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1.6 INSTRUMENTATION SURVEILLANCE

1.6.1 Channel Check

A qualitative assessment of channel behavior during operation by observation. This determination shall include where possible comparison of the channel indication and/or status with other indications and/or status derived from independent instrumentation channels measuring the same parameters.

1.6.2 Channel Functional Test

Injection of a simulated signal into the channel to verify that it is operable, including alarm and/or trip initiating action.

1.6.3 Channel Calibration

Adjustment of channel output such that it responds, with acceptable range and accuracy, to known value of the parameter which the channel measures. Calibration shall encompass the entire channel, including alarm or trip, and shall be deemed to include the channel functional test.

1.7 CONTAINMENT INTEGRITY

Containment integrity is defined to exist when:

a. All non-automatic containment isolation valves not required for normal operation are closed and blind flanges are properly installed where required.

b. The equipment door is properly closed and sealed.

c. At least one door in the personnel air lock is properly closed and sealed.

1.11 SOURCE CHECK

A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a radioactive source.

1.12 GASEOUS RADWASTE TREATMENT SYSTEM

A GASEOUS RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system offgases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment. The GASEOUS RADWASTE TREATMENT SYSTEM consists of: a) waste gas decay tank compressors A and B, b) waste gas decay tanks Nos. 1, 2, 3, and 4, c) all essential features including valves, interlocks, and piping associated with the above components to make the treatment system operable.

1.13 VENTILATION EXHAUST TREATMENT SYSTEM

A VENTILATION EXHAUST TREATMENT SYSTEM is the charcoal adsorber and/or HEPA filters designed and installed to reduce gaseous radioiodine or radioactive material in particulate form in effluents to the environment. The charcoal adsorbers and HEPA filters of this system are denoted in Table 1.13-1. Such a system is not considered to have any effect on noble gas effluents. Engineered Safety Feature (ESF) atmospheric cleanup systems are not considered to be VENTILATION EXHAUST TREATMENT SYSTEM components.

1.14 FREQUENCY NOTATION

Table 1.14-1 contains notations used for various sampling and analysis requirements.

1.15 OFFSITE DOSE CALCULATIONAL MANUAL

The OFFSITE DOSE CALCULATIONAL MANUAL (ODCM) is a manual which contains the methodology and parameters to be used to calculate offsite doses resulting from the release of radioactive gaseous and liquid effluents and the methodology to calculate gaseous and liquid effluent monitoring instrumentation alarm/trip setpoints. The requirements of the ODCM are provided in Specification 6.14.

1.16 LIQUID RADWASTE SYSTEM

The LIQUID RADWASTE SYSTEM consists of: a) evaporator feed pumps A and B, b) waste evaporators A and B, c) waste holdup tanks, d) all essential features including valves, interlocks, and piping associated with the above components to make the liquid radwaste system operable.

TABLE 1.13-1

VENTILATION EXHAUST TREATMENT SYSTEM

Release Point	Filter
1. Containment Purge	1. HEPA Filter Charcoal Filter
2. Pressure Relief Containment	2. HEPA Filter Charcoal Filter
3. Auxiliary Building	3. HEPA Filter Charcoal Filter

TABLE 1.14-1

FREQUENCY NOTATION

NOTATION	FREQUENCY*
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 365 days.
R	At least once per 18 months.
S/U	Prior to each reactor start up.
P	Completed prior to each release.
N.A.	Not applicable.

* A variation of 25% in frequency is allowed.

e. The Emergency Plan and implementing procedures at least once per two years.

f. The Security Plan and implementing procedures at least once per two years.

g. The Facility Fire Protection Program and implementing procedures at least once per 24 months.

h. Any other area of facility operation considered appropriate by the Corporate Quality Assurance Audit Operation & Maintenance Unit or the Senior Vice President - Power Supply.

i. The radiological environmental monitoring program and the results thereof at least once per 24 months.

j. The OFFSITE DOSE CALCULATIONAL MANUAL and implementing procedures at least once per 24 months.

6.5.4.2

a. Audit personnel will be independent of the area audited. Selection for auditing assignments is based on experience or training which establishes that their qualifications are commensurate with the complexity or special nature of the activities to be audited. In selecting auditing personnel, consideration will be given to special abilities, specialized technical training, prior pertinent experience, personal characteristics, and education.

b. Qualified outside consultants or other individuals within organizations reporting to the Chief Operating Officer will be used to augment the audit teams when necessary.

Reports

6.5.4.3 Results of audit are approved by the Manager - Corporate Nuclear Safety & Quality Assurance Audit Section and transmitted directly to the Company Chairman/Chief Executive Office, the Chief Operating Officer, as well as to the Senior Vice President - Power Supply, and the Department Head - System Planning & Coordination, and others as appropriate, within 30 days after the completion of the audit.

6.5.4.4 The corporate quality assurance audit program shall be conducted in accordance with written, approved procedures.

6.5.5 Fire Prevention and Loss Prevention

6.5.5.1 An independent fire protection and loss **prevention inspection** and audit shall be performed annually utilizing either qualified off-site personnel or an outside fire protection firm.

6.5.5.2 An inspection and audit of the fire protection and loss prevention program shall be performed by an outside qualified fire consultant at intervals no greater than three years.

6.8 PROCEDURES

6.8.1 Written procedures and administrative policies shall be established, implemented and maintained that meet or exceed the requirements and recommendations of Section 5.1 and 5.3 of ANSI N18.7-1972 and Appendix "A" of USNRC Regulatory Guide 1.33 dated November 3, 1972, except as provided in 6.8.2 and 6.8.3 below.

6.8.2 Proposed operating procedures, overall plant operating procedures, system descriptions, emergency procedures, fuel handling procedures, periodic test procedures, procedures for equipment maintenance which may affect nuclear safety, annunciator procedures, Fire Protection Program implementation procedures, procedures for implementing the onsite portion of the radiological environmental monitoring program, OFFSITE DOSE CALCULATION MANUAL implementation procedures, and any other procedures determined by the Plant Manager to affect nuclear safety, shall be reviewed by the PNSC and approved by the Plant Manager. Prior to implementation, proposed changes to these procedures must also be reviewed and approved in this manner.

6.8.3 Temporary changes to procedures of 6.8.2 above may be made provided:

a. The intent of the original procedure is not altered.

b. The change is approved by two members of the plant management staff, at least one of whom holds a Senior Reactor Operator's License.

c. The change is documented, reviewed by the PNSC and approved by the Plant Manager within three weeks of implementation.

initial criticality, completion of startup test program, and resumption or commencement of commercial power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

b. Annual Report

Prior to March 1 of each year a report shall be submitted which provides 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[1], 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 work functions.

c. Monthly Operating Report

Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis. The report formats set forth in Appendices B, C, and D to Regulatory Guide 1.16* shall

(1) This tabulation supplements the requirements of Section 20.407 of 10 CFR Part 20.

be completed in accordance with the instructions provided. In addition, any change to the ODCM shall be submitted as part of this report within 90 days from which the change was made effective. The completed forms should be submitted by the fifteenth of the month following the calendar month covered by the report to the Director, Office of Management Information and Program Control, U.S. Nuclear Regulatory Commission, Washington, D. C. 20555, with a copy to the appropriate NRC Regional Office.

d. Semiannual Radioactive Effluent Release Report

Routine radioactive effluent release reports covering the operation of the unit during the previous 6 months shall be submitted within 60 days after January 1 and July 1 of each year.

These reports shall include the following:

1. A summary of the quantities of radioactive liquid and gaseous effluents and solids waste released from the unit as outlined in Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases and Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants" (Revision 1, June 1974) with data summarized on a quarterly basis following the format of Appendix B thereof.

2. A quarterly summary of the cumulative joint frequency distribution of wind speed, wind direction, and atmospheric stability during the report period.

3. An assessment of radiation doses from the radioactive liquid and gaseous effluents released from the unit during each calendar quarter as outlined in Regulatory Guide 1.21.

e. Annual Radiological Environmental Operating Report

Routine radiological environmental operating reports covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year.

These reports shall include summarized and tabulated results in the format of Table 6.9-1 of all radiological environmental samples taken during the report period. In the event that some results are not available for inclusion within the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing results shall be submitted as soon as possible in a supplementary report. The reports shall also include the results of the current land use census and a map of all sampling locations keyed to a table giving distances and directions from the unit.

The reports shall provide interpretations and statistical evaluations of the results of the radiological environmental surveillance activities for the report period, including a comparison with operational controls (as appropriate), and conditions not being sampled or analyzed, and an assessment of the observed impacts of the plant operation on the environment. If harmful effects or evidence of irreversible damage are detected by the monitoring, the report shall provide an analysis of the problem and a planned course of action to alleviate the problem.

TABLE 6.9-1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

Name of Facility _____ Docket No. _____

Location of Facility _____ Reporting Period _____
(County, State)

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f)[b] Range[b]	Location with Highest Annual Mean		Control Locations Mean (f)[b] Range[b]	Number of REPORTABLE OCCURRENCES
				Name Distance and Direction	Mean (f)[b] Range[b]		
Example Data Presentation[d]							

[a] Nominal Lower Limit of Detection (LLD) as defined in table notation a. of Table 4.12-1 of Specification 4.12.1.1.

[b] Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

[d] Note: The example data are provided for illustrative purposes only.

6.9.2 Reportable Occurrences

The Reportable Occurrences of Specifications 6.9.2.a and 6.9.2.b below, including corrective actions and measures to prevent recurrence, shall be reported to the NRC. Supplemental reports may be required to fully describe final resolution of the occurrence. In case of corrected or supplemental reports, a licensee event report shall be completed and reference made to the original report date.

a. Prompt Notification With Written Followup

The types of events listed below shall be reported within 24 hours by telephone and confirmed by telegraph, mailgram, or facsimile transmission to the Director of the appropriate Regional Office of Inspection and Enforcement or his designate no later than the first working day following the event, with a written followup report within two weeks. The written followup report shall include, as a minimum, a completed copy of the licensee event report form.

Information provided on the licensee event report shall be supplemented, as needed, by additional narrative material to provide complete explanation of the circumstances surrounding the event.

(1) Failure of the reactor protection system, or other systems subject to limiting safety system settins to initiate the required protective function by the time a monitored parameter reaches the setpoint specified as the limiting safety system setting in the Technical Specifications or failure to complete the required protective function.

Note: Instrument drift discovered as a result of testing need not be reported under this item (but see 6.9.2.a(5), 6.9.2.a(6), and 6.9.2.b(1) below.

(2) Operation of the unit or affected systems when any parameter or operation subject to a limiting condition for operation is less conservative than the least conservative aspect of the limiting condition for operation established in the Technical Specifications.

Note: If specified action is taken when a system is found to be operating between the most conservative and least conservative aspects of a limiting condition for operation listed in the Technical Specifications, the limiting condition for operation is not considered to have been violated and no report need be submitted under this section (but see 6.9.2.b(2) below).

(3) Abnormal degradation discovered in fuel cladding, reactor coolant pressure boundary or primary containment.

Note: Leakage of valve packing or gaskets within the limits for identified leakage set forth in Technical Specifications need not be reported under this section.

(4) Reactivity anomalies involving disagreement with predicted value of reactivity balance under steady state conditions during power operation greater than or equal to 1% $\Delta k/k$; a calculated reactivity balance indicating a shutdown margin less conservative than specified in the Technical Specifications; short-term reactivity increases that correspond to a

reactor startup rate greater than 5 dpm, or if subcritical, an unplanned reactivity insertion of more than 0.5% $\Delta k/k$; or any unplanned criticality.

(5) Failure or malfunction to one or more components which prevents or could prevent, by itself, the fulfillment of the functional requirements of systems required to cope with accidents analyzed in the SAR.

(6). Personnel error or procedural inadequacy which prevents or could prevent, by itself, the fulfillment of the functional requirements of systems required to cope with accidents analyzed in the SAR.

Note: For 6.9.2.a(5) and 6.9.2.a(6) reduced redundancy that does not result in loss of system function need not be reported under this section (but see 6.9.2.b(2) and 6.9.2.b(3) below).

(7) Conditions arising from natural or man-made events that, as a direct result of the event, require plant shutdown, operation of safety systems, or other protective measures required by Technical Specifications.

(8) Errors discovered in the transient or accident analyses or in the methods used for such analyses as described in the safety analysis report or in the bases for the Technical Specifications that have or could have permitted reactor operation in a manner less conservative than assumed in the analyses.

(9) Performance of structures, systems or components that require remedial action or corrective measures to prevent operation in a manner less conservative than assumed in the accident

analyses in the safety analysis report or Technical Specifications bases or discovery during plant life of conditions not specifically considered in the safety analysis report or Technical Specifications that require remedial action or corrective measures to prevent the existence or development of an unsafe condition.

Note: This item is intended to provide for reporting of potentially generic problems.

b. Thirty-day Written Reports. The reportable occurrences discussed below shall be the subject of written reports to the Director of the appropriate NRC Regional Office within thirty days of occurrence of the event. The written report shall include, as a minimum, a completed copy of the licensee event report form, used for entering data into the NRC's computer-based file of information concerning licensee events. Information provided on the licensee event report form shall be supplemented, as needed, by additional narrative material to provide complete explanation of the circumstances surrounding the event.

(1) Reactor protection system or engineered safety feature instrument settings which are found to be less conservative than those established by the Technical Specifications but which do not prevent the fulfillment of the functional requirements of affected systems (but see 6.9.2.a(1) and 6.9.2.a(2) above).

(2) Conditions leading to oepration in a degraded mode permitted by a limiting condition for operation or plant shutdown required by a limiting condition for operation (but see 6.9.2.a(2) above).

Note: Routine surveillance testing, instrument calibration or preventive maintenance which

require system configurations as described in 6.9.2.b(1) and 6.9.2.b(2) above need not be reported except where test results themselves reveal a degraded mode as described above.

(3) Observed inadequacies in the implementation of administrative or procedural controls which threaten to cause reduction of degree of redundancy provided in reactor protection systems or engineered safety feature systems (but see 6.9.2.a(6) above).

(4) Abnormal degradation of systems other than those specified in 6.9.2.a(3) above designed to contain radioactive material resulting from the fission process.

Note: Sealed sources or calibration sources are not included under this item. Leakage of valve packing or gaskets within the limits for identified leakage set forth in Technical Specifications need not be reported under this item.

6.9.3 Special Reports

Special reports shall be submitted to the Director of the Regional Office of Inspection and Enforcement within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

	Area	Reference	Submittal Date
a.	Containment Leak Rate Testing	4.4	Upon completion of each test
b.	Initial Containment Structural Test	4.4	Within three months following completion of test

c.	Fuel Inspection	2.1	Upon completion of the inspection at second and third refueling outages
d.	Inservice Inspection	4.2	After five years of operation
e.	Containment Sample Tendon Surveillance	4.4	Upon completion of the inspection at 5 and 25 years of operation
f.	Post-operational Containment Structural Test	4.4	Upon completion of the test at 3 and 20 years of operation
g.	Fire Protection System	3.14	As specified by limiting condition for operation.

6.9.4 Special Radiological Effluent Reports

Special radiological effluent reports discussed below shall be the subject of written reports to the Director of the appropriate NRC Regional Office within thirty days of occurrence of the event.

(1) an unplanned off-site release of 1) more than 1 curie of radioactive material in liquid effluents, 2) more than 150 curies of noble gas in gaseous effluents, or 3) more than 0.05 curies of radioiodine in gaseous effluents. The report of an unplanned off-site release of radioactive material shall include the following information:

1. A description of the event and equipment involved.
2. Cause(s) for the unplanned release.
3. Actions taken to prevent recurrence.
4. Consequences of the unplanned release.

(2) Exceeding Limiting Conditions 1.2.1.1 and 2.2.1.1 of Radiological Effluent Appendix. The report shall include the following information:

1. The cause(s) for exceeding the limit(s).
2. The action(s) taken to restore the release of radioactive effluents to be within the limit(s).
3. A summary description of action(s) taken to prevent a similar recurrence in the future.

(3) Exceeding Limiting Conditions 1.3.1.1(b), 2.3.1.1(b) or 2.3.1.2(b) in Radiological Effluent Appendix. In lieu of any other report, this report shall include the following information:

1. The cause(s) for exceeding the limit(s). If the cause(s) is/are related to the unavailability of components in the appropriate radwaste treatment system, the unavailable equipment or subsystems shall be identified.

2. A summary description of action(s) taken to prevent a similar recurrence in the future calendar years. The action(s) taken to restore the unavailable equipment to its available status shall be described as applicable.

(4) Exceeding Limiting Conditions 1.3.1(a), 2.3.1(a) or 2.3.1.2(a) in Radiological Effluent Appendix. The report shall include the following information:

1. The cause(s) for exceeding the limit(s). If the cause(s) is/are related to the unavailability of components in the appropriate radwaste treatment system, the unavailable equipment or subsystems shall be identified.

2. The action(s) taken to reduce the releases of radioactive effluents during the remainder of the current calendar year such that the limits of Limiting Conditions 1.3.1.1(b), 2.3.1.1(b), or 2.3.1.2(b) of Appendix are not exceeded. The action(s) taken to restore the unavailable equipment to its available status shall be described as applicable.

3. A summary description of action(s) taken to prevent a similar recurrence in future calendar quarters.

6.13 HIGH RADIATION AREA

6.13.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.203(c) (2) of 10 CFR 20, each High Radiation Area in which the intensity of radiation is 1000 mrem/hr or less shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit*. Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them.

c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance.

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* Health Physics personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.

6.13.2 The requirements of 6.13.1 above, shall also apply to each high radiation area in which the intensity of radiation is greater than 1000 mrem/hr. In addition, locked doors shall be provided to prevent unauthorized entry into such areas and the keys shall be maintained under the administrative control of the Shift Foreman on duty and/or the Plant Health Physicist.

6.14 OFFSITE DOSE CALCULATION MANUAL(ODCM)

FUNCTION

6.14.1 The ODCM 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.

6.14.2 Any changes to the ODCM shall be made by the following method:

A. Changes shall be submitted to the Commission by inclusion in the Monthly Operating Report within the 90 day period after the change(s) was made and shall contain:

1. Sufficiently detailed information to support the rationale for the change. Information submitted should consist of a package ofthose pages of the ODCM to be changed with each page numbered.

2. Documentation of the fact that the change has been reviewed and found acceptable by the PNSC.

B. Shall become effective upon review by the PNSC and approved by the plant manager.

6.15 RADIOACTIVE MATERIAL LABELING

6.15.1 In lieu of 10 CFR 20.203(f), entrances to selected controlled areas in which radioactive materials are used, stored or handled, shall have signs bearing the legend, EVERY CONTAINER OR VESSEL IN THIS AREA MAY CONTAIN RADIOACTIVE MATERIAL.

APPENDIX

RADIOLOGICAL EFFLUENT

SPECIFICATIONS

FOR H.B. ROBINSON

UNIT NO. 2

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1.0 LIQUID EFFLUENTS

1.1 INSTRUMENTATION

1.1.1 LIMITING CONDITION

1.1.1.1 The radioactive liquid effluent monitoring instrumentation channels shown in Table 1.1-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the Limiting Condition 1.2.1.1 is not exceeded.

1.1.2 ACTION:

1.1.2.1 With a radioactive liquid effluent monitoring instrumentation channel monitor alarm/trip setpoint less conservative than a value which will ensure that the Limiting Condition 1.2.1.1 is met, immediately suspend the release of radioactive liquid effluents monitored by the affected channel or declare the channel inoperable.

1.1.2.2 With one or more radioactive liquid effluent monitoring instrumentation channels inoperable, take the ACTION shown in Table 1.1-1.

1.1.3 SURVEILLANCE REQUIREMENTS

1.1.3.1 The setpoints shall be determined in accordance with the methodology as described in the ODCM.

1.1.3.2 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 at the frequencies shown in Table 1.1-2.

1.1.3.3 Records - Records shall be maintained of all radioactive liquid effluent monitoring instrumentation alarm/trip setpoints.

1.1.4 BASES

1.1.4.1 The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use

of this instrumentation is consistent with the requirements of General Design Criteria 60, and 64 of Appendix A to 10 CFR Part 50.

1.2 COMPLIANCE WITH 10 CFR PART 20

1.2.1 LIMITING CONDITION

1.2.1.1 The concentration of radioactive material released at anytime from the site to unrestricted areas (see Figure 1.1-1) shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2×10^{-4} μCi/ml total activity.

1.2.2 ACTION:

1.2.2.1 With the concentration of radioactive material released from the site to unrestricted areas exceeding the above limits, restore concentration in the unrestricted area within the above limits and prepare and submit a report to the Commission within 30 days pursuant to Specification 6.9.4.

1.2.3 SURVEILLANCE REQUIREMENTS

1.2.3.1 The concentration of radioactive material at any time in liquid effluents released from the site shall be continuously monitored in accordance with Table 1.1-1.

1.2.3.2 The liquid effluent continuous monitors having provisions for automatic termination of liquid releases, as listed in Table 1.1-1, shall be used to limit the concentration of radioactive material released at any time from the site to unrestricted areas to the values given in Limiting Condition 1.2.1.1.

1.2.3.3 The radioactivity content of each batch of radioactive liquid waste to be discharged shall be determined prior to release by sampling and analysis in accordance with Table 1.2-1. The results of pre-release analyses shall be used with the calculational methods in the ODCM to assure that the concentration at the point of release to the unrestricted area is limited to the values in Limiting Condition 1.2.1.1.

1.2.3.4 Post-release analyses of samples from batch releases shall be performed in accordance with Table 1.2-1. The results of the post-release analyses shall be used with the calculational methods in the ODCM to assure that the concentrations at the point of release are limited to the values in Limiting Condition 1.2.1.1

1.2.3.5 The radioactivity concentration of liquids discharged from continuous release points shall be determined by collection and analysis of samples in accordance with Table 1.2-1. The results of the analyses shall be used with the calculational methods in the ODCM to assure that the concentrations at the point of release are limited to the values in Limiting Condition 1.2.1.1.

1.2.4 BASES

1.2.4.1 This specification is provided to ensure that the concentration of radioactive materials released in liquid waste effluents from the site to unrestricted areas will be less than the concentration levels specified in 10 CFR Part 20, Appendix B, Table II. This limitation provides additional assurance that the levels of radioactive materials in bodies of water outside the site will not result in exposures within (1) the Section II.A design objectives of Appendix I, 10 CFR Part 50, to an individual and (2) the limits of 10CFR Part 20.106 (e) to the population. The concentration limit for noble gases is based upon the assumption that Xe-135 is the controlling radioisotope and its MPC in air (submersion) was converted to an equivalent concentration in water using the methods described in International Commission on Radiological Protection (ICRP) Publication 2.

1.3 COMPLIANCE WITH 10 CFR PART 50

1.3.1 LIMITING CONDITION

1.3.1.1 The dose commitment to an individual from radioactive materials in liquid effluents released to unrestricted areas (see Figure 1.1-1) shall be limited:

a. During any calendar quarter to $\leq$ 1.5 mrem to the total body and to $\leq$ 5 mrem to any organ, and

b. During any calendar year to $\leq$ 3 mrem to the total body and to $\leq$ 10 mrem to any organ.

[The LIQUID RADWASTE TREATMENT SYSTEM shall be used to reduce the radioactive materials in liquid effluent streams, which the treatment system was designed to process, prior to their discharge when the sum of the cumulative dose commitment to date for the quarter and the projected dose commitment for the remainder of the quarter would result in doses exceeding 25% of the Limiting Condition 1.3.1.1 (b).]

1.3.2 ACTION:

1.3.2.1 With the calculated dose from the release of radioactive materials in liquid effluents exceeding either of Limiting Condition 1.3.1.1 (a) or 1.3.1.1 (b), prepare and submit a report to the Commission pursuant to Section IV.A of Appendix I of 10 CFR Part 50 and Specification 6.9.4.

1.3.3 SURVEILLANCE REQUIREMENTS

1.3.3.1 Dose Calculations: Cumulative dose contributions and dose projections from liquid effluents shall be determined as required and in accordance with the Offsite Dose Calculation Manual (ODCM) at least once per 31 days as noted in Table 1.14-1 of Appendix A to the License.

1.3.4 BASES

1.3.4.1 This specification is provided to implement the requirements of Section II.A, and III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Condition implements the guides set forth in Section II.A of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I of 10 CFR Part 50 to assure that the releases of radioactive material in liquid effluents will be kept "as

low as is reasonably achievable." The availability of the LIQUID RADWASTE TREATMENT SYSTEM provides assurance that the releases of radioactive materials in liquid effluents will be kept "as low as is reasonably achievable" and within the limits of Section II.A of Appendix I of 10 CFR Part 50. This specification implements the requirements of 10 CFR Part 50.36a, General Design Criterion 60 of Appendix A to 10 CFR Part 50 and design objective Section II.D of Appendix I to 10 CFR Part 50. The dose calculations in the ODCM implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I is to be shown by calculational procedures based on models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated. The equations specified in the ODCM for calculating the doses due to the actual release rates of radioactive materials in liquid effluents will be consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977, and Regulatory Guide 1.113, "Estimating Aquatic Dispersion of Effluents from Accidental and Routine Reactor Releases for the Purpose of Implementing Appendix I," April 1977. NUREG-0133 provides methods for dose calculations consistent with Regulatory Guides 1.109 and 1.113.

TABLE 1.1-1

Radioactive Liquid Effluent Monitoring Instrumentation

Release Pathway	Action
1. Liquid Radwaste Effluent Line	
a. Monitor (RMS-18)	With the monitor inoperable, effluent releases may be resumed for up to 14 days, provided that prior to initiating a release: 1. At least two independent samples are analyzed in accordance with Limiting Condition 1.2.1.1, and; 2. At least two members of the facility staff independently verify the release rate calculations.
b. Flow Rate Measurement Device (FI-1064)	With the flow rate measurement device inoperable, effluent releases via this pathway may continue for up to 14 days provided the flow rate is estimated at least once per 4 hours during actual releases.
2. Steam Generator Blowdown Effluent Line	
a. Monitor (RMS-19)	With the monitor inoperable, effluent releases via this pathway may continue for up to 14 days provided grab samples are analyzed for gross radioactivity (beta or gamma): 1. At least once per 8 hours when the specific radioiodine activity of the secondary coolant is $> 0.01 \mu Ci/ml$. 2. At least once per 24 hours when the specific radioiodine activity of the secondary coolant is $\leq 0.01 \mu Ci/ml$.

TABLE 1.1-1 (Continued)

Radioactive Liquid Effluent Monitoring Instrumentation

Release Pathway	Action
b. Flow Rate Measurement Device (A B/D Δ P) (B B/D Δ P) (C B/D Δ P)	With the flow rate measurement device inoperable, effluent releases via this pathway may continue for up to 14 days provided the flow rate is estimated at least once per 4 hours during actual releases.

TABLE 1.1-2

Radioactive Liquid Effluent Monitoring Instrumentation Surveillance Requirements

Release Pathway	Channel Check	Source Check	Channel Calibration	Channel Functional Check
1. Liquid Radwaste Effluent Line				
a. Monitor (RMS-18)	D(1)	P	R(2)	Q(3)
b. Flow Rate Measurement Device (FI-1064)	D(4)	N/A	R	N/A
2. Steam Generator Blowdown Effluent Line				
a. Monitor (RMS-19)	D(1)	M	R(2)	Q(3)
b. Flow Rate Measurement Device (A B/D Δ P) (B B/D Δ P) (C B/D Δ P)	D(4)	N/A	R	N/A

Table Notation

1. During releases via this pathway

2. The Channel Calibration for radioactivity measurement instrumentation shall be performed using one or more reference standards.

3. The Channel Functional test shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exist:

   1. Instrument indicates measured levels above the alarm/trip setpoint.

   2. Circuit failure.

4. The Channel Check shall consist of verifying indication of flow during periods of release. Channel Check shall be made at least once daily on any day on which continuous, periodic, or batch releases are made.

TABLE 1.2-1

ROBINSON RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

Liquid Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit of Detection (LLD) (μCi/ml)[a]
A. Batch Waste Release Tanks [d]	P Each Batch	P Each Batch	Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ba-140, Ce-141, and Ce-144	5×10^{-7}
			I-131	1×10^{-6}
	P One Batch/M	M	Dissolved and Entrained Gases	1×10^{-5}
	P Each Batch	M Composite [b]	H-3	1×10^{-5}
	P Each Batch	Q Composite [b]	Sr-89, Sr-90 [f]	5×10^{-8}
B. Steam Generator Blowdown [e]	D Grab Sample [c]	W Composite [c]	Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99 Cs-134, Cs-137, Ba-140, Ce-141, and Ce-144	5×10^{-7}
			I-131	1×10^{-6}
	M Grab Sample	M	Dissolved and Entrained Gases	1×10^{-5}

TABLE 1.2-1 (Continued)

ROBINSON RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

Liquid Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit of Detection (LLD) (μCi/ml)[a]
B. Steam Generator Blowdown (cont.)	D Grab Sample[c]	M Composite [c]	H-3	1×10^{-5}
	D Grab Sample[c]	Q Composite [c]	Sr-89, Sr-90 [f]	5×10^{-8}

TABLE NOTATION

a. The lower limit of detection (LLD) will be determined in accordance with the methodology in the ODCM.

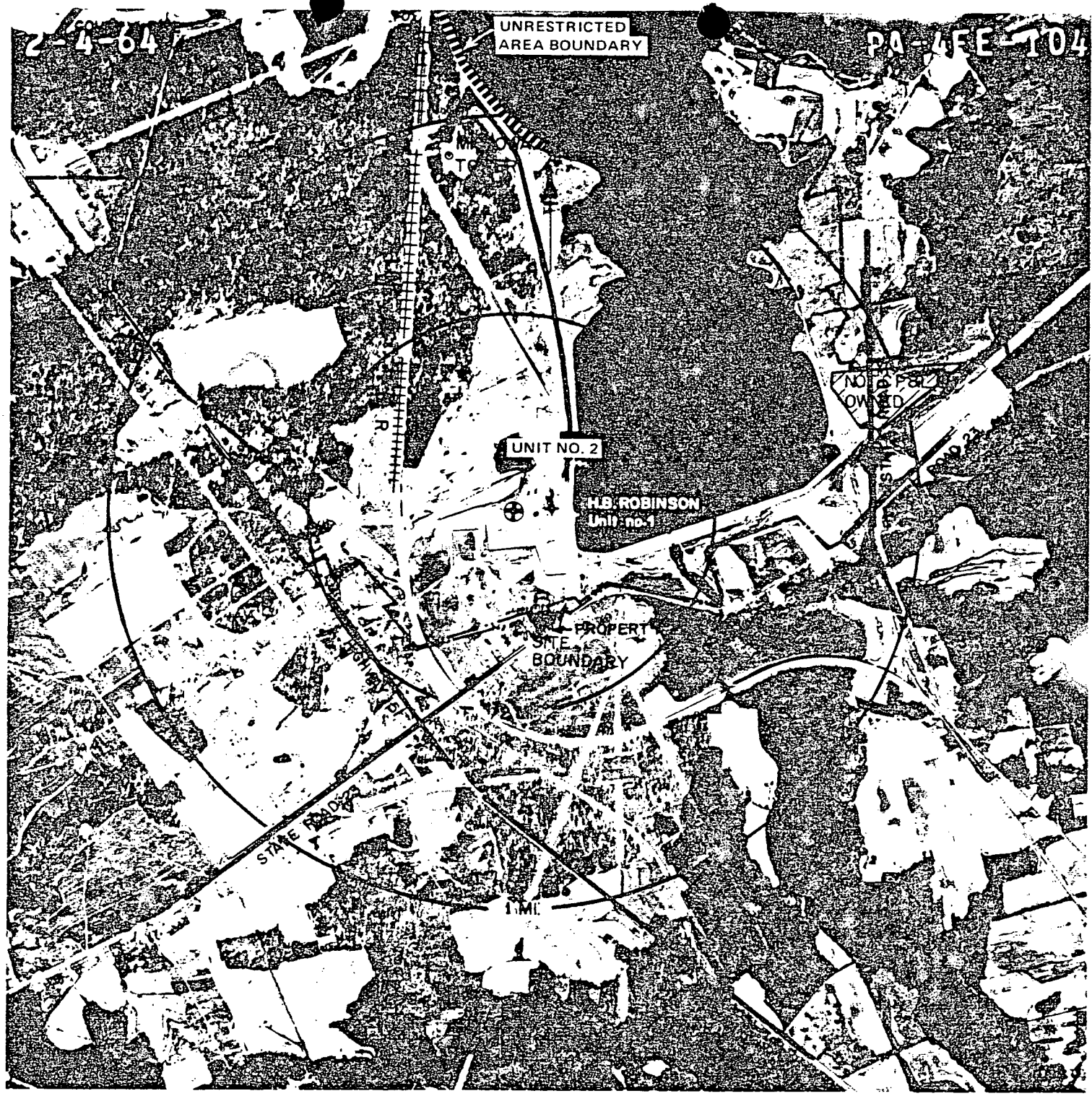
b. Methods of collecting composite samples are to be provided in plant procedures.

c. Sample should be representative of the quantities and concentrations of radioactive materials in liquid effluents as established in appropriate plant procedures.

d. A batch release is the discharge of liquid wastes of a discrete volume.

e. 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.

f. SR-89 and Sr-90 will be analyzed only if Ba-140 is detected.



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UNIT NO. 2

FIGURE 1.1-1

UNRESTRICTED AREA BOUNDARIES FOR IMPLEMENTATION OF 10CFR20 FOR LIQUIDS FOR H. B. ROBINSON UNIT NO. 2

2.0 GASEOUS EFFLUENTS

2.1 INSTRUMENTATION

2.1.1 LIMITING CONDITION

2.1.1.1 The radioactive gaseous process and effluent monitoring instrumentation channels shown in Table 2.1-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 2.2-1 are not exceeded.

2.1.2 ACTION:

2.1.2.1 With a radioactive gaseous process or effluent monitoring instrumentation channel monitor alarm/trip setpoint less conservative than a value which will ensure that the limits of Limiting Condition 2.2.1.1 are met, declare the channel inoperable.

2.1.2.2 With one or more radioactive gaseous process or effluent monitoring instrumentation channels inoperable, take the ACTION shown in Table 2.1-1.

2.1.3 SURVEILLANCE REQUIREMENTS

2.1.3.1 The setpoints shall be determined in accordance with the methodology as described in the ODCM.

2.1.3.2 Each radioactive gaseous process or effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST at the frequencies shown in Table 2.1-2.

2.1.3.3 Records shall be maintained of all radioactive process and effluent monitoring instrumentation alarm/trip setpoints.

2.1.4 BASES

2.1.4.1 The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, and 64 of Appendix A to 10 CFR Part 50.

2.2 COMPLIANCE WITH 10 CFR PART 20

2.2.1 LIMITING CONDITION

2.2.1.1 The release rate, at any time, in the unrestricted areas (see Figure 2.1-1) of radioactive materials released in gaseous effluents from the site shall be limited such that:

a. The dose rate for noble gases shall be $\leq$ 500 mrem/yr to the total body and $\leq$ 3000 mrem/yr to the skin, and

b. The dose rate for all radioiodines and for all radioactive materials in particulate form and radionuclides other than noble gases with half lives greater than 8 days shall be $\leq$ 1500 mrem/yr to any organ.

2.2.2 ACTION:

With the dose rate(s) exceeding Limiting Conditions 2.2.1.1 (a) and 2.2.1.1 (b), decrease the release rate to comply with the Limiting Condition and prepare and submit a report to the Commission within 30 days pursuant to Specification 6.9.4.

2.2.3 SURVEILLANCE REQUIREMENTS

2.2.3.1 The release rate, at any time, of noble gases in gaseous effluents shall be controlled by the offsite dose rate as established above in Limiting Condition 2.2.1.1.

2.2.3.2 The release rate of radioactive materials, other than noble gases, in gaseous effluents shall be determined by obtaining representative samples and performing analyses in accordance with the sampling and analysis program, specified in Table 2.2-1.

2.2.3.3 The dose rate in unrestricted areas, due to radioactive materials other than noble gases released in gaseous effluents, shall be determined to be within the required limits by using the results of the sampling and analysis program, specified in Table 2.2-1 in performing the calculations of dose rate in unrestricted areas.

2.2.4 BASES

2.2.4.1 This specification is provided to ensure that the dose rate at any time from gaseous effluents from H.B. Robinson Unit No. 2 will be within the annual dose limits of 10 CFR Part 20 for unrestricted areas. The annual dose limits are the doses associated with the concentrations of 10 CFR Part 20, Appendix B, Table II. These limits provide reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of an individual in an unrestricted area, to annual average concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20 (10 CFR Part 20.106(b)). For individuals who may at times be within the restricted area boundary, the occupancy of the individual should be sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the unrestricted area. The specified release rate limits restrict, at all times, the corresponding gamma and beta dose rates above background to an individual in unrestricted areas to $\leq$ (500) mrem/year to the total body or to $\leq$ (3000) mrem/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid dose rate above background to an individual receptor via the cow-milk-receptor pathway to $\leq$ 1500 mrem/year.

2.3 COMPLIANCE WITH 10 CFR PART 50

2.3.1 LIMITING CONDITION

2.3.1.1 The air dose in unrestricted areas (see Figure 2.1-1) due to noble gases released in gaseous effluents shall be limited to the following:

a. During any calendar quarter, to $\leq$ 5 mrad for gamma radiation and $\leq$ 10 mrad for beta radiation;

b. During any calendar year, to $\leq$ 10 mrad for gamma radiation and $\leq$ 20 mrad for beta radiation.

2.3.1.2 The dose commitment to an individual from radioiodines, and radioactive materials in particulate form, with half-lives greater than 8 days in gaseous effluents released to unrestricted areas (see Figure 2.1-1) shall be limited to the following:

a. During any calendar quarter to $\leq$ 7.5 mrem to any organ;

b. During any calendar year to $\leq$ 15 mrem to any organ.

[The GASEOUS RADWASTE TREATMENT SYSTEM shall be used to reduce radioactive materials in gaseous effluent streams, which the treatment system was designed to process, prior to their discharge when the sum of the cumulated dose to date for the quarter and the projected doses for the remainder of the quarter would result in doses exceeding 25% of Limiting Condition 2.3.1.1(b).]

[The GASEOUS RADWASTE TREATMENT SYSTEM and/or the VENTILATION EXHAUST TREATMENT SYSTEM shall be used to reduce radioactive materials in gaseous effluent streams, which the treatment system was designed to process, prior to their discharge when the sum of the cumulated dose to date for the quarter and the projected doses for the remainder of the quarter would result in doses exceeding 25% of Limiting Condition 2.3.1.2(b).]

2.3.2 ACTION:

2.3.2.1 With the calculated air dose from the release of radioactive noble gases in gaseous effluents exceeding Limiting Condition 2.3.1.1 or the calculated dose from the release of radioiodines and radioactive materials in particulate form, in gaseous effluents exceeding Limiting Condition 2.3.1.2, prepare and submit a report to the Commission pursuant to Section IV.A of Appendix I of 10 CFR 50 and Specification 6.9.4.

2.3.3 SURVEILLANCE REQUIREMENTS

2.3.3.1 Cumulative dose contributions and dose projections for the total time period shall be determined as required and in accordance with the ODCM at least once every 31 days as noted in Table 1.14-1 of the Appendix A to the License.

2.3.4 BASES

2.3.4.1 This specification is provided to implement the requirements of Sections II.B, II.C, III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Conditions are the guides set forth in Sections II.B and II.C of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable." The ODCM calculational methods specified in the surveillance requirements implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated. The ODCM calculational methods approved by NRC for calculating the doses due to the actual release rates of the subject materials are required to be consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision I, October 1977 and Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," Revision 1, July 1977. These equations also provide for determining the actual doses based upon the historical average atmospheric conditions. The release rate specifications for radioiodines, and radioactive material in particulate form are dependent on the existing radionuclide pathways to man, in the unrestricted area. The pathways which are examined in the development of these calculations are: (1) individual inhalation of airborne radionuclides, (2) deposition of radionuclides onto green leafy vegetation with subsequent consumption by man, (3) deposition onto grassy areas where milk animals and meat producing animals graze with consumption of the milk and meat by man, and (4) deposition on the ground with subsequent exposure of man. The GASEOUS RADWASTE TREATMENT SYSTEM and the VENTILATION EXHAUST TREATMENT SYSTEMS will be used when specified to provide reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable" and within the guidelines of Section II.C of Appendix I of 10 CFR 50 for radioiodines and radioactive material in particulate form and within the guidelines of Section II.B of Appendix I of 10 CFR 50 for noble gas effluents. This specification implements the requirements of 10 CFR Part 50.36a, General Design Criterion 60 of Appendix A to 10 CFR Part 50, and design objective Section II.D of Appendix I to 10 CFR Part 50.

TABLE 2.1-1

RADIOACTIVE GASES EFFLUENT MONITORING INSTRUMENTATION

Release Pathway	Action
1. Plant Vent	
a. Noble Gas Activity Monitor (RMS-14)	With the monitor inoperable, effluent releases via this pathway may continue for up to 28 days provided grab samples are taken at least once per 8 hours and these samples are analyzed for gross activity within 24 hours.
b. Iodine Sampler Cartridge (RMS-14)	With the collection device inoperable, effluent releases via this pathway may continue for up to 28 days provided grab samples are taken at least once per 8 hours and these samples are analyzed for gross activity within 24 hours.
c. Particulate Sampler Filter (RMS-14)	With the collection device inoperable, effluent releases via this pathway may continue for up to 28 days provided grab samples are taken at least once per 8 hours and these samples are analyzed for gross activity within 24 hours.
d. System Effluent Flow Rate Measurement Device (FIS-1, FRS-1)	With the flow rate device inoperable, effluent releases via this pathway may continue for up to 28 days provided the flow rate is estimated at least once per 4 hours.
e. Sampler Flow Rate Measurement Device (RMS-14)	With the flow rate device inoperable, effluent releases via this pathway may continue for up to 28 days provided the flow rate is estimated at least once per 4 hours.
2. Condenser Evacuation System	
a. Noble Gas Activity Monitor (RMS-15)	With the monitor inoperable, effluent release via this pathway may continue for up to 28 days provided grab samples are taken at least once per 8 hours and these samples are analyzed for gross activity within 24 hours.

TABLE 2.1-2

RADIOACTIVE GASEOUS EFFLUENT MONITORING

INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Release Pathway	Channel Check	Source Check	Channel Calibration	Channel Functional Check
1. Plant Vent				
a. Noble Gas Activity Monitor (RMS-14)	D(1)	M	R(2)	Q
b. Iodine Sampler Cartridge (RMS-14)	W(1)	N/A	N/A	N/A
c. Particulate Sampler Filter (RMS-14)	W(1)	N/A	N/A	N/A
d. System Effluent Flow Rate Measurement Device (FIS-1 & FRS-1)	D(1)	N/A	N/A	N/A
e. Sampler Flow Rate Measurement Device (RMS-14)	D(1)	N/A	N/A	N/A
2. Condenser Evacuation System				
a. Noble Gas Activity Monitor (RMS-15)	D(1)	M	R(2)	Q

Table Notation

1. During releases via this pathway.

2. The Channel Calibration for radioactivity measurement instrumentation shall be performed using one or more reference standards.

TABLE 2.2-1

ROBINSON RADIOACTIVE GASEOUS WASTE SAMPLING & ANALYSIS PROGRAM

Gaseous Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	LLD[a] μCi/cc
Waste Gas Decay Tanks	P Grab Sample	P Each Release	Gases: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135 Particulates: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Ba-140, Cs-134, Cs-137, Ce-141, Ce-144	10^{-4}
			H-3	10^{-6}
Containment Pressure Reliefs	W Grab Sample	W	Gases: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135	10^{-4}
			Particulates: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Ba-140, Cs-134, Cs-137, Ce-141, Ce-144	10^{-4}
			I-131	10^{-9}
			I-133	10^{-7}
			H-3	10^{-6}
Containment Purges	P Grab Sample	P Each Release	Gases: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135 Particulates: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Ba-140, Cs-134, Cs-137, Ce-141, Ce-144	10^{-4}
			I-131	10^{-9}
			I-133	10^{-7}
			H-3	10^{-6}
Condenser Air Ejector	Continuous	W	Gases: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135	10^{-4}
	W Grab Sample	W	H-3	10^{-6}
Plant Vent	Continuous	W	Gases: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135	10^{-4}
	W Grab Sample	W	H-3	10^{-6}

TABLE 2.2-1 (Cont'd.)

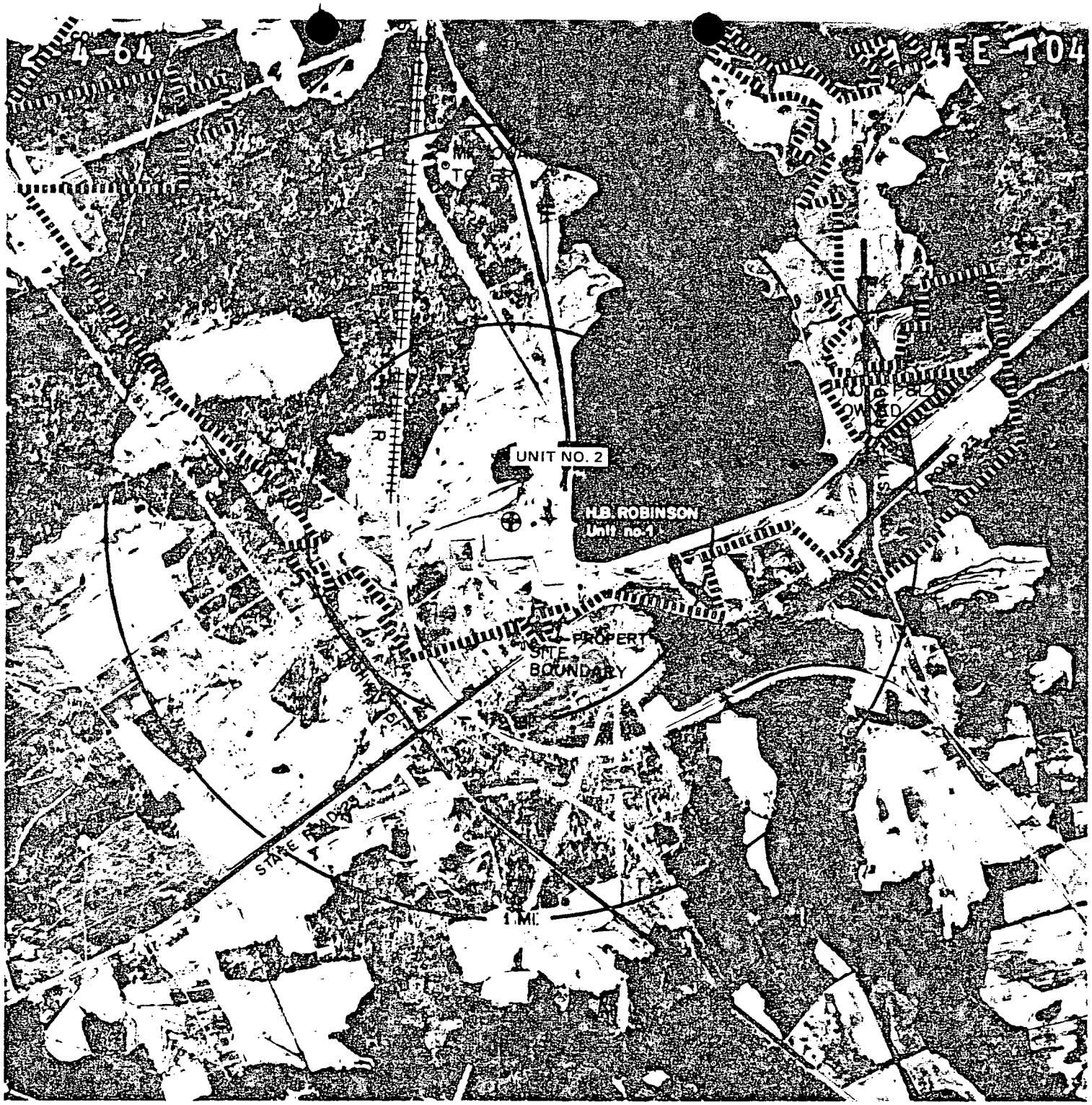
ROBINSON RADIOACTIVE GASEOUS WASTE SAMPLING & ANALYSIS PROGRAM

Gaseous Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	LLD[a] μCi/cc
Plant Vent (Cont'd.)	Continuous	W Charcoal Cartridge	I-131	10^{-12}
			I-133	10^{-10}
	Continuous	W Particulate Filter	Particulates: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Ba-140, Cs-134, Cs-137, Ce-141, Ce-144	10^{-11}
	Continuous	Q Particulate Filter Composite	Gross Alpha	10^{-11}
			Sr-89, Sr-90 b	10^{-11}

TABLE NOTATION

a. The lower limit of detection (LLD) will be determined in accordance with the methodology in the ODCM.

b. Sr-89 and Sr-90 will be analyzed if Ba-140 is detected in any of the weekly particulate filter gamma analyses.



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UNIT NO. 2

FIGURE 2.1-1

UNRESTRICTED AREA BOUNDARIES FOR IMPLEMENTATION OF 10CFR20 FOR GASES FOR H. B. ROBINSON UNIT NO. 2

3.0 COMPLIANCE WITH 40 CFR 190

3.1 DOSE

3.1.1 LIMITING CONDITION

3.1.1.1 The dose or dose commitment to a real individual from all uranium fuel cycle sources is limited to $\leq$ 25 mrem to the total body or any organ (except the thyroid, which is limited to $\leq$ 75 mrem) over a period of 12 consecutive months.

3.1.2 ACTION:

3.1.2.1 With the calculated dose from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Limiting Conditions 1.3.1.1(a), 1.3.1.1.(b), 2.3.1.1(a), 2.3.1.1(b), 2.3.1.2(a) or 2.3.1.2(b) prepare and submit the information to the NRC necessary to assess compliance with 40 CFR 190.

3.1.3 SURVEILLANCE REQUIREMENTS

3.1.3.1 Cumulative dose contributions from liquid and gaseous effluents from H.B. Robinson Unit No. 2 shall be determined in accordance with Limiting Conditions 1.3.1.1(a), 1.3.1.1.(b), 2.3.1.1(a), 2.3.1.1(b), 2.3.1.2(a) and 2.3.1.2(b). Only uranium fuel cycle sources within five miles of the H.B. Robinson Unit No. 2 will be considered.

3.1.4 BASES

3.1.4.1 This Limiting Condition is provided to meet the reporting requirements of 40 CFR Part 190.

4.0. RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

4.1 MONITORING PROGRAM

4.1.1 LIMITING CONDITION

4.1.1.1 The radiological environmental monitoring program shall be conducted as specified in Table 4.1-1 and the ODCM. The ODCM shall include a map of all sampling locations keyed to a table giving distances and directions from the plant.

4.1.2 ACTION:

4.1.2.1 With the radiological environmental monitoring program not being conducted as specified in Table 4.1-1, prepare and submit to the Commission, in the Annual Radiological Operating Report, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence. (Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, seasonal unavailability, or to malfunction of automatic sampling equipment. If the latter, every effort shall be made to complete corrective action prior to the end of the next sampling period.)

4.1.2.2 With the level of radioactivity in an environmental sampling medium at one or more of the locations specified in the ODCM exceeding the limits of Table 4.1-2 when averaged over any calendar quarter sampling period, prepare and submit to the Commission within 30 days from the end of the affected calendar quarter, a Special Report which includes an evaluation of any release conditions, environmental factors or other aspect which may have caused the limits of Table 4.1-2 to be exceeded. This report is not required if the medium at the particular location is sampled less frequently than twice per quarter or the measured level of radioactivity was not the result of plant effluents; however, in such an event the condition shall be reported and described in the Annual Radiological Environmental Operating Report.

4.1.2.3 With milk or fresh leafy vegetable samples unavailable from any of the sample locations required by the ODCM, prepare and submit to the Commission pursuant to Specification 6.9.2.7, the cause of the unavailability of samples and identify locations for obtaining replacement samples. The locations from which samples were unavailable may then be deleted from the ODCM provided the locations from which the replacement samples were obtained are added to the environmental monitoring program as replacement locations, if available.

4.1.2.4 When more than one of the radionuclides in Table 4.1-2 are detected in the sampling medium, a Thirty Day Written Report shall be submitted if:

$$\frac{\text{concentration (1)}}{\text{reporting level (1)}} + \frac{\text{concentration (2)}}{\text{reporting level (2)}} + \ldots \geq 1.0$$

This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Operating Report.

4.1.2.5 When radionuclides other than those in Table 4.1-2 are detected and are the result of plant effluents, a Thirty Day Written Report shall be submitted if the potential calendar year dose to an individual is equal to or greater than the following limits:

1. 3 mrem to the total body or 10 mrem to any organ from non-airborne radionuclides.

2. 15 mrem to any organ from airborne radionuclides or radioparticulates.

If the measured level of radioactivity is not a result of plant effluents, this report is not required; however, the condition shall be reported and described in the Annual Radiological Environmental Operating Report.

4.1.3 SURVEILLANCE REQUIREMENTS

4.1.3.1 The radiological environmental monitoring samples shall be collected pursuant to Table 4.1-1 from the locations defined in the ODCM and shall be analyzed pursuant to the requirements of Tables 4.1-1 and 4.1-3.

4.1.4 BASES

4.1.4.1 The radiological monitoring program required by this specification provides measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of individuals resulting from the station operation. This monitoring program thereby supplements the radiological effluent monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways.

4.2 LAND USE CENSUS

4.2.1 LIMITING CONDITION

4.2.1.1 A land use census shall be conducted and shall identify the location of the nearest milk animal, the nearest residence and the nearest garden* of greater than 500 square feet producing fresh leafy vegetables in each of the 16 meteorological sectors within a distance of five miles. (For each elevated release as defined in Regulatory Guide 1.111, March 1976, the land use census shall also identify the locations of all milk animals and all gardens of greater than 500 square feet producing fresh leafy vegetables in each of the 16 meteorological sectors within a distance of three miles.)

4.2.2 ACTION:

4.2.2.1 With a land use census identifying a location(s) which yields a calculated dose or dose commitment greater than the values currently being calculated but not projected in Surveillance Requirement 2.3.3.1, prepare and submit to the Commission, pursuant to Specification 6.9.2.d, the new location(s).

4.2.2.2 With a land use census identifying a location(s) which yields a calculated dose or dose commitment (via the same exposure pathway) greater than at a location from which samples are currently being obtained in accordance with Limiting Condition 4.1.1, prepare and submit to the Commission, pursuant to Specification 6.9.2.d, the new location. The new location shall be added to the radiological environmental monitoring program within 30 days, if possible. The sampling location having the lowest calculated dose or dose commitment (via the same exposure pathway) may be deleted from this monitoring program after October 31 of the year in which this land use census was conducted.

4.2.3 SURVEILLANCE REQUIREMENTS

4.2.3.1 The land use census shall be conducted at least once per 12 months between the dates of June 1 and October 1, by door-to-door survey, aerial survey, or by consulting local agriculture authorities.

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*Broad leaf vegetation sampling may be performed at the site boundary in the direction sector with the highest D/Q in lieu of the garden census.

4.2.4 BASES

4.2.4.1 This specification is provided to ensure that changes in the use of unrestricted areas are identified and that modifications to the monitoring program are made if required by the results of this census. This census satisfies the requirements of Section IV.B.3 of Appendix I to 10 CFR Part 50. Restricting the census to gardens of greater than 500 square feet provides assurance that significant exposure pathways via leafy vegetables will be identified and monitored since a garden of this size is the minimum required to produce the quantity (26 kg/year) of leafy vegetables assumed in Regulatory Guide 1.109, Revision 1 for consumption by a child. To determine this minimum garden size, the following assumptions were used: 1) that 20% of the garden was used for growing broad leaf vegetation (i.e., similar to lettuce and cabbage), and 2) a vegetation yield of 2 kg/square meter.

TABLE 4.1-1

ROBINSON RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Minimum Number of Sample Stations	Sampling and Collection Frequency**	Type and Frequency** of Analysis
1. AIRBORNE a. Radioiodine and Particulates	5	Continuous operation of sampler with sample collection as required by dust loading but at least once per 7 days.	Radioiodine canister. Analyze at least once per 7 days for I-131. Particulate sampler. Analyze for gross beta radioactivity ≥24 hours following filter change. Perform gamma isotopic analysis on each sample when gross beta activity is >10 times the mean of control sample. Perform gamma isotopic analysis on composite (by location) sample at least once per 92 days.
2. DIRECT RADIATION	5 ≥ 2 dosimeters or ≥ 1 instrument for continuously measuring and recording dose rate at each location. (each TLD chip is considered a dosimeter)	At least once per 31 days.	Gamma dose. At least once per 31 days.

** As per Table 1.14-1 of Appendix A to the License

TABLE 4.1-1 (Continued)

ROBINSON RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Minimum Number of Sample Stations	Sampling and Collection Frequency**	Type and Frequency** of Analysis
3. WATERBORNE a. Surface	2	Sample collected over a period of ≤ 31 days.	Gamma isotopic analysis of each composite sample by location. Tritium analysis of composite sample at least once per 92 days.
b. Ground	2	At least once per 92 days.	Gamma isotopic and tritium analyses of each sample.
c. Sediment from Shoreline	1	At least once per 184 days.	Gamma isotopic analysis of each sample.
4. INGESTION a. Milk	1	At least once per 31 days.	Gamma isotopic and I-131 analysis of each sample.
b. Fish	1	At least once per 184 days. One sample of each of the following: 1. Free Swimmers 2. Bottom Feeders	Gamma isotopic analysis on edible portions.

** As per Table 1.14-1 of Appendix A to the License

TABLE 4.1-1 (Continued)

ROBINSON RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Minimum Number of Sample Stations	Sampling and Collection Frequency**	Type and Frequency** of Analysis
c. Food Products	1	At time of harvest. Green Leafy vegetables	Gamma isotopic analysis on edible portion.
	1	At time of harvest. One sample of broad leaf vegetation.	I-131 analysis.

** As per Table 1.14-1

TABLE 4.1-2 NOTATIONS

a. The LLD will be calculated for the 95% confidence level according to the methods described in the ODCM.

The LLD will be based on the actual observed variance in the baseline for a particular detection system rather than on an unverified theoretically predicted variance. Ocassionally baseline fluctuations, unavoidably small sample sizes, the presence of interferring radionuclides, or other uncontrollable circumstances may render the LLD's specified throughout the technical specification unachievable.

In view of the above discussion, environmental analyses will be performed in such a manner that the LLD for each radionuclide specified in Table 4.1-2 will be achieved $\geq$ 95% of the time in each calendar year. When unusual circumstances result in exceeding the LLD for any radionuclide in Table 4.1-2 greater than 5% of the time in any calendar year, the reasons for exceeding the LLD(s) will be identified and discussed in the Annual Radiological Environmental Operating Report.

b. LLD for leafy vegetables.

TABLE 4.1-2

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

Analysis	Reporting Levels				
	Water (pCi/l)	Airborne Particulate or Gases (pCi/m^3)	Fish (pCi/Kg, wet)	Milk (pCi/l)	Food Products (pCi/Kg, wet)
H-3	3×10^4				
Mn-54	1×10^3		3×10^4		
Fe-59	4×10^2		1×10^4		
Co-58	1×10^3		3×10^4		
Co-60	3×10^2		1×10^4		
Zn-65	3×10^2		2×10^4		
Zr-Nb-95	4×10^2				
I-131	2	0.9		3	1×10^2
Cs-134	30	10	1×10^3	60	1×10^3
Cs-137	50	20	2×10^3	70	2×10^3
Ba-La-140	2×10^2			3×10^2	

TABLE 4.1-3

MAXIMUM VALUES FOR THE LOWER LIMITS OF DETECTION (LLD)[a]

Analysis	Water (pCi/l)	Airborne Particulate or Gas (pCi/m^3)	Fish (pCi/kg, wet)	Milk (pCi/l)	Food Products (pCi/kg, wet)	Sediment (pCi/kg, dry)
gross beta	4	1×10^{-2}				
^{3}H	2000					
^{54}Mn	15		130			
^{59}Fe	30		260			
$^{58,60}Co$	15		130			
^{65}Zn	30		260			
^{95}Zr-Nb	15					
^{131}I	1	7×10^{-2}		1	60[b]	
$^{134,137}Cs$	15,18	1×10^{-2}	130	15	80	150
^{140}Ba-La	15			15		