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RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS (RETS) IMPLEMENTATION - RANCHO SECO NUCLEAR GENERATING PLANT

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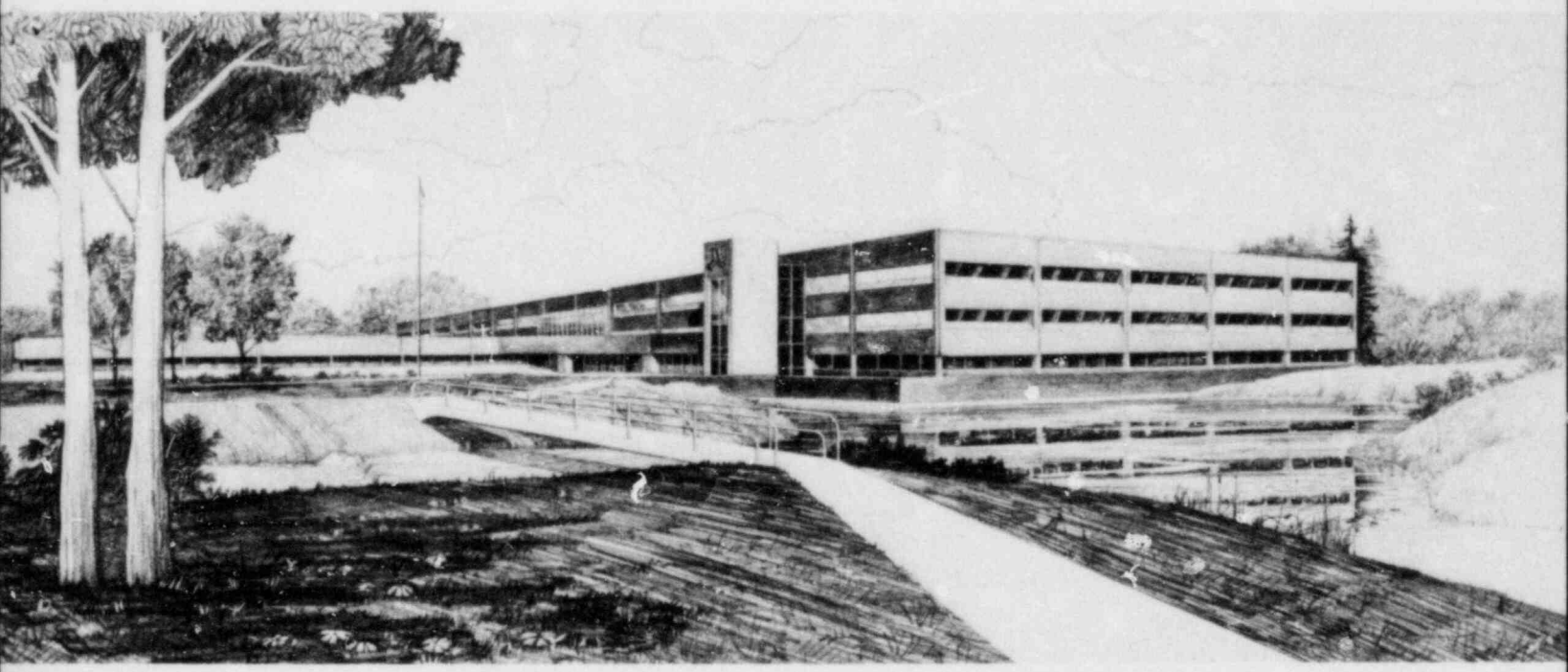

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INTERIM REPORT

FOREWORD

This Technical Evaluation Report was prepared by EG&G Idaho, Inc. under a contract with the U. S. Nuclear Regulatory Commission (Office of Nuclear Reactor Regulation, Division of Systems Integration) for technical assistance in support of NRC operating reactor licensing actions. The technical evaluation was conducted in accordance with criteria established by the NRC.

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1. INTRODUCTION

1.1 Purpose of the Technical Evaluation

The purpose of this technical evaluation report (TER) is to review and evaluate the proposed changes in the technical specifications of the Rancho Seco Nuclear Generating Plant with regard to Radiological Effluent Technical Specifications (RETS), the proposed new Offsite Dose Calculation Manual (ODCM), and the Process Control Program (PCP).

The evaluation used criteria proposed by the Nuclear Regulatory Commission (NRC) staff in the Model Technical Specifications for Pressurized Water Reactors (PWRs), NUREG-0472[1]. This effort is directed toward the NRC objective of implementing RETS which comply with the regulatory requirements including those of 10 CFR 50, Appendix I[2].

1.2 Generic Issue Background

Since 1970, 10 CFR 50.36a has required licensees to provide technical specifications which ensure that radioactive releases will be kept as low as reasonably achievable (ALARA). In 1975, numerical guidance for the ALARA requirement was issued in 10 CFR 50, Appendix I. The licensees of all operating reactors (ORs) were required[3] to submit, no later than June 4, 1976, their proposed ALARA Technical Specifications and information for evaluation in accordance with 10 CFR 50, Appendix I.

In February 1976, the NRC staff recommended that proposals to modify Technical Specifications be deferred until the NRC completed the model RETS. The model RETS deals with radioactive waste management systems and environmental monitoring. Although the model RETS closely parallel 10 CFR 50, Appendix I requirements, they include provisions for addressing some waste management system problems not addressed in Appendix I.

The current NRC position on the model RETS was established in May 1978 when the NRC's Regulatory Requirements Review Committee approved

the model RETS (NUREG-0472 for pressurized water reactors (PWRs) and NUREG-0473[4] for boiling water reactors (BWRs). Copies were sent to licensees in July 1978 with a request to submit proposed site-specific RETS on a staggered schedule over a 6-month period. Licensees responded with requests for clarifications and extensions.

The Atomic Industrial Forum (AIF) formed a task force to comment on the model RETS. NRC staff members first met with the AIF task force on June 17, 1978. The model RETS were subsequently revised to reflect comments from the AIF and others. A principal change was the transfer of much of the material concerning dose calculations from the model RETS to a separate document, the ODCM.

The revised model RETS was sent to licensees on November 15 and 16, 1978, with guidance (NUREG-0133[5]) for preparation of the RETS and the ODCM and a new schedule for responses, again staggered over a 6-month period.

Four regional seminars on the RETS were conducted by the NRC staff during November and December 1978. Subsequently, Revision 2 of the model RETS and additional guidance on the OCDM and a Process Control Program (PCP) were issued in February 1979 to each utility at individual meetings.

1.3 Plant-Specific Background

In conformance with the 1975 directive[2], Sacramento Municipal Utility District (SMUD), the Licensee of the Rancho Seco Nuclear Generating Plant submitted information for an "Appendix I Evaluation Report" dated June 4, 1976[6], which was followed by an "Appendix I Re-Analysis" dated November 29, 1976[7]. These submittals showed the capability for compliance with Appendix I, but did not propose new RETS.

The RETS were addressed in the next submittal by the Licensee[8] to the NRC, dated July 13, 1979. The submittal followed the format of

NUREG-0472 for PWR's. In addition, copies of the Offsite Dose Calculation Manual (ODCM) and the Process Control Program (PCP) dated May 1979 were submitted. EG&G Idaho, Inc., (EG&G), selected as an independent task review team, initiated a review and evaluation of the submittal. This submittal was compared with the model RETS and assessed for compliance with the requirements of 10CFR50, Appendix I, and the "General Design Criteria," 10CFR50, Appendix A.

Copies of the review comments of the effluent technical specifications and the ODCM were given to the NRC and the Licensee during the November 4, 5, 6, 1981, site visit to the Rancho Seco Nuclear Generating Plant. The site visit was prearranged for the purpose of resolving questions identified in the initial EG&G review.

During the site visit technical discussions, with the Licensee resolved many of the shortcomings of the Rancho Seco RETS (e.g., missing information and other deviations from the requirements) identified in the draft review.

In April, 1982, the Licensee's revised RETS proposal[9] was received for review by the NRC and subsequently by EG&G. Review comments of the second submittal were transmitted to the NRC by letter dated June 30, 1982[10]. On September 20, 1982, telephone conferences[11] took place between NRC, SMUD, and EG&G representatives to discuss EG&G's response to revised submittal. Follow-up telephone conferences October 1-4, 1982,[12] and October 8, 1982[13] between SMUD and EG&G representatives were held to finalize unresolved items from the September 20, 1982 conference call.

The final draft of the Rancho Seco Nuclear Generating Plant RETS is dated December 7, 1982. The submittal was reviewed and discussed with the NRC Lead Engineers. It was concluded that no open items remained. All items regarded as deviations from the intent of NRC requirements were resolved, allowing the review team to complete a TER for submittal to the NRC.

2. REVIEW CRITERIA

Review criteria for the RETS were provided by the NRC in three documents:

a. NUREG-0472, RETS for PWRs
b. NUREG-0473, RETS for BWRs
c. NUREG-0133, Preparation of RETS for Nuclear Power Plants.

Twelve essential criteria are given for the RETS and ODCM:

1. All significant releases of radioactivity shall be controlled and monitored.

2. Offsite concentrations of radioactivity shall not exceed the 10 CFR 20, Appendix B, Table 2 limits.

3. Offsite radiation doses shall be ALARA.

4. Equipment shall be maintained and used to keep offsite doses ALARA.

5. Radwaste tank inventories shall be limited so that failures would not cause offsite doses exceeding 10 CFR 20 limits.

6. Waste gas concentrations shall be controlled to prevent explosive mixtures.

7. Wastes shall be processed to shipping and burial ground criteria under a documented program, subject to quality assurance verification.

8. An environmental monitoring program, including a land-use census, shall be implemented.

9. The radwaste management program shall be subject to regular audits and reviews.

10. Procedures for control of liquid and gaseous effluents shall be maintained and followed.

11. Periodic and special reports on environmental monitoring and on releases shall be submitted.

12. Offsite dose calculations shall be performed using documented and approved methods consistent with NRC methodology.

Subsequent to issuing NUREG-0472 and NUREG-0473, the NRC staff issued guidelines[14,15] and branch positions[16,17,18] establishing a policy that requires the licensees of operating reactors to meet the intent, if not the letter, of the model RETS requirements. The NRC branch positions issued since the RETS implementation review began have changed the model RETS requirements applicable to operating reactors. These changes have been incorporated in all reviews.

Review of the Offsite Dose Calculation Manual (ODCM) was based on the guideline provided by the NRC staff in a branch position, "General Content of the Offsite Dose Calculation Manual"[19]. The format for the ODCM is left to the Licensee and may be simplified by tables and grid printouts.

During the November 1981 meeting the facility staff said the PCP reviewed would not be used and any solidification would be performed by an outside contractor. Commitments were included in the technical specifications that solidification would conform to an approved PCP. Consequently prior to commencing solidification, the PCP must be reviewed by the NRC.

3. CONCLUSIONS

It is concluded that the RETS and the ODCM are acceptable. The bases for this conclusion are summarized in Appendix A, the Draft Safety Evaluation Report. In Appendix B is a listing of items of the

model RETS with indications where the licensee has equivalent requirements or meets the "intent" of the model. Also, included is a list of the explanatory statements, cited where additional comment is required. The adequacy of the Licensees PCP is based upon NRC's approval of the waste solidification program.

4. REFERENCES

1. United States Nuclear Regulatory Commission, Radiological Effluent Technical Specifications for Pressurized Water Reactors, Rev. 2, NUREG-0472, Rev. 2, February 1, 1980.

2. United States Office of the Federal Register, Title 10, Code of Federal Regulations, Part 50, Appendix I, Federal Register, Vol. 40, page 19442, May 5, 1975. Ammended September 4, 1975. December 19, 1975, April 19, 1976, and April 18, 1977.

3. United States Office of the Federal Register, Title 10, Code of Federal Regulations, Part 50, Appendix I, Section VB, "Effective Date," for submittal of Technical Specifications.

4. United States Nuclear Regulatory Commission, Radiological Effluent Technical Specifications for Boiling Water Reactors, Rev. 2, NUREG-0473, July 1979.

5. United States Nuclear Regulatory Commission, Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants, NUREG-0133, October 1978.

6. "Appendix I Evaluation Report," Rancho Seco Nuclear Generating Station, June 4, 1976.

7. Letter, J. J. Mattimoe, Assistant General Manager and Chief Engineer Sacramento Municipal Utility District, to Mr. Robert W. Reid, Chief, Operating Reactors Branch #4, U. S. Nuclear Regulatory Commission, "Rancho Seco Nuclear Generating Station, Unit No. 1, Docket No. 50-312, 10 CFR Part 50, Appendix I Re-Analysis," November 29, 1976.

8. J. J. Mattimoe, Assistant General Manager and Chief Engineer, Sacramento Municipal Utility District, Proposed Amendment to No. 62. July 13, 1979.

9. Sacramento Municipal Utility District, Letter of Transmittal, Proposed Technical Specification Amendment No. 62, Revision 1, March 11, 1982.

10. S. W. Duce letter to Mr. M. Padovan, Draft of Review Document for the Rancho Seco RETS Submittal, SWD-2-82, June 30, 1982.

11. S. Miner (NRC), C. Willis (NRC), R. Colombo (SMUD), R. Miller (SMUD), S. W. Duce (EG&G), J. W. Mandler (EG&G), W. Serrano (EG&G), Telephone Conference, September 20, 1982.

12. R. Colombo (SMUD), R. Miller (SMUD), S. W. Duce (EG&G), Telephone Conference, October 1 and 4, 1982.

13. R. Miller (SMUD), R. Colombo (SMUD), and S. W. Duce (EG&G), Telephone Conference, October 8, 1982.

14. C. Willis and F. Congel, Status of NRC Radiological Effluent Technical Specification Activities, presented at the Atomic Industrial Forum Conference on NEPA and Nuclear Regulations, October 4-7, 1981.

15. C. Willis, memo to P. C. Wagner, Plan for Implementation RETS for Operating Reactors, November 4, 1981.

16. W. P. Gammill (NRC), memo to P. C. Wagner (NRC), Current Position on Radiological Effluent Technical Specifications (RETS) including Explosive Gas Controls, October 7, 1981.

17. United States Nuclear Regulatory Commission, Branch Technical Position, An Acceptable Radiological Environmental Monitoring Program, November 1979.

18. United States Nuclear Regulatory Commission, Methods for Demonstrating LWR Compliance with the EPA Uranium Fuel cycle Standard (40CRF190), NUREG-0543, February 1980.

19. United States Nuclear Regulatory Commission, Branch Technical Position, Radiological Assessment Branch, General Contents of the Offsite Dose Calculation Manual Revision 1, February 8, 1979.

APPENDIX A

DRAFT SAFETY EVALUATION REPORT

SAFETY EVALUATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. TO FACILITY OPERATING LICENSE NO. DPR-54

RANCHO SECO NUCLEAR GENERATING PLANT

SACRAMENTO MUNICIPAL UTILITY DISTRICT

DOCKET NO. 50-312

1.0 INTRODUCTION

To comply with Section V of Appendix I of 10 CFR 50, Sacramento Municipal Utility District has filed with the Commission plans and proposed technical specifications developed for the purpose of keeping releases of radioactive materials to unrestricted areas during normal operations, including expected operational occurrences, as low as is reasonably achievable. The Sacramento Municipal Utility District filed this information with the Commission by letter dated July 13, 1979 (revised March 11, 1982) which requested changes to the Technical Specifications appended to Facility Operating License No. DPR-54 for the Rancho Seco Nuclear Generating Plant. The proposed technical specifications update those portions of the technical specifications addressing radioactive waste management and make them consistent with the current staff positions as expressed in NUREG-0472. These revised technical specifications would reasonably assure compliance, in radioactive waste management, with the provisions of 10 CFR 50.36a, as supplemented by Appendix I to 10 CFR 50, with 10 CFR 20.105(c), 106(g), and 405(c); with 10 CFR 50, Appendix A, General Design Criteria 60, 63, and 64; and with 10 CFR 50, Appendix B.

2.0 BACKGROUND AND DISCUSSION

2.1 Regulations

10 CFR 50, "Domestic Licensing of Production and Utilization Facilities," Section 50.36a, "Technical Specifications on Effluents from Nuclear Power Reactors," provides that each Licensee authorizing operation

of a nuclear power reactor will include technical specifications that (1) require compliance with applicable provisions of Part 20.106, "Radioactivity in Effluents to Restricted Areas," (2) require that operating procedures developed for the control of effluents be established and followed, (3) require that equipment installed in the radioactive waste system be maintained and used, and (4) require the periodic submission of reports to the NRC specifying the quantity of each of the principal radionuclides released to unrestricted areas in liquid and gaseous effluents, any quantities of radioactive materials released that are significantly above design objectives, and such other information as may be required by the Commission to estimate maximum potential radiation dose to the public resulting from the effluent releases.

10 CFR 20, "Standards for Protection Against Radiation," Paragraphs 20.105(c), 20.106(g) and 20.405(c), require that nuclear power plant and other licensees comply with 40 CFR 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," and submit reports to the NRC when the 40 CFR 190 limits have been or may be exceeded.

10 CFR 50, Appendix A - General Design Criteria for Nuclear Power Plants, contains Criterion 60, Control of releases of radioactive materials to the environment, Criterion 63, Monitoring fuel and waste storage; and Criterion 64, Monitoring radioactivity releases. Criterion 60 requires that the nuclear power unit design include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during normal reactor operation including anticipated operational occurrences. Criterion 63 requires that appropriate systems be provided in radioactive waste systems and associated handling areas to detect conditions that may result in excessive radiation levels and to initiate appropriate safety actions. Criterion 64 requires that means be provided for monitoring effluent discharge paths and the plant environs for radioactivity that may be released from normal operations, including anticipated operational occurrences.

10 CFR 50 Appendix B, establishes quality assurance requirements for nuclear power plants.

10 CFR 50, Appendix I, Section IV, provides guides on technical specifications for limiting conditions for operation for light-water-cooled nuclear power reactors licensed under 10 CFR 50.

2.2 Standard Radiological Effluent Technical Specifications

NUREG-0472 provides standard radiological effluent technical specifications for pressurized water reactors which the staff finds acceptable. Further clarification of these acceptable methods is provided in NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants". NUREG-0133 describes methods found acceptable to the staff of the NRC for the calculation of certain key values required in the preparation of proposed radiological effluent technical specifications for light-water-cooled nuclear power plants. NUREG-0133 also provides guidance to licensees in preparing requests for changes to existing radiological effluent technical specifications for operating reactors. It also describes current staff positions on the methodology for estimating radiation exposure due to the release of radioactive materials in effluents and on the administrative control of radioactive waste treatment systems.

The above NUREG documents address all of the radiological effluent technical specifications needed to assure compliance with the guidance and requirements provided by the regulations previously cited. However, alternative approaches to the preparation of radiological effluent technical specifications and alternative radiological effluent technical specifications may be acceptable if the staff determines that the alternatives are in compliance with the regulations and with the intent of the regulatory guidance.

The standard radiological effluent technical specifications can be grouped under the following categories:

(1) Instrumentation

(2) Radioactive effluents

(3) Radiological environmental monitoring

(4) Design features

(5) Administrative controls

Each of the specifications under the first three categories are comprised of two parts: the limiting condition for operation and the surveillance requirements. The limiting condition for operation provides a statement of the limiting condition, the times when it is applicable, and the actions to be taken in the event that the limiting condition is not met.

In general, the specifications established to assure compliance with 10 CFR Part 20 standards provide, in the event the limiting conditions of operation are exceeded, that without delay conditions are restored to within the limiting conditions. In general, the specifications established to assure compliance with 10 CFR Part 50 provide, in the event the limiting conditions of operation are exceeded, that within specified times corrective actions are to be taken, alternative means of operation are to be employed, and certain reports are to be submitted to the NRC describing these conditions and actions.

The specifications concerning design features and administrative controls contain no limiting conditions of operation or surveillance requirements.

Table 1 indicates the standard radiological effluent technical specifications that are needed to assure compliance with the particular provisions of the regulations described in Section 1.0.

Table 1. Relation Between Provisions of the Regulations and the Standard Radiological Effluent Technical Specifications for Pressurized Water Reactors and Boiling Water Reactors

● Indicate the specifications that are needed to assure compliance with the identified provision of the regulations.

Provisions of Title 10 Code of Federal Regulations	Standard Radiological Effluent Technical Specifications: Instrumentation: Rad. Liquid Effl. Monitoring	Instrumentation: Rad. Gas. Effl. Monitoring	Radioactive Effluents: Liquid: Effluent Concentration	Liquid: Dose	Liquid: Radwaste Treatment	Liquid: Holdup Tanks	Gaseous: PWR/BWR: Dose Rate	Gaseous: PWR/BWR: Dose Noble Gases	Gaseous: PWR/BWR: Dose I-131, Trit., and Part.	Gaseous: PWR/BWR: Explosive Gas Mixture	Gaseous: PWR: Gaseous Radwaste Treatment	Gaseous: PWR: Gas Storage Tanks	Gaseous: BWR: Gaseous Radwaste Treatment	Gaseous: BWR: Ventilation Exhaust Treatment	Gaseous: BWR: Main Condenser	Gaseous: BWR: Mark I or II Containment	Solid Radioactive Waste: Total Dose	Rad. Envir. Monitoring: Rad. Env. Monitoring Program	Rad. Envir. Monitoring: Land Use Census	Rad. Envir. Monitoring: Interlab. Comparison Program	Design Features: Site Boundaries*	Administrative Control: Review and Audits	Administrative Control: Procedures	Administrative Control: Reports	Administrative Control: Record Retention	Administrative Control: Process Control Program	Administrative Control: Offsite Dose Calc. Manual	Administrative Control: Major Changes to Rad. Systems
§ 50.36a Technical specifications on effluents from nuclear power reactors																												
Remain within limits of § 20.106			●			●	●				●				●													
Establish and follow procedures to control effluents			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						●				●	
Maintain and use radioactive waste system equipment				●	●			●	●		●		●	●													●	
Submit reports, semi-annual and other	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●									●	●	●
§§ 20.105(c), 20.106(g), 20.405(c) Compliance with 40 CFR 190																	●	●	●	●							●	
Part 50 Appendix A - General Design Criteria																												
Criterion 60 - Control of releases of radioactive materials to the environment	●	●		●	●				●		●	●	●	●	●		●						●			●	●	
Criterion 61 - Fuel storage and handling and radioactivity control	●	●																										
Criterion 63 - Monitoring fuel and waste storage	●	●																										
Criterion 64 - Monitoring radioactivity releases	●	●													●			●									●	
Part 50 Appendix B - Quality Assurance Criteria	●	●																		●			●	●		●		
Part 50 Appendix I - Guides to Meet "As Low As Is Reasonably Achievable (ALARA)"																												
Maintain releases within design objectives			●	●			●	●			●		●														●	
Establish surveillance & monitoring program to provide data on:																												
(1) quantities of rad. matls. in effluents	●	●																										
(2) radiation & rad. matls. in the environment																		●						●	●			
(3) changes in use of unrestricted areas																			●									
Exert best efforts to keep releases "ALARA"			●	●			●	●			●		●	●														●
Submit report if calculated doses exceed the design objective			●				●	●			●		●												●			
Demonstrate conform. to des. obj. by calc. proced.			●				●	●			●		●														●	
Part 100															●													

*Note: Needed to fully implement other specifications.

3.0 EVALUATION

3.1 General Description of Radiological Effluent System

This section briefly describes the radwaste liquid and gaseous effluent treatment and control systems installed at the Rancho Seco plant.

3.1.1 Liquid Effluents

The water required for the operation of the Rancho Seco plant is recycled, with makeup water being taken from the Folsom South Canal. The only liquid discharge pathway of potentially contaminated water is via the regenerant holdup tank which normally receives water only from secondary side sources. In the event of a primary to secondary leak, this pathway would be the only way contaminated liquids would be released to the environment. See Figure 1. There are no direct connections from the radioactive liquid radwaste treatment systems to the environment. Excess liquids from these systems are solidified. Figure 2 shows a diagram of the liquid and solid radwaste systems for radioactive liquids.

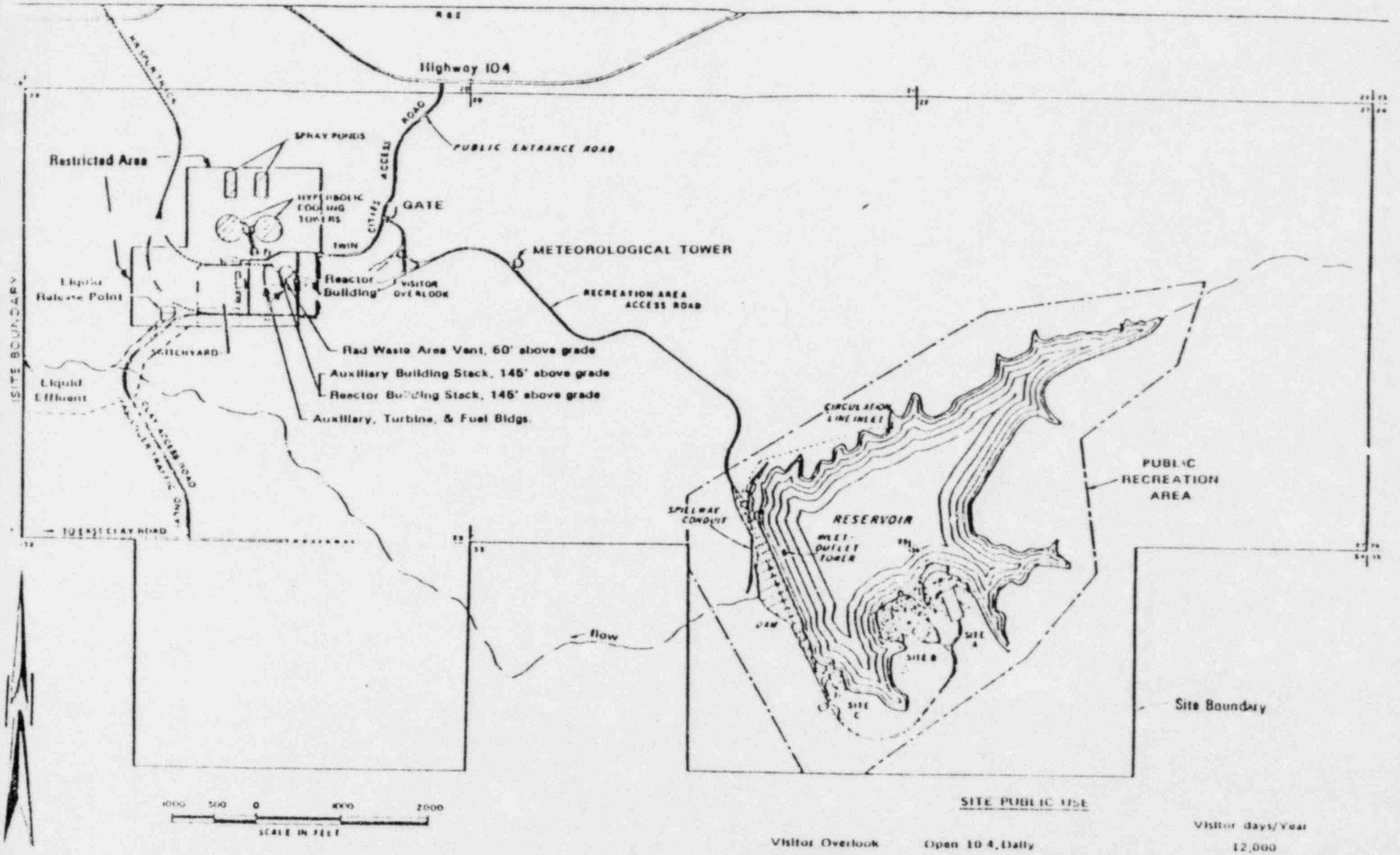
3.1.2 Gaseous Effluents

Building locations for the gaseous effluent discharge points are shown in Figure 1. The three radioactive gaseous effluent discharge pathways are shown in Figure 3 with the auxiliary building ventilation shown in more detail in Figure 4. The turbine building ventilation exhaust is not shown as this system is normally not a release point for radioactive material. The turbine level is open to the environment with the lower levels enclosed.

3.2 Radiological Effluent Technical Specifications (RETS)

The evaluation of the Licensee's proposed specifications against the requirements of Appendix I to 10 CFR 50 included the following: (1) a review of information provided in the Licensee's July 13, 1979

FIGURE 1
GENERAL LAYOUT OF SITE



SITE PUBLIC USE

		Visitor days/Year
Visitor Overlook	Open 10 A, Daily	12,000
Recreation Area	Open 7 AM to Dark, Daily	180,000

FIGURE 2

SCHEMATIC DIAGRAM OF LIQUID AND SOLID RADWASTE SYSTEM

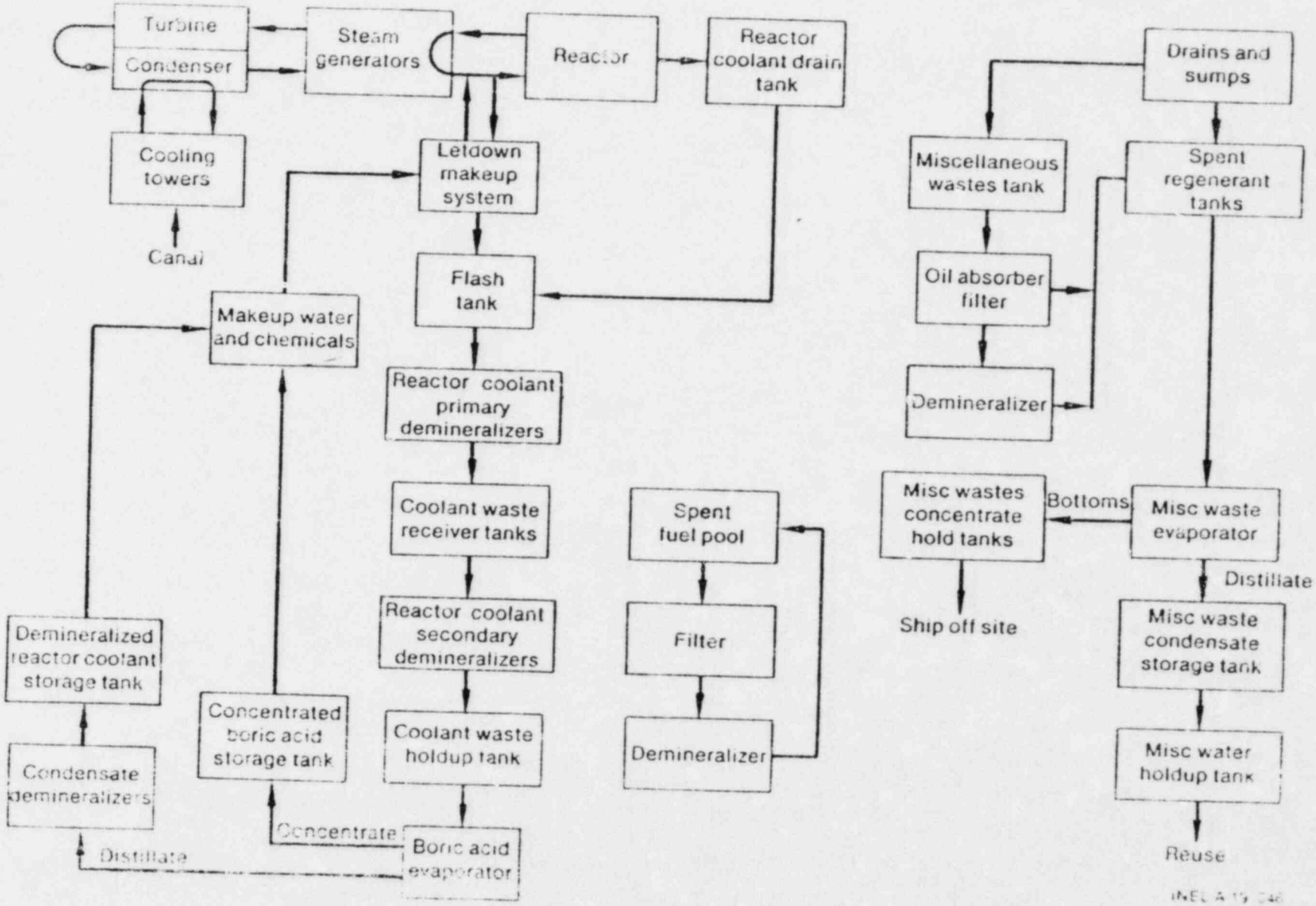


FIGURE 3

SCHEMATIC DIAGRAM OF GASEOUS RADWASTE SYSTEM

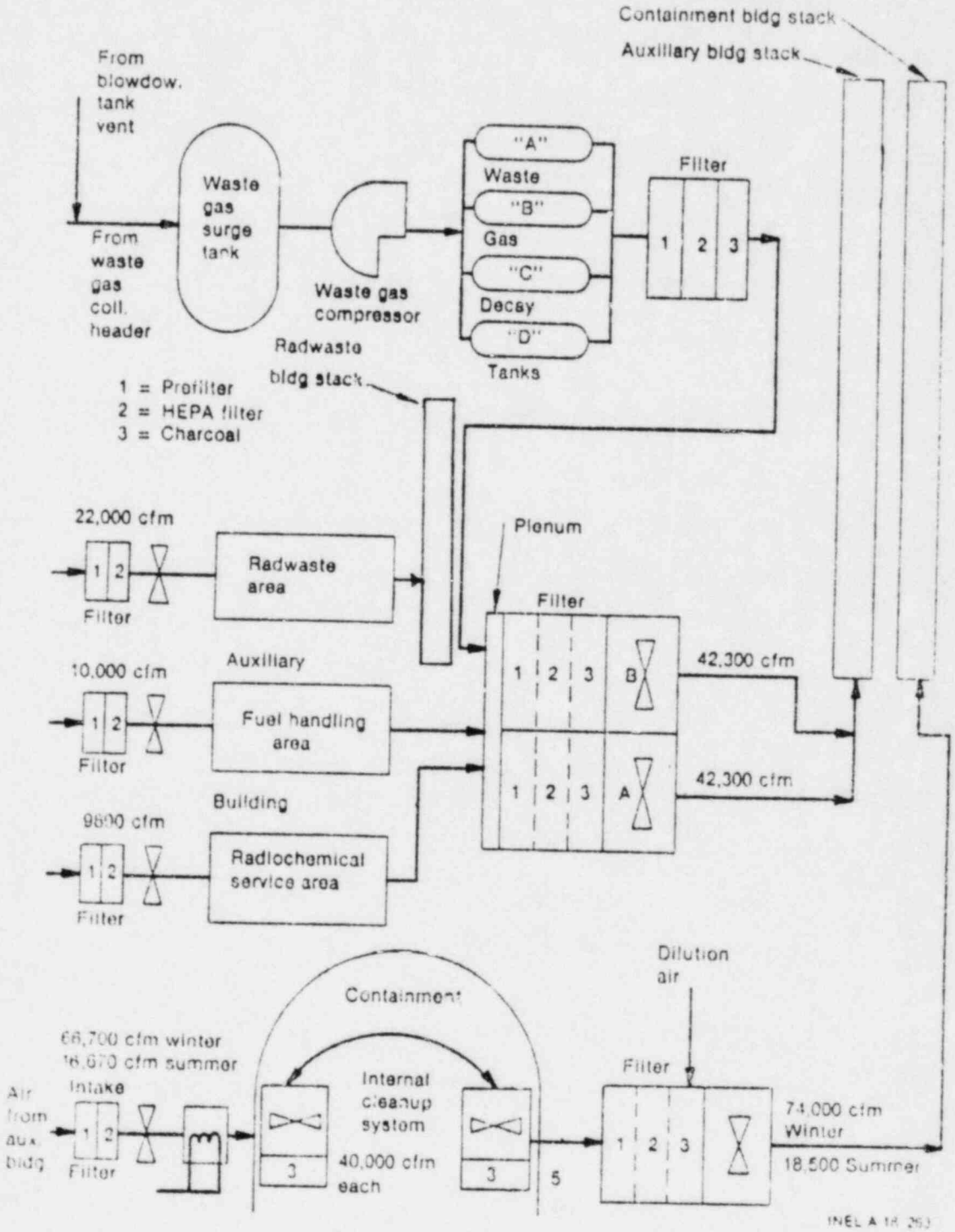
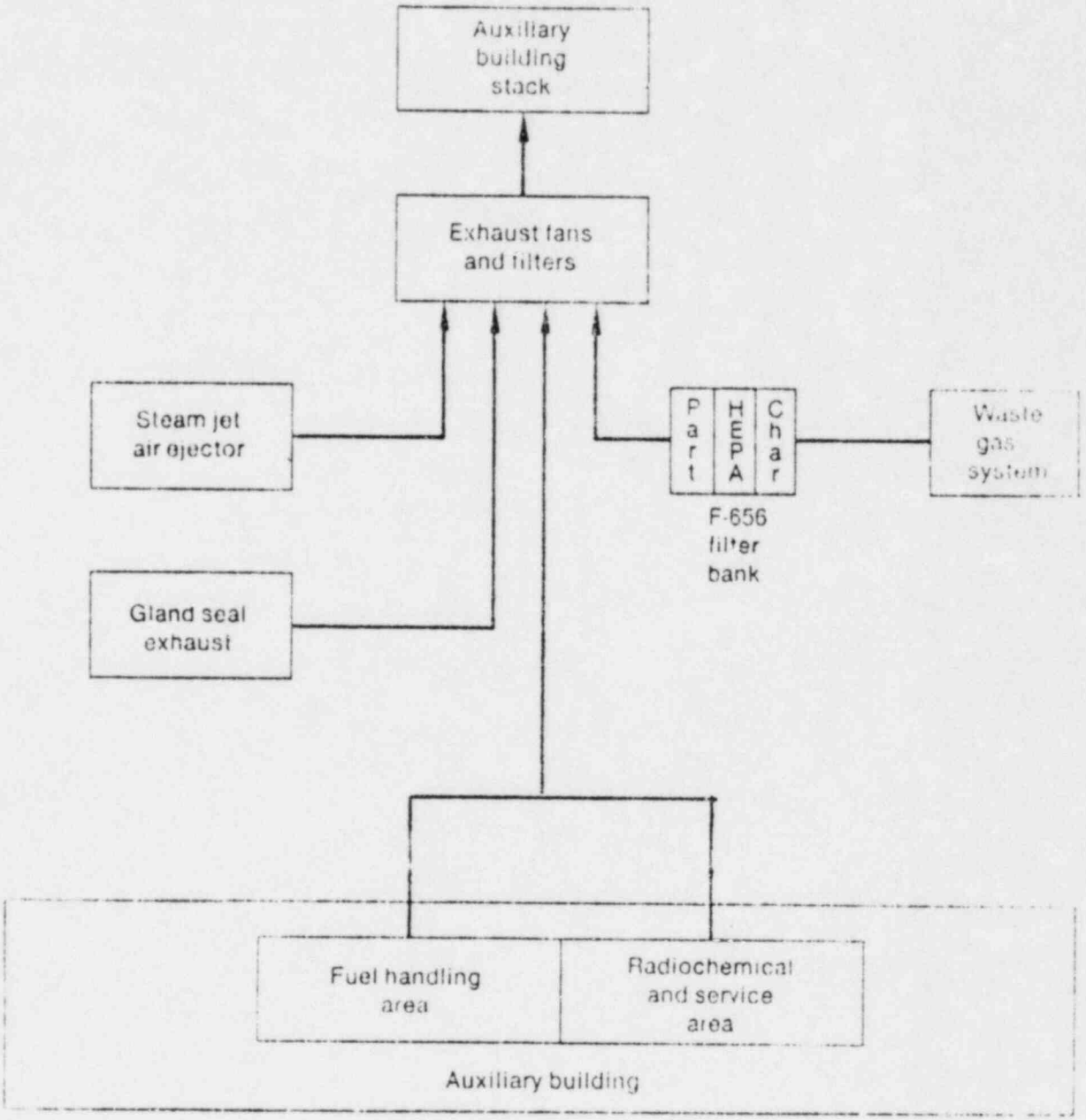


FIGURE 4

AUXILIARY BUILDING STACK VENTILATION SYSTEM



submittal[1,2], included were copies of the Offsite Dose Calculation Manual (ODCM) and the Process Control Program (PCP), (2) the resolution of problem areas in that submittal by means of a site visit [3], (3) a review of the Licensee's March 11, 1982 submittal [4], (4) telephone conferences on September 20, October 1, 4, and October 8, 1982[5,6,7] to discuss the review, and (5) review of the Licensee's revision.[8]. A conference call was then held on November 4, 1982 and November 30, 1982 with the EG&G review team to discuss deviations from the model requirements. All open questions were resolved and a technical evaluation report finalized for transmittal[9].

3.2.1 Effluent Instrumentation

The primary objective of the RETS with regard to effluent instrumentation is to ensure that all significant liquid and gaseous releases of radioactivity are monitored. The Licensee's information documents that the liquid effluent release point is monitored. Liquid radioactive wastes are normally solidified or stored on site. Normally only water from the regenerant holdup tank, which is the waste water from regeneration of demins on the secondary side, is released to the environment. This release point is monitored and will give automatic termination of the release if predetermined concentrations of radioactive material is detected. Rancho Seco uses once through steam generators. Therefore, they have no steam generator blowdown. Service water is not used to cool components on radioactive systems and therefore requires no monitoring instrumentation. The component cooling water system at Rancho Seco does not require monitoring as this is a closed system and cannot be released to the environment. Also service drains cannot be released to the environment.

Gaseous radioactive effluent releases from Rancho Seco are monitored and have alarm functions. All release points have provisions for automatic termination of release with the exception of the radwaste servce area vent. This building is not considered to have the potential for high level gaseous releases. Therefore, the automatic termination of release function is considered unnecessary. The functions of the waste gas processing system monitoring instrumentation are performed by the Auxiliary Building stack monitor. All other inplant systems, including the condenser air ejector,

are monitored at the effluent release points.

3.2.2 Concentration and Dose Rates of Effluents

The objective of the RETS with regard to concentration and dose rates of effluents is to ensure that offsite effluent concentrations do not exceed the maximum permissible concentrations (MPC's) established by 10 CFR 20, Appendix B, Table II, Columns 1 and 2. The Licensee has stated that the concentration of radioactive material will be monitored "at all times," or "during releases" for batch releases. The setpoints of the monitors at each release point are pre-established to prevent exceeding the release concentrations or corresponding dose rates of 10 CFR 20 in unrestricted areas. The concentration of liquid effluents and the dose rate due to gaseous effluents will be determined in accordance with the ODCM.

The liquid effluent release pathway is the Regenerant Holdup Tank line. This effluent line has all the sampling and analysis, and instrumentation requirements as a liquid radwaste effluent line. Adequate assurance is therefore present that the 10 CFR 20 objectives will not be exceeded and any releases will be monitored.

The gaseous monitoring systems, with the exception of the radwaste building which has an alarm function only, are equipped with automatic termination of effluents. Should concentrations be found to exceed the MPC specified in 10 CFR 20, based on monitoring setpoint values, release rates will immediately be decreased. The Lower Limit of Detection (LLD) for noble gas monitors at Rancho Seco is specified as 10^{-4} μCi/ml as Xe-133 equivalent. This is considered acceptable as existing instrumentation is unable to meet the LLD listed in the model RETS (i.e., 10^{-6} μCi/ml.).

The concentration of radioactive materials in releases will be determined as required by the model RETS. Sampling requirements for startups, shutdowns, and 15% power changes are worded more conservatively

by the facility. The facility staff chooses a 10 Ci/ml increase for clarity to the chemistry section in their technical specifications.

3.2.3 Offsite Doses From Effluents

The objective of the RETS with regard to offsite doses from effluents is to ensure that offsite doses are kept As Low As Reasonably Achievable (ALARA), are kept to a small fraction of the 10 CFR 20 limits, and are in accordance with 10 CFR 50, Appendix I. The Licensee has committed to meet the quarterly and yearly dose criteria for liquid effluents, and to use the ODCM methodology for determining the cumulative gaseous dose to individuals, thus meeting the intent of NUREG-0472. The Licensee has committed to maintain the air doses in unrestricted areas, for noble gases, to those specified in Secion 3.11.2.2 of the model RETS. The Licensee has also made a commitment to maintain the dose to an individual from release of Iodine-131, tritium and radioactive particulates with half lives greater than eight days at the values listed in Section 3.11.2.3 of the model RETS, thus satisfying the intent of NUREG-0472.

3.2.4 Effluent Treatment

The objectives of the RETS with regard to effluent treatment are to ensure that wastes are treated to keep releases ALARA and to satisfy the requirement for technical specifications governing the maintenance and use of radwaste treatment equipment. Technical specifications for liquid radwaste treatment are not required as no pathways exist for release to the environs from the liquid radwaste treatment systems. The Licensee has committed to use the gaseous radwaste treatment system when the projected doses averaged over 31 days exceed 25% of the annual dose design objectives prorated monthly. This meets the intent of 10 CFR 50, Appendix I, Section II.D. The Licensee has also committed that the gaseous radwaste system components shall be operable when required to process waste. Also, a commitment has been made to make necessary dose projections in accordance with the ODCM, at least once per month. Therefore, the Licensee has met the intent of NUREG-0472.

3.2.5 Tank Inventory Limits

The objective of the RETS with regard to tank inventory limits is to ensure that the rupture of a radwaste tank would not cause offsite doses greater than the limits set in 10 CFR 20 for non-occupational exposure. The Licensee has put a curie limit on all temporary outside liquid tanks that are not diked and has committed to surveillance in accordance with NUREG-0472. For liquid holdup tanks, this limit (i.e., $\leq$ 10 curies) excludes tritium and dissolved or entrained noble gases. For waste gas storage tanks which are in constant use, a limit of 135,800 curies for noble gases has been set. Surveillance to determine gas storage tank inventory will be done via daily grab samples when the primary coolant exceeds $43/\overline{E}$, for greater than thirty minute half-life radionuclides. This reactor coolant activity would result in storing a small fraction of the total curie limit for noble gases in any waste gas decay tank, initiating sampling in a timely fashion. This is considered an acceptable surveillance method for determining that an unplanned release from a waste gas decay tank could not exceed effluent release limits.

3.2.6 Explosive Gas Mixtures

The objective of the RETS with regard to explosive gas mixtures is to prevent hydrogen explosions in the waste gas treatment system. The Licensee has committed to maintain a safe concentration of oxygen in this system as hydrogen is present in excess. The oxygen concentration will be maintained at $\leq$ 4%. If the concentration increases above this limit addition of waste gases will be halted and the concentration will be reduced to the acceptable limit with 48 hours. The Licensee will maintain constant monitoring of O_2 in the waste gas hold-up system. The system will be in use only during system operation, which is adequate. The requirements of a non-explosion proof system (Section 3.11.2.5.B of the model RETS) are being met.

3.2.7 Solid Radwaste System

The objective of the RETS with regard to the solid radwaste system is to ensure that radwaste will be properly processed and packaged before it is shipped to the burial site. The Licensee has committed to use the methods prescribed in the process control program (PCP) to ensure that the requirements of 10 CFR 20 and 10 CFR 71 are met prior to shipment of radwaste from the site. The plant will use the Chem-Nuclear waste solidification system.

3.2.8 Environmental Monitoring

The objectives of the RETS with regard to environmental monitoring are to ensure that an adequate and full-area-coverage environmental monitoring program exists and that the 10 CFR 50, Appendix I requirements for technical specifications on environmental monitoring are satisfied. The Licensee has explicitly followed NUREG-0472, where applicable, including the Branch Position statement dated November, 1979. The Licensee's methods of analysis and maintaining yearly records satisfy the requirements and meet the intent of 10 CFR 50, Appendix I. The specification for the land-use census satisfies the requirements of Section 3.12.2 of NUREG-0472 by providing for the census once a year in the areas specified. The specification for interlaboratory comparison satisfies the requirement of Section 3.12.3 of NUREG-0472 by stating they will participate in an NRC approved program.

3.2.9 Audits and Reviews

The objective of the RETS with regard to audits and reviews is to ensure that audits and reviews of the radwaste and environmental monitoring programs are properly conducted. The Licensee's administrative structure designates the Plant Review Committee (PRC) and the Management Safety Review Committee (MSRC) as the two groups responsible for the review and audit of the radiological environmental monitoring program, the ODCM, and the PCP. The MSRC is responsible for auditing those three programs and a Quality Assurance (QA) program, with the frequency of review to be

equal to or greater than that required by NUREG-0472. The PRC is responsible for reviewing every unplanned release of radioactive material; the review is to include an event description, remedial action to prevent recurrence, and corrective action. The PRC also reviews any changes in the ODCM and the PCP.

3.2.10 Procedures

The objective of the RETS with regard to procedures is to establish a requirement for implementing the ODCM, the PCP, and the QA program. The Licensee has committed to establish, implement, and maintain written procedures for the PCP, ODCM, and QA program.

3.2.11 Reports

The objective of the RETS with regard to reports is to ensure that appropriate periodic and special reports are submitted to the NRC, and that these reports meet the requirements of 10 CFR 50.36a. The Licensee has made commitments to issue annual and semi-annual reports as required under Sections 6.9.1.12, and 6.9.1.9, respectively, of NUREG-0472.

3.3 Offsite Dose Calculation Manual (ODCM)

A brief discussion of the methodology and approach used by the Licensee to calculate offsite dose and to maintain the operability of the effluent system is provided in this section. The methodology used by the Licensee is evaluated for consistency against the methodology and guidelines set by the NRC staff. As a minimum, it is required that the ODCM provide equations and methodology for the following topics:

- alarm and trip setpoint on effluent instrumentation
- liquid effluent concentration in unrestricted areas
- gaseous effluent dose rate at or beyond the site boundary

- liquid and gaseous effluent dose contributions
- liquid and gaseous effluent dose projections
- description and location of samples for the environmental monitoring program

In addition, it has been suggested, but not required, that flow diagrams defining the treatment paths and the components of the radioactive liquid, gaseous, and solid waste management systems be included and reviewed for consistency against the system being used at the station. Ranch Seco has not provided diagrams of the radwaste treatment systems. A description and location of samples in support of the environmental monitoring program has been provided in the ODCM.

3.3.1 Evaluation

The Licensee has followed the methodology of NUREG-0133 and Reg. Guide 1.109 to determine the alarm and trip setpoints for the liquid and gaseous effluent monitors. A conservative factor is used for the setpoints, which ensures that maximum permissible concentration (MPC) will not be exceeded.

The dose rate at or beyond the site boundary due to gaseous effluent release is in compliance with 10 CFR 20. Gaseous effluents are released from three release points for which conservative values of relative concentation and relative deposition for the average atmospheric dispersion conditions are used by the Licensee.

The dose evaluation of pathways associated with the release of radioactive material in liquid effluents is stated to be in compliance with 10 CFR 50. The dose contributions are calculated once per 31 days for all applicable pathways.

Evaluation of noble gases released to the atmosphere include both beta and gamma air doses at the off-site location with the highest long

term vent X/Q. The critical location is based on the external air dose pathway only.

For radioiodine, tritium, and particulates, the Licensee has stated that the method used in the ODCM for calculating releases to unrestricted areas will meet the design objective values of maintaining an annual dose or dose commitment not to exceed 15 mrem to any organ of the maximum exposed individual. The Licensee has shown the methods of calculating the dose using X/Q and D/Q values for all appropriate pathways.

The Licensee has committed to performing dose projections for gaseous effluent releases once every 31 days to determine the use of appropriate portions of the radwaste system except where systems are in operation at all times.

The Licensee has provided a complete description of sample locations in the ODCM Figs. 5.1-1 through 5.1-3 and Table 5.1-1. This description is consistent with the sampling locations specified in the Licensee's RETS. Table 5.1-1 in the Licensee's ODCM tabulates the site number identification, sector location, distance from station center, and sample point description. Table 5.1-1 covers all of the Licensee's committed sampling exposure pathways in accordance with Table 3.12-1, RETS Environmental Monitoring Program.

3.4 Summary of Technical Evaluation

Table 1 contains a correspondence of major sections of NUREG-0472, the current technical specifications, and the Licensee's proposal. The Licensee's proposal was evaluated and the following conclusions were reached:

1. The Licensee's proposed RETS meets the intent of the NRC staff's current standard, "Radiological Effluent Technical Specifications," NUREG-0472, Rev. 2, February 1, 1980.

2. The Licensee's Offsite Dose Calculation Manual (ODCM) uses documented and approved methods that are consistent with the NRC's methodology in NUREG-0133. The ODCM is also consistent with the Technical Specifications.

3. The Licensee will submitt a Process Control Program (PCP) at a future date to be reviewed prior to implementing. This is consistent with the Licensee's current proposed technical specifications.

TABLE 1. CORRESPONDENCE OF PROVISIONS OF NUREG-0472 THE CURRENT TECHNICAL SPECIFICATIONS AND THE LICENSEE'S PROPOSAL

RETS Requirement	NUREG-0472 (Section)	Current Technical Specifications (Section)*	Licensee Proposal (Section)
Effluent Instrumentation	3.3.3.9 3.3.3.10	2.6.1.D&E, 2.6.2.D-F 2.6.3.D, 2.6.4.B-E	3.19 & 4.19 3.20 & 4.20
Concentrations	3.11.1.1 3.11.2.1	2.6.1.A, 2.6.2.B&C 2.6.3.A	3.21.1 & 4.21.1 3.22.1 & 4.22.1
Offsite Doses	3.11.1.2 3.11.2.2 3.11.2.3 3.11.4	2.6.1.B&C 2.6.3.B 2.6.3.B	3.21.2 & 4.21.2 3.22.2 & 4.22.2 3.22.3 & 4.22.3 3.29 & 4.29
Effluent Treatment	3.11.1.3 3.11.2.4	2.6.1.F ---	--- 3.23 & 4.23
Tank Inventory Limits	3.11.1.4 3.11.2.6	2.6.1.G 2.6.3.E	3.21.3 & 4.21.3 3.24 & 4.24
Explosive Gas Mixtures	3.11.2.5	---	3.28 & 4.28
Solid Radwaste	3.11.3	2.6.5	3.25 & 4.25
Environmental Monitoring	3.12.1	4.0	3.26 & 4.26
Audit and Review	6.5.1 6.5.2	5.3.A 5.3.B	6.5.1.6 6.5.2.7
Procedures	6.8	5.5	6.8
Reports	6.9.1.6 6.9.1.8&9	5.6.1.A 5.6.1.B	6.9.2 6.9.3

* Being Revised or Deleted

3.5 Conclusions

The proposed changes to the radiological effluent technical specifications for the Rancho Seco Nuclear Generating Station have been found to be in compliance with the express requirements of the NRC regulations or with the intent of NUREG-0133 and NUREG-0472 (Rancho Seco is a single pressurized water reactor) and thereby fulfill all the requirements of the regulations related to radiological effluent technical specifications.

The proposed changes will not remove or relax any existing requirement related to the probability or consequences of accidents previously considered and do not involve a significant hazards consideration.

The proposed changes will not remove or relax any existing requirement needed to provide reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner.

4.0 ENVIRONMENTAL CONSIDERATION

We have determined that issuance of the proposed amendments to the Technical Specifications appended to Facility Operating License No. DPR-312 for Rancho Seco would not authorize a significant change in the types or a significant increase in the amounts of effluents or in the authorized power level, and that the amendment will not result in any significant environmental impact. Having made these determinations, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR 50.5(d)(4), that an environmental impact statement, negative declaration, or environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

5.0 CONCLUSION

We have concluded, based on the considerations discussed above,

(1) because the amendment will not involve a significant increase in the probability or consequences of accidents previously considered and will not involve a significant decrease in a safety margin, the amendment will not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (3) such activities will be conducted in the proposed manner, and in compliance with the Commission's regulations, and (4) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 REFERENCES

1. Sacramento Municipal Utility District, Letter of Transmittal, Rancho Seco.

2. F. B. Simpson, Letter of Transmittal, Transmittal of RETS Criteria and Rancho Seco RETS - SIM-27-81, October 21, 1981.

3. Rancno Seco Plant Visit, Review of Rancho Seco Radiological Effluent Technical Specifications, November 4-6, 1981.

4. Sacramento Municipal Utility District, Letter of Transmittal, Proposed Technical Specification Amendment No. 62, Revision 1, March 11, 1982.

5. S. Miner (NRC), C. A. Willis (NRC), R. Colombo (SMUD), R. Miller (SMUD), S. W. Duce (EG&G), J. W. Mandler (EG&G), W. Serrano (EG&G), Telephone Conference, September 20, 1982.

6. R. Colombo (SMUD), R. Miller (SMUD), S. W. Duce (EG&G), Telephone Conference, October 1 and 4, 1982.

7. R. Colombo (SMUD), R. Miller (SMUD), S. W. Duce (EG&G), Telephone Conference, October 8, 1982.

8. J. J. Matimoe, General Manager, Sacramento Municipal Utility District, to S. Miner, Project Manager, November 1982.

9. B. F. Saffell, Letter of Transmittal, Rancho Seco Nuclear Generating Plant - Technical Evaluation Report, Saff-24-83, January 24, 1983.

APPENDIX B

EVALUATION OF PROPOSED
RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS
(RETS)

EVALUATION OF PROPOSED
RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS
(RETS)

1.0 INTRODUCTION

This appendix contains a comparison of the model technical specifications (NUREG 0472) and the Licensee's proposal with explanatory statements where further comment is required. Table 1 consists of a direct comparison of the numbered sections of the model RETS and the Licensee proposal. Those sections, where the Licensee has either equivalent requirements or where the "intent" of the model is met, are identified. The explanatory statements referenced in Table 1 are listed in Table 2.

TABLE 1. COMPARISON OF STANDARD TECHNICAL SPECIFICATIONS (NUREG-0472) AND PROPOSED TECHNICAL SPECIFICATIONS FOR RANCHO SECO

NUREG-0472	Rancho Seco	Equivalent Requirement	Meet the Intent	Explanatory Statement
1.9	1.5.4	X	---	
1.10	1.5.3	X	---	
1.11	1.5.2	---	X	1
1.19	1.18	X	---	
1.29	1.5.7	X	---	
1.30	1.13	X	---	
1.31	1.14	X	---	
1.32	1.15	X	---	
1.33	---	---	X	2
1.34	---	---	X	2
1.35	---	---	X	2
1.36	---	---	X	2
1.7	1.19	X	---	
Table 1.2	1.9.1-1.9.13	X	---	
3.3.3.9	3.19	---	X	3
Action a	Action a	X	---	
Action b	Action b	X	---	
Action c	---	---	X	4
4.3.3.9	4.19	X	---	
Table 3.3-12	Table 3.19-1			
1a	1a	X	---	
1b,1c,2a,2b, 3a,3b,4c	---	---	X	5
4a	2a	X	---	
4b	2b	X	---	
5	---	---	X	6
6	---	---	X	7
Action 28	1a Action	X	---	

TABLE 1. (Continued)

NUREG-0472	Rancho Seco	Equivalent Requirement	Meet the Intent	Explanatory Statement
Action 29 & 30	---	---	X	5
Action 31	2 Action	X	---	
Action 32		---	X	7
Action 33 & 34	---	---	X	
Table 4.3-12	Table 4.19-1			
1a	1a	X		8
1b,1c,2a,2b, 3a,3b,4c	---	---	X	5
4a	---	---	X	9
4b	2a	---	X	10
5	---	---	X	6
6	---	---	X	7
Notation 1	Notation 3	X	---	
Notation 2	---	---	---	11
Notation 3	Notation 2	X	---	
Notation 4	Notation 4	X	---	
3.3.3.10	3.20	---	X	3
Action a	Action a	X	---	
Action b	Action b	X	---	
Action c	---	---	X	4
4.3.3.10	4.20	X	---	
Table 3.3-13	Table 3.20-1			
1a-e	2a-f	---	X	12
	Table 4.28-1			
2b	---	---	X	13
	Table 3.20-1			
3	2a-e	---	X	12
4	---	---	X	14
5a	1a	X	---	
5b	1b	X	---	

TABLE 1. (Continued)

NUREG-0472	Rancho Seco	Equivalent Requirement	Meet the Intent	Explanatory Statement
5c	1c	X	---	
5d	1d	X	---	
5e	1e	X	---	
6a	2a	X	---	
6b	2b	X	---	
6c	2c	X	---	
6d	2d	X	---	
6e	2e	X	---	
7a-e	2a-e	---	X	15
8a	3a	X	---	
8b	3b	X	---	
8c	3c	X	---	
8d	3d	X	---	
8e	3e	X	---	
9a-e	---	---	X	16
Action 35	Action 2f	X	---	
Action 36	Action d for 1, 2, & 3	---	X	17
Action 36	Action e for 1, 2, & 3	X	---	
Action 37	Action 2a & 3a	X	---	
Action 38	Action 1a	---	X	18
Action 39 & 40	---	---	X	13
Action 41	b&c for 1, 2, & 3	X	---	
Table 4.3-13	Table 4.20-1			
1a-e	---	---	X	12
2a & b	---	---	X	19
2c	Table 4.28-1	X	---	
3a-e	---	---	X	12
4a-e	---	---	X	14
	Table 4.20-1			

TABLE 1. (Continued)

NUREG-0472	Rancho Seco	Equivalent Requirement	Meet the Intent	Explanatory Statement
5a	1a	---	X	20
5b	1b	X	---	
5c	1c	X	---	22
5d	1d	---	X	21 & 23
5e	1e	---	X	21 & 23
6a	2a	X	---	24
6b	2b	X	---	
6c	2c	X	---	22
6d	2d	---	X	21 & 23
6e	2e	---	X	21 & 23
7a-e	---	---	X	15
8a	3a	X	---	
8b	3b	X	---	
8c	3c	X	---	22
8d	3d	---	X	21 & 23
8e	3e	---	X	21 & 23
9a-e	---	---	X	16
Notation 1-2	Notation 3-1	X	---	
Notation 3	2	X	---	
Notation 4	---	---	X	19
Notation 5	Table 4.28-1 Notation	---	X	25
3.11.1.1	3.21.1	X	---	
3.11.1.1 Action	3.21.1 Action	X	---	
4.11.1.1.1	4.21.1	X	---	
4.11.1.1.2	4.21.1	X	---	
4.11.1.1.3	4.21.1	---	X	26
Table 4.11-1 A	Table 4.21-1	---	X	27
Table 4.11-1 B	---	---	X	26
Notation a	Notation a	X	---	28

TABLE 1. (Continued)

NUREG-0472	Rancho Seco	Equivalent Requirement	Meet the Intent	Explanatory Statement
Notation b	d	X	---	
c,e	---	---	X	26
d	b	X	---	
f	c & Tbl 4.21-1	X	---	
3.11.1.2 a & b	3.21.2 a & b	X	---	
Action a	Action a	X	---	39
Action b	---	---	X	4
4.11.1.2	4.21.2	X	---	
3.11.1.3	---	---	X	29
3.11.1.4	3.21.3	X	---	
Action a	Action	X	---	
Action b	---	---	X	4
4.11.1.4	4.21.3	X	---	
3.11.2.1a	3.22.1a	X	---	
3.11.2.1b	3.22.1b	X	---	
3.11.2.1	3.22.1	X	---	
Action	Action			
4.11.2.1.1	4.22.1	X	---	
4.11.2.1.2	4.22.1	X	---	
Table 4.11-2	Table 4.22-1			
A	A	X	---	
B	B	X	---	18
C	C	---	X	30
D	D	---	X	31
Notation a	a	X	---	28
b	b	---	X	32 & 18
c	e	X	---	
d	d	---	X	32
e	c	---	X	33
f	---	---	X	34
g	f	X	---	

TABLE 1. (Continued)

NUREG-0472	Rancho Seco	Equivalent Requirement	Meet the Intent	Explanatory Statement
3.11.2.2a	3.22.2a	X	---	
3.11.2.2b	3.22.2b	X	---	
Action a	Action a	X	---	
Action b	---	---	X	4
4.11.2.2	4.22.2	X	---	
3.11.2.3a	3.22.3a	X	---	
3.11.2.3b	3.22.3b	X	---	
Action a	Action	X	---	
Action b	---	---	X	4
4.11.2.3	4.22.3	X	---	
3.11.2.4	3.23	X	---	
Action a	Action a	X	---	
Action b	---	---	X	4
4.11.2.4.1	4.23	X	---	
3.11.2.5B	3.28	---	X	35
Action a	Action	---	X	35
Action b	Action	---	X	35
Action c	---	---	X	4
4.11.25	4.28	---	X	36
3.11.2.6	3.24	X	---	
Action a	Action	---	X	37
Action b	---	---	X	4
4.11.2.6	4.24	---	X	37
3.11.3	3.25	X	---	
Action a	Action a	X	---	
Action b	---	---	X	4
4.11.3.1a	4.25a	X	---	
4.11.3.1b	4.25b	X	---	
3.11.4	3.29	X	---	
Action a	Action	X	---	
Action b	---	---	X	4

TABLE 1. (Continued)

NUREG-0472	Rancho Seco	Equivalent Requirement	Meet the Intent	Explanatory Statement
4.11.4	4.29	X	---	
3.12.1	3.26	X	---	
Action a	Action a	X	---	
b	b	X	---	
c	c	X	---	
d	---	---	X	4
4.12.1	4.26	X	---	
Table 3.12-1	Table 3.26-1			
1		X	---	
2	2	X	---	
3a	3a & 3b	---	X	38
3c	---	---	X	39
3d	3e	---	X	38
4a	4a	X	---	
4b	4b	---	X	40
4c	4c	---	X	40
Table 3.12-2	Table 3.26-2	X	---	
Table 4.12-1	Table 4.26-1	---	X	41
4.12-1 a	4.26-1 a	X	---	28
4.12-1 b	4.26-1 b	X	---	
4.12-1 c	4.26-1 d	X	---	
3.12.2	3.27	X	---	42
Action a	Action a	X	---	
Action b	Action b	X	---	
4.12.2	4.27	---	X	43
3.12.3	3.30	X	---	
Action a	Action	X	---	
Action b	---	---	X	4
4.12.3	4.30	X	---	
Fig. 5.1-3	Fig. 3.22-1	X	---	
6.5.1.6 k	6.5.1.6 j	X	---	

TABLE 1. (Continued)

NUREG-0472	Rancho Seco	Equivalent Requirement	Meet the Intent	Explanatory Statement
6.5.1.6 l	6.8.2	X	---	
6.5.2.8 l	6.5.2.8 k	X	---	
6.5.2.8 m	6.5.2.8 l	X	---	
6.5.2.8 n	6.5.2.8 m	X	---	
6.5.2.8 o	6.5.2.8.a	---	X	44
6.8.1 g	6.8.1 f	X	---	
6 8.1 h	6.8.1 g	X	---	
6.8.1 i	6.8.1 h	---	X	45
6.9.1.6	6.9.2.1	X	---	
6.9.1.7	6.9.2.2	X	---	
6.9.1.8	6.9.3	X	---	
6.9.1.9 para. 1	6.9.3.1 para. 1	X	---	
para. 2	para. 2	---	X	46
para. 2	para. 5	X	---	
para. 3	---	X	---	
para. 4	4.25	X	---	
para. 5	para. 4	X	---	
para. 6	para. 6	X	---	
6.9.1.10 para. 1	6.9.4	X	---	
6.9.1.12 j	6.9.5.1 j	X	---	
6.9.1.12 k	6.9.5.1 k	X	---	
6.9.1.13 e	6.9.5.2 e	X	---	
6.10.2 l	6.10.2 m	X	---	
6.13.2	6.14.2	X	---	
6.14.2	6.15.2	X	---	
6.15.1.1	6.16.2.A.1	X	---	
Bases	Bases	---	X	47

EXPLANATORY STATEMENTS FOR DEVIATIONS OF THE RANCHO SECO RETS PROPOSAL FROM COMPLIANCE WITH NUREG-0472

1. The wording of this definition is more restrictive to the facility than the definition in NUREG-0472. However, the wording is acceptable.

2. These definitions are universally understood and therefore are not required for insertion in these technical specifications.

3. The wording of the LCO along with the wording of the surveillance requirements meets the intent of the model RETS.

4. The LCO's of Rancho Seco's Tech. Specs. do not require meeting the actions of standard Tech. Spec. 3.0.3 and 3.0.4, therefore, Action c does not have to be addressed.

5. These monitoring instruments are not required at this facility. Normally only secondary water is released and all primary water is recycled. If contaminated water were to be released, it would be released through the regenerant hold-up tank which is monitored. For an expanded description, see the bases statement for Specification 3.19. The component cooling water is recycled and, therefore, is not a release pathway. Also the service water system does not interface with any radioactive pathways.

6. There are no liquid effluent radioactivity recorders with alarm/trip setpoint functions at this facility.

7. There are no outside liquid storage tanks that require tank level measurement devices. The demineralized reactor coolant storage tank does not contain radioactive material in significant quantities as all water has been processed through purification systems. Therefore, it was determined that liquid level measuring devices were not required.

8. Normally only secondary side water is discharged via the regenerant hold-up tank. By adding superscript 5 to the source check, this item is an equivalent requirement to NUREG-0472.

9. Pump curves are used in determining flow rate. Therefore, no surveillance requirements are necessary.

10. The waste water flow rate monitor is a mechanical device having no signal features that can be channel tested. Therefore, a channel test is not required.

11. This notation is not required as there are no monitors having only alarm functions.

12. The Auxiliary Building Stack monitors perform the monitoring functions for this release point. For further clarification review the bases on Page 3-101.

13. A monitor and an appropriate action are stated in surveillance 4.28.

14. The vent header does not act as a release point, but is the feed to the waste gas decay tanks.

15. The ventilation air from the fuel pool area is released to the auxiliary building stack.

16. The steam generator blowdown vent releases to the vent header. See Statement 14.

17. Rancho Seco will assume maximum design flow for the effluent release whenever the system effluent flow monitor is inoperable.

18. The containment has no constant ventilation release method. Each purge must meet the sampling requirements of Table 4.22-1. This meets the intent in that the initial concentration, prior to a purge, is determined by sampling and the purge permit won't allow a purge when concentrations of noble gases are too high.

19. The facility operates a hydrogen-rich system. Therefore, monitoring of hydrogen is unnecessary.

20. Monthly source check is acceptable because the containment is purged less frequently than monthly. Therefore, by doing the source check monthly, they have performed it prior to a purge.

21. The time frame for the surveillance requirements for channel calibration and channel functional test is consistent with the problems associated with performing the surveillance. To perform a channel test, these devices must be removed and returned to the vendor. The calibration made every 24 months and the annual channel test is acceptable.

22. The facility uses particulate monitors. These monitors have appropriate surveillance requirements.

23. The system effluent flow rate device has both a high and low flow alarm point. This dual alarm point provides for a continuous channel check within the instrument. Therefore, a weekly surveillance meets the intent.

24. The radioactive effluents released through the auxiliary building stack serves to perform an almost continuous source check. This satisfies the requirements for a source check prior to release of a waste gas decay tank.

25. The facility uses a zero volume percent O_2 standard as a lower point calibration standard. The O_2 monitor scale can show downscale failure from zero. Therefore, by setting the monitor using a zero percent standard is as good as using a 1% O_2 standard.

26. Standard operation of the facility precludes continuous radioactive releases. All radioactive releases are made from the regenerant hold-up tank as a batch release. See Bases Statement, Page 4-83.

27. The facility staff has supplied data which shows the Fe-55 concentration, in systems that could be released to the environment, to be below the 10 CFR 20 limit of 8.0 E-4 μCi/ml. Also, currently plant operations preclude a batch release of radioactive liquids to the environment. Therefore, analysis of Fe-55 is not required at this facility.

28. The submittal states the LLD is defined in the ODCM, which is acceptable.

29. The facility has no direct pathways for release from any primary side system. This specification is not required since according to the bases statement, all contaminated water from primary system leaks and drains are processed and recycled.

30. The requirement for ^{3}H analysis whenever the refueling canal is flooded is appropriately addressed by sampling the containment daily for ^{3}H during refueling activities. the ^{3}H releases through the auxiliary building and radwaste service area vent due to refueling activities are minimal and are not sampled.

31. The LLD for the Noble Gas Monitor is the capability of the existing equipment.

32. According to Page 43 of NUREG-CR 2348, the normal primary coolant activity is several μCi/ml. The submittal proposes the additional sample to be taken whenever the activity of the primary coolant exceeds 10 μCi/ml. This would require approximately a three-fold increase in the reactor coolant activity and is considered acceptable to meet the intent of Footnote b and e of the NUREG-0472.

33. This notation will cause an increased sampling frequency for H-3 in the fuel pool ventilation when a probability exists for a higher than normal evaporation rate. Otherwise, the monthly grab sample in the auxiliary building stack is adequate. The normal fuel pool temperature is 90-95°F.

34. This notation isn't required. They have a flow meter for both the effluent stream and the sampling device. Therefore, this ratio can be determined if not already known.

35. The facility monitors and maintains oxygen at $\leq$ 4%. This is the capability of the existing equipment. The LCO action stated is consistent with the instrument capability. A minimum staff is held at the facility on the off-shifts and weekends. If a problem arises during these times, it would be difficult to respond within the time frame required, i.e., 2 hours. Therefore, the facility requires 48 hours to respond which is adequate.

36. Surveillance for the O_2 monitor is worded such that grab samples will be taken during periods of greater gas generation when the O_2 monitor is inoperable. This allows the facility a method of determining what the O_2 level is in the WGDT being filled.

37. The concentration in the waste gas decay tank cannot exceed 98,414 Ci with the primary coolant activity at or less than $43/\bar{E}$, the requirement of Tech. Spec. 3.1.4. Rancho Seco will sample daily if the primary coolant activity exceeds the limit of Tech. Spec. 3.1.4 to ensure the tank's contents do not exceed 135,000 Ci which meets the intent of NUREG-0472.

38. Rancho Seco is a dry release site for releases of primary side water. The regenerant hold-up tank normally only receives water from secondary side sources. Gamma isotopic analysis of this tank and the runoff water is performed. By sampling these two sources, the concentration of radioactive materials in the environment can be evaluated. The gross beta analysis for all other water sources then meets the intent of the model RETS. The semi-annual gross beta analysis on the mud and silt samples are acceptable.

39. The drinking water and well water are not affected by discharges from the facility. Therefore, these analyses aren't required.

40. The facility staff performs gross beta analysis on this environmental sample. This analysis is more sensitive for seeing changes. Whenever the analysis finds activity that exceeds the reporting level, which is approximately three times the preoperational background, the required gamma isotopic analysis will be performed.

41. The LLD's listed are the detection capabilities of the contractor lab. These detection levels are acceptable.

42. There are no elevated releases. Therefore, additional data for the land use census due to elevated releases is not required.

43. The submittal calls for an annual survey, but the time frame for the survey to be conducted is not specified. The growing season in this area is such that crops may be grown in gardens all year.

44. The provisions of Reg. Guide 1.21 are in the applicable license conditions addressed in this item.

45. Procedures for the effluent and environmental quality control program do exist, however they do not use the guidance of Reg. Guide 1.21 and 4.1. This is acceptable.

46. The facility is using the format of Reg. Guide 1.21 for reporting meteorological data on a quarterly basis. They will retain all met data for two years at the facility.

47. The bases statements were reviewed and were found to be acceptable.