top

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

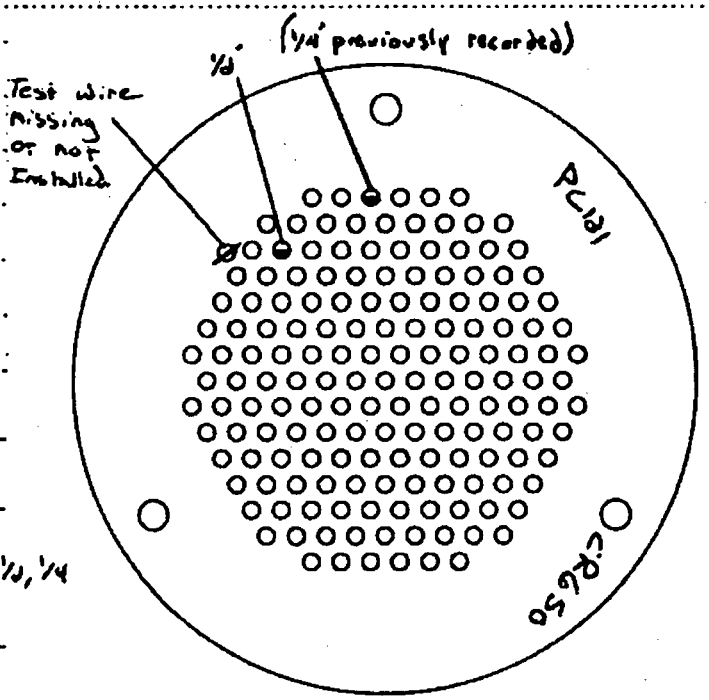
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	BG 11-5-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR650
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC101
Located on Sketch: ☒ Yes ☐ No

Shims 1 1 3/4 . . . 3, 3, 3, 3, 1, 1/2, 1/2, 1/2, 1/4

(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 11-5-07
B = N/A — BG 11-5-07
C = N/A — BG 11-5-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 — BG 11-5-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 161 — BG 11-5-07
(8.5.2) Protruding BH: 2 Missing BH: 0 Total (Protruding+Missing): 2 — BG 11-5-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BG 11-5-07

Overall Results ☐ Acceptable ☒ Un-Acceptable Customer Notified NCR#: FN 1002-010 — BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 1V01 Tendon End: Shop/top

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 12K01 Tendon End: Shop/Top

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 68 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 62 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 11-5-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
(9.5) Number of Effective Wires: ~~161~~ BG 11-5-07 156	BG 11-5-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K = -5.06	
Gauge ID: 1017881 Recal Date: Daily on use Daily Check: Yes	BG 11-5-07
(9.8) Shim Stack Height: #1 14 3/4 in. #2 14 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,3,3,1,1/2,1/2,1/2,1/4 in. Stack #2: 3,3,3,1,1/2,1/2,1/2,1/4 in.	BG 11-5-07
(9.9) Base Value Predicted Force (BVPF): 1525 kips Pressure: 4536.37 psi	
BVPF: 1525 kips 95% BVPF: ~~1450~~ BG 11-5-07 1449 kips 90% BVPF: 1372 kips	
4536.37 psi 4311.04 psi 4082.75 psi	BG 11-5-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4620 psi Stack #2: 1) 4640 psi 1) 4640 psi	
2) 4620 psi 2) 4640 psi 2) 4640 psi	
3) 4620 psi 3) 4640 psi 3) 4640 psi	
(9.10.10) Actual Force (this end): 1559.95 kips Actual Average: 4646 psi	BG 11-5-07
(9.10.10.1) Actual Force (opposite end): N/A kips (9.10.10.2) AALV FORCE 1559.95 kips	BG 11-5-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-5-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-5-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-5-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 11-5-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date: N/A	BG 11-5-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 11-5-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 12V01 Tendon End: shop/top

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-5-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-5-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-5-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-5-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-5-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-5-07

Comments: none

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: H101 Tendon End: shop/top

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2.5 gal.	BG 11-13-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	76 gal.	BG 11-13-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-13-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-13-07
(8.8) TOTAL Tendon Grease Loss:	78.5 gal.	BG 11-13-07
(8.9) Ambient Temp.: 86 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-13-07
(8.10) Grease Cap Removal Date: 11-5-07 Grease Replacement Date: 11-13-07		BG 11-13-07
Elapsed Time: 8 days		BG 11-13-07
(9.8.4.1) Grease height in drum before: 30.30 in. (9.8.5.1) Height in drum after: 0.15 in.		BG 11-13-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 83.19 gal.	☒ Pumped ☐ Poured	BG 11-13-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	0 gal.	BG 11-13-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	0 gal.	BG 11-13-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-13-07
Grease Temp.: 300 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-13-07
(10.3.8) Quantity of Exiting Outflow Grease:	1 gal.	BG 11-13-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	0 gal.	BG 11-13-07
(10.3.10) TOTAL amount of Grease replaced: 82.19 gal. (hand pumped + pressured pumped – exiting outflow)		BG 11-13-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 143.97 gal.

(10.3.11) Percent variation difference: 2.56 % BG 11-13-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-13-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 11-13-07

If No – Customer Notified NCR No.: N/A BG 11-13-07

(11.4) Comments: Grease Pumped from field end.

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 1dv01 Tendon End: Field/bottom

Grease Cap Removal

Q.C. Signoff

Date Removal Started: 10-24-07

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 90 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 88 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08 BG 10-24-07

(8.5.1) Anchorhead I.D. unable to locate Anchorhead Verification: ☐ Match N/A ☐ No-Match BG 10-24-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – [1]	Complete	✓	Partial		Uncoated	%

[1] - *Limited within the inside diameter of the grease cap.* BG 10-24-07

(8.7) Unusual Conditions: None BG 10-24-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown

Comments: none BG 10-24-07

(8.11) Qty. of Grease lost from cap: 0 gal. (8.11.1) Qty. of Grease removed from cap: 2 gal. BG 10-24-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. BG 10-24-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct BG 10-24-07

(10.2) Method of Tendon Protection: replaced cap w/new gasket BG 10-24-07

(10.3) Amount of Grease Loss from Tendon duct: 73 gal. BG 10-24-07

Total quantity of lost grease (below):

(8.11) 0 + (8.11.1) 2 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 73 = 76 TOTAL BG 10-24-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No BG 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 1DV01 Tendon End: Field/bottom

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 12V01 Tendon End: Field/bottom

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

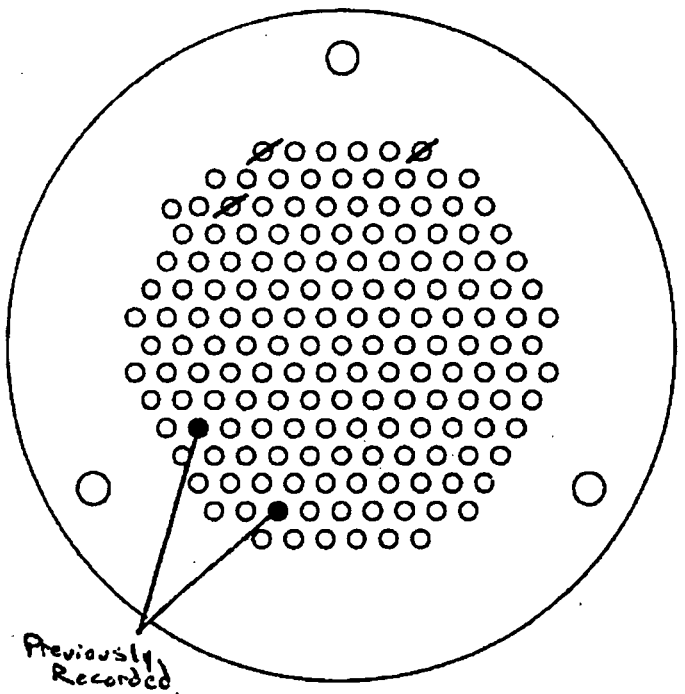
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	86 10-24-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
Ø	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. N/A
Located on Sketch: ☐ Yes ☒ No
(8.4.6) Heat Code N/A
Located on Sketch: ☐ Yes ☒ No
Shims 4° 3, 1
(8.4.7) Offsize Buttonhead Totals
A = N/A 86 10-24-07
B = N/A 86 10-24-07
C = N/A 86 10-24-07

(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 5 (8.4.8.3) # of Missing Buttonheads Found: 0 86 10-24-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 158 86 10-24-07
(8.5.2) Protruding BH: 0 Missing BH: 5 Total (Protruding+Missing): 5 86 10-24-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No 86 10-24-07

Overall Results ☐ Acceptable ☒ Un-Acceptable Customer Notified NCR#: FN4002-004 86 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No: 1dV01 Tendon End: Field/bottom

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 1dv01 Tendon End: Field/bottom

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-24-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-24-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-24-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-24-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-24-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-24-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 12V01 Tendon End: Field/Bottom

GREASE REPLACEMENT DOCUMENTATION	QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 76 gal.	BG 10-24-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 2.5 gal.	BG 11-13-07
(8.6) Estimated grease losses from leaks for this tendon end: 0 gal.	BG 11-13-07
(8.7) Estimated grease losses from leaks for other tendon end: 0 gal.	BG 11-13-07
(8.8) TOTAL Tendon Grease Loss: 78.5 gal.	BG 11-13-07
(8.9) Ambient Temp.: 86 °F Thermo. ID: PK30 Recal Date: 8-30-08	BG 11-13-07
(8.10) Grease Cap Removal Date: 10-24-07 Grease Replacement Date: 11-13-07	BG 11-13-07
Elapsed Time: 20 days	BG 11-13-07
(9.8.4.1) Grease height in drum before: 30.30 in. (9.8.5.1) Height in drum after: 0.13 in.	BG 11-13-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 83.19 gal. ☒ Pumped ☐ Poured	BG 11-13-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 0 gal.	BG 11-13-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 0 gal.	BG 11-13-07
(10.3.7) Quantity of Pressure Pumped into this tendon end: 83.19 gal.	BG 11-13-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08	BG 11-13-07
(10.3.8) Quantity of Exiting Outflow Grease: 1 gal.	BG 11-13-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 0 gal.	BG 11-13-07
(10.3.10) TOTAL amount of Grease replaced: 82.19 gal. (hand pumped + pressured pumped – exiting outflow)	BG 11-13-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 143.97 gal.

(10.3.11) Percent variation difference: 2.56 % — BG 11-13-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-13-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) — BG 11-13-07

If No – Customer Notified NCR No.: N/A — BG 11-13-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 45V20 Tendon End: Shop/top

Grease Cap Removal

Date Removal Started: 10-15-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 76 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 64 °F Thermometer No.: PK50 Re-Cal Date: 8-30-08 — BG 10-15-07

(8.5.1) Anchorhead I.D. CR850 Anchorhead Verification: ☐ Match ☒ No-Match — BG 10-15-07

(8.6. 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – [1]	Complete	✓	Partial		Uncoated	%

[1] - *Limited within the inside diameter of the grease cap.* — BG 10-15-07

(8.7) Unusual Conditions: None — BG 10-15-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown

Comments: None — BG 10-15-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — BG 10-15-07

(9.6) Qty. of Grease removed from anchorage: 1 gal. — BG 10-15-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct — BG 10-15-07

(10.2) Method of Tendon Protection: Replaced cap w/new gasket — BG 10-15-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BG 10-15-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) 1 + SQ 7.0 (6.1) .5 + (10.3) 0 = 3 TOTAL — BG 10-15-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BG 10-15-07

QC Reviewed: [signature] Level: II Date: 10/16/07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 45V20 Tendon End: Butt. 5 Shop/top

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [signature] Level: II Date: 10-15-07

QC Reviewed: [signature] Level: II Date: 10/16/07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 45V20 Tendon End: Shop/Top

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

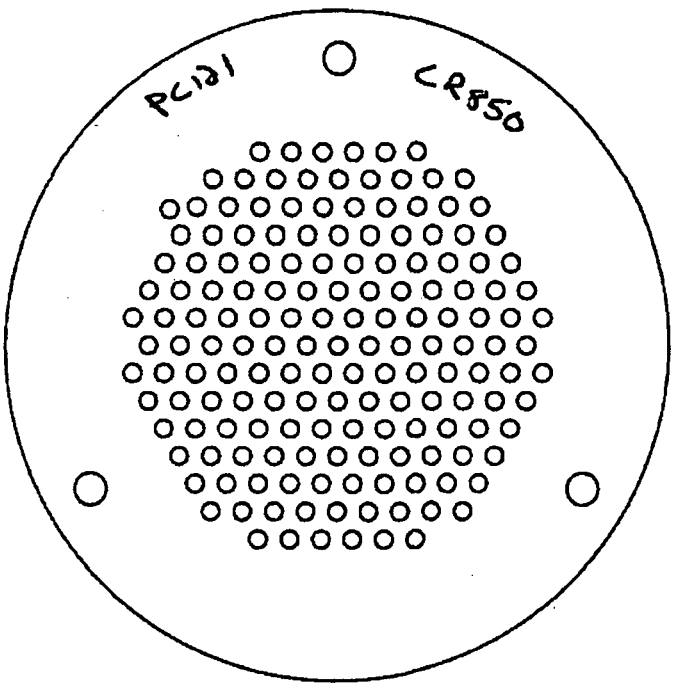
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BL 10-15-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- ∅ Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. PC121
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code CR850
Located on Sketch: ☒ Yes ☐ No
Shims 12" 3", 3", 3", 3"
(8.4.7) Offsize Buttonhead Totals
A = N/A — BL 10-15-07
B = N/A — BL 10-15-07
C = N/A — BL 10-15-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 — BL 10-15-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 — BL 10-15-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BL 10-15-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BL 10-15-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BL 10-15-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project. CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 45V30 Tendon End: Butt. 5 Stop/top

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-15-07

QC Reviewed: [signature] Level: II Date: 10/16/07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 45V30 Tendon End: Stop/top

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 86 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 82 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-15-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-15-07
(9.5) Number of Effective Wires: 163	BG 10-15-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-15-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 535.282 K = -5.022	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-15-07
(9.8) Shim Stack Height: #1 12 1/2 in. #2 12 1/2 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,3,3,3.5 in. Stack #2: 3,3,3,3.5 in.	BG 10-15-07
(9.9) Base Value Predicted Force (BVPF): 1507 kips Pressure: 4509.70 psi	
BVPF: 1507 kips 95% BVPF: 1432 kips 90% BVPF: 1357 kips	
4509.70 psi 4286.00 psi 4062.31 psi	BG 10-15-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4280 psi Stack #2: 1) 4360 psi 1) 4360 psi	
2) 4280 psi 2) 4360 psi 2) 4360 psi	
3) 4280 psi 3) 4360 psi 3) 4360 psi	
(9.10.10) Actual Force (this end): 1456.80 kips Actual Average: 4360 psi	BG 10-15-07
(9.10.10.1) Actual Force (opposite end): N/A kips (9.10.10.2) AALV FORCE 1456.80 kips	BG 10-15-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 10-15-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-15-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-15-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 10-15-07
(9.10.15.1) Adjacent Tendon Lift-Offs (Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within -0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 10-15-07
b) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 10-15-07
c) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 10-15-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 45V20 Tendon End: Shop/top

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-15-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-15-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-15-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-15-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-15-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-15-07

Comments: None

QC Reviewed: [signature] Level: II Date: 10/16/07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 45V30 Tendon End: Shop/Loop

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	3 gal.	BG 10-15-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	85 gal.	BG 11-13-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-13-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-13-07
(8.8) TOTAL Tendon Grease Loss:	88 gal.	BG 11-13-07
(8.9) Ambient Temp.: 86 °F Thermo. ID: PK30 Recal Date: 8-30-05		BG 11-13-07
(8.10) Grease Cap Removal Date: 10-15-07 Grease Replacement Date: 11-13-07		BG 11-13-07
Elapsed Time: 29 days		BG 11-13-07
(9.8.4.1) Grease height in drum before: 31.31 in. (9.8.5.1) Height in drum after: 0.10 in.		BG 11-13-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 92.04 gal. ☒ Pumped ☐ Poured		BG 11-13-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	0 gal.	BG 11-13-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	0 gal.	BG 11-13-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-13-07
Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-05		BG 11-13-07
(10.3.8) Quantity of Exiting Outflow Grease:	1 gal.	BG 11-13-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	0 gal.	BG 11-13-07
(10.3.10) TOTAL amount of Grease replaced: 91.04 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-13-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 144.47 gal.

(10.3.11) Percent variation difference: 2.10 % BG 11-13-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \text{\% variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-13-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 11-13-07

If No – Customer Notified NCR No.: N/A BG 11-13-07

(11.4) Comments: grease pumped from field end

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 45U30 Tendon End: Field/Bottom

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-24-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 90 °F Thermometer No.: 5278 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 88 °F Thermometer No.: PK50 Re-Cal Date: 8-30-08	BG 10-24-07
(8.5.1) Anchorhead I.D. CR260 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-24-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-24-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 10-24-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BG 10-24-07
(8.11) Qty. of Grease lost from cap: 0 gal. (8.11.1) Qty. of Grease removed from cap: 2 gal.	BG 10-24-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-24-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BG 10-24-07
(10.2) Method of Tendon Protection: replaced cap w/ new gasket	BG 10-24-07
(10.3) Amount of Grease Loss from Tendon duct: 82 gal.	BG 10-24-07
Total quantity of lost grease (below):	
(8.11) 0 + (8.11.1) 2 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 82 = 85 TOTAL	BG 10-24-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 45V20 Tendon End: Field/bottom

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 45V20 Tendon End: Field/Bottom

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

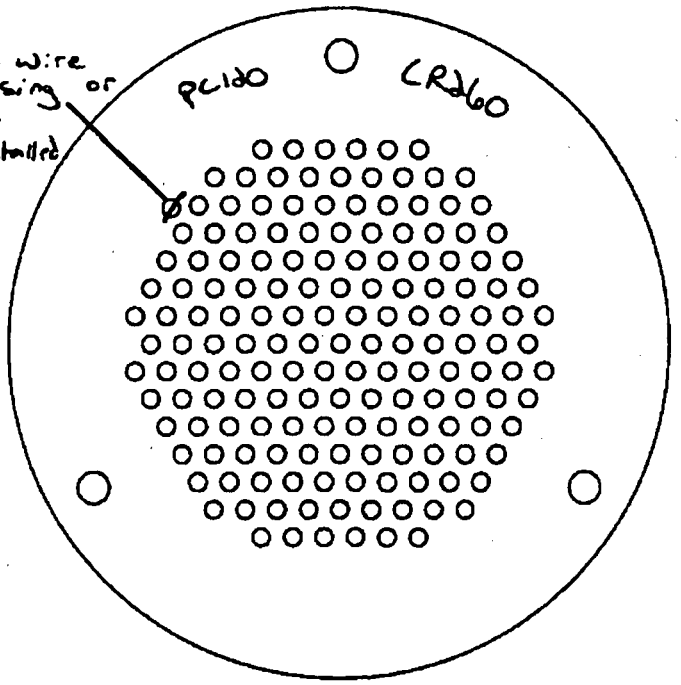
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BC 10-24-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
Ø	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊘	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR360
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC120
Located on Sketch: ☒ Yes ☐ No
Shims 4" 3, 1

(8.4.7) Offsize Buttonhead Totals
A = N/A — BC 10-24-07
B = N/A — BC 10-24-07
C = N/A — BC 10-24-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 — BC 10-24-07
(8.4.8.3) # of Missing Buttonheads Found: 0 — BC 10-24-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 — BC 10-24-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BC 10-24-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BC 10-24-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BC 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 45V20 Tendon End: Field/bottom

Bearing Plate Identification #: PC58

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 45V40 Tendon End: Field/Bottom

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-24-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-24-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-24-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-24-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-24-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-24-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 45V20 Tendon End: Field/bottom

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	85 gal.	BG 11-13-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	3 gal.	BG 11-13-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-13-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-13-07
(8.8) TOTAL Tendon Grease Loss:	88 gal.	BG 11-13-07
(8.9) Ambient Temp.: 86 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-13-07
(8.10) Grease Cap Removal Date: 10-24-07 Grease Replacement Date: 11-13-07		BG 11-13-07
Elapsed Time: 20 days		BG 11-13-07
(9.8.4.1) Grease height in drum before: 31.31 in. (9.8.5.1) Height in drum after: 0.10 in.		BG 11-13-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 92.04 gal. ☒ Pumped ☐ Poured		BG 11-13-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	92.04 gal.	BG 11-13-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	0 gal.	BG 11-13-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	92.04 gal.	BG 11-13-07
Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-13-07
(10.3.8) Quantity of Exiting Outflow Grease:	1 gal.	BG 11-13-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	0 gal.	BG 11-13-07
(10.3.10) TOTAL amount of Grease replaced: 91.04 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-13-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 144.47 gal.

(10.3.11) Percent variation difference: 2.10 % BG 11-13-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \text{\% variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-13-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 11-13-07

If No – Customer Notified NCR No.: N/A BG 11-13-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61V17 Tendon End: Shop/top

Grease Cap Removal

Date Removal Started: 10-25-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 78 °F Thermometer No.: 5578 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 66 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08 — BL 10-25-07

(8.5.1) Anchorhead I.D. CR943 Anchorhead Verification: ☒ Match ☐ No-Match — BL 10-25-07

(8.6. 8.6.1. 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – [1]	Complete	✓	Partial		Uncoated	%

[1] - *Limited within the inside diameter of the grease cap.* — BL 10-25-07

(8.7) Unusual Conditions: none — BL 10-25-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown

Comments: — BL 10-25-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — BL 10-25-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — BL 10-25-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct — BL 10-25-07

(10.2) Method of Tendon Protection: replaced cap w/ new gasket — BL 10-25-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BL 10-25-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL — BL 10-25-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BL 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 61V17 Tendon End: Shop/top

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING

(9.10.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-25-07

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61V17 Tendon End: Shop/Rep

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

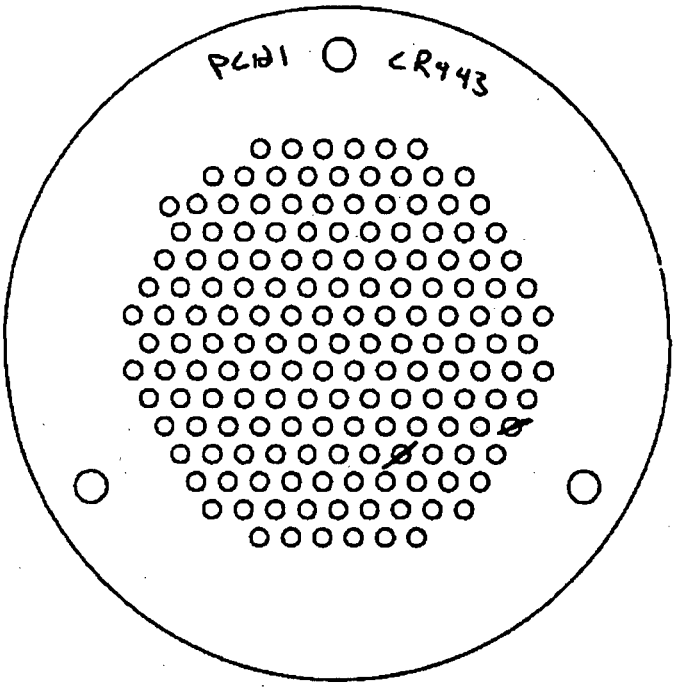
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-25-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
Ø	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR943
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No

Shims 12" 3,3,3,3

(8.4.7) Offsize Buttonhead Totals
A = N/A BG 10-25-07
B = N/A BG 10-25-07
C = N/A BG 10-25-07

(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 2 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 10-25-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 161 BG 10-25-07
(8.5.2) Protruding BH: 0 Missing BH: 2 Total (Protruding+Missing): 2 BG 10-25-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 10-25-07

Overall Results ☐ Acceptable ☒ Un-Acceptable Customer Notified NCR#: FN1002-005 BG 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61V17 Tendon End: Shop/top

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☒ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

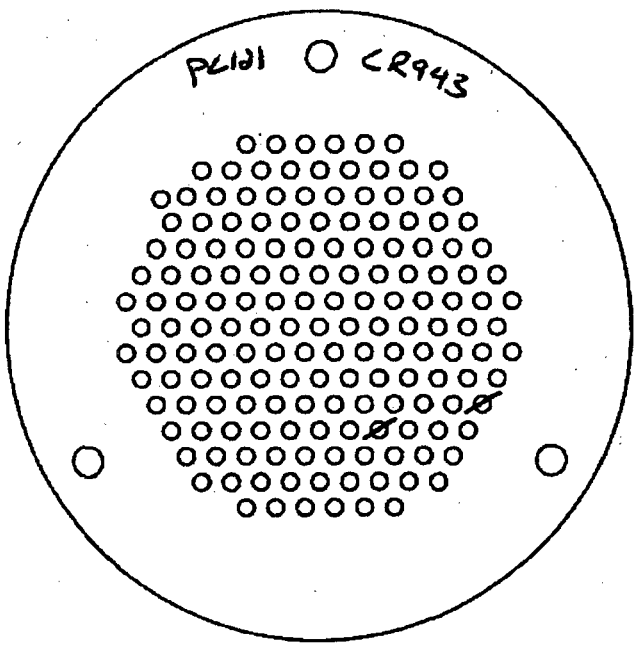
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	BG 10-25-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ◒ Protruding/unseated wire/buttonheads.
- Ø Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR943
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No

(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 10-25-07
B = N/A — BG 10-25-07
C = N/A — BG 10-25-07

(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 2 — BG 10-25-07
(8.4.8.3) # of Missing Buttonheads Found: 0 — BG 10-25-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 161 — BG 10-25-07
(8.5.2) Protruding BH: 0 Missing BH: 2 Total (Protruding+Missing): 2 — BG 10-25-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No — BG 10-25-07
Overall Results: ~~☒ Acceptable~~ BG 10-25-07 ☒ Un-Acceptable Customer Notified NCR#: FN1002-005 — BG 10-25-07

QC Reviewed: [signature] Level: II Date: 10-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61V17 Tendon End: Shop/top

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☒ Post Re-Tensioning | Q.C. Signoff

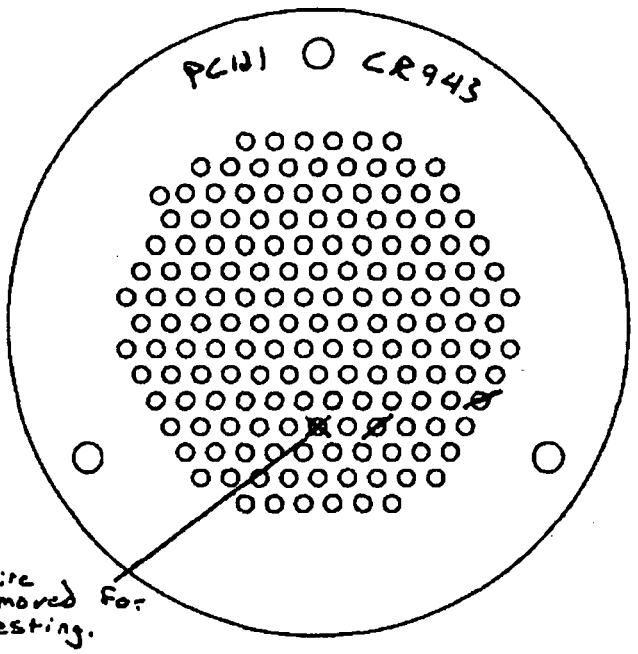
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-25-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- Ø Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR943
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
Shims 1 1/2 3,3,3,3, 1/2
(8.4.7) Offsize Buttonhead Totals
A = N/A BG 10-25-07
B = N/A BG 10-25-07
C = N/A BG 10-25-07
(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 3 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 10-25-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 160 BG 10-25-07
(8.5.2) Protruding BH: 0 Missing BH: 3 Total (Protruding+Missing): 3 BG 10-25-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 10-25-07

Overall Results ☐ Acceptable ☒ Un-Acceptable Customer Notified NCR#: FN1002-005 BG 10-25-07

QC Reviewed: [signature] Level: II Date: 11-2-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V17 Tendon End: Shop/Top

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 61V17 Tendon End: Shop/top

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 94 °F Thermometer No.: 5T78 Recal Date: 8-30-08	
Ambient Temp.: 86 °F Thermometer No.: DK30 Recal Date: 8-30-08	BG 10-25-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-25-07
(9.5) Number of Effective Wires: 161	BG 10-25-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-25-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K = -5.06	
Gauge ID: 1017880 Recal Date: daily on use Daily Check: Yes	BG 10-25-07
(9.8) Shim Stack Height: #1 12 in. #2 12 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,3,3,3 in. Stack #2: 3,3,3,3 in.	BG 10-25-07
(9.9) Base Value Predicted Force (BVPF): 1498 kips Pressure: 4456.32 psi	
BVPF: 1498 kips 95% BVPF: 1423 kips 90% BVPF: 1348 kips	
4456.32 psi 4233.96 psi 4011.59 psi	BG 10-25-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4700 psi Stack #2: 1) 4700 psi 1) 4700 psi	
2) 4700 psi 2) 4700 psi 2) 4700 psi	
3) 4700 psi 3) 4700 psi 3) 4700 psi	
(9.10.10) Actual Force (this end): 1580.18 kips Actual Average: 4700 psi	BG 10-25-07
(9.10.10.1) Actual Force (opposite end): N/A kips (9.10.10.2) AALV FORCE 1580.18 kips	BG 10-25-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 10-25-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-25-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-25-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 10-25-07
~~(9.10.15.1) Adjacent Tendon Lift-Offs~~ (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ ~~Acceptable~~ – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within ~~-0/+6%~~ of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 10-25-07
b) ~~Adj Tendon:~~ ____ Adj Tendon: ____ ☐ ~~Unacceptable~~ – AALV < 95% of ELL for either tendon. Document the ~~condition on a NCR.~~	
~~Customer Notified NCR No.:~~	BG 10-25-07
c) ~~Adj Tendon:~~ ____ Adj Tendon: ____ ☐ ~~Unacceptable~~ – AALV < 90% of ELL for either tendon. Document the ~~condition on a NCR.~~	
~~Customer Notified NCR No.:~~	BG 10-25-07

QC Reviewed: [signature] Level: II Date: 10-30-07

PSC PROCEDURE SQ10.2
TEST WIRE REMOVAL
Data Sheet 10.2
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V17 Tendon End: Shop/Top

Removal Date: 10-25-07 Inspection Date: 10-25-07

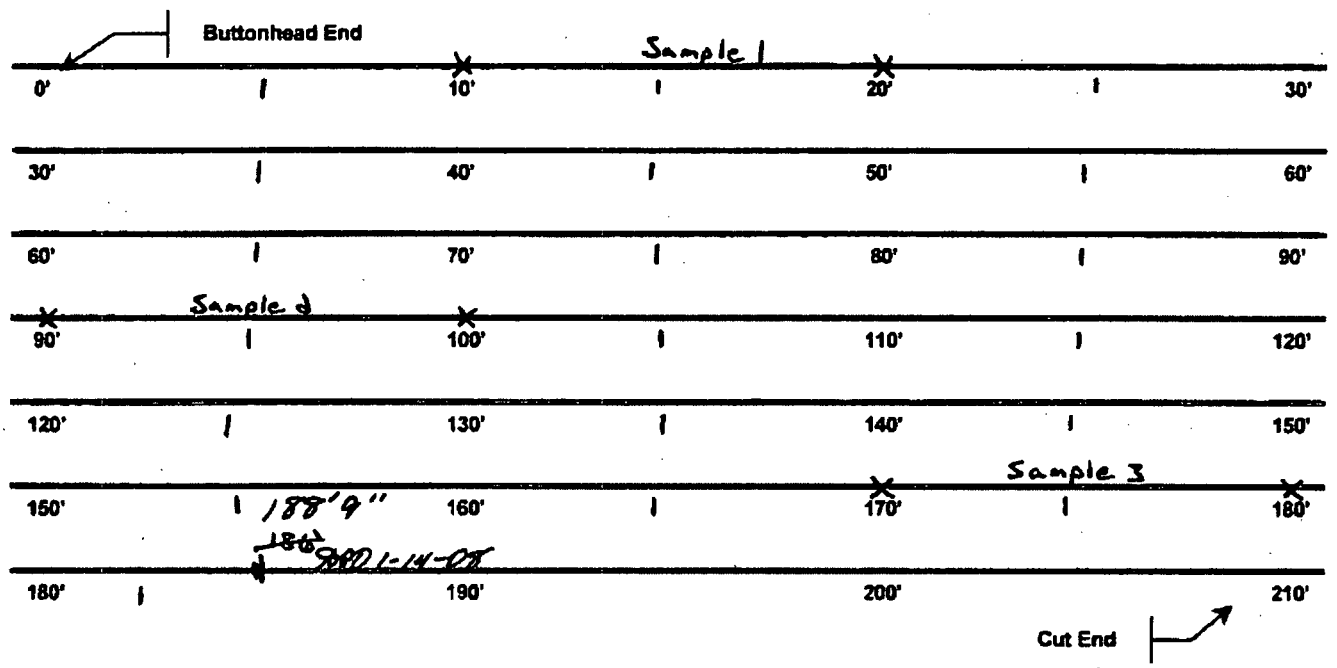
WIRE REMOVAL INSPECTION

CORROSION INSPECTION @ LENGTH INTERVALS

(8.5.4.1) Document the Corrosion Category for each 10' of wire in the increments below. Use Categories described in PSC SQ 8.1.

(8.5.4.2) For Corrosion Levels 3, 4, 5, 6 document condition on an NCR. NCR Req'd: ☒ NO ☐ YES NCR# N/A

(8.5.4.3.1) Document the total length of the wire on the diagram below. Completed: ☐ NO ☒ YES



(8.5.4.4.3) Was the wire cut for samples: , ☐ NO ☒ YES document the area of removal above using symbol ✕.

(8.7) Document the location of wire removed on Data Sheet 8.0, ANCHORAGE INSPECTION: ☒ Completed

(8.8) Measuring Device: 24" Rules ID Number: R-16 Recal Date: 8-30-08

(8.8) Wire Pull Ram ID Number: N/A

Q.C Inspector: [signature] Level: II Date: 10-25-07

QC Reviewed [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ10.3
TESTING TENDON WIRES
Data Sheet 10.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 6/V17 Tendon End: SHOP/TOP

WIRE TEST DOCUMENTATION

Sample No.: SAMPLE 1

(8.2.3.2) Wire ID and Location of removal: 10-20 feet Length: 120 in.

(8.3.1) Wire Diameters: Tag End .275 in Middle .275 in. Ram End .275 in. Avg. .275 in.

Measuring Device ID: QC80 Recal Date: 5-16-08

(8.4.2.1) Buttonhead Inspection: Tag End OK Ram End OK

(8.5.1) Gauge Length of Wire: 100 in. Measuring Device ID: R17 Recal Date: 11-16-08

(8.7.1) Preload force: 2.45 kips

Preload pressure: 1450 psi Pressure Gauge ID: CC107223 Recal Date: DAILY ON USE

Ram ID: 7702 Ram Area: 1.590 in^2 K = 0.146 kips Recal Date: JOB END

(8.8.1) Force reduced to zero (0): OK

(8.9.1) Initial load of wire force: 1.73 kips (0.1% elongation)

Initial load of pressure: 1000 psi Elongation: 14.50 in.

(8.10.1) Preset Dial Indicator: OK (0.9% elongation) Indicator ID: ECC21 Recal Date: 8-30-08

(8.11.1) Force at 1% elongation: 12.69 kips ; Pressure: 8520 psi

(8.12.1) "Rule" reading measurement at 1% elongation: 15.40 in.

(8.13.1) Maximum elongation at failure, from "Rule" reading: 19.00 in.

(8.13.2) Maximum force at failure: 15.63 kips ; Pressure: 9740 psi

(8.14.1) Type of break: DUCTILE Location of break: 14½" RAMHEAD in.

(8.15) CALCULATIONS:

(8.15.1) Ultimate Stress: 263.194 ksi Stress (ksi) = Force (kips) ÷ [π (dia^2) ÷ 4] (in^2)

(8.15.2) Yield Stress @ 1% elongation: 230.525 ksi Stress (ksi) = Force (kips) @ 1% ÷ [π (dia^2) ÷ 4] (in^2)

(8.15.3) % elongation @ failure: 4.6 % [1 in. ÷ ("Rule" Dimension @ Failure – "Rule" Dimension @ 1%)]

Results: ☒ Acceptable ☐ Unacceptable Customer Notified NCR No.: N/A

QC Inspector: [signature] Level: II Date: 11-21-07

QC Reviewed: [signature] Level: III Date: 11-26-07

PSC PROCEDURE SQ10.3
TESTING TENDON WIRES
Data Sheet 10.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V17 Tendon End: SHOP/TOP

WIRE TEST DOCUMENTATION

Sample No.: SAMPLE 2

(8.2.3.2) Wire ID and Location of removal: 90-100 feet Length: 120 in.

(8.3.1) Wire Diameters: Tag End .275 in. Middle .275 in. Ram End .275 in. Avg. .275 in.

Measuring Device ID: QC80 Recal Date: 5-16-08

(8.4.2.1) Buttonhead Inspection: Tag End OK Ram End OK

(8.5.1) Gauge Length of Wire: 100 in. Measuring Device ID: R17 Recal Date: 11-16-08

(8.7.1) Preload force: 2.45 kips

Preload pressure: 1450 psi Pressure Gauge ID: CC107223 Recal Date: DAILY ON USE

Ram ID: 7702 Ram Area: 1.590 in^2 K = 0.146 kips Recal Date: JOB END

(8.8.1) Force reduced to zero (0): OK

(8.9.1) Initial load of wire force: 1.73 kips (0.1% elongation)

Initial load of pressure: 1000 psi Elongation: 13.40 in.

(8.10.1) Preset Dial Indicator: OK (0.9% elongation) Indicator ID: ECC21 Recal Date: 8-30-08

(8.11.1) Force at 1% elongation: 13.63 kips ; Pressure: 8480 psi

(8.12.1) "Rule" reading measurement at 1% elongation: 14.30 in.

(8.13.1) Maximum elongation at failure, from "Rule" reading: 18.30 in.

(8.13.2) Maximum force at failure: 15.63 kips ; Pressure: 9740 psi

(8.14.1) Type of break: DUCTILE Location of break: 43" OFF RAM in.

(8.15) CALCULATIONS:

(8.15.1) Ultimate Stress: 263.194 ksi Stress (ksi) = Force (kips) ÷ [π (dia^2) ÷ 4] (in^2)

(8.15.2) Yield Stress @ 1% elongation: 229.464 ksi Stress (ksi) = Force (kips) @ 1% ÷ [π (dia^2) ÷ 4] (in^2)

(8.15.3) % elongation @ failure: 5.0 % [1 in. + ("Rule" Dimension @ Failure – "Rule" Dimension @ 1%)]

Results: ☒ Acceptable ☐ Unacceptable Customer Notified NCR No.: N/A

QC Inspector: [signature] Level: II Date: 11-21-07

QC Reviewed: [signature] Level: II Date: 11-26-07

PSC PROCEDURE SQ10.3
TESTING TENDON WIRES
Data Sheet 10.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V17 Tendon End: Shop/Top

WIRE TEST DOCUMENTATION

Sample No.: SAMPLE 3

(8.2.3.2) Wire ID and Location of removal: 170-180 feet Length: 120 in.

(8.3.1) Wire Diameters: Tag End .275 in Middle .275 in. Ram End .275 in. Avg .275 in.

Measuring Device ID: QC80 Recal Date: 5-16-08

(8.4.2.1) Buttonhead Inspection: Tag End OK Ram End OK

(8.5.1) Gauge Length of Wire: 100 in. Measuring Device ID: R17 Recal Date: 11-16-08

(8.7.1) Preload force: 2.45 kips

Preload pressure: 1450 psi Pressure Gauge ID: CC107223 Recal Date: DAILY ON USE

Ram ID: 7702 Ram Area: 1.590 in² K = 0.146 kips Recal Date: JOB END

(8.8.1) Force reduced to zero (0): OK

(8.9.1) Initial load of wire force: 1.73 kips (0.1% elongation)

Initial load of pressure: 1000 psi Elongation: 14.00 in.

(8.10.1) Preset Dial Indicator: OK (0.9% elongation) Indicator ID: ECC21 Recal Date: 8-30-08

(8.11.1) Force at 1% elongation: 13.66 kips ; Pressure: 8500 psi

(8.12.1) "Rule" reading measurement at 1% elongation: 14.90 in.

(8.13.1) Maximum elongation at failure, from "Rule" reading: 19.20 in.

(8.13.2) Maximum force at failure: 15.79 kips ; Pressure: 9840 psi

(8.14.1) Type of break: DUCTILE Location of break: 1/2" OPPRAM in.

(8.15) CALCULATIONS:

(8.15.1) Ultimate Stress: 265.871 ksi Stress (ksi) = Force (kips) ÷ [π (dia²) ÷ 4] (in²)

(8.15.2) Yield Stress @ 1% elongation: 230.000 ksi Stress (ksi) = Force (kips) @ 1% ÷ [π (dia²) ÷ 4] (in²)

(8.15.3) % elongation @ failure: 5.3 % [1 in. - ("Rule" Dimension @ Failure - "Rule" Dimension @ 1%)]

Results: ☒ Acceptable ☐ Unacceptable Customer Notified NCR No.: N/A

QC Inspector: [signature] Level: II Date: 11-21-07

QC Reviewed: [signature] Level: II Date: 11-26-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 601V17 Tendon End: Shop/top

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 94 °F Thermometer No.: 5T78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 86 °F Thermometer No.: PK50 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 160 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8784 Recal Date: job end RAM Area: 337.287 K = -5.06 BG 10-25-07
Gauge ID: 1017880 Recal Date: daily on use Daily Check: YES BG 10-25-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.48 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = 350 kips Pressure: 1058.69 psi
Step 1 = 600 kips Pressure: 1793.90 psi Elongation: 1.98 in.
Step 2 = 1200 kips Pressure: 3572.80 psi Elongation: 6.74 in.
LOF = 1580.16 kips Pressure: 4699.91 psi
OSF = 1832 kips Pressure: 5446.57 psi Elongation: 11.75 in. BG 10-25-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = 352.46 kips Pressure: 1060 psi ① Elongation: 3 in.
(9.8.3.1) Step 1 = 602.05 kips Pressure: 1800 psi Elongation: 4.8 in.
(9.8.4.1) Step 2 = 1202.42 kips Pressure: 3580 psi Elongation: 9.2 in.
(9.8.5.2) OSF = 1839.78 kips Pressure: 5440 psi ② Elongation: 13.75 in. BG 10-25-07

(9.8.5.3) ② – ①= 10.75 in. Elongation Value (this end)
(9.8.5.4) N/A in. Elongation Value (opposite end)
(9.8.5.4) 10.75 in. TOTAL Tendon Elongation Value BG 10-25-07
(9.8.8.2) Elongation Variation: -8.51 % Ruler ID: R-16 Recal Date: 8-30-08 BG 10-25-07
(9.8.8.4) Elongation Results: ☒ Acceptable ☐ Unacceptable BG 10-25-07
Customer Notified NCR No.: N/A BG 10-25-07

(9.7.3) LOF Acceptable Range: From: 4700 psi To: 4856.57 psi BG 10-25-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:		Stack #2:		(9.9.7) Circled Values
1)	4750 psi	1)	4750 psi	1) 4750 psi
2)	4750 psi	2)	4750 psi	2) 4750 psi
3)	4750 psi	3)	4750 psi	3) 4750 psi

(9.9.7) Force (this end): 1597.05 kips Actual Average: 4750 psi BG 10-25-07
(9.9.7) Force (opposite end): N/A kips This Tendon – AALV FORCE 1597.05 kips BG 10-25-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A BG 10-25-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A BG 10-25-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A BG 10-25-07
If Yes – Customer Notified NCR No.: N/A BG 10-25-07

(9.9.11.3) Final Shim Stack Height: #1: 12 1/2 in. #2: 12 1/2 in. BG 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: G1V17 Tendon End: Shop/Hap

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-25-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-25-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-25-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-25-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-25-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-25-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V17 Tendon End: Shop/top

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2.5 gal.	BG 11-14-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	96 gal.	BG 11-14-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-14-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-14-07
(8.8) TOTAL Tendon Grease Loss:	98.5 gal.	BG 11-14-07
(8.9) Ambient Temp.: 88 °F Thermo. ID: PK50 Recal Date: 8-30-08		BG 11-14-07
(8.10) Grease Cap Removal Date: 10-25-07 Grease Replacement Date: 11-14-07		BG 11-14-07
Elapsed Time: 20 days		BG 11-14-07
(9.8.4.1) Grease height in drum before: 50.50 in. (9.8.5.1) Height in drum after: 0.0 in.		BG 11-14-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 106.2 gal.	☒ Pumped ☐ Poured	BG 11-14-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	1 gal.	BG 11-14-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	0 gal.	BG 11-14-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-14-07
Grease Temp.: 210 °F Thermo. ID: PK50 Recal Date: 8-30-08		BG 11-14-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-14-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	0 gal.	BG 11-14-07
(10.3.10) TOTAL amount of Grease replaced: 107.2 gal. (hand pumped + pressured pumped – exiting outflow)		BG 11-14-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 144.74 gal.

(10.3.11) Percent variation difference: 6.01 % BG 11-14-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \text{ \% variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-14-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 11-14-07

If No – Customer Notified NCR No.: N/A BG 11-14-07

(11.4) Comments: grease pumped from field end.

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61V17 Tendon End: Field/Gallery

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-24-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 70 °F Thermometer No.: 5T78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 88 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 10-24-07
(8.5.1) Anchorhead I.D. CR256 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-24-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-24-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BG 10-24-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: none	BG 10-24-07
(8.11) Qty. of Grease lost from cap: 0 gal. (8.11.1) Qty. of Grease removed from cap: 2 gal.	BG 10-24-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-24-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BG 10-24-07
(10.2) Method of Tendon Protection: replaced cap (w/ new gasket 10-25-07)	BG 10-24-07
(10.3) Amount of Grease Loss from Tendon duct: 93 gal.	BG 10-24-07
Total quantity of lost grease (below):	
(8.11) 0 + (8.11.1) 2 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 93 = 96 TOTAL	BG 10-24-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-24-07

QC Reviewed: David P. O'Neal Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 61V17 Tendon End: Field/bottom

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING

(9.10.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: _____ Date: _____

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at: _____

QC Signoff: [signature] Level: II Date: 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61V17 Tendon End: Field/bottom

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

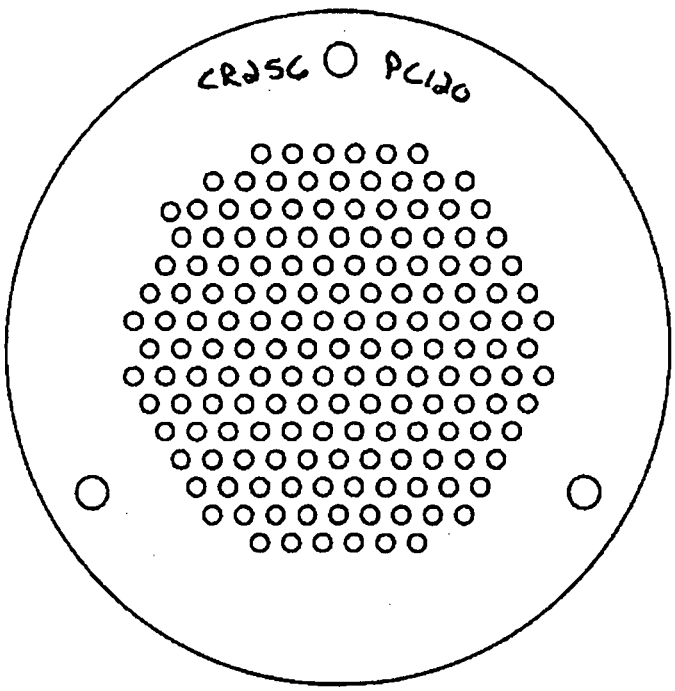
(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A
(8.2.2.1) Anchorhead	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A

BG 10-24-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR256
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC120
Located on Sketch: ☒ Yes ☐ No
Shims 4" 3,1
(8.4.7) Offsize Buttonhead Totals
A = N/A BG 10-24-07
B = N/A BG 10-24-07
C = N/A BG 10-24-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 10-24-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 165 BG 10-24-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BG 10-24-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 10-24-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61U17 Tendon End: Field/Bottom

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☒ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

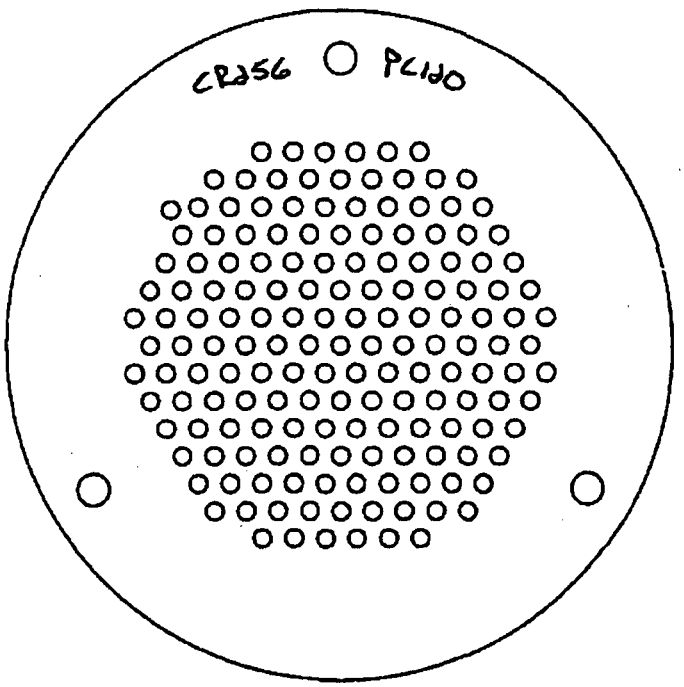
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-24-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
◡	Protruding/unseated wire/buttonheads.
Ø	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊘	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR256
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC120
Located on Sketch: ☒ Yes ☐ No

(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 10-24-07
BG 10-24-07
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BG 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61V17 Tendon End: Field/bottom

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☒ Post Re-Tensioning | Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

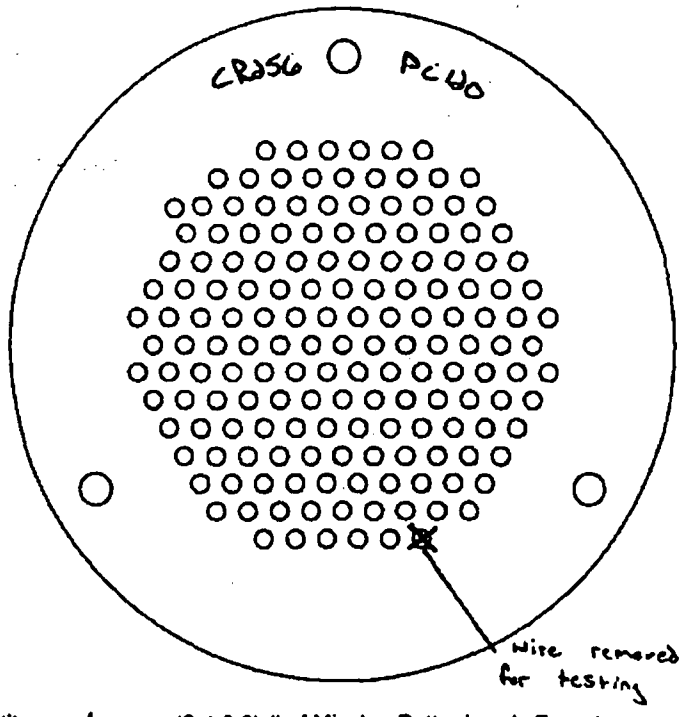
(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A
(8.2.2.1) Anchorhead	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

Q.C. Signoff: 86 10-25-07

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊘	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR256
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC130
Located on Sketch: ☒ Yes ☐ No
Shims 4° 3,1

(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 1 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 162
(8.5.2) Protruding BH: 0 Missing BH: 1 Total (Protruding+Missing): 1
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

86 10-25-07
86 10-25-07
86 10-25-07
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86 10-25-07
86 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V17 Tendon End: Field/bottom

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-24-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V17 Tendon End: Field/Bottom

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-25-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-25-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-25-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-25-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-25-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-25-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V17 Tendon End: Field/bottom

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	96 gal.	BG 11-14-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2.5 gal.	BG 11-14-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-14-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-14-07
(8.8) TOTAL Tendon Grease Loss:	98.5 gal.	BG 11-14-07
(8.9) Ambient Temp.: 88 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-14-07
(8.10) Grease Cap Removal Date: 10-24-07 Grease Replacement Date: 11-14-07		BG 11-14-07
Elapsed Time: 21 days		BG 11-14-07
(9.8.4.1) Grease height in drum before: 30.30 in. (9.8.5.1) Height in drum after: 0.0 in.		BG 11-14-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 106.2 gal. ☒ Pumped ☐ Poured		BG 11-14-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	0 gal.	BG 11-14-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	1 gal.	BG 11-14-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	106.2 gal.	BG 11-14-07
Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-14-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-14-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	1 gal.	BG 11-14-07
(10.3.10) TOTAL amount of Grease replaced: 107.2 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-14-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 144.74 gal.

(10.3.11) Percent variation difference: 6.01 % — BG 11-14-07

$$\frac{\text{Total Quantity (10.2.8) - Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-14-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 11-14-07

If No – Customer Notified NCR No.: N/A — BG 11-14-07

(11.4) Comments: None

QC Reviewed: David P. Otten Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61V08 Tendon End: Shop/top

Grease Cap Removal

Date Removal Started: 10-29-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 76 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 70 °F Thermometer No.: PR30 Re-Cal Date: 8-30-08 — BC 10-29-07

(8.5.1) Anchorhead I.D. CR933 Anchorhead Verification: ☒ Match ☐ No-Match — BC 10-29-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) - *Limited within the inside diameter of the grease cap.* — BC 10-29-07

(8.7) Unusual Conditions: None — BC 10-29-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown

Comments: None — BC 10-29-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — BC 10-29-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — BC 10-29-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct — BC 10-29-07

(10.2) Method of Tendon Protection: replaced can w/ new gasket — BC 10-29-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BC 10-29-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL — BC 10-29-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BC 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 61V08 Tendon End: Shop/top

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 11-20-07 11-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61V08 Tendon End: Shop/top

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

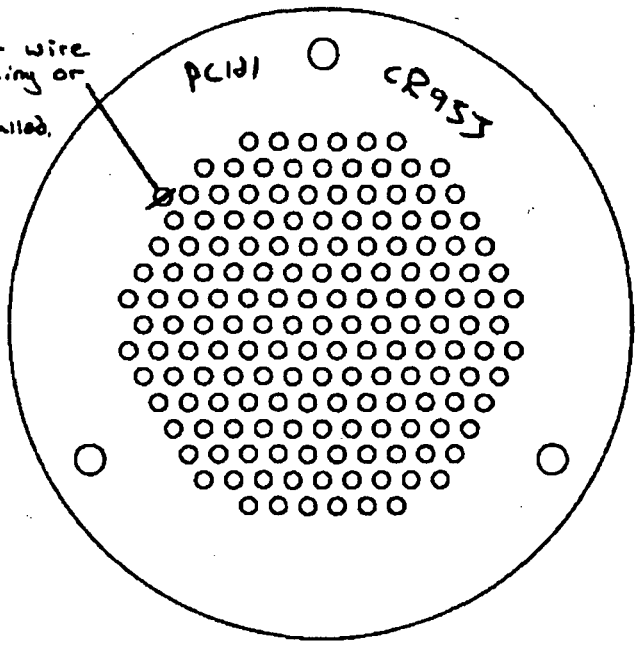
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	BC 10-29-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- Ø Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊘ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR953
Located on Sketch: ☐ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☐ Yes ☐ No
Shims 3,3,3,3, 1 15"
(8.4.7) Offsize Buttonhead Totals
A = N/A BC 10-29-07
B = N/A BC 10-29-07
C = N/A BC 10-29-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BC 10-29-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BC 10-29-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BC 10-29-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BC 10-29-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BC 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V08 Tendon End: Shop/top

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 61V08 Tendon End: Shop/top

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 76 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 70 °F Thermometer No.: PR30 Recal Date: 8-30-08	BG 10-29-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-29-07
(9.5) Number of Effective Wires: 163	BG 10-29-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-29-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 557.287 K = -5.06	
Gauge ID: 1017881 Recal Date: Daily on use Daily Check: Yes	BG 10-29-07
(9.8) Shim Stack Height: #1 13 in. #2 13 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,3,3,3,1 in. Stack #2: 3,3,3,3,1 in.	BG 10-29-07
(9.9) Base Value Predicted Force (BVPF): 1491 kips Pressure: 4435.56 psi	
BVPF: 1491 kips 95% BVPF: 1416 kips 90% BVPF: 1342 kips	
4435.56 psi 4213.20 psi 5993.80 psi	BG 10-29-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4480 psi Stack #2: 1) 4480 psi 1) 4480 psi	
2) 4480 psi 2) 4480 psi 2) 4480 psi	
3) 4480 psi 3) 4480 psi 3) 4480 psi	
(9.10.10) Actual Force (this end): 1505.98 kips Actual Average: 4480 psi	BG 10-29-07
(9.10.10.1) Actual Force (opposite end): N/A kips (9.10.10.2) AALV FORCE 1505.98 kips	BG 10-29-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 10-29-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-29-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-29-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 10-29-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF. N/A	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 10-29-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.:	BG 10-29-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.:	BG 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.. 61V08 Tendon End: Shop/top

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-29-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-29-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-29-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-29-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-29-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-29-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V08 Tendon End: SHOP/TOP ~~Field/Bottom~~ 11-20-07

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2.5 gal.	BG 11-13-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	52.5 gal.	BG 11-13-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-13-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-13-07
(8.8) TOTAL Tendon Grease Loss:	55 gal.	BG 11-13-07
(8.9) Ambient Temp.: 84 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-13-07
(8.10) Grease Cap Removal Date: 10-29-07 Grease Replacement Date: 11-13-07		BG 11-13-07
Elapsed Time: 15 days		BG 11-13-07
(9.8.4.1) Grease height in drum before: 31 in. (9.8.5.1) Height in drum after: 3 in.		BG 11-13-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 49.56 gal. ☒ Pumped ☐ Poured		BG 11-13-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: ~~0~~ ~~7.08~~ gal. 7.08 BG 11-13-07		BG 11-13-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: ~~7.08~~ gal. 0 BG 11-13-08		BG 11-13-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-13-07
Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-13-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-13-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	0 gal.	BG 11-13-07
(10.3.10) TOTAL amount of Grease replaced: 56.64 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-13-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 144.12 gal.

(10.3.11) Percent variation difference: 1.13 % BG 11-13-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-13-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 11-13-07

If No – Customer Notified NCR No.: N/A BG 11-13-07

(11.4) Comments: Grease pumped from ~~bottom~~ BG 11-13-07 Field end and topped off on top end.

QC Reviewed: _____ Level: _____ Date: _____

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61V08 Tendon End: Field/bottom

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-29-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 80 °F Thermometer No.: 5778 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 78 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BC 10-29-07
(8.5.1) Anchorhead I.D. LR300 Anchorhead Verification: ☒ Match ☐ No-Match	BC 10-29-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BC 10-29-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BC 10-29-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown	
Comments: none	BC 10-29-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BC 10-29-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BC 10-29-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BC 10-29-07
(10.2) Method of Tendon Protection: replaced cap w/ new gasket	BC 10-29-07
(10.3) Amount of Grease Loss from Tendon duct: 50 gal.	BC 10-29-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 50 = 52.5 TOTAL	BC 10-29-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BC 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 61V08 Tendon End: Field/bottom

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-21-07 10/22-07

QC Reviewed: [signature] Level: II Date: 10-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 61V08 Tendon End: Field/bottom

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

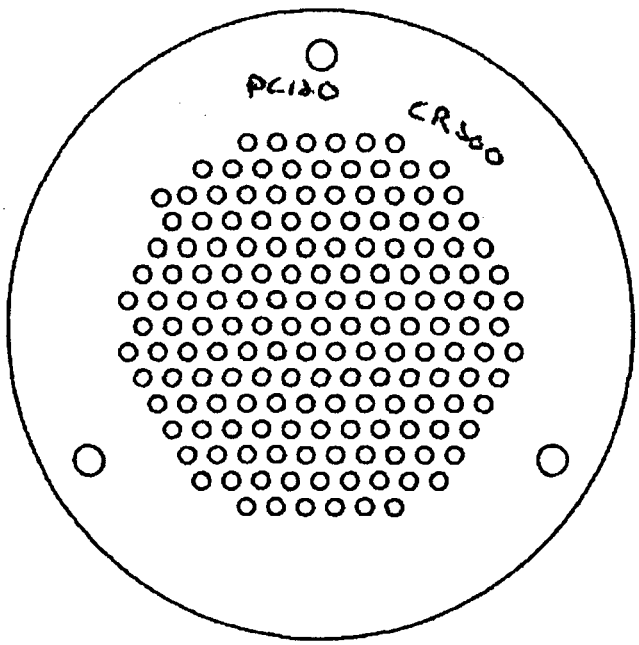
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-29-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- Ø Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR300
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC120
Located on Sketch: ☒ Yes ☐ No
Shims 4° 3, 1

(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 10-29-07
B = N/A — BG 10-29-07
C = N/A — BG 10-29-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 — BG 10-29-07
(8.4.8.3) # of Missing Buttonheads Found: 0 — BG 10-29-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 — BG 10-29-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BG 10-29-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No — BG 10-29-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V08 Tendon End: Field/bottom

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V08 Tendon End: Field/Bottom

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-29-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-29-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-29-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-29-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-29-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-29-07

Comments: None

QC Reviewed: [signature] Level: II Date: 10-30-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 61V08 Tendon End: Field/Bottom

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 52.5 gal. — BG 11-13-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 2.5 gal. — BG 11-13-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. — BG 11-13-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. — BG 11-13-07

(8.8) TOTAL Tendon Grease Loss: 55 gal. — BG 11-13-07

(8.9) Ambient Temp.: 84 °F Thermo. ID: PK30 Recal Date: 8-30-08 — BG 11-13-07

(8.10) Grease Cap Removal Date: 10-29-07 Grease Replacement Date: 11-13-07 — BG 11-13-07

Elapsed Time: 15 days — BG 11-13-07

(9.8.4.1) Grease height in drum before: 31 in. (9.8.5.1) Height in drum after: 3 in. — BG 11-13-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 49.56 gal. ☒ Pumped ☐ Poured — BG 11-13-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 0 gal. — BG 11-13-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 7.08 gal. — BG 11-13-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 49.56 gal. — BG 11-13-07

Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08 — BG 11-13-07

(10.3.8) Quantity of Exiting Outflow Grease: 0 gal. — BG 11-13-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 7.08 gal. — BG 11-13-07

(10.3.10) TOTAL amount of Grease replaced: 56.64 gal. *(hand pumped + pressured pumped – exiting outflow)* — BG 11-13-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 144.12 gal.

(10.3.11) Percent variation difference: 1.13 % — BG 11-13-07

$$\frac{\text{Total Quantity (10.2.8) - Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-13-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 11-13-07

If No – Customer Notified NCR No.: N/A — BG 11-13-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 15H36 Tendon End: Buttress 1

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-26-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 90 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 81 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 10-26-07
(8.5.1) Anchorhead I.D. CR618 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-26-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-26-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 10-26-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown	
Comments: None	BG 10-26-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-26-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-26-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BG 10-26-07
(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-1-07)	BG 10-26-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 10-26-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL	BG 10-26-07
Document TOTAL grease lost on Data Sheet 12.1. GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 131136 Tendon End: butt. 1

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H36 Tendon End: Butt. 1

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

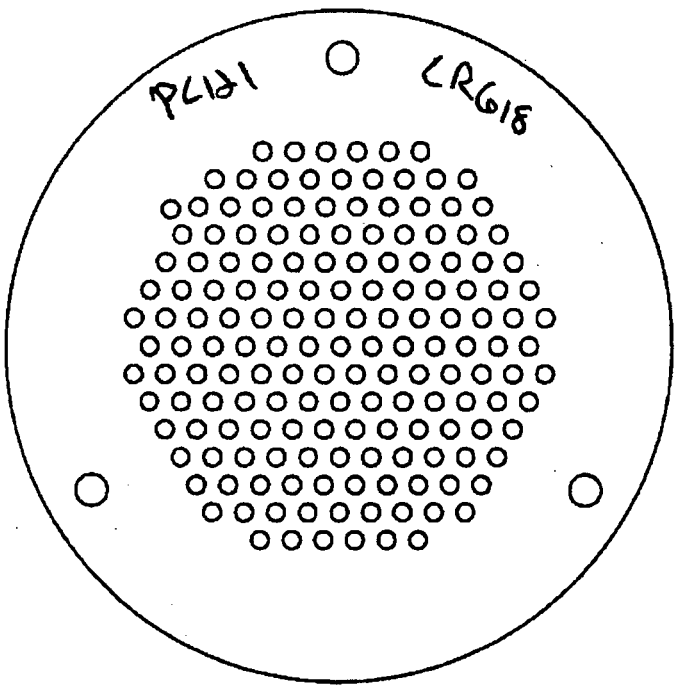
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-26-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR..

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
◡	Protruding/unseated wire/buttonheads.
Ø	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR618
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☐ Yes ☐ No
Shims 6"12, 3, 1, 1, 1, 1/4, 1/4
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 10-26-07
BG 10-26-07
BG 10-26-07
BG 10-26-07
BG 10-26-07
BG 10-26-07
BG 10-26-07
BG 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 15H36 Tendon End: Butt. 1

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 13436 Tendon End: Butt. 1

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 90 °F Thermometer No.: 5778 Recal Date: 8-30-08	
Ambient Temp.: 82 °F Thermometer No.: PK50 Recal Date: 8-30-08	BG 10-26-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-26-07
(9.5) Number of Effective Wires: 165	BG 10-26-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-26-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 537.287 K = -5.06	
Gauge ID: 1017880 Recal Date: daily on use Daily Check: Yes	BG 10-26-07
(9.8) Shim Stack Height: #1 6½ in. #2 6½ in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 1, 1, ¼, ¼ in. Stack #2: 3, 1, 1, ¼, ¼ in.	BG 10-26-07
(9.9) Base Value Predicted Force (BVPF): 1484 kips Pressure: 4414.81 psi	
BVPF: 1484 kips 95% BVPF: 1410 kips 90% BVPF: 1356 kips	
4414.81 psi 4195.41 psi 5976.02 psi	BG 10-26-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3980 psi Stack #2: 1) 4000 psi 1) 4000 psi	
2) 3980 psi 2) 4000 psi 2) 4000 psi	
3) 3980 psi 3) 4000 psi 3) 4000 psi	
(9.10.10) Actual Force (this end): 1344.08 kips Actual Average: 4000 psi	BG 10-26-07
(9.10.10.1) Actual Force (opposite end): 1426.63 kips (9.10.10.2) AALV FORCE 1385.23 kips	BG 10-26-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-26-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-26-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-26-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-006	BG 10-26-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 10-30-07
b) Adj Tendon: 13435 Adj Tendon: 13437 ☒ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: FN1002-007	BG 10-30-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. N/A	
Customer Notified NCR No.:	BG 10-30-07

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13436 Tendon End: Buttr. 1

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 78 °F Thermometer No.: 5178 Recal Date: 8-30-08
(9.3) Ambient Temp.: 78 °F Thermometer No.: PR30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8784 Recal Date: Job end RAM Area: 357.287 K = -5.06 — 86 11-1-07
Gauge ID: 1017881 Recal Date: Daily as use Daily Check: YES — 86 11-1-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = ____ kips Pressure: ____ psi
Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
LOF = ____ kips Pressure: ____ psi
OSF = ____ kips Pressure: ____ psi Elongation: ____ in. — 86 11-1-07

Actual Observed Force and Elongation Measurements A

(9.8.2.1) PTF = ____ kips Pressure: ____ psi ① Elongation: ____ in.
(9.8.3.1) Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.4.1) Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.5.2) OSF = ____ kips Pressure: ____ psi ② Elongation: ____ in. — 86 11-1-07
(9.8.5.3) ② – ① = ____ in. Elongation Value (this end)
(9.8.5.4) ____ in. Elongation Value (opposite end)
(9.8.5.4) ____ in. TOTAL Tendon Elongation Value — 86 11-1-07
(9.8.8.2) Elongation Variation: ____ % Ruler ID: ____ Recal Date: ____ — 86 11-1-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — 86 11-1-07
Customer Notified *NCR* No.: ____ — 86 11-1-07

(9.7.3) LOF Acceptable Range: From: 4414.81 psi To: 4678.80 psi — 86 11-1-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:		Stack #2:		(9.9.7) Circled Values
1)	4600 psi	1)	4600 psi	1) 4600 psi
2)	4600 psi	2)	4600 psi	2) 4600 psi
3)	4600 psi	3)	4600 psi	3) 4600 psi

(9.9.7) Force (this end): 1546.46 kips Actual Average: 4600 psi — 86 11-1-07
(9.9.7) Force (opposite end): 1564.09 kips This Tendon – AALV FORCE 1555.27 kips — 86 11-1-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified *NCR* No.: N/A — 86 11-1-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: 0 — 86 11-1-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: 0 — 86 11-1-07
If Yes – Customer Notified NCR No.: N/A — 86 11-1-07

(9.9.11.3) Final Shim Stack Height: #1: 7 1/4 in. #2: 7 1/4 in. — 86 11-1-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 15436 Tendon End: Butt. 1

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-2-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 15H36 Tendon End: Butt. 1

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2.5 gal.	BG 11-1-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2.5 gal.	BG 11-1-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-1-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-1-07
(8.8) TOTAL Tendon Grease Loss:	5 gal.	BG 11-1-07
(8.9) Ambient Temp.: 86 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(8.10) Grease Cap Removal Date: 10-26-07 Grease Replacement Date: 11-1-07		BG 11-1-07
Elapsed Time: 6 days		BG 11-1-07
(9.8.4.1) Grease height in drum before: 10 1/2 in. (9.8.5.1) Height in drum after: 8 1/2 in.		BG 11-1-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 3.54 gal. ☒ Pumped ☐ Poured		BG 11-1-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	3.54 gal.	BG 11-1-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	3.54 gal.	BG 11-1-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-1-07
Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-1-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	3.54 gal.	BG 11-1-07
(10.3.10) TOTAL amount of Grease replaced: 7.08 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 131.67 gal.

(10.3.11) Percent variation difference: 1.70 % — BG 11-1-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-1-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 11-1-07

If No – Customer Notified NCR No.: N/A — BG 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H36 Tendon End: Butt. 5

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-25-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 90 °F Thermometer No.: 5178 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 84 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 10-25-07
(8.5.1) Anchorhead I.D. CR1167 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-25-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-25-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 10-25-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BG 10-25-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-25-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-25-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BG 10-25-07
(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-1-07)	BG 10-25-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 10-25-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL	BG 10-25-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 15436 Tendon End: Butt. 3

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13436 Tendon End: Butt. 3

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

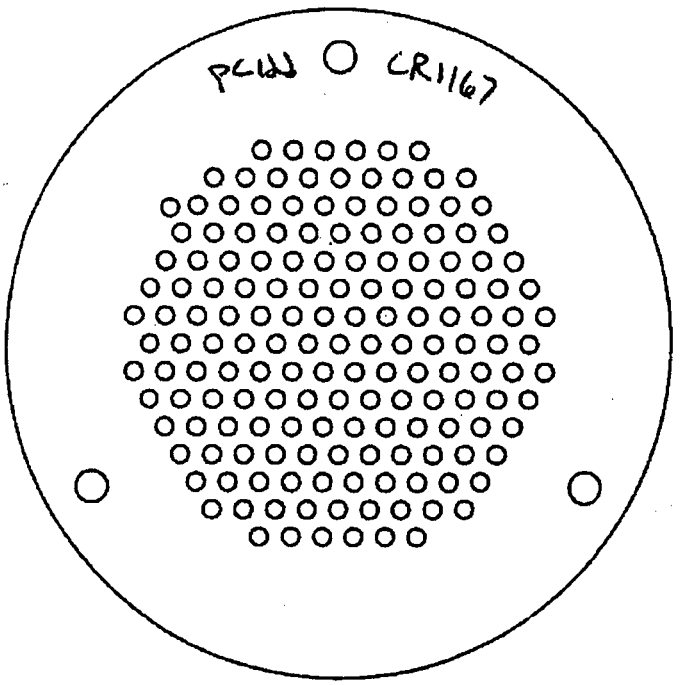
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-25-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
◡	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1167
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC122
Located on Sketch: ☒ Yes ☐ No
Shims 7 1/4 3, 1, 1, 1, 1 1/4

(8.4.7) Offsize Buttonhead Totals
A = N/A BG 10-25-07
B = N/A BG 10-25-07
C = N/A BG 10-25-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 10-25-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BG 10-25-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BG 10-25-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 10-25-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H36 Tendon End: Butt. 3

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 13H36 Tendon End: Butt. 3

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 90 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 84 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-25-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-25-07
(9.5) Number of Effective Wires: 163	BG 10-25-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-25-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 335.282 K = -5.022	
Gauge ID: 1017880 Recal Date: Daily on use Daily Check: YES	BG 10-25-07
(9.8) Shim Stack Height: #1 7 1/4 in. #2 7 1/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 1, 1, 1, 1, 1/4 in. Stack #2: 3, 1, 1, 1, 1, 1/4 in.	BG 10-25-07
(9.9) Base Value Predicted Force (BVPF): 1484 kips Pressure: 4441.10 psi	
BVPF: 1484 kips 95% BVPF: 1410 kips 90% BVPF: 1336 kips	
4441.10 psi 4220.39 psi 3999.68 psi	BG 10-25-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4270 psi Stack #2: 1) 4270 psi 1) 4270 psi	
2) 4270 psi 2) 4270 psi 2) 4270 psi	
3) 4270 psi 3) 4270 psi 3) 4270 psi	
(9.10.10) Actual Force (this end): 1426.65 kips Actual Average: 4270 psi	BG 10-25-07
(9.10.10.1) Actual Force (opposite end): 1344.08 kips (9.10.10.2) AALV FORCE 1385.33 kips	BG 10-25-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-25-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-25-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-25-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-006	BG 10-25-07
~~(9.10.15.1) Adjacent Tendon Lift-Offs~~ (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ~~☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.~~ N/A	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 10-30-07
b) Adj Tendon: 13H35 Adj Tendon: 13H37 ☒ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: FN1002-007	BG 10-30-07
c) ~~Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.~~ N/A	
~~Customer Notified NCR No.:~~	BG 10-30-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 15H36 Tendon End: Butt 3

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 78 °F Thermometer No.: 5178 Recal Date: 8-30-08
(9.3) Ambient Temp.: 76 °F Thermometer No.: AK30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8750 Recal Date: Job end RAM Area: 355 in2 K = -5.002 — 8/11-1-07
Gauge ID: 1017880 Recal Date: daily on use Daily Check: Yes — 8/11-1-07

Calculated Force for Elongation Measurement and Retensioning
NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = ____ kips Pressure: ____ psi
Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
LOF = ____ kips Pressure: ____ psi
OSF = ____ kips Pressure: ____ psi Elongation: ____ in. — 8/11-1-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = ____ kips Pressure: A ____ psi ① Elongation: ____ in.
(9.8.3.1) Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.4.1) Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.5.2) OSF = ____ kips Pressure: ____ psi ② Elongation: ____ in. — 8/11-1-07
(9.8.5.3) ② – ① = ____ in. Elongation Value (this end)
(9.8.5.4) ____ in. Elongation Value (opposite end)
(9.8.5.4) ____ in. TOTAL Tendon Elongation Value — 8/11-1-07
(9.8.8.2) Elongation Variation: ____ % Ruler ID: ____ Recal Date: ____ — 8/11-1-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — 8/11-1-07
Customer Notified NCR No.: ____ — 8/11-1-07

(9.7.3) LOF Acceptable Range: From: 4441.10 psi To: 4706.67 psi — 8/11-1-07

(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:	Stack #2:	(9.9.7) Circled Values
1) 4660 psi	1) 4680 psi	1) 4680 psi
2) 4680 psi	2) 4680 psi	2) 4680 psi
3) 4660 psi	3) 4680 psi	3) 4680 psi

(9.9.7) Force (this end): 1564.09 kips Actual Average: 4680 psi — 8/11-1-07
(9.9.7) Force (opposite end): 1546.46 kips This Tendon – AALV FORCE 1555.27 kips — 8/11-1-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A — 8/11-1-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: 0 — 8/11-1-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: 0 — 8/11-1-07
If Yes – Customer Notified NCR No.: N/A — 8/11-1-07

(9.9.11.3) Final Shim Stack Height: #1: 7 3/4 in. #2: 7 3/4 in. — 8/11-1-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H36 Tendon End: Butt. 3

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H36 Tendon End: Butt. 3

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 2.5 gal. — BG 11-1-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 2.5 gal. — BG 11-1-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. — BG 11-1-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. — BG 11-1-07

(8.8) TOTAL Tendon Grease Loss: 5 gal. — BG 11-1-07

(8.9) Ambient Temp.: 78 °F Thermo. ID: PK50 Recal Date: 8-30-08 — BG 11-1-07

(8.10) Grease Cap Removal Date: 10-25-07 Grease Replacement Date: 11-1-07 — BG 11-1-07

Elapsed Time: 6 days — BG 11-1-07

(9.8.4.1) Grease height in drum before: 24 in. (9.8.5.1) Height in drum after: 27 in. — BG 11-1-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 3.54 gal. ☒ Pumped ☐ Poured — BG 11-1-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 3.54 gal. — BG 11-1-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 3.54 gal. — BG 11-1-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 0 gal. — BG 11-1-07

Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 5-30-08 — BG 11-1-07

(10.3.8) Quantity of Exiting Outflow Grease: 0 gal. — BG 11-1-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 3.54 gal. — BG 11-1-07

(10.3.10) TOTAL amount of Grease replaced: 7.08 gal. *(hand pumped + pressured pumped – exiting outflow)* — BG 11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.67 gal.

(10.3.11) Percent variation difference: 1.70 % — BG 11-1-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-1-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 11-1-07

If No – Customer Notified NCR No.: N/A — BG 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 421446 Tendon End: Buttress 2

Grease Cap Removal

Date Removal Started: 11-5-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 66 °F Thermometer No.: 5178 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 60 °F Thermometer No.: PC50 Re-Cal Date: 8-30-08 — BG 11-5-07

(8.5.1) Anchorhead I.D. CR1170 Anchorhead Verification: ☒ Match ☐ No-Match — BG 11-5-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) - *Limited within the inside diameter of the grease cap.* — BG 11-5-07

(8.7) Unusual Conditions: None — BG 11-5-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown

Comments: None — BG 11-5-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — BG 11-5-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — BG 11-5-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct — BG 11-5-07

(10.2) Method of Tendon Protection: replaced cap w/ new gasket — BG 11-5-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BG 11-5-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL — BG 11-5-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 43H46 Tendon End: Bot. J

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [illegible] Level: II Date: 11-5-07

QC Reviewed: [illegible] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 43H46 Tendon End: Butt. 2

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

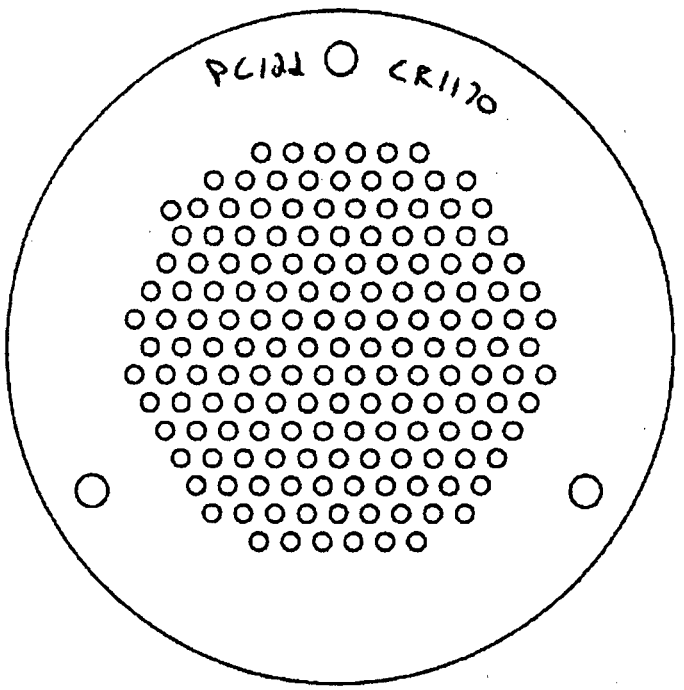
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-5-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1170
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC122
Located on Sketch: ☒ Yes ☐ No
Shims 3, 3/16, 3/8, 1, 1, 5 3/4
(8.4.7) Offsize Buttonhead Totals
A = N/A BG 11-5-07
B = N/A BG 11-5-07
C = N/A BG 11-5-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 11-5-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BG 11-5-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BG 11-5-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 11-5-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 431146 Tendon End: Butt. 2

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 42H46 Tendon End: Butt. 2

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 68 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 60 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 11-5-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
(9.5) Number of Effective Wires: 163	BG 11-5-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K = ~5.06	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 11-5-07
(9.8) Shim Stack Height: #1 5 3/4 in. #2 5 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3/8, 3/8, 1, 1 in. Stack #2: 3, 3/8, 3/8, 1, 1 in.	BG 11-5-07
(9.9) Base Value Predicted Force (BVPF): 1456 kips Pressure: 4531.80 psi	
BVPF: 1456 kips 95% BVPF: 1383 kips 90% BVPF: 1510 kips	
4331.80 psi 4115.36 psi 3898.93 psi	BG 11-5-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4530 psi Stack #2: 1) 4600 psi 1) 4600 psi	
2) 4530 psi 2) 4600 psi 2) 4600 psi	
3) 4530 psi 3) 4600 psi 3) 4600 psi	
(9.10.10) Actual Force (this end): 1546.46 kips Actual Average: 4600 psi	BG 11-5-07
(9.10.10.1) Actual Force (opposite end): 1570.80 kips (9.10.10.2) AALV FORCE 1558.63 kips	BG 11-5-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-5-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-5-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-5-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 11-5-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 11-5-07
b) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 11-5-07
c) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 4H46 Tendon End: Bot. 2

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-5-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-5-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-5-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-5-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-5-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-5-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 42H46 Tendon End: Butt. 2

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	3 gal.	BG 11-5-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2.5 gal.	BG 11-12-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-12-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-12-07
(8.8) TOTAL Tendon Grease Loss:	5.5 gal.	BG 11-12-07
(8.9) Ambient Temp.: 72 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(8.10) Grease Cap Removal Date: 11-5-07 Grease Replacement Date: 11-12-07		BG 11-12-07
Elapsed Time: 7 days		BG 11-12-07
(9.8.4.1) Grease height in drum before: 15 1/2 in. (9.8.5.1) Height in drum after: 15 3/4 in.		BG 11-12-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 3.09 gal. ☒ Pumped ☐ Poured		BG 11-12-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	3.09 gal.	BG 11-12-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-12-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-12-07
Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-12-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-12-07
(10.3.10) TOTAL amount of Grease replaced: 5.74 gal. (hand pumped + pressure pumped – exiting outflow)		BG 11-12-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.57 gal.

(10.3.11) Percent variation difference: .19 % BG 11-12-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-12-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 11-12-07

If No – Customer Notified NCR No.: N/A BG 11-12-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 42H46 Tendon End: Butt. 4

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-12-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 110 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 92 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BC 10-12-07
(8.5.1) Anchorhead I.D. CR529 Anchorhead Verification: ☒ Match ☐ No-Match	BC 10-12-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BC 10-12-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BC 10-12-07
(8.8) Grease Color Match: ☐ Yes ☒ No Grease Color: dark brown	
Comments: none	BC 10-12-07
(8.11) Qty. of Grease lost from cap: 1 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BC 10-12-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BC 10-12-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BC 10-12-07
(10.2) Method of Tendon Protection: Replaced cap w/ new gasket	BC 10-12-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BC 10-12-07
Total quantity of lost grease (below):	
(8.11) 1 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 3 TOTAL	BC 10-12-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BC 10-12-07

QC Reviewed: [signature] Level: II Date: 10/12/07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 4H46 Tendon End: Buttress 4

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☒ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-16-07

QC Reviewed: [signature] Level: II Date: 10/16/07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 42H46 Tendon End: Butt. 4

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

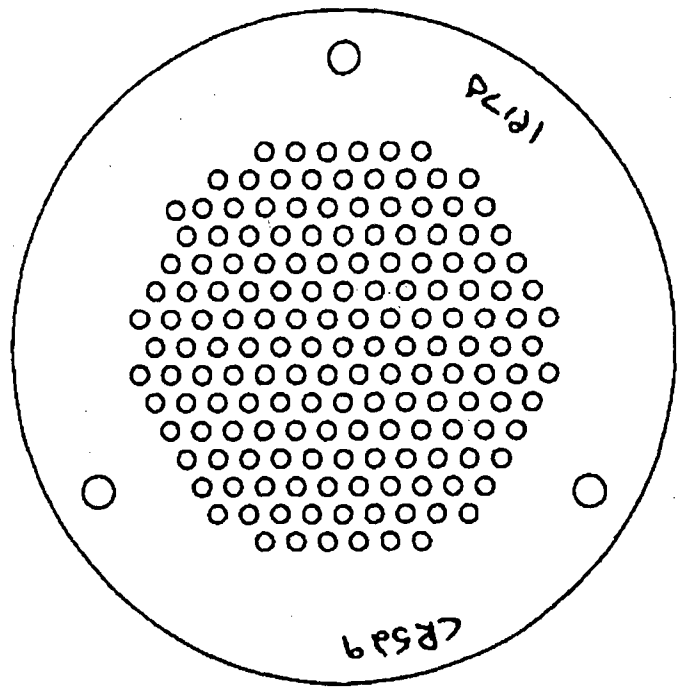
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-11-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
Ø	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR529
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
6" shims 3", 5"

(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 10-11-07
B = N/A — BG 10-11-07
C = N/A — BG 10-11-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 — BG 10-11-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 — BG 10-11-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BG 10-11-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BG 10-11-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 10-11-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 4H46 Tendon End: Butt. 4

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-12-07

QC Reviewed: [signature] Level: II Date: 10/12/07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 44H46 Tendon End: Buttr. 4

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 110 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 92 °F Thermometer No.: PK50 Recal Date: 8-30-08	BG 10-12-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-12-07
(9.5) Number of Effective Wires: 163	BG 10-12-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-12-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 335.282 K = ~ 5.022	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-12-07
(9.8) Shim Stack Height: #1 6 in. #2 6 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3" in. Stack #2: 3", 3" in.	BG 10-12-07
(9.9) Base Value Predicted Force (BVPF): 1456 kips Pressure: 4,357.59 psi	
BVPF: 1456 kips 95% BVPF: 1383 kips 90% BVPF: 1316 kips	
4,357.59 psi 4,139.86 psi 3922.15 psi	BG 10-12-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4660 psi Stack #2: 1) 4700 psi 1) 4700 psi	
2) 4660 psi 2) 4700 psi 2) 4700 psi	
3) 4660 psi 3) 4700 psi 3) 4700 psi	
(9.10.10) Actual Force (this end): 1570.80 kips Actual Average: 4700 psi	BG 10-12-07
(9.10.10.1) Actual Force (opposite end): 1546.46 kips (9.10.10.2) AALV FORCE 1558.63 kips	BG 11-5-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-5-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-5-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-5-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 11-5-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 11-5-07
b) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.:	BG 11-5-07
c) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.:	BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 4JH46 Tendon End: Butt. 4

GREASE CAP REPLACEMENT DOCUMENTATION		QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes ☐ No	BL 10-12-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes ☐ No	BL 10-12-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes ☐ No	BL 10-12-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes ☐ No	BL 10-12-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes ☐ No	BL 10-12-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes ☒ No	BL 10-12-07

Comments: None

QC Reviewed: [signature] Level: II Date: 10/16/07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 42H46 Tendon End: Butt. 4

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	3 gal.	BG 10-12-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2.5 gal.	BG 10-25-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-25-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-25-07
(8.8) TOTAL Tendon Grease Loss:	5.5 gal.	BG 10-25-07
(8.9) Ambient Temp.: 72 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-25-07
(8.10) Grease Cap Removal Date: 10-12-07 Grease Replacement Date: 10-25-07		BG 10-25-07
Elapsed Time: 13 days		BG 10-25-07
(9.8.4.1) Grease height in drum before: 23 3/4 in. (9.8.5.1) Height in drum after: 22 1/4 in.		BG 10-25-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 10-25-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 10-25-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	3.09 gal.	BG 10-25-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-25-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-25-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-25-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	3.09 gal.	BG 10-25-07
(10.3.10) TOTAL amount of Grease replaced: 5.74 gal. (hand pumped + pressured pumped – exiting outflow)		BG 10-25-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.57 gal.

(10.3.11) Percent variation difference: .19 % BG 10-25-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\% \text{ variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 10-25-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 10-25-07

If No – Customer Notified NCR No.: N/A BG 10-25-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

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PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H21 Tendon End: Buttress 4

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-17-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 88 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 82 °F Thermometer No.: PK50 Re-Cal Date: 8-30-08	BG 10-17-07
(8.5.1) Anchorhead I.D. CR1141 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-17-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-17-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BG 10-17-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: none	BG 10-17-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-17-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-17-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BG 10-17-07
	BG 10-17-07
(10.2) Method of Tendon Protection: Replaced cap Temp. (Installed new gasket	BG 10-17-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal. BG 10-23-07)	BG 10-17-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL	BG 10-17-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-17-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 46H21 Tendon End: Butt. 4

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-17-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H21 Tendon End: Butt. 4

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

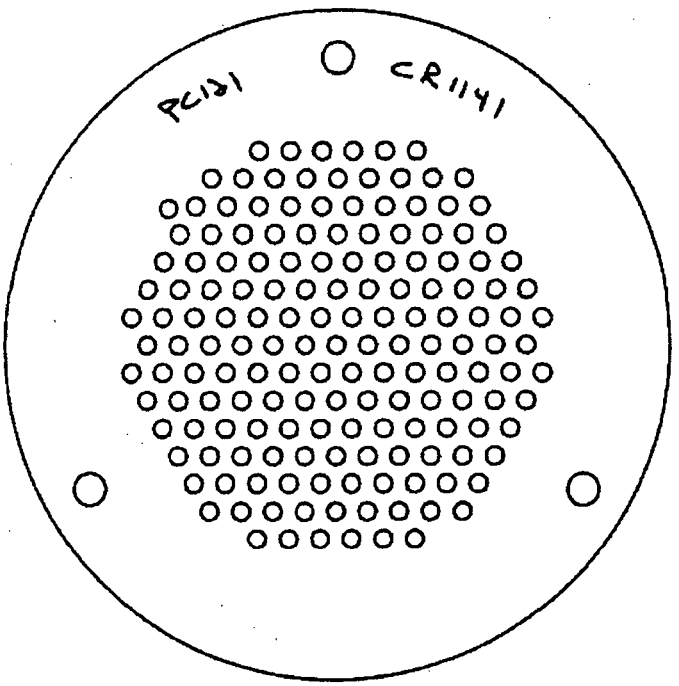
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-17-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- *Offsize (Malformed)*
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- *wire(s) being removed during this* surveillance for testing.



(8.4.6) Anchorhead I.D. CR1141
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No
Shims 5 3/4" 3", 1", 1/2", 1/4", 1"
(8.4.7) Offsize Buttonhead Totals
A = N/A BG 10-17-07
B = N/A BG 10-17-07
C = N/A BG 10-17-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 10-17-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 165 BG 10-17-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BG 10-17-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 10-17-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 10-17-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H21 Tendon End: Butt. 4

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-17-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46H21 Tendon End: Butt. 4

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 88 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 81 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-17-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-17-07
(9.5) Number of Effective Wires: 163	BG 10-17-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-17-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 335.282 K = -5.022	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: yes	BG 10-17-07
(9.8) Shim Stack Height: #1 5 3/4 in. #2 5 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 1, 1/2, 1/4, 1 in. Stack #2: 3, 1, 1/2, 1/4, 1 in.	BG 10-17-07
(9.9) Base Value Predicted Force (BVPF): 1441 kips Pressure: 4312.85 psi	
BVPF: 1441 kips 95% BVPF: 1369 kips 90% BVPF: 1297 kips	
4312.85 psi 4098.10 psi 3883.36 psi	BG 10-17-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3950 psi Stack #2: 1) 3950 psi 1) 3950 psi	
2) 3950 psi 2) 3950 psi 2) 3950 psi	
3) 3950 psi 3) 3950 psi 3) 3950 psi	
(9.10.10) Actual Force (this end): 1319.34 kips Actual Average: 3950 psi	BG 10-17-07
(9.10.10.1) Actual Force (opposite end): 1340.71 kips (9.10.10.2) AALV FORCE 1330.0 kips	BG 10-17-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-17-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-17-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-17-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-001	BG 10-17-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 10-18-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.:	BG 10-18-07
c) Adj Tendon: 46H20 Adj Tendon: 46H22 ☒ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.: FN1002-002	BG 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 4(4H2) Tendon End: Butt. 4

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 92 °F Thermometer No.: 5178 Recal Date: 8-30-08

(9.3) Ambient Temp.: 84 °F Thermometer No.: PK30 Recal Date: 8-30-08

(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable

(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)

(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable

(9.6.3) RAM ID: 8780 Recal Date: Job end RAM Area: 335.282 K = -5.022 BG10-25-07

Gauge ID: 1017881 Recal Date: Daily on use Daily Check: Yes BG10-25-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = kips Pressure: psi

Step 1 = kips Pressure: psi Elongation: in.

Step 2 = kips Pressure: psi Elongation: in.

LOF = kips Pressure: psi

OSF = kips Pressure: psi Elongation: in. BG10-25-07

Actual Observed Force and Elongation Measurements A

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.

(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.

(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.

(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. BG10-25-07

(9.8.5.3) ② – ① = in. Elongation Value (this end)

(9.8.5.4) in. Elongation Value (opposite end)

(9.8.5.4) in. TOTAL Tendon Elongation Value BG10-25-07

(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: BG10-25-07

(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable BG10-25-07

Customer Notified NCR No.: BG10-25-07

(9.7.3) LOF Acceptable Range: From: 4312.85 psi To: 4570.72 psi BG10-25-07

(9.9.6) Actual Lock-Off (9.9.7) Circled Values

	Stack #1	Stack #2	(9.9.7) Circled Values
1)	4500 psi	4500 psi	4500 psi
2)	4500 psi	4500 psi	4500 psi
3)	4500 psi	4500 psi	4500 psi

(9.9.7) Force (this end): 1503.74 kips Actual Average: 4500 psi BG10-25-07

(9.9.7) Force (opposite end): 1499.24 kips This Tendon – AALV FORCE 1501.49 kips BG10-25-07

(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A BG10-25-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A BG10-25-07

(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A BG10-25-07

If Yes – Customer Notified NCR No.: N/A BG10-25-07

(9.9.11.3) Final Shim Stack Height: #1: 6 1/8 in. #2: 6 1/8 in. BG10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H21 Tendon End: Butt. 4

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-26-07
(9.6.1) *Anchorage Assembly is coated lightly with grease*	☒ Yes	☐ No	BG 10-26-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-26-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-26-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-26-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-26-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H21 Tendon End: Butt. 4

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 2.5 gal. — 10-17-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 2.5 gal. — 10-26-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. — 10-26-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. — 10-26-07

(8.8) TOTAL Tendon Grease Loss: 5 gal. — 10-26-07

(8.9) Ambient Temp.: 84 °F Thermo. ID: PK30 Recal Date: 8-30-08 — 10-26-07

(8.10) Grease Cap Removal Date: 10-17-07 Grease Replacement Date: 10-26-07 — 10-26-07

Elapsed Time: 9 days — 10-26-07

(9.8.4.1) Grease height in drum before: 30 1/4 in. (9.8.5.1) Height in drum after: 28 1/4 in. — 10-26-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 3.54 gal. ☒ Pumped ☐ Poured — 10-26-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 3.54 gal. — 10-26-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 3.54 gal. — 10-26-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 0 gal. — 10-26-07

Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08 — 10-26-07

(10.3.8) Quantity of Exiting Outflow Grease: 0 gal. — 10-26-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 3.54 gal. — 10-26-07

(10.3.10) TOTAL amount of Grease replaced: 7.08 gal. *(hand pumped + pressured pumped – exiting outflow)* — 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.06 gal.

(10.3.11) Percent variation difference: 1.70 % — 10-26-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — 10-26-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — 10-26-07

If No – Customer Notified NCR No.: N/A — 10-26-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46 H21 Tendon End: Buttress 6

Grease Cap Removal

Q.C. Signoff

Date Removal Started: 10-17-07

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 88 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 82 °F Thermometer No.: PK36 Re-Cal Date: 8-30-08 BG 10-17-07

(8.5.1) Anchorhead I.D. CR167 Anchorhead Verification: ☒ Match ☐ No-Match BG 10-17-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) - *Limited within the inside diameter of the grease cap.* BG 10-17-07

(8.7) Unusual Conditions: none BG 10-17-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown

Comments: none BG 10-17-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. BG 10-17-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. BG 10-17-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct BG 10-17-07

(10.2) Method of Tendon Protection: Replaced can Temp. (Installed new gasket BG 10-18-07) BG 10-17-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. BG 10-17-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL BG 10-17-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No BG 10-17-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 46 H21 Tendon End: Butt. 6

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments:

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments:

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments:

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [illegible] Level: II Date: 10-17-07

QC Reviewed: [illegible] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46 H 21 Tendon End: Both. 6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning

Q.C. Signoff

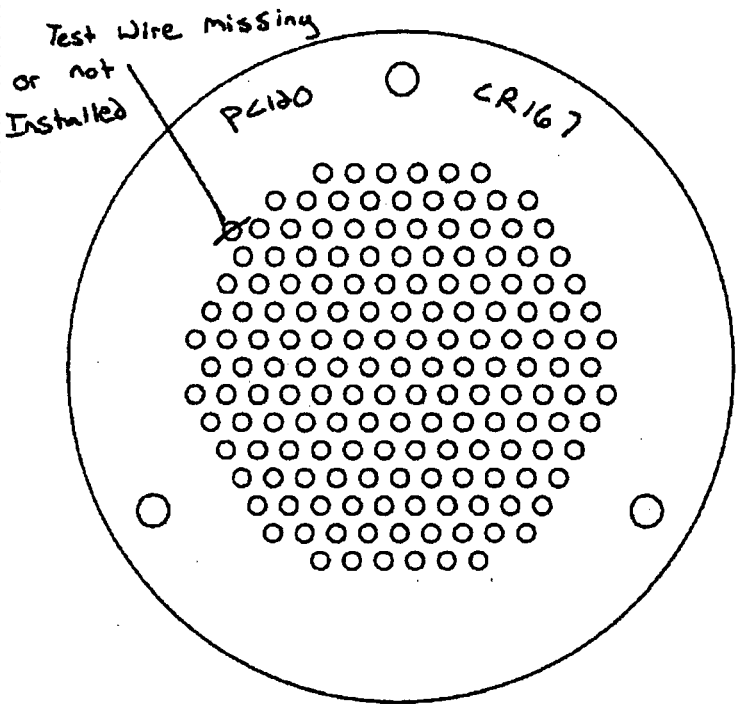
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BL 10-17-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- ∅ Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR167
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC130
Located on Sketch: ☒ Yes ☐ No
Shims 6" 3, 1, 1, ½, ½
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BL 10-17-07
BL 10-17-07
BL 10-17-07
BL 10-17-07
BL 10-17-07
BL 10-17-07
BL 10-17-07
BL 10-17-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H21 Tendon End: Butt. 6

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: Brian [illegible] Level: II Date: 10-17-07

QC Reviewed: [illegible] Level: [illegible] Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46H21 Tendon End: Butt. 6

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 88 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 82 °F Thermometer No.: PK56 Recal Date: 8-30-08	BG 10-17-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-17-07
(9.5) Number of Effective Wires: 163	BG 10-17-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-17-07
(9.7) RAM ID: 5784 Recal Date: end of job RAM Area: 337.287 K = -5.06	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-17-07
(9.8) Shim Stack Height: #1 6 in. #2 6 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, ½, ½, 1, 1 in. Stack #2: 3, ½, ½, 1, 1 in.	BG 10-17-07
(9.9) Base Value Predicted Force (BVPF): 1441 kips Pressure: 4287.32 psi	
BVPF: 1441 kips 95% BVPF: 1369 kips 90% BVPF: 1297 kips	
4287.32 psi 4073.85 psi 3860.39 psi	BG 10-17-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3990 psi Stack #2: 1) 3990 psi 1) 3990 psi	
2) 3990 psi 2) 3990 psi 2) 3990 psi	
3) 3990 psi 3) 3990 psi 3) 3990 psi	
(9.10.10) Actual Force (this end): 1340.71 kips Actual Average: 3990 psi	BG 10-17-07
(9.10.10.1) Actual Force (opposite end): 1319.34 kips (9.10.10.2) AALV FORCE 1330.02 kips	BG 10-17-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-17-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-17-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-17-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-001	BG 10-17-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 10-18-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.:	BG 10-18-07
c) Adj Tendon: 46H22 Adj Tendon: 46H23 ☒ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.: FN1002-002	BG 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H21 Tendon End: Sub. 6

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 92 °F Thermometer No.: ST78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 86 °F Thermometer No.: PK30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable — BG10-23-07
(9.6.3) RAM ID: 8784 Recal Date: Job end RAM Area: 337.287 K = -5.06 — ~~BG10-23-07~~
Gauge ID: 1017880 Recal Date: Daily on use Daily Check: Yes

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. — BG10-23-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. — BG10-23-07
(9.8.5.3) ② – ① = in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) in. TOTAL Tendon Elongation Value — BG10-23-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: — BG10-23-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — BG10-23-07
Customer Notified NCR No.: — BG10-23-07

(9.7.3) LOF Acceptable Range: From: 4287.32 psi To: 4543.66 psi — BG10-23-07

(9.9.6) Actual Lock-Off (9.9.7) Circled Values

	Stack #1	Stack #2	(9.9.7) Circled Values
1)	4460 psi	4460 psi	4460 psi
2)	4460 psi	4460 psi	4460 psi
3)	4460 psi	4460 psi	4460 psi

(9.9.7) Force (this end): 1499.24 kips Actual Average: 4460 psi — BG10-23-07
(9.9.7) Force (opposite end): 1503.74 kips This Tendon – AALV FORCE 1501.49 kips — BG10-23-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A — BG10-23-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A — BG10-23-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A — BG10-23-07
If Yes – Customer Notified NCR No.: N/A — BG10-23-07

(9.9.11.3) Final Shim Stack Height: #1: 6 3/8 in. #2: 6 3/8 in. — BG10-23-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H21 Tendon End: Butt. 6

GREASE CAP REPLACEMENT DOCUMENTATION		QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes ☐ No	BG 10-25-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes ☐ No	BG 10-25-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes ☐ No	BG 10-25-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes ☐ No	BG 10-25-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes ☐ No	BG 10-25-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes ☒ No	BG 10-25-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H21 Tendon End: Butt. 6

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2.5 gal.	BG 10-17-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2.5 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	5 gal.	BG 10-26-07
(8.9) Ambient Temp.: 84 °F Thermo. ID: PK30 Recal Date: 8-30-05		BG 10-26-07
(8.10) Grease Cap Removal Date: 10-17-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: 9 days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 17 1/4 in. (9.8.5.1) Height in drum after: 15 1/4 in.		BG 10-26-07
(9.8.6.2) TOTAL amount of Grease Pumped/Poured: 3.54 gal.	☒ Pumped ☐ Poured	BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	3.54 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	3.54 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 200 °F Thermo. ID: PK80 Recal Date: 8-30-05		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	3.54 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 7.08 gal. (hand pumped + pressured pumped – exiting outflow)		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.06 gal.

(10.3.11) Percent variation difference: 1.70 % — BG 10-26-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) — BG 10-26-07

If No – Customer Notified NCR No.: N/A — BG 10-26-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 51H34 Tendon End: Butt. 1

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 11-5-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 74 °F Thermometer No.: ST28 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 70 °F Thermometer No.: Pk30 Re-Cal Date: 8-30-08	BG 11-5-07
(8.5.1) Anchorhead I.D. CR459 Anchorhead Verification: ☒ Match ☐ No-Match	BG 11-5-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 11-5-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 11-5-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BG 11-5-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 11-5-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 11-5-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BG 11-5-07
(10.2) Method of Tendon Protection: replaced cap; Cap Installed w/ New Basket CEC 11-7-07	BG 11-5-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 11-5-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL	BG 11-5-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 51H34 Tendon End: Butt. 1

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING

(9.10.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: _____ Date: _____

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at: _____

QC Signoff: [signature] Level: II Date: 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 51H34 Tendon End: Butt. 1

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

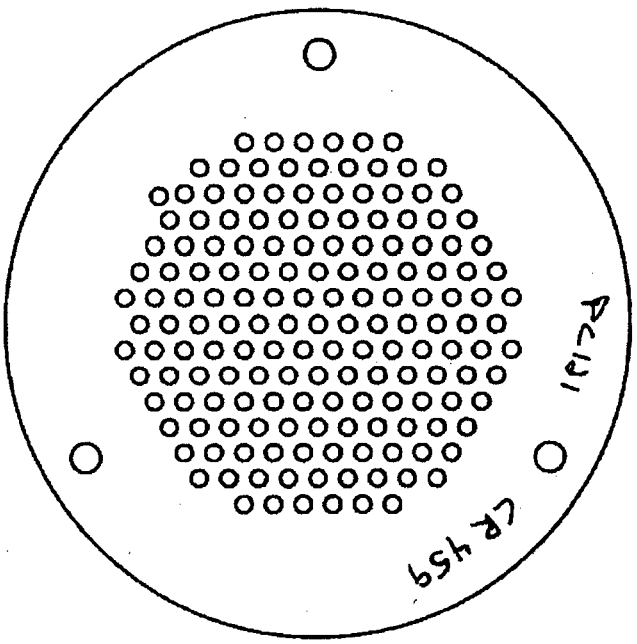
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-5-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR459
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
Shims 8" 3,3,1,½,½
(8.4.7) Offsize Buttonhead Totals
A = N/A BG 11-5-07
B = N/A BG 11-5-07
C = N/A BG 11-5-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 11-5-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BG 11-5-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BG 11-5-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No BG 11-5-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-2007

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 51H34 Tendon End: Butt. 1

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☒ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

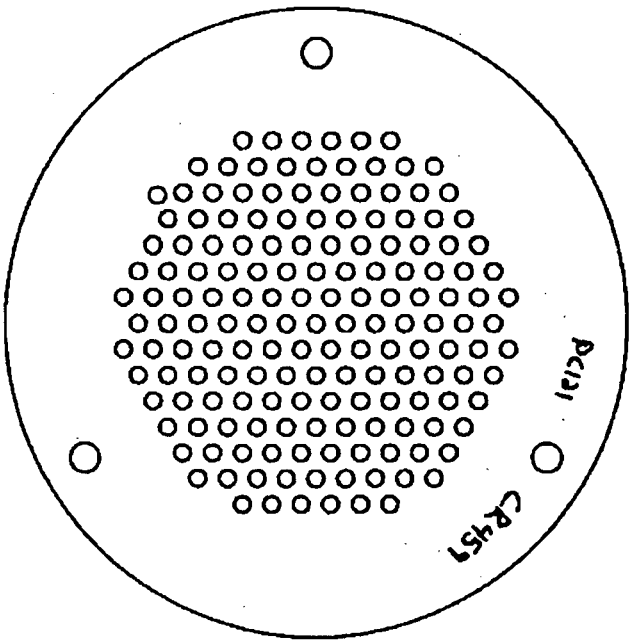
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 3 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-6-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- ∅ Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR459
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No

(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 11-6-07
B = N/A — BG 11-6-07
C = N/A — BG 11-6-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 — BG 11-6-07
(8.4.8.3) # of Missing Buttonheads Found: 0 — BG 11-6-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 — BG 11-6-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BG 11-6-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BG 11-6-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 11-6-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 51H34 Tendon End: Butt. 1

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☒ Post Re-Tensioning | Q.C. Signoff

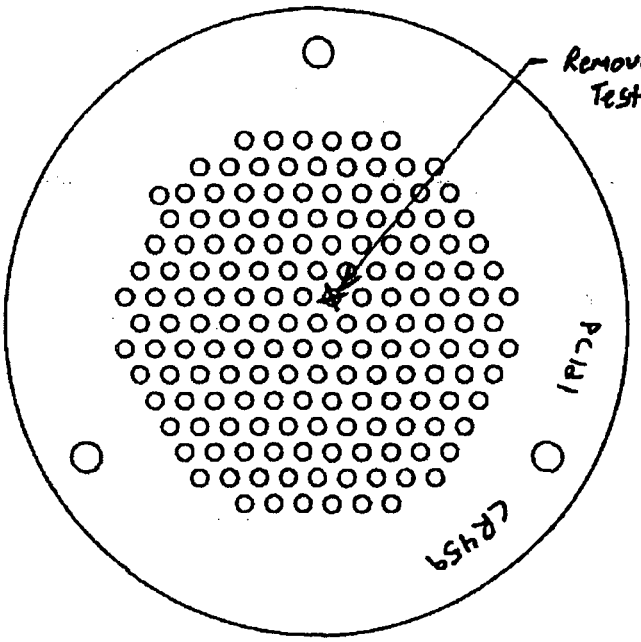
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-6-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Ø Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊘ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR459
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
Shims
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 1 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 162
(8.5.2) Protruding BH: 0 Missing BH: 1 Total (Protruding+Missing): 1
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 11-6-07
BG 11-6-07
BG 11-6-07
BG 11-6-07
BG 11-6-07
BG 11-6-07
BG 11-6-07
BG 11-6-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 51H34 Tendon End: Butt. 1

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 51H34 Tendon End: Butt. 1

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 74 °F Thermometer No.: 5778 Recal Date: 8-30-08	
Ambient Temp.: 70 °F Thermometer No.: P430 Recal Date: 8-30-08	BG 11-5-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
(9.5) Number of Effective Wires: 163	BG 11-5-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K = -5.06	
Gauge ID: 1017880 Recal Date: daily on use Daily Check: Yes	BG 11-5-07
(9.8) Shim Stack Height: #1 8 in. #2 8 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3, 1, 1/2, 1/2 in. Stack #2: 3, 3, 1, 1/2, 1/2 in.	BG 11-5-07
(9.9) Base Value Predicted Force (BVPF): 1487 kips Pressure: 4423.71 psi	
BVPF: 1487 kips 95% BVPF: 1413 kips 90% BVPF: 1339 kips	
4423.71 psi 4204.31 psi 3984.91 psi	BG 11-5-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4480 psi Stack #2: 1) 4560 psi 1) 4560 psi	
2) 4480 psi 2) 4560 psi 2) 4560 psi	
3) 4480 psi 3) 4560 psi 3) 4560 psi	
(9.10.10) Actual Force (this end): 1532.96 kips Actual Average: 4560 psi	BG 11-5-07
(9.10.10.1) Actual Force (opposite end): 1396.45 kips (9.10.10.2) AALV FORCE 1464.70 kips	BG 11-5-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-5-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-5-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-5-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 11-5-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date: N/A	BG 11-5-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 11-5-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ10.2
TEST WIRE REMOVAL
Data Sheet 10.2
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 51H34 Tendon End: Butt. 1

Removal Date: 11-6-07 Inspection Date: 11-6-07

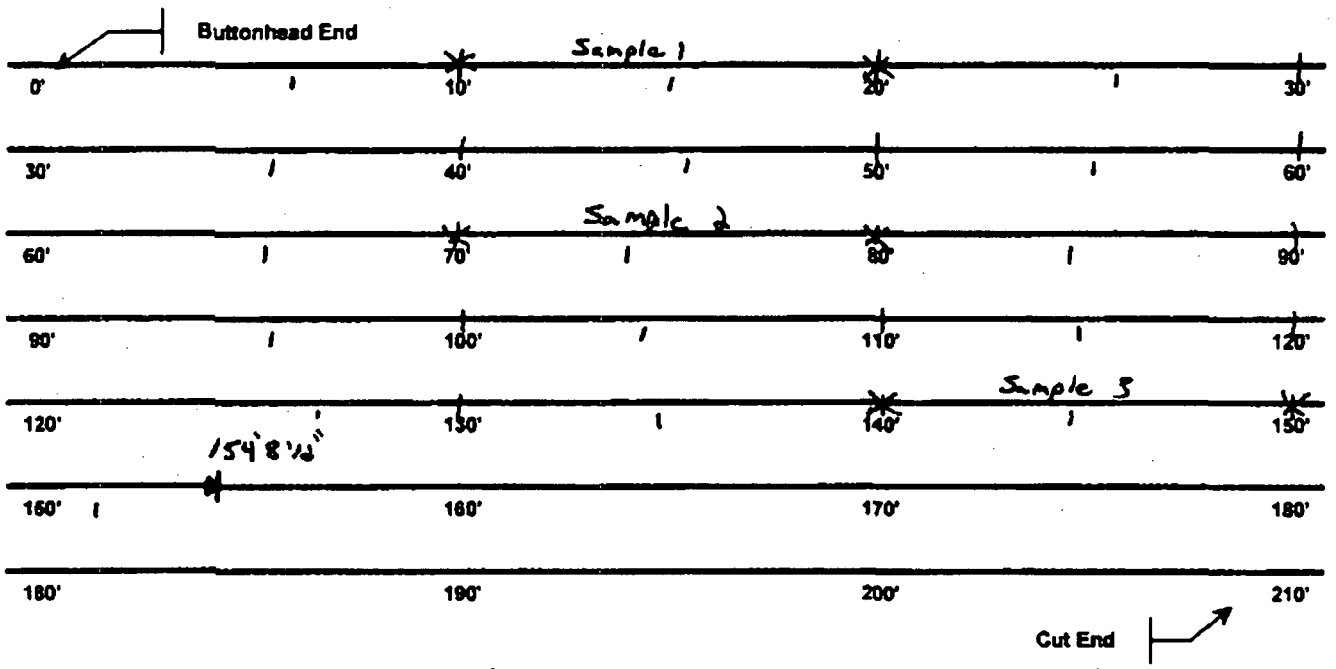
WIRE REMOVAL INSPECTION

CORROSION INSPECTION @ LENGTH INTERVALS

(8.5.4.1) Document the Corrosion Category for each 10' of wire in the increments below. Use Categories described in PSC SQ 8.1.

(8.5.4.2) For Corrosion Levels 3, 4, 5, 6 document condition on an NCR. NCR Req'd: ☒ NO ☐ YES NCR# N/A

(8.5.4.3.1) Document the total length of the wire on the diagram below. Completed: ☐ NO ☒ YES



(8.5.4.4.3) Was the wire cut for samples: ☐ NO ☒ YES document the area of removal above using symbol ✕.

(8.7) Document the location of wire removed on Data Sheet 8.0. ANCHORAGE INSPECTION: ☒ Completed

(8.8) Measuring Device: 24" ruler ID Number: R-16 Recal Date: 8-30-08

(8.8) Wire Pull Ram ID Number: N/A

Q.C Inspector: [signature] Level: II Date: 11-6-07

QC Reviewed [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ10.3
TESTING TENDON WIRES
Data Sheet 10.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: ~~51H34~~ 51H34 EG 1-21-07 Tendon End: Butt 1

WIRE TEST DOCUMENTATION

Sample No.: Sample 1

(8.2.3.2) Wire ID and Location of removal: 10-20 feet Length: 120 in.

(8.3.1) Wire Diameters: Tag End .276 in. Middle .276 in. Ram End .276 in. Avg. .276 in.

Measuring Device ID: QC80 Recal Date: 5-16-08

(8.4.2.1) Buttonhead Inspection: Tag End OK Ram End OK

(8.5.1) Gauge Length of Wire: 100 in. Measuring Device ID: R17 Recal Date: 11-16-08

(8.7.1) Preload force: 2.45 kips

Preload pressure: 1450 psi Pressure Gauge ID: CC107223 Recal Date: Daily on Use

Ram ID: 7702 Ram Area: 1.590 in² K = 0.146 kips Recal Date: Job End

(8.8.1) Force reduced to zero (0): OK

(8.9.1) Initial load of wire force: 1.73 kips (0.1% elongation)

Initial load of pressure: 1000 psi Elongation: 14.00 in.

(8.10.1) Preset Dial Indicator: OK (0.9% elongation) Indicator ID: ECC21 Recal Date: 8-30-08

(8.11.1) Force at 1% elongation: 13.63 kips ; Pressure: 8480 psi

(8.12.1) "Rule" reading measurement at 1% elongation: 14.90 in.

(8.13.1) Maximum elongation at failure, from "Rule" reading: 18.50 in.

(8.13.2) Maximum force at failure: 15.50 kips ; Pressure: 9660 psi

(8.14.1) Type of break: Ductile Location of break: 1/4" Ram End in.

(8.15) CALCULATIONS:

(8.15.1) Ultimate Stress: 259.164 ksi Stress (ksi) = Force (kips) ÷ [π (dia²) ÷ 4] (in²)

(8.15.2) Yield Stress @ 1% elongation: 227.805 ksi Stress (ksi) = Force (kips) @ 1% ÷ [π (dia²) ÷ 4] (in²)

(8.15.3) % elongation @ failure: 4.6 % [1 in. + ("Rule" Dimension @ Failure – "Rule" Dimension @ 1%)]

Results: ☒ Acceptable ☐ Unacceptable Customer Notified NCR No.: NA

QC Inspector: [signature] Level: II Date: 11-21-07

QC Reviewed: [signature] Level II Date: 11-26-07

PSC PROCEDURE SO10.3
TESTING TENDON WIRES
Data Sheet 10.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 51434 H CEC 1-21-08 Tendon End: Butt 1

WIRE TEST DOCUMENTATION

Sample No.: Sample 2

(8.2.3.2) Wire ID and Location of removal: 70-80 feet Length: 120 in

(8.3.1) *Wire Diameters:* Tag End .276 in. Middle .276 in. Ram End .276 in. Avg. .276 in.

Measuring Device ID: QC80 Recal Date: 5-16-08

(8.4.2.1) Buttonhead Inspection: Tag End OK Ram End OK

(8.5.1) Gauge Length of Wire: 100 in. Measuring Device ID: 817 Recal Date: 11-16-08

(8.7.1) Preload force: 2.45 kips

Preload pressure: 1450 psi Pressure Gauge ID: CC107223 Recal Date: Daily on Site

Ram ID: 7702 Ram Area: 1.590 in² K = 0.196 kips Recal Date: Job End

(8.8.1) Force reduced to zero (0): OK

(8.9.1) Initial load of wire force: 1.73 kips (0.1% elongation)

Initial load of pressure. 1000 psi Elongation: 13.90 in.

(8.10.1) Preset Dial Indicator: OK (0.9% elongation) Indicator ID: EEC21 Recal Date: 8-30-08

(8.11.1) Force at 1% elongation: 13.53 kips ; Pressure: 8420 psi

(8.12.1) *"Rule" reading measurement at 1% elongation:* 14.80 in.

(8.13.1) Maximum elongation at failure, from "Rule" reading: 18.90 in.

(8.13.2) Maximum force at failure: 15.69 kips ; Pressure: 9780 psi

(8.14.1) Type of break: Ductile Location of break: 2¼" appr. from in.

(8.15) CALCULATIONS:

(8.15.1) Ultimate Stress: 262.353 ksi Stress (ksi) = Force (kips) ÷ [π (dia²) ÷ 4] (in²)

(8.15.2) Yield Stress @ 1% elongation: 226.210 ksi Stress (ksi) = Force (kips) @ 1% ÷ [π (dia²) ÷ 4] (in²)

(8.15.3) % elongation @ failure: 5.1 % [1 in. ÷ ("Rule" Dimension @ Failure – "Rule" Dimension @ 1%)]

Results ☒ Acceptable ☐ Unacceptable Customer Notified NCR No : N/A

QC Inspector: [signature] Level. II Date: 11-21-07

QC Reviewed: [signature] Level: II Date: 11-26-07

PSC

PSC PROCEDURE SQ10.3
TESTING TENDON WIRES
Data Sheet 10.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 51 H 34 (H 12-21-08) Tendon End: Butt 1

WIRE TEST DOCUMENTATION

Sample No.: Sample 3

(8.2.3.2) Wire ID and Location of removal: 140-150 feet Length: 120 in.

(8.3.1) Wire Diameters: Tag End .276 in. Middle .276 in. Ram End .276 in. Avg. .276 in.

Measuring Device ID: QC80 Recal Date: 5-16-08

(8.4.2.1) Buttonhead Inspection: Tag End OK Ram End OK

(8.5.1) Gauge Length of Wire: 100 in. Measuring Device ID: R17 Recal Date: 11-16-08

(8.7.1) Preload force. 2.45 kips

Preload pressure: 1450 psi Pressure Gauge ID: CC107223 Recal Date: Daily on Use

Ram ID: 7702 Ram Area: 1.590 in² K = 0.146 kips Recal Date: Job End

(8.8.1) Force reduced to zero (0): OK

(8.9.1) Initial load of wire force: 1.73 kips (0.1% elongation)

Initial load of pressure: 1000 psi Elongation: 13.90 in.

(8.10.1) Preset Dial Indicator: OK (0.9% elongation) Indicator ID: ECC21 Recal Date: 8-30-08

(8.11.1) Force at 1% elongation: 13.50 kips ; Pressure: 8400 psi

(8.12.1) "Rule" reading measurement at 1% elongation: 14.80 in.

(8.13.1) Maximum elongation at failure, from "Rule" reading: 18.60 in.

(8.13.2) Maximum force at failure: 15.56 kips ; Pressure: 9700 psi

(8.14.1) Type of break: Ductile Location of break: 1" Ram End in.

(8.15) CALCULATIONS:

(8.15.1) Ultimate Stress: 260.227 ksi Stress (ksi) = Force (kips) ÷ [π (dia²) ÷ 4] (in²)

(8.15.2) Yield Stress @ 1% elongation: 225.678 ksi Stress (ksi) = Force (kips) @ 1% ÷ [π (dia²) ÷ 4] (in²)

(8.15.3) % elongation @ failure: 4.8 % [1 in. + ("Rule" Dimension @ Failure – "Rule" Dimension @ 1%)]

Results: ☒ Acceptable ☐ Unacceptable Customer Notified NCR No.: N/A

QC Inspector: [signature] Level: II Date: 11-21-07

QC Reviewed: [signature] Level: II Date: 11-26-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 51H34 Tendon End: Butt. 1

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 50 °F Thermometer No.: ST82 Recal Date: 8-30-08
(9.3) Ambient Temp.: 48 °F Thermometer No.: PK83 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 162 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8784 Recal Date: End of Job RAM Area: 337.287 K = -5.06 — CEC 11-7-07
Gauge ID: 1017880 Recal Date: Daily on use Daily Check: YES — CEC 11-7-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = 359 kips Pressure: 1079.37 psi
Step 1 = 600 kips Pressure: 1793.90 psi Elongation: 1.65 in.
Step 2 = 1200 kips Pressure: 3572.80 psi Elongation: 5.76 in.
LOF = 1532.96 kips Pressure: 4559.97 psi
OSF = 1855 kips Pressure: 5514.76 psi Elongation: 10.25 in. — CEC 11-7-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = 359.2 kips Pressure: 1080 psi ① Elongation: 6.0 in.
(9.8.3.1) Step 1 = 598.7 kips Pressure: 1790 psi Elongation: 6.7 in.
(9.8.4.1) Step 2 = 1199.05 kips Pressure: 3570 psi Elongation: 8.7 in.
(9.8.5.2) OSF = 1853.4 kips Pressure: 5510 psi ② Elongation: 10.5 in. — CEC 11-7-07
(9.8.5.3) ② – ① = 4.5 in. Elongation Value (this end)
(9.8.5.4) 4.75 in. Elongation Value (opposite end)
(9.8.5.4) 9.25 in. TOTAL Tendon Elongation Value — CEC 11-7-07
(9.8.8.2) Elongation Variation: -9.75 % Ruler ID: R-9 Recal Date: 8-30-08 — CEC 11-7-07
(9.8.8.4) Elongation Results: ☒ Acceptable ☐ Unacceptable — CEC 11-7-07
Customer Notified NCR No.: N/A — CEC 11-7-07

(9.7.3) LOF Acceptable Range: From: 4559.97 psi To: 4832.7 psi — CEC 11-7-07

(9.9.6) Actual Lock-Off

	Stack #1:	Stack #2:	(9.9.7) Circled Values
1)	4650 psi	4750 psi	4750 psi
2)	4650 psi	4700 psi	4700 psi
3)	4650 psi	4700 psi	4700 psi

(9.9.7) Force (this end): 1585.8 kips Actual Average: 4716.7 psi — CEC 11-7-07
(9.9.7) Force (opposite end): 1530.56 kips This Tendon – AALV FORCE 1558.18 kips — BG 11-7-07
(9.9.8) AALV Acceptable: BG 11-21-07 ☒ Yes ~~☐~~ No Customer Notified NCR No.: N/A — BG 11-7-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A — CEC 11-7-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A — CEC 11-7-07
If Yes – Customer Notified NCR No.: N/A — CEC 11-7-07

(9.9.11.3) Final Shim Stack Height: #1: 3,1,0.25,1.05,3,1=8.5in. #2: 3,1,0.25,1.05,3,1=8.5in. — CEC 11-7-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 51H34 Tendon End: Bott. 1

GREASE CAP REPLACEMENT DOCUMENTATION		QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes ☐ No	CEC 11-7-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes ☐ No	CEC 11-7-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes ☐ No	CEC 11-7-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes ☐ No	CEC 11-7-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes ☐ No	CEC 11-7-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes ☒ No	CEC 11-7-07

Comments: NONE

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 51H34 Tendon End: Butt. 1

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 8.0 for this tendon end:	2.5 gal.	BG 11-5-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2.5 gal.	BG 11-7-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-7-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-7-07
(8.8) TOTAL Tendon Grease Loss:	5 gal.	BG 11-7-07
(8.9) Ambient Temp.: 72 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-7-07
(8.10) Grease Cap Removal Date: 11-5-07 Grease Replacement Date: 11-7-07		BG 11-7-07
Elapsed Time: 2 days		BG 11-7-07
(9.8.4.1) Grease height in drum before: 13½ in. (9.8.5.1) Height in drum after: 12 in.		BG 11-7-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 11-7-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 11-7-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	3.54 gal.	BG 11-7-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-7-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-7-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-7-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	3.54 gal.	BG 11-7-07
(10.3.10) TOTAL amount of Grease replaced:	6.19 gal. (hand pumped + pressured pumped – exiting outflow)	BG 11-7-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 120.88 gal.

(10.3.11) Percent variation difference: .98 % — BG 11-7-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = ___\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-7-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) — BG 11-7-07

If No – Customer Notified NCR No.: N/A — BG 11-7-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 51H34 Tendon End: Buttress 5

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 11-5-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 74 °F Thermometer No.: 5778 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 70 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 11-5-07
(8.5.1) Anchorhead I.D. CR943 Anchorhead Verification: ☒ Match ☐ No-Match	BG 11-5-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 11-5-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 11-5-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BG 11-5-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 11-5-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 11-5-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 3 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BG 11-5-07
(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-7-07)	BG 11-5-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 11-5-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL	BG 11-5-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 51M34 Tendon End: Butt. 5

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING

(9.10.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: _____ Date: _____

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at: _____

QC Signoff: [signature] Level: II Date: 11-6-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 51H34 Tendon End: Butt. 5

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

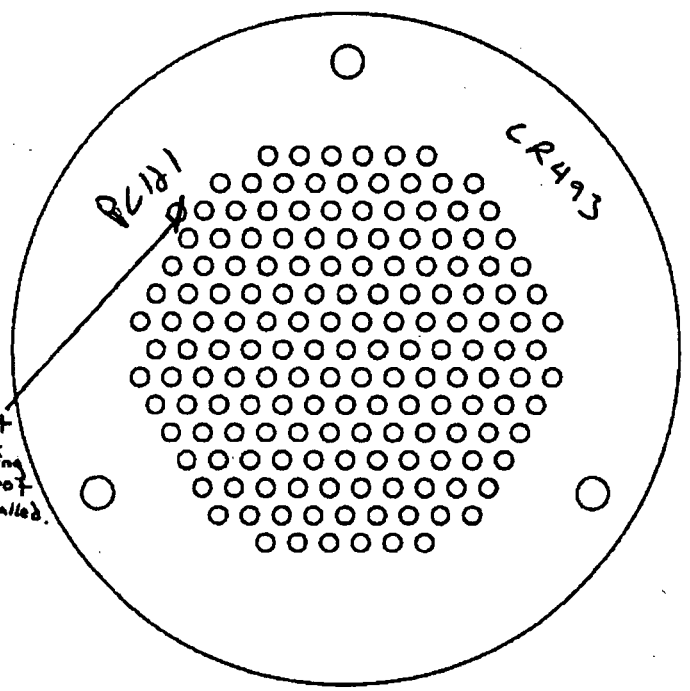
(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A

BG 11-5-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
Ø	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊘	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR943
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No
Test wire missing or not installed.

Shims 7" 3,1,1,1,1

(8.4.7) Offsize Buttonhead Totals
A = N/A BG 11-5-07
B = N/A BG 11-5-07
C = N/A BG 11-5-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 11-5-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BG 11-5-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BG 11-5-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No BG 11-5-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 51434 Tendon End: Butt. S

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☒ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

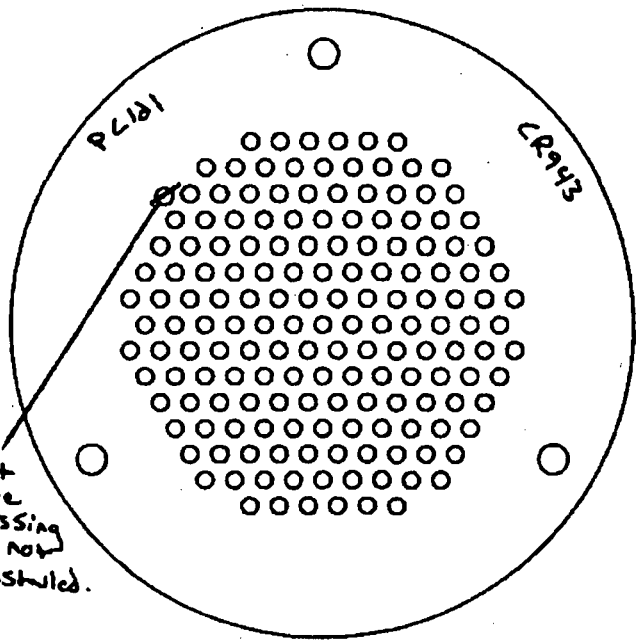
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	8611-6-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- *Previously identified as missing*
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



Test wire missing or not installed.

(8.4.6) Anchorhead I.D. CR943
Located on Sketch: ☒ Yes ☐ No

(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No

(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

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QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 51H34 Tendon End: Butt. 5

ANCHORAGE INSPECTION CRITERIA

☐ *As-Found* ☐ *Post De-Tensioning / Pre-Wire Removal* ☒ *Post Re-Tensioning* | Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

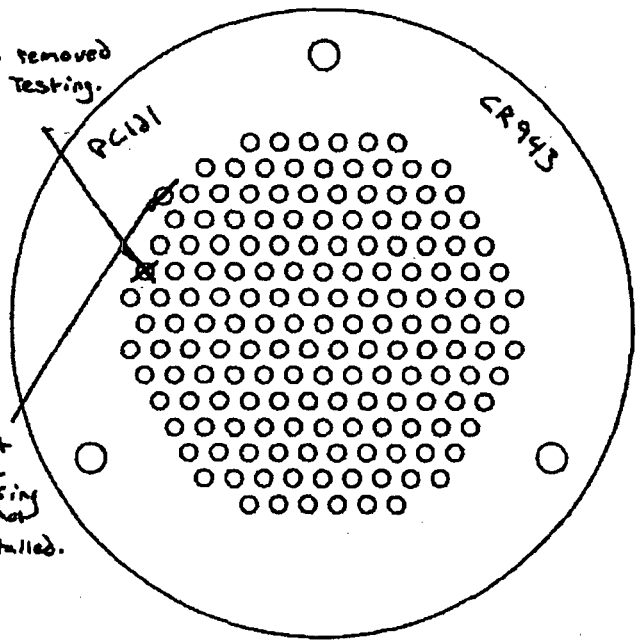
(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-6-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.

Wire removed for Testing.



(8.4.6) Anchorhead I.D. CR943
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No

Test wire missing or not Installed.

Shims 3, 1, 1, 1, 1, 1/2

(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 11-6-07
B = N/A — BG 11-6-07
C = N/A — BG 11-6-07

(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 1 — BG 11-6-07
(8.4.8.3) # of Missing Buttonheads Found: 0 — BG 11-6-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 162 — BG 11-6-07
(8.5.2) Protruding BH: 0 Missing BH: 1 Total (Protruding+Missing): 1 — BG 11-6-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BG 11-6-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 11-6-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 51H34 Tendon End: Bunt. S

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 51H34 Tendon End: B-H. S

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 74 °F Thermometer No.: 5778 Recal Date: 8-30-08	
Ambient Temp.: 70 °F Thermometer No.: PR30 Recal Date: 8-30-08	BG 11-5-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
(9.5) Number of Effective Wires: 163	BG 11-5-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 335.284 K = -5.022	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 11-5-07
(9.8) Shim Stack Height: #1 7 in. #2 7 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,1,1,1,1 in. Stack #2: 3,1,1,1,1 in.	BG 11-5-07
(9.9) Base Value Predicted Force (BVPF): 1487 kips Pressure: 4450.05 psi	
BVPF: 1487 kips 95% BVPF: 1413 kips 90% BVPF: 1339 kips	
4450.05 psi 4229.34 psi 4008.63 psi	BG 11-5-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4160 psi Stack #2: 1) 4180 psi 1) 4180 psi	
2) 4160 psi 2) 4180 psi 2) 4180 psi	
3) 4160 psi 3) 4180 psi 3) 4180 psi	
(9.10.10) Actual Force (this end): 1396.45 kips Actual Average: 4180 psi	BG 11-5-07
(9.10.10.1) Actual Force (opposite end): 1532.96 kips (9.10.10.2) AALV FORCE 1464.70 kips	BG 11-5-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-5-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-5-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-5-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 11-5-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date: N/A	BG 11-5-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.:	BG 11-5-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.:	BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 51434 Tendon End: Bvtt. 5

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 78 °F Thermometer No.: 5178 Recal Date: 8-30-08
(9.3) Ambient Temp.: 70 °F Thermometer No.: A430 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 162 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: Job end RAM Area: 335.282 K = -5.000 — BG 11-7-07
Gauge ID: 1017881 Recal Date: Daily on use Daily Check: Yes — BG 11-7-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = 359 kips Pressure: 1085.71 psi
Step 1 = 600 kips Pressure: 1804.51 psi Elongation: 1.65 in.
Step 2 = 1200 kips Pressure: 3594.05 psi Elongation: 5.76 in.
LOF = 1396.45 kips Pressure: 4179.97 psi
OSF = 1855 kips Pressure: 5547.63 psi Elongation: 10.25 in. — BG 11-7-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = 360.43 kips Pressure: 1090 psi ① Elongation: 5 3/4 in.
(9.8.3.1) Step 1 = 601.83 kips Pressure: 1810 psi Elongation: 6 1/4 in.
(9.8.4.1) Step 2 = 1201.99 kips Pressure: 3600 psi Elongation: 8 1/16 in.
(9.8.5.2) OSF = 1855.79 kips Pressure: 5550 psi ② Elongation: 10 1/2 in. — BG 11-7-07
(9.8.5.3) ② – ① = 4 3/4 in. Elongation Value (this end)
(9.8.5.4) BG 11-7-07 ~~4.5~~ 4.5 in. Elongation Value (opposite end)
(9.8.5.4) 9.25 in. TOTAL Tendon Elongation Value — BG 11-7-07
(9.8.8.2) Elongation Variation: -9.75 % Ruler ID: R-16 Recal Date: 8-30-08 — BG 11-7-07
(9.8.8.4) Elongation Results: ☒ Acceptable ☐ Unacceptable — BG 11-7-07
Customer Notified NCR No.: N/A — BG 11-7-07

(9.7.3) LOF Acceptable Range: From: 4450.05 psi To: 4716.15 psi — BG 11-7-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:		Stack #2:		(9.9.7) Circled Values
1)	4580 psi	1)	4580 psi	1) 4580 psi
2)	4580 psi	2)	4580 psi	2) 4580 psi
3)	4550 psi	3)	4580 psi	3) 4580 psi

(9.9.7) Force (this end): 1530.56 kips Actual Average: 4580 psi — BG 11-7-07
(9.9.7) Force (opposite end): 1585.80 kips This Tendon – AALV FORCE 1558.18 kips — BG 11-7-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A — BG 11-7-07
(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A — BG 11-7-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A — BG 11-7-07
If Yes – Customer Notified NCR No.: N/A — BG 11-7-07
(9.9.11.3) Final Shim Stack Height: #1: 7 1/2 (+ 1/2) in. #2: 7 1/2 (+ 1/2) in. — BG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 51H34 Tendon End: Butt. 5

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-7-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-7-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-7-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-7-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-7-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-7-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 51H34 Tendon End: Butt. 5

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2.5 gal.	BG 11-5-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2.5 gal.	BG 11-7-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-7-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-7-07
(8.8) TOTAL Tendon Grease Loss:	5 gal.	BG 11-7-07
(8.9) Ambient Temp.: 73 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-7-07
(8.10) Grease Cap Removal Date: 11-5-07 Grease Replacement Date: 11-7-07		BG 11-7-07
Elapsed Time: 2 days		BG 11-7-07
(9.8.4.1) Grease height in drum before: 12 in. (9.8.5.1) Height in drum after: 10 in.		BG 11-7-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 3.54 gal. ☒ Pumped ☐ Poured		BG 11-7-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	3.54 gal.	BG 11-7-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-7-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-7-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-7-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-7-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-7-07
(10.3.10) TOTAL amount of Grease replaced: 6.19 gal. (hand pumped + pressure pumped – exiting outflow)		BG 11-7-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 120.88 gal.

(10.3.11) Percent variation difference: .98 % — BG 11-7-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \text{\% variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-7-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) — BG 11-7-07

If No – Customer Notified NCR No.: N/A — BG 11-7-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 6H30 Tendon End: Buttress 2

Grease Cap Removal

Date Removal Started: 11-5-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 62 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 58 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08 — BG 11-5-07

(8.5.1) Anchorhead I.D. LR96 Anchorhead Verification: ☒ Match ☐ No-Match — BG 11-5-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) - *Limited within the inside diameter of the grease cap.* — BG 11-5-07

(8.7) Unusual Conditions: none — BG 11-5-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown

Comments: none — BG 11-5-07

(8.11) Qty. of Grease lost from cap: 0 gal. (8.11.1) Qty. of Grease removed from cap: 1.5 gal. — BG 11-5-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — BG 11-5-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct — BG 11-5-07

(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-12-07) — BG 11-5-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BG 11-5-07

Total quantity of lost grease (below):

(8.11) 0 + (8.11.1) 1.5 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL — BG 11-5-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 63H30 Tendon End: Butt 2

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Level: II Date: 11-5-07

QC Reviewed: Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 63H36 Tendon End: Rut. 2

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

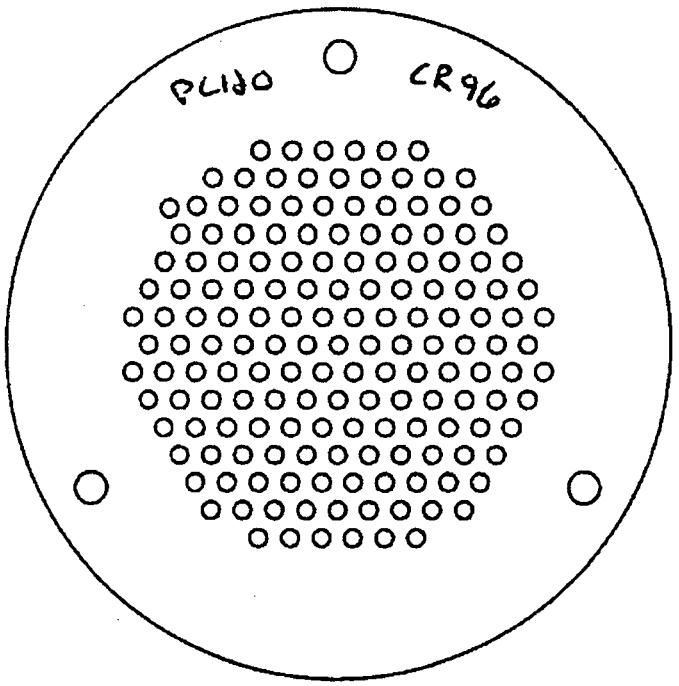
(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A

BL 11-5-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
Ø	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR96
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC130
Located on Sketch: ☒ Yes ☐ No
Shims 6 3/4 3, 3/8, 3/8, 3
(8.4.7) Offsize Buttonhead Totals
A = N/A BL 11-5-07
B = N/A BL 11-5-07
C = N/A BL 11-5-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BL 11-5-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BL 11-5-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BL 11-5-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BL 11-5-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BL 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H30 Tendon End: Butt. 2

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 62H30 Tendon End: Butt.2

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
9.3) Temp. of Concrete: 64 °F Thermometer No.: 5178 Recal Date: 8-30-08	
Ambient Temp.: 58 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 11-5-07
9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
9.5) Number of Effective Wires: 163	BG 11-5-07
9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K = -5.06	
Gauge ID: 1017880 Recal Date: daily on use Daily Check: Yes	BG 11-5-07
9.8) Shim Stack Height: #1 6 3/4 in. #2 6 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3/8, 3/8, 3 in. Stack #2: 3, 3/8, 3/8, 3 in.	BG 11-5-07
9.9) Base Value Predicted Force (BVPF): 1413 kips Pressure: 4204.31 psi	
BVPF: 1413 kips 95% BVPF: 1342 kips 90% BVPF: 1272 kips	
4204.31 psi 3993.80 psi 3786.27 psi	BG 11-5-07
9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3700 psi Stack #2: 1) 3720 psi 1) 3720 psi	
2) 3700 psi 2) 3720 psi 2) 3720 psi	
3) 3700 psi 3) 3720 psi 3) 3720 psi	
9.10.10) Actual Force (this end): 1249.64 kips Actual Average: 3720 psi	BG 11-5-07
9.10.10.1) Actual Force (opposite end): 1332.05 kips (9.10.10.2) AALV FORCE 1290.84 kips	BG 11-5-07
10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-5-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-5-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-5-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-009	BG 11-5-07
9.10.15.1) Adjacent Tendon Lift-Offs (Note: Use a seperate Data Sheet 9.0 to document Liftoff forces.)	
a) Adj Tendon: 62H29 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 11-6-07	BG 11-6-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. N/A	
Customer Notified NCR No.: ____	BG 11-6-07
c) Adj Tendon: 62H33 Adj Tendon: ____ ☒ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: FN1002-011	BG 11-6-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 63H30 Tendon End: Butt-2

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 66 °F Thermometer No.: 5778 Recal Date: 8-30-08
(9.3) Ambient Temp.: 68 °F Thermometer No.: PK30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: Job end RAM Area: 335.282 K = -5.022 BG 11-8-07
Gauge ID: 1017881 Recal Date: Daily on use Daily Check: Yes BG 11-8-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = ____ kips Pressure: ____ psi
Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
LOF = ____ kips Pressure: ____ psi
OSF = ____ kips Pressure: ____ psi Elongation: ____ in. BG 11-8-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = ____ kips Pressure: ____ psi ① Elongation: ____ in.
(9.8.3.1) Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.4.1) Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.5.2) OSF = ____ kips Pressure: ____ psi ② Elongation: ____ in. BG 11-8-07
(9.8.5.3) ② – ①= ____ in. Elongation Value (this end)
(9.8.5.4) ____ in. Elongation Value (opposite end)
(9.8.5.4) ____ in. TOTAL Tendon Elongation Value BG 11-8-07
(9.8.8.2) Elongation Variation: ____ % Ruler ID: ____ Recal Date: ____ BG 11-8-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable BG 11-8-07
Customer Notified NCR No.: ____ BG 11-8-07

(9.7.3) LOF Acceptable Range: From: 4229.54 psi To: 4482.28 psi BG 11-8-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:		Stack #2:		(9.9.7) Circled Values
1)	4320 psi	1)	4320 psi	1) 4320 psi
2)	4320 psi	2)	4320 psi	2) 4320 psi
3)	4320 psi	3)	4320 psi	3) 4320 psi

(9.9.7) Force (this end): 1443.39 kips Actual Average: 4320 psi BG 11-8-07
(9.9.7) Force (opposite end): 1493.04 kips This Tendon – AALV FORCE 1467.71 kips BG 11-8-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A BG 11-8-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A BG 11-8-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A BG 11-8-07
If Yes – Customer Notified NCR No.: N/A BG 11-8-07

(9.9.11.3) Final Shim Stack Height: #1: 7 3/16 in. #2: 7 3/16 in. BG 11-8-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: G2H30 Tendon End: Butt. J

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-12-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-12-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-12-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-12-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-12-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-12-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H30 Tendon End: Butt 2

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2.5 gal.	BG 11-12-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2.5 gal.	BG 11-12-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-12-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-12-07
(8.8) TOTAL Tendon Grease Loss:	5 gal.	BG 11-12-07
(8.9) Ambient Temp.: 68 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(8.10) Grease Cap Removal Date: 11-5-07 Grease Replacement Date: 11-12-07		BG 11-12-07
Elapsed Time: 7 days		BG 11-12-07
(9.8.4.1) Grease height in drum before: 23 1/2 in. (9.8.5.1) Height in drum after: 21 1/2 in.		BG 11-12-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 3.54 gal. ☒ Pumped ☐ Poured		BG 11-12-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	3.54 gal.	BG 11-12-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	3.54 gal.	BG 11-12-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-12-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-12-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	3.54 gal.	BG 11-12-07
(10.3.10) TOTAL amount of Grease replaced: 7.08 gal. (hand pumped + pressured pumped – exiting outflow)		BG 11-12-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.75 gal.

(10.3.11) Percent variation difference: 1.70 % BG 11-12-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-12-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 11-12-07

If No – Customer Notified NCR No.: N/A BG 11-12-07

(11.4) Comments: none

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE QA 9.0
NONCONFORMANCES
NC/CAR FORM
September 21, 2007
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Page ____ of ____

NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-009

NONCONFORMANCE:

HORIZONTAL TENDÓN 62H30 WAS FOUND WITH AN AVERAGE LIFTOFF VALUE BELOW 95% BVPF OF 1342 KIPS. BUTTRESS 2 SIDE FOUND AT 1249.64KIPS, BUTTRESS 6 SIDE FOUND AT 1332.05KIPS, AALV FORCE IS 1290.84KIPS. PER PSC PROCEDURE SQ9.0 SECTION 10.2, IF AALV FAILS TO MEET ACCEPTANCE CRITERIA OF SECTION 10.1 BUT EQUALS OR EXCEEDS 90% OF BVPF, EACH OF THE ADJACENT TENDONS MUST BE MONITORED. THEN PROCEED TO SECTION 10.2.1 OR SECTION 10.2.2 AS APPLICABLE.

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

TO BE DETERMINED BY OWNER.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: TITLE *LEVEL II QC* **DATE:** 11/5/07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	QC	QA	ENGINEERING
	CHRISTOPHER E. COX 11/6/07 *(PER TELCON)*	*DANIEL P. O'SHEA 11/6/07* *(PER TELCON)*	PAUL C. SMITH 11/6/07 *(PER TELCON)*

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	SIGNED:
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	TITLE:
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	DATE:

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.. 62H30 Tendon End: Buttress 6

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-19-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 100 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 96 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	SG 10-19-07
(8.5.1) Anchorhead I.D. CR609 Anchorhead Verification: ☒ Match ☐ No-Match	SG 10-19-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	SG 10-19-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	SG 10-19-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown	
Comments: none	SG 10-19-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	SG 10-19-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	SG 10-19-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	SG 10-19-07
(10.2) Method of Tendon Protection: replaced cap	SG 10-19-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	SG 10-19-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL	SG 10-19-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	SG 10-19-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: (a)H30 Tendon End: Butt. C

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-19-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 62H50 Tendon End: Butt. 6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

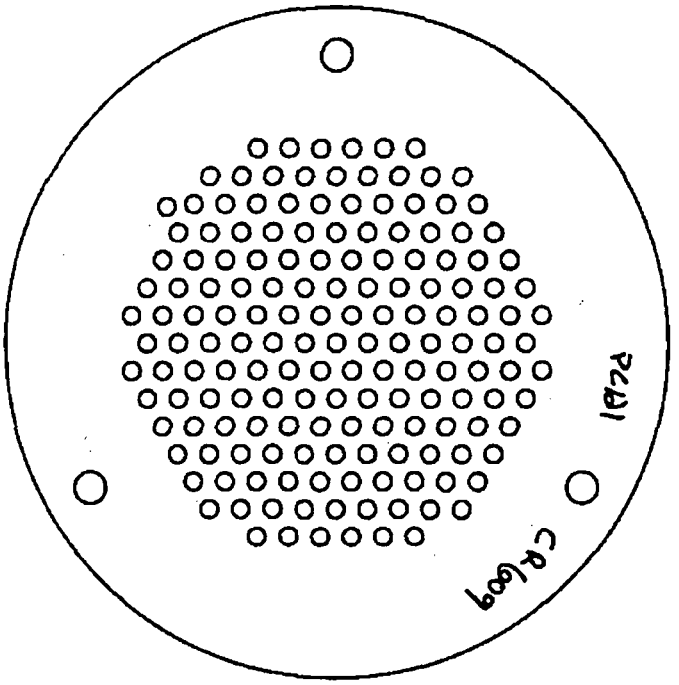
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-19-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
◒	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR609
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
Shims 6 3/4 3, 3, 1/2, 1/4
(8.4.7) Offsize Buttonhead Totals
A = N/A BG 10-19-07
B = N/A BG 10-19-07
C = N/A BG 10-19-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 10-19-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BG 10-19-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BG 10-19-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 10-19-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 10-19-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 6H30 Tendon End: Butt. Co

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: Brian [illegible] Level: II Date: 10-19-07

QC Reviewed: [illegible] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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ect: Crystal River Unit 3 – 30th Year – 8th Period
don No.: 62H30 Tendon End: Butt. 6

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
) Temp. of Concrete: 96 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 88 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 11-5-07
.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
) Number of Effective Wires: 163	BG 11-5-07
) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
.7) RAM ID: 9501 Recal Date: end of job RAM Area: 372.657 K = 3.814	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 11-5-07
.8) Shim Stack Height: #1 6 3/4 in. #2 6 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3, 1/2, 1/4 in. Stack #2: 3, 3, 1/2, 1/4 in.	BG 11-5-07
.9) Base Value Predicted Force (BVPF): 1413 kips Pressure: 3787.55 psi	
BVPF: 1413 kips 95% BVPF: 1342 kips 90% BVPF: 1272 kips	
3787.55 psi 3596.72 psi 3408.57 psi	BG 11-5-07
9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3520 psi Stack #2: 1) 3570 psi 1) 3570 psi	
2) 3520 psi 2) 3570 psi 2) 3570 psi	
3) 3520 psi 3) 3570 psi 3) 3570 psi	
.10.10) Actual Force (this end): 1333.05 kips Actual Average: 3570 psi	BG 11-5-07
9.10.10.1) Actual Force (opposite end): 1349.64 kips (9.10.10.2) AALV FORCE 1290.84 kips	BG 11-5-07
.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-5-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-5-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-5-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1003-009	BG 11-5-07
.10.15.1) Adjacent Tendon Lift-Offs (Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)	
a) Adj Tendon: 62H29 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 11-6-07	BG 11-6-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.: ____	BG 11-6-07
c) Adj Tendon: 62H33 Adj Tendon: ____ ☒ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.: FN1003-011	BG 11-6-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 6dH30 Tendon End: Butt. 6

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 78 °F Thermometer No.: 5T78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 79 °F Thermometer No.: PK30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 9501 Recal Date: Job end RAM Area: 372.057 K = 3.814 — BG 11-8-07
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes — BG 11-8-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. — BG 11-8-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: N/A psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. — BG 11-8-07
(9.8.5.3) ② – ①= in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) in. TOTAL Tendon Elongation Value — BG 11-8-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: — BG 11-8-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — BG 11-8-07
Customer Notified *NCR* No.: — BG 11-8-07

(9.7.3) LOF Acceptable Range: From: 3787.55 psi To: 4015.42 psi — BG 11-8-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

	Stack #1:	Stack #2:	(9.9.7) Circled Values
1)	4000 psi	4000 psi	4000 psi
2)	4000 psi	4000 psi	4000 psi
3)	4000 psi	4000 psi	4000 psi

(9.9.7) Force (this end): 1492.04 kips Actual Average: 4000 psi — BG 11-8-07
(9.9.7) Force (opposite end): 1443.39 kips This Tendon – AALV FORCE 1467.71 kips — BG 11-8-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified *NCR* No.: N/A — BG 11-8-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A — BG 11-8-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A — BG 11-8-07
If Yes – Customer Notified NCR No.: N/A — BG 11-8-07

(9.9.11.3) Final Shim Stack Height: #1: 7 1/8 in. #2: 7 1/8 in. — BG 11-8-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H30 Tendon End: Butt. G

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BC. 11-12-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BC. 11-12-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BC. 11-12-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BC. 11-12-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BC. 11-12-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BC. 11-12-07

Comments: none

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 6GH30 Tendon End: Butt. 6

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2.5 gal.	BG 11-12-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2.5 gal.	BG 11-12-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-12-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-12-07
(8.8) TOTAL Tendon Grease Loss:	5 gal.	BG 11-12-07
(8.9) Ambient Temp.: 68 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(8.10) Grease Cap Removal Date: 10-19-07 Grease Replacement Date: 11-12-07		BG 11-12-07
Elapsed Time: 24 days		BG 11-12-07
(9.8.4.1) Grease height in drum before: 13 1/2 in. (9.8.5.1) Height in drum after: 11 1/2 in.		BG 11-12-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 3.54 gal. ☒ Pumped ☐ Poured		BG 11-12-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	3.54 gal.	BG 11-12-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	3.54 gal.	BG 11-12-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-12-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-12-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	3.54 gal.	BG 11-12-07
(10.3.10) TOTAL amount of Grease replaced: 7.08 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-12-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 131.75 gal.

(10.3.11) Percent variation difference: 1.70 % BG 11-12-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-12-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 11-12-07

If No – Customer Notified NCR No.: N/A BG 11-12-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D49 Tendon End: Buttress 3

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 11-5-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 62 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 58 °F Thermometer No.: PKS0 Re-Cal Date: 8-30-08	11-5-07
(8.5.1) Anchorhead I.D. CR996 Anchorhead Verification: ☒ Match ☐ No-Match	11-5-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	11-5-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	11-5-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	11-5-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 2 gal.	11-5-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	11-5-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	11-5-07
(10.2) Method of Tendon Protection: replaced cap w/ new gasket	11-5-07
(10.3) Amount of Grease Loss from Tendon duct: 10 gal.	11-5-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 2 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 10 = 13.5 TOTAL	11-5-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: DW9 Tendon End: Surf. 3

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [signature] Level: II Date: 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D129 Tendon End: Bott. S

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

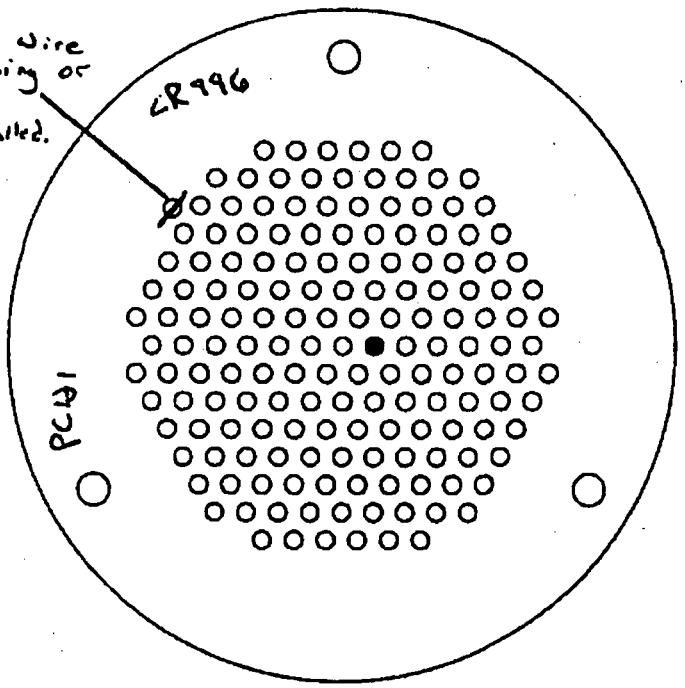
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-5-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR996
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No
Shims 6 1/4, 3, 1, 1, 1, 1/4
(8.4.7) Offsize Buttonhead Totals
A = N/A BG 11-5-07
B = N/A BG 11-5-07
C = N/A BG 11-5-07

(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 1 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 11-5-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 162 BG 11-5-07
(8.5.2) Protruding BH: 0 Missing BH: 1 Total (Protruding+Missing): 1 BG 11-5-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 11-5-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: D129 Tendon End: Bot. 3

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 64 °F Thermometer No.: 5178 Recal Date: 8-30-08	BG 11-5-07
Ambient Temp.: 60 °F Thermometer No.: PK30 Recal Date: 8-30-08	~~BG 11-5-07~~
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
(9.5) Number of Effective Wires: 160	BG 11-5-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 11-5-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 355.282 K = - 5.022	
Gauge ID: 1017881 Recal Date: Daily on use Daily Check: Yes	BG 11-5-07
(9.8) Shim Stack Height: #1 6 1/4 in. #2 6 1/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 5, 1, 1, 1, 1/4 in. Stack #2: 5, 1, 1, 1, 1/4 in.	BG 11-5-07
(9.9) Base Value Predicted Force (BVPF): 1287 kips Pressure: 3853.53 psi	
BVPF: 1287 kips 95% BVPF: 1223 kips 90% BVPF: 1159 kips	
3853.53 psi 3662.65 psi 3471.77 psi	BG 11-5-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3820 psi Stack #2: 1) 3860 psi 1) 3860 psi	
2) 3820 psi 2) 3860 psi 2) 3860 psi	
3) 3820 psi 3) 3860 psi 3) 3860 psi	
(9.10.10) Actual Force (this end): 1289.16 kips Actual Average: 3860 psi	BG 11-5-07
(9.10.10.1) Actual Force (opposite end): 1290.12 kips (9.10.10.2) AALV FORCE 1289.64 kips	BG 11-5-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-5-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-5-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-5-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 11-5-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 11-5-07
b) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.:	BG 11-5-07
c) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.:	BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-8-2007

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D129 Tendon End: Butt. 3

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-5-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-5-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-5-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-5-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-5-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-5-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D129 Tendon End: Butt-3

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	13.5 gal.	BG 11-5-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	23 gal.	BG 11-5-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-5-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-5-07
(8.8) TOTAL Tendon Grease Loss:	36.5 gal.	BG 11-5-07
(8.9) Ambient Temp.: 70 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-5-07
(8.10) Grease Cap Removal Date: 11-5-07 Grease Replacement Date: 11-5-07		BG 11-5-07
Elapsed Time: N/A days		BG 11-5-07
(9.8.4.1) Grease height in drum before: 23 in. (9.8.5.1) Height in drum after: 0 in.		BG 11-5-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 40.71 gal.	☒ Pumped ☐ Poured	BG 11-5-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	0 gal.	BG 11-5-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	0 gal.	BG 11-5-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	40.71 gal.	BG 11-5-07
Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-5-07
(10.3.8) Quantity of Exiting Outflow Grease:	1 gal.	BG 11-5-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	0 gal.	BG 11-5-07
(10.3.10) TOTAL amount of Grease replaced: 39.71 gal. (hand pumped + pressured pumped – exiting outflow)		BG 11-5-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 116.41 gal.

(10.3.11) Percent variation difference: 2.75 % BG 11-5-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\% \text{ variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-5-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 11-5-07

If No – Customer Notified NCR No.: N/A BG 11-5-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D129 Tendon End: Butt.S

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-15-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 76 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 64 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BL 10-15-07
(8.5.1) Anchorhead I.D. CR866 Anchorhead Verification: ☒ Match ☐ No-Match	BL 10-15-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BL 10-15-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BL 10-15-07
(8.8) Grease Color Match: ☐ Yes ☒ No Grease Color: Light Brown	
Comments: None	BL 10-15-07
(8.11) Qty. of Grease lost from cap: 5 gal. (8.11.1) Qty. of Grease removed from cap: 2 gal.	BL 10-15-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BL 10-15-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BL 10-15-07
(10.2) Method of Tendon Protection: Replaced cap w/new gasket	BL 10-15-07
(10.3) Amount of Grease Loss from Tendon duct: 15 gal.	BL 10-15-07
Total quantity of lost grease (below):	
(8.11) 5 + (8.11.1) 2 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 15 = 23 TOTAL	BL 10-15-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BL 10-15-07

QC Reviewed: [signature] Level: II Date: 10/16/07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: D129 Tendon End: Butt. S

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments:

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments:

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments:

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-15-07

QC Reviewed: [signature] Level: II Date: 10/16/07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D129 Tendon End: Butt. S

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

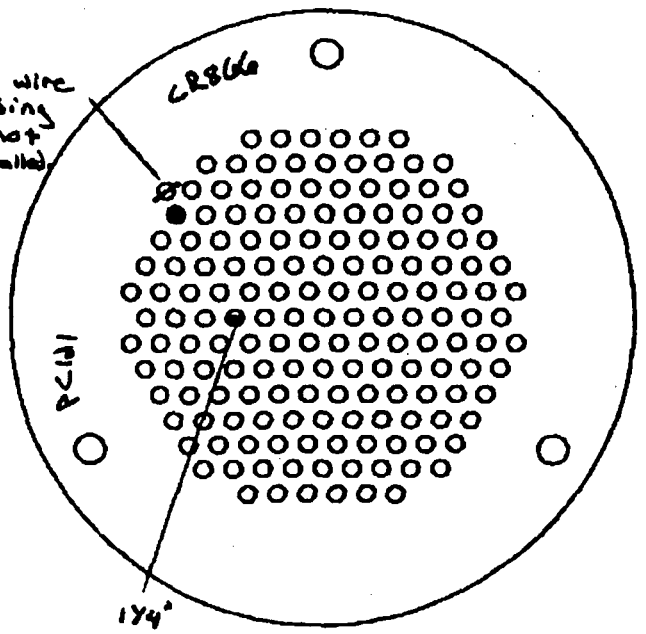
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-15-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- Ø Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR866
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No

Shims 6° 3,3

(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 10-15-07
B = N/A — BG 10-15-07
C = N/A — BG 10-15-07

(8.4.5) Missing Buttonheads: ☒ Yes ☐ No: Quantity: 1 — BG 10-15-07
(8.4.8.3) # of Missing Buttonheads Found: 0 — BG 10-15-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 161 — BG 10-15-07
(8.5.2) Protruding BH: 1 Missing BH: 1 Total (Protruding+Missing): 2 — BG 10-15-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BG 10-15-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 10-15-07

QC Reviewed: [signature] Level: II Date: 11-20-07

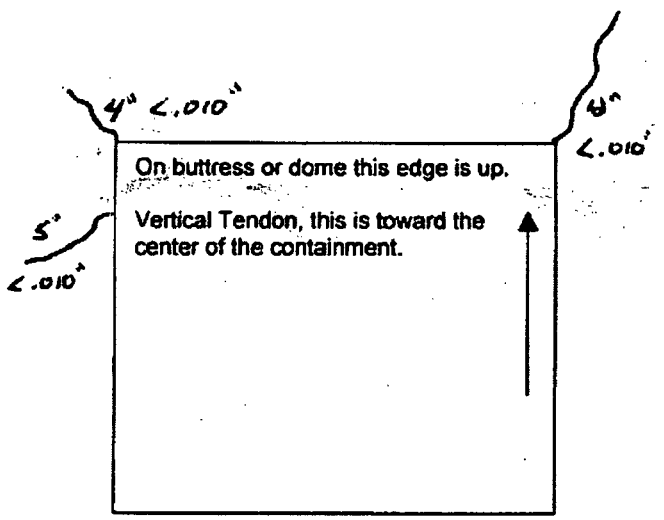
PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D129 Tendon End: Butt. 5

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.



Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: .005" Max Length: 4" NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-15-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: D84 Tendon End: Butt. S

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 94 °F Thermometer No.: ST 78 Recal Date: 8-30-08	
Ambient Temp.: 90 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-15-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-15-07
(9.5) Number of Effective Wires: 160	BG 10-15-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-15-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K = -5.06	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-15-07
(9.8) Shim Stack Height: #1 6 in. #2 6 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3 in. Stack #2: 3, 3 in.	BG 10-15-07
(9.9) Base Value Predicted Force (BVPF): 1287 kips Pressure: 3830.74 psi	
BVPF: 1287 kips 95% BVPF: 1223 kips 90% BVPF: 1159 kips	
3830.74 psi 3640.99 psi 3451.24 psi	BG 10-15-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3840 psi Stack #2: 1) (3840) psi 1) 3840 psi	
2) 3840 psi 2) (3840) psi 2) 3840 psi	
3) 3840 psi 3) (3840) psi 3) 3840 psi	
(9.10.10) Actual Force (this end): 1290.12 kips Actual Average: 3840 psi	BG 10-15-07
(9.10.10.1) Actual Force (opposite end): 1289.16 kips (9.10.10.2) AALV FORCE 1289.64 kips	BG 11-5-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-5-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-5-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-5-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 11-5-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a seperate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 11-5-07
b) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.:	BG 11-5-07
c) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.:	BG 11-5-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D139 Tendon End: Butt.S

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BL 10-15-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BL 10-15-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BL 10-15-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BL 10-15-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BL 10-15-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BL 10-15-07

Comments: None

QC Reviewed: [signature] Level: II Date: 10/16/07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D129 Tendon End: Butt. S

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 23 gal. — BG 11-5-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 13.5 gal. — BG 11-5-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. — BG 11-5-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. — BG 11-5-07

(8.8) TOTAL Tendon Grease Loss: 36.5 gal. — BG 11-5-07

(8.9) Ambient Temp.: 70 °F Thermo. ID: PK30 Recal Date: 8-30-08 — BG 11-5-07

(8.10) Grease Cap Removal Date: 10-15-07 Grease Replacement Date: 11-5-07 — BG 11-5-07

Elapsed Time: 21 days — BG 11-5-07

(9.8.4.1) Grease height in drum before: 23 in. (9.8.5.1) Height in drum after: 0 in. — BG 11-5-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: ~~39.71~~ 40.71 gal. BG 11-5-07 ☒ Pumped ☐ Poured — BG 11-5-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 0 gal. — BG 11-5-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 0 gal. — BG 11-5-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 0 gal. — BG 11-5-07

Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08 — BG 11-5-07

(10.3.8) Quantity of Exiting Outflow Grease: 1 gal. — BG 11-5-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 0 gal. — BG 11-5-07

(10.3.10) TOTAL amount of Grease replaced: 39.71 gal. (hand pumped + pressured pumped – exiting outflow) — BG 11-5-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 116.41 gal.

(10.3.11) Percent variation difference: 2.75 % — BG 11-5-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \text{\% variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-5-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) — BG 11-5-07

If No – Customer Notified NCR No.: N/A — BG 11-5-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D212 Tendon End: Butt. 1

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-26-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 84 °F Thermometer No.: 5278 Re-Cal Date: 8-30-05	
(7.5) Ambient Temp.: 76 °F Thermometer No.: PK30 Re-Cal Date: 8-30-05	BG 10-26-07
(8.5.1) Anchorhead I.D. CR103J Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-26-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-26-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BG 10-26-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: none	BG 10-26-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-26-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-26-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BG 10-26-07
(10.2) Method of Tendon Protection: replaced cap w/ new gasket	BG 10-26-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 10-26-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 0 = 2.5 TOTAL	BG 10-26-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: D712 Tendon End: Butt. 1

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Level: II Date: 10-26-07

QC Reviewed: Level: II Date: 11-8-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D212 Tendon End: ~~BUTT. 3~~ 86 10-26-07 Butt. 1

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning

Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

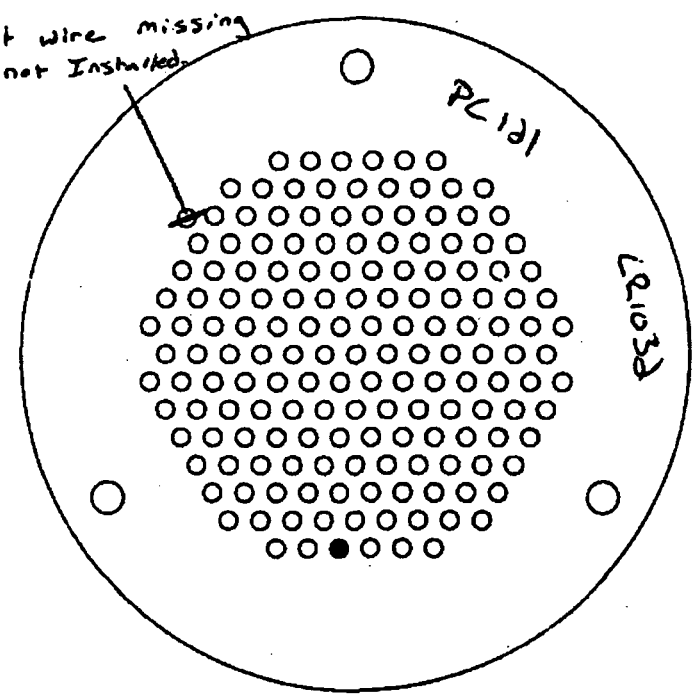
(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A
(8.2.2.1) Anchorhead	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A

86 10-26-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- ∅ Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊘ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1032
Located on Sketch: ☒ Yes ☐ No

(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No

Shims 6 3/8 3, 3, 3/8

(8.4.7) Offsize Buttonhead Totals

A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 1 (8.4.8.3) # of Missing Buttonheads Found: 0

(8.4.8.4) Total # of Effective Buttonheads Seated: 162

(8.5.2) Protruding BH: 0 Missing BH: 1 Total (Protruding+Missing): 1

(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

86 10-26-07
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86 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D21 Tendon End: Butt. 1

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

Popout
6"x4"x1/2"

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: D24 Tendon End: Butt. 1

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 88 °F Thermometer No.: 5728 Recal Date: 8-30-08	
Ambient Temp.: 80 °F Thermometer No.: DK30 Recal Date: 8-30-08	BL 10-26-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BL 10-26-07
(9.5) Number of Effective Wires: 162	BL 10-26-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BL 10-26-07
(9.7) RAM ID: 5784 Recal Date: end of job RAM Area: 537.287 K = -5.06	
Gauge ID: 1017880 Recal Date: daily on use Daily Check: Yes	BL 10-26-07
(9.8) Shim Stack Height: #1 6 3/8 in. #2 6 3/8 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3, 3/8 in. Stack #2: 3, 3, 3/8 in.	BL 10-26-07
(9.9) Base Value Predicted Force (BVPF): 1305 kips Pressure: 3884.11 psi	
BVPF: 1305 kips 95% BVPF: 1240 kips 90% BVPF: 1175 kips	
3884.11 psi 3691.39 psi 5498.68 psi	BL 10-26-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3750 psi Stack #2: 1) 3750 psi 1) 3750 psi	
2) 3750 psi 2) 3750 psi 2) 3750 psi	
3) 3750 psi 3) 3750 psi 3) 3750 psi	
(9.10.10) Actual Force (this end): 1259.76 kips Actual Average: 3750 psi	BL 10-26-07
(9.10.10.1) Actual Force (opposite end): 1295.87 kips (9.10.10.2) AALV FORCE 1277.81 kips	BL 10-26-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BL 10-26-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BL 10-26-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BL 10-26-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BL 10-26-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF. N/A	
Owner Notified: ☐ Yes ☐ No Name/Date:	BL 10-26-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. N/A	
Customer Notified NCR No.:	BL 10-26-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. N/A	
Customer Notified NCR No.:	BL 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D212 Tendon End: Butt. 1

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-26-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-26-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-26-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-26-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-26-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-26-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D312 Tendon End: Butt. 1

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2.5 gal.	BG 10-26-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	17.5 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	20 gal.	BG 10-26-07
(8.9) Ambient Temp.: 80 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(8.10) Grease Cap Removal Date: 10-26-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: N/A days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 30 in. (9.8.5.1) Height in drum after: 16 in.		BG 10-26-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 24.78 gal. ☒ Pumped ☐ Poured		BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	0 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	0 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	1 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	0 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 25.78 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 115.99 gal.

(10.3.11) Percent variation difference: 3.25 % BG 10-26-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \text{\% variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 10-26-07

If No – Customer Notified NCR No.: N/A BG 10-26-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D212 Tendon End: Buttress 3

Grease Cap Removal

Q.C. Signoff

Date Removal Started: 10-26-07

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 80 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 72 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08 BG 10-26-07

(8.5.1) Anchorhead I.D. CR1214 Anchorhead Verification: ☒ Match ☐ No-Match BG 10-26-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) - *Limited within the inside diameter of the grease cap.* BG 10-26-07

(8.7) Unusual Conditions: None BG 10-26-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown

Comments: None BG 10-26-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. BG 10-26-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. BG 10-26-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples 3 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct BG 10-26-07

(10.2) Method of Tendon Protection: replaced cap w/ new gasket BG 10-26-07

(10.3) Amount of Grease Loss from Tendon duct: 15 gal. BG 10-26-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 15 = 17.5 TOTAL BG 10-26-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No BG 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: D212 Tendon End: Bvtt. 3

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D212 Tendon End: Butt. 5

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

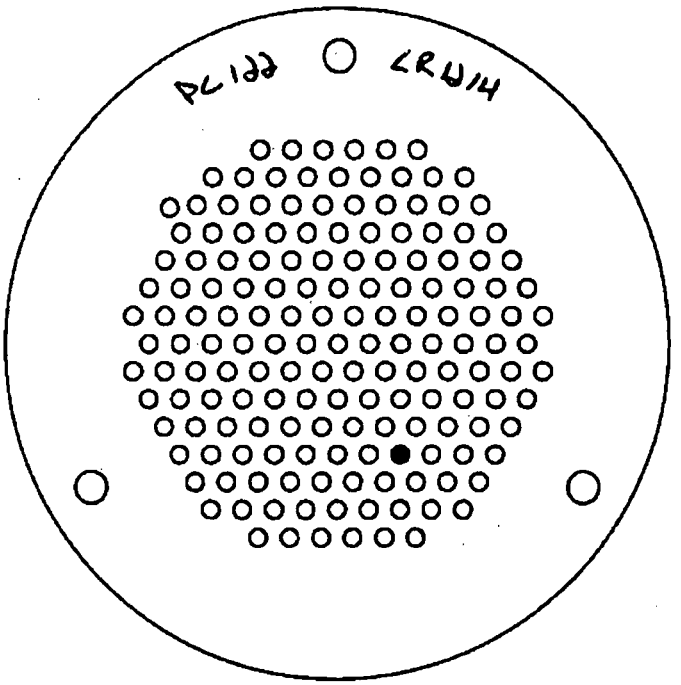
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	SC 10-26-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1314
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC122
Located on Sketch: ☒ Yes ☐ No
Shims 6 1/2 3, 1, 1, 1, 1/2
(8.4.7) Offsize Buttonhead Totals
A = N/A SC 10-26-07
B = N/A SC 10-26-07
C = N/A SC 10-26-07
(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 1 (8.4.8.3) # of Missing Buttonheads Found: 0 SC 10-26-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 162 SC 10-26-07
(8.5.2) Protruding BH: 0 Missing BH: 1 Total (Protruding+Missing): 1 SC 10-26-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No SC 10-26-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A SC 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D212 Tendon End: Butt. 3

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: D212 Tendon End: Butt. 3

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 88 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 80 °F Thermometer No.: PK50 Recal Date: 8-30-08	BL 10-26-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BL 10-26-07
(9.5) Number of Effective Wires: 162	BL 10-26-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BL 10-26-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 335.282 K = ~~5.06~~ -5.022	BL 10-26-07
Gauge ID: 1017880 Recal Date: Daily on use Daily Check: Yes	BL 10-26-07
(9.8) Shim Stack Height: #1 6½ in. #2 6½ in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 1, 1, 1, ½ in. Stack #2: 3, 1, 1, 1, ½ in.	BL 10-26-07
(9.9) Base Value Predicted Force (BVPF): 1505 kips Pressure: 3907.22 psi	
BVPF: 1505 kips 95% BVPF: 1240 kips 90% BVPF: 1175 kips	
3907.22 psi 3713.35 psi 3519.49 psi	BL 10-26-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3780 psi Stack #2: 1) 3880 psi 1) 3880 psi	
2) 3780 psi 2) 3880 psi 2) 3880 psi	
3) 3780 psi 3) 3880 psi 3) 3880 psi	
(9.10.10) Actual Force (this end): 1295.87 kips Actual Average: 3880 psi	BL 10-26-07
(9.10.10.1) Actual Force (opposite end): 1259.76 kips (9.10.10.2) AALV FORCE 1277.81 kips	BL 10-26-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BL 10-26-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BL 10-26-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BL 10-26-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BL 10-26-07
~~(9.10.15.1) Adjacent Tendon Lift-Offs~~ *(Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)* N/A	
~~a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.~~	
~~Owner Notified: ☐ Yes ☐ No Name/Date: ____~~	BL 10-26-07
~~b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.~~ N/A	
~~Customer Notified NCR No.: ____~~	BL 10-26-07
~~c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.~~ N/A	
~~Customer Notified NCR No.: ____~~	BL 10-26-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D313 Tendon End: Butt. 3

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BL 10-26-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BL 10-26-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BL 10-26-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BL 10-26-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BL 10-26-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BL 10-26-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D212 Tendon End: Butt. 3

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 17.5 gal. BG 10-26-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 2.5 gal. BG 10-26-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. BG 10-26-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. BG 10-26-07

(8.8) TOTAL Tendon Grease Loss: 20 gal. BG 10-26-07

(8.9) Ambient Temp.: 80 °F Thermo. ID: PK30 Recal Date: 8-30-08 BG 10-26-07

(8.10) Grease Cap Removal Date: 10-26-07 Grease Replacement Date: 10-26-07 BG 10-26-07

Elapsed Time: N/A days BG 10-26-07

(9.8.4.1) Grease height in drum before: 30 in. (9.8.5.1) Height in drum after: 16 in. BG 10-26-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 24.78 gal. ☒ Pumped ☐ Poured BG 10-26-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 0 gal. BG 10-26-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 0 gal. BG 10-26-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 24.78 gal. BG 10-26-07

Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08 BG 10-26-07

(10.3.8) Quantity of Exiting Outflow Grease: 1 gal. BG 10-26-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 0 gal. BG 10-26-07

(10.3.10) TOTAL amount of Grease replaced: 23.78 gal. *(hand pumped + pressured pumped – exiting outflow)* BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 115.99 gal.

(10.3.11) Percent variation difference: 3.25 % BG 10-26-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 10-26-07

If No – Customer Notified NCR No.: N/A BG 10-26-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D238 Tendon End: Butt. 4

Grease Cap Removal

		Q.C. Signoff
Date Removal Started: 10-16-07		
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No		
(7.5) Temp. of Concrete: 80 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08		
(7.5) Ambient Temp.: 64 °F Thermometer No.: P430 Re-Cal Date: 8-30-08		BG 10-16-07
(8.5.1) Anchorhead I.D. CR657 Anchorhead Verification: ☒ Match ☐ No-Match		BG 10-16-07
(8.6, 8.6.1, 8.6.2) Grease Coating		
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %		
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %		
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %		
Shims - Complete ✓ Partial ___ Uncoated ___ %		
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %		BG 10-16-07
(1) - *Limited within the inside diameter of the grease cap.*		
(8.7) Unusual Conditions: None		BG 10-16-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown		
Comments: None		BG 10-16-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.		BG 10-16-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.		BG 10-16-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.		
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No		
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct		BG 10-16-07
(10.2) Method of Tendon Protection: Replaced cap (Installed new gasket 10-17-07)		BG 10-16-07
(10.3) Amount of Grease Loss from Tendon duct: 60 gal.		BG 10-16-07
Total quantity of lost grease (below):		
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) .5 + (10.3) 60 = 62.5 TOTAL		BG 10-16-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No		BG 10-16-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: D238 Tendon End: Butt. 4

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING

(9.10.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-16-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D238 Tendon End: Butt. 4

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

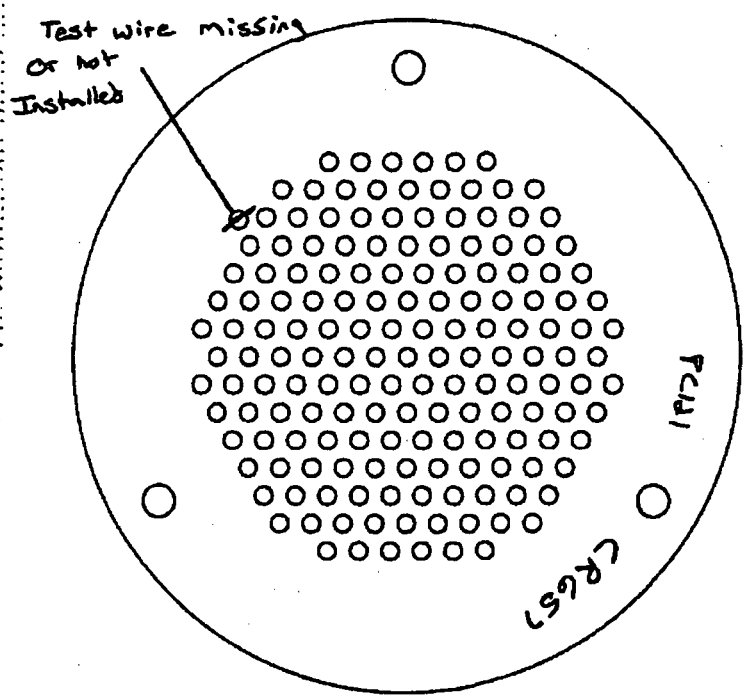
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-16-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
Ø	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊘	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR657
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
Shims 6 3/8" 3", 3", 3/8"
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: N/A ☐ Yes ☐ No

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 10-16-07
BG 10-16-07
BG 10-16-07
BG 10-16-07
BG 10-16-07
BG 10-16-07
BG 10-16-07
BG 10-16-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D238 Tendon End: Butt. 4

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☒ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning

Q.C. Signoff

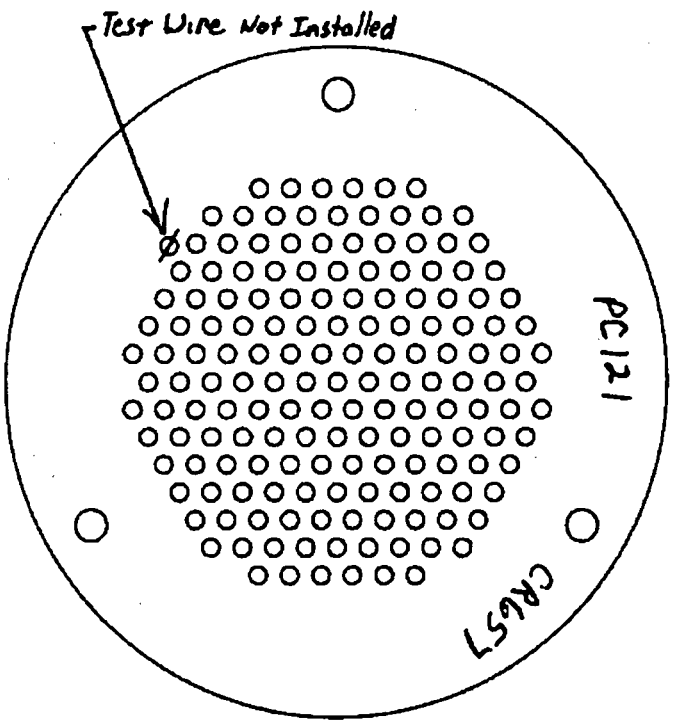
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	CEC 10-16-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR657
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No

(8.4.7) Offsize Buttonhead Totals
A = N/A CEC 10-16-07
B = N/A CEC 10-16-07
C = N/A CEC 10-16-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: N/A (8.4.8.3) # of Missing Buttonheads Found: N/A CEC 10-16-07
(8.4.8.4) Total # of Effective Buttonheads Seated: N/A CEC 10-16-07
(8.5.2) Protruding BH: N/A Missing BH: N/A Total (Protruding+Missing): N/A CEC 10-16-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: N/A ☐ Yes ☐ No CEC 10-16-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A CEC 10-16-07

QC Reviewed: Brian [signature] Level: II Date: 10-16-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D238 Tendon End: Butt 4

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☒ Post Re-Tensioning | Q.C. Signoff

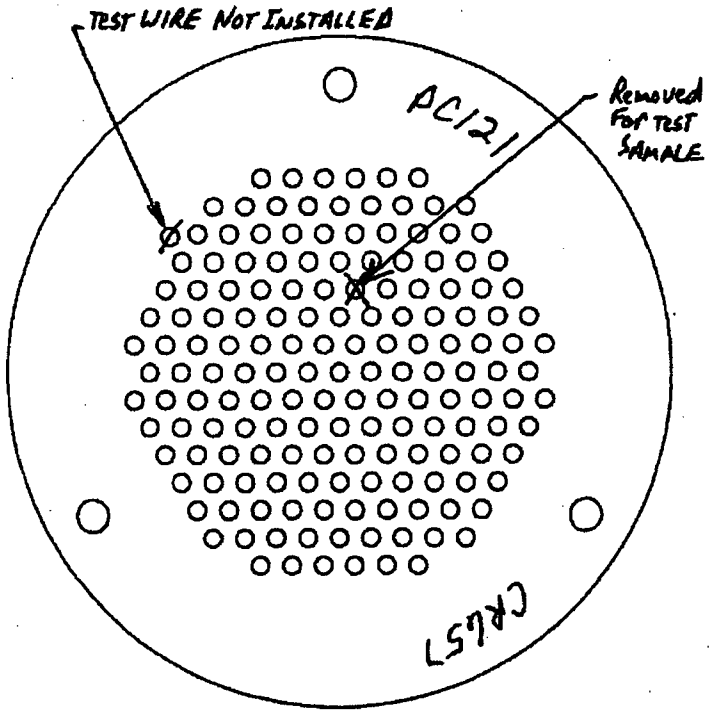
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	LEC 10/17/07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ◡ Protruding/unseated wire/buttonheads.
- ⊘ Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR657
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No

(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: N/A (8.4.8.3) # of Missing Buttonheads Found: N/A
(8.4.8.4) Total # of Effective Buttonheads Seated: 162
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No . Wires Identified: N/A ☐ Yes ☐ No

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

LEC 10/17/07
LEC 10-17-07
LEC 10-17-07
LEC 10-17-07
LEC 10-17-07
LEC 10-17-07
LEC 10-17-07
LEC 10-17-07

QC Reviewed: Brian Level: II Date: 10-17-07

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: Butt. 4

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: [signature] Level: II Date: 10-16-07

QC Reviewed: [signature] Level: II Date: 10/17/07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: D238 Tendon End: Butt. 4

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 80 °F Thermometer No.: S178 Recal Date: 8-30-08	
Ambient Temp.: 64 °F Thermometer No.: PK50 Recal Date: 8-30-08	BG 10-16-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-16-07
(9.5) Number of Effective Wires: 163	BG 10-16-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-16-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 355.252 K = -5.022	
Gauge ID: 101788 Recal Date: daily on use Daily Check: yes	BG 10-16-07
(9.8) Shim Stack Height: #1 7" ~~X~~ BG 10-16-07 in. #2 7" ~~X~~ BG 10-16-07 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3", 3", 1" in. Stack #2: 3", 3", 1" in.	BG 10-16-07
(9.9) Base Value Predicted Force (BVPF): 1348 kips Pressure: 4035.47 psi	
BVPF: 1348 kips 95% BVPF: 1281 kips 90% BVPF: 1213 kips	
4035.47 psi 3835.64 psi 3632.82 psi	BG 10-16-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4550 psi Stack #2: 1) (4550) psi 1) 4550 psi	
2) 4550 psi 2) (4580) psi 2) 4580 psi	
3) 4550 psi 3) (4580) psi 3) 4580 psi	
(9.10.10) Actual Force (this end): 1527.21 kips Actual Average: 4570 psi	BG 10-16-07
(9.10.10.1) Actual Force (opposite end): 1495.86 kips (9.10.10.2) AALV FORCE ~~1527.21~~ BG 10-16-07 kips 1511.53	BG 10-16-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 10-16-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-16-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-16-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 10-16-07
(9.10.15.1) Adjacent Tendon Lift-Offs N/A (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 10-16-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 10-16-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 10-16-07

QC Reviewed: [signature] Level: II Date: 10/17/07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: Butt. 4

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 76 °F Thermometer No.: ST82 Recal Date: 8-30-08
(9.3) Ambient Temp.: 72 °F Thermometer No.: AK83 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 162 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: Job End RAM Area: 335.282 K = -5.022 CEC 10/17/07
Gauge ID: 1017880 Recal Date: DAILY ON USE Daily Check: YES CEC 10/17/07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = 357.1 kips Pressure: 1080 psi
Step 1 = 600 kips Pressure: 1804.5 psi Elongation: 1.34 in.
Step 2 = 1200 kips Pressure: 3594.1 psi Elongation: 4.64 in.
LOF = 1527.21 kips Pressure: 4569.9 psi
OSF = 1854.6 kips Pressure: 5546.4 psi Elongation: 8.25 in. CEC 10/17/07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = 357.1 kips Pressure: 1080 psi ① Elongation: 5.3 in.
(9.8.3.1) Step 1 = 598.5 kips Pressure: 1800 psi Elongation: 6.0 in.
(9.8.4.1) Step 2 = 1201.9 kips Pressure: 3600 psi Elongation: 7.2 in.
(9.8.5.2) OSF = 1854.6 kips Pressure: 5540 psi ② Elongation: 8.9 in. CEC 10/17/07
(9.8.5.3) ② – ①= 3.6 in. Elongation Value (this end)
(9.8.5.4) 4.2 in. Elongation Value (opposite end)
(9.8.5.4) 7.8 in. TOTAL Tendon Elongation Value CEC 10/17/07
(9.8.8.2) Elongation Variation: -5.45 % Ruler ID: R-9 Recal Date: 8-30-08 CEC 10/17/07
(9.8.8.4) Elongation Results: ☒ Acceptable ☐ Unacceptable CEC 10/17/07
Customer Notified NCR No.: N/A CEC 10/17/07

(9.7.3) LOF Acceptable Range: From: 4569.9 psi To: 4843.5 psi CEC 10/17/07

(9.9.6) Actual Lock-Off

	Stack #1:	Stack #2:	(9.9.7) Circled Values
1)	4825 psi	4830 psi	4830 psi
2)	4825 psi	4830 psi	4830 psi
3)	4820 psi	4825 psi	4825 psi

(9.9.7) Force (this end): 1613.8 kips Actual Average: 4828.3 psi CEC 10/17/07
(9.9.7) Force (opposite end): 1519.47 kips This Tendon – AALV FORCE 1566.6 kips CEC 10/17/07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A CEC 10/17/07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A CEC 10/17/07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A CEC 10/17/07
If Yes – Customer Notified NCR No.: CEC 10/17/07

(9.9.11.3) Final Shim Stack Height: #1: (3, 0.4, 0.5, 3.1) 7.0 in. #2: (3, 0.4, 0.5, 3.1) 7.0 in. CEC 10/17/07

QC Reviewed: [signature] Level: II Date: 10-17-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: Butt. 4

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	CEC 10-17-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	CEC 10-17-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	CEC 10-17-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	CEC 10-17-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	CEC 10-17-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	CEC 10-17-07

Comments: NONE

QC Reviewed: Brian [illegible] Level: II Date: 10-17-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: Rutt. 4

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 62.5 gal. — BG 11-9-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 7 gal. — BG 11-9-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. — BG 11-9-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. — BG 11-9-07

(8.8) TOTAL Tendon Grease Loss: 69.5 gal. — BG 11-9-07

(8.9) Ambient Temp.: 68 °F Thermo. ID: PK30 Recal Date: 8-30-08 — BG 11-9-07

(8.10) Grease Cap Removal Date: 10-16-07 Grease Replacement Date: 11-9-07 — BG 11-9-07

Elapsed Time: 24 days — BG 11-9-07

(9.8.4.1) Grease height in drum before: 31", 31" in. (9.8.5.1) Height in drum after: 0, 20" in. — BG 11-9-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 74.34 gal. ☒ Pumped ☐ Poured — BG 11-9-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 0 gal. — BG 11-9-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 0 gal. — BG 11-9-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 74.34 gal. — BG 11-9-07

Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08 — BG 11-9-07

(10.3.8) Quantity of Exiting Outflow Grease: 1 gal. — BG 11-9-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 0 gal. — BG 11-9-07

(10.3.10) TOTAL amount of Grease replaced: 73.34 gal. *(hand pumped + pressure pumped – exiting outflow)* — BG 11-9-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 102.59 gal.

(10.3.11) Percent variation difference: 3.74 % — BG 11-9-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\% \text{ variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-9-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 11-9-07

If No – Customer Notified NCR No.: N/A — BG 11-9-07

(11.4) Comments: none

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D258 Tendon End: Buttr. 6

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-16-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 80 °F Thermometer No.: 5178 Re-Cal Date: 8-30-05	
(7.5) Ambient Temp.: 64 °F Thermometer No.: PK30 Re-Cal Date: 8-30-05	BL 10-16-07
(8.5.1) Anchorhead I.D. CR1029 Anchorhead Verification: ☒ Match ☐ No-Match	BL 10-16-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BL 10-16-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BL 10-16-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BL 10-16-07
(8.11) Qty. of Grease lost from cap: 0 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BL 10-16-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BL 10-16-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples 2 Quarts Samples identified per Step 6.1? ☒ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☒ Can ☐ Duct	BL 10-16-07
(10.2) Method of Tendon Protection: Replaced cap (w/ new gasket 10-17-07)	BL 10-16-07
(10.3) Amount of Grease Loss from Tendon duct: 5 gal.	BL 10-16-07
Total quantity of lost grease (below):	
(8.11) 0 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6:1) .5 + (10.3) 5 = 7 TOTAL	BL 10-16-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BL 10-16-07

QC Reviewed: [signature] Level: II Date: 10/17/07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: D238 Tendon End: Butt. 6

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING

(9.10.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-16-07

QC Reviewed: [signature] Level: II Date: 10/17/07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D338 Tendon End: Butt. 6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

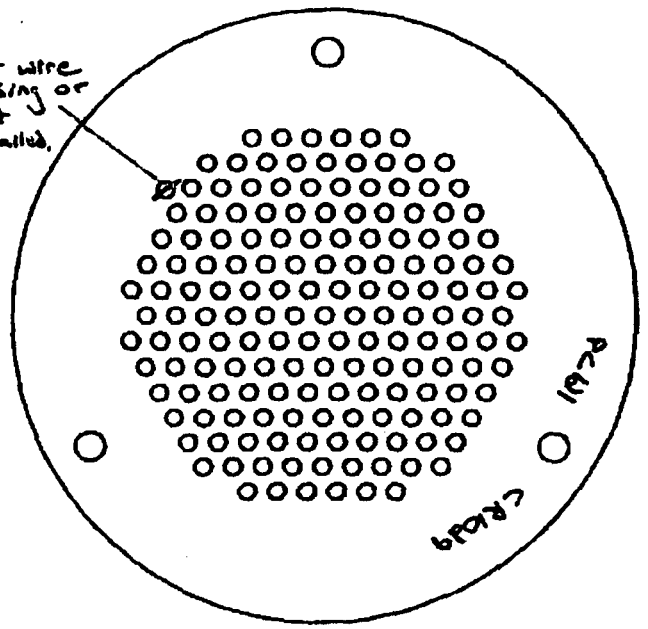
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-16-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1029
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☐ Yes ☐ No
Shims 7° 3,3,1
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results: ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 10-16-07
BG 10-16-07
BG 10-16-07
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QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D238 Tendon End: Butt. G

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☒ Post Re-Tensioning

Q.C. Signoff

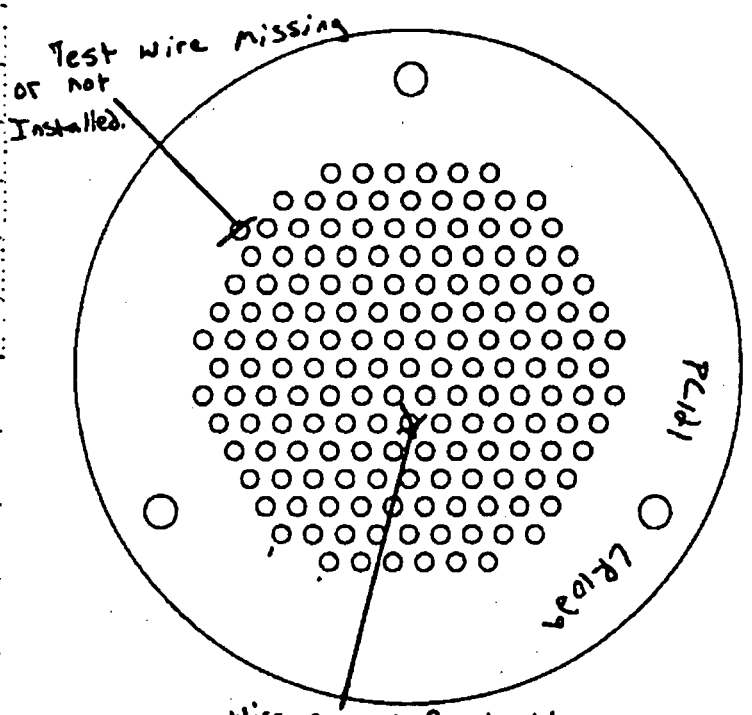
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	BG 10-17-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR029
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No
Shims 7 1/4" 3", 3", 1", 1/4"
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: N/A (8.4.8.3) # of Missing Buttonheads Found: N/A
(8.4.8.4) Total # of Effective Buttonheads Seated: 162
(8.5.2) Protruding BH: N/A Missing BH: N/A Total (Protruding+Missing): N/A
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 10-17-07
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BG 10-17-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: D238 Tendon End: Butt. G

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☒ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

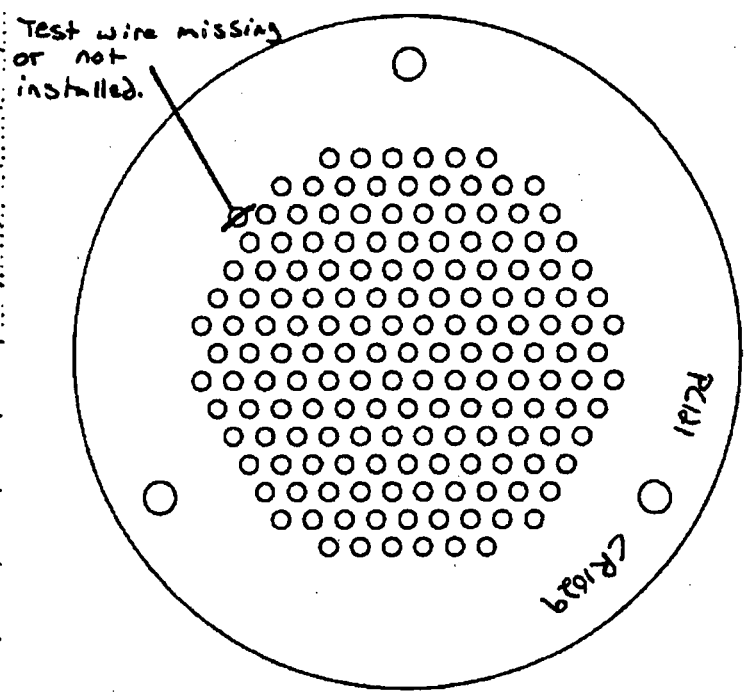
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-16-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ◒ Protruding/unseated wire/buttonheads.
- ⊘ Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1029
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No

No shims.

(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 10-16-07
B = N/A — BG 10-16-07
C = N/A — BG 10-16-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 — BG 10-16-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 — BG 10-16-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BG 10-16-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BG 10-16-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 10-16-07

QC Reviewed: [signature] Level: II Date: 11-20-07

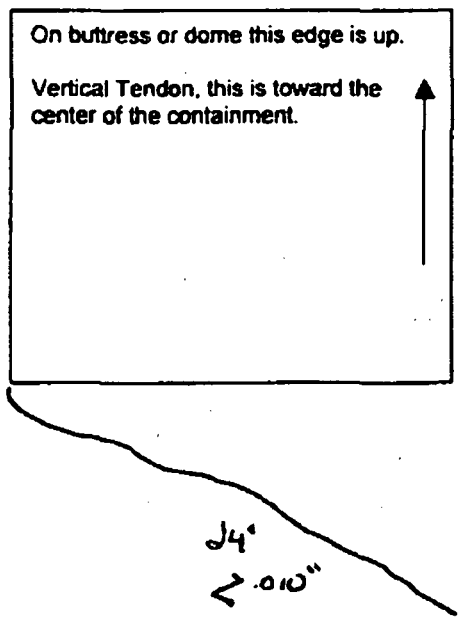
PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: Butt. G

Bearing Plate Identification #: unable to locate

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.



Cracks ≥ 0.010" ☐ Yes ☒ No Quantity: 0 Max. Width: 0 Max Length: 0 NCR#: N/A

QC Inspector: Brian [illegible] Level: II Date: 10-16-07

QC Reviewed: [illegible] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: D038 Tendon End: Butt. 6

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 84 °F Thermometer No.: 5778 Recal Date: 8-30-08	
Ambient Temp.: 68 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-16-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-16-07
(9.5) Number of Effective Wires: 165	BG 10-16-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-16-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 357.287 K = -5.060	
Gauge ID: 1017880 Recal Date: Daily on use Daily Check: Yes	BG 10-16-07
(9.8) Shim Stack Height: #1 6 in. #2 6 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3", 3" in. Stack #2: 3", 3" in.	BG 10-16-07
(9.9) Base Value Predicted Force (BVPF): 1348 kips Pressure: 4012 psi	
BVPF: 1348 kips 95% BVPF: 1281 kips 90% BVPF: 1213 kips	
4012 psi 3813 psi 3611 psi	BG 10-16-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4450 psi Stack #2: 1) (4450) psi 1) 4450 psi	
2) 4450 psi 2) (4450) psi 2) 4450 psi	
3) 4450 psi 3) (4450) psi 3) 4450 psi	
(9.10.10) Actual Force (this end): 1495.86 kips Actual Average: 4450 psi	BG 10-16-07
(9.10.10.1) Actual Force (opposite end): 1527.21 kips (9.10.10.2) AALV FORCE 1511.53 kips	BG 10-16-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 10-16-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-16-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-16-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 10-16-07
(9.10.15.1) Adjacent Tendon Lift-Offs N/A (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within -0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 10-16-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 10-16-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 10-16-07

QC Reviewed: [signature] Level: II Date: 10/17/07

PSC PROCEDURE SQ10.2
TEST WIRE REMOVAL
Data Sheet 10.2
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: Butt. 6

Removal Date: 10-16-07 Inspection Date: 10-16-07

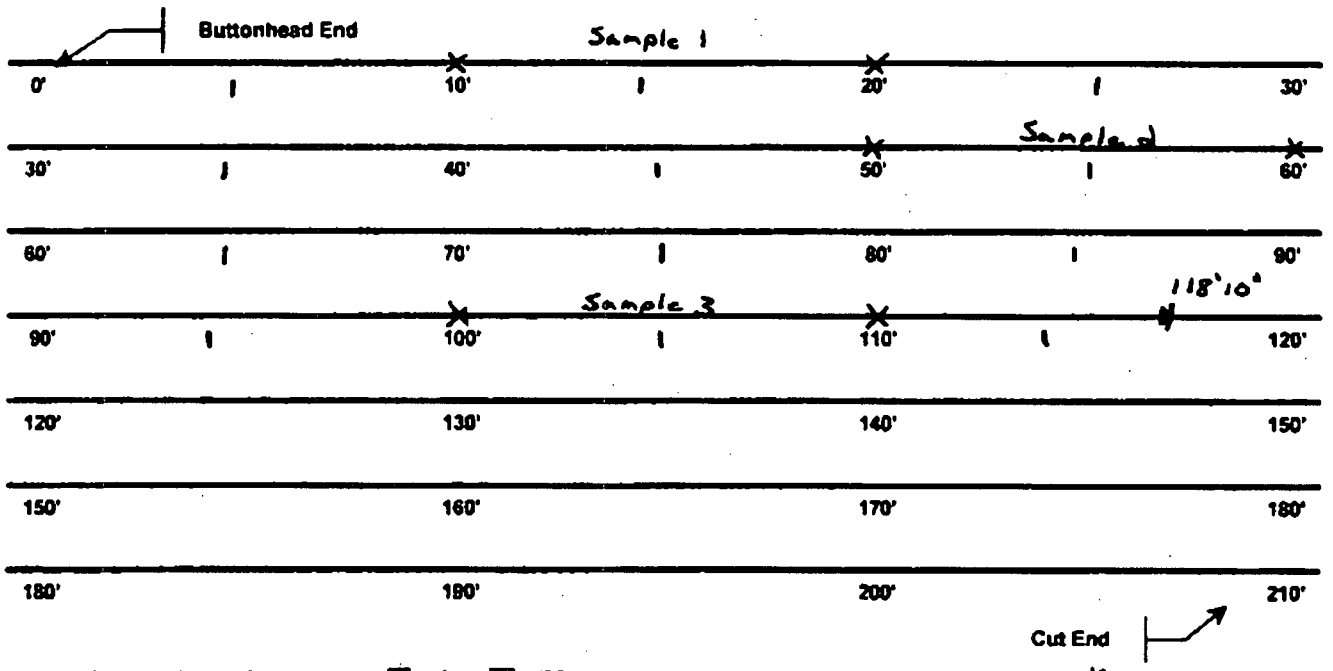
WIRE REMOVAL INSPECTION

CORROSION INSPECTION @ LENGTH INTERVALS

(8.5.4.1) Document the Corrosion Category for each 10' of wire in the increments below. Use Categories described in PSC SQ 8.1.

(8.5.4.2) For Corrosion Levels 3, 4, 5, 6 document condition on an NCR. NCR Req'd: ☒ NO ☐ YES NCR# N/A

(8.5.4.3.1) Document the total length of the wire on the diagram below. Completed: ☐ NO ☒ YES



(8.5.4.4.3) Was the wire cut for samples: , ☐ NO ☒ YES document the area of removal above using symbol ✕.

(8.7) Document the location of wire removed on Data Sheet 8.0, ANCHORAGE INSPECTION: ☒ Completed

(8.8) Measuring Device: 24" ruler ID Number: R-16 Recal Date: 8-30-08

(8.8) Wire Pull Ram ID Number: N/A

Q.C Inspector: [signature] Level: II Date: 10-16-07

QC Reviewed [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ10.3
TESTING TENDON WIRES
Data Sheet 10.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: BUTT. 6

WIRE TEST DOCUMENTATION

Sample No.: SAMPLE 1

(8.2.3.2) Wire ID and Location of removal: 10-20 feet Length: 120 in.

(8.3.1) Wire Diameters: Tag End .275 in. Middle .275 in. Ram End .275 in. Avg. .275 in.

Measuring Device ID: QC80 Recal Date: 5-16-08

(8.4.2.1) Buttonhead Inspection: Tag End OK Ram End OK

(8.5.1) Gauge Length of Wire: 100 in. Measuring Device ID: R17 Recal Date: 11-16-08

(8.7.1) Preload force: 2.45 kips

Preload pressure: 1450 psi Pressure Gauge ID: CC107223 Recal Date: DAILY ON USE

Ram ID: 7702 Ram Area: 1.590 in^2 K = 0.146 kips Recal Date: JOB END

(8.8.1) Force reduced to zero (0): OK

(8.9.1) Initial load of wire force: 1.73 kips (0.1% elongation)

Initial load of pressure: 1000 psi Elongation: 14.00 in.

(8.10.1) Preset Dial Indicator: OK (0.9% elongation) Indicator ID: ECC21 Recal Date: 8-30-08

(8.11.1) Force at 1% elongation: 13.616 kips ; Pressure: 8500 psi

(8.12.1) "Rule" reading measurement at 1% elongation: 14.90 in.

(8.13.1) Maximum elongation at failure, from "Rule" reading: 18.60 in.

(8.13.2) Maximum force at failure: 15.47 kips ; Pressure: 9640 psi

(8.14.1) Type of break: DUCTILE Location of break: 1" RAM END in.

(8.15) CALCULATIONS:

(8.15.1) Ultimate Stress: 260.517 ksi Stress (ksi) = Force (kips) ÷ [π (dia^2) ÷ 4] (in^2)

(8.15.2) Yield Stress @ 1% elongation: 230.000 ksi Stress (ksi) = Force (kips) @ 1% ÷ [π (dia^2) ÷ 4] (in^2)

(8.15.3) % elongation @ failure: 4.7 % [1 in. - ("Rule" Dimension @ Failure - "Rule" Dimension @ 1%)]

Results: ☒ Acceptable ☐ Unacceptable Customer Notified NCR No.: N/A

QC Inspector: [signature] Level: II Date: 11-21-07

QC Reviewed: [signature] Level: II Date: 11-26-07

PSC PROCEDURE SQ10.3
TESTING TENDON WIRES
Data Sheet 10.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: BUTT. 6

WIRE TEST DOCUMENTATION

Sample No.: SAMPLE 2

(8.2.3.2) Wire ID and Location of removal: 50-60 feet Length: 120 in.

(8.3.1) Wire Diameters: Tag End .275 in Middle .275 in. Ram End .275 in. Avg. .275 in.

Measuring Device ID: QC80 Recal Date: 5-16-08

(8.4.2.1) Buttonhead Inspection: Tag End OK Ram End OK

(8.5.1) Gauge Length of Wire: 100 in. Measuring Device ID: R17 Recal Date: 11-16-08

(8.7.1) Preload force: 2.45 kips

Preload pressure: 1450 psi Pressure Gauge ID: CC1072223 Recal Date: DAILY ON USE

Ram ID: 7702 Ram Area: 1.590 in^2 K = 0.146 kips Recal Date: TOP END

(8.8.1) Force reduced to zero (0): OK

(8.9.1) Initial load of wire force: 1.73 kips (0.1% elongation)

Initial load of pressure: 1000 psi Elongation: 14.00 in.

(8.10.1) Preset Dial Indicator: OK (0.9% elongation) Indicator ID: ECC021 Recal Date: 8-30-08

(8.11.1) Force at 1% elongation: 13.63 kips ; Pressure: 8480 psi

(8.12.1) "Rule" reading measurement at 1% elongation: 14.90 in.

(8.13.1) Maximum elongation at failure, from "Rule" reading: 18.40 in

(8.13.2) Maximum force at failure: 15.28 kips ; Pressure: 9520 psi

(8.14.1) Type of break: DUCTILE Location of break: 1/2" OFF RAM in.

(8.15) CALCULATIONS:

(8.15.1) Ultimate Stress: 257.305 ksi Stress (ksi) = Force (kips) ÷ [π (dia^2) ÷ 4] (in^2)

(8.15.2) Yield Stress @ 1% elongation: 229.464 ksi Stress (ksi) = Force (kips) @ 1% ÷ [π (dia^2) ÷ 4] (in^2)

(8.15.3) % elongation @ failure: 4.5 % [1 in. ÷ ("Rule" Dimension @ Failure – "Rule" Dimension @ 1%)]

Results: ☒ Acceptable ☐ Unacceptable Customer Notified NCR No.: N/A

QC Inspector: [signature] Level: II Date: 11-21-07

QC Reviewed: [signature] Level: III Date: 11-26-07

PSC PROCEDURE SQ10.3
TESTING TENDON WIRES
Data Sheet 10.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: Butt 6

WIRE TEST DOCUMENTATION

Sample No.: SAMPLE 3

(8.2.3.2) Wire ID and Location of removal: 70-80 feet Length: 120 in.

(8.3.1) Wire Diameters: Tag End .275 in. Middle .275 in. Ram End .275 in. Avg. .275 in.

Measuring Device ID: QC80 Recal Date: 5-16-08

(8.4.2.1) Buttonhead Inspection: Tag End OK Ram End OK

(8.5.1) Gauge Length of Wire: 100 in. Measuring Device ID: R17 Recal Date: 11-16-08

(8.7.1) Preload force: 2.45 kips

Preload pressure: 1450 psi Pressure Gauge ID: CC107223 Recal Date: DAILY ON USE

Ram ID: 7702 Ram Area: 1.590 in^2 K = 0.146 kips Recal Date: JOB END

(8.8.1) Force reduced to zero (0): OK

(8.9.1) Initial load of wire force: 1.73 kips (0.1% elongation)

Initial load of pressure: 1000 psi Elongation: 13.90 in.

(8.10.1) Preset Dial Indicator: OK (0.9% elongation) Indicator ID: ECC21 Recal Date: 8-30-08

(8.11.1) Force at 1% elongation: 13.56 kips ; Pressure: 8440 psi

(8.12.1) "Rule" reading measurement at 1% elongation: 14.80 in.

(8.13.1) Maximum elongation at failure, from "Rule" reading: 18.80 in.

(8.13.2) Maximum force at failure: 15.63 kips ; Pressure: 9740 psi

(8.14.1) Type of break: DUCTILE Location of break: 18½" RAM END in.

(8.15) CALCULATIONS:

(8.15.1) Ultimate Stress: 263.194 ksi Stress (ksi) = Force (kips) ÷ [π (dia²) ÷ 4] (in²)

(8.15.2) Yield Stress @ 1% elongation: 228.393 ksi Stress (ksi) = Force (kips) @ 1% ÷ [π (dia²) ÷ 4] (in²)

(8.15.3) % elongation @ failure: 5.0 % [1 in. ÷ ("Rule" Dimension @ Failure – "Rule" Dimension @ 1%)]

Results: ☒ Acceptable ☐ Unacceptable Customer Notified NCR No.: N/A

QC Inspector: [signature] Level: II Date: 11-21-07

QC Reviewed: [signature] Level: III Date: 11-26-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: Butt. G

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 80 °F Thermometer No.: ST78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 68 °F Thermometer No.: PK56 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 162 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8784 Recal Date: end of job RAM Area: 537.287 K = - 5.06 BG 10-17-07
Gauge ID: 1017881 Recal Date: daily on use Daily Check: yes BG 10-17-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = 357.1 kips Pressure: 1,073.74 psi
Step 1 = 600 kips Pressure: 1,793.90 psi Elongation: 1.34 in.
Step 2 = 1200 kips Pressure: 3572.80 psi Elongation: 4.64 in.
LOF = 1495.86 kips Pressure: 4449.97 psi
OSF = 1854.6 kips Pressure: 5513.58 psi Elongation: 8.25 in. BG 10-17-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = 355.85 kips Pressure: 1070 psi ① Elongation: 5 in.
(9.8.3.1) Step 1 = 598.68 kips Pressure: 1790 psi Elongation: 5.7 in.
(9.8.4.1) Step 2 = 1202.42 kips Pressure: 3580 psi Elongation: 7.6 in.
(9.8.5.2) OSF = 1853.39 kips Pressure: 5516 psi ② Elongation: 9.2 in. BG 10-17-07
(9.8.5.3) ② – ①= 4.2 in. Elongation Value (this end)
(9.8.5.4) 3.6 in. Elongation Value (opposite end)
(9.8.5.4) 7.8 in. TOTAL Tendon Elongation Value BG 10-17-07
(9.8.8.2) Elongation Variation: -5.45 % Ruler ID: R-16 Recal Date: 8-30-08 BG 10-17-07
(9.8.8.4) Elongation Results: ☒ Acceptable ☐ Unacceptable BG 10-17-07
Customer Notified *NCR* No.: N/A BG 10-17-07

(9.7.3) LOF Acceptable Range: From: 4450 psi To: 4720 psi BG 10-17-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:	Stack #2:	(9.9.7) Circled Values
1) 4520 psi	1) 4520 psi	1) 4520 psi
2) 4520 psi	2) 4520 psi	2) 4520 psi
3) 4520 psi	3) 4520 psi	3) 4520 psi

(9.9.7) Force (this end): 1519.47 kips Actual Average: 4520 psi BG 10-17-07
(9.9.7) Force (opposite end): 1613.8 kips This Tendon – AALV FORCE 1566.6 kips BG 10-17-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified *NCR* No.: N/A BG 10-17-07
(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A BG 10-17-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A BG 10-17-07
If Yes – Customer Notified NCR No.: BG 10-17-07
(9.9.11.3) Final Shim Stack Height: #1: 7¼" in. #2: 7¼" in. BG 10-17-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: Butt. 6

GREASE CAP REPLACEMENT DOCUMENTATION		QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes ☐ No	BG 10-17-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes ☐ No	BG 10-17-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes ☐ No	BG 10-17-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes ☐ No	BG 10-17-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes ☐ No	BG 10-17-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes ☒ No	BG 10-17-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: D238 Tendon End: Butt. 6

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	7 gal.	BG 11-9-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	61.5 gal.	BG 11-9-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-9-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-9-07
(8.8) TOTAL Tendon Grease Loss:	69.5 gal.	BG 11-9-07
(8.9) Ambient Temp.: 68 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-9-07
(8.10) Grease Cap Removal Date: 10-16-07 Grease Replacement Date: 11-9-07		BG 11-9-07
Elapsed Time: 24 days		BG 11-9-07
(9.8.4.1) Grease height in drum before: 31", 31" in. (9.8.5.1) Height in drum after: 0, 20" in.		BG 11-9-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 74.34 gal. ☒ Pumped ☐ Poured		BG 11-9-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	0 gal.	BG 11-9-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	0 gal.	BG 11-9-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-9-07
Grease Temp.: 300 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-9-07
(10.3.8) Quantity of Exiting Outflow Grease:	1 gal.	BG 11-9-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	0 gal.	BG 11-9-07
(10.3.10) TOTAL amount of Grease replaced: 73.34 gal. (hand pumped + pressured pumped – exiting outflow)		BG 11-9-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 102.59 gal.

(10.3.11) Percent variation difference: 3.74 % BG 11-9-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-9-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 11-9-07

If No – Customer Notified NCR No.: N/A BG 11-9-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 15H33 Tendon End: Bott. 1

Grease Cap Removal

Date Removal Started: 10-31-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 76 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 78 °F Thermometer No.: PR50 Re-Cal Date: 8-30-08 — 10-31-07

(8.5.1) Anchorhead I.D. CR518 Anchorhead Verification: ☒ Match ☐ No-Match — 10-31-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) – *Limited within the inside diameter of the grease cap.* — 10-31-07

(8.7) Unusual Conditions: none — 10-31-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown

Comments: none — 10-31-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — 10-31-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — 10-31-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples N/A Quarts Samples identified per Step 6.1? ☐ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct — 10-31-07

(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-1-07) — 10-31-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — 10-31-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL — 10-31-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 13H33 Tendon End: Butt. 1

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.6.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H33 Tendon End: Butt.1

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning

Q.C. Signoff

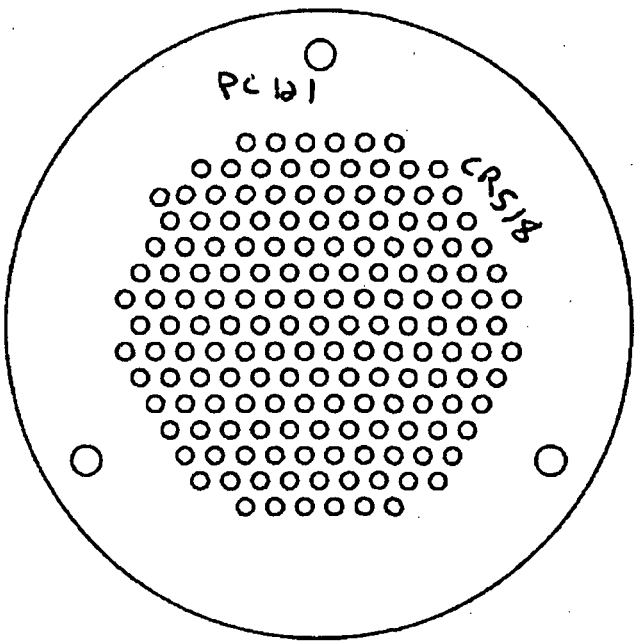
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	86.10-31-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR518
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No
Shims 7" 3,1,3
(8.4.7) Offsize Buttonhead Totals
A = N/A 86.10-31-07
B = N/A 86.10-31-07
C = N/A 86.10-31-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 86.10-31-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 86.10-31-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 86.10-31-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A 86.10-31-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A 86.10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 15453 Tendon End: Butt. 1

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 74 °F Thermometer No.: 5278 Recal Date: 8-30-08	
Ambient Temp.: 74 °F Thermometer No.: PK50 Recal Date: 8-30-08	56 10-31-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	56 10-31-07
(9.5) Number of Effective Wires: 163	56 10-31-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	56 10-31-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K = -5.06	
Gauge ID: 1017880 Recal Date: daily on use Daily Check: yes	56 10-31-07
(9.8) Shim Stack Height: #1 7 in. #2 7 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 1, 3 in. Stack #2: 3, 1, 3 in.	56 10-31-07
(9.9) Base Value Predicted Force (BVPF): 1366 kips Pressure: 4064.96 psi	
BVPF: 1566 kips 95% BVPF: 1298 kips 90% BVPF: 1229 kips	
4064.96 psi 3863.35 psi 3658.28 psi	56 10-31-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3860 psi Stack #2: 1) 3900 psi 1) 3900 psi	
2) 3860 psi 2) 3900 psi 2) 3900 psi	
3) 3860 psi 3) 3900 psi 3) 3900 psi	
(9.10.10) Actual Force (this end): 1510.35 kips Actual Average: 3900 psi	56 10-31-07
(9.10.10.1) Actual Force (opposite end): 1502.57 kips (9.10.10.2) AALV FORCE 1506.46 kips	56 10-31-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	56 10-31-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	56 10-31-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	56 10-31-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	56 10-31-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date: A	56 10-31-07
b) Adj Tendon: ____ Adj Tendon: ____ N ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: ____	56 10-31-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: ____	56 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H33 Tendon End: Butt. 1

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H33 Tendon End: Butt. 1

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-31-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 11-1-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-1-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-1-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 11-1-07
(8.9) Ambient Temp.: 78 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(8.10) Grease Cap Removal Date: 10-31-07 Grease Replacement Date: 11-1-07		BG 11-1-07
Elapsed Time: 1 days		BG 11-1-07
(9.8.4.1) Grease height in drum before: 5 1/2 in. (9.8.5.1) Height in drum after: 4 in.		BG 11-1-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 11-1-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 11-1-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-1-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-1-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.57 gal.

(10.3.11) Percent variation difference: 1.06 % — BG 11-1-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-1-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 11-1-07

If No – Customer Notified NCR No.: N/A — BG 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13433 Tendon End: Butt. 3

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-31-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 74 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 76 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BC 10-31-07
(8.5.1) Anchorhead I.D. CR1206 Anchorhead Verification: ☒ Match ☐ No-Match	BC 10-31-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BC 10-31-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BC 10-31-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BC 10-31-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BC 10-31-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BC 10-31-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples N/A ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BC 10-31-07
(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-1-07)	BC 10-31-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BC 10-31-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BC 10-31-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BC 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 13433 Tendon End: 6-pt. 3

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [illegible] Level: II Date: 10-31-07

QC Reviewed: [illegible] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H33 Tendon End: Butt. 3

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

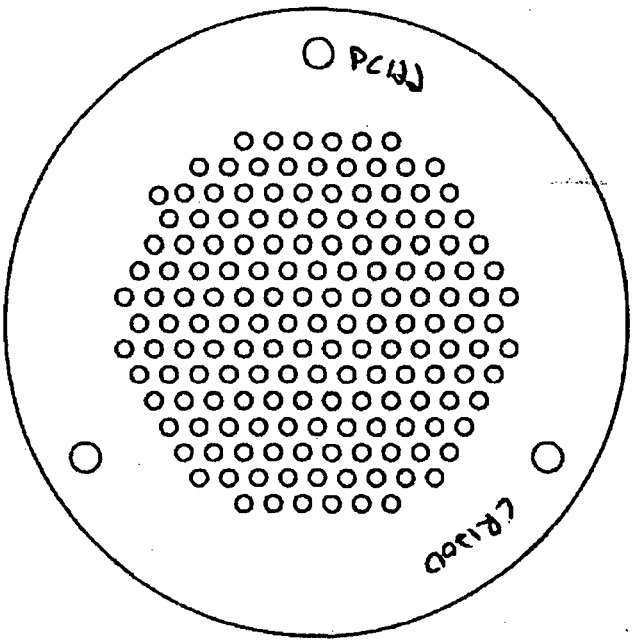
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BL 10-31-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR4J00
Located on Sketch: ☐ Yes ☐ No
(8.4.6) Heat Code PC4J
Located on Sketch: ☐ Yes ☐ No
Shims 6 3/4 3, 3, 3/8, 3/8
(8.4.7) Offsize Buttonhead Totals
A = N/A BL 10-31-07
B = N/A BL 10-31-07
C = N/A BL 10-31-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BL 10-31-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BL 10-31-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BL 10-31-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No BL 10-31-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BL 10-31-07

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 13H33 Tendon End: Butt. 3

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 74 °F Thermometer No.: 5178 Recal Date: 8-30-08	
Ambient Temp.: 76 °F Thermometer No.: PR36 Recal Date: 8-30-08	BC 10-31-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BC 10-31-07
(9.5) Number of Effective Wires: 163	BC 10-31-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BC 10-31-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 555 in2 K = -5.02	
Gauge ID: 1017861 Recal Date: Daily on use Daily Check: Yes	BC 10-31-07
(9.8) Shim Stack Height: #1 6 3/4 in. #2 6 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: (6 3/4) 3, 3, 3/8, 3/8 in. Stack #2: (6 3/4) 3, 3, 3/8, 3/8 in.	BC 10-31-07
(9.9) Base Value Predicted Force (BVPF): 1366 kips Pressure: 4,089.16 psi	
BVPF: 1366 kips 95% BVPF: 1298 kips 90% BVPF: 1229 kips	
4089.16 psi 3886.34 psi 3680.54 psi	BC 10-31-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3860 psi Stack #2: 1) 3900 psi 1) 3900 psi	
2) 3860 psi 2) 3900 psi 2) 3900 psi	
3) 3860 psi 3) 3900 psi 3) 3900 psi	
(9.10.10) Actual Force (this end): 1302.57 kips Actual Average: 3900 psi	BC 10-31-07
(9.10.10.1) Actual Force (opposite end): 1310.35 kips (9.10.10.2) AALV FORCE 1306.46 kips	BC 10-31-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BC 10-31-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BC 10-31-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BC 10-31-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BC 10-31-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date: N/A	BC 10-31-07
b) Adj Tendon: ____ Adj Tendon: ____ N ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: ____	BC 10-31-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: ____	BC 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H53 Tendon End: Butt. 3

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 15453 Tendon End: Butt. 3

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-31-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 11-1-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-1-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-1-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 11-1-07
(8.9) Ambient Temp.: 78 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(8.10) Grease Cap Removal Date: 10-31-07 Grease Replacement Date: 11-1-07		BG 11-1-07
Elapsed Time: 1 days		BG 11-1-07
(9.8.4.1) Grease height in drum before: 24 in. (9.8.5.1) Height in drum after: 22 1/2 in.		BG 11-1-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 11-1-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 11-1-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-1-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-1-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. (hand pumped + pressured pumped – exiting outflow)		BG 11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.57 gal.

(10.3.11) Percent variation difference: 1.06 % BG 11-1-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-1-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 11-1-07

If No – Customer Notified NCR No.: N/A BG 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
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Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 15434 Tendon End: Butt. 1

Grease Cap Removal

Date Removal Started: 10-30-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 78 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 74 °F Thermometer No.: P/K30 Re-Cal Date: 5-30-08 — BG 10-30-07

(8.5.1) Anchorhead I.D. Anchorhead Verification: ☒ Match ☐ No-Match — BG 10-30-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) - *Limited within the inside diameter of the grease cap.* — BG 10-30-07

(8.7) Unusual Conditions: None — BG 10-30-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown

Comments: None — BG 10-30-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — BG 10-30-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — BG 10-30-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples N/A Quarts Samples identified per Step 6.1? ☐ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct — BG 10-30-07

(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-1-07) — BG 10-30-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BG 10-30-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL — BG 10-30-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BG 10-30-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 13434 Tendon End: Butt 1

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-30-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H34 Tendon End: Butt. 1

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

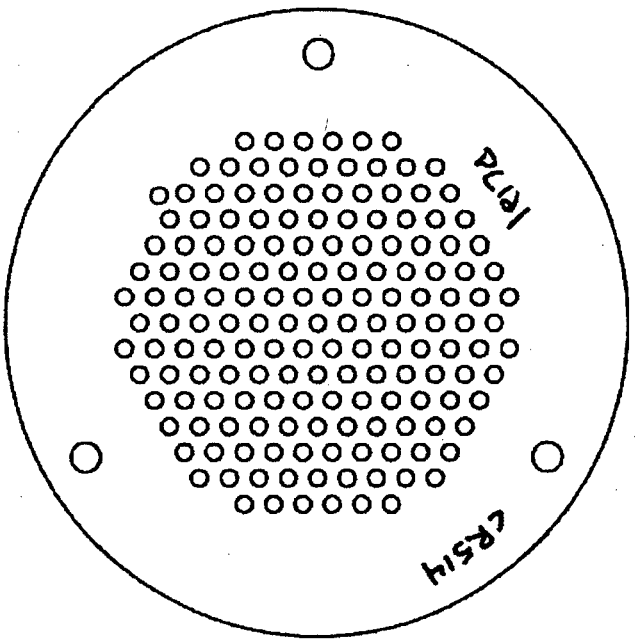
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BL 10-30-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR514
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No
Shims 7" 3,1,1,1,1
(8.4.7) Offsize Buttonhead Totals
A = N/A BL 10-30-07
B = N/A BL 10-30-07
C = N/A BL 10-30-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BL 10-30-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BL 10-30-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BL 10-30-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No BL 10-30-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BL 10-30-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
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Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 15H34 Tendon End: Butt. 1

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 78 °F Thermometer No.: 5778 Recal Date: 8-30-08	
Ambient Temp.: 74 °F Thermometer No.: PK80 Recal Date: 8-30-08	BL 10-31-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BL 10-31-07
(9.5) Number of Effective Wires: 165	BL 10-31-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BL 10-31-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 357.287 K = -5.06	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: YES	BL 10-31-07
(9.8) Shim Stack Height: #1 7 in. #2 7 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,1,1,1,1 in. Stack #2: 3,1,1,1,1 in.	BL 10-31-07
(9.9) Base Value Predicted Force (BVPF): 1475 kips Pressure: 4388.13 psi	
BVPF: 1475 kips 95% BVPF: 1402 kips 90% BVPF: 1328 kips	
4388.13 psi 4171.63 psi 3952.30 psi	BL 10-31-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4000 psi Stack #2: 1) 4020 psi 1) 4020 psi	
2) 4000 psi 2) 4020 psi 2) 4020 psi	
3) 4000 psi 3) 4020 psi 3) 4020 psi	
(9.10.10) Actual Force (this end): 1350.83 kips Actual Average: 4020 psi	BL 10-31-07
(9.10.10.1) Actual Force (opposite end): 1386.39 kips (9.10.10.2) AALV FORCE 1368.61 kips	BL 10-31-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BL 10-31-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BL 10-31-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BL 10-31-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: EN1001-008	BL 10-31-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: 15H33 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 10-31-07	BL 10-31-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
A Customer Notified NCR No.: ____	BL 10-31-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: ____	BL 10-31-07

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13434 Tendon End: Butt. 1

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BL 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BL 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BL 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BL 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BL 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BL 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H54 Tendon End: Butt. 1

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 2 gal. BG 11-1-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 2 gal. BG 11-1-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. BG 11-1-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. BG 11-1-07

(8.8) TOTAL Tendon Grease Loss: 4 gal. BG 11-1-07

(8.9) Ambient Temp.: 78 °F Thermo. ID: PK30 Recal Date: 8-30-08 BG 11-1-07

(8.10) Grease Cap Removal Date: 10-31-07 Grease Replacement Date: 11-1-07 BG 11-1-07

Elapsed Time: 1 days BG 11-1-07

(9.8.4.1) Grease height in drum before: 7 in. (9.8.5.1) Height in drum after: 5 1/2 in. BG 11-1-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured BG 11-1-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 2.65 gal. BG 11-1-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 2.65 gal. BG 11-1-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 0 gal. BG 11-1-07

Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08 BG 11-1-07

(10.3.8) Quantity of Exiting Outflow Grease: 0 gal. BG 11-1-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 2.65 gal. BG 11-1-07

(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. *(hand pumped + pressured pumped – exiting outflow)* BG 11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.25 gal.

(10.3.11) Percent variation difference: 1.07 % BG 11-1-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-1-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 11-1-07

If No – Customer Notified NCR No.: N/A BG 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H34 Tendon End: Butt. 1

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 74 °F Thermometer No.: ST78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 72 °F Thermometer No.: PK50 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 5784 Recal Date: 108 end RAM Area: 337.287 K = -5.06 BG 11-1-07
Gauge ID: 1017880 Recal Date: Daily on use Daily Check: YES BG 11-1-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: *Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.*

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: N/A psi Elongation: in. BG 11-1-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. BG 11-1-07
(9.8.5.3) ② – ① = in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) in. TOTAL Tendon Elongation Value BG 11-1-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: BG 11-1-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable BG 11-1-07
Customer Notified NCR No.: BG 11-1-07

(9.7.3) LOF Acceptable Range: From: 4388.13 psi To: 4650.52 psi BG 11-1-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:		Stack #2:		(9.9.7) Circled Values
1)	4380 psi	1)	4400 psi	1) 4400 psi
2)	4380 psi	2)	4400 psi	2) 4400 psi
3)	4380 psi	3)	4400 psi	3) 4400 psi

(9.9.7) Force (this end): 1479.00 kips Actual Average: 4400 psi BG 11-1-07
(9.9.7) Force (opposite end): 1537.27 kips This Tendon – AALV FORCE 1508.13 kips BG 11-1-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A BG 11-1-07
(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: 0 BG 11-1-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: 0 BG 11-1-07
If Yes – Customer Notified NCR No.: N/A BG 11-1-07
(9.9.11.3) Final Shim Stack Height: #1: 7 3/8 in. #2: 7 3/8 in. BG 11-1-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
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Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H34 Tendon End: Butt. 3

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-31-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 74 °F Thermometer No.: ST78 Re-Cal Date: ~~10~~ 8-30-08	
(7.5) Ambient Temp.: 70 °F Thermometer No.: PK50 Re-Cal Date: 8-30-08	BL 10-31-07
(8.5.1) Anchorhead I.D. CR1159 Anchorhead Verification: ☒ Match ☐ No-Match	BL 10-31-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BL 10-31-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BL 10-31-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BL 10-31-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BL 10-31-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BL 10-31-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BL 10-31-07
(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-1-07)	BL 10-31-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BL 10-31-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BL 10-31-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BL 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 13H34 Tendon End: Butt. 3

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H34 Tendon End: Butt. 3

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

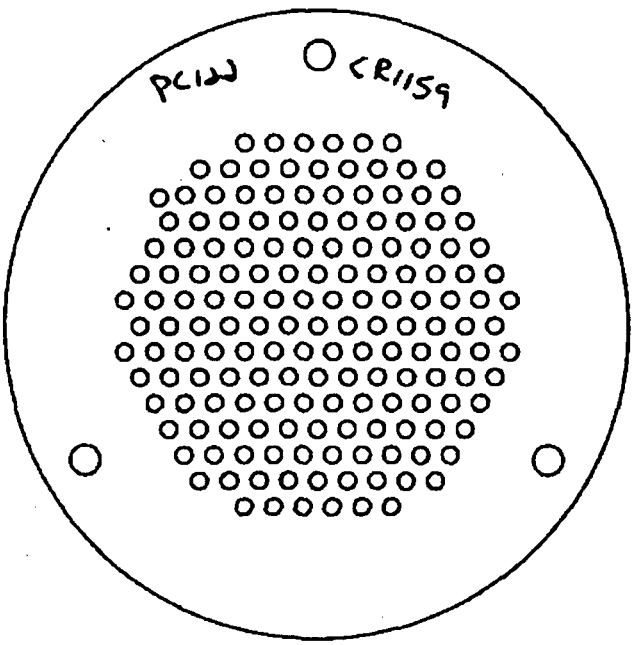
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BL 10-31-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- ∅ Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1159
Located on Sketch: ☐ Yes ☐ No
(8.4.6) Heat Code PC122
Located on Sketch: ☒ Yes ☐ No
Shims 7" 3,1,1,1,1
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BL 10-31-07
BL 10-31-07
BL 10-31-07
BL 10-31-07
BL 10-31-07
BL 10-31-07
BL 10-31-07
BL 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 13434 Tendon End: Butt. 3

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 74 °F Thermometer No.: 5T78 Recal Date: 8-30-08	
Ambient Temp.: 72 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-31-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-31-07
(9.5) Number of Effective Wires: 163	BG 10-31-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-31-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 335.382 K = -5.002	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-31-07
(9.8) Shim Stack Height: #1 7 in. #2 7 in. Ruler ID: R-16 Recal Date: 5-30-08	
Individual Shims: Stack #1: 3,1,1,1,1 in. Stack #2: 3,1,1,1,1 in.	BG 10-31-07
(9.9) Base Value Predicted Force (BVPF): 1475 kips Pressure: 4414.26 psi	
BVPF: 1475 kips 95% BVPF: 1402 kips 90% BVPF: 1328 kips	
4414.26 psi 4196.53 psi 3975.82 psi	BG 10-31-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4080 psi Stack #2: 1) 4150 psi 1) 4150 psi	
2) 4080 psi 2) 4150 psi 2) 4150 psi	
3) 4080 psi 3) 4150 psi 3) 4150 psi	
(9.10.10) Actual Force (this end): 1586.39 kips Actual Average: 4150 psi	BG 10-31-07
(9.10.10.1) Actual Force (opposite end): 1350.83 kips (9.10.10.2) AALV FORCE 1568.61 kips	BG 10-31-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 10-31-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-31-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-31-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002.008	BG 10-31-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: 13433 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+5% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 10-31-07	BG 10-31-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: ____	BG 10-31-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: ____	BG 10-31-07

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 86-11-07 13434 Tendon End: Rust.3

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 78 °F Thermometer No.: 5778 Recal Date: 8-30-08
(9.3) Ambient Temp.: 72 °F Thermometer No.: PK30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: July end RAM Area: 335.282 K = -5.022 — 86-11-1-07
Gauge ID: 1017881 Recal Date: daily on use Daily Check: yes — 86-11-1-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. — 86-11-1-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: A psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. — 86-11-1-07
(9.8.5.3) ② – ①= in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) in. TOTAL Tendon Elongation Value — 86-11-1-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: — 86-11-1-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — 86-11-1-07
Customer Notified *NCR* No.: — 86-11-1-07

(9.7.3) LOF Acceptable Range: From: 4414.26 psi To: 4678.21 psi — 86-11-1-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

	Stack #1	Stack #2	(9.9.7) Circled Values
1)	4600 psi	4600 psi	4600 psi
2)	4600 psi	4600 psi	4600 psi
3)	4600 psi	4600 psi	4600 psi

(9.9.7) Force (this end): 1537.27 kips Actual Average: 4600 psi — 86-11-1-07
(9.9.7) Force (opposite end): 1479.00 kips This Tendon – AALV FORCE 1508.13 kips — 86-11-1-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified *NCR* No.: N/A — 86-11-1-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: 0 — 86-11-1-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: 0 — 86-11-1-07
If Yes – Customer Notified NCR No.: N/A — 86-11-1-07

(9.9.11.3) Final Shim Stack Height: #1: (+1/2") 7 1/2 in. #2: (+1 1/2") 7 1/2 in. — 86-11-1-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13434 Tendon End: Butt. 3

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H34 Tendon End: Butt. 3

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-31-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 11-1-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-1-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-1-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 11-1-07
(8.9) Ambient Temp.: 76 °F Thermo. ID: PK 30 Recal Date: 8-30-08		BG 11-1-07
(9.10) Grease Cap Removal Date: 10-31-07 Grease Replacement Date: 11-1-07		BG 11-1-07
Elapsed Time: 1 days		BG 11-1-07
(9.8.4.1) Grease height in drum before: 25½ in. (9.8.5.1) Height in drum after: 24 in.		BG 11-1-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 11-1-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 11-1-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-1-07
Grease Temp.: 200 °F Thermo. ID: PK 30 Recal Date: 8-30-08		BG 11-1-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-1-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.25 gal.

(10.3.11) Percent variation difference: 1.07 % BG 11-1-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\% \text{ variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-1-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 11-1-07

If No – Customer Notified NCR No.: N/A BG 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Allowcat tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H35 Tendon End: Butt. 1

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-29-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 74 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 68 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BL 10-29-07
(8.5.1) Anchorhead I.D. CR510 Anchorhead Verification: ☒ Match ☐ No-Match	BL 10-29-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BL 10-29-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BL 10-29-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown	
Comments: none	BL 10-29-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BL 10-29-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BL 10-29-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BL 10-29-07
(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-1-07)	BL 10-29-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BL 10-29-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BL 10-29-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BL 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 13H35 Tendon End: Butt. 1

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13435 Tendon End: Bott. 1

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

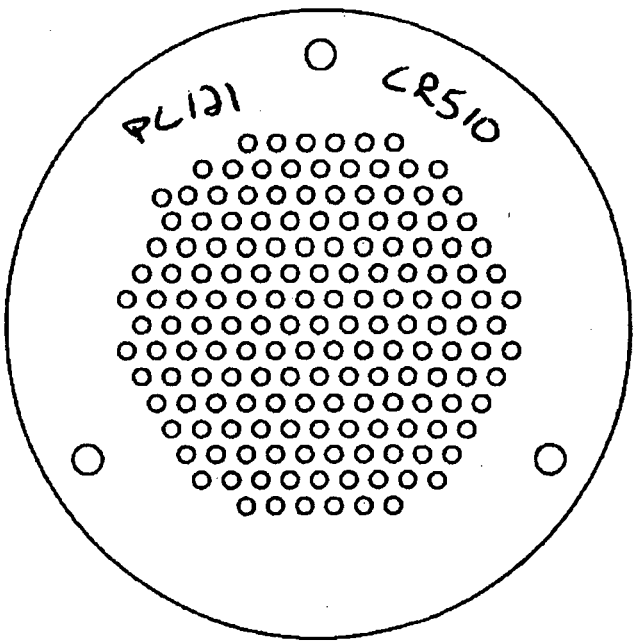
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BC 10-29-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR510
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
Shims 6 9/16 3, 3, 3/16, 3/16
(8.4.7) Offsize Buttonhead Totals
A = N/A BC 10-29-07
B = N/A BC 10-29-07
C = N/A BC 10-29-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BC 10-29-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BC 10-29-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BC 10-29-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BC 10-29-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BC 10-29-07

QC Reviewed: [signature] Level: II ~~11-20-07~~ 11-20-07 Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 13H35 Tendon End: Jack. 1

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 74 °F Thermometer No.: 5278 Recal Date: 8-30-08	
Ambient Temp.: 68 °F Thermometer No.: P430 Recal Date: 8-30-08	BC 10-29-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BC 10-29-07
(9.5) Number of Effective Wires: 163	BC 10-29-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BC 10-29-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K =- 5.06	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BC 10-29-07
(9.8) Shim Stack Height: #1 6 9/16 in. #2 6 9/16 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3, 3/8, 3/16 in. Stack #2: 3, 3, 3/8, 3/16 in.	BC 10-29-07
(9.9) Base Value Predicted Force (BVPF): 1373 kips Pressure: 4085.71 psi	
BVPF: 1373 kips 95% BVPF: 1304 kips 90% BVPF: 1235 kips	
4085.71 psi 3881.14 psi 3676.57 psi	BC 10-29-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3620 psi Stack #2: 1) 3720 psi 1) 3720 psi	
2) 3620 psi 2) 3720 psi 2) 3720 psi	
3) 3620 psi 3) 3720 psi 3) 3720 psi	
(9.10.10) Actual Force (this end): 1249.64 kips Actual Average: 3720 psi	BC 10-29-07
(9.10.10.1) Actual Force (opposite end): 1258.87 kips (9.10.10.2) AALV FORCE 1244.25 kips	BC 10-29-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BC 10-29-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BC 10-29-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BC 10-29-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN10021-007	BC 10-29-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: 13H38 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 10-30-07	BC 10-30-07
b) Adj Tendon: 13H34 Adj Tendon: ____ ☒ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: PN 10023-008	BC 10-30-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BC 10-30-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H35 Tendon End: Butt. 1

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 76 °F Thermometer No.: ST78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 80 °F Thermometer No.: PK30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8784 Recal Date: Job end RAM Area: 337.287 K = -5.06 BG 11-1-07
Gauge ID: 1017880 Recal Date: daily in use Daily Check: Yes BG 11-1-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: *Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.*

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. BG 11-1-07

N A

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. BG 11-1-07
(9.8.5.3) ② – ① = in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) in. TOTAL Tendon Elongation Value BG 11-1-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: BG 11-1-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable BG 11-1-07
Customer Notified *NCR* No.: BG 11-1-07

(9.7.3) LOF Acceptable Range: From: 4085.71 psi To: 4529.96 psi BG 11-1-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

	Stack #1:	Stack #2:	(9.9.7) Circled Values
1)	4140 psi	4200 psi	4200 psi
2)	4140 psi	4200 psi	4200 psi
3)	4140 psi	4200 psi	4200 psi

(9.9.7) Force (this end): 1411.54 kips Actual Average: 4200 psi BG 11-1-07
(9.9.7) Force (opposite end): 1423.27 kips This Tendon – AALV FORCE 1417.40 kips BG 11-1-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified *NCR* No.: N/A BG 11-1-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: 0 BG 11-1-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: 0 BG 11-1-07
If Yes – Customer Notified NCR No.: N/A BG 11-1-07

(9.9.11.3) Final Shim Stack Height: #1: 7 1/4 in. #2: 7 1/4 in. BG 11-1-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H35 Tendon End: Butt. 1

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: B1135 Tendon End: Butt. 1

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 11-1-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 11-1-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-1-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-1-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 11-1-07
(8.9) Ambient Temp.: 80 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(8.10) Grease Cap Removal Date: 10-29-07 Grease Replacement Date: 11-1-07		BG 11-1-07
Elapsed Time: 3 days		BG 11-1-07
(9.8.4.1) Grease height in drum before: 8 1/2 in. (9.8.5.1) Height in drum after: 7 in.		BG 11-1-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 11-1-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 11-1-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-1-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-1-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.77 gal.

(10.3.11) Percent variation difference: 1.06 % BG 11-1-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-1-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 11-1-07

If No – Customer Notified NCR No.: N/A BG 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 15/135 Tendon End: Butt. 3

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-29-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 76 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 70 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 10-29-07
(8.5.1) Anchorhead I.D. CR 1158 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-29-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-29-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 10-29-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown	
Comments:	BG 10-29-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-29-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-29-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples N/A ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 10-29-07
(10.2) Method of Tendon Protection: replaced cap (installed new gasket 11-1-07)	BG 10-29-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 10-29-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 10-29-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 15H35 Tendon End: Butt. 3

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 15H35 Tendon End: Rw+r. 3

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

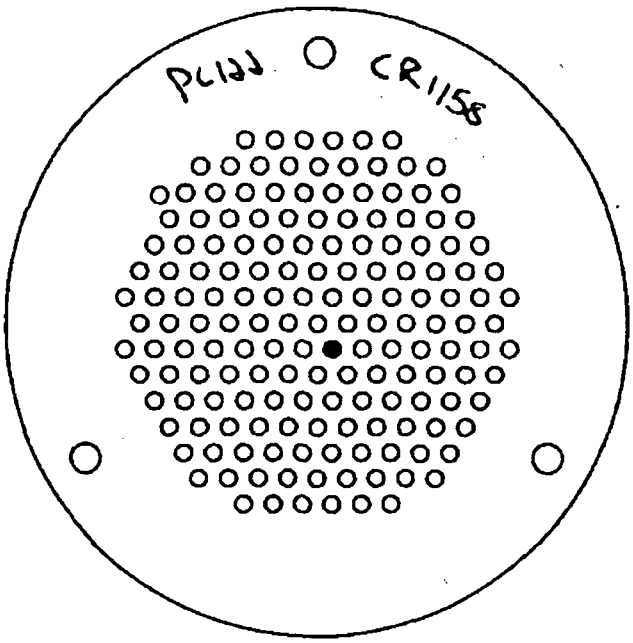
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	SC 10-29-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- ∅ Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊘ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1158
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC122
Located on Sketch: ☒ Yes ☐ No
Shims 6 3/8 3, 3, 3/8
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: ____ (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 166
(8.5.2) Protruding BH: 0 Missing BH: 1 Total (Protruding+Missing): 1
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

SC 10-29-07
SC 10-29-07
SC 10-29-07
SC 10-29-07
SC 10-29-07
SC 10-29-07
SC 10-29-07
SC 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 13435 Tendon End: Butt. 3

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 76 °F Thermometer No.: 5178 Recal Date: 8-30-08	
Ambient Temp.: 68 °F Thermometer No.: P4530 Recal Date: 8-30-08	BL 10-29-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BL 10-29-07
(9.5) Number of Effective Wires: 162	BL 10-29-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BL 10-29-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 335.282 K = -5.022	
Gauge ID: 1017881 Recal Date: daily cause Daily Check: Yes	BL 10-29-07
(9.8) Shim Stack Height: #1 6 5/8 in. #2 6 3/8 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3, 3/8 in. Stack #2: 3, 3, 3/8 in.	BL 10-29-07
(9.9) Base Value Predicted Force (BVPF): 1373 kips Pressure: 4110.03 psi	
BVPF: 1373 kips 95% BVPF: 1304 kips 90% BVPF: 1235 kips	
4110.03 psi 3904.24 psi 3698.44 psi	BL 10-29-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3710 psi Stack #2: 1) 3710 psi 1) 3710 psi	
2) 3710 psi 2) 3710 psi 2) 3710 psi	
3) 3710 psi 3) 3710 psi 3) 3710 psi	
(9.10.10) Actual Force (this end): 1238.87 kips Actual Average: 3710 psi	BL 10-29-07
(9.10.10.1) Actual Force (opposite end): 1249.64 kips (9.10.10.2) AALV FORCE 1244.25 kips	BL 10-29-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BL 10-29-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BL 10-29-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BL 10-29-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-007	BL 10-29-07
(9.10.15.1) Adjacent Tendon Lift-Offs *(Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)*	
a) Adj Tendon: 13438 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 10-30-07	BL 10-30-07
b) Adj Tendon: 13434 Adj Tendon: ____ ☒ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: FN1002-008	BL 10-30-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. N/A	
Customer Notified NCR No.: ____	BL 10-30-07

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13435 Tendon End: Butt. 3

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 74 °F Thermometer No.: 5178 Recal Date: 8-30-08
(9.3) Ambient Temp.: 76 °F Thermometer No.: 9K30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 162 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: Job end RAM Area: 335.282 K = -5.022 — BC 11-1-07
Gauge ID: 1617881 Recal Date: Daily on use Daily Check: Yes — BC 11-1-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = ____ kips Pressure: ____ psi
Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
LOF = ____ kips Pressure: ____ psi
OSF = ____ kips Pressure: ____ psi Elongation: ____ in. — BC 11-1-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = ____ kips Pressure: ____ psi ① Elongation: ____ in.
(9.8.3.1) Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.4.1) Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.5.2) OSF = ____ kips Pressure: ____ psi ② Elongation: ____ in. — BC 11-1-07
(9.8.5.3) ② – ① = ____ in. Elongation Value (this end)
(9.8.5.4) ____ in. Elongation Value (opposite end)
(9.8.5.4) ____ in. TOTAL Tendon Elongation Value — BC 11-1-07
(9.8.8.2) Elongation Variation: ____ % Ruler ID: ____ Recal Date: ____ — BC 11-1-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — BC 11-1-07
Customer Notified NCR No.: ____ — BC 11-1-07

(9.7.3) LOF Acceptable Range: From: 4110.03 psi To: 4555.74 psi — BC 11-1-07

(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:		Stack #2:		(9.9.7) Circled Values
1)	4260 psi	1)	4260 psi	1) 4260 psi
2)	4260 psi	2)	4260 psi	2) 4260 psi
3)	4260 psi	3)	4260 psi	3) 4260 psi

(9.9.7) Force (this end): 1423.27 kips Actual Average: 4260 psi — BC 11-1-07
(9.9.7) Force (opposite end): 1411.54 kips This Tendon – AALV FORCE ~~1415.27~~ 1417.40 kips — BC 11-1-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: BC 11-1-07 N/A — BC 11-1-07
(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: 0 — BC 11-1-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: 0 — BC 11-1-07
If Yes – Customer Notified NCR No.: N/A — BC 11-1-07
(9.9.11.3) Final Shim Stack Height: #1: 7 in. #2: 7 in. — BC 11-1-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13 H35 Tendon End: Butt. 3

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H35 Tendon End: Butt. 3

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-29-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 11-1-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-1-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-1-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 11-1-07
(8.9) Ambient Temp.: 80 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(8.10) Grease Cap Removal Date: 10-29-07 Grease Replacement Date: 11-1-07		BG 11-1-07
Elapsed Time: 3 days		BG 11-1-07
(9.8.4.1) Grease height in drum before: 27 in. (9.8.5.1) Height in drum after: 25 1/2 in.		BG 11-1-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 11-1-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 11-1-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-1-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-1-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. (hand pumped + pressure pumped – exiting outflow)		BG 11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.77 gal.

(10.3.11) Percent variation difference: 1.06 % BG 11-1-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-1-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 11-1-07

If No – Customer Notified NCR No.: N/A BG 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H37 Tendon End: Butt. 1

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-29-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 74 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 68 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 10-29-07
(8.5.1) Anchorhead I.D. CR509 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-29-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-29-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 10-29-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown	
Comments: None	BG 10-29-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-29-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-29-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples N/A ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 10-29-07
(10.2) Method of Tendon Protection: replaced cap (installed new gasket 11-1-07)	BG 10-29-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 10-29-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 10-29-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 13H37 Tendon End: Butt.1

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [signature] Level: II Date: 10-29-07

QC Reviewed: David P. Oth[signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 13H37 Tendon End: Butt. 1

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 74 °F Thermometer No.: 5178 Recal Date: 8-30-08	
Ambient Temp.: 68 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-30-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-30-07
(9.5) Number of Effective Wires: 165	BG 10-30-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-30-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K = -5.06	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-30-07
(9.8) Shim Stack Height: #1 6 7/8 in. #2 6 7/8 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,3,3/8,1/4,1/4 in. Stack #2: 3,3,3/8,1/4,1/4 in.	BG 10-30-07
(9.9) Base Value Predicted Force (BVPF): 1368 kips Pressure: 4070.89 psi	
BVPF: 1368 kips 95% BVPF: 1299 kips 90% BVPF: 1231 kips	
4070.89 psi 3866.32 psi 3664.71 psi	BG 10-30-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4010 psi Stack #2: 1) 4070 psi 1) 4070 psi	
2) 4010 psi 2) 4070 psi 2) 4070 psi	
3) 4010 psi 3) 4070 psi 3) 4070 psi	
(9.10.10) Actual Force (this end): 1367.69 kips Actual Average: 4070 psi	BG 10-30-07
(9.10.10.1) Actual Force (opposite end): ~~1292.05~~ kips (9.10.10.2) AALV FORCE 1389.87 kips	BG 10-30-07
(10.0) AALV Acceptance Criteria: 1312.05 BG 10-30-07	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-30-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-30-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-30-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1003-007	BG 10-30-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: 13H38 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within -0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 10-31-07	BG 10-31-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 10-31-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H37 Tendon End: Buttr. 1

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

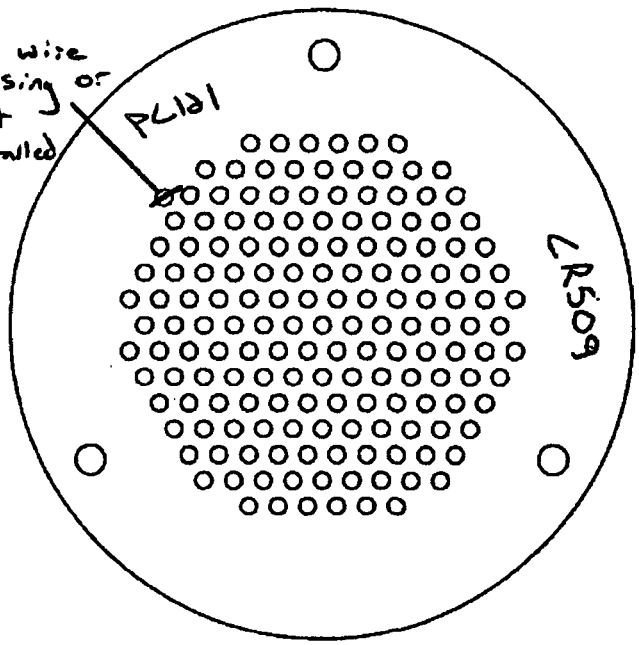
(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-29-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- ∅ Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.

Test wire missing or not installed



(8.4.6) Anchorhead I.D. CR509
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
Shims 6 7/8 3, 3, 3/8, 1/4, 1/4
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 10-29-07
BG 10-29-07
BG 10-29-07
BG 10-29-07
BG 10-29-07
BG 10-29-07
BG 10-29-07
BG 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H37 Tendon End: B.H.1

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H57 Tendon End: Butt. 1

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 2 gal. — BG 11-1-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 2 gal. — BG 11-1-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. — BG 11-1-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. — BG 11-1-07

(8.8) TOTAL Tendon Grease Loss: 4 gal. — BG 11-1-07

(8.9) Ambient Temp.: 78 °F Thermo. ID: Pk30 Recal Date: 8-30-08 — BG 11-1-07

(8.10) Grease Cap Removal Date: 10-29-07 Grease Replacement Date: 11-1-07 — BG 11-1-07

Elapsed Time: 3 days — BG 11-1-07

(9.8.4.1) Grease height in drum before: 12 in. (9.8.5.1) Height in drum after: 10½ in. — BG 11-1-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured — BG 11-1-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 2.65 gal. — BG 11-1-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 2.65 gal. — BG 11-1-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 0 gal. — BG 11-1-07

Grease Temp.: 210 °F Thermo. ID: Pk30 Recal Date: 8-30-08 — BG 11-1-07

(10.3.8) Quantity of Exiting Outflow Grease: 0 gal. — BG 11-1-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 2.65 gal. — BG 11-1-07

(10.3.10) TOTAL amount of Grease replaced: 5.5 gal. *(hand pumped + pressured pumped – exiting outflow)* — BG 11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 123.18 gal.

(10.3.11) Percent variation difference: 1.06 % — BG 11-1-07

$$\frac{\text{Total Quantity (10.2.8) - Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-1-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 11-1-07

If No – Customer Notified NCR No.: N/A — BG 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H37 Tendon End: Butt. 3

Grease Cap Removal

Date Removal Started: 10-29-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 74 °F Thermometer No.: 5178 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 68 °F Thermometer No.: 7250 Re-Cal Date: 8-30-08 — BL 10-29-07

(8.5.1) Anchorhead I.D. CR 1372 Anchorhead Verification: ☒ Match ☐ No-Match — BL 10-29-07

(8.6, 8.6.1, 8.6.2) Grease Coating

	Complete	Partial	Uncoated
Grease Cap -	✓		%
Buttonheads -	✓		%
Anchorheads -	✓		%
Shims -	✓		%
Bearing Plate – [1]	✓		%

[1] - *Limited within the inside diameter of the grease cap.* — BL 10-29-07

(8.7) Unusual Conditions: none — BL 10-29-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown

Comments: None — BL 10-29-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — BL 10-29-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — BL 10-29-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples N/A Quarts Samples Identified per Step 6.1? ☐ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct — BL 10-29-07

(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-1-07) — BL 10-29-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BL 10-29-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL — BL 10-29-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BL 10-29-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 13437 Tendon End: Butt. 3

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [illegible] Level: II Date: 10-29-07

QC Reviewed: David P. [illegible] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13457 Tendon End: Butt. 3

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

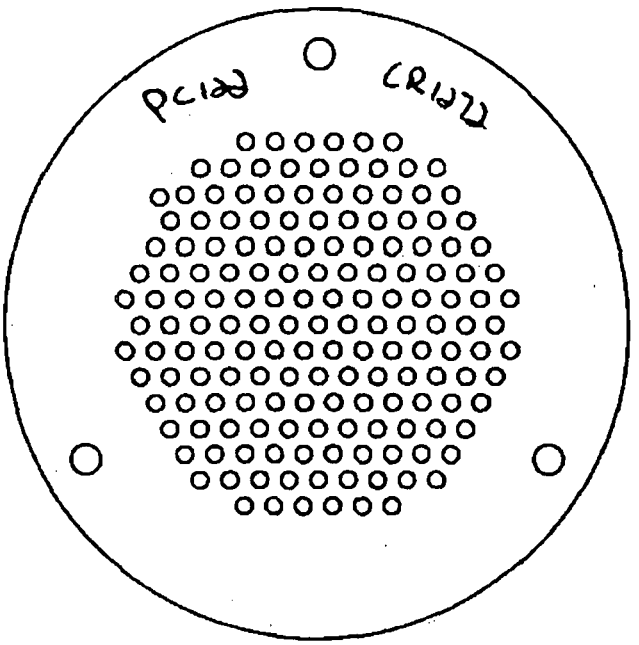
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	BG 10-19-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR122
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC122
Located on Sketch: ☒ Yes ☐ No
5 3/4 3, 1, 1, 3/8, 5/8
(8.4.7) Offsize Buttonhead Totals
A = N/A BG 10-19-07
B = N/A BG 10-19-07
C = N/A BG 10-19-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 10-19-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BG 10-19-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BG 10-19-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 10-19-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 10-19-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 13437 Tendon End: Butt. 3

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 74 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 68 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-30-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-30-07
(9.5) Number of Effective Wires: 163	BG 10-30-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-30-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 335.282 K = -5.022	
Gauge ID: 1017881 Recal Date: Daily on use Daily Check: Yes	BG 10-30-07
(9.8) Shim Stack Height: #1 5 3/4 in. #2 5 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 1, 1, 3/8, 3/8 in. Stack #2: 3, 1, 1, 3/8, 3/8 in.	BG 10-30-07
(9.9) Base Value Predicted Force (BVPF): 1368 kips Pressure: 4095.12 psi	
BVPF: 1368 kips 95% BVPF: 1299 kips 90% BVPF: 1231 kips	
4095.12 psi 3889.32 psi 3686.51 psi	BG 10-30-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3580 psi Stack #2: 1) 3630 psi 1) 3630 psi	
2) 3580 psi 2) 3630 psi 2) 3630 psi	
3) 3580 psi 3) 3630 psi 3) 3630 psi	
(9.10.10) Actual Force (this end): BG 10-30-07 ~~1302.05~~ 1313.05 kips Actual Average: 3630 psi	BG 10-30-07
(9.10.10.1) Actual Force (opposite end): 1367.69 kips (9.10.10.2) AALV FORCE 1289.87 kips	BG 10-30-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-30-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-30-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-30-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1003-007	BG 10-30-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: 13438 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 10-31-07	BG 10-31-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 10-31-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H37 Tendon End: Butt. 3

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 78 °F Thermometer No.: 5178 Recal Date: 8-30-08
(9.3) Ambient Temp.: 76 °F Thermometer No.: P430 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: Job end RAM Area: 335.484 K = -5.044 BG 11-1-07
Gauge ID: 1017880 Recal Date: Daily as use Daily Check: Yes BG 11-1-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. BG 11-1-07

Actual Observed Force and Elongation Measurements A

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. BG 11-1-07
(9.8.5.3) ② – ① = in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) in. TOTAL Tendon Elongation Value BG 11-1-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: BG 11-1-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable BG 11-1-07
Customer Notified NCR No.: BG 11-1-07

(9.7.3) LOF Acceptable Range: From: 4095.12 psi To: 4339.93 psi BG 11-1-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:		Stack #2:		(9.9.7) Circled Values
1)	4250 psi	1)	4300 psi	1) 4300 psi
2)	4250 psi	2)	4300 psi	2) 4300 psi
3)	4250 psi	3)	4300 psi	3) 4300 psi

(9.9.7) Force (this end): 1436.64 kips Actual Average: 4300 psi BG 11-1-07
(9.9.7) Force (opposite end): 1374.68 kips This Tendon – AALV FORCE 1415.68 kips BG 11-1-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A BG 11-1-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: 0 BG 11-1-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: 0 BG 11-1-07
If Yes – Customer Notified NCR No.: N/A BG 11-1-07

(9.9.11.3) Final Shim Stack Height: #1: (+ 1/8, 1/4) 6 1/2 in. #2: 6 1/2 in. BG 11-1-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.. 13H37 Tendon End: Butt. 3

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 15437 Tendon End: BG 1-21-08 ~~Buff. 1~~ Butt. 3

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 11-1-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 11-1-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-1-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-1-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 11-1-07
(8.9) Ambient Temp.: 78 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(8.10) Grease Cap Removal Date: 10-29-07 Grease Replacement Date: 11-1-07		BG 11-1-07
Elapsed Time: 3 days		BG 11-1-07
(9.8.4.1) Grease height in drum before: 30 1/2 in. (9.8.5.1) Height in drum after: 29 in.		BG 11-1-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 11-1-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 11-1-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-1-07
Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-1-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-1-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-1-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. (hand pumped + pressured pumped – exiting outflow)		BG 11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.18 gal.

(10.3.11) Percent variation difference: 1.06 % — BG 11-1-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-1-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 11-1-07

If No – Customer Notified NCR No.: N/A — BG 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H38 Tendon End: Butt. 1

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-30-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 76 °F Thermometer No.: 5T78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 74 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 10-30-07
(8.5.1) Anchorhead I.D. CR614 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-30-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-30-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 10-30-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BG 10-30-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-30-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-30-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 10-30-07
(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-1-07)	BG 10-30-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 10-30-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 10-30-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-30-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 15H38 Tendon End: Butt. 1

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-30-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13438 Tendon End: Butt. 1

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

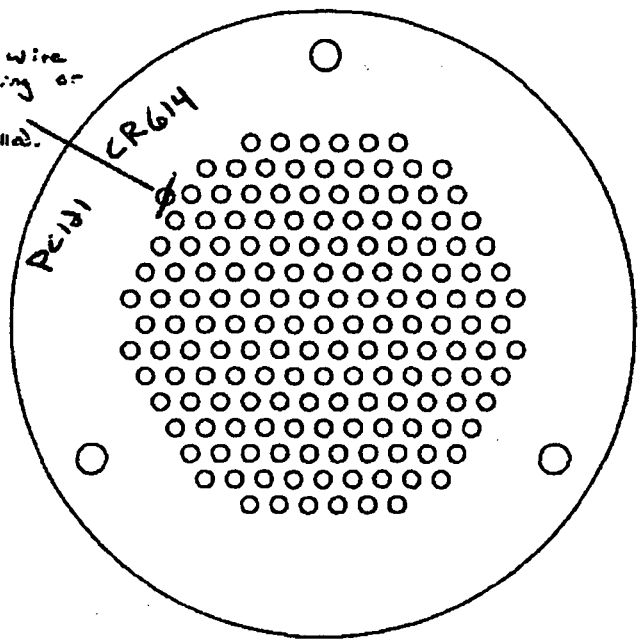
(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BL 10-30-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.

Test wire missing or not installed.



(8.4.6) Anchorhead I.D. CR614
Located on Sketch: ☐ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☐ Yes ☐ No
Shims 6x2 3,1,1,1,1/4,1/4
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable *Customer Notified NCR#:* N/A

BL 10-30-07
BL 10-30-07
BL 10-30-07
BL 10-30-07
BL 10-30-07
BL 10-30-07
BL 10-30-07
BL 10-30-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 13438 Tendon End: Butt. 1

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 76 °F Thermometer No.: 5778 Recal Date: 8-30-08	
Ambient Temp.: 74 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-30-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-30-07
(9.5) Number of Effective Wires: 163	BG 10-30-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-30-07
(9.7) RAM ID: 5784 Recal Date: end of job RAM Area: 557.087 K = - 5.06	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-30-07
(9.8) Shim Stack Height: #1 6½ in. #2 6½ in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 1, 1, ¼, ¼ in. Stack #2: 3, 1, 1, ¼, ¼ in.	BG 10-30-07
(9.9) Base Value Predicted Force (BVPF): 1444 kips Pressure: 4096.22 psi	
BVPF: 1444 kips 95% BVPF: 1372 kips 90% BVPF: 1300 kips	
4096.22 psi 4082.75 psi 3864.28 psi	BG 10-30-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4180 psi Stack #2: 1) 4200 psi 1) 4200 psi	
2) 4180 psi 2) 4200 psi 2) 4200 psi	
3) 4180 psi 3) 4200 psi 3) 4200 psi	
(9.10.10) Actual Force (this end): 1411.54 kips Actual Average: 4200 psi	BG 10-30-07
(9.10.10.1) Actual Force (opposite end): 1378.57 kips (9.10.10.2) AALV FORCE 1395.05 kips	BG 10-30-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 10-30-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-30-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-30-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 10-30-07
(9.10.15.1) Adjacent Tendon Lift-Offs (Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes A ☐ No Name/Date:	BG 10-30-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. N	
Customer Notified NCR No.:	BG 10-30-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 10-30-07

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 15H38 Tendon End: Butt. 1

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H38 Tendon End: Butt. 1

GREASE REPLACEMENT DOCUMENTATION

QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 0 gal. BG 11-1-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 0 gal. BG 11-1-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. BG 11-1-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. BG 11-1-07

(8.8) TOTAL Tendon Grease Loss: 4 gal. BG 11-1-07

(8.9) Ambient Temp.: 78 °F Thermo. ID: PK30 Recal Date: 8-30-08 BG 11-1-07

(8.10) Grease Cap Removal Date: 10-30-07 Grease Replacement Date: 11-1-07 BG 11-1-07

Elapsed Time: 2 days BG 11-1-07

(9.8.4.1) Grease height in drum before: 15½ in. (9.8.5.1) Height in drum after: 13 in. BG 11-1-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured BG 11-1-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 2.65 gal. BG 11-1-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 2.65 gal. BG 11-1-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 0 gal. BG 11-1-07

Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08 BG 11-1-07

(10.3.8) Quantity of Exiting Outflow Grease: 0 gal. BG 11-1-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 2.65 gal. BG 11-1-07

(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. *(hand pumped + pressured pumped – exiting outflow)* BG 11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 131.53 gal.

(10.3.11) Percent variation difference: 1.06 % BG 11-1-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \text{\% variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-1-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 11-1-07

If No – Customer Notified NCR No.: N/A BG 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H38 Tendon End: Butt. 3

Grease Cap Removal

Q.C. Signoff

Date Removal Started: 10-31-07

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 74 °F Thermometer No.: 5778 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 72 °F Thermometer No.: PK50 Re-Cal Date: 8-30-08 — 10-31-07

(8.5.1) Anchorhead I.D. CR710 Anchorhead Verification: ☒ Match ☐ No-Match — 10-31-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) - *Limited within the inside diameter of the grease cap.* — 10-31-07

(8.7) Unusual Conditions: None — 10-31-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown

Comments: None — 10-31-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — 10-31-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — 10-31-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples ____ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No

(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct — 10-31-07

(10.2) Method of Tendon Protection: replaced cap (Installed new grease cap gasket 11-1-07) — 10-31-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — 10-31-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL — 10-31-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 15435 Tendon End: Butt. 3

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [illegible] Level: II Date: 10-31-07

QC Reviewed: [illegible] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 13H36 Tendon End: Butt. 3

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

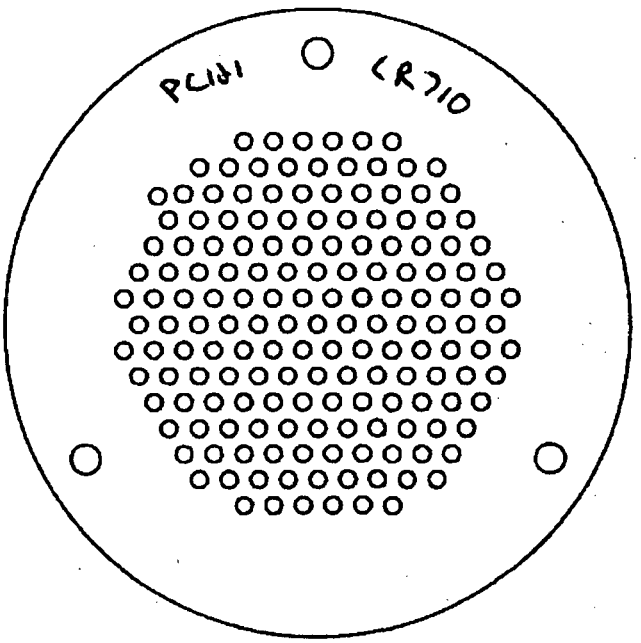
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	86.10-31-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and Initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Ø Broken/missing wire/buttonheads.
- ● *Previously identified as missing*
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR710
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No
Shims 7" 3,1,1,1,1
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

86.10-31-07
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QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SG 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 13438 Tendon End: Bott. 3

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 72 °F Thermometer No.: 5178 Recal Date: 8-30-08	
Ambient Temp.: 70 °F Thermometer No.: PK30 Recal Date: 8-30-08	86 10-31-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	86 10-31-07
(9.5) Number of Effective Wires: 163	86 10-31-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	86 10-31-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 535.281 K = -5.021	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	86 10-31-07
(9.8) Shim Stack Height: #1 7 in. #2 7 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,1,1,1 in. Stack #2: 3,1,1,1 in.	86 10-31-07
(9.9) Base Value Predicted Force (BVPF): 1444 kips Pressure: 4321.80 psi	
BVPF: 1444 kips 95% BVPF: 1372 kips 90% BVPF: 1300 kips	
4321.80 psi 4107.05 psi 3892.31 psi	86 10-31-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4120 psi Stack #2: 1) 4120 psi 1) 4120 psi	
2) 4120 psi 2) 4130 psi 2) 4130 psi	
3) 4120 psi 3) 4130 psi 3) 4130 psi	
(9.10.10) Actual Force (this end): 1378.57 kips Actual Average: 4126.66 psi	86 10-31-07
(9.10.10.1) Actual Force (opposite end): 1411.54 kips (9.10.10.2) AALV FORCE 1595.05 kips	86 10-31-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	86 10-31-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	86 10-31-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	86 10-31-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	86 10-31-07
(9.10.15.1) Adjacent Tendon Lift-Offs (Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF. N/A	
Owner Notified: ☐ Yes ☐ No Name/Date:	86 10-31-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.:	86 10-31-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.:	86 10-31-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H38 Tendon End: Butt. 3

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-1-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-1-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-1-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-1-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-1-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-1-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 13H38 Tendon End: Butt. 3

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	10-31-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	11-1-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	11-1-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	11-1-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	11-1-07
(8.9) Ambient Temp.: 80 °F Thermo. ID: PK30 Recal Date: 8-30-08		11-1-07
(8.10) Grease Cap Removal Date: 10-31-07 Grease Replacement Date: 11-1-07		11-1-07
Elapsed Time: 1 days		11-1-07
(9.8.4.1) Grease height in drum before: 32 in. (9.8.5.1) Height in drum after: 30 1/2 in.		11-1-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		11-1-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	11-1-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	11-1-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	11-1-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		11-1-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	11-1-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	11-1-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. (hand pumped + pressure pumped – exiting outflow)		11-1-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.53 gal.

(10.3.11) Percent variation difference: 1.06 % 11-1-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No 11-1-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) 11-1-07

If No – Customer Notified NCR No.: N/A 11-1-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Adjacent Tendons

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H19 Tendon End: Btt. 4

Grease Cap Removal

Date Removal Started: 10-22-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 90 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 82 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08 — BG 10-22-07

(8.5.1) Anchorhead I.D. CR1218 Anchorhead Verification: ☒ Match ☐ No-Match — BG 10-22-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) - *Limited within the inside diameter of the grease cap.* — BG 10-22-07

(8.7) Unusual Conditions: none — BG 10-22-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown

Comments: none — BG 10-22-07

BG 10-22-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — BG 10-22-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — BG 10-22-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples N/A Quarts Samples identified per Step 6.1? ☐ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct — BG 10-22-07

(10.2) Method of Tendon Protection: replaced cap w/ new gasket — BG 10-22-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BG 10-22-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL — BG 10-22-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-30-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 46H19 Tendon End: Butt. 4

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE

(12.1.1) Samples adequately identified: N/A ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-22-07

QC Reviewed: [signature] Level: II Date: ~~11-22-07~~ 10-22-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H19 Tendon End: Butt. 4

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

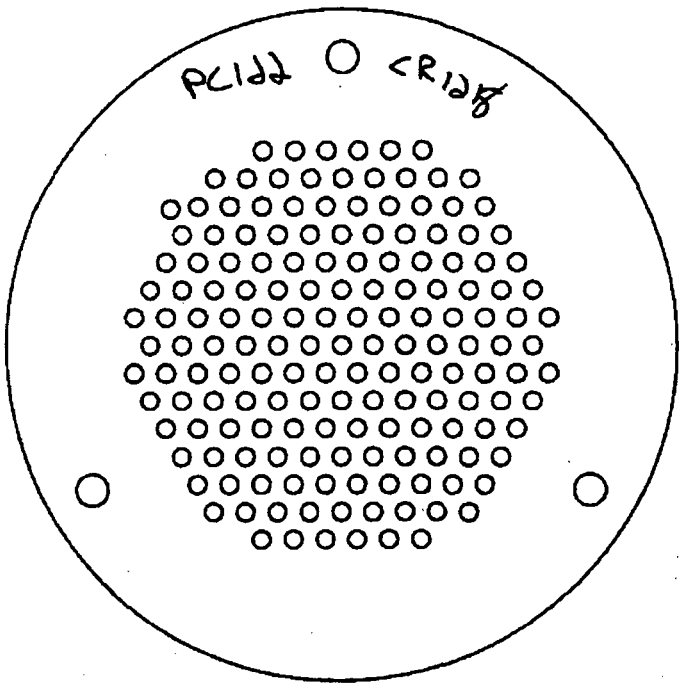
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-22-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- ∅ Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1218
Located on Sketch: ☐ Yes ☐ No
(8.4.6) Heat Code PC122
Located on Sketch: ☐ Yes ☐ No
Shims 7" 3,1,1,1,1

(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 10-22-07
B = N/A — BG 10-22-07
C = N/A — BG 10-22-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 — BG 10-22-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 165 — BG 10-22-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BG 10-22-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BG 10-22-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46H19 Tendon End: Bvtt. 4

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 90 °F Thermometer No.: 5778 Recal Date: 8-30-08	
Ambient Temp.: 83 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-22-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.5) Number of Effective Wires: 163	BG 10-22-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.7) RAM ID: 6780 Recal Date: end of job RAM Area: 335.282 K = - 5.022	
Gauge ID: 1017880 Recal Date: daily as use Daily Check: Yes	BG 10-22-07
(9.8) Shim Stack Height: #1 7 in. #2 7 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,1,1,1,1 in. Stack #2: 3,1,1,1,1 in.	BG 10-22-07
(9.9) Base Value Predicted Force (BVPF): 1402 kips Pressure: 4196.53 psi	
BVPF: 1402 kips 95% BVPF: 1332 kips 90% BVPF: 1262 kips	
4196.53 psi 3987.75 psi 3778.91 psi	BG 10-22-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4000 psi Stack #2: 1) 4050 psi 1) 4050 psi	
2) 4000 psi 2) 4050 psi 2) 4050 psi	
3) 4000 psi 3) 4050 psi 3) 4050 psi	
(9.10.10) Actual Force (this end): 1352.87 kips Actual Average: 4050 psi	BG 10-22-07
(9.10.10.1) Actual Force (opposite end): 1364.35 kips (9.10.10.2) AALV FORCE 1358.61 kips	BG 10-22-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 10-22-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-22-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-22-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 10-22-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF. N/A	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 10-22-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 10-22-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H19 Tendon End: Butt. 4

GREASE CAP REPLACEMENT DOCUMENTATION		QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes ☐ No	BG 10-22-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes ☐ No	BG 10-22-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes ☐ No	BG 10-22-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes ☐ No	BG 10-22-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes ☐ No	BG 10-22-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes ☒ No	BG 10-22-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H19 Tendon End: Butt. 4

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-22-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 10-26-07
(8.9) Ambient Temp.: 88 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(8.10) Grease Cap Removal Date: 10-22-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: 4 days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 33 in. (9.8.5.1) Height in drum after: 31 3/4 in.		BG 10-26-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.21 gal. ☒ Pumped ☐ Poured		BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.21 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 4.86 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.25 gal.

(10.3.11) Percent variation difference: .70 % — BG 10-26-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 10-26-07

If No – Customer Notified NCR No.: N/A — BG 10-26-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H19 Tendon End: Butt. 6

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-22-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 90 °F Thermometer No.: 5178 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 82 °F Thermometer No.: 7K30 Re-Cal Date: 8-30-08	BG 10-22-07
(8.5.1) Anchorhead I.D. CR380 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-22-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-22-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 10-22-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BG 10-22-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-22-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-22-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples N/A ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 10-22-07
(10.2) Method of Tendon Protection: replaced cap w/new gasket	BG 10-22-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 10-22-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 10-22-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 46H19 Tendon End: Butt. G

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE

(12.1.1) Samples adequately identified: N/A ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-22-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H19 Tendon End: Butt. 6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

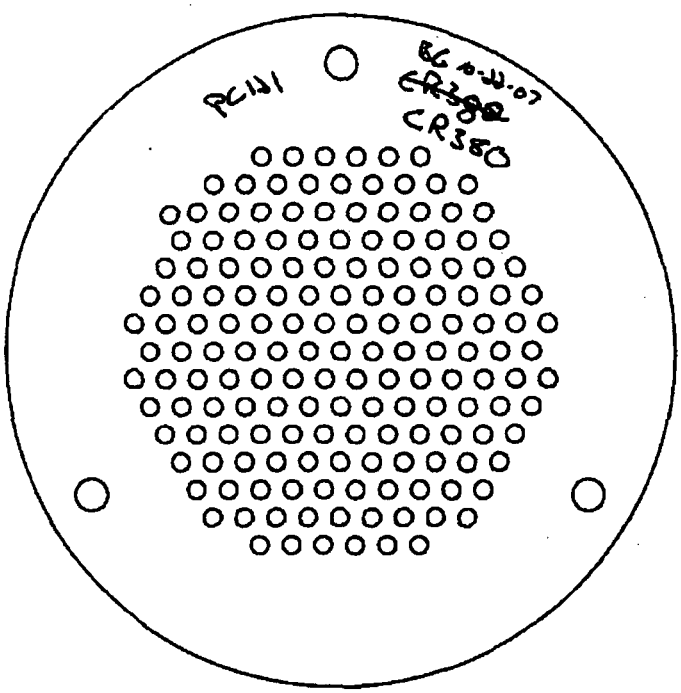
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BC 10-22-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ◒ Protruding/unseated wire/buttonheads.
- ⊘ Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR380
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No
Shims 3, 3, 1, 1/4, 1/4 7½°

(8.4.7) Offsize Buttonhead Totals
A = N/A — BC 10-22-07
B = N/A — BC 10-22-07
C = N/A — BC 10-22-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 — BC 10-22-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 165 — BC 10-22-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BC 10-22-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BC 10-22-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BC 10-22-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46419 Tendon End: Butt. 6

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 90 °F Thermometer No.: 5178 Recal Date: 8-30-08	
Ambient Temp.: 82 °F Thermometer No.: 2430 Recal Date: 8-30-08	BG 10-22-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.5) Number of Effective Wires: 163	BG 10-22-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 537.287 K = -5.06	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-22-07
(9.8) Shim Stack Height: #1 7 1/2 in. #2 7 1/2 in. Ruler ID: R16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,3,1,1/4,1/4 in. Stack #2: 3,3,1,1/4,1/4 in.	BG 10-22-07
(9.9) Base Value Predicted Force (BVPF): 1402 kips Pressure: 4171.69 psi	
BVPF: 1402 kips 95% BVPF: 1332 kips 90% BVPF: 1262 kips	
4171.69 psi 3964.16 psi 3756.62 psi	BG 10-22-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4060 psi Stack #2: 1) 4060 psi 1) 4060 psi	
2) 4060 psi 2) 4060 psi 2) 4060 psi	
3) 4060 psi 3) 4060 psi 3) 4060 psi	
(9.10.10) Actual Force (this end): 1364.35 kips Actual Average: 4060 psi	BG 10-22-07
(9.10.10.1) Actual Force (opposite end): 1352.87 kips (9.10.10.2) AALV FORCE 1358.61 kips	BG 10-22-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 10-22-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-22-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-22-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 10-22-07
~~(9.10.15.1) Adjacent Tendon Lift-Offs~~ (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*) N/A	
~~a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.~~	
~~Owner Notified: ☐ Yes ☐ No Name/Date: ____~~	BG 10-22-07
~~b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.~~	
~~Customer Notified NCR No.: ____~~	BG 10-22-07
~~c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.~~	
~~Customer Notified NCR No.: ____~~	BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46419 Tendon End: Butt. G

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-22-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-22-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-22-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-22-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-22-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-22-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H19 Tendon End: Butt. 6

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-22-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 10-26-07
(8.9) Ambient Temp.: 88 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(8.10) Grease Cap Removal Date: 10-22-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: 4 days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 18 3/4 in. (9.8.5.1) Height in drum after: 17 1/4 in.		BG 10-26-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☐ Pumped ☒ Poured		BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.21 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.21 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 4.86 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.25 gal.

(10.3.11) Percent variation difference: .70 % — BG 10-26-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 10-26-07

If No – Customer Notified NCR No.: N/A — BG 10-26-07

(11.4) Comments: none

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Adjacent Tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H20 Tendon End: Butt. 4

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-18-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 96 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 88 °F Thermometer No.: PK50 Re-Cal Date: 8-30-08	BG 10-18-07
(8.5.1) Anchorhead I.D. CR 1138 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-18-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-18-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BG 10-18-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown	
Comments: none	BG 10-18-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-18-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-18-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 10-18-07
(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 10-25-07)	BG 10-18-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 10-18-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 10-18-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 46 H20 Tendon End: Butt. 4

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [signature] Level: II Date: 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H20 Tendon End: Butt. 4

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

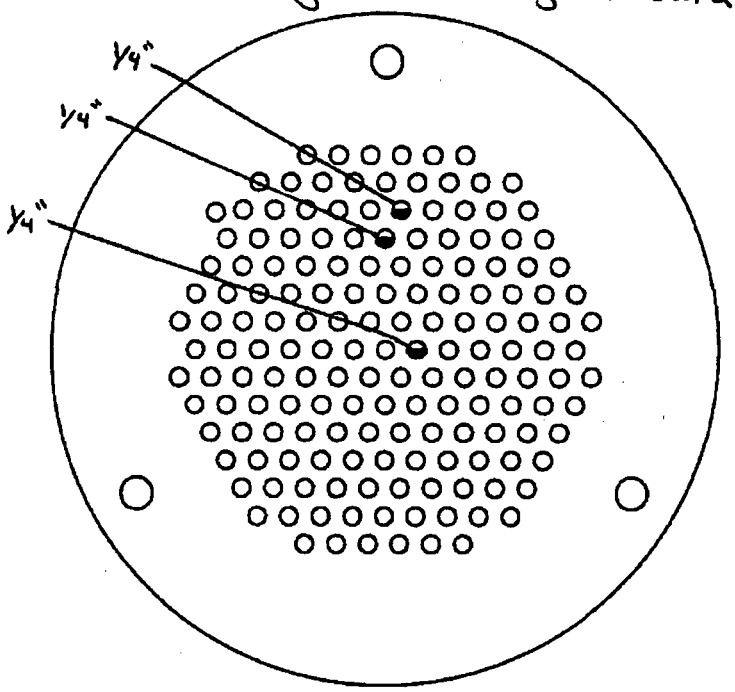
(8.2.1.1) Buttonheads	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-18-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

No change from original data

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1158
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC122
Located on Sketch: ☒ Yes ☐ No
Shims 6 3/4, 3, 3, 1/4, 1/2

(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 10-18-07
B = N/A — BG 10-18-07
C = N/A — BG 10-18-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 — BG 10-18-07
(8.4.8.3) # of Missing Buttonheads Found: 0 — BG 10-18-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 160 — BG 10-18-07
(8.5.2) Protruding BH: 3 Missing BH: 0 Total (Protruding+Missing): 3 — BG 10-18-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No — BG 10-18-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46H20 Tendon End: Bvtt. 4

LIFT-OFF INSPECTION CRITERIA	OC SIGNOFF
(9.3) Temp. of Concrete: 96 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 88 °F Thermometer No.: PK50 Recal Date: 8-30-08	BG 10-18-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-18-07
(9.5) Number of Effective Wires: 160	BG 10-18-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-18-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 335.282 K = - 5.022	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-18-07
(9.8) Shim Stack Height: #1 6 3/4 in. #2 6 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3, 1/4, 1/2 in. Stack #2: 3, 3, 1/4, 1/2 in.	BG 10-18-07
(9.9) Base Value Predicted Force (BVPF): 1467 kips Pressure: 4390.59 psi	
BVPF: 1467 kips 95% BVPF: 1394 kips 90% BVPF: 1321 kips	
4390.39 psi 4172.67 psi 3954.94 psi	BG 10-18-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3700 psi Stack #2: 1) 3800 psi 1) 3800 psi	
2) 3700 psi 2) 3800 psi 2) 3800 psi	
3) 3700 psi 3) 3800 psi 3) 3800 psi	
(9.10.10) Actual Force (this end): 1369.04 kips Actual Average: 3800 psi	BG 10-18-07
(9.10.10.1) Actual Force (opposite end): 1327.22 kips (9.10.10.2) AALV FORCE 1298.13 kips	BG 10-18-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-18-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-18-07
c) ☒ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-18-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-002	BG 10-18-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: 46H19 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within -0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 10-22-07	BG 10-22-07
b) Adj Tendon: 46H23 Adj Tendon: ____ ☒ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. BG 10-22-07 FN1002-003	
Customer Notified NCR No.: ~~FN1002-003~~	BG 10-22-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. N/A	
Customer Notified NCR No.: ____	

OC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 461430 Tendon End: Butt. 4

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 88 °F Thermometer No.: ST78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 80 °F Thermometer No.: PK50 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 160 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: Job end RAM Area: 535.282 K = -5.003 BG 10-25-07
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes BG 10-25-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
N/A Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. BG 10-25-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. BG 10-25-07
(9.8.5.3) ② – ①= in. Elongation Value (this end)
(9.8.5.4) N/A in. Elongation Value (opposite end)
(9.8.5.4) in. TOTAL Tendon Elongation Value BG 10-25-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: BG 10-25-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable BG 10-25-07
Customer Notified *NCR* No.: BG 10-25-07

(9.7.3) LOF Acceptable Range: From: 4590.39 psi To: 4652.92 psi BG 10-25-07

(9.9.6) Actual Lock-Off (9.9.7) Circled Values

	Stack #1:	Stack #2:	(9.9.7) Circled Values
1)	4580 psi	4450 psi	4450 psi
2)	4580 psi	4450 psi	4450 psi
3)	4580 psi	4450 psi	4450 psi

(9.9.7) Force (this end): 1486.98 kips Actual Average: 4450 psi BG 10-25-07
(9.9.7) Force (opposite end): 1502.61 kips This Tendon – AALV FORCE 1494.79 kips BG 10-25-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified *NCR* No.: N/A BG 10-25-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A BG 10-25-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A BG 10-25-07
If Yes – Customer Notified NCR No.: N/A BG 10-25-07

(9.9.11.3) Final Shim Stack Height: #1: 7 1/4 in. #2: 7 1/4 in. BG 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H20 Tendon End: Butt. 4

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-23-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-23-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-23-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-23-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-23-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-23-07

Comments: NONE

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H20 Tendon End: Butt. 4

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-18-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 10-26-07
(8.9) Ambient Temp.: 88 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(8.10) Grease Cap Removal Date: 10-18-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: 8 days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 51 3/4 in. (9.8.5.1) Height in drum after: 50 1/4 in.		BG 10-26-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. (hand pumped + pressured pumped – exiting outflow)		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.37 gal.

(10.3.11) Percent variation difference: 1.07 % BG 10-26-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 10-26-07

If No – Customer Notified NCR No.: N/A BG 10-26-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Adjacent Tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H20 Tendon End: Butt. 6

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-18-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 96 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 88 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 10-18-07
(8.5.1) Anchorhead I.D. CR78 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-18-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-18-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BG 10-18-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: none	BG 10-18-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-18-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-18-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples N/A ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 10-18-07
(10.2) Method of Tendon Protection: replaced cap (installed new gasket	BG 10-18-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal. BG 10-23-07)	BG 10-18-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 10-18-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 46420 Tendon End: Butt. G

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-18-07

QC Reviewed: [signature] Level: II Date: 11-2-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46420 Tendon End: Butt. 6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

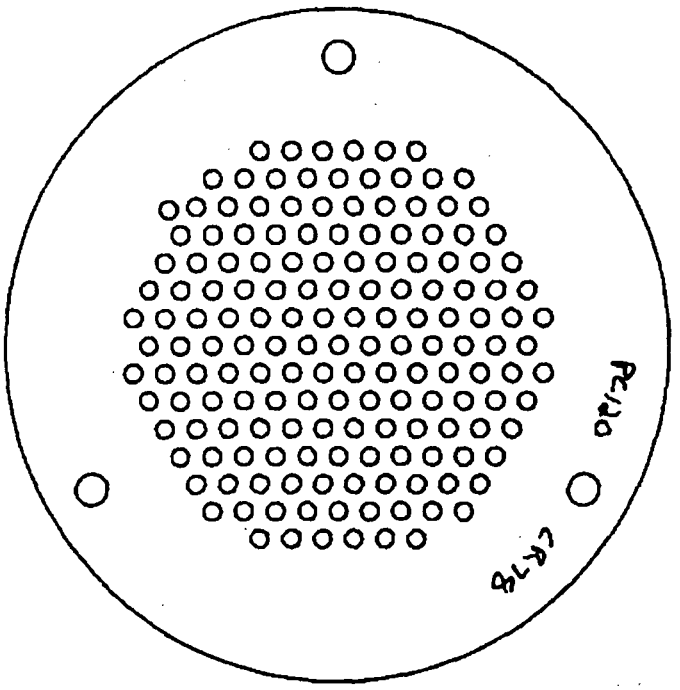
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-18-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
◡	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR78
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC120
Located on Sketch: ☒ Yes ☐ No
Shims 7 1/4 3, 3, 1, 1/4
(8.4.7) Offsize Buttonhead Totals
A = N/A BG 10-18-07
B = N/A BG 10-18-07
C = N/A BG 10-18-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 10-18-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BG 10-18-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BG 10-18-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 10-18-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46H20 Tendon End: Butt. 6

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 96 °F Thermometer No.: 5778 Recal Date: 8-30-08	
Ambient Temp.: 86 °F Thermometer No.: PC50 Recal Date: 8-30-08	BG 10-18-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-18-07
(9.5) Number of Effective Wires: 163	BG 10-18-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-18-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K = -5.06	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-18-07
(9.8) Shim Stack Height: #1 7 1/4 in. #2 7 1/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3, 1, 1/4 in. Stack #2: 3, 3, 1, 1/4 in.	BG 10-18-07
(9.9) Base Value Predicted Force (BVPF): 1467 kips Pressure: 4364.41 psi	
BVPF: 1467 kips 95% BVPF: 1594 kips 90% BVPF: 1321 kips	
4364.41 psi 4147.98 psi 3931.54 psi	BG 10-18-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3950 psi Stack #2: 1) 3950 psi 1) 3950 psi	
2) 3950 psi 2) 3950 psi 2) 3950 psi	
3) 3950 psi 3) 3950 psi 3) 3950 psi	
(9.10.10) Actual Force (this end): 1527.22 kips Actual Average: 3950 psi	BG 10-18-07
(9.10.10.1) Actual Force (opposite end): 1269.04 kips (9.10.10.2) AALV FORCE 1298.13 kips	BG 10-18-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-18-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-18-07
c) ☒ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-18-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-002	BG 10-18-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: 46H19 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 10-22-07	BG 10-22-07
b) Adj Tendon: 46H23 Adj Tendon: ____ ☒ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: FN1002-003	BG 10-22-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 10-22-07

QC Reviewed: [signature] Level: II Date: 10-30-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H20 Tendon End: Butt. 6

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 88 °F Thermometer No.: 3r78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 80 °F Thermometer No.: PK50 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8784 Recal Date: Job end RAM Area: 537.287 K = ~5.06 BG 10-23-07
Gauge ID: 1017880 Recal Date: Daily on use Daily Check: YES BG 10-23-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

N/A

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. BG 10-23-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. BG 10-23-07
(9.8.5.3) ② – ①= in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) N/A in. TOTAL Tendon Elongation Value BG 10-23-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: BG 10-23-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable BG 10-23-07
Customer Notified NCR No.: BG 10-23-07

(9.7.3) LOF Acceptable Range: From: 4564.41 psi To: 4625.57 psi BG 10-23-07

(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:		Stack #2:		(9.9.7) Circled Values
1)	4470 psi	1)	4470 psi	1) 4470 psi
2)	4470 psi	2)	4470 psi	2) 4470 psi
3)	4470 psi	3)	4470 psi	3) 4470 psi

(9.9.7) Force (this end): 1502.61 kips Actual Average: 4470 psi BG 10-23-07
(9.9.7) Force (opposite end): 1486.98 kips This Tendon – AALV FORCE 1494.79 kips BG 10-23-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A BG 10-23-07
(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A BG 10-23-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A BG 10-23-07
If Yes – Customer Notified NCR No.: N/A BG 10-23-07
(9.9.11.3) Final Shim Stack Height: #1: 7 5/8 in. #2: 7 5/8 in. BG 10-23-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H30 Tendon End: Butt. 6

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-23-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-23-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-23-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-23-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-23-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-23-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H20 Tendon End: Butt. 6

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-18-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 10-26-07
(8.9) Ambient Temp.: 88 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(8.10) Grease Cap Removal Date: 10-18-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: 8 days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 20 1/4 in. (9.8.5.1) Height in drum after: 18 3/4 in.		BG 10-26-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.37 gal.

(10.3.11) Percent variation difference: 1.07 % — BG 10-26-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 10-26-07

If No – Customer Notified NCR No.: N/A — BG 10-26-07

(11.4) Comments: none

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H22 Tendon End: Butt. 4

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-18-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 90 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 82 °F Thermometer No.: PK50 Re-Cal Date: 8-30-08	BG 10-18-07
(8.5.1) Anchorhead I.D. CR1140 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-18-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-18-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BG 10-18-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: none	BG 10-18-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-18-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-18-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples N/A ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 10-18-07
(10.2) Method of Tendon Protection: Replaced cap (Installed new gasket BG 10-23-07)	BG 10-18-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 10-18-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 10-18-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 46 H22 Tendon End: Butt. 4

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H22 Tendon End: Bott. 4

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

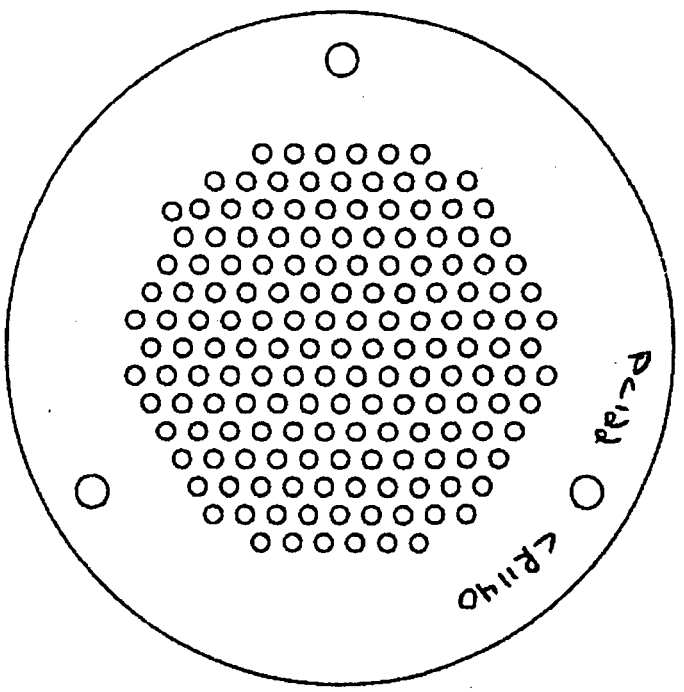
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-18-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1140
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PE1dd
Located on Sketch: ☒ Yes ☐ No
Shims 5 1/2 3, 1, 1, 1/2
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No: Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 10-18-07
BG 10-18-07
BG 10-18-07
BG 10-18-07
BG 10-18-07
BG 10-18-07
BG 10-18-07
BG 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
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Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46H22 Tendon End: Butt. 4

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 90 °F Thermometer No.: 5178 Recal Date: 8-30-08	
Ambient Temp.: 82 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-18-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-18-07
(9.5) Number of Effective Wires: 163	BG 10-18-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-18-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 355.282 K = ~5.022	
Gauge ID: 1017881 Recal Date: Daily on use Daily Check: Yes	BG 10-18-07
(9.8) Shim Stack Height: #1 5 3/4 in. #2 5 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 5, 1, 1, 3/4 in. Stack #2: 3, 1, 1, 3/4 in.	BG 10-18-07
(9.9) Base Value Predicted Force (BVPF): 1486 kips Pressure: 4447.06 psi	
BVPF: 1486 kips 95% BVPF: 1412 kips 90% BVPF: 1337 kips	
4447.06 psi 4226.55 psi 4002.66 psi	BG 10-18-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3900 psi Stack #2: 1) 3940 psi 1) 3940 psi	
2) 3900 psi 2) 3940 psi 2) 3940 psi	
3) 3900 psi 3) 3940 psi 3) 3940 psi	
(9.10.10) Actual Force (this end): 1315.98 kips Actual Average: 3940 psi	BG 10-18-07
(9.10.10.1) Actual Force (opposite end): 1306.98 kips (9.10.10.2) AALV FORCE 1311.48 kips	BG 10-18-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-18-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-18-07
c) ☒ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-18-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-002	BG 10-18-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: 46H19 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 10-22-07	BG 10-22-07
b) Adj Tendon: 46H23 Adj Tendon: ____ ☒ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: FN1002-003	BG 10-22-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H22 Tendon End: Butt. 4

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 88 °F Thermometer No.: ST78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 82 °F Thermometer No.: PK30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: Job end RAM Area: 535.282 K = -5.022 — BG 10-25-07
Gauge ID: 1617881 Recal Date: Daily as use Daily Check: Yes — BG 10-25-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
N/A LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. — BG 10-25-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. — BG 10-25-07
(9.8.5.3) ② – ① = in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) N/A in. TOTAL Tendon Elongation Value — BG 10-25-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: — BG 10-25-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — BG 10-25-07
Customer Notified *NCR* No.: — BG 10-25-07

(9.7.3) LOF Acceptable Range: From: 4447.06 psi To: 4712.99 psi — BG 10-25-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:		Stack #2:		(9.9.7) Circled Values
1)	4620 psi	1)	4690 psi	1) 4690 psi
2)	4620 psi	2)	4690 psi	2) 4690 psi
3)	4620 psi	3)	4690 psi	3) 4690 psi

(9.9.7) Force (this end): 1567.45 kips Actual Average: 4690 psi — BG 10-25-07
(9.9.7) Force (opposite end): 1509.35 kips This Tendon – AALV FORCE 1538.4 kips — BG 10-25-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified *NCR* No.: N/A — BG 10-25-07
(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A — BG 10-25-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A — BG 10-25-07
If Yes – Customer Notified NCR No.: — BG 10-25-07
(9.9.11.3) Final Shim Stack Height: #1: 6 in. #2: 6 in. — BG 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46422 Tendon End: Butt. 4

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-23-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-23-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-23-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-23-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-23-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-23-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H22 Tendon End: Butt. 4

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-18-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 10-26-07
(8.9) Ambient Temp.: 88 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(8.10) Grease Cap Removal Date: 10-18-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: 8 days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 28 1/4 in. (9.8.5.1) Height in drum after: 26 3/4 in.		BG 10-26-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	3.09 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	3.09 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 5.74 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.43 gal.

(10.3.11) Percent variation difference: 1.42 % BG 10-26-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 10-26-07

If No – Customer Notified NCR No.: N/A BG 10-26-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H22 Tendon End: Butt 6

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-18-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 88 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 84 °F Thermometer No.: PR30 Re-Cal Date: 8-30-08	BG 10-18-07
(8.5.1) Anchorhead I.D. CR41 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-18-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-18-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BG 10-18-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown	
Comments: none	BG 10-18-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-18-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-18-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples N/A ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 10-18-07
(10.2) Method of Tendon Protection: replaced cap (Installed new gasket BG 10-23-07)	BG 10-18-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 10-18-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 10-18-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 46A22 Tendon End: Butt. 6

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46422 Tendon End: Butt. 6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

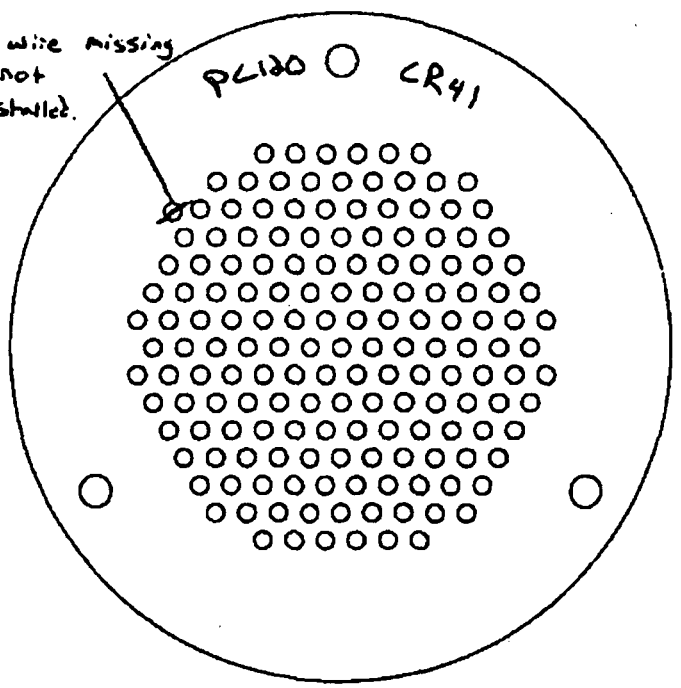
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BL 10-18-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – *Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.*

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊘	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR41
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC130
Located on Sketch: ☐ Yes ☐ No
Shims 6 3/8 3, 3, 3/8
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BL 10-18-07
BL 10-18-07
BL 10-18-07
BL 10-18-07
BL 10-18-07
BL 10-18-07
BL 10-18-07
BL 10-18-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46422 Tendon End: Butt. 6

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 58 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 84 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-18-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-18-07
(9.5) Number of Effective Wires: 163	BG 10-18-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-18-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K = -5.06	
Gauge ID: 1617381 Recal Date: daily on vcs Daily Check: Yes	BG 10-18-07
(9.8) Shim Stack Height: #1 6 3/8 in. #2 6 3/8 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,3,3/8 in. Stack #2: 3,3,3/8 in.	BG 10-18-07
(9.9) Base Value Predicted Force (BVPF): 1486 kips Pressure: 4420.74 psi	
BVPF: 1486 kips 95% BVPF: 1412 kips 90% BVPF: 1337 kips	
4420.74 psi 4201.34 psi 3978.98 psi	BG 10-18-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3890 psi Stack #2: 1) 3890 psi 1) 3890 psi	
2) 3890 psi 2) 3890 psi 2) 3890 psi	
3) 3890 psi 3) 3890 psi 3) 3890 psi	
(9.10.10) Actual Force (this end): 1306.98 kips Actual Average: 3890 psi	BG 10-18-07
(9.10.10.1) Actual Force (opposite end): 1315.98 kips (9.10.10.2) AALV FORCE 1511.48 kips	BG 10-18-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-18-07
b) ☐ *Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.*	BG 10-18-07
c) ☒ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-18-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-002	BG 10-18-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: 46419 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 10-22-07	BG 10-22-07
b) Adj Tendon: 46423 Adj Tendon: ____ ☒ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: FN1002-003	BG 10-22-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46422 Tendon End: Butt. 6

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 88 °F Thermometer No.: ST78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 82 °F Thermometer No.: PK30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8784 Recal Date: Jul. end RAM Area: 537.287 K = -5.06 — BL 10-25-07
Gauge ID: 1017580 Recal Date: daily on use Daily Check: Yes — BL 10-25-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
N/A Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. — BL 10-25-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. — BL 10-25-07
(9.8.5.3) ② – ① = in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) N/A in. TOTAL Tendon Elongation Value — BL 10-25-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: — BL 10-25-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — BL 10-25-07
Customer Notified NCR No.: — BL 10-25-07

(9.7.3) LOF Acceptable Range: From: 4410.74 psi To: 4685.09 psi — BL 10-25-07

(9.9.6) Actual Lock-Off

Stack #1:		Stack #2:		(9.9.7) Circled Values	
1)	4490 psi	1)	4490 psi	1)	4490 psi
2)	4490 psi	2)	4490 psi	2)	4490 psi
3)	4490 psi	3)	4490 psi	3)	4490 psi

(9.9.7) Force (this end): 1509.35 kips Actual Average: 4490 psi — BL 10-25-07
(9.9.7) Force (opposite end): 1567.45 kips This Tendon – AALV FORCE 1538.4 kips — BL 10-25-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A — BL 10-25-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A — BL 10-25-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A — BL 10-25-07
If Yes – Customer Notified NCR No.: N/A — BL 10-25-07

(9.9.11.3) Final Shim Stack Height: #1: 6 3/4 in. #2: 6 3/4 in. — BL 10-25-07

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46 H22 Tendon End: Butt. 6

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BL 10-23-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BL 10-23-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BL 10-23-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BL 10-23-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BL 10-25-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BL 10-23-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H22 Tendon End: Butt. Co

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-18-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 10-26-07
(8.9) Ambient Temp.: 88 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(8.10) Grease Cap Removal Date: 10-18-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: 8 days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 15 1/4 in. (9.8.5.1) Height in drum after: 13 1/2 in.		BG 10-26-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 3.09 gal. ☒ Pumped ☐ Poured		BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	3.09 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 5.74 gal. (hand pumped + pressurized pumped – exiting outflow)		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.43 gal.

(10.3.11) Percent variation difference: 1.42 % BG 10-26-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\% \text{ variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 10-26-07

If No – Customer Notified NCR No.: N/A BG 10-26-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-20-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Adjacent Tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H25 Tendon End: Butt. 4

Grease Cap Removal

Date Removal Started: 10-22-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 80 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 72 °F Thermometer No.: PK80 Re-Cal Date: 8-30-08 — BG 10-22-07

(8.5.1) Anchorhead I.D. CR903 Anchorhead Verification: ☒ Match ☐ No-Match — BG 10-22-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) - *Limited within the inside diameter of the grease cap.* — BG 10-22-07

(8.7) Unusual Conditions: none — BG 10-22-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown

Comments: None — BG 10-22-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — BG 10-22-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — BG 10-22-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples N/A Quarts Samples identified per Step 6.1? ☐ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct — BG 10-22-07

(10.2) Method of Tendon Protection: replaced cap (Installed new gasket BG 10-23-07) — BG 10-22-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BG 10-22-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL — BG 10-22-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 46H23 Tendon End: Butt. 4

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-22-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H23 Tendon End: Butt. 4

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

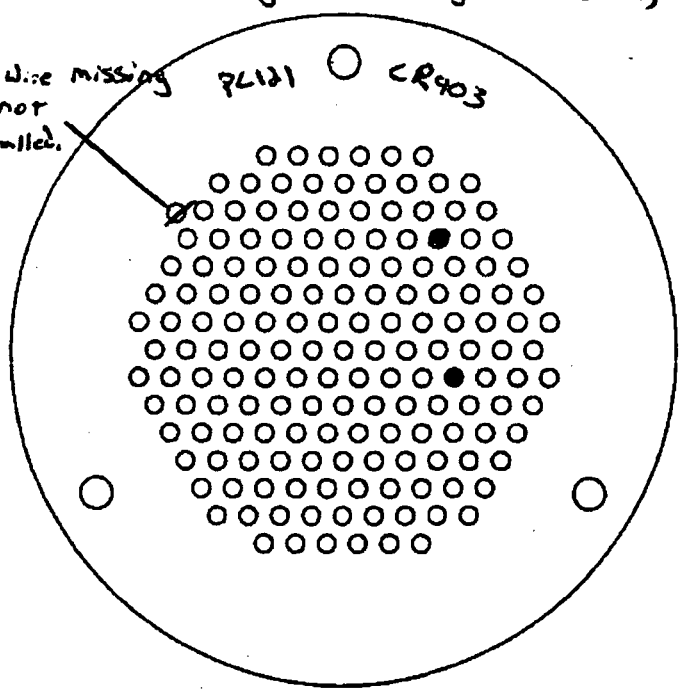
(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-22-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

(No change from original Data)

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊠	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR903
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
Shims 6' 3,1,1,1
(8.4.7) Offsize Buttonhead Totals
A = N/A BG 10-22-07
B = N/A BG 10-22-07
C = N/A BG 10-22-07
(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 2 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 10-22-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 161 BG 10-22-07
(8.5.2) Protruding BH: 0 Missing BH: 2 Total (Protruding+Missing): 2 BG 10-22-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 10-22-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 10-22-07

QC Reviewed: [signature] Level: II Date: 10-21-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46H23 Tendon End: Butt. 4

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 80 °F Thermometer No.: 5T78 Recal Date: 8-30-08	
Ambient Temp.: 74 °F Thermometer No.: PK50 Recal Date: 8-30-08	BG 10-22-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.5) Number of Effective Wires: 161	BG 10-22-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.7) RAM ID: 5780 Recal Date: end of job RAM Area: 335.282 K = -5.022	
Gauge ID: 1017880 Recal Date: daily on use Daily Check: Yes	BG 10-22-07
(9.8) Shim Stack Height: #1 6 in. #2 6 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,1,1,1 in. Stack #2: 3,1,1,1 in.	BG 10-22-07
(9.9) Base Value Predicted Force (BVPF): 1425 kips Pressure: 4265.13 psi	
BVPF: 1425 kips 95% BVPF: 1354 kips 90% BVPF: 1283 kips	
4265.13 psi 4053.36 psi 5841.60 psi	BG 10-22-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3920 psi Stack #2: 1) 4000 psi 1) 4000 psi	
2) 3920 psi 2) 4000 psi 2) 4000 psi	
3) 3920 psi 3) 4000 psi 3) 4000 psi	
(9.10.10) Actual Force (this end): 1536.10 kips Actual Average: 4000 psi	BG 10-22-07
(9.10.10.1) Actual Force (opposite end): 1525.85 kips (9.10.10.2) AALV FORCE 1529.97 kips	BG 10-22-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-22-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-22-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-22-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-003	BG 10-22-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: 46H24 This Tendon: ____ Adj Tendon: 46H19 ☒ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 10-22-07	BG 10-23-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.: ____	BG 10-23-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.: ____	BG 10-23-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H23 Tendon End: Butt. 4

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 90 °F Thermometer No.: 5178 Recal Date: 8-30-08
(9.3) Ambient Temp.: 84 °F Thermometer No.: PK30 Recal Date: 8-30-05
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 161 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: Job end RAM Area: 335.282 K = -5.022 — BG 10-23-07
Gauge ID: 1017881 Recal Date: daily on VSC Daily Check: VCS — BG 10-23-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
N/A LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. — BG 10-23-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. — BG 10-23-07
(9.8.5.3) ② – ①= in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) N/A in. TOTAL Tendon Elongation Value — BG 10-23-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: — BG 10-23-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — BG 10-23-07
Customer Notified *NCR* No.: — BG 10-23-07

(9.7.3) LOF Acceptable Range: From: 4265.13 psi To: 4520.14 psi — BG 10-23-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

Stack #1:		Stack #2:		(9.9.7) Circled Values
1)	4450 psi	1)	4450 psi	1) 4450 psi
2)	4450 psi	2)	4450 psi	2) 4450 psi
3)	4450 psi	3)	4450 psi	3) 4450 psi

(9.9.7) Force (this end): 1486.98 kips Actual Average: 4450 psi — BG 10-23-07
(9.9.7) Force (opposite end): 1475.60 kips This Tendon – AALV FORCE 1481.3 kips — BG 10-23-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified *NCR* No.: N/A — BG 10-23-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A — BG 10-23-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A — BG 10-23-07
If Yes – Customer Notified NCR No.: N/A — BG 10-23-07

(9.9.11.3) Final Shim Stack Height: #1: 6½ in. #2: 6½ in. — BG 10-23-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H23 Tendon End: Butt. 4

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BL 10-23-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BL 10-23-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BL 10-23-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BL 10-23-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BL 10-23-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BL 10-23-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H23 Tendon End: Butt. 4

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-22-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 10-26-07
(8.9) Ambient Temp.: 82 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(8.10) Grease Cap Removal Date: 10-22-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: ~~26 3/4~~ BG 10-26-07 4 days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 26 3/4 in. (9.8.5.1) Height in drum after: 25 1/4 in.		BG 10-26-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.65 gal.

(10.3.11) Percent variation difference: 1.06 % — BG 10-26-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 10-26-07

If No – Customer Notified NCR No.: N/A — BG 10-26-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Adjacent tendon.

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H23 Tendon End: Butt. G

Grease Cap Removal

Date Removal Started: 10-22-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 80 °F Thermometer No.: 5778 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 72 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08 — BG 10-22-07

(8.5.1) Anchorhead I.D. CR40 Anchorhead Verification: ☒ Match ☐ No-Match — BG 10-22-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) - *Limited within the inside diameter of the grease cap.* — BG 10-22-07

(8.7) Unusual Conditions: None — BG 10-22-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown

Comments: none — BG 10-22-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — BG 10-22-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — BG 10-22-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples N/A Quarts Samples identified per Step 6.1? ☐ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct — BG 10-22-07

(10.2) Method of Tendon Protection: replaced cap (installed new gasket BG 10-25-07) — BG 10-22-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BG 10-22-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL — BG 10-22-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-2-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 46H35 Tendon End: Butt. G

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [illegible] Level: II Date: 10-22-07

QC Reviewed: [illegible] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46H23 Tendon End: Butt. Co

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning

Q.C. Signoff

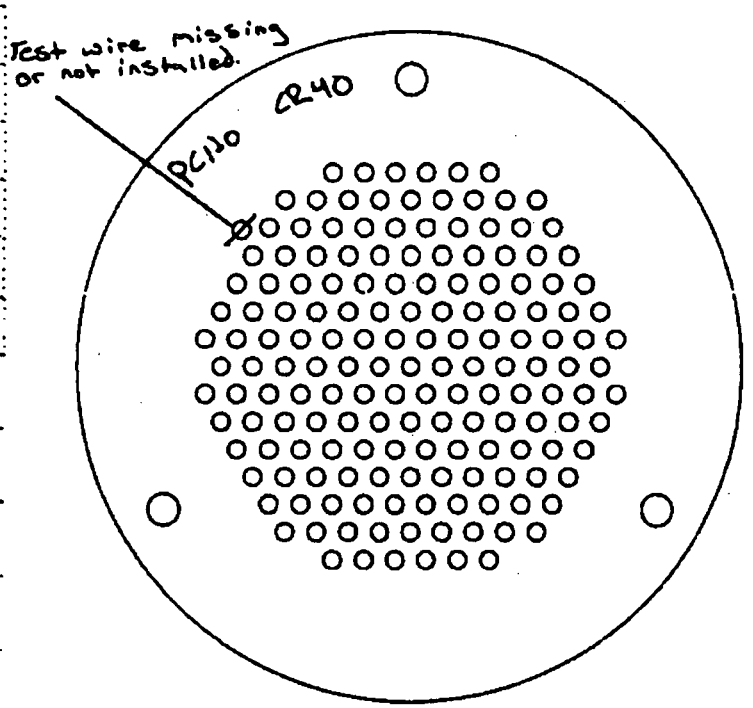
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	BG 10-22-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR40
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC120
Located on Sketch: ☒ Yes ☐ No
shims 5 3/4 3, 1, 1, 1/2, 1/4

(8.4.7) Offsize Buttonhead Totals
A = N/A BG 10-22-07
B = N/A BG 10-22-07
C = N/A BG 10-22-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 10-22-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 BG 10-22-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BG 10-22-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A BG 10-22-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46H25 Tendon End: Butt. 6

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 80 °F Thermometer No.: 5T78 Recal Date: 8-30-08	
Ambient Temp.: 73 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-22-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.5) Number of Effective Wires: BG 10-22-07 ~~160~~ 163	BG 10-22-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 537.287 K = – 5.06	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-22-07
(9.8) Shim Stack Height: #1 5 3/4 in. #2 5 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 5, 1, 1, 1/2, 1/4 in. Stack #2: 5, 1, 1, 1/2, 1/4 in.	BG 10-22-07
(9.9) Base Value Predicted Force (BVPF): 1425 kips Pressure: 4239.89 psi	
BVPF: 1425 kips 95% BVPF: 1554 kips 90% BVPF: 1283 kips	
4239.89 psi 4629.38 psi 3818.88 psi	BG 10-22-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3920 psi Stack #2: 1) 3940 psi 1) 3940 psi	
2) 3920 psi 2) 3940 psi 2) 3940 psi	
3) 3920 psi 3) 3940 psi 3) 3940 psi	
(9.10.10) Actual Force (this end): 1523.85 kips Actual Average: 3940 psi	BG 10-22-07
(9.10.10.1) Actual Force (opposite end): 1336.10 kips (9.10.10.2) AALV FORCE 1529.97 kips	BG 10-22-07
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	BG 10-22-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-22-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-22-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-003	BG 10-22-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: 46H24 This Tendon: ____ Adj Tendon: 46H19 ☒ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Peterson 10-23-07	BG 10-23-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 10-23-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
N/A Customer Notified NCR No.: ____	BG 10-23-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H23 Tendon End: Butt. G

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 85 °F Thermometer No.: 5178 Recal Date: 8-30-08
(9.3) Ambient Temp.: 84 °F Thermometer No.: 8650 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8784 Recal Date: Job end RAM Area: 337.287 K = -5.06 — BG 10-25-07
Gauge ID: 1017880 Recal Date: daily on use Daily Check: Yes — BG 10-25-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: *Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.*

(9.7.4) PTF = ____ kips Pressure: ____ psi
Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
N/A LOF = ____ kips Pressure: ____ psi
OSF = ____ kips Pressure: ____ psi Elongation: ____ in. — BG 10-25-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = ____ kips Pressure: ____ psi ① Elongation: ____ in.
(9.8.3.1) Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.4.1) Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.5.2) OSF = ____ kips Pressure: ____ psi ② Elongation: ____ in. — BG 10-25-07
(9.8.5.3) ② – ①= ____ in. Elongation Value (this end)
(9.8.5.4) N/A ____ in. Elongation Value (opposite end)
(9.8.5.4) ____ in. TOTAL Tendon Elongation Value — BG 10-25-07
(9.8.8.2) Elongation Variation: ____ % Ruler ID: ____ Recal Date: ____ — BG 10-25-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — BG 10-25-07
Customer Notified *NCR* No.: ____ — BG 10-25-07

(9.7.3) LOF Acceptable Range: From: 4239.89 psi To: 4493.58 psi — BG 10-25-07

(9.9.6) Actual Lock-Off

Stack #1:	Stack #2:	(9.9.7) Circled Values
1) 4590 psi	1) 4590 psi	1) 4590 psi
2) 4590 psi	2) 4390 psi	2) 4590 psi
3) 4390 psi	3) 4390 psi	3) 4390 psi

(9.9.7) Force (this end): 1475.62 kips Actual Average: 4590 psi — BG 10-25-07
(9.9.7) Force (opposite end): 1486.98 kips This Tendon – AALV FORCE 1481.3 kips — BG 10-25-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified *NCR* No.: N/A — BG 10-25-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A — BG 10-25-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A — BG 10-25-07
If Yes – Customer Notified NCR No.: N/A — BG 10-25-07

(9.9.11.3) Final Shim Stack Height: #1: 7 1/8 in. #2: 7 1/8 in. — BG 10-25-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46423 Tendon End: Butt. 6

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BL 10-25-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BL 10-25-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BL 10-25-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BL 10-25-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BL 10-25-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BL 10-25-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H23 Tendon End: Butt. 6

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-22-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 10-26-07
(8.9) Ambient Temp.: 82 °F Thermo. ID: Pk30 Recal Date: 8-30-08		BG 10-26-07
(8.10) Grease Cap Removal Date: 10-22-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: 4 days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 13 1/2 in. (9.8.5.1) Height in drum after: 12 in.		BG 10-26-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 200 °F Thermo. ID: Pk30 Recal Date: 8-30-08		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. (hand pumped + pressured pumped – exiting outflow)		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.63 gal.

(10.3.11) Percent variation difference: 1.06 % BG 10-26-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\% \text{ variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 10-26-07

If No – Customer Notified NCR No.: N/A BG 10-26-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Adjacent Tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 4GH24 Tendon End: Butt. 4

Grease Cap Removal

Date Removal Started: 10-22-07 — Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No

(7.5) Temp. of Concrete: 82 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08

(7.5) Ambient Temp.: 76 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08 — BG 10-22-07

(8.5.1) Anchorhead I.D. CR1157 Anchorhead Verification: ☒ Match ☐ No-Match — BG 10-22-07

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	✓	Partial		Uncoated	%
Buttonheads -	Complete	✓	Partial		Uncoated	%
Anchorheads -	Complete	✓	Partial		Uncoated	%
Shims -	Complete	✓	Partial		Uncoated	%
Bearing Plate – (1)	Complete	✓	Partial		Uncoated	%

(1) - *Limited within the inside diameter of the grease cap.* — BG 10-22-07

(8.7) Unusual Conditions: None — BG 10-22-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown

Comments: — BG 10-22-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — BG 10-22-07

(9.6) Qty. of Grease removed from anchorage: .5 gal. — BG 10-22-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples _____ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No

(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct — BG 10-22-07

(10.2) Method of Tendon Protection: replaced cap w/new gasket — BG 10-22-07

(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BG 10-22-07

Total quantity of lost grease (below):

(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL — BG 10-22-07

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-21-07

DS6-0.CR03.07ISI.doc

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 46H24 Tendon End: Butt. 4

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-22-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46 HJ4 Tendon End: Butt. 4

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

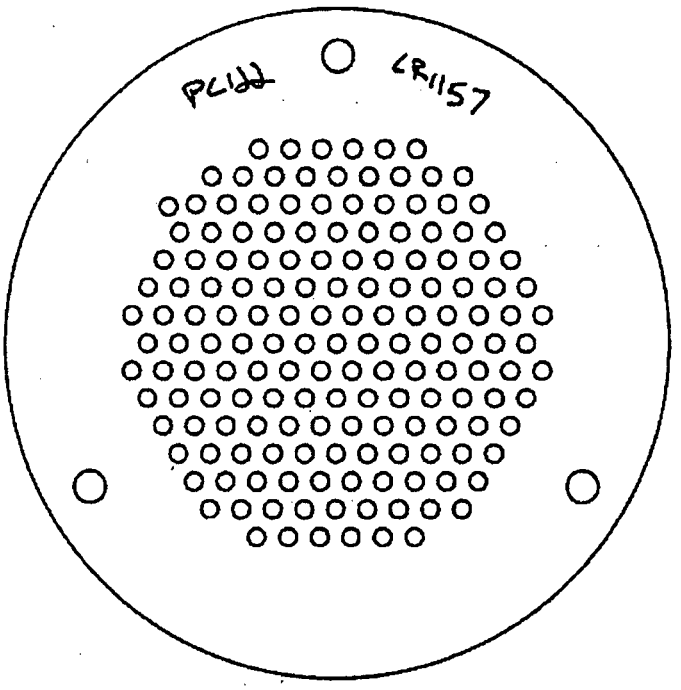
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-22-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1157
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC122
Located on Sketch: ☒ Yes ☐ No
Shims 6 3/4, 3, 3, 1/2, 1/4

(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 10-22-07
B = N/A — BG 10-22-07
C = N/A — BG 10-22-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No: Quantity: 0 — BG 10-22-07
(8.4.8.3) # of Missing Buttonheads Found: 0 — BG 10-22-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 — BG 10-22-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BG 10-22-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BG 10-22-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46 H24 Tendon End: Butt. 4

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 83 °F Thermometer No.: 5278 Recal Date: 8-30-08	
Ambient Temp.: 76 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 10-22-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.5) Number of Effective Wires: 163	BG 10-22-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 535.282 K = - 5.022	
Gauge ID: 1017880 Recal Date: daily on use Daily Check: Yes	BG 10-22-07
(9.8) Shim Stack Height: #1 6 3/4 in. #2 6 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3, 1/2, 1/4 in. Stack #2: 3, 3, 1/2, 1/4 in.	BG 10-22-07
(9.9) Base Value Predicted Force (BVPF): 1472 kips Pressure: 4405.31 psi	
BVPF: 1472 kips 95% BVPF: 1398 kips 90% BVPF: 1325 kips	
4405.31 psi 4184.60 psi 3966.87 psi	BG 10-22-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4200 psi Stack #2: 1) 4250 psi 1) 4250 psi	
2) 4200 psi 2) 4250 psi 2) 4250 psi	
3) 4200 psi 3) 4250 psi 3) 4250 psi	
(9.10.10) Actual Force (this end): 1419.92 kips Actual Average: 4250 psi	BG 10-22-07
(9.10.10.1) Actual Force (opposite end): 1431.78 kips (9.10.10.2) AALV FORCE 1425.85 kips	BG 10-22-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 10-22-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-22-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-22-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 10-22-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date: N/A	BG 10-22-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: ____	BG 10-22-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: ____	BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H24 Tendon End: Butt. 4

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 10-22-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 10-22-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 10-22-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 10-22-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 10-22-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 10-22-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H24 Tendon End: Butt. 4

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-22-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 10-26-07
(8.9) Ambient Temp.: 78 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(9.10) Grease Cap Removal Date: 10-22-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: 4 days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 25 1/4 in. (9.8.5.1) Height in drum after: 23 3/4 in.		BG 10-26-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	3.09 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	3.09 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 5.74 gal. (hand pumped + pressured pumped – exiting outflow)		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.57 gal.

(10.3.11) Percent variation difference: 1.43 % BG 10-26-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \text{ \% variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 10-26-07

If No – Customer Notified NCR No.: N/A BG 10-26-07

(11.4) Comments: none

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46424 Tendon End: Bott. 6

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 10-22-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 83 °F Thermometer No.: 5778 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 76 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 10-22-07
(8.5.1) Anchorhead I.D. CR14 Anchorhead Verification: ☒ Match ☐ No-Match	BG 10-22-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 10-22-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BG 10-22-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown	
Comments: none	BG 10-22-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 10-22-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 10-22-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 10-22-07
(10.2) Method of Tendon Protection: replaced cap w/ new gasket	BG 10-22-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 10-22-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 10-22-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 96H24 Tendon End: Butt. C

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☒ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 10-22-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 46A24 Tendon End: Butt. 6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

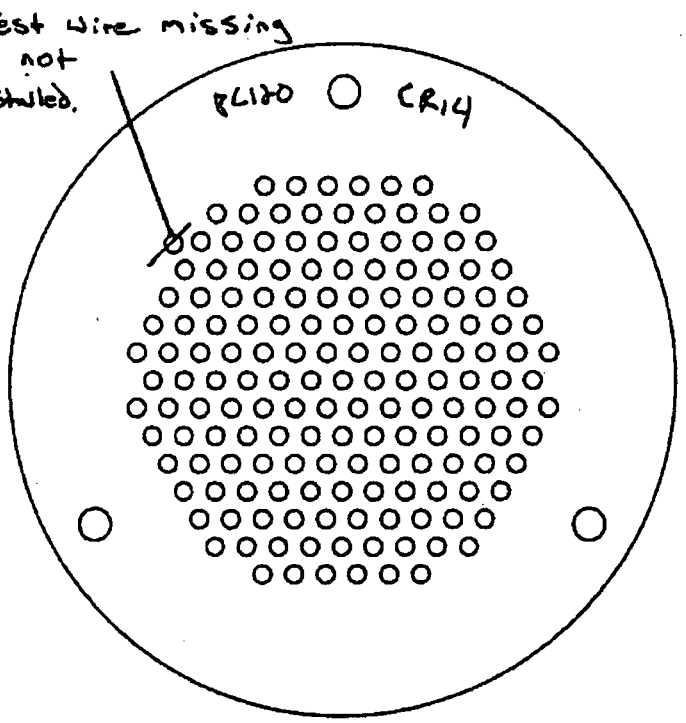
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 10-22-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
◡	Protruding/unseated wire/buttonheads.
∅	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊘	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR14
Located on Sketch: ☐ Yes ☐ No
(8.4.6) Heat Code PG120
Located on Sketch: ☐ Yes ☐ No
Shims 3,3,1,1/4,1/4 7 1/2"
(8.4.7) Offsize Buttonhead Totals
A = N/A BG 10-22-07
B = N/A BG 10-22-07
C = N/A BG 10-22-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 BG 10-22-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 165 BG 10-22-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 BG 10-22-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes N/A ☐ No BG 10-22-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 46429 Tendon End: Butt. 6

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 82 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 76 °F Thermometer No.: P450 Recal Date: 8-30-08	BG 10-22-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.5) Number of Effective Wires: 163	BG 10-22-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 10-22-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K = - 5.06	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 10-22-07
(9.8) Shim Stack Height: #1 7½ in. #2 7½ in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3,3,1,¼,¼ in. Stack #2: 3,3,1,¼,¼ in.	BG 10-22-07
(9.9) Base Value Predicted Force (BVPF): 1472 kips Pressure: 4379.23 psi	
BVPF: 1472 kips 95% BVPF: 1398 kips 90% BVPF: 1325 kips	
4379.23 psi 4159.84 psi 3945.40 psi	BG 10-22-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4260 psi Stack #2: 1) 4260 psi 1) 4260 psi	
2) 4260 psi 2) 4260 psi 2) 4260 psi	
3) 4260 psi 3) 4260 psi 3) 4260 psi	
(9.10.10) Actual Force (this end): 1431.78 kips Actual Average: 4260 psi	BG 10-22-07
(9.10.10.1) Actual Force (opposite end): 1419.92 kips (9.10.10.2) AALV FORCE 1425.85 kips	BG 10-22-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 10-22-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 10-22-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 10-22-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 10-22-07
~~(9.10.15.1) Adjacent Tendon Lift-Offs~~ (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: / This Tendon: / Adj Tendon: ☐ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF. N/A	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 10-22-07
b) Adj Tendon: / Adj Tendon: ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 10-22-07
c) Adj Tendon: / Adj Tendon: ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 10-22-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H24 Tendon End: Butt. Co

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BC 10-22-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BC 10-22-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BC 10-22-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BC 10-22-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BC 10-22-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BC 10-22-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 46H24 Tendon End: Butt. 6

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 10-22-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 10-26-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 10-26-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 10-26-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 10-26-07
(8.9) Ambient Temp.: 78 °F Thermo. ID: PK50 Recal Date: 8-30-08		BG 10-26-07
(8.10) Grease Cap Removal Date: 10-22-07 Grease Replacement Date: 10-26-07		BG 10-26-07
Elapsed Time: 4 days		BG 10-26-07
(9.8.4.1) Grease height in drum before: 12 in. (9.8.5.1) Height in drum after: 10 1/4 in.		BG 10-26-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 3.09 gal. ☒ Pumped ☐ Poured		BG 10-26-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	3.09 gal.	BG 10-26-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 10-26-07
Grease Temp.: 200 °F Thermo. ID: PK50 Recal Date: 8-30-08		BG 10-26-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 10-26-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 10-26-07
(10.3.10) TOTAL amount of Grease replaced: 5.74 gal. (hand pumped + pressured pumped – exiting outflow)		BG 10-26-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.57 gal.

(10.3.11) Percent variation difference: 1.43 % BG 10-26-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \% \text{ variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 10-26-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 10-26-07

If No – Customer Notified NCR No.: N/A BG 10-26-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 62H29 Tendon End: Butt. 2

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 11-6-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 78 °F Thermometer No.: 5778 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 72 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 11-6-07
(8.5.1) Anchorhead I.D. CR393 Anchorhead Verification: ☒ Match ☐ No-Match	BG 11-6-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 11-6-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 11-6-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: brown	
Comments: none	BG 11-6-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 11-6-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 11-6-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 11-6-07
(10.2) Method of Tendon Protection: replaced cap w/ new gasket	BG 11-6-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 11-6-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 11-6-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 11-6-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 60H09 Tendon End: Butt.

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 11-6-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 62H29 Tendon End: Rt 2

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

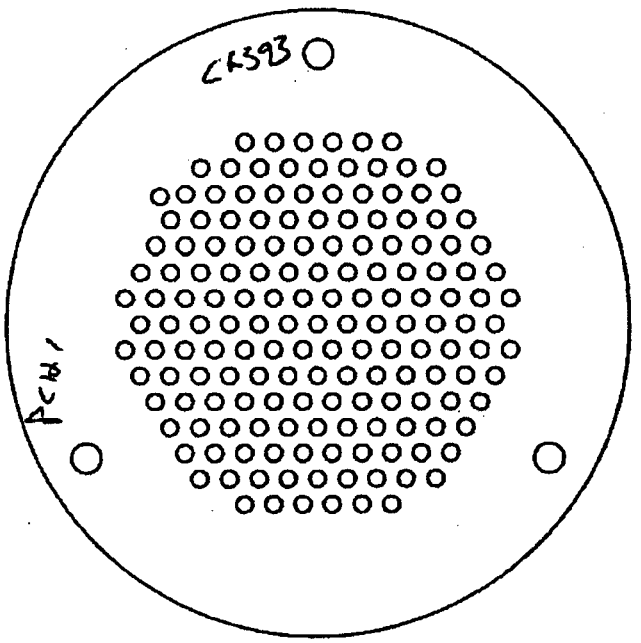
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-6-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR393
Located on Sketch: ☐ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☐ Yes ☐ No
Shims 6 1/4 3 1/2 3
(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 11-6-07
B = N/A — BG 11-6-07
C = N/A — BG 11-6-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 — BG 11-6-07
(8.4.8.3) # of Missing Buttonheads Found: 0 — BG 11-6-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 — BG 11-6-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BG 11-6-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BG 11-6-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 11-6-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SG 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 6H29 Tendon End: Both, 2

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 78 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 72 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 11-6-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 11-6-07
(9.5) Number of Effective Wires: 163	BG 11-6-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 11-6-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 535.282 K = -5.022	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 11-6-07
(9.8) Shim Stack Height: #1 6½ in. #2 6½ in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, ½, 3 in. Stack #2: 3, ½, 3 in.	BG 11-6-07
(9.9) Base Value Predicted Force (BVPF): 1421 kips Pressure: 4053.20 psi	
BVPF: 1421 kips 95% BVPF: 1350 kips 90% BVPF: 1279 kips	
4053.20 psi 4041.43 psi 3809.67 psi	BG 11-6-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4070 psi Stack #2: 1) 4090 psi 1) 4090 psi	
2) 4070 psi 2) 4090 psi 2) 4090 psi	
3) 4070 psi 3) 4090 psi 3) 4090 psi	
(9.10.10) Actual Force (this end): 1566.28 kips Actual Average: 4090 psi	BG 11-6-07
(9.10.10.1) Actual Force (opposite end): 1572.98 kips (9.10.10.2) AALV FORCE 1569.63 kips	BG 11-6-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-6-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-6-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-6-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 11-6-07
(9.10.15.1) Adjacent Tendon Lift-Offs (Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 11-6-07
b) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 11-6-07
c) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 11-6-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.. (60)H29 Tendon End: Butt. 2

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-6-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-6-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-6-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-6-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-6-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-6-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H29 Tendon End: Butt. 2

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 2 gal. — 11-6-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 2 gal. — 11-6-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. — 11-12-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. — 11-12-07

(8.8) TOTAL Tendon Grease Loss: 4 gal. — 11-12-07

(8.9) Ambient Temp.: 72 °F Thermo. ID: P430 Recal Date: 8-30-08 — 11-12-07

(8.10) Grease Cap Removal Date: 11-6-07 Grease Replacement Date: 11-12-07 — 11-12-07

Elapsed Time: 6 days — 11-12-07

(9.8.4.1) Grease height in drum before: 25 in. (9.8.5.1) Height in drum after: 25 1/2 in. — 11-12-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured — 11-12-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 2.65 gal. — 11-12-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 2.65 gal. — 11-13-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 0 gal. — 11-12-07

Grease Temp.: 200 °F Thermo. ID: P430 Recal Date: 8-30-08 — 11-12-07

(10.3.8) Quantity of Exiting Outflow Grease: 0 gal. — 11-12-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 2.65 gal. — 11-12-07

(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. *(hand pumped + pressured pumped – exiting outflow)* — 11-13-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.43 gal.

(10.3.11) Percent variation difference: 1.06 % — 11-13-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — 11-13-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — 11-13-07

If No – Customer Notified NCR No.: N/A — 11-13-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Adjacent Tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 62H29 Tendon End: Butt. 6

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 11-6-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 88 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 92 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 11-6-07
(8.5.1) Anchorhead I.D. CR1113 Anchorhead Verification: ☒ Match ☐ No-Match	BG 11-6-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 11-6-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BG 11-6-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: none	BG 11-6-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 11-6-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 11-6-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples N/A Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 11-6-07
(10.2) Method of Tendon Protection: replaced c-p w/ new gasket	BG 11-6-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 11-6-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 11-6-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 11-6-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 62H29 Tendon End: Butt. Co

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 11-6-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 6H29 Tendon End: Butt. 6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

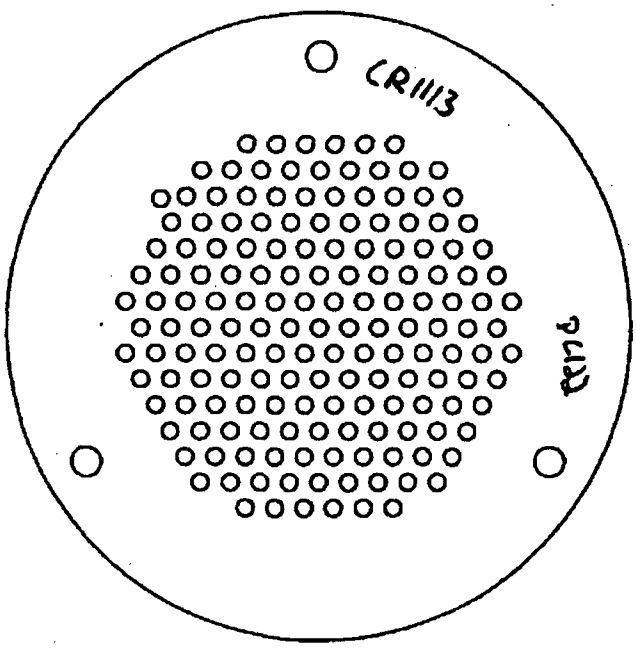
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-6-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR1113
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC 122
Located on Sketch: ☒ Yes ☐ No
Shims 6 3/8, 3 3/8, 1, 1, 1
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 11-6-07
BG 11-6-07
BG 11-6-07
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BG 11-6-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 62H29 Tendon End: Butt.6

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 88 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 92 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 11-6-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 11-6-07
(9.5) Number of Effective Wires: 163	BG 11-6-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 11-6-07
(9.7) RAM ID: 9501 Recal Date: end of job RAM Area: 370.057 K = 3.814	
Gauge ID: 1017880 Recal Date: Daily on VSS Daily Check: Yes	BG 11-6-07
(9.8) Shim Stack Height: #1 6 3/8 in. #2 6 3/8 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3/8, 1, 1, 1 in. Stack #2: 3, 3/8, 1, 1, 1 in.	BG 11-6-07
(9.9) Base Value Predicted Force (BVPF): 1421 kips Pressure: 3809.05 psi	
BVPF: 1421 kips 95% BVPF: 1350 kips 90% BVPF: 1279 kips	
3809.05 psi 3618.22 psi 3427.39 psi	BG 11-6-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3600 psi Stack #2: 1) 3680 psi 1) 3680 psi	
2) 3600 psi 2) 3680 psi 2) 3680 psi	
3) 3600 psi 3) 3680 psi 3) 3680 psi	
(9.10.10) Actual Force (this end): 1372.98 kips Actual Average: 3680 psi	BG 11-6-07
(9.10.10.1) Actual Force (opposite end): 1366.28 kips (9.10.10.2) AALV FORCE 1369.63 kips	BG 11-6-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-6-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-6-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-6-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 11-6-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 11-6-07
b) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 11-6-07
c) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 11-6-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H29 Tendon End: Butt. 6

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-6-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-6-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-6-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-6-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-6-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-6-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H29 Tendon End: Butt. G

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 11-6-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 11-13-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-13-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-13-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 11-13-07
(8.9) Ambient Temp.: 82 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-13-07
(8.10) Grease Cap Removal Date: 11-6-07 Grease Replacement Date: 11-13-07		BG 11-13-07
Elapsed Time: 7 days		BG 11-13-07
(9.8.4.1) Grease height in drum before: 20 in. (9.8.5.1) Height in drum after: 18 1/2 in.		BG 11-13-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 11-13-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 11-13-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-13-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-13-07
Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-13-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-13-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-13-07
(10.3.10) TOTAL amount of Grease replaced: 5.5 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-13-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.93 gal.

(10.3.11) Percent variation difference: 1.06 % — BG 11-13-07

$$\frac{\text{Total Quantity (10.2.8) - Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-13-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 11-13-07

If No – Customer Notified NCR No.: N/A — BG 11-13-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 62H31 Tendon End: Butt. 2

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 11-8-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 68 °F Thermometer No.: 5T78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 70 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 11-8-07
(8.5.1) Anchorhead I.D. CR164 Anchorhead Verification: ☒ Match ☐ No-Match	BG 11-8-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 11-8-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 11-8-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BG 11-8-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 11-8-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 11-8-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 11-8-07
(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-13-07)	BG 11-8-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 11-8-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 11-8-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 11-8-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: G3H31 Tendon End: Butt. 2

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: N/A Date: N/A

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 11-8-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 62H31 Tendon End: Butt. 2

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

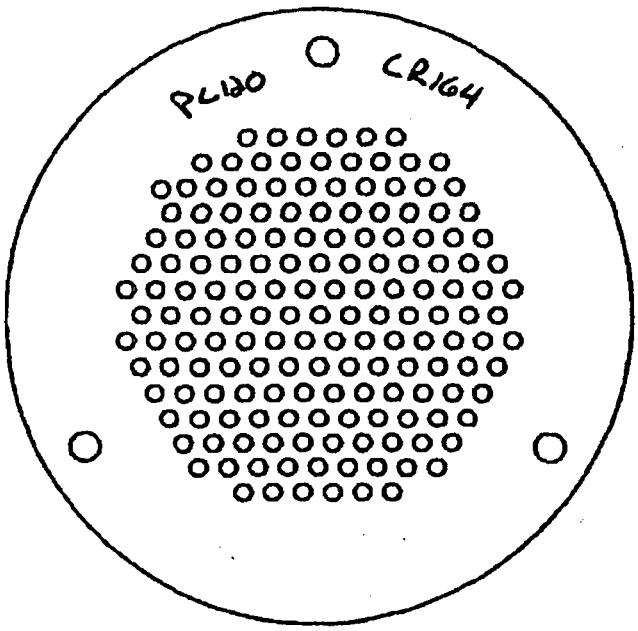
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-8-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR164
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PL130
Located on Sketch: ☒ Yes ☐ No
Shims 6 1/4 3, 1/4, 5
(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 11-8-07
B = N/A — BG 11-8-07
C = N/A — BG 11-8-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 — BG 11-8-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 — BG 11-8-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BG 11-8-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BG 11-8-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 11-8-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 62H31 Tendon End: Butt. 2

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 68 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 70 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 11-8-07
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable	BG 11-8-07
(9.5) Number of Effective Wires: 163	BG 11-8-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable	BG 11-8-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 335.282 K = -5.002	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 11-8-07
(9.8) Shim Stack Height: #1 6 1/4 in. #2 6 1/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 1/4, 3 in. Stack #2: 3, 1/4, 3 in.	BG 11-8-07
(9.9) Base Value Predicted Force (BVPF): 1475 kips Pressure: 4414.26 psi	
BVPF: 1475 kips 95% BVPF: 1401 kips 90% BVPF: 1328 kips	
4414.26 psi 4193.55 psi 3975.82 psi	BG 11-8-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3800 psi Stack #2: 1) 3800 psi 1) 3800 psi	
2) 3800 psi 2) 3800 psi 2) 3800 psi	
3) 3800 psi 3) 3800 psi 3) 3800 psi	
(9.10.10) Actual Force (this end): 1269.04 kips Actual Average: 3800 psi	BG 11-8-07
(9.10.10.1) Actual Force (opposite end): N/A kips (9.10.10.2) AALV FORCE 1269.04 kips	BG 11-8-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF. * Liftoff performed on Butt. 2 side only, Tendons inaccessible on Butt. 6 side.	BG 11-8-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-8-07
c) ☒ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-8-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN.002-012	BG 11-8-07
(9.10.15.1) Adjacent Tendon Lift-Offs (Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 11-8-07
b) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 11-8-07
c) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.:	BG 11-8-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 6)H31 Tendon End: Butt. 2

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 68 °F Thermometer No.: 5178 Recal Date: 8-30-08
(9.3) Ambient Temp.: 70 °F Thermometer No.: PK30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: Job end RAM Area: 335.284 K = -5.022 — BG11-8-07
Gauge ID: 1017881 Recal Date: Daily on use Daily Check: Yes — BG11-8-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: *Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.*

(9.7.4) PTF = ____ kips Pressure: ____ psi
Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
LOF = ____ kips Pressure: ____ psi
OSF = ____ kips Pressure: ____ psi Elongation: ____ in. — BG11-8-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = ____ kips Pressure: ____ psi ① Elongation: ____ in.
(9.8.3.1) Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.4.1) Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.
(9.8.5.2) OSF = ____ kips Pressure: ____ psi ② Elongation: ____ in. — BG11-8-07
(9.8.5.3) ② – ①= ____ in. Elongation Value (this end)
(9.8.5.4) ____ in. Elongation Value (opposite end)
(9.8.5.4) ____ in. TOTAL Tendon Elongation Value — BG11-8-07
(9.8.8.2) Elongation Variation: ____ % Ruler ID: ____ Recal Date: ____ — BG11-8-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — BG11-8-07
Customer Notified *NCR* No.: ____ — BG11-8-07

(9.7.3) LOF Acceptable Range: From: 4414.26 psi To: 4678.21 psi — BG11-8-07

(9.9.6) Actual Lock-Off

Stack #1:		Stack #2:		(9.9.7) Circled Values
1)	4450 psi	1)	4450 psi	1) 4450 psi
2)	4450 psi	2)	4450 psi	2) 4450 psi
3)	4450 psi	3)	4450 psi	3) 4450 psi

(9.9.7) Force (this end): 1486.98 kips Actual Average: 4450 psi — BG11-8-07
(9.9.7) Force (opposite end): N/A kips This Tendon – AALV FORCE 1486.98 kips — BG11-8-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified *NCR* No.: N/A — BG11-8-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A — BG11-8-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A — BG11-8-07
If Yes – Customer Notified NCR No.: N/A — BG11-8-07

(9.9.11.3) Final Shim Stack Height: #1: 7 in. #2: 7 in. — BG11-8-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: G2H31 Tendon End: Butt.2

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-12-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-12-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-12-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-12-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-12-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-12-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H31 Tendon End: Butt. 2

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 2 gal. BG 11-13-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 0 gal. BG 11-13-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. BG 11-13-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. BG 11-13-07

(8.8) TOTAL Tendon Grease Loss: BG 11-21-07 ~~0~~ 2 gal. BG 11-13-07

(8.9) Ambient Temp.: 72 °F Thermo. ID: PK30 Recal Date: 8-30-05 BG 11-13-07

(8.10) Grease Cap Removal Date: 11-8-07 Grease Replacement Date: 11-12-07 BG 11-13-07

Elapsed Time: 4 days BG 11-13-07

(9.8.4.1) Grease height in drum before: 21½ in. (9.8.5.1) Height in drum after: 20 in. BG 11-13-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured BG 11-13-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 2.65 gal. BG 11-13-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 0 gal. BG 11-13-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 0 gal. BG 11-13-07

Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08 BG 11-13-07

(10.3.8) Quantity of Exiting Outflow Grease: 0 gal. BG 11-13-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 0 gal. BG 11-13-07

(10.3.10) TOTAL amount of Grease replaced: 2.65 gal. *(hand pumped + pressured pumped – exiting outflow)* BG 11-13-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.13 gal.

(10.3.11) Percent variation difference: .53 % BG 11-13-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-13-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 11-13-07

If No – Customer Notified NCR No.: N/A BG 11-13-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(1) Tendon No.: 60H31 Tendon End: Butt. 6

Grease Cap Removal

		Q.C. Signoff
Date Removal Started: 11-13-07		
Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No		
Temp. of Concrete: 88 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08		
(5) Ambient Temp.: 80 °F Thermometer No.: PA80 Re-Cal Date: 8-30-08		BG 11-13-07
(1) Anchorhead I.D. CR958 Anchorhead Verification: ☒ Match ☐ No-Match		BG 11-13-07
(8.6.1, 8.6.2) Grease Coating		
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %		
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %		
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %		
Shims - Complete ✓ Partial ___ Uncoated ___ %		
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %		BG 11-13-07
(1) - *Limited within the inside diameter of the grease cap.*		
(8.7) Unusual Conditions: None		BG 11-13-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown		
Comments: None		BG 11-13-07
(8.11) Qty. of Grease lost from cap: 0 gal. (8.11.1) Qty. of Grease removed from cap: 0 gal.		BG 11-13-07
(9) Qty. of Grease removed from anchorage: 0 gal.		BG 11-13-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.		
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No		
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct		BG 11-13-07
(10.2) Method of Tendon Protection: replaced cap w/new gasket		BG 11-13-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.		BG 11-13-07
Reused grease		
Total quantity of lost grease (below):		
(8.11) 0 + (8.11.1) 0 + (9.6) 0 + SQ 7.0 (6.1) 0 + (10.3) 0 = 0 TOTAL		BG 11-13-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No		BG 11-13-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 6JH31 Tendon End: Butt. 6

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [illegible] Level: II Date: 11-15-07

QC Reviewed: David P. O'Hara Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 62H31 Tendon End: Butt.6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

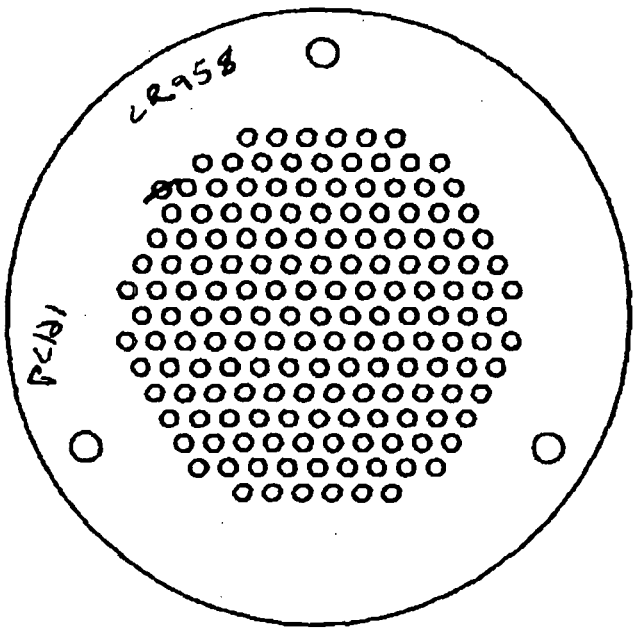
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-13-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR958
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC131
Located on Sketch: ☒ Yes ☐ No
Shims 6" 3,1,1,1

(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding B/H: 0 Missing B/H: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 11-13-07
BG 11-13-07
BG 11-13-07
BG 11-13-07
BG 11-13-07
BG 11-13-07
BG 11-13-07
BG 11-13-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H31 Tendon End: Butt. 6

GREASE CAP REPLACEMENT DOCUMENTATION		QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes ☐ No	BG 11-13-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes ☐ No	BG 11-13-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes ☐ No	BG 11-13-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes ☐ No	BG 11-13-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes ☐ No	BG 11-13-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes ☒ No	BG 11-13-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 63H51 Tendon End: Butt. 6

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	0 gal.	BG 11-13-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 11-13-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-13-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-13-07
(8.8) TOTAL Tendon Grease Loss:	2 gal.	BG 11-13-07
(8.9) Ambient Temp.: 80 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-13-07
(8.10) Grease Cap Removal Date: 11-13-07 Grease Replacement Date: 11-13-07		BG 11-13-07
Elapsed Time: N/A days		BG 11-13-07
(9.8.4.1) Grease height in drum before: N/A in. (9.8.5.1) Height in drum after: N/A in.		BG 11-13-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: N/A gal. ☐ Pumped N/A ☐ Poured		BG 11-13-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	N/A gal.	BG 11-13-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-13-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-13-07
Grease Temp.: 90 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-13-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-13-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-13-07
(10.3.10) TOTAL amount of Grease replaced: 2.65 gal. (hand pumped + pressured pumped – exiting outflow)		BG 11-13-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.13 gal.

(10.3.11) Percent variation difference: .53 % — BG 11-13-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = ___\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-13-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) — BG 11-13-07

If No – Customer Notified NCR No.: N/A — BG 11-13-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 60H33 Tendon End: Bott. d

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 11-7-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 76 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 70 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 11-7-07
(8.5.1) Anchorhead I.D. CR77 Anchorhead Verification: ☒ Match ☐ No-Match	BG 11-7-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 11-7-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 11-7-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BG 11-7-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 11-7-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 11-7-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 11-7-07
(10.2) Method of Tendon Protection: replaced cap w/ new gasket	BG 11-7-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 11-7-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 11-7-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 62H33 Tendon End: 86 11-7-07 ~~Bot. 6~~ Bot. 2

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: [signature] Level: II Date: 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 62H33 Tendon End: Butt. J

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

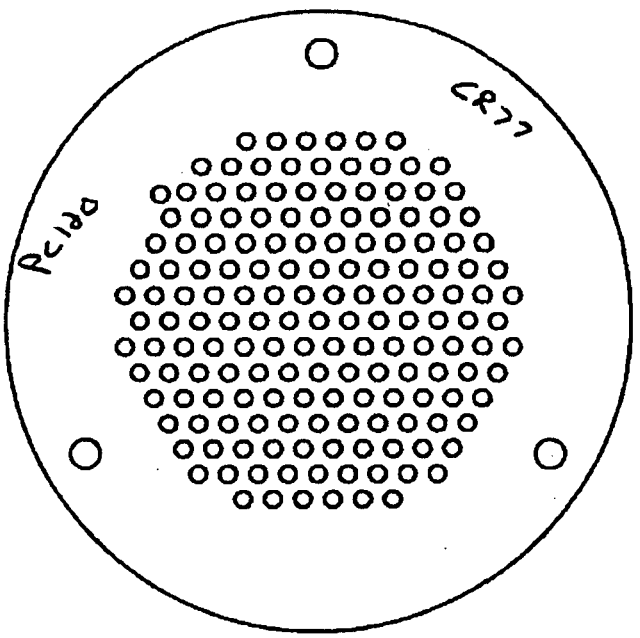
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: J (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: J (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-7-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ◡ Protruding/unseated wire/buttonheads.
- Ø Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊠ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR77
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC130
Located on Sketch: ☒ Yes ☐ No
Shims 6 3/16 3, 3/16, 3
(8.4.7) Offsize Buttonhead Totals
A = N/A — BG 11-7-07
B = N/A — BG 11-7-07
C = N/A — BG 11-7-07
(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 — BG 11-7-07
(8.4.8.3) # of Missing Buttonheads Found: 0 — BG 11-7-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 — BG 11-7-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 — BG 11-7-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A — BG 11-7-07
Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A — BG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 6JH33 Tendon End: Bxtt.2

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 76 °F Thermometer No.: 5178 Recal Date: 8-30-08	
Ambient Temp.: 70 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 11-7-07
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable	BG 11-7-07
(9.5) Number of Effective Wires: 163	BG 11-7-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable	BG 11-7-07
(9.7) RAM ID: 3780 Recal Date: end of job RAM Area: 335.282 K = -5.022	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: yes	BG 11-7-07
(9.8) Shim Stack Height: #1 6 3/16 in. #2 6 3/16 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3/16, 3 in. Stack #2: 3, 3/16, 3 in.	BG 11-7-07
(9.9) Base Value Predicted Force (BVPF): 1461 kips Pressure: 4372.50 psi	
BVPF: 1461 kips 95% BVPF: 1388 kips 90% BVPF: 1315 kips	
4372.50 psi 4154.77 psi 3957.05 psi	BG 11-7-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3720 psi Stack #2: 1) 3720 psi 1) 3720 psi	
2) 3720 psi 2) 3720 psi 2) 3720 psi	
3) 3720 psi 3) 3720 psi 3) 3720 psi	
(9.10.10) Actual Force (this end): 1342.22 kips Actual Average: 3720 psi	BG 11-7-07
(9.10.10.1) Actual Force (opposite end): 1384.56 kips (9.10.10.2) AALV FORCE 1313.39 kips	BG 11-7-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-7-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-7-07
c) ☒ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-7-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-011	BG 11-7-07
(9.10.15.1) Adjacent Tendon Lift-Offs (Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)	
a) Adj Tendon: 6JH34 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Pertman 11-7-07	BG 11-7-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.: ____	BG 11-7-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.: ____	BG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: (2)133 Tendon End: Butt. J

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 76 °F Thermometer No.: ST78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 70 °F Thermometer No.: PK30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: Job end RAM Area: 335.281 K = -5.022 — BG 11-7-07
Gauge ID: 1017881 Recal Date: daily on use Daily Check: YES — BG 11-7-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: *Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.*

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. — BG 11-7-07

Actual Observed Force and Elongation Measurements N/A

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. — BG 11-7-07
(9.8.5.3) ② – ①= in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) in. TOTAL Tendon Elongation Value — BG 11-7-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: — BG 11-7-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — BG 11-7-07
Customer Notified NCR No.: — BG 11-7-07

(9.7.3) LOF Acceptable Range: From: 4372.50 psi To: 4633.95 psi — BG 11-7-07

(9.9.6) Actual Lock-Off (9.9.7) Circled Values

	Stack #1:	Stack #2:	(9.9.7) Circled Values
1)	4400 psi	4450 psi	4450 psi
2)	4400 psi	4450 psi	4450 psi
3)	4400 psi	4450 psi	4450 psi

(9.9.7) Force (this end): 1486.98 kips Actual Average: 4450 psi — BG 11-7-07
(9.9.7) Force (opposite end): 1501.61 kips This Tendon – AALV FORCE 1494.79 kips — BG 11-7-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A — BG 11-7-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A — BG 11-7-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A — BG 11-7-07
If Yes – Customer Notified NCR No.: N/A — BG 11-7-07

(9.9.11.3) Final Shim Stack Height: #1: 6 9/16 in. #2: 6 9/16 in. — BG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: (a)H33 Tendon End: Butt. a

GREASE CAP REPLACEMENT DOCUMENTATION		QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes ☐ No	BG 11-7-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes ☐ No	BG 11-7-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes ☐ No	BG 11-7-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes ☐ No	BG 11-7-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes ☐ No	BG 11-7-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes ☒ No	BG 11-7-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H33 Tendon End: Butt.2

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 11-12-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2.5 gal.	BG 11-12-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-12-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-12-07
(8.8) TOTAL Tendon Grease Loss:	4.5 gal.	BG 11-12-07
(8.9) Ambient Temp.: 72 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(8.10) Grease Cap Removal Date: 11-7-07 Grease Replacement Date: 11-12-07		BG 11-12-07
Elapsed Time: 5 days		BG 11-12-07
(9.8.4.1) Grease height in drum before: 18½ in. (9.8.5.1) Height in drum after: 17 in.		BG 11-12-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 11-12-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 11-12-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-12-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-12-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-12-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-12-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-12-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.07 gal.

(10.3.11) Percent variation difference: .65 % — BG 11-12-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-12-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* — BG 11-12-07

If No – Customer Notified NCR No.: N/A — BG 11-12-07

(11.4) Comments: none

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 02H33 Tendon End: Butt. 6

Grease Cap Removal

		Q.C. Signoff
Date Removal Started: 11-7-07		
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No		
(7.5) Temp. of Concrete: 76 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08		
(7.5) Ambient Temp.: 64 °F Thermometer No.: PK50 Re-Cal Date: 8-30-08		BG 11-7-07
(8.5.1) Anchorhead I.D. CR538 Anchorhead Verification: ☒ Match ☐ No-Match		BG 11-7-07
(8.6, 8.6.1, 8.6.2) Grease Coating		
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %		
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %		
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %		
Shims - Complete ✓ Partial ___ Uncoated ___ %		
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %		BG 11-7-07
(1) - Limited within the inside diameter of the grease cap.		
(8.7) Unusual Conditions: none		BG 11-7-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown		
Comments: none		BG 11-7-07
(8.11) Qty. of Grease lost from cap: 0 gal. (8.11.1) Qty. of Grease removed from cap: 2 gal.		BG 11-7-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.		BG 11-7-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.		
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No		
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct		BG 11-7-07
(10.2) Method of Tendon Protection: replaced cap w/new gasket		BG 11-7-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.		BG 11-7-07
Total quantity of lost grease (below):		
(8.11) 0 + (8.11.1) 2 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2.5 TOTAL		BG 11-7-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No		BG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: G) H33 Tendon End: Butt. G

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [signature] Level: II Date: 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 6dH33 Tendon End: Butt. 6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

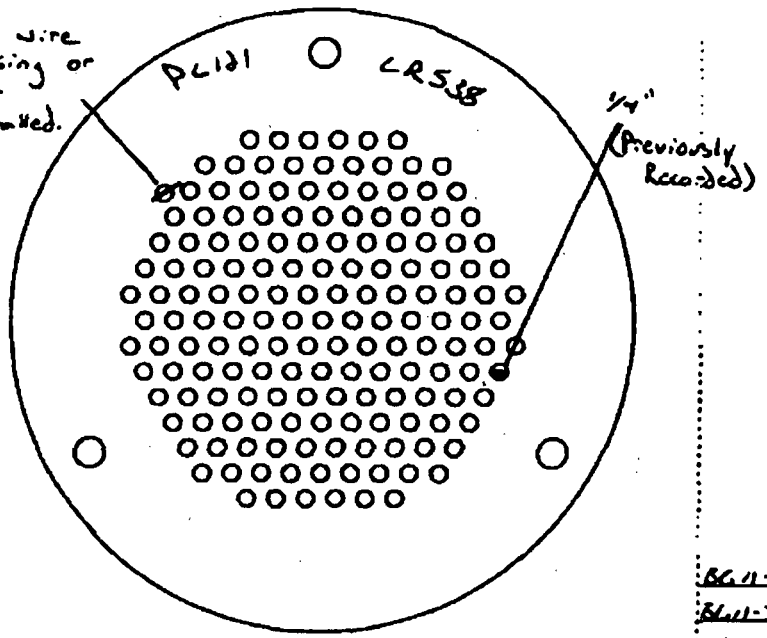
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 3 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 3 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-7-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- Ø Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊘ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.8) Anchorhead I.D. CR538
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
Shims 6 1/4 3 1/4, 1/4, 1, 1, 1
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 166
(8.5.2) Protruding BH: 1 Missing BH: 0 Total (Protruding+Missing): 1
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results: ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 11-7-07
BG 11-7-07
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QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 6d1H33 Tendon End: Butt. 6

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 76 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 64 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 11-7-07
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable	BG 11-7-07
(9.5) Number of Effective Wires: 160	BG 11-7-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable	BG 11-7-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.287 K= -5.06	
Gauge ID: 1017880 Recal Date: Daily on use Daily Check: Yes	BG 11-7-07
(9.8) Shim Stack Height: #1 6 1/2 in. #2 6 1/2 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3/4, 1, 1, 1, 1/4 in. Stack #2: 3/4, 1, 1, 1, 1/4 in.	BG 11-7-07
(9.9) Base Value Predicted Force (BVPF): 1461 kips Pressure: 4346.62 psi	
BVPF: 1461 kips 95% BVPF: 1388 kips 90% BVPF: 1315 kips	
4346.62 psi 4130.19 psi 3915.75 psi	BG 11-7-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4080 psi Stack #2: 1) 4120 psi 1) 4120 psi	
2) 4080 psi 2) 4120 psi 2) 4120 psi	
3) 4080 psi 3) 4120 psi 3) 4120 psi	
(9.10.10) Actual Force (this end): 1554.56 kips Actual Average: 4120 psi	BG 11-7-07
(9.10.10.1) Actual Force (opposite end): 1242.22 kips (9.10.10.2) AALV FORCE 1515.39 kips	BG 11-7-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-7-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-7-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-7-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: FN1002-011	BG 11-7-07
(9.10.15.1) Adjacent Tendon Lift-Offs (Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)	
a) Adj Tendon: 6d1H34 This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: Rick Portman 11-7-07	BG 11-7-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.: ____	BG 11-7-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. N/A Customer Notified NCR No.: ____	BG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H33 Tendon End: Butt. 6

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 76 °F Thermometer No.: 5178 Recal Date: 8-30-08
(9.3) Ambient Temp.: 66 °F Thermometer No.: PR30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8784 Recal Date: Job end RAM Area: 337.387 K = -5.06 — BG 11-7-07
Gauge ID: 1017880 Recal Date: Daily on use Daily Check: Yes — BG 11-7-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.48 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. — BG 11-7-07

N/A

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. — BG 11-7-07
(9.8.5.3) ② – ① = in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) in. TOTAL Tendon Elongation Value — BG 11-7-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: — BG 11-7-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable — BG 11-7-07
Customer Notified NCR No.: — BG 11-7-07

N/A

(9.7.3) LOF Acceptable Range: From: 4346.62 psi To: 4606.52 psi — BG 11-7-07
(9.9.6) Actual Lock-Off (9.9.7) Circled Values

	Stack #1:	Stack #2:	(9.9.7) Circled Values
1)	4470 psi	4470 psi	4470 psi
2)	4470 psi	4470 psi	4470 psi
3)	4470 psi	4470 psi	4470 psi

(9.9.7) Force (this end): 1504.61 kips Actual Average: 4470 psi — BG 11-7-07
(9.9.7) Force (opposite end): 1486.98 kips This Tendon – AALV FORCE 1494.79 kips — BG 11-7-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A — BG 11-7-07
(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A — BG 11-7-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A — BG 11-7-07
If Yes – Customer Notified NCR No.: N/A — BG 11-7-07
(9.9.11.3) Final Shim Stack Height: #1: 6 7/8 in. #2: 6 7/8 in. — BG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: (a)H33 Tendon End: Butt. 6

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-7-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-7-07
(9.9.1) Grease cap flange and gasket seating surface is clean and dry.	☒ Yes	☐ No	BG 11-7-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-7-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-7-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-7-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 6JH33 Tendon End: Butt. 6

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 2.5 gal. — BG 11-12-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 2 gal. — BG 11-12-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. — BG 11-12-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. — BG 11-12-07

(8.8) TOTAL Tendon Grease Loss: 4.5 gal. — BG 11-12-07

(8.9) Ambient Temp.: 72 °F Thermo. ID: PK30 Recal Date: 8-30-08 — BG 11-12-07

(8.10) Grease Cap Removal Date: 11-7-07 Grease Replacement Date: 11-12-07 — BG 11-12-07

Elapsed Time: 5 days — BG 11-12-07

(9.8.4.1) Grease height in drum before: 11½ in. (9.8.5.1) Height in drum after: 10 in. — BG 11-12-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured — BG 11-12-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 2.65 gal. — BG 11-12-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 2.65 gal. — BG 11-12-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 0 gal. — BG 11-12-07

Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08 — BG 11-12-07

(10.3.8) Quantity of Exiting Outflow Grease: 0 gal. — BG 11-12-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 2.65 gal. — BG 11-12-07

(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. (hand pumped + pressured pumped – exiting outflow) — BG 11-12-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 122.07 gal.

(10.3.11) Percent variation difference: .65 % — BG 11-12-07

$$\frac{\text{Total Quantity (10.2.6) - Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-12-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) — BG 11-12-07

If No – Customer Notified NCR No.: N/A — BG 11-12-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 6H34 Tendon End: Butt. 2

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 11-7-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 72 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 70 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 11-7-07
(8.5.1) Anchorhead I.D. CR25 Anchorhead Verification: ☒ Match ☐ No-Match	BG 11-7-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 11-7-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: None	BG 11-7-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BG 11-7-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 11-7-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 11-7-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 11-7-07
(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-18-07)	BG 11-7-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 11-7-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 11-7-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 62H34 Tendon End: Butt.2

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [signature] Level: II Date: 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: (a)H34 Tendon End: Butt. a

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

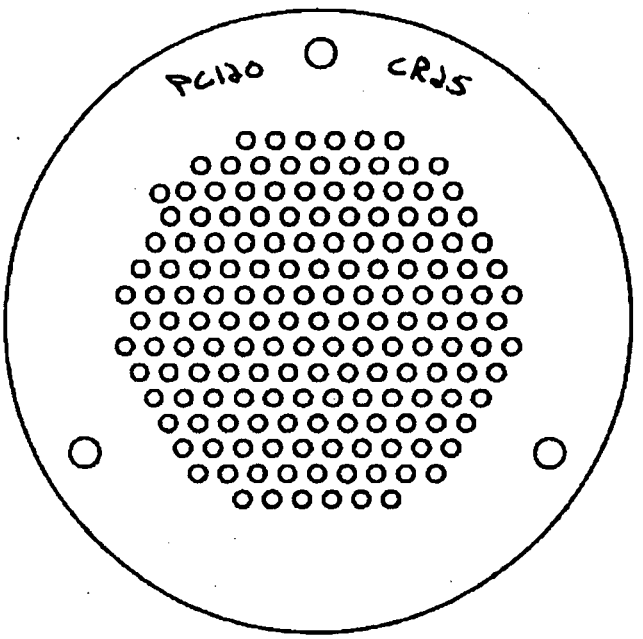
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	SG 11-7-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Ø Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊘ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR25
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC130
Located on Sketch: ☐ Yes ☐ No
7" 3,3,1

(8.4.7) Offsize Buttonhead Totals
A = N/A SG 11-7-07
B = N/A SG 11-7-07
C = N/A SG 11-7-07

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0 SG 11-7-07
(8.4.8.4) Total # of Effective Buttonheads Seated: 163 SG 11-7-07
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0 SG 11-7-07
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A SG 11-7-07

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A SG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 62H34 Tendon End: Butt. 2

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 72 °F Thermometer No.: 5178 Recal Date: 8-30-08	
Ambient Temp.: 70 °F Thermometer No.: 8430 Recal Date: 8-30-08	BG 11-7-07
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable	BG 11-7-07
(9.5) Number of Effective Wires: 163	BG 11-7-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable	BG 11-7-07
(9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 335.282 K = - 5.022	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 11-7-07
(9.8) Shim Stack Height: #1 7 in. #2 7 in. Ruler ID: R-110 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 1, 3 in. Stack #2: 3, 1, 3 in.	BG 11-7-07
(9.9) Base Value Predicted Force (BVPF): 1432 kips Pressure: 4286.00 psi	
BVPF: 1432 kips 95% BVPF: 1360 kips 90% BVPF: 1289 kips	
4286.00 psi 4071.26 psi 3859.50 psi	BG 11-7-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4080 psi Stack #2: 1) 4170 psi 1) 4170 psi	
2) 4080 psi 2) 4170 psi 2) 4170 psi	
3) 4080 psi 3) 4170 psi 3) 4170 psi	
(9.10.10) Actual Force (this end): 1393.10 kips Actual Average: 4170 psi	BG 11-7-07
(9.10.10.1) Actual Force (opposite end): 1364.32 kips (9.10.10.2) AALV FORCE 1378.71 kips	BG 11-7-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-7-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-7-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-7-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 11-7-07
(9.10.15.1) Adjacent Tendon Lift-Offs (Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☒ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF. Owner Notified: ☒ Yes ☐ No Name/Date:	BG 11-7-07
b) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.:	BG 11-7-07
c) Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.:	BG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H34 Tendon End: Butt. 2

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-12-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-12-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-12-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-12-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-12-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-12-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 6a H34 Tendon End: Butt. a

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 11-7-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 11-12-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-12-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-12-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 11-12-07
(8.9) Ambient Temp.: 70 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(8.10) Grease Cap Removal Date: 11-7-07 Grease Replacement Date: 11-12-07		BG 11-12-07
Elapsed Time: 5 days		BG 11-12-07
(9.8.4.1) Grease height in drum before: 13 in. (9.8.5.1) Height in drum after: 11 1/2 in.		BG 11-12-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 11-12-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 11-12-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-12-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-12-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-12-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-12-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. *(hand pumped + pressured pumped – exiting outflow)*		BG 11-12-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.47 gal.

(10.3.11) Percent variation difference: 1.07 % BG 11-12-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-12-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 11-12-07

If No – Customer Notified NCR No.: N/A BG 11-12-07

(11.4) Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Adjacent tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 62H34 Tendon End: Bett. 6

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 11-7-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 74 °F Thermometer No.: ST78 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 68 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 11-7-07
(8.5.1) Anchorhead I.D. CR900 Anchorhead Verification: ☒ Match ☐ No-Match	BG 11-7-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 11-7-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BG 11-7-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BG 11-7-07
(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal.	BG 11-7-07
(9.6) Qty. of Grease removed from anchorage: .5 gal.	BG 11-7-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 11-7-07
(10.2) Method of Tendon Protection: replaced cap w/new gasket	BG 11-7-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 11-7-07
Total quantity of lost grease (below):	
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL	BG 11-7-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 6dH34 Tendon End: Butt. G

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Level: II Date: 11-7-07

QC Reviewed: Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 62H34 Tendon End: Butt. 6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

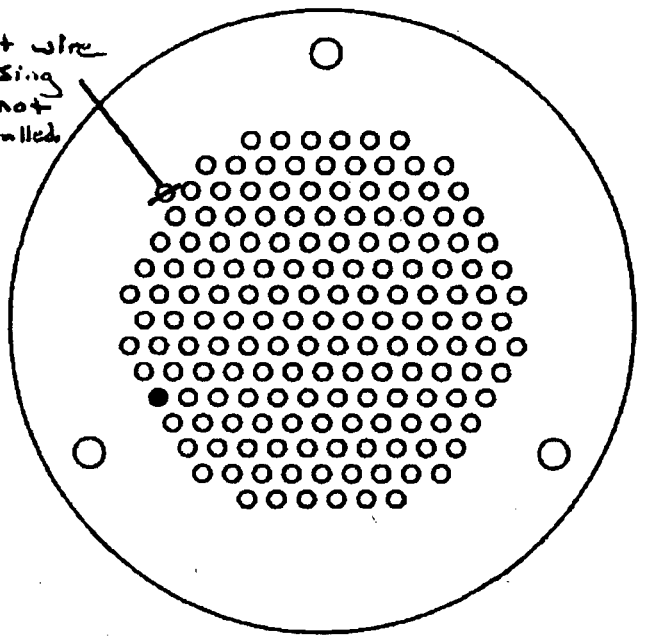
(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	SG 11-7-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.

Test wire missing or not installed



(8.4.6) Anchorhead I.D. CR 900
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
Shims 6 3/4, 3, 3, 3/16, 3/8
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☒ Yes ☐ No; Quantity: 1 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 162
(8.5.2) Protruding BH: 0 Missing BH: 1 Total (Protruding+Missing): 1
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

SG 11-7-07
SG 11-7-07
SG 11-7-07
SG 11-7-07
SG 11-7-07
SG 11-7-07
SG 11-7-07
SG 11-7-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 62H34 Tendon End: Butt. 6

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: 74 °F Thermometer No.: ST78 Recal Date: 8-30-08	
Ambient Temp.: 70 °F Thermometer No.: PK30 Recal Date: 8-30-08	BG 11-7-07
(9.4) Anchorhead and Stressing Adapter Threads : ☒ Acceptable ☐ Unacceptable	BG 11-7-07
(9.5) Number of Effective Wires: 162	BG 11-7-07
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☒ Acceptable ☐ Unacceptable	BG 11-7-07
(9.7) RAM ID: 8784 Recal Date: end of job RAM Area: 337.367 K = -5.026	
Gauge ID: 1017880 Recal Date: daily on use Daily Check: Yes	BG 11-7-07
(9.8) Shim Stack Height: #1 6 3/4 in. #2 6 3/4 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 3, 3/8, 3/8, 3 in. Stack #2: 3, 3/8, 3/8, 3 in.	BG 11-7-07
(9.9) Base Value Predicted Force (BVPF): 1432 kips Pressure: 4260.64 psi	
BVPF: 1432 kips 95% BVPF: 1360 kips 90% BVPF: 1289 kips	
4260.64 psi 4047.17 psi 3836.67 psi	BG 11-7-07
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 4060 psi Stack #2: 1) 4060 psi 1) 4060 psi	
2) 4060 psi 2) 4060 psi 2) 4060 psi	
3) 4060 psi 3) 4060 psi 3) 4060 psi	
(9.10.10) Actual Force (this end): 1364.32 kips Actual Average: 4060 psi	BG 11-7-07
(9.10.10.1) Actual Force (opposite end): 1398.10 kips (9.10.10.2) AALV FORCE 1378.71 kips	BG 11-7-07
(10.0) AALV Acceptance Criteria:	
a) ☒ Acceptable – AALV is ≥ 95% BVPF.	BG 11-7-07
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-7-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-7-07
NCR Required ☐ Yes ☒ No Customer Notified NCR No.: N/A	BG 11-7-07
(9.10.15.1) Adjacent Tendon Lift-Offs (*Note: Use a separate Data Sheet 9.0 to document Liftoff forces.*)	
a) Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ ☒ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within -0/+6% of BVPF.	
Owner Notified: ☒ Yes ☐ No Name/Date: N/A	BG 11-7-07
b) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: N/A	BG 11-7-07
c) Adj Tendon: ____ Adj Tendon: ____ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: N/A	BG 11-7-07

QC Reviewed: [signature] Level: II Date: 10-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: GW34 Tendon End: Butt. Ga

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-7-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-7-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-7-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-7-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-7-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-7-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H34 Tendon End: Butt. 6

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	2 gal.	BG 11-12-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 11-12-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-12-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-12-07
(8.8) TOTAL Tendon Grease Loss:	4 gal.	BG 11-12-07
(8.9) Ambient Temp.: 70 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(8.10) Grease Cap Removal Date: 11-7-07 Grease Replacement Date: 11-12-07		BG 11-12-07
Elapsed Time: 5 days		BG 11-12-07
(9.8.4.1) Grease height in drum before: 17 in. (9.8.5.1) Height in drum after: 15 1/2 in.		BG 11-12-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured		BG 11-12-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	2.65 gal.	BG 11-12-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-12-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-12-07
Grease Temp.: 210 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-12-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-12-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-12-07
(10.3.10) TOTAL amount of Grease replaced: 5.3 gal. (hand pumped + pressure pumped – exiting outflow)		BG 11-12-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.47 gal.

(10.3.11) Percent variation difference: 1.07 % — BG 11-12-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No — BG 11-12-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) — BG 11-12-07

If No – Customer Notified NCR No.: N/A — BG 11-12-07

(11.4) Comments: none.

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SU6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Adjacent Tendon

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: G2H32 Tendon End: Butt-2

Grease Cap Removal

		Q.C. Signoff
Date Removal Started: 11-8-07		
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area:	☐ Yes ☒ No	
(7.5) Temp. of Concrete: 68 °F Thermometer No.: ST78	Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 70 °F Thermometer No.: PK30	Re-Cal Date: 8-30-08	BG 11-8-07
(8.5.1) Anchorhead I.D. CR75	Anchorhead Verification: ☒ Match ☐ No-Match	BG 11-8-07

(8.6, 8.6.1, 8.6.2) Grease Coating

	Complete	Partial	Uncoated	
Grease Cap -	✓			%
Buttonheads -	✓			%
Anchorheads -	✓			%
Shims -	✓			%
Bearing Plate – (1)	✓			%

(1) - *Limited within the inside diameter of the grease cap.* — BG 11-8-07

(8.7) Unusual Conditions: None — BG 11-8-07

(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown
Comments: None — BG 11-8-07

(8.11) Qty. of Grease lost from cap: .5 gal. (8.11.1) Qty. of Grease removed from cap: 1 gal. — BG 11-8-07
(9.6) Qty. of Grease removed from anchorage: .5 gal. — BG 11-8-07

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples ____ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct — BG 11-8-07

(10.2) Method of Tendon Protection: replaced cap (Installed new gasket 11-12-07) — BG 11-8-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal. — BG 11-8-07

Total quantity of lost grease (below):
(8.11) .5 + (8.11.1) 1 + (9.6) .5 + SQ 7.0 (6.1) 0 + (10.3) 0 = 2 TOTAL — BG 11-8-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No — BG 11-8-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 6dH3a Tendon End: Butt. d

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: None

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [illegible] Level: II Date: 11-8-07

QC Reviewed: [illegible] Level: II Date: 11/21/07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 6d432 Tendon End: Butt-d

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

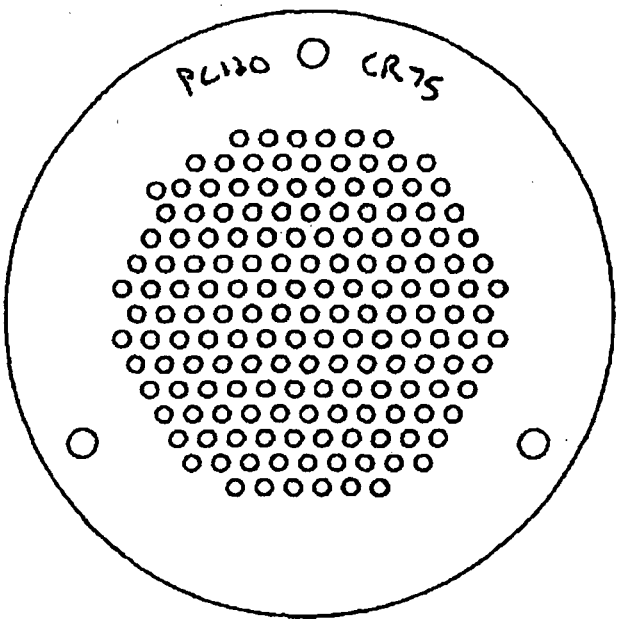
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☒ No	☐ N/A	BG 11-8-07

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- Offsize (Malformed)
- Protruding/unseated wire/buttonheads.
- Broken/missing wire/buttonheads.
- Previously identified as missing
- Discontinuous – removed
- wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. CR75
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC120
Located on Sketch: ☒ Yes ☐ No
Shims 7° 3,1,3

(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 11-8-07
BG 11-8-07
BG 11-8-07
BG 11-8-07
BG 11-8-07
BG 11-8-07
BG 11-8-07
BG 11-8-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
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Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: 62H32 Tendon End: Butt. 2

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
9.3) Temp. of Concrete: 68 °F Thermometer No.: 5778 Recal Date: 8-30-08	
Ambient Temp.: 70 °F Thermometer No.: PR20 Recal Date: 8-30-08	BG 11-8-07
9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable	BG 11-8-07
9.5) Number of Effective Wires: 163	BG 11-8-07
9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable	BG 11-8-07
9.7) RAM ID: 8780 Recal Date: end of job RAM Area: 535.282 K = -5.022	
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes	BG 11-8-07
9.8) Shim Stack Height: #1 7 in. #2 7 in. Ruler ID: R-16 Recal Date: 8-30-08	
Individual Shims: Stack #1: 5,1,3 in. Stack #2: 3,1,3 in.	BG 11-8-07
9.9) Base Value Predicted Force (BVPF): 1455 kips Pressure: 4354.60 psi	
BVPF: 1455 kips 95% BVPF: 1382 kips 90% BVPF: 1310 kips	
4354.60 psi 4136.88 psi 3922.02 psi	BG 11-8-07
9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) 3950 psi Stack #2: 1) 3990 psi 1) 3990 psi	
2) 3950 psi 2) 3990 psi 2) 3990 psi	
3) 3950 psi 3) 3990 psi 3) 3990 psi	
9.10.10) Actual Force (this end): 1332.75 kips Actual Average: 3990 psi	BG 11-8-07
9.10.10.1) Actual Force (opposite end): ~~X~~ N/A kips (9.10.10.2) AALV FORCE 1332.75 kips	BG 11-8-07
10.0) AALV Acceptance Criteria: *. Liftoff performed on Butt. 2 end only,	
a) ☒ Acceptable – AALV is ≥ 95% BVPF. Butt. 6 end inaccessable.	BG 11-8-07
b) ☒ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	BG 11-8-07
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	BG 11-8-07
NCR Required ☒ Yes ☐ No Customer Notified NCR No.: F-N1002-013	BG 11-8-07
9.10.15.1) Adjacent Tendon Lift-Offs (Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)	
Adj Tendon: ____ This Tendon: ____ Adj Tendon: ____ N/A ☐ Acceptable – AALV > 95% of BVPF. The original scope tendon SHALL be restored to within -0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date:	BG 11-8-07
Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.:	BG 11-8-07
Adj Tendon: ____ Adj Tendon: ____ N/A ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR. Customer Notified NCR No.:	BG 11-8-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H32 Tendon End: Butt. 2

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: 68 °F Thermometer No.: ST78 Recal Date: 8-30-08
(9.3) Ambient Temp.: 66 °F Thermometer No.: PK30 Recal Date: 8-30-08
(9.4) Anchorhead and Stressing Adapter Threads: ☒ Acceptable ☐ Unacceptable
(9.5) Number of Effective Wires: 163 (from Data Sht. 8.0)
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment: ☒ Acceptable ☐ Unacceptable
(9.6.3) RAM ID: 8780 Recal Date: Job end RAM Area: 335.282 K = - 5.022 BG 11-8-07
Gauge ID: 1017881 Recal Date: daily on use Daily Check: Yes BG 11-8-07

Calculated Force for Elongation Measurement and Retensioning

NOTE: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.

(9.7.4) PTF = kips Pressure: psi
Step 1 = kips Pressure: psi Elongation: in.
Step 2 = kips Pressure: psi Elongation: in.
LOF = kips Pressure: psi
OSF = kips Pressure: psi Elongation: in. BG 11-8-07

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = kips Pressure: psi ① Elongation: in.
(9.8.3.1) Step 1 = kips Pressure: psi Elongation: in.
(9.8.4.1) Step 2 = kips Pressure: psi Elongation: in.
(9.8.5.2) OSF = kips Pressure: psi ② Elongation: in. BG 11-8-07
(9.8.5.3) ② – ① = in. Elongation Value (this end)
(9.8.5.4) in. Elongation Value (opposite end)
(9.8.5.4) in. TOTAL Tendon Elongation Value BG 11-8-07
(9.8.8.2) Elongation Variation: % Ruler ID: Recal Date: BG 11-8-07
(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable BG 11-8-07
Customer Notified NCR No.: BG 11-8-07

(9.7.3) LOF Acceptable Range: From: 4354.60 psi To: 4614.98 psi BG 11-8-07

(9.9.6) Actual Lock-Off

Stack #1:	Stack #2:	(9.9.7) Circled Values
1) 4450 psi	1) 4480 psi	1) 4480 psi
2) 4450 psi	2) 4480 psi	2) 4480 psi
3) 4450 psi	3) 4480 psi	3) 4480 psi

(9.9.7) Force (this end): 1497.04 kips Actual Average: 4480 psi BG 11-8-07
(9.9.7) Force (opposite end): N/A kips This Tendon – AALV FORCE 1497.04 kips BG 11-8-07
(9.9.8) AALV Acceptable: ☒ Yes ☐ No Customer Notified NCR No.: N/A BG 11-8-07

(9.9.11.1) Additional broken/missing wires: ☒ No ☐ Yes Amount: N/A BG 11-8-07
(9.9.11.2) Additional Protruding/Unseated wires: ☒ No ☐ Yes Amount: N/A BG 11-8-07
If Yes – Customer Notified NCR No.: N/A BG 11-8-07

(9.9.11.3) Final Shim Stack Height: #1: 7 3/8 in. #2: 7 3/8 in. BG 11-8-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: (a)H3a Tendon End: Butt. a

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-12-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-12-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-12-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-12-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-12-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-12-07

Comments: None

QC Reviewed: [signature] Level: II Date 11-21-07

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: 62H32 Tendon End: Butt. 2

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end: 2 gal. BG 11-12-07

(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end: 0 gal. BG 11-12-07

(8.6) Estimated grease losses from leaks for this tendon end: 0 gal. BG 11-12-07

(8.7) Estimated grease losses from leaks for other tendon end: 0 gal. BG 11-12-07

(8.8) TOTAL Tendon Grease Loss: 2 gal. BG 11-12-07

(8.9) Ambient Temp.: 72 °F Thermo. ID: PK30 Recal Date: 8-30-08 BG 11-12-07

(8.10) Grease Cap Removal Date: 11-8-07 Grease Replacement Date: 11-12-07 BG 11-12-07

Elapsed Time: 4 days BG 11-12-07

(9.8.4.1) Grease height in drum before: 20 in. (9.8.5.1) Height in drum after: 18 1/2 in. BG 11-12-07

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: 2.65 gal. ☒ Pumped ☐ Poured BG 11-12-07

(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end: 2.65 gal. BG 11-12-07

(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end: 0 gal. BG 11-12-07

(10.3.7) Quantity of Pressure Pumped into this tendon end: 0 gal. BG 11-12-07

Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08 BG 11-12-07

(10.3.8) Quantity of Exiting Outflow Grease: 0 gal. BG 11-12-07

(10.3.9) Quantity of Grease, Hand Pumped into other tendon end: 0 gal. BG 11-12-07

(10.3.10) TOTAL amount of Grease replaced: 2.65 gal. *(hand pumped + pressured pumped – exiting outflow)* BG 11-12-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.45 gal.

(10.3.11) Percent variation difference: .53 % BG 11-12-07

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-12-07

(11.3) Refill Acceptable: ☒ Yes *(less than 10%)* ☐ No *(greater than 10%)* BG 11-12-07

If No – Customer Notified NCR No.: N/A BG 11-12-07

(11.4) Comments: none

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
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Revision 0

Adjacent Tendons

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 6H32 Tendon End: Butt. 6

Grease Cap Removal

	Q.C. Signoff
Date Removal Started: 11-13-07	
(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☒ No	
(7.5) Temp. of Concrete: 88 °F Thermometer No.: 5278 Re-Cal Date: 8-30-08	
(7.5) Ambient Temp.: 82 °F Thermometer No.: PK30 Re-Cal Date: 8-30-08	BG 11-13-07
(8.5.1) Anchorhead I.D. CR960 Anchorhead Verification: ☒ Match ☐ No-Match	BG 11-13-07
(8.6, 8.6.1, 8.6.2) Grease Coating	
Grease Cap - Complete ✓ Partial ___ Uncoated ___ %	
Buttonheads - Complete ✓ Partial ___ Uncoated ___ %	
Anchorheads - Complete ✓ Partial ___ Uncoated ___ %	
Shims - Complete ✓ Partial ___ Uncoated ___ %	
Bearing Plate – (1) Complete ✓ Partial ___ Uncoated ___ %	BG 11-13-07
(1) - *Limited within the inside diameter of the grease cap.*	
(8.7) Unusual Conditions: none	BG 11-13-07
(8.8) Grease Color Match: ☒ Yes ☐ No Grease Color: Brown	
Comments: None	BG 11-13-07
(8.11) Qty. of Grease lost from cap: 0 gal. (8.11.1) Qty. of Grease removed from cap: 0 gal.	BG 11-13-07
(9.6) Qty. of Grease removed from anchorage: 0 gal.	BG 11-13-07
Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.	
(6.1) Quantity of Samples ___ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No	
(6.1) Location of Removal N/A ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct	BG 11-13-07
(10.2) Method of Tendon Protection: replaced cap w/new gasket	BG 11-13-07
(10.3) Amount of Grease Loss from Tendon duct: 0 gal.	BG 11-13-07
Total quantity of lost grease (below):	
(8.11) 0 + (8.11.1) 0 + (9.6) 0 + SQ 7.0 (6.1) 0 + (10.3) 0 = 0 TOTAL	BG 11-13-07
Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☒ Yes ☐ No	BG 11-13-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: 6H32 Tendon End: Butt. 6

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☒ No Quantity: 0 Sample Taken: ☐ Yes ☒ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☒ Not Applicable

Comments: none

DURING DETENSIONING N/A

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments:

OWNER/AGENT NOTIFICATION N/A

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: Date:

SAMPLE IDENTIFICATION AND STORAGE N/A

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at:

QC Signoff: Brian [illegible] Level: II Date: 11-15-07

QC Reviewed: [illegible] Level: II Date: 11-21-07

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: 62H32 Tendon End: Butt. 6

ANCHORAGE INSPECTION CRITERIA

☒ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

8.2 & 8.3 - CORROSION & CRACK INSPECTION

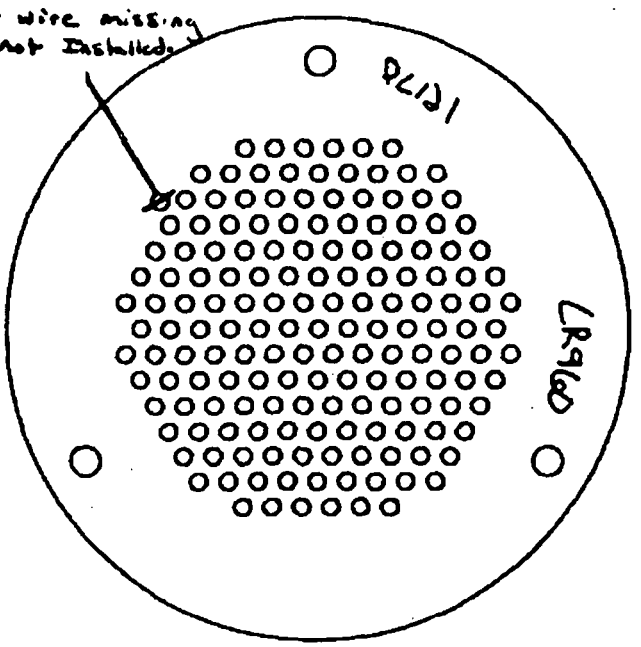
(8.2.1.1) Buttonheads	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Anchorhead	Level: 1 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Shims	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	
(8.2.2.1) Bearing Plate	Level: 2 [1]	(8.2.1 & 8.2.2) Cracks	☐ Yes [2]	☒ No	☐ N/A	BG 11-13-07

[1] – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
[2] – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

- ◗ Offsize (Malformed)
- ▬ Protruding/unseated wire/buttonheads.
- Ø Broken/missing wire/buttonheads.
- ● Previously identified as missing
- ⊘ Discontinuous – removed
- ⊗ wire(s) being removed during this surveillance for testing.

Test wire missing or not installed



(8.4.6) Anchorhead I.D. CR960
Located on Sketch: ☒ Yes ☐ No
(8.4.6) Heat Code PC121
Located on Sketch: ☒ Yes ☐ No
Shims 6½ 3, 3, 3/8, 1/8
(8.4.7) Offsize Buttonhead Totals
A = N/A
B = N/A
C = N/A

(8.4.5) Missing Buttonheads: ☐ Yes ☒ No; Quantity: 0 (8.4.8.3) # of Missing Buttonheads Found: 0
(8.4.8.4) Total # of Effective Buttonheads Seated: 163
(8.5.2) Protruding BH: 0 Missing BH: 0 Total (Protruding+Missing): 0
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☒ No Wires Identified: ☐ Yes ☐ No ☒ N/A

Overall Results ☒ Acceptable ☐ Un-Acceptable Customer Notified NCR#: N/A

BG 11-13-07
BG 11-13-07
BG 11-13-07
BG 11-13-07
BG 11-13-07
BG 11-13-07
BG 11-13-07
BG 11-13-07

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: (6)H32 Tendon End: Butt. 6

GREASE CAP REPLACEMENT DOCUMENTATION			QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☒ Yes	☐ No	BG 11-13-07
(9.6.1) Anchorage Assembly is coated lightly with grease	☒ Yes	☐ No	BG 11-13-07
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☒ Yes	☐ No	BG 11-13-07
(9.10.1) New gasket is being used for final installation of grease cap.	☒ Yes	☐ No	BG 11-13-07
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☒ Yes	☐ No	BG 11-13-07
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes	☒ No	BG 11-13-07

Comments: None

QC Reviewed: [signature] Level: II Date: 11-21-07

PSC

PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: G4H32 Tendon End: Butt. G

GREASE REPLACEMENT DOCUMENTATION		QC Signoffs
(8.4) Total Grease Loss from Data Sheet 6.0 for this tendon end:	0 gal.	BG 11-15-07
(8.5) Total Grease Loss from Data Sheet 6.0 for other tendon end:	2 gal.	BG 11-15-07
(8.6) Estimated grease losses from leaks for this tendon end:	0 gal.	BG 11-15-07
(8.7) Estimated grease losses from leaks for other tendon end:	0 gal.	BG 11-15-07
(8.8) TOTAL Tendon Grease Loss:	2 gal.	BG 11-15-07
(8.9) Ambient Temp.: 82 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-15-07
(8.10) Grease Cap Removal Date: 11-15-07 Grease Replacement Date: 11-15-07		BG 11-15-07
Elapsed Time: N/A days		BG 11-15-07
(9.8.4.1) Grease height in drum before: N/A in. (9.8.5.1) Height in drum after: N/A in.		BG 11-15-07
(9.8.5.2) TOTAL amount of Grease Pumped/Poured: N/A gal. ☐ Pumped N/A ☐ Poured		BG 11-15-07
(10.2.6) Quantity of Grease Hand Pumped/Poured into this tendon end:	N/A gal.	BG 11-15-07
(10.2.7) Quantity of Grease Hand Pumped/Poured into other tendon end:	2.65 gal.	BG 11-15-07
(10.3.7) Quantity of Pressure Pumped into this tendon end:	0 gal.	BG 11-15-07
Grease Temp.: 200 °F Thermo. ID: PK30 Recal Date: 8-30-08		BG 11-15-07
(10.3.8) Quantity of Exiting Outflow Grease:	0 gal.	BG 11-15-07
(10.3.9) Quantity of Grease, Hand Pumped into other tendon end:	2.65 gal.	BG 11-15-07
(10.3.10) TOTAL amount of Grease replaced: 2.65 gal. (hand pumped + pressure pumped – exiting outflow)		BG 11-15-07

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: 121.45 gal.

(10.3.11) Percent variation difference: .55 % BG 11-15-07

$$\frac{\text{Total Quantity (10.2.6)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\% \text{ variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☒ No BG 11-15-07

(11.3) Refill Acceptable: ☒ Yes (less than 10%) ☐ No (greater than 10%) BG 11-15-07

If No – Customer Notified NCR No.: N/A BG 11-15-07

(11.4) Comments: none

QC Reviewed: [signature] Level: II Date: 11-21-07

Suburban Laboratories, Inc.
1110 Lake Drive Hillside IL 60162 (708) 544-3300

Laboratory Results

Client ID: Precision Surveillance Corp. **Report Date:** December 06, 2007

Project Name: Crystal River Grease Sample testing **Lab Order:** 07111065

Client Sample ID: 12V01-TOP **Matrix:** GREASE

Lab ID: 07111065-01 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method ASTM-D512-Rev 2004			Analyst AC	
Chloride	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method			Analyst MB	
Moisture Content	0.19	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method			Analyst SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method			Analyst MB	
Base Number	71.5	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method			Analyst SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

Client Sample ID: 45V20-TOP **Matrix:** GREASE

Lab ID: 07111065-02 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method ASTM-D512-Rev 2004			Analyst AC	
Chloride	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method			Analyst MB	
Moisture Content	0.19	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method			Analyst SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method			Analyst MB	
Base Number	72.3	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method			Analyst SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

PSC
Q.A. REVIEWED
BY: [illegible]
DATE: 12-6-07

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- c Analyte not included in SLI scope of accreditation
- G Refer to case narrative page for specific comments
- J Analyte detected below quantitation limit (QL)
- ND Not Detected at the SLI Reporting Limit
- B Analyte detected in the associated Method Blank
- E Estimated, analyte detected above quantitation range
- H Holding times for preparation or analysis exceeded
- NA Not Applicable
- Q Internal standard recovery is outside SLI in-house criteria (no method specific requirements exist)

Suburban Laboratories, Inc.
4840 Lin Dove, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Precision Surveillance Corp. **Report Date:** December 06, 2007
Project Name: Crystal River Grease Sample testing **Lab Order:** 07111065

Client Sample ID: 61V08-TOP **Matrix:** GREASE
Lab ID: 07111065-03 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	0.16	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	68.4	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

Client Sample ID: 61V17-TOP **Matrix:** GREASE
Lab ID: 07111065-04 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	ND	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	61.5	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

PSC
Q.A. REVIEWED
BY:
DATE: 12-6-07

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- c Analyte not included in SLI scope of accreditation
- G Refer to case narrative page for specific comments
- J Analyte detected below quantitation limit (QL)
- ND Not Detected at the SLI Reporting Limit
- B Analyte detected in the associated Method Blank
- E Estimated, analyte detected above quantitation range
- H Holding times for preparation or analysis exceeded
- NA Not Applicable
- Q Internal standard recovery is outside SLI in-house criteria (no method specific requirements exist)

Suburban Laboratories, Inc.
4140 Lin Dave, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Precision Surveillance Corp.
Report Date: December 06, 2007
Project Name: Crystal River Grease Sample testing
Lab Order: 07111065

Client Sample ID: 13H36-BUTT 1
Matrix: GREASE
Lab ID: 07111065-05 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method			Analyst: MB	
Moisture Content	0.33	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method			Analyst: MB	
Base Number	45.4	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

Client Sample ID: 42H46-BUTT 2
Matrix: GREASE
Lab ID: 07111065-06 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method			Analyst: MB	
Moisture Content	ND	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	40.4	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

PSC
Q.A. REVIEWED
BY: [signature]
DATE: 12-6-07

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- c Analyte not included in SLI scope of accreditation
- G Refer to case narrative page for specific comments
- J Analyte detected below quantitation limit (QL)
- ND Not Detected at the SLI Reporting Limit
- B Analyte detected in the associated Method Blank
- E Estimated, analyte detected above quantitation range
- H Holding times for preparation or analysis exceeded
- NA Not Applicable
- Q Internal standard recovery is outside SLI in-house criteria (no method specific requirements exist)

Suburban Laboratories, Inc.
4140 Lat Drive Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Precision Surveillance Corp. **Report Date:** December 06, 2007
Project Name: Crystal River Grease Sample testing **Lab Order:** 07111065

Client Sample ID: 46H21-BUTT 4 **Matrix:** GREASE
Lab ID: 07111065-07 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	ND	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	55.7	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

Client Sample ID: 51H34-BUTT 1 **Matrix:** GREASE
Lab ID: 07111065-08 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	0.12	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	47.7	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

PSC
Q.A. REVIEWED
BY: [signature]
DATE: 12-6-07

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- c Analyte not included in SLI scope of accreditation
- G Refer to case narrative page for specific comments
- J Analyte detected below quantitation limit (QL)
- ND Not Detected at the SLI Reporting Limit
- B Analyte detected in the associated Method Blank
- E Estimated, analyte detected above quantitation range
- H Holding times for preparation or analysis exceeded
- NA Not Applicable
- Q Internal standard recovery is outside SLI in-house criteria (no method specific requirements exist)

Suburban Laboratories, Inc.
4140 Lin Drive Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Precision Surveillance Corp.
Report Date: December 06, 2007
Project Name: Crystal River Grease Sample testing
Lab Order: 07111065

Client Sample ID: 62H30-BUTT 2
Matrix: GREASE
Lab ID: 07111065-09
Date Received: 11/19/2007 9:30 AM
Collection Date: 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method			Analyst: MB	
Moisture Content	ND	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method			Analyst: MB	
Base Number	34.0	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

Client Sample ID: D129-BUTT 3
Matrix: GREASE
Lab ID: 07111065-10
Date Received: 11/19/2007 9:30 AM
Collection Date: 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method			Analyst: MB	
Moisture Content	0.91	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method			Analyst: MB	
Base Number	50.2	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

PSC
Q.A. REVIEWED
BY:
DATE: 12-6-07

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- c Analyte not included in SLI scope of accreditation
- G Refer to case narrative page for specific comments
- J Analyte detected below quantitation limit (QL)
- ND Not Detected at the SLI Reporting Limit
- B Analyte detected in the associated Method Blank
- E Estimated: analyte detected above quantitation range
- H Holding times for preparation or analysis exceeded
- NA Not Applicable
- Q Internal standard recovery is outside SLI in-house criteria (no method specific requirements exist)

Suburban Laboratories, Inc.
1140 Lin Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Precision Surveillance Corp. **Report Date:** December 06, 2007
Project Name: Crystal River Grease Sample testing **Lab Order:** 07111065

Client Sample ID: D212- BUTT 1 **Matrix:** GREASE
Lab ID: 07111065-11 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	0.17	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	54.3	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

Client Sample ID: D238-BUTT 4 **Matrix:** GREASE
Lab ID: 07111065-12 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	0.17	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	45.2	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

PSC
Q.A. REVIEWED
BY: [illegible]
DATE: 12-6-07

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- c Analyte not included in SLI scope of accreditation
- G Refer to case narrative page for specific comments
- J Analyte detected below quantitation limit (QL)
- ND Not Detected at the SLI Reporting Limit
- B Analyte detected in the associated Method Blank
- E Estimated, analyte detected above quantitation range
- H Holding times for preparation or analysis exceeded
- NA Not Applicable
- Q Internal standard recovery is outside SLI in-house criteria (no method specific requirements exist)

Suburban Laboratories, Inc.

Laboratory Results

Client ID: Precision Surveillance Corp.
Report Date: December 06, 2007
Project Name: Crystal River Grease Sample testing
Lab Order: 07111065

Client Sample ID: 12V01-BOTTOM
Matrix: GREASE
Lab ID: 07111065-13
Date Received: 11/19/2007 9:30 AM
Collection Date: 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method ASTM-D512-Rev 2004			Analyst AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method			Analyst MB	
Moisture Content	0.31	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method			Analyst SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method			Analyst MB	
Base Number	51.9	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method			Analyst SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

Client Sample ID: 45V20-BOTTOM
Matrix: GREASE
Lab ID: 07111065-14
Date Received: 11/19/2007 9:30 AM
Collection Date: 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method ASTM-D512-Rev 2004			Analyst AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method			Analyst MB	
Moisture Content	0.34	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method			Analyst SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method			Analyst MB	
Base Number	60.2	c	0.500	mg KOH/g	1	12/03/2007 12:00 AM	R67976
SULFIDE BY APHA			Method			Analyst SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

PSC
Q.A. REVIEWED
BY: [illegible]
DATE: 12-6-07

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- c Analyte not included in SLI scope of accreditation
- G Refer to case narrative page for specific comments
- J Analyte detected below quantitation limit (QL)
- ND Not Detected at the SLI Reporting Limit
- B Analyte detected in the associated Method Blank
- E Estimated, analyte detected above quantitation range
- H Holding times for preparation or analysis exceeded
- NA Not Applicable
- Q Internal standard recovery is outside SLI inhouse criteria (no method specific requirements exist)

Suburban Laboratories, Inc.
4140 Lutz Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Precision Surveillance Corp. **Report Date:** December 06, 2007
Project Name: Crystal River Grease Sample testing **Lab Order:** 07111065

Client Sample ID: 61V08-BOTTOM **Matrix:** GREASE
Lab ID: 07111065-15 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	ND	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	48.0	c	0.500	mg KOH/g	1	12/04/2007 12:00 AM	R67978
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

Client Sample ID: 61V17-BOTTOM **Matrix:** GREASE
Lab ID: 07111065-16 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	ND	c	0.10	wt%	1	11/29/2007 12:00 AM	R67979
NITRATE BY ASTM			Method			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	43.4	c	0.500	mg KOH/g	1	12/04/2007 12:00 AM	R67978
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

PSC
Q.A. REVIEWED
BY
DATE: 12-6-07

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- c Analyte not included in SLI scope of accreditation
- G Refer to case narrative page for specific comments
- J Analyte detected below quantitation limit (QL)
- ND Not Detected at the SLI Reporting Limit
- B Analyte detected in the associated Method Blank
- E Estimated, analyte detected above quantitation range
- H Holding times for preparation or analysis exceeded
- NA Not Applicable
- Q Internal standard recovery is outside SLI in-house criteria (no method specific requirements exist)

Suburban Laboratories, Inc.
4116 Lin Dave Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Precision Surveillance Corp.
Project Name: Crystal River Grease Sample testing
Report Date: December 06, 2007
Lab Order: 07111065

Client Sample ID: 13H36-BUTT 3
Matrix: GREASE
Lab ID: 07111065-17
Date Received: 11/19/2007 9:30 AM
Collection Date: 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	1.0	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method			Analyst: MB	
Moisture Content	0.10	c	0.10	wt%	1	11/30/2007 12:00 AM	R67980
NITRATE BY ASTM			Method			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method			Analyst: MB	
Base Number	46.3	c	0.500	mg KOH/g	1	12/04/2007 12:00 AM	R67978
SULFIDE BY APHA			Method			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

Client Sample ID: 42H46-BUTT 4
Matrix: GREASE
Lab ID: 07111065-18
Date Received: 11/19/2007 9:30 AM
Collection Date: 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67973
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	ND	c	0.10	wt%	1	11/30/2007 12:00 AM	R67980
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/04/2007 12:00 AM	R68025
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	43.1	c	0.500	mg KOH/g	1	12/04/2007 12:00 AM	R67978
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67943

PSC
Q.A. REVIEWED
BY:
DATE: 12-6-07

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- c Analyte not included in SLI scope of accreditation
- G Refer to case narrative page for specific comments
- J Analyte detected below quantitation limit (QL)
- ND Not Detected at the SLI Reporting Limit
- B Analyte detected in the associated Method Blank
- E Estimated, analyte detected above quantitation range
- H Holding times for preparation or analysis exceeded
- NA Not Applicable
- Q Internal standard recovery is outside SLI in-house criteria (no method specific requirements exist)

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Precision Surveillance Corp. **Report Date:** December 06, 2007
Project Name: Crystal River Grease Sample testing **Lab Order:** 07111065

Client Sample ID: 46H21-BUTT 6 **Matrix:** GREASE
Lab ID: 07111065-19 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67975
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	ND	c	0.10	wt%	1	11/30/2007 12:00 AM	R67980
NITRATE BY ASTM			Method			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/05/2007 12:00 AM	R68027
NEUTRALIZATION NUMBER BY ASTM			Method			Analyst: MB	
Base Number	62.4	c	0.500	mg KOH/g	1	12/04/2007 12:00 AM	R67978
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67944

Client Sample ID: 51H34-BUTT 5 **Matrix:** GREASE
Lab ID: 07111065-20 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67975
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	ND	c	0.10	wt%	1	11/30/2007 12:00 AM	R67980
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/05/2007 12:00 AM	R68027
NEUTRALIZATION NUMBER BY ASTM			Method.			Analyst: MB	
Base Number	40.3	c	0.500	mg KOH/g	1	12/04/2007 12:00 AM	R67978
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67944

PSC
Q.A. REVIEWED
BY: [signature]
DATE: 12-6-07

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- c Analyte not included in SLI scope of accreditation
- G Refer to case narrative page for specific comments
- J Analyte detected below quantitation limit (QL)
- ND Not Detected at the SLI Reporting Limit
- B Analyte detected in the associated Method Blank
- E Estimated, analyte detected above quantitation range
- H Holding times for preparation or analysis exceeded
- NA Not Applicable
- Q Internal standard recovery is outside SLI in-house criteria (no method specific requirements exist)

Suburban Laboratories, Inc.
1140 Lin Drive Hillside, IL 60162 (708) 544-1260

Laboratory Results

Client ID: Precision Surveillance Corp. **Report Date:** December 06, 2007
Project Name: Crystal River Grease Sample testing **Lab Order:** 07111065

Client Sample ID: 62H30-BUTT 6 **Matrix:** GREASE
Lab ID: 07111065-21 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method ASTM-D512-Rev 2004			Analyst AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67975
MOISTURE BY ASTM			Method			Analyst MB	
Moisture Content	ND	c	0.10	wt%	1	11/30/2007 12:00 AM	R67980
NITRATE BY ASTM			Method			Analyst SL	
Nitrate	ND	c	0.50	ppm	1	12/05/2007 12:00 AM	R68027
NEUTRALIZATION NUMBER BY ASTM			Method			Analyst MB	
Base Number	48.2	c	0.500	mg KOH/g	1	12/04/2007 12:00 AM	R67978
SULFIDE BY APHA			Method			Analyst SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67944

Client Sample ID: D129-BUTT 5 **Matrix:** GREASE
Lab ID: 07111065-22 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method ASTM-D512-Rev 2004			Analyst AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67975
MOISTURE BY ASTM			Method			Analyst MB	
Moisture Content	0.48	c	0.10	wt%	1	11/30/2007 12:00 AM	R67980
NITRATE BY ASTM			Method			Analyst SL	
Nitrate	ND	c	0.50	ppm	1	12/05/2007 12:00 AM	R68027
NEUTRALIZATION NUMBER BY ASTM			Method			Analyst MB	
Base Number	42.9	c	0.500	mg KOH/g	1	12/04/2007 12:00 AM	R67978
SULFIDE BY APHA			Method:			Analyst SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67944

PSC
Q.A. REVIEWED
BY:
DATE: 12-6-07

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- c Analyte not included in SLI scope of accreditation
- G Refer to case narrative page for specific comments
- J Analyte detected below quantitation limit (DL)
- ND Not Detected at the SLI Reporting Limit
- B Analyte detected in the associated Method Blank
- E Estimated: analyte detected above quantitation range
- H Holding times for preparation or analysis exceeded
- N/A Not Applicable
- Q Internal standard recovery is outside SLI in-house criteria (no method specific requirements exist)

Suburban Laboratories, Inc.
1140 Lin Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Precision Surveillance Corp. **Report Date:** December 06, 2007
Project Name: Crystal River Grease Sample testing **Lab Order:** 07111065

Client Sample ID: D212-BUTT 3 **Matrix:** GREASE
Lab ID: 07111065-23 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67975
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	0.18	c	0.10	wt%	1	11/30/2007 12:00 AM	R67980
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/05/2007 12:00 AM	R68027
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	44.0	c	0.500	mg KOH/g	1	12/04/2007 12:00 AM	R67978
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67944

Client Sample ID: D238-BUTT 6 **Matrix:** GREASE
Lab ID: 07111065-24 **Date Received:** 11/19/2007 9:30 AM **Collection Date:** 11/02/2007 12:00 AM

Parameter	Result	Qual.	Report Limit	Units	Dilution Factor	Date Analyzed	Batch ID
CHLORIDE BY ASTM			Method: ASTM-D512-Rev 2004			Analyst: AC	
Chloride	0.50	c	0.50	ppm	1	12/04/2007 12:00 AM	R67975
MOISTURE BY ASTM			Method:			Analyst: MB	
Moisture Content	ND	c	0.10	wt%	1	11/30/2007 12:00 AM	R67980
NITRATE BY ASTM			Method:			Analyst: SL	
Nitrate	ND	c	0.50	ppm	1	12/05/2007 12:00 AM	R68027
NEUTRALIZATION NUMBER BY ASTM			Method:			Analyst: MB	
Base Number	43.3	c	0.500	mg KOH/g	1	12/04/2007 12:00 AM	R67978
SULFIDE BY APHA			Method:			Analyst: SL	
Sulfide	ND	c	0.500	ppm	1	12/03/2007 12:00 AM	R67944

PSC
Q.A. REVIEWED
BY: [signature]
DATE: 12-6-07

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not included in SLI scope of accreditation	E	Estimated, analyte detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	NA	Not Applicable
ND	Not Detected at the SLI Reporting Limit	Q	Internal standard recovery is outside SLI in-house criteria (no method specific requirements exist)

PSC PROCEDURE QA 9.0
NONCOMFORMANCES
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

NONCONFORMANCE REPORT INDEX LOG

NCR#	DESCRIPTION	DATE WRITTEN	DATE SUBMITTED	DATE APPROVED	DATE COMPLETE
FN1002-001	Tendon 46H21 below 95% PF	10-17-07	10-18-07		
FN1002-002	Tendons 46H20 + 46H21 below 90% BUPF	10-18-07	10-19-07		
FN1002-003	Tendon 46H19 below 95% BUPF	10-22-07	10-23-07		
FN1002-004	Tendon 13V01 Field/bottom end 5 missing Buttonheads	10-24-07	10-25-07		
FN1002-005	Tendon 61V17 Shop/top 2 missing Buttonheads	10-25-07	10-26-07		
FN1002-006	Tendon 13H36 below 95% PF	10-26-07	10-26-07		
FN1002-007	Tendons 13H35 + 13H37 below 95% PF	10-29-07	10-29-07		
FN1002-008	Tendons 13H34 below 95% PF	10-31-07	11-1-07		
FN1002-009	Tendon 62H30 below 95% PF	11-5-07	11-5-07		
FN1002-010	Tendon 14V01 ~~missing~~ 86 11-5-07 1 wire protruding	11-5-07	11-5-07		
FN1002-011	Tendon 62H33 below 90% PF	11-8-07	11-8-07		
FN1002-012	Adjacent tendons 62H31 + 32 below 95%	11-8-07	11-9-07		

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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-001

NONCONFORMANCE:

HORIZONTAL TENDÓN 46H21 WAS FOUND WITH AN AVERAGE LIFTOFF VALUE BELOW 95% BVPF OF 1369 KIPS. BUTTRESS 4 SIDE FOUND AT 1319.34 KIPS, BUTTRESS 6 SIDE FOUND AT 1340.71 KIPS, AALV FORCE IS 1330.02 KIPS

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

PER PSC PROCEDURE SQ9.0 SECTION 10.2, IF AALV FAILS TO MEET ACCEPTANCE CRITERIA OF SECTION 10.1 BUT EQUALS OR EXCEEDS 90% OF BVPF, EACH OF THE ADJACENT TENDONS MUST BE MONITORED. THEN PROCEED TO SECTION 10.2.1 OR SECTION 10.2.2 AS APPLICABLE.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: Brian [illegible] TITLE level II QC **DATE:** 10-17-07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	QC CHRISTOPHER E. COX 10/18/07 (PER TELCON)	QA DANIEL P. O'SHEA 10/18/07 (PER TELCON)	ENGINEERING PAUL C. SMITH 10/18/07 (PER TELCON)

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	SIGNED:
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	TITLE:
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	DATE:

PSC PROCEDURE QA 9.0
NONCONFORMANCES
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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-002

NONCONFORMANCE:

ADJACENT TENDONS 46H20 AND 46H22 WERE FOUND WITH AN AVERAGE LIFTOFF VALUE BELOW 90% BVPF AT 1337KIPS FOR 46H22 AND 1321KIPS FOR 46H20. 46H20 HAD AN AVERAGE LIFTOFF OF 1298.13 AND 46H22 HAD AN AVERAGE OF 1311.46.

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

PER PSC PROCEDURE SQ9.0 SECTION 10.2.2 AND 10.3, IF THE AALV FALLS BELOW THE 90% BASE VALUE FORCE THE CONDITION IS UNACCEPTABLE AND SHALL BE REPORTED TO CR3ENG WITH A NONCONFORMANCE REPORT. CR3ENG SHALL DETERMINE THE REQUIRED COURSE OF ACTION TO BE TAKEN.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: Brian TITLE *LEVEL II QC* **DATE:** 10/19/07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	QC	QA	ENGINEERING
	CHRISTOPHER E. COX 10/19/07 (PER TELCON)	*DANIEL P. O'SHEA 10/19/07* (PER TELCON)	*PAUL C. SMITH 10/19/07* (PER TELCON)

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	SIGNED:
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	TITLE:
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	DATE:

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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-003

NONCONFORMANCE:

HORIZONTAL TENDÓN 46H23 WAS FOUND WITH AN AVERAGE LIFTOFF VALUE BELOW 95% BVPF OF 1354 KIPS. BUTTRESS 4 SIDE FOUND AT 1336.10 KIPS, BUTTRESS 6 SIDE FOUND AT 1323.85 KIPS, AALV FORCE IS 1329.97 KIPS

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

PER PSC PROCEDURE SQ9.0 SECTION 10.2, IF AALV FAILS TO MEET ACCEPTANCE CRITERIA OF SECTION 10.1 BUT EQUALS OR EXCEEDS 90% OF BVPF, EACH OF THE ADJACENT TENDONS MUST BE MONITORED. THEN PROCEED TO SECTION 10.2.1 OR SECTION 10.2.2 AS APPLICABLE.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: Brian [signature] TITLE *LEVEL II QC* **DATE:** 10/22/07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	QC	QA	ENGINEERING
	CHRISTOPHER E. COX 10/22/07 *(PER TELCON)*	*DANIEL P. O'SHEA 10/22/07* *(PER TELCON)*	*PAUL C. SMITH 10/22/07* *(PER TELCON)*

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	SIGNED:
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	TITLE:
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	DATE:

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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-004

NONCONFORMANCE:

VERTICAL TENDÓN 12V01 WAS FOUND WITH 3 ADDITIONAL MISSING BUTTONHEADS FROM THE PREVIOUS SURVEILLANCE REPORT OF ONLY 2 MISSING BUTTONHEADS, FOR A TOTAL OF 5 MISSING BUTTONHEADS.

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

PER PSC PROCEDURE SQ8.0, SECTION 9.7, WHEN 1 OR MORE MISSING BUTTONHEADS SINCE ORIGINAL INSTALLATION OR PREVIOUS SURVEILLANCE IS FOUND, CRO3ENG SHALL BE NOTIFIED BY A NONCONFORMANCE REPORT.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: Brian [illegible] TITLE *LEVEL II QC* **DATE:** 10/24/07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	QC	QA	ENGINEERING
	CHRISTOPHER E. COX 10/25/07 (PER TELCON)	*DANIEL P. O'SHEA 10/25/07* (PER TELCON)	*PAUL C. SMITH 10/25/07* (PER TELCON)

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			*DISPOSITION COMPLETED*
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	**SIGNED:**
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	**TITLE:**
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	**DATE:**

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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-005

NONCONFORMANCE:
VERTICAL TENDON 61V17 WAS FOUND WITH 2 ADDITIONAL MISSING BUTTONHEADS FROM THE ORIGINAL ISTALLATION DATA OF NO MISSING BUTTONHEADS.

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

PER PSC PROCEDURE SQ8.0, SECTION 9.7, WHEN 1 OR MORE MISSING BUTTONHEADS SINCE ORIGINAL INSTALLATION OR PREVIOUS SURVEILLANCE IS FOUND, CR03ENG SHALL BE NOTIFIED BY A NONCONFORMANCE REPORT.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: Brian [illegible] TITLE *LEVEL II QC* **DATE:** 10/25/07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	QC	QA	ENGINEERING
	CHRISTOPHER E. COX 10/26/07 (PER TELCON)	*DANIEL P. O'SHEA 10/26/07* (PER TELCON)	*PAUL C. SMITH 10/26/07* (PER TELCON)

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	SIGNED:
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	TITLE:
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	DATE:

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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-006

NONCONFORMANCE:

HORIZONTAL TENDON 13H36 WAS FOUND WITH AN AVERAGE LIFTOFF VALUE BELOW 95% BVPF OF 1410 KIPS. BUTTRESS 1 SIDE FOUND AT 1344.08 KIPS, BUTTRESS 3 SIDE FOUND AT 1426.63 KIPS, AALV FORCE IS 1385.23 KIPS

APPARENT CAUSE KNOWN: ☐ YES ☒ NO IF YES, DESCRIBE:

RECOMMENDED CORRECTIVE ACTION:

PER PSC PROCEDURE SQ9.0 SECTION 10.2, IF AALV FAILS TO MEET ACCEPTANCE CRITERIA OF SECTION 10.1 BUT EQUALS OR EXCEEDS 90% OF BVPF, EACH OF THE ADJACENT TENDONS MUST BE MONITORED. THEN PROCEED TO SECTION 10.2.1 OR SECTION 10.2.2 AS APPLICABLE.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: [signature] TITLE Level II QC DATE: 10-26-07

SIGNIFICANT CONDITION: ☐ YES ☒ NO IF YES, REFER TO QAM SECTION 4 CRITERIA XV.

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	QC CHRISTOPHER E. COX 10/26/07 (PER TELCON)	QA DANIEL P. O'SHEA 10/26/07 (PER TELCON)	ENGINEERING PAUL C. SMITH 10/26/07 (PER TELCON)

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	SIGNED:
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	TITLE:
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	DATE:

PSC PROCEDURE QA 9.0
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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-007

NONCONFORMANCE:

ADJACENT TENDONS 13H35 AND 13H37 WERE FOUND WITH AN AVERAGE LIFTOFF VALUE BELOW 95% BVPF AT 1304KIPS FOR 13H35 AND 1299KIPS FOR 13H37. 13H35 HAD AN AVERAGE LIFTOFF OF 1244.25KIPS AND 13H37 HAD AN AVERAGE OF 1289.87KIPS. PER 10.2.2 OF SQ 9.0 IF EITHER OF THE ADJACENT TENDONS FAILS TO SATISFY THE ACCEPTANCE CRITERIA OF SECTION 10.1, THE CONDITION SHALL BE DEEMED UNACCEPTABLE AND SHALL BE REPORTED TO CRO3ENG WITH A NONCONFORMANCE REPORT.

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

TO BE DETERMINED BY OWNER.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: Brian TITLE *LEVEL II QC* **DATE:** 10/30/07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	QC *CHRISTOPHER E. COX 10/30/07* *(PER TELCON)*	QA *DANIEL P. O'SHEA 10/30/07* *(PER TELCON)*	ENGINEERING PAUL C. SMITH 10/30/07 *(PER TELCON)*

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	**SIGNED:**
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	**TITLE:**
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	**DATE:**

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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-008

NONCONFORMANCE:

ADJACENT TENDON 13H34 WAS FOUND WITH AN AVERAGE LIFTOFF VALUE BELOW 95%BVPF OF 1402KIPS. THE AVERAGE LIFTOFF WAS 1368.61KIPS. PER SQ9.0 SECTION 10.2.2, IF EITHER OF THE ADJACENT TENDONS FAILS TO SATISFY THE ACCEPTANCE CRITERIA OF SECTION 10.1, THE CONDITION SHALL BE DEEMED UNACCEPTABLE AND SHALL BE REPORTED TO CRO3ENG WITH A NONCONFORMANCE REPORT.

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

TO BE DETERMINED BY OWNER.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: [signature] TITLE *LEVEL II QC* **DATE:** 10/31/07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	*QC* *CHRISTOPHER E. COX 11/1/07* *(PER TELCON)*	*QA* *DANIEL O'SHEA 11/1/07* *(PER TELCON)*	ENGINEERING PAUL C. SMITH 11/1/07 *(PER TELCON)*

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	**SIGNED:**
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	**TITLE:**
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	**DATE:**

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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-009

NONCONFORMANCE:

HORIZONTAL TENDON 62H30 WAS FOUND WITH AN AVERAGE LIFTOFF VALUE BELOW 95% BVPF OF 1342 KIPS. BUTTRESS 2 SIDE FOUND AT 1249.64KIPS, BUTTRESS 6 SIDE FOUND AT 1332.05KIPS, AALV FORCE IS 1290.84KIPS. PER PSC PROCEDURE SQ9.0 SECTION 10.2, IF AALV FAILS TO MEET ACCEPTANCE CRITERIA OF SECTION 10.1 BUT EQUALS OR EXCEEDS 90% OF BVPF, EACH OF THE ADJACENT TENDONS MUST BE MONITORED. THEN PROCEED TO SECTION 10.2.1 OR SECTION 10.2.2 AS APPLICABLE.

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

TO BE DETERMINED BY OWNER.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: Brian [signature] TITLE *LEVEL II QC* **DATE:** 11/5/07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	QC	QA	ENGINEERING
	CHRISTOPHER E. COX 11/6/07 *(PER TELCON)*	*DANIEL P. O'SHEA 11/6/07* *(PER TELCON)*	PAUL C. SMITH 11/6/07 *(PER TELCON)*

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	SIGNED:
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	TITLE:
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	DATE:

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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-010

NONCONFORMANCE:

VERTICAL TENDON 12V01, SHOP/TOP END, WAS FOUND WITH 1 PROTRUDING WIRE MORE THAN THE PREVIOUS SURVEILLANCE OF ONLY 1 PROTRUDING, FOR A TOTAL OF 2 PROTRUDING WIRES. PER PSC PROCEDURE SQ8.0 SECTION 9.6, FOR A QUANTITY OF 1 OR MORE PROTRUDING WIRES SINCE ORIGINAL INSTALLATION OR PREVIOUS SURVEILLANCE, CR03ENG SHALL BE NOTIFIED BY A NONCONFORMANCE REPORT.

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

TO BE DETERMINED BY OWNER.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: TITLE *LEVEL II QC* **DATE:** 11/5/07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	QC CHRISTOPHER E. COX 10/6/07 (PER TELCON)	QA DANIEL P. O'SHEA 10/6/07 (PER TELCON)	ENGINEERING PAUL C. SMITH 10/6/07 (PER TELCON)

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	SIGNED:
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	TITLE:
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	DATE:

PSC PROCEDURE QA 9.0
NONCONFORMANCES
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September 21, 2007
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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-011

NONCONFORMANCE:

HORIZONTAL TENDÓN 62H33 WAS FOUND WITH AN AVERAGE LIFTOFF VALUE BELOW 90% BVPF OF 1315 KIPS. BUTTRESS 2 SIDE FOUND AT 1384.56 KIPS, BUTTRESS 6 SIDE FOUND AT 1242.22 KIPS, AALV FORCE IS 1313.39 KIPS. PER PSC PROCEDURE SQ9.0 SECTION 10.2.2 AND 10.3, IF THE AALV FALLS BELOW THE 90% BASE VALUE FORCE THE CONDITION IS UNACCEPTABLE AND SHALL BE REPORTED TO CR3ENG WITH A NONCONFORMANCE REPORT.

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

TO BE DETERMINED BY OWNER.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: TITLE *LEVEL II QC* **DATE:** 11/08/07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	QC	QA	ENGINEERING
	CHRISTOPHER E. COX 11/9/07 (PER TELCON)	*DANIEL P. O'SHEA 11/9/07* (PER TELCON)	BRIAN GIOMETTI 11/9/07 (PER TELCON)

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☒ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	SIGNED:
☐ QE SECTION	☐ CONTR. MGMT.	☒ SITE FILE	TITLE:
☒ ENGINEERING	☒ OWNER/AGENT	☐ _____	DATE:

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NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: N/A NC / CA NO.: FN1002-012

NONCONFORMANCE:
ADJACENT TENDONS 62H31 AND 62H32 WERE FOUND WITH LIFTOFF VALUES BELOW 95% BVPF OF 1475KIPS. 62H31 WAS FOUND BELOW 90% BVPF OF 1328KIPS WITH A LIFTOFF VALUE OF 1269.04KIPS, AND 62H32 WAS FOUND BELOW 95% BVPF WITH A LIFTOFF VALUE OF 1332.75KIPS. FOR TENDON 62H31,PER PSC PROCEDURE SQ9.0 SECTION 10.2.2 AND 10.3, IF THE AALV FALLS BELOW THE 90% BASE VALUE FORCE THE CONDITION IS UNACCEPTABLE AND SHALL BE REPORTED TO CR3ENG WITH A NONCONFORMANCE REPORT. FOR TENDON 62H32, PER PSC PROCEDURE SQ9.0 SECTION 10.2.2, IF THE ADJACENT TENDON IS LESS THAN 95% OF THE TENDON BASE VALUE FORCE, THE CONDITION IS UNACCEPTABLE AND SHALL BE REPORTED TO CR3ENG WITH A NONCONFORMANCE REPORT. PER THE LETTER FROM RICK PORTMAN, SUBJECT: 62H SERIES INSPECTIONS AND TESTING, THE ACTUAL AVERAGE FOR 62H31 AND 62H32 WERE CALCULATED ON ONLY THE BUTTRESS 2 END, DUE TO THE BUTTRESS 6 END BEING INACCESSIBLE.

APPARENT CAUSE KNOWN: ☐ YES ☒ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:
PER THE LETTER FROM RICK PORTMAN, SUBJECT: 62H SERIES INSPECTIONS AND TESTING, THESE TENDONS WERE RETENSIONED TO +6, -0 % OF BVPF OF 1475KIPS ON THE BUTTRESS 2 ENDS. 62H31 WAS RETENSIONED TO 1486.98KIPS, AND 62H32 WAS RETENSIONED TO 1497.04KIPS.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: Brian [illegible] TITLE Level II QC **DATE:** 11-9-07

SIGNIFICANT CONDITION: ☐ YES ☒ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	*QC* *CHRISTOPHER E. COX 11/09/07* *(PER TELCON)*	*QA* *DANIEL P. O'SHEA 11/09/07* *(PER TELCON)*	ENGINEERING *PAUL C. SMITH 11/09/07* *(PER TELCON)*

OWNER / AGENT APPROVAL REQUIRED ☒ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

To: Baker, Joseph
Subject: 62H Series Inspections and Tesing

Gary / Brad - Sequence of 62H Series Tendons:

Perform liftoff test 62H33

If 62H33 averages low, will then work upwards until a satisfactory tendon liftoff is achieved

Retension any tendons found low

Visual inspection on 62H31 and 62H32

Liftoff test 62H31 and 32 buttress 2 (can be done at any time)

Retension 62H31 and 32 if necesssary last

Rick Portmann
Crystal River Unit 3
Engineering Services - Mail Code NA2D
15760 W. Power Line Street
Crystal River, Florida 34428
Phone: (352) 795-6486, ext. 3440
Fax: (352) 563-4697
Pager: (352) 628-8111

PSC PROCEDURE QA 7.0
FIELD CHANGE REQUEST INDEX LOG
September 21, 2007
Page 1 of 1
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

FIELD CHANGE REQUEST INDEX LOG

FCR#	DESCRIPTION	DATE WRITTEN	DATE APPROVED	DATE REV.
FN1002-001	Change the vertical Common Tendon to 61V08 from 12V01	10/25/07	10/26/07	

PSC PROCEDURE QA 7.0
FIELD CHANGE REQUEST FORM
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SPECIAL FIELD REVISION CONTROL — FIELD CHANGE REQUEST NO.: FCR-FN1002-001

REQUEST BY: Gary Goetsch — TITLE: Field Superintendent — DATE: 10/25/07

ORIGINATOR: Christopher E. Cox, P.E. — TITLE: Project Manager — DATE: 10/25/07

PROCEDURE NUMBER:		REV NO.:	PROCEDURE TITLE
	SQ2.0	0	Surveillance Scope
	SQ9.1	0	Prestress Forces
	SQ12.2	0	Grease Volumes

AFFECTED SECTION: SQ2.0, Section 1.1, SQ9.1, Section 2.0 SQ12.2, Section 3.0 — REVISION TO MANUAL REQUIRED: ☐ YES ☒ NO

NCR REQUIRED: ☐ YES ☒ NO — NCR NUMBER: N/A — HOLD TAG NO.: N/A

DETAILED DESCRIPTION OF EXISTING CONDITION: (USE EXTRA PAGES OR WRITE ON BACK)

Upon completion of the visual inspection of common tendon 12V01/Bottom, it was determined that the subject tendon was restressed during the 25th year surveillance due to low As-found lift-offs. In accordance with IWL-2552, if the common tendon is manipulated from its original state, another common tendon needs to be designated.

RECOMMENDED CHANGE:

Upon review of the surveillance lift-off history. We recommend changing the common tendon to 61V08. 61V08 was fully inspected during the 25th Year surveillance. The scheduled inspection will still be performed on 12V01 and the results will be used for tendon history tracking information. The associated engineering information has been performed for 61V08 and is attached to this FCR.

PSC APPROVAL SIGN & DATE:	QA	QC	ENGINEERING
	Daniel P. O'shea 10/26/07 (Per Telcon)	*Brian Giometti 10/26/07 (Per Telcon)*	*Paul C. Smith 10/26/07 (Per Telcon)*

ON SITE OWNER/AGENT, APPROVAL OR COMMENTS:

Approved. [illegible] CR3 - DR

APPROVED SITE QA AUTHORITY: N/A — TITLE: N/A — DATE: N/A

DISPOSITION PSC QC: — HOLD TAG APPLIED: _____ — HOLD TAG REMOVED: _____

QC INSPECTOR: _____ — DATE: _____

DISTRIBUTION

- ☐ QA OWNER
- ☒ QA PSC
- ☒ ENGINEERING PSC
- ☒ ENGINEERING OWNER
- ☒ PROJECT MGR. PSC
- ☐ QC OWNER
- ☒ QC PSC
- ☐ _____
- ☐ _____

HYDRAULIC JACK CALIBRATION

Jack Calibration Record

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	1 OF 3

COMPUTED BY: BAG DATE: 12/11/07 REVIEWED BY: CEC DATE: 12-11-07

Project: POST CRYSTAL RIVER Contract No: N1002

Jack Description: DUDGEON Size: 1400 Tons Register No: 8780

Theoretical Ram Area: 337 sq. in. Max Pressure: 5700 psi

Calibrating Device Used: TELEDYNE Register No: 4734 Constant: 33005

Calibrating Gauge Used: HEISE Register No: 44083 Due Date: 08/30/10

Raw Data By: BRIAN GIBSON Date: 12/11/07

Mean Ram Area: 336.220 sq. in. K= -4.344 kips

Computed By: BRIAN GIOMETTI

Title: PROJECT ENGINEER Date: 12/11/07

Witness: n/a

Agency: n/a Date: n/a

QC Check: [signature]

Title: LEAD QC LEVEL II Date: 12-11-07

Target Pressure (PSI)	Gauge Reading (PSI)	Load Cell Readout	Comments
1000	1002	10.06	RUN: 1 POSITION: 3-3/4"
1500	1506	15.20	
2000	2001	20.26	
2500	2507	25.38	
3000	3003	30.48	
3500	3503	35.56	
4000	4002	40.68	
4500	4502	45.74	
5000	5008	50.90	
5700	5702	57.94	
1000	1000	10.08	RUN: 2 POSITION: 7-3/4"
1500	1503	15.20	
2000	2001	20.26	
2500	2502	25.34	
3000	3004	30.46	
3500	3501	35.50	
4000	4002	40.62	
4500	4502	45.70	
5000	5003	50.82	
5700	5701	57.94	
1000	1003	10.10	RUN: 3 POSITION: 11-3/4"
1500	1505	15.20	
2000	2003	20.26	
2500	2503	25.36	
3000	3002	30.46	
3500	3523	35.74	
4000	4006	40.68	
4500	4505	45.76	
5000	5003	50.84	
5700	5703	58.00	

HYDRAULIC JACK CALIBRATION
Linear Regression Analysis

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	2 OF 3

COMPUTED BY: BAG DATE: 12/11/07 REVIEWED BY: CEC DATE: 12-11-07

Project: POST CRYSTAL RIVER
Contract No: N1002
Jack Description: DUDGEON Size: 1400 Tons
Register No: 8780
Theoretical Ram Area: 337 sq. in.
Max Pressure: 5700 psi
Calibrating Device Used: TELEDYNE Register No: 4734
Constant: 33005
Calibrating Gauge Used: HEISE Register No: 44083
Due Date: 08/30/10

Actual Gauge Reading (psi)	Load Cell Readout	Computed Force (kips)
1002	10.06	332.030
1506	15.20	501.676
2001	20.26	668.681
2507	25.38	837.667
3003	30.48	1005.992
3503	35.56	1173.658
4002	40.68	1342.643
4502	45.74	1509.649
5008	50.90	1679.955
5702	57.94	1912.310
1000	10.08	332.690
1503	15.20	501.676
2001	20.26	668.681
2502	25.34	836.347
3004	30.46	1005.332
3501	35.50	1171.678
4002	40.62	1340.663
4502	45.70	1508.329
5003	50.82	1677.314
5701	57.94	1912.310
1003	10.10	333.351
1505	15.20	501.676
2003	20.26	668.681
2503	25.36	837.007
3002	30.46	1005.332
3523	35.74	1179.599
4006	40.68	1342.643
4505	45.76	1510.309
5003	50.84	1677.974
5703	58.00	1914.290

* Indicates these readings have been omitted from thefinal computations

Errors In Jack Calibration

Error In Standard	0.0100	ksi
Interpolation in Gauge	0.0000	ksi
Accuracy of Gauge	0.0000	ksi

Errors In Gauge Calibration

Interpolation in Master	0.0000	ksi
Interpolation in Field Gauge	0.0050	ksi
Accuracy of Master	0.0100	ksi
Accuracy of Field Gauge	0.0275	ksi

Errors In Field Use of Gauge

Interpolation Error	0.0050	ksi
Accuracy Error	0.0275	ksi
Maximum Gauge Reading Used	5.7030	ksi

FORCE (kips) = 336.220 (in^2) X GAUGE READING (ksi) + -4.344 (kips)

Correlation = 0.99999925 N/NO = 1.0000 (Not < 0.66667)

Maximum Error Ratio In Jack	0.0025
Maximum Error Ratio In Gauge	0.0074
Maximum Total Error Ratio	0.0078

HYDRAULIC JACK CALIBRATION
Comparison With Previous Calibration

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	3 OF 3

COMPUTED BY: BAG DATE: 12/11/07 REVIEWED BY: DEC DATE: 12-11-07

Project: POST CRYSTAL RIVER			Contract No: N1002
Jack Description: DUDGEON	Size: 1400 Tons		Register No: 8780
Theoretical Ram Area: 337 sq. in.			Max Pressure: 5700 psi
Calibrating Device Used: TELEDYNE	Register No: 4734		Constant: 33005
Calibrating Gauge Used: HEISE	Register No: 44083		Due Date: 08/30/10

Data From Current Calibration

Area (A_f): 336.220 sq.in.

Constant (C_f): -4.344 kips

Max Pressure (P): 5700 psi

Data From Previous Calibration

Area (A_i): 335.282 sq.in.

Constant (C_i): -5.022 kips

$$\frac{i-f}{i} x100\% = -0.316\%$$

WHERE:

$$i = (A_i \times P) + (C_i * 1000)$$

$$f = (A_f \times P) + (C_f * 1000)$$

RAM/JACK CALIBRATION RECORD FORM 12.8.G

PSC Formerly Inryco Surveillance

PROJECT Post Crystal River CONTRACT/PART NO. N002

Jack Description Duraform Size 1400 Tons Register No. 8780

Theoretical Ram Area 337. Max. Pressure 5700 PSI

Calibrating Device Telesonic Register No. 4734 Constant 33,005.0

Calibrating Gauge Heise Register No. 44083 Date Due: 8-30-10

Raw Data By [illegible] 12-11-07 WITNESS N/A

Mean Ram Area 336.220 sq.in. K= -4.344 Kips Agency N/A Date N/A

Computed By [illegible] QC Check [illegible]

Title Project Engineer Date 12/11/07 Title Level II Date 12-11-07

Target PSI	Gauge Reading PSI	Load Cell Readout	COMMENTS
1000	1002	-10.06	RUN 1 POSITION 3 3/4"
1500	1506	-15.20	Target / Gauge / Readout
2000	2001	-20.26	5700 / 5702 / -57.94
2500	2507	-25.38	
3000	3003	-30.48	
3500	3503	-35.56	
4000	4002	-40.68	
4500	4502	-45.74	
5000	5008	-50.90	
1000	1000	-10.08	RUN 2 POSITION 7 3/4"
1500	1503	-15.20	Target / Gauge / Readout
2000	2001	-20.26	5700 / 5701 / -57.94
2500	2502	-25.34	
3000	3004	-30.46	
3500	3501	-35.50	
4000	4002	-40.62	
4500	4502	-45.70	
5000	5003	-50.82	
1000	1003	-10.10	RUN 3 POSITION 11 3/4"
1500	1505	-15.26	Target / Gauge / Readout
2000	2003	-20.26	5700 / 5703 / -58.00
2500	2503	-25.36	
3000	3002	-30.46	
3500	3523	-35.74	
4000	4006	-40.68	
4500	4505	-45.76	
5000	5003	-50.88	

HYDRAULIC JACK CALIBRATION

Jack Calibration Record

DOCUMENT NO.	
DOCUMENT TYPE.	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE 1 OF 3	

COMPUTED BY: BAG DATE: 09/24/07 REVIEWED BY: CEC DATE: 09/24/07

Project: PRE CRYSTAL RIVER Contract No: N1002

Jack Description: DUDGEON Size: 1400 Tons Register No: 8780

Theoretical Ram Area: 337 sq. in. Max Pressure: 5700 psi

Calibrating Device Used: TELEDYNE Register No: 4734 Constant: 33005

Calibrating Gauge Used: HEISE Register No: 44084 Due Date: 08/03/10

Raw Data By: BRIAN GIBSON Date: 09/24/07 Witness: N/A

Mean Ram Area: 335.282 sq. in. K= -5.022 kips Agency: N/A Date: N/A

Computed By: BRIAN GIOMETTI QC Check: [signature]

Title: FIELD ENGINEER Date: 09/24/07 Title: LEAD QC LEVEL II Date: 9-25-07

Target Pressure (PSI)	Gauge Reading (PSI)	Load Cell Readout	Comments
1000	1008	10.06	RUN: 1 POSITION: 3-1/2"
1500	1504	15.16	
2000	2004	20.26	
2500	2507	25.34	
3000	3001	30.34	
3500	3504	35.48	
4000	4006	40.66	
4500	4502	45.70	
5000	5001	50.76	
5700	5701	57.90	
1000	1006	10.08	RUN: 2 POSITION: 7-1/2"
1500	1504	15.14	
2000	2000	20.18	
2500	2504	25.30	
3000	3000	30.34	
3500	3508	35.50	
4000	4001	40.54	
4500	4502	45.58	
5000	5000	50.66	
5700	5701	57.72	
1000	1002	10.00	RUN: 3 POSITION: 11-1/4"
1500	1507	15.12	
2000	2003	20.18	
2500	2503	25.22	
3000	3003	30.30	
3500	3503	35.36	
4000	4005	40.44	
4500	4500	45.44	
5000	5002	50.54	
5700	5700	57.62	

HYDRAULIC JACK CALIBRATION
Linear Regression Analysis

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	2 OF 3

COMPUTED BY: BAG DATE: 09/24/07 REVIEWED BY: CEC DATE: 09/24/07

Project: PRE CRYSTAL RIVER
Contract No: N1002
Jack Description: DUDGEON Size: 1400 Tons
Register No: 8780
Theoretical Ram Area: 337 sq. in.
Max Pressure: 5700 psi
Calibrating Device Used: TELEDYNE Register No: 4734
Constant: 33005
Calibrating Gauge Used: HEISE Register No: 44084
Due Date: 08/03/10

Actual Gauge Reading (psi)	Load Cell Readout	Computed Force (kips)
1008	10.06	332.030
1504	15.16	500.356
2004	20.26	668.681
2507	25.34	836.347
3001	30.34	1001.372
3504	35.48	1171.017
4006	40.66	1341.983
4502	45.70	1508.329
5001	50.76	1675.334
5701	57.90	1910.990
1006	10.08	332.690
1504	15.14	499.696
2000	20.18	666.041
2504	25.30	835.027
3000	30.34	1001.372
3508	35.50	1171.678
4001	40.54	1338.023
4502	45.58	1504.368
5000	50.66	1672.033
5701	57.72	1905.049
1002	10.00	330.050
1507	15.12	499.036
2003	20.18	666.041
2503	25.22	832.386
3003	30.30	1000.052
3503	35.36	1167.057
4005	40.44	1334.722
4500	45.44	1499.747
5002	50.54	1668.073
5700	57.62	1901.748

* Indicates these readings have been omitted from thefinal computations

Errors In Jack Calibration

Error In Standard	0.0100	ksi
Interpolation in Gauge	0.0000	ksi
Accuracy of Gauge	0.0000	ksi

Errors In Gauge Calibration

Interpolation in Master	0.0000	ksi
Interpolation in Field Gauge	0.0050	ksi
Accuracy of Master	0.0100	ksi
Accuracy of Field Gauge	0.0275	ksi

Errors In Field Use of Gauge

Interpolation Error	0.0050	ksi
Accuracy Error	0.0275	ksi
Maximum Gauge Reading Used	5.7010	ksi

FORCE (kips) = 335.282 (in^2) X GAUGE READING (ksi) + -5.022 (kips)

Correlation = 0.99998948 N/NO = 1.0000 (Not < 0.66667)

Maximum Error Ratio In Jack	0.0029
Maximum Error Ratio In Gauge	0.0074
Maximum Total Error Ratio	0.0079

HYDRAULIC JACK CALIBRATION
Comparison With Previous Calibration

DOCUMENT NO.	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	3 OF 3

COMPUTED BY: BAG DATE: 09/24/07 REVIEWED BY: CEC DATE: 09/24/07

Project: PRE CRYSTAL RIVER			Contract No: N1002
Jack Description: DUDGEON	Size: 1400 Tons		Register No: 8780
Theoretical Ram Area: 337 sq. in.			Max Pressure: 5700 psi
Calibrating Device Used: TELEDYNE	Register No: 4734		Constant: 33005
Calibrating Gauge Used: HEISE	Register No: 44084		Due Date: 08/03/10

Data From Current Calibration

Area (A_f): 335.282 sq.in.

Constant (C_f): -5.022 kips

Max Pressure (P): 5700 psi

Data From Previous Calibration

Area (A_i): 336.983 sq.in.

Constant (C_i): -7.710 kips

$$\frac{i-f}{i} x100\% = 0.366\%$$

WHERE:

$i = (A_i \times P) + (C_i * 1000)$

$f = (A_f \times P) + (C_f * 1000)$

RAM/JACK CALIBRATION RECORD FORM 12.8.G

PSC Formerly Inryco Surveillance

PROJECT Crystal River CONTRACT/PART NO. N1002

Jack Description Dudgeon Size 1400 Tons Register No. 8780

Theoretical Ram Area 337 Max. Pressure 5700 PSI

Calibrating Device Teledyne Register No. 9734 Constant 33,005.0

Calibrating Gauge Heise Register No. H4084 Date Due: 8-30-10

Raw Data By [illegible] 9-24-07 WITNESS N/A

Mean Ram Area 335.282 sq.in. K= -5.022 Kips Agency N/A Date N/A

Computed By [illegible] QC Check [illegible]

Title FIELD ENGINEER Date 9/24/07 Title Lead QC Level II Date 9-25-07

Target PSI	Gauge Reading PSI	Load Cell Readout
1000	1008	-10.06
1500	1504	-15.16
2000	2004	-20.26
2500	2507	-25.34
3000	3001	-30.34
3500	3504	-35.48
4000	4006	-40.66
4500	4502	-45.70
5000	5001	-50.76
1000	1006	-10.08
1500	1504	-15.14
2000	2000	-20.18
2500	2504	-25.30
3000	3000	-30.34
3500	3508	-35.50
4000	4001	-40.54
4500	4502	-45.58
5000	5000	-50.66
1000	1002	-10.00
1500	1507	-15.12
2000	2003	-20.18
2500	2503	-25.22
3000	3003	-30.30
3500	3503	-35.36
4000	4005	-40.44
4500	4500	-45.44
5000	5002	-50.54

COMMENTS

RUN 1 POSITION 3.5

Target	Gauge	Readout
5700	5701	-57.90

RUN 2 POSITION 7.5

Target	Gauge	Readout
5700	5701	-57.72

RUN 3 POSITION 11.25

Target	Gauge	Readout
5700	5700	-57.62

HYDRAULIC JACK CALIBRATION
Jack Calibration Record

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	1 OF 3

COMPUTED BY: BAG DATE: 12/12/07 REVIEWED BY: [illegible] DATE: 12-12-07

Project: POST CRYSTAL RIVER Contract No: N1002

Jack Description: DUDGEON Size: 1400 Tons Register No: 8784

Theoretical Ram Area: 337 sq. in. Max Pressure: 5700 psi

Calibrating Device Used: TELEDYNE Register No: 4734 Constant: 33005

Calibrating Gauge Used: HEISE Register No: 44083 Due Date: 08/30/10

Raw Data By: BRIAN GIBSON Date: 12/12/07

Mean Ram Area: 335.547 sq. in. K= -13.489 kips

Computed By: BRIAN GIOMETTI

Title: PROJECT ENGINEER Date: 12/12/07

Witness: n/a

Agency: n/a Date: n/a

QC Check: [illegible]

Title: [illegible] Date: 12-12-07

Target Pressure (PSI)	Gauge Reading (PSI)	Load Cell Readout	Comments
1000	1003	9.72	RUN: 1 POSITION: 3-3/4"
1500	1504	14.84	
2000	2003	19.88	
2500	2514	25.08	
3000	3001	30.08	
3500	3511	35.24	
4000	4006	40.26	
4500	4501	45.34	
5000	5011	50.46	
5700	5700	57.48	
1000	1005	9.78	RUN: 2 POSITION: 7-3/4"
1500	1511	14.92	
2000	2009	20.02	
2500	2500	25.00	
3000	3011	30.22	
3500	3504	35.28	
4000	4003	40.36	
4500	4505	45.42	
5000	5004	50.44	
5700	5702	57.52	
1000	1002	9.80	RUN: 3 POSITION: 11-3/4"
1500	1500	14.90	
2000	2000	19.96	
2500	2502	25.10	
3000	3003	30.18	
3500	3504	35.30	
4000	4003	40.36	
4500	4502	45.42	
5000	5004	50.50	
5700	5702	57.54	

HYDRAULIC JACK CALIBRATION
Linear Regression Analysis

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE 2 OF 3	

COMPUTED BY: BAG DATE: 12/12/07 REVIEWED BY: CEC DATE: 12-12-07

Project: POST CRYSTAL RIVER Contract No: N1002
Jack Description: DUDGEON Size: 1400 Tons Register No: 8784
Theoretical Ram Area: 337 sq. in. Max Pressure: 5700 psi
Calibrating Device Used: TELEDYNE Register No: 4734 Constant: 33005
Calibrating Gauge Used: HEISE Register No: 44083 Due Date: 08/30/10

Actual Gauge Reading (psi)	Load Cell Readout	Computed Force (kips)
1003	9.72	320.809
1504	14.84	489.794
2003	19.88	656.139
2514	25.08	827.765
3001	30.08	992.790
3511	35.24	1163.096
4006	40.26	1328.781
4501	45.34	1496.447
5011	50.46	1665.432
5700	57.48	1897.127
1005	9.78	322.789
1511	14.92	492.435
2009	20.02	660.760
2500	25.00	825.125
3011	30.22	997.411
3504	35.28	1164.416
4003	40.36	1332.082
4505	45.42	1499.087
5004	50.44	1664.772
5702	57.52	1898.448
1002	9.80	323.449
1500	14.90	491.775
2000	19.96	658.780
2502	25.10	828.426
3003	30.18	996.091
3504	35.30	1165.077
4003	40.36	1332.082
4502	45.42	1499.087
5004	50.50	1666.753
5702	57.54	1899.108

* Indicates these readings have been omitted from thefinal computations

Errors In Jack Calibration

Error In Standard	0.0100	ksi
Interpolation in Gauge	0.0000	ksi
Accuracy of Gauge	0.0000	ksi

Errors In Gauge Calibration

Interpolation in Master	0.0000	ksi
Interpolation in Field Gauge	0.0050	ksi
Accuracy of Master	0.0100	ksi
Accuracy of Field Gauge	0.0275	ksi

Errors In Field Use of Gauge

Interpolation Error	0.0050	ksi
Accuracy Error	0.0275	ksi
Maximum Gauge Reading Used	5.7020	ksi

FORCE (kips) = 335.547 (in^2) X GAUGE READING (ksi) + -13.489 (kips)

Correlation = 0.99999411 N/NO = 1.0000 (Not < 0.66667)
Maximum Error Ratio In Jack 0.0070
Maximum Error Ratio In Gauge 0.0074
Maximum Total Error Ratio 0.0101

HYDRAULIC JACK CALIBRATION
Comparison With Previous Calibration

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	3 OF 3

COMPUTED BY: BAG DATE: 12/12/07 REVIEWED BY: VEV DATE: 12-12-07

Project: POST CRYSTAL RIVER			Contract No: N1002
Jack Description: DUDGEON	Size: 1400 Tons		Register No: 8784
Theoretical Ram Area: 337 sq. in.			Max Pressure: 5700 psi
Calibrating Device Used: TELEDYNE	Register No: 4734		Constant: 33005
Calibrating Gauge Used: HEISE	Register No: 44083		Due Date: 08/30/10

Data From Current Calibration

Area (A_f): 335.547 sq.in.

Constant (C_f): -13.489 kips

Max Pressure (P): 5700 psi

Data From Previous Calibration

Area (A_i): 337.287 sq.in.

Constant (C_i): -5.060 kips

$$\frac{i-f}{i} x100\% = 0.957\%$$

WHERE:

$i = (A_i \times P) + (C_i * 1000)$

$f = (A_f \times P) + (C_f * 1000)$

RAM/JACK CALIBRATION RECORD FORM 12.8.G

PSC Formerly Inryco Surveillance

PROJECT Post Crystal River CONTRACT/PART NO. N/002

Jack Description Duramal Size 1400 Tons Register No. 8784

Theoretical Ram Area 337. Max. Pressure 5700 PSI

Calibrating Device Telesayne Register No. 4734 Constant 33,005.0

Calibrating Gauge Heise Register No. 44083 Date Due: 8-30-10

Raw Data By [illegible] 12-12-07 WITNESS N/A

Mean Ram Area 335.547 sq.in. K= -13.489 Kips Agency N/A Date N/A

Computed By [illegible] QC Check [illegible]

Title PROJECT ENGINEER Date 12/12/07 Title Lead QC Date 12-12-07

Target PSI	Gauge Reading PSI	Load Cell Readout	COMMENTS		
1000	1003	-9.72	RUN 1	POSITION 3 3/4"	
1500	1504	-14.84	TARGET	GAUGE	READOUT
2000	2003	-19.88	5700	5700	-57.48
2500	2514	-25.08			
3000	3001	-30.08			
3500	3511	-35.24			
4000	4006	-40.26			
4500	4501	-45.34			
5000	5011	-50.46			
1000	1005	-9.78	RUN 2	POSITION 7 3/4"	
1500	1511	-14.92	TARGET	GAUGE	READOUT
2000	2009	-20.02	5700	5702	-57.52
2500	2500	-25.00			
3000	3011	-30.22			
3500	3504	-35.28			
4000	4003	-40.36			
4500	4505	-45.42			
5000	5004	-50.44			
1000	1002	-9.80	RUN 3	POSITION 11 3/4"	
1500	1500	-14.90	TARGET	GAUGE	READOUT
2000	2000	-19.96	5700	5702	-57.54
2500	2502	-25.10			
3000	3003	-30.18			
3500	3504	-35.30			
4000	4003	-40.36			
4500	4502	-45.42			
5000	5004	-50.50			

HYDRAULIC JACK CALIBRATION

Jack Calibration Record

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	1 OF 3

COMPUTED BY: BAG DATE: 09/24/07 REVIEWED BY: CEC DATE: 09/24/07

Project: PRE CRYSTAL RIVER Contract No: N1002

Jack Description: DUDGEON Size: 1400 Tons Register No: 8784

Theoretical Ram Area: 337 sq. in. Max Pressure: 5700 psi

Calibrating Device Used: TELEDYNE Register No: 4734 Constant: 33005

Calibrating Gauge Used: HEISE Register No: 44084 Due Date: 08/30/10

Raw Data By: BRIAN GIBSON Date: 09/24/07

Mean Ram Area: 337.287 sq. in. K= -5.060 kips

Computed By: BRIAN GIOMETTI

Title: FIELD ENGINEER Date: 09/24/07

Witness: n/a

Agency: n/a Date: n/a

QC Check: [signature]

Title: Lead QC Level II Date: 9-25-07

Target Pressure (PSI)	Gauge Reading (PSI)	Load Cell Readout	Comments
1000	1004	10.06	RUN: 1 POSITION: 3-1/2"
1500	1503	15.12	
2000	2001	20.22	
2500	2502	25.32	
3000	3004	30.46	
3500	3500	35.54	
4000	4005	40.78	
4500	4516	46.02	
5000	5001	50.96	
5700	5706	58.14	
1000	1003	10.12	RUN: 2 POSITION: 7-1/2"
1500	1503	15.24	
2000	2009	20.42	
2500	2512	25.56	
3000	3007	30.62	
3500	3503	35.70	
4000	4002	40.82	
4500	4508	45.98	
5000	5001	51.00	
5700	5702	58.16	
1000	1008	10.16	RUN: 3 POSITION: 11-1/2"
1500	1506	15.26	
2000	2009	20.40	
2500	2500	25.44	
3000	3002	30.54	
3500	3502	35.68	
4000	4001	40.74	
4500	4504	45.88	
5000	5006	50.94	
5700	5700	57.96	

HYDRAULIC JACK CALIBRATION

Linear Regression Analysis

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	2 OF 3

COMPUTED BY: BAG DATE: 09/24/07 REVIEWED BY: CEC DATE: 09/24/07

Project: PRE CRYSTAL RIVER Contract No: N1002
Jack Description: DUDGEON Size: 1400 Tons Register No: 8784
Theoretical Ram Area: 337 sq. in. Max Pressure: 5700 psi
Calibrating Device Used: TELEDYNE Register No: 4734 Constant: 33005
Calibrating Gauge Used: HEISE Register No: 44084 Due Date: 08/30/10

Actual Gauge Reading (psi)	Load Cell Readout	Computed Force (kips)
1004	10.06	332.030
1503	15.12	499.036
2001	20.22	667.361
2502	25.32	835.687
3004	30.46	1005.332
3500	35.54	1172.998
4005	40.78	1345.944
4516	46.02	1518.890
5001	50.96	1681.935
5706	58.14	1918.911
1003	10.12	334.011
1503	15.24	502.996
2009	20.42	673.962
2512	25.56	843.608
3007	30.62	1010.613
3503	35.70	1178.279
4002	40.82	1347.264
4508	45.98	1517.570
5001	51.00	1683.255
5702	58.16	1919.571
1008	10.16	335.331
1506	15.26	503.656
2009	20.40	673.302
2500	25.44	839.647
3002	30.54	1007.973
3502	35.68	1177.618
4001	40.74	1344.624
4504	45.88	1514.269
5006	50.94	1681.275
5700	57.96	1912.970

* Indicates these readings have been omitted from thefinal computations

Errors In Jack Calibration

Error In Standard	0.0100	ksi
Interpolation in Gauge	0.0000	ksi
Accuracy of Gauge	0.0000	ksi

Errors In Gauge Calibration

Interpolation in Master	0.0000	ksi
Interpolation in Field Gauge	0.0050	ksi
Accuracy of Master	0.0100	ksi
Accuracy of Field Gauge	0.0275	ksi

Errors In Field Use of Gauge

Interpolation Error	0.0050	ksi
Accuracy Error	0.0275	ksi
Maximum Gauge Reading Used	5.7060	ksi

FORCE (kips) = 337.287 (in^2) X GAUGE READING (ksi) + -5.060 (kips)

Correlation = 0.99999328 N/NO = 1.0000 (Not < 0.66667)
Maximum Error Ratio In Jack 0.0057
Maximum Error Ratio In Gauge 0.0074
Maximum Total Error Ratio 0.0093

HYDRAULIC JACK CALIBRATION
Comparison With Previous Calibration

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	3 OF 3

COMPUTED BY: BAG DATE: 09/24/07 REVIEWED BY: CEC DATE: 09/24/07

Project: PRE CRYSTAL RIVER			Contract No: N1002
Jack Description: DUDGEON	Size: 1400 Tons		Register No: 8784
Theoretical Ram Area: 337 sq. in.			Max Pressure: 5700 psi
Calibrating Device Used: TELEDYNE	Register No: 4734		Constant: 33005
Calibrating Gauge Used: HEISE	Register No: 44084		Due Date: 08/30/10

Data From Current Calibration

Area (A_f): 337.287 sq.in.

Constant (C_f): -5.060 kips

Max Pressure (P): 5700 psi

Data From Previous Calibration

Area (A_i): 335.545 sq.in.

Constant (C_i): -10.034 kips

$$\frac{i-f}{i} x100\% = -0.783\%$$

WHERE:

$i = (A_i \times P) + (C_i * 1000)$

$f = (A_f \times P) + (C_f * 1000)$

RAM/JACK CALIBRATION RECORD FORM 12.8.G

PSC Formerly Inryco Surveillance

PROJECT Crystal River CONTRACT/PART NO. N1002

Jack Description Duregon Size 1400 Tons Register No. 8784

Theoretical Ram Area 337 Max. Pressure 5700 PSI

Calibrating Device Teledyne Register No. 4734 Constant 33,005.0

Calibrating Gauge Heise Register No. 44084 Date Due: 8-30-10

Raw Data By [illegible] 9-24-07 WITNESS n/a

Mean Ram Area 337.287 sq.in. K= -5.060 Kips Agency n/a Date n/a

Computed By [illegible] QC Check [illegible]

Title FIELD ENGINEER Date 9/24/07 Title Lead RC Level II Date 9-25-07

Target PSI	Gauge Reading PSI	Load Cell Readout	COMMENTS
1000	1004	-10.06	RUN 1 POSITION 3.5
1500	1503	-15.12	Target / Gauge / Readout
2000	2001	-20.22	5700 / 5706 / -58.14
2500	2502	-25.32	
3000	3004	-30.46	
3500	3500	-35.54	
4000	4005	-40.78	
4500	4516	-46.02	
5000	5001	-50.96	
1000	1003	-10.12	RUN 2 POSITION 7.5
1500	1503	-15.24	Target / Gauge / Readout
2000	2009	-20.42	5700 / 5702 / -58.16
2500	2512	-25.56	
3000	3007	-30.62	
3500	3503	-35.70	
4000	4002	-40.82	
4500	4508	-45.98	
5000	5001	-51.00	
1000	1008	-10.16	RUN 3 POSITION 11.5
1500	1506	-15.26	Target / Gauge / Readout
2000	2009	-20.40	5700 / 5700 / -57.96
2500	2500	-25.44	
3000	3002	-30.54	
3500	3502	-35.68	
4000	4001	-40.74	
4500	4504	-45.88	
5000	5006	-50.94	

HYDRAULIC JACK CALIBRATION

Jack Calibration Record

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	1 OF 3

COMPUTED BY: BAG DATE: 12/13/07 REVIEWED BY CEC DATE: 12-14-07

Project: POST CRYSTAL RIVER Contract No: N1002

Jack Description: DUDGEON Size: 1200 Tons Register No: 9501

Theoretical Ram Area: 369 sq. in. Max Pressure: 5200 psi

Calibrating Device Used: TELEDYNE Register No: 4734 Constant: 33005

Calibrating Gauge Used: HEISE Register No: 44083 Due Date: 08/30/10

Raw Data By: BRIAN GIBSON Date: 12/13/07

Mean Ram Area: 366.254 sq. in. K= 5.666 kips

Computed By: BRIAN GIOMETTI

Title: PROJECT ENGINEER Date: 12/13/07

Witness: N/A

Agency: N/A Date: N/A

QC Check:

Title: Lead QC Date: 12-17-07

Target Pressure (PSI)	Gauge Reading (PSI)	Load Cell Readout	Comments
1000	1006	11.32	RUN: 1 POSITION: 1-1/2"
1500	1500	16.78	
2000	2000	22.34	
2500	2503	27.90	
3000	3003	33.42	
3500	3503	38.88	
4000	4001	44.34	
4500	4508	49.92	
5000	5004	55.32	
5200	5207	57.50	
1000	1007	11.30	RUN: 2 POSITION: 3"
1500	1506	16.86	
2000	2006	22.46	
2500	2503	28.02	
3000	3001	33.50	
3500	3501	39.10	
4000	4005	44.64	
4500	4503	50.28	
5000	5000	55.74	
5200	5203	57.96	
1000	1001	11.22	RUN: 3 POSITION: 4-1/2"
1500	1504	16.84	
2000	2004	22.44	
2500	2505	28.06	
3000	3002	33.66	
3500	3507	39.20	
4000	4006	44.86	
4500	4503	50.36	
5000	5002	55.88	
5200	5203	58.20	

HYDRAULIC JACK CALIBRATION
Linear Regression Analysis

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	2 OF 3

COMPUTED BY: BAG DATE: 12/13/07 REVIEWED BY: [illegible] DATE: 12-14-07

Project: POST CRYSTAL RIVER
Contract No: N1002
Jack Description: DUDGEON Size: 1200 Tons
Register No: 9501
Theoretical Ram Area: 369 sq. in.
Max Pressure: 5200 psi
Calibrating Device Used: TELEDYNE Register No: 4734
Constant: 33005
Calibrating Gauge Used: HEISE Register No: 44083
Due Date: 08/30/10

Actual Gauge Reading (psi)	Load Cell Readout	Computed Force (kips)
1006	11.32	373.617
1500	16.78	553.824
2000	22.34	737.332
2503	27.90	920.840
3003	33.42	1103.027
3503	38.88	1283.234
4001	44.34	1463.442
4508	49.92	1647.610
5004	55.32	1825.837
5207	57.50	1897.788
1007	11.30	372.957
1506	16.86	556.464
2006	22.46	741.292
2503	28.02	924.800
3001	33.50	1105.668
3501	39.10	1290.496
4005	44.64	1473.343
4503	50.28	1659.491
5000	55.74	1839.699
5203	57.98	1912.970
1001	11.22	370.316
1504	16.84	555.804
2004	22.44	740.632
2505	28.06	926.120
3002	33.66	1110.948
3507	39.20	1293.796
4006	44.86	1480.604
4503	50.36	1662.132
5002	55.88	1844.319
5203	58.20	1920.891

* Indicates these readings have been omitted from thefinal computations

Errors In Jack Calibration

Error In Standard	0.0100	ksi
Interpolation in Gauge	0.0000	ksi
Accuracy of Gauge	*0.0000*	*ksi*

Errors In Gauge Calibration

Interpolation in Master	0.0000	ksi
Interpolation in Field Gauge	0.0050	ksi
Accuracy of Master	0.0100	ksi
Accuracy of Field Gauge	0.0275	ksi

Errors In Field Use of Gauge

Interpolation Error	0.0050	ksi
Accuracy Error	0.0275	ksi
Maximum Gauge Reading Used	5.2070	ksi

FORCE (kips) = 366.254 (in^2) X GAUGE READING (ksi) + 5.666 (kips)

Correlation = 0.99994080 N/NO = 1.0000 (Not < 0.66667)

Maximum Error Ratio In Jack	0.0078
Maximum Error Ratio In Gauge	0.0081
Maximum Total Error Ratio	0.0112

HYDRAULIC JACK CALIBRATION
Comparison With Previous Calibration

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	3 OF 3

COMPUTED BY: BAG DATE: 12/13/07 REVIEWED BY: CEC DATE: 12-13-07

Project: POST CRYSTAL RIVER			Contract No: N1002
Jack Description: DUDGEON	Size: 1200 Tons		Register No: 9501
Theoretical Ram Area: 369 sq. in.			Max Pressure: 5200 psi
Calibrating Device Used: TELEDYNE	Register No: 4734		Constant: 33005
Calibrating Gauge Used: HEISE	Register No: 44083		Due Date: 08/30/10

Data From Current Calibration

Area (A_f): 366.254 sq.in.

Constant (C_f): 5.666 kips

Max Pressure (P): 5200 psi

Data From Previous Calibration

Area (A_i): 372.057 sq.in.

Constant (C_i): 3.814 kips

$$\frac{i-f}{i} x100\% = 1.461\%$$

WHERE:

$$i = (A_i \times P) + (C_i * 1000)$$

$$f = (A_f \times P) + (C_f * 1000)$$

RAM/JACK CALIBRATION RECORD FORM 12.8.G

PSC Formerly Inryco Surveillance

PROJECT Post Crystal River CONTRACT/PART NO. N002

Jack Description Duporon Size 1200 Tons Register No. 9501

Theoretical Ram Area ~~377~~ BL 4-13-07 369 Max. Pressure 5200 PSI

Calibrating Device Telesdyne Register No. 4734 Constant 33,005.0

Calibrating Gauge Heise Register No. 44097 Date DUE: 8-30-10

Raw Data By [signature] 12-13-07 WITNESS N/A

Mean Ram Area 366.254 sq.in. K= 5.666 Kips Agency N/A Date N/A

Computed By [signature] QC Check [signature]

Title PROJECT ENGINEER Date 12/13/07 Title LEAD QC Date 12-17-07

Target PSI	Gauge Reading PSI	Load Cell Readout	COMMENTS
1000	1006	-11.32	RUN 1 POSITION 1 1/2"
1500	1500	-16.78	Target / Gauge / Readout
2000	2000	-22.34	5200 / 5207 / -57.50
2500	2503	-27.90	
3000	3003	-33.42	
3500	3503	-38.88	
4000	4001	-44.34	
4500	4508	-49.92	
5000	5004	-55.32	
1000	1007	-11.30	RUN 2 POSITION 3"
1500	1506	-16.86	Target / Gauge / Readout
2000	2006	-22.46	5200 / 5203 / -57.96
2500	2503	-28.02	
3000	3001	-33.50	
3500	3501	-39.10	
4000	4005	-44.64	
4500	4503	-50.28	
5000	5000	-55.74	
1000	1001	-11.22	RUN 3 POSITION 4 1/2"
1500	1504	-16.84	Target / Gauge / Readout
2000	2004	-22.44	5200 / 5203 / -58.20
2500	2505	-28.06	
3000	3002	-33.66	
3500	3507	-39.20	
4000	4006	-44.86	
4500	4503	-50.36	
5000	5002	-55.88	

HYDRAULIC JACK CALIBRATION
Jack Calibration Record

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE 1 OF 3	

COMPUTED BY BAG DATE: 09/25/07 | REVIEWED BY: CEC DATE: 09/25/07

Project: PRE CRYSTAL RIVER — Contract No: N1002

Jack Description: DUDGEON — Size: 1200 Tons — Register No: 9501

Theoretical Ram Area: 369 sq. in. — Max Pressure: 5200 psi

Calibrating Device Used: TELEDYNE — Register No: 4734 — Constant: 33005

Calibrating Gauge Used: HEISE — Register No: 44084 — Due Date: 09/13/09

Raw Data By: BRIAN GIBSON — Date: 09/25/07

Mean Ram Area: 372.057 sq. in. K= 3.814 kips

Computed By: BRIAN GIOMETTI

Title: FIELD ENGINEER — Date: 09/25/07

Witness: N/A

Agency: N/A — Date: N/A

QC Check: [signature]

Title: Lead QC Level II — Date: 9-25-07

Target Pressure (PSI)	Gauge Reading (PSI)	Load Cell Readout	Comments
1000	1002	11.38	RUN: 1 POSITION: 1-1/2"
1500	1505	17.10	
2000	2004	22.70	
2500	2507	28.36	
3000	3001	33.82	
3500	3505	39.56	
4000	4000	45.16	
4500	4503	50.76	
5000	5002	56.28	
5200	5207	58.62	
1000	1003	11.34	RUN: 2 POSITION: 3-1/4"
1500	1507	17.04	
2000	2003	22.70	
2500	2503	28.38	
3000	3000	34.00	
3500	3500	39.64	
4000	4001	45.28	
4500	4503	50.94	
5000	5001	56.48	
5200	5200	58.64	
1000	1002	11.38	RUN: 3 POSITION: 4-1/2"
1500	1505	17.08	
2000	2004	22.76	
2500	2501	28.34	
3000	3001	34.02	
3500	3511	39.80	
4000	4002	45.36	
4500	4506	51.04	
5000	5000	56.62	
5200	5202	58.86	

HYDRAULIC JACK CALIBRATION
Linear Regression Analysis

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE 2 OF 3	

COMPUTED BY: BAG DATE: 09/25/07 REVIEWED BY: CEC DATE: 09/25/07

Project: PRE CRYSTAL RIVER
Contract No: N1002
Jack Description: DUDGEON Size: 1200 Tons
Register No: 9501
Theoretical Ram Area: 369 sq. in.
Max Pressure: 5200 psi
Calibrating Device Used: TELEDYNE Register No: 4734
Constant: 33005
Calibrating Gauge Used: HEISE Register No: 44084
Due Date: 09/13/09

Actual Gauge Reading (psi)	Load Cell Readout	Computed Force (kips)
1002	11.38	375.597
1505	17.10	564.386
2004	22.70	749.214
2507	28.36	936.022
3001	33.82	1116.229
3505	39.56	1305.678
4000	45.16	1490.506
4503	50.76	1675.334
5002	56.28	1857.521
5207	58.62	1934.753
1003	11.34	374.277
1507	17.04	562.405
2003	22.70	749.214
2503	28.38	936.682
3000	34.00	1122.170
3500	39.64	1308.318
4001	45.28	1494.466
4503	50.94	1681.275
5001	56.48	1864.122
5200	58.64	1935.413
1002	11.38	375.597
1505	17.08	563.725
2004	22.76	751.194
2501	28.34	935.362
3001	34.02	1122.830
3511	39.80	1313.599
4002	45.36	1497.107
4506	51.04	1684.575
5000	56.62	1868.743
5202	58.86	1942.674

* Indicates these readings have been omitted from thefinal computations

Errors In Jack Calibration

Error In Standard	0.0100	ksi
Interpolation in Gauge	0.0000	ksi
Accuracy of Gauge	0.0000	ksi

Errors In Gauge Calibration

Interpolation in Master	0.0000	ksi
Interpolation in Field Gauge	0.0050	ksi
Accuracy of Master	0.0100	ksi
Accuracy of Field Gauge	0.0275	ksi

Errors In Field Use of Gauge

Interpolation Error	0.0050	ksi
Accuracy Error	0.0275	ksi
Maximum Gauge Reading Used	5.2070	ksi

FORCE (kips) = 372.057 (in^2) X GAUGE READING (ksi) + 3.814 (kips)

Correlation = 0.99998311 N/NO = 1.0000 (Not < 0.66667)

Maximum Error Ratio In Jack	0.0072
Maximum Error Ratio In Gauge	0.0081
Maximum Total Error Ratio	0.0108

HYDRAULIC JACK CALIBRATION
Comparison With Previous Calibration

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	3 OF 3

COMPUTED BY: BAG DATE: 09/25/07 REVIEWED BY: CEC DATE: 09/25/07

Project: PRE CRYSTAL RIVER Contract No: N1002

Jack Description: DUDGEON Size: 1200 Tons Register No: 9501

Theoretical Ram Area: 369 sq. in. Max Pressure: 5200 psi

Calibrating Device Used: TELEDYNE Register No: 4734 Constant: 33005

Calibrating Gauge Used: HEISE Register No: 44084 Due Date: 09/13/09

Data From Current Calibration

Area (A_f): 372.057 sq.in.

Constant (C_f): 3.814 kips

Max Pressure (P): 5200 psi

Data From Previous Calibration

Area (A_i): 373.237 sq.in.

Constant (C_i): 1.091 kips

$$\frac{i-f}{i} x100\% = 0.176\%$$

WHERE:

$$i = (A_i \times P) + (C_i * 1000)$$

$$f = (A_f \times P) + (C_f * 1000)$$

RAM/JACK CALIBRATION RECORD FORM 12.8.G

PSC Formerly Inryco Surveillance

PROJECT Crystal River CONTRACT/PART NO. N1002

Jack Description Dudgeon Size 1200 Tons Register No 9501

Theoretical Ram Area 369 Max. Pressure 5200 PSI

Calibrating Device Teledyne Register No. 4794 Constant 23.0057.0

Calibrating Gauge Heise Register No. 94084 Date Due: 9-13-07

Raw Data By [illegible] 9-25-07

Mean Ram Area 372.057 sq.in. K= 3.514 Kips

Computed By [illegible]

Title FIELD ENGINEER Date 9/25/07

WITNESS N/A

Agency N/A Date N/A

QC Check [illegible]

Title LEAD QC LEVEL II Date 9-25-07

Target PSI	Gauge Reading PSI	Load Cell Readout
1000	1002	-11.38
1500	1505	-17.10
2000	2004	-22.70
2500	2507	-28.56
3000	3001	-33.82
3500	3505	-39.56
4000	4000	-45.16
4500	4503	-50.76
5000	5002	-56.28
1000	1003	-11.34
1500	1507	-17.04
2000	2003	-22.70
2500	2503	-28.38
3000	3000	-34.00
3500	3500	-39.64
4000	4001	-45.28
4500	4503	-50.94
5000	5001	-56.48
1000	1002	-11.38
1500	1505	-17.08
2000	2004	-22.76
2500	2501	-28.34
3000	3001	-34.02
3500	3511	-39.80
4000	4002	-45.36
4500	4506	-51.04
5000	5000	-56.62

COMMENTS

RUN 1 POSITION 1¼"

Target	Gauge	Readout
5200	5207	-58.62

RUN 2 POSITION 3" 1/4"

Target	Gauge	Readout
5200	5200	-58.64

RUN 3 POSITION 4½"

Target	Gauge	Readout
5200	5202	-58.86

HYDRAULIC JACK CALIBRATION
Jack Calibration Record

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE 1 OF 3	

COMPUTED BY: BAG DATE: 11/30/07 REVIEWED BY: DCC DATE: 11/30/07

Project: POST CRYSTAL RIVER Contract No: N1002

Jack Description: ENERPAC Size: 16 Tons Register No: 7702

Theoretical Ram Area: 1.66 sq. in. Max Pressure: 8500 psi

Calibrating Device Used: 25 TON CELL Register No: 9321 Constant: 501.629

Calibrating Gauge Used: HEISE Register No: 44083 Due Date: 08/30/10

Raw Data By: BRIAN GIBSON Date: 11/30/07

Mean Ram Area: 1.579 sq. in. K= 0.303 kips

Computed By: BRIAN GIOMETTI

Title: PROJECT ENGINEER Date: 11/30/07

Witness: N/A

Agency: N/A Date: N/A

QC Check:

Title: Level II Q.C. Date: 11-30-07

Target Pressure (PSI)	Gauge Reading (PSI)	Load Cell Readout	Comments
1000	1005	3.30	RUN: 1 POSITION: 3"
2000	2001	6.60	
3000	3005	10.00	
4000	4002	13.20	
5000	5004	16.40	
6000	6002	19.50	
7000	7006	22.60	
8000	8004	25.70	
8500	8500	27.20	
1000	1002	3.20	RUN: 2 POSITION: 6"
2000	2003	6.60	
3000	3012	9.90	
4000	4002	13.20	
5000	5001	16.30	
6000	6005	19.50	
7000	7005	22.70	
8000	8001	25.80	
8500	8504	27.30	
1000	1002	3.30	RUN: 3 POSITION: 9"
2000	2002	6.60	
3000	3003	10.00	
4000	4001	13.20	
5000	5003	16.40	
6000	6001	19.60	
7000	7003	22.80	
8000	8005	25.90	
8500	8500	27.40	

HYDRAULIC JACK CALIBRATION

Linear Regression Analysis

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE 2 OF 3	

COMPUTED BY: BAG DATE: 11/30/07 REVIEWED BY: AG DATE: 11/30/07

Project: POST CRYSTAL RIVER
Contract No: N1002
Jack Description: ENERPAC Size: 16 Tons
Register No: 7702
Theoretical Ram Area: 1.66 sq. in.
Max Pressure: 8500 psi
Calibrating Device Used: 25 TON CELL Register No: 9321
Constant: 501.629
Calibrating Gauge Used: HEISE Register No: 44083
Due Date: 08/30/10

Actual Gauge Reading (psi)	Load Cell Readout	Computed Force (kips)	
1005	3.30	1.655	*
2001	6.60	3.311	*
3005	10.00	5.016	
4002	13.20	6.622	
5004	16.40	8.227	
6002	19.50	9.782	
7006	22.60	11.337	
8004	25.70	12.892	
8500	27.20	13.644	
1002	3.20	1.605	*
2003	6.60	3.311	*
3012	9.90	4.966	*
4002	13.20	6.622	
5001	16.30	8.177	
6005	19.50	9.782	
7005	22.70	11.387	
8001	25.80	12.942	
8504	27.30	13.694	
1002	3.30	1.655	*
2002	6.60	3.311	*
3003	10.00	5.016	
4001	13.20	6.622	
5003	16.40	8.227	
6001	19.60	9.832	
7003	22.80	11.437	
8005	25.90	12.992	
8500	27.40	13.745	

* Indicates these readings have been omitted from thefinal computations

Errors In Jack Calibration

Error In Standard	0.0100	ksi
Interpolation In Gauge	0.0000	ksi
Accuracy of Gauge	0.0000	ksi

Errors In Gauge Calibration

Interpolation In Master	0.0000	ksi
Interpolation In Field Gauge	0.0050	ksi
Accuracy of Master	0.0100	ksi
Accuracy of Field Gauge	0.0275	ksi

Errors In Field Use of Gauge

Interpolation Error	0.0050	ksi
Accuracy Error	0.0275	ksi
Maximum Gauge Reading Used	8.5040	ksi

FORCE (kips) = 1.579 (in^2) X GAUGE READING (ksi) + 0.303 (kips)

Correlation = 0.99992017 N/NO = 0.7407 (Not < 0.66667)

Maximum Error Ratio In Jack	0.0068
Maximum Error Ratio In Gauge	0.0049
Maximum Total Error Ratio	0.0084

HYDRAULIC JACK CALIBRATION
Comparison With Previous Calibration

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE 3 OF 3	

COMPUTED BY: BAG DATE: 11/30/07 REVIEWED BY: ACS DATE: 11/30/07

Project: POST CRYSTAL RIVER			Contract No: N1002
Jack Description: ENERPAC	Size: 16 Tons		Register No: 7702
Theoretical Ram Area: 1.66 sq. in.			Max Pressure: 8500 psi
Calibrating Device Used: 25 TON CELL	Register No: 9321		Constant: 501.629
Calibrating Gauge Used: HEISE	Register No: 44083		Due Date: 08/30/10

Data From Current Calibration

Area (A_f): 1.579 sq.in.

Constant (C_f): 0.303 kips

Max Pressure (P): 8500 psi

Data From Previous Calibration

Area (A_i): 1.590 sq.in.

Constant (C_i): 0.146 kips

$$\frac{i-f}{i} x100\% = -0.464\%$$

WHERE:

$$i = (A_i \times P) + (C_i * 1000)$$

$$f = (A_f \times P) + (C_f * 1000)$$

RAM/JACK CALIBRATION RECORD FORM 12.8.G

PSC Precision Surveillance Corporation

PROJECT: Post Crystal River CONTRACT/PART NO.: N1002

Jack Description: Enerpac Size: 16 Tons Register No.: 7702

Theoretical Ram Area: 1.66 Max. Pressure: 8500 PSI

Calibrating Device: 25 ton cell Register No.: 9521 Constant: 501.629

Calibrating Gauge: Heise Register No.: 44085 Date Due Cal: 8-30-10

Raw Data By: [illegible] Date: 11-30-07

Mean Ram Area: 1.579 sq. in. K = 0.303 Kips

Computed By: [illegible]

Title: PROJECT ENGINEER Date: 11-30-07

WITNESS: N/A

Agency: N/A Date: N/A

QC Check: [illegible]

Title: Level II Q.C. Date: 11-30-07

Target PSI	Gauge Reading PSI			Load Cell Readout	COMMENTS
1000	1005			3.3	RUN: 1 POSITION: 3
2000	2001			6.6	
3000	3005			10.0	
4000	4002			13.2	
5000	5004			16.4	
6000	6002			19.5	
7000	7006			22.6	
8000	8004			25.7	
8500	8500			27.2	
1000	1002			3.2	RUN: 2 POSITION: 6
2000	2003			6.6	
3000	3012			9.9	
4000	4002			13.2	
5000	5001			16.3	
6000	6005			19.5	
7000	7005			22.7	
8000	8001			25.8	
8500	8504			27.3	
1000	1002			3.3	RUN: 3 POSITION: 9
2000	2002			6.6	
3000	3003			10.0	
4000	4001			13.2	
5000	5003			16.4	
6000	6001			19.6	
7000	7003			22.8	
8000	8005			25.9	
8500	8500			27.4	

HYDRAULIC JACK CALIBRATION

Jack Calibration Record

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	1 OF 3

COMPUTED BY: BAG DATE: 05/08/07 REVIEWED BY: CEC DATE: 5-8-07

Project: POST TURKEY POINT Contract No: N982

Jack Description: ENERPAC Size: 16 Tons Register No: 7702

Theoretical Ram Area: 1.66 sq. in. Max Pressure: 8500 psi

Calibrating Device Used: 25 TON CELL Register No: 9321 Constant: 501.629

Calibrating Gauge Used: HEISE Register No: 44083 Due Date: 12/04/09

Raw Data By: BRIAN GIBSON Date: 05/08/07

Mean Ram Area: 1.590 sq. in. K= 0.146 kips

Computed By: BRIAN GIOMETTI

Title: FIELD ENGINEER Date: 05/08/07

Witness: N/A

Agency: N/A Date: N/A

QC Check: [signature]

Title: Lead QC Level II Date: 5-11-07

Target Pressure (PSI)	Gauge Reading (PSI)	Load Cell Readout	Comments
1000	1001	3.25	RUN: 1 POSITION: 3"
2000	2002	6.50	
3000	3001	9.75	
4000	4003	12.90	
5000	5000	16.10	
6000	6005	19.10	
7000	7003	22.35	
8000	8000	25.40	
8500	8501	26.90	
1000	1001	3.30	RUN: 2 POSITION: 6"
2000	2000	6.60	
3000	3003	9.90	
4000	4001	13.20	
5000	5026	16.30	
6000	6000	19.50	
7000	7000	22.70	
8000	8002	25.75	
8500	8503	27.35	
1000	1000	3.25	RUN: 3 POSITION: 9"
2000	2000	6.50	
3000	3003	9.75	
4000	4010	12.95	
5000	5001	16.25	
6000	6001	19.40	
7000	7004	22.60	
8000	8000	25.70	
8500	8502	27.35	

HYDRAULIC JACK CALIBRATION

Linear Regression Analysis

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	2 OF 3

COMPUTED BY: BAG DATE: 05/08/07 REVIEWED BY: CEC DATE: 5-8-07

Project: POST TURKEY POINT
Contract No: N982
Jack Description: ENERPAC Size: 16 Tons
Register No: 7702
Theoretical Ram Area: 1.66 sq. in.
Max Pressure: 8500 psi
Calibrating Device Used: 25 TON CELL Register No: 9321
Constant: 501.629
Calibrating Gauge Used: HEISE Register No: 44083
Due Date: 12/04/09

Actual Gauge Reading (psi)	Load Cell Readout	Computed Force (kips)	
1001	3.25	1.630	*
2002	6.50	3.261	*
3001	9.75	4.891	
4003	12.90	6.471	
5000	16.10	8.076	
6005	19.10	9.581	
7003	22.35	11.211	
8000	25.40	12.741	
8501	26.90	13.494	
1001	3.30	1.655	*
2000	6.60	3.311	
3003	9.90	4.966	
4001	13.20	6.622	*
5026	16.30	8.177	
6000	19.50	9.782	
7000	22.70	11.387	
8002	25.75	12.917	
8503	27.35	13.720	
1000	3.25	1.630	*
2000	6.50	3.261	*
3003	9.75	4.891	
4010	12.95	6.496	
5001	16.25	8.151	
6001	19.40	9.732	
7004	22.60	11.337	
8000	25.70	12.892	
8502	27.35	13.720	

* Indicates these readings have been omitted from thefinal computations

Errors In Jack Calibration

Error In Standard	0.0100	ksi
Interpolation in Gauge	0.0000	ksi
Accuracy of Gauge	0.0000	ksi

Errors In Gauge Calibration

Interpolation In Master	0.0000	ksi
Interpolation in Field Gauge	0.0050	ksi
Accuracy of Master	0.0100	ksi
Accuracy of Field Gauge	0.0275	ksi

Errors In Field Use of Gauge

Interpolation Error	0.0050	ksi
Accuracy Error	0.0275	ksi
Maximum Gauge Reading Used	8.5030	ksi

FORCE (kips) = 1.590 (in^2) X GAUGE READING (ksi) + 0.146 (kips)

Correlation = 0.99975522 N/NO = 0.7778 (Not < 0.66667)

Maximum Error Ratio In Jack	0.0123
Maximum Error Ratio In Gauge	0.0049
Maximum Total Error Ratio	0.0133

HYDRAULIC JACK CALIBRATION
Comparison With Previous Calibration

DOCUMENT NO:	
DOCUMENT TYPE:	ENG
REVISION #	0
SAFETY RELATED	X
NON-SAFETY RELATED	
PAGE	3 OF 3

COMPUTED BY: BAG DATE: 05/08/07 REVIEWED BY: MEC DATE: 5-8-07

Project: POST TURKEY POINT			Contract No: N982
Jack Description: ENERPAC	Size: 16 Tons		Register No: 7702
Theoretical Ram Area: 1.66 sq. in.			Max Pressure: 8500 psi
Calibrating Device Used: 25 TON CELL	Register No: 9321		Constant: 501.629
Calibrating Gauge Used: HEISE	Register No: 44083		Due Date: 12/04/09

Data From Current Calibration

Area (A_f): 1.590 sq.in.

Constant (C_f): 0.146 kips

Max Pressure (P): 8500 psi

Data From Previous Calibration

Area (A_i): 1.587 sq.in.

Constant (C_i): 0.103 kips

$$\frac{i-f}{i} x100\% = -0.503\%$$

WHERE:

$$i = (A_i \times P) + (C_i * 1000)$$

$$f = (A_f \times P) + (C_f * 1000)$$

RAM/JACK CALIBRATION RECORD FORM 12.8.G

PSC Formerly Inryco Surveillance

PROJECT Post turkey Pt CONTRACT/PART NO. N982

Jack Description Enerpac Size 16 Tons Register No. 7702

Theoretical Ram Area 1.66 Max. Pressure 8500 PSI

Calibrating Device 25 ton cell Register No. 9321 Constant 501.629

Calibrating Gauge Heise Register No. 44083 Date 5-8-07 12-4-09

Raw Data By Brian Sth 5-8-07 WITNESS N/A

Mean Ram Area 1.590 sq.in. K= 0.146 Kips Agency N/A Date N/A

Computed By [illegible] QC Check [illegible]

Title FIELD ENGINEER Date 5/8/07 Title Lead QC Level II Date 5-14-07

Target PSI	Gauge Reading PSI	Load Cell Readout	COMMENTS
1000	1001	3.25	RUN 1 POSITION 3"
2000	2002	6.50	
3000	3001	9.75	
4000	4003	12.90	
5000	5000	16.10	
6000	6005	19.10	
7000	7003	22.35	
8000	8000	25.40	
8500	8501	26.90	
1000	1001	3.30	RUN 2 POSITION 6"
2000	2000	6.60	
3000	3003	9.90	
4000	4001	13.20	
5000	5026	16.30	
6000	6000	19.50	
7000	7000	22.70	
8000	8002	25.75	
8500	8503	27.35	
1000	1000	3.25	RUN 3 POSITION 9"
2000	2000	6.50	
3000	3003	9.75	
4000	4010	12.95	
5000	5001	16.25	
6000	6001	19.40	
7000	7004	22.60	
8000	8000	25.70	
8500	8502	27.35	

PSC

Precision Surveillance Corporation

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CONTROLLED MANUAL NO: [ ]

POST TENSIONING SYSTEM
IN-SERVICE INSPECTION MANUAL

FOR

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID

CONTAINMENT BUILDING TENDON SURVEILLANCE

REVISION	0	SEPTEMBER 21, 2007
REVISION	1	
REVISION	2	
REVISION	3	

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
~~Approved by~~	*PRESIDENT*	*09/21/07*
	Title	Date

This page shall be removed, and mailed or faxed to:

Precision Surveillance Corporation
Quality Assurance
3468 Watling Street
East Chicago, IN 46312

Phone: 219-397-5826
Fax: 219-397-5867

The return of this Acknowledgement form from Control Manual Number: _____

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Name: _____

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Company: _____

Project: _____

Contract: _____

In-Service Inspection Manual		
Issue Date	09-21-07	
Revision	0	09-21-07

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
TENDON SURVEILLANCE PROGRAM

MANUAL CONTROL POLICY

Prepared by	*LEVEL II Q.C.*	*09/20/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/20/07*
	Title	Date
Approved by	*PRESIDENT*	*09/20/07*
	Title	Date

1.0 Controlled copies of this manual SHALL be submitted for review and approval according to the distribution and quantity requirements established by the Contract Documents. Where this is not specified, Precision Surveillance Corporation SHALL submit a minimum of one controlled Manual. Where applicable, an uncontrolled copy may be submitted to assist in the review process. To avoid fabrication or construction delays, a line of communication should be established with the personnel responsible for initiating approval for the Manual or Revisions thereto, rather than incurring the delay for gravitation to that level.

2.0 Acknowledgement of Receipt is mandatory upon receiving a Controlled Manual and a form is supplied to facilitate this response. This form or a copy, SHALL be filled in with the information requested and returned in order to activate the Control status of this Manual, otherwise it will be treated as an uncontrolled manual and no attempt SHALL be made to keep it in a current condition.

3.0 The responsibility for keeping the uncontrolled Manuals up to date SHALL be incumbent on the person acknowledging receipt of the Controlled Manual.

4.0 Reproduction of the Manual IS NOT AUTHORIZED, except for copies made by the owner/ or his agent for internal distribution review and use, without the expressed written consent of the Precision Surveillance Corporation Quality Assurance Section responsible for the maintenance of the Manual.

5.0 Where required, uncontrolled manuals SHALL be submitted at the pre-bid stage of the project. In the event of non-award of the project to Precision Surveillance Corporation, the uncontrolled Manual SHALL be returned to the Quality Assurance Section.

6.0 INTERNAL

6.1 Those Precision Surveillance Corporation personnel receiving Controlled Manuals or revisions thereto, SHALL be responsible for reviewing and understanding those portions of the Quality Program that they and their subordinates are responsible for. The return of the Acknowledgement of Receipt SHALL constitute certification that the person receiving that Program/Revision has reviewed the contents and has taken appropriate action to notify or train those personnel under his control that are affected by that document or the revisions thereto.

Precision Surveillance Corporation

TENDON SURVEILLANCE PROGRAM
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September 21, 2007
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PSC PROCEDURE QA 8.1
REVISION CONTROL SHEET

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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period Revision # _____

REVISION CONTROL SHEET

Procedure #	Page #	Revision/ Date	Submitted Date	Procedure #	Page #	Revision/ Date	Submitted Date

Revision No.	Date	Revision Description	Revision By:	Date Approved

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
TENDON SURVEILLANCE PROGRAM

DEFINITIONS

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

ACTIVE CORROSION: Corrosion on a component that exhibits metal loss that has occurred since fabrication or construction, and/or exhibits pitting visible to the naked eye. Active corrosion usually is a reddish/rust color.

ANCHORAGE (Stressing Washer): The round machined components at the end of each end of the tendon through which tendon wires are passed.

BEARING PLATE (Baseplate, Trumplate): The steel plate at the end of the tendon, embedded in the concrete. The tendon is passed through the hole in the plate and the anchorhead bears against the plate or shim which in turn transfers the load to the concrete.

BROKEN WIRE: A wire within a tendon assembly that is broken and not capable of accepting prestressed load. Wires that excessively protrude from the anchorage components are suspected to be broken.

BUTTONHEAD: The end of the tendon wire that was mechanically deformed during construction, which seats on each anchorage.

CONTINUITY TEST: A method of determining if wires are intact and not broken within a tendon. This is an optional test that may be recommended as a corrective action if abnormal degradation is identified.

CORROSION PROTECTION MEDIUM (Grease, Casing Filler): Grease injected into tendon duct and anchorage cans for corrosion protection. Also referred to as grease or sheathing filler grease.

CR3ENG: Crystal River Unit 3 Engineering, or its designee, is responsible for providing technical support and for the evaluation and disposition of problems as identified during the surveillance. This includes responsibility for the general walkdown and inspection of the containment, and for the documentation of the results of this inspection.

EFFECTIVE WIRE: Tendon wire capable of maintaining required post tensioned force.

ELONGATION: The distance a tendon/wire stretches while under stress.

FEELER GAUGE METHOD: The method used to determine lift off during a test that utilizes the placement of feeler gauges within the anchorage components while the tendon is under jack/ram load.

FIELD END: The end of the tendon on which buttonheads are formed after the tendon is installed. The field end usually does not have a bushing.

FREE WATER: Any quantity of water collected from a tendon grease can, anchorage components, shim gaps, or tendon duct.

GREASE CAN: Steel container bolted to the bearing plate or anchorhead. A grease can

encases the anchorage assembly to provide permanent corrosion protection.

GUARANTEED MINIMUM ULTIMATE TENSILE STRENGTH (GUTS): The tensile strength of the tendon assembly based upon the tensile strength of the wire used in construction and the quantity of effective wires. The minimum Guaranteed Ultimate Tensile Strength of 7 mm (0.27559") diameter wire is 240,000 pounds per square inch or 14,316 pounds.

INSPECTION PERIOD: The period in which an inspection is completed at a specific site.

JACK (Ram): A cylindrical, hydraulic device used to stress the tendon. Also referred to as a "Ram".

JACK CHAIR: That device attached to the front of the ram and bears against the bearing plate, which provides the lift height for the tendon as it is being stressed.

LIFT OFF FORCE: The actual force or pressure required to lift the anchor head off the tendon anchorage assembly shim stack.

LOCK OFF FORCE: The final seating force of a tendon after tensioning during construction or retensioning thereafter.

MINIMUM DESIGN FORCE (kips): The minimum acceptable average prestress force for a tendon or group of tendons to maintain the design basis of the containment structure. For Crystal River Unit 3 the force levels for this average prestress condition are 1215 kips for the dome tendon group, 1149 kips for the vertical tendon group, and 1252 kips for the hoop tendon group.

MISSING WIRE: A wire that is identified as missing from the tendon.

MONITORING OF FORCE: That series of operations that determine the force or prestress remaining in the tendon.

NET DUCT VOLUME: The volume within a tendon duct that is capable of being filled with corrosion protection medium. This is the gross duct volume minus the volume taken by the tendon wires and components.

NORMALIZATION FACTOR: Factors for each individual tendon which are based upon the original tendon stressing sequence of installation. The normalization factor accounts for the effects of elastic shortening.

OVERSTRESS FORCE: The maximum force that can be applied to a tendon during lift off testing and retensioning. This force is 80% of the tendon's ultimate tensile strength. For wire specification ASTM A421, 80% of the minimum Guaranteed Ultimate Tensile Strength of the wire is 11,452 pounds for each 7 mm diameter wire.

POST TENSIONING: A method of prestressing concrete in which the tendons are tensioned after the concrete has cured.

PREDICTED FORCE: The precalculated force (in kips) based upon the measurement of the prestressing forces during installation minus the losses in prestressing forces that were predicted to have occurred since that time because of material and structural characteristics. This is the calculated minimum force that should be required to achieve lift off. This value is the acceptance criteria for measuring pre stress forces. The as found value should be equal to or exceed this value.

PRESTRESSED CONCRETE: Reinforced concrete in which there have been introduced internal stresses of such magnitude and distribution that the stresses resulting from loads are counteracted to a desired degree.

PRETENSIONING FORCE: The force achieved during retensioning where the slack and mechanical clearances have been removed.

PROTRUDING OR UNSEATED WIRE: A wire within a tendon assembly that is extending beyond a tendon anchorage after stressing and is not seated against the anchorage. The wire must be evaluated.

PUMP: A mechanical device used to pump hydraulic fluid into the jack and apply the force required to stress the tendon.

RAM: Synonym for Jack. (See Jack)

REGRESSION ANALYSIS: The determination, based upon evaluation of measured forces, of the capability of a tendon or group of tendons to maintain the minimum design prestress force(s) until the next scheduled inspection or beyond.

RESPONSIBLE ENGINEER: A Registered Professional Engineer (RPE) experienced in evaluating the inservice condition of structural concrete. The RPE shall have knowledge of the design and construction codes and other criteria used in the design and construction of concrete containment structures in nuclear power plants.

SHEATHING (Conduit, Duct): The thin-walled tubular steel used for creating a void in the concrete through which the tendon is passed. (Also referred to as : duct, conduit.)

SHIM STACK: A series of steel shims installed between the anchor head and bearing plate so that the desired prestress force is obtained.

SHOP END: The end of a tendon on which the buttonheads are formed prior to installation. These buttonheads are formed in a shop environment and not in the field.

STRESSING: Connecting the ram to the tendon and pulling until a predetermined force and elongation is achieved.

STRESSING ADAPTOR (Coupler): That threaded device attached to the pull-rod of the ram, which couples with the anchorhead to be stressed. This may be for internal or external threaded anchorheads.

TENDON: A separate continuous multiwire tensioned element anchored at both ends to an end anchorage assembly. An assembly of prestressing steel and anchorage components which imparts prestressing forces to concrete.

TENDON END ANCHORAGE ASSEMBLY: That portion of the tendon which extends beyond the bearing plate while in a stressed condition which consists of the bearing plate, shim stack, anchor head and wire.

TENDON GROUP: Groups based upon geometry and position in the containment structure. Horizontal, vertical, and dome tendon groups are applicable to Crystal River Unit 3.

TENDON TYPE: A tendon type is defined by its geometry and position in the containment structure; e.g., horizontal (hoop), vertical, and dome.

TENDON LOCATION NUMBER: The identity of a tendon with regard to it's location in the structure.

WIRE: 7 mm diameter wire manufactured to ASTM A421.

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PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
TENDON SURVEILLANCE PROGRAM

PERSONNEL SAFETY

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 The purpose of this document is to create awareness for those safety considerations that must be observed by those personnel working around or directly involved in Post Tensioning System operations.

2.0 GENERAL

2.1 All personnel directly involved with the Post-Tensioning System operations SHALL be made aware of the magnitude of the working forces and safety requirements for the various operations.

3.0 SAFETY

3.1 WIRE

3.1.1 The wire used for fabricating the tendons has a minimum breaking strength of 240,000 pounds per square inch. This means that each 7mm diameter wire is capable of withstanding a minimum breaking load of 14,316 pounds per wire. Multiply this by the number of wires in a tendon and you are dealing with forces in excess of 2 million pounds for a 163 wire tendon.

- CAUTION: Never connect a welding ground, perform welding on, or strike an arc near a stressed tendon.

- CAUTION: Never apply an open flame or lighted torch to the button heads, the wires or anchorages of a stressed tendon.

- CAUTION: Never strike the button heads, the wires or the anchorheads of a stressed tendon with a hammer or any other metal object.

3.1.2 The above actions could cause a button head or wire to fail. During tendon tensile testing, broken wires or button heads have been observed to penetrate hard lumber in excess or 4 inches in thickness, about the equivalent of a .32 caliber bullet.

3.2 STRESSING OPERATIONS

3.2.1 *During de-tensioning or stressing operations the following cautions SHALL be observed.*

- CAUTION: Never exceed the overstress force or pressure - 80% of tendon GUTS for a 163 wire tendon (or 11.452 kips per effective wire).

- CAUTION: DO NOT stand behind the jack when it is under load.

- CAUTION: Keep fingers out of any pinch areas.

- CAUTION: Be alert during shim placement and removal.

- CAUTION: After implementing Step 8.2, of SQ 10.0 DETENSIONING TENDONS, a 10 minute waiting period SHALL be imposed to allow the dissipation of energy that may be trapped within the tendon.

3.3 STRESSING ADAPTOR (COUPLER)

3.3.1 Prior to applying ANY FORCE to the tendon, the stressing adaptor, coupler, must be fully engaged with the anchorage to be stressed or de-tensioned.

- CAUTION: Ensure the stressing adaptor (coupler) is fully engaged with the anchorage before applying any load, regardless of how small that load might be.

- CAUTION: Prior to applying ANY FORCE to the tendon, the stressing adaptor, coupler, must be fully engaged with the anchorage to be stressed or detensioned.

3.4 GREASING OPERATIONS

3.4.1 During greasing operations the grease may be pumped under pressure and may have temperatures in excess of 150°F and injury could occur through carelessness. It is therefore essential to avoid direct contact with the hot grease and to make sure all connections are secure. Exercise caution when climbing tendon buttress and gallery ladders. The potential for slippery surfaces created by grease on shoes exists. Ladder rung, etc. shall be wiped clean if coated in grease.

3.4.2 During heating of grease be aware that belt heaters are hot and could cause injury if touched. It is also essential to ensure that no flammable materials are allowed to touch belt heaters when in operation.

3.4.3 Belt heaters draw large amounts of current, ensure that power supply and any extension cords used are suitable for the power requirements.

3.4.4 CAUTION: During greasing, be aware that the grease is HOT and may be pumped under pressure.

3.5 CONSTRUCTION SAFETY

- CAUTION: DO NOT stand under loads while stationary or during hoisting.

- CAUTION: DO NOT permit others to stand under loads.

- CAUTION: DO NOT throw or drop object from the scaffold.

3.5.1 As in other heavy construction, care should be exercised while working from scaffolds, platforms, ladders, high or restricted access locations. Respect for the safety and well being of the other trades and personnel in the area must be observed, especially during hoisting operations.

3.5.2 All CR03 Accident Prevention Procedures SHALL be rigidly adhered to, to the total satisfaction of the site safety department. As in other heavy construction, care should be exercised while working from scaffolds, platforms, ladders, high or restricted access locations. Respect for the safety and well-being of other trades and personnel in the area must be observed, especially during hoisting operations.

3.5.3 Some work may be near plant equipment required for safe shutdown and/or may cause shutdown if plant equipment is damaged. Use special care therefore when suspending or moving detensioning rams or other heavy surveillance equipment.

3.5.4 If required notify the site safety organization to obtain air samples in the tendon gallery prior to entry into the gallery. Enter gallery only upon site safety approval.

3.5.5 If there are any doubts or questions concerning a point of operation or safety, refer to the PSC Construction Supervisor before starting that operation or proceeding any further. Refer to the Quality Control personnel any questions about quality before starting operations or proceeding any further.

3.5.6 The Tendon Surveillance Program is usually conducted during an outage. However, it may be conducted periodically during plant operation. For a surveillance during plant operation, special precautions must be taken to avoid work in hazardous areas resulting from plant operating conditions.

3.5.7 If there are any doubts or questions concerning a point of operation, safety or quality, refer to PSC Construction or Quality Control personnel before starting that operation or proceeding any further.

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

SURVEILLANCE PURPOSE

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 The Purpose of the Tendon Surveillance Program is to demonstrate the integrity of the containment prestressing system, including containment tendons, tendon end anchorage hardware, general and adjacent concrete, and evaluate the corrosion protective (grease) system. Individual inspections of selected tendons, as well as tendon wire and grease sample testing are performed to evaluate the overall integrity of the prestressing system.

1.2 Tendon surveillance is required at 1, 3, 5, and 10 years after the Initial Containment Structural Integrity Test, and is to be performed every 5 years thereafter for the life of the plant.

1.3 The purpose of this Surveillance Quality Control Manual is to provide the procedures that will be necessary to perform the 30th Year (8th Period) In-Service Inspection (Surveillance) of the Reactor Building Post-Tensioning System Tendons for Progress Energy Florida's Crystal River Unit 3.

1.3.1 These procedures shall be used for the required inspections, testing and evaluation of the selected tendons as shown in PSC Procedure SQ 2.0.

1.3.2 In addition, each procedure provides as necessary, the reporting responsibilities for PSC Personnel for notification to Progress Energy Florida's Crystal River Unit 3 personnel in writing of unacceptable conditions that may have been detected as a result of the inspections, tests or evaluations.

1.4 It shall be the responsibility of the Owner to evaluate the seriousness of the unacceptable condition and to formulate, with the assistance of the PSC Engineering Department, a means of corrective action.

1.4.1 It shall further be the Owner's responsibility to draft and submit a formal report to the United States Nuclear Regulatory Commission describing the unacceptable condition and the required corrective action.

1.5 This Surveillance Quality Control Manual has been developed in accordance with:

1.5.1 The 1992 addenda of the 1992 edition of ASME Section XI, Subsection IWL and the applicable amendments as specified in 10CFR50.55a, Codes and Standards

1.5.2 U.S. NRC Regulatory Guide 1.351, Latest Revision.

1.5.3 Latest industry standard engineering, construction and quality assurance techniques.

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

SURVEILLANCE SCOPE

Prepared by	*LEVEL II Q.C.*	*09/21/07*
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	Title	Date

1.0 SCOPE

1.1 The required inspections, testing and evaluations of the Post-Tensioning System of Progress Energy's Crystal River Unit 3 during the 30TH Year (8TH Period) surveillance, shall be performed for the tendons and types of activities shown below.

CRYSTAL RIVER UNIT 3 – 30TH YEAR SURVEILLANCE SCOPE OF WORK															
		VISUAL					PHYSICAL								
TENDON	END	SQ6.0	SQ6.1	SQ7.0	SQ8.0	SQ8.3	SQ9.0	SQ10.2	SQ10.3	SQ11.0	SQ12.1	ALTERNATE	CONTROL TENDON	STEAM ZONE	ADJACENTS
12V01	D & G	●	●	●	●	●	●				●		●	DOME	61V24, 12V02
45V20	D & G	●	●	●	●	●	●				●				45V19, 45V21
61V17	D & G	●	●	●	●	●	●	●	●	●	●				61V16, 61V18
34V17	D & G											●			34V16, 34V18
13H36	BT. 1 & 3	●	●	●	●	●	●				●				13H35, 13H37
42H46	BT. 2 & 4	●	●	●	●	●	●				●			@BT2	42H45, 42H47
46H21	BT. 4 & 6	●	●	●	●	●	●				●		●		46H20, 46H22
51H34	BT. 5 & 1	●	●	●	●	●	●	●	●	●	●			@BT1	51H33, 51H35
62H30	BT. 6 & 2	●	●	●	●	●	●				●			@BT 2	62H29, 62H31
46H07	BT. 4 & 6											●			46H06, 46H08
D129	BT. 3 & 5	●	●	●	●	●	●				●			@BT3	D128, D130
D212	BT. 1 & 3	●	●	●	●	●	●				●		●		D211, D213
D238	BT. 4 & 6	●	●	●	●	●	●	●	●	●	●				D237, D239
D337	BT. 1 & 5											●			D336, D338

LEGEND

SQ 6.0 – GREASE CAP REMOVAL
SQ 6.1 – INSPECTION FOR WATER
SQ 7.0 – AQUIRE GREASE SAMPLES
SQ 8.0 – ANCHORAGE INSPECTION
SQ 8.3 – CONCRETE INSPECTION
SQ 9.0 – MONITOR TENDON FORCE
SQ 10.2 – TENDON WIRE INSPECTION
SQ 10.3 – TESTING TENDON WIRES
SQ 11.0 – RETENSION TENDONS
SQ 12.1 – GREASE REPLACEMENT

1.2 EXPLANATION

1.2.1 "V" are Vertical Tendons, "H" are Hoop Tendons and "D" are Dome Tendons.

1.2.2 "•" - means the tendon shown shall be Inspected for the stated requirements during this Surveillance.

1.2.3 Inspections performed at 1, 3, 5, 10, 15, 20 and 25 years after the initial Structural Integrity Test (SIT) indicated no abnormal degradation of the post-tensioning system. Therefore, the number of tendons selected for subsequent surveillances complies with the following:

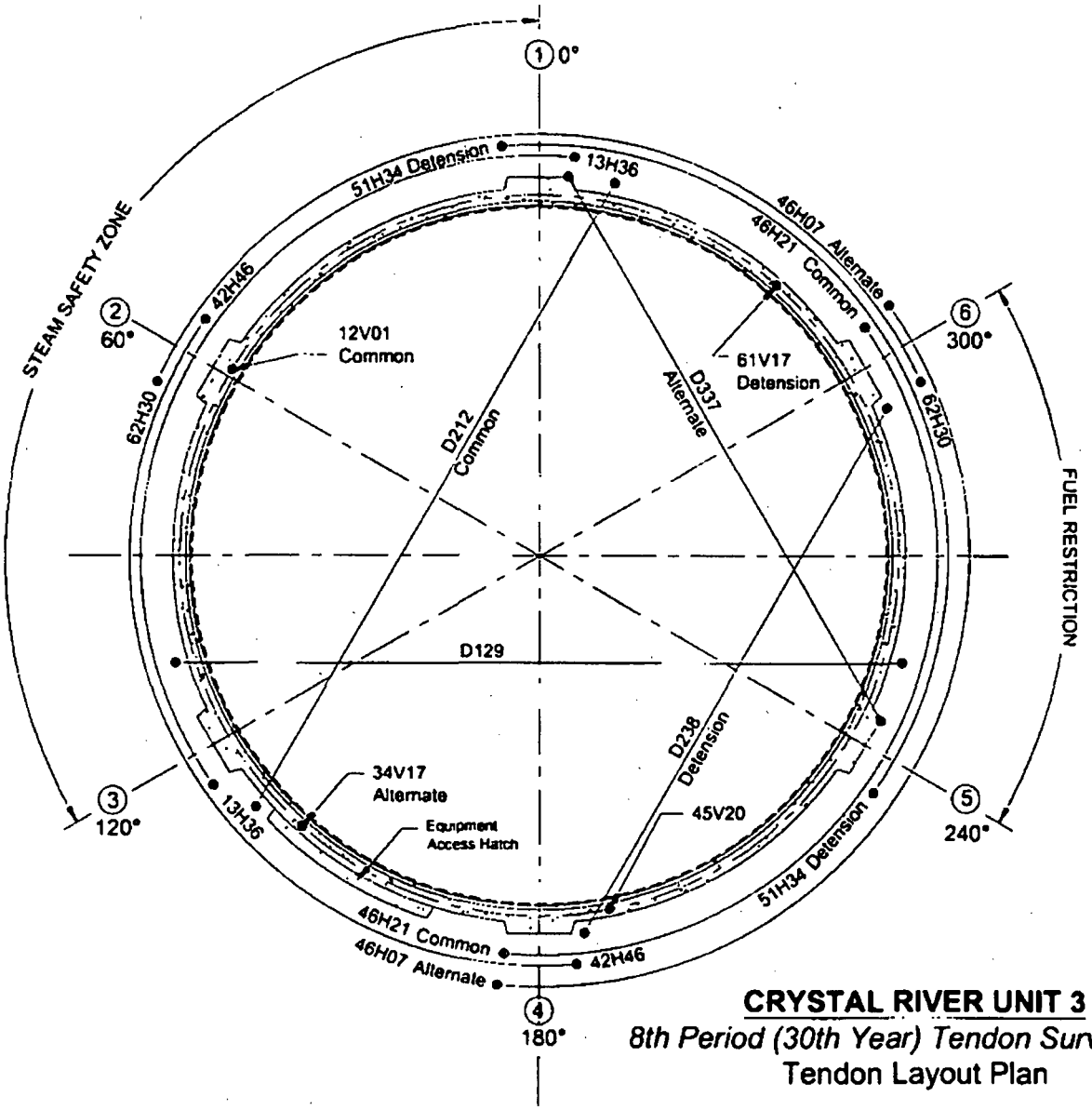
1.2.3.1 At least 2% of the population of each group of tendons (vertical, hoop, and dome), or five tendons, whichever is less, with a minimum of three tendons in each group, shall be included.

1.2.3.2 Eleven tendons are selected for each surveillance period consisting of five hoop tendons, three vertical tendons, and three dome tendons.

1.3 TENDON LOCATION

1.4 The following three pages give the approximate location of the Surveillance Tendons for Inspection Period No. 8. Field personnel are responsible for the final verification of selected tendons' locations.

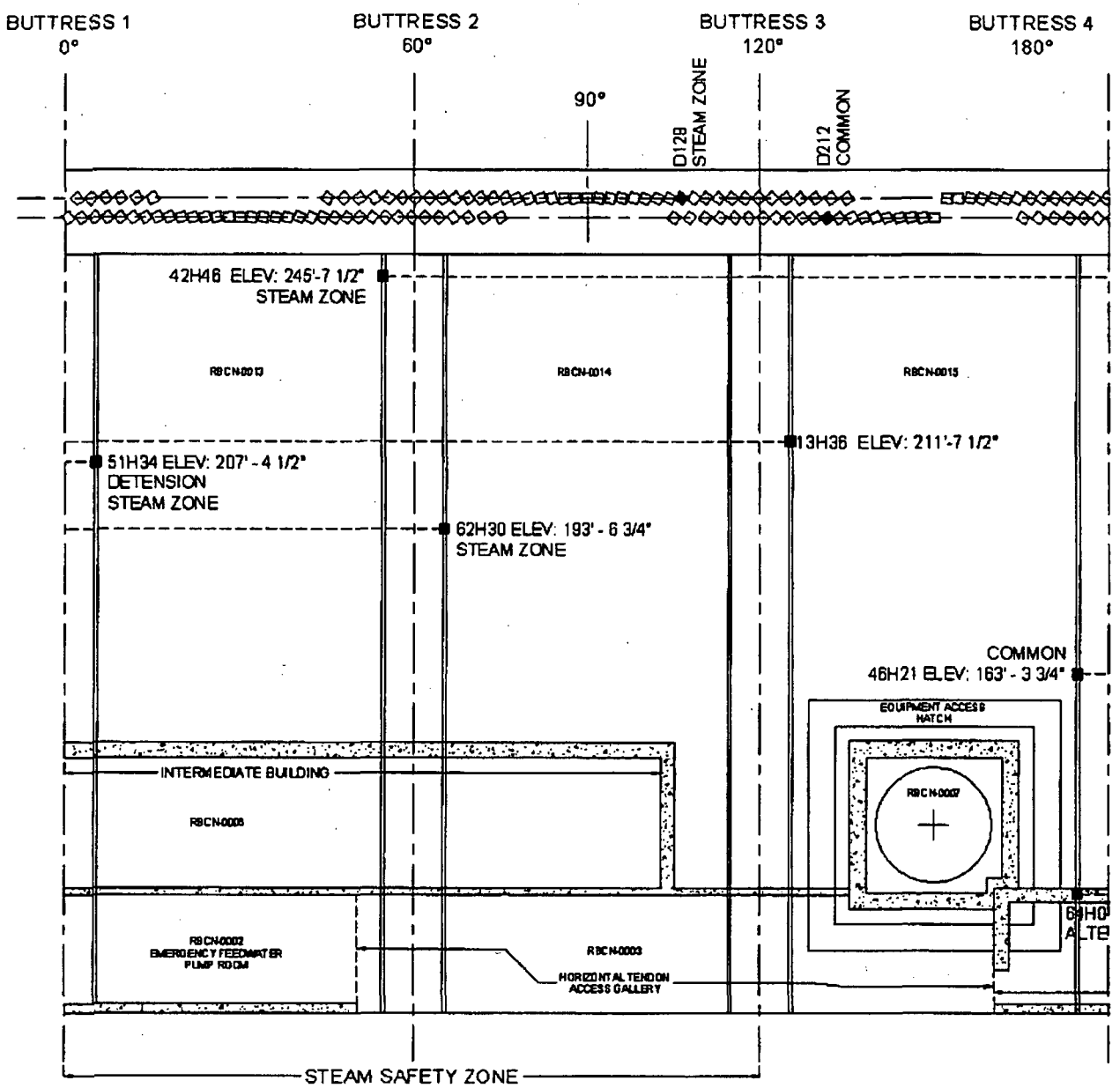
1.5 CR3ENG will identify which tendons need missile shields in place over the Spent Fuel Pool during surveillance activities.



CRYSTAL RIVER UNIT 3

8th Period (30th Year) Tendon Surveillance

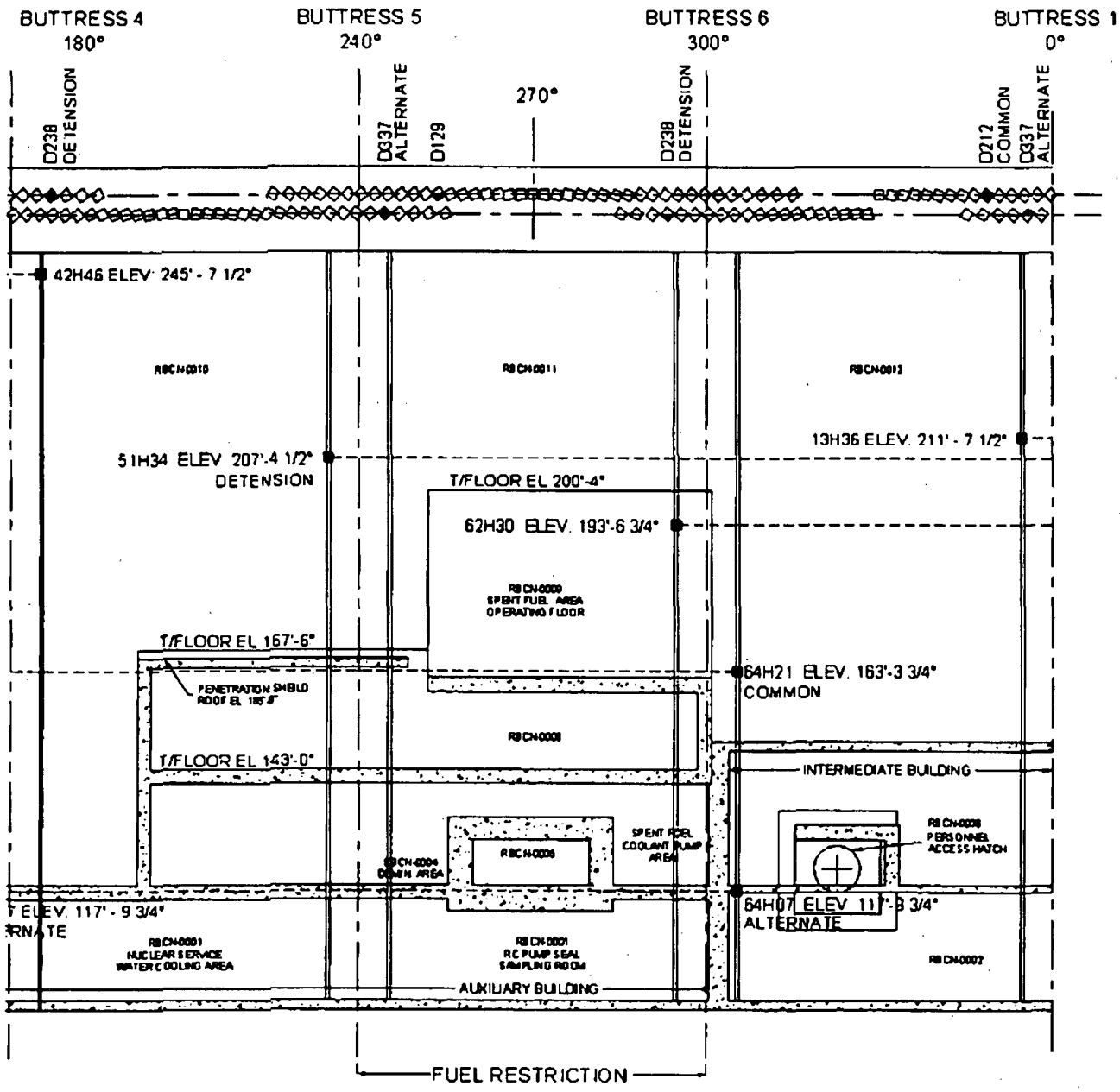
Tendon Layout Plan



CRYSTAL RIVER UNIT 3

8th Period (30th Year) Tendon Surveillance

Tendon Layout Elevation - 0° to 180°



CRYSTAL RIVER UNIT 3

8th Period (30th Year) Tendon Surveillance

Tendon Layout Elevation - 180° to 360°

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

CONSTRUCTION EQUIPMENT LIST

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 EQUIPMENT

1.1 The following list of equipment should be available for use during the Surveillance operations. This list is only intended as a guide.

1.2 Miscellaneous shackles, hooks, chain hoists, Come-Alongs, hoisting slings.

1.3 Banding equipment.

1.4 Communications equipment - Walkie Talkies or Sound Powered Phones.

1.5 Buckets, pails, rags, brushes.

1.6 Miscellaneous tools, hammers, wrenches, ratchets, sockets, bundling wire, screw drivers, pliers, heavy duty wire cutters, files, pry bars, etc.

1.7 Miscellaneous nuts, bolts, pins, washers, wooden blocks, rags, lights, extension cords, tape, etc.

1.8 Hydraulic pumps for rams.

1.9 Platforms, scaffolding, ladders, man-lifts, cable, ropes, etc.

1.10 Plastic Bags, Plastic Sheeting (Visqueen).

1.11 Wire coiler.

1.12 Band or Drum heaters.

1.13 Fluid Pump for drum.

1.14 Empty 55 Gallon drums.

1.15 Stressing Shims. (With Certificate of Conformance)

1.16 Grease can gaskets.

1.17 55 Gallon drums of Viscosity Oil Visconorust 2090P-4 (Certified) and Material Data Sheets.

1.18 55 Gallon drums of Viscosity Oil Viscor #16A Solvent (Certified) and Material Data Sheets.

PROGRESS ENERGY FLORIDA, INC.
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30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

QUALITY CONTROL EQUIPMENT LIST

Prepared by	*LEVEL II Q.C.*	*09/21/07*
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Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 INSPECTION EQUIPMENT

1.1 The following items shall be required for the inspections stated in each procedure. Each piece of testing and measuring equipment shall be in a currently calibrated condition. Items in excess of those shown as being required for that procedure, and being used during the Inspections of that procedure, shall be documented on the appropriate Data Sheet where they were used for: Name, Identification and Recalibration Date.

1.2 SQ 6.0

1.2.1 Surface Thermometer.

1.2.2 Pocket-Probe Thermometer.

1.2.3 Sample of new 2090P-4 grease in a closed container (for Color Match).

1.3 SQ 6.1

1.3.1 Suitable quantities of clean, unused non-metallic containers for obtaining water samples.

1.3.2 Clean unused rags or wipers.

1.3.3 Indelible permanent marking devices and/or labels for the sample containers.

1.3.4 Flashlights and batteries.

1.3.5 Pens; Markers; Data Sheets; Tendon Inspection List.

1.4 SQ 7.0

1.4.1 Suitable quantities of clean, unused 1 quart containers; plastic or steel.

1.5 SQ 8.0

1.5.1 Magnifying Glasses with suitable illumination.

1.5.2 Optical Comparator with 0.005" Measuring Reticle.

1.5.3 Steel Ruler, Steel Tapeline.

1.6 SQ 8.1 (If Necessary)

1.6.1 400 Grit Wet or Dry Sandpaper.

1.6.2 Steel Wool - Medium Coarseness.

1.7 SQ 8.3

1.7.1 Optical Comparator with 0.005" Measuring Reticle.

1.7.2 Feeler Gauges.

1.7.3 Steel Ruler, Steel Tapeline.

1.8 SQ 9.0 & SQ 10.0

1.8.1 Stressing Jacks.

1.8.2 Pressure Gauges.

1.8.3 Steel Ruler.

1.8.4 Caliper. (Optional)

1.8.5 Heise Digital Gauge (Verification of Pressure Gauge Calibration, refer to Procedure QA 10.1).

1.8.6 Surface Thermometer.

1.8.7 Feeler Gauges.

1.9 SQ 10.2

1.9.1 Tendon Wire Pulling Ram. (Optional)

1.9.2 Steel Ruler, Steel Tapeline.

1.9.3 Pressure Gauge, if used with the hydraulic pump for the Pulling Ram.

1.10 SQ 10.3

1.10.1 Steel Ruler, Steel Tapeline.

1.10.2 1" O.D. Micrometer.

1.10.3 Wire Test Apparatus.

1.10.4 Pressure Gauge, if used with the hydraulic pump for the Apparatus.

1.11 SQ 10.5

1.11.1 Steel Ruler, Steel Tapeline.

1.12 SQ 11.0

1.12.1 Refer to Section 1.8 of this procedure - same equipment.

1.13 SQ 12.1

1.13.1 Surface Thermometer.

1.13.2 Pocket-Probe Thermometer.

1.13.3 Steel Ruler, Steel Tapeline.

1.13.4 Pressure Gauge to be used during pressure pumping of grease.

1.13.5 Air powered grease pump(s).

1.13.6 Hand driven grease pump(s).

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PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

PRE-JOB GUIDELINES

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
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	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PROCEDURE

1.1 PSC Project Management SHALL review the following items prior to beginning surveillance activities. This is not a Quality Control Documentation requirement and is only presented as a reminder list to Project Management personnel who will be dependent on these items.

1.2 Ensure that all the Construction Equipment cited in PSC Procedure SQ 3.0, CONSTRUCTION EQUIPMENT LIST, has been prepared or arrangements made for acquisition.

1.3 Ensure that the Quality Control Equipment cited in PSC Procedure SQ 4.0, QUALITY CONTROL EQUIPMENT LIST, has been ordered or is available for use.

1.4 Ensure that the Wire Test Apparatus described in PSC Procedure SQ 10.3, PHYSICAL TESTING OF TENDON WIRE, has been calibrated and that the Wire Test Stressing Washers are available for use.

1.5 Ensure that the Grease Testing Laboratory has been qualified and is ready to receive the grease samples.

1.6 Ensure that suitable quantities of the various data sheets are available or the means to generate a suitable quantity is available on site.

1.7 Ensure that controlled copies of the PSC Quality Assurance Manual and the PSC In-Service Inspection Quality Control Manual are available.

1.8 Ensure that the Engineering Data has been included in PSC Procedure SQ 9.1, PRESTRESS FORCE, and PSC Procedure SQ 11.1, PSC ENGINEERING DATA.

1.9 Ensure that the Stressing Jacks and Pressure Gauges have been calibrated and that documentation has been provided.

1.9.1 Ensure that each item supplied as Quality Control Equipment has been calibrated and that suitable documentation accompanies each item.

1.10 Ensure that all Field Quality Control Personnel are qualified and that copies of certifications exist for each Inspector.

1.11 Ensure that the Construction Personnel are familiar with the operating manuals for the equipment and that suitable training has been provided to familiarize them with the Surveillance requirements.

1.11.1 Ensure that the Construction Personnel are familiarized with Safety Comments for the Surveillance Program.

1.11.2 Ensure that Construction Personnel have been familiarized with the OSHA safety requirements and any selective safety measures imposed by the Owner or his Agent.

1.11.3 Ensure that the On-Site Radiological Safety Training requirements have been completed.

1.12 Ensure that the identity and location of each tendon to be inspected is correct.

1.13 Ensure that suitable quantities of Visconorust 2090 P4 Grease and Viscosity Industrial #16A Solvent, or equivalent, are available with the required documentation.

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
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IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

GREASE CAP REMOVAL

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for the removal of Grease Caps for purposes of evaluation and visual inspection during the In-Service Inspection (surveillance) of the Post-Tensioning System Tendons at Progress Energy Florida's Crystal River Unit 3.

2.0 RESPONSIBILITY

2.1 As stated in PSC Procedure QA 4.0.

3.0 QUALIFICATION

3.1 As stated in PSC Procedure QA 4.1.

4.0 EQUIPMENT

4.1 The gauges and test equipment necessary for the Quality Control activities will be itemized in PSC Procedure SQ 4.0.

5.0 QUALITY CONTROL

5.1 This procedure contains ***HOLD POINTS***. The work shall not progress past or through a ***HOLD POINT*** without a sign-off from the QC Inspector. All Quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The sign-offs and required information or evaluation data shall be documented on Data Sheet 6.0.

6.0 PRECAUTIONS

6.1 A tendon grease cap weighs in excess of 100 pounds and may contain about 100 pounds of grease. Be prepared to support this weight when the grease cap is unbolted and removed.

6.2 The sheathing filler (grease) may be in liquid, gel or solid form. Tendons in the area of steam or feed penetrations in operating plants, may contain hot grease and some caution should be exercised. It is not necessary to drain all the grease from a tendon void and is to be avoided if possible.

- CAUTION NEVER STRIKE THE BUTTONHEADS, THE WIRES, OR THE ANCHORAGES OF A STRESSED TENDON WITH A HAMMER OR ANY OTHER OBJECT.
- HAVE SUFFICIENT QUANTITIES OR SIZES OF CONTAINERS ON HAND TO CATCH THE GREASE, AS IT MAY FALL FROM THE TENDON VOID, ANCHORAGE OR GREASE CAP.

- IF AT ANY TIME A CRACKED OR BROKEN ANCHORHEAD IS DETECTED AS A RESULT OF THESE INSPECTIONS, ALL WORK SHALL STOP. ALL PERSONNEL SHALL BE MOVED AWAY FROM THAT AREA. THE PSC CONSTRUCTION SUPERVISOR SHALL BE NOTIFIED. THE CONDITION SHALL BE FORMALLY DOCUMENTED BY A NONCONFORMANCE REPORT. THE WORK AND/OR INSPECTIONS SHALL CONTINUE AFTER A SAFETY EVALUATION HAS BEEN MADE AND ONLY AT THE DIRECTION AND CONTROL OF THE PSC CONSTRUCTION SUPERVISOR AND PROGRESS ENERGY'S CR3ENG.

6.3 Provide protection during inclement weather to prevent entry of moisture into the end anchorage.

6.4 Use wooden or plastic paddles or spatulas to scoop out bulk filler grease from around the anchorage. No metal implements are permitted.

7.0 PREREQUISITES

7.1 ***QCD*** – Document the tendon identification, tendon end or buttress number on Data Sheet 6.0

7.2 Provide support for the Grease Cap. Be prepared to catch any grease that may fall during loosening and removal.

7.3 It may be advantageous to pack the outside of the grease cap with dry ice to further solidify the grease column. CR3ENG shall be notified prior to performing any dry ice packing.

7.3.1 Once the grease cap has been removed, the tendon end anchorage and shims may be packed with dry ice to further solidify the grease column. CR3ENG shall be notified prior to performing any dry ice packing.

7.4 ***QCD*** – Document the use of dry ice to solidify the grease column on Data Sheet 6.0, for each occurrence.

7.5 ***QCD*** – Document the temperature of the surface of the concrete near the tendon with a surface thermometer, within a 3 foot radius of the center of the grease cap or tendon void, on Data Sheet 6.0. The temperature shall be taken of the normal concrete. It shall not be necessary to take the temperature again, if dry ice is used.

7.6 Care shall be exercised to avoid splashing or spilling grease on concrete and other surfaces. Spilled grease shall be removed and cleaned using Viscosity Oil, Viscor #16A industrial solvent or equivalent, by scrubbing with brushes and wiping the excess with rags. It may be advantageous to tape plastic sheeting around the bearing plate and concrete to lessen the effect of spilled grease.

7.7 For surveillance tendons located over the Fuel Handling Pools, missile shields should be installed over Fuel Pool "A" to prevent dropping items into the pool that might result in inadvertent fuel damage.

8.0 REMOVAL OF GREASE CAP

8.1 Position platforms, as required, at the end of the tendon to be inspected.

8.2 Place a container and/or a protective cover under the tendon grease cap to protect adjacent areas from dripping grease.

8.3 Remove the bulk filler plug from the tendon end cap and depress the check valve to allow any excess pressure and/or bulk filler grease to escape. Reinstall plug after depressurization.

8.4 Remove the three (3) nuts and washers holding the end cap to the bearing plate ensuring that the end cap is fully supported as the nuts are being removed.

8.5 Carefully, remove the grease cap to prevent any foreign matter from dropping into the grease in that cap. Remove the three 3/4" x 4-1/2" studs.

8.5.1 **HOLD POINT** – Inspector to verify that the mark numbers on the anchor head and the identification numbers on the tendon history sheets are in agreement.

8.6 ***QCD*** – Observe the coating of grease on the inside of the grease cap, on the bearing plate, shims, anchorage and buttonheads. Note the completeness of the grease coverage on each item and document that evaluation accordingly on Data Sheet 6.0.

8.6.1 Where the coverage is complete, check as Complete coverage.

8.6.2 Where the coverage is incomplete and bare metal is visible, check as Partial coverage and estimate the Percentage of Uncoated metal for each item.

8.6.2.1 Uncoated metal is defined as that area that is dry and without any coating of grease. Some care should be used in judging uncoated metal, as the thickness of the coating has no bearing on acceptability. Very thin coatings will be slightly tacky and will readily hold fingerprints.

8.7 ***QCD*** – Any other unusual conditions shall be documented on Data Sheet 6.0, such as: water or other liquid present or draining during grease cap removal and document the quantity (refer to Procedure SQ 6.1); quantities of dirt or other foreign matter in or around the tendon end or grease cap, etc.

8.8 ***QCD*** – The color of the grease on or around the tendon shall be compared to a sample of new unused grease for color or other variations from the new sample. While color is not a factor requiring acceptance, significant variations in color could be a sign of degradation of the protection medium. Document the comparison on Data Sheet 6.0.

8.8.1 Note that the original Visconorust 2090-P2 grease is no longer available. The new 2090-P4 grease will not be the exact color as the original 2090-P2 grease when it was new. Therefore, color comparisons of old grease against new grease must be made considering this basic difference.

8.8.2 If the colors of the samples are reasonably close to each other, check the Match area on Data Sheet 6.0 and identify the color.

8.8.3 If the colors vary greatly, check the No Match area and identify the color and variation, i.e., medium brown, darker than new sample. Note if any of the following items are observed during visual inspection of the grease:

8.8.3.1 Extreme discoloration even when considering the above change in grease type.

8.8.3.2 Presence of corrosive particles and/or dirt mixed within the grease, indicating adjacent metal pitting and metal breakdown.

8.8.3.3 Signs of moisture within the bulk filler.

8.8.3.4 Other signs of grease deterioration.

8.9 Two (2) Grease Samples for later testing shall be collected and retained from each tendon end or grease cap prior to cleaning the anchorage and grease cap or using solvent cleaner. Refer to PSC Procedure SQ 7.0 for grease sample collection.

8.10 Clean and dispose the grease from the grease cap.

8.10.1 If the grease cap shows signs of corrosion it shall be sent to the CR03 Site Paint Shop for cleaning and re-painting by CR03.

8.11 ***QCD*** – Determine the amount of grease that may have been lost during removal of the grease cap on Data Sheet 6.0. The Grease Loss from the tendon duct shall be kept separate and posted as required of Section 10.3 of this procedure.

8.11.1 ***QCD*** – If the grease in the grease cap may be reused if clean. If it is to be disposed of, that quantity shall be documented on Data Sheet 6.0.

9.0 ANCHORAGE CLEANUP

9.1 Where the tendon is to be monitored for force, detensioned, or visually inspected it will be necessary to perform a cleanup of the tendon end anchorage assembly to permit inspection.

9.2 Any grease removal shall be performed in such a manner to prevent damage, such as scratches, on the anchorage or tendon wires. The removal process shall not add any contaminants to the remaining grease or that grease which could be taken for chemical analysis.

9.3 Excess grease shall be removed from the tendon anchorage threads using clean non-metallic devices. Use bristle brushes of medium stiffness or rags with suitable quantities of solvent to dilute and wash away the grease. This cleanup must be sufficient to provide satisfactory condition for thread inspection.

9.4 Continue the cleanup of the remaining portions of the tendon end, to include the shims, buttonheads, anchorage and bearing plate as necessary.

9.5 Viscosity Oil, Viscor #16A industrial solvent shall be used to complete whatever cleanup may be necessary to perform subsequent activities.

9.6 ***QCD*** – Document the quantity of grease removed from the anchorage on Data Sheet 6.0.

9.7 ***QCD*** – Document damage (if any) caused by the removal of the grease cap or cleaning of the anchorage assembly on Data Sheet 6.0.

10.0 TENDON PROTECTION

10.1 All tendon ends and anchorages shall be protected by covering with a plastic bag or sheeting whenever the tendon is not being worked on. Smear on or brush a light coating of grease onto the wires, buttonheads and anchorage prior to covering.

10.2 It will be acceptable to replace the grease caps as a temporary measure, using the old gaskets, until that tendon can be completed.

10.3 ***QCD*** – Document the method of tendon protection on Data Sheet 6.0. If the grease cap is temporarily installed, note if a new gasket or old gasket was used.

10.4 ***QCD*** – Document only the Grease Losses that are detected from the tendon duct. These losses shall be kept separate from the losses that occur from the tendon end anchorage assembly and the grease cap.

11.0 DOCUMENTATION

11.1 The items requiring documentation in this procedure shall be documented on Data Sheet 6.0 included with this procedure.

11.1.1 The Data Sheet references the applicable Section or Step number of the procedure for each QCD or HOLD Point.

11.1.2 Some information from Data Sheet 6.0 will require posting to Data Sheet 12.1 of PSC Procedure SQ 12.1.

11.1.3 Some information from PSC Procedure SQ 7.0 will require posting to Data Sheet 6.0 of this Procedure.

12.0 ATTACHMENTS

12.1 Data Sheet 6.0.

PSC PROCEDURE SQ6.0
GREASE CAP REMOVAL
Data Sheet 6.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: _____ Tendon End: _____

Grease Cap Removal

Date Removal Started: _____ Q.C. Signoff

(7.4) Dry Ice Used on Grease Cap and/or Anchorage area: ☐ Yes ☐ No

(7.5) Temp. of Concrete: _____ °F Thermometer No.: _____ Re-Cal Date: _____

(7.5) Ambient Temp.: _____ °F Thermometer No.: _____ Re-Cal Date: _____

(8.5.1) Anchorhead I.D. Anchorhead Verification: ☐ Match ☐ No-Match

(8.6, 8.6.1, 8.6.2) Grease Coating

Grease Cap -	Complete	_____	Partial	_____	Uncoated	_____ %
Buttonheads -	Complete	_____	Partial	_____	Uncoated	_____ %
Anchorheads -	Complete	_____	Partial	_____	Uncoated	_____ %
Shims -	Complete	_____	Partial	_____	Uncoated	_____ %
Bearing Plate – (1)	Complete	_____	Partial	_____	Uncoated	_____ %

(1) - *Limited within the inside diameter of the grease cap.*

(8.7) Unusual Conditions: _____

(8.8) Grease Color Match: ☐ Yes ☐ No Grease Color: _____

Comments: _____

(8.11) Qty. of Grease lost from cap: _____ gal. (8.11.1) Qty. of Grease removed from cap: _____ gal.

(9.6) Qty. of Grease removed from anchorage: _____ gal.

Refer to SQ 7.0 – GREASE SAMPLES, for the following inspections steps.

(6.1) Quantity of Samples _____ Quarts Samples identified per Step 6.1? ☐ Yes ☐ No

(6.1) Location of Removal ☐ A.H. ☐ B.P. ☐ Shims ☐ Can ☐ Duct

(10.2) Method of Tendon Protection: _____

(10.3) Amount of Grease Loss from Tendon duct: _____ gal.

Total quantity of lost grease (below):

(8.11) _____ + (8.11.1) _____ + (9.6) _____ + SQ 7.0 (6.1) _____ + (10.3) _____ = _____ TOTAL

Document TOTAL grease lost on Data Sheet 12.1, GREASE REPLACEMENT. ☐ Yes ☐ No

QC Reviewed: _____ Level: _____ Date: _____

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

INSPECT FOR WATER

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for performing an inspection of the Post-Tensioning Tendon System for evidence of water during the scheduled In-Service Inspection of the Tendon System of Progress Energy Florida's Crystal River Unit 3.

2.0 SCOPE

2.1 This procedure will be limited to performing and documenting the inspection for water from the tendon void or around the tendon anchorage assembly, including the grease cap. This inspection shall be performed just prior to removal of the grease cap and during the physical inspection of the tendon anchorage assembly.

3.0 RESPONSIBILITY

3.1 As stated in PSC Procedure QA 4.0.

4.0 QUALIFICATION

4.1 As stated in PSC Procedure QA 4.1.

5.0 EQUIPMENT

5.1 The equipment necessary for the Quality Control activities will be itemized in PSC Procedure SQ 4.0.

6.0 PRECAUTIONS

6.1 Review the Safety Comments provided in the Surveillance Program Quality Control Manual for the items that apply both for tendon force control and personnel safety.

7.0 QUALITY CONTROL

7.1 This procedure contains no ***HOLD POINTS***. All Quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The required information or evaluation data shall be documented on Data Sheet 6.1.

7.2 The Quality Control Inspector shall be responsible for properly identifying any water samples that may have been collected. The Inspector shall also be responsible for controlling those samples until they are turned over to the Owner or his agent or sent out for testing.

8.0 PREREQUISITES

8.1 ***QCD*** – Document the tendon identification, tendon end, buttress number, unit number and other information on Data Sheet 6.1.

8.2 Provide support for the Grease Cap. Be prepared to catch any grease that may fall during loosening and removal.

8.3 Care shall be exercised to avoid splashing or spilling grease on concrete and other surfaces. Spilled grease shall be removed and cleaned using Viscosity Oil, Viscor #16A industrial solvent or equivalent. It may be advantageous to tape plastic sheeting around the bearing plate and concrete to lessen the effect of spilled grease.

8.4 This inspection will be performed during and after the removal of the grease cap. It is expected that all the tools and preparation for the removal of the grease cap will be in place or have been performed. As the main purpose of this procedure is to detect the presence of water in the tendon void, the Inspector shall be afforded access to the tendon during loosening of the grease cap bolts to see if water is present.

9.0 GREASE CAP REMOVAL

- IF UPON REMOVAL OF THE GREASE CAP, IT IS DETERMINED THAT THE ANCHORHEAD IS BROKEN, ALL WORK SHALL STOP ON THAT TENDON AND ALL PERSONNEL SHALL LEAVE THE AREA OF THE TENDON. THE PSC CONSTRUCTION SUPERVISOR SHALL BE NOTIFIED. THE CONDITION SHALL BE FORMALLY DOCUMENTED BY A NONCONFORMANCE REPORT. THE WORK AND/OR INSPECTIONS SHALL CONTINUE AFTER A SAFETY EVALUATION HAS BEEN MADE AND ONLY AT THE DIRECTION AND CONTROL OF THE PSC CONSTRUCTION SUPERVISOR AND CR3ENG.

9.1 Position platform, as required, at the end of the tendon to be inspected. (As part of Grease Cap Removal Procedure, SQ 6.0)

9.2 Place a container and/or a protective cover under the tendon grease cap to protect adjacent areas from dripping grease. (As part of Grease Cap Removal Procedure, SQ 6.0)

9.3 Have a clean dry plastic container available for catching water samples.

9.4 As the main purpose of this procedure is to determine the presence of water in the grease cap or around the anchorhead, the Inspector shall be alert to obtain samples of that water as the cap is loosened and removed and to estimate the quantity detected.

9.5 Remove the bolts holding the grease cap to the bearing plate. The grease cap must be fully supported as the bolts are being removed. Care should be taken when removing the end cap since the bulk filler may drop off or drip as a liquid of medium viscosity. Allow the Inspector the opportunity to obtain water samples, if any water is present. (As part of Grease Cap Removal Procedure, SQ 6.0)

9.5.1 ***QCD*** – Document the quantity of water detected and if a sample was collected.

CAUTION - BE PREPARED TO SUPPORT THE GREASE CAP. IT MAY WEIGH UP TO 200 POUNDS.

9.6 Carefully remove the grease cap to avoid spilling the contents. The Inspector shall inspect the interior of the cap for the presence of water and if possible collect a sample of that water.

9.6.1 ***QCD*** – Document the quantity of water detected and if a sample was collected.

9.7 Inspect the tendon anchorage assembly, shims, bearing plate, anchorhead and buttonheads for the presence of water.

9.7.1 ***QCD*** – Document the quantity of water detected and if a sample was collected.

9.8 Work shall continue for the In-Service Inspection as regularly scheduled or as required by the Procedures in the Surveillance Program Quality Control Manual.

9.9 The next point that water could be encountered would be during or just after Detensioning the Tendon. Therefore, the Inspector shall be especially vigilant during this portion of the In-Service Inspection to detect the presence of water. Inspect for the presence of water during or after Detensioning the Tendon.

9.9.1 ***QCD*** – Document the quantity of water detected and if a sample was collected.

10.0 DISTINGUISHING CHARACTERISTICS

10.1 The quantity of water observed in or on the tendon will be described based on the following terms.

10.1.1 OBSERVABLE MOISTURE

10.1.1.1 "Observable Moisture" is defined as that quantity of water which has been immediately observed by the Inspector to be concentrated, collected or draining out from the grease cap or tendon anchorage assembly. While this is intended to describe that moisture condition associated with condensation, it could be present in quantities of less than 8 ounces.

10.1.2 SIGNIFICANT MOISTURE

10.1.2.1 "Significant Moisture" is defined to be a quantity of water 1/2 pint (8 ounces) or more which has collected, concentrated or observed to be draining out of the tendon anchorage assembly or grease cap. This quantity is considered to be from a condition other than water formed through condensation.

11.0 NOTIFICATION

11.1 The Owner or his agent shall be notified with a formal letter within 24 hours when water, regardless of quantity, has been detected during the In-Service Inspection. This Notification shall define the condition detected referencing Section 10 of this Procedure and the specific quantity detected.

11.2 The Owner or his agent shall be responsible for any corrective action and/or Notification to the NRC should that be required.

11.3 The work and inspection shall continue until completed or formal notification by the Owner or his agent to halt the work is received.

12.0 SAMPLE RETENTION/TESTING

12.1 The samples shall be temporarily retained by the PSC Quality Control Inspector until such time that they are sent out for pH testing per PSC Procedure SQ 6.2.

12.2 ***QCD*** – Verify that the water samples are adequately identified. Identification includes: Plant Name, Tendon Number, Tendon End, and date.

12.3 ***QCD*** – Document the location of storage for the samples.

13.0 DOCUMENTATION

13.1 The items in this procedure requiring documentation shall be documented on Data Sheet 6.1.

13.2 The Data Sheet references the applicable section number of the procedure for each ***QCD*** Point.

14.0 ATTACHMENTS

14.1 Water Notification Letter

14.2 Data Sheet 6.1

To: _____

_____

Subject: PSC Procedure SQ 6.1: Inspect for Water

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No: _____ Tendon End: _____ Location: _____

Notification of Water

Per PSC Procedure SQ 6.1 Section 11, "The Owner or his agent shall be notified with a formal letter within 24 hours when water, regardless of quantity, has been detected during the In-Service Inspection. This Notification shall define the condition detected referencing Section 10 of this Procedure and the specific quantity detected."

This letter is to notify you that water was found in the tendon mentioned above.

Quantity of Sample obtained: _____

Description of Condition: _____

Per PSC Procedure 6.1 Section 10, the observed water is categorized as follows:

☐ Section 10.1.1 – OBSERVABLE MOISTURE

"Observable Moisture" is defined as that quantity of water which has been immediately observed by the Inspector to be concentrated, collected or draining out from the grease cap or tendon anchorage assembly. While this is intended to describe that moisture condition associated with condensation, it could be present in quantities of less than 8 ounces.

☐ Section 10.1.2 – SIGNIFICANT MOISTURE

"Significant Moisture" is defined to be a quantity of water 1/2 pint (8 ounces) or more which has collected, concentrated or observed to be draining out of the tendon anchorage assembly or grease cap. This quantity is considered to be from a condition other than water formed through condensation.

Signature: _____ Level: _____ Date: _____

PSC PROCEDURE SQ6.1
INSPECT FOR WATER
Data Sheet 6.1
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(8.1) Tendon No.: _____ Tendon End: _____

DURING REMOVAL OF GREASE CAP

(9.5.1) Water Detected: ☐ Yes ☐ No Quantity: _____ Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments: _____

INSIDE GREASE CAP

(9.7.1) Water Detected: ☐ Yes ☐ No Quantity: _____ Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments: _____

AROUND TENDON ANCHORAGE COMPONENTS

(9.8.1) Water Detected: ☐ Yes ☐ No Quantity: _____ Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments: _____

DURING DETENSIONING

(9.10.1) Water Detected: ☐ Yes ☐ No Quantity: _____ Sample Taken: ☐ Yes ☐ No

Moisture Description: ☐ Observable Moisture ☐ Significant Moisture ☐ Not Applicable

Comments: _____

OWNER/AGENT NOTIFICATION

(11.1) Owner Notified: ☐ Yes ☐ No Individual Name: _____ Date: _____

SAMPLE IDENTIFICATION AND STORAGE

(12.1.1) Samples adequately identified: ☐ Yes ☐ No

(12.1.2) Samples stored at: _____

QC Signoff: _____ Level: _____ Date: _____

QC Reviewed: _____ Level: _____ Date: _____

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

WATER SAMPLE ANALYSIS

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for laboratory pH analysis of Water samples taken during the 30TH Year (8TH PERIOD) In-Service Inspections (surveillance) of the Post-Tensioning System Tendons of Crystal River Unit 3.

2.0 RESPONSIBILITY

2.1 The laboratory that performs the testing/analysis shall be responsible for controlling the samples, performing the analysis, documenting the analysis on Laboratory letterhead stationery and submitting the reports to:

PRECISION SURVEILLANCE CORPORATION
3468 Watling Street
East Chicago, IN 46312
Attention: Quality Assurance

2.1.1 The Laboratory shall further be responsible to utilize trained personnel for the analysis and maintain the calibrated status, traceable to the NIST, as applicable, for all test or measuring devices that may be used in providing test results.

2.1.2 The Laboratory shall provide open access for inspection, survey or audit, as the need might arise, to PSC or its customers.

2.2 The PSC Quality Assurance Section shall be responsible for the qualification of Laboratory sources.

2.3 Where specified in the Contract Documents, the Owner or his Agent shall have the right of approval for Laboratory sources.

2.4 The PSC Quality Control and/or Engineering Department shall review the reports for accuracy and content.

2.4.1 This report shall be submitted to the Owner or his Agent with the final Surveillance Report.

3.0 SAMPLES

3.1 The Water Samples shall be sent to the Laboratory by any convenient mode of transportation. The samples have been marked to show the unit number, the tendon number and the tendon end or buttress identification. The sample shall be securely closed to prevent leakage and packaged to prevent damage.

3.2 The samples shall maintain a form of identification throughout testing, that shall provide traceability to the original sample identification.

3.3 The Laboratory shall notify PSC if it appears that the sample container has been damaged, tampered with, or any other occurrence that could contaminate the water sample.

4.0 TEST DESCRIPTIONS

4.1 Each sample of Water shall be analyzed for:

4.1.1 pH

5.0 TEST METHOD

5.1 Each sample of Water shall be tested by the below cited test method.

5.1.1 pH by ASTM D-1293 or EPA 150.1 or equivalent.

6.0 REPORT

6.1 Two copies of each report for the analysis of water shall be submitted to PSC.

6.2 Each report shall bear the date of testing and sample identification as it appears on each sample container.

6.3 Each report shall be signed by the Laboratory Manager, who shall ultimately be responsible for the content.

7.0 SAMPLE DISPOSAL

7.1 The remaining water samples may be scrapped 30 days after the issue of the report, unless the Laboratory is requested in writing to hold the samples for a longer period of time.

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

ACQUIRE GREASE SAMPLES

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for the taking of Grease samples for purposes of laboratory chemical analysis during In-Service Inspections of Post Tensioning System Tendons of Florida Power Corporation's Crystal River Unit 3.

2.0 RESPONSIBILITY

2.1 As stated in PSC Procedure QA 4.0. This procedure only requires Quality Control actions.

3.0 QUALIFICATIONS

3.1 As stated in PSC Procedure QA 4.1, only for Quality Control Personnel.

4.0 PREREQUISITES

4.1 Two, one quart, unused paint cans, with lids, will be required for each tendon end.

4.2 The preliminary actions of PSC Procedure SQ 6.0 shall be completed.

4.3 Equipment

4.3.1 The equipment necessary for the Quality Control activities will be itemized in PSC Procedure SQ 4.0.

5.0 QUALITY CONTROL

5.1 This procedure contains ***HOLD POINTS***. The work shall not progress past or through a ***HOLD POINTS*** without a sign-off from the QC Inspector. All Quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The sign-off's and required information or evaluation data shall be documented on Data Sheet 6.0 of PSC Procedure SQ 6.0.

6.0 SAMPLE REMOVAL

6.1 ***HOLD POINT*** – Two, one quart samples of grease shall be taken from each end of the tendon. Each sample can shall be identified by unit number, tendon number, tendon end, sample number and date. It is preferred that the grease be taken from the area of the anchorage, but may also be taken from the grease can or tendon void. Document the amount of samples taken and the location of removal on Data Sheet 6.0 of PSC Procedure SQ 6.0.

6.1.1 Sample #1 shall be sent to the testing laboratory, upon project completion unless otherwise notified by CR03ENG, for analysis in accordance with PSC Procedure SQ 7.2. Sample #2 may be turned over to the Owner to be held in reserve in the event of loss, retesting or for verification of the results of the original testing. The Owner may be responsible for the control and disposition of Sample #2. It is unlikely that a suitable quantity of Sample #1 shall remain after the original tests to perform supplemental tests, therefore any remainder of Sample #1 will be scrapped.

6.1.2 In the event that the test results for Sample #1 do not meet the stated requirements of Section 7 of this Procedure, the Owner or his agent shall be immediately notified of the deficiency, with a formal letter to follow shortly thereafter. Sample #2 shall then be sent to the testing laboratory for confirmation analysis in accordance with PSC Procedure SQ 7.2.

6.1.3 If PSC is required to test Sample #2 and that sample fails to meet the requirements of Section 7 of this Procedure, the Owner or his agent shall be immediately notified of the deficiency, with a letter to follow shortly thereafter.

7.0 ACCEPTANCE OF ANALYSIS

7.1 The chemical analysis of the grease samples only concern the concentration of water soluble impurities, water in the samples and where required Reserve Alkalinity (Base Number).

7.2 <u>The following concentrations shall not be exceeded:</u>

7.2.1 Water soluble Chlorides - 10 ppm

7.2.2 Water soluble Nitrates - 10 ppm

7.2.3 Water soluble Sulfides - 10 ppm

7.2.4 Water Content (H_2O) - 10% dry weight of filler

7.2.5 <u>Reserve Alkalinity</u>

7.2.5.1 (Base number) - Shall be at least 50% of the as-installed value, unless the as-installed value is 5 or less, in which case the base number shall be no less than zero. If the tendon duct is filled with a mixture of materials having various as-installed base numbers, the lowest number shall govern acceptance.

8.0 NOTIFICATION NON-ACCEPTANCE

8.1 In the event that Sample #2 does not meet the required controls of Section 7 above, the Owner shall be formally notified by PSC Personnel for those unacceptable results after reviewing the reports. If PSC Quality Control are still on site when the tests have been completed, the Owner shall be notified of this deficiency with a nonconformance report.

8.2 The Owner shall be responsible for evaluating the significance of the deficiency and to determine if corrective measures are required.

9.0 DOCUMENTATION

9.1 Items requiring documentation in this procedure shall be documented on Data Sheet 6.0, which will be seen in PSC Procedure SQ 6.0.

9.2 The Data Sheet references the applicable Section or Step number of the procedure for each ***QCD*** or ***HOLD POINT***.

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

SHEATHING FILLER ANALYSIS

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for laboratory chemical analysis of Sheathing Filler (Grease) samples taken during the In-Service Inspections (surveillance) of the Post-Tensioning System Tendons Crystal River Unit 3.

2.0 RESPONSIBILITY

2.1 The laboratory that performs the testing/analysis shall be responsible for controlling the samples, performing the analysis, documenting the analysis on Laboratory letterhead stationery and submitting the reports to:

PRECISION SURVEILLANCE CORPORATION
3468 Watling Road
East Chicago, IN 46312
Attention: Quality Assurance

2.1.1 The Laboratory shall further be responsible to utilize trained personnel for the analysis and maintain the calibrated status, traceable to the NIST, for all test or measuring devices that may be used in providing test results.

2.1.2 The Laboratory shall provide open access for inspection, survey or audit, as the need might arise, to PSC or its customers.

2.2 The PSC Quality Assurance Section shall be responsible for the qualification of Laboratory sources.

2.3 Where specified in the Contract Documents, the Owner or his Agent shall have the right of approval for Laboratory sources.

2.4 The PSC Quality Control and/or Engineering Department shall review the reports for accuracy and content as required by PSC Procedure SQ 7.2 and for evaluation of the acceptability of those results according to the requirements of PSC Procedure SQ 7.0, Section 7.

2.4.1 This report shall be submitted to the Owner or his Agent with the final Surveillance Report.

3.0 SAMPLES

3.1 The Grease shall be sent to the Laboratory by any convenient mode of transportation. The sample cans have been marked to show the unit number, the tendon number, the tendon end or buttress identification and sample number. The can shall be securely closed to prevent leakage and packaged to prevent damage.

3.2 The samples shall maintain a form of identification throughout testing, that shall provide traceability to the original sample identification.

3.3 The Laboratory shall notify PSC if it appears that the sample container has been damaged, tampered with, or any other occurrence that could contaminate the grease sample.

4.0 TEST DESCRIPTIONS

4.1 Each sample of Grease (Sheathing Filler) shall be analyzed for Chemical Properties and Physical Properties as specified in the following section 5 and 6.

5.0 TEST METHOD - CHEMICAL PROPERTIES

5.1 Each sample of Grease shall be mixed and tested as follows:

5.2 Water Soluble Impurities (ASME Section XI Table IWL 2525-1)

5.3 A water extraction of each sample of grease shall be made and tested as follows:

5.3.1 Using a spatula, coat the inside, bottom and sides, of a one liter glass beaker with 100 (plus or minus 10) grams of the grease.

5.3.2 The coated beaker shall be filled with about 900 ml of distilled water at room temperature.

5.3.3 Heat the filled beaker in an oven or by use of an immersion heater to 100°F (37.80°C) plus or minus 20°F for 4 hours. DO NOT HEAT ON A HOT PLATE.

5.3.4 Run a blank on distilled water. If titrate use a microburet, 1 ml or 5 ml with 0.01 - 0.05 ml graduation levels.

5.3.5 Decant water and analyze for soluble ions. Test only for salts in leached water.

5.3.6 The water extraction shall be tested by the below cited test procedures for the appropriate water soluble ions. The results shall be reported as parts per million (ppm) in the extracted water.

5.3.6.1.1 Chlorides (Cl) by ASTM D-512

5.3.6.1.2 Nitrates (NO_3) by ASTM D-992

5.3.6.1.3 Sulfides (S) by APHA 427C "Methylene Blue Method"-(APHA 427C 15th Edition replaced by APHA 4500-S2D 17th Edition)

6.0 TEST METHOD - PHYSICAL PROPERTIES

6.1 Each sample of Grease shall be tested as follows:

6.2 Moisture Content by ASTM D-95

6.3 Neutralization No. by ASTM D-974 Modified

6.3.1 The Neutralization Number (Reserve Alkalinity/Total Base Number) shall be performed in accordance with ASTM D-974 and the following modification (per ASME Section XI, Table IWL-2525-1):

6.3.1.1 Place 10 g of sample in a 500 ml Erlenmeyer flask. Add 10 cc isopropyl alcohol and 5 cc toluene. Heat until sample goes into solution.

6.3.1.2 Add 90 cc Distilled water and 20 cc 1N H_2SO_4.

6.3.1.3 Place in a steam bath for one-half hour. Stir well.

6.3.1.4 Add a few drops of indicator (1% phenolphthalein) and titrate with 1N NaOH until the lower layer just turns pink.

6.3.1.5 If acid or base solutions are not exactly 1N, the exact normalities should be used when calculating the base number.

6.3.1.6 The Total Base Number (TBN), expressed as milligrams of KOH per gram of sample, is calculated as follows:

$$TBN = \frac{[(20)x(NA) - (B)x(NB)]}{W} x56.1$$

where

B = milliliters NaOH

NA = normality of H_2SO_4 solution

NB = normality of NaOH solution

W = weight of sample in grams

7.0 REPORT

7.1 Two copies of each report for the analysis of grease shall be submitted to PSC.

7.2 Each report shall bear the date of testing and sample identification as it appears on each can.

7.3 Each report shall be signed by the Laboratory Manager, who shall ultimately be responsible for the content.

7.4 Accuracy

7.4.1 The concentration of water soluble chlorides, nitrates and sulfides shall be reported within an accuracy of 0.1 ppm.

7.4.2 The concentration of water shall be reported within an accuracy of 0.1 percent of dry weight of grease.

7.4.3 The Neutralization Number shall be reported within an accuracy of 0.01 mg. reagent per gram of grease.

8.0 SAMPLE DISPOSAL

8.1 The remaining sample grease may be scrapped 30 days after the issue of the report, unless the Laboratory is requested in writing to hold the samples for a longer period of time.

8.2 The PSC Quality Control Department shall retain the option of disposing of the samples in less than 30 days if the results of the grease analysis are acceptable.

PSC
Precision Surveillance Corporation

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

ANCHORAGE INSPECTION

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for the visual inspection of the tendon end anchor head, shims, buttonheads, bearing plate and wires during In-Service Inspection (surveillance) of Post-Tensioning System Tendons at Crystal River Unit 3.

2.0 RESPONSIBILITY

2.1 As stated in PSC Procedure QA 4.0.

3.0 QUALIFICATIONS

3.1 The inspector performing this inspection is to be qualified as a Level II (VT-1) examiner as set forth in the 1992 Edition and 1992 Addenda of the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWL as defined in PSCs written certification practice or as qualified by Progress Energy Florida.

4.0 EQUIPMENT

4.1 The gauges and test equipment necessary for the Quality Control activities will be itemized in PSC Procedure SQ 4.0.

5.0 QUALITY CONTROL

5.1 This procedure contains ***HOLD POINTS***. The work shall not progress past or through a ***HOLD POINT*** without a sign-off from the QC Inspector. All Quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The sign-off's and required information or evaluation data shall be documented on Data Sheet 8.0.

6.0 PRECAUTIONS

- CAUTION - NEVER STRIKE THE BUTTONHEADS, THE WIRES OR THE ANCHOR HEAD OF A STRESSED TENDON WITH A HAMMER OR ANY OTHER OBJECT.

- IF AT ANY TIME A CRACKED OR BROKEN ANCHOR HEAD IS DETECTED AS A RESULT OF THESE INSPECTIONS, ALL WORK SHALL STOP. ALL PERSONNEL SHALL BE MOVED AWAY FROM THAT AREA. THE PSC CONSTRUCTION SUPERVISOR SHALL BE NOTIFIED. THE WORK AND/OR INSPECTIONS SHALL CONTINUE AFTER A SAFETY EVALUATION HAS BEEN MADE AND ONLY AT THE DIRECTION AND CONTROL OF THE PSC CONSTRUCTION SUPERVISOR AND THE FPC'S ENGINEER RESPONSIBLE FOR THE IN-SERVICE INSPECTIONS.

7.0 PREREQUISITES

7.1 The Anchorage Cleanup will be completed.

7.2 The tendon will be in a stressed condition.

8.0 ANCHORAGE INSPECTION

8.1 The tendon anchorage, including the anchor head, bearing plate, stressing shims, buttonheads and wires of all selected tendons shall be visually inspected for signs of corrosion, cracks, missing wires, broken/damaged or protruding wires and malformed buttonheads.

8.2 CORROSION INSPECTION

8.2.1 BUTTONHEADS

8.2.1.1 The Category of Corrosion that could be seen on Buttonheads or Tendon Wire will be described in PSC Procedure SQ 8.1, Corrosion Evaluation Criteria. As the tendon is still in a stressed condition, there will not be much area to review for Category of Corrosion, therefore only the exposed, visible portions of the buttonheads shall be evaluated.

8.2.1.1.1 ***HOLD POINT*** – Document the Category of Corrosion of the Buttonheads on Data Sheet 8.0.

8.2.2 ANCHOR HEAD, SHIMS, BEARING PLATE

8.2.2.1 The Category of Corrosion that could be seen on Anchor Head, Shims, or Bearing Plates will be described in PSC Procedure SQ 8.1, Corrosion Evaluation Criteria. As the tendon is still in a stressed condition, the areas to be reviewed will be somewhat limited, therefore only the exposed, visible portions of the anchor head, shims and bearing plate shall be evaluated.

8.2.2.2 ***HOLD POINT*** – Document the Category of Corrosion of each item on Data Sheet 8.0.

8.3 CRACKS

8.3.1 The Anchor Head, Shims and Bearing Plates shall be visually inspected for signs of Cracks.

8.3.2 ***HOLD POINT*** – If there are no signs of Cracks present, "None" shall be entered into the "Cracks" area of Data Sheet 8.0 for each item as it occurs. If signs of Cracks are present in any item, regardless of size, the crack stress shall be sketched on Sketch Sheet 8.0 and identified with a Sketch Number, which shall be entered into the "Cracks" area of Data Sheet 8.0.

8.4 BUTTONHEAD PHYSICAL INSPECTION

8.4.1 While the tendon is in a Stressed Condition, it shall be necessary to inspect the buttonheads/wires for those buttonheads/wires that may be missing, damaged or protruding/unseated. The buttonheads shall be inspected for splits and obvious gross deficiencies as part of the Offsize Buttonhead Inspection, Section 8.4.4.2 of this Procedure.

8.4.2 Procedure SQ 8.2 will establish the quality requirements for buttonheads such as dimensions and splits.

8.4.3 The intention of the following inspections is to acquire information on the function of the tendon since the original installation or previous surveillance. All conditions for buttonheads and wires, whether missing or defective, shall be documented. Actions such as Continuity Tests shall only take place for those conditions of Buttonheads or Wires that are in excess of those noted during the original installation, previous surveillance or at the specific request of CR03ENG

8.4.4 Wire and buttonheads shall be inspected for the following information and documented by the appropriate symbol on Data Sheet 8.0. The circle represents the buttonhead location on the anchorhead.

8.4.4.1 ***QCD*** – Accurately locate the anchorage Heat or Code Number on the Anchorage Sketch with respect to the hole pattern alignment, on Data Sheet 8.0 to correctly orient the buttonhead on the anchorage.

8.4.4.2 ◑ = Offsize buttonhead

8.4.4.2.1 Malformed buttonheads shall be documented as Offsize buttonheads, with no other distinguishing Category Codes.

8.4.4.2.2 To further identify specific deficiencies, a Category Code letter shall be used. An arrow shall point at the deficient buttonhead and the Category Code letter shall be placed at the tail end of the arrow and in such a location so as not to obscure information. Refer to PSC Procedure SQ 8.2 for descriptions of deficiencies.

8.4.4.2.2.1 This is the criteria for new buttonheads during original installation and is given for reference only. The checks called for in PSC Procedure SQ 8.0 are not meant to verify these numbers, but they are meant to detect obvious gross deficiencies in any buttonhead.

8.4.4.2.2.2 A = Split width exceeds 0.060".

8.4.4.2.2.3 B = Split length exceeds 0.350".

8.4.4.2.2.4 C = Angle of split exceeds 50° to axis of wire.

8.4.4.3 ◒ = Protruding/Unseated Wire/Buttonhead.

8.4.4.3.1 Place an arrow pointing at the protruding buttonhead, with the distance of protrusion above the other buttonheads, at the tail end of the arrow and in such a location so as not to obscure information.

8.4.4.4 ∅ = Broken/Missing Wire/Buttonhead

8.4.4.4.1 This code shall be used to identify occurrences for this surveillance, where those wires are not removed. See Section 8.4.4.6 for Code after removal.

8.4.4.5 ● = Previously Identified As Missing

8.4.4.5.1 This code shall be used whether a result of a previous surveillance or as a result of the original installation.

8.4.4.6 ⊠ = A discontinuous wire that was removed during this surveillance and had been identified as Broken/Missing during the present surveillance.

8.4.4.7 ⊗ = Each wire that was removed during this surveillance for purposes of physical testing.

8.4.5 ***QCD*** – Document the buttonhead inspection on the sketch shown on Data Sheet 8.0 in accordance with the buttonhead symbol shown on Data Sheet 8.0 and as explained in Section 8.4.4 of this procedure.

8.4.6 ***QCD*** – Document the Heat Number Code Identification Number for each anchorage component on the anchor head sketch on Data Sheet 8.0

8.4.7 ***QCD*** – Document the total amount of Offsize Buttonheads for each category (A, B, or C) on Data Sheet 8.0, when applicable, otherwise mark N/A for Not Applicable.

8.4.8 If it is readily apparent that a buttonhead is missing (by comparing the original or previous buttonhead inspection records to the current condition) and cannot be located around the anchorage, it is possible that it may be in the grease of the grease can or other lost grease.

8.4.8.1 *IF* any missing, broken and/or damaged wires are detected, *THEN* check the Tendon History Sheet and ineffective wire summary included on the Tendon History Sheet, to determine if the missing, broken, and/or damaged wires were previously noted.

8.4.8.2 If it is necessary to search for missing buttonheads, the grease shall be strained through a mesh screen of not greater than 1/4" grids.

8.4.8.3 ***QCD*** – Document whether the buttonhead has been found or not, on Data Sheet 8.0.

8.4.8.4 ***QCD*** – Document the total amount of Effective Buttonheads.

8.5 PROTRUDING BUTTONHEADS

8.5.1 Protruding or unseated buttonheads are representative of a number of undesirable conditions; broken wires, incorrect wire length, restrained wires, etc. It is unlikely that individual wires can be verified for continuity while the tendon is stressed. Therefore, any evaluation of protruding wires may be performed at the request of CR03ENG in accordance with PSC Procedure SQ 10.5 after the tendon is detensioned, but only for those wires in excess of the original installation or previous surveillance documentation.

8.5.2 ***QCD*** – Document the amount of Protruding/Unseated buttonheads on Data Sheet 8.0. Add the Protruding and Broken buttonheads together and post the total on Data Sheet 8.0 and evaluate for the following.

8.5.2.1 If additional Protruding/Unseated wires and Broken/Missing wires or Protruding/Unseated wires alone since the original installation or previous surveillance are identified, it may be necessary at the request of CR03ENG to perform a Continuity Test of the Protruding/Unseated wires. The Continuity Test shall be performed in accordance with PSC Procedure SQ 10.5 after the tendon is detensioned.

8.5.2.1.1 ***QCD*** – Document the need for a Continuity Test and mark or identify the protruding wires that shall be evaluated.

8.5.2.2 It should be noted that if the Continuity Test detects a quantity of 1 or more Broken/Missing wires in the group of Protruding/Unseated wires, when added to the Broken/Missing wires of this inspection, it shall be necessary to notify the CR03ENG of this condition in accordance with Section 9 of this Procedure.

9.0 NOTIFICATION

9.1 CR03ENG shall be formally notified when each one or more of the following conditions are detected as a result of the inspection of a tendon. Notification shall be by method indicated below.

9.1.1 It shall be acceptable to continue working and notify CR03ENG within 1 working day.

9.2 CATEGORY OF CORROSION 3, 4, 5, or 6 - when detected for Buttonheads or Wires, CR03ENG shall be notified by a nonconformance report.

9.3 CATEGORY OF CORROSION 4, 5, or 6 - when detected for Anchor Heads, Shims, or Bearing plates, CR03ENG shall be notified by a nonconformance report.

9.4 CRACKS - no matter how small, when detected for Anchor Heads, Shims and/or Bearing Plates, CR03ENG shall be notified by a nonconformance report.

9.5 OFFSIZE BUTTONHEADS - when detected for Buttonheads, report the quantity of each Category on Data Sheet 8.0. A nonconformance report is not required for this condition.

9.6 PROTRUDING WIRES - when detected for a quantity of 1 or more since the original installation or previous surveillance, CR03ENG shall be notified by a nonconformance report. It shall be at the discretion of CR03ENG as to whether a continuity test shall be performed. If a continuity test is performed and the wires are still unseated after retensioning, the quantity and length of protrusion shall be reported.

9.7 ADDITIONAL MISSING OR BROKEN WIRES/BUTTONHEADS - when detected for a quantity of 1 or more since the original installation or previous surveillance, CR03ENG shall be notified by a nonconformance report.

10.0 DOCUMENTATION

10.1 The items in this procedure requiring documentation shall be documented on Data Sheet 8.0.

10.2 The Data Sheet references the applicable Section or Step number of the procedure for each ***QCD*** or ***HOLD POINT***.

10.3 Sketch Sheet 8.0 accompanies this procedure and shall be filled in for the required information if applicable.

11.0 ATTACHMENTS

11.1 DATA SHEET 8.0

11.2 SKETCH SHEET 8.0

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Sketch Sheet 8.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: _____ Tendon End: _____ ☐ Shop ☐ Field

Sketch each crack as it appears in the anchorheads/bushings, shims and bearing plates. Identify each Unit by number; record the location of the anchorhead or bushing identification and apply to the sketch. Use as many Sketch Sheets as necessary being sure to list the page number below and to apply a Sketch Number to each unit with cracks. Ensure a Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

QC Inspector: _____ Level: _____ Date: _____

QC Reviewed: _____ Level: _____ Date: _____

PSC PROCEDURE SQ8.0
ANCHORAGE INSPECTION
Data Sheet 8.0
September 21, 2007
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

(7.1) Tendon No.: _____ Tendon End: _____

ANCHORAGE INSPECTION CRITERIA

☐ As-Found ☐ Post De-Tensioning / Pre-Wire Removal ☐ Post Re-Tensioning | Q.C. Signoff

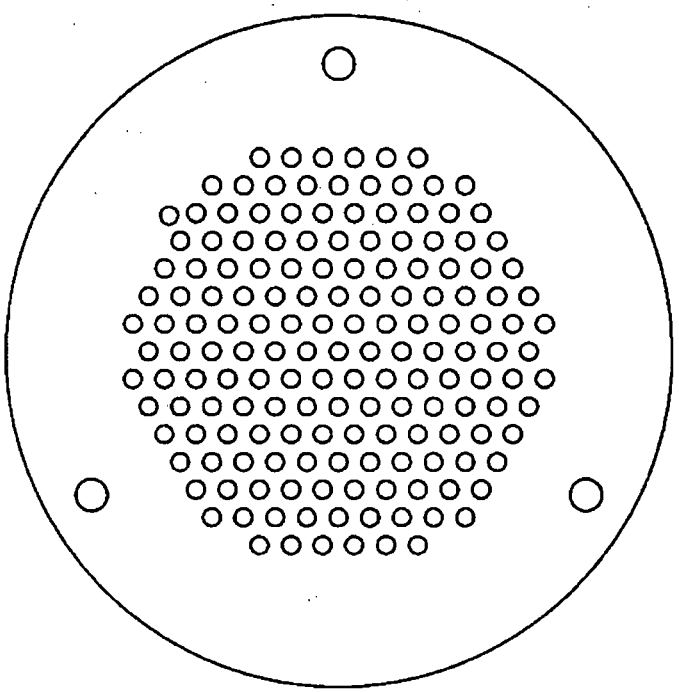
8.2 & 8.3 - CORROSION & CRACK INSPECTION

(8.2.1.1) Buttonheads	Level: ____ (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☐ No	☐ N/A
(8.2.2.1) Anchorhead	Level: ____ (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☐ No	☐ N/A
(8.2.2.1) Shims	Level: ____ (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☐ No	☐ N/A
(8.2.2.1) Bearing Plate	Level: ____ (1)	(8.2.1 & 8.2.2) Cracks	☐ Yes (2)	☐ No	☐ N/A

(1) – Corrosion Levels of 3, 4, 5 or 6 required an NCR.
(2) – Compose a sketch of the cracks on Sketch Sheet 8.0 and initiate an NCR.

8.4.5 - BUTTONHEAD INSPECTION

◗	Offsize (Malformed)
▬	Protruding/unseated wire/buttonheads.
Ø	Broken/missing wire/buttonheads.
●	Previously identified as missing
⊘	Discontinuous – removed
⊗	wire(s) being removed during this surveillance for testing.



(8.4.6) Anchorhead I.D. _____
Located on Sketch: ☐ Yes ☐ No
(8.4.6) Heat Code _____
Located on Sketch: ☐ Yes ☐ No

(8.4.7) Offsize Buttonhead Totals
A = _____
B = _____
C = _____

(8.4.5) Missing Buttonheads: ☐ Yes ☐ No; Quantity: _____ (8.4.8.3) # of Missing Buttonheads Found: _____
(8.4.8.4) Total # of Effective Buttonheads Seated: _____
(8.5.2) Protruding BH: _____ Missing BH: _____ Total (Protruding+Missing): _____
(8.5.2.1) Continuity Required per CR03ENG Request: ☐ Yes ☐ No Wires Identified: ☐ Yes ☐ No

Overall Results ☐ Acceptable ☐ Un-Acceptable Customer Notified NCR#: _____

QC Reviewed: _____ Level: _____ Date: _____

Precision Surveillance Corporation

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

CORROSION EVALUATION CRITERIA

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the criteria to be used for evaluation of corrosion during the visual inspection of the Tendon Wire and Tendon End Anchorage Assemblies at Progress Energy Florida's Crystal River Unit 3.

2.0 LEVEL OF CORROSION

1 Bright metal; no visible oxidation.

2 Metal reddish brown color, no pitting.

3 Metal having patches of red oxide, removable but ready to start pitting.

4 Metal having patches of red oxide, not removable and/or leaving noticeable pits.

5 Metal having heavy rusting, dark red, and about to form an extremely hard crust which when removed leaves very noticeable pitting.

6 Conditions more severe than Category 5.

3.0 ACCEPTANCE CRITERIA

3.1 Anchorage assembly components in Category 1, 2, or 3 are acceptable.

3.2 Wire in Category 1, or 2 is acceptable.

3.3 Anchorage assembly components in Category 4, 5, or 6 and/or wires in Category 3, 4, 5, or 6 should be further evaluated by CR3ENG.

4.0 NOTIFICATION

4.1 CR03ENG shall be formally notified when each one or more of the following conditions are detected as a result of the inspection of a tendon. Notification shall be by method indicated below.

4.1.1 It shall be acceptable to continue working and notify CR03ENG within 1 working day.

4.2 <u>CATEGORY OF CORROSION 3, 4, 5, or 6</u> - when detected for Buttonheads or Wires, CR03ENG shall be notified by a nonconformance report.

4.3 <u>CATEGORY OF CORROSION 4, 5, or 6</u> - when detected for Anchor Heads, Shims, or Bearing plates, CR03ENG shall be notified by a nonconformance report.

4.4 <u>CRACKS</u> - no matter how small, when detected for Anchor Heads, Shims and/or Bearing Plates, CR03ENG shall be notified by a nonconformance report.

4.5 OFFSIZE BUTTONHEADS - when detected for Buttonheads, report the quantity of each Category on Data Sheet 8.0. A nonconformance report is not required for this condition.

4.6 PROTRUDING WIRES - when detected for a quantity of 1 or more since the original installation or previous surveillance, CR03ENG shall be notified by a nonconformance report. It shall be at the discretion of CR03ENG as to whether a continuity test shall be performed. If a continuity test is performed and the wires are still unseated after retensioning, the quantity and length of protrusion shall be reported.

4.7 ADDITIONAL MISSING OR BROKEN WIRES/BUTTONHEADS - when detected for a quantity of 1 or more since the original installation or previous surveillance, CR03ENG shall be notified by a nonconformance report.

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

BUTTONHEAD EVALUATION CRITERIA

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the criteria to be used for evaluation of Prescon Buttonheads for the 0.275"/(7 mm) diameter wire Post-Tensioning System Tendons of Progress Energy Florida's Crystal River Unit 3.

1.2 This is the criteria for new buttonheads during original installation and is given for reference only. The checks called for in PSC Procedure SQ 8.0 are not meant to verify these numbers, but they are meant to detect obvious gross deficiencies in any buttonhead.

2.0 DIMENSIONS

2.1 Diameter – D

2.2 Minimum = 0.410"

2.3 Maximum = 0.450"

3.0 SPLITS

3.1 Maximum admissible number = 4

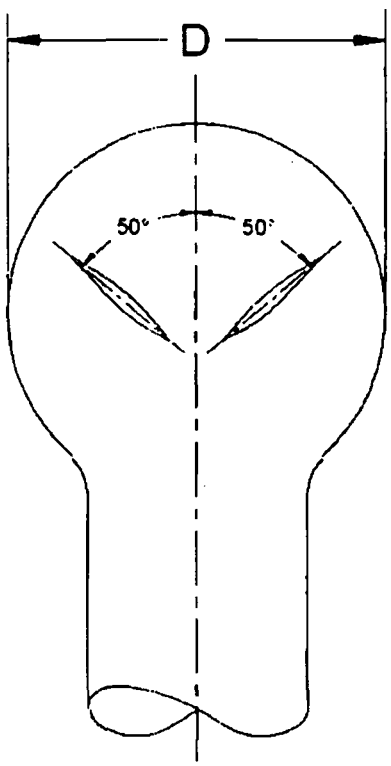
3.2 Maximum admissible width = 0.060" Per Split

3.3 Maximum admissible length = 0.350" Per Split

3.4 Maximum admissible angle to axis of wire 50°

4.0 VISUAL GUIDE

4.1 The following sketch is not to scale, but is intended to be used as a guide for visual inspection of buttonheads.



PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

BEARING PLATE CONCRETE INSPECTION

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for a Detailed (VT-1C) visual inspection of the concrete around/adjoining each selected vertical, hoop, and dome tendon bearing plate during In-Service Inspections (surveillance) of Post-Tensioning System Tendons of Progress Energy Florida's Crystal River Unit 3.

2.0 RESPONSIBILITY

2.1 As stated in PSC Procedure QA 4.0. This procedure only requires Quality Control actions.

3.0 QUALIFICATIONS

3.1 The inspector performing this inspection is to be qualified as a Level II (VT-1C/3C) examiner as set forth in the 1992 Edition and 1992 Addenda of the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWL as defined in PSC's written certification practice or as qualified by Progress Energy Florida's Crystal River Unit 3.

4.0 EQUIPMENT

4.1 As stated in PSC Procedure SQ 4.0.

5.0 QUALITY CONTROL

5.1 This procedure contains HOLD POINTS. The work shall not progress past or through a HOLD POINT without a sign-off from the QC Inspector. The sign-off's and required information or evaluation data shall be documented on Data Sheet 8.3.

6.0 PREREQUISITES

6.1 The tendon will be in a stressed condition.

6.2 The Grease Cap may or may not be removed.

6.3 The anchorage may or may not be cleaned up or inspected.

7.0 CONCRETE INSPECTION

7.1 The concrete adjoining the bearing plate (within 2 feet of the edge of the bearing plate) of each selected tendon shall be inspected for cracks or any other abnormal material behavior.

7.2 HOLD POINT- Any crack that is 0.010" in width or wider shall be documented on Data Sheet 8.3.

7.2.1 The full length and width of each crack (irrespective of width) shall be documented as well as sketching the crack pattern.

8.0 NOTIFICATION - UNACCEPTABLE CONDITIONS

8.1 CR3ENG shall be notified by nonconformance report when any cracks or gaps greater than 0.010" in width are detected. Notification of any cracks or gaps greater than 0.050" shall be by a nonconformance report.

9.0 DOCUMENTATION

9.1 Data Sheet 8.3 shall be used for documenting the requirements of this inspection.

10.0 ATTACHMENTS

10.1 Data Sheet 8.3

PSC PROCEDURE SQ8.3
BEARING PLATE CONCRETE INSPECTION
Data Sheet 8.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: _____ Tendon End: _____

Bearing Plate Identification #: _____

1. Orient the bearing plate with the sketch below.
2. Locate the bearing plate identification and document the location on the sketch.
3. Sketch all cracks, including other defects, existing on the concrete in the area surrounding the tendon anchorage for a distance of 24 inches from the edge of the bearing plate.
4. For cracks wider than 0.010 inches, document condition on an Nonconformance Report in accordance with Procedure QA 9.0, NONCONFORMANCES, for Owner approval.

On buttress or dome this edge is up.

Vertical Tendon, this is toward the center of the containment. ↑

Cracks ≥ 0.010" ☐ Yes ☐ No Quantity: ____ Max. Width: ____ Max Length: ____ NCR#: _____

QC Inspector: _____ Level: _____ Date: _____

QC Reviewed: _____ Level: _____ Date: _____

PSC
Precision Surveillance Corporation

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

MONITOR TENDON FORCE (LIFT-OFFS)

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for Monitoring the Forces that remain in a tendon for purposes of evaluating the Post-Tensioning System Tendons during the 30th Year (8th Period) In-Service Inspection (surveillance) at Progress Energy Florida's Crystal River Unit 3.

2.0 RESPONSIBILITY

2.1 As stated in PSC Procedure QA 4.0.

3.0 QUALIFICATIONS

3.1 As stated in PSC Procedure QA 4.1.

4.0 EQUIPMENT

4.1 The gauges and test equipment necessary for the Quality Control activities will be itemized in PSC Procedure SQ 4.0.

5.0 PRECAUTIONS

5.1 Review PSC Procedure PS1.0-"Personnel Safety" for the items that shall apply both for tendon force control and personnel safety.

6.0 QUALITY CONTROL

6.1 This procedure contains ***HOLD POINTS***. The work shall not progress past or through a ***HOLD POINT*** without a sign-off from the QC Inspector. All Quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The sign-off's and required information or evaluation data shall be documented on Data Sheets 9.0A, 9.0B or 9.0C.

7.0 PREREQUISITES

7.1 The Grease Cap will be removed.

7.2 The Anchorage Inspection of the stressed tendon will be completed.

7.3 The hydraulic jack has been examined for damage and is in current calibration status.

7.4 Stressing pressure gauge has had daily check performed before use as per PSC Procedure QA 10.1.

8.0 MEASUREMENTS

8.1 STEEL RULERS

8.1.1 Measurements of shim stack height shall be performed with calibrated steel rulers graduated in tenths of an inch (0.100"). The measurements shall be recorded to the nearest 0.100".

8.2 PRESSURE GAUGES

8.2.1 Measurements of ram pressure (tendon force) shall be measured by calibrated pressure gauges capable of being read directly to 20 psi.

8.2.2 View the gauge face from a plane of view directly in front of the indicator needle to avoid parallax errors.

8.2.3 Gauge readings shall be interpolated to the nearest 10 psi.

8.2.4 All pressure gauges used shall have automatic compensation for temperature variations between gauge calibration and gauge use during surveillance.

9.0 MONITORING OF TENDON FORCES

9.1 The intention of this operation is to monitor the amount of forces remaining in the tendon by taking lift-off readings as the tendon is being stressed. Subsequent evaluation of those lift-off readings as compared to the Predicted Forces shall determine if the force is acceptable or if degradation of the system has been detected.

9.2 Monitoring of Tendon Force can be performed on both ends of the Hoop or Dome tendon in a simultaneous and controlled manner or on one tendon end at a time, independent of the opposite end of the tendon. These procedures have been developed so that they apply to both or one end of the tendon. Adequate communication shall be maintained between both ends of the tendon during the taking of lift-off readings for simultaneous stressing operations. Vertical tendon monitoring of force is to be performed from one end, top end, only.

9.2.1 Regardless of the method of Monitoring, there will probably be variations in the forces detected at each end of the tendon. If the average force for both ends of the tendon meet the Acceptance Criteria cited in Section 10 of this Procedure, that tendon will be acceptable. If the average force does not meet this control limit, then the action required of Section 10 of this Procedure shall take place for the respective condition detected.

9.2.2 All data shall be documented on Data Sheet 9.0A or 9.0C.

9.3 ***QCD*** – Document the concrete surface temperature near the tendon and the ambient air temperature on Data Sheet 9.0A.

9.4 ***QCD*** – The anchor head and stressing adaptor threads are to be inspected for dirt, burrs, nicks, and damaged threads, if any condition precludes proper coupling the condition should be corrected after notifying CR3ENG. Anchor head threads shall be inspected for deformation before and after any stressing operation and if any deformation is detected CR3ENG is to be notified. Document acceptance on Data Sheet 9.0A.

9.5 ***QCD*** – Document the amount of effective wires in each end of the tendon on Data Sheet 9.0A. Refer to Data Sheet 8.0 for each end of the tendon.

9.6 ***HOLD POINT*** – Couple the rams to each anchor head on that tendon (for vertical tendons, only the top anchor head is used). Document on Data Sheet 9.0A that the stressing coupler is evenly aligned on the anchor head washer and that full thread engagement is obtained.

9.7 ***QCD*** – On Data Sheet 9.0A document the ram and gauge identification and the calibrated status of each. Also note the Ram Area and Calibration Constant, K.

9.8 ***QCD*** – On Data Sheet 9.0A document the dimension of each shim stack height and configuration of sizes, from the bearing plate to the bottom of the anchorage.

9.9 ***QCD*** – On Data Sheet 9.0A document the the following based on the Pre-stress Force Tables of Procedure SQ 9.1. Space is provided beneath each entry to document the gauge pressures for each Force requirement.

9.9.1 Tendon Base Value Predicted Force (BVPF)

9.9.2 95% of the Tendon Base Value Force (0.95BV)

9.9.3 90% of the Tendon Base Value Force (0.9BV)

9.9.4 Tendon Lift-off Overstress Force for purposes of Monitoring of Tendon Force shall be that force less than 1721 kips (based on a tendon with 163 effective wires), which permits placement of the feeler gauges or provides complete looseness of the shim stacks.

- CAUTION ONCE ACTUAL STRESSING BEGINS, THE RAM MUST NEVER BE EXTENDED TO THE FULL LIMIT OF ITS STROKE. THE EXTENSION SHOULD BE AT LEAST 1/2" LESS THAN THE FULL STROKE OF THE RAM.

9.10 TENDON LIFT-OFF (MONITORING)

9.10.1 Pressurize the rams in 1000 psi increments until lift-off is achieved. It is very likely that Lift-off will occur at some point before or after the selected Tendon Base Value Predicted Force. Do not exceed a Lift-off Overstress Force of 1721 kips (based on a tendon with 163 effective wires).

9.10.1.1 IF lift-off has not been achieved at this force, THEN reduce pressure to zero, AND notify CR3ENG for resolution of the condition.

9.10.2 Insert two feeler gages or shim stock, about 0.030" in thickness, between the anchor head and shim. The gauges should be located about 180 degrees apart and approximately centered.

9.10.3 Reduce the ram pressure until the load is transferred on the shim stack. It shall not be necessary to return to zero gauge pressure, but at least 2000 psi less than the pressure that was needed to insert the shim stock.

9.10.4 Gradually pressurize the ram while pulling the feeler gages. The point at which the feeler gauge comes loose and can be withdrawn is the Liftoff point.

9.10.5 Repeat sections 9.10.3, and 9.10.4 until 3 consecutive Liftoff readings have been taken, which should be within 40 kips of each other, if this is not achieved the feeler gauges may be repositioned.

9.10.6 ***QCD*** – Document the pressure for each Liftoff of each shim stack. Place a circle around that Liftoff Value that was the last to have the feeler gauge or shim removed. (The last shim stack to come loose.) Do not intermix the values for the shim stacks. Stack 1 will always be Stack 1.

9.10.7 The space between the stacks of shim halves for the first shims in direct contact with the anchorage should not exceed a space of 1/4" on each end of the shims. The remaining shims in the shim stack may be placed with a larger spacing but should not exceed 1/2" on each end of the shims. These control dimensions shall apply to both axial directions as viewed from the top of the anchorage and/or shim stack.

9.10.8 No part of the anchorhead shall overhang the shim stack.

9.10.9 Slowly decrease the pressure on the jack to allow the stressing washer to reseat onto the shims. No additional shims are to be added at this time. Uncouple the ram from the anchorage.

9.10.10 ***QCD*** – Post the Circled Liftoff Values into the Circled Liftoff Value Column. It may be possible to have the Liftoff occur at the same pressure in each shim stack. Add the Circled Liftoff Values and divide by 3 to get the Actual End Average. Post the Actual End Average to Data Sheet 9.0A.

9.10.10.1 ***QCD*** – Enter the Actual End Average from the opposite end of the tendon if it is available at this time.

9.10.10.2 ***QCD*** – Calculate the Actual Average Liftoff Value (AALV) for this tendon by averaging the Actual End Averages from both ends.

9.10.11 ***QCD*** – At the other end of the tendon, repeat steps in Section 9.10, above. On Data Sheet 9.0A, document the Force from the other end of the tendon.

9.10.12 ***QCD*** – On Data Sheet 9.0A, calculate and verify that the average value of the forces required to achieve lift-off of the tendon meets the Acceptance Criteria specified in section 10.1 of this procedure.

9.10.13 If the lift-off forces are determined to be acceptable and no further inspection is required, this tendon shall be completed by replacing the grease cap in accordance with PSC Procedure SQ 12.0.

9.10.13.1 NOTE: Neither end shall be detensioned until lift-off has been recorded for both ends.

9.10.14 ***HOLD POINT*** – Enter the Actual Average Liftoff Value (AALV) from Section 9.10.10.2 of Data Sheet 9.0A, to column 1 of Data Sheet 9.0C. After the lift-off tests are complete for all the selected tendons, complete Data Sheet 9.0C, and verify that the average of all the normalized lift-off forces in each group meet the Acceptance Criteria of section 10.4 of this procedure.

9.10.15 ***HOLD POINT*** – The acceptance or non-acceptance for the condition of each tendon shall be documented on Data Sheet 9.0A. The documentation shall include explanation of the condition representative of the tendon's remaining force. This shall be shown for (10.1), (10.2), (10.3) or (10.4) as each condition might apply.

9.10.15.1 ***QCD*** – Document the need for Adjacent Tendon Monitoring and the tendon numbers, which will be added to the project scope. Notify CR03ENG that Adjacent Tendon Monitoring is being performed with a nonconformance report.

10.0 ACCEPTANCE CRITERIA

10.1 The Actual Average Liftoff Value (AALV) from Section 9.10.10.2 for each tendon shall not be less than 95% of the Tendon Base Value Force (0.95BV) from Section 9.9.2. One end lift-off force is calculated for vertical tendons.

10.2 If the Actual Average Liftoff Value (AALV) from Section 9.10.10.2 fails to meet the acceptance criteria of Section 10.1, but equals or exceeds the 90% of the Tendon Base Value Force (0.9BV) from Section 9.9.3; each of the adjacent tendon must be checked as outlined in Section 9.10.

10.2.1 If both adjacent tendons satisfy the acceptance criteria as indicated in section 10.1, then the original tendon shall be restored to is required Tendon Base Value Predicted Force (BVPF) from section 9.9.1, and the single deficiency shall be considered unique and acceptable.

10.2.2 If either of the adjacent tendons fails to satisfy the acceptance criteria of section 10.1, the condition shall be deemed unacceptable and shall be reported to CR03ENG with a nonconformance report. The extent of investigation into the cause, which may include tensioning the deficient tendons, shall be determined by CR3ENG.

10.3 If the Actual Average Liftoff Value (AALV) from Section 9.10.10.2 falls below the 90% of the Tendon Base Value Force (0.9BV) from Section 9.9.3, the condition shall be deemed unacceptable and shall be reported to CR03ENG with a nonconformance report. An investigation shall to be conducted by CR3ENG to determine the extent cause of the occurrence and the required course of action to be taken.

10.4 The average of all normalized tendon lift-off forces, including adjacent tendons, if any, (section 10.5) for each tendon group (vertical, dome and hoop) shall be equal to, or greater than, the required minimum average tendon force for that tendon group. The required minimum average force is:

10.4.1 1149 kips for vertical tendons

10.4.2 1215 kips for dome tendons and

10.4.3 1252 kips for hoop tendons.

10.4.4 The normalized lift-off force (section 10.5) for each tendon shall be equal to, or greater than, the required minimum average tendon force for that tendon group as given above. Any conditions for which this is not achieved shall be documented and CR3ENG shall be notified with a nonconformance report.

10.5 Normalized tendon lift-off forces are obtained by adding to the Actual Average Liftoff Value (AALV) from Section 9.10.10.2 to the Normalizing Factor (NF) for that tendon, from PSC Procedure SQ 9.1. Fill in Data Sheet 9.0C, with the appropriate information.

10.5.1 If the average normalized lift-off force for a group is less than the required minimum average force for the group, CR3ENG is to be notified with a nonconformance report in order to determine the cause and extent of such occurrence.

10.5.2 Surveillance tendons that have been restored (retensioned) to Base Value at a previous surveillance shall not be included in the check for required average normalized lift-off force for each group of tendons.

10.6 The average normalized lift-off force for each group of tendons - dome, vertical, and hoop - are also calculated on Data Sheet 9.0C.

10.7 ***QCD*** – Any tendon which has a lift-off force below its specified 95% Base Force, and has not been required to be detensioned, shall have both ends retensioned to within minus 0%, plus 6% of the Tendon Base Value Predicted Force (BVPF) from section 9.9.1 Not to Exceed 70%. No overstressing is to be performed.

10.7.1 The method for determining the final lift-off force (lock-off) shall be in accordance with section 9.10, of this procedure.

10.7.2 Data Sheet 11.0 of PSC Procedure SQ 11.0, shall be completed for all such tendons.

10.7.3 A note shall be made on Data Sheet 9.0A describing what has occurred for the subject tendon.

10.8 If any deformation of anchorage threads are detected before or after any stressing operation CR03ENG is to be notified with a nonconformance report.

11.0 ADJACENT TENDON - MONITORING OF FORCES

11.1 The Monitoring of Forces in tendons adjacent to the nonconforming tendon shall follow the requirements of this procedure, as each applies.

11.2 It shall be necessary to remove the Grease Cap in accordance with PSC Procedure SQ 6.0 using Data Sheet 6.0 for the documentation requirements for each adjacent tendon.

11.3 It shall not be necessary to take Grease Samples, unless water is detected during the inspection.

11.4 It shall be necessary to perform part of the Anchorage Inspection of PSC Procedure SQ 8.0. It shall only be necessary to clean up the Anchorage and Buttonheads so that Broken/Missing Wires can be detected to determine the amount of effective wires in that tendon and cracks in anchorage hardware can be identified. Data Sheet 8.0 shall be used to document this information for each Adjacent Tendon.

11.4.1 Corrosion condition or additional buttonhead inspection shall not be required.

11.5 It shall not be necessary to perform the Concrete Inspection of PSC Procedure SQ 8.3.

12.0 NOTIFICATION

12.1 ***QCD*** – CR03ENG shall be formally notified with a nonconformance report when each one or more of the Acceptance Criteria noted in section 10, of this procedure are not met.

12.2 ***QCD*** – CR03ENG shall be notified with a formal letter if liftoff cannot be achieved before reaching the Tendon Lift-off Overstress Force (1721 kips for a 163 wire tendon).

12.3 ***QCD*** – CR03ENG shall be formally notified with a nonconformance report when adjacent tendon monitoring is required.

13.0 DOCUMENTATION

13.1 The items requiring documentation in this procedure, shall be documented on Data Sheet 9.0A or 9.0C as applicable.

13.2 Some information from Data Sheet 8.0 of PSC Procedure SQ 8.0, which has already been started for this tendon, shall require posting onto Data Sheet 9.0A.

13.3 The Data Sheet references the applicable Section or Step number for each QCD or HOLD Point.

14.0 ATTACHMENTS

14.1 Data Sheet 9.0A

14.2 Data Sheet 9.0C

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0A
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period
Tendon No.: _____ Tendon End: _____

LIFT-OFF INSPECTION CRITERIA	QC SIGNOFF
(9.3) Temp. of Concrete: ___ °F Thermometer No.: ___ Recal Date: ___	
Ambient Temp.: ___ °F Thermometer No.: ___ Recal Date: ___	
(9.4) Anchorhead and Stressing Adapter Threads : ☐ Acceptable ☐ Unacceptable	
(9.5) Number of Effective Wires: ___	
(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☐ Acceptable ☐ Unacceptable	
(9.7) RAM ID: Recal Date: *end of job* RAM Area: ___ K = ___	
Gauge ID: ___ Recal Date: ___ Daily Check: ___	
(9.8) Shim Stack Height: #1 ___ in. #2 ___ in. Ruler ID: ___ Recal Date: ___	
Individual Shims: Stack #1: ___ in. Stack #2: ___ in.	
(9.9) Base Value Predicted Force (BVPF): ___ kips Pressure: ___ psi	
BVPF: ___ kips 95% BVPF: ___ kips 90% BVPF: ___ kips	
___ psi ___ psi ___ psi	
(9.10.6) As-Found Lift-Off (9.6.5.2) Circled Values	
Stack #1: 1) ___ psi Stack #2: 1) ___ psi 1) ___ psi	
2) ___ psi 2) ___ psi 2) ___ psi	
3) ___ psi 3) ___ psi 3) ___ psi	
(9.10.10) Actual Force (this end): ___ kips Actual Average: ___ psi	
(9.10.10.1) Actual Force (opposite end): ___ kips (9.10.10.2) AALV FORCE ___ kips	
(10.0) AALV Acceptance Criteria:	
a) ☐ Acceptable – AALV is ≥ 95% BVPF.	
b) ☐ Adjacent Tendons to be stressed – AALV is < 95% BVPF but ≥ 90% BVPF. Document on a NCR.	
c) ☐ Unacceptable – AALV is < 90% BVPF. Document on a NCR.	
NCR Required ☐ Yes ☐ No Customer Notified NCR No.: ___	
(9.10.15.1) Adjacent Tendon Lift-Offs *(Note: Use a separate Data Sheet 9.0 to document Liftoff forces.)*	
a) Adj Tendon: ___ This Tendon: ___ Adj Tendon: ___ ☐ Acceptable – AALV > 95% of BVPF, The original scope tendon SHALL be restored to within –0/+6% of BVPF.	
Owner Notified: ☐ Yes ☐ No Name/Date: ___	
b) Adj Tendon: ___ Adj Tendon: ___ ☐ Unacceptable – AALV < 95% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: ___	
c) Adj Tendon: ___ Adj Tendon: ___ ☐ Unacceptable – AALV < 90% of ELL for either tendon. Document the condition on a NCR.	
Customer Notified NCR No.: ___	

QC Reviewed: _____ Level: _____ Date: _____

PSC PROCEDURE SQ 9.0
MONITOR TENDON FORCE
DATA SHEET 9.0C
September 21, 2007
Page 1 of 1
Revision 0

Project: Crystal River Unit 3 – 30th Year – 8th Period

AVERAGE OF NORMALIZED LIFT-OFF FORCE

Tendon Type: ***Verticals***

Tendon ID	AALV	Normalizing Factor (NF)	Normalized Lift-Off (AALV + NF)	Tendon Minimum Required Force	Tendon Acceptance (10.4.4)	
1.				1149	☐ Yes	☐ No
2.				1149	☐ Yes	☐ No
3.				1149	☐ Yes	☐ No
4.				1149	☐ Yes	☐ No
5.				1149	☐ Yes	☐ No

Normalized Group Average= _____

(10.4) Normalized Group Average Acceptance: ☐ Acceptable ☐ Unacceptable

NCR Required ☐ Yes ☐ No Customer Notified NCR No.: _____

Tendon Type: ***Hoops***

Tendon ID	AALV	Normalizing Factor (NF)	Normalized Lift-Off (AALV + NF)	Tendon Minimum Required Force	Tendon Acceptance (10.4.4)	
1.				1252	☐ Yes	☐ No
2.				1252	☐ Yes	☐ No
3.				1252	☐ Yes	☐ No
4.				1252	☐ Yes	☐ No
5.				1252	☐ Yes	☐ No
6.				1252	☐ Yes	☐ No
7.				1252	☐ Yes	☐ No

Normalized Group Average= _____

(10.4) Normalized Group Average Acceptance: ☐ Acceptable ☐ Unacceptable

NCR Required ☐ Yes ☐ No Customer Notified NCR No.:

Tendon Type: ***Domes***

Tendon ID	AALV	Normalizing Factor (NF)	Normalized Lift-Off (AALV + NF)	Tendon Minimum Required Force	Tendon Acceptance (10.4.4)	
1.				1215	☐ Yes	☐ No
2.				1215	☐ Yes	☐ No
3.				1215	☐ Yes	☐ No
4.				1215	☐ Yes	☐ No
5.				1215	☐ Yes	☐ No

Normalized Group Average= _____

(10.4) Normalized Group Average Acceptance: ☐ Acceptable ☐ Unacceptable

NCR Required ☐ Yes ☐ No Customer Notified NCR No.: _____

QC Prepared:: _____ Level: _____ Date: _____

QC Reviewed: _____ Level: _____ Date: _____

Precision Surveillance Corporation

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

PRESTRESS FORCES

Prepared by	*LEVEL II Q.C.* Title	*09/21/07* Date
Approved by	*PROJECT MANAGER, P.E.* Title	*09/21/07* Date
Approved by	*PRESIDENT* Title	*09/21/07* Date

1.0 PURPOSE

1.1 The purpose of this procedure is to provide in table form the predicted lift-off forces and normalization factors for the 30th year (8th period) Progress Energy Florida's Crystal River Unit 3 Reactor Building Tendon Surveillance Inspection.

2.0 SURVEILLANCE TENDON DATA

CRYSTAL RIVER UNIT 3 – SQ 9.1 – PREDICTED FORECS SUMMARY

TENDON	BASE VALUE PREDICTEDFORCE (BVPF) (kips)	95% OF BASE (0.95BV) (kips)	90% OF BASE (0.90BV) (kips)	NORMALI-ZATION FACOTR (NF)	TENDON	BASE VALUE PREDICTEDFORCE (BVPF) (kips)	95% OF BASE (0.95BVPF) (kips)	90% OF BASE (0.90BVPF) (kips)	NORMALI-ZATION FACOTR (NF)
61V24	1529	1452	1376	-14	13H35	1373	1304	1235	+56
12V01	1525	1449	1372	-9	13H36	1484	1410	1336	-56
12V02	1596	1516	1437	-80	13H37	1368	1299	1231	+61
45V19	1484	1409	1335	+31	62H29	1421	1350	1279	+7
45V20	1507	1432	1357	+7	62H30	1413	1342	1272	+14
45V21	1533	1456	1380	-19	62H31	1475	1401	1328	-46
61V16	1523	1447	1371	-8	D128	1268	1205	1141	+53
61V17	1498	1423	1348	+17	D129	1287	1223	1159	+34
61V18	1493	1418	1344	+21	D130	1261	1198	1135	+60
46H20	1467	1394	1321	-39	D211	1305	1239	1174	+18
46H21	1441	1369	1297	-12	D212	1305	1240	1175	+15
46H22	1486	1412	1337	-57	D213	1312	1246	1180	+10
51H33	1392	1323	1253	+36	D237	1426	1335	1283	-104
51H34	1487	1413	1339	-59	D238	1348	1281	1213	-26
51H35	1348	1281	1213	+79	D239	1409	1338	1268	-88
42H45	1473	1399	1325	-44					
42H46	1456	1383	1310	-28	= SURVEILLANCE TENDON				
42H47	1425	1354	1283	+3	= ADJACENT TENDON				

f

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

DETENSION TENDONS

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for Detensioning Tendons for purposes of visual inspection, testing and evaluation, during In-Service Inspections (surveillance) of Post-Tensioning Systems Tendons of Progress Energy Florida's Crystal River Unit 3.

2.0 RESPONSIBILITY

2.1 As stated in PSC Procedure QA 4.0.

3.0 QUALIFICATIONS

3.1 As stated in PSC Procedure QA 4.1.

4.0 EQUIPMENT

4.1 The gauges and test equipment necessary for the Quality Control activities will be itemized in PSC Procedure SQ 4.0.

5.0 QUALITY CONTROL

5.1 This procedure contains ***HOLD POINTS***. The work shall not progress past or through a ***HOLD POINT*** without a sign-off from the QC Inspector. All Quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The sign-off's and required information or evaluation data shall be documented on Data Sheet 9.0B of PSC Procedure 9.0 or Data Sheet 8.0 of PSC Procedure SQ 8.0.

6.0 PRECAUTIONS

6.1 Do not exceed a jack force of 1721 kips (for a tendon with 163 effective wires). If lift-off has not been achieved at this maximum force. The jack shall be unloaded and CR3ENG shall be notified in writing for resolution of the condition.

6.2 Review the I.S.I. Tendon Surveillance Program Safety Comments for the items that shall apply both for tendon force control and personnel safety.

6.3 Verify that the tendon to be detensioned is listed in PSC Procedure SQ 2.0 or has been approved for detensioning by CR3ENG.

6.4 No more than three (3) adjacent tendons shall be detensioned at any given time without CR3ENG concurrence.

7.0 PREREQUISITES

7.1 The tendon will have been monitored for Tendon Force as required of PSC Procedure SQ 9.0, up to and including Section 9.9.7. The Detensioning shall continue from that point where the final or third liftoff was taken. The tendon shall not be detensioned until the liftoffs are documented. The ram will still be coupled to the anchorage.

7.2 Detensioning of each tendon end may proceed independently of the other end; however, jacks must not be uncoupled until the tendon is completely detensioned.

7.3 To alleviate holding jacks under pressure for period of time, it is recommended, but not mandatory, that both ends of a tendon be detensioned in unison. This should assist in correct positioning of the anchor head.

8.0 DETENSIONING THE TENDON

8.1 Where a tendon is specified to require Detensioning, to permit inspection of the Detensioned anchorages, wires, shims, bearing plates and removal of test a test wire the following operations shall take place.

8.2 With the final liftoff being completed and the load completely off the shims, all the shims shall be removed. IF more clearance is required, the load on the tendon may be increased to a jack force of 1721 kips (based on a tendon with 163 effective wires). If the shims cannot be removed at this force, THEN unload the jack, AND notify CR3ENG in writing to resolve condition.

8.2.1 Keep the shims from each stack separate (The shims are paired and must be stacked in pairs.). This will permit the shims to be replaced without extensive rematching.

8.3 With the shims removed, the load on the tendon shall be reduced to zero. To alleviate holding jacks under pressure for long periods of time, it is recommended that both ends, if applicable, of a tendon be detensioned in unison.

8.4 Jacks shall not be uncoupled until the tendon is completely detensioned. During uncoupling of the jack, twisting of the tendon shall be limited to one-half (1/2) of a revolution.

8.5 ***HOLD POINT*** – Once detensioning is complete, anchorage inspection shall be performed per PSC Procedure SQ 8.0 for corrosion, cracks, offsize buttonheads, missing, broken/protruding, and/or damaged wires and recorded on Data Sheet 8.0, if there is any change in previously recorded data.

9.0 CONTINUING OPERATIONS

9.1 Once Detensioning is complete any number of operations may follow such as:

9.2 Continuity Test

9.3 Tendon Wire Removal

9.4 Retensioning the Tendon

10.0 ACCEPTANCE

10.1 There are no requirements for acceptance or non-acceptance during detensioning of a tendon.

11.0 DOCUMENTATION

11.1 Section 8.5 is to be documented to Data Sheet 8.0 of PSC Procedure SQ 8.0 if needed.

11.2 The Data Sheet references the applicable Section or Step number of the procedure for each ***QCD*** or ***HOLD POINT***.

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

TEST WIRE REMOVAL

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for removing a sample wire to be used for physical testing, during In-Service Inspections (surveillance) of the Post-Tensioning System Tendons at Progress Energy Florida's Crystal River Unit 3.

2.0 RESPONSIBILITY

2.1 As stated in PSC Procedure QA 4.0.

3.0 QUALIFICATIONS

3.1 As stated in PSC Procedure QA 4.1.

4.0 EQUIPMENT

4.1 Quality Control gauges or test equipment will not be required for this activity, except where hydraulic devices and gauges are used.

5.0 QUALITY CONTROL

5.1 This procedure contains ***HOLD POINTS***. The work shall not progress past or through a ***HOLD POINT*** without a sign-off from the QC Inspector. All Quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The sign-offs and required information or evaluation data shall be documented on Data Sheet 10.2 or Data Sheet 8.0 of PSC Procedure SQ 8.0.

6.0 PRECAUTIONS

6.1 When pulling individual wires, never exceed the yield strength of that wire when pulling with the pulling device - 11,452 pounds.

6.2 Discontinuous wires shall not be used to satisfy the requirements for the physical testing of this procedure.

6.3 If other Broken/Missing Wires are found in this tendon as a result of this inspection or previous inspections, it shall be necessary to select a wire from this tendon that would tend to balance the forces in that tendon anchorage and try to maintain symmetry with the missing wires in the hole pattern.

- BE SURE THAT THE CORRECT WIRE HAS BEEN LOCATED BEFORE CUTTING.
- BE SURE that this tendon requires sample wire removal.
- USE CARE TO AVOID DAMAGING OTHER WIRES OR BUTTONHEADS.
- AVOID UNNECESSARY MARKS OR DAMAGE TO THE WIRE WHILE REMOVING.

- USE CARE WHEN COILING THE WIRE AND SECURING IT INTO A COIL. THIS WIRE HAS CONSIDERABLE SPRING FORCE AND MUST BE PREVENTED FROM UNCOILING VIOLENTLY.

7.0 PREREQUISITES

7.1 The anchorage inspection will be complete and Data Sheet 8.0 available.

7.2 The tendon will be detensioned; monitoring of forces has been completed.

8.0 WIRE REMOVAL

8.1 A wire shall be selected, preferable from the two outer rows of the anchorage hole pattern.

8.2 The Tendon Surveillance Wire Puller shown in Figure 2 of PSC Procedure SQ 10.5 shall be attached to the selected wire.

8.3 The wire shall be pulled with the Wire Puller using as little force as possible.

8.3.1 If the wire cannot be moved by hand, it shall be acceptable to use any mechanical device to accomplish that purpose, such as a "Come-Along", "Chain-Hoist", "Chain Pawl" or hydraulic ram.

8.3.1.1 It is unlikely that anything but the hydraulic ram will be able to exert such an amount of force so as to yield or break the wire. Therefore hydraulic devices shall be controlled for force through a calibrated gauge or controlled for maximum force through a locking valve to control the amount of pressure to be exerted.

8.3.1.2 There remains a possibility that a limited force might not move the wire. It shall be necessary to abandon that wire and select a new wire, continuing this process until a wire can be moved. All abandoned wires shall be identified on Data Sheet 8.0 of Procedure 8.0. All wires shall be considered effective wires provided the yield strength of the wire was not exceeded.

8.4 Once a tendon wire is located that can be moved, it shall be witnessed for that movement at the opposite end of the tendon to verify that this is a continuous wire.

8.5 Prepare to cut the wire at the opposite end of the tendon from where the wire is to be pulled.

8.5.1 ***QCD*** – Document the location of wire removal on Data Sheet 8.0 of Procedure SQ 8.0. Once this is posted, document that action on Data Sheet 10.2 of this Procedure.

8.5.2 Measure back from the buttonhead 1 inch plus or minus 1/16 inch and mark or scribe a line; it shall be acceptable to notch the wire with a file.

8.5.3 Cut the wire somewhere between the buttonhead and the marked line, but not on the line.

8.5.4 Pull the wire completely through the tendon duct.

8.5.4.1 While pulling, the entire length of the tendon wire shall be visually inspected for pitting, corrosion, or other signs of deterioration and evaluated in accordance with PSC Procedure SQ 8.1, Section 2.

8.5.4.1.1 ***HOLD POINT*** – Document the Category of Corrosion rating on Data Sheet 10.2, for every 10 feet of length.

8.5.4.1.2 If the Category of Corrosion has progressed beyond Condition "2" as defined in Section 2 of PSC Procedure SQ 8.1, CR3ENG shall be notified with a nonconformance report. CR3ENG shall provide the final corrective action, which could include removing additional wires and performing Physical Testing.

8.5.4.2 While the tendon wire is being pulled, it may be cleaned of excess grease and coiled into coil form of approximately five-foot diameter. Secure the coil from unwinding. Solvent cleaning may be performed to facilitate cleaning before inspection.

8.5.4.2.1 It shall be acceptable to cut the wires into 10 foot lengths if coiling is impractical. The cut wires shall be identified as required of Section 8.5.5 of this procedure.

8.5.4.3 After the tendon wire has been pulled through, it shall be measured for length.

8.5.4.3.1 ***QCD*** – Document the total length of wire on Data Sheet 10.2. Remember to include the length of wire that was cut from the opposite end.

8.5.4.4 WIRE SAMPLE QUANTITY AND LOCATION REQUIREMENTS

8.5.4.4.1 ACCEPTABLE WIRE

8.5.4.4.1.1 Three specimens shall be tested. One sample shall be taken from approximately the middle of the tendon wire length, with the two remaining samples being taken, one from approximately each end of the tendon wire.

8.5.4.4.2 BROKEN WIRE

8.5.4.4.2.1 If Broken Wires require testing, three specimens shall be tested. One sample shall be taken from the wire length about one foot from either side of the break. The two remaining samples shall be taken, one from approximately each end of the tendon wire.

8.5.4.4.3 UNACCEPTABLE CATEGORY OF CORROSION CONDITION

8.5.4.4.3.1 If Unacceptable Category of Corrosion Condition Wires require testing, at least one specimen shall be tested, with that sample being taken from what is judged to be the worst representative section of the wire length. Other samples may be selected and/or tested at the request of CR3ENG.

8.5.4.5 If the wire testing is to be performed on site, it shall be acceptable to cut the 3 sample wires while the wire is being pulled out and coiled. Refer to PSC Procedure SQ 10.3 for the control and documentation requirements. The sample shall be cut from each end and the middle of the wire and as cited in Section 8.5.4.4.1 above and shall be about 10' long, unless the wires are to be cut to the required testing length.

8.5.4.6 Sample selection shall include areas representative of the most significant Category of Corrosion equal to or greater than Category of Corrosion "4", if this condition exists on the removed wire. Provide samples of this condition in addition to the original 3 samples required. Samples shall not contain gripper marks from the pulling device.

8.5.4.6.1 As a note of caution, be sure that the wire is moving freely before cutting. Otherwise there could be difficulty in removing the wire, requiring assist devices that could leave surface marks on the wire.

8.5.4.6.2 ***QCD*** – When the wire is cut for samples, document the area of removal on Data Sheet 10.2 for later transfer to Data Sheet 10.3 of PSC Procedure SQ 10.3. Document each location of sample removal and tag each cut length for area of removal, tendon identification, pulling direction, date, and plant name and unit.

8.5.5 Attach a tag to the end of the wire being pulled that identifies the tendon, end of removal, pulling direction, date, and plant name and unit. If the wire is cut for samples during removal, the cut lead or front end of the wire shall be identified by tendon number, end of removal, and location in the total length of the test wire to permit reconstruction of that wire as it existed in the tendon.

8.5.6 The coiled wire, whether a single piece or cut pieces, shall be securely tied and covered with plastic sheeting or a plastic bag to protect the wire from inclement conditions.

8.5.6.1 The covered coil of wire may be handed over to CR3ENG for storage and control.

8.6 If it becomes necessary to remove any additional wires from a tendon for physical testing, this procedure shall be followed to include the additional documentation. For example, Broken Wires or wires with Category of Corrosion "4" may be instructed to be removed by CR03ENG.

8.7 ***QCD*** – Each wire that has been removed for physical testing during this surveillance shall be documented for location of removal on Data Sheet 8.0 of PSC Procedure SQ 8.0, using the appropriate Code Symbol. Document the posting of this information on Data Sheet 10.2.

8.8 ***QCD*** – Document the identification and recalibration date of the measuring device and the wire Pulling Ram, if used, on Data Sheet 10.2.

9.0 DOCUMENTATION

9.1 The items requiring documentation in this procedure shall be documented on Data Sheet 10.2.

9.2 Some information documented on Data Sheet 10.2 shall require subsequent posting to Data Sheet 8.0 of PSC Procedure SQ 8.0 and to Data Sheet 10.3 of PSC Procedure SQ 10.3.

9.3 The Data Sheet references the applicable Section or Step number of the procedure for each ***QCD*** or ***HOLD POINT***.

10.0 ATTACHMENTS

10.1 Data Sheet 10.2

PSC PROCEDURE SQ10.2
TEST WIRE REMOVAL
Data Sheet 10.2
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: _____ Tendon End: _____

Removal Date: _____ Inspection Date: _____

WIRE REMOVAL INSPECTION

CORROSION INSPECTION @ LENGTH INTERVALS

(8.5.4.1) Document the Corrosion Category for each 10' of wire in the increments below. Use Categories described in PSC SQ 8.1.

(8.5.4.2) For Corrosion Levels 3, 4, 5, 6 document condition on an NCR. NCR Req'd: ☐ NO ☐ YES NCR# _____

(8.5.4.3.1) Document the total length of the wire on the diagram below. Completed: ☐ NO ☐ YES

Buttonhead End

0'	10'	20'	30'
30'	40'	50'	60'
60'	70'	80'	90'
90'	100'	110'	120'
120'	130'	140'	150'
150'	160'	170'	180'
180'	190'	200'	210'

Cut End

(8.5.4.4.3) Was the wire cut for samples: ☐ NO ☐ YES document the area of removal above using symbol ✕.

(8.7) Document the location of wire removed on Data Sheet 8.0, ANCHORAGE INSPECTION: ☐ Completed

(8.8) Measuring Device: _____ ID Number: _____ Recal Date: _____

(8.8) Wire Pull Ram ID Number: _____

Q.C Inspector: _____ Level: _____ Date: _____

QC Reviewed _____ Level: _____ Date: _____

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

TESTING TENDON WIRES

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for the Physical Testing of tendon wires removed from Post-Tensioning System Tendons, during In-Service Inspections (surveillance) of Progress Energy Florida's Crystal River Unit 3.

2.0 SCOPE

2.1 The intention of this procedure is to provide the means of physically testing an Acceptable Wire removed from a tendon. However, this Procedure shall also apply for the physical testing of wires which may have been found to be Broken or in an Unacceptable Category of Corrosion.

3.0 RESPONSIBILITY

3.1 As stated in PSC Procedure QA 4.0.

4.0 QUALIFICATIONS

4.1 As stated in PSC Procedure QA 4.1.

5.0 EQUIPMENT

5.1 Steel tapeline, steel ruler, 1" O.D. Micrometer, Wire Test Apparatus, Pressure Gauge, dial indicator.

6.0 QUALITY CONTROL

6.1 This procedure contains no ***HOLD POINTS***. All Quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The required information or evaluation data shall be documented on Data Sheet 10.3.

7.0 PRECAUTIONS

7.1 Stay clear of the test apparatus while the wire is being tensioned.

7.2 Always maintain identification control of the samples including tendon and end identification, plant name and unit, the direction of removal of the wire and the location of that sample as it was removed from the tendon wire.

7.2.1 As a means of maintaining consistency for testing, the end of the sample that is tagged (closest to pulling or buttonhead end) shall always be placed into the Wire Test Apparatus (Figure D 1) opposite or away from the ram end.

8.0 PHYSICAL TESTING

8.1 The following steps shall be used to test any tendon wire removed from the tendon, whether that is an Acceptable Wire, a Broken Wire or a Wire of an Unacceptable Category of Corrosion.

8.2 The specimen wires will be cut to a length of 108" plus or minus 1/4", after being removed during the performance of PSC Procedure SQ 10.2. Develop a separate Data Sheet for each sample tested. It will be acceptable to cut the sample to the Buttonheading Length of 101 inches plus or minus one inch. (See Section 8.4 of this Procedure.)

8.2.1 ACCEPTABLE WIRE

8.2.1.1 Three specimens shall be tested. One sample shall be taken from approximately the middle of the tendon wire length, with the two remaining samples being taken, one from approximately each end of the tendon wire.

8.2.2 BROKEN WIRE

8.2.2.1 If Broken Wires require testing, three specimens shall be tested. One sample shall be taken from the wire length about one foot from either side of the break. The two remaining samples shall be taken, one from approximately each end of the tendon wire.

8.2.3 UNACCEPTABLE CATEGORY OF CORROSION CONDITION

8.2.3.1 If Unacceptable Category of Corrosion Condition Wires require testing, at least one specimen shall be tested, with that sample being taken from the worst representative section of the wire length. Other samples may be selected and/or tested at the request of CR3ENG.

8.2.3.2 ***QCD*** – Document the wire identification, location of removal and overall length on Data Sheet 10.3 from Data Sheet 10.2 of PSC Procedure SQ 10.2.

8.3 Measure the diameter of the wire test sample in 3 locations, each end and the middle.

8.3.1 ***QCD*** – Document the measurement of the wire test sample and the measuring device on Data Sheet 10.3. Calculate and document the average of the 3 measurements.

8.4 Cut each wire test sample to 101" plus or minus 1" long; this must be a square, neat cut to permit buttonheading.

8.4.1 Slide two Wire Test Stressing Washers (see Figure D 2) onto the wire, making sure the chamfered seats face to the outside of the wire.

8.4.2 Buttonhead both ends of the wire.

8.4.2.1 ***QCD*** – Document the acceptance of the buttonheads on Data Sheet 10.3 using the acceptance criteria shown in PSC Procedure SQ 8.2.

8.5 Measure the Gauge length of the wire from inside of the buttonhead at one end to the inside of the buttonhead at the other end within an accuracy of plus or minus 0.050".

8.5.1 ***QCD*** – Document the Gauge length of the wire and the identification and recalibration date for the measuring device.

8.6 Place the specimen into the Wire Test Apparatus and check for proper seating of the Stressing Washers in the pulling adaptors.

8.7 Preload the wires to about 2.45 kips +0/-10% to seat the buttonheads in the Stressing Washers.

8.7.1 ***QCD*** – Document the preloading pressure and force, the identification and recalibration date of the Wire Test Apparatus.

8.7.1.1 To obtain pressure when the force is specified: $F = \frac{P \times A}{1000} + K$

8.8 Reduce the preload force to 0 kips.

8.8.1 ***QCD*** – Document the release of the preload force.

8.9 Load the wire to 1.73 kips plus or minus 5%; this will provide 0.1% elongation.

8.9.1 ***QCD*** – Document the initial loading of the wire in force, pressure and actual elongation at this point. Elongation shall be measured to an accuracy of 0.050".

8.10 Preset the Dial Indicator on the Wire Test Apparatus to measure 0.9% elongation. (0.9 for a sample length of 100")

8.10.1 ***QCD*** – Document the setting of the Dial Indicator.

8.11 Load the wire until the Dial Indicator shows signs of movement, signaling the 0.9% elongation (pressure at 1% elongation).

8.11.1 ***QCD*** – Document the force and pressure at 1% elongation.

8.12 Remove the Dial Indicator.

8.12.1 ***QCD*** – Document the "Rule" dimension reading at 1% elongation (approximately 1") to an accuracy of 0.050".

8.13 Continue to load the wire to failure.

8.13.1 ***QCD*** – Document the maximum elongation measurement from the "Rule" to accuracy of 0.050".

8.13.2 ***QCD*** – Document the maximum force and pressure reading at failure.

8.14 Remove the sample wire (two pieces) and remove the Stressing Washers.

8.14.1 ***QCD*** – Document the type of failure, ductile or brittle, and the location of the wire break from the tagged end of the wire (opposite the ram).

8.15 Calculate the following and document on Data Sheet 10.3.

8.15.1 ***QCD*** – Calculate the ultimate stress.

8.15.1.1 Stress in KSI is calculated by dividing the Force in KIPS by the wire Area (when the Force in KIPS is derived by the formula: Ram Area in square inches, multiplied by Gauge Pressure in psi and dividing by 1000 and adding the RAM "K" Factor.)

8.15.1.2 Stress (ksi) = Force (kips) ÷ Area (in^2)

8.15.2 ***QCD*** – Calculate yield stress from the pressure reading at 1% elongation.

8.15.3 ***QCD*** – Calculate the percent of elongation under load at the point of failure, based on the actual Gauge length of the wire.

9.0 NOTIFICATION - UNACCEPTABLE CONDITIONS

9.1 The Owner shall be notified with a nonconformance report when each one or more of the following unacceptable conditions are detected as a result of the inspection or Physical Testing of a Tendon Wire.

9.2 The diameter of the wire exceeds 0.27556" plus or minus 0.002".

9.3 The Category of Corrosion of the wire is "3" or more as described in PSC Procedure SQ 8.1.

9.4 The wire fails to meet the ultimate strength of 240,000 psi.

9.5 The wire fails to meet the yield strength at 1% strain of 192,000 psi.

9.6 The elongation at failure of a tendon wire test is less than 4%.

10.0 DOCUMENTATION

10.1 The items in this procedure requiring documentation shall be documented on Data Sheet 10.3.

10.2 The Data Sheet references the applicable section number of the procedure for each ***QCD*** Point.

10.3 Some information from Data Sheet 10.2 of PSC Procedure SQ 10.2 shall require posting to Data Sheet 10.3.

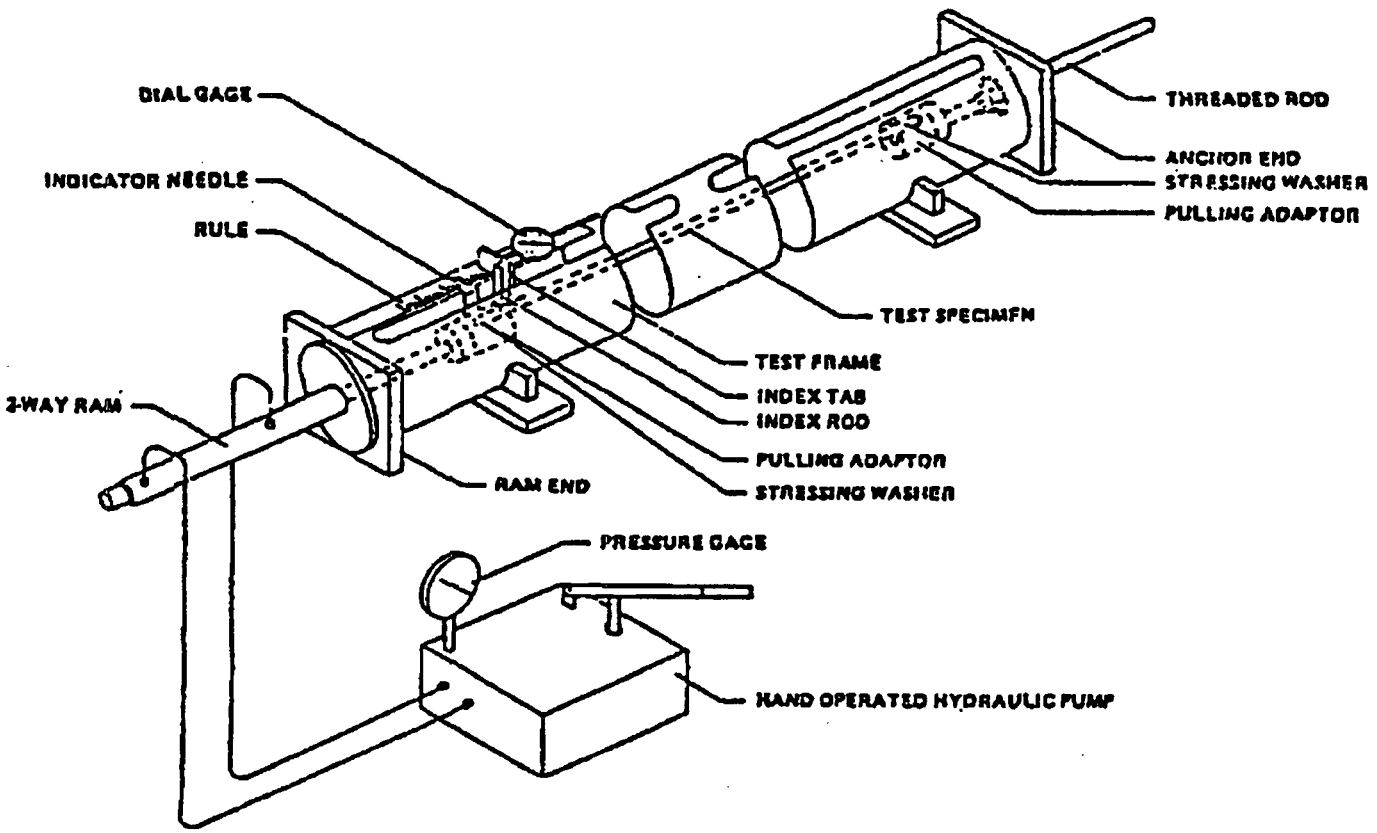
11.0 ATTACHMENTS

11.1 Data Sheet 10.3

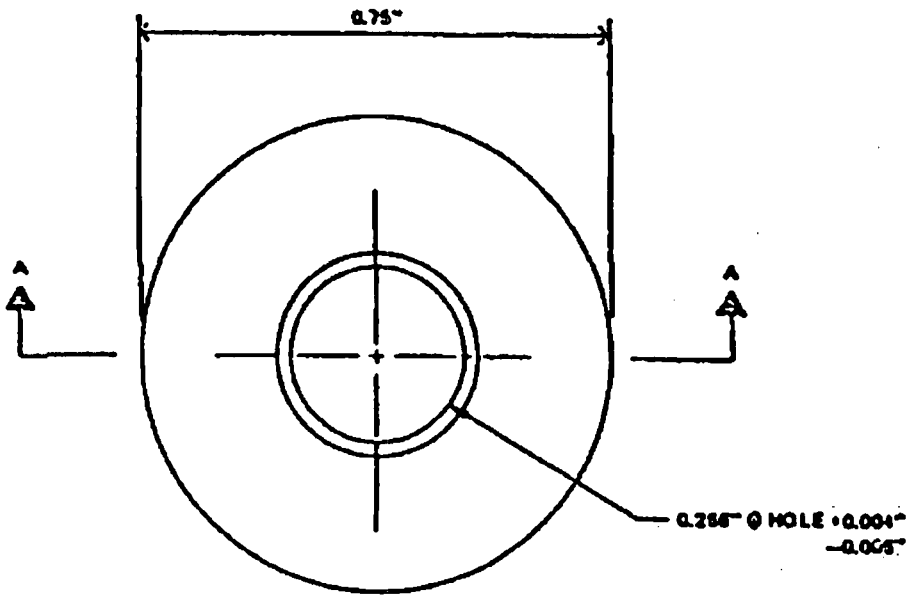
11.2 Figure D.1

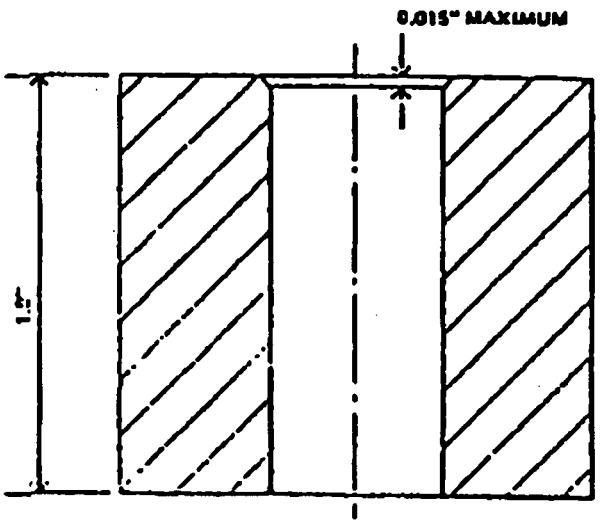
11.3 Figure D.2

Wire Test Apparatus – Figure D.1



Wire Test Stressing Washer – Figure D.2





NOTES:
1. HEAT TREAT – OIL QUENCH AND TEMPER TO ROCKWELL C45 TO C55.

SECTION AA

PSC PROCEDURE SQ10.3
TESTING TENDON WIRES
Data Sheet 10.3
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: _____ Tendon End: _____

WIRE TEST DOCUMENTATION

Sample No.: _____

(8.2.3.2) Wire ID and Location of removal: _____ feet Length: _____ in.

(8.3.1) Wire Diameters: Tag End _____ in. Middle _____ in. Ram End _____ in. Avg. _____ in.

Measuring Device ID: _____ Recal Date: _____

(8.4.2.1) Buttonhead Inspection: Tag End _____ Ram End _____

(8.5.1) Gauge Length of Wire: _____ in. Measuring Device ID: _____ Recal Date: _____

(8.7.1) Preload force: _____ kips

Preload pressure: _____ psi Pressure Gauge ID: _____ Recal Date: _____

Ram ID: _____ Ram Area: _____ in^2 K = _____ kips Recal Date: _____

(8.8.1) Force reduced to zero (0): _____

(8.9.1) Initial load of wire force: _____ kips (0.1% elongation)

Initial load of pressure: _____ psi Elongation: _____ in.

(8.10.1) Preset Dial Indicator: _____ (0.9% elongation) Indicator ID: _____ Recal Date: _____

(8.11.1) Force at 1% elongation: _____ kips ; Pressure: _____ psi

(8.12.1) "Rule" reading measurement at 1% elongation: _____ in.

(8.13.1) Maximum elongation at failure, from "Rule" reading: _____ in.

(8.13.2) Maximum force at failure: _____ kips ; Pressure: _____ psi

(8.14.1) Type of break: _____ Location of break: _____ in.

(8.15) CALCULATIONS:

(8.15.1) Ultimate Stress: _____ ksi Stress (ksi) = Force (kips) ÷ [π (dia^2) ÷ 4] (in^2)

(8.15.2) Yield Stress @ 1% elongation: _____ ksi Stress (ksi) = Force (kips) @ 1% ÷ [π (dia^2) ÷ 4] (in^2)

(8.15.3) % elongation @ failure: _____ % [1 in. + ("Rule" Dimension @ Failure – "Rule" Dimension @ 1%)]

Results: ☐ Acceptable ☐ Unacceptable Customer Notified NCR No.: _____

QC Inspector: _____ Level: _____ Date: _____

QC Reviewed: _____ Level: _____ Date: _____

PSC
Precision Surveillance Corporation

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

CONTINUITY TEST

Prepared by	*LEVEL II Q.C.* Title	*09/21/07* Date
Approved by	*PROJECT MANAGER, P.E.* Title	*09/21/07* Date
Approved by	*PRESIDENT* Title	*09/21/07* Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for performing a Continuity Test of tendon wires for purposes of visual inspection and evaluation of, usually, Protruding/Unseated tendon wires for Post-Tensioning System Tendons, during In-Service Inspection (surveillance) at Progress Energy Florida's Crystal River Unit 3.

2.0 SCOPE

2.1 The Continuity Test may be performed at the request of CR3ENG if additional tendon wires are found to be Protruding/Unseated since the original installation or previous surveillance during the Buttonhead Inspection of PSC Procedure SQ 8.0.

3.0 RESPONSIBILITY

3.1 As stated in PSC Procedure QA 4.0.

4.0 QUALIFICATIONS

4.1 As stated in PSC Procedure QA 4.1.

5.0 QUALITY CONTROL

5.1 This procedure contains no ***HOLD POINTS***. All Quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The required information or evaluation data shall be documented on Data Sheet 10.5.

6.0 EQUIPMENT

6.1 A tapeline shall be the only equipment required to perform the Continuity Test, except where calibrated hydraulic devices and gauges are used.

7.0 PRECAUTIONS

- CAUTION - WHEN PULLING INDIVIDUAL WIRES, NEVER EXCEED THE YIELD STRENGTH OF THAT WIRE WHEN PULLING WITH THE PULLING DEVICE - 11,452 POUNDS.

8.0 PREREQUISITES

8.1 The Grease Cap will be removed and grease samples taken.

8.2 The Anchorage Inspection will be complete, with protruding wires in evidence.

8.3 The tendon will be detensioned; it has been monitored for forces.

8.4 Each wire that was determined to be Protruding/Unseated as a result of the Buttonhead Inspection of PSC Procedure SQ 8.0 will be adequately identified either by marking, tagging or reference to Data Sheet 8.0.

8.5 The anchorages at each end of the tendon will be pushed back about 12 inches.

9.0 CONTINUITY TEST

9.1 The Protruding/Unseated wire shall be located.

9.2 The Tendon Surveillance Wire Puller shown in Figure 2 of this procedure shall be attached to the wire to be tested.

9.3 The wire shall be pulled with the Wire Puller using as little force as possible, but not to exceed 11,452 pounds.

9.3.1 If the wire cannot be moved by hand, it shall be acceptable to use any mechanical device to accomplish that purpose, such as a "Come-Along", "Chain-Hoist", "Chain-Pawl" or hydraulic cylinder.

9.3.1.1 It is unlikely that anything but the hydraulic cylinder will be able to exert such an amount of force so as to yield or break the wire. Therefore, hydraulic devices shall be controlled for force through a calibrated gauge or controlled for maximum force through a locking valve to control the amount of pressure to be exerted.

9.3.1.2 There remains a possibility that a limited force might not move the wire. It may be possible to break that wire loose with force in excess of 11,452 pounds. This attempt shall only be undertaken with the mutual consent of the CR3ENG Engineer responsible for the In-Service Inspection and the PSC Construction Manager.

9.3.1.2.1 If it is decided to exceed the control force, the amount of force used to move that wire shall be documented and evaluated for impact on the strength of the wire and the force to be applied to the Retensioning of the tendon.

9.3.1.2.2 ***QCD*** – Document the maximum force used to move the wire on Data Sheet 10.5, if over 11,452 pounds.

9.3.1.3 The wire shall be considered continuous if it can be observed to move at the opposite end of the tendon.

9.3.1.3.1 ***QCD*** – Document that wire as continuous on Data Sheet 10.5.

9.3.1.4 If the wire cannot be observed to be moving, it could be broken and the pulling shall continue until that wire is removed.

9.3.1.4.1 ***QCD*** – Document that wire as discontinuous on Data Sheet 10.5. As the wire is drawn it shall be checked for condition and to determine the cause of breakage, if possible. Document the Category of Corrosion of the wire using PSC Procedure SQ 8.1. Also document, where possible, the reason for breaking.

9.3.1.4.2 ***QCD*** – If the wire is broken, it shall be shown as broken on Data Sheet 8.0 and added to the total of Broken/Missing Wires and the Code Symbol modified to reflect that fact.

9.3.1.4.2.1 If any or all of the Protruding/Unseated wires since the original installation or previous surveillance are found to be broken and when added to the amount of Broken/Missing Wires on Data Sheet 8.0 totals 1 or more, it shall be necessary to notify CR3ENG of this condition in accordance with the requirements of PSC Procedure SQ 8.0, Section 9.

9.3.1.4.2.2 It shall be acceptable to continue working and notify the CR3ENG at the earliest opportunity, but within 24 hours of discovery.

9.3.1.5 If any or all the Protruding/Unseated wires have been determined to be continuous, each shall be re-inspected for Protrusion after Retensioning to see if they have seated themselves. An evaluation of that condition shall be performed after Retensioning.

9.3.1.5.1 ***QCD*** – If any or all the Protruding/Unseated wires remain unseated after Retensioning, it shall be reported as required of PSC Procedure SQ 8.0 Section 9.6.

10.0 DOCUMENTATION

10.1 The items requiring documentation shall be documented on Data Sheet 10.5 or to Data Sheet 8.0 of PSC Procedure SQ 8.0.

10.2 Some information may be required to be posted to Data Sheet 8.0 of PSC Procedure SQ 8.0.

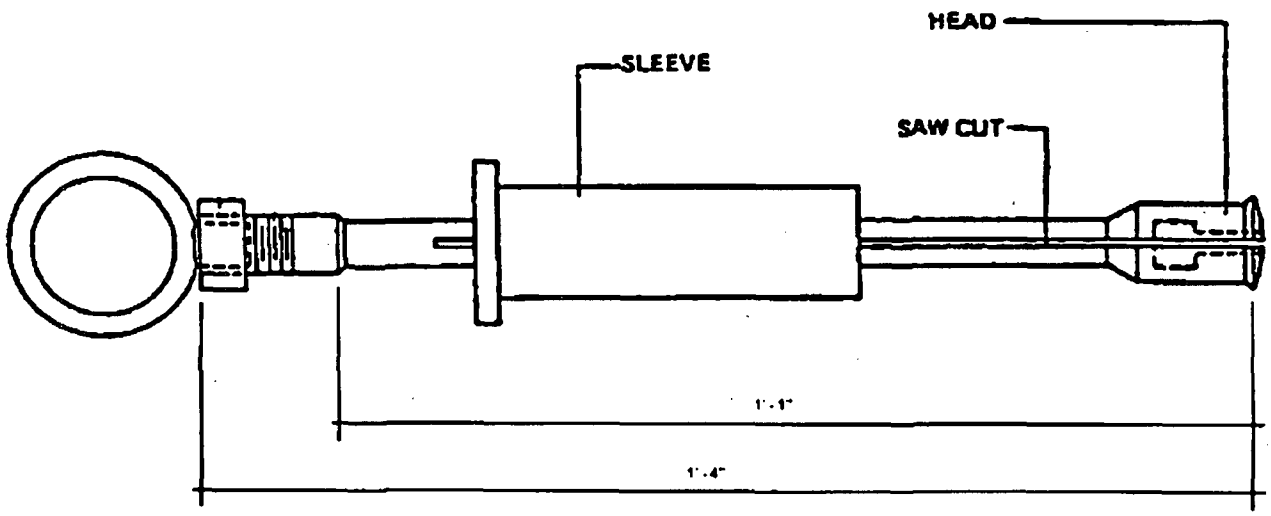
11.0 ATTACHMENTS

11.1 Data Sheet 10.5

11.2 Figure 1.0 – Tendon Wire Puller

Figure 1.0 – Tendon Wire Puller

Figure 1.0 is a represented sample of a wire puller and is not a quality controlled device. The actual wire puller may vary somewhat from this configuration.



PSC PROCEDURE SQ10.5
CONTINUITY TEST
Data Sheet 10.5
September 21, 2007
Page 1 of 1
Revision 0

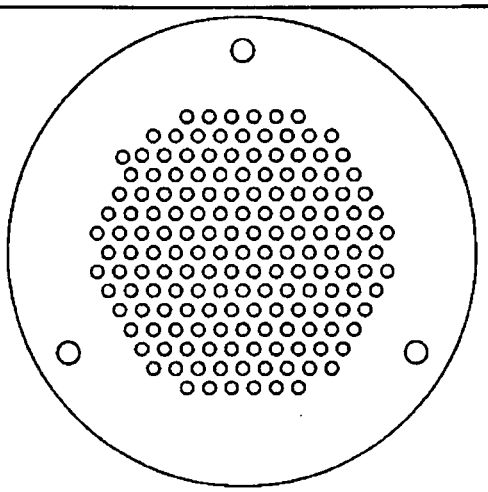
Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: _____ Tendon End: _____

WIRE TEST DOCUMENTATION

Row/Wire No.	(9.3.1.2.2) Force when greater than 11425 #'s	(9.3.1.3.1) Continuous		(9.3.1.4.1) Corrosion Condition	(9.3.1.4.2) Broken & Posted to D.S. 8.0	Comments	QC Signoff
		Yes	No				
1 – 6							
2 – 9							
3 – 10							
4 – 11							
5 – 12							
6 – 13							
7 – 14							
8 – 13							
9 – 14							
10 – 13							
11 – 12							
12 – 11							
13 – 10							
14 – 9							
15 – 6							

Based on the Row and Number of Wires, identify the individual wire starting with it's Row and sequential wire number (from left to right). Orient the anchorage sketch with the Heat Code ID. The Comments area is to be used to identify any nonconforming conditions.



QC Reviewed: _____ Level: _____ Date: _____

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

RETENSION TENDONS

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for Retensioning Tendons after visual inspection, testing and evaluation during In-Service Inspections (surveillances) of Post-Tensioning System Tendons at Progress Energy Florida's Crystal River Unit 3.

2.0 RESPONSIBILITY

2.1 As stated in PSC Procedure QA 4.0.

3.0 QUALIFICATIONS

3.1 As stated in PSC Procedure QA 4.1.

4.0 EQUIPMENT

4.1 The gauges and test equipment necessary for the Quality Control activities will be itemized in PSC Procedure SQ 4.0.

5.0 PRECAUTIONS

5.1 Review the I.S.I. Tendon Surveillance Program Safety Comments for the items that shall apply both for tendon force control and personnel safety.

6.0 QUALITY CONTROL

6.1 This procedure contains ***HOLD POINTS***. The work shall not progress past or through a ***HOLD POINT*** without a sign-off from the QC Inspector. All Quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The sign-off's and required information or evaluation data shall be documented on Data Sheet 11.0 or Data Sheet 9.0B of PSC Procedure SQ 9.0.

7.0 PREREQUISITES

7.1 All Inspections required by PSC Procedure SQ 2.0 will be complete and acceptable.

8.0 MEASUREMENTS

8.1 STEEL RULERS

8.1.1 Measurements of tendon elongation or shim stack height shall be performed with calibrated steel rulers graduated in tenths of an inch (0.100"). The measurements shall be recorded to the nearest 0.100". See Sketch 7.0 at the end of this procedure.

8.1.2 A steel caliper may be used to take the elongation measurement. One caliper blade shall be placed against the bearing plate and the other blade placed against the bottom of the anchorhead. The caliper blades shall be parallel to the tendon during measurement. When the parallel condition is established the blades shall be locked and the caliper withdrawn without disturbing the blade setting. The caliper blades shall be placed on the steel ruler and the dimension determined. See Sketch 7.0 at the end of this procedure.

8.1.3 Tendon elongation shall be performed by measuring the distance between the bearing plate and the bottom of the anchorage for each end of the tendon.

8.2 PRESSURE GAUGES

8.2.1 Measurements of ram pressure (tendon force) shall be measured by calibrated pressure gauges capable of being read directly to 20 psig.

8.2.2 View the gauge face from a plane of view directly in front of the indicator needle to avoid parallax errors.

8.2.3 Gauge readings shall be interpolated to the nearest 10 psi.

8.2.4 All pressure gauges used shall have automatic compensation for temperature variations between gauge calibration and gauge use during surveillance.

9.0 RETENSIONING TENDONS

9.1 The intention of this operation is to stress (retension) those tendons that were detensioned for wire removal and testing during this surveillance and any other tendons that may have been detensioned for evaluation.

9.2 Retensioning of Tendons shall be performed on both ends of a hoop or dome tendon in a simultaneous and controlled manner; vertical tendons are only retensioned from the top end. Where it is not possible to perform simultaneous stressing of a tendon, CR3ENG shall be notified in writing to provide resolution for such conditions. Adequate communication shall be maintained between both ends of the tendon during the taking of liftoff readings for simultaneous stressing operations.

9.2.1 All data shall be documented on Data Sheet 11.0.

9.3 ***QCD*** – Document the exterior surface temperature near the tendon and the identification, ambient air temperature, and calibrated status of the thermometer(s).

9.4 ***HOLD POINT*** – The anchor head and stressing adaptor threads are to be inspected for dirt, burrs, nicks, and damaged threads, if any condition precludes proper coupling the condition should be corrected after notifying CR3ENG in writing. Anchor head threads shall be inspected for deformation before and after any stressing operation and if any deformation is detected CR3ENG is to be notified in writing. Document acceptance on Data Sheet 11.0.

9.5 ***QCD*** – Document the amount of effective wires in each end of the tendon. Refer to Data Sheet 8.0 for each tendon end.

9.6 ***HOLD POINT*** – Couple the rams to each anchor head on that tendon (for vertical tendons only the top anchor head is used). Document on Data Sheet 11.0 that the stressing coupler is evenly aligned on the anchor head washer and that full thread engagement is obtained.

9.6.1 Be sure that buttonheads do not protrude a significant distance, about one inch or more, above the anchorage face. Otherwise full engagement of the stressing adaptor may bend the wire over before the buttonheads seat on the anchorage face.

9.6.2 Be sure that the anchorage does not recess itself inside the stressing adaptor during coupling. Otherwise the stressing adaptor will seat on the shim stack and will not be capable of being unthreaded from the anchorage.

9.6.3 ***QCD*** – Document the ram and gauge identification and the calibrated status of each. Also note the Ram Area and Calibration Constant, K.

9.7 Determine the Pretensioning Force, Overstress Force and Lockoff (liftoff) Force or pressure values for that tendon based on the following requirements:

9.7.1 Pretensioning Force (PTF) - That force necessary to bring the tendon into a lightly stressed condition to remove slack and seat the buttonheads. This force establishes the base for Elongation Measurement. The Pretensioning Force values for each tendon to be Retensioned shall be seen in the Retensioning Data Section 3, PSC Procedure SQ 11.1.

9.7.2 Overstress Force (OSF) - That force at which maximum elongation is determined. Overstress values for each tendon to be Retensioned shall be seen in the Retensioning Data, Section 3, PSC Procedure SQ 11.1.

9.7.3 Lock-Off Force (LOF) - That force at which the tendon load is transferred to the shim stack from the ram. If the detensioned tendon had an accepted lift-off force greater than 100% Base Force obtained in PSC Procedure SQ 9.0 the Lock-Off Force shall be the as found lift-off force within minus 0% and plus 6%. If the detensioned tendon had a lift-off force less than 100% Base Force obtained in PSC Procedure SQ 9.0 the Lock-Off Force shall be the Base Value Force from PSC Procedure SQ 9.1 within minus 0% and plus 6%. Lock-off Force is not to exceed 70% of G.U.T.S. (1633 kips for a 163 wire tendon).

9.7.4 ***QCD*** – Document the Calculated PTF, Step 1 (600 kips), Step 2 (1200 kips), LOF and OSF Forces and Pressures. Document the Calculated Elongation for Step 1, Step 2, and Overstress from PSC Procedure SQ 11.1.

9.7.5 The tendon shall never be stressed beyond 80% of the Minimum Guaranteed Ultimate Strength (GUTS) of the effective wires remaining in that tendon.

CAUTION - ONCE ACTUAL STRESSING BEGINS, THE RAM MUST NEVER BE EXTENDED TO THE FULL LIMIT OF ITS STROKE. THE EXTENSION SHOULD BE AT LEAST 1/2" LESS THAN THE FULL STROKE OF THE RAM.

9.8 TENDON STRESSING (RETENSIONING)

9.8.1 The shim space at each end of the tendon shall be approximately equalized by pressurizing the stressing units. (Teamwork is especially important from now on until the stressing is completed.) The two stressing crews shall verbally confirm the equalization of the shim space, or adjust it as necessary. This shim space, or distance from the bearing plate to the back of the anchorhead should be approximately equal at both ends.

9.8.2 During the application of force to a tendon that is being simultaneously stressed from both ends, neither end of the tendon SHALL exceed the other by more than 1000 psi. For example, if End "A" has moved to 2000 psi, the load at that end SHALL be held until the Opposite or "B" End has achieved that value, then both SHALL progress to the next value.

9.8.2.1 If different size Rams/Jacks are being used, contact PSC Engineering or QA for maximum variance.

9.8.3 It may be necessary to multiple stage stress the tendon if the ram stroke is too short to accommodate reaching overstress. Stage stressing is accomplished by shimming the load at either end of the tendon when the stroke limit is reached. The pullrod shall be adjusted for the new stroke limit and stressing continued as cited below.

9.8.4 Once the shim space is approximately equalized at each end of the tendon, the ram or rams shall be pressurized to the Pretensioning Force value (PTF) for the amount of effective wires remaining in the tendon.

9.8.4.1 ***QCD*** – Document the actual force in kips and pressure in psi and the Actual Elongation Measured at PTF.

9.8.5 Continue pressurizing the ram past PTF to Step 1 (600 kips).

9.8.5.1 ***QCD*** – Document the Actual Elongation Measured at Step 1 and the Actual Force and Pressure observed at Step 1.

9.8.6 Continue pressurizing the ram past Step 1 to Step 2 (1200 kips).

9.8.6.1 ***QCD*** – Document the Actual Elongation Measured at Step 2 and the Actual Force and Pressure observed at Step 2.

9.8.7 Continue stressing to the Overstress Force (OSF).

9.8.7.1 ***QCD*** – Document the Actual Overstress Pressure and Force reached and measure the elongation of the tendon.

9.8.7.2 ***QCD*** – Calculate Actual Elongation by subtracting (9.8.4.1) from (9.8.7.1).

9.8.7.3 ***QCD*** – Document the other end tendon elongation and document TOTAL TENDON ELONGATION by adding the elongation from both ends together.

9.8.8 ***HOLD POINT*** – Calculate the percent variation between the Total Tendon Elongation during Surveillance and Total Tendon Elongation at Original Installation using the following formula:

$$\frac{TotalTendonElongation(Surveillance) - TotalTendonElongation(Original)}{TotalTendonElongation(Original)} \times 100\%$$

9.8.8.1 The Total Tendon Elongation of the tendon during the Surveillance shall be compared to the Original Installation. Percent variation shall not exceed plus or minus 10%.

9.8.8.2 ***QCD*** – Document the percent of variation, and the acceptance or non-acceptance of that variation. Document the identification and recalibration date of the measuring device.

9.8.8.3 If the Total Tendon Elongation, when compared to the Installation Elongation is not within the plus or minus 10% tolerance, the shims shall be removed and the load shall be reduced to zero and Sections 9.8.1 through 9.8.8.2 repeated. If the elongation does not meet the specified tolerance after the second restressing, the tendon shall be locked off at the required force and CR3ENG shall be notified of the deficiency as required by Section 10 of this Procedure.

9.8.8.4 ***HOLD POINT*** – Document the acceptance or non-acceptance of the elongation and the notification of CR03ENG, if applicable.

9.8.8.5 If the elongation variation is acceptable, the work shall continue as follows.

9.8.9 Depressurize the ram reducing the force from Overstress to a point about 100 kips above Lockoff but below Overstress and prepare to install the shim stacks. As a guide, the original shim stack height should be considered as the starting point for achieving the restoration of force.

9.8.10 At any point prior to or during stressing, the field crew shall prepare shim stacks of uniform thicknesses, so that when the shims are placed, the height differential between individual stacks shall not exceed 1/8 inches, thereby maintaining the integrity of the established parallelism between the bearing plate and anchorhead.

9.8.10.1 Badly deformed shims should be replaced by new or undeformed shims of equivalent thickness.

9.8.11 After the Target Lockoff point has been reached or slightly higher, the shims shall be placed between the bearing plate and anchorage in diametrically opposite pairs. Continue filling this gap with shims until a small enough space remains so that the anchorhead can be lowered to the shim stack placing the load transfer within the required lockoff range.

9.8.11.1 ***HOLD POINT*** – When inserting split shims, the three inch (3") thick shim is adjacent to the anchor head and the one inch (1") thick shim is adjacent to the bearing plate. Incremental shims are inserted between the 3 inch and 1 inch shims. The difference in height of the stacks of shim halves shall not differ by more than 1/8". While the shims are being placed, the space between the each shim halve for the first shims in direct contact with the anchorage shall not exceed a space of 1/4 inch on either side of the shims. The remaining shims in the shim stack may be placed with a larger spacing but shall not exceed 1/2 inch on either side of the shims.

9.8.11.2 No part of the anchorhead shall overhang the shim stack.

9.9 LOCKOFF VERIFICATION

9.9.1 To assure that the correct forces have been applied to the tendon, the following lockoff verification shall be performed.

9.9.2 Insert two feeler gages or shim stock, about 0.030" in thickness, between the anchor head and shim. The feeler gages should be located about 180 degrees apart and approximately centered.

9.9.3 Reduce the ram pressure until the load is transferred on the shim stack. It shall not be necessary to return to zero gauge pressure, but at least 2000 psi less than the pressure that was needed to insert the shim stock.

9.9.4 Gradually pressurize the ram while pulling the feeler gages. The point at which the feeler gauge comes loose and can be withdrawn is the Lockoff Reading.

9.9.5 Repeat sections 9.9.1, 9.9.2 and 9.9.3 until 3 consecutive Lockoff readings have been taken, which should be within 40 kips of each other, if this cannot be achieved the feeler gauges may be repositioned and readings attempted again.

9.9.6 ***QCD*** – Document the pressure for each Lockoff Reading of each shim stack. Place a circle around that Lockoff Reading that was the last to have the feeler gauge or shim removed. (The last shim stack to come loose.) Do not intermix the values for the shim stacks. Stack 1 will always be Stack 1.

9.9.7 ***QCD*** – Post the Circled Lockoff Readings into the Circled Lockoff Reading Column. It may be possible to have the Lockoff occur in each shim stack. Add the Circled Lockoff Values and divide by 3 to get the Actual End Average. Record the Actual End Average. Enter the Actual End Average from the opposite end of the tendon. Calculate the Actual Average Lockoff Value (AALV) for this tendon.

9.9.8 ***HOLD POINT*** – On Data Sheet 11.0, document the acceptance or non-acceptance of the AALV in accordance with section 9.7.3 of this procedure. If the requirements are not met, notify CR03ENG by a Nonconformance Report.

9.9.9 If the Lockoff Readings are acceptable, the load shall be transferred to the shim stack and the ram pressure reduced to zero.

9.9.10 With the ram at zero force or pressure, it shall be uncoupled from the anchorage.

9.9.11 A visual examination of the tendon just Retensioned, shall be performed to determine if any wires have broken during stressing. The number of additional wires or buttonheads that have broken or are missing shall be documented.

9.9.11.1 ***QCD*** – Document additional broken/missing wires/buttonheads on Data Sheet 11.0 for later transfer to Data Sheet 8.0.

9.9.11.2 ***QCD*** - Document additional Protruding/Unseated wires for later transfer to Data Sheet 8.0.

9.9.11.3 ***QCD*** – Document the shim stack height for the final accepted Lockoff Reading.

9.10 The Retensioning is now concluded and Grease Cap Replacement shall follow.

10.0 NOTIFICATION

10.1 The CR3ENG shall be formally notified when each one or more of the following conditions are detected during Retensioning of Tendons.

10.2 If coupling to a certain tendon or simultaneous stressing from both ends of a hoop or dome tendon is not possible, notify CR03ENG in writing.

10.3 If one or more additional broken/missing buttonheads/wires are detected, CR3ENG shall be notified with a nonconformance report.

10.4 If the tendon Lift Off Force is not within minus 0% or plus 6% of the force as stated in Section 9.7.3 of this Procedure, CR3ENG shall be notified by a nonconformance report.

10.5 If the variation between the Measured Elongation at Installation and the Measured Elongation during Surveillance exceeds plus or minus 10%, CR3ENG shall be notified with a nonconformance report.

10.6 If any deformation of anchorage threads are detected before or after any stressing operation CR3ENG is to be notified with a nonconformance report.

11.0 DOCUMENTATION

11.1 The items requiring documentation in this procedure shall be documented on Data Sheet 11.0 and 9.0B as applicable.

11.2 The Data Sheet references the applicable Section or Step number of the procedure for each ***QCD*** or ***HOLD POINT***.

11.3 Some information from Data Sheet 8.0 of PSC Procedure SQ 8.0, which has already been started for this tendon, shall require posting onto Data Sheet 11.0.

11.4 Some information from Data Sheet 11.0 shall require posting onto Data Sheet 8.0.

12.0 ATTACHMENTS

12.1 Data Sheet 11.0

12.2 Sketch 7.0

PSC PROCEDURE SQ 11.0
RETENSION TENDONS
Data Sheet 11.0
September 21, 2007
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Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: _____ Tendon End: _____

RETENSIONING DOCUMENTATION — QC Signoffs

(9.3) Temp. of Concrete: ____ °F Thermometer No.: _____ Recal Date: _____

(9.3) Ambient Temp.: ____ °F Thermometer No.: _____ Recal Date: _____

(9.4) Anchorhead and Stressing Adapter Threads : ☐ Acceptable ☐ Unacceptable

(9.5) Number of Effective Wires: _____ (from Data Sht. 8.0)

(9.6) Anchorhead and Stressing Adapter Engagement/Alignment : ☐ Acceptable ☐ Unacceptable

(9.6.3) RAM ID: _____ Recal Date: _____ RAM Area: _____ K = _____

Gauge ID: _____ Recal Date: _____ Daily Check: _____

Calculated Force for Elongation Measurement and Retensioning

***NOTE**: Stress during Lift-Off should not exceed 11.46 kips per effective wire or 1868 kips for a 163 wire tendon.*

(9.7.4) PTF = ____ kips Pressure: ____ psi

Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.

Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.

LOF = ____ kips Pressure: ____ psi

OSF = ____ kips Pressure: ____ psi Elongation: ____ in.

Actual Observed Force and Elongation Measurements

(9.8.2.1) PTF = ____ kips Pressure: ____ psi ① Elongation: ____ in.

(9.8.3.1) Step 1 = ____ kips Pressure: ____ psi Elongation: ____ in.

(9.8.4.1) Step 2 = ____ kips Pressure: ____ psi Elongation: ____ in.

(9.8.5.2) OSF = ____ kips Pressure: ____ psi ② Elongation: ____ in.

(9.8.5.3) ② – ①= ____ in. Elongation Value (this end)

(9.8.5.4) ____ in. Elongation Value (opposite end)

(9.8.5.4) ____ in. TOTAL Tendon Elongation Value

(9.8.8.2) Elongation Variation: ____ % Ruler ID: _____ Recal Date: _____

(9.8.8.4) Elongation Results: ☐ Acceptable ☐ Unacceptable

Customer Notified *NCR* No.: _____

(9.7.3) LOF Acceptable Range: From: ____ psi To: ____ psi

(9.9.6) Actual Lock-Off (9.9.7) Circled Values

	Stack #1:	Stack #2:	(9.9.7) Circled Values
1)	____ psi	____ psi	____ psi
2)	____ psi	____ psi	____ psi
3)	____ psi	____ psi	____ psi

(9.9.7) Force (this end): ____ kips Actual Average: ____ psi

(9.9.7) Force (opposite end): ____ kips This Tendon – AALV FORCE ____ kips

(9.9.8) AALV Acceptable: ☐ Yes ☐ No Customer Notified *NCR* No.: _____

(9.9.11.1) Additional broken/missing wires: ☐ No ☐ Yes Amount: _____

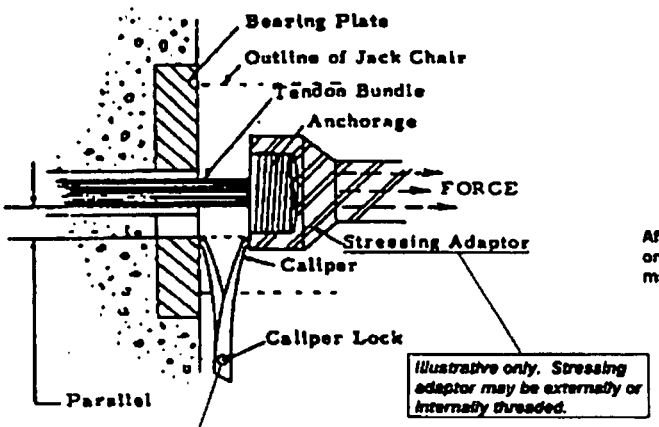
(9.9.11.2) Additional Protruding/Unseated wires: ☐ No ☐ Yes Amount: _____

If Yes – Customer Notified NCR No.: _____

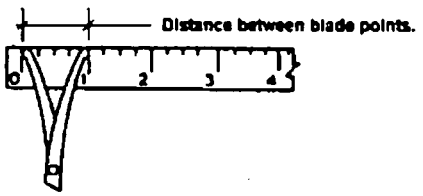
(9.9.11.3) Final Shim Stack Height: #1: ____ in. #2: ____ in.

QC Reviewed: _____ Level: _____ Date: _____

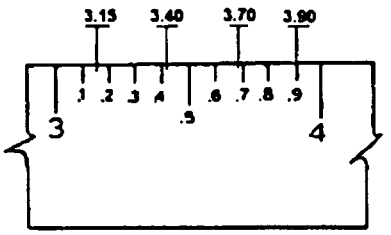
Elongation Measurement – Sketch 7.0



Caliper placed between bearing plate and stressing adaptor, parallel to the tendon bundle. Lock caliper after taking dimension and before removal. Verify accuracy as necessary.



After caliper is removed without disturbing setting, place the caliper on the scale at a convenient point, but not on an uneven end and make the measurement.



Scale graduated in tenths of an inch (0.10") and estimated to the nearest 0.05 inches.

PSC
Precision Surveillance Corporation

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

PSC ENGINEERING DATA

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the PSC Engineering requirements for the Retensioning of Tendons after the tendon has been Detensioned for purposes of Anchorage Inspection and Sample Wire Removal from the Post-Tensioning System Tendons of Progress Energy Florida's Crystal River Unit 3.

2.0 SCOPE

2.1 The requirements for the Retensioning of Tendons have been described in PSC Procedure SQ 11.0. While there was some mention of the force values to be applied to a tendon in that Procedure, that was only intended as general information. This Procedure will provide the required Engineering Data for the Retensioning operation.

2.2 The data shown herein shall establish the requirements for tendon elongation, PTF and OSF for tendon elongation during the Retensioning of Tendons and the Predicted Forces that affect each Surveillance Tendon.

2.2.1 <u>PRETENSIONING FORCE (PTF)</u>

2.2.1.1 The Pretensioning Force (PTF) removes the slack from the tendon and provides a baseline number for elongation measurement. The Table seen in Section 3 of this Procedure will provide the required data for the Retensioning of Tendons

2.2.2 <u>OVERSTRESS FORCE (OSF) - FOR ELONGATION</u>

2.2.2.1 The Overstress Force for Elongations is that force which must be achieved in order to develop the final elongation measurement used in the comparison of actual tendon elongation to the original or calculated tendon elongation. This might not be the same Overstress Force identified as the "DO NOT EXCEED FORCE". The Overstress Force for this surveillance will be the same as used for the Original Installation and shall be based on the remaining Effective Wires.

2.2.3 <u>OVERSTRESS FORCE - DO NOT EXCEED</u>

2.2.3.1 At no time shall any tendon be subjected to an Overstress Force which exceeds1868 Kips for a 163 wire tendon. Tendons with less than 163 wires shall be reduced in force by 11.45 Kips for each wire less than 163.

3.0 RETENSIONING DATA

CRYSTAL RIVER UNIT 3 – SQ 11.1 – RESTRESSING DATA								
TENDON	PREVIOUSLY		AT RETENSIONING					ORIGINAL ELONGATION (in.)
	ORIGINAL PTF (kips)	ORIGINAL OSF (kips)	NUMBER OF WIRES	NEW PTF (kips)	NEW OSF (kips)	600 (kips)	1200 (kips)	
61V17	357	1866	162	354	1855	1.92	6.62	11.75
			161	352	1843	1.95	6.68	
			160	350	1832	1.98	6.74	
51H34	362	1866	162	359	1855	1.65	5.76	10.25
			161	357	1843	1.67	5.81	
			160	355	1832	1.70	5.87	
D238	359	1866	162	357.1	1854.6	1.34	4.64	8.25
			161	354.9	1843.1	1.36	4.68	
			160	352.7	1831.7	1.38	4.73	

3.1 NOTES CONCERNING ELONGATION DATA

3.1.1 The tendons for this project were based on 163 wires.

3.1.2 Pretensioning Force (PTF) for purposes of elongation shall be as shown in the table above for a 162 or less wire tendon. For each wire less than shown above, reduce PTF proportionately for each tendon using the formula shown in Section 3.2.2 of this procedure.

3.1.3 Overstress Force (OSF) for purposes of elongation shall be as shown in the table above for a 162 wire or less wire tendon. For each wire less than shown above, reduce OSF proportionately for each tendon using the formula shown in Section 3.2.1 of this Procedure.

3.1.4 The Overstress (OSF) Elongation shown above is the Total Elongation for the tendon from Installation or Previous Surveillance. The total elongation from Installation or Previous Surveillance shall be compared to the Total Actual Measured Elongation during this Surveillance.

3.2 FORCES DURING SURVEILLANCE

3.2.1 Overstress (OSF) during Retensioning:

$$\frac{(\text{OSF at Installation}) \times (\text{\# of Wires during Retension})}{\text{\#of Wires during Installation}}$$

3.2.2. Pre-Tensioning (PTF) during Retensioning:

$$\frac{(\text{PTF at Installation}) \times (\text{\# of Wires during Retension})}{\text{\#of Wires during Installation}}$$

3.3 USE OF "K" (CONSTANT)

3.3.1 With the use of regression analysis for the calibration of ram area, as seen in the PSC Ram Calibration Procedure where error calculation is also considered within the computer program, the ram area no longer reflects the ram size, but instead provides an area measurement with a correction factor related to pressure. This correction factor becomes a "Constant" (K), related only to that ram being calculated for area. The constant is a factor that considers the amount of force necessary to overcome internal resistance. This Constant will vary from ram to ram and could be positive or negative; that is, it may have to be added or subtracted from the total force to provide the true actual force measurement, whether that force is Pre Tensioning Force, Over-Stress Force, or Lock-Off Force.

3.4 FORMULA AND WORKING RELATIONSHIPS

3.4.1 The basic formula for determining stressing force or stressing pressure when three factors are known is:

$$F = \frac{A \times P}{1000} + K$$

Key: F = Force (kips)
A = Ram Area (in^2)
P = Gauge Pressure (psi)
K = Constant factor (kips)
(**CAUTION**: "K" constants can be either positive or negative.)

3.4.2 Only P or F could be unknown and remain to be determined. The other three factors will always be provided before beginning the calculations.

Precision Surveillance Corporation

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

GREASE CAP REPLACEMENT

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for the Replacement of Grease Caps after visual inspection and evaluation has been completed for the tendon end anchor head, shims, bearing plates and wires during In-Service Inspections (surveillance) of Post-Tensioning System Tendons of Progress Energy Florida's Crystal River Unit 3.

2.0 RESPONSIBILITY

2.1 As stated in PSC Procedure QA 4.0.

3.0 QUALIFICATIONS

3.1 As stated in PSC Procedure QA 4.1.

4.0 EQUIPMENT

4.1 There is no need for Quality Control equipment for this procedure.

5.0 QUALITY CONTROL

5.1 This procedure contains ***HOLD POINTS***. The work shall not progress past or through a ***HOLD POINT*** without a sign-off from the QC Inspector. All quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The sign-off's and required information or evaluation data shall be documented on Data Sheet 12.0.

6.0 PRECAUTIONS

6.1 Be prepared to support the weight of the grease cap.

7.0 PREREQUISITES

7.1 All inspections and evaluations shall be completed with the exception of Grease Replacement. See Section 8 of this procedure.

8.0 GREASE REPLACEMENT

8.1 Prior to replacing the Grease Cap, the total Grease Loss from Data Sheet 6.0 of PSC Procedure SQ 6.0 shall be known.

9.0 GREASE CAN REPLACEMENT

9.1 Only minor cleaning and brushing may be necessary to prepare the bearing plate and grease cap for remounting to the bearing plate.

9.2 ***HOLD POINT*** – Inspect and prepare bearing plate surface by cleaning with rags and solvent. If detrimental foreign matter such as mill scale, rust, and dirt is detected on the gasket bearing surface of the plate, and power tool cleaning is required, then:

9.2.1 Make suitable provisions to protect the tendon wires and anchor head threads from accidental rubbing, cutting, or scratching by coming into contact with the power tool's rotating wire brushes and/or abrasive disks. Sheet metal shrouds around the tendon and end anchorage may be necessary.

9.2.1.1 Take precautions to keep dirt and other foreign material out of the tendon, and from the inside of the trumpet and conduit.

9.2.2 Power tools should remove loose mill scale, loose rust, loose or flaking paint, etc. Surfaces must be clean and smooth but not necessarily burnished after using power tools.

9.2.2.1 Remove sharp edges, and smooth down remaining mill scale to a "feather-edge".

9.3 Fill scratches, nicks, and other sharp depressions in the gasket bearing surface with nonmetallic epoxy, such as "Belzona" epoxy. Use of epoxy shall be according to manufacture's application instructions.

9.3.1 Smooth out epoxy to prevent grease leakage under the gasket.

9.4 Remove all dust and loose matter from the vicinity of the tendon and entrance to the trumpet.

9.5 Clean any foreign material from the three threaded bearing plate grease can mounting holes.

9.6 Smear, swab or brush a coating of grease over all the exposed portions of the anchor head, bearing plate, shims, buttonheads and wires.

9.6.1 ***HOLD POINT*** – Document the coating of the tendon end anchorage assembly.

9.7 A 3/4" thread chaser or tap may be required to clear the threads of the bearing plate's grease cap mounting holes so that the mounting studs can be sufficiently tightened to bottom in the threaded holes.

9.8 Thread the three 3/4" studs in the three mounting holes of the bearing plate.

9.9 Clean and dry the flange and gasket sealing surface of the grease cap.

9.9.1 ***HOLD POINT*** – Visually inspect the flange and gasket sealing surface of the grease cap.

9.10 With the grease cap on end, apply adhesive to the grease cap gasket flange groove, in such quantity so as to hold the gasket in position. Place the gasket onto the groove and allow it to dry for a few minutes. Pliobond or a similar industrial adhesive shall be used for gluing. Water soluble adhesives shall not be used.

9.10.1 ***HOLD POINT*** – New gaskets shall be used in the final placement of the grease cap. Old or used gaskets may be used during temporary placement of the grease caps.

9.11 Lift the grease cap and slide it onto the three mounting studs. Be sure the gasket is in the groove of the flange and is seated against the bearing plate. Install the three washers and the three nuts to the mounting studs.

9.11.1 For Hoop tendons and Dome tendons, the grease cap shall be placed so that the bushing (inlet, outlet) is oriented in its highest altitude or toward the top of the containment.

9.12 ***HOLD POINT*** – Tighten each nut with a wrench, equalizing the load on each nut as well as possible. Tighten each nut in a gradual and even manner to allow the gasket to deform evenly until compressed.

9.13 ***QCD*** – If new studs, nuts, and washers are used, or grease caps and/or bearing plates are scratched, then the exposed surfaces shall be touched up with Carbo Zinc 11 (or approved equal) per the manufacture's application instructions.

9.14 The replacement is now complete and regreasing can be performed observing the requirements of PSC Procedure SQ 12.1.

10.0 DOCUMENTATION

10.1 The items requiring documentation in this procedure shall be documented on Data Sheet 12.0.

10.2 The Data Sheet references the applicable Section or Step number of the procedure for each QCD or HOLD Point.

11.0 ATTACHMENTS

11.1 Data Sheet 12.0

PSC PROCEDURE SQ 12.0
GREASE CAP REPLACEMENT
DATA SHEET 12.0
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: _____ Tendon End: _____

GREASE CAP REPLACEMENT DOCUMENTATION		QC SIGNOFF
(9.2) Bearing plate surface is clean and acceptable.	☐ Yes ☐ No	_____
(9.6.1) Anchorage Assembly is coated lightly with grease	☐ Yes ☐ No	_____
(9.9.1) Grease cap flange and gasket sealing surface is clean and dry.	☐ Yes ☐ No	_____
(9.10.1) New gasket is being used for final installation of grease cap.	☐ Yes ☐ No	_____
(9.12) Anchorage nuts evenly tightened and gasket compressed.	☐ Yes ☐ No	_____
(9.13) Touch-up of hardware, cap or bearing plate necessary with Carbo Zinc11	☐ Yes ☐ No	_____

Comments: _____

_____

_____

QC Reviewed: _____ Level: _____ Date: _____

PSC
Precision Surveillance Corporation

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

GREASE REPLACEMENT

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the requirements for the Replacement of Grease in the tendon duct after visual inspection and evaluation of Post-Tensioning System Tendons during In-Service Inspections (surveillance) of Progress Energy Florida's Crystal River Unit 3.

2.0 SCOPE

2.1 This procedure is intended to provide the Grease Replacement requirements for the wire post-tensioning system. This procedure requires that all tendons which had grease caps removed and replaced shall be full of grease at the end of the surveillance.

3.0 RESPONSIBILITY

3.1 As stated in PSC Procedure QA 4.0.

4.0 QUALIFICATIONS

4.1 As stated in PSC Procedure QA 4.1.

5.0 EQUIPMENT

5.1 The gauges and test equipment necessary for the Quality Control activities will be itemized in PSC Procedure SQ 4.0.

6.0 QUALITY CONTROL

6.1 This procedure contains ***HOLD POINTS***. The work shall not progress past or through a ***HOLD POINT*** without a sign-off from the QC Inspector. All Quality Control Documentation (***QCD***) points shall only require documentation of information or evaluation data. The sign-off's and required information or evaluation data shall be documented on Data Sheet 12.1. It shall be necessary to acquire the Total Grease Loss for the tendon from the Data Sheets 6.0 of PSC Procedure SQ 6.0 for each end.

7.0 PRECAUTIONS

7.1 During Grease Replacement, the grease may be pumped under pressure with an inlet end temperature of 130°F to 210°F. It is therefore essential to avoid direct contact with the hot grease and to make sure all connections are secure.

- CAUTION - DURING GREASING, BE AWARE THAT THE GREASE IS HOT AND MAY BE PUMPED UNDER PRESSURE.

8.0 PREREQUISITES

8.1 All Inspections will be complete.

8.2 The tendon will be in a stressed condition.

8.3 The Grease Cap shall be ready to be installed or has been installed.

8.4 ***QCD*** – Enter the quantity of Total Grease Loss from Data Sheet 6.0 for this end of the tendon.

8.5 ***QCD*** – Enter the quantity of Total Grease Loss from Data Sheet 6.0 for the other end of the tendon.

8.6 ***QCD*** – Enter any Estimated Grease Loss that may have occurred as a result of Leaks from the Grease Cap or Gasket since the original installation or previous surveillance for this end of the tendon.

8.7 ***QCD*** – Enter the Estimated Grease Loss that may have resulted from Leakage from the Grease Cap or Gasket since the original installation or previous surveillance for the other end of the tendon.

8.8 Calculate the TOTAL TENDON GREASE LOSS by adding the 8.4 + 8.5 + 8.6 + 8.7.

8.8.1 ***QCD*** – Document the TOTAL TENDON GREASE LOSS on Data Sheet 12.1.

8.9 ***QCD*** – Document the ambient temperature near the tendon, and Thermometer Identification and Recalibration Date.

8.10 ***QCD*** – Document the date of grease cap removal shown on Data Sheet 6.0 of PSC Procedure SQ 6.0 for this tendon. Document the date of grease replacement and calculate the Elapsed Time.

9.0 CONTROLS FOR REFILLING THE TENDON VOID

9.1 The replacement of grease shall be performed prior to demobilization of the tendon surveillance equipment and personnel, provided that the tendon anchorages have been lightly coated with grease and grease can properly installed.

9.2 Hoop or Dome Tendon

9.2.1 Where less than 10 gallons of grease has been lost from the tendon void (duct). Each end will be hand pumped or poured with hot grease until full.

9.2.2 Where more than 10 gallons of grease has been lost from the tendon void (duct). The tendon will be pressure pumped with hot grease from one end until it exits the Opposite End.

9.2.2.1 Where there is no grease Exiting Outflow from the Opposite End of a Hoop or Dome Tendon, it shall be necessary to hand pump or pour hot grease into the Opposite End grease cap until full.

9.3 Vertical Tendon

9.3.1 Where less than 10 gallons of grease has been lost from the tendon void (duct) at the lower end. Hot grease will be poured or hand pumped into the top end until full.

9.3.2 Where more than 10 gallons of grease has been lost from the tendon void (duct) at the lower end. The tendon will pressure pumped with hot grease from the bottom end until it exits the Top End.

9.3.2.1 Where there is no grease Exiting Outflow from the Top End of a Vertical Tendon, it shall be necessary to pour or hand pump hot grease into the Top End grease can until grease reaches the level of the inlet on the side of the cap.

9.4 The grease in the drum shall be pumped at a minimum temperature of 130°F and not be permitted to exceed a maximum temperature of 210°F at any time during pumping.

9.5 The pressure required for pressure pumping hot grease into the tendon in an effort to have the grease exit the Opposite End of the tendon shall not exceed 55 psig at the filler end for hoop and dome tendons and 125 psig for the lower end of a vertical tendon. The pressure for hand pumping hot grease into the upper end grease cap of a vertical tendon shall not exceed 55 psig.

9.6 Pumping shall be stopped immediately if it is suspected or known that the grease is going somewhere else besides the immediate tendon void.

9.7 Notify CR3ENG when the absolute difference between the amount of grease removed and the amount of grease replaced is equal to or greater than 10% of the net duct volume for a given tendon. Continue grease replacement up to 20 gallons under CR3ENG approval. Use extreme care over 20 gallons, considering the possibility of grease leakage somewhere in the system.

9.8 MEASUREMENT OF GREASE REPLACEMENT

9.8.1 The grease may be in a large storage container or in 55-gallon drums. The large storage container shall have an automatic thermostat control for temperature, while drum heaters shall be used to heat the grease in drums.

9.8.2 The grease shall be monitored for quantity by a volume gauge at the pumping mechanism or by measuring the quantity of grease remaining in the drum or by measuring the drum to determine the quantity that has been pumped out.

9.8.3 To provide a grease volume number in gallons based on a standard 55 gallon drum, divide the 55 gallons by the usable height of the drum (31 inches). This provides a figure of 1.77 gallons per inch of drum height. Note that a typical 55 gallon drum is 34 inches high, but based on actual observation, grease shrinkage and the depressed lid take up 3 inches of height.

9.8.4 Take a measurement of the height of the grease in the drum with a clean measuring device before installing any grease. It will be acceptable to take the measurement from the top of the grease in the drum to the top edge of the drum.

9.8.4.1 ***HOLD POINT*** – Document the grease height dimension to the nearest 1/8 of an inch.

9.8.5 Take a measurement of the height of the grease in the drum after installing the grease.

9.8.5.1 ***HOLD POINT*** – Document the final grease height dimension to the nearest 1/8 of an inch.

9.8.5.2 ***QCD*** – Calculate and document the Total Quantity of grease replaced into the cap to the nearest 1/4 gallon.

9.8.5.2.1 *EXAMPLE*: If the initial grease height was 25-1/2" and the final grease height was 6-1/4", this is a 19-1/4" reduction multiplied by 1.77 gallons per inch which equals 34.1 gallons pumped in.

$$(25\tfrac{1}{2}"-6\tfrac{1}{4}")\times 1.77 = 34.1 Gal$$

9.9 MEASUREMENT OF GREASE WASTE

9.9.1 When it becomes necessary to determine the volume of grease that was pumped into the tendon void, it will be necessary to subtract the waste grease outflow, spillage, grease remaining in the pump-in hose, grease remaining in the waste line hose from the grease volume that was pumped from the drum into that tendon.

9.9.2 If the waste grease is pumped into a 55 gallon drum, then each inch of drum height will equal to 1.77 gallons.

9.9.3 The standard grease filling hoses have an internal diameter of 1-1/2". The formula for volume of a cylinder measured in inches is pi(3.1416) X r2 X L (in inches) divided by 231 cubic inches per gallon. Therefore, each 12" of this hose would contain 0.092 gallons. The same volume formula would apply to determine the capacity of other types of cylindrical containers; buckets, cans, etc.

9.9.4 Smaller containers should be evaluated for size to determine the capacity. These types of containers would only require a simple estimate for the waste grease contained therein.

9.9.5 Before pumping any waste grease into a container, always verify the quantity within that container before pumping.

10.0 GREASE REPLACEMENT

10.1 The Grease Replacements described in this Procedure are for one end of a tendon. The terms Tendon Void, Tendon Conduit, and Tendon Duct are synonymous.

10.2 HAND PUMPING AND/OR POURING

10.2.1 Where less than 10 gallons of grease has been lost from the tendon void (duct), each end will be hand pumped or poured until full.

10.2.2 Where less than 10 gallons of grease has been lost from the tendon void (duct) at the lower end of a vertical tendon, the Top End of will be poured or hand pumped to replace the grease.

10.2.3 Remove the grease cap plug, attach the "Y-Device" shown in Sketch 8.1 or a similar device. Grease is to be hand pumped/poured in at a minimum temperature of 130°F, but no greater than 210°F.

10.2.4 Remove the "Y-Device" reinstall the grease cap plug.

10.2.5 ***QCD*** – Verify no grease is leaking.

10.2.6 Repeat sections 10.1.1 and 10.1.3 for the other end of a hoop or dome tendon.

10.2.7 ***QCD*** – Document the quantity of hot grease Hand Pumped into this end grease cap.

10.2.8 ***QCD*** – Document the quantity of hot grease Hand Pumped into the other end grease cap.

10.3 PRESSURE PUMPING

10.3.1 Where more than 10 gallons of grease has been lost from the tendon void (duct), or more than 5 gallons from either end of a hoop or dome tendon the tendon will be pressure pumped from one end until it exits the Opposite End.

10.3.2 Where more than 10 gallons of grease has been lost from the tendon void (duct) at the lower end of a vertical tendon the tendon will be pressure pumped from the Lower End until it exits the Top End.

10.3.3 Remove the grease cap plug, attach the "Y-Device" or a similar device and pump hose to the end of the grease cap to be pumped into. Connect the waste outflow hose to the opposite end of the tendon. Be sure to have a suitable quantity of waste containers on hand to collect the waste.

10.3.4 Be sure that adequate communication is provided at each end of the tendon so that the crew at each end of the tendon will know what actions are taking place.

10.3.5 Pressure pump grease in with a pressure not to exceed 55 psig at the Filler End for hoop and dome tendons and 125 psig for the Lower End of a vertical tendon, at a minimum temperature of 130°F, but no greater than 210°F.

10.3.6 If the grease exits the Opposite End of a hoop or dome tendon or Top End of a vertical tendon grease pumping shall continue until a minimum of 1 gallon of clean grease has exited from the opposite end.

10.3.6.1 Where there is no grease Exiting Outflow from the Opposite End of a hoop or dome tendon or Top End of a vertical tendon it shall be necessary to hand pump or pour hot grease into the Opposite End of a hoop or dome tendon or Top End of a vertical tendon grease cap until full.

10.3.7 ***QCD*** – Document the quantity of hot grease Pressure Pumped into this grease cap. Also document the Thermometer Identification, Recalibration Date and the temperature of the grease pumped in.

10.3.8 ***QCD*** – Document the quantities of Exiting Outflow Grease, if any. Refer to Section 9.9 of this procedure for explanation on calculating exiting outflow grease.

10.3.9 ***QCD*** – Document the QUANTITY REPLACED by Hand Pumping or pouring from the other end of the tendon, if applicable.

10.3.10 ***QCD*** – Calculate the TOTAL TENDON QUANTITY REPLACED by adding the quantities of grease replaced by Hand Pumping (10.2.6 and 10.2.7 or 10.3.9) to the quantity of grease Pressure Pumped (10.3.7) minus the quantity of Exiting Outflow Grease (10.3.8).

10.3.11 ***QCD*** – Compare the TOTAL TENDON QUANTITY REPLACED to the TOTAL TENDON GREASE LOSS. Calculate the percent difference by the following formula:

$$\frac{[\text{TOTAL TENDON QUANTITY REPLACED (10.3.10)}] - [\text{TOTAL TENDON GREASE LOSS (8.8.1)}]}{\text{NET VOLUME TENDON VOID (SQ 12.2)}} \times 100\%$$

11.0 OTHER CONTROLS

11.1 Verify that no grease is leaking. If there is some leakage, the deficiency shall be corrected and cleanup performed.

11.2 ***HOLD POINT*** – Document the acceptance of leak tightness.

11.3 ***HOLD POINT*** – Document the acceptability of the refilling. An acceptable refilling is one in which the percent difference from Section 10.3.11 of this procedure does not exceed 10% and there are no leaks.

11.4 ***QCD*** – Document any comments of unusual occurrences or references that could assist in evaluating the refill or for future surveillances.

12.0 NOTIFICATION

12.1 If the absolute difference between the amount of grease removed from the tendon and the amount of grease replaced exceeds 10% of the net duct volume, it shall be necessary to notify CR03ENG with a nonconformance report.

13.0 DOCUMENTATION

13.1 The items requiring documentation shall be documented on Data Sheet 12.1.

13.2 Some information shall be posted from Data Sheet 6.0 of PSC Procedure SQ 6.0 onto Data Sheet 12.1.

13.3 The Data Sheet references the applicable Section or Step number of the procedure for each ***QCD*** or ***HOLD POINT***.

14.0 ATTACHMENTS

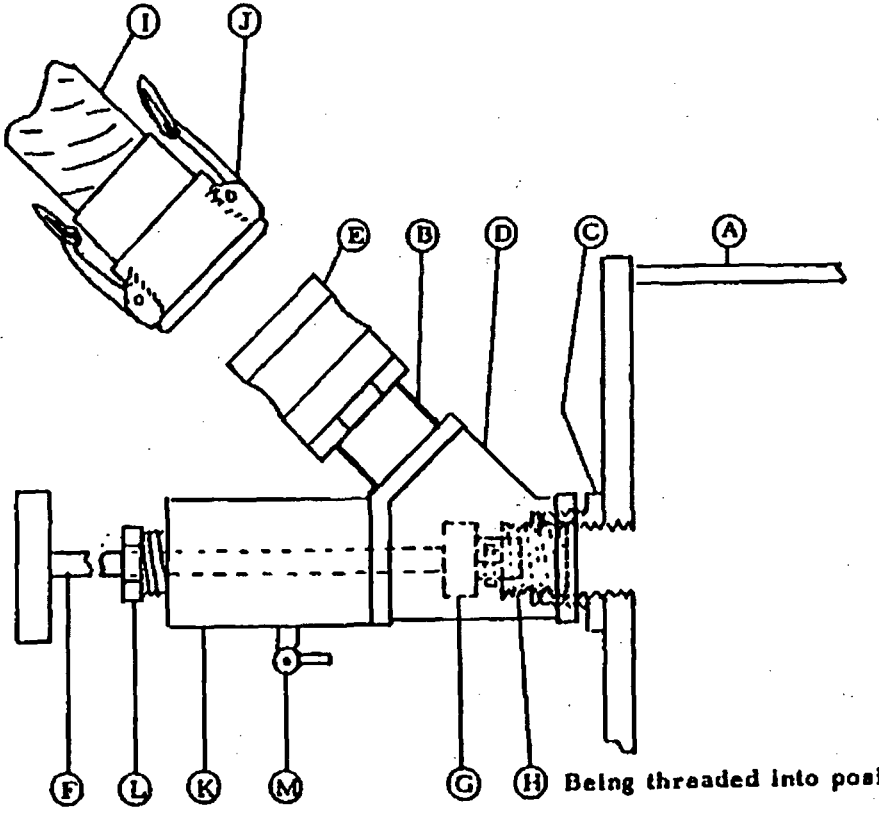
14.1 Figure 1.0 – PSC "Y" Device

14.2 Data Sheet 12.1

Figure 1.0 – PSC "Y-Device"

TYPICAL HOOK-UP FOR FILLING TENDON VOIDS

A - Grease Can Body
B - Pipe
C - Grease Can Filler Bushing
D - Y-Device Body
E - Male Quick Coupler
F - Operating Shaft & Handle
G - Square Male Pipe Plug Wrench
H - Pipe Plug
I - Casing Filler Hose
J - Female Quick Coupler
K - Packing Box
L - Packing Box Gland
M - Relief Valve - Optional



PSC PROCEDURE SQ12.1
GREASE REPLACEMENT
Data Sheet 12.1
September 21, 2007
Page 1 of 1
Revision 0

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

Tendon No.: _____ Tendon End: _____

GREASE REPLACEMENT DOCUMENTATION — QC Signoffs

(8.4) Total Grease Loss from Data Sheet 6.0 for **this** tendon end: _____ gal. _____

(8.5) Total Grease Loss from Data Sheet 6.0 for **other** tendon end: _____ gal. _____

(8.6) Estimated grease losses from leaks for **this** tendon end: _____ gal. _____

(8.7) Estimated grease losses from leaks for **other** tendon end: _____ gal. _____

(8.8) TOTAL Tendon Grease Loss: _____ gal. _____

(8.9) Ambient Temp.: _____ °F Thermo. ID: _____ Recal Date: _____ _____

(8.10) Grease Cap Removal Date: 05/12/07 Grease Replacement Date: _____ _____

Elapsed Time: _____ days _____

(9.8.4.1) Grease height in drum **before**: _____ in. (9.8.5.1) Height in drum **after**: _____ in. _____

(9.8.5.2) TOTAL amount of Grease Pumped/Poured: _____ gal. ☐ Pumped ☐ Poured _____

(10.2.6) Quantity of Grease Hand Pumped/Poured into **this** tendon end: _____ gal. _____

(10.2.7) Quantity of Grease Hand Pumped/Poured into **other** tendon end: _____ gal. _____

(10.3.7) Quantity of Pressure Pumped into **this** tendon end: _____ gal. _____

Grease Temp.: _____ °F Thermo. ID: _____ Recal Date: _____ _____

(10.3.8) Quantity of Exiting Outflow Grease: _____ gal. _____

(10.3.9) Quantity of Grease, Hand Pumped into **other** tendon end: _____ gal. _____

(10.3.10) TOTAL amount of Grease replaced: _____ gal. *(hand pumped + pressured pumped – exiting outflow)* _____

Refer to SQ 12.2 – GREASE VOLUMES, for the data/formula needed below

Net Tendon Duct Grease Volume: _____ gal.

(10.3.11) Percent variation difference: _____ % _____

$$\frac{\text{Total Quantity (10.2.8)} - \text{Total Tendon Grease Loss (8.8)}}{\text{Net Volume Tendon Void (SQ 12.2)}} \times 100 = __\ \%\ \text{variation difference}$$

(11.2) Grease Leaks: ☐ Yes ☐ No _____

(11.3) Refill Acceptable: ☐ Yes *(less than 10%)* ☐ No *(greater than 10%)* _____

If No – Customer Notified NCR No.: _____ _____

(11.4) Comments: _____

QC Reviewed: _____ Level: _____ Date: _____

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

GREASE VOLUMES

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This procedure will establish the Net Tendon Duct Grease Volumes to be observed during the refilling of the Post-Tensioning System Tendons with Corrosion Protection Material (Grease) during the 30th year (8th period) Progress Energy's Florida Power Corporation's Crystal River Unit 3 Reactor Building Tendon Surveillance Inspection.

2.0 SCOPE

2.1 This procedure shall apply to PSC Procedure SQ 12.1.

3.0 VOLUME TABLE

CRYSTAL RIVER UNIT 3 – GREASE VOID VOLUMES

TENDON	NET DUCT VOLUME (GALLONS)	10% DUCT VOLUME (GALLONS)	TENDON	NET DUCT VOLUME (GALLONS)	10% DUCT VOLUME (GALLONS)	TENDON	NET DUCT VOLUME (GALLONS)	10% DUCT VOLUME (GALLONS)
61V24	144.09	14.41	13H35	121.77	12.18	D128	118.31	11.83
12V01	143.97	14.40	13H36	121.67	12.17	D129	116.41	11.64
12V02	144.12	14.41	13H37	122.18	12.22	D130	116.12	11.61
45V19	144.51	14.45	42H45	121.40	12.14	D211	115.58	11.56
45V20	144.47	14.45	42H46	122.57	12.26	D212	115.99	11.60
45V21	144.05	14.40	42H47	121.84	12.18	D213	116.85	11.69
61V16	144.36	14.44	46H20	121.37	12.14	D237	104.93	10.49
61V17	144.74	14.47	46H21	122.06	12.21	D238	102.59	10.26
61V18	144.15	14.42	46H22	122.43	12.24	D239	100.43	10.04
34V16	145.50	14.55	51H33	121.94	12.19	D336	107.62	10.76
34V17	145.67	14.57	51H34	120.88	12.09	D337	106.08	10.61
34V18	144.97	14.50	51H35	122.21	12.22	D338	103.92	10.39
			62H29	121.93	12.19			
			62H30	121.75	12.17			
			62H31	122.13	12.21			
			46H06	122.00	12.20			
			46H07	121.18	12.12	= SURVEILLANCE TENDON		
			46H08	121.46	12.15	= ADJACENT TENDON		

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

PROGRAM PURPOSE

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 PURPOSE

1.1 This section of the Surveillance Quality Control Manual shall outline the Quality Assurance/Quality Control activities necessary to insure that the In-Service Inspection operations are performed in accordance with approved procedures and provide the required quality level, consistent with the project specifications, industry standards, regulatory code requirements and the Precision Surveillance Corporation Quality Assurance Program.

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PROGRAM SCOPE

Prepared by	*LEVEL II Q.C.*	*09/21/07*
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	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 SCOPE

1.1 The Quality Assurance Procedures within this Section of the Surveillance Program Quality Control Manual are intended to be supplemental to the Precision Surveillance Corporation (PSC) Quality Assurance Manual. They are not intended to replace any Criteria of the Quality Assurance Manual. The Quality Assurance Manual remains as the highest category of document within the Quality Assurance Program hierarchy of documents.

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IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

QUALITY ORGANIZATION

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 ORGANIZATION

1.1 PSC Field Quality Control Inspectors operate under the immediate direction of the Lead Field Quality Control Inspector, who in turn reports to the PSC Manager, Quality Control.

1.2 The Field Quality Control Inspectors shall have full authority and responsibility in all matters pertaining to or affecting the quality control function for the Surveillance of the Post-Tensioning System. These Inspectors shall have the authority to accept, reject, or recommend changes to the field operations or performance.

1.3 The Field Quality Control Inspectors, and the Quality Assurance personnel shall have the authority to issue a "Stop Work Order" for any activity, material, or procedure not in conformance with the project specifications, the Quality Assurance Manual or the Surveillance Quality Control Manual. The stop work action shall be coordinated through the PSC Manager of Quality Assurance.

1.4 The Quality Control Procedures section of this manual shall serve to further outline the duties and responsibilities of those personnel engaged in performing the quality control functions for the Surveillance of the Post-Tensioning System.

1.5 All personnel engaged in those activities that affect the quality function for the Surveillance operations, shall be qualified by experience or training, prior to the initial performance of their assignments.

1.6 Documentation of qualification and/or training shall be maintained in the quality files on site for those personnel engaged in quality activities.

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IN-SERVICE INSPECTION
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QUALITY CONTROL RESPONSIBILITY

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 QUALITY CONTROL RESPONSIBILITY

1.1 The responsibility for the Quality Assurance and Quality Control functions for this project shall be incumbent on those organizations performing that portion of the work described within the various sections of this manual, or as otherwise agreed to in the contract documents.

1.2 Portions of the work not performed by PSC, but where PSC supplies only the equipment or material, shall be subject to the quality requirements specified within the applicable PSC Quality Manual, where that Quality Manual has been developed to comply with the project specifications or contract documents.

1.2.1 The development of the Quality Assurance and Quality Control procedures for the Surveillance operations shall be the responsibility of those organizations performing that portion of the work, unless otherwise agreed to in the contract documents.

1.3 PSC Field Quality Control Personnel shall provide the Quality Control actions for that portion of the work, where PSC or its subcontractors are performing the work or as agreed to in the project specifications or contract documents. All subcontractors performing work as an agent of PSC, shall be subject to the Quality requirements of the project specifications and the applicable PSC Quality Program.

1.4 PSC and its subcontractors and vendors, shall maintain open access for Inspection, Survey and Audit by the Owner or his authorized agent for all portions of the work being performed for the project.

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IN-SERVICE INSPECTION
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PERSONNEL QUALIFICATIONS

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 QUALIFICATIONS

1.1 QUALITY CONTROL INSPECTORS

1.1.1 All Quality Control Inspectors performing Inspections and Tests shall be qualified to minimum of Level II capability in accordance with the requirements of ANSI N45.2.6-1978. Inspectors performing VT-1, VT-C examinations are to be qualified as a Level II (VT-1, VT-1C or VT-3C) examiner as set forth in the 1992 Edition and 1992 Addenda of the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWL as defined in PSC's written certification practice or as qualified by Florida Power Corporation.

1.1.2 All Lead Field Quality Control Inspectors shall be qualified to a minimum of Level II capability in accordance with the requirements of ANSI N45.2.6-1978.

1.1.3 All Field Quality Control Inspectors performing reviews of Quality Control Documentation for the various procedures in the PSC Surveillance Quality Control Manual shall be qualified to a minimum of Level II in accordance with the requirements of ANSI N45.2.6-1978.

1.1.4 All Quality Control Inspectors shall be certified to specific skill Levels by a Quality Control Inspector who has been qualified as Level II or III in accordance with the requirements of ANSI N45.2.6-1978.

1.2 CONSTRUCTION PERSONNEL

1.2.1 Precision Surveillance Corporation Field Construction Personnel shall be responsible for the physical activities associated with the Surveillance of Post-Tensioning System Tendons. Construction Personnel shall be fit by skill, training and/or experience to perform these activities.

1.3 CONSTRUCTION SUPERVISION

1.3.1 PSC Supervisory and Field Representative Personnel shall be responsible for administering the progress of the work and directing PSC Field Construction Personnel as necessary. These Personnel shall be fit by skill, training and/or experience to perform these duties.

1.3.2 Construction Personnel or Construction Supervision need not be qualified to ANSI N45.2.6 as they are supervised or overseen by a qualified individual participating in the inspection, examination, or test.

1.4 AUDITORS

1.4.1 PSC Personnel performing audits of field operations shall be qualified as auditors in accordance with the requirements of ANSI N45.2.23-1978.

2.0 DOCUMENTATION

2.1 Records of training and personnel skill certifications shall be documented in accordance with the requirements of the governing ANSI N45.2 or daughter specifications and shall be retained on site for those personnel so certified and/or trained.

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PERSONNEL TRAINING

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 TRAINING

1.1 Precision Surveillance Corporation personnel on site involved in the Surveillance of the Post-Tensioning System, shall be qualified and experienced in all phases of Post-Tensioning operations.

1.2 All training activities shall be conducted and coordinated by qualified, experienced, PSC personnel.

1.3 At the start of the work and usually at the beginning of each new phase of the Post-Tensioning operations, the field crews shall be instructed to perform the work in a safe manner and in accordance with the approved surveillance procedures manual. They shall further, be trained in the use of the Post-Tensioning equipment for the operation for which they are being qualified, and for any subsequent actions during those operations that may affect the quality or integrity of the Post-Tensioning System.

1.4 The duration of the training period shall not be of a predetermined period of time, but shall instead be of such a length of time, that the PSC training personnel feel confident that the personnel being trained are sufficiently knowledgeable in the methods and procedures of the operation for which they are being trained. Each trainee shall be oriented by on-the-job training prior to the initial performance of any quality oriented function and each time he performs a different job assignment not previously trained or qualified for.

1.5 A list of the trained and qualified personnel shall be maintained on site, indicating the training received and the dates of training. Newly trained personnel shall be added to the list as the training is completed. This list shall be reviewed and controlled by PSC Field Quality Control personnel. Crew proficiency shall be verified during the progress of the work, through the mediums of inspection, surveillance or audit.

1.6 Procedures shall be used for training those personnel not familiar with Post-Tensioning Systems or Surveillance activities.

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IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

PROCUREMENT

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
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1.0 PROCUREMENT

1.1 SAFETY – RELATED

1.1.1 The purchase of any safety-related material or service to be used for the Post-Tensioning System or surveillance operation shall be performed by the Procurement Section of the Precision Surveillance Corporation in accordance with the requirements of the Quality Assurance Program requirements in effect at that time and the requirements stated below.

1.1.2 Field personnel shall initiate a procurement request by a written or verbal order to the Construction or Project Management Section.

1.1.3 A requisition shall be prepared and submitted to the PSC Quality Assurance Section for attachment of applicable quality documents and/or comments and returned to the Project Management Section.

1.1.4 The requisition shall be sent to the Procurement Section for drafting of the purchase order, pricing, vendor selection, etc.

1.1.5 The purchase order shall be submitted to the Quality Assurance Section for review of quality content, approved vendor selection and sign-off. Other pertinent quality documents may be attached or referenced and then the purchase order shall be returned to the Procurement Section.

1.1.6 The purchase order shall be submitted to the vendor and copies of the order distributed to appropriate personnel.

1.1.7 Changes to the original purchase order shall be provided through the use of a Supplemental Purchase Order, which shall be subject to the same review and control process as the original purchase order.

1.2 NON-SAFETY-RELATED

1.2.1 Miscellaneous non-safety-related field purchases may be initiated by the field personnel or Procurement Section within the confines of the operating procedures established by the Operating or Construction Departments, independent of this manual.

2.0 INVENTORY

2.1 All safety-related and non-safety-related material purchased shall be brought on site through the CR3ENG warehouse.

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FIELD CHANGE REQUEST

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 FIELD CHANGE REQUEST

1.1 The Field Change Request shall be the mechanism for requesting rapid evaluation and approval for those operations that must be changed to accommodate field conditions. The FCR shall be approved by the Owner or his agent prior to that change being put into effect.

1.2 Field Changes that take place prior to the approval of the FCR shall be documented by a Nonconformance Report and subject to a "STOP WORK" order, depending on the magnitude of the change and the impact on the quality program. It shall not be necessary to generate an NCR where it has become necessary to return or move to a safe condition of the tendon or personnel.

1.3 Revisions to this manual shall be performed according to the Revision Control procedure found in the prologue of the Surveillance Manual. The following information will supplement those procedures for Field Change Request Activity.

1.3.1 When field operating procedures, as stated in this manual, become impractical to follow exactly for any reason, that portion, and any other affected portion of the manual shall be revised to provide the appropriate procedures. Where possible, revisions shall be made prior to performing the work.

1.3.2 When revisions become necessary, they shall be formally drafted by the PSC Quality Assurance Section and submitted to the Owner or his agent for formal approval. Where applicable, the responsible PSC Field Quality Control Personnel shall prepare a Field Change Request document to expedite approval from the Owner's Field Quality Organization, Maintenance Engineer or such other authority as designated by the Owner, in order to continue operations without extraordinary delays. The change document may then be transmitted to the Owner or his agent for formal approval or to issue a change order notice type of document.

1.3.3 Approval of the Field Change Request or emergency revision shall be obtained from the appropriate Site Quality Assurance Authority representing the Owner, before starting any Field Changes or Revisions.

1.3.4 Copies of the Field Change Request shall be submitted to the PSC Quality Assurance Section for review and where necessary for development of formal procedures to be included in the Surveillance Quality Control Manual.

1.3.5 The approval of the FCR shall be considered as the acceptance for the Revised Procedures unless gross changes occur during the Revision drafting, that affect other portions of the Surveillance Manual.

1.3.5.1 If gross changes occur, the Surveillance Quality Control Manual affected procedures shall be submitted for formal review and approval. Otherwise, the FCR Revision shall be considered as approved and submitted on a controlled basis for inclusion in the Surveillance Manual.

1.3.6 As the PSC Quality Assurance Section and the Engineering Department are responsible for drafting Revisions, whether a result of the FCR process or Specification Changes, it shall not be necessary for either function to provide a formal review and signoff. It shall be necessary for the Originator or PSC Field Quality Control personnel to call the PSC Home Office to acquire agreement and acceptance of the FCR before submitting it to the Owner's agent. This way Quality Assurance and Engineering can evaluate the impact of the FCR on Quality Control, Engineering features and other subsequent Surveillance activities.

1.3.6.1 The Originator or PSC Quality Control personnel shall document the review and acceptance of the PSC Home Office personnel by printing the name of the person accepting that FCR and the date of acceptance at the bottom of the Recommended Change area on the FCR form.

1.3.7 The original FCR shall be maintained with the Field Quality Control records.

1.3.7.1 The remaining distribution shall be completed, using the Distribution Listing shown at the bottom of the FCR form once the FCR is formally approved by PSC and the Owner.

1.3.7.2 The FCR shall be entered into the FCR Index Log for

1.3.7.2.1 FCR Number

1.3.7.2.2 Brief Description

1.3.7.2.3 Date Written

1.3.7.2.4 Date Approved

1.3.7.2.5 Date of Revision (to Surveillance Manual, if applicable)

1.4 <u>DOCUMENTATION</u>

1.4.1 Included with this procedure are the various forms and control sheets described in this procedure.

2.0 ATTACHMENTS

2.1 Field Change Request Form

2.2 Field Change Request Index Log

PSC PROCEDURE QA 7.0
FIELD CHANGE REQUEST FORM
September 21, 2007
Page 1 of 1
Revision 0

SPECIAL FIELD REVISION CONTROL FIELD CHANGE REQUEST NO.: FCR _____

REQUEST BY: _____ TITLE: _____ DATE: _____

ORIGINATOR: _____ TITLE _____ DATE: _____

PROCEDURE NUMBER: _____ REV NO.: _____ PROCEDURE TITLE _____

AFFECTED SECTION: _____ REVISION TO MANUAL REQUIRED: ☐ YES ☐ NO

NCR REQUIRED: ☐ YES ☐ NO NCR NUMBER: _____ HOLD TAG NO.: _____

DETAILED DESCRIPTION OF EXISTING CONDITION: (USE EXTRA PAGES OR WRITE ON BACK)

RECOMMENDED CHANGE:

PSC APPROVAL SIGN & DATE:	QA	QC	ENGINEERING

ON SITE OWNER/AGENT, APPROVAL OR COMMENTS:

APPROVED SITE QA AUTHORITY: _____ TITLE: _____ DATE: _____

DISPOSITION PSC QC: HOLD TAG APPLIED: _____ HOLD TAG REMOVED: _____

QC INSPECTOR: _____ DATE: _____

DISTRIBUTION

☐ QA OWNER
☐ QA PSC
☐ ENGINEERING PSC
☐ ENGINEERING OWNER
☐ PROJECT MGR. PSC
☐ QC OWNER
☐ QC PSC
☐ _____
☐ _____

PSC PROCEDURE QA 7.0
FIELD CHANGE REQUEST INDEX LOG
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Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

FIELD CHANGE REQUEST INDEX LOG

FCR#	DESCRIPTION	DATE WRITTEN	DATE APPROVED	DATE REV.

PSC
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PROGRESS ENERGY FLORIDA, INC.
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CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

DOCUMENT CONTROL

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 DOCUMENT CONTROL

1.1 The responsibility for control and retention of all documentation and records, related to the quality control functions for the project within the limitations of the contract documents shall be incumbent on those organizations performing that portion of the work and as further stated in PSC Procedure QA 3.0.

1.2 All documentation, which includes inspections, tests, certifications,drawings, purchase orders, specifications, procedures, correspondence and audits, etc. shall be prepared in accordance with the procedures as described in the applicable job related manuals and procedures.

1.3 All inspection records shall be reviewed, initialed or signed and dated by the personnel responsible for the quality control functions.

1.4 All quality related documents pertaining to the project shall be retained in the field office file, jobsite vault, or both and maintained in such a manner so as to permit retrieval and prevent loss.

1.5 Document distribution or retention shall be in accordance with the requirements of the project specifications, or as agreed to in the contract documents.

1.5.1 All documents such as Data Sheets, Nonconformances, verification records, calibration records, certified mill test reports, engineering analyses, etc. generated during the course of the In-Service Inspection, shall be included in the Final Report or appended to that Final Report.

1.6 Copies of Non-Conformance Reports shall be distributed in accordance with the project specifications or as noted on the Non-Conformance/Corrective Action form; refer to PSC Procedure QA 9.0.

1.7 All records shall be sent to the responsible Quality Control Section for further distribution in accordance with the project specifications, or as agreed to in the contract documents, or the PSC Quality Assurance Manual.

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IN-SERVICE INSPECTION
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REVISION CONTROL

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 GENERAL

1.1 The statements within this Manual are representative of the Precision Surveillance Corporation quality program activities in effect at the time of issue. The construction phase of the project and other delays have a direct influence on the amount of time that will transpire between the actual startup of fabrication and termination of the construction life of the contract. It may therefore become necessary to review and upgrade or revise the various quality procedures or manuals, as a means of accommodating changes in the specifications, codes, operating procedures, material procurement, or as a means of transmitting intent, information or clarification. Correction of misspelled words or typographical errors that do not affect intent, shall not be considered as revisions.

2.0 TRANSMITTAL

2.1 Submittal of revisions to the Owner or his agent, shall be in conformance with Criteria VI, Document Control, of the Quality Assurance Manual.

3.0 REVISION CONTROL

3.1 If a revision is submitted where a Quality Control Manual has been issued, only those procedures being revised shall be affected for approval status. The remainder of the Quality Control Manual shall still remain approved. The original or previous revision of the affected procedure shall remain in effect, unless unworkable, until the revised procedure has been approved.

3.2 When a revision is submitted, the entire manual shall then become "Revision One" for example. Included in the revision package are all those documents required to bring the original version of that manual to "Revision One" status.

3.3 A Revision Control Sheet shall show all the documents being submitted, with the correct revision status of each page. The Revision Control Sheet provides a chronological history of development for the manual while the Index Status Sheet indicates all the original documents contained within the original submittal of the manual.

3.4 The Index Status Sheet shall not be revised to any extent greater than to show a date and revision number in the Revision Status column on the Index Status Sheet.

3.5 It is unlikely that any document within any PSC Quality Manual shall be of an unrevised status or of the same revision status as the Manual itself. Therefore, the document and manual revision numbers will not be the same. The Index Status Sheet will establish the revision status of each Manual or document issued.

3.6 When a revision is made to a procedure, the entire procedure will revert to that revision number, even if there are no editorial or format changes to that procedure. Unaffected pages will be marked at the bottom of the page with a triangle (delta), with the revision number and comments as to the status of that page.

3.6.1 Revisions to a Section/Paragraph of a procedure will be identified with a triangle appearing at the left edge of the page near the Section/Paragraph which has been affected and revised. Inside the triangle will appear the revision number for that current change. The triangle will appear only for those Sections/Paragraphs that have changed.

3.6.2 It will not be necessary to delete the triangle from the previous revision, even though it is generally recommended that signs of a previous revision be removed to avoid confusion. It will be acceptable to erase, white-out, or tape over signs of the previous revision, where that page has not been revised and is not being reproduced as a new document.

3.6.3 It will not be necessary to apply a revision number to the top of each of those pages that comprise the body of the procedure. The revision number and date need only appear at the top of the Title Page and Data Sheets.

3.6.4 No Change will be taken to mean, that no changes have occurred to that page and that the revision number indicates the current status of that page. No dates other than the original effective date will appear on individual pages. Only the Title Page and Data Sheets shall show revision status and date of that revision, along with the triangle at the bottom of the page.

3.6.5 No Editorial Change or Format Change will be taken to mean, that the text of that procedure has not changed and that the change affects the page number, section/paragraph number or that information has shifted from one page to another. This will be noted along side the triangle at the bottom of the page.

3.7 Where drawings are included in the manual, such as post-tensioning fabricated components, these drawings shall be controlled through the quality manual for that product, except where otherwise agreed to in writing. This system utilizes the drawings and procedures from a controlled quality manual for fabrication and inspection control of that component and shall accompany the purchase order to the vendor, where applicable.

4.0 OWNER RESPONSE

4.1 Once the revision is received by the Owner or his agent, the Acknowledgement of Receipt or a facsimile, shall be returned to the Precision Surveillance Corporation, Quality Assurance Section.

4.2 Owner comments shall be referred to the PSC Quality Assurance Section or those personnel responsible for contract coordination.

4.3 Owner approval without comments shall be transmitted in writing to either party noted in Section 4.2 above, however verbal approval shall be sufficient to start work using the approved revision.

4.3.1 Section 4.2 or 4.3 above, may be replaced by other means of control which have been established and formally agreed to by PSC and the Owner.

5.0 OWNER CONTROL (SUGGESTED)

5.1 As a means of maintaining the controlled manual and revisions at the Owner or his agents facility, it is recommended that the submitted documents be verified for accuracy of inclusion, by comparing them to the Revision Control Sheet. PSC is not immune to errors, regardless of the amount of controls imposed or implied.

6.0 EXPEDITING CONSTRUCTION

6.1 In order to expedite the construction schedule and with the Owner's approval, it may become necessary or advantageous to fabricate materials prior to the approval of the revision. All materials fabricated in this situation shall be tagged "Hold" and retained on that status until approval of the revision. At the time of approval the "Hold" tag shall be removed. Also see Criteria II Quality Assurance Program, Section 3.4.

6.2 If, for some reason, the revision is not approved, the material fabricated or installed under the controls of the revised procedure shall be maintained on Hold status until the revision is approved. Adjustments to the material shall be made, where required, after approval.

7.0 VOID DOCUMENTS

7.1 Once approved, the document being revised shall be marked void and dated to reflect the revision date. This void copy will be removed from the manual and placed into a dead or void file for retention as part of the Quality Assurance records.

7.2 As a temporary measure, the void copy may be turned backwards in the manual, until removal to the file.

7.3 Items fabricated or installed with the use of the previous revisions will not require any subsequent change once fabricated or installed. The date of the document approval shall determine the point of fabrication change over and therefore, the applicable quality requirements.

7.4 PSC does not require that void documents be returned.

8.0 FORMS/DATA SHEETS

8.1 Any of the forms contained in this Manual or any Quality Control Procedure used as a means of providing quality control or inspection documentation, are subject to change at any time without prior approval of the Owner or his authorized agent, providing that the amount of information shown on the original form is not diminished in any way.

8.2 These revised forms shall be submitted for approval at the convenience of PSC with the next revision of that procedure that effects the change, but in no case later than 30 days from the first use of that form.

8.3 If the information required of the original or previous revision of that form is to be diminished in any way, that form shall be submitted for approval prior to use.

8.4 Forms may be provided at any time where not shown in any procedure in order to provide the required quality control or inspection documentation, without prior approval and at the option of the PSC Quality Control or Quality Assurance Sections.

9.0 ATTACHMENTS

9.1 Revision Control Sheet

PSC PROCEDURE QA 8.1
REVISION CONTROL SHEET

Page ____ of ____
Revision _____
Date:_____

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period Revision # _____

REVISION CONTROL SHEET

Procedure #	Page #	Revision/ Date	Submitted Date	Procedure #	Page #	Revision/ Date	Submitted Date

Revision No.	Date	Revision Description	Revision By:	Date Approved

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

NONCOMFORMANCES

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
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	Title	Date

1.0 NONCONFORMANCE REPORTING

1.1 Any item, service, activity or procedure not conforming to the approved drawings, specifications, instructions or other project requirements as related to the PSC contract for the project, shall be documented as a nonconformance. A non-conformance report shall be written by the authority responsible for quality, discovering the nonconformance, regardless of the location where the deficiency was discovered or the source of origin.

1.1.1 This reporting shall be completed on a timely basis, preferably immediately upon discovery and consultation. The reporting action should be within one working day from discovery.

1.2 All nonconforming items shall be removed to a segregated area.

1.3 The nonconformance report shall be distributed to the appropriate parties noted on the distribution list shown on the PSC Nonconformance/Corrective Action Report Form, which is shown at the end of this procedure. A typical Nonconformance Report Index shall also be seen.

1.3.1 The Owner or his agent shall receive copies of those nonconformance reports that indicate a loss of control for the manufacturing process, field construction, or quality control system and where it has been determined by PSC Quality Assurance, Quality Control, and/or possibly the Owner, that a measure of input shall be required by the Owner or his agent to resolve the deficiency.

1.3.1.1 The Recommended Corrective Action for the nonconformance reports noted in Section 1.3.1 above, shall be submitted to the Owner or his agent for review and approval prior to the execution of that action, for all items to be dispositioned as "Repair" or Use-As-Is.

1.3.1.2 All nonconformance reports shall be submitted to the Owner or his agent, whether for review and/or approval.

1.4 Acceptance of the nonconforming item, after completion of the corrective action, shall be by inspection.

1.5 Once the corrective action has been determined, the Quality Control or Quality Assurance personnel shall make arrangements for the completion of the nonconformance, including verification. The completion of this action shall be documented in the Disposition area provided on the NC/CA Report Form.

1.5.1 Once the nonconformance has been corrected and the disposition completed on the NC/CA Report Form, the formal close-out of that report shall be documented in the NCR Index Log. All nonconformance reports shall be closed-out.

1.5.2 In some circumstances, the corrective action may be completed on another document, such as an Owner nonconformance report. In that case, the PSC NC/CA Report may be closed-out immediately as a result of the Owner's document, and shall be so noted in the Index Log.

1.6 Only Quality Control or Quality Assurance personnel shall have the authority to return the nonconforming item to inventory or service, once disposition of the corrective action has been completed and accepted by that Quality authority.

1.7 In addition to the normal reporting system for Nonconforming Material and Services, supplemental reports shall be submitted for deficiencies whether a result of design, conformance, fabrication, or performance, that represent a significant breakdown in the Quality Assurance Program and, were they to remain uncorrected, could adversely affect the operation of the item at any time throughout the expected lifetime of the item. These written reports shall be prepared by the PSC Quality Assurance, Quality Control, and/or Engineering Department and submitted to the Owner or his agent documenting the cause of the deficiency and the formal corrective action to prevent repetition.

1.8 The Nonconformance Reports shall be retained in the appropriate Quality file on site.

2.0 DRAFTING THE REPORT

2.1 The following outline shall be used as a guide for developing the Nonconformance Report. Refer to the example at the end of this procedure.

2.2 The Nonconformance Report shall indicate the identification of the nonconforming item, the deficiency noted, preferably with reference to the requirement in violation, in the area marked Nonconformance on the NC/CA Report Form.

2.3 The Apparent Cause Known shall be entered onto the form, if it can be readily discerned. Overly restrictive or unworkable procedures or specifications may be listed as the cause, as well as changes in working conditions not considered by the procedures or specifications. If this cannot be satisfactorily resolved by the initiator of the report, then it shall be completed by Quality Assurance, Quality Control or the Engineering Department.

2.4 The area marked Recommended Corrective Action on the NC/CA Report Form shall indicate the action necessary to immediately correct the deficiency. Usually noted as Use-As-Is; Repair; Rework; Scrap; and any appropriate commentary to substantiate that action.

2.4.1 Where nonconforming items are to be corrected by repairing the stated deficiency, the repairs shall be accomplished through the use of an approved repair procedure. This may be shown directly on the NC/CA Report Form or attached to it as a separate document.

2.4.2 Nonconforming items shall be rejected, repaired, reworked or accepted for corrective action after evaluation by the PSC Quality Assurance, Quality Control, Engineering and/or the Owner or his agent.

2.5 Where possible, the Corrective Action to Prevent Recurrence area of the NC/CA Report Form, shall provide the long range action that may be instrumental in preventing recurrence of that deficiency entered onto the form.

2.6 The determination of Significant Condition status shall be performed by the Quality Assurance, Quality Control and/or the Engineering Department. The identification of significant conditions adverse to quality, their cause and the appropriate corrective action to resolve the condition shall be documented on the NC/CA Report Form or in a separate report as noted in Section 1.7 of this procedure.

2.6.1 A significant condition adverse to quality shall exist if one or more of the following elements are required:

2.6.1.1 A significant investigation is necessary to determine the cause.

2.6.1.2 Significant redesign, repair or rework of the item.

2.6.1.3 A significant evaluation of the QA/QC Program implementation.

2.6.1.4 Significant evaluation for determining generic implication.

3.0 NONCONFORMANCE REPORT NUMBERING

3.1 All Nonconformance Report Numbers shall be prefixed with the PSC project Contract Number.

3.2 All Field originated NCR's shall prefix the project Contract Number with the letter "F".

3.3 Non-project oriented NCR's shall be prefixed with QA and shall only be issued through the Quality Assurance Section.

3.4 All NCR's shall be assigned a sequential control number, to follow the prefix number, which shall be applied in ascending order from the previous report and originating with the number "1".

4.0 PROCESSING NONCONFORMANCE REPORTS

4.1 This is intended to provide PSC Field Quality Control personnel with the means of approving processing or closing out NCR's where they are not in close proximity to the home office.

4.2 The report may be drafted by independent action or with the assistance of the Engineering or Quality Assurance Sections. Where input has been provided by the assistance of others, the Quality Control person drafting the report shall print the name of that person assisting and the date in the respective area of that Section of the Nonconformance/Corrective Action Report Form. The report should be distributed as soon as it is drafted, unless the disposition of the corrective action takes place within 5 days after discovery of the deficiency; in this instance, the distribution will probably take place after the disposition is complete.

4.3 The PSC Approval for QA, QC and/or Engineering may be communicated by telephone to expedite corrective action. In which case the Quality Control person on site would print the name of the person approving that action and the date. Those NCR's could be initialed at a later date to formally complete the approval actions.

5.0 DOCUMENTATION

5.1 Included with this procedure are the various tags and control sheets described in this procedure.

6.0 ATTACHMENTS

6.1 Tags and Sample Logs (Example)

6.2 Sample NC/CA Report

6.3 NC/CAR Form

6.4 NCR Index Form

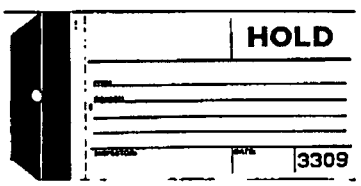
6.5 Hold Tag Index Log

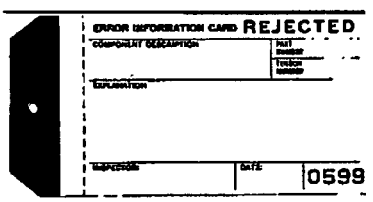
6.6 Reject Tag Index Log

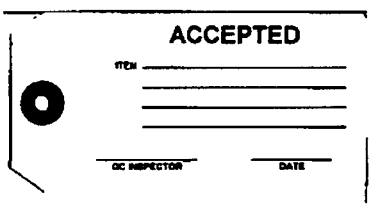
NONCONFORMING MATERIALS, PARTS OR COMPONENTS

TAGS

Shown below are typical examples of Hold, Reject and Acceptance tags. They may vary in appearance but, are representative of the format and information to be provided. All but the Acceptance tag, are two-part tags.







SAMPLE LOG ENTRIES

Shown below are typical examples of entries made into each respective log. Note that some are cross-referenced such as HOLD 1100 to Reject 1700; and HOLD 1103 to Reject 1701.

QUALITY ASSURANCE PROGRAM
HOLD TAG LOG

Project:

Tag No	Date Issued	Description of Condition	Date Removed	QC Signoff
1100	5-1-05	Anchor RR101 Damaged	5-2-05	CB
1101	5-6-05	Documentation Incomplete - RR036	5-8-05	DMW
1102	6-4-05	Tendon AC101 - Field End Cutoff	6-10-05	CB
1103	6-15-05	Rusty Tendon V135	6-16-05	JWK
1104	7-2-05	Unable to access to Tendon V141		

QUALITY ASSURANCE PROGRAM
REJECT TAG LOG

Project:

Tag No.	Date Issued	Description of Condition	Date Removed	QC Signoff
1700	5-2-05	See Hold Tag 1100 - Scrap Head	5-4-05	JWK
1701	6-16-05	See Hold Tag 1103 - Scrap Tendon	6-30-05	DMW
1702	6-21-05	Drum of Grease Contaminated - Scrap	6-22-05	CB
1703	6-30-05	Anchor HA203 Damaged - Scrap	6-30-05	CB
1704	7-2-05	Shims Damaged - HT#43691 - Scrap	7-2-05	CB

NONCONFORMANCE/CORRECTIVE ACTION REPORT FORM - SAMPLE

NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: _____ NC / CA NO.: _____

NONCONFORMANCE:

Enter the nonconformance preferable referencing the quality program requirement that has bee

Refer to Section 2.1 of Procedure QA 9.0

APPARENT CAUSE KNOWN: ☐ YES ☐ NO *IF YES, DESCRIBE:*

May require consultation with QA, QE and/or Engineering Refer to Section 2.2 of Procedure 9

RECOMMENDED CORRECTIVE ACTION:

The immediate corrective action that will be taken to correct the stated nonconformance. One of the following dispositions shall be noted for the deficiency as it applies. "Use-As-Is", "Repair", "Rework", or "Scrap"

Refer to Section 2.3 of Procedure 9.0.

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

The long range corrective action that may be useful in eliminating the deficiency or reducing the frequency
Refer to Section 2.4 of Procedure 9.0.

INITIATOR: _____ TITLE _____ DATE: _____

SIGNIFICANT CONDITION: ☐ YES ☐ NO IF YES, REFER TO QAM SECTION 4 CRIT

APPROVAL COMMENTS:

Enter any comments that might be pertinent to effecting the approval of the corrective action
Refer to Section 25. of Procedure 9.0

PSC APPROVAL SIGN & DATE:	QC	QA	ENGINEE

OWNER / AGENT APPROVAL REQUIRED ☐ YES ☐ NO ENGINEER _____ QA _____

DATE _____ DATE _____

COMMENTS:

This area to be input only by the Owner or his agent. Refer to Section 1.3.1.1 of Procedure 9.0

DISTRIBUTION

☐ QA SECTION ☐ VICE PRESIDENT ☐ VENDOR
☐ QE SECTION ☐ CONTR. MGMT. ☐ _____
☐ ENGINEERING ☐ OWNER/AGENT ☐ _____

DISPOSITION COMPLETED

SIGNED: _____
TITLE: _____
DATE: _____

Enter NCR Number here and also into NCR Index Log. The NCR Number is the Project Number, prefixed with an "F" (e.g. FN123-001).

Enter the Hold Tag No., if applicable. If a tag was applied, note it's removal in the Disposition Completed block.

A "Yes" only by or with an evaluation and consultation with QA, QE and/or Engineering.

To be signed by Dept. indicated. May be signed by Initiator only if the Dept. designee was notified.

To be signed by Initiator or designee based on completion of Corrective Actions. Ensure NCR Index Log is updated to reflect closeout.

NONCONFORMANCE / CORRECTIVE ACTION REPORT FORM

HOLD TAG NO.: _____ NC / CA NO.: _____

NONCONFORMANCE:

APPARENT CAUSE KNOWN: ☐ YES ☐ NO **IF YES, DESCRIBE:**

RECOMMENDED CORRECTIVE ACTION:

ANY NONCONFORMING ITEM TO BE REPAIRED SHALL HAVE AN APPROVED REPAIR PROCEDURE.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

INITIATOR: TITLE **DATE:**

SIGNIFICANT CONDITION: ☐ YES ☐ NO **IF YES, REFER TO QAM SECTION 4 CRITERIA XV.**

APPROVAL COMMENTS:

PSC APPROVAL SIGN & DATE:	***QC***	***QA***	**ENGINEERING**

OWNER / AGENT APPROVAL REQUIRED ☐ YES ☐ NO ENGINEER _____ DATE _____

QA _____ DATE _____

COMMENTS:

DISTRIBUTION			DISPOSITION COMPLETED
☐ QA SECTION	☐ VICE PRESIDENT	☐ VENDOR	**SIGNED:**
☐ QE SECTION	☐ CONTR. MGMT.	☐ _____	**TITLE:**
☐ ENGINEERING	☐ OWNER/AGENT	☐ _____	**DATE:**

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

NONCONFORMANCE REPORT INDEX LOG

NCR#	DESCRIPTION	DATE WRITTEN	DATE SUBMITTED	DATE APPROVED	DATE COMPLETE

PSC PROCEDURE QA 9.0
NONCOMFORMANCES
HOLD TAG INDEX LOG
September 21, 2007
Revision 0
Page ____ of ____

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

HOLD TAG INDEX LOG

TAG#	DATE ISSUED	DESCRIPTION OF CONDITION	DATE REMOVED	QC SIGNOFF

PSC PROCEDURE QA 9.0
NONCOMFORMANCES
REJECT TAG INDEX LOG
September 21, 2007
Revision 0
Page ____ of ____

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period

REJECT TAG INDEX LOG

TAG#	DATE ISSUED	DESCRIPTION OF CONDITION	DATE REMOVED	QC SIGNOFF

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

CALIBRATION

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 CALIBRATION REQUIREMENTS

1.1 This procedure will establish the requirements for calibration of the Quality Control Test and Measuring Equipment to be used for inspection, testing and evaluation, during In-Service Inspections (surveillance) of the Post-Tensioning System Tendons.

2.0 CONTROLS

2.1 All calibrated test and measuring equipment shall be controlled for issue by the PSC Quality Control or Quality Assurance Section. The area of issue shall be indicated on the calibration records. The calibration records shall be maintained by the PSC Quality Control or Quality Assurance Section.

2.2 PSC Quality Control personnel shall maintain a file or list of in-service devices requiring calibration, and periodically review those records to prevent any lapse in calibration.

2.3 The Quality Assurance Section shall review calibration records during audits of that operation being audited.

2.4 All calibrated equipment shall be documented and identified by a label, tag, or log sheet indicating the status of calibration. The control device shall identify the equipment, the date of calibration, date due for recalibration and the signature or initials of the person performing or verifying the calibration.

2.5 The identification control of the calibrated equipment shall be of such a nature so that the specific traceability of that device will not be lost; usually engraved or marked with a Quality Control code number.

2.6 Any calibrated device that has been damaged, adjusted or repaired before the recalibration due date, shall be recalibrated before initial use, to assure the prescribed accuracy.

2.7 There is no intent to apply calibration requirements on those devices such as rulers, tapelines, levels, etc. where normal commercial practices provide adequate accuracy, or where there is no need for accuracy.

2.8 Procedures shall be provided for the calibration of special testing, measuring, inspection devices or other equipment requiring calibration and shall be controlled by the Quality Assurance Section or included in the Quality Manual for the project.

2.9 The Rams which have been used for Monitoring Force, Detensioning or Retensioning operations for In-Service Inspection of the Post-Tensioning System Tendons shall be verified for calibrated status after the completion of the work.

2.10 The documents for the calibration of Rams prior to starting the work and after completing the work shall be included with the Final Report for the In-Service Inspection.

3.0 OUT OF CALIBRATION

3.1 Devices out of calibration shall be processed as nonconformances. Devices out of calibration that are determined to have an adverse effect on quality shall have copies of that nonconformance report submitted to Executive Management for review, and comments where applicable.

3.1.1 Nonconformance Reports shall be drafted, submitted and distributed in accordance with the requirements of PSC Procedure QA 9.0.

3.2 Instruments that are found to be out of calibration shall be re-calibrated and a comparison made of the results of the new calibration and the out-of-calibration variance, if any. If no significant variation exists, the instrument shall be put back into service. In the event that a discrepancy exists, then the Engineering and/or Quality Assurance and Quality Control Sections shall make an evaluation of the discrepancy and the possible effect on the items processed with the out-of-calibration device, with regard to quality, accuracy or reliability. If it is determined that a serious problem exists, then the Quality Assurance Section shall determine what items checked with the out-of-calibration device shall be rechecked with an effective calibrated device.

3.3 Instruments that are found to be in excess of the required accuracy or tolerance band after being returned from Field Service, shall be controlled with Nonconformance Reports as required of Sections 3.1 and 3.2 of this Procedure.

4.0 TOOL AND GAUGE CONTROL

4.1 The calibration standards used to calibrate measuring and test equipment shall be controlled to an accuracy not to exceed a limit of 0.25% of the tolerance of the equipment being calibrated or the smallest used division of that instrument's scale, unless otherwise limited by "State-of-the Art" conditions. Pressure Gauges used for Post-Tensioning System operations shall be excluded from this requirement and shall be defined for accuracy in separate procedures.

4.1.1 For example, a micrometer that has a smallest scale reading of 0.001" shall be calibrated with a standard or device that has been calibrated to an accuracy of 0.00025" or less.

4.2 All measuring and test equipment used for Quality Control Inspections shall have subdivisions or increments for measurements that are equal to or smaller than the tolerance of the parameter being measured.

4.2.1 For example, a part needs to be controlled to a dimension of 9.365" with a tolerance of plus or minus 0.001". It would therefore be acceptable to perform that measurement with a device that is capable of measuring to 0.0001"

4.3 Calibrated Devices may be extended for the stated period of frequency, where that device has been calibrated and placed into storage, rather than into service. The original frequency period stated in Section 5.2, Equipment List, shall always be observed.

5.0 EQUIPMENT

5.1 The Equipment List shown in Section 5.2 of this Procedure contains those devices that are required for the In-Service Inspection or are used to calibrate devices that will be used during the In-Service Inspection. The required accuracy and frequency of calibration are stated for each device. It should be noted that the accuracy requirement is meant to be the tolerance band to which the device is being calibrated and not the original accuracy or the accuracy between calibration frequencies.

5.1.1 The term "DISS" in the Accuracy Column is defined as, "Division of that Instrument's Smallest Scale."

5.1.2 Where an asterisk "*" follows the accuracy dimension, this is meant to be that the dimension shown shall be verified with a Micrometer that reads to 0.0001".

5.1.3 The procedures that are used to calibrate the various types of equipment, gauges or instruments used during the In-Service Inspection, will accompany this procedure in the Surveillance Program Quality Control Manual. These procedures provide information relative to the calibration of each device and may be used for purposes of calibrating these devices in the field, should that become necessary.

5.2 EQUIPMENT LIST

DEVICE	FREQUENCY	ACCURACY
Load Cell (3000 Kips) Load Cell (Approx 50 Kips) Rams/Jacks (Stressing, Testing, etc.	5 Years 8 Years Beginning & End (B & E) of Project	± .1% Entire System ± .1% Entire System Calculated to within ± 0.01" for Ram Area
Dead Weight Tester Heise Digital Gauge	5 Years 3 Years	± 0.10% ± 0.10%
Pressure Gauge-Master (1/4%) Pressure Gauge-Stressing (1/4%) Pressure Gauges (1/2%) (Not used for Stressing)	B & E of Project B & E of Project 1 Year	± 30 psi ± 30 psi of Heise ± 55 psi of Heise
Micrometer Micrometer-Checking Bar Standard	6 months 1 Year	± 1 DISS ± 0.0001"
Thickness (Feeler) Gauge Under 0.005" 0.005" and Over (* Verified with a 0.0001" micrometer)	 6 months 6 months	 ± 0.0005"* ± 0.0010"
Steel Ruler Steel Tapeline Thermometer	1 Year 1 Year 1 Year	± 0.0100" ± 1/16"/100' of lgth. ± 1 DISS
Optical Comparator	1 Year	± 0.0010"
Dial Indicator	1 Year	± 1 DISS

6.0 DOCUMENTATION

6.1 The various types of documents generated for calibration and/or status of calibrations will be described in the General Procedures for Calibration or contained within that Procedure for a particular device. Others may be added as the need arises. Quality Control personnel shall prepare or assist in the preparation of these records. A copy of the calibration record shall accompany the calibrated device to the field.

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

CALIBRATION VERIFICATION

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 FIELD VERIFICATION OF PRESSURE GAUGES

1.1 The following procedure shall be used to verify the calibration of hydraulic pressure gauges during field operations. These gauges may be used in stressing operations with the rams or other devices that require a measure of accuracy to produce quality results. Frequency and Accuracy of Calibration shall be controlled as stated in Section 5.2 of Procedure QA 10.0 Equipment List. The Verification frequency shall be controlled as stated in Section 1.5 of this Procedure, while the Verification Accuracy shall be controlled as stated in Sections 3.6 or 3.7.

2.0 GENERAL

2.1 Prior to being used for any work, all gauges shall be calibrated with the use of a Dead Weight Tester or the Heise Digital electronic pressure indicator.

2.2 In addition to the pressure gauges used during the surveillance, one gauge, designated as the Master Gauge or a Heise Digital Gauge, shall be set aside for purposes of Calibration Verification during the process of the work. Prior to use the Master Gauge or Heise Digital Gauge used for Calibration Verification shall have been calibrated per PSC Procedure Q12.8.C-W with a dead weight tester traceable to the NBS.

2.3 PSC Quality Control personnel shall maintain the controls for distribution and recall of each Pressure Gauge being used on site.

2.4 A Pressure Gauge may be verified for calibration or accuracy at shorter frequencies than stated in Section 5.2 of Procedure QA 10.0. It is important that verification be performed any time that the gauge has been damaged, subjected to some physical abuse or there is some reason to suspect its accuracy.

2.5 Pressure Gauges used for Detensioning or Retensioning (Stressing) tendons of Post-Tensioning Tendon Systems during In-Service Inspections of Nuclear Power Plants, shall be Verified for Calibrated status at least once a day during the operational use of those gauges.

3.0 VERIFICATION OF CALIBRATION

3.1 Clean and remove any dirt, grease or residue that could affect the accuracy of the calibration or use of the pressure gauge.

3.2 At the option of the PSC Quality Control Section it shall be acceptable to use a Heise Digital Pressure Indicating Gauge for Calibration Verification of Pressure Gauges, rather than a Master Gauge.

3.3 Attach the Pressure Gauge to the Calibration Pump of the Heise Indicator or Master Gauge.

3.4 Close the back pressure valves before pressurizing the system.

3.5 Increase the hydraulic pressure to the point of the desired reading on the Pressure Gauge, usually 1,000 psi plus or minus 100 psi increments. Take a reading of the Pressure Gauge and the Heise Indicator and document both on the Pressure Gauge Calibration Form.

3.6 MASTER GAUGE (1/4% Accuracy)

3.6.1 Where a Master gauge is used for verification of calibration, the master gauge and field gauge to be calibrated shall be connected to a common line (manifold) on a hydraulic pump. The pump shall be pressurized in no greater than 1,000 psi increments, plus or minus 100 psi, to the highest overstress pressure that shall be encountered during stressing activities; for example, 7,600 psi overstress will require calibration on that gauge to at least 7,600 psi. It shall be acceptable to go to 8,000 psi.

3.6.2 The accuracy of a gauge verified in this manner shall be acceptable, if it reads to within 50 psi of any reading on the Master Gauge.

3.7 HEISE DIGITAL GAUGE

3.7.1 A Pressure Gauge may be verified for calibration by connecting that gauge and the Heise Digital Gauge to a common line, which is in turn connected to a hydraulic pump and pressurized to the same values noted in 3.6.1 above.

3.7.2 The verification accuracy of that Pressure Gauge shall be acceptable if it reads to within 30 psi of the Heise Digital Gauge reading for a 1/4 percent accuracy gauge or 55 psi for 1/2 percent accuracy gauge. As a 1/2 percent gauge cannot be accurately interpolated to increments of 5 psi it will be acceptable to take the reading to some point equal to or above 50 psi but not to exceed 60 psi.

3.7.3 Pressure Gauges with an accuracy of 1/2 percent or greater shall not be used for Monitoring Force, Detensioning or Retensioning operations of the Post-Tensioning Tendon System during In-Service Inspections.

3.8 With the Verification and Documentation of the Pressure Gauge being acceptable, the pump and gauge shall be depressurized and prepared for disassembly.

4.0 UNACCEPTABLE CONDITIONS

4.1 If a Pressure Gauge fails to meet the accuracy requirements of Section 3.6.2 or 3.7.2 after being used for Stressing or Detensioning operations, it shall be necessary to draft a Nonconformance Report in accordance with the requirements of Section 4 of Procedure QA 10.0, to control that Gauge and any Tendons worked with that Gauge.

4.2 Any Pressure Gauge not capable of meeting the stated accuracy requirements of Section 3.6.2 or 3.7.2 for the method of calibration being used, shall be returned to the PSC shop for adjustment or repair. Any repaired or adjusted Gauge shall be recalibrated before use.

4.3 ZERO ALIGNMENT (Zero Beating)

4.4 On occasion, the Pressure Gauge Indicating Needle may not be in precise alignment with the Zero mark on the Gauge Face, necessitating realignment. Before realignment takes place, a complete Verification shall be performed and documented on the Gauge Calibration Record. Then, the Inspector shall perform the realignment. With the realignment completed, a new Verification shall be performed and documented. This realignment shall not be considered and adjustment or repair, as long as that gauge meets the stated accuracy requirement of Section 3.6.2 or 3.7.2.

5.0 ACCURACY VARIATIONS

5.1 Even though Pressure Gauges that have been calibrated or verified for calibration, variations in excess of the requirements of Sections 3.6.2 and 3.7.2 may be detected between calibrations or verifications. In an effort to explain and control this deficiency, this Section shall be reviewed before the Verification of any Pressure Gauges.

5.2 The accuracy of the calibration of Pressure Gauges or the verification of calibration is highly dependent on the accuracy of the reading of the location of the Pressure Indicating Needle on the Gauge Face. While there is an attempt to precisely align the needle with the Gauge Face Indicating Line, it is nearly impossible to maintain that control. In an effort to explain any variations that could be noted between calibrations or verifications, it is recommended that a notation be added to the Calibration Document to signify that the intended increment was not precisely obtained. At that increment it would be noted that the value actually achieved was plus or minus an extrapolated pressure noted during the calibration.

5.2.1 For example: If the target increment on the gauge Face was intended to be 2,000 psi and the Indicating Needle was somewhat over the 2,000 psi line, perhaps enough to interpret as 10 psi, the notation on the Calibration Record would read:

5.2.1.1 2,000 psi +10

5.2.2 The requirements for Stressing or Detensioning Tendons do not require the Pressure to be read any finer than 10 psi during the In-Service Inspections. The Hydraulic Ram Calibration Procedure takes the reading error into account for Stressing or Detensioning along with any other errors that may occur as a result of calibration or gauge reading, thereby maintaining the accuracy or integrity of the work being performed. It is therefore necessary to document any minor variations during calibration or verification activities, so as to maintain the integrity of the accuracy of the Pressure Gauges.

6.0 DOCUMENTATION

6.1 A gauge Calibration Record form shall be prepared for each gauge being calibrated or verified. All pertinent information as required by the form shall be posted during calibration or verification.

6.2 Calibration or verification documents shall be retained in the appropriate jobsite Quality file.

7.0 ATTACHMENTS

7.1 Gauge Calibration Verification Record Form

PSC PROCEDURE QA 10.1
CALIBRATION VERIFICATION
GAUGE CALIBRATION VERIFICATION RECORD
September 21, 2007
Revision 0
Page ____ of ___

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period Job # N1002

GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED _____
GAUGE I.D. _____
MASTER GAUGE I.D. _____
REMARKS _____

MASTER GAUGE (PSI)	JACK GAUGE (PSI)

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period Job # N1002

GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED _____
GAUGE I.D. _____
MASTER GAUGE I.D. _____
REMARKS _____

MASTER GAUGE (PSI)	JACK GAUGE (PSI)

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
30TH YEAR – 8TH PEROID
CONTAINMENT BUILDING TENDON SURVEILLANCE

PRECISION SURVEILLANCE CORPORATION
IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

QUALITY CONTROL INSPECTION

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 QUALITY CONTROL INSPECTIONS

1.1 Where Precision Surveillance Corporation is not acting as the General Contractor for the Post-Tensioning operations, Quality Control Inspections shall be performed by the organization responsible for the quality control function of that portion of the work they are performing, as stated in PSC Procedure QA 4.0 of this manual, or as agreed to in the contract documents.

1.2 It is PSC's intent to provide the Quality Control activities for the Surveillance Inspection of the Post-Tensioning Tendon System as agreed to in the contract documents and as stated in the Surveillance Quality Control Manual.

1.3 Quality Control documents shall NOT BE SIGNED until all information for the inspections or tests for which that document is being generated have been entered onto that document.

1.3.1 Partially completed inspection or tests, those where the operation cannot be completed on the same day, shall be initialed and dated by the Inspector for those items that have been completed and require documentation.

1.3.2 Partially completed inspections or tests, those where the operation is interrupted by a temporary condition such as lunch or a break and where the operation shall be completed the same day, may be initialed completed by the Inspector to that point, for those items that have been completed and require documentation.

1.4 Quality Control documents that are being reviewed for completeness but were not witnessed by the reviewer shall be signed for that review ONLY AFTER completion of the review and NOT BEFORE.

1.5 A Quality Control document is defined as any document or record that contains a Quality Control Inspector signature requirement.

1.6 All inspections shall be documented on the appropriate inspection form for those operations witnessed on that day. All inspection documents shall be signed or initialed, dated and retained in the appropriate Quality file at the jobsite.

1.7 Quality Control Documentation shall be completed and turned in for review as soon as possible after completion of that Inspection Test or Evaluation.

1.8 Reviews of Quality Control Documentation should be completed within 24 hours of receipt or sooner to verify that the information is accurate and complete. Errors or deficiencies shall be resolved without delay.

1.9 There are a number of Quality Control Documents that may not be completed in one day or require posting to another document. It is advisable to make reproductions of these documents and use these to complete whatever actions are necessary, while retaining the original document, even though incomplete, in a Quality Control file. The additional information can be entered onto the original document until completed. Leave the reproduced copies attached to the back of that document until the review is completed, at which time the reproductions may be disposed of.

1.10 It may be necessary to generate more than one original copy of a Quality Control Document for an Inspection or Test on a tendon. This shall be acceptable just so the total quantity of pages and the page number appear on each document.

2.0 INSPECTION

2.1 The term Inspection is meant to include:

2.2 The witnessing of an operation that generates Quality Control Data which is documented by the Inspector.

2.3 The performance of some operation by the Inspector, such as measuring or other Quality Control Data, which is documented by the Inspector.

Precision Surveillance Corporation

PROGRESS ENERGY FLORIDA, INC.
CRYSTAL RIVER NUCLEAR UNIT 3
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IN-SERVICE INSPECTION
QUALITY CONTROL PROCEDURE

AUDITS

Prepared by	*LEVEL II Q.C.*	*09/21/07*
	Title	Date
Approved by	*PROJECT MANAGER, P.E.*	*09/21/07*
	Title	Date
Approved by	*PRESIDENT*	*09/21/07*
	Title	Date

1.0 AUDITS

1.1 Surveillance operations shall be audited as required by the project specifications or as agreed to in the contract documents, to verify conformance with the approved job related manuals and procedures.

1.2 Audits shall be performed by qualified personnel of the Precision Surveillance Corporation Quality Assurance Section and who shall be independent of the area being audited.

1.3 Audits shall be performed using a checklist prepared prior to the audit, with the results documented on a Jobsite Audit Summary Sheet and a commentary noted on an Audit Finding Report form or similar type documents.

1.4 Audits shall be performed on a random basis and shall be scheduled when a variety of operations are being performed or as a specific activity occurs.

1.5 Subsequent audits shall provide a review of previously noted deficiencies or program non-compliance to ensure appropriate action has been taken to resolve those areas of concern.

1.6 Copies of the audit report shall be maintained in the appropriate jobsite quality files and distributed in accordance with the project specifications or distribution list on the audit checklist.

1.7 The audits shall be performed as early in the life of the In-Service Inspection, as is practical, and must consider the limitations of the scaffolding or platforms.

1.8 The elements to be audited shall be commensurate with the status and importance associated with the In-Service Inspection activities.

1.9 Progress Energy Florida (PEF) has the right of access for the performance of quality audit.

1.9.1 Any findings noted as a result of a PEF audit shall be addressed by Precision Surveillance Corporation on a timely basis with corrective action as approved by PEF.

GENERAL

Calibrations of equipment will be performed for the frequency and accuracy as described in the respective quality control manual for those devices used for the control of the project materials or tests.

Calibrations are only provided for equipment in service at any one time for any number of projects. Because of the quantity of original equipment as gauges, and measuring devices, and subsequent back up or replacement equipment, no attempt will be made to keep all the equipment calibrated at one time.

IN-SERVICE EQUIPMENT:

Equipment classified as "in-service", regardless of location, will be kept in a calibrated condition for the frequency and accuracy specified for that piece of equipment.

Vendor:

Equipment will be calibrated for the frequency and accuracy specified whenever work is being performed for any PSC Post Tensioning component and prior to startup of that work.

Shop - PSC

Equipment will be calibrated for the frequency and accuracy specified whenever tendons are being manufactured and prior to the startup of the work.

Field - PSC

Equipment will be calibrated for the frequency and accuracy, specified whenever tendon installation operations are being performed and prior to the startup of that operation.

OUT-OF-SERVICE EQUIPMENT

When no operations are being performed for work of a post tensioned nature, components are not being manufactured, or equipment is classified as being in storage, no attempt will be made to keep the equipment in a calibrated condition. The calibration records may show gaps indicating non-continuity of calibration, but this should not be construed as a lapse of Quality Control. Specific items in use will be used to verify continuity of calibration and control.

RECALL

Equipment will be controlled for recall by the Quality Control Section of the area responsible for calibrations and will generally follow the requirements of PSC Procedure Q 12.5.

1. CONTROL COLOR FLAGS

1. As a means of porviding a control of items requiring calibration, after any device has been calibrated, a control color flag will be attached to the folder into which the calibration record has been placed.

2. The following list is the monthly color code:

1.	January	-	Orange
2.	February	-	Red
3.	March	-	Blue
4.	April	-	Dark Red
5.	May	-	Light Blue
6.	June	-	Light Green
7.	July	-	Yellow
8.	August	-	Dark Green
9.	September	-	Pink
10.	October	-	Black
11.	November	-	Brown
12.	December	-	White

3. The color flag will indicate that a calibration is due for that month.

4. The following procedure will be followed when the color flag indicates that a calibration is due.

   1. Remove and store the control color flag.
   2. Recalibrate the gauge.

      a. If the gauge is not to be put back into service at that time, it will be returned to storage and so documented on the calibration record. It will not be calibrated until it goes into active service.

   3. Document the calibration on the calibration record.
   4. Return the calibrated gauge to active service.
   5. Attach the control flag to signal the new month for calibration.

5. At the end of a month, the files will be checked to determine what calibrations are due.

1. MICROMETER 0" to 2"

The following procedures will be used as a means of calibrating micrometers.

1. 1. Clean micrometer of all dirt, oil, residue, etc.

1. 2. Remove the old calibration sticker.

1. 3. A calibrated Surveillance Kit Step Block, traceable to the National Bureau of Standards will be used for calibrating small micrometers.

1. 3. 1. Take the various readings and enter them onto the Calibration Form - Exhibit A.

1. 3. 2. The measurements on the current PSC Surveillance Kit Step Block are:

.2430"
.3460"
.6550"
.9640"

1. 3. 2. 1. These measurements will vary according to the Step Block being used and the final size of the micrometer; those capable of reading in excess of 2".

1. 3. 3. Record all actual readings on the reading column on the Calibration Form - Exhibit A, the accuracy shall be within ± one division of the smallest reading on that instrument to be acceptable.

1. 3. 4. Record any variations in the error column, provided that the errors are within the acceptable tolerance band.

1. 3. 4. 1. If the error is outside the tolerance band, then the micrometer shall be adjusted following the instructions and using the tools for adjusting the micrometer, by Quality Control personnel. Once adjusted the micrometer shall be recalibrated in accordance with the requirements of this procedure.

1. 3. 5. Larger micrometers shall be calibrated by using larger Step Blocks or Bar Gauges in unison with the Step Block.

1. 3. 6. No less than three readings shall be taken for a micrometer calibration. These readings should occur somewhere at the minimum, middle and maximum spindle or measuring capabilities.

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2. LARGE MICROMETERS

2. 1. Micrometers larger than described in Section 1 above may be calibrated with the use of Step Blocks large enough to facilitate the size of the micrometer being calibrated or any one of the following options:

2. 1. 1. Use the calibrated standard supplied with that micrometer and combine that device with the calibrated master feeler gauges or a large calibrated Step Block.

2. 1. 2. Use a series of calibration standards or inidvidual gauge blocks.

2. 2. In any circumstance stated above, no less than three different measurements shall be taken and preferably at the low, middle, and high ranges of that micrometer.

2. 2. 1. Each calibration standard stated above shall be calibrated and to an accuracy magnitude of 10 times finer, (0.10), than the device being calibrated is capable of measuring. For example, an 0.001" micrometer shall be verified for accuracy by another device that is capable of being read to or is calibrated to 0.0001".

3. INSIDE MICROMETERS

Inside micrometers shall be calibrated with a calibrated outside measuring micrometer capable of reading to 0.0001" and in general compliance with Section 2.2 above.

4. DOCUMENTATION AND CONTROL

4. 1. If all the readings are acceptable, they shall be documented on the Micrometer Calibration Record. The record shall be signed and dated by the person performing the calibration.

4. 2. Document the calibration on the Gauge Calibration Record and also note where that micrometer is being used. See Exhibit B attached - Gauge Calibration Record.

4. 3. After all records have been filled out and are correct, including the correct date for re-calibration, fill out the PSC Calibration Sticker and attach it to the micrometer and release it to its respective function in the shop.

4. 4. If the micrometer is to be put into field service, follow the procedures below:

4. 4. 1. Put the original calibration documents into the calibration file.

4. 4. 2. A facsimile copy of the documents shall go to the Field Quality Control representative or respective PSC Agent, where that gauge is to be placed into service.

4. 4. 3. The Gauge Calibration Record shall also contain, in the Remarks column, the project name, contract number and date.

4. 5. Attach a control color flag as noted in Procedure Q12.5 as a means of controlling calibration recall.

QUALITY CONTROL

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CALIBRATION FORM

Project _____ Contract _____ Date _____

CALIBRATION DATA Recall Date _____

Gauge or Device Name _____ Number _____

Manufacturer _____ Type or Model _____ Range _____

Master Calibration Device _____ Number _____

Master Device Calibration Date: _____

Test Range	Reading	Error

Method of Calibration (Procedure number or describe other) _____

Comments: _____

Calibrated By: _____ Title: _____ Date: _____

EFFECTIVE DATE	PREV.REV. △	REVISION △	PAGE

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"EXHIBIT B"

GAUGE CALIBRATION RECORD

GAUGE/INSTRUMENT	IDENTI-FICATION	DATE CAL	RE-CAL DUE	ERROR	REMARKS (PROJECT, PART NO., REPAIR, ETC.)

1. PRESSURE GAUGES

The following procedures will be used as a means of calibrating pressure gauges to be used during stressing or detensioning operations.

1. 1. Clean and remove all dirt, oil, residue, etc.

1. 2. Remove the old calibration sticker.

1. 3. Put the gauge on the calibration pump of the Mansfield & Green Dead Weight Tester and follow the procedures below.

1. 3. 1. Remove the front glass or plastic from the face of the gauge, or remove the rubber grommet in the back of the gauge, to make any adjustment, if needed, but only after all 9000 lbs. have been gauged.

1. 3. 2. Place the gauge on the pump, fitting adaptors as needed to conform to the gauge outlets.

1. 3. 3. Close the oil port by moving the lever forward.

1. 3. 4. Place a dish type weight onto the cylinder carefully (all weights are numerically marked 1 through 9) starting with Number One.

1. 3. 5. Push the button in for a fast build up of pressure on the gauge.

1. 3. 6. Pull the button out for a slow incline of oil being pumped into the gauge.

1. 3. 7. Read the gauge in 1000 psi graduations and record on the Calibration Record Sheet (Exhibit A).

1. 3. 8. Continue to add weights and pump pressure into the gauge until all the weights have been placed on the cylinder, a total of 9 weights.

1. 4. If the gauge readings are not consistent with the required weights, the initial calibration shall be completed. If the gauge is reading uniformly over or under, an adjustment of the gauge is necessary.

1. 4. 1. GAUGE ADJUSTMENT

1. 4. 1. 1. Place a screwdriver on the back of the gauge and into a small port hole or on the face of the gauge.

1. 4. 1. 2. Match the gauge reading with the amount of weights on cylinder by turning the screw.

1. 4. 1. 3. If the gauge cannot be adjusted, it will be repaired or properly disposed of.

1. 5. After the adjustments, if any, have been made, release the pressure by moving the lever back to the original position. The calibration will now be completed by checking all the required increments.

1. 6. Take the dish type weights off one by one, and put them back into the box in their respective slots, taking care not to damage the weights.

1. 7. Fill out a new PSC Calibration Sticker and attach it to the face of the gauge, making sure that the re-calibration date is correct.

1. 8. Put the glass or plastic back on the face of the gauge or install the rubber grommet into the back of the gauge.

1. 9. Document the calibration on the Gauge Calibration Record (Exhibit B) also noting where the gauge is being used.

1. 10. With the gauge now calibrated, it may be released to its area of intended use.

1. 11. If the pressure gauge is put into field service, follow the procedure below:

1. 11. 1. Put the original calibration documents into the Calibration File.

1. 11. 2. A facsimile copy of the documens will go to the Field Quality Control representative or respective PSC Agent where that gauge is to be placed into service.

1. 11. 3. The Gauge Calibration Record will also contain, in the Remarks Column, the project name, contract number and date.

1. 12. Attach a control color flag as noted in Procedure Q12.5 as a means of controlling calibration recall.

2. <u>HEISE DIGITAL PRESSURE INDICATOR</u>

Rather than using the Dead Weight Tester for calibration, a Heise Digital Pressure Indicator may be substituted.

2. 1. Close back pressure valves before pressurizing the system.

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2. 2. Increase the hydraulic pressure to the point of the desired reading on the pressure gauge, usually 1000 psi ± 100 psi increments. Take a reading of the pressure gauge and the Heise Indicator and document both on the gauge calibration form.

2. 3. Section 2.2 shall be repeated until all the required readings have been taken usually to a maximum of the next even 1000 psi increment above the highest overstress pressure required for the stressing operations, i.e., 7600 psi overstress will require calibration to 8000 psi.

3. GAUGE ACCEPTANCE

The pressure gauge to be used for stressing or detensioning of tendons will be acceptable if it meets the following requirements.

3. 1. A 1/4% (0.25) gauge shall read to no greater than plus or minus 30 psi for any scale face reading of the calibrating gauge.

3. 2. A 1/2% (0.50) gauge shall read to no greater than plus or minus 50 psi for any scale face reading of the calibrating gauge. This type gauge shall not be used as a master gauge.

4. TEMPERATURE

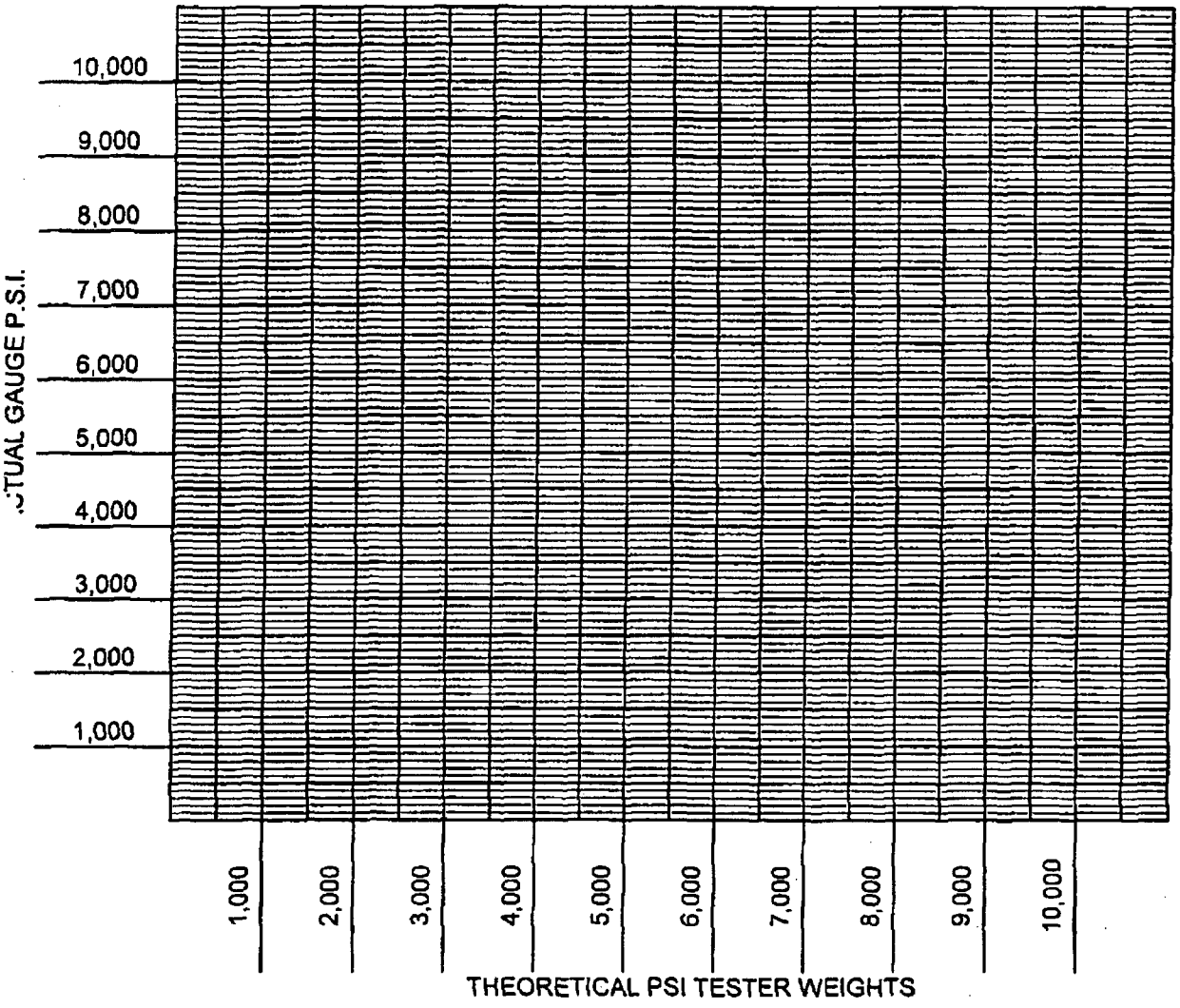
The ambient temperature during calibration of the pressure gauge shall be documented on the Calibration Record Sheet.

EXHIBIT A
GAUGE CALIBRATION RECORD SHEET
PROCEDURE Q12.8.C-W

PROJECT: _____ AMBIENT TEMPERATURE _____ °F

JOB NO. : _____ THERMOMETER ID: _____

GAUGE NO. : _____ CAL. DUE : _____



Weights	Gauge P.S.I.
1,000	_____
2,000	_____
3,000	_____
4,000	_____
5,000	_____
6,000	_____
7,000	_____
8,000	_____
9,000	_____
10,000	_____

Mansfield & Green
Dead Weight Pressure
Model R100 Serial #1422
Cal Due: _____

Calibrated By: _____ Date: _____

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"EXHIBIT B"

GAUGE CALIBRATION RECORD

GAUGE/INSTRUMENT	IDENTI-FICATION	DATE CAL	RE-CAL DUE	ERROR	REMARKS (PROJECT, PART NO., REPAIR, ETC.)

1. THERMOMETERS
The following procedures will be used as a means of calibrating thermometers.

1. 1. Clean thermometer of all dirt, oil, residue, etc.

1. 2. Remove the old calibration sticker.

1. 3. Master and test thermometer shall be immersed in an agitated liquid for at least 3 minutes, and at least 3 inches of sensing or sending unit shall be submerged in the liquid. Comparisons will be made at 3 temperature variances in the range of the temperatures expected to be used, but in no case less than 50° F. between variances.

1. 3. 1. Where temperatures below freezing apply, it shall be acceptable to place the master thermometer and the thermometer to be calibrated into a freezer compartment, such as that of a refrigerator, for no less than the required time period.

1. 3. 2. The accuracy shall be within one graduation of the smallest reading on the scale. If not, adjust the thermometer to the same reading as the master and continue to calibrate.

3. 3. If no adjustment can be made, the thermometer shall be returned to Quality Control or Quality Assurance for repair or destruction.

1. 4. If the readings are acceptable, complete the Thermometer Calibration Record (Exhibit A). The record shall be signed and dated by the person performing the calibration.

1. 5. Document the calibration on the Gauge Calibration Record (Exhibit B) and note where that thermometer is being used.

1. 6. After all records are filled out, including the correct date for re-calibration, fill out the psc Calibration Sticker and attach it to the thermometer.

1. 7. If the thermometer is put into field service, follow the procedures below:

1. 7. 1. Put the original calibration documents into the calibration file.

1. 7. 2. A facsimile copy of the documents shall go to the Field Quality Control representative or respective psc Agent.

1. 7. 3. The Gauge Calibration Record shall also contain in the Remarks column, the project name, contract number and date.

1. 8. Attach a control color flag as noted in Procedure Q12.5 as a means of controlling calibration recall.

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THERMOMETER CALIBRATION RECORD

"EXHIBIT A"

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Customer Name:	Project Name:	Contract Number:

Thermometer I.D. #:	Date of calibration:
Manufacture:	Recalibration due date:
Type or model:	Master thermometer I.D.:
Range:	Master calibration due date:
Location:	

CALIBRATION DATA

Master Actual Temperature	Test Reading Temperature

Calibration Method:

Master and test thermometer to be immersed in agitated liquid for at least 3 minutes, and at least 3 inches of sensing or sending unit to be submerged in liquid. Comparison will be made at 3 temperature variances of no less than 50 degrees F.

Accuracy must be within one graduation of the smallest reading on the scale. If not, adjust to same reading as master. If there is no adjustment, thermometer will be returned to Quality Assurance for repair or destruction.

NOTE: Accuracy will be within 5% of the total guage face value or one unit of the smallest scale graduation whichever is smaller.

Condition:

Remarks:

Calibrated By: Date: Page of Pages

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"EXHIBIT B"

GAUGE CALIBRATION RECORD

GAUGE/INSTRUMENT	IDENTI-FICATION	DATE CAL	RE-CAL DUE	ERROR	REMARKS (PROJECT, PART NO., REPAIR, ETC.)

1. FEELER GAUGES

The following procedures will be used as a means of calibrating feeler gauges or shim stock. Feeler gauges are described as metal strips of various lengths and/or widths supplied or measured to a specific thickness.

1. 1. Clean each strip to remove dirt, oil or other residue that may unduly affect the calibration accuracy.

1. 2. Remove old calibration sticker.

1. 3. The means of calibrating each gauge strip shall be provided through the use of a calibrated micrometer capable of reading in units of 0.0001".

1. 3. 1. Place the feeler gauge strip between the micrometer spindle and anvil.

1. 3. 2. Adjust the thimble and sleeve assembly, by using the barrel hub or ratchet, to the thickness of the gauge strip.

1. 3. 3. Read the barrel and vernier to determine the thickness. Repeat the adjustment and reading to verify the thickness. If necessary use the Instructions for Reading a Micrometer, attached.

. 4. If the accuracy is within the specified tolerance, document the calibration on the Calibration Form provided. (Exhibit C)

1. 4. 1. If the measured thickness of the gauge strip during calibration, is in excess of 0.0005" of the specified or required thickness, that gauge strip shall be re-marked to show the new dimension or that strip may be scrapped.

1. 5. After each gauge strip has been calibrated and all records are filled out and correct, fill out the PSC Calibration Sticker and attach it to the gauge strip, the gauge holder, or the container in which the gauge is stored.

1. 5. 1. Document the calibration on the Gauge Calibration Record (Exhibit B) and note where that device is being used.

1. 6. If the gauge strip is to be put into field service, follow the procedures below:

1. 6. 1. Place the original calibration documents into the calibration file.

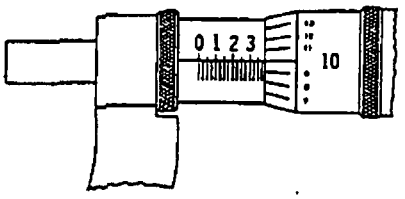
1. 6. 2. A facsimile copy of the documents shall go to the Field Quality Control representative or respective PSC . Agent.

1. 6. 3. The Calibration Form shall also carry in the Remarks column or other suitable area, the project name, contract number and date.

7. Attach a color control flag as noted in Procedure Q12.5, as a means of controlling calibration recall.

Instructions For Reading A Micrometer

EXAMPLE: .375 + .010 = .385



Your reading is taken by FIRST—read the barrel including the last visible line—then add the amount shown on the thimble. EXAMPLE—.375 + .010 equals .385.

A micrometer is a measuring gage operated by a screw having 40 threads per inch. Therefore one complete revolution of the screw advances one thread exactly or one fourtieth of an inch. 1/40" equals 25 thousandths of an inch or .025". Thus each line on the barrel equals .025". The beveled edge of the thimble is divided into 25 equal parts. Each line equals 1/25 of .025" or .001". (one thousandths of an inch.) One complete revolution of the thimble therefore equals .025" or one line on the barrel scale.

Instructions For Reading A Micrometer to Ten-Thousandths of An Inch

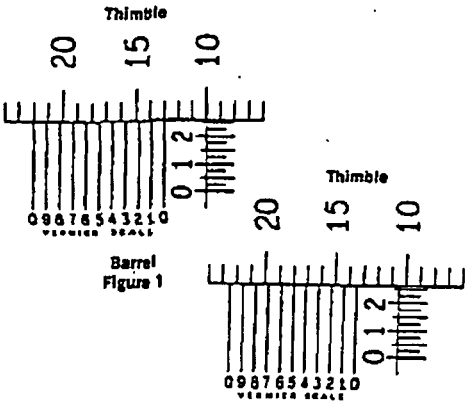
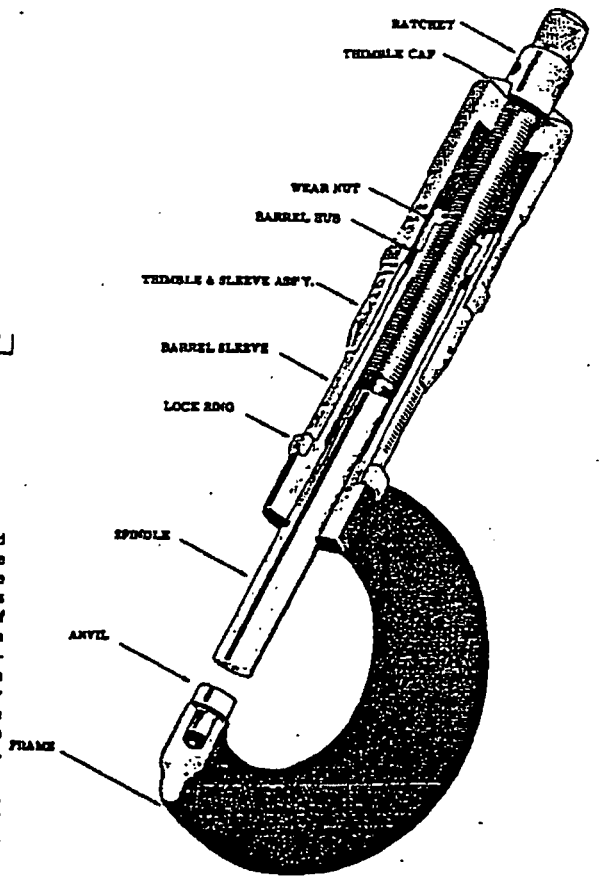


Figure 1

Figure 2

Readings in ten-thousandths of an inch can be obtained by use of a vernier scale. The vernier scale, marked on the barrel, has ten divisions which equal nine divisions on the thimble. Since each graduation on the thimble equals 1/1000 of an inch, then each vernier division is 1/10 of 9/10,000 of an inch. The difference between a thimble division and a vernier division is 1/10,000 of an inch. Therefore, when the zero lines of the vernier exactly coincide with thimble lines (Figure 1), the number on the vernier lines is the difference between the vernier line and the next thimble line in ten-thousandths of an inch. Thus when the fifth line on the vernier coincides with a thimble line, the thimble has moved 5/10,000 of an inch.

Example: First determine the number of thousandths, as with an ordinary micrometer. Then find a line on the vernier that exactly coincides with a thimble line. By adding the vernier reading to the thousandths reading the actual reading in ten-thousandths of an inch is obtained. The reading shown in Figure 2 is .260 plus .0005 or .2605.



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QUALITY CONTROL

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CALIBRATION FORM "EXHIBIT C"

Project _____ Contract _____ Date _____

CALIBRATION DATA Recall Date _____

Gauge or Device Name _____ Number _____

Manufacturer _____ Type or Model _____ Range _____

Master Calibration Device _____ Number _____

Master Device Calibration Date: _____

Test Range	Reading	Error

Method of Calibration (Procedure number or describe other) _____

Comments: _____

Calibrated By: _____ Title: _____ Date: _____

EFFECTIVE DATE	PREV.REV. △	REVISION △	PAGE 1 of 1

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"EXHIBIT B"

GAUGE CALIBRATION RECORD

GAUGE/INSTRUMENT	IDENTI-FICATION	DATE CAL	RE-CAL DUE	ERROR	REMARKS (PROJECT, PART NO., REPAIR, ETC.)

1. DIAL INDICATOR GAUGES

The following procedures will be used to calibrate Dial Indicator gauges. The gauge may be used for a variety of measurements and may require that the gauge be dismounted from some other device before calibration.

1. Dismount the gauge where necessary.

2. Clean the gauge of any dirt, oil or other residue that may unduly affect the calibration accuracy.

3. Attach the Dial Indicator to the Indicator Stand, with the probe pointing down towards the stand base.

4. Adjust the Dial Indicator gauge so that it rests on the Indicator Stand base with no pressure exerted on the probe. Set the dial face to read zero on the gauge, with the rotating bezel.

5. Using calibrated feeler gauge strips, slide the gauge strips between the stand base and the probe and note the readings on the Dial Indicator.

   a. A range of four readings will be taken. These will be 0.002", 0.005", 0.010" and 0.015".

6. If the accuracy is within the specific tolerance, document the calibration on the Calibration Form provided. (Exhibit C)

   a. If the accuracy is in excess of plus or minus one division of the smallest reading on the gauge, the gauge will be adjusted, repaired or scrapped.

7. After the Dial Indicator gauge has been calibrated and all records are filled out and correct, fill out the PSC Calibration Sticker and attach it to the gauge, gauge holder, or the gauge storage container.

1. 8. If the gauge is to be put into field service, follow the procedures below:

   a. Place the original calibration documents into the calibration file.

   b. A facsimile copy of the documents will go to the Field Quality Control representative or respective PSC Agent.

   c. The Calibration Form will also carry in the remarks column or other suitable area, the project name, contract number and date.

9. Attach a color control flag as noted in Procedure Q12.5, as a means of controlling calibration recall.

QUALITY CONTROL

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CALIBRATION FORM "EXHIBIT C"

Project _____ Contract _____ Date _____

CALIBRATION DATA Recall Date _____

Gauge or Device Name _____ Number _____

Manufacturer _____ Type or Model _____ Range _____

Master Calibration Device _____ Number _____

Master Device Calibration Date: _____

Test Range	Reading	Error

Method of Calibration (Procedure number or describe other) _____

Comments: _____

Calibrated By: _____ Title: _____ Date: _____

EFFECTIVE DATE	PREV.REV. △	REVISION △	PAGE 1 of 1

1. STRESSING RAM/JACK – HYDRAULIC

The following procedures will be used as the means of calibrating or determining the area of hydraulic stressing rams.

1. 1. Clean the ram of excessive dirt, oil, or other residue that may unduly affect the calibration accuracy.

1. 2. The load cell or testing machine shall be set up so that the loads will be applied in a uniform accuracy.

1. 3. The ram shall be attached to the load cell or testing machine and centered so that the loads will be applied concentrically and uniformly.

1. 4. The ram shall be loaded to the target increments shown on Form 12.8.G. This will be in about 1000 psi increments for 1000 ton rams and about 500 psi increments for 1400 ton rams. This will also vary according to the size of the ram and accuracy requirements for a project.

1. 4. 1. Gauge pressures shall not be reduced to meet a target increment once a target increment has been exceeded. Readings will be acceptable when they are within 100 psi of the target increment.

1. 4. 2. A minimum of three runs shall be made for each of the required target increments. These runs shall occur at about ¼,, ½, and ¾ of the total ram extension for each ram.

1. 4. 3. The maximum ram pressure has been pre-determined for each size ram to be calibrated and normally will not be exceeded, to avoid damaging the ram.

1. 4. 4. Readings of the load cell readout and the pressure gauge shall be taken at the same time.

1. 5. During ram calibration a calibrated hydraulic pressure gauge having the smallest reading equal to or less than 20 psi or a Heise Electronic Digital pressure indicator shall be used. The hydraulic pressure reading to the nearest 10 or less psi or the actual digital readout shall be recorded on the calibration form.

1. 5. 1. The load cell or testing machine readout shall also be entered onto the calibration record to the nearest 0.1 reading.

1. 6. All other information areas of the calibration form shall be completely filled in by the calibration technician or the witnessing agent. The form shall be signed and dated. The calibration record shall then be handed over to the Engineering Section for final computation.

2. COMPUTATION OF RAM AREA

Regression analysis shall be used to compute the ram area once initial, raw data, information has been documented on the Jack Calibration Record Form. The personnel performing the computation and verification checks shall sign and date the Calibration Form and the computer printout.

2. 1. Computation shall be performed by the computer. All data entered into the computer will also be printed out. This data, as well as the computer results, shall be verified by someone other than the person operating the computer.

2. 2. In the event that the computer is temporarily unavailable, computations may be performed manually observing the same methods being used by the computer. These manual computations shall be verified and/or corrected by a computer computation as soon as practical. The manual computations shall only be performed by the Engineering Department personnel.

2. 3. Omitted readings, dropouts, are automatically considered by the computer. An explanation will be found in Appendix 1, Section 8.

3. STRESS CARD PREPARATION – APPLIES FOR ORIGINAL TENDON INSTALLATION ONLY

The regression equation shall be used in the preparation of stressing cards for each jack. As a means of providing a uniform area calculation where more than one jack is used in simultaneous stressing operations, the following procedures will be used.

3. 1. The mean ram area of all the jacks being sent to the jobsite shall be calculated.

3. 1. 1. If any ram in a group of rams varies from the mean ram area by more than plus or minus 2 percent, those rams with variation in excess of the specified tolerance shall be recalibrated or separate individual Stressing Cards shall be used for that ram.

3. 2. The mean ram area will be encoded into the PSC computer for use in preparation of the Stressing Cards for determining ram area. This will eliminate the need for manual calculation on the Stressing Cards.

3. 2. 1. Rams that cannot meet the plus or minus 2 percent control tolerance and are not to be recalibrated, will have separate Stressing Cards prepared based on that individual ram area.

3. 2. 2. In conditions of urgency, the Stressing Cards may be hand written.

3. 3. It is therefore possible to have more than one set of Stressing Cards for use in the stressing operations. Each set of cards shall have the appropriate information documented, following the requirements of the fabrication and quality control procedures for that project.

4. CALIBRATION DOCUMENT DISTRIBUTION

After completion of the verification check of the ram area calculations, the following distribution of the Calibration Record shall be made.

4. 1. The original Calibration Record shall be sent to Quality Control for retention in the Calibration file.

4. 2. Quality Control shall prepare a Ram Calibration Shipping Document Package and submit copies of this package for inclusion in the;

4. 2. 1. Quality Assurance Contract File.

4. 2. 2. Project Management Files.

4. 2. 3. Engineering Jack Calibration Files.

4. 3. Copies of the Calibration Record shall be distributed to:

4. 3. 1. Project Management or Coordinators/Project Managers.

4. 3. 2. Equipment Maintenance, Jack Number File.

4. 3. 3. Equipment Maintenance, Jack Calibration File.

4. 3. 4. Detailing/Engineering Departments, for preparation of field records.

4. 4. At least one copy will accompany the jack for shipment to the field. This copy shall be retained in the appropriate quality documentation file on site.

4. 5. RAM CALIBRATION DOCUMENT PACKAGE

Included in the Ram Calibration Document Package will be the NIST Calibration Data Sheet for the Load Cell; the Gauge Calibration Data Sheet traceable to the NIST, for the gauge used during calibration; Calibration Record Form 12.8.G and the Computer Printout. Where required by the Contract Documents, a Certificate of Compliance shall be included attesting to the traceability of the various instruments to the NIST. △2

5. OTHER CONTROLS

5. 1. Calibration stickers or any other calibration information may or may not be applied to the rams. The nature of the jacks plus the constant handling make it very difficult, if not impossible, to retain any markings or temporarily attached devices.

5. 2. Calibration frequency and recall control shall be found in the appropriate Field Installation Manual, Surveillance Program Quality Control Manual, Fabrication Quality Control Manual or as separate Quality Control Procedures.

5. 3. Requirements for other conditions mandating recalibration shall be specified in the Quality Assurance Manual, Fabrication Quality Control Manual, Field Installation Manual, Surveillance Program Quality Control Manual or as separate Quality Control Procedures.

6. DOCUMENTATION

The calibration of a ram shall be documented on the Ram/Jack Calibration Record Form 12.8.G or a similar document. The computation will be in the form of computer printout sheets.

7. APPENDIX

Attached to this procedure are the following documents that will detail the computation of ram force as a function of gauge pressure using Linear Regression, computation of errors, examples and computer program used for calibration:

7. 1. Appendix 1 – Jack Calibration Using Linear Regression

7. 2. Appendix 2 – Examples 1 & 2: 2 pages

7. 3. Appendix 3 – Program Listing: 3 pages, dated 3-3-81

7. 4. Appendix 4 – Definition of Variables: 2 pages, dated 3-3-81

7. 5. Appendix 5 – Program Operation & Flow Chart: 5 pages, dated 3-3-81

NOT INCLUDED WITH ANY QC. MANUAL SUBMITTALS.

8. DEFINITIONS

8. 1. A ram is defined as the piston part of a force pump. It is the area of the piston which is to be measured as the means of calibration.

8. 2. A jack is defined as the entire force pump with the various attachments that permit it to pull or lift. For Post-Tensioning operations the applied force pulls one end of a tendon.

9. WITNESSING

9. 1. Where the project documents require the witnessing of ram calibrations, raw data, PSC shall notify the Owner or his agent to perform the witnessing.

9. 1. 1. If it is acceptable to the Owner, PSC shall have an independent inspection/laboratory source, who is acceptable to the Owner, perform the witnessing function.

9. 1. 2. If it is acceptable to the Owner, PSC shall have a PSC Level II Q.C. Inspector perform the witnessing function.

9. 2. Where the project documents do not specify a witnessing requirement, PSC may or may not provide witnessing, at PSC's option.

10. WITNESSING ACTIVITY

The witnessing activity consists of a visual observation of those operations that are associated with the calibration of the ram.

10. 1. The witness shall be a certified Level II Inspector per the requirements of ANSI N45.2.6-1978 from an independent inspection or laboratory source. The Owner shall retain the option of having a certified Level II Inspector from his Organization perform the witnessing function.

10. 2. The witnessing function shall consist of:

10. 2. 1. Verifying that the information posted on the calibration form is representative of the device being calibrated.

10. 2. 2. Verifying that the readings taken of the load cell readout and pressure gauge at each increment.

10. 2. 3. Signing the Calibration Record Form in the Witness Area attesting to the accuracy and acceptance of the raw data being entered.

10. 2. 4. Rejecting any activity not in conformance with the accumulation of the raw calibration data or not in compliance with Section 1 of PSC Calibration Procedure QA 12.8.G-W.

10. 3. The witness does not verify the actual computation of the ram area as this is a computer controlled function based on the "JKCALNR9 Jack Calibration Program."

RAM/JACK CALIBRATION RECORD FORM 12.8.G

PSC Formerly Inryco Surveillance

PROJECT _____ CONTRACT/PART NO. _____

Jack Description _____ Size _____ Tons Register No. _____

Theoretical Ram Area _____ Max. Pressure _____ PSI

Calibrating Device _____ Register No. _____ Constant _____

Calibrating Gauge _____ Register No. _____ Date _____

Raw Data By _____ WITNESS _____

Mean Ram Area _____ sq.in. K= _____ Kips Agency _____ Date _____

Computed By _____ QC Check _____

Title _____ Date _____ Title _____ Date _____

Target PSI	Gauge Reading PSI	Load Cell Readout	COMMENTS
			RUN_____ POSITION _____
			RUN_____ POSITION _____
			RUN_____ POSITION _____

1. THEORY OF LINEAR REGRESSION

The theory of Linear Regression, which uses the principle of Least Square to obtain the line of best fit, will be used to determine the relationship between ram force and gauge pressure. The equation of such a line is
$y = a + bx$ = prediction ram forces,

$$\text{where } b = \frac{\sum(xy) - \frac{(\sum x)(\sum y)}{n}}{\sum x^2 - \frac{(\sum x)^2}{n}} = \text{slope of the line of best fit (regression line)}$$

$a = \bar{y} - b\bar{x}$ = y - intercept of the line

$\bar{x} = (\sum x)/n$ = mean of all x-readings (gauge pressures)

$\bar{y} = (\sum y)/n$ = mean of all y-readings (measured ram forces)

n = Number of pairs of x, y readings. All readings for all three ram positions will be considered together.

COMPUTATION OF RESIDUALS (ERRORS)

For each pair of readings, the residual quantity unexplained by regression, Y res. = $\hat{y} - y$, will be determined. The percentage residual will also be determined as E_1 = (Y res./$\hat{y}$ x 100). Note that $\hat{y}$ is the force computed from the Load Cell readout and the Constant (K).

3. OTHER ERRORS

All other errors due to calibration such as interpolation, accuracy and/or repeatability of the Standards certified by the National Institute of Standards and Technology repeatability of gauges used in calibration or in the field, etc. shall be listed. As a minimum, the following items will be considered.

3. 1. AT JACK CALIBRATION

3. 1. 1. Error in Standard (varies between repeatability of 3 psi to maximum guaranteed value of 10 psi).....use S=(K+.003)ksi or actual value.

3. 1. 2. Interpolation error of calibration gauge against which the jack is compared with the standard.....use (Gc/4)ksi or actual value.

3. 1. 3. Accuracy and repeatibility of calibration gauge = 0, since the calibration gauge is adjusted to match the Standard each time.

3. 2. AT GAUGE CALIBRATION

3. 2. 1. Interpolation error in Master.....use (Gm/4)ksi or actual value.

3. 2. 2. Interpolation error in Field Gauge..use (Gf/4)ksi or actual value.

3. 2. 3. Accuracy of Master.....use M=(S/2+Am)ksi or act. value.

3. 2. 4. Accuracy of Field Gauge.....use F=(M+Af+Am)ksi or act. value.
Note: It is expected that the various gauges can be interpolated to any one of 4 division between incremental markings.

3. 3. AT FIELD USE OF GAUGE

3. 3. 1. Interpolation error.....use (Gf/4)ksi or actual value.

3. 3. 2. Accuracy.....use E=(M+Af+Am)ksi or act. value.

DEFINITIONS

K = Actual calibration value of Standard.

S = Error in Standard (traceable to NIST).

G = Smallest Gauge scale face reading. (Graduations.)

A = Manufactured guaranteed accuracy.

M = Calibrated accuracy of Master Gauge.

F = Calibrated accuracy of Field Gauge.

E = Calibration error in field.

c = Calibration Gauge.

m = Master Gauge.

f = Field Gauge.

5. **ERROR CALCULATION - EXAMPLE**

Let K = .007 ksi; Gc = .010 ksi; Gm = .050 ksi; Gf = .050 ksi;

M = (.010/2 + .025) or .030 ksi; E or F = (.030 + .050 + .025) or .105 ksi.

S = (K + .003) or .010 ksi; Am = .025 ksi; Af = .050 ksi.

5. 1. From the above list of values the most probable sum of the "other" errors will be calculated as the square root of the sum of squares. For the stated values

$$\pm \sqrt{\Sigma\ (\text{errors})^2} = \pm\ .1534 \text{ ksi}$$

5. 2. The most probable error will be input and calculated as a percentage of the maximum gauge pressure expected to be used for that ram at Overstress.

Example: Maximum gauge reading = 10 ksi (10,000 psi for a 750 T ram)

The most probable error as a percentage of the maximum gauge pressure to be used at Overstress for the above example would be:

$$E_2 = \frac{.1534 \times 100}{10} = 1.534\%$$

6. **COMBINED ERRORS**

The residuals from the regression (jack calibration errors) will be combined with the "other" errors to result in the most probable total error.

Most probable total error, $E = \sqrt{E_1{}^2 + E_2{}^2}$

7. **RECALIBRATION**

If the most probable total error, E is greater than 1.5%, the jack will be recalibrated or more accurate gauges will be used to reduce the value of E to 1.5% or less. If the jack has any repairs performed that could affect the ram area then that jack will be recalibrated.

8. OMITTED READINGS (Computer Dropouts)

During the calibration of the ram using the Jack Calibration - Linear Regression Program - JKCALNR9 simultaneous readings of the gauge pressure and the load cell indicator are taken. If plotted, these readings would form a scatter diagram from which a "line of best fit" could be drawn. Most of these points will be reasonably close to the "line of best fit", however, one or two may not be close enough and may be considered to be in error. Therefore these "error" points will be automatically discarded by the computer and recomputed as stated in the JKCALNR9 program. If more than one-third of the points are eliminated in this manner, the data is considered unsatisfactory and recalibration performed.

JACK CALIBRATION - LINEAR REGRESSION

PROJECT. V. C. SUMMER
JACK DESCRIPTION.
THEORETICAL RAM AREA.
CALIBRATING DEVICE USED.
CALLIBRATING GAUGE DESCRIPTION.

CONTRACT/PART NO.
TONS REGISTER NO. 9366
MAX PRESSURE. PSI
REGISTER NO. CONSTANT. 1600
REGISTER NO.

INPUT

ACTUAL GAUGE READING (PSI)	LOAD CELL READOUT	COMPUTED FORCE (K)
6100	79.50	1272.000
7010	91.00	1456.000
7900	103.00	1648.000
5990	78.00	1248.000
7030	91.80	1468.800
7700	101.80	1628.800
6080	79.70	1275.200
7010	91.90	1470.400
7740	101.60	1625.600

FOR INFORMATION ONLY

* - - THESE READINGS HAVE BEEN OMITTED FROM THE FINAL CALCULATIONS

ERRORS IN JACK CALIBRATION
ERROR IN STANDARD ********** 0.0100 KSI
INTERPOLATION IN GAUGE ********** 0.0025 KSI
ACCURACY OF GAUGE ********** 0.0000 KSI
ERRORS IN GAUGE CALIBRATION
INTERPOLATION IN MASTER ********** 0.0125 KSI
INTERPOLATION IN FIELD GAUGE **** 0.0125 KSI
ACCURACY OF MASTER ********** 0.0300 KSI
ACCURACY OF FIELD GAUGE ********** 0.1050 KSI
ERRORS IN FIELD USE OF GAUGE
INTERPOLATION ERROR ********** 0.0125 KSI
ACCURACY ERROR ********** 0.1050 KSI

MAXIMUM GAUGE READING USED ********** 10.0000 KSI

***** FORCE(K)= 213.438 X GAUGE READING(KSI) -29.878 *****

CORRELATION = 0.9988227 N/NO = 1.0000 (NOT < .6667)
MAXIMUM ERROR RATIO IN JACK ********** .0088
MAXIMUM ERROR RATIO IN GAUGES ********** .0153
MAXIMUM TOTAL ERROR RATIO ********** .0177

COMPUTED BY. TDW CHECKED BY.

JACK CALIBRATION - LINEAR REGRESSION ANALYSIS

PROJECT CAL PROCEDURE — CONTRACT NO. EXAMPLE
JACK DESCRIPTION: PINE — TONS: 1000 — REGISTER NO.: 9365
THEORETICAL RAM AREA (sq.in): 212.65
MAX PRESSURE (psi): 8440
ALIBRATING DEVICE USED: TELEDYNE — REGISTER NO.: 4734 — CONSTANT= 32991.2
CALIBRATING GAUGE DESCRIPTION: HEISE — REGISTER NO.: S9-271

.....INPUT.....		
ACTUAL GAUGE READING (psi)	LOAD CELL READOUT	COMPUTED FORCE (k)
1013	8.44	278.446*
2116	12.84	423.607
3155	19.20	633.431
4007	27.60	910.557*
5140	31.98	1055.059
6002	41.32	1363.196*
7107	44.64	1472.727
8016	50.92	1679.912
1004	7.66	252.713*
2100	12.78	421.628
3004	17.26	569.428*
4006	25.60	844.575
5088	31.00	1022.727
6005	41.58	1371.774*
7255	44.88	1480.645
8002	51.28	1691.789
1010	6.34	209.164*
2009	12.78	421.628
3010	16.22	535.117*
4108	25.62	845.235
5300	38.46	1268.842*
6004	38.46	1268.842
7003	41.86	1381.012
8005	51.22	1689.809

* - - THESE READINGS HAVE BEEN OMITTED FROM THE FINAL COMPUTATIONS

ERRORS IN JACK CALIBRATION
- ERROR IN STANDARD ..... 0.0100 ksi
- INTERPOLATION IN GAUGE ..... 0.0000 ksi
- ACCURACY OF GAUGE ..... 0.0000 ksi

ERRORS IN GAUGE CALIBRATION
- INTERPOLATION IN MASTER ..... 0.0000 ksi
- INTERPOLATION IN FIELD GAUGE .... 0.0050 ksi
- ACCURACY OF MASTER ..... 0.0100 ksi
- ACCURACY OF FIELD GAUGE ..... 0.0275 ksi

ERRORS IN FIELD USE OF GAUGE
- INTERPOLATION ERROR ..... 0.0050 ksi
- ACCURACY ERROR ..... 0.0275 ksi

MAXIMUM GAUGE READING USED ..... 8.0160 ksi

CALIBRATION DEVIATIONS ARE NOT WITHIN 1.5%
RECALIBRATE JACK

COMPUTED BY: DATE: CHECKED BY: DATE:

FOR INFORMATION ONLY

1. MAGNIFYING COMPARATOR RETICLES

The following procedure will establish the requirements for performing the verification of the status of accuracy of those Reticles that will be used with Magnifying Comparators.

1. 1. Remove the old calibration label if one was applied.

1. 2. Remove the Reticle from the Magnifying Comparator and carefully clean it. Do not use solvents or abrasives. Do not excessively rub the Reticle during cleaning or calibrating. This could displace the scale graduations which are flash plated onto the glass or plastic.

1. 3. Remove the Precision Glass Reticle Calibration Scale from its case and plastic bag. If necessary, carefully clean it in the manner described in Section 1.2 above. As this is a glass device, do not use excessive force during cleaning; do not drop this scale, as it could break.

1. 4. Place the Calibration Scale onto a sheet of clean, white or otherwise light colored paper. It is advisable to use a flashlight or other auxiliary lighting to assist in illuminating the Reticle and Scale.

1. 5. Place the Reticle to be calibrated into the Magnifying Comparator. The Magnifying Comparator should be in a range of 5 to 10 power magnification.

1. 6. Adust the Magnifying Comparator for focus after placing it onto the Calibration Scale. Adjust the auxiliary lighting as necessary.

1. 7. Align the Reticle on the Calibration Scale so that the 0.005" graduations are between the 0.004" to 0.006" graduation lines on the Calibration Scale. This should be done in about the center of the magnified viewing area to avoid problems with parallax at the outer edges of the viewing area. It would be advantageous to align a numbered 0.100" graduation line of the Calibration Scale with a numbered 0.100" graduation line of the Reticle. This would eliminate a need to count graduations between viewing areas of both devices. Refer to the sketches of the Reticle and Scale shown in Section 2 of this Procedure.

1. 8. Align the Reticle on the Scale so that the 0.005" Reticle graduation lines are just above the 0.004" to 0.006" graduation lines of the Scale. The 0.005" Reticle graduation lines will appear to emanate out of the 0.004" to 0.006" Scale graduation lines, making it a simple matter to verify that the Reticle has the correct dimensional spacing.

1. 9. Continue to verify that the 0.005" Reticle graduations intercept the 0.004" to 0.006" graduation lines and the 0.010" graduation lines through out the incremental 0.100" range being checked.

1. 10. Verify the correct dimensional alignment of the remaining incremental 0.100" ranges that are to be considered for this calibration. It may be necessary to shift the Reticle on the Scale so that it becomes easier to perform the verifications.

1. 11. It will not be practical to use those portions of the Reticle that are affected by parallax, those portions near the edges verified nor will they be used during inspections due to the parallax condition. Therefore only those portions of the Reticle that are not affected by parallax shall be verified.

1. 11. 1. There are a number of different configurations for the 0.005" increment Reticle, varying from 0.500" to 0.800" in length. The 0.500" Reticle is not affected by parallax to a great extent, so it can be verified for full value across the 0.500" length.

1. 11. 2. For those Reticles with lengths over 0.500", it will only be necessary to verify the center portion of the Reticle, typically the range of 0.200" to about 0.600".

1. 11. 3. The intent here is to provide some latitude regarding the range to be verified. Whichever range is verified shall be documented on the Calibration Record Form. That portion of the Reticle not verified shall be appropriately marked to prevent its accidental use. It would be best to place a piece of tape on the unflashed (unmarked) side of those portions of the Reticle ranges that were not verified and therefore not to be used.

1. 11. 4. The Reticle shall be verified for each 0.005" increment within each of the 0.100" Test Ranges to be used.

1. 11. 5. Record the actual readings for each Test Range on the Calibration Record Form. Due to the large amount of readings it will be acceptable to document these as Test Range readings for the ranges being verified, with a notation to indicate the increments between the Test Ranges being checked.

1. 11. 6. Acceptability of the verification of the Reticle shall be based on the Reticle matching the 0.010" graduations on the Scale throughout all the Test Ranges. As the Reticle is primarily used to identify cracks in concrete which are not less than 0.010" in width, the 0.005" Reticle graduation is of less importance and could be in error, but not in excess of 0.001" for any one 0.005" Reticle graduation.

1. 11. 7. Record any variations in the error column, provided that the errors are within the acceptable tolerance cited in Section 1.11.6 above.

1. 11. 8. If the Reticle does not meet the required acceptance criteria that Reticle shall be scrapped or destroyed.

1. 12. If all the readings are acceptable, they shall be documented on the Calibration Record Form. The record shall be signed and dated by the person performing the calibration.

1. 13. Document the calibration on the Gauge Calibration Record and also note where that Comparator/Reticle is being used. See Exhibit B attached - Gauge Calibration Record.

1. 14. After all records have been filled out and are correct, including the correct date for re-calibration, fill out the PSC Calibration Sticker and attach it to the Comparator or its Storage Case and release it to its respective function.

1. 15. If the comparator/reticle is to be put into field service, follow the procedure below:

1. 15. 1. Put the original calibration documents into the calibration file.

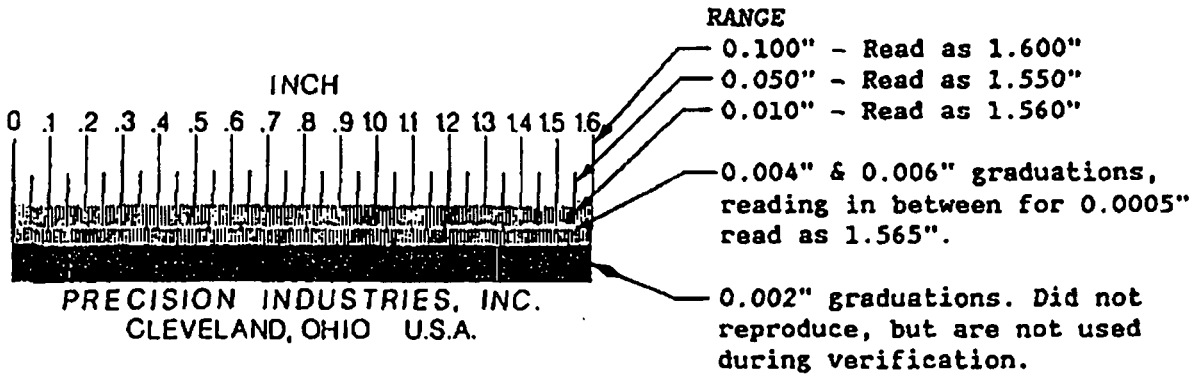
1. 15. 2. A facsimile copy of the documents shall go to the Field Quality Control representative or respective PSC Agent, where that gauge is to be placed into service.

1. 15. 3. The Gauge Calibration Record shall also contain, in the Remarks column, the project name, contract number and date.

1. 16. Attach a control color flag as noted in Procedure Q 12.5 as a means of controlling calibration recall.

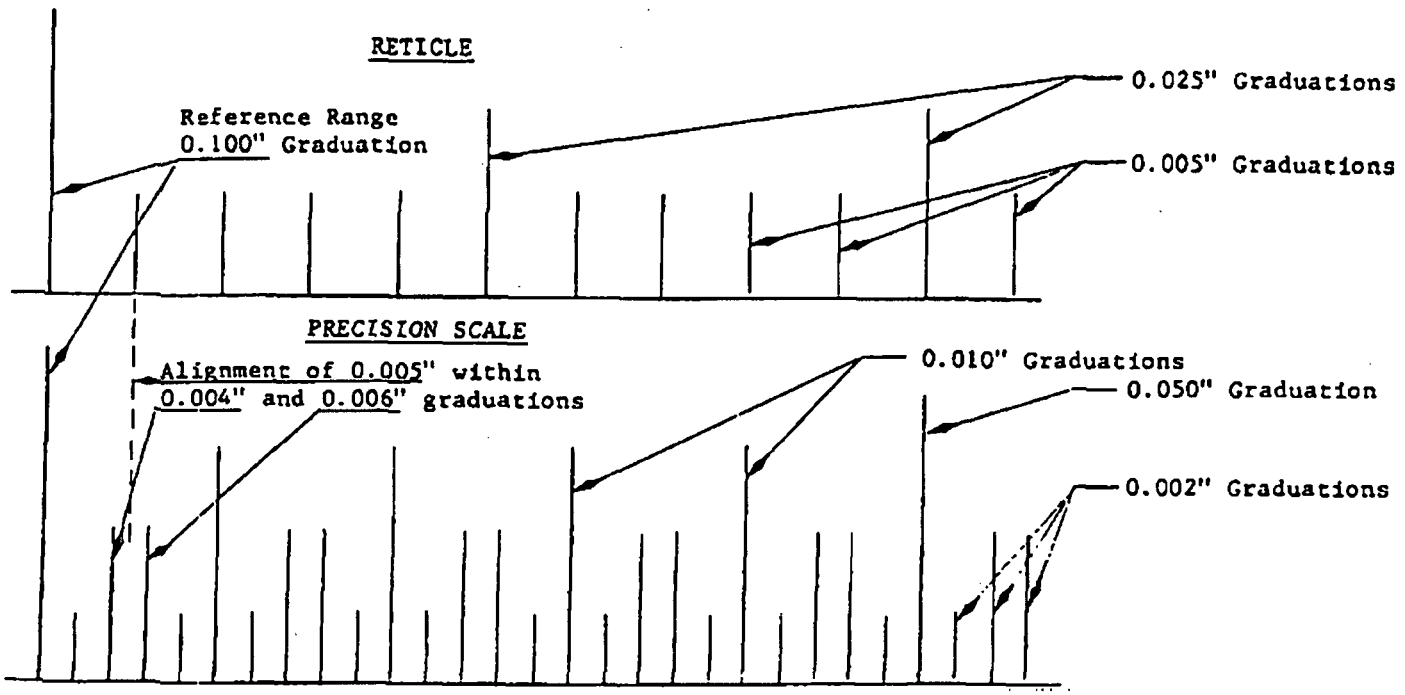
2. PRECISION GLASS RETICLE CALIBRATION SCALE

Shown below are enlarged copies of the Scale and the ranges. Some of the ranges do not reproduce well on facsimile machines and other Scale range examples are also shown. The Metric Scale is not used and therefore not shown or discussed.



2. 1. ENLARGED GRADUATIONS OF RETICLE AND SCALE

Shown below are enlarged portions of each graduation so as to provide a reference for purposes of comparison.



QUALITY CONTROL

CALIBRATION FORM "EXHIBIT C"

PSC Formerly Inryco Surveillance

Project _____ Contract _____ Date _____

CALIBRATION DATA

Recall Date _____

Gauge or Device Name _____ Number _____

Manufacturer _____ Type or Model _____ Range _____

Master Calibration Device _____ Number _____

Master Device Calibration Date: _____

Test Range	Reading	Error

Method of Calibration (Procedure number or describe other) _____

Comments: _____

Calibrated By: _____ Title: _____ Date: _____

EFFECTIVE DATE	PREV.REV. △	REVISION △	PAGE 1 of 1

PS' 'merly
Inryc eillance

" EXHIBIT B"

GAUGE CALIBRATION RECORD

GAUGE/INSTRUMENT	IDENTI-FICATION	DATE CAL	RE-CAL DUE	ERROR	REMARKS (PROJECT, PART NO., REPAIR, ETC.)

PSC PROCEDURE QA 10.1
CALIBRATION VERIFICATION
GAUGE CALIBRATION VERIFICATION RECORD
September 21, 2007
Revision 0
Page ____ of ___

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period Job # N1002

GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 11-8-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	986
2000	1978
3000	2978
4000	3981
5000	4987

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period Job # N1002

GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 11-8-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	987
2000	1978
3000	2976
4000	3981
5000	4986

PSC PROCEDURE QA 10.1
CALIBRATION VERIFICATION
GAUGE CALIBRATION VERIFICATION RECORD
September 21, 2007
Revision 0
Page ____ of ___

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period Job # N1002

GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 11-7-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1984
3000	2981
4000	3988
5000	4992

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period Job # N1002

GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 11-7-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1985
3000	2981
4000	3985
5000	4994

PSC PROCEDURE QA 10.1
CALIBRATION VERIFICATION
GAUGE CALIBRATION VERIFICATION RECORD
September 21, 2007
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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 11-6-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	988
2000	1988
3000	3984
4000	3987
5000	4999

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 11-6-07
GAUGE I.D. 1017861
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1984
3000	3985
4000	3991
5000	4999

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 11-5-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	989
2000	1981
3000	2980
4000	3986
5000	4997

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 11-5-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1993
3000	2980
4000	3978
5000	4996

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 11-1-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	982
2000	1981
3000	1978
4000	3984
5000	4992

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 11-1-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	984
2000	1979
3000	1978
4000	3986
5000	4994

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-31-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	984
2000	1981
3000	2980
4000	3981
5000	4990

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-31-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	987
2000	1979
3000	2977
4000	3982
5000	4994

PSC PROCEDURE QA 10.1
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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-30-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	988
2000	1985
3000	2985
4000	3988
5000	4991

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-30-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1986
3000	2988
4000	3990
5000	4997

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-29-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS None

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	988
2000	1980
3000	2981
4000	3985
5000	4996

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-29-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS None

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	986
2000	1985
3000	2980
4000	3981
5000	4991

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-26-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1980
5000	2982
4000	5986
5000	4990

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED
GAUGE I.D.
MASTER GAUGE I.D.
REMARKS

MASTER GAUGE (PSI)	JACK GAUGE (PSI)

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-25-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	967
2000	1982
3000	2982
4000	3985
5000	4995

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-25-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1982
3000	2980
4000	3985
5000	4995

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-23-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	988
2000	1984
3000	2982
4000	3988
5000	4996

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-23-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1985
3000	2983
4000	3988
5000	4995

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-22-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	995
2000	1985
3000	2980
4000	3988
5000	4996

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-22-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	991
2000	1985
3000	2982
4000	3989
5000	4999

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-20-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	993
2000	1985
3000	2982
4000	3987
5000	4993

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED
GAUGE I.D.
MASTER GAUGE I.D.
REMARKS

MASTER GAUGE (PSI)	JACK GAUGE (PSI)

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-18-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS None

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	991
2000	1985
3000	2985
4000	3987
5000	4996

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period Job # N1002

GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-19-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS Verification due to low readings

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	991
2000	1985
3000	2984
4000	3987
5000	4995

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-17-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1985
3000	2985
4000	3988
5000	4997
6000	5986

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-17-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1984
3000	2983
4000	3988
5000	4998
6000	5993

PSC PROCEDURE QA 10.1
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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-16-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1985
3000	2986
4000	3990
5000	4997

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period Job # N1002

GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-16-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1990
3000	2988
4000	3990
5000	4998

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GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-12-07
GAUGE I.D. 1017881
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1987
3000	2986
4000	3990
5000	4997

Project: CRYSTAL RIVER UNIT 3 – 30th Year – 8th Period Job # N1002

GAUGE CALIBRATION VERIFICATION RECORD

DATE CHECKED 10-15-07
GAUGE I.D. 1017880
MASTER GAUGE I.D. 44084
REMARKS none

MASTER GAUGE (PSI)	JACK GAUGE (PSI)
1000	990
2000	1985
3000	2980
4000	3986
5000	4992