

ATTACHMENT 3

PROPOSED LICENSE AMENDMENT FOR
IMPLEMENTATION OF 10 CFR §50, Appendix J, Option B

PROPOSED TECHNICAL SPECIFICATIONS PAGES

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3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.*

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 CONTAINMENT INTEGRITY shall be demonstrated:

- a. At least once per 31 days by verifying that all 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 their positions;
- b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3/, and
- c. ~~After each closing of each penetration subject to Type B testing, except the containment air locks, if opened following a Type A or B test, by leak rate testing the seal with gas at a pressure not less than 50 psig, and verifying that when the measured leakage rate for these seals is added to the leakage rates determined pursuant to Specification 4.6.1.2d. for all other Type B and C penetrations, the combined leakage rate is less than 0.60 L_a.~~

*Exception may be taken under Administrative Controls for opening of valves and airlocks necessary to perform surveillance, testing requirements and/or corrective maintenance. In addition, Specification 3.6.4 shall be complied with.

**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 that such verification need not be performed more often than once per 92 days.

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CONTAINMENT SYSTEMS

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited ^{in accordance with the} ~~to:~~ ^{Containment Leakage Rate} ~~Testing Program.~~

- a. ~~An overall integrated leakage rate of less than or equal to L_a , 0.25% by weight of the containment air per 24 hours at P_a , 49.9 psig.~~
- b. ~~A combined leakage rate of less than $0.60 L_a$ for all penetrations and valves subject to Type B and C tests, when pressurized to P_a .~~

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With either the measured overall integrated containment leakage rate exceeding ~~1.0 $0.75 L_a$~~ or the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding ~~$0.60 L_a$~~ , Restore the overall integrated leakage rate to less than $0.75 L_a$ and the combined leakage rate for all penetrations subject to Type B and C tests to less than $0.60 L_a$ prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated at the ^{required} following test schedule and shall be determined in conformance with the criteria specified in ~~Appendix J of 10 CFR Part 50 using the methods and provisions of ANSI N45.4-1972:~~ ^{the Containment Leakage Rate Testing Program.}

- a. ~~Type A test shall be performed at a pressure not less than P_a , 49.9 psig, in accordance with 10 CFR 50 Appendix J, as modified by approved exemptions.~~

within one hour, initiate action to be in HOT STANDBY within the next 6 hours, AND COLD SHUTDOWN within the following 30 hours.

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$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains.

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CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. If any periodic Type A test fails to meet $0.75 L_a$ the test schedule for subsequent Type A tests shall be reviewed and approved by the Commission. If two consecutive Type A tests fail to meet $0.75 L_a$, a Type A test shall be performed at least every 18 months until two consecutive Type A tests meet $0.75 L_a$ at which time the above test schedule may be resumed;
- c. The accuracy of each Type A test shall be verified by a supplemental test which:
- 1) Confirms the accuracy of the test by verifying that the supplemental test result, L_c , is in accordance with the following equation:
$$| L_c - (L_{am} + L_o) | \leq 0.25 L_a$$
where L_{am} is the measured Type A test leakage and L_o is the superimposed leak;
 - 2) Has a duration sufficient to establish accurately the change in leakage rate between the Type A test and the supplemental test; and
 - 3) Requires that the rate at which gas is injected into the containment or bled from the containment during the supplemental test be limited to between $0.75 L_a$ and $1.25 L_a$;
- d. Type B and C tests shall be conducted with gas at a pressure not less than P_a , 49.9 psig, at intervals no greater than 24 months except for tests involving:
- 1) Air locks,
 - 2) Purge supply and exhaust isolation valves, and
 - 3) Equipment access opening which shall be tested at least once every 12 months and after each use.
- e. Air locks shall be tested and demonstrated OPERABLE by the requirements of Specification 4.6.1.3;
- f. Purge supply and exhaust isolation valves seals shall be tested and demonstrated OPERABLE by the requirements of Specification 4.6.1.7.2, as applicable;
- g. The provisions of Specification 4.0.2 are not applicable.

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CONTAINMENT SYSTEMS

CONTAINMENT AIR LOCKS

LIMITING CONDITION FOR OPERATION

3.6.1.3 Each containment air lock shall be OPERABLE with:

- a. Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, or during the performance of containment air lock surveillance and/or testing requirements, then at least one air lock door shall be closed, and
- b. An overall air lock leakage rate of less than or equal to 0.05 L at ~~P_a, 49.9 psig.~~ in accordance with the Containment Leakage Rate Testing Program.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With one containment air lock door inoperable:
 1. Maintain at least the OPERABLE air lock door closed and either restore the inoperable air lock door to OPERABLE status within 24 hours or lock the OPERABLE air lock door closed;
 2. Operation may then continue until performance of the next required overall air lock leakage test provided that the OPERABLE air lock door is verified to be locked closed at least once per 31 days;
 3. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With the containment air lock inoperable, except as the result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours 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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CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

- a. ~~Within 72 hours following each closing, except when the air lock is being used for multiple entries, then at least once per 72 hours, by~~ *At the frequency specified in the* *Containment Leakage Rate Testing Program* verifying that the seals have not been damaged and have seated properly by vacuum testing the volume between the door seals in accordance with approved plant procedures.
- b. By conducting overall air lock leakage tests ~~at not less than 50 psig, and verifying the overall air lock leakage rate is within its limit at least once per 6 months.*~~ *at not less than* *In accordance with the Containment Leakage Rate Testing Program.*
- c. At least once per 6 months by verifying that only one door in each air lock can be opened at a time.

~~*The provisions of Specification 4.0.2 are not applicable.~~

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18. *Chlorophyll *a** and *Chlorophyll *b** were determined by the method of Lichtenthaler and Whistler (1972). The total chlorophyll content was determined by the method of Arar and Cook (1980). The carotenoid content was determined by the method of Lichtenthaler and Whistler (1972). The total phenolic content was determined by the method of Singleton and Rossi (1965). The total flavonoid content was determined by the method of Zhishen et al. (1999). The total protein content was determined by the method of Lowry et al. (1951). The total lipid content was determined by the method of Folch et al. (1957). The total carbohydrate content was determined by the method of Dubois and Gilles (1950). The total ash content was determined by the method of AOAC (1990). The total acid content was determined by the method of AOAC (1990). The total base content was determined by the method of AOAC (1990). The total nitrogen content was determined by the method of Kjeldahl (1900). The total phosphorus content was determined by the method of Molybdenum blue (1900). The total potassium content was determined by the method of Flame photometry (1900). The total calcium content was determined by the method of Atomic absorption spectrometry (1900). The total magnesium content was determined by the method of Atomic absorption spectrometry (1900). The total iron content was determined by the method of Atomic absorption spectrometry (1900). The total zinc content was determined by the method of Atomic absorption spectrometry (1900). The total copper content was determined by the method of Atomic absorption spectrometry (1900). The total manganese content was determined by the method of Atomic absorption spectrometry (1900). The total selenium content was determined by the method of Atomic absorption spectrometry (1900). The total iodine content was determined by the method of Atomic absorption spectrometry (1900). The total bromine content was determined by the method of Atomic absorption spectrometry (1900). The total chlorine content was determined by the method of Atomic absorption spectrometry (1900). The total sulfur content was determined by the method of Atomic absorption spectrometry (1900). The total oxygen content was determined by the method of Atomic absorption spectrometry (1900). The total hydrogen content was determined by the method of Atomic absorption spectrometry (1900). The total carbon content was determined by the method of Atomic absorption spectrometry (1900). The total nitrogen content was determined by the method of Atomic absorption spectrometry (1900). The total phosphorus content was determined by the method of Atomic absorption spectrometry (1900). The total potassium content was determined by the method of Atomic absorption spectrometry (1900). The total calcium content was determined by the method of Atomic absorption spectrometry (1900). The total magnesium content was determined by the method of Atomic absorption spectrometry (1900). The total iron content was determined by the method of Atomic absorption spectrometry (1900). The total zinc content was determined by the method of Atomic absorption spectrometry (1900). The total copper content was determined by the method of Atomic absorption spectrometry (1900). The total manganese content was determined by the method of Atomic absorption spectrometry (1900). The total selenium content was determined by the method of Atomic absorption spectrometry (1900). The total iodine content was determined by the method of Atomic absorption spectrometry (1900). The total bromine content was determined by the method of Atomic absorption spectrometry (1900). The total chlorine content was determined by the method of Atomic absorption spectrometry (1900). The total sulfur content was determined by the method of Atomic absorption spectrometry (1900). The total oxygen content was determined by the method of Atomic absorption spectrometry (1900). The total hydrogen content was determined by the method of Atomic absorption spectrometry (1900). The total carbon content was determined by the method of Atomic absorption spectrometry (1900).

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- d. Assuring that the observed lift-off force for each tendon exceeds the minimum required lift-off force. Required lift-off forces shall be calculated individually for each surveillance tendon prior to the beginning of each surveillance, and should consider such factors as:
- 1) Prestressing history;
 - 2) Friction losses; and
 - 3) Time-dependent losses (creep, shrinkage, relaxation), considering time elapsed from prestressing.
- e. Verifying the OPERABILITY of the sheathing filler grease by:
- 1) Minimum grease coverage exists for the different parts of the anchorage system, and
 - 2) The chemical properties of the filler material are within the tolerance limits as specified by the manufacturer.

4.6.1.6.2 End Anchorages and Adjacent Concrete Surfaces. The structural integrity of the end anchorages of all tendons inspected pursuant to Specification 4.6.1.6.1 and the adjacent concrete surfaces shall be demonstrated by determining through visual inspection that no unacceptable levels of corrosion exist on the end anchorages and no unacceptable cracking exists in the concrete adjacent to the end anchorages. Determination of acceptance levels shall be by engineering evaluation of the areas in question. If unacceptable conditions are found, the tendons inspected during the previous surveillance shall be examined to determine whether the corrosion levels or concrete cracking have increased since the previous surveillance. Inspection of adjacent concrete surfaces shall be performed concurrently with the containment tendon surveillance (Technical Specification 4.6.1.6.1).

4.6.1.6.3 Containment Surfaces. In accordance with ~~10 CFR 50, Appendix J, Section V, A,~~ a visual inspection of the accessible interior and exterior surfaces of the containment, including the liner plate, shall be performed, ~~during the shutdown for (but prior to) each Type A containment leakage rate test (Technical Specification 4.6.1.2).~~ The purpose of this inspection shall be to identify any evidence of structural deterioration which may affect containment structural integrity or leaktightness. The visual inspection shall be general in nature; its intent shall be to detect gross areas of widespread cracking, spalling, gouging, rust, weld degradation, or grease leakage. The visual examination may include the utilization of binoculars or other optical devices. Corrective actions taken, and recording of structural deterioration and corrective actions, shall be in accordance with ~~10 CFR 50, Appendix J, Section V, A.~~ Records of previous inspections shall be reviewed to verify no apparent changes in appearance. The first inspection performed will form the baseline for future surveillances.

the Containment Leakage Rate Testing Program.

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ADMINISTRATIVE CONTROLS

PROCEDURES AND PROGRAMS (Continued)

- (3) Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser in-leakage,
- (4) Procedures for the recording and management of data,
- (5) Procedures defining corrective actions for all off-control point chemistry conditions, and
- (6) A procedure identifying: (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective action.

d. Post-Accident Sampling

A program which will ensure the capability to obtain and analyze reactor coolant, radioactive iodines and particulates in plant gaseous effluents, and containment atmosphere samples under accident conditions. The program shall include the following:

- (1) Training of personnel,
- (2) Procedures for sampling and analysis, and
- (3) Provisions for maintenance of sampling and analysis equipment.

e. Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

- a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:
 1. an API Gravity or an absolute specific gravity within limits,
 2. a flash point and kinematic viscosity within limits for Grade No. 2-D fuel oil per ASTM D975, and
 3. a clear and bright appearance with proper color;
- b. Other properties for Grade No. 2-D fuel oil per ASTM D975 are within limits within 30 days following sampling and addition to storage tanks; and
- c. Total particulate concentration of the fuel oil is ≤ 10 mg/liter when tested every 31 days in accordance with either ASTM D-2276 or ASTM D-5452.

Insert A

6.8.4.f Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, and as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, as modified by the following deviations or exemptions:

- 1) Type A tests will be performed either in accordance with Bechtel Topical Report BN-TOP-1, Revision 1, dated November 1, 1972, or the guidelines of Regulatory Guide 1.163.
- 2) A vacuum test will be performed in lieu of a pressure test for airlock door seals at the required intervals (Amendment Nos. 73 and 77, issued by NRC November 11, 1981).

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a , is 49.9 psig.

The maximum allowable containment leakage rate, L_a , at P_a , shall be 0.25% of containment air weight per day.

Leakage Rate acceptance criteria are:

- 1) The As-found containment leakage rate acceptance criterion is $\leq 1.0 L_a$. Prior to increasing primary coolant temperature above 200°F following testing in accordance with this program or restoration from exceeding $1.0 L_a$, the As-left leakage rate acceptance criterion is $\leq 0.75 L_a$ for Type A test.
- 2) The combined leakage rate for all penetrations subject to Type B or Type C testing is as follows:
 - The combined As-left leakage rates determined on a maximum pathway leakage rate basis for all penetrations shall be verified to be less than $0.60 L_a$ prior to increasing primary coolant temperature above 200°F following an outage or shutdown that included Type B and Type C testing only.
 - The As-found leakage rates, determined on a minimum pathway leakage rate basis, for all newly tested penetrations when summed with the As-left minimum pathway leakage rate leakage rates for all other penetrations shall be less than $0.6 L_a$ at all times when containment integrity is required.
- 3) Overall air lock leakage acceptance criteria is $\leq 0.05 L_a$ when pressurized to P_a .

The provisions of Specification 4.0.2 do not apply to the test frequencies contained within the Containment Leakage Rate Testing Program.



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