

U.S. Department: of Energy
Washington, D.C.

ORDER

DOE 5480.15

12-14-87

SUBJECT: DEPARTMENT OF ENERGY LABORATORY ACCREDITATION PROGRAM FOR PERSONNEL
DOSIMETRY

1. PURPOSE. To establish requirements for evaluating Departmental and contractor dosimetry programs.
2. SCOPE. The provisions of this Order apply to all Departmental Elements and contractors performing work for the Department as provided by law and/or contract and as implemented by the appropriate contracting officer.
3. APPLICABILITY. The requirements of this Order apply to all Department of Energy (DOE) Federal activities and contractor activities for which the DOE exercises safety responsibilities defined in DOE Acquisition Regulations 48 CFR 923.70, 48 CFR 970.23, or other contractual provisions where DOE has elected to enforce environment, safety, and health requirements by specific negotiated contract provisions.
4. BACKGROUND.
 - a. The Department of Energy Laboratory Accreditation Program for personnel dosimetry is established to ensure the integrity of dosimetry results. Accreditation is based on the results of a performance testing laboratory evaluation of the dosimeter against established criteria and an onsite assessment of the quality assurance, documentation, and technical adequacy of the system.
 - b. The Department's Accreditation Program is managed through the Office of Nuclear Safety, EH-33, by a designated program administrator who establishes accreditation program procedures, selects a pool of technical experts who may serve as onsite assessors or members of the Oversight or Appeals Boards, and designates the Performance Evaluation Administrator and performance testing laboratories. The Performance Evaluation Administrator is responsible for conducting the performance testing and site assessments. Results of the performance test and the site assessment are submitted by the Performance Evaluation Administrator to the Oversight Board which reviews this documentation and makes recommendations concerning accreditation to the Program Administrator. The Program Administrator reviews the recommendations and makes the final decision regarding accreditation. Should accreditation be denied, appeals are reviewed by the Appeals Board.

DISTRIBUTION:
All Departmental Elements

INITIATED BY:
Assistant Secretary for Environment,
Safety, and Health

5. EXCEPTIONS. The following exceptions apply:

- a. The **Deputy** Assistant Secretary for Naval Reactors is responsible for all personnel **dosimetry** requirements and practices within the Pittsburgh Naval Reactors Office and the Schenectady Naval Reactors Office, including administering and monitoring compliance with such requirements and practices. These responsibilities and actions are excluded from Environment, Safety and Health responsibility and authority as set forth in this Order.
- b. Activities involving contracts (e.g., small university contracts) containing the Radiation Protection and Nuclear Criticality **clause** (48 CFR 952.223-72) may choose to obtain accreditation from either the DOE Laboratory Accreditation Program or the National Voluntary Accreditation Program, administered by the National Bureau of Standards, if the contractor does not perform in-house **dosimetry** and does not routinely report significant doses received by personnel.

6. REFERENCES.

- a. Title 48, Part 952.223-72, which defines contractual clauses related to environment, conservation, and occupational safety.
- b. "Department of Energy Standard for the Performance Testing of Personnel **Dosimetry** Systems" (DOE/EH-0027) which provides the performance testing criteria used to accredit personnel **dosimeters**.
- c. "Handbook for the Department of Energy Laboratory Accreditation Program for Personnel **Dosimetry** Systems" (DOE/EH-0026) which provides operating procedures for the program.
- d. "Quality Assurance Manual: DOE Laboratory Accreditation Program for Personnel **Dosimetry** Systems" (DOE/ID-12105) which applies to the quality assurance program for the performance testing laboratories.

7. DEFINITIONS.

- a. Accreditation. The process of evaluating a program which, through the use of radiation **dosimeters**, measures and records dose equivalents received by radiation workers. The accreditation process consists of performance tests of personnel **dosimeters** and site visits by assessors.
- b. Accredited. The status conferred upon DOE and DOE contractor **dosimetry** programs that have undergone the accreditation process and met or exceeded the applicable criteria of **DOE/EH-0026** and **DOE/EH-0027**. Programs are accredited for a period of 2 years from the date of notification.
- c. Performance Testing Laboratory. A calibration laboratory designated by the DOE Laboratory **Accreditation** Administrator (see paragraph **9b**) to test **dosimeters**.

- d. Personnel Dosimetry Program. A program using personnel **dosimeters** to determine, record, report, and archive the dose equivalents received by personnel.
 - e. Personnel Dosimeter. A device containing one or more radiation-responsive **elements (e.g., film, thermoluminescent, nuclear track detector)** and possibly one or more absorbers. For the purposes of this Order, personnel **dosimeter** means the type of **dosimeter worn** to assess "whole body" dose equivalents. Specifically excluded are **dosimeters** expressly designed for extremities such as **finger ring or wrist dosimeters**.
 - f. Technical Expert. A technically trained individual with professional experience in personnel radiation **dosimetry** (programmatic or research) for a **minimum** of 5 years who may serve as a site assessor or as a member of the Oversight or Appeals Boards. Technical experts are nominated by Managers of Operations Offices and selected by the DOE Laboratory Accreditation Program Administrator.
8. POLICY. DOE shall:
- a. Provide personnel safety protection, including adequate **dosimeters** in the working environment;
 - b. Establish and maintain an accreditation program consistent with the applicable requirements of **DOE/EH-0026** and **DOE/EH-0027**;
 - c. Ensure that DOE and DOE contractor **dosimetry** programs are accredited at 2 year intervals according to **DOE/EH-0026** and **DOE/EH-0027**; and
 - d. Establish and maintain a DOE performance testing capability consistent with **DOE/ID-12105**.
9. RESPONSIBILITIES AND AUTHORITIES.
- a. The Assistant Secretary for Environment, Safety, and Health (EH-1) has overall **responsibility** for the overview and coordination of the DOE Laboratory Accreditation Program and shall, through the **Office** of Nuclear Safety:
 - (1) Establish and communicate the DOE Laboratory Accreditation Program policy to the Heads of Departmental Elements;
 - (2) Review requests and make recommendations for **specific** exceptions to provisions of the Order;
 - (3) Inform appropriate Departmental Elements of findings and planned actions; and
 - (4) Appoint the DOE Laboratory **Accreditation** Administrator.

b. The EH Headquarters designated DOE Laboratory Accreditation Administrator shall:

- (1) Recommend detailed policy, including administration, protocols, and standards.
- (2) Select technical experts from a list of nominees submitted by Managers of Operations Offices.
- (3) Approve recommendations concerning accreditation and communicate results to **dosimetry** program personnel through appropriate field elements.
- (4) Maintain a list of accredited programs.
- (5) Establish DOE Laboratory Accreditation Program procedures.
- (6) Appoint members to the Oversight and Appeals Boards from among the pool of technical experts. Note: A technical expert shall not Serve on the Oversight and Appeals Board at the same time nor be employed in the personnel **dosimetry** program of the organization being reviewed or filing an appeal.
- (7) Designate the DOE Performance Evaluation Administrator.
- (8) Review and evaluate recommendations from the Performance Evaluation Administrator **for** improvements in quality and efficiency of the program.
- (9) Designate the lead and alternative performance testing laboratories which meet the appropriate requirements of **DOE/EH-0026, DOE/EH-0027, and DOE/ID-12105.**

c. Performance Evaluation Administrator designated by the DOE Laboratory Accreditation Administrator shall:

- (1) **Establish site** assessment procedures and administer the performance evaluation process, the lead performance testing laboratory, and site assessments.
- (2) Ensure that all irradiation techniques performed in accordance with appropriate sections of **DOE/EH-0026, DOE/EH-0027, and DOE/ID-12105** are traceable to the National Bureau of Standards and are approved by the DOE Oversight Board.
- (3) Arrange, **if** necessary, for the use of alternative performance testing laboratories that meet the appropriate requirements of **DOE/EH-0026, DOE/EH-0027, and DOE/ID-12105** and that have been approved by the DOE Headquarters Laboratory Accreditation Program Administrator.

- (4) Select **and** train site assessors from the pool of technical experts, coordinate their site visits through cognizant field offices, and **evaluate** their reports.
 - (5) Review and evaluate the results of the **dosimeter** performance test and the site assessment in accordance with **DOE/EH-0026** and **DOE/EH-0027**. Using **this** information, recommend accreditation of **dosimetry** programs **to** the Oversight Board.
 - (6) Recommend changes for improving the quality and efficiency of the program **to** the DOE Laboratory Accreditation Program Administrator.
- d. Heads of Headquarters Elements shall ensure:
- (1) That all DOE elements and contractors under their jurisdiction conducting personnel **dosimetry** programs maintain an accredited **dosimetry** program and are **re-accredited** every 2 years; and
 - (2) **Dosimetry** programs identified as deficient by the DOE Laboratory Accreditation Program are upgraded.
- e. Managers of Operations Offices and Administrators of the Power Marketing Administration shall:
- (1) Ensure **that** personnel **dosimetry** programs under their jurisdiction are initially accredited, and **re-accredited** every 2 years.
 - (2) Communicate information concerning accreditation to their contractors.
 - (3) Ensure that personnel **dosimetry** programs under their jurisdiction select proper OOE Laboratory Accreditation Program irradiation categories.
 - (4) Review applications for accreditation for **dosimetry** programs under their jurisdiction and, after concurring, forward them to the Performance Evaluation Administrator. Applications must be submitted within 6 months of the date of this Order or within 6 months of the inception of a new program. Applications are contained in DOE/EH-0026.
 - (5) Ensure implementation of proposed plans to effect necessary changes in equipment, procedures, and/or personnel.
 - (6) **Request** exceptions to provisions of this Order, pursuant to paragraph 9a i).
- f. The Oversight Board (appointed by the DOE Laboratory Accreditation Program Administrator) shall review:

- (1) Accreditation recommendations made by the Performance Evaluation Administrator and advise the DOE Laboratory Accreditation Program Administrator regarding approval;
 - (2) **Evaluations** of the performance **testing** laboratories for traceability of equipment and standards to the National Bureau of Standards and conformance with operating procedures;
 - (3) **Plans** that mitigate any deficiencies in **dosimetry** programs identified through the DOE Laboratory Accreditation Program; and
 - (4) DOE Laboratory Accreditation Program procedures, and recommend appropriate changes to the DOE Laboratory Accreditation Program Administrator.
- g. The Appeals Board shall review:
- (1) Appeals and recommend to the DOE Laboratory Accreditation Program Administrator the affirmation or reversal of decisions concerning accreditation and selection of site assessors; and
 - (2) The DOE Laboratory Accreditation Program procedures and recommend appropriate changes to the the DOE Laboratory **Accreditation** Program Administrator.
- h. Heads of DOE and DOE Contractor Personnel **Dosimetry** Programs, or their Designated Representatives shall:
- (1) Complete and submit an initial application for a DOE Laboratory Accreditation Program performance evaluation through the Head of the appropriate Field Element who must concur on the application (paragraph **9e(4)**). Applications are contained in **DOE/EH-0026**.
 - (2) Submit **dosimeters** for testing upon request of the Performance Evaluation Program Administrator. Each test requires three separate submissions of **dosimeters** at intervals of approximately one month.
 - (3) Evaluate irradiated **dosimeters** in terms of the units specified by **DOE/EH-0027** and report the values to the Performance Evaluation Program Administrator.
 - (4) Allow site assessors to examine all aspects of the program, including facilities, **equipment, dosimeters**, procedures, notebooks, records, reports, position descriptions, personnel qualifications, and training documentation.
 - (5) Respond in writing within 45 days of receipt of the site assessment report to any recommendations. Responses should be sent **to** the

Performance **Evaluation** Program Administrator, with the concurrence of the Head of the appropriate Field Element. The response **shall** include corrective action (as appropriate) and completion dates.

- (6) Within **60** days, identify and implement plans "to make appropriate changes" in equipment, procedures, and/or personnel to achieve a program capable of receiving accreditation in the event that accreditation is denied. Plans shall have the concurrence of the Head of the appropriate Field Element.
- (7) Apply **and** complete testing procedures and onsite assessment for **re-accreditation** before each **2-year** anniversary of the initial **accreditation**.

BY ORDER **OF** THE **SECRETARY** OF-ENERGY:



LAWRENCE F. DAVENPORT
Assistant Secretary
Management and Administration