

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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SUBJECT: Forwards response to Reg Guide 1.97 re environ qualification  
 of safety-related equipment. Info provides justification for  
 SSER3 concerns.

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	IE FILE	09	1	1	NRR CALVO, J		1 1
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	NRR/DL/ORAB	06	1	1	NRR/DSI/AEB		1 1
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EXTERNAL:	ACRS	15	8	8	LPDR	03	1 1
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## Washington Public Power Supply System

P.O. Box 968 3000 George Washington Way Richland, Washington 99352 (509) 372-5000

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PDR ADCK 05000397  
E PDR

December 5, 1983  
G02-83-1115

Docket No. 50-397

Director of Nuclear Reactor Regulation  
Attention: Mr. A. Schwencer, Chief  
Licensing Branch No. 2  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Schwencer:

Subject: NUCLEAR PROJECT NO. 2  
REGULATORY GUIDE 1.97 EQUIPMENT QUALIFICATION

- References: 1) Safety Evaluation Report Related to the Operation of Supply System Nuclear Project No. 2, Docket No. 50-397, NUREG-0892, Supplement No. 3, dated May 1983
- 2) G02-83-842, G. C. Sorensen to A. Schwencer, "Nuclear Project No. 2, Environmental Qualification Report for Safety Related Equipment, September 1983", dated September 16, 1983

The Supply System has provided its response to Regulatory Guide 1.97 in Section 7.5 of the FSAR. That Section identifies Category 1 and 2 equipment that is available to perform the post-accident monitoring function.

Attachment I is a list of this post-accident monitoring equipment that can be potentially exposed to a harsh environment. Except as discussed below, this equipment is environmentally qualified, justified by previous submittal, Reference 2, on Table B of the JIO, or purchased qualified for installation prior to fuel load.

A recent review of the Category 2 monitoring equipment identified the need to develop environmental qualification documentation for radiation elements and their supporting equipment that monitor reactor building exhaust air. A Justification for Interim Operation for these pieces of equipment is attached.

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Mr. A. Schwencer  
Page Two

FSAR Table 7.5-1 presently shows Radiation Exposure Rate design criteria, as would be applied to area radiation monitors, as Category 2. As provided in Revision 3 to Regulatory Guide 1.97, we will revise the FSAR to make such instruments Category 3, and they are not included in the Tables attached.

We appreciate your review and consideration of this justification. While we judge that this response addresses this SSER concern satisfactorily, we are available to assist your review if necessary.

Very truly yours,



G. C. Sorensen, Manager  
Regulatory Programs

KRW/sms

cc: R Auluck - NRC  
WS Chin - BPA  
A Toth - NRC Site



## ATTACHMENT I

REG. GUIDE 1.97 CATEGORY 1 EQUIPMENTLOCATED IN A HAZARDOUS ENVIRONMENT

<u>EQUIPMENT NO.</u>	<u>EQUIPMENT NO.</u>
SRM-DET-1A thru D	CMS-LE-5A, B
SRM-EAMP-1A thru D	CMS-AY-1 thru 4
MS-LITS-26A, D	SPTM-TE-1A, B
MS-LITS-44A, B	SPTM-TE-2A, B
MS-PT-51A, B	SPTM-TE-3A, B
CMS-PT-1,2,5,6,7,8	SPTM-TE-4A, B
CMS-LS-1 thru 4	SPTM-TE-5A, B
CSP-RLY-V/10/R1	SPTM-TE-6A, B
CSP-RLY-V/10/R2	SPTM-TE-7A, B
CSP-RLY-V/10/R4	SPTM-TE-8A, B
CSP-RLY-V/10/R5	SPTM-TE-9 thru 16
CSP-RLY-V/10/CR	CMS-TE-1 thru 14
CSP-RLY-V/8/R1	CMS-TE-24 thru 31
CSP-RLY-V/8/R2	MS-POE-1A thru 4A
CSP-RLY-V/8/R4	MS-POE-1B thru 5B
CSP-RLY-V/8/R5	MS-POE-1C thru 5C
CSP-RLY-V/8/CR	MS-POE-1D thru 4D
CSP-RLY-V/7/R1	MS-POT-1A thru 4A
CSP-RLY-V/7/R2	MS-POT-1B thru 5B
CSP-RLY-V/7/R4	MS-POT-1C thru 5C
CSP-RLY-V/7/CR	MS-POT-1D thru 4D
CAC-RLY-4A/CR1	CMS-RE-27E, F
CAC-RLY-4A/CR2	SW-FE-1A, B
CAC-RLY-4B/CR1	SW-FT-8A, B
CAC-RLY-4B/CR2	
CMS-LE-3A, B	
CMS-LE-4A, B	

Position switches for containment  
isolation valves





## ATTACHMENT I

REG. GUIDE 1.97 CATEGORY 2 EQUIPMENT  
LOCATED IN A HAZARDOUS ENVIRONMENT

<u>EQUIPMENT NO.</u>	<u>EQUIPMENT NO.</u>
MSLC-PS-7A thru 7D	REA-FE-8
MSLC-PS-8A thru 8D	REA-V-55
MSLC-PS-20	REA-FCV-1
MSLC-PS-24	REA-BV-1
MSLC-PS-25	REA-FT-10
MSLC-PS-60	REA-FR-94
MSLC-PS-70A thru 70D	REA-P/I-2
MSLC-PT-6A thru 6D	REA-P/I-1
MSLC-PT-10A thru 10D	REA-PI-13
MSLC-PT-11	REA-PI-12
MSLC-PT-12A thru 12D	REA-PI-11
MSLC-PT-13	REA-PI-10
MSLC-PT-23	REA-PI-9
RCIC-FE-1	REA-PI-8
RCIC-FT-3	REA-PI-7
HPCS-FE-7	REA-PI-6
HPCS-FT-5	REA-PI-5
LPCS-FE-2	REA-PI-4
LPCS-FT-3	REA-PI-3
RHR-FE-14A thru 14C	REA-P/P-2
RHR-FT-15A thru 15C	REA-P/P-1
SLC-FT-1	REA-FC-2
SLC-FE-1	REA-FC-1
RHR-TE-27A, B	REA-SQRT-3
SW-TE-1A thru 1D	REA-SQRT-2
SW-FE-1A, B	REA-SQRT-1
SW-FT-8A, B	REA-FT-9
REA-RE-19A	REA-FT-8
REA-SR-27A	REA-FT-7
REA-RE-19	REA-FI-8
REA-FIS-1	REA-FI-7
REA-PI-14	REA-DPI-4
REA-SR-27	REA-DPI-3
REA-JB-SR27	REA-DPI-2
REA-SR-37	REA-DPI-1
REA-RV-1	REA-FN-94
REA-FCV-2	

Emergency ventilation damper position switches,  
 RHR valve position switches

## EQUIPMENT JUSTIFICATION #23

### 1.0 COMPONENT IDENTIFICATION

EPNs: REA-SR-27, 27A, and 37 including all subcomponents.

Description: Reactor Building Exhaust Stack Air Sample Racks

Component Type: Composite Rack consisting of Air Sampling and Radionuclide Analysis Instrumentation

Manufacturer/Model: Kaman Sciences Corp./Model 952312  
Nuclear Measurement/Model Pt. #285501  
Air Monitor Corp./Model AMC-79-128

### 2.0 ACCIDENT CONDITIONS

	<u>Temperature</u>	<u>Relative Humidity</u>
Accident Profile:	#4	22X
Use Code:	1	
Operability Time:	4320 Hours	
Radiation Zone:	R606A	
Zone Dose:	$2.4 \times 10^4$ Rads	

### 3.0 COMPONENT SAFETY FUNCTION

The reactor building exhaust stack air monitoring instrumentation provides the operator with continuous indication of the radio-activity level in the stack air being released. If the activity levels of the stack air begin to increase, the control room indication and associated alarm provide information necessary for the operator to take corrective action before the limits specified by 10CFR100 are exceeded.

As part of Regulatory Guide 1.97 instrumentation, this monitoring system must provide continuous long-term indication of post accident effluent releases.

### 4.0 QUALIFICATION STATUS

#### 4.1 Summary of Qualification Status

The design was finalized and this instrumentation was purchased before TMI (Regulatory Guide 1.97) requirements were imposed. Subsequently, qualification was required by Regulatory Guide 1.97 and 10CFR50.49. Complete equipment qualification documentation is not presently available. This rack is in a relatively mild environment. That is, it is exposed to moderate accident temperature and radiation environments. However, radiation qualification data is not presently available. In the interim, the following justification is provided.



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1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is essential for ensuring the integrity of the financial system and for providing a clear audit trail. The document also notes that this practice is a key component of good corporate governance and is required by law in many jurisdictions.

2. The second part of the document outlines the specific steps that should be followed when recording transactions. It begins by stating that all transactions should be recorded in a timely and accurate manner. It then provides a list of the types of transactions that should be recorded, including sales, purchases, and transfers. The document also discusses the importance of using a consistent format for recording transactions and of keeping the records secure.

3. The third part of the document discusses the importance of reviewing the records regularly. It notes that this is essential for identifying any errors or discrepancies and for ensuring that the records are up-to-date. The document also discusses the importance of keeping the records for a sufficient period of time to allow for a full and complete audit.

4. The fourth part of the document discusses the importance of training staff in the proper recording of transactions. It notes that this is essential for ensuring that all transactions are recorded accurately and in a timely manner. The document also discusses the importance of providing ongoing training and support to staff to ensure that they are up-to-date on the latest best practices.

5. The fifth part of the document discusses the importance of using technology to assist in the recording of transactions. It notes that this can help to reduce the risk of errors and to improve the efficiency of the recording process. The document also discusses the importance of ensuring that any technology used is secure and reliable.

6. The sixth part of the document discusses the importance of maintaining a clear and concise record of all transactions. It notes that this is essential for ensuring that the records are easy to understand and for providing a clear audit trail. The document also discusses the importance of using a consistent format for recording transactions and of keeping the records secure.

7. The seventh part of the document discusses the importance of keeping the records up-to-date. It notes that this is essential for ensuring that the records accurately reflect the current state of the financial system. The document also discusses the importance of reviewing the records regularly and of identifying any errors or discrepancies.

8. The eighth part of the document discusses the importance of providing a clear and concise summary of the records. It notes that this is essential for ensuring that the records are easy to understand and for providing a clear audit trail. The document also discusses the importance of using a consistent format for recording transactions and of keeping the records secure.

9. The ninth part of the document discusses the importance of keeping the records for a sufficient period of time. It notes that this is essential for ensuring that the records are available for a full and complete audit. The document also discusses the importance of reviewing the records regularly and of identifying any errors or discrepancies.

10. The tenth part of the document discusses the importance of using a consistent format for recording transactions. It notes that this is essential for ensuring that the records are easy to understand and for providing a clear audit trail. The document also discusses the importance of keeping the records secure.

## 4.2 Parameters Requiring Justification

Radiation.

## 5.0 JUSTIFICATION FOR INTERIM OPERATION

These sample racks are not exposed to harsh temperature and relative humidity profiles for which operation must be demonstrated. They are exposed to a moderate radiation environment. For the worst case LOCA, the total integrated dose (T.I.D.) would be approximately  $1 \times 10^4$  Rads after eight days ( $1.0 \times 10^4$  Rads is the threshold at which radiation qualification would be required) and  $1.8 \times 10^4$  Rads after six months. The components comprising this equipment were reviewed for radiation sensitive materials. No components were found that had radiation sensitive materials at these levels. Therefore, operability is assured for at least eight days by which point the plant's decay heat removal operations have been initiated. Monitoring of effluents is critical until the plant has been depressurized and long-term cooling has been established. This is because the magnitude of the potential fission product releases which could occur are greater when the plant is pressurized.

If all of the reactor building exhaust stack air monitoring instrumentation failed when the T.I.D. reached  $1.0 \times 10^4$  Rads, the safety objective would still not be compromised. The removal of contaminants is performed by the Standby Gas Treatment System (SGTS) and its effectiveness is measured by the stack monitors. The SGT system is a fully qualified safety related, dual train system. Each train is designed to remove containment and reactor building airborne contamination associated with the worst case LOCA and ensure that the activity in the air discharged to the reactor building exhaust stack is below the 10CFR100 limits. As documented in the Equipment Qualification Report, each train has a complete set of qualified flow, temperature, and relative humidity instrumentation. Therefore, operation of the SGTS system can be monitored. Continued observation of these normal performance indicators provides a level of confidence that the Standby Gas Treatment System is operating normally and that it is performing as designed, to reduce exhaust stack air activity levels below the 10CFR100 limits.

Also, failure of the Reactor Building Exhaust Stack Air monitoring system after eight days does not imply that all effluent monitoring has been eliminated. Portable instruments can and would be positioned to measure off-site releases following an accident. Long-term monitoring is assured by alternate means.

## 6.0 CONCLUSION

Interim operation is justified on the following basis:

1. This entire monitoring system was designed in accordance with Supply System Specifications. These specifications require that the system be capable of operating for anticipated temperature and humidity harsh service conditions. It is, therefore, reasonable to assume that this system will survive the environment for which it was designed.

2. Should the system fail, releases in excess of 10CFR100 will not occur unless accompanied by failure of both SGTS trains.
3. If both the Reactor Building Exhaust Stack Air monitoring and the two SGTS trains fail, then off-site releases can be monitored by mobilization of portable monitoring equipment. Sufficient time is available to accomplish this, since a harsh environment (i.e, TID >  $10^4$  Rads) is not experienced by the equipment until eight days after the accident.



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1. The first part of the report is a summary of the work done during the past year. It covers the work of the various departments and the progress made in the various projects. The summary is followed by a detailed account of the work done in each of the departments. This is followed by a list of the projects which have been completed during the year. The list is followed by a list of the projects which are currently in progress. The report concludes with a list of the projects which are planned for the next year.

2. The second part of the report is a detailed account of the work done in each of the departments. This part of the report is divided into sections for each of the departments. Each section contains a detailed account of the work done during the year. This includes a list of the projects which have been completed, a list of the projects which are currently in progress, and a list of the projects which are planned for the next year. The sections are arranged in alphabetical order of the department names.

3. The third part of the report is a list of the projects which have been completed during the year. This list is arranged in alphabetical order of the project names. Each project is listed with a brief description of the work which has been done. This includes a list of the objectives of the project, a list of the methods which have been used, and a list of the results which have been achieved. The list is followed by a list of the projects which are currently in progress. This list is also arranged in alphabetical order of the project names. Each project is listed with a brief description of the work which has been done. This includes a list of the objectives of the project, a list of the methods which have been used, and a list of the results which have been achieved.

4. The fourth part of the report is a list of the projects which are planned for the next year. This list is arranged in alphabetical order of the project names. Each project is listed with a brief description of the work which is planned to be done. This includes a list of the objectives of the project, a list of the methods which are planned to be used, and a list of the results which are planned to be achieved. The list is followed by a list of the projects which are currently in progress. This list is also arranged in alphabetical order of the project names. Each project is listed with a brief description of the work which has been done. This includes a list of the objectives of the project, a list of the methods which have been used, and a list of the results which have been achieved.

5. The fifth part of the report is a list of the projects which are currently in progress. This list is arranged in alphabetical order of the project names. Each project is listed with a brief description of the work which has been done. This includes a list of the objectives of the project, a list of the methods which have been used, and a list of the results which have been achieved. The list is followed by a list of the projects which are planned for the next year. This list is also arranged in alphabetical order of the project names. Each project is listed with a brief description of the work which is planned to be done. This includes a list of the objectives of the project, a list of the methods which are planned to be used, and a list of the results which are planned to be achieved.

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