EP File No._____

Statement # 4, 5, 13, 14, 16, 17, & 19

TECHNICAL BASES FOR GU1, GA1, GS1, & GG1 EALs

INCREASED RADIATION RELEASE TO THE ENVIRONMENT

Prepared: D.E. Larson
September 12, 1994

Threshold values for Emergency Action Levels under Initiating Condition GU1 were established at two times the applicable ODCM limit. For gaseous effluents, the threshold takes into account the partitioning of total allowable release between the release points. The high alarm is used for the elevated release intermediate range monitor and the high-high alarm is used for the radwaste and turbine building low range monitors. Liquid effluent thresholds for SW and TSW are based on high alarms and take into account the 80% of allowable setting of the alarm. The FDR threshold is based on 100% of the high-high alarm.

Liquid effluent thresholds of 200 times the ODCM limits under Initiating Condition GA1 use the same bases as the unusual event EALs.

Gaseous effluent EALs for GA1, GS1, and GG1 are not based on alarm levels, but on emergency dose projection results using accident source term embedded in the QEDPS code. Threshold monitor readings were calculated by equating effluent monitor readings to Site Boundary doses through reiterative use of the QEDPS code.

For those cases where standby gas treatment was noted to be in service, one train was assumed to be operating with a design flow of 5380 CFM. This assumption is considered to be conservative for the following reasons. The assumed flow 5380 exceeds the Technical Specification required flow for a single train of 4457 $\pm$ 10% CFM. PPM 4.12.4.6 directs the Control Room staff to secure one SGT train per PPM 2.3.5 if a single train will maintain -1.7" wg. PPM 2.3.5 notes that -1.7" wg is the vacuum indication required to assure -0.25" wg in all areas of the reactor building. Technical Specification 3.6.5.1 requires an 18 month surveillance with one train of SGT running for one hour maintaining -0.25 " wg or better with flow less than 2240 CFM.

Where standby gas treatment is not applicable, the building design flow rate was used as follows: Reactor Building 86,000 cfm, Turbine Building 320,000 cfm, and Radwaste Building 84,000 cfm. In all cases wind speed was set at 5 mph with E stability class to represent annual average meteorological conditions per FD Quinn. Duration of release was set at one hour. QEDPS assumes no decay of source term prior to release.

Results were compared with values previously provided to the EAL upgrade project. The QEDPS monitor inputs were also entered into BEDPS under like conditions.

Calculations used in the previous submittal assumed two trains of Standby Gas Treatment in operation for the duration of the release. As noted above, only one train is expected to be in operation after the first few minutes of an event. A factor of two increase in the threshold is therefore expected in those cases where SGT is on.

Differences between QEDPS and BEDPS results for identical inputs can be summarized as follows:

For Radwaste and Turbine Building exhaust monitors, both low and extended range, BEDPS calculates a result approximately 4 times higher than QEDPS.

For the Reactor Building exhaust monitors, BEDPS calculates a dose nearly equal to QEDPS when Standby Gas Treatment is off.

When Standby Gas Treatment is operating, BEDPS calculates a TEDE 10 times QEDPS results and Thyroid CDE approximately 5 times QEDPS.

These differences are considered to be well within the acceptable tolerances of the emergency dose projection models.

CLASSIFICATION	MONITOR & READING	BASIS FOR THRESHOLD
NOUE	PRM-RE-1B 905,000 CPS	2 x ODCM = 5 x Hi ALARM = 5 x 181,000 CPS (Ref ISCR 1197)
NOUE	TEA-RIS-13 16,750 CPM	2 x ODCM = 5 x H-H ALARM = 5 x 3350 CPM (Ref ISCR 1086)
NOUE	WEA-RIS-14 120,000 CPM	2 x ODCM = 10 x H-H ALARM = 10 x 12,000 CPM (Ref ISCR 318)
NOUE	SW-RE-4 200 CPS	2 x ODCM = 2 x Hi ALARM = 2 x 80/0.8 (Ref ISCR 1085)
NOUE	SW-RE-5 200 CPS	2 x ODCM = 2 x Hi ALARM = 2 x 80/0.8 (Ref ISCR 995)
NOUE	FDR-RE-6 2 x Hi-Hi	2 x ODCM = 2 x H-H ALARM (Ref ODCM 2.5)
NOUE	TSW-RE-5 3900 CPM	2 x ODCM = 2 x H-H ALARM/0.8 = 2 x 1250/0.8 (Ref ISCR 1080)
ALERT	PRM-RE-1C 850 CPS	10 mr/hr TEDE or 50 mr/hr thyroid CDE (Ref QEDPS run 1 Attached)
ALERT	TEA-RIS-13 44,000 CPM	10 mr/hr TEDE or 50 mr/hr thyroid CDE (Ref QEDPS run 5 Attached)
ALERT	WEA-RIS-14 167,000 CPM	10 mr/hr TEDE or 50 mr/hr thyroid CDE (Ref QEDPS run 6 Attached)

CLASSIFICATION	MONITOR & READING	BASIS FOR THRESHOLD
ALERT	SW-RE-4 20,000 CPS	200 x ODCM = 200 x Hi ALARM/0.8 = 200 x 80/0.8 (Ref ISCR 1085)
ALERT	SW-RE-5 20,000 CPS	200 x ODCM = 200 x Hi ALARM/0.8 = 200 x 80/0.8 (Ref ISCR 995)
ALERT	FDR-RE-6 200 x Hi-Hi	200 x ODCM = 200 x H-H ALARM (Ref ODCM 2.5)
ALERT	TSW-RE-5 390,000 CPM	200 x ODCM = 200 x H-H ALARM/0.8 = 200 X 1250/0.8 (ISCR 1080)
SAE	PRM-RE-1C 6500 CPS	100 mr/hr TEDE or 500 mr/hr CDE SGTS on (Ref QEDPS run 7 Attached)
SAE	TEA-RE-13 440,000 CPM	100 mr/hr TEDE or 500 mr/hr CDE (Ref QEDPS run 8 Attached)
SAE	WEA-RE-14 1,670,000 CPM	100 mr/hr TEDE or 500 mr/hr CDE (Ref QEDPS run 9 Attached)
GE	PRM-RE-1C 65,000 CPS	1000 mr/hr TEDE or 5000 mr/hr CDE, SGTS on (Ref QEDPS run 2 Attached)
GE	TEA-RIS-13A 8 PMU	1000 mr/hr TEDE or 5000 mr/hr CDE (Ref QEDPS run 3 Attached)
GE	WEA-RIS-14A 26 PMU	1000 mr/hr TEDE or 5000 mr/hr CDE (Ref QEDPS run 4 Attached)

WASHINGTON PUBLIC POWER SUPPLY SYSTEM **ORIGINAL**

INSTRUMENT SETPOINT CHANGE REQUEST

ISCR Number: 1080

ORIGINATOR

Quality Class: 1 ☐ 2 ☒ 2+ ☐ G ☐ MEL EPN: FSW-R15-5

Technical Specification Instr. YES ☒ No ☐

Calculation Required YES ☐ No ☒

Original Calc. No.: ORIGINATED BY: [signature]

Tech. Spec. Section: 3/4 3.7.11 table 3.3.7.11-1

Tech. Spec. Limit: 80% of 137Cs MpCa per Section 2 of ODCM

Affected Procedures / System Components: PPM Cft 7.4.3.7.11.5 CC 7.4.3.7.11.4

Existing Setpoint / Range (Admin. Limit/Calib. Tol.) HV Op 1050 LLD -2.75 HV Inop 1000 ULD ~~-14.0~~ -13.2 [illegible]

Reason For Change: Radiometric Recalibration (Periodic) [illegible] operating parameters

New Setpoint / Range (Admin. Limit/Calib. Tol.) HV Op 1075 LLD -2.75 HV INOP 1025 ULD -14.0 Volts

APPROVALS

Plant Technical Control Sys. Eng.: M. Widmeyer Date: 7/31/91

System Engineer: [signature] Date: 7-29-91

Plant Engineering Supervisor: [signature] Date: 7/31/91

\+ HP Chem Manager / ~~Operations~~: [signature] Date: 7-31-91

\+\+Plant Oper. Committee (or PMR#): J. Baker Date: 8/1/91

\+ HP / Chemistry Manager required only on Rad Monit Setpoints / Operations required only for Administrative Limits and Calibration tolerances for instruments addressed in the Tech. Spec.

\+\+ Required for Technical Specifications Quality Class I, Fire Protection or Security Changes if PMR has not been previously approved by POC.

SEE NEXT PAGE FOR TEMPORARY SETPOINT CHANGE APPROVALS

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

INSTRUMENT SETPOINT CHANGE REQUEST

1080

APPROVALS

TEMPORARY SETPOINT CHANGE APPROVALS

Shift Manager: NA Date: NA

Plant Engineer: Date:

+HP Chem Manager Date:

Affected Procedure(s) Deviated: Date:

Procedure No.

\+ HP / Chemistry Manager required only on Rad Monit Setpoints / Operations required only for Administrative Limits and Calibration tolerances for instruments addressed in the Tech. Spec.

Forward to Plant Technical Control Systems Engineer

Necessary Approvals Obtained

Control System Engineer: M. Widmeyer Date: 8/1/91

IMPLEMENTATION

PROCEDURE REVISIONS / DEVIATIONS

PROCEDURE NUMBER	REV. No.	DEVIATION No.	INITIAL	Date Comp.
NA				

Setpoint Change MWR No: AR 5210 Date: ~~7-29-91~~ 9/20/91

Original Revised MDS to Plant Records: Date: 8/5/91

Copy of MDS & ISCR Distributed to

DEPARTMENT	COMPLETED BY	DATE
I & C MAINTENANCE	OLA	9/5/91
OPERATIONS	OLA	8/5/91
HP / CHEMISTRY	OLA	8/5/91
NUCLEAR LICENSE TRAINING	OLA	8/5/91
PROCEDURES	OLA	8/5/91

SAFETY RELATED

10CFR50.59 REVIEW

CONTROLLED COPY

Implementing Doc. No. ISCR# 1080 p.3

Implementing Activity Description Radiological Calibration of the turbine Service Water Monitor, TSW-RIS-5

	YES	NO
1. Is a change to the WNP-2 Technical Specifications necessary to implement this activity? *(If response is yes, then the activity may not be fully implemented without prior NRC staff approval)*	☐	☒
2. Does this implementing activity constitute a change to WNP-2 which could functionally affect a safety related SSC as described in the LBD?	☐	☒
3. Does this implementing activity constitute a change to WNP-2 which could affect nuclear safety in a manner not previously evaluated?	☐	☒
4. Does this implementing activity change or affect the intent of a procedure or process from the intent of the commitments described, outlined, or summarized in the LBD?	☐	☒
5. Does this implementing activity represent a special test or experiment not previously described in the LBD that might affect safe operation of the Plant?	☐	☒

If there is a yes response to either question 2, 3, 4, or 5, then a Safety Evaluation must be completed

If the responses to questions 2 through 5 are all NO, a written justification is required. the setpoints have been adjusted in accordance with the performance of the radiological calibration. these adjustments ensure that the monitor will continue to provide alarms at the existing tech. spec limits in accordance with the referenced LBD's.

Is additional justification information attached? YES ☐ NO ☒

References T/S 3/4.3.7.11 table 3.3.7.11-1 & 3.11.1.1
ODCM Section 2 (Liquids)
FSAR 11.5.1.1.2; 11.5.2.2.2.4; table 11.5-2
P.P.M's 7.4.3.7.11.4, ~~X~~ 5, 22; 12.13.17; 12.13.25

Is additional reference information attached? YES ☐ NO ☒

Prepared by A I Davis Date 26 July 1991

Reviewed by John R Allen Date 7-25-91

958-24431 R1 (12/90) PPM 1.3.43

ATTACHMENT 7.1

PROCEDURE NUMBER	REVISION NUMBER	PAGE NUMBER
1.3.43	2	15 of 28

SAFETY RELATED

CONTROLLED COPY

SUMMARY OF RADIOLOGICAL CALIBRATION
TURBINE SERVICE WATER MONITOR TSW-RIS-5

Date of Calibration 25 July 1991 ISCR #1080 p.4

Primary Calibration:

Date of Primary Calibration 8 Nov 1993

Liquid Calibration Factor 6.76+7 cpm/μCi/ml

Transfer Source Identification No. 2-83-85E Isotope ^{137}Cs Activity 054 μCi

Transfer Source Calibration Factor 1.61+5 cpm/μCi

Current Calibration:

Transfer Source Current Activity 0.4432 μCi

Transfer Source Count Rate 72081 ± 422 @ 1σ % Error

Transfer Source Calibration Factor 1.626+5 cpm/μCi

Current Transfer Source to Primary Calibration Ratio $\frac{1.626+5}{1.61+5}$ = 1.0099

Recalculated Liquid Calibration Factor 6.827+7 cpm/μCi/ml

Instrument Parameters

Detector:

High Voltage Operate	1075 Volts
High Voltage Incr	10 25 Volts
Upper Level Discriminator	-14 Volts
Lower Level Discriminator	-2.75 Volts

Alarm Setpoints from PPM 7.4.3.7.11.4

Low disabled cpm High 610 cpm High High 1250 cpm

Wally - The cal's have not been totally reviewed but the portions relating to the attached ISCR have been & they are OK. John R Cobb 7-28-91

Remarks:

Prepared By: Albert L Owens Date 7-25-91

Attachment A

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

ORIGINAL

INSTRUMENT SETPOINT CHANGE REQUEST

ISCR Number: 1085

ORIGINATOR

Quality Class: 1 [X] 2 [ ] 2+ [ ] G [ ] MEL EPN: SW-RIS-604

Technical Specification Instr. YES [X] No [ ]

Calculation Required YES [ ] No [X]

Original Calc. No.: 5.52.036 ORIGINATED BY: A.I.DAVIS

Tech. Spec. Section: 3/4.3.7.11

Tech. Spec. Limit: NA

Affected Procedures / System Components: 7.4.3.7.11.7, 7.4.3.7.11.6A

Existing Setpoint / Range (Admin. Limit/Calib. Tol.) HV Oper 1000 V PHD Voltage 8.50 V
HV INOP 950 V

Reason For Change:
Radiometric Recalibration and reset operating parameters.

Note: No change to HV parameters. IMDS should be changed to reflect new PHD value.

New Setpoint / Range (Admin. Limit/Calib. Tol.) HV Operating: 1000 V PHD : 8.40 V
HV INOP: 950 V

APPROVALS

Plant Technical Control Sys. Eng.: M Widmeyer Date: 9/4/91

System Engineer: W.P.K. Date: 9-4-91

Plant Engineering Supervisor: R Baker Date: 9-4-91

+ HP Chem Manager / Operations: Date: 9-6-91

++Plant Oper. Committee (or PMR#): J W Baker Date: 9-6-91

\+ HP / Chemistry Manager required only on Rad Monit Setpoints / Operations required only for Administrative Limits and Calibration tolerances for instruments addressed in the Tech. Spec.

++ Required for Technical Specifications Quality Class I, Fire Protection or Security Changes if PMR has not been previously approved by POC.

SEE NEXT PAGE FOR TEMPORARY SETPOINT CHANGE APPROVALS

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

ORIGINAL

INSTRUMENT SETPOINT CHANGE REQUEST

ISCR Number: 1085 Page of

APPROVALS

TEMPORARY SETPOINT CHANGE APPROVALS

Shift Manager: NA Date:

Plant Engineer: NA Date:

+HP Chem Manager NA Date:

Affected Procedure(s) Deviated: NA Date:
Procedure No.

\+ HP / Chemistry Manager required only on Rad Monit Setpoints / Operations required only for Administrative Limits and Calibration tolerances for instruments addressed in the Tech. Spec.

Forward to Plant Technical Control Systems Engineer

Necessary Approvals Obtained

Control System Engineer: M. Widmeyer Date: 9/6/91

IMPLEMENTATION

PROCEDURE REVISIONS / DEVIATIONS

PROCEDURE NUMBER	REV. No.	DEVIATION No.	INITIAL	Date Comp.
NA	NA	NA	NA	NA

Setpoint Change MWR No: AR5565 Date: 9/25/91

Original Revised MDS to Plant Records: DLA Date: 9/10/91

Copy of MDS & ISCR Distributed to

DEPARTMENT	COMPLETED BY	DATE
I & C MAINTENANCE	DLA	9/10/91
OPERATIONS	DLA	9/10/91
HP / CHEMISTRY	DLA	9/10/91
NUCLEAR LICENSE TRAINING	DLA	9/10/91

ORIGINAL 10CFR50.59 REVIEW

Implementing Doc. No. ISCR 1085 p.3

Implementing Activity Description Radiological calibration of the RHR Loop A Service Water monitor, SW-RIS-604, and resetting of operating parameters.

	YES	NO
1. Is a change to the WNP-2 Technical Specifications necessary to implement this activity? *(If response is yes, then the activity may not be fully implemented without prior NRC staff approval)*	☐	☑
2. Does this implementing activity constitute a change to WNP-2 which could functionally affect a safety related SSC as described in the LBD?	☐	☑
3. Does this implementing activity constitute a change to WNP-2 which could affect nuclear safety in a manner not previously evaluated?	☐	☑
4. Does this implementing activity change or affect the intent of a procedure or process from the intent of the commitments described, outlined, or summarized in the LBD?	☐	☑
5. Does this implementing activity represent a special test or experiment not previously described in the LBD that might affect safe operation of the Plant?	☐	☑

If there is a yes response to either question 2, 3, 4, or 5, then a Safety Evaluation must be completed

If the responses to questions 2 through 5 are all NO, a written justification is required. The setpoints have been adjusted as part of the performance of the radiological calibration per the referenced surveillance procedures to ensure that the monitor will continue to provide alarms at the existing ODCM Limits in accordance with the referenced LBD's.

Is additional justification information attached?	YES	NO
	☐	☑

References T/S 3/4.3.7.11

ODCM Section 2.9, 2.9.1

FSAR 11.5.2.2.2.1 table 11.5-2

PPM 7.4.3.7.11.7, 7.4.3.7.11.6A, 7.4.3.7.11.24

PPM 12.13.13

Is additional reference information attached?	YES	NO
	☐	☑

Prepared by A.I. DAVIS Albert I. Davis Date 29 JULY '91

Reviewed by JOHN R. ALLEN John R Allen Date 8-27-91

SAFETY RELATED **ORIGINAL** CONTROLLED COPY

ISCR 1085
p.4
SW-RIS-604

SUMMARY OF RADIOLOGICAL CALIBRATION
RHR SERVICE WATER MONITOR SW-RIS-604

Date of Calibration 24 July 1991

Primary Calibration:

Date of Primary Calibration 26 June 1987

Liquid Calibration Factor 4.4693+6 cps/μCi/ml

Transfer Source Identification No. 2-83-85E Isotope ^{137}Cs Activity 0.4827 μCi

Transfer Source Calibration Factor 4110.9 cps/μCi

Current Calibration:

Transfer Source Current Activity 0.4433 μCi

Transfer Source Count Rate 1827.2 ± 0.24% @ 1 σ % Error

Transfer Source Calibration Factor 4110.9 cps/μCi

Current Transfer Source to Primary Calibration Ratio $\frac{4110.9}{4110.9}$ = 1.00267

Recalculated Liquid Calibration Factor 4.5018+6 cps/μCi/ml

Instrument Parameters

Detector:

High Voltage Operate	1000 Volts
High Voltage Inop	950 Volts
Pulse Height Discriminator	8.40 Volts

Alarm Setpoints from PPM 7.4.3.7.11.6A

Low 0.5 cps High 80 cps High High 165 cps

Remarks:

Prepared By: A D Harris Date 7-26-91

Attachment A

ORIGINAL

INSTRUMENT SETPOINT CHANGE REQUEST

ISCR No. 995

ORIGINATOR

1. Quality Class: I. ✓ II. ___ G. ___
   Technical Spec. Instr. Yes ✓ No ___
   Calculation Required Yes ___ No ✓ Orig Calc ___
2. Originated by Albert J Davis Date 6 June 1990
3. MEL No. and Function SW-RIS-605 RHR Loop B Rad Mon.
4. Tech. Spec. Section 3/4.3.7.11
5. Tech. Spec. Limit None - Off Site Dose Calc. Manual.
6. Affected Procedures/System Components CFT 7.4.3.7.11.7 CC 7.4.3.7.11.6 B.
   Existing Setpoint/Range H.V. op 1000 LLD. 7.2 Volts.
7. (Admin. Limit/Calib. Tol.) inop 950
8. Reason For Change
   Rad Recal. High Voltage 1025 operate 975 Inop.
   LLD 6.4
9. New Setpoint/Range (Admin. Limit/Calib. Tol.)

ENGINEER

1. Necessary Approvals Obtained M. Widmeyer / 6/6/90
   Control Systems Eng. / Date
2. Orig revised MOS to Plant Records DLA / 6/7/90 Date
3. Copy of MOS & ISCR to I&C Maint. DLA / 6/7/90 Date
4. Copy of MOS & ISCR to Operations DLA / 6/7/90 Date
   HP Chem DLA / 6/7/90 Date
   Nuclear License Training DLA / 6/7/90 Date
5. Setpoint Changes; Calibration Date NA
6. Affected Procedures Revised/Deviated NA / ___
   No. Date

Attachment A
Page 1 of 2

SAFETY RELATED

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ISCR # 995
sh. 3 of 6

10CFR50.59 EVALUATON PROCESS FLOW CHART

NOTE: The 10CFR50.59 Evaluation implementing processes will typically address items 1 through 4 only and the USQ Analysis would be processed only if required by an affirmative response to question 2, 3, or 4.

	YES	NO
1. Is a change to the WNP-2 Technical Specification necessary to implement this activity?		X
2. Does this implementing activity constitute a physical change to WNP-2 as described in the FSAR or not in the FSAR and affects nuclear safety in a way not previously evaluated?		X
3. Does this implementing activity constitute a change to a procedural commitment as described in the FSAR?		X
4. Does this implementing activity represent a special test or experiment not previously described in the FSAR?		X

If question 1 is answered YES, then prior NRC approval is required prior to implementation.

If either question 2, 3 or 4 are answered YES, then an USQ Analysis must be performed.

YES (1)

YES (2,3,4)

(1,2,3,4 NO)

5. Does the Unreviewed Safety Question Analysis identify the implementing activity as representing an USQ? Refer to Attachment B.	YES	NO

YES

NO

Activity may not be fully implemented without prior NRC staff approval.

NRC Staff Authorization Received

Implement Activity

NOTE: Upon POC approval, partial implementation may occur without prior NRC staff approval.

Prepared by Albert J Davis Date 6 June 1990

Approved by [signature] Date 6-6-90

Attachment A

SAFETY RELATED

CONTROLLED COPY

1 ISCR # 995

INSTRUMENT SETPOINT CALCULATION

2 Sheet 4 of 6

3 Date 6-6-90

4 EPN SW-RIS-605 5 Description RHR loop B Rad Mon.

6 Purpose Rad Recal

7 References:

Document #	Rev	Description
7.4.3.7.11.25	1	Rad Cal & SW-RIS-605

8 Setpoint Derivation (Attach additional sheets as required)

Attachment A & 7.4.3.7.11.25 (measured - data).

Engineer Albert D Lewis Date 6 June 90

9 [X] Verification Checklist (or) [ ] Alternate Calculation (attached)

- [X] Accuracy of Input Data
- [X] Validity of Assumptions
- [X] Appropriateness of Method
- [X] Arithmetical Accuracy

[X] 10CFR50.59 Review

I&C Engineer or HP/Chemistry Support Supervisor — Date 6-6-90

10 Approval:

HP/Chemistry Manager or Plant Engineering Supervisor, Control Systems — Date 6-6-90

Attachment A
Page 1 of 2

SAFETY RELATED

CONTROLLED COPY

ISCR # 995
sh. 6 of 6
SW-RIS-605

SUMMARY OF RADIOLOGICAL CALIBRATION
RHR SERVICE WATER MONITOR SW-RIS-605

Date of Calibration 5 March 90

Primary Calibration:

Date of Primary Calibration 26 June 1987

Liquid Calibration Factor 4.428E+6 cps/μCi/ml

Transfer Source Identification No. 2-83-85E Isotope ^{137}Cs Activity 0.487 μCi

Transfer Source Calibration Factor 3991.0 cps/μCi

Current Calibration:

Transfer Source Current Activity 0.41576 μCi

Transfer Source Count Rate 1844.6 ± 0.64 @ 10% Error

Transfer Source Calibration Factor 4031. cps/μCi

Current Transfer Source to Primary Calibration Ratio 4031/3991 = 1.010

Recalculated Liquid Calibration Factor 4.535E6 cps/μCi/ml

Instrument Parameters

Detector:

High Voltage Operate	1025 Volts
High Voltage Inop	975 Volts
Upper Level Discriminator	N/A Volts
Lower Level Discriminator	6.4 Volts

Alarm Setpoints from PPM 7.4.3.7.11.68

Low 0.5 cpm High 80 cpm High High 105 cpm

Remarks:

Reviewers:

Responsible HP or Radiochemist C J Lewis Date 5 March 1990

HP Support Supervisor D J Faint Date 3-13-90

Attachment A

3252m/2248w

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

WNP-2
INSTRUMENT MASTER DATA SHEET

DIC 1801.1
Rev. No.: 12

E.P. No.: SW-RIS-605 (D17-K605)		Location: 2-E-CP-H13/P604+ N1/9.5	
		Bldg.: W	Elev.: 501'
Service: RHR Service Water (Loop B)			Sys. No.: 36.0
Manufacturer: GE			
Model: 368X103AAG001		Flow Diag.: M524 Sh.2 H-14	
Serial: 6578410		Logic Diag.: M620 Sh. 524-21	
Inst. Range: .1 - 10^6 CPS			Dwg.No. / CVI No.
CVI No.: 2-94-1401		Elem. Diag.	807E168TC-7 / 2-02-01,5
Quality Class: 1	Seismic Class: 2	Elem. Diag.	
Input From E.P. No.: SW-RT-2		Anlg Loop	
Output to E.P. No.: K601-4B, SW-RR-2		Instl Detl	M619 SH. 174
Acc. Rated:	Req.: ± 20%	Wiring Diag.	GEK-45808 / 02-02-01,51,1
Loop No.: SW-RIS-605		Parts List	
Alarm Location: Local NA		Alarm Location: Remote P602 A5/5-3, 5-5, 3-4	
Power Supply and Location: DP-SO-B Bkr. 2 MCR 24 VDC Instr. Bus B See Addenda (2)			
Computer Point: NA		Computer Input Term: NA	
Surv Proc/PM: CFT 7.4.3.7.11.7/CC 7.4.3.7.11.6B		I&C Cal Procedure: Use Surveillance Proc.	

INST. PARAMETERS

Input CPS	Desired Output and Tolerance METER (Note Addenda)	Loop Check Data SW-RR-2 (Green Pen)
1	1 CPS ± .2	1 CPS ± .2
10	10 CPS ± 2	10 CPS ± 2
10^2	10^2 CPS ± 20	10^2 CPS ± 20
10^3	10^3 CPS ± 200	10^3 CPS ± 200
10^4	10^4 CPS ± 2000	10^4 CPS ± 2000
10^5	10^5 CPS ± 20000	10^4 CPS ± 20000

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

SWITCH FUNCTIONAL DATA

Switch No. *See Addenda	Set/Trip Point + Tolerance	Desired Reset	Trip Indication + Tolerance	Logic Affected
Z 16B	(D)0.5 CPS ± .1(CC)	Record	0.5 CPS	Failure Alarm
Z 17A	(I)75 CPS ± 15(CC)	Record	75 CPS	High Alarm
Z 17B	(I)10^5 ± .2 x 10^5	Record	10^5 CPS	High High Alarm

Reviewed By: M. Widmeyer Date: 90/6/6

Original ! Re Issue

INSTRUMENT SETPOINT CHANGE REQUEST

ISCR No. 973

ORIGINATOR

1. Quality Class: I. ___ II. ✓ G. ___
   Technical Spec. Instr. Yes ✓ No ___
   Calculation Required Yes ✓ No ___ Orig Calc ___
2. Originated by Albert A. Davis Date 9 July 1990 reissue
3. MEL No. and Function CWEA-R15-14 RW Bldg NE Eff. Mon.
4. Tech. Spec. Section 3/4.3.11.2.2 3/4.3.11.2.5
5. Tech. Spec. Limit Alarm 202/500 mR/hr. ODCM 3.6.2
6. Affected Procedures/System Components CFT 2.4.3.7.12.17 CC 2.4.3.7.12.18
7. Existing Setpoint/Range (Admin. Limit/Calib. Tol.) HV OP 900 V LLD -0.497 HV Low OP 850 V ULD -12.48
8. Reason For Change
   Radiometrics Recalibration
   HV OP 925
   HV Low OP 875
   ULD -12.5
   LLD -0.5
9. New Setpoint/Range (Admin. Limit/Calib. Tol.)

ENGINEER

1. Necessary Approvals Obtained M. Widmeyer / 7/10/90 (Control Systems Eng. / Date)
2. Orig revised MDS to Plant Records R.S. / 7-10-90 (Date)
3. Copy of MDS & ISCR to I&C Maint. R.S. / 7-10-90 (Date)
4. Copy of MDS & ISCR to Operations R.S. / 7-10-90 (Date)
   HP Chem R.S. / 7-10-90 (Date)
   Nuclear License Training R.S. / 7-10-90 (Date)
5. Setpoint Changes; Calibration Date NA
6. Affected Procedures Revised/Deviated NA / (No. / Date)

Attachment A
Page 1 of 2

GP-536 R1 (5-83)

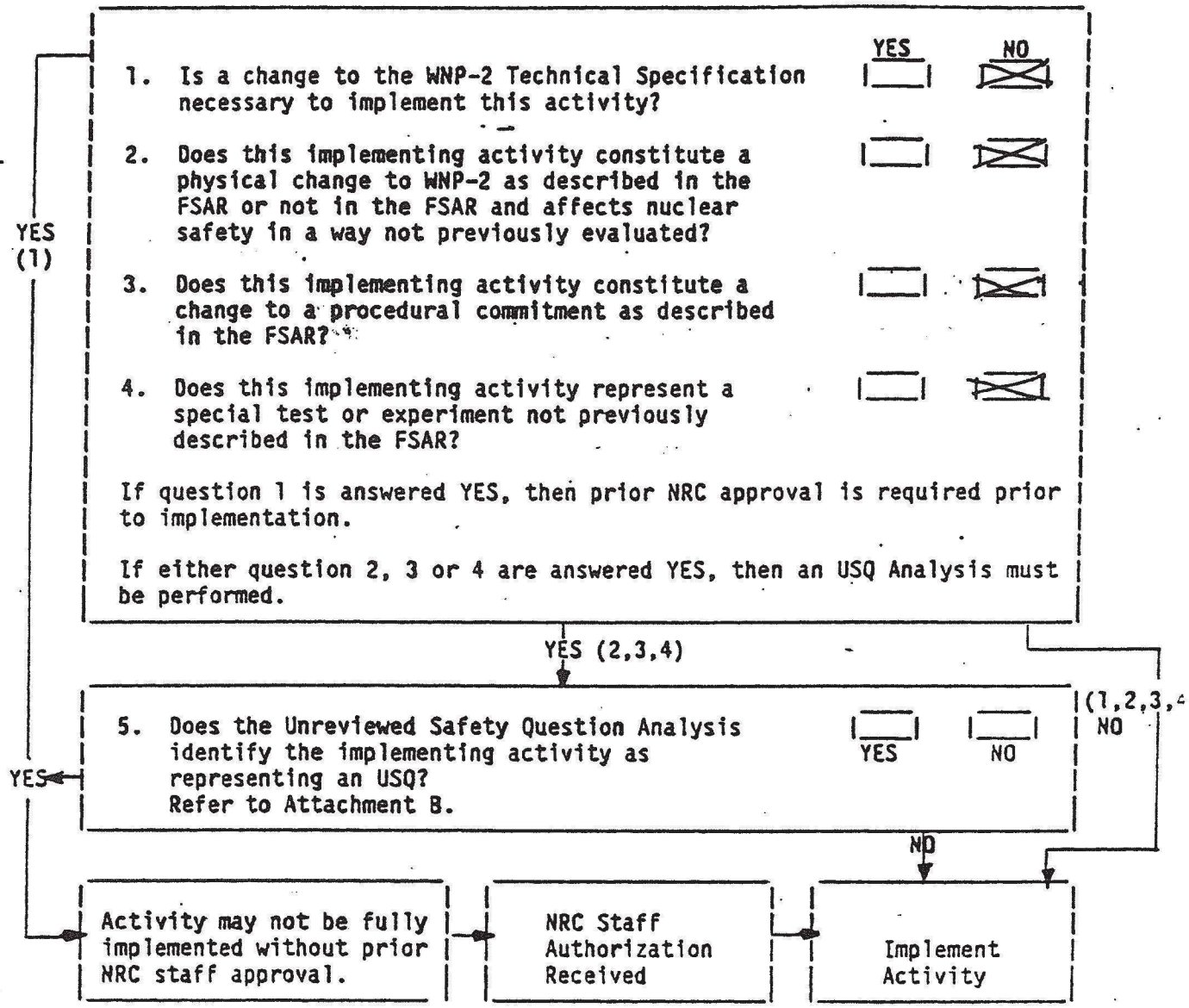
SAFETY RELATED

CONTROLLED COPY

ISCR 973
Sh. 3 of 4

10CFR50.59 EVALUATON PROCESS FLOW CHART

NOTE: The 10CFR50.59 Evaluation implementing processes will typically address items 1 through 4 only and the USQ Analysis would be processed only if required by an affirmative response to question 2, 3, or 4.



NOTE: Upon POC approval, partial implementation may occur without prior NRC staff approval.

Prepared by: Albert J. Davis Date 9 July 1990

Approved by: [signature] Date 7-9-90

Attachment A

SAFETY RELATED

CONTROLLED COPY

1 ISCR # 973

INSTRUMENT SETPOINT CALCULATION
Re-Issue.

2 Sheet 4 of 4

3 Date 9 July 1990

4 EPN WEA-RIS-14 5 Description RW Bldg Eff (UG) Mon.

6 Purpose Read Re-Cal for Detector/Monitor Parameters

7 References:

Document #	Rev	Description
PPM 7.4.3.7.12.33	1	Read Cal of WEA-RIS-14
12.13.10	6	RW Bldg Eff Mon
12.13.26	3	HV plateau of 13" Scint.

8 Setpoint Derivation (Attach additional sheets as required)

Measured via PPM 12.13.26 and Summarized on PPM 7.4.3.7.12.33

Engineer [signature] Date 9 July 90

9 ☐ Verification Checklist (or) ☐ Alternate Calculation (attached)
- ☐ Accuracy of Input Date
- ☐ Validity of Assumptions
- ☐ Appropriateness of Method
- ☐ Arithmetical Accuracy

☐ 10CFR50.59 Review

[signature]
I&C Engineer or HP/Chemistry Support Supervisor

7-9-90
Date

10 Approval:

[signature]
HP/Chemistry Manager or Plant Engineering Supervisor, Control Systems

7-9-90
Date

Attachment A
Page 1 of 2

Quality Class: I. ___ II. ✓ III. ___

Tech. Spec. Instr. Yes ✓ No ___ No. 318

Instrument Setpoint Change Request

ORIGINATOR

1. Originated by R. G. Graybeal Date 7/26/84
2. MEL No. and Function WEA-RIS-14 Radwaste Building Low Range Effluent (Gas) monitor
3. Tech. Spec. Section 3.11.2.1, 3.11.2.2, 3.11.2.5 (ODCM 3.62)
4. Tech. Spec. Limit 20% 500 mrem/yr – 1500 mrem/yr
5. Existing Setpoint/Range Low 10 cpm Hi 1350 cpm HiHi 2700 cpm
6. Reason For Change Set point were reviewed based on ANSI-13.10 evaluation of calibration data and in response to a set of Burns & Roe setpoint calculation. New data (calibration) and assumptions were used to determine revised setpoint levels. Burns and Roe used outdated data for their determination of local and their setpoints are not valid.

I&C ENGINEER

1. New Setpoint/Range Low 10 cpm Hi 6000 cpm HiHi 12,000 cpm ⇐
2. Necessary Approvals Obtained M. Hollman (I&C Eng.) / 9/14/84 (Date)
3. Copy to Originator and I&C Maint. Sup. R.S. (I&C Eng.) / 9-14-84 (Date)
4. Master Data Sheet Index R.S. (I&C Eng.) / 9-14-84 (Date)
5. Setpoint Changes; Calibration Date 9/14/84
6. Operations notified to review and revise Operating Procedures as applicable R.S. (I&C Eng.) / 9-14-84 (Date)

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

ORIGINAL
INSTRUMENT SETPOINT CHANGE REQUEST

1197

ORIGINATOR

Quality Class: 1 ☐ 2 ☐ 2+ ☒ G ☐ **MEL EPN:** PRM-RR-3

Technical Specification Instr. YES ☒ No ☐

Calculation Required YES ☒ No ☐ PPM 8.3.286

Original Calc. No.: 5.52.036 **ORIGINATED BY:** W.F.Krueger

Tech. Spec. Section: 3/4.3.7.5

Tech. Spec. Limit: NA

Affected Procedures / System Components: 4.602.A5-3.5, EOP's

Existing Setpoint / Range (Admin. Limit/Calib. Tol.) 100,000 CPM (REA-RIS-19)

Reason For Change:

Implement new setpoint for the RB elevated release as a result of of PMR 90-0305 Stack Monitor Project and preoperational test 8.3.286.

New Setpoint / Range (Admin. Limit/Calib. Tol.) PRM-RR-3 (CHANNEL 1): 180,000 CPS (8.51vdc ± 0.3vdc)

APPROVALS

Plant Technical Control Sys. Eng.: [signature] Date: 7/12/93

System Engineer: [signature] Date: 7-12-93

Plant Engineering Supervisor: [signature] Date: 7-12-93

+ HP Chem Manager / Operations: [signature] Date: 7-12-93

++ Plant Oper. Committee (or PMR#): 90-0305-3 / PPM 8.3.286 Date:

\+ HP / Chem Manager required only on Rad Monit Setpoints; Operations required only for Admin. Limits and Calibration tolerances for instruments addressed in the Tech. Spec.

++ Required for Technical Specifications Quality Class I, Fire Protection or Security Changes if PMR has not been previously approved by POC.

SEE NEXT PAGE FOR TEMPORARY SETPOINT CHANGE APPROVALS

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

INSTRUMENT SETPOINT CHANGE REQUEST

ORIGINAL

ISCR #: 1197 Page 2 of 6

TEMPORARY SETPOINT CHANGE APPROVALS

APPROVALS

Shift Manager: _____ Date: _____

Plant Engineer: _____ Date: _____

+HP Chem Manager _____ Date: _____

Affected Procedure(s) Deviated: _____ Date: _____

Procedure No.

\+ HP/Chemistry Manager required only on Rad Monit Setpoints; Operations required only for Administrative Limits and Calibration tolerances for instruments addressed in the Tech. Spec.

Forward to Plant Technical Control Systems Engineer

Necessary Approvals Obtained

Control System Engineer: David L Overman Date: 7/12/93

IMPLEMENTATION

PROCEDURE REVISIONS / DEVIATIONS

PROCEDURE NUMBER	REV. No.	DEVIATION No.	INITIAL	Date Comp.
4.602.A5	5	-	[signature]	7/17/93
EOP's	Setpoint in EOP No longer required per [illegible]		[signature]	7/19/93

Setpoint Change MWR No: MWR AP4204 Date: 9-22-93

Original Revised MDS to Plant Records: R.S. Date: 7-16-93

Copy of MDS & ISCR Distributed to

DEPARTMENT	COMPLETED BY	DATE
I & C MAINTENANCE	R.S	7-16-93
OPERATIONS	R.S	7-16-93
HP / CHEMISTRY	R.S.	7-16-93
NUCLEAR LICENSE TRAINING	R.S	

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

ORIGINAL

10 CFR 50.59 REVIEW

Implementing Doc. No.

ISCR 1197 (p. 3 of 6)

IMPLEMENTING ACTIVITY DESCRIPTION: This activity implements the High Radiation setpoint as calculated in PPM 8.3.286. That procedure performed radiological calibration of the new gamma spectroscopy system installed for the RB elevated release effluent monitoring. This ISCR implements the new setpoint in accordance with step 8.42.2 of PPM 8.3.286. The new setpoint is 180,000 CPS, corresponding to the ODCM limit of 200 mRem/yr for the Site Boundary dose attributable to RB effluent.

		YES	NO
1.	Is a change to the WNP-2 Technical Specifications necessary to implement this activity ? *(If response is yes then the activity may not be fully implemented without prior NRC staff approval.)*	☐	☒
2.	Does this implementing activity constitute a change to WNP-2 which could, directly or indirectly, affect the design, design safety function, or method of performing the design safety function of an important to safety SSC as described in the LBD?	☐	☒
3.	Does this implementing activity constitute a change to WNP-2 which could affect nuclear safety in a manner not previously evaluated ?	☐	☒
4.	Does the implementing activity change or affect the intent of a procedure or process from the intent of the comments described, outlined, or summarized in the LBD ?	☐	☒
5.	Does the implementing activity represent a special test or experiment not previously described in the LBD that might affect safe operation of the plant ?	☐	☒

If there is a yes response to either question 2,3,4 or 5, then a Safety Evaluation must be completed.

If the response to questions 2 through 5 are all NO, a written justification is required. Implementation of the new setpoint allows annunciation in the Main Control Room when Reactor Building effluent reaches 40% of the site boundary. This ensures that the dose rate in the unrestricted areas due to noble gases do not exceed 500 mRem/yr to the whole body or 3000 mRem/yr to the skin as referenced in the LBD.

Is additional justification information attached ? YES ☐ NO ☒

References:

Tech. Spec. 3/4.3.7.5, TS Table 3/4.3.7.5-1 (item 31), TSAS #81, (pp. 3/4 3-70 thru 74); TS Bases 3/4.3.7.5 p.B3/4 3-5; ODCM sections 3.2.1, 3.6; ODCM Tables 6.1.2.1-1 (p.122) and 6.1.2.1-1 (p.125); ODCM SCN 93-060; BDC 90-0305-3D DSA Safety Evaluation 93-065; FSAR 11.5.2.2.1.5, FSAR SCN 93-020; PPM 8.3.286 (Reactor Building Stack Effluent Radiation Monitoring System Preoperational Test)

Is additional reference information attached ? YES ☐ NO ☒

Prepared by: W.F. KRUEGER Date 7/12/93

Reviewed by: Date 7/13/93

WASHINGTON PUBLIC POWER SUPPLY SYSTEM	ORIGINAL INSTRUMENT SETPOINT CHANGE REQUEST	ISCR #: 1197 Page 4 of 6

INSTRUMENT SETPOINT CALCULATION

MEL EPN: PRM-RR-3 (channel 1)

DESCRIPTION: RB Stack Effluent Rad Monitor

PURPOSE: High Radiation Alarm Setpoint

REFERENCE Doc. No.	REV.	DESCRIPTION
PPM 8.3.286	0	Stack Monitor Preoperational Test
ODCM	Amend.12	Offsite Dose Calculation Manual
PMR 90-0305	0,1,3,5	Project Modification packages
TS 3/4.3.7.5	Amend.117	WNP-2 Technical Specifications
CVI 02-776-00,1,1-6		Stack monitor vendor information

SETPOINT DERIVATION: (Attach additional sheets as required)

Reference attached IOM (Davis to Krueger, dated 7/11/93).
Calculation performed by and attached within preoperational test PPM 8.3.286.

SETPOINT PROVIDED IS 1.8×10^5 CPS. RANGE IS 10^1 TO 10^6 (5 DECADES).

% of FULL SCALE = $\frac{\log(\text{VALUE} \cdot \text{SPAN})}{\text{SPAN}} = \frac{\log(1.8E4)}{5} = .851$

.851 (10 VOLT SPAN) = 8.51 VOLTS

IRM-HCRM-1B TOLERANCE IS ± 0.3 VDC

8.21 VOLTS: [(.821 %)(5 DECADES)] ALOG = $1.2735 \cong 1.3E4 \equiv 1.3ES$ (SPAN) (POINT of RANGE)

8.81 VOLTS: [(.881)(5)] ALOG = $2.5409 \cong 2.5E4 = 2.5ES$

Engineer 7-12-93

☐ Verification Checklist (or) ☒ Alternate Calculation (attached)

- ☐ Accuracy of Input Data
- ☐ Validity of Assumptions
- ☐ Appropriateness of Method
- ☐ Arithmetical Accuracy

☒ 10CFR50.59 Review

I&C Engineer or HP/Chem Support Supervisor Date 7/12/93

Approval:

HP/Chem Manager or Plant Engineering Supervisor, Control Systems Date 7/13

WASHINGTON PUBLIC POWER SUPPLY SYSTEM	INSTRUMENT SETPOINT CHANGE REQUEST	ISCR #: 1197 Page 5 of 6

ORIGINAL

INSTRUMENT SETPOINT CALCULATION
CALIB. TOL./ADMIN. LIMIT

MEL EPN: PRM-RR-3 / PRM-LCRM-1B

SERVICE: Stack monitor Intermediate Range radiation

TECH. SPEC. REF	PAGE No.	TRIP SETPOINT	ALLOWABLE VALUE
Table 3/4.3.7.5-1 item 31	3/4 3-70	NA	NA

	HIGH	LOW	REFERENCE
Trip Setpoint / Calibration Tol.			
Admin Limit			
Trip Setpoint / Calibration Tol.			
Admin Limit			
Trip Setpoint / Calibration Tol.			
Admin Limit			

NORMAL OPERATING RANGE	
OPERATING TRANSIENT RANGE	

COMMENT:

	CPS	VDC*
TRIP	1.8×10^5	8.51
LOW	1.3×10^5	8.21
HIGH	2.5×10^5	8.81

* UTILIZED FOR CAL PURPOSES.

ORIGINAL

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

ISCR 1197
p. 6 of 6

INTEROFFICE MEMORANDUM

DATE: July 11, 1993

TO: W. F. Krueger System Engineer PE 27

FROM: A. I. Davis R.C. 927H

SUBJECT: Setpoint Calculations for the Reactor Building Effluent Monitoring System.

REFERENCE: ODCM Table 3-3, 6..2.1; FSAR Table 11.34-7, Chapt. 11.3

The set point for the Rx effluent system is based on the stack flow of 97000 cfm, a χ/Q value of 2.7 E-07 sec/m^3, and the ODCM limit of 200 mRem/yr for the boundry dose due to the reactor effluent.

Isotope	Whole body dose fraction	Reactor stack µCi/sec	γ conversion factor	Monitor response cps
^{87}Kr	0.052	6.37E+3	0.837	5.33E+3
^{88}Kr	0.13	6.55E+3	1.372	8.99E+3
^{131m}Xe	0.00064	5.26E+3	0.0196	1.03E+2
^{133}Xe	0.064	1.61E+5	0.367	5.91E+4
^{135m}Xe	0.41	9.74E+4	0.81	7.89E+4
^{135}Xe	0.18	7.37E+4	0.939	2.20E+4
^{138}Xe	0.18	1.51E+4	1.222	5.87E+3

The sum of the monitor response column is 1.80E+5. The addition of the constant background of 800 cps yields the total of 1.81E+5 cps. The cps/µCi/cc factor for the mid range monitor is 1.457E+7.

If there are any questions, contact me.

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

ORIGINAL

INSTRUMENT SETPOINT CHANGE REQUEST

ISCR Number: 1086 Page 1 of

ORIGINATOR

Quality Class: 1 [✓] 2 [X] WPK 2+ [ ] G [ ] MEL EPN: TEA -R15-13

Technical Specification Instr. YES [X] No [ ]

Calculation Required YES [ ] No [X]

Original Calc. No.: _____ ORIGINATED BY: C J Davis

Tech. Spec. Section: 3/4 3.7.12 3/4.11.2

Tech. Spec. Limit: 40% & 500 m Rem/yr ODCM 3.3, 3.6.2

Affected Procedures / System Components: PPM 7.4.3.7.12.11
7.4.3.7.12.12

Existing Setpoint / Range (Admin. Limit/Calib. Tol.) HV OP 940 / LLD -0.7 / Hi = 1730 cpm
HV INOP 890 / ULD -12.6 / Hi-Hi = 3460 cpm

Reason For Change: Radiometric Recalibration and parameter evaluation.

Note! Slight Change from old HV settings, old settings would not trip Detector. New values HV OP 965 volts
HV INOP 915 volts
LLD -0.7 volts
ULD -12.7 volts.

NEW HIGH SETPOINT = (1732)(.9692) = 1679 ≈ 1680 cpm
NEW HI-HI SETPOINT = (3462)(.9692) = 3355 ≈ 3350 cpm

New Setpoint / Range (Admin. Limit/Calib. Tol.) HV OP 965 Volts LLD = -0.7 Volts Hi = 1680 cpm
HV INOP 915 Volts ULD = -12.7 Volts. Hi-Hi = 3350 cpm

APPROVALS

Plant Technical Control Sys. Eng.: M Widmeyer Date: 9/5/91

System Engineer: [signature] Date: 9-4-91

Plant Engineering Supervisor: [signature] Date: 9-6-91

+ HP Chem Manager / Operations: [signature] Date: 9-6-91

++ Plant Oper. Committee (or PMR#): J W Baker Date: 9-6-91

\+ HP / Chemistry Manager required only on Rad Monit Setpoints / Operations required only for Administrative Limits and Calibration tolerances for instruments addressed in the Tech. Spec.

++ Required for Technical Specifications Quality Class I, Fire Protection or Security Changes if PMR has not been previously approved by POC.

SEE NEXT PAGE FOR TEMPORARY SETPOINT CHANGE APPROVALS

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

ORIGINAL

INSTRUMENT SETPOINT CHANGE REQUEST

ISCR NUMBER: 1086 Page 2 of ___

APPROVALS

TEMPORARY SETPOINT CHANGE APPROVALS

Shift Manager: NA Date: NA

Plant Engineer: _____ Date: _____

+HP Chem Manager _____ Date: _____

Affected Procedure(s) Deviated: _____ Date: _____
Procedure No.

\+ HP / Chemistry Manager required only on Rad Monit Setpoints / Operations required only for Administrative Limits and Calibration tolerances for instruments addressed in the Tech. Spec.

Forward to Plant Technical Control Systems Engineer

Necessary Approvals Obtained

Control System Engineer: M. Widmeyer Date: 9/6/91

IMPLEMENTATION

PROCEDURE REVISIONS / DEVIATIONS

PROCEDURE NUMBER	REV. No.	DEVIATION No.	INITIAL	Date Comp.
4.602.AS (4-4)				
EOP's (No chg required)				

Setpoint Change MWR No: AR5609 Date: 9/24/91

Original Revised MDS to Plant Records: OLA Date: 9/10/91

Copy of MDS & ISCR Distributed to

DEPARTMENT	COMPLETED BY	DATE
I & C MAINTENANCE	OLA	9/10/91
OPERATIONS	OLA	9/10/91
HP / CHEMISTRY	OLA	9/10/91
NUCLEAR LICENSE TRAINING	OLA	9/10/91
PROCEDURES	OLA	9/10/91

ORIGINAL

SAFETY RELATED 10CFR50.59 REVIEW CONTROLLED COPY

Implementing Doc. No. ESCR 1086 p.3

Implementing Activity Description Radiological Calibration of turbine Building Effluent gas monitor TEA-RIS-13

	YES	NO
1. Is a change to the WNP-2 Technical Specifications necessary to implement this activity? *(If response is yes, then the activity may not be fully implemented without prior NRC staff approval)*	☐	☒
2. Does this implementing activity constitute a change to WNP-2 which could functionally affect a safety related SSC as described in the LBD?	☐	☒
3. Does this implementing activity constitute a change to WNP-2 which could affect nuclear safety in a manner not previously evaluated?	☐	☒
4. Does this implementing activity change or affect the intent of a procedure or process from the intent of the commitments described, outlined, or summarized in the LBD?	☐	☒
5. Does this implementing activity represent a special test or experiment not previously described in the LBD that might affect safe operation of the Plant?	☐	☒

If there is a yes response to either question 2, 3, 4, or 5, then a Safety Evaluation must be completed

If the responses to questions 2 through 5 are all NO, a written justification is required. the set points have been adjusted as part of the performance of the radiological Calibration per the referenced surveillance procedures to ensure the monitor will continue to provide alarm functions at the existing technical Specification limits in accordance with the referenced LBD's.

Is additional justification information attached? YES ☐ NO ☒

References T.S. 3/4.3.7.12 3/4.11.2

ODCM 3.3, 3.6.2

FSAR 11.5.1.1.2, 11.5.2.2.1.6, table 11.5-1

P.P.M's 7.4.3.7.12.11, 7.4.3.7.12.12, 7.4.3.7.12.32

P.P.M 12.13.26, 12.13.9

Is additional reference information attached? YES ☐ NO ☒

Prepared by Albert St Laurent Date 29 July '91

Reviewed by John R Allen Date 8-27-91