SAFETY RELATED **ORIGINAL** **CONTROLLED COPY**

ISCR 1086
p.4

SUMMARY OF RADIOLOGICAL CALIBRATION
TURBINE BUILDING VENTILATION SYSTEM EXHAUST MONITOR TEA-RIS-13

Date of Calibration 29 May 91

Primary Calibration:

Date of Primary Calibration April 1982

Gas Calibration Factor 4.234E+7 cpm/µCi/cc (Xe-133 equivalent)

Transfer Source Identification No. 2-83-81E Isotope ^{90}Sr Activity 0.092 µCi

Transfer Source Calibration Factor 9.83E+5 cpm/µCi

Current Calibration:

Transfer Source Current Activity 0.07331 µCi

Transfer Source Count Rate 75322. ± 63.9 @ 1 σ % Error

Transfer Source Calibration Factor 1.0275+6 cpm/µCi

Current Transfer Source to Primary Calibration Ratio $\frac{1.0275+6}{9.83+5}$ = 1.0453 E

Recalculated Gas Calibration Factor 4.4779+7 cpm/µCi/cc

Instrument Parameters

Detector:

High Voltage Operate	965 Volts
High Voltage Inop	915 Volts
Upper Level Discriminator	-12.7 Volts
Lower Level Discriminator	-0.7 Volts

Alarm Setpoints from PPM 7.4.3.7.12.12

Low Disabled cpm High 1730 cpm High High 3460 cpm

Remarks: REFERENCED SETPOINTS DERIVED IN ISCR 414 WITH ^{133}Xe GAS CAL FACTOR OF 4.62E7 cpm/µCi/cc. CURRENT RECALCULATED GAS CAL FACTOR IS 4.4779E7 RESULTING IN SETPOINT CHANGE FACTOR 4.4779/4.62 = .9692 W.P. Kay 9-4-91

Prepared By: Albert DeLavis Date 29 July 91

Attachment A

ORIGINAL

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

INSTRUMENT SETPOINT CHANGE REQUEST

ISCR Number: 1086

INSTRUMENT SETPOINT CALCULATION

MEL EPN: TEA-RIS-13 Date: 9-4-91

DESCRIPTION: KSC MODEL 952279 RATEMETER

PURPOSE: TURB BLDG VENTILATION EFFLUENT RAD MONITOR

REFERENCE Doc. No.	REV.	DESCRIPTION
T/S 3.3.7.12	—	RAD. GAS. EFF. MONIT. INSTRUMENTATION
T/S 3.11.2.1	—	GAS. EFF. DOSE RATE LCO
ODCM Sect. 3.6	AMEND. 5	CALC. of GAS. EFF. MON. ALARM SETPOINTS
ISCR's 317, 414	—	ALARM SETPOINT CALC's FOR TEA-RIS-13

SETPOINT DERIVATION: (Attach additional sheets as required)

CURRENT SETPOINTS DERIVED BY ISCR 414 USED A DETECTOR SENSITIVITY of 4.62 (E+7) CPM/μCi/cc of ^{133}Xe EQUIVALENT. RECALCULATED SENSITIVITY (GAS CALIBRATION FACTOR) PER ATTACHED RAD CAL DATA SHEET IS 4.4779 E+7.

SETPOINT CHANGE FACTOR IS $\frac{4.4779\ E+7}{4.62\ E+7} = 0.9692$.

NEW SETPOINTS:

HIGH-HIGH CURRENTLY CALCULATED AT 3462 CPM(.9692) = 3355 ≈ 3350

HIGH ALARM CURRENTLY CALCULATED AT 1732 (.9692) = 1679 ≈ 1680

Engineer [signature] / 9-4-91

☑ Verification Checklist (or) ☐ Alternate Calculation

☑ Accuracy of Input Data (attached)

☑ Validity of Assumptions

☑ Appropriateness of Method

☑ Arithmetical Accuracy

☑ 10CFR50.59 Review [signature] / 9/5/91

I&C Engineer or HP/Chem Support Supervisor Date

Approval: [signature] / 9-6-91

HP/Chem Manager or Plant Engineering Supervisor, Control Systems Date

ORIGINAL

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

INSTRUMENT SETPOINT CHANGE REQUEST

ISCR Number: 1086

INSTRUMENT SETPOINT CALCULATION
CALIB. TOL./ADMIN. LIMIT

MEL EPN: TEA-RIS-13 Date: 9-4-91

SERVICE: Tg RAD MONITOR — HVAC EFFLUENT NOBLE GAS

TECH. SPEC. REF	PAGE No.	TRIP SETPOINT	ALLOWABLE VALUE
3.3.7.12	3/4 3-89	NA	NA
3.11.2.1	3/4 11-8	NA	NG: ≤ 500 mr/yr TOTAL BODY ≤ 3 R/yr SKIN
		—	I, PARTIC, etc: ≤ 1.5 R/yr TO ANY ORGAN

	HIGH	LOW	REFERENCE
Trip Setpoint / Calibration Tol.	3450 cpm	3250 cpm	HIGH-HIGH ALARM
Admin Limit	4020 cpm	2780 cpm	↓
Trip Setpoint / Calibration Tol.	1730 cpm	1630 cpm	HIGH ALARM
Admin Limit	2015 cpm	1395 cpm	↓
Trip Setpoint / Calibration Tol.			
Admin Limit			

NORMAL OPERATING RANGE	
OPERATING TRANSIENT RANGE	

COMMENT:

ALARMS: HIGH-HIGH TRIP SETPOINT @ 3350 CPM
HIGH TRIP SETPOINT @ 1680 CPM

CALIBRATION TOLERANCE ± 3%
CFT TOLERANCE −17%, +20%

} TOLERANCES ESTABLISHED BY ISCR #919.

QEDPS Model Version 1.0 July 14, 1994 Run: 08/30/1994 09:28:59

Doses and dose rates at selected distances (rem)

Distance (miles)	.6	1.2	2.0	4.0	7.0	10.0
TEDE	1.4E-02	1.0E-02	8.5E-03	5.5E-03	4.2E-03	3.0E-03
External Dose	9.8E-03	7.8E-03	6.4E-03	4.2E-03	3.3E-03	2.4E-03
Thyroid CDE	1.6E-02	1.0E-02	8.1E-03	5.2E-03	3.2E-03	2.2E-03

TEDE = Cloud Shine + 4-Day Ground Shine + CEDE Inhalation
External Dose = Cloud Shine + Initial Ground Shine

TEDE Rate	1.4E-02	1.1E-02	8.6E-03	5.6E-03	4.2E-03	3.0E-03
External Dose Rate	9.9E-03	7.9E-03	6.5E-03	4.2E-03	3.4E-03	2.4E-03
Thyroid CDE Rate	1.6E-02	1.0E-02	8.1E-03	5.2E-03	3.2E-03	2.2E-03

NOTE: Values below 1.0E-06 have been set to zero.

You have selected: High Range Stack Monitor Reading = 850. cps
Release is Filtered Flow = 5380. cfm
Wind Dir. From (deg.) = 330. Wind Spd (mph) = 5.0 Stab. Class = 5
Assumed release duration 1 hr 0 min Release ht = 1 m

Source term: A total of 2.2E+04 Ci were released.

Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.
Kr-85	5.9E-03	3.3E-05	Kr-85m	2.5E-01	3.3E-05	Kr-87	4.9E-01	3.3E-05
Kr-88	7.1E-01	3.3E-05	Sr-89	6.8E-05	2.4E-09	Sr-90	2.6E-06	2.4E-09
Sr-91	8.1E-05	2.4E-09	Y-91	5.9E-06	1.6E-10	Mo-99	3.1E-05	6.3E-10
Tc-99m	3.1E-05	6.3E-10	Ru-103	2.2E-05	6.3E-10	Ru-106	4.7E-06	6.3E-10
Sb-127	2.2E-05	1.2E-08	Sb-129	1.2E-04	1.2E-08	Te-131m	4.4E-05	1.2E-08
Te-132	4.4E-04	1.2E-08	I-131	7.2E-04	2.8E-08	I-132	1.0E-03	2.8E-08
I-133	1.5E-03	2.8E-08	I-134	1.6E-03	2.8E-08	I-135	1.3E-03	2.8E-08
Xe-131m	1.0E-02	3.3E-05	Xe-133	1.8E+00	3.3E-05	Xe-133m	6.2E-02	3.3E-05
Xe-135	3.4E-01	3.3E-05	Xe-138	1.8E+00	3.3E-05	Cs-134	4.6E-05	2.0E-08
Cs-136	1.8E-05	2.0E-08	Cs-137	2.9E-05	2.0E-08	Ba-140	1.6E-04	3.2E-09
La-140	7.8E-06	1.6E-10	Ce-144	2.1E-05	7.9E-10	Np-239	4.0E-04	7.9E-10
Rb-88	7.1E-01	3.3E-05	Rh-106	4.7E-06	6.3E-10	Xe-135m	1.3E-03	2.8E-08
Ba-137m	2.9E-05	2.0E-08	Pr-144	2.1E-05	7.9E-10			

Fract. is the fraction of the core inventory released.

Computed By: _____.

Reviewed By: _____.

Released By: _____.

(2)

QEDPS Model Version 1.0 July 14, 1994 Run: 08/08/1994 10:26:40

Doses and dose rates at selected distances (rem)

Distance (miles)	.6	1.2	2.0	4.0	7.0	10.0
TEDE	1.4E+00	1.0E+00	8.5E-01	5.5E-01	4.2E-01	3.0E-01
External Dose	9.8E-01	7.8E-01	6.4E-01	4.1E-01	3.3E-01	2.4E-01
Thyroid CDE	1.6E+00	1.0E+00	8.1E-01	5.2E-01	3.2E-01	2.2E-01

TEDE = Cloud Shine + 4-Day Ground Shine + CEDE Inhalation
External Dose = Cloud Shine + Initial Ground Shine

TEDE Rate	1.4E+00	1.1E+00	8.5E-01	5.6E-01	4.2E-01	3.0E-01
External Dose Rate	9.9E-01	7.9E-01	6.4E-01	4.2E-01	3.3E-01	2.4E-01
Thyroid CDE Rate	1.6E+00	1.0E+00	8.1E-01	5.2E-01	3.2E-01	2.2E-01

NOTE: Values below 1.0E-06 have been set to zero.

You have selected: High Range Stack Monitor Reading = 65000. cps
Release is Filtered Flow = 5380. cfm
Wind Dir. From (deg.) = 330. Wind Spd (mph) = 5.0 Stab. Class = 5
Assumed release duration 1 hr 0 min Release ht = 1 m

Source term: A total of 2.2E+06 Ci were released.

Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.
Kr-85	5.9E-01	3.3E-03	Kr-85m	2.5E+01	3.3E-03	Kr-87	4.9E+01	3.3E-03
Kr-88	7.1E+01	3.3E-03	Sr-89	6.8E-03	2.4E-07	Sr-90	2.6E-04	2.4E-07
Sr-91	8.1E-03	2.4E-07	Y-91	5.8E-04	1.6E-08	Mo-99	3.1E-03	6.3E-08
Tc-99m	3.1E-03	6.3E-08	Ru-103	2.2E-03	6.3E-08	Ru-106	4.7E-04	6.3E-08
Sb-127	2.2E-03	1.2E-06	Sb-129	1.2E-02	1.2E-06	Te-131m	4.4E-03	1.2E-06
Te-132	4.4E-02	1.2E-06	I-131	7.2E-02	2.8E-06	I-132	1.0E-01	2.8E-06
I-133	1.5E-01	2.8E-06	I-134	1.6E-01	2.8E-06	I-135	1.3E-01	2.8E-06
Xe-131m	1.0E+00	3.3E-03	Xe-133	1.8E+02	3.3E-03	Xe-133m	6.2E+00	3.3E-03
Xe-135	3.4E+01	3.3E-03	Xe-138	1.8E+02	3.3E-03	Cs-134	4.6E-03	2.0E-06
Cs-136	1.8E-03	2.0E-06	Cs-137	2.9E-03	2.0E-06	Ba-140	1.5E-02	3.2E-07
La-140	7.7E-04	1.6E-08	Ce-144	2.0E-03	7.9E-08	Np-239	4.0E-02	7.9E-08
Rb-88	7.1E+01	3.3E-03	Rh-106	4.7E-04	6.3E-08	Xe-135m	1.3E-01	2.8E-06
Ba-137m	2.9E-03	2.0E-06	Pr-144	2.0E-03	7.9E-08			

Fract. is the fraction of the core inventory released.

Computed By: _____.

Reviewed By: _____.

Released By: _____.

QEDPS Model Version 1.0 July 14, 1994 Run: 08/08/1994 10:31:51

Doses and dose rates at selected distances (rem)

Distance (miles)	.6	1.2	2.0	4.0	7.0	10.0
TEDE	5.0E-01	3.3E-01	2.6E-01	1.7E-01	1.0E-01	7.3E-02
External Dose	2.9E-02	2.3E-02	1.9E-02	1.2E-02	9.7E-03	6.9E-03
Thyroid CDE	7.8E+00	5.0E+00	3.9E+00	2.5E+00	1.5E+00	1.1E+00

TEDE = Cloud Shine + 4-Day Ground Shine + CEDE Inhalation
External Dose = Cloud Shine + Initial Ground Shine

TEDE Rate	5.1E-01	3.3E-01	2.6E-01	1.7E-01	1.0E-01	7.3E-02
External Dose Rate	3.2E-02	2.4E-02	2.0E-02	1.3E-02	1.0E-02	7.2E-03
Thyroid CDE Rate	7.8E+00	5.0E+00	3.9E+00	2.5E+00	1.5E+00	1.1E+00

NOTE: Values below 1.0E-06 have been set to zero.

You have selected: TG Bldg Int. Range (PMU) Reading = 8. pmu
Release is Unfiltered Flow = 320000. cfm
Wind Dir. From (deg.) = 330. Wind Spd (mph) = 5.0 Stab. Class = 5
Assumed release duration 1 hr 0 min Release ht = 1 m

Source term: A total of 4.7E+04 Ci were released.

Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.
Kr-85	8.5E-03	4.8E-05	Kr-85m	3.6E-01	4.8E-05	Kr-87	7.2E-01	4.8E-05
Kr-88	1.0E+00	4.8E-05	Sr-89	3.3E-02	1.1E-06	Sr-90	1.3E-03	1.1E-06
Sr-91	3.9E-02	1.1E-06	Y-91	2.8E-03	7.6E-08	Mo-99	1.5E-02	3.1E-07
Tc-99m	1.5E-02	3.1E-07	Ru-103	1.0E-02	3.1E-07	Ru-106	2.3E-03	3.1E-07
Sb-127	1.1E-02	5.7E-06	Sb-129	5.8E-02	5.7E-06	Te-131m	2.1E-02	5.7E-06
Te-132	2.1E-01	5.7E-06	I-131	3.5E-01	1.3E-05	I-132	4.9E-01	1.3E-05
I-133	7.0E-01	1.3E-05	I-134	7.8E-01	1.3E-05	I-135	6.2E-01	1.3E-05
Xe-131m	1.5E-02	4.8E-05	Xe-133	2.5E+00	4.8E-05	Xe-133m	8.9E-02	4.8E-05
Xe-135	4.9E-01	4.8E-05	Xe-138	2.5E+00	4.8E-05	Cs-134	2.2E-02	9.6E-06
Cs-136	8.8E-03	9.6E-06	Cs-137	1.4E-02	9.6E-06	Ba-140	7.5E-02	1.5E-06
La-140	3.7E-03	7.6E-08	Ce-144	9.9E-03	3.8E-07	Np-239	1.9E-01	3.8E-07
Rb-88	1.0E+00	4.8E-05	Rh-106	2.3E-03	3.1E-07	Xe-135m	6.2E-01	1.3E-05
Ba-137m	1.4E-02	9.6E-06	Pr-144	9.9E-03	3.8E-07			

Fract. is the fraction of the core inventory released.

Computed By: _____.

Reviewed By: _____.

Released By: _____.

QEDPS Model Version 1.0 July 14, 1994 Run: 08/08/1994 13:02:20

Distance (miles)	Doses and dose rates at selected distances (rem) .6	1.2	2.0	4.0	7.0	10.0
TEDE	5.0E-01	3.3E-01	2.6E-01	1.7E-01	1.0E-01	7.3E-02
External Dose	3.0E-02	2.3E-02	1.9E-02	1.2E-02	9.7E-03	6.9E-03
Thyroid CDE	7.8E+00	5.0E+00	3.9E+00	2.5E+00	1.5E+00	1.1E+00

TEDE = Cloud Shine + 4-Day Ground Shine + CEDE Inhalation
External Dose = Cloud Shine + Initial Ground Shine

TEDE Rate	5.1E-01	3.3E-01	2.6E-01	1.7E-01	1.0E-01	7.3E-02
External Dose Rate	3.2E-02	2.4E-02	2.0E-02	1.3E-02	1.0E-02	7.2E-03
Thyroid CDE Rate	7.8E+00	5.0E+00	3.9E+00	2.5E+00	1.5E+00	1.1E+00

NOTE: Values below 1.0E-06 have been set to zero.

You have selected: RW Bldg Int. Range (PMU) Reading = 26. pmu
Release is Unfiltered Flow = 84000. cfm
Wind Dir. From (deg.) = 330. Wind Spd (mph) = 5.0 Stab. Class = 5
Assumed release duration 1 hr 0 min Release ht = 1 m

Source term: A total of 4.7E+04 Ci were released.

Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.
Kr-85	8.5E-03	4.8E-05	Kr-85m	3.6E-01	4.8E-05	Kr-87	7.2E-01	4.8E-05
Kr-88	1.0E+00	4.8E-05	Sr-89	3.3E-02	1.1E-06	Sr-90	1.3E-03	1.1E-06
Sr-91	3.9E-02	1.1E-06	Y-91	2.8E-03	7.7E-08	Mo-99	1.5E-02	3.1E-07
Tc-99m	1.5E-02	3.1E-07	Ru-103	1.0E-02	3.1E-07	Ru-106	2.3E-03	3.1E-07
Sb-127	1.1E-02	5.7E-06	Sb-129	5.8E-02	5.7E-06	Te-131m	2.1E-02	5.7E-06
Te-132	2.1E-01	5.7E-06	I-131	3.5E-01	1.3E-05	I-132	4.9E-01	1.3E-05
I-133	7.0E-01	1.3E-05	I-134	7.8E-01	1.3E-05	I-135	6.2E-01	1.3E-05
Xe-131m	1.5E-02	4.8E-05	Xe-133	2.6E+00	4.8E-05	Xe-133m	8.9E-02	4.8E-05
Xe-135	4.9E-01	4.8E-05	Xe-138	2.6E+00	4.8E-05	Cs-134	2.2E-02	9.6E-06
Cs-136	8.8E-03	9.6E-06	Cs-137	1.4E-02	9.6E-06	Ba-140	7.5E-02	1.5E-06
La-140	3.7E-03	7.7E-08	Ce-144	9.9E-03	3.8E-07	Np-239	1.9E-01	3.8E-07
Rb-88	1.0E+00	4.8E-05	Rh-106	2.3E-03	3.1E-07	Xe-135m	6.2E-01	1.3E-05
Ba-137m	1.4E-02	9.6E-06	Pr-144	9.9E-03	3.8E-07			

Fract. is the fraction of the core inventory released.

Computed By: _____.

Reviewed By: _____.

Released By: _____.

QEDPS Model Version 1.0 July 14, 1994 Run: 08/30/1994 09:46:57

Doses and dose rates at selected distances (rem)

Distance (miles)	.6	1.2	2.0	4.0	7.0	10.0
TEDE	5.0E-03	3.3E-03	2.6E-03	1.7E-03	1.0E-03	7.3E-04
External Dose	2.9E-04	2.3E-04	1.9E-04	1.2E-04	9.7E-05	6.9E-05
Thyroid CDE	7.8E-02	5.0E-02	3.9E-02	2.5E-02	1.5E-02	1.1E-02

TEDE = Cloud Shine + 4-Day Ground Shine + CEDE Inhalation
External Dose = Cloud Shine + Initial Ground Shine

TEDE Rate	5.0E-03	3.3E-03	2.6E-03	1.7E-03	1.0E-03	7.3E-04
External Dose Rate	3.1E-04	2.4E-04	2.0E-04	1.3E-04	1.0E-04	7.2E-05
Thyroid CDE Rate	7.8E-02	5.0E-02	3.9E-02	2.5E-02	1.5E-02	1.1E-02

NOTE: Values below 1.0E-06 have been set to zero.

You have selected: TG Bldg Low Range (CPM) Reading = 44000. cpm
Release is Unfiltered Flow = 320000. cfm
Wind Dir. From (deg.) = 330. Wind Spd (mph) = 5.0 Stab. Class = 5
Assumed release duration 1 hr 0 min Release ht = 1 m

Source term: A total of 4.7E+02 Ci were released.

Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.
Kr-85	8.5E-05	4.8E-07	Kr-85m	3.6E-03	4.8E-07	Kr-87	7.1E-03	4.8E-07
Kr-88	1.0E-02	4.8E-07	Sr-89	3.3E-04	1.1E-08	Sr-90	1.3E-05	1.1E-08
Sr-91	3.9E-04	1.1E-08	Y-91	2.8E-05	7.6E-10	Mo-99	1.5E-04	3.1E-09
Tc-99m	1.5E-04	3.1E-09	Ru-103	1.0E-04	3.1E-09	Ru-106	2.3E-05	3.1E-09
Sb-127	1.1E-04	5.7E-08	Sb-129	5.8E-04	5.7E-08	Te-131m	2.1E-04	5.7E-08
Te-132	2.1E-03	5.7E-08	I-131	3.5E-03	1.3E-07	I-132	4.9E-03	1.3E-07
I-133	7.0E-03	1.3E-07	I-134	7.8E-03	1.3E-07	I-135	6.2E-03	1.3E-07
Xe-131m	1.5E-04	4.8E-07	Xe-133	2.5E-02	4.8E-07	Xe-133m	8.9E-04	4.8E-07
Xe-135	4.9E-03	4.8E-07	Xe-138	2.5E-02	4.8E-07	Cs-134	2.2E-04	9.5E-08
Cs-136	8.8E-05	9.5E-08	Cs-137	1.4E-04	9.5E-08	Ba-140	7.5E-04	1.5E-08
La-140	3.7E-05	7.6E-10	Ce-144	9.9E-05	3.8E-09	Np-239	1.9E-03	3.8E-09
Rb-88	1.0E-02	4.8E-07	Rh-106	2.3E-05	3.1E-09	Xe-135m	6.2E-03	1.3E-07
Ba-137m	1.4E-04	9.5E-08	Pr-144	9.9E-05	3.8E-09			

Fract. is the fraction of the core inventory released.

Computed By: _____.

Reviewed By: _____.

Released By: _____.

QEDPS Model Version 1.0 July 14, 1994 Run: 08/30/1994 09:49:10

Doses and dose rates at selected distances (rem)

Distance (miles)	.6	1.2	2.0	4.0	7.0	10.0
TEDE	5.0E-03	3.3E-03	2.6E-03	1.7E-03	1.0E-03	7.2E-04
External Dose	2.9E-04	2.3E-04	1.9E-04	1.2E-04	9.6E-05	6.9E-05
Thyroid CDE	7.7E-02	5.0E-02	3.9E-02	2.5E-02	1.5E-02	1.1E-02

TEDE = Cloud Shine + 4-Day Ground Shine + CEDE Inhalation
External Dose = Cloud Shine + Initial Ground Shine

TEDE Rate	5.0E-03	3.3E-03	2.6E-03	1.7E-03	1.0E-03	7.3E-04
External Dose Rate	3.1E-04	2.4E-04	2.0E-04	1.3E-04	1.0E-04	7.2E-05
Thyroid CDE Rate	7.7E-02	5.0E-02	3.9E-02	2.5E-02	1.5E-02	1.1E-02

NOTE: Values below 1.0E-06 have been set to zero.

You have selected: RW Bldg Low Range (CPM) Reading = 167000. cpm
Release is Unfiltered Flow = 84000. cfm
Wind Dir. From (deg.) = 330. Wind Spd (mph) = 5.0 Stab. Class = 5
Assumed release duration 1 hr 0 min Release ht = 1 m

Source term: A total of 4.7E+02 Ci were released.

Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.
Kr-85	8.5E-05	4.8E-07	Kr-85m	3.6E-03	4.8E-07	Kr-87	7.1E-03	4.8E-07
Kr-88	1.0E-02	4.8E-07	Sr-89	3.3E-04	1.1E-08	Sr-90	1.3E-05	1.1E-08
Sr-91	3.9E-04	1.1E-08	Y-91	2.8E-05	7.6E-10	Mo-99	1.5E-04	3.0E-09
Tc-99m	1.5E-04	3.0E-09	Ru-103	1.0E-04	3.0E-09	Ru-106	2.2E-05	3.0E-09
Sb-127	1.1E-04	5.7E-08	Sb-129	5.8E-04	5.7E-08	Te-131m	2.1E-04	5.7E-08
Te-132	2.1E-03	5.7E-08	I-131	3.4E-03	1.3E-07	I-132	4.9E-03	1.3E-07
I-133	7.0E-03	1.3E-07	I-134	7.7E-03	1.3E-07	I-135	6.2E-03	1.3E-07
Xe-131m	1.5E-04	4.8E-07	Xe-133	2.5E-02	4.8E-07	Xe-133m	8.9E-04	4.8E-07
Xe-135	4.9E-03	4.8E-07	Xe-138	2.5E-02	4.8E-07	Cs-134	2.2E-04	9.5E-08
Cs-136	8.8E-05	9.5E-08	Cs-137	1.4E-04	9.5E-08	Ba-140	7.5E-04	1.5E-08
La-140	3.7E-05	7.6E-10	Ce-144	9.8E-05	3.8E-09	Np-239	1.9E-03	3.8E-09
Rb-88	1.0E-02	4.8E-07	Rh-106	2.2E-05	3.0E-09	Xe-135m	6.2E-03	1.3E-07
Ba-137m	1.4E-04	9.5E-08	Pr-144	9.8E-05	3.8E-09			

Fract. is the fraction of the core inventory released.

Computed By: _____.

Reviewed By: _____.

Released By: _____.

QEDPS Model Version 1.0 July 14, 1994 Run: 08/08/1994 13:09:30

Doses and dose rates at selected distances (rem)

Distance (miles)	.6	1.2	2.0	4.0	7.0	10.0
TEDE	1.4E-01	1.0E-01	8.2E-02	5.4E-02	4.0E-02	2.9E-02
External Dose	9.5E-02	7.5E-02	6.2E-02	4.0E-02	3.2E-02	2.3E-02
Thyroid CDE	1.6E-01	1.0E-01	7.9E-02	5.1E-02	3.1E-02	2.2E-02

TEDE = Cloud Shine + 4-Day Ground Shine + CEDE Inhalation
External Dose = Cloud Shine + Initial Ground Shine

TEDE Rate	1.4E-01	1.0E-01	8.3E-02	5.4E-02	4.1E-02	2.9E-02
External Dose Rate	9.6E-02	7.6E-02	6.3E-02	4.1E-02	3.3E-02	2.3E-02
Thyroid CDE Rate	1.6E-01	1.0E-01	7.9E-02	5.1E-02	3.1E-02	2.2E-02

NOTE: Values below 1.0E-06 have been set to zero.

You have selected: High Range Stack Monitor Reading = 6500. cps
Release is Filtered Flow = 5380. cfm
Wind Dir. From (deg.) = 330. Wind Spd (mph) = 5.0 Stab. Class = 5
Assumed release duration 1 hr 0 min Release ht = 1 m

Source term: A total of 2.1E+05 Ci were released.

Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.
Kr-85	5.7E-02	3.2E-04	Kr-85m	2.4E+00	3.2E-04	Kr-87	4.8E+00	3.2E-04
Kr-88	6.9E+00	3.2E-04	Sr-89	6.6E-04	2.3E-08	Sr-90	2.6E-05	2.3E-08
Sr-91	7.9E-04	2.3E-08	Y-91	5.7E-05	1.5E-09	Mo-99	3.0E-04	6.2E-09
Tc-99m	3.0E-04	6.2E-09	Ru-103	2.1E-04	6.2E-09	Ru-106	4.5E-05	6.2E-09
Sb-127	2.1E-04	1.2E-07	Sb-129	1.2E-03	1.2E-07	Te-131m	4.3E-04	1.2E-07
Te-132	4.3E-03	1.2E-07	I-131	7.0E-03	2.7E-07	I-132	9.9E-03	2.7E-07
I-133	1.4E-02	2.7E-07	I-134	1.6E-02	2.7E-07	I-135	1.2E-02	2.7E-07
Xe-131m	9.9E-02	3.2E-04	Xe-133	1.7E+01	3.2E-04	Xe-133m	6.0E-01	3.2E-04
Xe-135	3.3E+00	3.2E-04	Xe-138	1.7E+01	3.2E-04	Cs-134	4.4E-04	1.9E-07
Cs-136	1.8E-04	1.9E-07	Cs-137	2.8E-04	1.9E-07	Ba-140	1.5E-03	3.1E-08
La-140	7.5E-05	1.5E-09	Ce-144	2.0E-04	7.7E-09	Np-239	3.9E-03	7.7E-09
Rb-88	6.9E+00	3.2E-04	Rh-106	4.5E-05	6.2E-09	Xe-135m	1.2E-02	2.7E-07
Ba-137m	2.8E-04	1.9E-07	Pr-144	2.0E-04	7.7E-09			

Fract. is the fraction of the core inventory released.

Computed By: _____.

Reviewed By: _____.

Released By: _____.

QEDPS Model Version 1.0 July 14, 1994 Run: 08/08/1994 13:08:16

Distance (miles)	Doses and dose rates at selected distances (rem) .6	1.2	2.0	4.0	7.0	10.0
TEDE	5.0E-02	3.3E-02	2.6E-02	1.7E-02	1.0E-02	7.3E-03
External Dose	2.9E-03	2.3E-03	1.9E-03	1.2E-03	9.7E-04	6.9E-04
Thyroid CDE	7.8E-01	5.0E-01	3.9E-01	2.5E-01	1.5E-01	1.1E-01

TEDE = Cloud Shine + 4-Day Ground Shine + CEDE Inhalation
External Dose = Cloud Shine + Initial Ground Shine

TEDE Rate	5.0E-02	3.3E-02	2.6E-02	1.7E-02	1.0E-02	7.3E-03
External Dose Rate	3.2E-03	2.4E-03	2.0E-03	1.3E-03	1.0E-03	7.2E-04
Thyroid CDE Rate	7.8E-01	5.0E-01	3.9E-01	2.5E-01	1.5E-01	1.1E-01

NOTE: Values below 1.0E-06 have been set to zero.

You have selected: TG Bldg Low Range (CPM) Reading = 440000. cpm
Release is Unfiltered Flow = 320000. cfm
Wind Dir. From (deg.) = 330. Wind Spd (mph) = 5.0 Stab. Class = 5
Assumed release duration 1 hr 0 min Release ht = 1 m

Source term: A total of 4.7E+03 Ci were released.

Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.
Kr-85	8.5E-04	4.8E-06	Kr-85m	3.6E-02	4.8E-06	Kr-87	7.1E-02	4.8E-06
Kr-88	1.0E-01	4.8E-06	Sr-89	3.3E-03	1.1E-07	Sr-90	1.3E-04	1.1E-07
Sr-91	3.9E-03	1.1E-07	Y-91	2.8E-04	7.6E-09	Mo-99	1.5E-03	3.1E-08
Tc-99m	1.5E-03	3.1E-08	Ru-103	1.0E-03	3.1E-08	Ru-106	2.3E-04	3.1E-08
Sb-127	1.1E-03	5.7E-07	Sb-129	5.8E-03	5.7E-07	Te-131m	2.1E-03	5.7E-07
Te-132	2.1E-02	5.7E-07	I-131	3.5E-02	1.3E-06	I-132	4.9E-02	1.3E-06
I-133	7.0E-02	1.3E-06	I-134	7.8E-02	1.3E-06	I-135	6.2E-02	1.3E-06
Xe-131m	1.5E-03	4.8E-06	Xe-133	2.5E-01	4.8E-06	Xe-133m	8.9E-03	4.8E-06
Xe-135	4.9E-02	4.8E-06	Xe-138	2.5E-01	4.8E-06	Cs-134	2.2E-03	9.6E-07
Cs-136	8.8E-04	9.6E-07	Cs-137	1.4E-03	9.6E-07	Ba-140	7.5E-03	1.5E-07
La-140	3.7E-04	7.6E-09	Ce-144	9.9E-04	3.8E-08	Np-239	1.9E-02	3.8E-08
Rb-88	1.0E-01	4.8E-06	Rh-106	2.3E-04	3.1E-08	Xe-135m	6.2E-02	1.3E-06
Ba-137m	1.4E-03	9.6E-07	Pr-144	9.9E-04	3.8E-08			

Fract. is the fraction of the core inventory released.

Computed By: _____.

Reviewed By: _____.

Released By: _____.

QEDPS Model Version 1.0 July 14, 1994 Run: 08/08/1994 10:22:05

Doses and dose rates at selected distances (rem)

Distance (miles)	.6	1.2	2.0	4.0	7.0	10.0
TEDE	5.0E-02	3.3E-02	2.6E-02	1.7E-02	1.0E-02	7.2E-03
External Dose	2.9E-03	2.3E-03	1.9E-03	1.2E-03	9.6E-04	6.9E-04
Thyroid CDE	7.7E-01	5.0E-01	3.9E-01	2.5E-01	1.5E-01	1.1E-01

TEDE = Cloud Shine + 4-Day Ground Shine + CEDE Inhalation
External Dose = Cloud Shine + Initial Ground Shine

TEDE Rate	5.0E-02	3.3E-02	2.6E-02	1.7E-02	1.0E-02	7.3E-03
External Dose Rate	3.1E-03	2.4E-03	2.0E-03	1.3E-03	1.0E-03	7.2E-04
Thyroid CDE Rate	7.7E-01	5.0E-01	3.9E-01	2.5E-01	1.5E-01	1.1E-01

NOTE: Values below 1.0E-06 have been set to zero.

You have selected: RW Bldg Low Range (CPM) Reading = 1670000. cpm
Release is Unfiltered Flow = 84000. cfm
Wind Dir. From (deg.) = 330. Wind Spd (mph) = 5.0 Stab. Class = 5
Assumed release duration 1 hr 0 min Release ht = 1 m

Source term: A total of 4.7E+03 Ci were released.

Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.	Nuclide	Release (Ci/s)	Fract.
Kr-85	8.5E-04	4.8E-06	Kr-85m	3.6E-02	4.8E-06	Kr-87	7.1E-02	4.8E-06
Kr-88	1.0E-01	4.8E-06	Sr-89	3.3E-03	1.1E-07	Sr-90	1.3E-04	1.1E-07
Sr-91	3.9E-03	1.1E-07	Y-91	2.8E-04	7.6E-09	Mo-99	1.5E-03	3.0E-08
Tc-99m	1.5E-03	3.0E-08	Ru-103	1.0E-03	3.0E-08	Ru-106	2.2E-04	3.0E-08
Sb-127	1.1E-03	5.7E-07	Sb-129	5.8E-03	5.7E-07	Te-131m	2.1E-03	5.7E-07
Te-132	2.1E-02	5.7E-07	I-131	3.4E-02	1.3E-06	I-132	4.9E-02	1.3E-06
I-133	7.0E-02	1.3E-06	I-134	7.8E-02	1.3E-06	I-135	6.2E-02	1.3E-06
Xe-131m	1.5E-03	4.8E-06	Xe-133	2.5E-01	4.8E-06	Xe-133m	8.9E-03	4.8E-06
Xe-135	4.9E-02	4.8E-06	Xe-138	2.5E-01	4.8E-06	Cs-134	2.2E-03	9.5E-07
Cs-136	8.8E-04	9.5E-07	Cs-137	1.4E-03	9.5E-07	Ba-140	7.5E-03	1.5E-07
La-140	3.7E-04	7.6E-09	Ce-144	9.8E-04	3.8E-08	Np-239	1.9E-02	3.8E-08
Rb-88	1.0E-01	4.8E-06	Rh-106	2.2E-04	3.0E-08	Xe-135m	6.2E-02	1.3E-06
Ba-137m	1.4E-03	9.5E-07	Pr-144	9.8E-04	3.8E-08			

Fract. is the fraction of the core inventory released.

Computed By: _____.

Reviewed By: _____.

Released By: _____.

RADIAL OUTPUT Statement # 9

Summary of ST-DOSE inputs NEW CASE

Title: STUDY Straight-Line Plume

Plant & Unit: WASHINGTON NUCLEAR UNIT 2

Release Height: 0 M Building Wake: Y Calculation Radius: 25 mi (40 km)

event	date	time	°	Meteorological Data						
Shut Down	10/11/94	00:00	°							
Rel->Cont	10/11/94	00:00	°		date	time	winds	stb	mix	precip
Rel->Envi	10/11/94	00:00	°	1	10/11/94	00:00	90 5 MPH	E	500 M	NONE
Rel End	10/11/94	01:00	°	2						
Expos End	10/11/94	03:00	°	3						
			°	4						

Source Term: Plant Conditions
Containment Bypass (Event V)
Core Condition: GAP RELEASE (uncovered 15-30 min)
Reactor Power: 3323 Mw(t)
Filters: UNFILTERED
Leak Rate: 0.1%/DAY

Plume Model — Maximum doses at selected distances (rem)

Distance (miles)	.5	1.0	2.0	5.0	10.0
(km)	.8	1.6	3.2	8.0	16.1
Acute Bone Total	2.0E-03	1.3E-03	1.0E-03	0.0E+00	0.0E+00
Total EDE (EPA)	1.3E-02	8.5E-03	6.1E-03	3.0E-03	1.6E-03
Thyroid (EPA)	2.9E-01	1.8E-01	1.3E-01	6.4E-02	3.2E-02
Acute Lung	3.0E-03	1.9E-03	1.3E-03	0.0E+00	0.0E+00

Acute Bone Total = Acute Bone Inh. + Cloud Shine + Init. Ground Shine
Total EDE = Cloud Shine + 4-Day Ground Shine + CEDE Inhalation

Acute Bone Inhalation	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Cloud Shine	1.2E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Initial Ground Shine	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
4-Day Ground Shine	1.9E-03	1.2E-03	0.0E+00	0.0E+00	0.0E+00
CEDE Inhalation	1.0E-02	6.6E-03	4.6E-03	2.3E-03	1.1E-03

NOTE: All values below 1.0E-03 have been set to zero.

EPA 400-R-92-001 Appendix B Statement #20

each trimester. Her findings are supported by similar results reported by MacMahon and Hutchinson (MA-64), Kaplan (KA-58), Polhemus and Kock (PO-59), MacMahon (MA-63), Ford, et al. (FO-59), Stewart and Kneale (ST-70b), and an AEC report (AE-61). MacMahon reported that although there were both positive and negative findings, the combination of weighted data indicates a 40 percent increase in childhood cancer mortality after in vivo exposure to diagnostic x rays (1.0 to 5.0 rad): about 1 cancer per 2,000 exposed children in the first 10 years after birth (MA-63). He concluded that although the range of dose within which these effects are observed is wide, effects will be fewer at 1 rad than at 5 rad.

Graham, et al., investigating diagnostic x-ray exposure, found a significantly increased relative risk of leukemia in children: by a factor of 1.6 following preconception irradiation of mothers or in utero exposure of the fetus; by a factor of 2 following postnatal irradiation of the children; and by a factor of 2 following preconception irradiation of the mother and in utero exposure of the child (GR-66).

B.4.1.4 Age Dependence of Doses

Almost all dose models are based on ICRP "Reference Man," which adopts the characteristics of male and female adults of working age. ICRP-30 dosimetric models, which use "Reference Man" as a basis, are therefore appropriate for only adult workers and do not take into account differences in dose resulting from the differences in physiological parameters between children and adults, e.g., intake rates, metabolism, and organ size. Although it is difficult to generalize for all radionuclides, in some cases these differences tend to counterbalance each other. For example, the ratio of volume of air breathed per unit time to lung mass is relatively constant with age, so that the ICRP adult model for inhaled materials provides a reasonably good estimate of the dose from a given air concentration of radioactive material throughout life.

The thyroid is an exception because the very young have a relatively high uptake of radioiodine into a gland that is much smaller than the adult thyroid (see Section B.4.2.2.). This results in a larger childhood dose and an increased risk which persists throughout life. We have examined this worst case situation. Age-specific risk coefficients for fatal thyroid cancer (See Table 6-8 of "Risk Assessment Methodology" (EP-89)) are about 1.9 higher per unit dose for persons exposed at ages 0 to 9 years than for the general population. Age-dependent dose factors (see NRPB-R162 (GR-85)) for inhalation of I-131, are a factor of about 1.7 higher for 10 year olds than for adults. Therefore, the net risk of fatal thyroid cancer from a given air concentration of I-131 is estimated to be a factor of about 3 higher for young children than for the remainder of the population. This difference is not considered large enough, given the uncertainties of exposure estimation for implementing

protective actions, to warrant establishing age-dependent PAGs.

B.4.2 Genetic Risk

An average parental dose of 1 rem before conception has been estimated to produce 5 to 75 significant genetically-related disorders per million liveborn offspring (NA-80). For this analysis we use the geometric mean of this range, i.e. 1.9×10^{-5}. This estimate applies to effects in the first generation only, as a result of dose to parents of liveborn offspring. The sum of effects over all generations is estimated to be approximately twelve times greater; that is, 2.3×10^{-4}. In addition, since any radiation dose delivered after a parent's last conception has no genetic effect, and not all members of the population become parents, less than half of the entire dose in an average population is of genetic significance. Taking the above factors into account, we estimate that the risk of genetically-related disorders in all generations is 1×10^{-4} per person-rem to a typical population.

Although the overall severity of the genetic effects included as "significant" in the above estimates is not well known, rough judgements can be made. The 1980 BEIR report referred to "....disorders and traits that cause a serious handicap at some time during lifetime" (NA-80). From the types of defects reported by Stevenson (ST-59), it can be estimated that, of all radiation-induced genetic effects, 50 percent lead to minor to moderate medical problems (i.e., hair or ear anomalies, polydactyl, strabismus, etc.), 25 percent lead to severe medical problems (i.e., congenital cataracts, diabetes insipidus, deaf mutism, etc.), 23 percent would require extended hospitalization (i.e., mongolism, pernicious anemia, manic-depressive psychoses, etc.), and 2 percent would die before age 20 (i.e., anencephalus, hydrocephalus, pancreatic fibrocytic disease, etc.).

B.4.3 Summary of Risks of Delayed Effects

Table B-4 summarizes average lifetime risks of delayed health effects based on results from the above discussion. Because of the nature of the dose-effect relationships assumed for delayed health effects from radiation (linear, nonthreshold), there is no dose value below which no risk can be assumed to exist.

B.4.4 Risks Associated with Other Radiation Standards

A review of radiation standards for protection of members of the general population from radiation shows a range of values spanning several orders of magnitude. This occurs because of the variety of bases (risk, cost, practicability of implementation, and the situations to which they apply) that influenced the choice of these standards. Some source-specific standards are relatively protective, e.g., the EPA standard limiting exposure of the public from nuclear power operations (25 mrem/y) from all path-

TABLE 12.3-1
AREA MONITORS

Station Number	Location and Title	Building Elevation	Range
1	Reactor Building Fuel Pool Area	606′	10^2-10^6 mrem/hr
2	Reactor Building Fuel Pool Area	606′	1-10^4 mrem/hr
3	Reactor Building New Fuel Area	606′	10^2-10^6 mrem/hr
3A	Reactor Building New Fuel Area #2	606′	10^2-10^6 mrem/hr
4	Reactor Building Control Rod Hyd Equipment Area E	522′	1-10^4 mrem/hr
5	Reactor Building Control Rod Hydr Equipment Area W	522′	1-10^4 mrem/hr
6	Reactor Building Equipment Access Area S	572′	1-10^4 mrem/hr
7	Reactor Building Neutron Monitor System Drive Mech. Area	501′	1-10^4 mrem/hr
8	Reactor Building STGS Filters Area	572′	1-10^4 mrem/hr
9	Reactor Building Northwest RHR Pump Room	422′	1-10^4 mrem/hr
10	Reactor Building Southwest RHR Pump Room	422′	1-10^4 mrem/hr
11	Reactor Building Northeast RHR Pump Room	422′	1-10^4 mrem/hr

2270M/MDS63

Statement # 24, 29

VERIFY PRIOR TO USE

DATE

DIC 1801.1
Rev. No.: 9

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-2 (D21-K602)
Location: E-CP-H13/P673
Bldg.: W
Elev.: 501
Service: Spent Fuel Pool Area Radiation Ratemeter
Sys. No.: 37.0
Manufacturer: General Electric
Model: 129B2802G13
Serial:
Flow Diag.: M-570 (C-12), M893
Logic Diag.: N/A
Inst. Range: 1 - 104 MR/HR
CVI No.: 02-01,38
Quality Class: 2
Seismic Class: 2
Input From E.P. No.: ARM-RE-2
Output to E.P. No.: ARM-RR-600, ARM-AUX-2
Acc. Rated: ± 9.5%
Req.: ± 20%
Loop No.: ARM-RIS-2

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC Sh. 1	02-02D21-05,6,1
Elem. Diag.	NA	NA
Anlg Loop	NA	NA
Instl Detl	NA	NA
Wiring Diag.	NA	NA
Parts List	GEK 27828	02-01,38

Alarm Location:
Local Audible Alarm/ARM-AUX-2
Alarm Location:
Remote 4.602.A5-1.1,6.1
Power Supply and Location: ARM-E/S-603A
Computer Point: None
Computer Input Term: NA
Surv Proc/PM: CFT 7.4.3.7.1.15/CC 7.4.3.7.1.16
I&C Cal Procedure: Use Surv. Proc.

INST. PARAMETERS

Input	Desired Output and Tolerance mR/hr	Loop Check Data Ch 2 ARM-RR-600	Loop Check Data ARM-AUX-2
Hz	mR/hr ± 10% of Pt	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1
1K	10^3 ± 100	10^3 ± 100	10^3 ± 100
10K	10^4 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	
NA	NA	NA	NA ___ Direct ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance mR/hr	Desired Reset	Trip Indication + Tolerance mR/hr	Logic Affected
Downscale	1.0 ± .2 (D)	Record	1.0 ± .2	A5/6-1
Upscale	15 ± 3 (I)	Record	15 ± 3	A5/1-1
				Visual Alarm Locally

Reviewed By: J W Mock

Date: 4-15-94

. No. ARM-RIS-2

tpoint References (Include Revision Number)

Tech. Spec. Trip Setpoint/Alarm ≤ 20mR/hr.
E/I-02-93-07 (Rev. 0): Upscale Trip ≤ 9.5 mR/hr.

1SCR #143

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

Tech Spec Table 3/4.3.7.1-1,2.a.2, Radiation Monitoring Area Monitor, Spent Fuel Storage Area.

1. Check Zero 0.0 ± .001 VDC

2. Check Meter Pegger 80.0 ± 8 Micro Amps

~~2323~~L/MDS64

Statement # 25,30

VERIFY PRIOR TO USE

DATE

DIC 1801.1
Rev. No.: 8

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-1 (D21-K604)	Location: E-CP-H13/P673 Bldg.: W Elev.: 501
Service: Fuel Pool Area Radiation Ratemeter	Sys. No.: 37.0
Manufacturer: General Electric	
Model: 129B2802G17	Flow Diag.: M-570 (C-13), M893
Serial:	Logic Diag.: NA
Inst. Range: 100 - 10^6 MR/HR	
CVI No.: 02-01,38	
Quality Class: 2 Seismic Class: 2	
Input From E.P. No.: ARM-RE-1	
Output to E.P. No.: ARM-RR-600, ARM-AUX-1	
Acc. Rated: ± 9.5% Req.: ± 20%	
Loop No.: ARM-RIS-1	

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC Sh. 1	02D21-05,6,1
Elem. Diag.		
Anlg Loop		02-01-6001
Instl Detl	E701	
Wiring Diag.	EWD-37E001	
Parts List	GEK 27828	02-01,38

Alarm Location: Local Audible Alarm/ARM-AUX-1	Alarm Location: Remote 4.602.A5-1.1, 6.1
Power Supply and Location: ARM-E/S-603A, H13-P673 D21A-F2	
Computer Point: TDAS 23029 (072)	Computer Input Term: R600B07A
Surv Proc/PM: NA	I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance mR/hr	Loop Check Data: Tag 072 TDAS 23029	Ch 1 ARM-RR-600	ARM-AUX-1
Hz	mR/hr ± 10% of Pt	mR/hr	mR/hr	mR/hr
300	10^3 ± 100	1000 ± 100	10^3 ± 100	10^3 ± 100
3K	10^4 ± 1K	10^4 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	
NA	NA	NA	NA ___ Direct ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance mR/hr	Desired Reset	Trip Indication + Tolerance mR/hr	Logic Affected
Downscale	100 ± 20 (D)	Record	100 ± 20	(A5/6-1)
Upscale	300 ± 60 (I)	Record	300 ± 60	ARM-AUX-1 (A5/1-1)

JW Mock 4-15-94

. No. ARM-RIS-1

ipoint References (Include Revision Number)

E/I-02-93-07 (Rev. 0): There is no engineering basis for a high radiation trip setpoint for this instrument. Any setpoint may be chosen at the operational convenience of the Plant provided that it is consistent with Section 12.3 of the WNP-2 FSAR.

1SCR 142, 218

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check zero 0.0 ± .001 VDC

2. Check meter pegger 120 ± 12 Micro Amps

Statement #27

AREA RADIATION MONITOR NORMAL READINGS AND SETPOINTS

ARM NO.	LOCATION	NORMAL READING	ALARM SETPOINT
1	Spent Fuel Pool	200 mR/hr[1]	[2] Actual 300±60 mR/hr
2	Spent Fuel Pool		TS≤20 mR/hr E/I[3]≤9.5 mR/hr Actual 15±3 mR/hr
3	New Fuel Area		TS≤5 R/hr E/I≤2379 mR/hr Actual 4000±800 mR/hr
3A	New Fuel Area		TS≤5 R/hr E/I≤2370 mR/hr Actual 4000±800 mR/hr
4	East CRD Area	5 mR/hr	E/I≤1280 mR/hr Actual 40±8 mR/hr
5	West CRD Area	20 mR/hr	E/I≤212 mR/hr Actual 100±20 mR/hr
6	Rx Bldy.Vent Intake	5 mR/hr	E/I≤42.7 mR/hr Actual 25±5 mR/hr
7	TIP Drive Area	10 mR/hr	E/I≤42.7 mR/hr Actual 25±5 mR/hr
8	SGTS Area	2 mR/hr	E/I≤42.7 mR/hr Actual 25±5 mR/hr
9	RHR Pump 2A	65 mR/hr	E/I≤1,700 mR/hr Actual 100±20 mR/hr
10	RHR Pump 2B	40 mR/hr	E/I≤1,700 mR/hr Actual 150±30 mR/hr

[1]Normal Readings = Reactor at 97.8% power, 8/18/94, 12:45 PM

[2]There is no engineering basis for a high radiation trip setpoint for this instrument. Any setpoint may be chosen at the operational convenience of the Plant provided that it is consistent with Section 12.3 of the WNP-2 FSAR.

[3]E/I = E/I-02-93-07 (Rev. 0)

ARM NO.	LOCATION	NORMAL READING	ALARM SETPOINT
11	RHR Pump 2C	6 mR/hr	E/I $\leq$ 170.8 mR/hr Actual 30 $\pm$ 6 mR/hr
12	RCIC Pump Rm	8 mR/hr	E/I $\leq$ 17.08 mR/hr Actual 45 $\pm$ 9 mR/hr
13	HPCS Pump Rm	20 mR/hr	E/I $\leq$ 42 mR/hr Actual 35 $\pm$ 5 mR/hr
23	CRD Pumps Area	15 mR/hr	E/I $\leq$ 1280 mR/hr Actual 45 $\pm$ 9 mR/hr
24	Rx 471, NW	4 mR/hr	E/I $\leq$ 42 mR/hr Actual 35 $\pm$ 7 mR/hr
32	Rx 471	100 mR/hr	Actual 50 $\pm$ 0.5 R/hr
33	RX 501	100 mR/hr	Actual 50 $\pm$ 0.5 R/hr

2361L/MDS63

Statement #28

VERIFY PRIOR TO USE

DATE

DIC 1801.1

Rev. No.: 10

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-4 (D21-K602)	Location: E-CP-H13/P673 Bldg.: W Elev.: 501'
Service: CRD Area East Radiation Monitor	Sys. No.: 37.0
Manufacturer: General Electric	
Model: 129B2802G13	Flow Diag.: M-569 (H-12), M893
Serial:	Logic Diag.: NA
Inst. Range: 1.0 - 104 mR/hr	
CVI No.: 02-01.38	
Quality Class: 2 / Seismic Class: 2	
Input From E.P. No.: ARM-RE-4	
Output to E.P. No.: ARM-RR-600, ARM-AUX-4	
Acc. Rated: ± 9.5% / Req.: ± 20%	
Loop No.: ARM-RIS-4	

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC St/1	02D21-05.6.1
Elem. Diag.		
Anlg Loop		
Instl Detl		
Wiring Diag	37E002	
Parts List	GEK 27828	02-01.38

Alarm Location: Local ARM-AUX-4	Alarm Location: Remote 4.602.A5-3.1, 6.1
Power Supply and Location: ARM-E/S-603A, H13-P673 D21A-F2	
Computer Point: TDAS 23041 (047)	Computer Input Term: R600A14A
Surv Proc/PM:	I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance mR/hr	Loop Check Data: Tag 047 TDAS 23029	ARM-RR-600 Ch 4	ARM-AUX-4
Hz	mR/hr ± 10% of Pt	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1	10 ± 1
1000	10^3 ± 100	1000 ± 100	10^3 ± 100	10^3 ± 100
10K	10^4 ± 1K	9.999 x 10^3 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	
NA	NA	NA	NA ___ Direct ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance mR/hr	Desired Reset	Trip Indication + Tolerance mR/hr	Logic Affected
Downscale	1.0 ± .2 (D)	Record	1.0 ± .2	A5/6-1
Upscale	40 ± 8 (I)	Record	40 ± 8	Visual Alarm At ARM-AUX-4 & A5/3-1

Reviewed By: M. Widmeyer

Date: 4/20/94

E.P. No. ARM-RIS-4

Setpoint References (Include Revision Number)

E/I-02-93-07 (Rev. 0): Upscale Trip ≤ 1280 mR/hr.

ISCR 146, 557, 891

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check zero 0.0 ± .001 VDC
2. Check meter pegger 80.0 ± 8 Micro Amps
3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures.

2362L/MDS32

VERIFY PRIOR TO USE

DATE

DIC 1801.1
Rev. No.: 18

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-5 (D21-K602)
Location: E-CP-H13/P673+
Bldg.: W
Elev.: 501'
Service: CRD West Area Radiation Monitor
Sys. No.: 37.0
Manufacturer: General Electric
Model: 129B2802G13
Flow Diag.: M-569 (C-1) (C-2), M893
Serial: 6578289
Logic Diag.: NA
Inst. Range: 1.0 - 10^4 mR/hr
CVI No.: 02-01.38
Quality Class: 2
Seismic Class: 2
Input From E.P. No.: ARM-AUX-5
Output to E.P. No.: ARM-RR-600, ARM-AUX-5
Acc. Rated: ± 9.5%
Req.: ± 20%
Loop No.: ARM-RIS-5

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC St/2	02D21-05.6.2
Elem. Diag.		
Anlg Loop		
Instl Detl		
Wiring Diag	37E003	
Parts List	GEK 27828	02-01.38

Alarm Location:
Local None
Alarm Location:
Remote 4.602.A5-3.1, 6.1
Power Supply and Location: ARM-E/S-603A, H13-P673 D21A-F2
Computer Point: TDAS 23042 (062)
Computer Input Term: R600A14B
Surv Proc/PM:
I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance	Loop Check Data		
		Tag 062 TDAS 23042	ARM-RR-600 Ch 5	ARM-AUX-5
Hz	mR/hr ± 10% of Pt	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1	10 ± 1
1000	10^3 ± 100	1000 ± 100	10^3 ± 100	10^3 ± 100
10K	10^4 ± 1K	9.999 x 10^3 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	Direct / Reverse
NA	NA	NA	NA

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance	Desired Reset	Trip Indication + Tolerance	Logic Affected
Downscale	(D) 1.0 ± .2 mR/hr	Record	1.0 ± .2 mR/hr	A5/6-1
Upscale	(I) 100 ± 20 mR/hr	Record	100 ± 20 mR/hr	A5/3-1
				Visual Alarm at ARM-AUX-5

Reviewed By: J W Mock
Date: 2-28-94

E.P. No. ARM-RIS-5

Setpoint References (Include Revision Number)
E/I 02-93-02 (Rev. 0)
CMR 93-0459: Upscale Trip ≤ 212 mR/hr

ISCR 147, 558, 602, 673T, 738, 892, 986, 1010,1045, 1071, 1184

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check Zero 0.0 ± .001 VDC

2. Check Meter Pegger 80.0 ± 8 Micro Amps

3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures. If changes to the alarm setpoints are made an evaluation must be made by Operations to determine if changes to the Emergency Operating Procedures are required.

2363L/MDS63

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

VERIFY PRIOR TO USE

DATE

DIC 1801.1
Rev. No.: 7

E.P. No.: ARM-RIS-6 (D21-K602)
Location: E-CP-H13/P673
Bldg.: W
Elev.: 501'
Service: RX Bldg. Vent Intake ROA-HV-1
Sys. No.: 37.0
Manufacturer: General Electric
Model: 129B2802G13
Flow Diag.: M-570 (F-3), M893
Serial:
Logic Diag.: NA
Inst. Range: 1.0 - 10^4 mR/hr
CVI No.: 02-01.38
Quality Class: 2
Seismic Class: 2
Input From E.P. No.: ARM-AUX-6
Output to E.P. No.: ARM-RR-600, ARM-AUX-6
Acc. Rated: ± 9.5%
Req.: ± 20%
Loop No.: ARM-RIS-6

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC St/2	02D21-05.6.2
Elem. Diag.		
Anlg Loop		
Instl Detl		
Wiring Diag	37E003	
Parts List	GEK 27828	02-01.38

Alarm Location:
Local None
Alarm Location:
Remote 4.602.A5-3.1, 6.1
Power Supply and Location: ARM-E/S-603A, H13-P673 D21A-F2
Computer Point: TDAS 23043 (048)
Computer Input Term: R600A15A
Surv Proc/PM:
I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance mR/hr	Loop Check Data: Tag 048 TDAS 23043	ARM-RR-600 Ch 6	ARM-AUX-6
Hz	mR/hr ± 10% of Pt	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1	10 ± 1
1000	10^3 ± 100	1000 ± 100	10^3 ± 100	10^3 ± 100
10K	10^4 ± 1K	9.999 x 10^3 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	
NA	NA	NA	NA ___ Direct ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance mR/hr	Desired Reset	Trip Indication + Tolerance mR/hr	Logic Affected
Downscale	1.0 ± .2 (D)	Record	1.0 ± .2	A5/6-1
Upscale	25 ± 5 (I)	Record	25 ± 5	A5/3-1
				Visual Alarm at ARM-AUX-6

Reviewed By: M. Widmeyer
Date: 4/20/94

E.P. No. ARM-RIS-6

Setpoint References (Include Revision Number)

E/I-02-93-07 (Rev. 0): Upscale Trip ≤ 42.7 mR/hr.

ISCR 148, 893

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check Zero 0.0 ± .001 VDC
2. Check Meter Pegger 80.0 ± 8 Micro Amps
3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures.

2364L/MDS63

VERIFY PRIOR TO USE

DATE

DIC 1801.1
Rev. No.: 8

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-7 (D21-K602)
Location: E-CP-H13/P673
Bldg.: W
Elev.: 501'
Service: TIP-Neutron Drive Area Radiation Ratemeter
Sys. No.: 37.0
Manufacturer: General Electric
Model: 129B2802G13
Serial:
Flow Diag.: M-568 (G-8), M893
Logic Diag.: NA
Inst. Range: 1.0 - 10^4 mR/hr
CVI No.: 02-01.38
Quality Class: 2
Seismic Class: 2
Input From E.P. No.: ARM-AUX-7
Output to E.P. No.: ARM-RR-600, ARM-AUX-7
Acc. Rated: ± 9.5%
Req.: ± 20%
Loop No.: ARM-RIS-7

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC St/2	02D21-05.6.2
Elem. Diag.		
Anlg Loop		
Instl Detl		
Wiring Diag	37E004	
Parts List	GEK 27828	02-01.38

Alarm Location:
Local None
Alarm Location:
Remote 4.602.A5-3.1, 6.1
Power Supply and Location: ARM-E/S-603A
Computer Point: TDAS 23044 (063)
Computer Input Term: R600A15B
Surv Proc/PM:
I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance mR/hr	Loop Check Data: Tag 063 TDAS 23044	ARM-RR-600 Ch 7	ARM-AUX-7
Hz	mR/hr ± 10% of Pt	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1	10 ± 1
1000	10^3 ± 100	1000 ± 100	10^3 ± 100	10^3 ± 100
10K	104 ± 1K	9.999 x 10^3 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	
NA	NA	NA	NA ___ Direct ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance mR/hr	Desired Reset	Trip Indication + Tolerance mR/hr	Logic Affected
Downscale	1.0 ± .2 (D)	Record	1.0 ± .2	A5/6-1
Upscale	25 ± 5 (I)	Record	25 ± 5	A5/3-1
				Visual Alarm at ARM-AUX-7

Reviewed By: M. Widmayer
Date: 4/20/94

E.P. No. ARM-RIS-7

Setpoint References (Include Revision Number)

E/I-02-93-07 (Rev. 0): Upscale Trip ≤ 42.7 mR/hr.

ISCR 149, 894

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check Zero 0.0 ± .001 VDC
2. Check Meter Pegger 80.0 ± 8 Micro Amps
3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures.

2365L/MDS63

VERIFY PRIOR TO USE

DATE

DIC 1801.1

Rev. No.: 7

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-8 (D21-K602)

Location: E-CP-H13/P673 H3/6

Bldg.: W

Elev.: 501'

Service: Standby Gas Treatment Area Radiation Ratemeter

Sys. No.: 37.0

Manufacturer: General Electric

Model: 129B2802G13

Flow Diag.: M-570 (F-8)

Serial:

Logic Diag.: NA

Inst. Range: 1.0 - 10^4 mR/hr

CVI No.: 02-01.38

Quality Class: 2

Seismic Class: 2

Input From E.P. No.: ARM-AUX-8

Output to E.P. No.: ARM-RR-600, ARM-AUX-8

Acc. Rated: ± 9.5%

Req.: ± 20%

Loop No.: ARM-RIS-8

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC St/2	02D21-05.6.2
Elem. Diag.		
Anlg Loop		
Instl Detl		
Wiring Diag.	37E004	
Parts List	GEK 27828	02-01.38

Alarm Location:
Local None

Alarm Location:
Remote 4.602.A5-3.1, 6.1

Power Supply and Location: ARM-E/S-603A, H13-P673 D21A-F2

Computer Point: TDAS 23017 (083)

Computer Input Term: R600B03B

Surv Proc/PM:

I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance ~~mR~~ ~~mH~~/hr	Loop Check Data: Tag 083 TDAS 23017	ARM-RR-600 Ch 8	ARM-AUX-8
Hz	mR/hr ± 10% of Pt	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1	10 ± 1
1000	10^3 ± 100	1000 + 100	10^3 ± 100	10^3 ± 100
10K	10^4 ± 1K	9.999 x 10^3 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	
NA	NA	NA	NA ___ Direct ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance mR/hr	Desired Reset	Trip Indication + Tolerance mR/hr	Logic Affected
Downscale	1.0 ± .2 (D)	Record	1.0 ± .2	A5-6.1
Upscale	25 ± 5 (I)	Record	25 ± 5	A5-3.1

Reviewed By: M. Widmeyer

Date: 4/20/94

E.P. No. ARM-RIS-8

Setpoint References (Include Revision Number)

E/I-02-93-07 (Rev. 0): Upscale Trip ≤ 42.7 mR/hr.

ISCR 150, 896

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check Zero 0.0 ± .001 VDC
2. Check Meter Pegger 80.0 ± 8 Micro Amps
3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures.

2366L/MDS8

VERIFY PRIOR TO USE

DATE

DIC 1801.1
Rev. No.: 10

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-9 (D21-K602)
Location: E-CP-H13/P673+
Bldg.: W
Elev.: 501'
Service: RHR Pump Room #2 Area (RHR-P-2A)
Sys. No.: 37.0
Manufacturer: General Electric
Model: 129B2802G13
Flow Diag.: M-567 (D-13), M893
Serial: 6578291
Logic Diag.: NA
Inst. Range: 1.0 - 10^4 mR/hr
CVI No.: 02-01.38
Quality Class: 2
Seismic Class: 2
Input From E.P. No.: ARM-AUX-9
Output to E.P. No.: ARM-RR-600, ARM-AUX-9
Acc. Rated: ± 9.5%
Req.: ± 20%
Loop No.: ARM-RIS-9

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC St/2	02D21-05.6.2
Elem. Diag.		
Anlg Loop		
Instl Detl		
Wiring Diag.	37E005	
Parts List	GEK 27828	02-01.38

Alarm Location:
Local None
Alarm Location:
Remote 4.602.A5-3.1, 6.1
Power Supply and Location: ARM-E/S-603A
Computer Point: TDAS 23018 (069)
Computer Input Term: R600B04A
Surv Proc/PM:
I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance	Loop Check Data: TDAS 069 and ARM-RR-600, Ch 9	Loop Check Data: ARM-AUX-9
Hz	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1
100	10^2 ± 10	10^2 ± 10	10^2 ± 10
10K	10^4 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	Direct / Reverse
NA	NA	NA	NA

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance	Desired Reset	Trip Indication + Tolerance	Logic Affected
Downscale	(D) 1.0 ± .2 mR/hr	Record	1.0 ± .2 mR/hr	A5-6.1
Upscale	(I) 100 ± 20 mR/hr	Record	100 ± 20 mR/hr	A5-3.1

Reviewed By: JW Mock
Date: 2-28-94

E.P. No. ARM-RIS-9

Setpoint References (Include Revision Number)

E/I-02-93-02 (Rev. 0)
Upscale Trip $\leq 1.7 \times 10^3$ mR/hr

ISCR #151, 478, 540, 603, 1143, 1146

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check the zero 0.0 ± .001 VDC

2. Check the meter pegger 80 ± 8 μ Amps

3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures. If changes to the alarm setpoints are made an evaluation must be made by Operations to determine if changes to the Emergency Operating Procedures are required.

2367L/MDS8

VERIFY PRIOR TO USE

DATE

DIC 1801.1

Rev. No.: 10

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-10 (D21-K602)	Location: E-CP-H13/P673+ Bldg.: W Elev.: 501'
Service: RHR Pump Room #1 Area (RHR-P-2B)	Sys. No.: 37.0
Manufacturer: General Electric	
Model: 129B2802G13	Flow Diag.: M-567 (D-11), M893
Serial: 6578274	Logic Diag.: NA
Inst. Range: 1.0 - 10^4 mR/hr	Dwg.No. / CVI No.
CVI No.: 02-01.38	Elem. Diag. 807E169TC St/2 — 02D21-05.6.2
Quality Class: 2 / Seismic Class: 2	Elem. Diag.
Input From E.P. No.: ARM-AUX-10	Anlg Loop
Output to E.P. No.: ARM-RR-600, ARM-AUX-10	Instl Detl
Acc. Rated: ± 9.5% / Req.: ± 20%	Wiring Diag. 37E005
Loop No.: ARM-RIS-10	Parts List GEK 27828 — 02-01.38
Alarm Location: Local None	Alarm Location: Remote 4.602.A5-3.1, 6.1
Power Supply and Location: ARM-E/S-603A	
Computer Point: TDAS 23019 (084)	Computer Input Term: NA
Surv Proc/PM: NA	I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance	Loop Check Data: TDAS (084) and ARM-RR-600 Ch 10	Loop Check Data: ARM-AUX-10
Hz	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1
100	10^2 ± 10	10^2 ± 10	10^2 ± 10
10K	10^4 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	___ Direct / ___ Reverse
NA	NA	NA	NA

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance	Desired Reset	Trip Indication + Tolerance	Logic Affected
Downscale	(D) 1.0 ± .2 mR/hr	Record	1.0 ± .2 mR/hr	A5-6.1
Upscale	(I) 150 ± 30 mR/hr	Record	150 ± 30 mR/hr	A5.3-1

Reviewed By: J W Mock

Date: 2-28-94

E.P. No. ARM-RIS-10

Setpoint References (Include Revision Number)

E/I-02-93-02 (Rev. 0)
Upscale Trip ≤ 1.7×10^3 mR/hr

ISCR #152, 475, 541, 1143, 1146, 1183

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check the zero 0.0 ± .001 VDC
2. Check the meter pegger 80 ± 8% R.S. μ Amps
3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures. If changes to the alarm setpoints are made an evaluation must be made by Operations to determine if changes to the Emergency Operating Procedures are required.

2368L/MDS63

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

VERIFY PRIOR TO USE

DATE

DIC 1801.1
Rev. No.: 6

E.P. No.: ARM-RIS-11 (D21-K602)
Location: E-CP-H13/P673
Bldg.: W
Elev.: 501'
Service: RHR Pump Room #4 Area (RHR-P-2C)
Sys. No.: 37.0
Manufacturer: General Electric
Model: 129B2802G13
Flow Diag.: M-567 (G-14), M893
Serial:
Logic Diag.: NA
Inst. Range: 1.0 - 10^4 mR/hr
CVI No.: 02-01.38
Quality Class: 2
Seismic Class: 2
Input From E.P. No.: ARM-AUX-11
Output to E.P. No.: ARM-RR-600, ARM-AUX-11
Acc. Rated: ± 9.5%
Req.: ± 20%
Loop No.: ARM-RIS-11

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC St/2	02D21-05.6.2
Elem. Diag.		
Anlg Loop		
Instl Detl		
Wiring Diag	37E006	
Parts List	GEK 27828	02-01.38

Alarm Location:
Local None
Alarm Location:
Remote 4.602.A5-3.1, 6.1
Power Supply and Location: ARM-E/S-603B
Computer Point: TDAS 23020 (070)
Computer Input Term: R600B05A
Surv Proc/PM:
I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance	Loop Check Data	
		TDAS 070 and ARM-RR-600 Ch 11	ARM-AUX-11
Hz	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1
100	10^2 ± 10	10^2 ± 10	10^2 ± 10
10K	10^4 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	Direct
NA	NA	NA	NA ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance mR/hr	Desired Reset	Trip Indication + Tolerance mR/hr	Logic Affected
Downscale	1.0 ± .2 (D)	Record	1.0 ± .2	A5-6.1
Upscale	30 ± 6 (I)	Record	30 ± 6	A5-3.1

Reviewed By: M. Widmayer
Date: 4/20/94

E.P. No. ARM-RIS-11

Setpoint References (Include Revision Number)

E/I-02-93-07 (Rev. 0): Upscale Trip ≤ 170.8 mR/hr.

1SCR 153, 476

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check the zero 0.0 ± .001 VDC
2. Check the meter pegger 80 ± 8% μ Amps
3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures.

2369L/MDS63

VERIFY PRIOR TO USE

DATE

DIC 1801.1
Rev. No.: 7

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-12 (D21-K602)
Location: E-CP-H13/P673
Bldg.: W
Elev.: 501'
Service: RCIC Pump Room Area Radiation Ratemeter
Sys. No.: 37.0
Manufacturer: General Electric
Model: 129B2802G13
Serial: 6578285
Flow Diag.: M-567 (E-14), M893
Logic Diag.: NA
Inst. Range: 1.0 - 10^4 mR/hr
CVI No.: 02-01.38
Quality Class: 2
Seismic Class: 2
Input From E.P. No.: ARM-AUX-12
Output to E.P. No.: ARM-RR-600, ARM-AUX-12
Acc. Rated: ± 9.5%
Req.: ± 20%
Loop No.: ARM-RIS-12

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC St/3	02D21-05.6.3
Elem. Diag.		
Anlg Loop		
Instl Detl		
Wiring Diag	EWD-37E006	
Parts List	GEK 27828	02-01.38

Alarm Location:
Local None
Alarm Location:
Remote 4.602.A5-3.1, 6.1
Power Supply and Location: ARM-E/S-603B
Computer Point: TDAS 23021 (085)
Computer Input Term: R600B05B
Surv Proc/PM:
I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance	Loop Check Data: TDAS 085 and ARM-RR-600 Ch 12	Loop Check Data: ARM-AUX-12
Hz	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1
100	10^2 ± 10	10^2 ± 10	10^2 ± 10
10K	10^4 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	
NA	NA	NA	NA ___ Direct ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance mR/hr	Desired Reset	Trip Indication + Tolerance mR/hr	Logic Affected
Downscale	1.0 ± .2 (D)	Record	1.0 ± .2	A5-6.1
Upscale	45 ± 9 (I)	Record	45 ± 9	A5-3.1

Reviewed By: M Widmeyer
Date: 4/21/94

E.P. No. ARM-RIS-12

Setpoint References (Include Revision Number)

E/I-02-93-07 (Rev. 0): Upscale Trip ≤ 17.08 mR/hr.

ISCR 154, 477, 805

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check the zero 0.0 ± .001 VDC
2. Check the meter pegger 80 ± 8% μ Amps
3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures.

2370L/MDS17

VERIFY PRIOR TO USE

DATE

DIC 1801.1
Rev. No.: 9

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-13 (D21-K602)
Location: E-CP-H13/P673+
Bldg.: W
Elev.: 501'
Service: HPCS Pump Room Area Radiation Ratemeter
Sys. No.: 37.0
Manufacturer: General Electric
Model: 129B2802G13
Flow Diag.: M-567 (G-11)
Serial: 6578290
Logic Diag.: NA
Inst. Range: 1.0 - 10^4 mR/hr
CVI No.: 02-01,38
Quality Class: 2
Seismic Class: 2
Input From E.P. No.: ARM-AUX-13
Output to E.P. No.: ARM-RR-600, ARM-AUX-13
Acc. Rated: ± 9.5%
Req.: ± 20%
Loop No.: ARM-RIS-13

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC St/3	02D21-05,6,3
Elem. Diag.		
Anlg Loop		
Instl Detl		
Wiring Diag	37E007	
Parts List	GEK 27828	02-01,38

Alarm Location:
Local None
Alarm Location:
Remote 4,602,A5-3,1, 6,1
Power Supply and Location: ARM-E/S-603B
Computer Point: TDAS 23022 (071)
Computer Input Term: R600B06A
Surv Proc/PM:
I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance	Loop Check Data: TDAS 071 and ARM-RR-600 Ch 13	Loop Check Data: ARM-AUX-13
Hz	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1
1000	10^3 ± 100	10^3 ± 100	10^3 ± 100
10K	10^4 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	
NA	NA	NA	NA ___ Direct ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance	Desired Reset	Trip Indication + Tolerance	Logic Affected
Downscale	(D) 1.0 ± .2 mR/hr	Record	1.0 ± .2 mR/hr	A5-6.1
Upscale	(I) 35 ± 5 mR/hr	Record	35 ± 5 mR/hr	A5-3.1

Reviewed By: JW Mock
Date: 2-28-94

E.P. No. ARM-RIS-13

Setpoint References (Include Revision Number)

E/I-02-93-02 (Rev. 0)
Upscale Trip ≤ 42 mR/hr

ISCR #155, 872, 1174

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check zero - 0.0 ± .001 VDC

2. Check meter pegger - 80.0 ± 8 μ AMPS

3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures. If changes to the alarm setpoints are made an evaluation must be made by Operations to determine if changes to the Emergency Operating Procedures are required.

2308L/MDS63

VERIFY PRIOR TO USE

DATE

DIC 1801.1

Rev. No.: 8

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-23 (D21-K602)

Location: E-CP-H13/P673

Bldg.: W

Elev.: 501'

Service: Control Rod Drive Pumps Area Radiation Ratemeter

Sys. No.: 37.0

Manufacturer: General Electric

Model: 129B2802G13

Flow Diag.: M-567 (G-10), M893

Serial:

Logic Diag.: NA

Inst. Range: 1.0 - 10^4 mR/hr

CVI No.: 02-01.38

Quality Class: 2

Seismic Class: 2

Input From E.P. No.: ARM-AUX-23

Output to E.P. No.: ARM-RR-600, ARM-AUX-23

Acc. Rated: ± 9.5%

Req.: ± 20%

Loop No.: ARM-RIS-23

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC St/5	02D21-05.6.5
Elem. Diag.		
Anlg Loop		
Instl Detl		
Wiring Diag.	EWD-37E012	
Parts List	GEK 27828	02-01.38

Alarm Location:
Local None

Alarm Location:
Remote 4.602.A5-3.1, 6.1

Power Supply and Location: ARM-E/S-603C, H13-P673 D21A-F2

Computer Point: TDAS 23046 (078)

Computer Input Term: R600B13A

Surv Proc/PM:

I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance mR/hr	Loop Check Data: Tag 078 TDAS 23046	ARM-RR-600 Ch 23	ARM-AUX-23
Hz	mR/hr ± 10% of Pt	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1	10 ± 1
1000	10^3 ± 100	1000 ± 100	10^3 ± 100	10^3 ± 100
10K	10^4 ± 1K	9.999 x 10^3 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	
NA	NA	NA	NA ___ Direct ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance mR/hr	Desired Reset	Trip Indication + Tolerance mR/hr	Logic Affected
Downscale	1.0 ± .2 (D)	Record	1.0 ± .2	A5/6-1
Upscale	45 ± 9 (I)	Record	45 ± 9	A5/3-1

Reviewed By: J W Mock

Date: 4-20-94

E.P. No. ARM-RIS-23

Setpoint References (Include Revision Number)

E/I-02-93-07 (Rev. 0): Upscale Trip ≤ 1280 mR/hr.

ISCR 165, 764, 890

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check Zero 0.0 ± .001 VDC
2. Check Meter Pegger 80.0 ± 8 Micro Amps
3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures.

2381L/MDS32

VERIFY PRIOR TO USE

DATE

DIC 1801.1
Rev. No.: 16

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WNP-2
INSTRUMENT MASTER DATA SHEET

E.P. No.: ARM-RIS-24 (D21-K602)
Location: E-CP-H13/P673+
Bldg.: W
Elev.: 501'
Service: Rx Building N.W. Area Equip. Access Area West 471'
Sys. No.: 37.0
Manufacturer: General Electric
Model: 129B2802G13
Flow Diag.: M-568 (C-13), M893
Serial: 6604736
Logic Diag.: NA
Inst. Range: 1.0 - 10^4 mR/hr
CVI No.: 02-01.38
Quality Class: 2
Seismic Class: 2
Input From E.P. No.: ARM-AUX-24
Output to E.P. No.: ARM-RR-600, ARM-AUX-24
Acc. Rated: ± 9.5%
Req.: ± 20%
Loop No.: ARM-RIS-24

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC St/5	02D21-05.6.5
Elem. Diag.		
Anlg Loop		
Instl Detl		
Wiring Diag.	37E012	
Parts List	GEK 27828	02-01.38

Alarm Location:
Local None
Alarm Location:
Remote 4.602.A5-3.1, 6.1
Power Supply and Location: ARM-E/S-603C
Computer Point: TDAS 23047 (093)
Computer Input Term: R600B13B
Surv Proc/PM:
I&C Cal Procedure: 10.24.18

INST. PARAMETERS

Input	Desired Output and Tolerance	Loop Check Data		
		Ch 24 ARM-RR-600	TDAS (093)	ARM-AUX-24
Hz	mR/hr	mR/hr	mR/hr	mR/hr
10	10 ± 1	10 ± 1	10 ± 1	10 ± 1
1000	10^3 ± 100	10^3 ± 100	10^3 ± 100	10^3 ± 100
10K	10^4 ± 1K	10^4 ± 1K	10^4 ± 1K	10^4 ± 1K

PB or Gain	Reset	Rate	
NA	NA	NA	NA ___ Direct ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance	Desired Reset	Trip Indication + Tolerance	Logic Affected
Downscale	(D) 1.0 ± .2 mR/hr	Record	1.0 ± .2 mR/hr	A5-6.1 Alarm
Upscale	(I) 35 ± 7 mR/hr	Record	35 ± 7 mR/hr	A5-3.1 Alarm

Reviewed By: JW Mock
Date: 2-28-94

E.P. No. ARM-RIS-24

Setpoint References (Include Revision Number)
E/I-02-93-02 (Rev. 0)
CMR 93-0459: Upscale Trip ≤ 42 mR/hr

ISCR #166, 985, 1011,1046,1072, 1184

Test Equipment Required Accuracy	Input:
	Output:

Addenda:

1. Check the Zero 0.0 ± .001 VDC.

2. Check the Meter Pegger 80 ± 80 μ Amps.

3. The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures. If changes to the alarm setpoints are made an evaluation must be made by Operations to determine if changes to the Emergency Operating Procedures are required.

2598m/2227w

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

WNP-2

INSTRUMENT MASTER DATA SHEET

DIC 1801.1
Rev. No.: 5

E.P. No.: ARM-RIS-32	Location: E-CP-H13/P614+
	Bldg.: W Elev.: 501'
Service: Reactor Bldg. High Area Radiation Monitor EL 471'	Sys. No.: 37.0
Manufacturer: General Atomics	
Model: RP-2A	Flow Diag.: M544 (H-3)
Serial: RIS-S/N 183 Detector SIN 012	Logic Diag.:
Inst. Range: 10^{-1} to 10^{4} R/Hr	Dwg.No. / CVI No.
CVI No.: 2-18-02-1-1	Elem. Diag. 807E169TC Sh.1
Quality Class: 2 Seismic Class: 2	Elem. Diag.
Input From E.P. No.: ARM-RE-32 *See Addenda	Anlg Loop M634-44-PI
Output to E.P. No.: ARM-RI-32, ** See Addenda	Instl Detl
Acc. Rated: ± 10% Req.: ± 10%	Wiring Diag. 37E016, 1E003
Loop No.: ARM-RIS-32 10% Loop Acc.	Parts List
Alarm Location: Local NA	Alarm Location: Remote 4.602.A5-6.1, 3.1
Power Supply and Location: PP-8A-A Ckt. 12 JB16 H13-P685 Fuse AAF1 (5 Amp)	
Computer Point: TDAS 17025 (087)	Computer Input Term: R600B13A
Surv Proc/PM:	I&C Cal Procedure: 10.27.24

INST. PARAMETERS

Input Amps	Desired Output and Tolerance R/HR	Loop Check Data (Red Pen) ARM-RR-32	(087) TDAS 17025	ARM-RI-32
1.17×10^{-11}	10^{-1} ± .01	10^{-1} R/HR ± .01	10^{-1} R/HR ± .01	10^{-1} R/HR ± .01
1.17×10^{-9}	10^{1} ± 1	10^{1} R/HR ± 1	10^{1} R/HR ± 1	10^{1} R/HR ± 1
1.17×10^{-7}	10^{3} ± 100	10^{3} R/HR ± 100	10^{3} R/HR ± 100	10^{3} R/HR ± 100
1.17×10^{-6}	10^{4} ± 10^{3}	10^{4} R/HR ± 10^{3}	10^{4} R/HR ± 10^{3}	10^{4} R/HR ± 10^{3}

PB or Gain	Reset	Rate	Direct / Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance R/Hr	Desired Reset	Trip Indication + Tolerance	Logic Affected
1	(D) Contacts Close	Record	Downscale Alarm Not Adjustable	Downscale Alarm A5-6.1
2	(I) 50 ± .5 Contacts Open (See Addenda Note 5)	Record		Reac Bldg Rad High Alarm A5-3.1

Reviewed By: M. Widmayer

Date: 90/7/24

E.P. No. ARM-RIS-32

Setpoint References (Include Revision Number)

1SCR #175

Addenda:

1) * Sensitivity = $1.17 \times 10^{-10} \frac{A}{R/Hr}$

2) ** ARM-RR-32, Alarm, Comp. Pt.

3) FSAR Ref. Table 7.5-1 pg. 7.5-34

4) Cal. Procedure Data Information Table

INPUT CURRENT (A)	RATEMETER DOSE RATE (R/hr)	TP-3 (VDC)
1.17×10^{-11}	10^{-1}	0.00
1.17×10^{-10}	10^{0}	2.00
1.17×10^{-9}	10^{1}	4.00
1.17×10^{-8}	10^{2}	6.00
1.17×10^{-7}	10^{3}	8.00
1.17×10^{-6}	10^{4}	10.00

5) Trip 2 contacts used. Trip 1 is not used and setpoint shall be adjusted above that of Trip 2.

6) The annuciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures. If changes to the alarm setpoints are made, an evaluation must be made by Operations to determine if changes to the Emergency Operating Procedures are required.

2599m/2227w

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

WNP-2
INSTRUMENT MASTER DATA SHEET

DIC 1801.1
Rev. No.: 6

..P. No.: ARM-RIS-33
Location: E-CP-H13/P614+
Bldg.: W
Elev.: 501'
Service: Reactor Bldg. High Range Area Radiation Monitor EL 501'
Sys. No.: 37.0
Manufacturer: General Atomics
Model: RP-2A
Flow Diag.: M543 (J-6)
Serial: RIS-S/N 187 Detector S/N 013
Logic Diag.:
Inst. Range: 10^{-1} to 10^{4} R/Hr
CVI No.: 02-18-02, 1
Quality Class: 2
Seismic Class: 2
Input From E.P. No.: ARM-RE-33 *See Addenda
Output to E.P. No.: ARM-RI-32, ** See Addenda
Acc. Rated: ± 10%
Req.: ± 10%
Loop No.: ARM-RIS-33 10% Loop Acc.

	Dwg.No.	CVI No.
Elem. Diag.	807E169TC Sh.1	
Elem. Diag.		
Anlg Loop	M634-44-PI	
Instl Detl		
Wiring Diag.	37E016, 1E003	
Parts List		

Alarm Location:
Local NA
Alarm Location:
Remote 4.602.A5-6.1, 3.1
Power Supply and Location: PP-8A-A Ckt. 12 JB16 In H13-P685
Computer Point: TDAS 17026 (075)
Computer Input Term: R600B10A
Surv Proc/PM:
I&C Cal Procedure: 10.27.31

INST. PARAMETERS

Input Amps	Desired Output and Tolerance R/HR	Loop Check Data (Green Pen) ARM-RR-32	(075) TDAS 17026	ARM-RI-33
$.12 \times 10^{-11}$	10^{-1} ± .01	10^{-1} R/HR ± .01	10^{-1} R/HR ± .01	10^{-1} R/HR ± .01
1.12×10^{-9}	10^{1} ± 1	10^{1} R/HR ± 1	10^{1} R/HR ± 1	10^{1} R/HR ± 1
1.12×10^{-7}	10^{3} ± 100	10^{3} R/HR ± 100	10^{3} R/HR ± 100	10^{3} R/HR ± 100
1.12×10^{-6}	10^{4} ± 10^{3}	10^{4} R/HR ± 10^{3}	10^{4} R/HR ± 10^{3}	10^{4} R/HR ± 10^{3}

PB or Gain	Reset	Rate	___ Direct ___ Reverse

SWITCH FUNCTIONAL DATA

Switch No.	Set/Trip Point + Tolerance R/Hr	Desired Reset	Trip Indication + Tolerance	Logic Affected
1	(D) Contacts Close	Record	Downscale Alarm Not Adjustable	Downscale Alarm A5-6.1
2*	(I) 50 ± .5 Contacts Open	Record		Reac Bldg Rad High Alarm A5-3.1

* See Addenda Note 5)

Reviewed By: [signature]
Date: 9/7/10

E.P. No. ARM-RIS-33

Setpoint References (Include Revision Number)

ISCR #175

Addenda:

1) * Sensitivity = $1.17 \times 10^{-10} \frac{A}{R/Hr}$

2) ** ARM-RR-32, Alarm, Comp. Pt.

3) FSAR Ref. Table 7.5-1 pg. 7.5-34

4) Cal. Procedure Data Information Table

INPUT CURRENT (A)	RATEMETER DOSE RATE (R/hr)	TP-3 (VDC)
1.12×10^{-11}	10^{-1}	0.00
1.12×10^{-10}	10^{0}	2.00
1.12×10^{-9}	10^{1}	4.00
1.12×10^{-8}	10^{2}	6.00
1.12×10^{-7}	10^{3}	8.00
1.12×10^{-6}	10^{4}	10.00

5) The annunciator actuated by this switch is used by Operations personnel to signify required entry into Emergency Operating Procedures. If changes to the alarm setpoints are made, an evaluation must be made by Operations to determine if changes to the Emergency Operating Procedures are required.