U.S. NUCLEAR REGULATORY COMMISSION

Revision 2
November 2005

REGULATORY GUIDE

OFFICE OF NUCLEAR REGULATORY RESEARCH

REGULATORY GUIDE 8.7

(*Draft was issued as DG-8029, dated May 2005*)

INSTRUCTIONS FOR RECORDING AND REPORTING OCCUPATIONAL RADIATION DOSE DATA

A. INTRODUCTION

In Title 10, Part 20, of the *Code of Federal Regulations* (10 CFR Part 20), "Standards for Protection Against Radiation," Section 20.1502 establishes "Conditions Requiring Individual Monitoring of External and Internal Occupational Dose." Specifically, 10 CFR 20.1502 requires licensees to provide radiation monitoring for all occupationally exposed individuals who might receive a dose in excess of the specified percentage of the limits defined in 10 CFR 20.1201, 1207, or 1208. To augment that provision, 10 CFR 20.2106, "Records of Individual Monitoring Results," requires licensees to maintain records of the radiation exposures of all individuals for whom personnel monitoring is required pursuant to 10 CFR 20.1502. Also, according to 10 CFR 20.2104, "Determination of Prior Occupational Dose," licensees shall determine the dose in the current monitoring year for all persons who must be monitored, and attempt to obtain the records of cumulative occupational radiation dose. In addition, 10 CFR 20.2104(b) requires that, prior to permitting an individual to participate in a planned special exposure, licensees shall determine the internal and external doses from all previous planned special exposures, and record all previous doses in excess of the limits received during the lifetime of the individual. Licensees are required to maintain prior dose records on NRC Form 4 or its equivalent (Appendix A to this guide). Further, 10 CFR 20.2206, "Reports of Individual Monitoring," requires certain licensees to submit to the U.S. Nuclear Regulatory Commission (NRC) an annual report of the results of individual monitoring. Licensees are required to record these annual reports on NRC Form 5 or its equivalent (Appendix B to this guide).

This guide describes an acceptable program for the preparation, retention, and reporting of records of occupational radiation doses. It includes copies of NRC Forms 4 and 5, as well as detailed instructions for completing those forms.

Any information collections mentioned in this regulatory guide are established as requirements in 10 CFR Part 20, which provides the regulatory basis for this guide. The Office of Management and Budget (OMB) has approved those information collection requirements under OMB control number 3150-0014. The OMB has also approved the existing requirements for NRC Forms 4 and 5 under approval numbers 3150-0005 and 3150-0006. However, the amended information collection requirements reflected in this guide will not become effective until they receive OMB approval. Notice of OMB approval will be published in the *Federal Register*. The NRC may neither conduct nor sponsor, and a person is not required to respond to, an information collection request or requirement unless the requesting document displays a currently valid OMB control number.

B. DISCUSSION

This guide is structured to reflect the process a licensee would follow to decide whether monitoring for occupational exposure to radiation is required under the revised 10 CFR Part 20. Toward that end, this guide describes acceptable methods for determining prior doses, recording monitoring results, and reporting those results, when required, to comply with 10 CFR Part 20. This guide also includes copies of NRC Forms 4 and 5, as well as detailed instructions for completing those forms. In addition, Appendix C to this guide discusses the format for electronic submittal of dose data to the NRC.

The term "total organ dose equivalent" (TODE) has been added to denote the sum of the deep dose equivalent (DDE) and the committed dose equivalent (CDE) to the organ receiving the highest dose, as described in 10 CFR 20.2106(a)(6).

C. REGULATORY POSITION

1. Determining the Need To Monitor

According to 10 CFR 20.1502, monitoring is required if an adult is likely to receive in a calendar year a dose greater than the specified percentage of the limits defined in 10 CFR 20.1201, 1207, or 1208, or is entering a high or very high radiation area. The licensee should evaluate the dose that such an individual is likely to receive before allowing the individual to receive the dose. The licensee need not perform a dose evaluation for every individual; evaluations can be performed for employees with similar job functions or work areas. Regulatory Guide 8.34, "Monitoring Criteria and Methods To Calculate Occupational Radiation Doses" (July 1992), provides further guidance for use in determining the need to monitor an individual's occupational radiation dose.

1.1 *If Monitoring Is Not Required*

If the prospective evaluation shows that an individual is not likely to receive in a calendar year a dose that exceeds the specified percentage of the limits defined in 10 CFR 20.1201, 1207, or 1208, 10 CFR Part 20 does not require recordkeeping or reporting regarding the individual's dose. For individuals who received a dose at other facilities in the current year, the previous dose need not be considered in this prospective evaluation. Only the dose that could be received at the facility performing the evaluation need be considered when determining the need for monitoring and, therefore, the recordkeeping and reporting requirements. If the licensee determines that monitoring is not required and a subsequent evaluation shows that the individual exceeded (or will exceed) the monitoring limit threshold, the licensee should estimate, record, and report the dose received when monitoring was not provided. These estimates can be based on any combination of work location radiation monitoring or survey results, monitoring results of individuals in similar work situations, or other estimates to produce a "best estimate" of the actual dose received.

If monitoring is not required to demonstrate compliance with all limits, but is required relative to one or more specific limits, the licensee should enter "NR" for "Not Required" in the blocks on NRC Forms 4 and 5 to indicate the areas for which monitoring was not required (e.g., extremity or skin doses). Where monitoring was provided but the dose was not measurable, the licensee should enter "ND" for "Not Detectable."

1.2 *If Monitoring Is Required*

If the prospective evaluation shows that an individual is likely to receive in a calendar year a dose that exceeds the specified percentage of the limits defined in 10 CFR 20.1201, 1207, or 1208, 10 CFR 20.1502 requires monitoring. In addition, 10 CFR 20.2106(a) and 20.2206(b), respectively, require recording and reporting of the monitoring results, regardless of the actual dose received (even if the actual dose received is less than the dose limits for which monitoring is required).

1.3 *Documentation of Prior Doses*

For those individuals for whom monitoring is required (i.e., individuals who are likely to receive in a calendar year, an occupational dose requiring monitoring pursuant to 10 CFR 20.1502), 10 CFR 20.2104 requires a determination of the individual's current year dose at other facilities. For individuals entering a high or very high radiation area, determination of current year prior occupational dose is not required unless the individual is likely to receive in a year, an occupational dose greater than the specified percentage of the limits defined in 10 CFR 20.1201, 1207, or 1208. To document that determination, the licensee is required to obtain an NRC Form 4 signed by the individual to be monitored, or a written statement that includes the names of all facilities that monitored the individual for occupational exposure to radiation during the current year and an estimate of the dose received. Although not required by the regulations, it is considered good health physics practice to verify the information provided by the individual. Verification may be documented in any of the following ways:

- an NRC Form 5 for each listed monitoring period
- electronic, telephone, or facsimile transfer of dose data provided by licensees listed on the written statement
- an NRC Form 4 countersigned by a licensee or current employer

In addition, 10 CFR 20.2104(a)(2) requires that licensees must attempt to obtain records of the individual's lifetime cumulative occupational radiation dose. To demonstrate compliance with this requirement, the individual to be monitored may provide a written estimate of the cumulative lifetime dose or an up-to-date NRC Form 4 signed by the individual. The licensee need not verify this information, so long as the individual does not participate in a planned special exposure.

NRC Forms 4 and 5, termination letters, and/or reports that document the results of monitoring performed before implementation of the 1991 revision of 10 CFR Part 20 may be used without recalculating dose according to the requirements of the 1991 revision of 10 CFR Part 20. For the purpose of assessing prior dose, whole body dose, in rem, as reported on the old NRC Forms 4 and 5 (from 1981 or earlier) can be considered equivalent to total effective dose equivalent (TEDE).

1.4 *Records of Prior Dose for Persons Participating in Planned Special Exposures*

If the monitored individual has any periods of exposure (throughout his or her life) that have not been monitored and documented, the individual is not permitted to participate in a planned special exposure. Acceptable documentation of prior exposure is similar to that required to document current-year exposure. The licensee may ask the NRC to provide a report of the monitored individual's exposure history, by submitting a request via the NRC's Radiation Exposure Information and Reporting System (REIRS) for Radiation Workers (a secure web site) at http://www.reirs.com. Alternatively, the licensee may send a request signed by the monitored individual to the following point-of-contact:

REIRS Project Manager
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Each request should contain the social security number (or other unique identifier) of the monitored individual authorizing release of the information and the name and address of the person or licensee to whom the report should be sent. The NRC's REIRS database contains copies of all licensee exposure records submitted to the NRC. However, the database only contains reports submitted by the seven classes of licensees that 10 CFR Part 20 requires to report occupational exposures. Any missing monitoring periods should be obtained directly from licensees.

1.5 *Use of ID Types Other than Social Security Number*

Doses to individuals who do not have a social security number, such as citizens of foreign countries, and individuals who are either unwilling or unable to provide (cannot locate or do not want to disclose) a social security number, should be reported using another unique identifier. It is important to record the type of identification in the data block labeled "ID Type," which follows the "Identification Number" data block on NRC Forms 4 and 5. The instructions on the back of these forms define all valid ID types. Licensees should insert the appropriate code (listed below) in the blank labeled "ID Type".

ID TYPE	CODE
U.S. Social Security Number	SSN
Passport Number	PPN
Canadian Social Insurance Number	CSI
Work Permit Number	WPN
INDEX Identification Number	IND
PADS Identification Number	PAD
Other	OTH

The use of licensee-generated identification numbers should be avoided whenever possible.

2. Records of Monitoring Results for Individuals for Whom Monitoring Is Required

The preparation of NRC Form 5 with the information clearly and legibly shown, or the collection of all information requested by NRC Form 5 using paper or electronic media (see Appendix C), is required by 10 CFR 20.2106. The licensee shall maintain such records for each individual for whom occupational monitoring is required by 10 CFR 20.1502. In addition, certain classes of licensees are required to report the results of this monitoring to the NRC, pursuant to 10 CFR 20.2206, either by submitting copies of NRC Form 5 or by transmitting the required information to the NRC through electronic media. This report, covering the preceding year, must be filed on or before April 30 of each year. NRC Form 5 provides instructions and additional information pertinent to each item.

2.1 *Multiple Badges*

Regulatory Guide 8.34, "Monitoring Criteria and Methods To Calculate Occupational Radiation Doses" (July 1992), provides further guidance on interpreting the results of multiple dosimetric devices placed at different locations on the body to track doses to various parts of the whole body. In addition, NRC Regulatory Issue Summary 2002-06, "Evaluating Occupational Doses Exposed to NRC-Licensed Material and Medical X-rays" (April 16, 2002), provides additional guidance.

2.2 *Dose Calculations for CDE and TODE to the Maximally Exposed Organ*

As required by 10 CFR 20.2106(a)(6), licensees shall record, when applicable, the total organ dose equivalent (TODE), which is the sum of the deep dose equivalent (DDE) and the committed dose equivalent (CDE) to the organ receiving the highest dose (the maximally exposed organ). For cases where the licensee is using effective dose equivalent (EDE) in lieu of DDE (please refer to NRC Regulatory Issue Summary 2003-04, "Use of the Effective Dose Equivalent in Place of the Deep Dose Equivalent in Dose Assessments"), record the EDE in item number 11 of NRC Form 5 and note in the comment block that EDE is being used in lieu of DDE. Organ doses need not be calculated if the committed effective dose equivalent (CEDE) does not exceed 1 rem, and there are no overexposures in any dose category within the monitoring year, including doses previously reported by other licensees. In this case, the licensee may record "NC" for "Not Calculated" in items 16 and 18 on NRC Forms 4 and 5. If during the course of the year, the CEDE to date for the year exceeds 1 rem or the individual receives an overexposure in another dose category, the licensee is required to calculate, record, and report the CDE and TODE to the maximally exposed organ. When the CDE and TODE to the maximally exposed organ are required to be calculated, the licensee should refer to Regulatory Guide 8.34, "Monitoring Criteria and Methods To Calculate Occupational Radiation Doses" (July 1992).

2.3 *Dose to the Embryo/Fetus*

A declared pregnant worker is a worker who has voluntarily informed her employer (in writing) of her pregnancy and the estimated month and year of conception. In such instances, the licensee shall record the dose to the embryo/fetus for the entire gestation period [10 CFR 20.2106(e)], but need not include that information on NRC Forms 4 and 5. Multiple records are not required in the case of multiple births (twins, triplets, etc.). Licensees are required to record any dose measured to demonstrate compliance with 10 CFR 20.1208.

Licensees should be sensitive to the issue of personal privacy with regard to the dose to the embryo/fetus. If requested by the monitored woman, a letter report may be provided to subsequent licensees to document prior embryo/fetus dose. Regulatory Guide 8.36, "Radiation Dose to the Embryo/Fetus" (July 1992), provides further guidance on assessing the dose to the embryo/fetus.

2.4 *Transmittal of Reports to the NRC*

As required by 10 CFR 20.2206(c), certain licensees are required to submit reports of monitoring for the previous year to the NRC on or before April 30 of each year. According to 10 CFR 20.2206(b), "…The licensee shall use Form NRC 5 or electronic media containing all the information required by Form NRC 5." Licensees shall submit their reports to the REIRS Project Manager by an appropriate method listed in 10 CFR 20.1007 or via the REIRS Web site at http://www.reirs.com. Reports submitted by mail should be addressed as follows:

REIRS Project Manager
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, DC 20555

2.5 *Electronic Reporting of Dose Data*

Licensees (especially those with a large number of monitored individuals) are encouraged to record and report these data electronically. Appendix C to this guide provides guidance for reporting radiation dose data to the NRC in an electronic, machine-readable format.

D. IMPLEMENTATION

The purpose of this section is to provide information to applicants and licensees regarding the NRC staff's plans for using this guide. No backfitting is intended or approved in connection with the issuance of this guide.

Except in those cases in which an applicant or licensee proposes or has previously established an acceptable alternative method for complying with specified portions of the NRC's regulations, the methods to be described in the active guide will reflect public comments and will be used in evaluating (1) submittals in connection with applications for new licenses, license renewals, and license amendments, and (2) compliance with 10 CFR 20.1001-20.2401.

SMALL BUSINESS REGULATORY ENFORCEMENT FAIRNESS ACT

The NRC staff has determined that this final action is subject to the Small Business Regulatory Enforcement Fairness Act of 1996 because it is the whole or part of a final agency action that has general applicability and future effect designed to implement, interpret, or prescribe law or policy. However, the final action does not constitute a "major rule" as defined in 5 U.S.C. 804(2).

REGULATORY ANALYSIS

The NRC staff did not prepare a separate regulatory analysis for this regulatory guide. The regulatory analysis prepared for 10 CFR Part 20, "Standards for Protection Against Radiation" (56 FR 23360), also provides the regulatory basis for this guide and examines the costs and benefits of the rule as implemented by the guide. A copy of the "Regulatory Analysis for the Revision of 10 CFR Part 20" (PNL-6712, dated November 1988), is available (as an enclosure to 10 CFR Part 20) for inspection and copying for a fee at the NRC's Public Document Room, located at 11555 Rockville Pike, Rockville, Maryland.

APPENDIX A

NRC FORM 4, "CUMULATIVE OCCUPATIONAL DOSE HISTORY"

This form is reissued every 3 years. The attached form is for illustration only. The current form can be found on the NRC's public Web site at http://www.nrc.gov/reading-rm/doc-collections/forms/nrc4.pdf.

PAGE ______ OF ______

NRC FORM 4 (10/2001) 10 CFR PART 20

U.S. NUCLEAR REGULATORY COMMISSION

CUMULATIVE OCCUPATIONAL DOSE HISTORY

APPROVED BY OMB NO. 3150-0005 **EXPIRES: 10/31/2004**

1. NAME (LAST, FIRST, MIDDLE INITIAL)	2. IDENTIFICATION NUMBER	3. ID TYPE	4. SEX: MALE ☐ FEMALE ☐	5. DATE OF BIRTH (MM/DD/YYYY)

6. MONITORING PERIOD (MM/DD/YYYY - MM/DD/YYYY)	7. LICENSEE NAME	8. LICENSE NUMBER	9. RECORD ☐ ESTIMATE ☐ NO RECORD ☐	10. ROUTINE ☐ PSE ☐

11. DDE	12. LDE	13. SDE, WB	14. SDE, ME	15. CEDE	16. CDE	17. TEDE	18. TODE

6. MONITORING PERIOD	7. LICENSEE NAME	8. LICENSE NUMBER	9. RECORD ☐ ESTIMATE ☐ NO RECORD ☐	10. ROUTINE ☐ PSE ☐

11. DDE	12. LDE	13. SDE, WB	14. SDE, ME	15. CEDE	16. CDE	17. TEDE	18. TODE

6. MONITORING PERIOD	7. LICENSEE NAME	8. LICENSE NUMBER	9. RECORD ☐ ESTIMATE ☐ NO RECORD ☐	10. ROUTINE ☐ PSE ☐

11. DDE	12. LDE	13. SDE, WB	14. SDE, ME	15. CEDE	16. CDE	17. TEDE	18. TODE

6. MONITORING PERIOD	7. LICENSEE NAME	8. LICENSE NUMBER	9. RECORD ☐ ESTIMATE ☐ NO RECORD ☐	10. ROUTINE ☐ PSE ☐

11. DDE	12. LDE	13. SDE, WB	14. SDE, ME	15. CEDE	16. CDE	17. TEDE	18. TODE

6. MONITORING PERIOD	7. LICENSEE NAME	8. LICENSE NUMBER	9. RECORD ☐ ESTIMATE ☐ NO RECORD ☐	10. ROUTINE ☐ PSE ☐

11. DDE	12. LDE	13. SDE, WB	14. SDE, ME	15. CEDE	16. CDE	17. TEDE	18. TODE

6. MONITORING PERIOD	7. LICENSEE NAME	8. LICENSE NUMBER	9. RECORD ☐ ESTIMATE ☐ NO RECORD ☐	10. ROUTINE ☐ PSE ☐

11. DDE	12. LDE	13. SDE, WB	14. SDE, ME	15. CEDE	16. CDE	17. TEDE	18. TODE

19. SIGNATURE OF MONITORED INDIVIDUAL	20. DATE SIGNED	21. CERTIFYING ORGANIZATION	22. SIGNATURE OF DESIGNEE	23. DATE SIGNED

INSTRUCTIONS AND ADDITIONAL INFORMATION PERTINENT TO THE COMPLETION OF NRC FORM 4

(All doses should be stated in rems)

1. Type or print the full name of the monitored individual in the order of last name (include "Jr," "Sr," "III," etc.), first name, middle initial (if applicable).

2. Enter the individual's identification number, including punctuation. This number should be the 9-digit social security number if at all possible. If the individual has no social security number, enter the number from another official identification such as a passport or work permit.

3. Enter the code for the type of identification used as shown below:

CODE	ID TYPE
SSN	U.S. Social Security Number
PPN	Passport Number
CSI	Canadian Social Insurance Number
WPN	Work Permit Number
PADS	PADS Identification Number
OTH	Other

4. Check the box that denotes the sex of the individual being monitored.

5. Enter the date of birth of the individual being monitored in the format MM/DD/YYYY.

6. Enter the monitoring period for which this report is filed. The format should be MM/DD/YYYY - MM/DD/YYYY.

7. Enter the name of the licensee or facility not licensed by NRC that provided monitoring.

8. Enter the NRC license number or numbers.

9. Place an "X" in Record, Estimate, or No Record. Choose "Record" if the dose data listed represent a final determination of the dose received to the best of the licensee's knowledge. Choose "Estimate" only if the listed dose data are preliminary and will be superseded by a final determination resulting in a subsequent report. An example of such an instance would be dose data based on self-reading dosimeter results and the licensee intends to assign the record dose on the basis of TLD results that are not yet available.

10. Place an "X" in either Routine or PSE. Choose "Routine" if the data represent the results of monitoring for routine exposures. Choose "PSE" if the listed dose data represents the results of monitoring of planned special exposures received during the monitoring period. If more than one PSE was received in a single year, the licensee should sum them and report the total of all PSEs.

11. Enter the deep dose equivalent (DDE) to the whole body.

12. Enter the eye dose equivalent (LDE) recorded for the lens of the eye.

13. Enter the shallow dose equivalent recorded for the skin of the whole body (SDE,WB).

14. Enter the shallow dose equivalent recorded for the skin of the extremity receiving the maximum dose (SDE,ME).

15. Enter the committed effective dose equivalent (CEDE).

16. Enter the committed dose equivalent (CDE) recorded for the maximally exposed organ.

17. Enter the total effective dose equivalent (TEDE). The TEDE is the sum of items 11 and 15.

18. Enter the total organ dose equivalent (TODE) for the maximally exposed organ. The TODE is the sum of items 11 and 16.

19. Signature of the monitored individual. The signature of the monitored individual on this form indicates that the information contained on the form is complete and correct to the best of his or her knowledge.

20. Enter the date this form was signed by the monitored individual.

21. [OPTIONAL] Enter the name of the licensee or facility not licensed by NRC, providing monitoring for exposure to radiation (such as a DOE facility) or the employer if the individual is not employed by the licensee and the employer chooses to maintain exposure records for its employees.

22. [OPTIONAL] Signature of the person designated to represent the licensee or employer entered in item 21. The licensee or employer who chooses to countersign the form should have on file documentation of all the information on the NRC Form 4 being signed.

23. [OPTIONAL] Enter the date this form was signed by the designated representative.

PRIVACY ACT STATEMENT

Pursuant TO 5 U.S.C. 552a(e)(3), enacted into law by Section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the U.S. Nuclear Regulatory Commission (NRC) on NRC Form 4. This information is maintained in a system of records designated as NRC-27 and described at 65 Federal Register 56434 (September 18, 2000), or the most recent Federal Register publication of the Nuclear Regulatory Commission's "Republication of Systems of Records Notices" that is available at the NRC Public Document Room, 11555 Rockville Pike, Rockville, Maryland, or located in NRC's Agencywide Documents Access and Management System (ADAMS).

1. **AUTHORITY:** 42 U.S.C. 2073, 2093, 2095, 2111, 2133, 2134, 2201(o) (1996); 10 CFR 20.2106, 20.2201-20.2204, and 20.2206 (2000); Executive Order 9397, November 22, 1943.

2. **PRINCIPAL PURPOSE(S):** The information is used by the NRC in its evaluation of the risk of radiation exposure associated with the licensed activity and in exercising its statutory responsibility to monitor and regulate the safety and health practices of its licensees. The data permits a meaningful comparison of both current and long-term exposure experience among types of licensees and among licensees within each type. Data on your exposure to radiation is available to you upon your request.

3. **ROUTINE USE(S):** The information may be used to provide data to other Federal and State agencies involved in monitoring and/or evaluating radiation exposure received by individuals monitored for radiation exposure while employed by or visiting or temporarily assigned to certain NRC licensed facilities; to return data provided by licensee upon request. The information may also be disclosed to an appropriate Federal, State, local, or Foreign agency in the event the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, local, or Foreign agency to the extent relevant and necessary for an NRC decision about you or to the extent relevant and necessary for that agency's decision about you. Information from this form may also be disclosed, in the course of discovery and in presenting evidence, to a Congressional office to respond to their inquiry made at your request, or to NRC-paid experts, consultants, and others under contract with the NRC, on a need-to-know basis.

4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION:** It is voluntary that you furnish the requested information, including social security number (identification number). The social security number is used to assure that NRC has an accurate identifier not subject to the coincidence of similar names or birth dates among the large number of persons on whom data is maintained and to assure that there are no missed doses or monitoring periods and an individual gets a complete dose history when requested. The licensee must complete NRC Form 5 on each individual for whom personnel monitoring is required under 10 CFR 20.2106. Failure to do so may subject the licensee to enforcement action in accordance with 10 CFR 20.2401.

5. **SYSTEM MANAGER(S) AND ADDRESS:** REIRS Project Manager, Radiation Protection and Health Effects Branch, Division of Regulatory Applications, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001

APPENDIX B

NRC FORM 5,
"OCCUPATIONAL DOSE RECORD FOR A MONITORING PERIOD"

This form is reissued every 3 years. The attached form is for illustration only. The current form can be found on the NRC's public Web site at http://www.nrc.gov/reading-rm/doc-collections/forms/nrc5.pdf.

NRC FORM 5 (10-2001)
10 CFR PART 20

U.S. NUCLEAR REGULATORY COMMISSION

OCCUPATIONAL DOSE RECORD FOR A MONITORING PERIOD

APPROVED BY OMB NO. 3150-0006 EXPIRES: 10/31/2004

1. NAME (LAST, FIRST, MIDDLE INITIAL)	2. IDENTIFICATION NUMBER	3. ID TYPE	4. SEX	5. DATE OF BIRTH (MM/DD/YYYY)
			☐ MALE ☐ FEMALE	

6. MONITORING PERIOD (MM/DD/YYYY - MM/DD/YYYY)	7. LICENSEE NAME	8. LICENSE NUMBER(S)	9A.	9B.
			☐ RECORD	☐ ROUTINE
			☐ ESTIMATE	☐ PSE

INTAKES

10A. RADIONUCLIDE	10B. CLASS	10C. MODE	10D. INTAKE IN μCi

DOSES (in rem)

DEEP DOSE EQUIVALENT	(DDE)	11.
LENS (EYE) DOSE EQUIVALENT	(LDE)	12.
SHALLOW DOSE EQUIVALENT, WHOLE BODY	(SDE,WB)	13.
SHALLOW DOSE EQUIVALENT, MAX EXTREMITY	(SDE,ME)	14.
COMMITTED EFFECTIVE DOSE EQUIVALENT	(CEDE)	15.
COMMITTED DOSE EQUIVALENT, MAXIMALLY EXPOSED ORGAN	(CDE)	16.
TOTAL EFFECTIVE DOSE EQUIVALENT (ADD BLOCKS 11 AND 15)	**(TEDE)**	17.
TOTAL ORGAN DOSE EQUIVALENT, MAX ORGAN (ADD BLOCKS 11 AND 16)	**(TODE)**	18.

19. COMMENTS

20. SIGNATURE -- LICENSEE	21. DATE PREPARED

INSTRUCTIONS AND ADDITIONAL INFORMATION PERTINENT TO THE COMPLETION OF NRC FORM 5

(All doses should be stated in rems)

1. Type or print the full name of the monitored individual in the order of last name (include "Jr," "Sr," "III," etc.), first name, middle initial (if applicable).

2. Enter the individual's identification number, including punctuation. This number should be the 9-digit social security number if at all possible. If the individual has no social security number, enter the number from another official identification such as a passport or work permit.

3. Enter the code for the type of identification used as shown below:

CODE	ID TYPE
SSN	U.S. Social Security Number
PPN	Passport Number
CSI	Canadian Social Insurance Number
WPN	Work Permit Number
PADS	PADS Identification Number
OTH	Other

4. Check the box that denotes the sex of the individual being monitored.

5. Enter the date of birth of the individual being monitored in the format MM/DD/YYYY.

6. Enter the monitoring period for which this report is filed. The format should be MM/DD/YYYY - MM/DD/YYYY.

7. Enter the name of the licensee.

8. Enter the NRC license number or numbers.

9A. Place an "X" in Record, Estimate, or No Record. Choose "Record" if the dose data listed represent a final determination of the dose received to the best of the licensee's knowledge. Choose "Estimate" only if the listed dose data are preliminary and will be superseded by a final determination resulting in a subsequent report. An example of such an instance would be dose data based on self-reading dosimeter results and the licensee intends to assign the record dose on the basis of TLD results that are not yet available.

9B. Place an "X" in either Routine or PSE. Choose "Routine" if the data represent the results of monitoring for routine exposures. Choose "PSE" if the listed dose data represents the results of monitoring of planned special exposures received during the monitoring period. If more than one PSE was received in a single year, the licensee should sum them and report the total of all PSEs.

10A. Enter the symbol for each radionuclide that resulted in an internal exposure recorded for the individual, using the format "Xx-###x," for instance, Cs-137 or Tc-99m.

10B. Enter the lung clearance class as listed in Appendix B to 10 CFR Part 20.1001-2401 (D, W, Y, V, or O for other) for all intakes by inhalation.

10C. Enter the mode of intake. For inhalation, enter "H." For absorption through the skin, enter "B." For oral ingestion, enter "G." For injection, enter "J."

10D. Enter the intake of each radionuclide in μCi.

11. Enter the deep dose equivalent (DDE) to the whole body.

12. Enter the eye dose equivalent (LDE) recorded for the lens of the eye.

13. Enter the shallow dose equivalent recorded for the skin of the whole body (SDE,WB).

14. Enter the shallow dose equivalent recorded for the skin of the extremity receiving the maximum dose (SDE,ME).

15. Enter the committed effective dose equivalent (CEDE).

16. Enter the committed dose equivalent (CDE) recorded for the maximally exposed organ.

17. Enter the total effective dose equivalent (TEDE). The TEDE is the sum of items 11 and 15.

18. Enter the total organ dose equivalent (TODE) for the maximally exposed organ. The TODE is the sum of items 11 and 16.

19. COMMENTS.
In the space provided, enter additional information that might be needed to determine compliance with limits. An example might be to enter the note that the SDE,ME was the result of exposure from a discrete hot particle. Another possibility would be to indicate that an overexposed report has been sent to NRC in reference to the exposure report.

20. Signature of the person designated to represent the licensee.

21. Enter the date this form was prepared.

PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by Section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the U.S. Nuclear Regulatory Commission (NRC) on NRC Form 5. This information is maintained in a system of records designated as NRC-27 and described at 65 Federal Register 56434 (September 18, 2000), or the most recent Federal Register publication of the NRC's "Republication of Systems of Records Notices" that is available at the NRC Public Document Room, 11555 Rockville Pike, Rockville, Maryland or located in NRC's Agencywide Documents Access and Management System (ADAMS).

1. **AUTHORITY:** 42 U.S.C. 2073, 2093, 2095, 2111, 2133, 2134, and 2201(o) (1996); 10 CFR 20.2106, 20.2201-20.2204, and 20.2206 (2000); Executive Order 9397, November 22, 1943.

2. **PRINCIPAL PURPOSE(S):** The information is used by the NRC in its evaluation of the risk of radiation exposure associated with the licensed activity and in exercising its statutory responsibility to monitor and regulate the safety and health practices of its licensees. The data permits a meaningful comparison of both current and long-term exposure experience among types of licensees and among licensees within each type. Data on your exposure to radiation is available to you upon your request.

3. **ROUTINE USE(S):** The information may be used to provide data to other Federal and State agencies involved in monitoring and/or evaluating radiation exposure received by individuals monitored for radiation exposure while employed by or visiting or temporarily assigned to certain NRC licensed facilities; to return data provided by licensee upon request. The information may also be disclosed to an appropriate Federal, State, local or Foreign agency in the event the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, local and Foreign agency to the extent relevant and necessary for an NRC decision about you or to the extend relevant and necessary for that agency's decision about you. Information from this form may also be disclosed, in the course of discovery and in presenting evidence, to a Congressional office to respond to their inquiry made at your request, or to NRC-paid experts, consultants, and others under contract with the NRC, on a need-to-know basis.

4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION:** It is voluntary that you furnish the requested information, including social security number (identification number); however, the licensee must complete NRC Form 5 on each individual for whom personnel monitoring is required under 10 CFR 20.2106. Failure to do so may subject the licensee to enforcement action in accordance with 10 CFR 20.2401. The social security number (identification number) is used to assure that NRC has an accurate identifier not subject to the coincidence of similar names or birth dates among the large number of persons on who data is maintained.

5. **SYSTEM MANAGER(S) AND ADDRESS:**
REIRS Project Manager
Radiation Protection and Health Effects Branch
Division of Regulatory Applications
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

APPENDIX C

FORMAT FOR ELECTRONIC SUBMITTAL OF DOSE DATA

Introduction

This appendix outlines a means by which licensees may satisfy the requirements of 10 CFR 20.2206, "Reports of Individual Monitoring." Where practicable, the NRC prefers to have licensees submit an electronic file via the Radiation Exposure Information and Reporting System (REIRS) for Radiation Workers (a secure Web site) at http://www.reirs.com. Regardless of submittal method, licensees who have their exposure records in an electronic format are encouraged to submit electronic files. This is especially important for those licensees who have a large number of monitored individuals, because data entry is inefficient and can introduce an additional source of error.

Media Requirements

For electronic data mailed to the REIRS Project Manager (PM), the following data storage media are compatible with REIRS. Other data submission formats may also be acceptable. The NRC will provide additional guidance to licensees upon request to the REIRS Project Manager.

•	PC Diskettes:	3½-inch Standard IBM-PC format ASCII character format
•	Compact Disk (CD-ROM):	Standard IBM-PC format ASCII character format

Transmittal Letters

For electronic files that are not submitted through the REIRS Web site, the licensee should also submit a transmittal letter containing information that will minimize processing time and help resolve possible discrepancies. Each letter should contain the following information (as a minimum):

•	File name	Descriptive name of the file(s) contained on the disk
•	Date created	Date each file was created
•	Operating system	Operating system and version used to format the disk
•	Contact	Name and telephone number of the cognizant point-of-contact
•	Other instructions	Comments or explanation regarding the submission, the actual date, the data format, or other important information
•	Signature and date	Dated signature of the licensee's authorized representative responsible for the data

Expected Data

Each licensee is expected to submit one routine NRC Form 5 for each monitored individual at the given facility for each monitoring year. Licensees should also submit a separate NRC Form 5 for each individual for whom planned special exposures were authorized. Because there should be few repetitions, the employee information is included on the Form 5. The primary license number is also included on each Form 5 to ensure that the records are assigned to the proper facility.

File Structure

The file structure consists of a header record, which provides information about the source of the data file, followed by Form 5 dose records and supporting Form 5 intake records. Where applicable, the file may also include one or more Form 5 comment records to explain special exposure calculations or overexposures. Each record contains only ASCII or EBCDIC printable characters and is terminated with a carriage return (CR) and a line feed (LF). All empty space in a field is padded with spaces. Text strings are left justified in a field, and numbers are right justified in a field.

Header Record

The header record occurs only once at the top of each file to identify the source of the data.

Field	Width	Start Col.	End Col.	Description
Primary_License	13	1	13	Primary NRC license number
Preparation_Date	8	15	22	Date the record was written to the data file formatted as "YYYYMMDD"
Licensee_Name	72	24	95	Name of NRC licensee
Contact	72	97	168	Name of person to contact for further information about this data file
Phone_Number	14	170	183	Contact's phone number
Other_License_1	13	185	197	Other related NRC license number
Other_License_2	13	199	211	Other related NRC license number
Other_License_3	13	213	225	Other related NRC license number
Other_License_4	13	227	239	Other related NRC license number
Other_License_5	13	241	253	Other related NRC license number
Other_License_6	13	255	267	Other related NRC license number
Other_License_7	13	269	281	Other related NRC license number
Other_License_8	13	283	295	Other related NRC license number
Other_License_9	13	297	309	Other related NRC license number
Other_License_10	13	311	323	Other related NRC license number

Form 5 Dose Record

The data file contains one dose record for each Form 5 being reported. Each dose record may be followed by zero or more Form 5 intake records.

Field	Width	Start Col.	End Col.	Description
Employee_ID	12	1	12	SSN, PPN, CSI, WPN, IND, PAD, or OTH (IDs should have no punctuation.)
ID_Type	3	14	16	"SSN," "PPN," "CSI," "WPN," "IND," "PAD," or "OTH"
Primary_License	13	18	30	Primary NRC license number
Preparation_Date	8	32	39	Date the record was written to the data file, formatted as "YYYYMMDD"
Record_Type	1	41	41	"D" = DOSE
First_Name	25	43	67	Employee's full first name (no nicknames)
Middle_Initial	1	69	69	Employee's middle initial
Last_Name	25	71	95	Employee's last name (Titles such as "Jr" should be separated from the last name by a space, without any punctuation.)
Sex	1	97	97	Employee's sex: "M" = Male and "F" = Female
Birth_Date	8	99	106	Employee's date of birth, formatted as "YYYYMMDD"
Monitoring_Start	8	108	115	Date monitoring began, formatted as "YYYYMMDD" (This typically is January 1 of the monitoring year for everyone except new hires.)
Monitoring_End	8	117	124	Date monitoring ended, formatted as "YYYYMMDD" (This typically is December 31 of the monitoring year for everyone except terminations.)
Report_Type	1	126	126	"R" = Record, or "E" = Estimate
Exposure_Type	1	128	128	"R" = Routine, or "P" = PSE
DDE	8	130	137	Deep dose equivalent in rems, formatted as "999.999"
LDE	8	139	146	Eye dose equivalent to the lens of the eye in rems, formatted as "999.999"
SDE_WB	8	148	155	Shallow dose equivalent, whole body in rems, formatted as "999.999"

Field	Width	Start Col.	End Col.	Description
SDE_ME	8	157	164	Shallow dose equivalent, max extremity in rems, formatted as "999.999"
CEDE	8	166	173	Committed effective dose equivalent in rems, formatted as "999.999"
CDE	8	175	182	Committed dose equivalent, formatted as "999.999"
TEDE	8	184	191	Total effective dose equivalent, formatted as "999.999"
TODE	8	193	200	Total organ dose equivalent, maximally exposed, formatted as "999.999"

Form 5 Intake Record

The data file should include an intake record for each intake on the Form 5 being reported.

Field	Width	Start Col.	End Col.	Description
Employee_ID	12	1	12	SSN, PPN, CSI, WPN, IND, PAD, or OTH (IDs should have no punctuation.)
ID_Type	3	14	16	"SSN," "PPN," "CSI," "WPN," "IND," "PAD," or "OTH"
Primary_License	13	18	30	Primary NRC license number
Preparation_Date	8	32	39	This is the date from the parent **Form 5 Dose Record**, formatted as "YYYYMMDD"
Record_Type	1	41	41	"I" = Intake
Radionuclide	9	43	51	Radionuclide abbreviation with the hyphen.
Class	1	53	53	"D," "Y," "W," "V," or "O" for Other
Mode	1	55	55	"H" = Inhalation, "B" = Absorption, "J" = Injection, or "G" = Ingestion
Intake	10	57	66	The amount of FCi for the radionuclide (This can be expressed in scientific notation using the format "+9.999E+99" or as a decimal number of less than 9 digits.)

Form 5 Comment Record

The data file only includes this record type when comments are necessary to explain special exposure calculations or overexposures.

Field	Width	Start Col.	End Col.	Description
Employee_ID	12	1	12	SSN, PPN, CSI, WPN, IND, PAD, or OTH (IDs should have no punctuation.)
ID_Type	3	14	16	"SSN," "PPN," "CSI," "WPN," "IND," "PAD," or "OTH"
Primary_License	13	18	30	Primary NRC license number
Preparation_Date	8	32	39	This is the date from the parent **Form 5 Dose Record**, formatted as "YYYYMMDD"
Record_Type	1	41	41	"C" = Comment
Comment	240	43	282	Explanatory comment (when needed)