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JMCKNIGHT

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TRANSMITTAL NUMBER: 221094

PROCEDURE NUMBER: EI-6.6

TITLE: GAMMA E DETERMINATION

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-6.6, R/3, ENTIRE PROCEDURE
REPLACE WITH	EI-6.6, R/3, ENTIRE PROCEDURE
	EDITORIAL AND APPLICABILITY
	WORD 2000 CONVERSION

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

SIGNATURE OR INITIALS

DATE

A045

Procedure No EI-6.6
Revision 3
Issued Date 7/7/02

PALISADES NUCLEAR PLANT
EMERGENCY IMPLEMENTING PROCEDURE

TITLE: GAMMA Ë DETERMINATION



Procedure Sponsor

Date

NKBrott

Technical Reviewer

Date

User Reviewer

Date

TITLE: GAMMA \bar{E} DETERMINATION

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ATTACHMENTS

- Attachment 1, "Energy per Disintegration Versus Decay Time Prior to Release
for Noble Gas"
- Attachment 2, "Gamma \bar{E} Determination Worksheet"

TITLE: GAMMA \bar{E} DETERMINATION

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 gamma \bar{E} (average gamma energy per disintegration) for input into offsite dose calculations.

This procedure provides a manual backup to the gamma \bar{E} calculation performed in the automated dose assessment program, "Offsite."

3.0 REFERENCES

3.1 SOURCE DOCUMENTS

- 3.1.1 NUREG 0654, Section I, "Accident Assessment"
- 3.1.2 Dose Assessment Basis Document-06, "Palisades Gamma \bar{E} 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 Emergency Implementing Procedure EI-11, "Determination of Extent of Core Damage"
- 3.2.3 Palisades Administrative Procedure 10.46, "Plant Records"
- 3.2.4 Palisades Administrative Procedure 10.41, "Procedure Initiation and Revision"

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4.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

- a. This procedure shall be implemented as required per Emergency Implementing Procedure EI-6.0, "Offsite Dose Calculation and Recommendations for Protective Actions." | e
- b. Data and results from this procedure should be recorded on the Gamma \bar{E} Determination Worksheet, Attachment 2.
- c. \bar{E} is dependent on the source of the radionuclide release, the type of accident/release and the time of decay (or time after reactor shutdown). Those parameters should be known prior to performing this procedure. In the event these parameters cannot be determined, the default value for \bar{E} of 0.7 MeV should be used.

5.0 PROCEDURE

5.1 \bar{E} DETERMINATION

USER ALERT
INFORMATION USE PROCEDURE

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

NOTE: Time of shutdown can be obtained from the TSC Operations Support Group.

- a. Determine the decay time in hours and record on worksheet, Attachment 2.
- b. Determine the source of the release and record on worksheet.

NOTE: Fuel failure may be determined using Emergency Implementing Procedure EI-11, "Determination of Extent of Core Damage."

- c. Determine \bar{E} from the appropriate section below:
 - 1. Release With Fuel Melt or Fuel Failure - Using the time after reactor shutdown as the "Decay Time Prior to Release," determine \bar{E} using Attachment 1. This method is used for all release sources when fuel melt or failure is involved.

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2. Mainsteam and Offgas (Air Ejector) Releases (No Fuel Melt or Failure) - If the release originates from the Primary Coolant System with a Primary to Secondary leak, and there is no fuel melt or failure, then use the \bar{E} that corresponds with the 10 hour value (0.134 MeV) from Attachment 1.
3. Surge Tank, Volume Control Tank, and Degasser Releases (No Fuel Melt or Failure) - Use \bar{E} that corresponds to the six-hour time in Attachment 1 (0.180 MeV). This corresponds to a release from the Primary Coolant System (excluding mainsteam releases) without fuel damage. This value may be used for any release that involves fresh primary coolant.
4. Waste Gas Decay Tank Releases (No Fuel Melt or Failure) - If the decay time for activity in a Waste Gas Decay Tank is known, then \bar{E} should be determined using Attachment 1 and six hours as the starting point for the decay time determination. (If decay time is not known, then use 0.180 MeV as a default.)

For example, if the tank contains activity that has decayed for two days, then the "Decay Time Prior to Release" is $48 + 6 = 54$ hours.
5. Fuel Handling, Sipping, and Cask Drop Releases - If the release is coming from a fresh spent fuel bundle (directly out of the reactor core and less than 30 days old), then use the time after reactor shutdown as the "Decay Time Prior to Release," and determine \bar{E} using Attachment 1. If the release is coming from an old fuel bundle, then use an \bar{E} of 0.035 MeV.

- d. Record \bar{E} on the worksheet.

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6.0 ATTACHMENTS AND RECORDS

6.1 ATTACHMENTS

- 6.1.1 Attachment 1, "Energy per Disintegration Versus Decay Time Prior to Release for Noble Gas"
- 6.1.2 Attachment 2, "Gamma E Determination Worksheet"

6.2 RECORDS

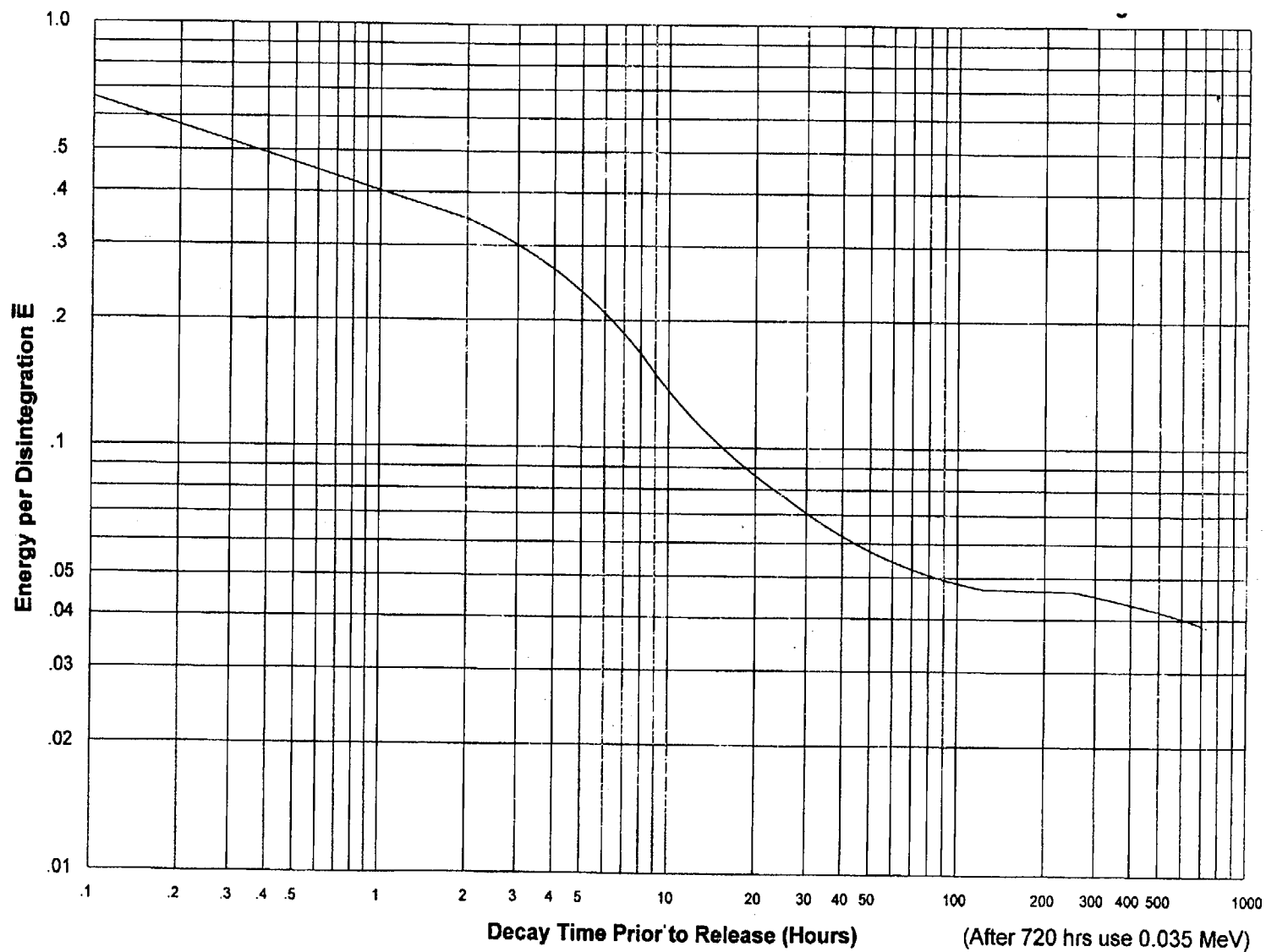
Records generated by this procedure shall be filed in accordance with Palisades Administrative Procedure 10.46, "Plant Records."

7.0 SPECIAL REVIEWS

The scope of this procedure does not include activities that require a 50.59 review per Palisades Administrative Procedure 10.41, "Procedure Initiation and Revision." Therefore, changes to this procedure do not require a 50.59 review.

The scope of this procedure includes activities that require a PRC review per Palisades Administrative Procedure 10.41, "Procedure Initiation and Revision." Therefore, changes to this procedure require a PRC review.

ENERGY PER DISINTEGRATION
VERSUS DECAY TIME PRIOR TO RELEASE FOR NOBLE GAS



GAMMA \bar{E} DETERMINATION WORKSHEET

1. Decay time _____ hours
2. Source of release () Fuel Melt or Fuel Failure
 - () Main Steam or Offgas (Air Ejector) Releases
 - () Surge Tank, Volume Control Tank, and Degasser Releases
 - () Waste Gas Decay Tank Releases
 - () Fuel Handling, Sipping, and Cask Drop Releases

3. \bar{E} = _____ MeV

Date: _____ Time: _____ Completed By: _____