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SUBJECT: Forwards revised relief request 20 re requirement to perform exams as required by IWL-2524 & IWL-2525, Table IWL-2500-1 re tendons. Rev submitted per recent discussions with NRC.

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L-99-187
10 CFR 50.55a

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

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Inservice Inspection Program
Third Ten Year Summary
Revised Relief Request No.20

Effective September 9, 1996, the NRC amended 10 CFR 50.55a to incorporate by reference the 1992 Edition with the 1992 Addenda of Subsection IWL, "Requirements for Class CC Concrete Components of Light-Water Cooled Power Plants," of Section XI, Division 1, of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code). The revisions to 10 CFR 50.55a were designed to assure that the critical areas of containments are routinely inspected to detect and take corrective action for defects that could compromise a containment's structural integrity. Implementation of the revised requirements for containment examination is required by September 9, 2001, five years from the effective date of the rule.

In accordance with 10 CFR 50.55a(a)(3), by letter L-99-075 dated April 9, 1999, Florida Power & Light Co. (FPL) submitted Relief Request No. 20, "Exempt Tendon Inspection," requesting relief from certain requirements of ASME Section XI, 1992 Edition. As a result of discussions with the NRC Staff, FPL has revised Relief Request No. 20. The revised relief request is attached. The revisions are designated with a black line in the right margin of the document.

Revised Relief Request No. 20 requests relief from ASME Section XI Code, 1992 Edition, Paragraph IWL-2521.1(c) which requires that each exempted tendon be examined in accordance with IWL-2524 and IWL-2525 to the extent that the end anchorages of the exempted tendons are accessible either during operation or at an outage.

Tendon caps located near and above the discharge piping for the main steam safety and atmospheric dump and the steam generator blowdown to atmosphere are considered inaccessible during unit operation as a result of safety concerns for inspection personnel, therefore they are exempted. Relief is requested from the requirement to perform examinations at the inaccessible end of exempted tendons, when the end of the tendon becomes accessible during an outage. Tendon inspection requires the placement of a large crane on the containment equipment hatch access ramp to lift inspection equipment and personnel to the top of the containment building. The ramp cannot handle outage activities and tendon inspection activities concurrently. Preparation for inspection of exempted tendons during an outage cannot commence until the hatch is closed and the ramp is cleared of outage equipment. With a projected inspection time of seven days, completion of the exempted tendon end anchorage inspection

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will result in a minimum of five days extension in the outage schedule at a total cost of approximately \$925,000 per unit.

Revised Relief Request No. 20 proposes the following:

1. For each exempt tendon, a substitute tendon shall be selected and examined in accordance with IWL requirements.
2. For each tendon, an additional tendon will be selected and examined at both ends in accordance with IWL-2524 and IWL-2525. The additional tendon selected will be located as close as possible to the exempt tendon.
3. The accessible end of exempt tendons shall be examined in accordance with IWL-2524 and IWL-2525.

The examinations of the proposed substitute tendons provide a total number of tendons in excess of tendons required by IWL and sufficient information to assess the performance of the tendon system subject to similar environmental conditions and prestressing requirements.

Revised Relief Request No. 20 is submitted in accordance with 10 CFR 50.55a(a)(3)(ii), in that inspection of exempted tendons during outages in accordance with IWL-2521.1(c) is a burden without commensurate benefit; and in accordance with 10 CFR 50.55a(a)(3)(i), since the proposed alternative examinations will provide an acceptable level of quality and safety.

Approval of Relief Request No. 20 is requested by October 1, 1999, to support preparations for the 30th year tendon inspection scheduled for the Spring of 2001.

Should there be any questions concerning this submittal, please contact us.

Very truly yours,



R. J. Hovey
Vice President
Turkey Point Plant

OIH

Attachment

cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant

ATTACHMENT TO L-99-187

FLORIDA POWER AND LIGHT
TURKEY POINT UNITS 3 AND 4

REVISED RELIEF REQUEST NUMBER 20

EXEMPT TENDON INSPECTION

REVISED RELIEF REQUEST NUMBER 20 FOR EXEMPT TENDON INSPECTION |

I. Component Identification:

Table IWL-2500-1, Category L-B, Unbonded Post-Tensioning System, Item Numbers L2.30, L2.40 and L2.50.

Tendon caps located near and above the discharge piping for the main steam safety and atmospheric dump and the steam generator blowdown to atmosphere are considered inaccessible during unit operation as a result of safety concerns for inspection personnel as determined by the plant safety department (see photos on Page 5). These tendon caps are located at Buttress #5 and west side of Buttrresses #4 and #6 and the ring girder above the Main Steam and Feedwater platforms. Randomly selected tendons at those locations are designated as exempted tendons and substitute tendons are selected for examination in accordance with IWL-2521.1 requirements. Approximately 142 hoop tendons and 65 dome tendons at each unit have one end considered inaccessible due to personnel safety. This constitutes 29% of hoop tendons and 39% of dome tendons. Random selection of examination tendons is likely to yield up to three tendons at each unit with one end inaccessible due to personnel safety concerns (during the 25th year tendon surveillance, two tendons at each unit were exempted due to personnel safety concerns).

II. Examination Requirements:

ASME Section XI, 1992 Edition, Paragraph IWL-2521.1(c) requires that each exempted tendon be examined in accordance with IWL-2524 and IWL-2525 to the extent that the end anchorages of the exempted tendon are accessible either during operation or at an outage.

IWL-2524 requires a visual examination of the tendon anchorage areas (anchorage hardware, including bearing plates, anchorheads, wedges, buttonheads, shims, and the concrete extending outward a distance of 2 feet from the edge of the bearing plate), and documentation of free water contained in the anchorage end cap as well as any which drains from the tendon during the examination process.

IWL-2525 requires the collection of samples of the corrosion protection medium for laboratory analysis for reserve alkalinity, water content, and concentrations of water soluble chlorides, nitrates, and sulfides.

III. Relief Request:

Relief is requested from the requirement to perform examinations as required by IWL-2524 and IWL-2525, Table IWL-2500-1, Item Numbers L2.30, L2.40 and L2.50 at the inaccessible end of exempted tendons during an outage when the end of the tendon becomes accessible.

Examinations at the other end of exempted tendons, accessible during plant operation, are not affected by this request.

IV. Basis for Relief:

At the Turkey Point plant, tendon inspection requires the placement of a large crane on the containment equipment hatch access ramp to lift inspection equipment and personnel to the top of the containment building (see photos on Page 6 and partial site plan on Page 8). The plant layout around the Unit 3 and Unit 4 containment buildings is such that there is no other space to accommodate a large crane. The containment buildings are surrounded by the Auxiliary Building and Fuel Handling Buildings on the east side, and the Turbine Building on the west side. The north and south sides, except for the ramp areas, are obstructed by the Control Building, the Unit 3 Emergency Diesel facilities and the Feedwater platform enclosures (see partial site plan on Page 8).

During refueling outages the ramps are used to locate security and health physics control facilities, and tool storage containers (see photos on Page 7). These facilities are located on the ramp with just enough space for a forklift truck to access the equipment hatch. The ramp cannot handle outage activities and tendon inspection activities concurrently. Preparation for exempted tendon inspection during an outage would have to start after the hatch is closed and the ramp is cleared of outage equipment. Based on the 25th year tendon inspection performed by VSL Corporation, the time required for mobilization, inspection of exempted tendons and demobilization for each unit would be seven days. At an estimated cost of \$8,500 per day for the inspection, the cost for each unit would be approximately \$59,500. This cost does not include the cost of personnel badging and shipping equipment back to the site. In addition, the unit would not be back in operation until after inspections are completed, resulting in a minimum of five days extension in the outage schedule, at a cost of approximately \$185,000 per day for a total cost of approximately \$925,000 per unit.

V. Alternative Examinations:

4. The accessible end of exempt tendons shall be examined in accordance with IWL-2524 and IWL-2525.
5. For each exempt tendon, a substitute tendon shall be selected and examined in accordance with IWL requirements.
6. In addition, an accessible tendon located as close as possible to each exempt tendon shall be examined at both ends in accordance with IWL-2524 and IWL-2525.

VI. Justification for Relief:

The examinations of the proposed substitute tendons provide a total number of tendons in excess of tendons required by IWL and sufficient information to assess the performance of the tendon system subject to similar environmental conditions and prestressing requirements.

The main purpose of examinations that would be performed during an outage (IWL-2524 and IWL-2525) would be to look for signs of corrosion in the tendon anchorage components and to assess the condition of the corrosion prevention medium. During scheduled tendon inspections, these examinations are performed at many randomly selected tendons, and only relatively few tendons in the sample are expected to be considered exempted due to personnel safety concerns. For example, during the 25th year tendon inspection at Turkey Point, tendon anchorage components were examined at 35 tendon ends on Unit 3 and 39 tendon ends on Unit 4, and only two tendon ends on each unit were exempted due to personnel safety concerns (one end of tendons 1D8 and 42H71 on Unit 3, and one end of tendons 35H79 and 51H42 on Unit 4).

Based on the number of tendons in the inaccessible area versus accessible tendons, it is statistically probable that up to three tendons on each unit may be exempt in any inspection period. This represents only 15% of the total number of tendons likely to be examined. The population of tendons that are non-exempt, plus the alternative examinations listed in Section V, provide sufficient information to assess the performance of the entire system given that each tendon is subject to similar environmental conditions and prestressing requirements.

To date, no significant anomalies have been noted with respect to corrosion of the tendon wires, anchorage components, or the

corrosion prevention medium, in the general tendon population. The area considered inaccessible is not subject to any unique conditions and selecting substitute tendons as close as possible to the exempt tendons will provide equivalent information as discussed above. Note that several tendons located in the exclusion zone above the main steam platforms were examined during past inspections, and the results of these inspections were consistent with the results of tendons inspected at other locations. The results of inspections performed in 1992 for Unit 3 Tendons 35H51, 35H52 and 35H53, and Unit 4 Tendons 35H38 through 35H42 and 2D24, are tabulated on Pages 9 through 13. These tendons are located from elevation 76'-3" and up, and above the main steam platform which is at elevation 71'-7".

The results of the corrosion and grease inspections were satisfactory and several of the tendon lift-off forces were found to be below the acceptance criteria. While it is recognized that the lift-off force acceptance criteria used in those earlier tests were too high, the discrepant condition affected all tendons on a generic basis and was not specific to a unique location. The issue was resolved by performing a Containment Reanalysis which demonstrated that sufficient prestressing will be available for the current licensed life of the units (References FPL Submittal L-95-050 and NRC SER dated November 29, 1995).

Based on the preceding, the inspection of exempted tendons during outages in accordance with IWL-2521.1(c) is a burden without commensurate benefit and the proposed alternative examinations will provide an acceptable level of quality and safety.

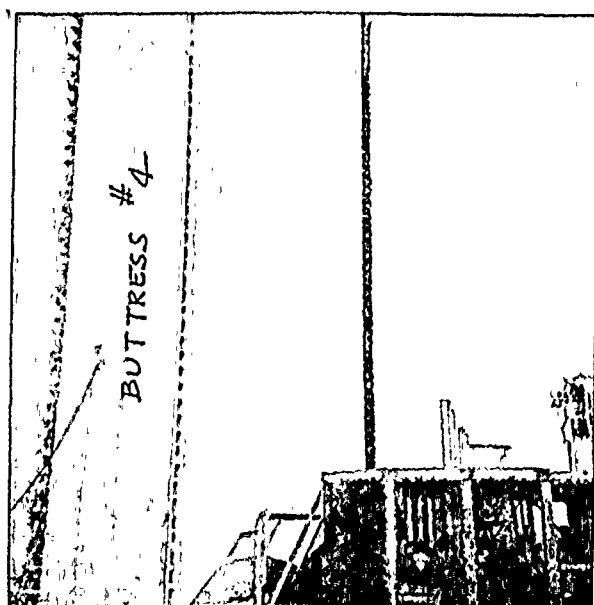
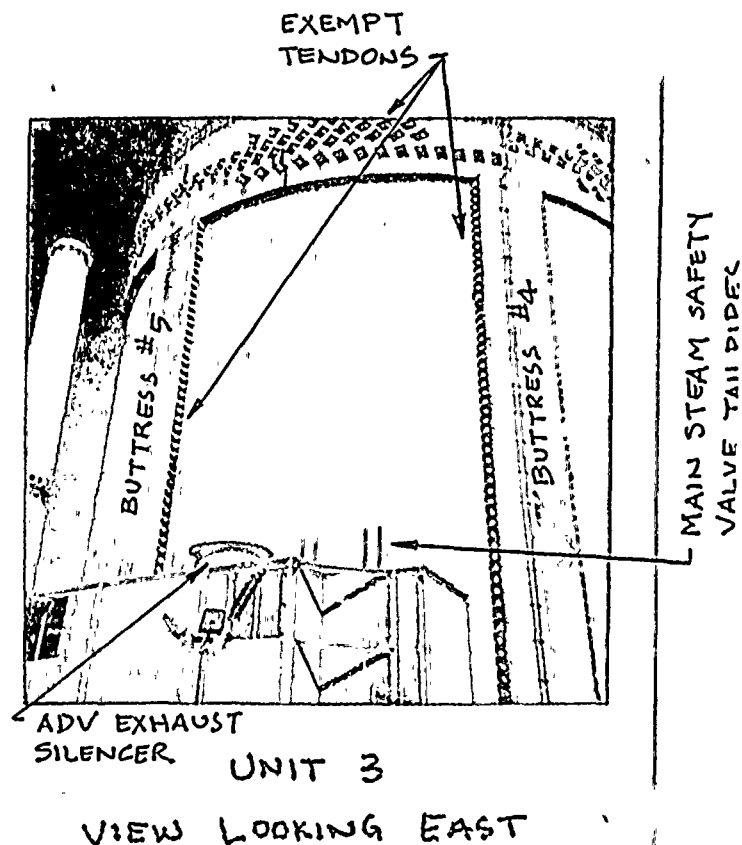
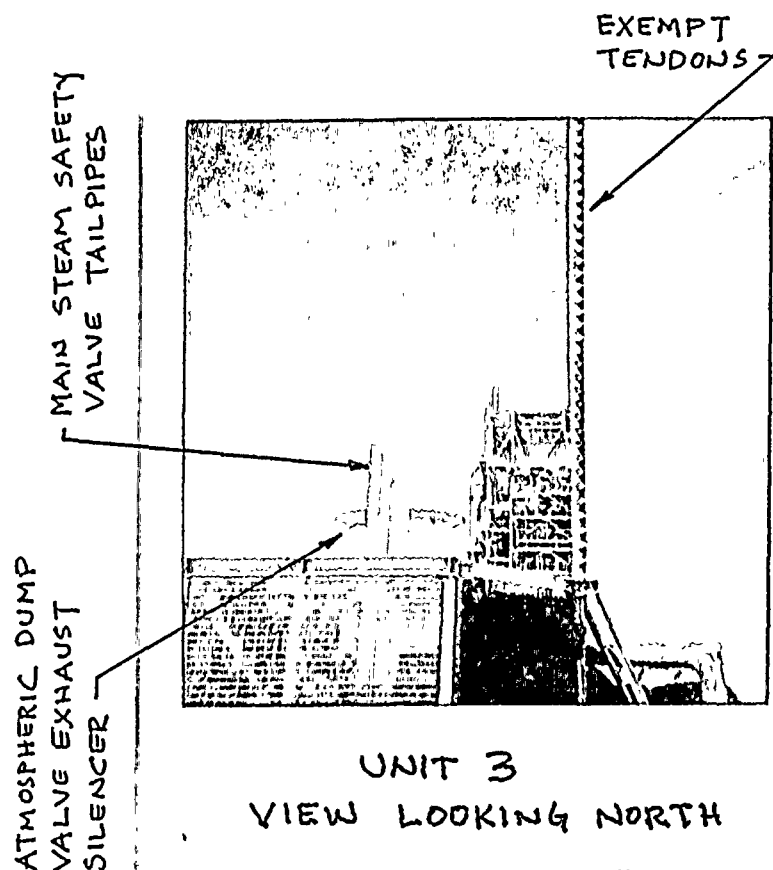
VII. Implementation Schedule:

Unit 3 and Unit 4 30th year tendon inspection and later inspections.

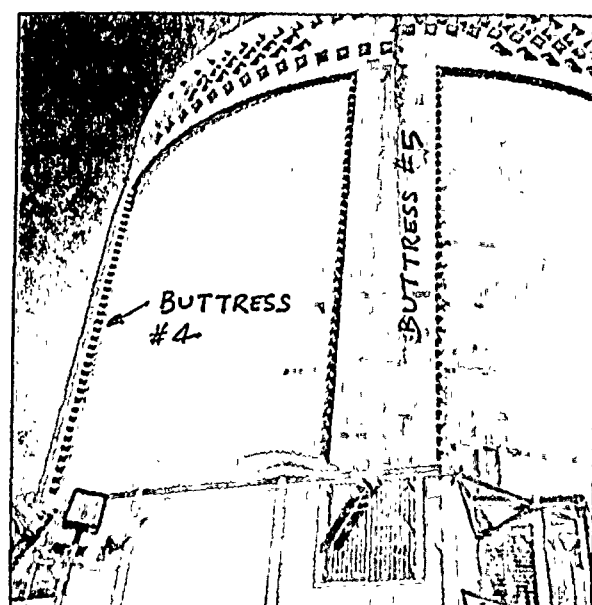
VIII. Status:

Submitted.

**Photos of Units 3 and 4 Containment Buildings and main steam safety
and atmospheric dump pipes.**

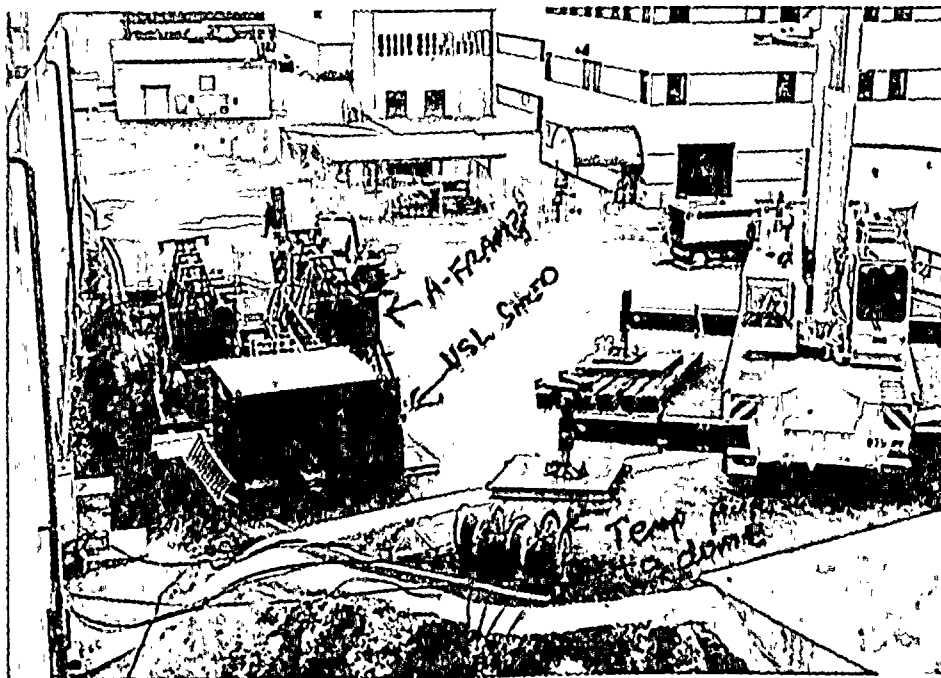
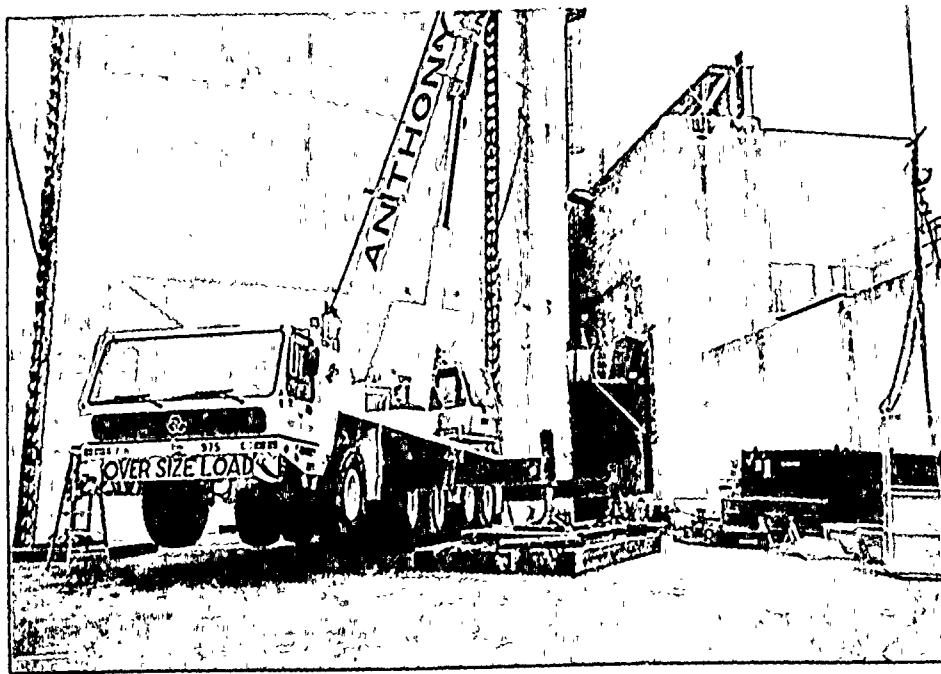


UNIT 4
VIEW LOOKING SOUTH

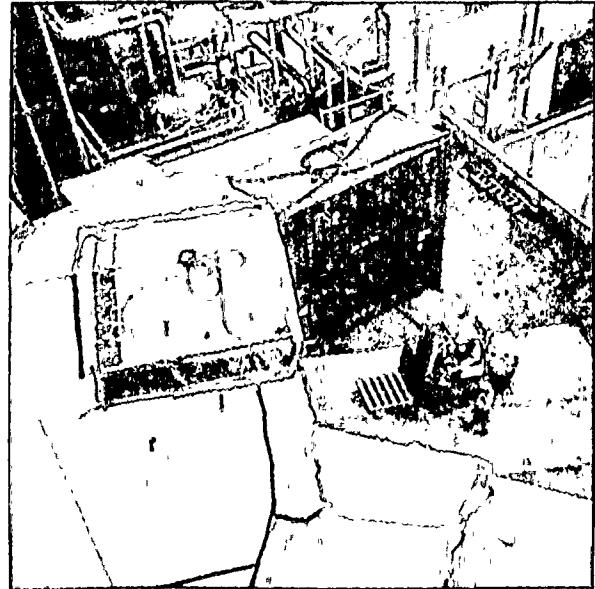
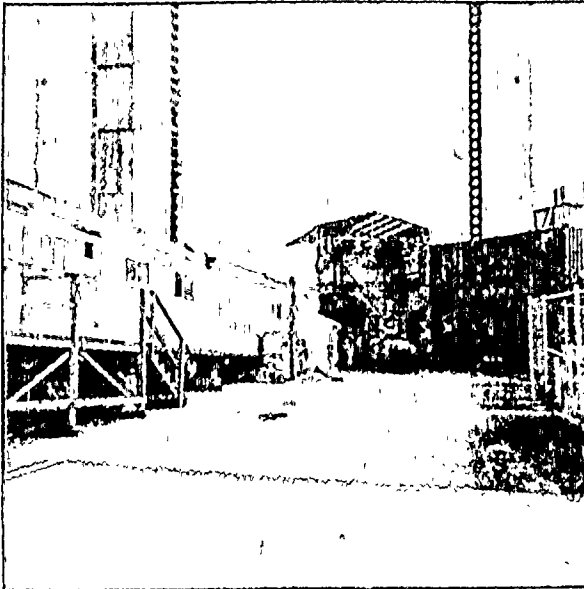


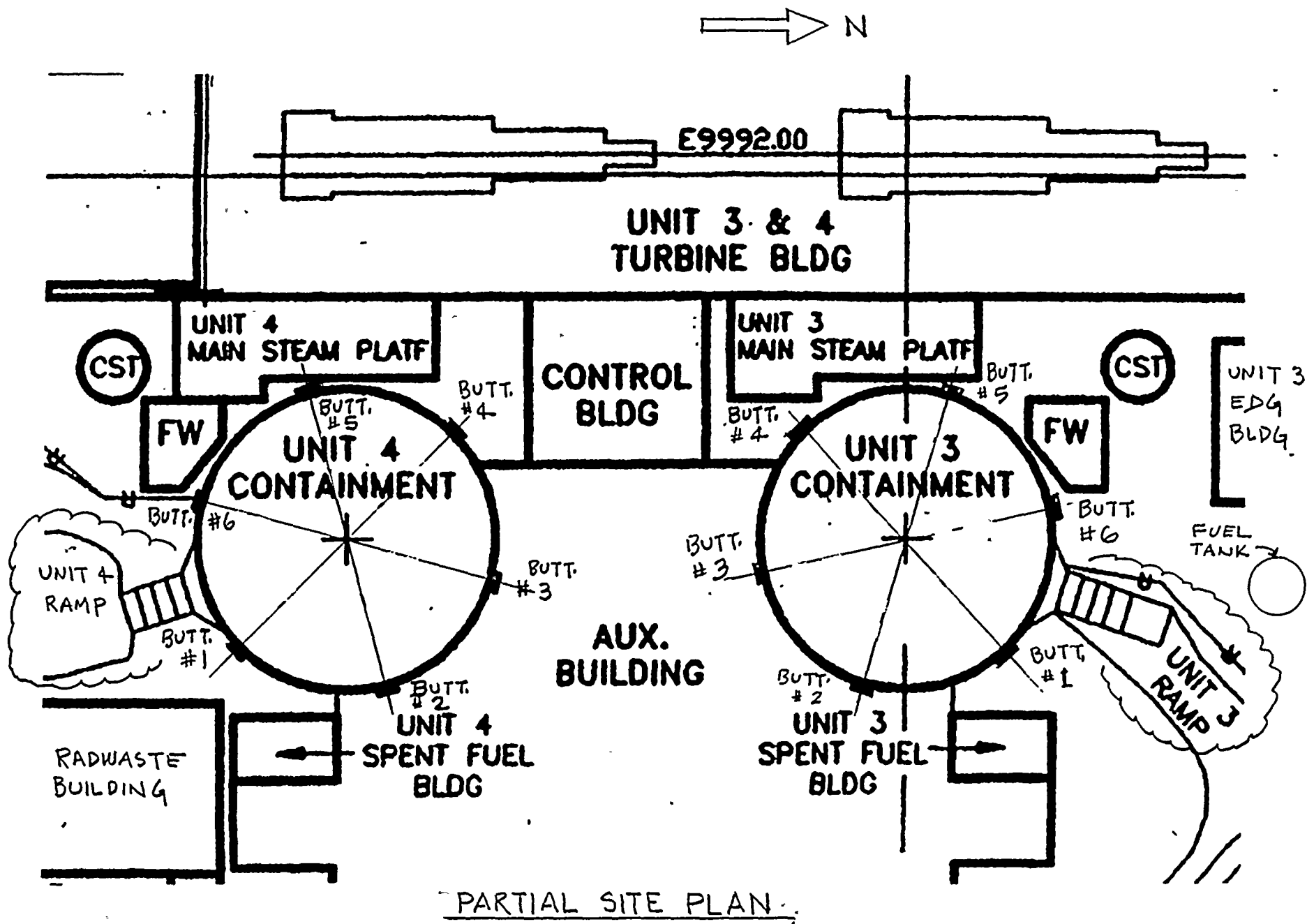
UNIT 4
VIEW LOOKING EAST

Photos of crane and inspection equipment on Unit 4 ramp during 25th
year tendon inspection.



**Photos of security and health physics facilities, and tool containers on
Unit 3 ramp during Cycle 17 refueling outage.**





NOTE: RAMPS ARE ONLY LOCATIONS TO PLACE ACCESS CRANE
FOR TENDON INSPECTION AND STAGING FOR OUTAGE EQUIPMENT

SUMMARY OF END ANCHORAGE INSPECTION

Tendon Number	Buttress End	CORROSION LEVEL					BUTTONHEAD INSPECTION		WIRE STATUS			
		Button heads	Stress. Washer	Shims	Bearing Plate	Wires	Total Number	Splits/ Cracks	Found Missing	Discontinuous	Sample Removal	Wires (Final)
Unit 3	3	1	2	2	1(1)	1	90	0	0	0	0	90
35H51	5	1	1	1	1	1	90	0	0	0	0	90
Unit 3	3	1	1	1	1	1	90	0	0	0	0	90
35H52	5	1	1	1	1	1	90	0	0	0	0	90
Unit 3	3	1	1	1	1(1)	1	90	0	0	0	0	90
35H53	5	1	1(2)	1	1	1	90	0	0	0	0	90
Unit 4	3	1	1(2)	1	1	1	90	0	0	0	0	90
35H38	5	1	1	1	1	1	90	0	0	0	0	90
Unit 4	3	1	1(2)	1	1	1	90	0	0	0	0	90
35H39	5	1	1	1(2)	1	1	90	0	0	0	0	90
Unit 4	3	1	1	1	1	1	90	0	0	0	0	90
35H40	5	1	1	1	1	1	90	0	0	0	0	90
Unit 4	3	1	1(2)	1	1	1	90	0	0	0	0	90
35H41	5	1	1	1	1	1	90	0	0	0	0	90
Unit 4	3	1	1(2)	1	1	1	89	0	1	0	0	89
35H42	5	1	1(2)	1	1	1	89	0	1	0	0	89
Unit 4	1-2	1	1(3)	1	1	1	90	0	0	0	0	90
2D24	5-6	1	1(2)	1	1	1	90	0	0	0	0	90

CORROSION LEVEL:

#1 - NO VISIBLE OXIDATION

#2 - VISIBLE OXIDATION, W/O PITTING

#3 - PITTING 0.0 TO 0.003"

#4 - PITTING 0.003" TO 0.006"

#5 - PITTING 0.006" TO 0.010"

ACCEPTANCE CRITERIA: < LEVEL 3, NO EVALUATION REQUIRED.

NOTES:

- (1) SMALL AREA(S) OF LEVEL 3 CORROSION WAS FOUND NEAR THE OUTER EDGE OF THE BEARING PLATE (OUTSIDE THE GASKET). THIS CONDITION WAS EVALUATED IN JPN-PTN-SECJ-92-027 AS DUE TO INCOMPLETE COATING TOUCH-UP AFTER THE ORIGINAL STRESSING OPERATIONS, OR INCOMPLETE COATING COVERAGE ON THE PLATE EDGES, AND WAS CONSIDERED ACCEPTABLE. THE RUST SPOTS WERE CLEANED AND TOUCHED-UP.
- (2) SMALL PATCH(ES) OF LEVEL 2 CORROSION WAS OBSERVED.
- (3) LEVEL 2 CORROSION WAS FOUND AT THE OUTER EDGE.

SHEATH FILLER ANALYSIS RESULTS

Tendon Number	Sample Location	Neutralization Number (1) (mg KOH/gm)	Water Solubles			Water Content* (percent)
			Chlorides (ppm)	Nitrates (ppm)	Sulfides (ppm)	
Unit 3 35H52	3	3.39	<0.3	<0.01	<0.01	0.2%
	5	3.31	<0.3	<0.01	<0.01	0.4%
Unit 4 35H38	3	1.43	<0.5	<0.01	<0.01	1.5%
	5	2.44	<0.5	<0.01	0.04	0.6%
Unit 4 2D24	1-2	2.01	<0.5	<0.01	0.02	0.2%
	5-6	1.90	<0.5	0.01	0.04	<0.2%

ACCEPTANCE CRITERIA: T.A.N. = 1.0 (max) 2 ppm (max) 4 ppm (max) 2 ppm (max) 10% (max)

NOTES:

- (1) THE NEUTRALIZATION NUMBERS GREATER THAN 1.0 WERE EVALUATED IN JPN-PTN-SECJ-92-027 AND JPN-PTN-SECJ-93-004. THE EVALUATIONS INDICATED THAT THE MODIFIED METHOD OF ASTM D 974 WAS USED TO DETERMINE THE NEUTRALIZATION NUMBER. THIS METHOD USES A MUCH STRONGER ACID SOLUTION FOR TITRATION AND IS MORE APPLICABLE TO THE LATEST SHEATH FILLER FORMULA 2090P-4 WHICH IS MORE BASIC. THE ACCEPTABILITY OF THESE NEUTRALIZATION NUMBER TESTS WAS REVIEWED BOTH BY THE ORIGINAL SHEATH FILLER MANUFACTURER AND BY AN INDEPENDENT REVIEW. THESE EVALUATIONS CONCLUDED THAT THE GREASE IS CAPABLE OF PROVIDING CORROSION PROTECTION FOR THE WIRES AND ANCHORAGE COMPONENTS.
- (2) TENDONS 35H51, 35H53 (UNIT 3) AND 35H39 THROUGH 42 (UNIT 4) DID NOT REQUIRE SHEATH FILLER ANALYSIS. THEY ONLY REQUIRED LIFT-OFF MEASUREMENTS TO EVALUATE LOW LIFT-OFF CONDITION AT SURVEILLANCE TENDONS.
- (3) THE TENDON INSPECTION FINAL REPORTS (JPN-PTN-SECJ-92-027 AND JPN-PTN-SECJ-93-004) ALSO INDICATE THAT NO TRACE OF MOISTURE WAS OBSERVED DURING INSPECTION OF THE SHEATH FILLER IN THE AREA OF THE ANCHOR HEADS OF TENDONS 35H51, 35H52 (UNIT 3) AND 35H38 THROUGH 35H42 (UNIT 4).

GREASE REMOVAL AND REPLACEMENT QUANTITY

TENDON NUMBER	SAMPLE LOCATION	QUANTITY REMOVED (GAL)	NET GREASE REPLACED (GAL)	NET CHANGE (GAL)
Unit 3 35H51	3 5	1.5 1.0	- 13.5	+11.0
Unit 3 35H52	3 5	1.5 1.5	- 6.0	+3.0
Unit 3 35H53	3 5	1.5 1.5	- 9.5	+6.5
Unit 4 35H38	3 5	1.5 1.0	6.0	+3.5
Unit 4 35H39	3 5	1.5 1.0	10.0	+7.5
Unit 4 35H40	3 5	1.5 1.0	6.0	+3.5
Unit 4 35H41	3 5	1.5 1.0	7.0	+4.5
Unit 4 35H42	3 5	1.5 1.0	7.0	+4.5
Unit 4 2D24	1-2 5-6	11.0 7.0	25.0	+7.0

NOTES:

- (1) THE TENDON INSPECTION FINAL REPORTS (JPN-PTN-SECJ-92-027 AND JPN-PTN-SECJ-93-004) INDICATE THAT DUE TO THE SATISFACTORY RESULTS OF VISUAL INSPECTION AND LABORATORY TESTING AND THE FACT THAT GREASE LEAKAGE IS HIGHLY UNLIKELY AND NO EVIDENCE OF LEAKAGE WAS PRESENT, IT IS CONCLUDED THAT THE GREASE HAS MAINTAINED ADEQUATE CORROSION PROTECTION.

SUMMARY OF DETENSIONING AND LIFT-OFF DATA

TENDON NUMBER	BUTT NUMBER	NUMBER WIRES	DATE	AT LIFT-OFF			AT 1000# PER WIRE			DIFFE- RENCE (IN)
				APPLIED FORCE (K)	SHIM DEPTH	SHIM TOTAL	APPLIED FORCE (K)	ELON- GATION (IN)	ELONG TOTAL (IN)	
Unit 3 35H51	3 5	90	6/30/92	593.1 585.5	2 3/4" 2 3/4"	5 1/2"	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Unit 3 35H52	3 5	90	6/29/92	583.8 571.9	2 3/8" 2 1/2"	4 7/8"	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Unit 3 35H53	3 5	90	6/30/92	594.6 568.9	2 7/8" 3"	5 7/8"	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Unit 4 35H38	3 5	90	11/17/92	558.3 542.2	2 3/8" 2 3/4"	5 1/8"	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Unit 4 35H39	3 5	90	11/17/92	564.1 536.3	2 5/8" 3 7/8"	6 1/2"	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Unit 4 35H40	3 5	90	11/17/92	573.4 546.1	2 1/8" 3 1/4"	5 3/8"	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Unit 4 35H41	3 5	90	11/18/92	535.9 560.9	2 3/8" 3 1/4"	5 5/8"	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Unit 4 35H42	3 5	89	11/18/92	564.1 552.0	1 3/4" 2 3/4"	4 1/2"	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Unit 4 2D24	1-2 5-6	90	11/25/92	581.5 594.4	2 1/4" 2 11/16"	4 15/16"	N/A N/A	N/A N/A	N/A N/A	N/A N/A

NORMALIZING FACTORS AND NORMALIZED TENDON FORCE PER WIRE

TENDON NUMBER	BUTT NUMBER	NUMBER WIRES	FORCE (KIPS)	NORMALIZING FACTOR	AVG NORM FORCE (KIPS)	NF/WIRE (AVG)
Unit 3 35H51	3 5	90	593.1 585.5	0.965	568.7	6.32
Unit 3 35H52	3 5	90	583.8 571.9	0.996	575.5	6.39
Unit 3 35H53	3 5	90	594.6 568.9	0.988	574.8	6.39
Unit 4 35H38	3 5	90	558.3 542.2	0.972	534.8	5.94
Unit 4 35H39	3 5	90	564.1 536.3	0.996	548.0	6.09
Unit 4 35H40	3 5	90	573.4 546.1	0.984	550.8	6.12
Unit 4 35H41	3 5	90	535.9 560.9	0.986	540.7	6.01
Unit 4 35H42	3 5	89	564.1 552.0	0.978	545.8	6.13
Unit 4 2D24	1-2 5-6	90	581.5 594.4	1.017	598.0	6.64

20th YEAR SURVEILLANCE PREDICTED LOWER LIMIT (ALL TENDONS) = 6.63 K/WIRE

25th YEAR SURVEILLANCE PREDICTED LOWER LIMIT AFTER CONTAINMENT REANALYSIS:

HOOP TENDONS = 5.93 K/WIRE

DOME TENDONS = 6.00 K/WIRE

