

**DOE M 231.1-1A**

Approved: 03-19-04  
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# **ENVIRONMENT, SAFETY AND HEALTH REPORTING MANUAL**

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**U.S. DEPARTMENT OF ENERGY  
Office of Environment, Safety and Health**

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**DISTRIBUTION:**  
All Departmental Elements

**INITIATED BY:**  
Office of Environment, Safety and Health

## **ENVIRONMENT, SAFETY AND HEALTH REPORTING MANUAL**

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1. PURPOSE. This Manual provides detailed requirements to supplement DOE O 231.1A, *Environment, Safety and Health Reporting*, dated 8-19-03
2. SUMMARY. This Manual is composed of three chapters and several appendices that provide detailed requirements for implementing Department of Energy reporting requirements, including time schedules for reporting and data elements to be reported.
3. CANCELLATION. The directives listed below are cancelled. Cancellation of a directive does not, by itself, modify or otherwise affect any contractual obligation to comply with such a directive. Cancelled directives that are incorporated by reference in a contract remain in effect until the contract is modified to delete the reference to the requirements in the cancelled directives.
  - a. DOE M 231.1-1, *Environment, Safety and Health Reporting Manual*, dated 9-30-95.
  - b. DOE N 231.1, *Environment, Safety, and Health Reporting Notice*, dated 1-15-02.
4. APPLICABILITY
  - a. Primary DOE Organizations, including National Nuclear Security Administration (NNSA) Organizations. Except for the exclusions in paragraph 4c, this Directive applies to all Primary DOE Organizations (see Attachment 1 for a complete list of Primary DOE Organizations). This Directive automatically applies to Primary DOE Organizations created after it is issued.

Note that only the Administrator of NNSA can direct NNSA employees. Wherever this Directive gives direction to NNSA employees, it should be understood that this direction is provided only for the convenience of the Administrator and is not intended to assume or replace the authority of the Administrator's direction.
  - b. Site/Facility Management Contractors.
    - (1) The Contractor Requirements Document (CRD), Attachment 2, sets forth requirements of this Manual that will apply to site/facility management contracts that include the CRD.
    - (2) The CRD must be included in site/facilities management contracts that involve activities covered by the record keeping and reporting requirements in the CRD for contractor employee injury or illness and radiation exposure.
    - (3) The Manual does not apply to other than site/facility management contracts. Any application of any requirements of this Manual to other

than site/facility management contracts will be communicated separately from this Manual.

- (4) The officials identified in the Responsibilities paragraph are responsible for notifying the contracting officer of which site/facility management contracts are affected. Once notified, the contracting officer is responsible for incorporating the CRD into the affected site/facility management contracts via the laws, regulations, and DOE directives clause of the contract.
- (5) As the laws, regulations, and DOE directives clause of site/facility contracts states, regardless of the performer of the work, site/facility management contractors with the CRD incorporated into their contract are responsible for compliance with the requirements of the CRD. Affected site/facility management contractors are responsible for flowing down the requirements of this CRD to subcontracts at any tier to the extent necessary to ensure the site/facility management contractors' compliance with the requirements. In doing so, the contractor shall not unnecessarily or imprudently flow down requirements to subcontracts. That is, the contractor shall both: ensure that it and its subcontractors comply with the requirements of this CRD; and only incur costs that would be incurred by a prudent person in the conduct of competitive business.

c. Exclusions.

- (1) Activities conducted under the authority of the Director, Naval Nuclear Propulsion Program, pursuant to Executive Order 12344, as set forth in Public Law 98-525 and Public Law 106-65, with the exception of reporting required by 29 CFR 1960.
- (2) Activities conducted by Bonneville Power Administration as authorized by Delegation Order No. 00-033.00A.

5. RESPONSIBILITIES.

- a. Primary DOE Organizations. Specific reporting responsibilities are provided in each chapter of this Manual by subject area.
- b. Heads of Headquarters Elements and Heads of Field Elements<sup>1</sup>. Notify the appropriate contracting officer(s) of affected contracts and ensure the CRD is incorporated into relevant contracts, and provide program direction to implement the reporting requirements in accordance with this Manual.

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<sup>1</sup> Whenever the term Heads of Headquarters Elements is used in this Manual, it includes Secretarial Officers, Administrator for NNSA, Administrators for the Power Administrations, and Heads of Staff Offices. Likewise, whenever the term Heads of Field Elements is used in this Manual, it includes Operations Offices, Field Offices, Site Offices, Service Centers, Project Offices and Area Offices.

6. ACRONYMS. See Appendix A for a list of acronyms used in this Manual.
7. CONTACT. Questions concerning this Manual should be referred to the Office of Environment, Safety and Health (Office of Information Management) at 301-903-6096.

BY ORDER OF THE SECRETARY OF ENERGY:



KYLE E. McSLARROW  
Deputy Secretary

CANCELED

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## CHAPTER I. REPORTING ENVIRONMENTAL PROTECTION INFORMATION

### 1. ENVIRONMENTAL PROTECTION PROGRAM REPORTING.

a. Heads of Headquarters Elements and Heads of Field Elements, for matters under their purview, must:

- (1) Ensure that the information needed to meet the requirements of DOE O 450.1, *Environmental Protection Program*, is reported annually considering annual guidance provided by the Assistant Secretary for Environment, Safety and Health as follows:
  - (a) Information on site progress in implementing Environmental Managements Systems (EMSs).
  - (b) Information on site progress in reducing or eliminating the generation of waste, the release of pollutants to the environment, and the use of Class I ozone-depleting substances (ODS). Site reporting must be accomplished utilizing the Web-based Pollution Prevention Performance Tracking and Reporting System.
  - (c) Information on site procurement of recycled-content materials and environmentally preferable products and services. Site reporting must be accomplished utilizing the Web-based Pollution Prevention Performance Tracking and Reporting System.
  - (d) Information on pollution prevention award nominations from sites, and nominations selected as “best in class” by heads of Primary DOE Organizations. The Assistant Secretary for Environment, Safety and Health will submit the selected “best in class” pollution prevention awards to the White House “Closing the Circle” award competition. Site reporting must be accomplished utilizing the Web-based Pollution Prevention Performance Tracking and Reporting System.

### 2. ANNUAL SITE ENVIRONMENTAL REPORT.

a. Heads of Field Elements will prepare an integrated Annual Site Environmental Report for each calendar year. This report must present summary environmental data in order to:

- (1) Characterize site environmental management performance. Include data on effluent releases, environmental monitoring, and estimated radiological doses to the public from releases of radioactive material at DOE sites.

- (2) Summarize environmental occurrences and responses reported during the calendar year (CY).
- (3) Confirm compliance with environmental standards and requirements.
- (4) Highlight significant programs and efforts. Include environmental performance indicators and/or performance measures programs. The breadth and detail of this reporting should reflect the size and extent of programs at a particular site.

The Annual Site Environmental Report for the calendar year will be completed and made available to the public by October 1 of the following year and will be submitted to the Assistant Secretary for Environment, Safety and Health at that time.

- b. The Office of Air, Water, and Radiation Protection Policy and Guidance will continue to issue annual guidance to all DOE Headquarters and field elements regarding the preparation of the Annual Site Environmental Reports.

### 3. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) REPORTING.

- a. Heads of Headquarters and Field Elements with responsibility for NEPA matters, will (subject to the exclusion of the Naval Nuclear Propulsion and the special provisions for the National Nuclear Security Administration described in DOE O 451.1B):
  - (1) Submit an annual report to the Office of NEPA Policy and Compliance on progress in implementing, and the effectiveness of, any commitment for environmental impact mitigation that is essential to render the impacts of a proposed action not significant or that is made in a record of decision. The report may be submitted on the mitigation action plan anniversary or as part of a combined report (for example, as part of the annual NEPA planning summary) for multiple plans until mitigation has been completed.
  - (2) Submit an annual NEPA planning summary to the Assistant Secretary for Environment, Safety and Health by January 31 of each year and make it available to the public. The current version of DOE O 451.1B, *National Environmental Policy Act Compliance Program*, describes the contents of the annual NEPA planning summary.

## CHAPTER II. REPORTING OCCUPATIONAL SAFETY AND HEALTH INFORMATION

1. INJURY AND ILLNESS RECORDKEEPING AND REPORTING. It is DOE policy that environmental, safety, and health reports be complete and readily available for authorized dissemination outside the cleared community. When accidents or incidents occur in Unclassified Controlled Nuclear Information (UCNI) sensitive facilities and/or involve classified operations, the local classification officer will be consulted to ensure that such reports do not inadvertently disclose classified or unclassified controlled information (such as UCNI or Official Use Only information.) If classification concerns appear to inhibit completely forthright reporting, the DOE offices of Classified and Controlled Information Review and Information Classification and Control Policy will provide assistance in creating complete yet unclassified reports. If this cannot be accomplished, the reports will be annotated to indicate the existence, identification and file location of any classified addendum.

- a. Work-Related Fatalities, Injuries, and Illnesses. Heads of Headquarters Elements and Heads of Field Elements will ensure that DOE contractors report work-related fatalities, injuries, and illnesses occurring among DOE contractor/subcontractor employees and arising out of work primarily performed at DOE-owned or DOE-leased facilities under their direction. Reports will be submitted to the Assistant Secretary for Environment, Safety and Health according to procedures provided in paragraphs 3a through 3g of the CRD to this Manual. Periodic, at least annual, quality checks will be performed to verify that the information recorded and reported regarding work related injuries and illnesses to DOE contractor employees is thorough and accurate.

Heads of Field Elements and the Director for the Office of Management, Budget and Evaluation (for Headquarters, including NNSA Headquarters) will record occupational fatalities, injuries, and illnesses occurring among Federal employees arising out of work primarily performed at DOE-owned or DOE-leased facilities. Reports of work-related fatalities, injuries, and illnesses to DOE employees will comply with the record keeping and reporting requirements contained in the current version of Title 29, Code of Federal Regulations (CFR), Part 1960, Subpart I, with modifications that follow in paragraphs 1a(1) through 1a(5) and 1c through 1f, below.

- (1) Record all recordable occupational injuries and illnesses experienced by DOE employees on the Log of Work-Related Injuries and Illnesses, OSHA Form No. 300, and complete an annual summary of the information contained on OSHA Form No. 300 using the Summary of Work-Related Injuries and Illnesses, OSHA Form No. 300A (see Appendix B).
- (2) Record and report all DOE employee work-related injuries and illnesses on the electronic form DOE F 5484.3, Individual Accident/Incident Report, in lieu of OSHA Form No. 301, Injury and Illness Incident Report.

Reports must be submitted to the Computerized Accident/Incident Reporting System (CAIRS) by either method identified in paragraph 1c below to satisfy this requirement. (See Appendix C for a list of data elements included in the form.) Access to DOE F 5484.3 data will be in accordance with paragraph 1f(3) of this chapter. Reports will be submitted in accordance with paragraphs 1c below.

- (3) Report total employee hours worked on the electronic form DOE F 5484.4, Tabulation of Work-Hours. (See Appendix D for a list of data elements included in the form.) Reports will be submitted in accordance with paragraph 1d below. Access to the DOE F 5484.4 data will be in accordance with paragraph 1f(3) of this chapter.
- (4) Report work-related incidents that involve a fatality or hospitalization of three or more DOE employees, in accordance with the requirements of 29 CFR 1960.70 to the Assistant Secretary for Environment, Safety and Health through the designated Federal Employees Occupational Safety and Health Program (FEOSH) Manager.
- (5) Perform periodic, at least annual, quality checks of the information recorded and reported to CAIRS on work related injuries and illnesses to Federal employees to verify that the information is thorough and accurate.

b. Data Collection and Summarization.

- (1) Data Collection. The Assistant Secretary for Environment, Safety and Health is responsible for maintaining a centralized operational database of reports submitted in accordance with paragraphs 1c and 1d below. The current system, the Computerized Accident/Incident Reporting System (CAIRS), compiles case information from accident reports submitted by DOE, contractor, and subcontractor employees. The database collects information electronically using either file transfer features in CAIRS Bulk Upload Processing (CBUP) or the direct data entry form features in CAIRS Direct Data Entry (CDDE). A list of data elements to be included in the CAIRS database is provided in Appendix C.
- (2) Periodic Summary of Accident Data. DOE-wide statistical summary information taken from reports submitted in accordance with paragraphs 1c and 1d below will be available through CAIRS quarterly summary reports.

- c. Report Submission—DOE F 5484.3. Effective 180 days following the approval of DOE M 231.1-1A, DOE F 5484.3 will be submitted electronically only, using either CAIRS Bulk Upload Processing or by entering information into the electronic form using CAIRS Direct Data Entry. New reports (DOE F 5484.3) will be submitted at least bi-monthly for receipt on or before the 15<sup>th</sup> of the month or the last working day of the month. Initial reports will include estimated lost

work time. Revisions to lost work time, and any other information initially reported, will be submitted quarterly. Revisions will be submitted for receipt by the 10<sup>th</sup> of the month following the end of the calendar quarter, i.e., April 10<sup>th</sup>, July 10<sup>th</sup>, October 10<sup>th</sup>, and January 10<sup>th</sup>. Prior to the transition to required electronic reporting only, legible copies of new and or revised report forms may be mailed. Mailed report forms should be addressed to the CAIRS Data Coordinator, U.S. Department of Energy, EH-33/Bldg. 270 CC, 1000 Independence Ave., S.W., Washington, DC 20585-0270. Additional information about accessing CAIRS and electronic report submission is included in Appendix E of DOE M 231.1-1A and on the Internet at the R&R References and Resources Web page (<http://tis.eh.doe.gov/cairs/refs.html>.)

- d. Submission of Work Hours, DOE F 5484.4. Effective 180 days following the approval of DOE M 231.1-1A, DOE F 5484.4 will be submitted electronically only by entering information into the electronic form using CAIRS Direct Data Entry. Quarterly work-hours will be submitted by the 10th of the month following the end of the quarter (e.g., first quarter CY reports are due April 10). Prior to the transition to electronic reporting only, legible copies of completed report forms (DOE F 5484.4) may be mailed. Mailed report forms should be addressed to the CAIRS Data Coordinator, U.S. Department of Energy, EH-33/Bldg. 270 CC, 1000 Independence Ave., S.W., Washington, DC 20585-0270. Additional information about accessing CAIRS and electronic report submission is included in Appendix E of DOE M 231.1-1A and on the Internet at the R&R References and Resources Web page (<http://tis.eh.doe.gov/cairs/refs.html>.)
- e. Posting OSHA Form 300A. OSHA Form No. 300A, will be completed, certified, and posted annually. (See requirements in 29 CFR 1960.69.)
- f. Supplemental Requirements Regarding Accident/Incident Reports. Heads of Headquarters Elements and Heads of Field Elements will ensure that accident reports and related records for DOE and DOE contractors are retained, maintained, and accessible in accordance with the following requirements.
  - (1) Retention of Injury/Illness Records and Reports. Heads of Headquarters Elements and Heads of Field Elements will ensure that DOE and DOE contractors retain personal injury and illness records pursuant to DOE O 200.1, *Information Management Program*, dated 9-30-96. DOE elements will ensure that DOE site/facility management contractors, upon termination of contracts for work being performed for DOE, will submit injury and illness records to the site/facility management contractor organization that will assume OSH responsibilities for the facility. Additionally, Heads of Headquarters Elements and Heads of Field Elements will ensure that DOE site/facility management contractors assuming OSH responsibilities for work being performed for DOE, will retain previous operating contractors' accident records.

- (2) Maintenance of Injury and Illness Reports. Heads of Headquarters Elements and Heads of Field Elements will maintain injury and illness records pursuant to 29 CFR 1960.67, 1960.68, and 1960.69. Heads of Headquarters Elements and Heads of Field Elements will ensure that DOE site/facility management contractors assuming OSH responsibilities for work being performed for DOE will maintain previous operating contractors' accident records.
- (3) Access to Accident Records and Reports.
- (a) An employee, former employee, and/or his/her representatives have the right to limited access of the OSHA Form No. 300 that contains the employee's name.
  - (b) Access is limited according to the requirements of the Freedom of Information Act (FOIA). In accordance with requirements contained in section 5 U.S.C. § 552(b)(6) of the FOIA, access to information on any log maintained for DOE or by DOE or DOE contractors, will be restricted to information that does not constitute an unwarranted invasion of personal privacy. An employee whose name does not appear on a log will be limited to information that does not identify any injured or ill employees, and will not be provided access to the names of the injured or ill employees. An employee, former employee, and/or authorized representatives will have access to DOE F 5484.3 data that contains the employee's name as the injured or ill worker. Additional information on employee rights of access to these forms is provided in 29 CFR subpart 1960.71.
  - (c) Records listed in 29 CFR 1904.2, 1904.4, and 1904.5 (or the DOE equivalent of these records) will be made available for inspection and copying by any Department of Energy representative for the purpose of conducting oversight assessments or for statistical compilation.
  - (d) Records required to be maintained under the provisions of 29 CFR subparts 1960.67, 1960.68, and 1960.69 will be made available upon request to the Secretary of Labor and the Secretary of Health and Human Services or their authorized representatives.
- (4) Updating Accident Records and Reports. Heads of Headquarters Elements and Heads of Field Elements will ensure that DOE and DOE site/facility management contractors update OSHA Form No. 300 pursuant to 29 CFR 1960.73 and 29 CFR 1904.33. Each quarter, for at least one year from the date of the injury/illness, DOE elements must update each DOE F 5484.3 that includes lost work time (either days away from work or days restricted/transferred) for a DOE employee and ensure

that contractors update this information for contractor employees. DOE F 5484.3 should be updated to indicate changes in lost worktime or changes in the description or outcome of the case.

- (5) Interpretation of Reporting Requirements. For additional information or interpretation of occupational injury and illness reporting requirements contained in this Manual, contact the Office of Information Management.

2. ANNUAL FIRE PROTECTION SUMMARY. Organizations responsible for maintaining property under stewardship of DOE and the Administrator, NNSA, will seek concurrence with their appropriate Head of Field Element and submit specifically formatted fire protection program CY summary reports to the Assistant Secretary for Environment, Safety and Health by April 30 of the following year. The Assistant Secretary for Environment, Safety and Health will provide reporting organizations and DOE Field Elements with a computer-based application for submitting formatted summaries and will maintain a database reporting system that compiles reports submitted in accordance with the reporting elements described in Appendix F. The Assistant Secretary for Environment, Safety and Health will produce a CY summary of Fire Protection Programs for the Department and will make available a database summary of all reporting elements of DOE contractors and DOE Field Elements for trending data supplemental to the Environment, Safety and Health annual summary report.

3. REPORTING INFORMATION FOR EPIDEMIOLOGIC ANALYSES—EXCESS INJURIES AND ILLNESSES.

- a. Heads of Headquarters Elements and Heads of Field Elements will notify the Assistant Secretary of Environment, Safety and Health of suspected illness or injury excesses that require epidemiologic investigation. In this context, suspected excess means the perception that an unusually high number of cases may be occurring among a group of workers. Epidemiologic analyses can help determine whether suspected illness or injury excesses are greater than expected and are associated with working conditions.
- b. Any worker, individual, or group (for example, safety and health staff, supervisors, or employee representatives) can identify suspected illness or injury excesses.
- c. The Assistant Secretary of Environment, Safety and Health, who is responsible for all Departmental health studies of human populations, directs the investigations of suspected excesses through staff of the Office of Health Studies.
- d. Reporting organizations participate in epidemiologic investigation(s), which will determine the number of affected individuals, their medical diagnoses, and their hazard exposures. The investigation may involve medical tests, work place surveys, and reviews of personnel, medical, and exposure records.

4. REPORTING INFORMATION FOR EPIDEMIOLOGIC ANALYSES—OSH STUDIES.
  - a. The September 2000 memorandum of understanding between DOE and the Department of Health and Human Services (DHHS), which supersedes the December 1990 memorandum, reassigned management responsibility for a range of epidemiologic research projects and related activities addressing worker and community health to the DHHS Centers for Disease Control and Prevention (CDC) constituent agencies, including the National Institute for Occupational Safety and Health, the Agency for Toxic Substances and Disease Registry, and the National Center for Environmental Health. Much of the research focuses on illness, injury, and death to determine whether exposure to ionizing radiation and chemicals has had impact on worker health. These agencies have become users of data collected originally to fulfill OSHA requirements and collectors of additional research data.
  - b. Heads of Field Elements will provide CDC officials, their contractors, and grantees access to the DOE facilities, workers, information, and data needed to conduct these studies. The investigators will comply with Privacy Act and security requirements.
5. ANNUAL REPORT TO THE SECRETARY OF ENERGY. The Assistant Secretary for Environment, Safety and Health shall submit an annual report to the Secretary describing the status and adequacy of DOE, including NNSA, and contractor performance of their occupational safety and health responsibilities. The annual report for the calendar year will be submitted to the Secretary by May of the following year.
6. ANNUAL FEDERAL EMPLOYEE OCCUPATIONAL SAFETY AND HEALTH REPORT. The Deputy Assistant Secretary for the Office of Health is designated by the Assistant Secretary for Environment, Safety and Health to prepare and submit an annual fiscal year report to the Department of Labor on the DOE occupational safety and health program. The report will contain such information as the Secretary of Labor prescribes. [See 10 CFR 1960.74.]

## CHAPTER III. REPORTING IONIZING RADIATION EXPOSURE INFORMATION

### 1. EXPOSURE REPORTS TO THE RADIATION EXPOSURE MONITORING SYSTEM (REMS) REPOSITORY.

#### a. Annual Individual Radiation Exposure Records.

- (1) Heads of Headquarters Elements and Heads of Field Elements will report annual radiation exposure records required by 10 CFR 835.702(a) and (b) to the REMS repository by March 31 for the preceding monitoring year. The records should include exposure records for special individuals as described in paragraph 1.b.(1) of this chapter.
- (2) Revisions to radiation exposure records for monitoring periods beginning on or after January 1, 1989, will be reported to the REMS repository. Revised records for prior monitoring years will be submitted annually by March 31. However, if the revised dose record results in a dose exceeding regulatory dose limits defined in 10 CFR 835.202, revised records will be submitted within 30 days of the date that the dose record is revised. Revised records should be submitted to the REMS repository in a separate file, but in the same format as annual records. The transmittal documentation should note that the enclosed records are revised.

#### b. Radiation Exposure Records for Special Individuals.

- (1) A special individual is a person employed by DOE Headquarters, a contractor supporting DOE Headquarters or Field Office activities, a Defense Nuclear Facilities Safety Board employee or contractor, or an International Atomic Energy Agency inspector who visits a DOE or DOE contractor site or facility to conduct Department-related business. Radiation exposure data pertaining to special individuals will be reported to the REMS repository within 30 days after the determination of the dosimetry.
- (2) Each DOE or DOE contractor employee or a special individual who visits in an official capacity, a radiological site outside of the DOE shall arrange to have all pertinent occupational radiological exposure data to his or her employer within 30 days after determination of the dosimetry.
- (3) Heads of Headquarters Elements, Heads of Field Elements, and contractors shall ensure that such procedures exist and are effective in support of paragraph 1.b.(2) above.

#### c. Report Format. All radiation exposure reports sent to the REMS repository as noted in paragraphs 1.a. and 1.b. must be submitted in electronic format and must be prepared in accordance with Appendix G of this Manual.

#### d. Exposure Reports to Individuals. Reports to individuals must be prepared in accordance with 10 CFR 835.801.

**PRIMARY DOE ORGANIZATIONS TO WHICH  
DOE M 231.1-1A IS APPLICABLE**

DOE M 231.1-1A is applicable to the following organizations and all sites under their purview:

Office of the Secretary  
Chief Information Officer  
Office of Civilian Radioactive Waste Management  
Office of Congressional and Intergovernmental Affairs  
Office of Counterintelligence  
Departmental Representative to the Defense Nuclear Facilities Safety Board  
Office of Economic Impact and Diversity  
Office of Electric Transmission and Distribution  
Office of Energy Efficiency and Renewable Energy  
Energy Information Administration  
Office of Environment, Safety and Health  
Office of Environmental Management  
Office of Fossil Energy  
Office of General Counsel  
Office of Hearings and Appeals  
Office of Independent Oversight and Performance Assurance  
Office of the Inspector General  
Office of Intelligence  
Office of Legacy Management  
Office of Management, Budget and Evaluation and Chief Financial Officer  
National Nuclear Security Administration  
Office of Nuclear Energy, Science and Technology  
Office of Policy and International Affairs  
Office of Public Affairs  
Office of Science  
Secretary of Energy Advisory Board  
Office of Security  
Office of Security and Safety Performance Assurance  
Office of Energy Assurance  
Southeastern Power Administration  
Southwestern Power Administration  
Western Area Power Administration

## **CONTRACTOR REQUIREMENTS DOCUMENT**

### **DOE M 231.1-1A, ENVIRONMENT, SAFETY, AND HEALTH REPORTING**

Regardless of the performer of the work, contractors with the CRD incorporated into their contracts are responsible for compliance with the requirements of the CRD. Affected contractors also are responsible for flowing down the requirements of the CRD to subcontracts at any tier to the extent necessary to ensure the contractor's compliance with the requirements. In doing so, the contractor must not unnecessarily or imprudently flow down requirements to subcontracts. That is the contractor must both ensure that it and its subcontractors comply with the requirements of this CRD and only incur costs that would be incurred by a prudent person in the conduct of competitive business. The contractor must develop site-wide and facility-wide procedures, protocols, or other methods to meet the reporting requirements in this CRD as indicated below.

1. **ENVIRONMENTAL PROTECTION PROGRAM REPORTING.** Ensure that environmental, safety, and health reports are complete and readily available for authorized dissemination outside the cleared community. Ensure that when accidents or incidents occur in Unclassified Controlled Nuclear Information (UCNI) sensitive facilities and/or involve classified operations, the local classification officer is consulted to ensure that such reports do not inadvertently disclose classified or unclassified controlled information (such as UCNI or Official Use Only information.) If classification concerns appear to inhibit completely forthright reporting, the DOE offices of Classified and Controlled Information Review and Information Classification and Control Policy will provide assistance in creating complete yet unclassified reports. If this cannot be accomplished, the reports must be annotated to indicate the existence, identification and file location of any classified addendum.

Ensure the information described below is reported annually, considering annual guidance provided by the Assistant Secretary for Environment, Safety and Health on the Web-based Pollution Prevention Tracking and Reporting System (PPTRS), unless otherwise indicated. (These reporting requirements relate to activities carried out or conducted under the contractor's ISMS and the CRD to DOE O 450.1, "Environmental Protection Program.)

- a. Information on site progress in implementing Environmental Managements Systems (EMSs) shall be reported to the Cognizant Secretarial Officer and the Assistant Secretary of Environment, Safety and Health, as appropriate.
- b. Information on site progress in reducing or eliminating the generation of waste, the release of pollutants to the environment, and the use of Class I ozone-depleting substances (ODS).
- c. Information on site procurement of recycled-content materials and environmentally preferable products and services.

- d. Information on pollution prevention award nominations from sites, and nominations selected as “best in class” by Heads of Headquarters Elements and Heads of Field Elements<sup>1</sup>. The Assistant Secretary for Environment, Safety and Health will submit the selected “best in class” pollution prevention awards to the White House “Closing the Circle” award competition.
2. ANNUAL SITE ENVIRONMENTAL REPORT. Provide all necessary assistance, including partial or full preparation of the Annual Site Environmental Report (ASER), to the Head of the Field Element, as directed and appropriate, in meeting the annual site environmental reporting requirement to DOE headquarters each October 1st.
    - a. Ensure that information needed to prepare an integrated Annual Site Environmental Report for each calendar year is provided to the Head of the Field Element. This information will include summary environmental data in order to:
      - (1) Characterize site environmental management performance. Include data on effluent releases, environmental monitoring, and estimated radiological doses to the public from releases of radioactive material at DOE sites.
      - (2) Summarize environmental occurrences and responses reported during the calendar year (CY).
      - (3) Confirm compliance with environmental standards and requirements.
      - (4) Highlight significant programs and efforts. Include environmental performance indicators and/or performance measures programs. The breadth and detail of this reporting should reflect the size and extent of programs at a particular site.

The Annual Site Environmental Report for the calendar year will be completed and made available to the public by October 1 of the following year, and an informational copy will be submitted to the Assistant Secretary for Environment, Safety and Health at that time.
    - b. Ensure adherence to the reporting schedule and guidance provided by the Office of Environmental Policy and Guidance regarding reporting information for the Annual Site Environmental Reports.
  3. INJURY AND ILLNESS RECORDKEEPING AND REPORTING. Ensure that environmental, safety, and health reports are complete and readily available for authorized dissemination outside the cleared community. Ensure that when accidents or incidents occur in Unclassified Controlled Nuclear Information (UCNI) sensitive

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<sup>1</sup> Whenever Heads of Headquarters Elements is used in this CRD, it includes Secretarial Officers, Administrator for NNSA, Administrators for the Power Administrations, and Heads of Staff Offices. Likewise, whenever Heads of Field Elements is used in this CRD, it includes Operations Offices, Field Offices, Site Offices, Service Centers, Project Offices and Area Offices.

facilities and/or involve classified operations, the local classification officer is consulted to ensure that such reports do not inadvertently disclose classified or unclassified controlled information (such as UCNI or Official Use Only information.) If classification concerns appear to inhibit completely forthright reporting, the DOE offices of Classified and Controlled Information Review and Information Classification and Control Policy will provide assistance in creating complete yet unclassified reports. If this cannot be accomplished, the reports must be annotated to indicate the existence, identification and file location of any classified addendum.

- a. At a facility or site where DOE is exercising its authority to regulate worker safety and health (rather than have the Occupational Safety and Health Administration directly regulate the facility or site) the contractor is responsible for keeping records for work-related fatalities, injuries and illnesses. Unless otherwise directed in this CRD, the contractor must ensure that records are kept as directed in Title 29 Code of Federal Regulations (CFR) 1904.4 through 1904.11, 1904.29 through 1904.32, 1904.44 and 1904.46. The contractor must conduct periodic, at least annual, self-assessments of the record keeping and reporting program to verify that the information recorded and reported is thorough and accurate.
- b. Ensure that the following recording and reporting requirements are followed:
  - (1) Record all work-related contractor employee fatalities, injuries, and illnesses on Occupational Safety and Health Administration (OSHA) Form No. 300, Log of Work-Related Injuries and Illnesses, and complete an annual summary of the information contained on OSHA Form No. 300 using OSHA Form No. 300A, Summary of Work-Related Injuries and Illnesses [See Appendix B to DOE M 231.1-1A].
  - (2) Record and report all work-related contractor employee fatalities, injuries and illnesses on the form DOE F 5484.3, Individual Accident/Incident Report, in lieu of the OSHA Form No. 301, Injury and Illness Incident Report. Reports must be submitted to the Computerized Accident/Incident Reporting System (CAIRS). Either method identified in paragraph 3d below satisfies this requirement. (See Appendix C for a list of data elements included in the form.) Access requirements for DOE F 5484.3 data is described in paragraph 3g below. Submission and posting of reports is described in 3d and 3f below.
  - (3) Report employees' total hours worked on DOE F 5484.4, Tabulation of Work-Hours. Access requirements for DOE F 5484.3 data is described in paragraph 3g below. Submission of reports is described in 3e below.
- c. The contractor must ensure that reports for select subcontractors, those who employ more than 10 employees on the DOE work being performed, are recorded in accordance with 29 CFR 1904.4 through 1904.11, 1904.30, 1904.31, and 1904.46. Additionally, reports are not required for accidents involving

subcontractor employees whose work is limited to transient activities and does not include an onsite office and whose day-to-day supervision/direction is not provided by DOE or a DOE primary contractor (e.g., copy machine repair, express mail delivery, telephone installation/repair, vending machine service). Reports for subcontractor employees are reported separately for each subcontractor organization in the same manner as 3b(2) and 3b(3) above for contractor employees, unless consolidation of data is approved by the CAIRS Point of Contact for the Head of the Headquarters Element or their designated CAIRS POC at the DOE field organization. Procedures for adding or deleting organization codes to accommodate changes in reporting organizations are contained in Appendix E to DOE M 231.1-1A.

- d. Ensure that new reports (DOE F 5484.3) are submitted at least bi-monthly for receipt on or before the 15<sup>th</sup> of the month or the last working day of the month. Initial reports will include estimated lost work time. Revisions to lost work time, and any other information that requires revising information initially reported, will be submitted by the end of the quarter. Quarterly revisions will be submitted for receipt by the 10<sup>th</sup> of the month following the end of the calendar quarter, i.e., April 10<sup>th</sup>, July 10<sup>th</sup>, October 10<sup>th</sup>, and January 10<sup>th</sup>. Prior to the transition to require electronic reporting only, legible copies of completed report forms may be mailed. Mailed report forms should be addressed to the CAIRS Data Coordinator, U.S. Department of Energy, EH-33/Bldg. 270 CC, 1000 Independence Ave., S.W., Washington, DC 20585-0270. Effective 180 days following the approval date of the Manual to which this CRD relates [DOE M 231.1-1A], DOE F 5484.3 will be submitted electronically only, using either CAIRS Bulk Upload Processing or by entering information into the electronic form using CAIRS Direct Data Entry.
- e. Ensure that quarterly work-hours are submitted by the 10th of the month following the end of the quarter (e.g., first quarter CY reports are due April 10). Prior to the transition to require electronic reporting only, legible copies of completed report forms (DOE F 5484.4) may be mailed. Mailed report forms should be addressed to the CAIRS Data Coordinator, U.S. Department of Energy, EH-33/Bldg. 270 CC, 1000 Independence Ave., S.W., Washington, DC 20585-0270. Effective 180 days following the approval of DOE M 231.1-1A, DOE F 5484.4 will be submitted electronically only by entering information into the electronic form using CAIRS Direct Data Entry. Additional information about accessing CAIRS and electronic report submission is included in Appendix E of DOE M 231.1-1A and on the Internet at the R&R References and Resources Web page (<http://tis.eh.doe.gov/cairs/refs.html>) .
- f. Ensure that the OSHA Form No. 300A is completed, certified, and posted in the workplace annually. (See requirements in 29 CFR 1904.29, 1904.32, and 1904.44.)
- g. Accident and related records must be retained, maintained and accessible as follows:

- (1) A contractor newly assuming occupational safety and health responsibilities for DOE work being performed must accept and maintain already existing records of a prior contractor. A contractor with an expiring or terminating contract must transfer records to the facilities management or follow-on contractor. [See record retention requirements in 29 CFR 1904.33.]
  - (2) The contractor must ensure that access to accident records is as follows:
    - (a) An employee, former employee, and/or his/her representatives have the right to limited access of the OSHA Form No. 300 that contain the employee's name.
    - (b) Access is subject to Freedom of Information Act (FOIA) requirements and restrictions. [See 5 U.S.C. 552(b)(6). Access to information on any log maintained by a DOE contractor as described in this CRD will be restricted to information that does not constitute an unwarranted invasion of personal privacy. An employee whose name does not appear on a log will be limited to accessing information that does not identify any injured or ill employees, and will not be provided access to the names of the injured or ill employees. An employee, former employee, and/or an authorized representative will have access to DOE F 5484.3 data that contains the employee's name.
    - (c) Records listed in 29 CFR 1904.2, 1904.4, and 1904.5 (or the DOE equivalent of these records) must be made available for inspection and copying by any Department of Energy representative for the purpose of conducting oversight assessments or for statistical compilation.
  - (3) Ensure that OSHA Form No. 300 is updated [see 29 CFR 1904.33]. Each quarter for at least one year from the date of the injury/illness, ensure that each DOE F 5484.3 that includes lost work time (either days away from work or days restricted/transferred) is updated to indicate changes in lost work time or changes in the description or outcome of the case.
  - (4) Ensure that individuals tasked with occupational injury and illness recording and reporting responsibilities are appropriately trained to accomplish the recording and reporting requirements of this CRD and are informed to contact the Office of Information Management for additional information and assistance in interpretation of requirements contained in this CRD.
4. ANNUAL FIRE PROTECTION SUMMARY. Ensure that the computer-based application provided by the Assistant Secretary for Environment, Safety and Health is

utilized for submitting formatted annual summaries of the fire protection information by April 30 of the following year [see Appendix F of DOE M 231.1-1A].

5. EPIDEMIOLOGIC ANALYSES—EXCESS INJURIES AND ILLNESSES. Ensure that the following reporting requirements for excessive injuries and illnesses are followed:
  - a. Notify the Head of the Field Element of suspected excessive illnesses or injuries that require epidemiologic investigation. Excessive illness or injury means the perception that an unusually high number of cases may be occurring among a group of workers. Epidemiologic analyses can help determine whether suspected illness or injury excesses are greater than expected and are associated with working conditions.
  - b. Ensure that employees are aware that any worker, individual, or group (for example, safety and health staff, supervisors, or employee representatives) can identify suspected illness or injury excesses.
6. EPIDEMIOLOGIC ANALYSES—OSH STUDIES. The contractor must ensure DOE authorized investigators, including investigators from the Department of Health and Human Services (DHHS) and Centers for Disease Control and Prevention are provided access to DOE facilities, workers, (contractors and subcontractors), information, and data needed for epidemiologic research projects and related activities addressing worker and community health. Research may require medical test, work place surveys, and review of personnel, medical and exposure records. All investigators are required to comply with Privacy Act and security requirements.
7. RADIATION EXPOSURE REPORTS TO THE RADIATION EXPOSURE MONITORING SYSTEM (REMS) REPOSITORY. Ensure that the following requirements for radiation exposure monitoring reports are followed:
  - a. Annual Individual Radiation Exposure Records.
    - (1) DOE contractors will report annual radiation exposure records required by 10 CFR 835.702(a) and (b) to the REMS repository by March 31 for the preceding monitoring year. The records should include exposure records for special individuals as described in paragraph 1.b.(1) of this chapter.
    - (2) Revisions to radiation exposure records for monitoring periods beginning on or after January 1, 1989, will be reported to the REMS repository. Revised records for prior monitoring years will be submitted annually by March 31. However, if the revised dose record results in a dose exceeding regulatory dose limits defined in 10 CFR 835.202, revised records will be submitted within 30 days of the date that the dose record is revised. Revised records should be submitted to the REMS repository in a separate file, but in the same format as annual records. The transmittal documentation should note that the enclosed records are revised.

- b. Radiation Exposure Records for Special Individuals.
- (1) A special individual is a person employed by DOE Headquarters, a contractor supporting DOE Headquarters or Field Office activities, a Defense Nuclear Facilities Safety Board employee or contractor, or an International Atomic Energy Agency inspector who visits a DOE or DOE contractor site or facility to conduct Department-related business. Radiation exposure data pertaining to special individuals will be reported to the REMS repository within 30 days after the determination of the dosimetry.
  - (2) Each DOE contractor employee or a special individual who visits in an official capacity, a radiological site outside of the DOE shall arrange to have all pertinent occupational radiological exposure data to his or her employer within 30 days after determination of the dosimetry.
  - (3) DOE contractors shall ensure that such procedures exist and are effective in support of paragraph 1.b.(2) above .
- c. Report Format. All radiation exposure reports sent to the REMS repository as noted in paragraphs 1.a. and 1.b. must be submitted in electronic format and must be prepared in accordance with Appendix G of this Manual.
- d. Exposure Reports to Individuals. Reports to individuals must be prepared in accordance with 10 CFR 835.801.

## APPENDIX A. ACRONYMS

ASP	Active server pages
CAIRS	Computerized Accident/Incident Reporting System
CBUP	CAIRS Bulk Upload Processing
CDC	Centers for Disease Control and Prevention
CDDE	CAIRS Direct Data Entry
CDE	Committed dose equivalent
CFR	Code of Federal Regulations
CRD	Contractor Requirements Document
CSO	Cognizant Secretarial Office
CY	Calendar year
DART	Days away from work, days of restricted work activity or job transfer
DDE	Deep dose equivalent
DHHS	Department of Health and Human Services
DOE	Department of Energy
ES&H	Environment, Safety and Health
FOIA	Freedom of Information Act
ICRP	International Commission on Radiological Protection
LDE	Dose to lens of the eye
LPSO	Lead Program Secretarial Office
LSRC	Leaks, spills, releases or contamination
NAICS	North American Industry Classification System
NEPA	National Environmental Policy Act
NNSA	National Nuclear Security Administration
OBD	Operational basis document
ORPS	Occurrence Reporting and Processing System
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PSE	Planned special exposure
PTT	Permanent transfer or termination

REMS	Radiation Exposure Monitoring System
SDE-LL	Shallow dose equivalent—lower left extremity
SDE-LR	Shallow dose equivalent—lower right extremity
SDE-UL	Shallow dose equivalent—upper left extremity
SDE-UR	Shallow dose equivalent—upper right extremity
SDE-WB	Shallow dose equivalent—whole body
SIC	Standard Industrial Classification System
SOC	Standard Occupational Classification
SSL	Secure socket layer
TEDE	Total effective dose equivalent

CANCELED

## APPENDIX B. OSHA FORMS 300 AND 300A

The list below contains categories of information reported on OSHA Form 300, Log of Work-Related Injuries and Illnesses, and OSHA Form No. 300A, Summary of Work-Related Injuries and Illnesses. Both forms and instructions for calculating incidence rates [total recordable cases and recordable cases involving days away from work, days of restricted work activity or job transfer (DART)] can be downloaded, copied and printed from the OSHA Recordkeeping Internet site. The OSHA Homepage can be accessed at <http://www.osha.gov>

### 1. OSHA Form No. 300

- Establishment name
- Establishment address: (street address, city, state, and zip code)
- Case number
- Employee's name
- Job title
- Date of injury or onset of illness
- Where the event occurred
- Description of injury or illness, body parts affected, and object/substance that directly injured or made person ill
- Case classification
- Number of days on job transfer or restriction
- Number of days away from work
- Type of injury or illness

### 2. OSHA Form No. 300A.

- Number of cases. CY total of the following: deaths, cases with days away from work, cases with job transfer or restriction, and other recordable cases.
- Number of days. CY total of the following: days of job transfer or restriction and days away from work.
- Injury and illness type. CY total of each type of case.
- Establishment Information. Name of the establishment, the complete street address, industry description, SIC/NAICS.
- Employment information. Annual average number of employees, and the total hours worked by all employees last year.
- Signature: Company executive signs, certifying the log, title, phone number and date signed.

**APPENDIX C. INDIVIDUAL ACCIDENT/INCIDENT REPORT—DOE F 5484.3**

1. INSTRUCTIONS. The information in Table C-1 provides guidance for filling out DOE F 5484.3, Individual Accident/Incident Report.

**Table C-1. Individual Accident/Incident Report Data Elements.**

Data Element	Example/Format	Instructions
Organization Code	1504001	Indicate the seven-digit number that has been assigned to the specific reporting organization submitting the accident report. [NOTE: A Standard Industrial Classification code (SIC) or North American Industry Classification System (NAICS) code will be linked to each organization code. The SIC coding system is being replaced by the NAICS. ]
CASE Number	125	Enter the case number from the log for injury/illness cases. Case numbers for a given reporting organization must be unique within a given year.
Multiple-Case Code	5	Enter a number or code to represent any common accident that involves more than one recordable case. Use the same code on each of the separate forms. [NOTE: If multiple organizations are involved in a common accident, obtain a multiple-case code from the CAIRS data administrator. This data field is mandatory if the accident involved 2 or more reporting organizations.]
Accident Type	Injury	Select the appropriate accident type. Possible entries are: Injury, Illness, Non-Recordable Injury, Non-recordable Illness.
Investigation Type	C	Select the appropriate investigation type. Possible entries are A, B, C, NR, where Type A and Type B refer to Board investigations as defined in the current version of DOE O 225.1A. Type C refers to the level of investigation required for other recordable injury and illness cases to complete DOE F 5484.3. Type NR is used when a previously reported case has been revised to non-recordable status.

**Table C-1. Individual Accident/Incident Report Data Elements (continued)**

<b>Data Element</b>	<b>Example/Format</b>	<b>Instructions</b>
Department, Division, or ID Code	Maintenance	Enter the Department, Division, or ID code as desired.
Date of Occurrence	20021205	Enter the date of the accident in the required format (YYYYMMDD)
Time of Accident Unknown	Yes	Enter Yes or No in answer to the question, "Is the time of accident known?" The default value is Yes.
Time of Accident/Event	13	Enter time of accident/event, as local time, to the nearest hour using the first two digits of the 24-hour clock (e.g., 1:00 PM is 13 for 1300).
Time Employee began Work	13	Enter the time the employee began work, as local time, to the nearest hour using the first two digits of the 24-hour clock (e.g., 1:00 PM is 13 for 1300).
Accident Place	Indoor	Select the appropriate choice to indicate whether the accident occurred indoors or outdoors.
Employers Premises	No	Enter Yes or No to indicate whether the accident occurred on the employer's premises.
Specific Location	Bldg. C, Test Area B	Enter the specific location of the accident (e.g., street address, name of building or laboratory).
Last Name	Jones	Enter the employee's last name.
First Name	John	Enter the employee's first name.
Middle Name or Initial	Adams	Enter the employee's middle name or initial.
Home address of injured or ill person	120 S 35th St. Maui, HI 99999	Enter the employee's full address (street, city, state, zip code).
Social Security or ID Number	999999999	Enter the employee's social security number.
Date of Birth	19671205	Enter the employee's date of birth in the format YYYYMMDD.
Gender	Male	Select the appropriate box to indicate the gender.
Occupation Code	203	Enter the generic occupation code that most closely indicates the employee's occupation. A list of occupation codes is available in the CAIRS Direct Data Entry Reference Manual, which can be found on the Internet Web page <a href="http://tis.eh.doe.gov/cairs/usersmanual.html">http://tis.eh.doe.gov/cairs/usersmanual.html</a> . Optional data field, if left blank, this information may be coded by a Data Specialist if the information is provided in the report.
Job Title	Senior Scientist	Enter the employee's job title.
Name of health care provider	Dr. John Doe	Enter the name of the employee's physician or other health care professional.

**Table C-1. Individual Accident/Incident Report Data Elements (continued)**

<b>Data Element</b>	<b>Example/Format</b>	<b>Instructions</b>
Emergency Room	No	Enter Yes or No to indicate whether the employee was treated in an emergency room.
Name and Address of treatment facility	Memorial Hospital 125 E 19 <sup>th</sup> Street Maui, HI 99999	Enter the name and address of the offsite treatment facility.
Hospitalized overnight?	No	Enter Yes or No to indicate whether the employee was hospitalized overnight as an in-patient.
Length of employment	over 12 months	Select the appropriate box that indicates the approximate length of employment: under 3 months, 3 to 12 months, over 12 months.
Experience on this job or equipment	3 to 12 months	Select the appropriate box that indicates the approximate length of experience on job or equipment being used at the time of the accident: under 3 months, 3 to 12 months, over 12 months.
OSHA Classification	Injury	Select the appropriate box to choose injury or one type of illness. [NOTE: Illness types identified on OSHA Form 300.]
Days Away from Work	Up to 4 digit number	Enter the number of days the injured or ill employee was away from work.
Workdays Restricted/ transferred	Up to 4 digits	Enter number of days the injured/ill employee lost due to on job transfer or restriction.
Death	Yes	Enter Yes or No to indicate if the injury/illness resulted in death.
Date of Death	(YYYYMMDD)	Enter the date (YYYYMMDD) if death occurred.
Permanent Transfer	Yes	Enter Yes or No to indicate if injured/ill employee was given a permanent transfer to a different job because of a disability arising from the accident.
Termination	No	Enter Yes or No to indicate if injured/ill employee was terminated because of a disability arising from the accident.
Primary material, substance, or equipment involved in the accident	4 digits	Enter the appropriate code to indicate the primary material, substance, or equipment involved in the accident. A list of "Source, Target, Other Equipment" codes is available in the CAIRS Direct Data Entry Reference Manual, which can be found on the Internet ( <a href="http://tis.eh.doe.gov/cairs/usersmanual.html">http://tis.eh.doe.gov/cairs/usersmanual.html</a> .) Optional data field, if left blank, this information may be coded by a Data Specialist if the information is provided in the report.

**Table C-1. Individual Accident/Incident Report Data Elements (continued)**

Data Element	Example/Format	Instructions
Other Material or Equipment involved in the accident	4 digits	Enter the appropriate code for other material or equipment involved in the accident. A list of "Source, Target, Other Equipment" codes is available in the CAIRS Direct Data Entry Reference Manual, which can be found on the Internet ( <a href="http://tis.eh.doe.gov/cairs/usersmanual.html">http://tis.eh.doe.gov/cairs/usersmanual.html</a> .) Optional data field, if left blank, this information may be coded by a Data Specialist if the information is provided in the report.
Equipment design or defect	Yes	Enter Yes or No to indicate whether the equipment design or defect contributed to the accident cause or severity.
Direct Cause	Employee	Select the appropriate choice that indicates the direct cause of the accident. Possible entries are: weather, design/material, procedures, employee, other/none of the above.
Indirect Cause	Up to 8 characters	Select the appropriate choice that indicates the indirect cause of the accident. Possible entries are: weather, design/material, procedures, employee, other/none of the above.
Loss producing event	4 digits	Enter the appropriate code to indicate the source for injury/illnesses cases. A list of "Loss Producing Event" codes is available in the CAIRS Direct Data Entry Reference Manual, which can be found on the Internet ( <a href="http://tis.eh.doe.gov/cairs/usersmanual.html">http://tis.eh.doe.gov/cairs/usersmanual.html</a> .) Optional data field, if left blank, this information may be coded by a Data Specialist if the information is provided in the report.
Body part injured	4 digits	Enter the appropriate code to indicate the body part injured. A list of "Body Parts" codes is available in the CAIRS Direct Data Entry Reference Manual, which can be found on the Internet ( <a href="http://tis.eh.doe.gov/cairs/usersmanual.html">http://tis.eh.doe.gov/cairs/usersmanual.html</a> .) Optional data field, if left blank, this information may be coded by a Data Specialist if the information is provided in the report.
Injury/Illness Type	4 digits	Enter the appropriate code to indicate the injury/illness type. A list of "Nature of Injury/Illness" codes is available in the CAIRS Direct Data Entry Reference Manual, which can be found on the Internet ( <a href="http://tis.eh.doe.gov/cairs/usersmanual.html">http://tis.eh.doe.gov/cairs/usersmanual.html</a> .)
Personal Protective Equipment Used	4 digits	Enter the appropriate code to indicate the personal protective equipment used by the employee at the time of the accident. A list of "Personal Protective Equipment" codes is available in the CAIRS Direct Data Entry Reference Manual, which can be found

**Table C-1. Individual Accident/Incident Report Data Elements (continued)**

Data Element	Example/Format	Instructions
		on the Internet ( <a href="http://tis.eh.doe.gov/cairs/usersmanual.html">http://tis.eh.doe.gov/cairs/usersmanual.html</a> ). Optional data field, if left blank, this information may be coded by a Data Specialist if the information is provided in the report.
Activity Code	4 digits	Enter the appropriate code to indicate the activity in progress at the time of the accident. A list of "Activity" codes is available in the CAIRS Direct Data Entry Reference Manual, which can be found on the Internet ( <a href="http://tis.eh.doe.gov/cairs/usersmanual.html">http://tis.eh.doe.gov/cairs/usersmanual.html</a> .) Optional data field, if left blank, this information may be coded by a Data Specialist if the information is provided in the report.
Date of Hire	8 digits	Enter the date of hire (YYYYMMDD).
Program Office	3 characters	Select the Headquarters program office route symbol to identify the office responsible for the work activity in progress at the time of the accident. A list of program office codes is available in the CAIRS Direct Data Entry Reference Manual, which can be found on the Internet ( <a href="http://tis.eh.doe.gov/cairs/usersmanual.html">http://tis.eh.doe.gov/cairs/usersmanual.html</a> .)
Implementation Date	20021204	Enter the implementation date for recommended corrective actions (YYYYMMDD).
Person Completing Form	Up to 40 characters	Enter the name of person who completed the form.
Phone Number for Person Completing Form	Up to 12 characters	Enter the phone number of the person who completed the form.
Date of signature of person completing form	8 characters	Enter the date the form was completed.
Investigators job title	Up to 40 characters	Enter the job title of the person who completed the form.
Supervisor responsible for Corrective Action	Up to 40 characters	Enter the name of supervisor responsible for corrective action
Supervisors phone	12 characters	Enter the phone number for the supervisor responsible for corrective actions.
Accident Investigation Contact	Up to 40 characters	Enter the name of the person to contact if different from person completing form.
Accident Investigation Contact Phone Number	12 characters	Enter phone number of accident investigator.

**Table C-1. Individual Accident/Incident Report Data Elements (continued)**

Data Element	Example/Format	Instructions
Activity Description	Free form text Example: Climbing a ladder while carrying roofing materials.	Enter a description of what activity was in progress just before the accident occurred. Describe the activity as well as the tools, equipment, or material the employee was using. Be specific.
Corrective Actions Taken	Free form text	Enter a description of the actions taken to prevent reoccurrence of accident/incident.
Corrective Actions Recommended	Free form text	Enter recommended corrective actions.
Employee Actions	Free form text Example: Employee overloaded the utility cart with trash bags.	Enter a description of actions on the part of the employee that contributed to the occurrence of the accident.
Conditions that existed at the time of the accident	Free form text	Enter a description of the conditions that existed at the time of the accident.
Event description (What happened and what was the injury or illness?)	Free form text	Enter a description of what happened to cause the accident, in order of sequence, beginning with the initiating event, and followed by the secondary and tertiary events. End with nature and extent of injury/damage.
Influencing Factors or causes, that contributed	Free form text	Enter factors influencing underlying causes, either conditions or actions or both, that contributed to the accident/incident
Materials/Objects	Free form text Examples: concrete floor; chlorine; radial arm saw	Lists any objects or substances involved that directly harmed the employee.

**APPENDIX D. TABULATION OF WORK HOURS—DOE F 5484.4**

1. DATA ELEMENTS. The guidelines in Table D-1 apply to tabulating work hours.

**Table D-1. Tabulating Work Hours.**

<b>Data Element</b>	<b>Example/Format</b>	<b>Instructions</b>
Organization code	1504001	Indicate the seven-digit number that has been assigned to the specific reporting organization submitting the accident report.
Organization Name	DOE Headquarters	Name of the reporting organization.
Calendar Year	2003	Select the appropriate calendar year (YYYY) for the reporting period.
Reporting Quarter	1—Jan. through March 2—Apr. through June 3— July through Sept. 4—Oct. through Dec.	Select the appropriate calendar quarter for the reporting period.
Hours worked	12 characters	Include hours worked by salaried, hourly, part-time and seasonal workers, as well as hours worked by other workers subject to day-to-day supervision by your organization (e.g., temporary help services workers). Do not include vacation, sick leave, holidays, or any other non-work time, even if employees were paid for it. If your organization keeps records for only the hours paid or if you have employees who are not paid by the hour, estimate hours that the employees actually worked. If actual hours worked are not available, use the method in paragraph 2 of this appendix to estimate total hours worked.
PSO	3 characters	Enter Headquarters program offices responsible for employee hours being reported. Estimate the percentage of work done by each organization (if more than one). A list of program office codes is available in the CAIRS Direct Data Entry Reference Manual, which can be found on the Internet ( <a href="http://tis.eh.doe.gov/cairs/usersmanual.html">http://tis.eh.doe.gov/cairs/usersmanual.html</a> .)

2. INSTRUCTIONS FOR ESTIMATING HOURS WORKED. If the actual number is not available, you can estimate hours worked using the following formula.

Find the number of full-time employees for your organization for the quarter:

**Multiply** by the number of work hours for a full-time employee in the quarter: X \_\_\_\_\_

This is the number of full-time hours worked during the quarter. = \_\_\_\_\_

**Add** the number of any overtime hours and the hours worked by other employees (part-time, temporary, seasonal) during the quarter. + \_\_\_\_\_

**Round** the total to the next highest whole number = \_\_\_\_\_

This number is the estimated total hours worked by all employees during the quarter.

CANCELLED

## APPENDIX E. ACCESSING CAIRS AND OBTAINING ORGANIZATION CODES

### 1. ACCESSING CAIRS.

The Computerized Accident/Incident Reporting System (CAIRS) offers electronic access to summary information on accidents reported by DOE and DOE contractor organization.

#### a. Registration.

CAIRS is a Government computer system and, as such, has security requirements that must be followed. These security requirements are mandated by DOE O 205.1, *Department of Energy Cyber Security Management Program*, dated 3-21-03. Some of the information contained in CAIRS is restricted and is to be accessed by authorized users for official Government business only.

Registered users of CAIRS agree to adhere to the security requirements specified on the registration form. Individuals interested in registering to become CAIRS users can obtain a copy of the registration form from the ES&H Helpline at (800) 473-4375.

#### b. System Requirements. The following are the system requirements for using CAIRS. You must have—

- an Internet connection (either direct or via an ISP); an Ethernet connection to DOE's Business Network, or a modem capable of communicating at speeds of 28,800 BPS or faster;
- a Pentium or faster computer with sufficient memory to support a Web browser such as Netscape or Internet Explorer (As with all Windows applications, a faster PC and/or additional memory will greatly enhance system performance.
- Netscape 4.0 or higher or Internet Explorer 4.0 or higher in order to support features such as tables, Secure Socket Layer (SSL-2) protocol, and Active Server Pages (ASP).
- Windows 95 or higher.

### 2. OBTAINING ORGANIZATION CODES.

An organization code is a 7-character identifier assigned for the purpose of CAIRS reporting and for managing records in the database. Each part of the code has a specific meaning. The first two characters specify the field organization (such as Idaho Operations). The third character specifies an area office (if there are any under the field office). The fourth through sixth characters specify the DOE or DOE contractor

organization. The seventh character represents an operation type such as production, research, government, etc.

Changes in organization codes must be approved by the CAIRS Point of Contact (POC) for the Cognizant Secretarial Officer or their designated CAIRS Point of Contact at the DOE field organization and the CAIRS Program Manager. Requests for changes in organization code should be initiated through the ES&H Helpline at (800) 473-4375 or by sending e-mail to CAIRS support at [esh-infocenter@eh.doe.gov](mailto:esh-infocenter@eh.doe.gov).

### 3. ELECTRONIC REPORTING.

The Computerized Accident/Incident Reporting System (CAIRS) allows two methods of electronically submitting reports, CAIRS Direct Data Entry (CDDE) and CAIRS Bulk Upload Processing (CBUP). Access to the electronic reporting features in CAIRS is controlled. CDDE is an internet-based tool that takes advantage of the modern browser technology currently being used to navigate the World Wide Web (WWW). It allows users capabilities to enter new cases, edit previously saved cases and retrieving relevant data using features consistent with the current Windows environments found on most of today's personal computers. CBUP allows organizations with local computer systems that contain information needed to complete accident reports, capabilities to extract the required data fields from the local computer and transfer a data file containing this information to CAIRS. To register to begin electronic reporting or for additional information contact the ES&H Helpline at (800) 473-4375 or by sending e-mail to CAIRS support at [esh-infocenter@eh.doe.gov](mailto:esh-infocenter@eh.doe.gov). The CAIRS reference documents listed below are available online at: <http://tis.eh.doe.gov/cairs/refs.html>.

- CAIRS Reference Manual
- CAIRS Direct Data Entry Manual
- CAIRS Direct Data Entry Training Package

## APPENDIX F. ANNUAL FIRE PROTECTION SUMMARY

### 1. SUMMARY OF FIRE LOSS DAMAGE INCIDENTS.

Fire loss includes property damage or loss sustained as a consequence of a fire. Fire loss is deemed reportable based upon the fire department incident report. If the event results in a dispatch, fire department response, and classification as a fire event, then the loss is considered to be reportable.

Each fire loss event will include separate entries or fields for the following information. NOTE: Reporting elements may submit electronic copies of incident logs, provided that such information complies with all required reporting attributes of the National Fire Incident Reporting System (NFIRS).

- a. Date, location, dollar amount of loss, and incident description. The event description should include remedial actions taken to prevent event recurrence. Criteria for estimating damage costs are provided as paragraphs 8 and 9 below of this Appendix.
- b. Incidents, classified as—
  - Fire/Smoke [Building],
  - Fire/Smoke [Brush],
  - Fire/Smoke [Vehicle], or
  - Fire/Smoke [Other]
- c. Causal factor(s) associated with the event, classified as---
  - Weather Related,
  - Employee Related
  - Procedure Related,
  - Other, or
  - Unspecified.
- d. Involvement of a fixed suppression system. Include the system type, method of actuation, the number of sprinkler heads activated (water-based suppression systems) or the quantity of agent discharged (nonwater-based suppression systems).
- e. Related deaths or injuries resulting from this event.
- f. A cross-reference to other DOE reports such as entries in the Occurrence Reporting and Processing System (ORPS), the Computerized Accident/Incident Reporting System (CAIRS) or local incident logs.

2. NON-FIRE INCIDENTS ACTUATING AUTOMATIC FIRE SUPPRESSION SYSTEMS.

Suppression system actuation can occur from fire or other loss events and are categorized as such to account for total property loss. Please see paragraph 1 above for information on determining fire loss and including an event description for incidents involving automatic suppression systems. Other losses include damage or loss sustained as a consequence of one of the following events:

- explosion,
- natural causes (such as earthquakes and hurricanes),
- electrical malfunction (not classified as fire),
- transportation (cargo) loss,
- mechanical malfunction,
- radiation release or other nuclear accident, miscellaneous accidents (such as thermal, chemical or corrosion-related accidents).

Summaries should include information on the actuation of any automatic suppression systems to identify and prevent recurrence.

Each incident resulting in the actuation of an automatic fire suppression system will include separate entries or fields containing the following information.

- a. The date, location, dollar amount of loss, and incident description. The event description should include remedial actions taken to prevent recurrence. Criteria for estimating damage costs are provided in paragraphs 8 and 9 of this Appendix.
- b. Incident classified as—
  - Fire/Smoke [Building],
  - Fire/Smoke [Brush],
  - Fire/Smoke [Vehicle], or
  - Fire/Smoke [Other]
- c. Causal factor associated with the event, classified as
  - X Weather Related,
  - X Employee Related,
  - X Procedure Related,
  - X Other, or
  - X Unspecified

- d. Involvement of a fixed suppression system. Include the system type, method of actuation, the number of sprinkler heads activated (water-based suppression systems) or the quantity of agents discharged (nonwater-based suppression systems).
- e. Related deaths or injuries resulting from this event.
- f. A cross-reference to other DOE reports such as entries in ORPS, the Computerized Accident/Incident Reporting System or local incident logs.

3. HALON REDUCTION ACTIVITIES.

a. Fixed Systems.

- (1) Number of systems from previous reporting year \_\_\_\_\_
- (2) Number of systems removed from service this period. Include fixed, manually actuated, mobile or skid mounted systems that have been placed in inventory. \_\_\_\_\_
- (3) Number of systems placed in service this period. Include active system transfers between sites as well as systems that may have been temporarily placed in inventory. \_\_\_\_\_
- (4) TOTAL NUMBER OF ACTIVE SYSTEMS THIS REPORTING YEAR \_\_\_\_\_
- (5) Active system quantity from previous reporting year (Active systems are defined as those currently installed to suppress a fire and includes reserve capacity in a two-shot system. \_\_\_\_\_
- (6) Quantity placed in service within the past year. Include quantities of fixed, manually actuated, mobile or skid mounted systems that have been placed in inventory. \_\_\_\_\_
- (7) Quantity removed from service within this period. Include quantities of fixed, manually actuated, mobile or skid mounted systems that have been placed in inventory. \_\_\_\_\_
- (8) Quantity released this period through leakage or actuation. \_\_\_\_\_

- (9) TOTAL QUANTITY OF ACTIVE SYSTEMS THIS REPORTING YEAR \_\_\_\_\_
- (10) Halon inventory from previous reporting year. \_\_\_\_\_
- (11) Quantity added to inventory from item (7) above \_\_\_\_\_
- (12) Quantity imported to inventory from other sites. \_\_\_\_\_
- (13) Quantity exported offsite (banked). \_\_\_\_\_
- (14) Quantity sold or exceeded. \_\_\_\_\_
- (15) TOTAL QUANTITY OF HALON INVENTORY THIS REPORTING YEAR. \_\_\_\_\_
- b. Hand-Held Halon Extinguishers.
  - (1) Active quantity from previous reporting year \_\_\_\_\_
  - (2) Quantity removed from service within this period. \_\_\_\_\_
  - (3) TOTAL QUANTITY OF ACTIVE HAND-HELD HALON EXTINGUISHERS THIS REPORTING THIS REPORTING YEAR. \_\_\_\_\_
  - (4) Halon inventory from previous reporting year. \_\_\_\_\_
  - (5) Quantity added to inventory from item (2) above. \_\_\_\_\_
  - (6) Quantity exported offsite (banked). \_\_\_\_\_
  - (7) Quantity sold or exceeded. \_\_\_\_\_
  - (8) TOTAL QUANTITY OF HAND-HELD HALON EXTINGUISHER INVENTORY THIS REPORTING YEAR. \_\_\_\_\_

4. FIRE PROTECTION INSPECTION TESTING AND MAINTENANCE ACTIVITIES.

- a. System Summary. Identify the type and number of systems inspected, tested, or maintained at the site this reporting period. Compare summary with the previous reporting period to determine any system summary modifications that may have taken place over the year. System types are identified in Table F-1.

- b. All failures of fire protection systems (sprinkler systems, fire alarm systems, etc.) should be reported annually. Failure in this context is the inability to meet at least one of the operability requirements established for the system as part of the inspection, testing, and maintenance program. (Refer to DOE O 420.1A, *Facility Safety*, dated 5-20-02.) Summaries should be provided for each system type at the site. System types are identified in Table F-1.

**Table F-1. Fire Suppression System Types.**

Code	Description
1A	Wet Pipe Sprinkler System
1B	Dry Pipe Sprinkler System
1C	Deluge Sprinkler System
1D	Pre-Action Sprinkler System
1E	Foam-Water System
1F	Water Spray System
1G	Halon 1301 Systems
1H	Halon 1211 Systems (Fixed)
1I	Clean Agent Systems
1J	Wet Chemical Systems
1K	Dry Chemical Systems
1L	Carbon Dioxide Systems
1M	Other Fixed Water Application Equipment
1N	Fire Pumps
1O	Central Fire Alarm
1P	Local Fire Alarm Systems

5. FIRE DEPARTMENT ACTIVITIES.

- a. Number of Responses.
- (1) Fire \_\_\_\_\_
  - (2) HAZMAT Response \_\_\_\_\_
  - (3) Other Emergency \_\_\_\_\_
  - (4) Non-Emergency \_\_\_\_\_
  - (5) Medical \_\_\_\_\_
  - (6) Mutual Aid Responses \_\_\_\_\_

Identify and classify all fire department response events. For this reason, each response should be recorded in a single fire department incident report from the first due or incident commander's perspective.

The fire response category relates to working fires on the site that were either extinguished or verified as a fire event by the responding incident commander. HAZMAT response relates non-fire hazardous material incidents. The other emergency category is intended for all other emergencies in which firefighting apparatus was dispatched, including offsite mutual aid response, or support for a medical response.

The non-emergency category relates to situations where the initial response was considered an emergency, but was later verified as a non-emergency by the incident commander. This includes inadvertent system actuation. Malicious alarms, or offsite mutual aid that was cancelled en route. Medical response includes any response in which an ambulance was dispatched for the sole purpose of a medical emergency.

- b. Major equipment purchases. Describe type of equipment and purchase price.
- c. Notable response descriptions not already included in the report.

6. RECURRING FIRE PROTECTION PROGRAM COSTS

- a. Fire Department Costs.
  - (1) Staffing
  - (2) Equipment
  - (3) System Inspection and testing and Maintenance costs
  - (4) Emergency medical response costs
  - (5) Training program costs
- b. Inspection and testing program costs by others.
- c. Fire protection engineering.

The cost of an inspection and testing program by others is intended to identify work provided by other departments, such as a maintenance section or outside contractor. Do not include costs of mobile apparatus or other major equipment purchases. Provide additional explanation for significant deviations in recurring costs between calendar years.

7. PERFORMANCE EVALUATION.

- a. Reporting elements should identify the most recent date, performance issues assessed, and outcome reached by the DOE Federal field element or DOE authority having jurisdiction on fire protection program performance.
- b. Federal field elements: Provide and maintain an evaluation process for contractor performance. Suggested guidance is provided in Table F-2.

**Table F-2. Program Performance Measures.**

<b>Code</b>	<b>Performance Measure</b>
<b>P0</b>	<b>FIRE PROTECTION ENGINEERING</b>
P1	Site fire protection program documents are comprehensive (as compared to the DOE Fire Protection Handbook) and updated every 3 years.
P2	Fire hazards analyses/fire protection program assessment reports are complete (as compared to the examples in the DOE Fire Protection Handbook) and current. (Refer to the DOE G 440.1-5, <i>Implementation Guide for Use with DOE O 420.1 and DOE O 440.1, Fire Safety Program</i> , dated 9-30-95.
P3	Inventories of fire protection and emergency services audit findings (new, closed, open, delinquent) are decreasing.
P4	Qualifications and training of site fire protection engineering staff meet or exceed the site (or organizational) workload analysis (or equivalent).
<b>P0</b>	<b>FIRE PROTECTION SYSTEM</b>
P5	Fire protection systems (including fire barriers) are inspected, tested and maintained in accordance with the established site program.
P6	Fire alarm activation statistics (number of alarm and cause) are current and accurate.
P7	Fire protection system failure rates (refer to the DOE Fire Protection Handbook for operability requirements) have not exceeded the site historic norm by more than 10 percent.
P8	Maintenance costs for each type of fire protection system have not exceeded the site historic norm by more than 10 percent.
P9	Fire protection system maintenance technicians meet or exceed local industry qualifications and training requirements.
<b>P0</b>	<b>EMERGENCY SERVICES</b>
P10	The site has access to a fleet of mobile apparatus capable of responding effectively and in a timely manner to all credible, anticipated site emergencies as determined by a Baseline Needs Assessment (BNA). Additionally, such assessments address the requirements of NFPA 1710 with any equivalencies documented and approved by the Local DOE Authority Having Jurisdiction.
P11	The emergency services organization satisfies staffing and response levels as defined by the BNA.
P12	Emergency services personnel meet or exceed required minimum qualifications and training as defined by the BNA
P13	Fire department/brigade pre-plans and program documents are complete and current.
P14	Emergency services equipment has been provided as per the BNA and is maintained in accordance with industry standards.
P15	Emergency communications capability is functional throughout the site and meets or exceeds industry standards.
P16	Fire department brigade operational statistics (e.g., number and type of emergency and non-emergency responses, training hours, number of emergency drills) are accurate and current.

8. CRITERIA FOR COST ESTIMATING

- a. Estimating fire damage costs for DOE facilities and programs is essential to categorize necessary investigations and quantify financial loss to the Government for either direct reimbursement or analytical purposes. When estimating loss, it is expected that reporting elements make every attempt to calculate a credible replacement value and to grade such estimate on the financial impact it will have upon the Government. For example, a room-and-contents fire involving standard office products may not require the use of a detailed cost estimation and may be calculated according to the institutional knowledge of the reporting authority. However, a total facility loss or losses exceeding \$10,000 in replacement value may need to employ estimation techniques described in paragraph 9a below.
- b. There are qualified people in DOE and/or contractor organizations who are trained and experienced in cost estimating. These individuals should follow the procedures in DOE G 430.1-1. When estimating costs from fire loss events, these individuals should be involved to identify replacement values using available site data sources such as the Management Analysis Reporting System, the Property Information Database System, and the Facility Information Management System and may include applying an appropriate cost index ratio (e.g., the producer price index) or data published in the periodical, *Engineering News Record*.
- c. Text in paragraph 9 below provides guidance for determining losses based on the value of property that is destroyed or otherwise impaired by a fire.

9. CRITERIA FOR LOSS ESTIMATION

- a. Loss estimation includes the following:
  - (1) Damage or loss of facilities, inventories, and associated equipment as a result of a fire or a fire suppression system actuation.
  - (2) All estimated or actual costs to restore DOE property to a reasonable approximation of pre-accident conditions. If an accident involves property that has been lost, completely destroyed, or contaminated to a degree precluding economically justifiable recovery, estimates shall be based on cost for actual replacement and installation of comparable equipment, devices, or materials (including nuclear materials) as well as clean-up and disposal cost for the damaged facility. Such costs should include credit for any salvage value associated with the loss.
  - (3) In the case of unused, obsolete, or excess building space, equipment, or materials that are not going to be replaced, the cost estimate of the market value at time of accident shall be used.

- (4) Estimated costs for restoring to a reasonable degree to pre-accident condition, without improvement, all partially lost or damaged DOE property. Include replacement cost for all DOE-owned supplies and costs for decontamination operations where applicable.
- (5) Estimated costs for reprocessing and reclaiming partially destroyed and damaged materials. Where applicable, costs for damage resulting from firefighting (e.g., water and smoke damage) should be included.
- (6) All post-incident cleanup expenses both inside and outside the facility (e.g., cleanup of hazardous materials or radioactive contamination resulting from fires, or fire suppression system actuation).
- (7) All costs for recharging fire suppression systems (gaseous, chemical and foam agents) and decontamination or replacement of fire department equipment.
- (8) Costs for damage caused by DOE operations to privately owned property.
- (9) Costs for restoration of land and land improvements (sidewalks, roads, etc.) that were damaged as a result of an accident.
- (10) Costs for outside specialists or organizations hired to mitigate losses and costs for non-standard labor hours (i.e., above the amount normally worked by the employee) for onsite personnel to restore the property to pre accident condition
- (11) Any lost revenue experienced as a result of the accident. Examples include income-producing processes, such as power generating and transmission facilities or timber sales, whose loss would cause a reduction in payments to the Federal Government.
- (12) Estimated damage losses to Government or private wetlands, grasslands, and forest as a result of a wildland fire originating on DOE lands. Restoration costs should also be included along with actual costs to suppress the event.
- (13) Labor hours expended by investigative and/or administrative personnel as a result of the incident.
- (14) Labor cost for personnel evacuated during a fire including any stand-down costs associated with: investigations, employee relocations, or restoration activities.

- b. Loss estimation excludes the following:
- (1) Expenses resulting solely from loss of the use or occupancy of facilities affected by the fire, including lost production and research time, unless it becomes necessary to obtain special facilities (e.g., temporary structures) to maintain the facilities' use or occupancy.
  - (2) All post-accident expenses paid by non-DOE sources (e.g., expenses covered by private insurance).
  - (3) Expenses to bring property to modern standards.
  - (4) Normal wear.
  - (5) Damage to privately owned property caused by other than DOE operations.
  - (6) Labor hours for onsite firefighters during their normal work shifts.

CANCELLED

## **APPENDIX G. INSTRUCTIONS FOR PREPARING OCCUPATIONAL EXPOSURE DATA FOR SUBMITTAL TO THE RADIATION EXPOSURE MONITORING SYSTEM (REMS) REPOSITORY**

### 1. TRANSMITTAL LETTER

A transmittal letter containing the following information at a minimum will accompany each submittal to the REMS repository.

- Data filename.
- Operating system used to create the data file.
- Contact name and phone number of individual knowledgeable about the submittal.
- The number of records included in the submittal.
- The collective total effective dose equivalent (TEDE) for individuals included in the submittal.
- Other instructions that may be useful in processing the submittal.
- Signature and date of the organization's authorized representative.
- Description of the activities conducted at the facility during the monitoring year as it relates to the collective radiation exposure received. The text should include, at a minimum, a general explanation of increases or decreases in the annual collective TEDE, DDE, and CEDE, a description of events concerning any TEDE in excess of 2 rems (20 mSv) including references to any Occurrence Reports related to the exposure, and any other unusual events or operational changes related to occupational exposure at the facilities included in the submittal.

The exposure data file is to be error checked using the latest version of the REMSView program provided by the REMS repository and all reported errors resolved prior to transmitting the file to REMS. REMSView may be obtained from the DOE REMS Project Manager, or online at <http://rems.eh.doe.gov>.

### 2. MEDIA REQUIREMENTS

Data will be submitted to REMS via electronic media. The default electronic media for exposure data is an IBM compatible 3.5-inch diskette, 1.44 MB formatted capacity. Other magnetic media are acceptable, but must be approved by the DOE REMS Project Manager prior to submission. The data file may be compressed on the electronic media as long as instructions and required software needed to extract the data file are provided. Alternative methods of electronic submission may be accommodated if approved in advance by the DOE REMS Project Manager.

a. File Structure

Each data record is to be of a fixed length. Extra spaces in the field should be padded with blanks. Do not use nulls (ASCII character 0), or tabs, or any other non-printable characters in any record. Terminate each record with a carriage return and line feed. Responses are required to all fields unless otherwise noted.

3. INSTRUCTIONS FOR PREPARING ELECTRONIC OCCUPATIONAL EXPOSURE DATA SUBMITTALS. Individual exposure data records required to be reported to the Radiation Records Repository will be formatted as shown in Table G-1.

**Table G-1. Electronic Data Submittals**

#	Data Element	Example Code or Data	Field Size	Column Range	Instructions
1	Monitoring Year	2003	4	1-4	Enter the year for which the monitoring results are being submitted. The monitoring year, as defined in 10 CFR 835.2 may differ slightly from the calendar year due to dosimetry processing schedules.
2	Organization Code	1234567	7	5-11	7-digit organization code, available from the repository. Whenever possible, the appropriate CAIRS organization code should be used. See Appendix E (2).
3	Facility Code	LAB #12	15	12-26	The code representing the facility where the dose was received for the personnel exposure records. Organizations may determine the Facility Code using printable ASCII characters of 15 characters or less. The Facility Code assigned should remain consistent from year to year.
4	Facility Type Code	61	2	27-28	See Facility Type codes, Table G-4
5	Phase of Operation	C	1	29	See Phase of Operation codes, Table G-5
6	ID Number	123456789	15	30-44	The identification number for this individual.
7	ID Type	SSN	3	45-47	The type of identification number used to identify the individual. See ID Type codes Table G-6.
8	First Name	Mary	30	48-77	Legal first name or initial
9	Middle Name	Q	20	78-97	Middle name or initial
10	Last Name	Public	30	98-127	Last name including title
11	Birth Date	19660101	8	128-135	Date of birth of individual (YYYYMMDD)

**Table G-1. Electronic Data Submittals (Continued)**

#	Data Element	Example Code or Data	Field Size	Column Range	Instructions
12	Sex	F	1	136	Sex of the monitored individuals
13	Occupation Code	184	3	137-139	See Occupation Codes, Tables G-7
14	Monitoring Status	E	1	140	E General Employee, employee of the reporting organization, visiting researcher, or student P Member of the Public, including visiting dignitaries G Special Individuals as defined in Chapter III, paragraph 1b(1)
15	Exposure Type	R	1	141	R Routine P PSE, Planned Special Exposure E Emergency, exposure that occurred during an emergency when emergency dose limits and procedures were in effect
16	Monitoring Start Date	20030101	8	142-149	Date monitoring began for the reporting year (YYYYMMDD)
17	Monitoring End Date	20031231	8	150-157	Date monitoring ended for the reporting year (YYYYMMDD)
18	Deep Dose Equivalent (DDE)	120	7	158-164	The effective dose equivalent to the whole body, nominally at 1.0 cm depth from external radiation sources, including neutron radiation in millirem. DDE monitoring should be conducted in accordance with the guidance provided in DOE G 441.1-4, <i>External Dosimetry Program Guide for Use with Title 10, CFR, Part 835, Occupational Radiation Protection</i> , dated 3-17-99. If monitoring is not provided, the field should be blank (padded with spaces). Enter NM as associated measurement code.
19	DDE Measurement Code	MV	2	165-166	Measurement code for the DDE value. See Measurement Codes, Table G-8.
20	Deep Dose Equivalent from Neutron (DDE-neutron)	20	7	167-173	The effective dose equivalent to the whole body, nominally at 1.0 cm depth from neutron radiation in millirem. DDE-neutron monitoring should be conducted in accordance with the guidance provided in DOE G 441.1-4. If monitoring is not provided, the field should be blank (padded with spaces) and 'NM' should be entered as the associated measurement code.

**Table G-1. Electronic Data Submittals (Continued)**

#	Data Element	Example Code or Data	Field Size	Column Range	Instructions
21	DDE Neutron Measurement Code	MV	2	174-175	Measurement code for the DDE neutron value. See Measurement Codes, Table G-8.
22	Dose to the Lens of the Eye (LDE)	(blank, padded with spaces)	7	176-182	Dose equivalent to the lens of the eye at a tissue depth of 0.3 cm in millirem, including the deep dose from neutron radiation in millirem. LDE monitoring should be conducted in accordance with the guidance provided in DOE G 441.1-4. If monitoring is not provided, the field should be blank (padded with spaces) and 'NM' should be entered as the associated measurement code.
23	LDE Measurement Code	NM	2	183-184	Measurement code for the LDE value. See Measurement Codes, Table G-8.
24	Shallow Dose Equivalent to the skin of the Whole Body (SDE-WB)	120	7	185-191	Dose equivalent from external radiation at a depth of 0.007 cm to the skin of the whole body, including the deep dose from neutron radiation in millirem. SDE-WB monitoring should be conducted in accordance with the guidance provided in DOE G 441.1-4. If monitoring is not provided, the field should be blank (padded with spaces) and 'NM' should be entered as the associated measurement code.
25	SDE-WB Measurement Code	MV	2	192-193	Measurement code for the SDE-WB value. See Measurement Codes, Table G-8.
26	Shallow Dose Equivalent, Upper Right Extremity (SDE-UR)	120	7	194-200	Dose equivalent from external radiation at a depth of 0.007 cm to the upper right extremity (e.g., right hand), including the deep dose from neutron radiation in millirem. If monitoring is not provided, the field should be blank (padded with spaces) and 'NM' should be entered as the associated measurement code.
27	SDE-UR Measurement Code	MV	2	201-202	Measurement code for the SDE-UR value. See Measurement Codes, Table G-8.

**Table G-1. Electronic Data Submittals (Continued)**

#	Data Element	Example Code or Data	Field Size	Column Range	Instructions
28	Shallow Dose Equivalent, Upper Left Extremity (SDE-UL)	150	7	203-209	Dose equivalent from external radiation at a depth of 0.007 cm to the upper left extremity (e.g., left hand), including the deep dose from neutron radiation in millirem. If monitoring is not provided, the field should be blank (padded with spaces) and 'NM' should be entered as the associated measurement code.
29	SDE-UL Measurement Code	MV	2	210-211	Measurement code for the SDE-UL value. See Measurement Codes, Table G-8.
30	Shallow Dose Equivalent, Lower Right Extremity (SDE-LR)	(blank, padded with spaces)	7	212-218	Dose equivalent from external radiation at a depth of 0.007 cm to the lower right extremity (i.e., right foot, ankle, or lower leg), including the deep dose from neutron radiation in millirem. If monitoring is not provided, the field should be blank (padded with spaces) and 'NM' should be entered as the associated measurement code.
31	SDE-LR Measurement Code	NM	2	219-220	Measurement code for the SDE-LR value. See Measurement Codes, Table G-8.
32	Shallow Dose Equivalent, Lower Left Extremity (SDE-LL)	(blank, padded with spaces)	7	221-227	Dose equivalent from external radiation at a depth of 0.007 cm to the lower left extremity (i.e., left foot, ankle, or lower leg), including the deep dose from neutron radiation in millirem. If monitoring is not provided, the field should be blank (padded with spaces) and 'NM' should be entered as the associated measurement code.
33	SDE-LL Measurement Code	NM	2	228-229	Measurement code for the SDE-LL value. See Measurement Codes, Table G-8.
34	Committed Effective Dose Equivalent (CEDE)	30	7	230-236	The 50-year CEDE from intakes during the monitoring period in millirem.
35	CEDE Measurement Code	MV	2	237-239	Measurement code for the CEDE value. See Measurement Codes, Table G-8

**Table G-1. Electronic Data Submittals (Continued)**

#	Data Element	Example Code or Data	Field Size	Column Range	Instructions
36	Radionuclide 1	U238	7	240-246	The scientific abbreviation of the radionuclide taken into the body that contributed to the internal dose. Use the standard scientific format of "Xx999x", where "X" represents an alphanumeric and "9" represents a numeric character. List only the six highest contributors among the following fields. Enter only one radionuclide per field. Do not include daughter products. When possible, list the radionuclides in descending order of their contribution to the internal dose.
37	Radionuclide 2	U239	7	247-253	The scientific abbreviation of the second radionuclide taken into the body.
38	Radionuclide 3	Pu239	7	254-260	The scientific abbreviation of the third radionuclide taken into the body.
39	Radionuclide 4	(blank padded with spaces)	7	261-267	The scientific abbreviation of the fourth radionuclide taken into the body.
40	Radionuclide 5	(blank padded with spaces)	7	268-274	The scientific abbreviation of the fifth radionuclide taken into the body.
41	Radionuclide 6	(blank padded with spaces)	7	275-281	The scientific abbreviation of the sixth radionuclide taken into the body.
42	Committed Dose Equivalent (CDE) to the gonads	(blank, padded with spaces)	7	282-288	The 50-year Committed Dose Equivalent to the gonads from the intake of the radionuclides for this monitoring period, in millirem.
43	Committed Dose Equivalent (CDE) to the breasts	(blank, padded with spaces)	7	289-295	The 50-year Committed Dose Equivalent to the breasts from the intake of the radionuclides for this monitoring period, in millirem.
44	Committed Dose Equivalent (CDE) to the red bone marrow	35	7	296-302	The 50-year Committed Dose Equivalent to the red bone marrow from the intake of the radionuclides for this monitoring period, in millirem.
45	Committed Dose Equivalent (CDE) to the lungs	25	7	303-309	The 50-year Committed Dose Equivalent to the lungs from the intake of the radionuclides for this monitoring period, in millirem.
46	Committed Dose Equivalent (CDE) to the thyroid	(blank, padded with spaces)	7	310-316	The 50-year Committed Dose Equivalent to the thyroid from the intake of the radionuclides for this monitoring period, in millirem.

**Table G-1. Electronic Data Submittals (Continued)**

#	Data Element	Example Code or Data	Field Size	Column Range	Instructions
47	Committed Dose Equivalent (CDE) to the bone surface	500	7	317-323	The 50-year Committed Dose Equivalent to the bone surface from the intake of the radionuclides for this monitoring period, in millirem.
48	Committed Dose Equivalent (CDE) to the remainder	40	7	324-330	The 50-year Committed Dose Equivalent to the remainder from the intake of the radionuclides for this monitoring period, in millirem.
49	Total Effective Dose Equivalent, (TEDE)	150	7	331-337	The sum of the Deep Dose Equivalent (DDE) and the Committed Effective Dose Equivalent (CEDE) in millirem.
50	Dose Equivalent to the Embryo/Fetus	10	7	338-344	Dose Equivalent to the embryo/ fetus during the pregnancy from conception to the end of the pregnancy, in millirem. Dose determination should be made in accordance with DOE G 441.1-6, <i>Evaluation and Control of Radiation Dose to the Embryo/Fetus Guide for Use with Title 10, Code of Federal Regulations, Part 835, Occupational Radiation Protection</i> , dated 4-29-99.
51	Comment Text	Further information for this dose record is contained in the Occurrence Report #	140	345-484	Text of the comment applicable to the dose record in the data file. Comments should be limited to information needed to assess the record, such as references to additional documentation concerning the record. If no comments are necessary, the record may be terminated with a carriage return and line feed at column 346 with one space entered for the comment.

4. OCCUPATIONAL EXPOSURE DATA SUMMARY EXPLANATION

Policies and procedures should be in place to ensure that duplicate monitoring results for an individual are not reported to the repository by more than one organization.

All dose equivalents will be in units of millirem, rounded to the nearest whole number and right justified within the appropriate field. Monitoring should be provided in accordance with the guidance provided in DOE G 441.1-4 *External Dosimetry Program Guide for Use with Title 10 Code of Federal Regulations, Part 835, Occupational Radiation Protection*, dated 3-17-99.

If monitoring was not provided for a specific dose value, do not enter a value. Leave the field blank, padded with spaces, and enter NM in the corresponding measurement code field.

Monitoring should be provided in accordance with the guidance provided in DOE G 441.1-3, *Internal Dosimetry Program Guide for Use with Title 10, Code of Federal Regulations, Part 835, Occupational Radiation Program*, dated 3-17-99.

Dose records for more than one facility are required only where radiation monitoring is performed and recorded for specific facilities. If only site-wide monitoring is provided, only one facility record code should be included in the submittal to represent the entire site. For individuals receiving dose at multiple facilities where the fraction of dose received at each facility code cannot be determined, the entire dose should be attributed to the facility where the majority of dose was received. If the facility where the majority of dose was received cannot be determined, the facility code where the individual spent the majority of the monitoring period should be used.

Comment records are required only if additional information is needed to assess the record.

Reporting of fetal exposure data is required for a declared pregnant worker. Fetal exposure data should be included in the submittal for the monitoring year that encompasses the pregnancy end date.

5. BIOASSAY AND INTAKE SUMMARY FILE EXPLANATION

The following files must be submitted as separate ASCII files containing annual summary records for bioassay and intake information. These files should be submitted on the same media as the annual submittal as shown in Tables G-2 and G-3 respectively. The Bioassay Summary file should contain one record for each facility. The Intake Summary file should contain one record for each facility, radionuclide, and intake mode.

Bioassay Summary records are required to be reported when any individual participates in a bioassay program or in vivo monitoring during the monitoring year.

Intake Summary records are required to be reported when any individual has received a dose from intakes during the monitoring year.

**Table G-2 Bioassay Summary File**

#	Data Element	Example Code or Data	Field Size	Column Range	Instructions
1	Facility Code	LAB #12	15	1-15	The code representing the facility where the dose was received for the personnel exposure records. Organizations may determine the Facility Code using printable ASCII characters of 15 characters or less. The Facility Code assigned should remain consistent from year to year.
2	Monitoring Year	2003	4	16-19	Enter the year for which the monitoring records are being submitted. The monitoring year, as defined in 10 CFR 835.2 may differ slightly from the calendar year due to dosimetry processing schedules.
3	Total	237	5	20-24	Total number of individuals monitored in the bioassay program or in vivo monitoring during the year.
4	Routine	233	5	25-29	Number of routine bioassay performed during the year.
5	Special	4	5	30-34	Number of special bioassay or in vivo measurements performed during the year.
6	Urinalysis	212	5	35-39	Number of urine samples analyzed during the year.
7	Fecal	32	5	40-44	Number of fecal samples analyzed during the year.
8	In Vivo	120	5	45-49	Number of in vivo measurements performed excluding wound counts during the year.
9	Wound	3	5	50-54	Number of in vivo measurements performed on wounds during the year.
10	Other	1	5	55-59	Number of other measurements performed in order to determine internal dose for an individual during the year (e.g., air sampling or other method).

**Table G-3. Intake Summary File**

#	Data Element	Example Code or Data	Field Size	Column Range	Instructions
1	Facility Code	LAB# 12	15	1-15	The code representing the facility where the dose was received for the personnel exposure records. Organizations may determine the Facility Code using printable ASCII characters of 15 characters or less. The Facility Code assigned should remain consistent from year to year.
2	Monitoring Year	2003	4	16-19	Enter the year for which the monitoring results are being submitted. The Monitoring Year as defined in 10 CFR 835.2 may differ slightly from the calendar year due to dosimetry processing schedules.
3	Radionuclide	Pu238	7	20-26	The scientific abbreviation of the radionuclide taken into the body. Use the standard scientific format of "Xx999x", where "X" represents an alphanumeric and "9" represents a numeric character. Enter only one radionuclide per record. Do not include daughter products or radionuclides that did not result in internal doses during the monitoring year.
4	Mode	W	1	27	Mode of the intake. H = Inhalation (record tritiated water intakes as inhalations.) G = Ingestion A = Absorption W = Wound, cut, puncture, injection or any other intake through broken skin. A separate record for each mode and radionuclide should be reported.
5	Collective CEDE	3489	715	28-34	The collective 50-years CEDE from intakes of this radionuclide and intake mode during the monitoring year, in millirem.

6. FACILITY TYPE CODES.

The facility record should identify the facility type where the worker's doses were received. The facility type should reflect the original function of the facility even if activities in support of that function are no longer being conducted at the facility. Facility type codes are listed in Table G-4.

Tables G-4 through G-8 list codes used in filling out occupational exposure records.

**Table G-4. Facility Type Codes.**

Facility Type Code	Facility Type Description
10	Accelerator
21	Fuel/Uranium Enrichment
22	Fuel Fabrication
23	Fuel Processing
40	Maintenance and Support (site-wide)
50	Reactor
61	Research, General
62	Research, Fusion
70	Waste Processing/Management
80	Weapons Fabrication and Testing
99	Other

7. FACILITY PHASE OF OPERATION CODES.

The phase of operation will be recorded for the calendar year for which the phase of operation is most appropriate. For facilities that transition between phases during a year, the phase that is appropriate for the majority of the calendar year should be recorded. Each DOE facility falls into one of the Phase of Operations shown in Table G-5. In general, each phase follows in sequential order, although a facility may forgo one or more phases or may not follow the order listed here.

**Table G-5. Facility Phase of Operation Codes.**

Code	Phase of Operation	Definition
A	Construction (includes Major Renovation)	New facilities that are brought on line to replace or augment existing facilities. This phase includes major renovations for existing facilities but does not include environmental restoration construction.
B	Operations/Maintenance	Includes the normal, mission-related operations and maintenance of the reported Facility Type.
C	Stabilization	Facilities that have been declared to be surplus (assigned to the environmental restoration program). This includes facilities where all operations have been suspended but environmental restoration activities have not begun. This may include periods of surveillance and maintenance prior to environmental restoration activities.
D	Remediation	Period during which corrective actions that are necessary to bring the facility into regulatory compliance are being performed.
E	Decontamination and Decommissioning	Decontamination is the act of removing a chemical, biological, or radiological contaminant from, or neutralizing its potential effect on, a person, object or environment by washing, chemical action, mechanical cleaning, or other techniques. Decommissioning is the process of closing and securing a facility.
F	Waste Management	This phase includes the management of wastes generated during the environmental restoration process.
G	Surveillance and Maintenance	This phase includes those activities that provide for the safety and protection of a facility after the environmental restoration phase.
Z	Other	All DOE facilities should fit into one of the above categories. "Other" should be used only in highly unusual circumstance.

**Table G-6. Identification Codes.**

ID Type Code	Identification Type Description
SSN	U.S. Social Security Number
PPN	Passport Number
CSI	Canadian Social Insurance Number
WPN	Work Permit Number
OTH	Other <sup>1</sup>
<sup>1</sup> Other identification numbers are unique identifiers assigned by the reporting organization when all other identification types are unavailable. The individual's SSN should be used whenever possible. The first 7 digits of an "other" identification number must be the organization code for the reporting organization. The remaining 8 digits of the ID number should be unique for each individual being submitted by the reporting organization.	

**Table G-7. Occupational Codes.**

<b>DOE Code</b>	<b>DOE Occupational Categories</b>	<b>Cross-Reference SOC Code (ranges)<sup>2</sup></b>
1	<b>UNKNOWN</b>	
110	<b>MANAGERS AND ADMINISTRATORS</b>	11-14
	<b>PROFESSIONAL</b>	15-39
160	Engineers	16
170	Scientists	17-19
184	Health Physicists	1843
200	Miscellaneous Professionals	20-25, 32-34
260	Doctors and Nurses	26-30
350	Technicians	35-39
360	Health Technicians	36
370	Engineering Technicians	37
380	Science Technicians	38
383	Radiation Monitors/Technicians	383
390	Miscellaneous Technicians	39
400	<b>SALES</b>	40-44
450	<b>ADMINISTRATIVE SUPPORT AND CLERICAL</b>	45-47
	<b>SERVICE WORKERS</b>	50-52
512	Firefighters	512
513	Security Guards	513/4
521	Food Service Employees	521
524	Janitors	524
525	Miscellaneous Service Employees	523, 525/6
	<b>AGRICULTURAL WORKERS</b>	55-58
562	Grounds keeper	562
570	Forest Workers	57
580	Miscellaneous Agricultural Workers	55, 561, 58
	<b>REPAIR/CONSTRUCTION WORKERS</b>	60-65
610	Mechanics/Repairers	60-61
641	Masons	641
642	Carpenters	642

<sup>2</sup> Refers to the Department of Commerce's Standard Occupational Classification (SOC) Manual (1980).

DOE Code	DOE Occupational Categories	Cross-Reference SOC Code (ranges) <sup>2</sup>
643	Electricians	643
644	Painters	644
645	Pipe Fitters	645
650	Miners/Drillers	65
660	Miscellaneous Repairers/Construction Workers	63, 646
	<b>PRECISION/PRODUCTION WORKERS</b>	67-78
681	Machinists	681
682	Sheet Metal Workers	682
690	Operators, Plant/System/Utility	69
710	Machine Setup/Operators	71-76
771	Welders and Solderers	771
780	Miscellaneous Precision/Production Workers	67, 683, -88, 722-78
	<b>TRANSPORT WORKERS</b>	81-83
820	Truck Drivers	8212-8214
821	Bus Drivers	8215
825	Pilots	825
830	Equipment Operators	83
840	Miscellaneous Transporters	81, 8216-824, 828
850	<b>HANDLERS/LABORERS/HELPERS</b>	85-87
910	<b>MILITARY PERSONNEL</b>	91
990	<b>MISCELLANEOUS WORKERS</b>	99

<sup>1</sup> Refers to the Department of Commerce's Standard Occupational Classification (SOC) Manual (1980).

**Table G-8. Dose Measurement Codes.**

<b>Code</b>	<b>Meaning</b>	<b>Definition</b>
MV	Measured Value	Indicates that measurements were performed for the specific individual to determine the dose for that individual. This measurement code would apply in all cases where individual external dosimetry was used or where the individual participated in a bioassay program (including whole body or lung count) that was used to determine the individual's internal dose.
PV	Preliminary Value	Indicates that this measurement is an interim estimation and expects to be updated in a subsequent revision and submittal of this dose record. This measurement code should be used when the final dosimetry or bioassay results are not yet available but the submittal is due.
CV	Calculated Value	Indicates the value given was calculated from indirect measurements such as monitoring performed on other workers or determined from a time-motion study or other analysis such as air sample for internal exposures. The value given represents the final results of the calculation, but the value was not measured directly for the monitored individual. A comment record may be provided to explain the reason and method of calculation.
NM	Not Monitored	Dosimetry was not provided and was not required to be provided.
ND	Not Detectable	Monitoring was performed but the results were below the detection limit of the measurement instrumentation.