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LIMITING CONDITION FOR OPERATION

3.21 ENVIRONMENTAL/RADIOLOGICAL EFFLUENTS

A. Instrumentation

1. Liquid Effluent Monitoring

Applicability: As shown in Table 3.21.A.1.

Specification:

- a. The radioactive liquid effluent monitoring instrumentation channels shown in Table 3.21.A.1 shall be OPERABLE with their alarm and trip setpoints set to ensure that the limits of 3.21.B.1 are not exceeded.
- b. With a radioactive liquid effluent monitoring instrumentation channel alarm and trip setpoint less conservative than required, reset without delay to meet Specification 3.21.A.1.a, suspend the release of radioactive liquid effluents monitored by the affected channel, declare the channel inoperable, or change the setpoint so it is acceptably conservative.
- c. With less than the minimum required number of radioactive liquid effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.21.A.1.
- d. If the minimum number of instrument channels is not returned to OPERABLE status within 31 days, in lieu of any other report, explain in the next Annual Radioactive Materials Release Report why the instrument was not repaired in a timely manner.
- e. The provisions of Definition J are not applicable. The reporting provisions of Specification 6.5.2 are not applicable.

SURVEILLANCE REQUIREMENTS

4.21 ENVIRONMENTAL/RADIOLOGICAL EFFLUENTS

A. Instrumentation

1. Liquid Effluent Monitoring

- a. Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.21.A.1.
- b. Radioactive liquid effluent monitor alarm and trip setpoints shall be determined in the manner described in the ODAM.

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.21.A (Cont'd)

2. Gaseous Effluent Monitoring

Applicability: As shown in Table 3.21.A.2.

Specification:

- a. The radioactive gaseous effluent monitoring instrumentation channels shown in Table 3.21.A.2 shall be OPERABLE with their alarm setpoints set to ensure that the limits of Specification 3.21.C.1 are not exceeded.
- b. With a radioactive gaseous effluent monitoring instrumentation channel alarm setpoint less conservative than a value which will ensure that the limits of 3.21.C.1 are met, reset without delay to comply with Specification 3.21.A.2.a, declare the channel inoperable; IMMEDIATELY suspend release; or change the setpoint so it is acceptably conservative.
- c. With less than the minimum required number of radioactive gaseous effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.21.A.2.
- d. If the minimum number of instrument channels are not returned to OPERABLE status within 31 days, in lieu of any other report, explain in the next Annual Radioactive Materials Release Report why the instrument was not repaired in a timely manner.
- e. The provisions of Definition J are not applicable. The reporting provisions of Specification 6.5.2 are not applicable.

4.21.A (Cont'd)

2. Gaseous Effluent Monitoring

- a. The setpoints shall be determined in accordance with the method described in the ODAM.
- b. Each radioactive gaseous effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.21.A.2.

NOTES FOR TABLE 4.21.B.1 (Continued)

- (5) A batch release is the discharge of liquid wastes of a discrete volume. Prior to sampling for analyses, each batch shall be isolated and then thoroughly mixed.
- (6) A grab sample of plant service water effluent shall be analyzed at least once each week in accordance with Table Item 2.A. In the event the radioactivity concentration in a sample exceeds  $3 \times 10^{-6}$   $\mu\text{Ci/ml}$ , or in the event the plant service water effluent monitor indicates the presence of an activity concentration greater than  $3 \times 10^{-6}$   $\mu\text{Ci/ml}$ , sampling and analysis according to Table Item 2.B. shall commence and shall be performed as long as the condition persists.
- (7) The principal gamma emitters for which the LLD specification will apply are exclusively the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported. Nuclides which are below the LLD for the analyses should not be reported as being present at the LLD level. When unusual circumstances result in LLD's higher than required, the reasons shall be documented in the Annual Radioactive Materials Release Report.
- (8) If an isotopic analysis is unavailable, batch releases may be made for up to 14 days provided the gross beta/gamma concentration to the unrestricted area is  $\leq 1 \times 10^{-7}$   $\mu\text{c/ml}$  and the sample is analyzed when the instrumentation is once again available.
- (9) Analysis may be performed after release.
- (10) A continuous release is the discharge of liquid wastes of a nondiscrete volume; e.g., from a volume of system that has an input flow during the continuous release.

FREQUENCY NOTATION:

S - At least once per 12 hours.  
D - At least once per 24 hours.  
W - At least once per 7 days.  
M - At least once per 31 days.  
Q - At least once per 92 days.  
SA - At least once per 184 days.

A - At least once per year.  
R - At least once per 18 months.  
S/U - Prior to each reactor startup.  
P - Completed prior to each release.  
NA - Not applicable.

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.21.B (Cont'd)

3. Temporary, Outside Storage Tanks of Radioactive Liquid
  - a. In the event temporary, unprotected tanks are used outside to store radioactive liquid, the contents of each tank shall not exceed 10 curies, excluding H-3 and dissolved noble gas.
  - b. If the quantity of radioactive material in a temporary, unprotected storage tank outside exceeds 10 curies, excluding H-3 and dissolved noble gas, immediately suspend addition of radioactive material and begin measures to reduce the content to 10 curies or less without delay and describe the events leading to the condition in the next Annual Radioactive Materials Release Report.
  - c. The provisions of Definition J are not applicable.

4.21.B (Cont'd)

3. Temporary, Outside Storage Tanks of Radioactive Liquid
  - a. When radioactive liquid is being added to a temporary, unprotected outside storage tank, the liquid shall be sampled and analyzed for radioactivity at least once per 7 days.

- (4) Analyses shall also be performed following an increase as indicated by the gaseous release monitor of greater than 50% in the steady state release, after factoring out increases due to power changes or other operational occurrences, which could alter the mixture of radionuclides. When samples collected for 24 hours or less are analyzed, the corresponding LLD's may be increased by a factor of 10.
- (5) The ratio of the sample flow rate to the sampled stream flow rate shall be known for the time period covered by each dose or dose rate calculation made in accordance with Specifications 3.21.C.1, 3.21.C.2 and 3.21.C.3.
- (6) The principal gamma emitters for which the LLD specification will apply are exclusively the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 for gaseous emissions and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144 for particulate emissions. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported. Nuclides which are below the LLD for the analyses should not be reported as being present at the LLD level for that nuclide. When unusual circumstances cause LLD's higher than required for more than 31 days, the reasons shall be documented in the Annual Radioactive Materials Release Report.
- (7) A quarterly composite particulate sample shall include a portion of each weeks particulate samples collected during the quarter.
- (8) The noble gas continuous monitor shall be calibrated using laboratory analysis of the grab samples from A and B on Table 4.21.C.1 or using reference sources.
- (9) A H-3 grab sample will also be taken when the reactor vessel head is removed. This sample will be taken at the ERP or Reactor Building vent whichever will be representative dependent upon the head removal vacuum procedure.

FREQUENCY NOTATION:

S	-	At least once per 12 hours.
D	-	At least once per 24 hours.
W	-	At least once per 7 days.
M	-	At least once per 31 days.
Q	-	At least once per 92 days.
SA	-	At least once per 184 days.
A	-	At least once per year.
R	-	At least once per 18 months.
S/U	-	Prior to each reactor startup.
P	-	Completed prior to each release.
NA	-	Not applicable.

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.21.D (Cont'd)

information specified in 40 CFR Part 190.11(b) is included. In that event, a variance is granted until NRC Staff action on the item is complete.

2. The provisions of Definition J are not applicable.

E. Solid Radioactive Waste

Applicability: During solid radwaste processing.

Specification:

1. The appropriate equipment of the solid radwaste system shall be operated to process radioactive waste containing liquid and liquid destined for disposal subject to 10 CFR Part 61 to a form that meets applicable requirements of 10 CFR Part 61.56 before the waste is shipped from the site.
2. Suspend delivery to a carrier for transport of any container of waste subject to Specification 3.21.E.1 which does not comply with 10 CFR Part 61.56.

4.21 (Cont'd)

E. Solid Radioactive Waste

1. Operating parameters and limits for the solidification of radioactive waste were established during preparational testing of the system. Radioactive waste solidification shall be performed in accordance with established parameters and limits. In addition, every 10th batch of dewatered waste will be sampled prior to solidification and analyzed for pH.
2. Each drum of solidified or dewatered radioactive waste will be inspected, prior to capping, to insure that there is no free standing liquid on top of the solid waste.
3. The Annual Radioactive Materials Release Report in Specification 6.5.1.F shall include the following information for radioactive solid waste shipped offsite during the report period:

6.5

STATION REPORTING REQUIREMENTS

6.5.1

Routine Reports

A. Introduction - In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following identified reports shall be submitted to the individual(s) designated in the current revision of Reg. Guide 10.1 unless otherwise noted.

B. Startup Report

1. A summary report of plant startup and power escalation testing shall be submitted following:

- a. Receipt of an operating license.
- b. Amendment to the license involving a planned increase in power level.
- c. Installation of fuel that has a different design or has been manufactured by a different fuel supplier.
- d. Modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

The report shall address each of the tests identified in the FSAR and shall 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.

2. Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If all three events are not completed, supplementary reports shall be submitted every three months.

C. Annual Reports

Routine reports covering the subjects noted in 6.5.1.C.1, 6.5.1.C.2, 6.5.1.C.3 and 6.5.1.C.4 for the previous calendar year shall be submitted prior to May 1 of each year.

6.5.1.C (Cont'd)

1. A tabulation on an annual basis of the number of station, utility and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated man rem exposure according to work and job functions, <sup>1/</sup> e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (describe maintenance), waste processing, and refueling. The dose assignment to various duty functions may be estimates based on pocket dosimeter, TLD, or film badge measurements. Small exposures totaling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources shall be assigned to specific major work functions.
2. A summary description of facility changes, tests or experiments in accordance with the requirements of 10CFR50.59(b). This report may be submitted annually or along with the Updated Safety Analysis Report (USAR) updates as required by 10CFR50.71(e).
3. Pursuant to 3.8.A, a report of radioactive source leak testing. This report is required only if the tests reveal the presence of 0.005 microcuries or more of removable contamination.
4. Documentation of all challenges to relief valves or safety valves.

D. Monthly Operating Report

Routine reports of operating statistics, shutdown experience, and a narrative summary of operating experience relating to safe operation of the facility, shall be submitted on a monthly basis in the manner specified by 10CFR50.4 no later than the 15th of each month following the calendar month covered by the report.

E. Annual Radiological Environmental Report

1. Routine radiological environmental reports covering the surveillance activities related to the Station operation during the previous calendar year shall be submitted to the NRC before May 1 of each year.
2. The Annual Radiological Environmental Report shall include the following:
  - a. A summary of doses to a Member of the Public Offsite due to Cooper Station aqueous and airborne radioactive effluents, calculated in accordance with methods compatible with the ODAM.
  - b. A summary of the results of the land use census required in Specification 4.21.F.2.

1/ This tabulation supplements the requirements of §20.407 of 10CFR Part 20.

6.5.1.E (Cont'd)

- c. Summarized and tabulated results in the format of Table 6.5-1 of analyses of samples required by the radiological environmental monitoring program, and taken during the report period. In the event that some results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.
- d. A summary description of the radiological environmental monitoring program including any changes; a map of all sampling locations keyed to a table giving distances and directions from the reactor; and the results of participation in the Inter-laboratory Comparison Program, required by Specification 3.21.G.

F. Annual Radioactive Materials Release Report

1. A report of radioactive materials released from the Station during the preceding year shall be submitted to the NRC by May 1 of each year.
2. The Annual Radioactive Materials Release Report shall include the following:
  - a. A summary by calendar quarter of the quantities of radioactive liquid and gaseous effluents released from the Station. The data should be reported in the format recommended in Regulatory Guide 1.21, Appendix B, Tables 1 and 2.
  - b. A summary of radioactive solid waste shipped from the Station, including information named in Specification 4.21.E.3.
  - c. A summary of meteorological data collected during the year shall be included in the Annual Report submitted by May 1 of each year.
  - d. A list and brief description of each unplanned release of gaseous or liquid radioactive effluent that causes a limit in Specification 3.21.B.1.a, 3.21.B.2.a, 3.21.C.1.a, 3.21.C.2.a, or 3.21.c.2.a to be exceeded.
  - e. Calculated offsite dose to humans resulting from the release of effluents and their subsequent dispersion in the atmosphere reported in accordance with Regulatory Guide 1.21.

6.5.1.G Core Operating Limits Report

Core operating limits shall be established and documented in the Core Operating Limits Report prior to each reload cycle, or prior to any remaining portion of a reload cycle, for the following:

- a. The Average Planar Linear Heat Generation Rates (APLHGR) for Specification 3.11.A.

6.6 Process Control Program (PCF)

6.6.1 The PCF shall be a manual detailing the program of sampling, analysis and formulation determination by which SOLIDIFICATION of radioactive waste from liquid systems is assured consistent with Specification 3.21.E and the surveillance requirements of these Technical Specifications.

6.6.2 District Initiated Changes

A. Shall be submitted to the Commission by inclusion in the Annual Radioactive Materials Release Report for the period in which the change(s) was made effective and shall contain:

1. Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information;
2. A determination that the change did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes; and
3. Documentation of the fact that the change has been reviewed and found acceptable by the SORC.

B. Shall become effective upon review and acceptance by the SORC.

6.7 Offsite Dose Assessment Manual (ODAM)

6.7.1 The ODA M shall describe the methodology and parameters to be used in the calculation of offsite doses due to radioactive gaseous and liquid effluents and in the calculation of gaseous and liquid effluent monitoring instrumentation alarm/trip setpoints consistent with the applicable LCO's contained in these Technical Specifications. The ODA M also describes the Environmental Radiation Monitoring Program.

6.7.2 District Initiated Changes

A. Shall be submitted to the Commission by inclusion in the Annual Radioactive Materials Release Report for the period in which the change(s) was made effective and shall contain:

1. Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information. Information submitted should consist of a package of those pages of the ODA M to be changed with each page numbered and provided with a signed approval and date box, together with appropriate analyses of evaluations justifying the change(s).
2. A determination that the change will not reduce the accuracy or reliability of dose calculations or setpoint determinations.
3. Documentation of the fact that the change has been reviewed and found acceptable by the SORC.

B. Shall become effective upon review and acceptance by the SORC.