PUBLIC SERVICE COMPANY OF COLORADO
P. O. BOX 840 · DENVER, COLORADO 80201

OSCAR R. LEE
VICE PRESIDENT

November 3, 1982
Fort St. Vrain
Unit No. 1
P-82499

Mr. John T. Collins, Regional Administrator
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Dr., Suite 1000
Arlington, TX 76012

SUBJECT: I & E Inspection Report 82-19

REFERENCE: NRC Letter dated October 6, 1982

Dear Mr. Collins:

This letter is in response to the Notice of Violation received as a result of inspections conducted at Fort St. Vrain during the period August 9-13, and August 30-September 3, 1982. The following response to the items contained in the Notice of Violation is hereby submitted:

Functional Test Documentation of Safety-Related Change

Technical Specification 7.4.a.3 requires that "Written procedures shall be established, implemented and maintained covering . . . test activities of safety related equipment." Licensee Procedure Q-11, Issue 3 (December 29, 1981), "Test Control," requires, in Section 3.0e, that "Testing practices employed on safety-related items are required to assure that . . . test results are documented and evaluated to assure test requirements have been satisfied." Licensee Procedure Q-17, Issue 4 (January 13, 1982), "Quality Records," requires in Sections 4.2.3b and c, that "Records providing objective evidence of conformance are required to include, as appropriate . . . results of the inspection or test . . . dated signatures(s) of the person(s) verifying conformance or acceptability of evaluated test results."

Contrary to the above, there was no documentation of functional testing of the safety-related design change performed in CN 653.

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PDR ADOCK 05000267
Q PDR

(1) The corrective steps which have been taken and the results achieved:

The licensees processing of CN's and CWP's was changed in August 1980 to give uniform treatment to FT documentation. CN 653 did not receive the benefit of this aforementioned processing.

(2) Corrective steps which will be taken to avoid further violations:

Proper implementation of existing procedures for processing of CN's and CWP's.

(3) The date when full compliance will be achieved:

CN 653 was completed October 8, 1981 and functionally tested via SR 5.4.9-A2 (copy attached), on October 28, 1980. Compliance was achieved as a result of the SR on October 28, 1980.

Should you have any further questions, please contact Mr. Edwin D. Hill, (303) 571-7436, ext. 201.

Very truly yours,

Oscar R. Lee

ORL/skr

Attachments

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter	)	
	)	
Public Service Company of Colorado	)	Docket No. 50-267
Fort St. Vrain Unit No. 1	)	

AFFIDAVIT

. . . . . being duly sworn, hereby deposes and says that he is Vice President of Electrical Production of Public Service Company of Colorado; that he is duly authorized to sign the file with the Nuclear Regulatory Commission the attached response to the Notice of Violation identified in NRC Inspection Report 82-19; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.

O. R. Lee
Vice President of Electrical Production

STATE OF COLORADO)
) ss
COUNTY OF DENVER)

Subscribed and sworn to before me, a Notary Public in and for DENVER CO. on this 9TH day of NOVEMBER, 1982.

Notary Public

My commission expires OCTOBER 7, 1983

TITLE: PROCESS BETA MONITORS CALIBRATION

DEPARTMENT: RESULTS

ISSUANCE AUTHORIZED BY	[signature] 9/5/81	[signature]
PORC REVIEW	PORC 429 SEP 8 1981	EFFECTIVE DATE 9-11-81

Do not start test before_____ Week # _____

and must be completed by_____ Sch. Clerk

This procedure cannot be run in its entirety for the following reasons:

___ 1. This system is not operating.

___ 2. This system is not required to be operating and has a frequency of one month or less (reference Technical Specification, paragraph 2.18).

___ 3. Reactor is in "scrammed" condition.

___ 4. Loop I is in "Loop Shutdown" condition.

___ 5. Loop II is in "Loop Shutdown" condition.

___ 6. 1A Helium circulator is in "tripped condition".

___ 7. 1B Helium circulator is in "tripped condition".

___ 8. 1C Helium circulator is in "tripped condition".

___ 9. 1D Helium circulator is in "tripped condition".

___ 10. Other_____

_____

_____

___ 11. Reschedule test for_____

_____
Department Supervisor

1.0 PURPOSE

The Beta monitors shall be calibrated annually.

2.0 PRECAUTIONS, LIMITATIONS, AND SPECIAL ASSISTANCE

Due to LCO 4.4.5, Part 5.3, cannot be run during a power increase or reduction between shutdown and 5% power. The control action of RIS-7312 will shut off the primary coolant sample flow, rendering MI-9306 and MI-9307 inoperable. Personnel are required to wear finger rings while handling sources. Prior to startup each monitor, notify the operator of which monitor you will be calibrating.

3.0 PREREQUISITES

3.1 Test Equipment

Name	Identification No.	Last Calibration Date
Digital Voltmeter		
Beta Transfer Sources		
0-100 u amp meter		
Counter		

3.2 References

4.0 AUTHORIZATIONS

4.1 Departmental Approval

Dept. Supervisor Date

4.2 Mech/Elec Clearance Issued, if required: Number

4.3 Radiation Work Permit Issued, if required: Number

4.4 Permission to initiate test

Shift Supervisor Date

5.0 PROCEDURE

CAUTION: CONTACT HEALTH PHYSICS PRIOR TO REMOVING RT-9301 FROM SERVICE - - - RADIOLOGICAL HAZARD

5.1 RT-9301

1. Connect a DVM to TP-3 (+) and TP-0 (-) on RIS-9301. Measure and record the discriminator level "AS FOUND" on Data Sheet 1. _____

   NOTE: On all 3 wide modules TP-0 is below TP-1 and is not marked.

2. Connect the DVM to TP-5 (+) and TP-0 (-). Measure and record the high voltage on Data Sheet 1. (This is done by using a μ ammeter and measuring the current between TP-5 and TP-0, 50 μ amp = 1000 volts. _____

3. On I-14, Bay 403, P10, RIS-9301 go to TRIP ADJ. Verify the "no fail" light goes out. _____

4. Verify the alarm I-01 C5-3 comes up. _____

5. Pull RIS-9301, in I-14, check the mechanical zero (the module indicator should read 30 cpm when the module is pulled) and bring the module to the shop. _____

6. Remove the lead shield from the end and top of RT-9301 located in the Analytical Instrument Room. _____

7. Disconnect both cables from the detector tube. _____

8. Loosen bolts on pig around detector and remove detector tube from pig and bring detector to the shop. CAUTION: Be careful not to damage foil end of tube. _____

9. Setup the module and detector on the MTR-2 per Appendix 1. _____

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10. Connect a DVM to RIS-9301. TP-1 (+) and TP-0(-).

11. Put mode switch to the TRIP ADJ position and adjust the TRIP REF to read 10.0 volts on the voltmeter. Check that the module reads 2×10^7 cpm, if not adjust METER ADJ until it does.

12. Decrease TRIP REF voltage to below 1 volt (reset trips) and then increase the TRIP REF voltage. Record the voltage levels at which the red light is lit "AS FOUND" in the table below.

TRIP INDICATOR	VOLTAGE LEVEL AT TRIP EXPECTED	VOLTAGE LEVEL AT TRIP "AS FOUND"	VOLTAGE LEVEL AT TRIP "AS LEFT"
Red Light	8.9 ± .05V (8.95 - 8.85)		

13. Verify that the "AS FOUND" voltage at the trip meets the expected value. If not adjust the trip point for RIS-9301 and record the "AS LEFT" voltage values.

14. Check the RIS meter indicator linearity by putting the module mode switch to the TRIP ADJ position and using the TRIP REF. Record the voltage necessary to obtain the appropriate cpm readings.

CPM	REQUIRED VOLTS	AS FOUND VOLTS	AS LEFT VOLTS
10^2	.898 ± .3V (1.198 -.598)		
10^3	2.615 ± .3V (2.915 -2.315)		
10^4	4.332 ± .3V (4.632 -4.032)		
10^5	6.049 ± .3V (6.349 -5.749)		
10^6	7.765 ± .3V (8.065 -7.465)		

15. If the voltages "AS FOUND" do not meet the expected voltage for the cpm, replace the meter and repeat step 15 for the new meter. Record the new meter voltage values in the "AS LEFT" column.

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16. On RIS-9301 take three two minute counts of background and log the results on Data Sheet 1.

17. Tape the .00187 uci Cl-36 source to the end of the detector. Take three two minute counts. Compute the average and net count rates and log the net count rate for the "As Found" on Data Sheet 1.

18. Read the RIS module indicator and verify it reads the same as the net count rate. If these readings do not agree, adjust the BIAS on the module until it does.

19. Remove the .00187 uci-Cl-36 source and tape a 1.85 uci Cl-36 source to the end of the detector. Take three two minute counts. Compute the average and net count rates and log the net count rate for the "As Found" on Data Sheet 1.

20. Read the RIS module indicator and verify it reads the same as the net count rate. If these readings do not agree, adjust the SLOPE on the module until it does.

NOTE: The BIAS and SLOPE way need to be repeated and adjusted.

21. Compare the "AS FOUND" data of Steps 18 and 20 to the acceptance criteria in Appendix 1. If they agree within ± 15% return detector and module to normal service and go to Step 23.

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22. Adjust the high voltage, discriminator, and repeat steps 18 through 21 until the Data agree (± 15%) with the acceptance criteria. _____

23. Record the new high voltage and discriminator values on Data Sheet 1. _____

24. Return the detector and module to normal service. _____

CAUTION:	CONTACT HEALTH PHYSICS PRIOR TO REMOVING RT-9302 FROM SERVICE
	RADIOLOGICAL HAZARD

5.2 RT-9302

1. Connect a DVM to TP-3 (+) and TP=0 (-) on RIS-9302. Measure and record the discriminator level "AS FOUND" on Data Sheet 2. _____

NOTE: On all 3 wide modules TP-0 is below TP-1 and is not marked.

2. Connect the DVM to TP-5 (+) and TP-0 (=). Measure and record the high voltage on Data Sheet 2. (This is done by using a μ ammeter and measuring the current between TP-5 and TP-0, 50 μ amp = 1000 volts. _____

3. Hold the function switch in the check-source position for approx. 15 sec., then read the module indicator and record the value "AS FOUND" on Data Sheet 2. _____

4. On I-14, Bay 403, P10, RIS-9302 go to TRIP ADJ. Verify the "no fail" light goes out. _____

5. Verify the alarm I-01 C5-3 comes up. _____

6. Pull RIS-9302, in I-14, check the mechanical zero (the module indicator should read 30 cpm when the module is pulled) and bring the module to the shop. _____

7. Remove the lead shield from the end and top of RT-9302 located on the turbine deck next to the Lunchroom wall at the top of the stairs. _____

8. Disconnect both cables from the detector tube. _____

9. Loosen bolts on pig around detector and remove detector tube from pig and bring detector to the shop. CAUTION: Be careful not to damage foil end of tube. _____

10. Setup the module and detector on the MTR-2 per Appendix 1. _____

11. Connect a DVM to RIS-9302 TP-1 (+) and TP-0 (-). _____

12. Put mode switch to the TRIP ADJ position and adjust the TRIP REF to read 10.0 volts on the voltmeter. Check that the module reads 2×10^7 cpm, if not adjust METER ADJ until it does. _____

13. Decrease TRIP REF voltage to below 1 volt (reset trips) and then increase the TRIP REF voltage. Record the voltage levels at which the red light is lit "AS FOUND" in the table below. _____

TRIP INDICATOR	VOLTAGE LEVEL AT TRIP EXPECTED	VOLTAGE LEVEL AT TRIP "AS FOUND	VOLTAGE LEVEL AT TRIP "AS LEFT
Red light	2.102 ± .05V (2.152 - 2.052)		

14. Verify that the "AS FOUND" voltage at the trip meets the expected value. If not adjust the trip point for RIS-9302 and record the "AS LEFT" voltage values. _____

15. Check the RIS meter indicator linearity by putting the module mod switch to the TRIP ADJ position and using the TRIP REF. Record the voltage necessary to obtain the appropriate cpm readings. _____

CPM	REQUIRED VOLTS	AS FOUND VOLTS	AS LEFT VOLTS
10^2	.898 ± .3V (1.198 -.598)		
10^3	2.615 ± .3V (2.915 -2.315)		
10^4	4.332 ± .3V (4.632 -4.032)		
10^5	6.049 ± .3V (6.349 -5.749)		
10^6	7.765 ± .3V (8.065 -7.465)		

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16. If the voltages "AS FOUND" do not meet the expected voltage for the cpm, replace the meter and repeat step 15 for the new meter. Record the new meter voltage values in the "AS LEFT" column. _____

17. On RIS-9302 take three two minute counts of background and log the results on Data Sheet 2. _____

18. Tape the .00187 μci Cl-36 source to the end of the detector. Take three two minute counts. Compute the average and net count rates and log the net count rate for the "As Found" on Data Sheet 2. _____

19. Read the RIS module indicator and verify it reads the same as the net count rate. If these readings do not agree, adjust the BIAS on the module until it does. _____

20. Remove the .00187 μci Cl-36 source and tape a 1.85 μci Cl-36 source to the end of the detector. Take three two minute counts. Compute the average and net count rates and enter the net count rate for the "As Found" on Data Sheet 2. _____

21. Read the RIS module indicator and verify it reads the same as the net count rate. If these readings do not agree, adjust the SLOPE on the module until it does. _____

22. NOTE: the Bias and Slope may need to be repeated and adjusted. Compare the "AS FOUND" data of Steps 18 and 21 to the acceptance criteria in Appendix 1. If they agree within ± 15% return detector and module to normal service and go to Step 23. _____

23. When the detector and module are returned to service, energize the check source by putting the function switch to the check-source position. (Hold in this position approx. 15 sec.) _____

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24. Record this check source reading in Data Sheet 2 and compare it to the previous readings. _____

25. Verify these readings agree.

26. Adjust the high voltage, discriminator, and repeat Steps 18 through 21 until the Data agree (± 15%) with the acceptance criteria. _____

27. Record the new high voltage and discriminator values on Data Sheet 2. _____

28. Return the detector and module to normal service. _____

29. Put the function switch on the module to the check-source position. (Hold in this position approx. 15 sec.) Record this new check-source reading on Data Sheet 2 and on the module. _____

5.3 RT-7312

1. On I-14, RIS-7312 key switch, insert key and turn to the bypass position. _____

2. Fill in the following table prior to and after the calibration. _____

(See Table on next page)

_____ _____

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VALVES CONTROLLED FROM RIS-7312

VALVE NUMBER	VALVE NAME	VALVE POSITION BEFORE TEST	VALVE POSITION AFTER TEST
HV-6342	Surge Tank 1B Sample Line		
HV-6341	Surge Tank 1A Sample Line		
HV-9316	Primary Coolant Sample Line		
HV-93256	Primary Coolant Sample Outlet		
HV-2326	Train B Activity Sample Line		
HV-2325	Train A Activity Sample Line		
HV-2357-1	Regeneration Section Sample Line		
HV-2357-2	Regeneration Section Sample Line		
HV-93484	Primary Coolant Fast Sample		
HV-93485	Primary Coolant Fast Sample		
HV-93483	Iodine Sample		

3. Connect a DVM to TP-3 (+) and TP-0 (-) on RI-7312. Measure and record the discriminator level "AS FOUND" on Data Sheet 3. NOTE: On all 3 wide modules TP-0 is below TP-1 and is not marked. _____

4. Connect the DVM to TP-5 (+) and TP-0 (-). Measure and record the high voltage on Data Sheet 3. (This is done by using a μ ammeter and measuring the current between TP-5 and TP-0, 50 μ amp = 1000 volts. _____

5. Hold the function switch in the check-source position for approx. 15 sec., then read the module indicator and record the value "AS FOUND" on Data Sheet 3. _____

6. On I-14, Bay 403, P10, RIS-7312 go to TRIP ADJ. Verify the "no fail" light goes out. _____

_____ _____

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7. Verify the alarm I-01 C5-2 comes up. _____

8. Pull RIS-7312, in I-14, check the mechanical zero (the module indicator should read 30 cpm when the module is pulled) and bring the module to the shop. _____

9. Remove the lead shield from the end and top of RT-7312. _____

10. Disconnect both cables from the detector tube.

11. Loosen bolts on pig around detector and remove detector tube from pig and bring detector to the shop. CAUTION: Be careful not to damage foil end of tube. _____

12. Setup the module and detector on the MTR-2 per Appendix 1. _____

13. Connect a DVM to RIS-7312 TP-1 (+) and TP-0 (-). _____

14. Put mode switch to the TRIP ADJ position and adjust the TRIP REF to read 10.0 volts on the voltmeter. Check that the module reads 2×10^7 cpm, if not adjust METER ADJ until it does. _____

15. Decrease TRIP REF voltage to below 1 volt (reset trips) and then increase the TRIP REF voltage. Record the voltage levels at which the red light is lit "AS FOUND" in the table below. _____

TRIP INDICATOR	VOLTAGE LEVEL AT TRIP EXPECTED	VOLTAGE LEVEL AT TRIP "AS FOUND"	VOLTAGE LEVEL AT TRIP "AS LEFT"
Red Light	2.615 ± .05V (2.665 ⁼ 2.565)		

16. Verify that the "AS FOUND" voltage at the trip meets the expected value. If not adjust the trip point for RIS-7312 and record the "AS LEFT" voltage values. _____

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Test Conductor Signature _____ Date _____

17. Check the RIS meter indicator linearity by putting the module mode switch to the TRIP ADJ position and using the TRIP REF. Record the voltage necessary to obtain the appropriate cpm readings.

CPM	REQUIRED VOLTS	AS FOUND VOLTS	AS LEFT VOLTS
10^2	.898 ± .3V (1.198 -.598)		
10^3	2.615 ± .3V (2.915 -2.315)		
10^4	4.332 ± .3V (4.632 -4.032)		
10^5	6.049 ± .3V (6.349 -5.749)		
10^6	7.765 ± .3V (8.065 -7.465)		

18. If the voltages "AS FOUND" do not meet the expected voltage for the cpm, replace the meter and repeat Step 15 for the new meter. Record the new meter voltage values in the "AS LEFT" column.

19. On RIS-7312 take three two minute counts of background and log the results on Data Sheet 3.

20. Tape the .00187 uci Cl-36 source to the end of the detector. Take three two minute counts. Compute the average and net count rate and log the net count rate for the "As Found" on Data Sheet 3.

21. Read the RIS module indicator and verify it reads the same as the net count rate. If these readings do not agree, adjust the BIAS on the module until it does.

22. Remove the .00187 uci Cl-36 source and tape a 1.85 uci Cl-36 source to the end of the detector. Take three two minute counts and log the results "AS FOUND" on Data Sheet 3.

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23. Read the RIS module indicator and verify it reads the same as the average of the three counts. If these readings do not agree, adjust the SLOPE on the module until it does. _____

24. Compare the "AS FOUND" data of Steps 20 and 22 to the acceptance criteria in Appendix 1. If they agree within ± 15% return detector and module to normal service and go to Step 25. _____

25. When the detector and module are returned to service, energize the check source by putting the function switch to the check-source position. (Hold in this position approx. 15 sec.) _____

26. Record this check source reading in Data Sheet 3 and compare it to the previous reading. _____

27. Verify these readings agree, then go to Part 5.4 _____

28. Adjust the high voltage, discriminator, and repeat steps 20 through 23 until the Data agree (± 15%) with the acceptance criteria. _____

29. Record the new high voltage and discriminator values on Data Sheet 3. _____

30. Return the detector and module to normal service. _____

31. Put the function switch on the module to the check-source position. (Hold in this position approx. 15 sec.) Record this new check-source reading on Data Sheet 3 and on the module. _____

| 32. Return RIS-7312 bypass switch to normal. _____

5.4 RT-31193

1. Connect a DVM to TP-3 (+) and TP-0 (-) on RIS-31193. Measure and

_____ _____

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1. (Cont.)
   record the discriminator level "AS FOUND" on Data Sheet 4. NOTE: On all 3 wide modules TP-0 is below TP-1 and is not marked. _____
2. Connect the DVM to TP-5 (+) and TP-0 (-). Measure and record the high voltage on Data Sheet 4. (This is done by using a μ ammeter and measuring the current between TP-5 and TP-0, 50 μ amp = 1000 volts. _____
3. Hold the function switch in the check-source position for approx. 15 sec., then read the module indicator and record the value "AS FOUND" on data sheet 4. _____
4. On I-14, Bay 403, P10, RIS-31193 go to TRIP ADJ. Verify the "no fail" light goes out. _____
5. Verify the alarm I-05 B5-6 comes up. _____
6. Pull RIS-31193 in I-14, check the mechanical zero (the module indicator should read 30 cpm when the module is pulled) and bring the module to the shop. _____
7. Disconnect both cables from the detector tube located on mesanine level east side of condenser in the air ejector discharge line. _____
8. Loosen bolts on pig around detector and remove detector tube from pig and bring detector to the shop. CAUTION: Be careful not to damage foil end of tube. _____
9. Setup the module and detector on the MTR-2 per Appendix 1. _____

_____ _____

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10. Connect a DVM to RIS-31193 TP-1 (+) and TP-0 (-).

11. Put mode switch to the TRIP ADJ position and adjust the TRIP REF to read 10.0 volts on the voltmeter. Check that the module reads 2×10^7 cpm, if not adjust METER ADJ until it does.

12. Decrease TRIP REF voltage to below 1 volt (reset trips) and then increase the TRIP REF voltage. Record the voltage levels at which the red light is lit "AS FOUND" in the table below.

TRIP INDICATOR	VOLTAGE LEVEL AT TRIP EXPECTED	VOLTAGE LEVEL AT TRIP "AS FOUND"	VOLTAGE LEVEL AT TRIP "AS LEFT"
Red Light	2.098 ± .05V (2.148 - 2.048)		

13. Verify that the "AS FOUND" voltage at the trip meets the expected value. If not adjust the trip point for RIS-31193 and record the "AS LEFT" voltage values.

14. Check the RIS meter indicator linearity by putting the module mode switch to the TRIP ADJ position and using the TRIP REF. Record the voltage necessary to obtain the appropriate cpm readings.

CPM	REQUIRED VOLTS	AS FOUND VOLTS	AS LEFT VOLTS
10^2	.898 ± .3V (1.198 -.598)		
10^3	2.615 ± .3V (2.915 -2.315)		
10^4	4.332 ± .3V (4.632 -4.032)		
10^5	6.049 ± .3V (6.349 -5.749)		
10^6	7.765 ± .3V (8.065 -7.465)		

15. If the voltages "AS FOUND" do not meet the expected voltage for the cpm, replace the meter and repeat Step 15 for the new meter. Record the new meter voltage values in the "AS LEFT" column.

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16. On RIS-31193 take three two minute counts of background and log the results on Data Sheet 4.

17. Tape the .00187 uCi Cl-36 source to the end of the detector. Take three two minute counts. Compute the average and net count rates and log the net count rate for the "As Found" on Data Sheet 4.

18. Read the RIS module indicator and verify it reads the same as the net count rate. If these readings do not agree, adjust the BIAS on the module until it does.

19. Remove the .00187 uci Cl-36 source and tape a 1.85 uci Cl-36 source to the end of the detector. Take three two minute counts. Compute the average and net count rates and log the net count rate for the "As Found" on Data Sheet 4.

20. Read the RIS module indicator and verify it reads the same as the net count rate. If these readings do not agree, adjust the SLOPE on the module until it does.

21. NOTE: The bias and slope may need to be repeated and adjusted. Compare the "AS FOUND" data of Steps 18 and 20 to the acceptance criteria in Appendix 1. If they agree within ± 15% return detector and module to normal service, and go to Step 22. If they don't agree, go to Step 25.

22. When the detector and module are returned to service, energize the check source by putting the function switch to the check-source position. (Hold in this position approx. 15 sec.)

23. Record this check source reading in Data Sheet 4 and compare it to the previous reading.

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24. Verify these readings agree. This completes this calibration. Mark n/a in the proceeding blanks. _____

25. Adjust the high voltage, discriminator, and repeat steps 18 through 21 until the Data agree (± 15%) with the acceptance criteria. _____

26. Record the new high voltage and discriminator values on Data Sheet 4. _____

27. Return the detector and module to normal service. _____

28. Put the function switch on the module to the check-source position. (Hold in this position approx 15 sec.) Record this new check-source reading on Data Sheet 4 and on the module. _____

29. Write a PTR on any instrument that had "AS FOUND" data that did not meet the specified acceptance criteria. _____

DATA SHEET 1
TRANSFER CALIBRATION DATA
RIS-9301

BY _____
DATE _____

BACKGROUND (Step 17)	
Count	Int.
No. 1	
No. 2	
No. 3	
Total	
Average	

ISOTOPE .00187 uci Cl-36		
COUNT	"AS FOUND (Step 18)	"AS LEFT (Step 20)
No. 1		
No. 2		
No. 3		
Total		
Average		
*Net		

DISCRIMINATOR LEVEL	
"AS FOUND" (Step 1)	"AS LEFT" (Step 28)

ISOTOPE 1.85 uci Cl-36		
COUNT	"AS FOUND" (Step 22)	"AS LEFT" (Step 22)
No. 1		
No. 2		
No. 3		
Total		
Average		
*Net		

HIGH VOLTAGE	
"AS FOUND" (Step 2)	"AS LEFT" (Step 28)

* Net = Average Isotope Count - Average Background Count

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DATA SHEET 2
TRANSFER CALIBRATION DATA
RIS-9302

BY _____
DATE _____

BACKGROUND (Step 17)	
Count	Int.
No. 1	
No. 2	
No. 3	
Total	
Average	

CHECK SOURCE		
"AS FOUND" (Step 3)	"AS LEFT" (Step 24)	"NEW" (Step 29)
cpm	cpm	cpm

ISOTOPE .00187 µci Cl-36		
COUNT	"AS FOUND (Step 18)	"AS LEFT (Step 18)
No. 1		
No. 2		
No. 3		
Total		
Average		
*Net		

DISCRIMINATOR LEVEL	
"AS FOUND" (Step 1)	"AS LEFT" (Step 26)

ISOTOPE 1.85 µci Cl-36		
COUNT	"AS FOUND" (Step 20)	"AS LEFT" (Step 20)
No. 1		
No. 2		
No. 3		
Total		
Average		
*Net		

HIGH VOLTAGE	
"AS FOUND" (Step 2)	"AS LEFT" (Step 26)

*Net = Average Isotope Count - Average Background Count

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DATA SHEET 8
TRANSFER CALIBRATION DATA
RIS-7312

BY _____
DATE _____

BACKGROUND (Step 19)	
Count	Int.
No. 1	
No. 2	
No. 3	
Total	
Average	

CHECK SOURCE		
"AS FOUND" (Step 5)	"AS LEFT" (Step 26)	"NEW" (Step 31)
cpm	cpm	cpm

ISOTOPE .00187 uci Cl-36		
COUNT	"AS FOUND (Step 20)	"AS LEFT (Step 20)
No. 1		
No. 2		
No. 3		
Total		
Average		
*Net		

DISCRIMINATOR LEVEL	
"AS FOUND" (Step 3)	"AS LEFT" (Step 28)

ISOTOPE 1.85 uci Cl-36		
COUNT	"AS FOUND" (Step 22)	"AS LEFT" (Step 22)
No. 1		
No. 2		
No. 3		
Total		
Average		
*Net		

HIGH VOLTAGE	
"AS FOUND" (Step 4)	"AS LEFT" (Step 28)

*Net = Average Isotope Count - Average Background Count

Dept. Rep. Signature Date

Test Conductor Signature Date

DATA SHEET 4
TRANSFER CALIBRATION DATA
RIS-31193

BY _____
DATE _____

BACKGROUND (Step 19)	
Count	Int.
No. 1	
No. 2	
No. 3	
Total	
Average	

CHECK SOURCE		
"AS FOUND" (Step 5)	"AS LEFT" (Step 26)	"NEW" (Step 31)
cpm	cpm	cpm

ISOTOPE .00187 uci Cl-36		
COUNT	"AS FOUND (Step 20)	"AS LEFT (Step 20)
No. 1		
No. 2		
No. 3		
Total		
Average		
*Net		

DISCRIMINATOR LEVEL	
"AS FOUND" (Step 3)	"AS LEFT" (Step 28)

ISOTOPE 1.85 uci Cl-36		
COUNT	"AS FOUND" (Step 22)	"AS LEFT" (Step 22)
No. 1		
No. 2		
No. 3		
Total		
Average		
*Net		

HIGH VOLTAGE	
"AS FOUND" (Step 4)	"AS LEFT" (Step 28)

*Net = Average Isotope Count - Average Background Count

Dept. Rep. Signature _____ Date _____

Test Conductor Signature _____ Date _____

APPENDIX I

RIS	SET POINT (cpm)	VOLTS
9301	4,600,000	8.90
9302	500	2.102
31193	500	2.098
7312	1000	2.615
2263	300	1.716
2264	300	1.716
21251	10,000	4.331
46211	350	1.826
46212	350	1.826
6212	325	1.776
6213	250	1.580
7324-1	77,000	6.369
7324-2	2,000	3.132
7325-1	3,200	3.482
7325-2	10 mr/hr	4.000
6314-1	10,000	4.332
6314-2	2,300,000	8.386

APPENDIX I (continued)

SET-UP OF MTR-2 FOR CALIBRATION OF RADIATION MODULES

1. On MTR-2 insert activity monitor patch board.
2. Set switch S-1 through S-48 to center position.
3. Set S-50 and S-51 to ON.
4. Set RS-1, 2,3 to position 1.
5. Plug the radiation monitor test extender into the MTR-2.
6. Plug radiation module to be tested into test extender.
7. Connect the detector to the cable provided and place the detector into the pig.
8. On MTR-2 turn on -24 vdc power and on MTR-1 turn on +24 vdc power.
9. On module, reset the red light if on and reset the green light so it is also on.
10. Connect the Ortec Timer Scaler to the module under test. Gnd to TP-C, + input to

ACCEPTANCE CRITERIA

		0.00187 uci Cl-36	1.85 uci Cl-36
RIS-31193	+15	114	736000
		99	640000
	-15	84	544000
RIS-7312	+15	115	635953
		100	553003
	-15	85	470052
RIS-9301	+15	88	747845
		77	650300
	-15	65	552755
RIS-9302	+15	76	628278
		66	546329
	-15	56	464379

6.0 DEVIATIONS, RETEST, LCO COMPLIANCE AND DEPARTMENT REVIEW:

6.1 Were any handwritten corrections made to the test and DCCF initiated?

Yes___ No___

6.2 Were any procedure changes or deviations made to the test and DCCF/PDR initiated?

Yes___ No___

6.3 Were all values within the limits stated in the test? (If test does not include values, check Yes).

Yes___ No___

6.4 If the answer to 6.3 is NO, list conditions and/or PTR number(s):

_____

_____

6.5 If test is not being completed at this time, state what instrument channels have been tripped to assure compliance with LCO's.

_____

6.6 Applicable LCO(s):_____

6.7 Is the reason test is not being completed at this time due to plant or equipment status?

Yes___ No___ N/A___

6.8 If the answer to 6.7 is YES, list condition(s) and/or PTR number(s):

_____

_____

6.9 Is retest necessary for items listed in 6.4 and/or 6.8?

Yes___ No___ N/A___

6.10 If the answer to 6.9 is YES, list specific section(s) or step(s) retested:_____

_____

6.11 Test completed except for items noted in 6.8 and 6.10.

_____ _____
Test Conductor Date

6.12 Verify satisfactory retest of section(s) or step(s) listed in 6.10.

_____ _____ _____
Retest Conductor Date

6.13 Test sheets and data sheets reviewed:

_____ _____
Department Representative Date

7.0 OPERATIONS NOTIFICATION AND APPROVAL TEST

7.1 Test results approved. Satisfactory results confirm compliance with applicable LCO(s).

_____ _____
Department Supervisor Date

7.2 Notification of satisfactory test results and test conclusion:

_____ _____
Shift Supervisor Date

7.3 Requires Station Manager evaluation of deficiencies or deviations:

_____ _____
Department Supervisor Date

7.4

_____ _____
Station Manager Date

_____ NRC Report Not Required

_____ NRC Report Required (circle one)

14 day 30 day NRC Report Number_____

8.0 DATA SHEETS RECEIVED, VERIFIED SECTION 7.0 COMPLETE, AND SURVEILLANCE TEST RECORDS UPDATED.

_____ _____
Surveillance Clerk Date