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PROCEDURE NUMBER: EI-6.1

TITLE: RELEASE RATE DETERMINATION FROM STACK GAS MONITORS

TRANSMITTAL: LISTED BELOW ARE NEW/REVISED PROCEDURES WHICH MUST BE IMMEDIATELY INSERTED INTO OR DISCARDED FROM YOUR PROCEDURE MANUAL.

Action Required	Section or Description
REMOVE AND DESTROY	EI-6.1, R/7, ENTIRE PROCEDURE
REPLACE WITH	EI-6.1, R/7, ENTIRE PROCEDURE
	EDITORIAL

SIGN, DATE, AND RETURN THE ACKNOWLEDGEMENT FORM WITHIN 10 DAYS TO THE PALISADES PLANT DOCUMENT CONTROL.

SIGNATURE OR INITIALS _____

DATE _____

1045

Procedure No EI-6.1
Revision 7
Issued Date 1/13/00

PALISADES NUCLEAR PLANT
EMERGENCY IMPLEMENTING PROCEDURE

TITLE: RELEASE RATE DETERMINATION FROM STACK GAS MONITORS

1/12/2000
Procedure Sponsor — Date

NKBrott — 5/22/95
Technical Reviewer — Date

MLGrogan — 5/22/95
User Reviewer — Date

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ATTACHMENTS

TITLE: RELEASE RATE DETERMINATION FROM STACK GAS MONITORS

USER ALERT
INFORMATION USE PROCEDURE

The activities covered by this procedure may be performed from memory.

1.0 PERSONNEL RESPONSIBILITY

The Health Physics Support Group Leader shall implement this procedure. In the absence of a Health Physics Support Group Leader, the Site Emergency Director (SED) or the EOF Director shall delegate this responsibility.

2.0 PURPOSE

This procedure provides a manual calculation of a release rate for radioactive effluents from the Plant stack. This data is used as input to offsite dose calculations.

This procedure provides a manual backup to the stack release rate calculations performed in the Automated Dose Assessment Program, "Offsite."

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3.0 REFERENCES

3.1 SOURCE DOCUMENTS

3.1.1 NUREG 0654, Section I, "Accident Assessment"

3.1.2 Site Emergency Plan, Section 6, "Emergency Measures"

3.1.3 Dose Assessment Basis Document DABD-03, "Palisades - Stack Release Rate Calculations"

3.2 REFERENCE DOCUMENTS

3.2.1 Emergency Implementing Procedure EI-6.0, "Offsite Dose Calculation and Recommendations for Protective Actions"

3.2.2 Palisades Administrative Procedure 10.46, "Plant Records"

3.2.3 Emergency Implementing Procedure EI-11, "Determination of Extent of Core Damage"

4.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

a. This procedure shall be implemented as required in Emergency Implementing Procedure EI-6.0, "Offsite Dose Calculation and Recommendations for Protective Actions."

b. Data and results from this procedure should be recorded on Attachment 3, Stack Release Rate Worksheet.

c. RIA-2327 reading must be taken in mrem/hr.

1. To achieve a mrem/hr reading on monitor RIA-2327, depress the Ci/sec to mrem/hr conversion button.

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5.0 RELEASE RATE DETERMINATION

USER ALERT
INFORMATION USE PROCEDURE

The activities covered by this procedure may be performed from memory.

5.1 STACK GAS MONITOR READING

a. Determine the Time Since Reactor Shutdown (in hours) and record on the Stack Release Rate Worksheet. Time of shutdown can be obtained from the Technical Information Facilitator (TIF).

b. Obtain the stack gas monitor reading for RIA-2326 from chart recorder RR-2325 located behind the C-11A panel in the Control Room. **IF** unavailable, **THEN** obtain the reading for RIA-2327 from chart recorder RR-2327. These readouts are also provided on Page 352 of the Plant Process Computer (PPC). Record reading on Attachment 3, Stack Release Rate Worksheet. Circle appropriate units and mark which monitor was used to provide the data.

c. Obtain the background reading from the same recorder used above. The default values for background are 100 cpm for RIA-2326, and 0.5 mrem/hr for RIA-2327. Record background on Attachment 3, Stack Release Rate Worksheet. Circle the appropriate units.

d. Obtain a net stack monitor reading by subtracting stack monitor background from current stack monitor reading. Record on Attachment 3, Stack Release Rate Worksheet. Circle the appropriate units.

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5.2 STACK FLOW RATE

a. Obtain stack gas flow rate from the C-11A panel, located in the Control Room on chart recorder FR-2318. Record on Attachment 3, Stack Release Rate Worksheet. If a reading is unavailable, use 82,000 ft^3/min as a default value.

b. Convert flow rate to m^3/s by multiplying stack gas flow rate by

4.72 E-4 $\frac{m^3/s}{ft^3/min}$. Record on Attachment 3, Stack Release Rate Worksheet.

5.3 RELEASE RATE

NOTE: Fuel Melt or Failure is defined as >1% of Core Inventory per Emergency Implementing Procedure EI-11, "Determination of Extent of Core Damage."

a. Obtain the conversion factor as follows:

1. For releases involving fuel melt or fuel failure, obtain the conversion factor for RIA-2326, RIA-2327 from Attachment 1 or Attachment 2, respectively, using Time Since Reactor Shutdown as the Decay Time.

2. For releases other than Fuel Melt or Fuel Failure, the conversion factor for RIA-2326 or RIA-2327 is determined as follows:

   IF the Time Since Reactor Shutdown is ≤6 hours, **THEN** obtain the conversion factor from Attachment 1 or 2, as appropriate, using 6 hours as the Decay Time.

   IF the Time Since Reactor Shutdown is >6 hours, **THEN** obtain the conversion factor from Attachment 1 or 2, as appropriate, using the Time Since Reactor Shutdown as the Decay Time.

Record conversion factor on Attachment 3, Stack Release Rate Worksheet. Circle the appropriate units.

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b. Calculate the noble gas release rate (QN) as follows:

QN (Ci/s) = Net stack gas monitor reading (cpm or mrem/hr) x stack gas flow rate (m^3/s) x conversion factor

$$\left(\frac{Ci/m^3}{cpm} \text{ or } \frac{Ci/m^3}{mremhr} \right)$$

Record results on Attachment 3, Stack Release Rate Worksheet.

c. Calculate the Iodine release rate (QI) as follows:

QI = QN x (1.0 E-3)

As soon as the concentration of Iodine has been quantified from an RGEM sample, the corrected ratio of Iodine to Noble Gas should be incorporated into the offsite dose calculation. | e

Record results on Attachment 3, Stack Release Rate Worksheet.

6.0 ATTACHMENTS AND RECORDS

6.1 ATTACHMENTS

6.1.1 Attachment 1, "Stack Gas Monitor Conversion Factor, RIA-2326"

6.1.2 Attachment 2, "Stack Gas Monitor Conversion Factor, RIA-2327"

6.1.3 Attachment 3, "Stack Release Rate Worksheet"

6.2 RECORDS

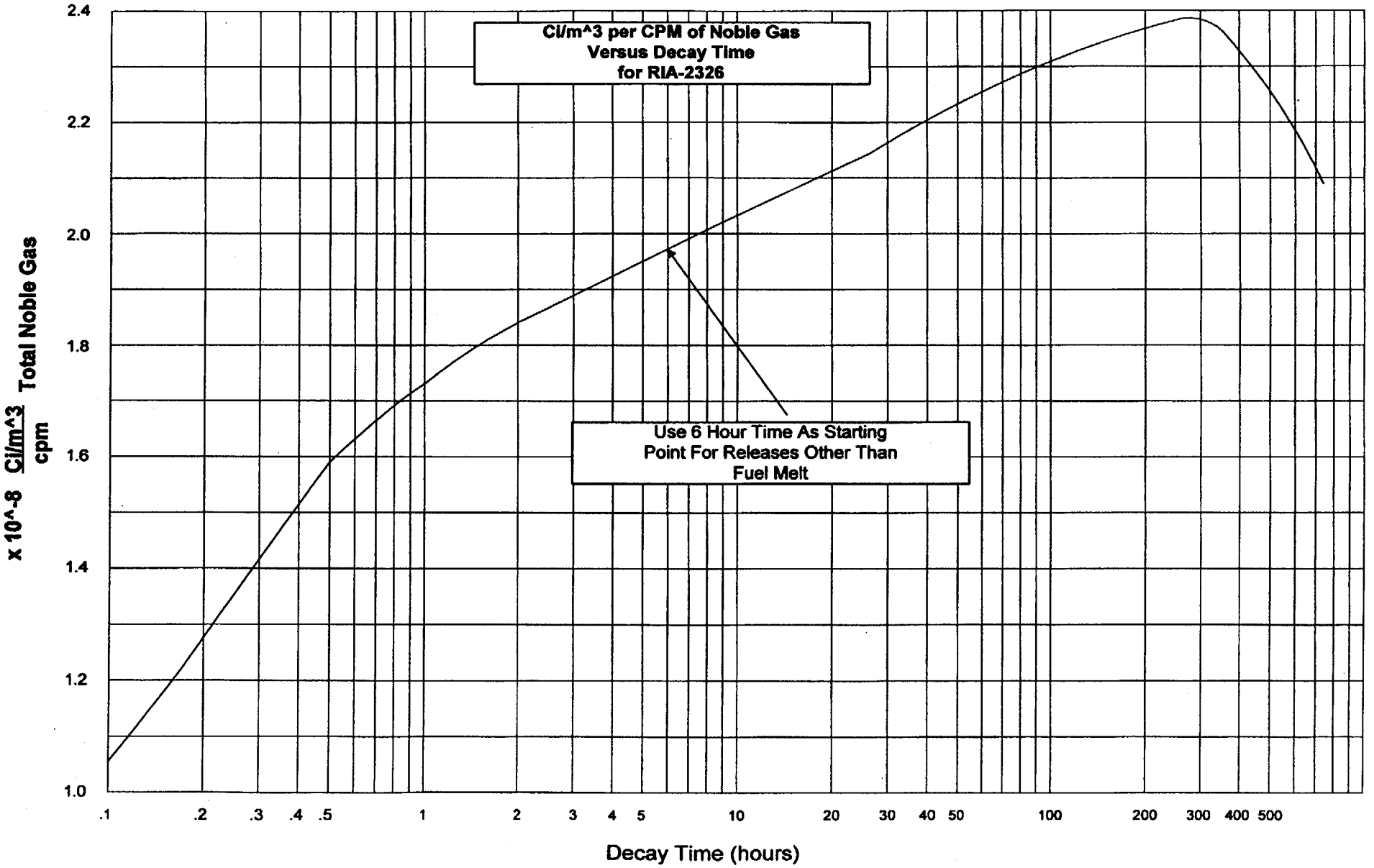
Records generated by this procedure shall be filed in accordance with Palisades Administrative Procedure 10.46, "Plant Records."

7.0 SPECIAL REVIEWS

None

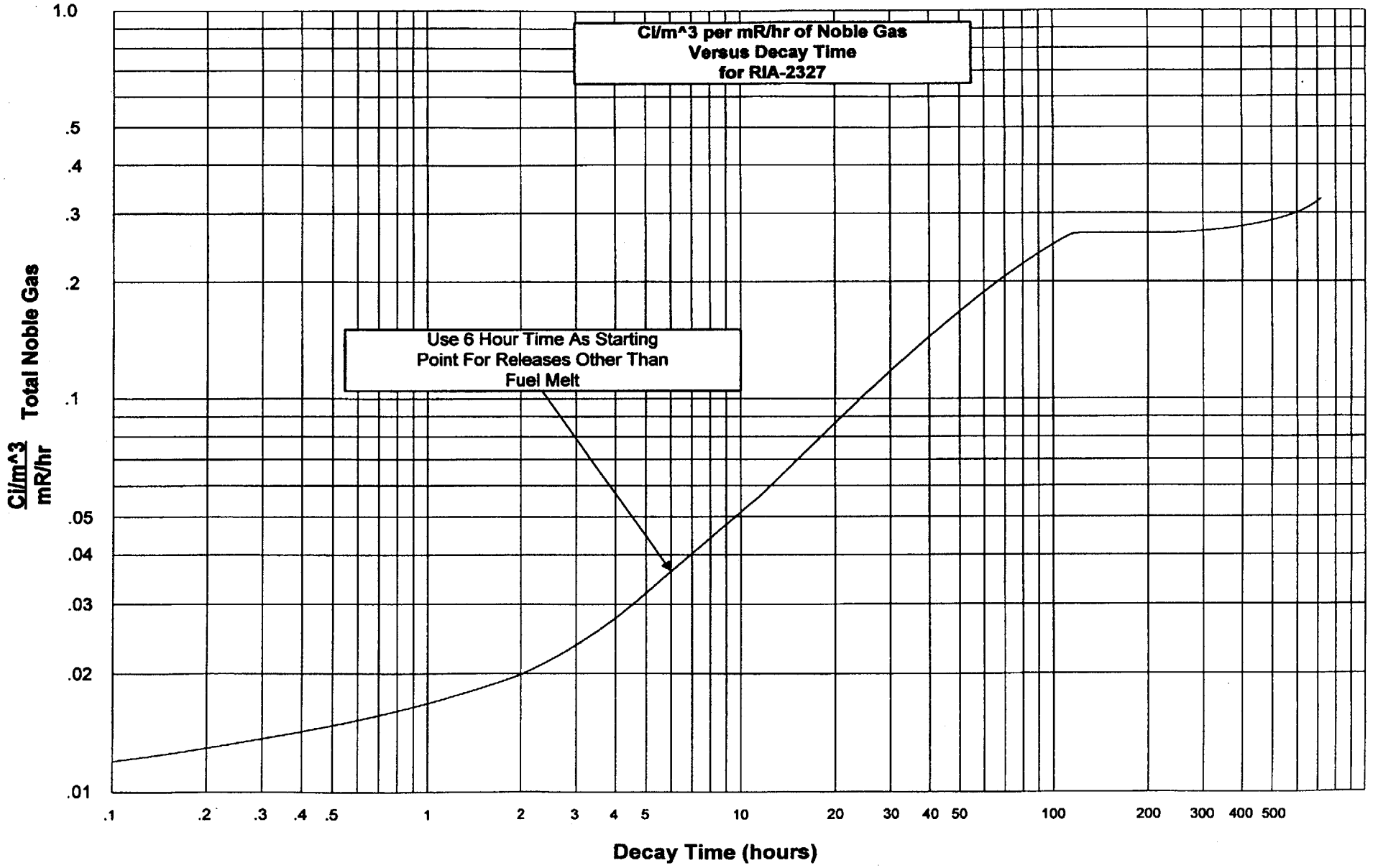
STACK GAS MONITOR CONVERSION FACTOR, RIA-2326

FIGURE 1



STACK GAS MONITOR CONVERSION FACTOR, RIA-2327

FIGURE 2



STACK RELEASE RATE WORKSHEET

1. Time Since Reactor Shutdown = _____ hours

2. Current stack gas monitor reading = _____ (circle units) cpm or mrem/hr RIA-2326 ( ) RIA-2327 ( )

3. Stack monitor background reading = _____ (circle units) cpm or mrem/hr

4. Net stack reading = _____ (circle units) cpm or mrem/hr

5. Stack gas flow rate = _____ ft^3/min

6. Stack gas flow rate

   (#5) ft^3/min x 4.72 E-4 $\frac{m^3/s}{ft^3/min}$ = _____ m^3/s

7. Conversion factor = _____ (circle units) $\frac{Ci/m^3}{cpm}$ or $\frac{Ci/m^3}{mrem/hr}$

8. QN, Noble Gas release rate = (#4) x (#6) x (#7) = _____ Ci/s

9. QI, Iodine release rate = (#8) x (1.0 E-3) = _____ Ci/s

Date: _____ Time: _____ Completed By: _____