ATTACHMENT B

PROPOSED CHANGES TO THE LICENSE/TECHNICAL SPECIFICATIONS

NPF-11	NPF-18
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XIV	XIV
XXII	XXII
XXIII	3/4 6-1
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3/4 6-12	3/4 6-13
3/4 6-12a	3/4 6-14
3/4 6-12b	3/4 6-15
B 3/4 6-1	B 3/4 6-1
B 3/4 6-2	B 3/4 6-2
6-9	6-9*
6-20	6-10
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6-22	6-21*
Insert Pages	6-22
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*These pages are provided for information only, no changes.

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BASES

LIST OF TABLES (Continued)

LIST OF TABLES (Continued)

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

PRIMARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2,* and 3.

ACTION:

Without PRIMARY CONTAINMENT INTEGRITY, restore PRIMARY CONTAINMENT INTEGRITY within 1 hour or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be demonstrated:

a. After each closing of each penetration subject to Type B testing, except the primary containment air locks, if opened following Type A or B test, by leak rate testing the seal with gas at Pa, 39.6 psig, and verifying that when the measured leakage rate for these seals is added to the leakage rates determined pursuant to Surveillance Requirement 4.6.1.2.d for all other Type B and C penetrations, the combined leakage rate is less than or equal to 0.60 La.

b. At least once per 31 days by verifying that all primary containment penetrations** not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in position, except as provided in Table 3.6.3-1 of Specification 3.6.3.

c. By verifying each primary containment air lock OPERABLE per Specification 3.6.1.3.

d. By verifying the suppression chamber OPERABLE per Specification 3.6.2.1.

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*See Special Test Exception 3.10.1

**Except valves, blind flanges, and deactivated automatic valves which are located inside the containment, and are locked, sealed or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except such verification need not be performed when the primary containment has not been deinerted since the last verification or more often than once per 92 days.

INSERT A

4.6.1.1.e Verify primary containment structural integrity in accordance with the Inservice Inspection Program for Post Tensioning Tendons. The frequency shall be in accordance with the Inservice Inspection Program for Post Tensioning Tendons.

CONTAINMENT SYSTEMS

PRIMARY CONTAINMENT STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.5 The structural integrity of the primary containment shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.5.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With more than one tendon with an obseved lift-off force between the predicted lower limit and 90% of the predicted lower limit or with one tendon below 90% of the predicted lower limit, restore the tendon(s) to the required level of integrity within 15 days and perform an engineering evaluation of the containment and provide a Special Report to the Commission within 30 days in accordance with Specification 6.6C. or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With any other abnormal degradation of the structural integrity at a level below the acceptance criteria of Specification 4.6.1.5, restore the containment vessel to the required level of integrity within 72 hours and perform an engineering evaluation of the containment and provide a Special Report to the Commission within 15 days in accordance with Specification 6.6C. or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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Page 3/4 6-8

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4.6.1.5 Primary Containment Tendons. The primary containment structural integrity shall be demonstrated at the end of 1, 3 and 5 years after the initial structural integrity test (ISIT) and every 5 years thereafter in accordance with Table 4.6.1.5-1. The structural integrity shall be demonstrated by:

a. Determining that a representative sample of at least 13 tendons, 8 horizontal and 5 vertical, selected in accordance with Table 4.6.1.5-1 have a lift-off force equal to or greater than the minimum values listed in Table 4.6.1.5-2 at the first year inspection. For subsequent inspections, for tendons and periodicities per Table 4.6.1.5-1, the minimum lift-off forces shall be decreased by the amount $X2 \log t/t_o$ for V tendons and $Y2 \log t/t_o$ for hoop tendons where t is the time interval in years from initial tensioning of the tendon to the current testing date and to is the time interval in years from initial tensioning of the tendon to the first inspection and is equal to 2 years and the values X1, X2, Y1 and Y2 are in accordance with the values listed in Table 4.6.1.5-2 for the surveillance tendon. This test shall include essentially a complete detensioning of tendons selected in accordance with Table 4.6.1.5-1 in which the tendon is detensioned to determine if any wires or strands are broken or damaged. Tendons found acceptable during this test shall be retensioned to their observed lift-off force, ± 3%. During retensioning of these tendons, the change in load and elongation shall be measured simultaneously at a minimum of three, approximately equally spaced, levels of force between the seating force and zero. If elongation corresponding to a specific load differs by more than 5% from that recorded during installation of tendons, an investigation should be made to ensure that such difference is not related to wire failures or slip of wires in anchorages. If the lift-off force of any one tendon in the total sample population lies between the predicted lower limit and 90% of the predicted lower limit, two tendons, one on each side of this tendon, shall be checked for their lift-off force. If both these adjacent tendons are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. The tendon(s) shall be restored to the required level of integrity. More than one tendon below the predicted bounds out of the original sample population or the lift-off force of a selected tendon lying below 90% of the prescribed lower limit is evidence of abnormal degradation of the containment structure.

b. Performing tendon detensioning and material tests and inspections of a previously stressed tendon wire or strand from one tendon of each group, hoop and V, and determining that over the entire length of the removed wire or strand that:

1. The tendon wires or strands are free of corrosion, cracks and damage.

2. A minimum tensile strength value of 240 ksi, the guaranteed ultimate strength of the tendon material, for at least three wire or strand samples, one from each end and one at mid-length, cut from each removed wire or strand. Failure of any one of the wire or strand samples to meet the minimum tensile strength test is evidence of abnormal degradation of the primary containment structure.

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SURVEILLANCE REQUIREMENTS (Continued)

c. Performing a visual inspection of the following:

1. Primary Containment Surfaces - The structural integrity of the exposed accessible interior and exterior surfaces of the primary containment shall be determined during the shutdown for, and prior to, each Type A containment leakage rate test by a visual inspection of these surfaces and verifying no apparent changes in appearance or other abnormal degradation, e.g., widespread cracking, spalling and/or grease leakage.

2. End Anchorages - The structural integrity of the end anchorages, e.g., bearing plates, stressing washers, shims, wedges and anchorheads, of all tendons inspected pursuant to Specification 4.6.1.5a shall be demonstrated by inspection that no apparent changes have occurred in the visual appearance of the end anchorage.

3. Concrete Surfaces - The structural integrity of the concrete surfaces adjacent to the anchorages of tendons inspected pursuant to Specification 4.6.1.5a shall be demonstrated by visual examination of the crack patterns to verify no abnormal material behavior.

d. Verifying the OPERABILITY of the sheathing filler grease by the following:

1. No significant voids, i.e., in excess at 5% of the net duct volume, or the presence of free water within the grease filler material, taking into account temperature variations.

2. No significant changes have occurred in the physical appearance of the sheathing filler grease.

3. Minimum grease coverage exists for different parts of the anchorage system.

4. Chemical properties are within the tolerance limits specified by the sheathing filler grease manufacturer.

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TABLE 4.6.1.5-1

TENDON SURVEILLANCE

	TENDON NUMBERS									
Years After Initial Structural Integrity Test	1		3		5		10		15	
Type of Inspection	H	V	H	V	H	V	H	V	H	V
Visual Inspection of End Anchorages Adjacent Concrete Surface and Prestress Monitoring Tests	48AC 56CB 12CB 70B 20CB 1CB 12AC 56BA 21AC	15C 15A 20A 47C 29A	48AC 2CB 14AC 24BA 37CB 47CB 57CB 60B	15C 6C 17A 32C 42C	48AC 3BA 12BA 21CB 23BA 38CB 49AC 68B	15C 28A 23A 5B 31C	48AC 4BA 41CB 50AC	15C 30B 22A	48AC 50CB 53BA 57AC	15C 19A 13B
Detensioning and Material Tests	20CB	47C	2CB	42C	23BA	31C	4BA	22A	50CB	19A

	TENDON NUMBERS									
Years After Initial Structural Integrity Test	20		25		30		35		40	
Type of Inspection	H	V	H	V	H	V	H	V	H	V
Visual Inspection of End Anchorages Adjacent Concrete Surface and Prestress Monitoring Tests	48AC 39CB 49BA 71D	15C 25B 11A	48AC 1BA 47AC 57BA	15C 3B 12A	48AC 48CB 51AC 58BA	15C 7B 18A	48AC 49CB 51BA 59D	15C 25A 18B	48AC 36CB 48BA 69D	15C 13A 27B
Detensioning and Material Tests	49BA	11A	47AC	3B	48CB	18A	51BA	18B	36CB	13A

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TABLE 4.6.1.5-2

TENDON LIFT-OFF FORCE

V TENDONS

Tendon Number	Ends	First Year*		X1	X2
		Maximum (kips)	Minimum (kips)		
V15C	A	N/A	654.95	N/A	4.369
	B	N/A	N/A	N/A	N/A
V28A	A	N/A	650.53	N/A	4.270
	B	N/A	N/A	N/A	N/A
V23A	A	N/A	650.53	N/A	4.270
	B	N/A	N/A	N/A	N/A
V5B	A	N/A	653.27	N/A	4.270
	B	N/A	N/A	N/A	N/A
V31C	A	N/A	651.90	N/A	4.369
	B	N/A	N/A	N/A	N/A
V30B	A	N/A	655.74	N/A	4.270
	B	N/A	N/A	N/A	N/A
V22A	A	N/A	655.74	N/A	4.270
	B	N/A	N/A	N/A	N/A
V19A	A	N/A	650.53	N/A	4.270
	B	N/A	N/A	N/A	N/A
V13B	A	N/A	653.27	N/A	4.270
	B	N/A	N/A	N/A	N/A
V25B	A	N/A	653.23	N/A	4.263
	B	N/A	N/A	N/A	N/A
V11A	A	N/A	650.49	N/A	4.263
	B	N/A	N/A	N/A	N/A
V3B	A	N/A	653.27	N/A	4.270
	B	N/A	N/A	N/A	N/A
V12A	A	N/A	650.53	N/A	4.270
	B	N/A	N/A	N/A	N/A
V7B	A	N/A	653.27	N/A	4.270
	B	N/A	N/A	N/A	N/A
V18A	A	N/A	650.53	N/A	4.270
	B	N/A	N/A	N/A	N/A
V25A	A	N/A	650.53	N/A	4.270
	B	N/A	N/A	N/A	N/A
V18B	A	N/A	653.27	N/A	4.270
	B	N/A	N/A	N/A	N/A
V13A	A	N/A	643.28	N/A	4.263
	B	N/A	N/A	N/A	N/A
V27B	A	N/A	653.23	N/A	4.263
	B	N/A	N/A	N/A	N/A

*First Inspection

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Table 4.6.1.5-2 (Continued)

TENDON LIFT-OFF FORCE

HOOP TENDONS

Tendon Number	Ends	First Year* Maximum (kips)	First Year* Minimum (kips)	Y1	Y2
48AC	A	N/A	647.00	N/A	4.500
	B	N/A	647.00	N/A	4.500
3BA	A	N/A	656.46	N/A	4.226
	B	N/A	656.46	N/A	4.226
12BA	A	N/A	637.48	N/A	6.173
	B	N/A	637.48	N/A	6.173
21CB	A	N/A	637.48	N/A	6.173
	B	N/A	637.48	N/A	6.173
23BA	A	N/A	629.71	N/A	6.173
	B	N/A	629.71	N/A	6.173
38CB	A	N/A	631.76	N/A	5.437
	B	N/A	631.76	N/A	5.437
49AC	A	N/A	647.00	N/A	4.500
	B	N/A	647.00	N/A	4.500
68B	A	N/A	655.39	N/A	4.332
	B	N/A	655.39	N/A	4.332
4BA	A	N/A	651.16	N/A	4.226
	B	N/A	651.16	N/A	4.226
41CB	A	N/A	644.51	N/A	4.975
	B	N/A	644.51	N/A	4.975
50AC	A	N/A	650.35	N/A	4.500
	B	N/A	650.35	N/A	4.500
50CB	A	N/A	650.35	N/A	4.500
	B	N/A	650.35	N/A	4.500
53BA	A	N/A	649.82	N/A	4.538
	B	N/A	649.82	N/A	4.538
57AC	A	N/A	650.14	N/A	4.862
	B	N/A	650.14	N/A	4.862
39CB	A	N/A	644.69	N/A	5.437
	B	N/A	644.69	N/A	5.437
49BA	A	N/A	647.00	N/A	4.500
	B	N/A	647.00	N/A	4.500
71D	A	N/A	645.20	N/A	4.332
	B	N/A	645.20	N/A	4.332
1BA	A	N/A	655.82	N/A	3.914
	B	N/A	655.82	N/A	3.914
47AC	A	N/A	644.51	N/A	4.975
	B	N/A	644.51	N/A	4.975
57BA	A	N/A	650.18	N/A	4.862
	B	N/A	650.18	N/A	4.862
48CB	A	N/A	646.48	N/A	4.507
	B	N/A	646.48	N/A	4.507
51AC	A	N/A	653.75	N/A	4.507
	B	N/A	653.75	N/A	4.507

*First Inspection

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Table 4.6.1.5-2 (Continued)

TENDON LIFT-OFF FORCE
HOOP TENDONS

Tendon Number	Ends	First Year*			
		Maximum (kips)	Minimum (kips)	Y1	Y2
58BA	A	N/A	640.84	N/A	4.912
	B	N/A	640.84	N/A	4.912
49CB	A	N/A	639.80	N/A	4.500
	B	N/A	639.80	N/A	4.500
51BA	A	N/A	653.76	N/A	4.500
	B	N/A	653.76	N/A	4.500
59D	A	N/A	638.18	N/A	4.906
	B	N/A	638.18	N/A	4.906
36CB	A	N/A	644.69	N/A	5.437
	B	N/A	644.69	N/A	5.437
48BA	A	N/A	653.76	N/A	4.500
	B	N/A	653.76	N/A	4.500
69D	A	N/A	642.31	N/A	4.332
	B	N/A	642.31	N/A	4.332

*First Inspection

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3/4.6 CONTAINMENT SYSTEMS

BASES

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 PRIMARY CONTAINMENT INTEGRITY

PRIMARY CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10 CFR Part 100 during accident conditions.

3/4.6.1.2 PRIMARY CONTAINMENT LEAKAGE

The limitations on primary containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure of 39.6 psig, P_a. As an added conservatism, the measured overall integrated leakage rate is further limited to less than or equal to 0.75 L_a during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

Operating experience with the main steam line isolation valves has indicated that degradation has occasionally occurred in the leak tightness of the valves; therefore the special requirement for testing these valves.

The surveillance testing for measuring leakage rates is consistent with the requirements of Appendix J to 10 CFR 50 with the exception of exemption(s) granted for main steam isolation valve leak testing and testing the airlocks after each opening.

3/4.6.1.3 PRIMARY CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the primary containment air locks are required to meet the restrictions on PRIMARY CONTAINMENT INTEGRITY and the primary containment leakage rate given in Specifications 3.6.1.1 and 3.6.1.2. The specification makes allowances for the fact that there may be long periods of time when the air locks will be in a closed and secured position during reactor operation. Only one closed door in each air lock is required to maintain the integrity of the containment.

3/4.6.1.4 MSIV LEAKAGE CONTROL SYSTEM

Calculated doses resulting from the maximum leakage allowance for the main steamline isolation valves in the postulated LOCA situations would be a small fraction of the 10 CFR 100 guidelines provided the main steam line system from the isolation valves up to and including the turbine condenser remains intact. Operating experience has indicated that degradation has occasionally occurred in the leak tightness of the MSIV's such that the specified leakage requirements have not always been maintained continuously. The requirement for the leakage control system will reduce the untreated leakage from the isolation valves when isolation of the primary system and containment is required.

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The structural integrity of the primary containment is ensured by the successful completion of the Inservice Inspection Program for Post Tensioning Tendons and by associated visual inspections of the steel liner and penetrations for evidence of deterioration or breach of integrity. This ensures that the structural integrity of the primary containment will be maintained in accordance with the provisions of the Primary Containment Tendon Surveillance Program. Testing and Frequency are consistent with the recommendations of Regulatory Guide 1.35, Revision 3, except that the Unit 1 and 2 primary containments shall be treated as twin containments even though the Initial Structural Integrity Tests were not within 2 years of each other.

3/4.6.1.5 PRIMARY CONTAINMENT STRUCTURAL INTEGRITY

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This limitation ensures that the structural integrity of the containment will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the containment will withstand the maximum pressure of 45 psig in the event of a LOCA. The measurement of containment tendon lift-off force, the tensile tests of the tendon wires or strands, the visual examination of tendons, anchorages and exposed interior and exterior surfaces of the containment, the chemical and visual examination of the sheathing filler grease, and the Type A leakage test are sufficient to demonstrate this capability.

The surveillance requirements for demonstrating the primary containment's structural integrity and the method of predicting the pre-stress loses are in compliance with the recommendations of Regulatory Guide 1.35.1, "Inservice Inspection of Ungrouted Tendons in Prestressed Concrete Containment Structures," January 1976, and proposed Regulatory Guide 1.35.1, "Determining Prestressing Forces for Inspection of Prestressed Concrete Containment Structures," April 1979 with the following clarification: the tested lift-off force of individual tendon tension shall be greater than or equal to the initial pre-stress minus the loses, as predicted in the as-built design, which occur between the initial pre-operational structural integrity test and the time of subsequent surveillance.

The required Special Reports from any engineering evaluation or containment abnormalities shall include a description of the tendon condition, the condition of the concrete (especially at tendon anchorages), the inspection procedure, the tolerances on cracking, the results of the engineering evaluation, and the corrective action taken.

3/4.6.1.6 DRYWELL AND SUPPRESSION CHAMBER INTERNAL PRESSURE

The limitations on drywell and suppression chamber internal pressure ensure that the containment peak pressure of 39.6 psig does not exceed the design pressure of 45 psig during LOCA conditions or that the external pressure differential does not exceed the design maximum external pressure differential of 5 psid. The limit of 2.0 psig for initial positive primary containment pressure will limit the total pressure to 39.6 psig which is less than the design pressure and is consistent with the accident analysis.

3/4.6.1.7 DRYWELL AVERAGE AIR TEMPERATURE

The limitation on drywell average air temperature ensures that the containment peak air temperature does not exceed the design temperature of 340°F during LOCA conditions and is consistent with the accident analysis.

3/4.6.1.8 DRYWELL AND SUPPRESSION CHAMBER PURGE SYSTEM

The drywell and suppression chamber purge supply and exhaust isolation valves are required to be closed during plant operation except as required for inerting, de-inerting and pressure control. These valves have been demonstrated capable of closing during a LOCA or steam line break accident from the full open position.

Onsite Review and Investigative Function (Continued)

b. Responsibility

The Onsite Review and Investigative Function shall be responsible for conducting the following:

1) Review of all applicable plant Administrative Procedures recommended in Appendix A of Reg Guide 1.33, Revision 2, February 1978 and changes thereto;

2) Review of Emergency Operating Procedures required to implement the requirements of NUREG-0737 and Supplement 1 to NUREG-0737 as stated in Section 7.1 of Generic Letter No. 82-33 and changes thereto;

3) Review of all proposed tests and experiments that affect nuclear safety;

4) Review of all proposed changes or modifications to plant systems or equipment that affect nuclear safety;

5) Review of proposed changes to the Fire Protection Program;

6) Review of the Station Security Plan and submittal of recommended changes to the station Security Plan in accordance with station procedures;

7) Review of Emergency Plan and identification of recommended changes;

8) Review of changes to the PROCESS CONTROL PROGRAM and the OFFSITE DOSE CALCULATION MANUAL;

9) Review of all proposed changes to the Technical Specifications or Operating License, and any proposed change which involves an unreviewed safety question that is to be submitted to the Commission for approval;

10) Review of investigation results for all violations of the Technical Specifications, including the preparation and forwarding of reports covering evaluations and recommendation to prevent recurrence;

11) Review of investigation results for all REPORTABLE EVENTS and other significant operating abnormalities including the preparation and forwarding of reports covering evaluations and recommendation to prevent recurrence.

12) Review of investigation results for any accidental, unplanned, or uncontrolled radioactive release including the preparation and forwarding of reports covering evaluations and recommendations to prevent recurrence;

13) Review of Unit operations to detect potential hazards to nuclear safety;

14) Performance of special reviews and investigations and reports thereon as requested by the Superintendent of the Offsite Review and Investigative Function.

15) Review of changes to the Inservice Inspection Program for Post Tensioning Tendons.

PLANT OPERATING PROCEDURES AND PROGRAMS (Continued)

i. Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,

j. Limitations on venting and purging of the containment through the Primary Containment Vent and Purge System or Standby Gas Treatment System to maintain releases as low as reasonably achievable,

k. Limitations on the annual dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

5. Radiological Environmental Monitoring Program

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide (1) representative measurements of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall (1) be contained in the ODCM, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

a. Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM,

b. A Land Use Census to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the monitoring program are made if required by the results of this census, and

c. Participation in a Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.

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6.3 ACTION TO BE TAKEN IN THE EVENT OF A REPORTABLE EVENT IN PLANT OPERATION

The following actions shall be taken for REPORTABLE EVENTS:

a. The Commission shall be notified and a Licensee Event Report submitted pursuant to the requirements of Section 50.73 to 10 CFR Part 50, and

b. Each REPORTABLE EVENT shall be reviewed pursuant to Specification 6.1.G.2.c(1).

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6.2.F.6 Inservice Inspection Program for Post Tensioning Tendons

This program provides controls for monitoring any tendon degradation in pre-stressed concrete containments, including effectiveness of its corrosion protection medium, to ensure containment structural integrity. The program shall include baseline measurements prior to initial operations. The Tendon Surveillance Program, inspection frequencies, and acceptance criteria shall be in accordance with Regulatory Guide 1.35, Revision 3, 1989, except that the unit 1 and 2 primary containments shall be treated as twin containments even though the Initial Structural Integrity Tests were not within 2 years of each other.

The provisions of 4.0.2 and 4.0.3 are applicable to the Tendon Surveillance Program inspection frequencies.

NO CHANGES
FOR INFORMATION ONLY

6.4 ACTION TO BE TAKEN IN THE EVENT A SAFETY LIMIT IS EXCEEDED

If a safety limit is exceeded, the reactor shall be shut down immediately pursuant to Specification 2.1.1, 2.1.2 and 2.1.3, and critical reactor operation shall not be resumed until authorized by the NRC. The conditions of shutdown shall be promptly reported to the Vice President BWR Operations or his designated alternate. The incident shall be reviewed pursuant to Specifications 6.1.G.1.a and 6.1.G.2.a and a separate Licensee Event Report for each occurrence shall be prepared in accordance with Section 50.73 to 10 CFR Part 50. The NRC Operations Center shall be notified by telephone as soon as possible and in all cases within one hour. The Vice President BWR Operations and the Manager of Offsite Review and Investigative Function shall be notified within 24 hours.

6.5 PLANT OPERATING RECORDS

A. Records and/or logs relative to the following items shall be kept in a manner convenient for review and shall be retained for at least 5 years:

1. Records of normal plant operation, including power levels and periods of operation at each power level;

2. Records of principal maintenance and activities, including inspection and repair, regarding principal items of equipment pertaining to nuclear safety;

3. Records and reports of reportable events;

4. Records and periodic checks, inspection and/or calibrations performed to verify that the surveillance requirements (see Section 4 of these specifications) are being met. All equipment failing to meet surveillance requirements and the corrective action taken shall be recorded;

5. Records of changes to operating procedures;

6. Shift engineers' logs; and

7. Byproduct material inventory records and source leak test results.

B. Records and/or logs relative to the following items shall be recorded in a manner convenient for review and shall be retained for the life of the plant:

1. Substitution or replacement of principal items of equipment pertaining to nuclear safety;

2. Changes made to the plant as it is described in the SAR;

3. Records of new and spent fuel inventory and assembly histories;

4. Updated, corrected, and as-built drawings of the plant;

PLANT OPERATING RECORDS (Continued)

5. Records of plant radiation and contamination surveys;

6. Records of offsite environmental monitoring surveys;

7. Records of radiation exposure for all plant personnel, including all contractors and visitors to the plant, in accordance with 10 CFR Part 20;

8. Records of radioactivity in liquid and gaseous wastes released to the environment;

9. Records of transient or operational cycling for those components that have been designed to operate safety for a limited number of transient or operational cycles (identified in Table 5.7.1-1);

10. Records of individual staff members indicating qualifications, experience, training, and retraining;

11. Inservice inspections of the reactor coolant system;

12. Minutes of meetings and results of reviews and audits performed by the offsite and onsite review and audit functions;

13. Records of reactor tests and experiments;

14. Records of Quality Assurance activities required by the QA Manual, except for those items specified in Section 6.5.A;

15. Records of reviews performed for changes made to procedures on equipment or reviews of tests and experiments pursuant to 10 CFR 50.59;

16. Records of the service lives of all hydraulic and mechanical snubbers required by specification 3.7.9 including the date at which the service life commences and associated installation and maintenance records;

17. Records of analyses required by the radiological environmental monitoring program; and

18. Records of reviews performed for changes made to the OFFSITE DOSE CALCULATION MANUAL and the PROCESS CONTROL PROGRAM; and

19. Records of pre-stressed concrete containment tendon surveillances.

6.6 REPORTING REQUIREMENTS

In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following identified reports shall be submitted

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

BASES

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

PRIMARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2,* and 3.

ACTION:

Without PRIMARY CONTAINMENT INTEGRITY, restore PRIMARY CONTAINMENT INTEGRITY within 1 hour or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be demonstrated:

a. After each closing of each penetration subject to Type B testing, except the primary containment air locks, if opened following Type A or B test, by leak rate testing the seal with gas at Pa, 39.6 psig, and verifying that when the measured leakage rate for these seals is added to the leakage rates determined pursuant to Surveillance Requirement 4.6.1.2.d for all other Type B and C penetrations, the combined leakage rate is less than or equal to 0.60 La.

b. At least once per 31 days by verifying that all primary containment penetrations** not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in position, except as provided in Table 3.6.3-1 of Specification 3.6.3.

c. By verifying each primary containment air lock OPERABLE per Specification 3.6.1.3.

d. By verifying the suppression chamber OPERABLE per Specification 3.6.2.1.

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*See Special Test Exception 3.10.1

**Except valves, blind flanges, and deactivated automatic valves which are located inside the containment, and are locked, sealed or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except such verification need not be performed when the primary containment has not been deinerted since the last verification or more often than once per 92 days.

INSERT A

4.6.1.1.e Verify primary containment structural integrity in accordance with the Inservice Inspection Program for Post Tensioning Tendons. The frequency shall be in accordance with the Inservice Inspection Program for Post Tensioning Tendons.

PRIMARY CONTAINMENT STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.5 The structural integrity of the primary containment shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.5.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With more than one tendon with an observed lift-off force between the predicted lower limit and 90% of the predicted lower limit or with one tendon below 90% of the predicted lower limit, restore the tendon(s) to the required level of integrity within 15 days and perform an engineering evaluation of the containment and provide a Special Report to the Commission within 30 days in accordance with Specification 6.6C. or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With any other abnormal degradation of the structural integrity at a level below the acceptance criteria of Specification 4.6.1.5, restore the containment vessel to the required level of integrity within 72 hours and perform an engineering evaluation of the containment and provide a Special Report to the Commission within 15 days in accordance with Specification 6.6C. or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5 Primary Containment Tendons. The primary containment structural integrity shall be demonstrated at the end of 1, 3, and 5 years after the initial structural integrity test (ISIT) and every 5 years thereafter in accordance with Table 4.6.1.5-1. The structural integrity shall be demonstrated by:

a. Determining that a representative sample of at least 13 tendons, 8 horizontal and 5 vertical, selected in accordance with Table 4.6.1.5-1 have a lift-off force equal to or greater than the minimum values listed in Table 4.6.1.5-2 at the first inspection. For subsequent inspections, for tendons and periodicities per Table 4.6.1.5-1, the minimum lift-off forces shall be decreased by the amount X2 log t/t_0 for V tendons and Y2 log t/t_0 for hoop tendons where t is the time interval in years from initial tensioning of the tendon to the current testing date and t_0 is the time interval in years from initial tensioning of the tendon to the first inspection and is equal to 4 years. The values X1, X2, Y1, and Y2 are in accordance with the values listed in Table 4.6.1.5-2 for the surveillance tendon. This test shall include essentially a

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3/4 6.1.5 INTENTIONALLY LEFT BLANK
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SURVEILLANCE REQUIREMENTS (Continued)

complete detensioning of tendons selected in accordance with Table 4.6.1.5-1 in which the tendon is detensioned to determine if any wires or strands are broken or damaged. Tendons found acceptable during this test shall be retensioned to their observed lift-off force, ± 3%. During retensioning of these tendons, the change in load and elongation shall be measured simultaneously at a minimum of three, approximately equally spaced, levels of force between the seating force and zero. If elongation corresponding to a specific load differs by more than 5% from that recorded during installation of tendons, an investigation should be made to ensure that such difference is not related to wire failures or slip of wires in anchorages. If the lift-off force of any one tendon in the total sample population lies between the predicted lower limit and 90% of the predicted lower limit, two tendons, one on each side of this tendon, shall be checked for their lift-off force. If both these adjacent tendons are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. The tendon(s) shall be restored to the required level of integrity. More than one tendon below the predicted bounds out of the original sample population or the lift-off force of a selected tendon lying below 90% of the prescribed lower limit is evidence of abnormal degradation of the containment structure.

b. Performing tendon detensioning and material tests and inspections of a previously stressed tendon wire or strand from one tendon of each group, hoop and V, and determining that over the entire length of the removed wire or strand that:

1. The tendon wires or strands are free of corrosion, cracks and damage.

2. A minimum tensile strength value of 240 ksi, the guaranteed ultimate strength of the tendon material, for at least three wire or strand samples, one from each end and one at mid-length, cut from each removed wire or strand. Failure of any one of the wire or strand samples to meet the minimum tensile strength test is evidence of abnormal degradation of the primary containment structure.

c. Performing a visual inspection of the following:

1. Primary Containment Surfaces - The structural integrity of the exposed accessible interior and exterior surfaces of the primary containment shall be determined during the shutdown for, and prior to, each Type A containment leakage rate test by a visual inspection of these surfaces and verifying no apparent changes in appearance or other abnormal degradation, e.g., widespread cracking, spalling, and/or grease leakage.

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SURVEILLANCE REQUIREMENTS (Continued)

2. End Anchorages - The structural integrity of the end anchorages, e.g., bearing plates, stressing washers, shims, wedges, and anchorheads, of all tendons inspected pursuant to Specification 4.6.1.5a. shall be demonstrated by inspection that no apparent changes have occurred in the visual appearance of the end anchorage.

3. Concrete Surfaces - The structural integrity of the concrete surfaces adjacent to the anchorages of tendons inspected pursuant to Specification 4.6.1.5a. shall be demonstrated by visual examination of the crack patterns to verify no abnormal material behavior.

d. Verifying the OPERABILITY of the sheathing filler grease by the following:

1. No significant voids, i.e., in excess at 5% of the net duct volume, or the presence of free water within the grease filler material, taking into account temperature variations.

2. No significant changes have occurred in the physical appearance of the sheathing filler grease.

3. Minimum grease coverage exists for different parts of the anchorage system.

4. Chemical properties are within the tolerance limits specified by the sheathing filler grease manufacturer.

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TABLE 4.6.1.5-1

TENDON SURVEILLANCE

	TENDON NUMBERS									
Years After Initial Structural Integrity Test	1		3		5		10		15	
Type of Inspection	H	V	H	V	H	V	H	V	H	V
Visual Inspection of End Anchorages Adjacent Concentrate Surface and Prestress Monitoring Tests	48EG 56GF 12GF 70F 20GF 1GF 12EG 56FE	215C 215A 220A 247C 229A	48EG 2GF 14EG 37GF 47GF 57GF 60F 24FE	215C 206C 217A 242C 232C	48EG 3FE 12FE 21GF 23FE 38GF 49EG 68F	215C 228A 223A 205B 231C	48EG 4FE 41GF 50EG	215C 230B 222A	48EG 50GF 53FE 57EG	215C 219A 213B
Detensioning and Material Tests	20GF	247C	2GF	242C	23FE	231C	4FE	222A	50GF	219A

	TENDON NUMBERS									
Years After Initial Structural Integrity Test	20		25		30		35		40	
Type of Inspection	H	V	H	V	H	V	H	V	H	V
Type of Inspection of End Anchorages Adjacent Concrete Surface and Prestress Monitoring Tests	48EG 39GF 49FE 71J	215C 225B 211A	48EG 1FE 47EG 57FE	215C 203B 212A	48EG 48GF 51EG 58FE	215C 207B 218A	48EG 49GF 51FE 59J	215C 225A 218B	48EG 36GF 48FE 69J	215C 213A 227B
Detensioning and Material Tests	49FE	211A	47EG	203B	48GF	218A	51FE	218B	36GF	213A

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TABLE 4.6.1.5-2

TENDON LIFT-OFF FORCE
V TENDONS

Tendon Number	Ends	First Year*		X1	X2
		Maximum (kips)	Minimum (kips)		
V215C	A	N.A.	649.14	N.A.	19.302
	B	N.A.	N.A.	N.A.	N.A.
V215A	A	N.A.	644.85	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V220A	A	N.A.	644.85	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V247C	A	N.A.	641.94	N.A.	19.088
	B	N.A.	N.A.	N.A.	N.A.
V229A	A	N.A.	644.85	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V206C	A	N.A.	649.14	N.A.	19.302
	B	N.A.	N.A.	N.A.	N.A.
V217A	A	N.A.	644.85	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V232C	A	N.A.	649.14	N.A.	19.302
	B	N.A.	N.A.	N.A.	N.A.
V242C	A	N.A.	649.14	N.A.	19.032
	B	N.A.	N.A.	N.A.	N.A.
V228A	A	N.A.	644.85	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V223A	A	N.A.	644.85	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V205B	A	N.A.	647.59	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V231C	A	N.A.	649.14	N.A.	19.302
	B	N.A.	N.A.	N.A.	N.A.
V230B	A	N.A.	647.59	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V222A	A	N.A.	644.85	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V219A	A	N.A.	644.85	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V213B	A	N.A.	647.60	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V225B	A	N.A.	640.38	N.A.	18.625
	B	N.A.	N.A.	N.A.	N.A.
V211A	A	N.A.	644.82	N.A.	18.834
	B	N.A.	N.A.	N.A.	N.A.
V203B	A	N.A.	640.41	N.A.	18.656
	B	N.A.	N.A.	N.A.	N.A.

*First Inspection

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TABLE 4.6.1.5-2 (Continued)

TENDON LIFT-OFF FORCE

V TENDONS

Tendon Number	Ends	First Year*		X1	X2
		Maximum (kips)	Minimum (kips)		
V207B	A	N.A.	647.59	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V218A	A	N.A.	644.85	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V225A	A	N.A.	644.85	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V218B	A	N.A.	647.59	N.A.	18.865
	B	N.A.	N.A.	N.A.	N.A.
V213A	A	N.A.	644.82	N.A.	18.834
	B	N.A.	N.A.	N.A.	N.A.
V227B	A	N.A.	647.56	N.A.	18.834
	B	N.A.	N.A.	N.A.	N.A.
V212A	A	N.A.	637.70	N.A.	18.656
	B	N.A.	N.A.	N.A.	N.A.

*First Inspection

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TABLE 4.6.1.5-2 (Continued)

TENDON LIFT-OFF FORCE
HOOP TENDONS

Tendon Number	Ends	First Year* Maximum (kips)	First Year* Minimum (kips)	Y1	Y2
48EG	A	N.A.	641.01	N.A.	19.881
	B	N.A.	641.01	N.A.	19.881
56GF	A	N.A.	639.34	N.A.	21.480
	B	N.A.	639.34	N.A.	21.480
12GF	A	N.A.	629.27	N.A.	27.272
	B	N.A.	629.27	N.A.	27.272
70F	A	N.A.	643.76	N.A.	19.139
	B	N.A.	643.76	N.A.	19.139
20GF	A	N.A.	621.50	N.A.	27.272
	B	N.A.	621.50	N.A.	27.272
1GF	A	N.A.	645.54	N.A.	18.670
	B	N.A.	645.54	N.A.	18.670
12EG	A	N.A.	629.27	N.A.	27.272
	B	N.A.	629.27	N.A.	27.272
56FE	A	N.A.	639.34	N.A.	21.480
	B	N.A.	639.34	N.A.	21.480
2GF	A	N.A.	648.19	N.A.	18.670
	B	N.A.	648.19	N.A.	18.670
14EG	A	N.A.	621.50	N.A.	27.272
	B	N.A.	621.50	N.A.	27.272
24FE	A	N.A.	629.27	N.A.	27.272
	B	N.A.	629.27	N.A.	27.272
37GF	A	N.A.	618.86	N.A.	23.754
	B	N.A.	618.86	N.A.	23.754
47GF	A	N.A.	639.75	N.A.	21.980
	B	N.A.	639.75	N.A.	21.980
57GF	A	N.A.	636.15	N.A.	21.434
	B	N.A.	636.15	N.A.	21.434
60F	A	N.A.	640.20	N.A.	21.233
	B	N.A.	640.20	N.A.	21.233
3FE	A	N.A.	650.84	N.A.	18.670
	B	N.A.	650.84	N.A.	18.670
12FE	A	N.A.	629.27	N.A.	27.272
	B	N.A.	629.27	N.A.	27.272
21GF	A	N.A.	629.27	N.A.	27.272
	B	N.A.	629.27	N.A.	27.272
23FE	A	N.A.	621.50	N.A.	27.272
	B	N.A.	621.50	N.A.	27.272
38GF	A	N.A.	631.63	N.A.	24.021
	B	N.A.	631.63	N.A.	24.021
49EG	A	N.A.	641.01	N.A.	19.881
	B	N.A.	641.01	N.A.	19.881

*First Inspection

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TABLE 4.6.1.5-2 (Continued)

TENDON LIFT-OFF FORCE

HOOP TENDONS

Tendon Number	Ends	First Year* Maximum (kips)	First Year* Minimum (kips)	Y1	Y2
68F	A	N.A.	642.43	N.A.	18.927
	B	N.A.	642.43	N.A.	18.927
4FE	A	N.A.	645.54	N.A.	18.670
	B	N.A.	645.54	N.A.	18.670
41GF	A	N.A.	637.89	N.A.	21.979
	B	N.A.	637.89	N.A.	21.979
50EG	A	N.A.	644.37	N.A.	19.881
	B	N.A.	644.37	N.A.	19.881
50GF	A	N.A.	644.37	N.A.	19.881
	B	N.A.	644.37	N.A.	19.881
53FE	A	N.A.	643.78	N.A.	20.049
	B	N.A.	643.78	N.A.	20.049
57EG	A	N.A.	643.67	N.A.	21.480
	B	N.A.	643.67	N.A.	21.480
39GF	A	N.A.	637.46	N.A.	24.021
	B	N.A.	637.46	N.A.	24.021
49FE	A	N.A.	641.01	N.A.	19.881
	B	N.A.	641.01	N.A.	19.881
71J	A	N.A.	646.67	N.A.	19.138
	B	N.A.	646.67	N.A.	19.138
1FE	A	N.A.	650.61	N.A.	17.292
	B	N.A.	650.61	N.A.	17.292
47EG	A	N.A.	637.89	N.A.	21.980
	B	N.A.	637.89	N.A.	21.980
57FE	A	N.A.	643.72	N.A.	21.480
	B	N.A.	643.72	N.A.	21.480
48GF	A	N.A.	647.75	N.A.	19.912
	B	N.A.	647.75	N.A.	19.912
51EG	A	N.A.	647.75	N.A.	19.912
	B	N.A.	647.75	N.A.	19.912
58FE	A	N.A.	634.30	N.A.	21.701
	B	N.A.	634.30	N.A.	21.701
49GF	A	N.A.	641.01	N.A.	19.881
	B	N.A.	641.01	N.A.	19.881
51FE	A	N.A.	647.77	N.A.	19.881
	B	N.A.	647.77	N.A.	19.881
59J	A	N.A.	638.83	N.A.	21.676
	B	N.A.	638.83	N.A.	21.676
36GF	A	N.A.	637.46	N.A.	24.021
	B	N.A.	637.46	N.A.	24.021
48FE	A	N.A.	647.77	N.A.	19.881
	B	N.A.	647.77	N.A.	19.881
69J	A	N.A.	643.76	N.A.	19.138
	B	N.A.	643.76	N.A.	19.138

*First Inspection

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3/4.6 CONTAINMENT SYSTEMS

BASES

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 PRIMARY CONTAINMENT INTEGRITY

PRIMARY CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10 CFR Part 100 during accident conditions.

3/4.6.1.2 PRIMARY CONTAINMENT LEAKAGE

The limitations on primary containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure of 39.6 psig, P_a. As an added conservatism, the measured overall integrated leakage rate is further limited to less than or equal to 0.75 L_a during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

Operating experience with the main steam line isolation valves has indicated that degradation has occasionally occurred in the leak tightness of the valves; therefore the special requirement for testing these valves.

The surveillance testing for measuring leakage rates is consistent with the requirements of Appendix J to 10 CFR 50 with the exception of exemption(s) granted for main steam isolation valve leak testing and testing the airlocks after each opening.

3/4.6.1.3 PRIMARY CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the primary containment air locks are required to meet the restrictions on PRIMARY CONTAINMENT INTEGRITY and the primary containment leakage rate given in Specifications 3.6.1.1 and 3.6.1.2. The specification makes allowances for the fact that there may be long periods of time when the air locks will be in a closed and secured position during reactor operation. Only one closed door in each air lock is required to maintain the integrity of the containment.

3/4.6.1.4 MSIV LEAKAGE CONTROL SYSTEM

Calculated doses resulting from the maximum leakage allowance for the main steamline isolation valves in the postulated LOCA situations would be a small fraction of the 10 CFR 100 guidelines provided the main steam line system from the isolation valves up to and including the turbine condenser remains intact. Operating experience has indicated that degradation has occasionally occurred in the leak tightness of the MSIV's such that the specified leakage requirements have not always been maintained continuously. The requirement for the leakage control system will reduce the untreated leakage from the isolation valves when isolation of the primary system and containment is required.

INSERT B

The structural integrity of the primary containment is ensured by the successful completion of the Inservice Inspection Program for Post Tensioning Tendons and by associated visual inspections of the steel liner and penetrations for evidence of deterioration or breach of integrity. This ensures that the structural integrity of the primary containment will be maintained in accordance with the provisions of the Primary Containment Tendon Surveillance Program. Testing and Frequency are consistent with the recommendations of Regulatory Guide 1.35, Revision 3, except that the Unit 1 and 2 primary containments shall be treated as twin containments even though the Initial Structural Integrity Tests were not within 2 years of each other.

3/4.6.1.5 PRIMARY CONTAINMENT STRUCTURAL INTEGRITY

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This limitation ensures that the structural integrity of the containment will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the containment will withstand the maximum pressure of 45 psig in the event of a LOCA. The measurement of containment tendon lift-off force, the tensile tests of the tendon wires or strands, the visual examination of tendons, anchorages and exposed interior and exterior surfaces of the containment, the chemical and visual examination of the sheathing filler grease, and the Type A leakage test are sufficient to demonstrate this capability.

The surveillance requirements for demonstrating the primary containment's structural integrity and the method of predicting the prestress losses are in compliance with the recommendations of Regulatory Guide 1.35, "Inservice Inspection of Ungrouted Tendons in Prestressed Concrete Containment Structures," January 1976, and proposed Regulatory Guide 1.35.1, "Determining Prestressing Forces for Inspection of Prestressed Concrete Containment Structures," April 1979 with the following clarification: the tested lift-off force of individual tendon tension shall be greater than or equal to the initial prestress minus the losses, as predicted in the as-built design, which occur between the initial pre-operational structural integrity test and the time of subsequent surveillance.

The required Special Reports from any engineering evaluation of containment abnormalities shall include a description of the tendon condition, the condition of the concrete (especially at tendon anchorages), the inspection procedure, the tolerances on cracking, the results of the engineering evaluation, and the corrective action taken.

3/4.6.1.6 DRYWELL AND SUPPRESSION CHAMBER INTERNAL PRESSURE

The limitations on drywell and suppression chamber internal pressure ensure that the containment peak pressure of 39.6 psig does not exceed the design pressure of 45 psig during LOCA conditions or that the external pressure differential does not exceed the design maximum external pressure differential of 5 psid. The limit of 2.0 psig for initial positive primary containment pressure will limit the total pressure to 39.6 psig which is less than the design pressure and is consistent with the safety analysis.

3/4.6.1.7 DRYWELL AVERAGE AIR TEMPERATURE

The limitation on drywell average air temperature ensures that the containment peak air temperature does not exceed the design temperature of 340°F during LOCA conditions and is consistent with the safety analysis.

3/4.6.1.8 DRYWELL AND SUPPRESSION CHAMBER PURGE SYSTEM

The drywell and suppression chamber purge supply and exhaust isolation valves are required to be closed during plant operation except as required for inerting, de-inerting and pressure control. These valves have been demonstrated capable of closing during a LOCA or steam line break accident from the full open position.

NO CHANGES
FOR INFORMATION ONLY

Onsite Review and Investigative Function (Continued)

comprehensive interdisciplinary review coverage under this function; (4) independently review and approve the findings and recommendations developed by personnel performing the Onsite Review and Investigative Function; (5) report all findings of noncompliance with NRC requirements, and provide recommendations; and (6) submit to the Offsite Review and Investigative Function for concurrence in a timely manner, those items described in Specification 6.1.G.1.a which have been approved by the Onsite Review and Investigative Function.

b. Responsibility

The Onsite Review and Investigative Function shall be responsible for conducting the following:

1) Review of all applicable plant Administrative Procedures recommended in Appendix A of Reg Guide 1.33, Revision 2, February 1978 and changes thereto;

2) Review of Emergency Operating Procedures required to implement the requirements of NUREG-0737 and Supplement 1 to NUREG-0737 as stated in Section 7.1 of Generic Letter No. 82-33 and changes thereto;

3) Review of all proposed tests and experiments that affect nuclear safety;

4) Review of all proposed changes or modifications to plant systems or equipment that affect nuclear safety;

5) Review of proposed changes to the Fire Protection Program;

6) Review of the Station Security Plan and submittal of recommended changes to the station Security Plan in accordance with station procedures;

7) Review of Emergency Plan and identification of recommended changes;

8) Review of changes to the PROCESS CONTROL PROGRAM and the OFFSITE DOSE CALCULATION MANUAL;

9) Review of all proposed changes to the Technical Specifications or Operating License, and any proposed change which involves an unreviewed safety question that is to be submitted to the Commission for approval;

10) Review of investigation results for all violations of the Technical Specifications, including the preparation and forwarding of reports covering evaluations and recommendation to prevent recurrence;

11) Review of investigation results for all REPORTABLE EVENTS and other significant operating abnormalities including the preparation and forwarding of reports covering evaluations and recommendation to prevent recurrence.

12) Review of investigation results for any accidental, unplanned, or uncontrolled radioative release including the preparation and forwarding of reports covering evaluations and recommendations to prevent recurrence;

13) Review of Unit operations to detect potential hazards to nuclear safety;

14) Performance of special reviews and investigations and reports thereon as requested by the Superintendent of the Offsite Review and Investigative Function;

15) Review of changes to the Inservice Inspection Program for Post Tensioning Tendons.

c. Authority

The Onsite Review and Investigative Function shall:

1) Advise the Station Manager on all matters related to Nuclear Safety;

2) Recommend to the Station Manager the disposition of items considered under Specification 6.1.G.2.b.1) through 9) prior to their implementation;

3) Include among its review conclusions for each item considered under Specification 6.1.G.2.b.1) through 4), a determination of whether or not the item involves an unreviewed safety question.

4) Provide prompt notification to the Vice-President BWR Operations and the Superintendent of the Offsite Review and Investigative Function of disagreement between the Onsite Review and Investigative Function and the Station Manager. The Station Manager shall follow the recommendations of the Onsite Review and Investigative Function or select a course of action that is more conservative regarding safe operation of the facility.

d. Records

1) Reports, reviews, investigations, and recommendations prepared and performed for Specification 6.1.G.2a shall be documented and forwarded to the Superintendent of the Offsite Review and Investigative Function unless otherwise specified.

2) Copies of all records and documentation shall be kept on file at the station.

e. Procedures

Written administrative procedures shall be prepared and maintained for conduct of the Onsite Review and Investigative Function. These procedures shall include the following:

1) Content and method of submission and presentation to the Station Manager, Vice President BWR Operations, and the Superintendent of the Offsite Review and Investigative Function.

PLANT OPERATING PROCEDURES AND PROGRAMS (Continued)

i. Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,

j. Limitations on venting and purging of the containment through the Primary Containment Vent and Purge System or Standby Gas Treatment System to maintain releases as low as reasonably achievable,

k. Limitations on the annual dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

5. Radiological Environmental Monitoring Program

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide (1) representative measurements of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall (1) be contained in the ODCM, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

a. Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM,

b. A Land Use Census to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the monitoring program are made if required by the results of this census, and

c. Participation in a Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.

INSERT 'C'

6.3 ACTION TO BE TAKEN IN THE EVENT OF A REPORTABLE EVENT IN PLANT OPERATION

The following actions shall be taken for REPORTABLE EVENTS:

a. The Commission shall be notified and a Licensee Event Report submitted pursuant to the requirements of Section 50.73 to 10 CFR Part 50, and

b. Each REPORTABLE EVENT shall be reviewed pursuant to Specification 6.1.G.2.c(1).

INSERT C

6.2.F.6 Inservice Inspection Program for Post Tensioning Tendons

This program provides controls for monitoring any tendon degradation in pre-stressed concrete containments, including effectiveness of its corrosion protection medium, to ensure containment structural integrity. The program shall include baseline measurements prior to initial operations. The Tendon Surveillance Program, inspection frequencies, and acceptance criteria shall be in accordance with Regulatory Guide 1.35, Revision 3, 1989, except that the unit 1 and 2 primary containments shall be treated as twin containments even though the Initial Structural Integrity Tests were not within 2 years of each other.

The provisions of 4.0.2 and 4.0.3 are applicable to the Tendon Surveillance Program inspection frequencies.

NO CHANGES
FOR INFORMATION ONLY

6.4 ACTION TO BE TAKEN IN THE EVENT A SAFETY LIMIT IS EXCEEDED

If a safety limit is exceeded, the reactor shall be shut down immediately pursuant to Specification 2.1.1, 2.1.2 and 2.1.3, and critical reactor operation shall not be resumed until authorized by the NRC. The conditions of shutdown shall be promptly reported to the Vice President BWR Operations or his designated alternate. The incident shall be reviewed pursuant to Specifications 6.1.G.1.a and 6.1.G.2.a and a separate Licensee Event Report for each occurrence shall be prepared in accordance with Section 50.73 to 10 CFR Part 50. The NRC Operations Center shall be notified by telephone as soon as possible and in all cases within one hour. The Vice President BWR Operations and the Manager of Off-site Review and Investigative Function shall be notified within 24 hours.

6.5 PLANT OPERATING RECORDS

A. Records and/or logs relative to the following items shall be kept in a manner convenient for review and shall be retained for at least 5 years:

1. Records of normal plant operation, including power levels and periods of operation at each power level;
2. Records of principal maintenance and activities, including inspection and repair, regarding principal items of equipment pertaining to nuclear safety;
3. Records and reports of reportable events;
4. Records and periodic checks, inspection and/or calibrations performed to verify that the surveillance requirements (see Section 4 of these specifications) are being met. All equipment failing to meet surveillance requirements and the corrective action taken shall be recorded;
5. Records of changes to operating procedures;
6. Shift engineers' logs; and
7. Byproduct material inventory records and source leak test results.

B. Records and/or logs relative to the following items shall be recorded in a manner convenient for review and shall be retained for the life of the plant:

1. Substitution or replacement of principal items of equipment pertaining to nuclear safety;
2. Changes made to the plant as it is described in the SAR;
3. Records of new and spent fuel inventory and assembly histories;
4. Updated, corrected, and as-built drawings of the plant;
5. Records of plant radiation and contamination surveys;
6. Records of offsite environmental monitoring surveys;
7. Records of radiation exposure for all plant personnel, including all contractors and visitors to the plant, in accordance with 10 CFR Part 20;
8. Records of radioactivity in liquid and gaseous wastes released to the environment,

19. Records of pre-stressed concrete containment tendon surveillances.

PLANT OPERATING RECORDS (Continued)

9. Records of transient or operational cycling for those components that have been designed to operate safety for a limited number of transient or operational cycles (identified in Table 5.7.1-1);

10. Records of individual staff members indicating qualifications, experience, training, and retraining;

11. Inservice inspections of the reactor coolant system;

12. Minutes of meetings and results of reviews and audits performed by the offsite and onsite review and audit functions;

13. Records of reactor tests and experiments;

14. Records of Quality Assurance activities required by the QA Manual, except for those items specified in Section 6.5.A;

15. Records of reviews performed for changes made to procedures on equipment or reviews of tests and experiments pursuant to 10 CFR 50.59;

16. Records of the service lives of all hydraulic and mechanical snubbers required by Specification 3.7.9 including the date at which the service life commences and associated installation and maintenance records;

17. Records of analyses required by the radiological environmental monitoring program; and

18. Records of reviews performed for changes made to the OFFSITE DOSE CALCULATION MANUAL and the PROCESS CONTROL PROGRAM.

, and

6.6 REPORTING REQUIREMENTS

In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following identified reports shall be submitted to the director of the appropriate Regional Office of Inspection and Enforcement unless otherwise noted.

A. Routine Reports

1. Startup Report

A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant. The report shall in general include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

ATTACHMENT C

SIGNIFICANT HAZARDS CONSIDERATION

Commonwealth Edison has evaluated the proposed Technical Specification Amendment and determined that it does not represent a significant hazards consideration. Based on the criteria for defining a significant hazards consideration established in 10 CFR 50.92, operation of LaSalle County Station Units 1 and 2 in accordance with the proposed amendment will not:

1) Involve a significant increase in the probability or consequences of an accident previously evaluated because:

   The Inservice Inspection of the Primary Containment Tendons will be performed in accordance with the Inservice Inspection Program for Post Tensioning Tendons, which will be a program required by Technical Specification Administrative Controls section 6.2, Plant Operating Procedures and Programs. This program in conjunction with specification 3/4.6.1.1 will assure that the primary containment integrity will be maintained throughout the life of the plant for both LaSalle County Station (LaSalle) Unit 1 and Unit 2. The design of the primary containment is not affected by this change and therefore the probability of an accident occurring is not increased; because, neither accident initiators nor accident assumptions are affected by this change.

   The consequences of analyzed accidents are not increased, because the integrity of the Primary Containment is maintained through specification 3.6.1.1 and the tendon program required by proposed specification 6.2.F.6.

2) Create the possibility of a new or different kind of accident from any accident previously evaluated because:

   The Primary Containment Integrity is assured through continued surveillance and test of the Primary Containment Tendons in accordance with the Inservice Inspection Program for Post Tensioning Tendons, which will be a program required by Technical Specification Administrative Controls section 6.2, Plant Operating Procedures and Programs. Technical Specification 3/4.6.1.1, Primary Containment Integrity, provides appropriate controls and actions related to loss of containment integrity.

ATTACHMENT C
(continued)

3) Involve a significant reduction in the margin of safety because:

The Deletion of Technical Specification 3/4.6.1.5 does not reduce the margin of safety, because Primary Containment Integrity is required to be maintained per specification 3.6.1.1, Primary Containment Integrity and proposed addition of Administrative Control 6.2.F.6, Inservice Inspection Program for Post Tensioning Tendons.

Guidance has been provided in "Final Procedures and Standards on No Significant Hazards Considerations," Final Rule, 51 FR 7744, for the application of standards to license change requests for determination of the existence of significant hazards considerations. This document provides examples of amendments which are and are not considered likely to involve significant hazards considerations. These proposed amendments most closely fit the example of a change which may either result in some increase to the probability or consequences of a previously analyzed accident or may reduce in some way a safety margin, but where the results of the change are clearly within all acceptable criteria with respect tc the system or component specified in Standard Review Plan section 3.8.1, Concrete Containment.

This proposed amendment does not involve a significant relaxation of the criteria used to establish safety limits, a significant relaxation of the bases for the limiting safety system settings, or a significant relaxation of the bases for the limiting conditions for operations. Therefore, based on the guidance provided in the Federal Register and the criteria established in 10 CFR 50.92(c), the proposed change does not constitute a significant hazards consideration.

ATTACHMENT D

ENVIRONMENTAL ASSESSMENT STATEMENT APPLICABILITY REVIEW

Commonwealth Edison has evaluated the proposed amendment against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.20. It has been determined that the proposed changes meet the criteria for a categorical exclusion as provided under 10 CFR 51.22(c)(9). This conclusion has been determined because the changes requested do not pose significant hazards considerations or do not involve a significant increase in the amounts, and no significant changes in the types, of any effluents that may be released off-site. Additionally, this request does not involve a significant increase in individual or cumulative occupational radiation exposure.

ATTACHMENT E

COMPARISON OF CURRENT TECHNICAL SPECIFICATION REQUIREMENTS TO THE PROPOSED TECHNICAL SPECIFICATION REQUIREMENTS AND THE INSERVICE INSPECTION PROGRAM FOR POST TENSIONING TENDONS

1. The current Limitation and Action 3.6.1.5, "The structural integrity of the primary containment shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.5," is being deleted.

   The current Specification 3.6.1.1 Limitation and Action 3.6.1.1, "PRIMARY CONTAINMENT INTEGRITY shall be maintained," assures structural integrity as well as the other aspects of Primary Containment operability.

2. The Applicability of specification 3.6.1.5 is the same as the Applicability of specification 3.6.1.1, except for the 3.6.1.1 footnote *, which allows Special Test Exception 3.10.1 for low power physics testing without Primary Containment. Tendons are part of containment integrity, and therefore are not required during low power physics testing. Therefore, 3.6.1.5 is not required to be listed in a separate specification.

3. The current Specification 3.6.1.5 Actions are being incorporated as is into the Inservice Inspection Program for Post Tensioning Tendons, with minor changes, which include addressing how the actions apply to unit 1 and 2. The actions will be applied to the Unit on which the unacceptable condition is found.

4. The current Technical Specification Surveillance Requirement 4.6.1.5 is being deleted from the Technical Specifications, except for the proposed Surveillance Requirement 4.6.1.1.e, which is as follows:

   Verify primary containment structural integrity in accordance with the Inservice Inspection Program for Post Tensioning Tendons. The frequency shall be in accordance with the Inservice Inspection Program for Post Tensioning Tendons.

5. The program contains and reformats the details of Surveillance Requirement 4.6.1.5. The following changes or additions to the Surveillance Requirements 4.6.1.5 are being made as part of the proposed program and are consistent with Regulatory Guide 1.35, Revision 3, with the exception to the condition requiring the Unit 1 and 2 Primary Containment ISITs to be performed within 2 years.

ATTACHMENT E
(continued)

A. To date, complete ISIs have been performed for the 1st, 3rd, 5th, 10th, and 15th year inspections of Unit 1 and the 1st, 3rd, and 5th year inspections of Unit 2. With the current specification, complete ISIs will continue every 5 years. The Inservice Inspection Program for Post Tensioning Tendons establishes the frequency of the testing as stated in the Regulatory Guide 1.35, Rev. 3 for a twin unit site:

1) Visual inspection that includes grease sampling will be performed on each unit at every 5 year interval from the date the initial 5th year testing was completed.

2) Physical testing (i.e., tendons lift off, detensioning, and wire tensile tests) will be performed on each unit at every 10 year interval from the date the initial 5th year testing was completed.

B. Currently, Surveillance Requirement 4.6.1.5.a states:

> "... If the lift-off force of any one tendon in the total sample population lies between the predicted lower limit and 90% of the predicted lower limit, two tendons, one on each side of this tendon, shall be checked for their lift-off force. ..."

In accordance with Regulatory Guide 1.35, Rev. 3, the Inservice Inspection Program for Post Tensioning Tendons has the following slightly less restrictive requirement:

> "If the measured prestressing force of a selected tendon in a group lies between 95% of prescribed lower limit and 90% of prescribed lower limit, two additional tendons, one on each side of first tendon, should be checked for their prestressing forces."

LaSalle is interpreting the term, "prescribed lower limit," to mean, "predicted lower limit," per Regulatory Guide 1.35, Rev. 3, section B discussion of Regulatory Position 7.1 and Regulatory Guide 1.35.1. The term "predicted lower limit," will be used in the Inservice Inspection Program for Post Tensioning Tendons and implementing procedures.

C. Currently, Surveillance Requirement 4.6.1.5.c.1 states:

> "Primary Containment Surfaces - The structural integrity of the exposed accessible interior and exterior surfaces of the primary containment shall be determined during the shutdown for, and prior to, each Type A containment leakage rate test by a visual inspection of these surfaces and verifying no apparent changes in appearance or other abnormal degradation, e.g., widespread cracking, spalling and/or grease leakage."

This surveillance mixes two required inspections, one per Regulatory Guide 1.35, Rev. 3, section C.3.1, which is as follows:

> "3.1. The exterior surface of the containment should be visually examined to detect areas of large spall, severe scaling, D-cracking in an area of 25 square feet or more, other surface deterioration or disintegration, or grease leakage."

10 CFR 50, Appendix J:

> Section III.A.1, requires a Type A test pretest containment inspection as follows:
>
> > "(a) Containment inspection in accordance with V.A. shall be performed as a prerequisite to the performance of Type A tests."
>
> Section V.A, Containment Inspection, requires the following:
>
> > "A general inspection of the accessible interior and exterior surfaces of the containment structures and components shall be performed prior to any Type A test to uncover any evidence of structural deterioration which may affect either the containment structural integrity or leak-tightness. If there is evidence of structural deterioration. Type A tests shall not be performed until corrective action is taken in accordance with repair procedures, nondestructive examinations, and tests as specified in the applicable code specified in § 50.55a at the commencement of repair work. Such structural deterioration and corrective actions taken shall be reported as part of the test report, submitted in accordance with V.B."

The exterior inspection required by Regulatory Guide 1.35 is being included in the Inservice Inspection Program for Post Tensioning Tendons. The interior and exterior inspection required by 10 CFR 50, App. J will be included in the surveillance procedure for Type A tests.

D. Currently, Surveillance Requirement 4.6.1.5.c.2 and 3 state:

2. "End Anchorages - The structural integrity of the end anchorages, e.g., bearing plates, stressing washers, shims, wedges, and anchorheads, of all tendons inspected pursuant to Specification 4.6.1.5a shall be demonstrated by inspection that no apparent changes have occurred in the visual appearance of the end anchorage."

3. "Concrete Surfaces - The structural integrity of the concrete surfaces adjacent to the anchorages of tendons inspected pursuant to Specification 4.6.1.5a shall be demonstrated by visual examination of the crack patterns to verify no abnormal material behavior.

In accordance with Regulatory Guide 1.35, Rev. 3, the Inservice Inspection Program for Post Tensioning Tendons has the following slightly less restrictive requirement for visual inspection:

3.2. Tendon anchorage assembly hardware (such as bearing plates, stressing washers, shims, wedges, and buttonheads, of all tendons selected as described in Regulatory Position 2 should be visually examined. For those containments for which only visual inspections need be performed, tendons selected as described in Regulatory Position 2 should be visually examined to the extent practical without dismantling load bearing components of the anchorage or removing grease caps.

3.3. Bottom grease caps of all vertical tendons should be visually inspected to detect grease leakage or grease cap deformations. Removal of the grease caps is not necessary for this inspection.

3.4. Concrete surrounding visually inspected tendon anchorages should also be checked visually for indications of abnormal material behavior.

E. Currently, Surveillance Requirement 4.6.1.5.a states:

"... If elongation corresponding to a specific load differs by more than 5% from that recorded during installation of tendons, an investigation should be made to ensure that such difference is not related to wire failures or slip of wires in anchorages. ..."

In accordance with Regulatory Guide 1.35, Rev. 3, the Inservice Inspection Program for Post Tensioning Tendons has the following slightly less restrictive requirement for elongation during retensioning:

> 7.2 During detensioning and retensioning of tendons, if the elongation corresponding to a specific load differs by more than 10% from that recorded during installation of the tendons, an investigation should be made to ensure that the difference is not related to wire failures or slip of wires in anchorages. A difference of more than 10% should be considered reportable.

6. Unit 1 and 2 tables 4.6.1.5-1, Tendon Surveillance, provide the results of the random selection performed for the tendons requiring inspection and test for each Structural Integrity Test interval. The Unit 1 and 2 Tables are being relocated to the Inservice Inspection Program for Post Tensioning Tendons. A Note is being added to the tables regarding the "type of inspection" required for each interval as follows:

   *As applicable to a twin unit site.

   This will allow required inspections to be performed without complicating the tables. The scope of the inspections at each interval for the tendons specified in the table for that interval will be specified in the program in accordance with Regulatory Guide 1.35, Rev. 3, as discussed in 5.D, above. Regulatory Guide 1.35, Rev. 3, provides an acceptable method of selection of tendons for future inspections and tests, which will be used, if changes are made to tables 4.6.1.5-1.

7. Unit 1 and 2 tables 4.6.1.5-2, Tendon Lift-off Force, V (vertical) Tendons and Hoop Tendons, are being relocated to the Inservice Inspection Program for Post Tensioning Tendons.

APPENDIX A

JUSTIFICATION FOR EXCEPTION TO REGULATORY GUIDE 1.35, REV. 3

July 6, 1993
CHRON #

121101

To: Station Manager
LaSalle County Station

SUBJECT: LaSalle County Station
Engineering Work Request E93-101
Post-Tensioning ISI Technical Spec. Revision
Safety Related

REFERENCE: Sargent & Lundy Letter, C.N. Krishnaswamy to J. A. Miller (CECO), Dated July 1, 1993 (SCS-0447)

Site Engineering and Construction (SEC) has reviewed and approves of the evaluation and justification presented in the above referenced letter. This work was performed to prepare justification to enable Commmonwealth Edison to seek approval from Nuclear Regulatory Commission (NRC) to revise Technical Specification to treat LaSalle station as twin unit site relative to the periodic inservice inspection of the containment post-tensioning system.

The proposed revision will enable LaSalle to limit ensuing 10th year post-tensioning system ISI of unit 2 to visual inspection only, instead of the current complete physical inspection.

Since work is performed on safety related structure safety evaluation (50.59) has been prepared to justify qualification of LaSalle unit as twin unit in relation to periodic post-tensioning ISI inspections.

If you have any questions regarding this matter, please contact me at site extension 2785.

for Robt W Tomala
Mohammad.N. Malik
Site Engineering

Mark Dowd
M. Dowd
Site Engineering

Attachment
cc: J. Miller
J. Gieseker
M. Dougherty
G. Swihart
NEDCC

SARGENT & LUNDY
ENGINEERS
FOUNDED 1891
55 EAST MONROE STREET
CHICAGO, ILLINOIS 60603
(312) 269-2000

S&L Letter No. SCS-0447
July 1, 1993
Project No. 9265-101
WIN 2157

Commonwealth Edison Company
LaSalle County Station - Units 1&2

Engineering Work Request (EWR) No. E93-101
Post-Tensioning ISI Technical Specification Revision
Modification No.: N/A
Safety Code: N/A
Safety-Related

Mr. J. A. Miller
Station Support/Engineering Support Supervisor
Commonwealth Edison Company
LaSalle County Station
R.R. #1, P.O. Box 220
2601 North 21st Road
Marseilles, IL 61341

Dear Mr. Miller:

Sargent & Lundy (S&L) has completed the preparation of a justification to enable Commonwealth Edison Company (CECo) to seek approval from the Nuclear Regulatory Commission (NRC) to revise the station technical specifications to treat LaSalle County station as a twin unit site relative to the periodic inservice inspection of the containment post-tensioning system. This task was performed at the request of Mr. M. Malik of CECo via Engineering Work Request No. E93-101.

The proposed revision, upon approval by the NRC, will permit CECo to limit the ensuing 10th year post-tensioning system ISI of Unit 2 to visual inspection only, instead of the current technical specification requirement of complete physical (i.e. tendon lift-off, detensioning, and wire tensile tests) and visual inspections of each unit during each of its inspection periods. Based on the revision, complete ISIs can be alternated between the two units for subsequent inspections. The resulting cost savings is estimated to be over $300,000 for the ensuing 10th year ISI of Unit 2 and over $2,000,000 for the subsequent ISIs to be performed over the remainder of the 40 year operating life of the two units.

The justification for revising the post-tensioning ISI technical specifications is provided in Attachment 1. Supporting documents that were reviewed in detail with Mr. M. Malik of CECo to prepare the justification are listed in Attachment 2. A marked up copy of Table 4.6.1.5-1 of station technical specifications 3/4.6.1.5 is provided in Attachment 3.

No S&L drawings are affected by the scope of this EWR No. E93-101.

A draft of this letter has been previously forwarded to Messrs. M. Dowd and M. Malik of CECo for review and comment per ENC Procedures QE-81 and comments have been addressed.

If you have any questions or need further assistance with obtaining NRC approval of the proposed revision, please contact me at (312) 269-6807.

Yours very truly,

CNKrishnaSwamy

C. N. Krishnaswamy
Structural Project Engineer

CNK:jh
Attachments - All Recipients
CECO DDL DC: C020
Copies:
J. W. Gieseker
S. D. Berkman
M. Dougherty
M. Dowd
M. Malik
G. Swihart
S. Bhaktiari
CHRON System
C. H. Furlow/File
L. V. Jacques
R. A. Parson
J. L. Engleman
SCS-0447.CNK

ATTACHMENT 1

The containment structures for Unit 1 and Unit 2 of LaSalle County Station (LSCS) are identical structures at one site. There is no design, construction, or environmental differences between the two containments. The containments are identical in all aspects such as size, tendon system, design, materials of construction, and method of construction. There is no unique difference that may subject either containment to a different potential for structural or tendon deterioration. They were constructed by the same general contractor in the same manner. Construction of the two containments was continuous from the start of each containment and lasted approximately the same period of time from their respective start of construction to completion of post-tensioning installation.

Unit 1 post-tensioning was completed in July 1978 and Unit 2 post-tensioning was completed in December 1980. The Unit 1 Structural Integrity Test (SIT) was performed in December 1978. At that time, Unit 2 SIT was intended to be completed in December 1980. It was also intended to initiate inservice inspection (ISI) of the containment post-tensioning system in accordance with Regulatory Guide (RG) 1.35, Revision 2, January 1976 which, for a twin unit site such as LSCS, allows that the second containment structure need only be visually inspected.

Owing to the additional requirements to accommodate the suppression pool hydrodynamic loading, construction was (identically) extended for both Unit 1 and Unit 2 and operating license (OL) for Unit 1 was granted in April 1982 and for Unit 2 in December 1983. The Unit 2 SIT was successfully completed earlier in June 1983, approximately 4½ years from Unit 1 SIT.

During this period, proposed Revision 3 to RG 1.35 was published in April 1979 which required complete ISI (i.e. tendon lift-off, detensioning, wire tensile tests, and visual inspection of anchorage components and filler grease inspection) for each unit in two containment sites if the containment SITs were not performed within two years of each other.

In deference to the proposed Revision 3 of RG 1.35 requirements, LSCS technical specifications for containment post-tensioning ISI voluntarily committed to performing complete physical and visual inspections for each containment. To date, complete ISIs have been performed for the 1st, 3rd, 5th, 10th, and 15th year inspections of Unit 1 and the 1st, 3rd, and 5th year inspections of Unit 2. The identical post-tensioning systems and containments of the two units have successfully met the acceptance criteria specified for each of the ISIs performed to date.

Results of these extensive ISIs (relative to the tendon stress level after due concrete creep and shrinkage and wire relaxation losses, wire condition and ultimate tensile strength, containment concrete condition, condition of the concrete around the end anchorages, condition of the end anchorage components, and the condition of the casing filler grease) clearly demonstrate that the performance of Unit 2 SIT more than two years after Unit 1 SIT is not at all a factor contributing to any unique behavior that may subject either containment to a different potential for structural or tendon deterioration. Results of the SIT of the two containment structures also demonstrated that their

structural responses under test pressure were practically identical even though Unit 2 SIT was performed 4½ years after Unit 1 SIT. In addition, the integrated leak rate tests (ILRT) of the two containments were successfully performed within a one year span, in July 1982 for Unit 1 and July 1983 for Unit 2.

Based on this actual performance record and in consideration that the period of active concrete creep and shrinkage is nearly over, we conclude that alternating complete ISIs between the two units for the remainder of the plant life is justifiable. The 15th year complete ISI was performed for Unit 1 during its December 1992 outage. Therefore, it is sufficient to perform only visual inspection and filler grease inspection for the 10th year ISI of Unit 2 during its planned September 1993 outage.

Table 4.6.1.5-1 of LSCS Unit 1 and Unit 2 technical specification 3/4.6.1.5 for containment post-tensioning system surveillance requirements have been marked up accordingly for NRC approval.

ATTACHMENT 2

1. USNRC Regulatory Guide 1.35, Revision 2, January 1976.
2. USNRC Regulatory Guide 1.35, Revision 3, July 1990.
3. LSCS-UFSAR Section 3.8.1.7.3.1, Revision 0, April 1984.
4. LSCS Units 1 and 2 Technical Specifications 4.6.1.5, Surveillance Requirements for Primary Containment Structural Integrity.
5. LSCS Unit 1 Containment Post-Tensioning System ISI Reports.
6. LSCS Unit 2 Containment Post-Tensioning System ISI Reports.
7. LSCS Unit 1 Containment Structural Integrity Test Report.
8. LSCS Unit 2 Containment Structural Integrity Test Report.

Attachment 3

TABLE 4.6.1.5-1

TENDON SURVEILLANCE

	TENDON NUMBERS									
Years After Initial Structural Integrity Test	1		3		5		10		15	
Type of Inspection*	H	V	H	V	H	V	H	V	H	V
Visual Inspection of End Anchorages Adjacent Concrete Surface and Prestress Monitoring Tests	48AC 56CB 12CB 70B 20CB 1CB 12AC 56BA 21AC	15C 15A 20A 47C 29A	48AC 2CB 14AC 24BA 37CB 47CB 57CB 60B	15C 6C 17A 32C 42C	48AC 3BA 12BA 21CB 23BA 38CB 49AC 68B	15C 2BA 23A 5B 31C	48AC 4BA 41CB 50AC	15C 30B 22A	48AC 50CB 53BA 57AC	15C 19A 13B
Detensioning and Material Tests	20CB	47C	2CB	42C	23BA	31C	4BA	22A	50CB	19A

	TENDON NUMBERS									
Years After Initial Structural Integrity Test	20		25		30		35		40	
Type of Inspection*	H	V	H	V	H	V	H	V	H	V
Visual Inspection of End Anchorages Adjacent Concrete Surface and Prestress Monitoring Tests	48AC 39CB 49BA 71D	15C 25B 11A	48AC 1BA 47AC 57BA	15C 3B 12A	48AC 48CB 51AC 58BA	15C 7B 18A	48AC 49CB 51BA 59D	15C 25A 18B	48AC 36CB 48BA 69D	15C 13A 27B
Detensioning and Material Tests	49BA	11A	47AC	3B	48CB	18A	51BA	18B	36CB	13A

* As applicable to a twin unit site

TABLE 4.6.1.5-1

TENDON SURVEILLANCE

	TENDON NUMBERS									
Years After Initial Structural Integrity Test.	1		3		5		10		15	
Type of Inspection *	H	V	H	V	H	V	H	V	H	V
Visual Inspection of End Anchorages Adjacent Concrete Surface and Pre-stress Monitoring Tests	48EG 56GF 12GF 70F 20GF 1GF 12EG 56FE	Z15C Z19A Z20A 247C Z29A	48EG 2GF 14EG 37GF 47GF 57GF 60F 24FE	Z15C Z06C Z17A 242C Z32C	48EG 3FE 12FE 21GF 23FE 38GF 49EG 68F	Z15C Z28A Z23A 2058 Z31C	48EG 4FE 41GF 50EG	Z15C Z30B Z22A	48EG 50GF 53FE 57EG	Z15C Z19A Z13B
Detensioning and Material Tests	20GF	247C	2GF	242C	Z3FE	Z31C	4FE	Z22A	50GF	Z19A

	TENDON NUMBERS									
Years After Initial Structural Integrity Test	20		25		30		35		40	
Type of Inspection *	H	V	H	V	H	V	H	V	H	V
Type of Inspection of End Anchorages Adjacent Concrete Surface and Pre-stress Monitoring Tests	48EG 39GF 49FE 7LJ	Z15C Z29B Z11A	48EG 1FE 47EG 57FE	Z15C Z03B Z12A	48EG 48GF 51EG 58FE	Z15C Z07B Z18A	48EG 49GF 51FE 59J	Z15C Z25A Z18B	48EG 36GF 48FE 68J	Z15C Z13A Z27B
Detensioning and Material Tests	49FE	Z11A	47EG	Z03B	48GF	Z18A	51FE	Z18B	36GF	Z13A

* As applicable to a twin unit site

APPENDIX B

SUMMARY OF THE "INSERVICE INSPECTION PROGRAM FOR POST TENSIONING TENDONS"

A. Inspection Frequencies

Based on twin units, on-site inspection frequencies are established in compliance with Regulatory Guide 1.35, Rev. 3. After the fifth year of inspection, a visual and grease inspection shall be performed on each unit for every subsequent 5 year intervals. Every 10 years a physical (i.e., tendon lift off, detensioning, and wire tensile test) testing shall be performed (See Figure 1).

B. Tendon Selection

1. A total of 13 tendons shall be inspected through 5 years. If no abnormal degradation of the Post Tensioning System occurred, a total of 7 tendons are inspected thereafter, 3 vertical and 4 hoops.

2. Tendons are randomly selected from each group and are tabulated in Attachment 'A' to Appendix B.

3. One tendon per group shall be designated as common tendon and should be kept unchanged after initial selection.

4. If a randomly selected tendon from a group cannot be inspected due to plant operating conditions, another sample from the group shall be selected. The tendon that was selected but not inspected should be inspected following plant shutdown and accepted on an individual basis.

5. Except for the common tendon that has been inspected and found intact during previous inspections, tendons should be excluded from the group population during subsequent inspections.

6. If random sampling can not be assured a representative sample, between pairs of buttresses or various height can be selected. Since inspection can be performed while the unit is in operation, there may be certain areas where inspection might result in high radiological exposure to personnel. Such tendons may be substituted with accessible tendons.

C. Visual Inspection

1. The exterior surface of the containment should be visually examined to detect areas of large spall, severe scaling, D-cracking in an area of 25 square feet or more, other surface deterioration or disintegration, or grease leakage.

2. Tendon anchorage assembly hardware, such as bearing plates, stressing washers, shims, wedges, or buttonheads of the tendons selected shall be visually examined. For periods when only visual examination is performed on the containments, tendons should be visually examined to the extent practical without dismantling load bearing components of the anchorage or removing grease caps.

3. Bottom grease caps of all vertical tendons should be visually examined to detect grease leakage or grease cap deformation. Removal of the grease cap is not necessary for this inspection.

4. Concrete surrounding visually inspected tendon anchorage should be checked visually to the extent practical for indication of abnormal material behavior.

D. Grease Sample Collection and Testing

1. Remove enough grease to allow for visual and laboratory analysis. Visually examine the tendon casing filler, compare color and consistency with a sample of new tendon casing filler (Visconorust 2090P4 or equivalent) and check for any voids in excess of 5% of net duct volume or presence of free water within grease filler material.

2. The sample of sheathing filler grease from each sample tendon shall be tested to the following National Standards (most current revision):

   a. To determine water content, ASTM D95, "Standard Test Methods for Water in Petroleum Products and Bituminous Material by Distillation".

   b. To determine alkalinity, ASTM D974, "Standard Test Methods for Neutralization Number by Color Indicator Titration".

   c. To determine the concentration of water soluble chlorides, ASTM D512, "Standard Test Methods for Chloride Ion in Water".

   d. To determine nitrides, ASTM D3867, "Standard Test Methods for Nitrite-Nitrate in Water".

e. To determine sulfides, APHA 428, "Standard Methods for Examination of Water and Waste".

3. The amount of sheathing filler grease removed and replaced should be compared to assess grease leakage within the structure.

E. Tendon Lift Off to Check Tendon Force

The tendon lift off force measured for each tendon should be compared with the limits predicted for the time of that test. The limits are as provided in Regulatory Guide 1.35.1. If the measured prestressing force of the selected tendon in a group lies above the predicted limit, the lift off force is considered to be an indication of the sample tendons acceptance. If the measured prestressing force of a selected tendon in a group lies between 95% of the predicted lower limit and 90% of the predicted lower limit, two additional tendons, one on each side of the first tendon, should be checked. If the prestressing force of both tendons is above 95%, all three tendons will be considered acceptable.

F. Tendon Wire Sample and Test

1. A previously stressed tendon wire or strand from one tendon of each group shall be removed for testing and examination over its entire length to determine if any evidence of corrosion or other deterioration exists. A different tendon is selected for each successive inspection. The tendon selected may be the same as that selected for detensioning. All wires or strands identified as broken shall be removed for tensile testing and visual examination.

2. Tensile tests are made on three samples from each cut wire or strand, one at each end and one at mid length. The sample shall use the maximum length practical and the gauge length for the measurement of elongation shall be in accordance with the ASTM Specification A-421 (most current revision). The following information shall be obtained and recorded:

   a. Yield strength
   b. Ultimate tensile strength
   c. Elongation at ultimate tensile strength

G. Measurement of Grease Voids

Check the grease samples for any voids in excess of 5% of net duct volume.

H. Acceptance Criteria

1. Tendon filler samples should show no change in physical appearance and meet the following manufacturer's requirements, as outlined in Regulatory Guide 1.35, Rev. 3.

   Chemical Properties

Water Soluble Chlorides	10ppm max
Water Soluble Nitrites	10ppm max
Water Soluble Sulfides	10ppm max
Water Content	10% of dry weight max

2. The amount of grease replaced shall not exceed 5% of net duct volume when injected at original installation pressure.

3. Each tendon selected shall have an observed lift-off stress which exceeds 95% of the predicted lower limit.

4. If the measured prestressing force of the selected tendon in a group lies between 95% and 90% of the predicted lower unit, two additional tendons, one on each side of the first tendon, should be checked for their prestressing force. If the prestressing force of each of the second and third tendon are above 95% of the predicted lower limit of the tendon, all three tendons shall be restored to the required level of integrity and the tendon group shall be acceptable.

5. Tendon wires shall be free of corrosion, cracks, other damage, and have minimum tensile strength (240,000 psi) for three samples (one from each end and one from the middle).

6. No apparent changes have occurred in the visual appearance of the end anchorage or adjacent concrete surfaces since the last inspection.

7. The voids are less than 5% of the net duct volume.

8. The elongation observed during detensioning and retensioning, corresponding to a specific load, does not differ more than 10% from that recorded during installation of the tendons.

9. The average of all measured tendon forces for each group (corrected for average condition) shall be more than the minimum required prestress level at anchorage location.

10. The measured prestress force for the same tendon selected in subsequent surveillances shall not show loss larger than expected nor be less than the minimum required for the group.

I. The Content and Frequency of Reporting

1. With more than one tendon with an observed lift-off force between the predicted lower limit and 90% of the predicted lower limit or with one tendon below 90% of the predicted lower limit, restore the tendon(s) to the required level of integrity within 15 days and perform an engineering evaluation of the containment on which test is being performed, and provide a special report to the Commission within 30 days in accordance with Technical Specification 6.6.c, or be in at least Hot Standby within the next 6 hours and Cold Shutdown within the following 30 hours.

2. With any other abnormal degradation of the structural integrity of the Primary Containment at a level below the acceptance criteria, restore the Containment on which test is being performed, to the required level of integrity within 72 hours, perform an engineering evaluation, provide a special report to the Commission within 15 days in accordance with Technical Specification 6.6.c, or be at least Hot Standby within the next 6 hours and in Cold Shutdown within the following 30 hours.

J. Remedial Actions

1. Additional testing and verifications shall be performed to justify the unacceptable condition and ensure the integrity of the Containment as stipulated in Regulatory Guide 1.35.1 and Regulatory Guide 1.35, Rev. 3 is maintained.

Time after Initial Structural Integrity Testing of Containment, Years
(Lift-off Testing Schedule, Containment No. 1)

Time after Initial Structural Integrity Testing of Containment, Years
(Lift-off Testing Schedule, Containment No. 2)

FIGURE 1. SCHEDULE OF LIFT-OFF TESTING FOR TWO CONTAINMENTS AT A SITE

APPENDIX B

ATTACHMENT A

Tendon Surveillance

	TENDON NUMBERS									
Year After Initial Structural Integrity Test	1		3		5		10		15	
Type of Inspection*	H	V	H	V	H	V	H	V	H	V
Visual Inspection of End Anchorages Adjacent Concrete Surface and Prestress Monitoring Tests	48AC 56CB 12CB 70B 20CB 1CB 12AC 56BA 21AC	15C 15A 20A 47C 29A	48AC 2CB 14AC 24BA 37CB 47CB 57CB 60B	15C 6C 17A 32C 42C	48AC 3BA 12BA 21CB 23BA 38CB 49AC 68B	15C 28A 23A 5B 31C	48AC 4BA 41CB 50AC	15C 30B 22A	48AC 50CB 53BA 57AC	15C 19A 13B
Detensioning and Material Tests	20CB	47C	2CB	42C	23BA	31C	4BA	22A	50CB	19A

	TENDON NUMBERS									
Year After Initial Structural Integrity Test	20		25		30		35		40	
Type of Inspection*	H	V	H	V	H	V	H	V	H	V
Visual Inspection of End Anchorages Adjacent Concrete Surface and Prestress Monitoring Tests	48AC 39CB 49BA 71D	15C 25B 11A	48AC 1BA 47AC 57BA	15C 3B 12A	48AC 48CB 51AC 58BA	15C 7B 18A	48AC 49CB 51BA 59D	15C 25A 18B	48AC 36CB 48BA 69D	15C 13A 27B
Detensioning and Material Tests	49BA	11A	47AC	3B	48CB	18A	51BA	18B	36CB	13A

*As applicable to a twin unit site

LaSalle - Unit 1

APPENDIX B

ATTACHMENT A

Tendon Surveillance

	TENDON NUMBERS									
Year After Initial Structural Integrity Test	1		3		5		10		15	
Type of Inspection*	H	V	H	V	H	V	H	V	H	V
Visual Inspection of End Anchorages Adjacent Concrete Surface and Prestress Monitoring Tests	48EG 56GF 12GF 70F 20GF 1GF 12EG 56FE	215C 215A 220A 247C 229A	48EG 2GF 14EG 37GF 47GF 57GF 60F 24FE	215C 206C 217A 232C 242C	48EG 3FE 12FE 21GF 23FE 38GF 49EG 68F	215C 228A 223A 205B 231C	48EG 4FE 41GF 50EG	215C 230B 222A	48EG 50GF 53FE 57EG	215C 219A 213B
Detensioning and Material Tests	20GF	247C	2GF	242C	23FE	231C	4FE	222A	50GF	219A

	TENDON NUMBERS									
Year After Initial Structural Integrity Test	20		25		30		35		40	
Type of Inspection*	H	V	H	V	H	V	H	V	H	V
Visual Inspection of End Anchorages Adjacent Concrete Surface and Prestress Monitoring Tests	48EG 39GF 49FE 71J	215C 225B 211A	48EG 1FE 47EG 57FE	215C 203B 212A	48EG 48GF5 1EG 58FE	215C 207B 218A	48EG 49GF 51FE 59J	215C 225A 218B	48EG 36GF 48FE 69J	215C 213A 227B
Detensioning and Material Tests	49FE	211A	47EG	203B	48GF	218A	51FE	218B	36GF	213A

*As applicable to a twin unit site

LaSalle - Unit 2