



SACRAMENTO MUNICIPAL UTILITY DISTRICT □ 6201 S Street, P.O. Box 15230, Sacramento CA 95852-1230, (916) 452-3211  
AN ELECTRIC SYSTEM SERVING THE HEART OF CALIFORNIA

AGM/NUC 91-019

February 05, 1991

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

Docket No. 50-312  
Rancho Seco Nuclear Generating Station  
License No. DPR-54  
**WAIVER OF COMPLIANCE FROM TECHNICAL SPECIFICATIONS 3.29 AND 4.34,  
METEOROLOGICAL MONITORING INSTRUMENTATION**

Reference 1. D. Keuter (SMUD) to S. Weiss (NRC) letter AGM/NUC 90-284, dated  
December 4, 1990, Proposed Amendment No. 182, Revision 2

Attention: Seymour Weiss

The District hereby requests an interim waiver of compliance from the full requirements of Technical Specifications 3.29 and 4.34, "Meteorological Monitoring Instrumentation," until NRC approval of the Permanently Defueled Technical Specifications (PDS). Also, the District requests an interim waiver from the portion of Technical Specification 6.9.2.3.1, that requires inclusion of meteorological data in the Semiannual Radioactive Effluent Release Report, until the NRC approves the PDS.

Technical Specifications 3.29 and 4.34 are designed to ensure the operability of Rancho Seco's Meteorological Monitoring Instrumentation (MMI). This MMI provides actual meteorological data that is used in estimating potential radiation doses to the public resulting from routine or accidental releases of radioactive material to the atmosphere. This waiver request is based on the following:

1. The defueled status of the plant.
2. The District's acknowledged intent to not operate Rancho Seco as a nuclear facility.

9102110234 910205  
PDR ADOCK 05000312  
PDR

*Handwritten:* A001 Add: WRR/DREP/KRFB  
H. C. 11

3. The NRC Confirmatory Order dated May 2, 1990, which prevents the District from moving fuel into the Reactor Building without prior NRC approval.
4. The greatly reduced normal gaseous effluents and minimal potential accident dose consequences associated with Rancho Seco in the defueled condition.
5. The Safety Analysis from Reference 1 included in this letter as Attachment I that justifies excluding MMI requirements from the PDTs.

Attachment I is the Safety Analysis that supports the exclusion of MMI requirements from the defueled plant Technical Specifications. Commitments included in this Safety Analysis address the use of conservative default X/Q and D/Q values and meteorology class in lieu of actual meteorological data. In addition, the Safety Analysis provides the technical justification to support NRC approval of the District's request for an interim waiver of compliance from the full requirements of Technical Specifications 3.29 and 4.34 and the partial requirement of Technical Specification 6.9.2.3.1 noted above.

Waiving compliance from the requirements of Technical Specifications 3.29, 4.34, and 6.9.2.3.1 as requested above while the plant remains in the current defueled condition does not involve a significant hazards consideration or an irreversible environmental consequence. The commitments associated with this waiver require the use of conservative meteorological information in dose calculations. This results in conservative dose calculations and an overestimation of gaseous effluents. However, as described in Attachment I, plant releases will still be well below 10 CFR 20 and 10 CFR 50, Appendix I values for normal plant operations, and well below 10 CFR 100 and plume exposure Protective Action Guideline values for accidents. The waiver is requested to extend until the NRC approves the PDTs.

Members of your staff with questions requiring additional information or clarification may contact Jerry Delezenski at (209) 333-2935, extension 4914.

Sincerely,



Dan R. Keuter  
Assistant General Manager  
Nuclear

Attachment

cc: C. Myers, NRC, Rancho Seco  
J. B. Martin, NRC, Walnut Creek  
S. Reynolds, NRC, Rockville

Safety Analysis from the Permanently Defueled Technical Specification  
Submission that Supports Waiver of the Meteorological Monitoring  
Instrumentation Technical Specification Requirements

Specifications 3.29 and 4.34, "Meteorological Monitoring Instrumentation," are not included in the PDTS because the defueled condition Emergency Plan and Effluent Control Program do not require information from this instrumentation to provide protection of the public health and safety. The original bases for this specification was to ensure the availability of sufficient meteorological data for estimating potential radiation doses to the public as a result of routine or accidental releases of radioactive material to the atmosphere. This capability was required to evaluate the need for initiating protective measures to protect the health and safety of the public.

As a result of a public vote, Rancho Seco was shut down on June 7, 1989, and completely defueled on December 8, 1989. Also, Confirmatory Order dated May 2, 1990, prevents the District from moving fuel into the Reactor Building without prior NRC approval. As discussed in the granting of the partial exemption to 10 CFR 55 (NRC to SMUD letter dated May 16, 1990, TAC No. 75520) and in Reference 1 on page 2 of the Safety Analysis Report, the design basis accidents considered credible in the Permanently Defueled Mode (PDM) are reduced to a Loss of Offsite Power and a Fuel Handling Accident.

During a routine or accidental release of gaseous radioactive material, the magnitude of the offsite doses is dictated primarily by the source term and the atmospheric dispersion coefficient, X/Q. The total number of curies of noble gases and iodines released is directly proportional to the offsite doses. With the exception of Krypton-85, these isotopes have half-lives of only a few days and, therefore, have essentially all decayed away since the reactor was shut down over a year ago. Krypton-85 is now the predominant isotope in the gaseous source term.

The accident analyses performed for the defueled condition concluded the Krypton-85 source term is so small that, during a design basis accident, the total whole-body dose to an individual at the site perimeter would be only a few millirems during the entire passage of the plume. The resulting total thyroid dose would be only a small fraction of a millirem due to decay of the short lived iodines. Thus, the consequences of accidents considered credible in the defueled condition will be well within the 10 CFR 100 accident limits and the plume exposure Protective Action Guidelines. These small doses result even though the accident analyses assume default Class F meteorology and  $X/Q = 6.33E-4 \text{ sec/m}^3$ .

Because of the extremely small source term that exists in the defueled condition, it is expedient and conservative to use a default X/Q value in calculations involving accidental releases of radioactive gaseous effluent, instead of relying on meteorological monitoring instrumentation to provide the data needed to calculate actual X/Q values. Also, the District has established a direct correlation between Spent Fuel Pool area radiation monitor readings and the dose consequences at the site boundary following an accident in the Fuel Storage Building. This correlation is used in the defueled condition Emergency Plan to evaluate the consequences of an accidental airborne release from the



Safety Analysis from the Permanently Defueled Technical Specification  
Submission that Supports Waiver of the Meteorological Monitoring  
Instrumentation Technical Specification Requirements  
(Continued)

Fuel Storage Building, employing an accident analysis default X/Q value of  $6.33E-4 \text{ sec/m}^3$ . Therefore, the extended decay time of the irradiated fuel in the Spent Fuel Pool has obviated the need for meteorological monitoring instrumentation for emergency preparedness purposes in the PDM.

The meteorological monitoring instrumentation provides the data needed to determine the actual X/Q and D/Q values used to calculate the dose impact of normal gaseous effluent. This calculated dose impact is reported to the NRC on a semiannual basis. Because the plant has been shut down since June 1989, the gaseous effluent source term is extremely small, thus, it is possible to use conservative default X/Q and/or D/Q values to calculate routine or accidental releases of radioactivity. For example, as discussed above, it is no longer necessary to retrieve data from the meteorological monitoring instrumentation during an accident scenario. Instead, it is conservatively assumed that default Class F meteorology exists with corresponding  $X/Q = 6.33E-4 \text{ sec/m}^3$ . This conservative X/Q value was used in the evaluation that determined the design basis defueled condition accident at Rancho Seco results in a maximum whole body dose of only a few millirems.

Likewise, for routine or normal releases of radioactive gaseous effluent, data from meteorological monitoring instrumentation is not needed in the PDM. Routine radioactive gaseous effluent has reduced to almost zero since the plant was shut down in June 1989. No measurable levels of iodines or noble gases are present in gaseous effluent. Only very small amounts of Tritium are detected in gaseous effluent discharged from the plant.

Instead of using actual X/Q and D/Q values to calculate the dose impact of normal gaseous effluent to meet semiannual reporting requirements, use of a conservative default X/Q value ( $1.00E-4 \text{ sec/m}^3$ ) and D/Q value ( $1.00E-6 \text{ m}^{-2}$ ), based on historical data, is proposed. Since X/Q and D/Q is directly proportional to the calculated dose, using a conservative X/Q and D/Q value will ensure conservative reporting of the calculated dose impact of normal gaseous effluent resulting from operation of the facility in the PDM. Because the source term for normal gaseous effluent in the PDM is extremely small, use of a conservative X/Q and D/Q will result in conservative reporting of the normal gaseous effluent dose, but will not affect the plant's ability to meet the 10 CFR 20 release limits and the 10 CFR 50, Appendix I dose guidelines.

To illustrate this last point, the following evaluation of gaseous effluent dose data, X/Q data, and D/Q data is provided.

The post shutdown gaseous effluent quarterly dose data reported in the July-December 1989 and January-June 1990 Semiannual Radioactive Effluent Release Reports is presented below.

Safety Analysis from the Permanently Defueled Technical Specification  
 Submittal that Supports Waiver of the Meteorological Monitoring  
 Instrumentation Technical Specification Requirements  
 (Continued)

	3rd Qtr* 1989	4th Qtr* 1989	1st Qtr* 1990	2nd Qtr* 1990
<u>Tritium, Iodine, Particulate:</u>				
Maximum Organ Dose	2.91E-2	4.31E-2	2.18E-2	1.71E-2
Percent Tech Spec Limit	3.88E-1	5.75E-1	2.91E-1	2.28E-1
<u>Noble Gas:</u>				
Gamma Air Dose	1.74E-4	1.51E-5	0	0
Percent Tech Spec Limit	3.48E-3	3.02E-4	0	0
Beta Air Dose	5.17E-4	1.72E-3	0	0
Percent Tech Spec Limit	5.17E-3	1.72E-2	0	0

\* The Maximum Organ Dose is in mrem and the Gamma and Beta Air Dose is in mrad.

These calculated results are based on quarterly averaged X/Q and D/Q values generated from meteorological monitoring instrumentation data collected during the applicable period. The third quarter 1989 through second quarter 1990 X/Q and D/Q values used are  $2.30E-5 \text{ sec/m}^3$  and  $4.60E-7 \text{ m}^{-2}$ ,  $2.30E-5 \text{ sec/m}^3$  and  $3.40E-7 \text{ m}^{-2}$ ,  $2.20E-5 \text{ sec/m}^3$  and  $4.10E-7 \text{ m}^{-2}$ , and  $1.90E-5 \text{ sec/m}^3$  and  $3.00E-7 \text{ m}^{-2}$ , respectively.

If the proposed conservative default X/Q and D/Q values ( $1.00E-4 \text{ sec/m}^3$  and  $1.00E-6 \text{ m}^{-2}$ , respectively) are used instead of the X/Q and D/Q values calculated from actual meteorological data, the following post shutdown gaseous effluent quarterly doses result.

Safety Analysis from the Permanently Defueled Technical Specification  
Submittal that Supports Waiver of the Meteorological Monitoring  
Instrumentation Technical Specification Requirements  
(Continued)

	3rd Qtr*	4th Qtr*	1st Qtr*	2nd Qtr*
	1989	1989	1990	1990
<u>Tritium, Iodine, Particulate:</u>				
Maximum Organ Dose	2.25E-1	2.59E-1	2.06E-1	1.59E-1
Percent Tech Spec Limit	3.00E+0	3.45E+0	2.75E+0	2.12E+0
<u>Noble Gas:</u>				
Gamma Air Dose	7.57E-4	6.57E-5	0	0
Percent Tech Spec Limit	1.51E-2	1.31E-3	0	0
Beta Air Dose	2.25E-3	7.48E-3	0	0
Percent Tech Spec Limit	2.25E-2	7.48E-2	0	0

\* The Maximum Organ Dose is in mrem and the Gamma and Beta Air Dose is in mrad.

By comparing the quarterly dose tables presented above, it is seen that the use of a conservative default X/Q and D/Q value in the shutdown condition would result in conservative reporting of dose, but would not affect the plant's ability to maintain releases within the 10 CFR 50, Appendix I dose guidelines.

The previous 10 quarters of X/Q and D/Q values calculated from actual meteorological data range from a high of  $2.85E-5 \text{ sec/m}^3$  to a low of  $1.80E-5 \text{ sec/m}^3$  and a high of  $4.60E-7 \text{ m}^{-2}$  to a low of  $2.61E-7 \text{ m}^{-2}$ , respectively. The ratio of the proposed conservative default X/Q and D/Q values to actual quarterly averaged X/Q and D/Q values range from 3.51 to 5.56 and 2.17 to 3.83, respectively. Since X/Q and D/Q is directly proportional to the calculated dose, this range of ratios represents the degree of conservatism associated with the proposed default X/Q and D/Q values.

Because of (1) the extremely small releases associated with Rancho Seco in the current defueled condition, (2) the conservative impact the proposed X/Q and D/Q values have on reported gaseous effluent doses, and (3) the lack of impact on the plant's ability to maintain the reported normal gaseous effluent doses within the 10 CFR 50, Appendix I dose guidelines, it is expedient and conservative to use the proposed conservative default X/Q ( $1.00E-4 \text{ sec/m}^3$ ) and D/Q ( $1.00E-6 \text{ m}^{-2}$ ) values in lieu of actual values. Therefore, based on the above analysis, meteorological monitoring instrumentation is not required to



Safety Analysis from the Permanently Defueled Technical Specification  
Submittal that Supports Waiver of the Meteorological Monitoring  
Instrumentation Technical Specification Requirements  
(Continued)

support the derivation of empirical X/Q and D/Q values for use in calculations that assess the normal gaseous effluent dose impact, and a Specification addressing the Operability requirements of meteorological monitoring instrumentation is not required to support the Effluent Control Program in the PDM.

In summation, the extremely small source term that currently exists at Rancho Seco justifies the use of default X/Q and D/Q values in the evaluation of both routine and accidental releases of radioactivity. Using a conservative X/Q and D/Q value in normal gaseous effluent dose calculations and a standard default X/Q value in accident analysis dose evaluations, preempts the need to maintain meteorological monitoring instrumentation in the PDM. Therefore, a meteorological monitoring instrumentation Specification is not required in the PDM and a waiver of compliance from the requirements of Specifications 3.29 and 4.34 and a waiver of compliance from the part of Specification 6.9.2.3.1, that requires inclusion of meteorological data in the Semiannual Radioactive Effluent Release Report, should be granted until the PDS are approved.

If meteorological information is desired in relation to an event at Rancho Seco during the defueled condition, it may be obtained from the National Weather Service in Sacramento.