

Plan

ICP Radiation Protection Program

**Idaho
Cleanup
Project**

CH2M • WG Idaho, LLC is the Idaho Cleanup Project contractor for the U.S. Department of Energy

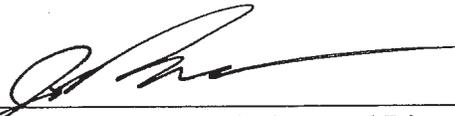
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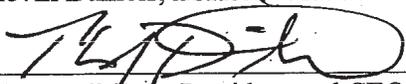
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Executive Summary

This document comprises the Radiation Protection Program for the Idaho Cleanup Project (ICP), which is operated for the DOE by CH2M-WG Idaho, LLC (CWI) under contract with DOE per Contract No. DE-AC07-05ID14516. Occupational Radiation Protection. CWI is fully compliant with the requirements specified in Title 10 Code of Federal Regulations, Part 835 (10 CFR 835), Occupational Radiation Protection including all amendments up to April 13, 2011, which includes the 2011 amendment (76 FR 20489). This revision included a change to the CWI scope for support of Battelle Energy Alliance, LLC (BEA) activities while performing work at a CWI managed facility.

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1. ICP RADIATION PROTECTION PROGRAM POLICY

The purpose of the ICP Radiation Protection Program (RPP) is to implement the requirements of 10 CFR 835. Additionally, the RPP develops and implements the necessary programmatic requirements to ensure that radiological operations are performed in a manner to protect the health and safety of all employees, contractors and the general public. Management commitment to this philosophy is consistent with DOE's Radiological Health and Safety Policy. The RPP shall:

- Ensure that a compliant radiation protection program is established and maintained
- Ensure personnel responsible for performing radiological work are appropriately trained
- Ensure the technical competence of personnel responsible for implementing and overseeing the Radiation Protection Program
- Ensure line management's involvement and accountability for radiological performance
- Ensure that radiological measurements, analyses, worker monitoring results and estimates of public exposures are accurately and appropriately made
- Ensure that radiological operations are conducted in a manner that controls the spread of radioactive materials and reduces the risk to the work force and the general public and that a process is utilized that seeks exposure levels as low as reasonably achievable
- Ensure that the As Low As Reasonably Achievable (ALARA) process is incorporated into facility design and modifications.

2. RADIATION PROTECTION PROGRAM

2.1 Content and Format

The RPP was developed following the guidance provided by DOE G 441.1-1C, Radiation Protection Programs Guide for Use with 10 CFR 835. The RPP addresses each requirement of 10 CFR 835, and is generally based on the functional elements contained in DOE G 441.1-1C, Section 3.3, RPP Functional Elements, as follows: [§835.101(e)]

1. Organization and Administration
2. ALARA
3. External Dosimetry
4. Internal Dosimetry
5. Area Monitoring and Control
 - a. Radiation Monitoring and Control
 - b. Airborne Radioactivity Monitoring and Control
 - c. Contamination Monitoring and Control
 - d. Instrument Calibration and Maintenance

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6. Radiological Controls in the Workplace
 - a. Radiological Work Planning
 - b. Entry and Exit Controls
 - c. Posting and Labeling
 - d. Release of Materials and Equipment
 - e. Sealed Radioactive Source Accountability and Control
 - f. Radioactive Material Transportation and Receipt
7. Emergency Exposure Situations
8. Nuclear Accident Dosimetry
9. Records
10. Reports to Individuals
11. Radiation Safety Training.

The Implementation Matrix for the ICP Radiation Protection Program (LST-404) stipulates how each section of 10 CFR 835 is currently implemented in the RPP and in the ICP Radiological Control Manual (PRD-183).

2.2 Activities

All radiological activities performed by CWI under contract with DOE per Contract No. DE-AC07-05ID14516 will meet the requirements of this RPP, unless the activity is specifically excluded as listed in section 2.4 of this document. [§835.101(a)]

References to the ICP contractor throughout this document refer to the facilities, projects or activities in accordance with CWI's contract with DOE per Contract No. DE-AC07-05ID14516. This RPP applies to all Idaho National Laboratory (INL) facilities where CWI performs work. In addition, this RPP applies to CWI's support of BEA activities at CWI managed facilities. For instance, CWI support of BEA's research of irradiated reactor fuel within Remote Analytical Laboratory (CPP-684).

ICP facilities have the majority of radiological conditions that are encountered in the nuclear industry which include but are not limited to: (1) waste exhumation, packaging, handling, and preparation for shipments, (2) waste processing (treatment), RH-TRU, and Sodium Bearing Waste in the Integrated Waste Treatment Unit, (3) hot cell operations, (4) spent fuel operations, (5) environmental restoration, (6) decontamination and decommissioning (D&D), (7) long term waste storage and disposition, (8) laboratory operations, (9) radiation generating device (RGD) operations, and (10) administrative activities to support this scope of work such as calibration and training activities. Additional work may be performed at other INL facilities managed by other contractors or at offsite facilities but the scope of operations only involve the radiological conditions discussed above and pertain only to ICP site contractor personnel. Any additional work at non-INL or offsite facilities will be formally coordinated with DOE-ID and/or the appropriate authorities (as applicable) before operations start. All activities currently performed by CWI at INL facilities, and any new activities contracted by CWI that are performed at INL facilities, including other contractors performing work at CWI facilities with RPP interface agreements will be performed in accordance with this RPP. [§835.101(d)]

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2.3 General RPP Information

CWI and its subcontractors working at the ICP operate in accordance with PRD-183 and implementing procedures. If CWI contracts a service (i.e., dosimetry, instrument calibration, etc.) the contracted service is performed in accordance with the referenced standards and applicable requirements. [§835.3(b)]

DOE may direct or make modifications to this RPP. No person, including DOE personnel, shall take or cause to be taken, any action inconsistent with the requirements of this RPP, or any program, plan, schedule, or other process established by this RPP. Nothing in this RPP shall be construed as limiting actions necessary to protect the health and safety of personnel. The time period to conduct the activities required by §§835.102, 835.901(e), 835.1202(a) and 835.1202(b), may be extended by a period not to exceed 30 days to accommodate scheduling needs. [§§835.3(a), (d), (e), & 101(b)]

An update of this RPP will be submitted to DOE whenever a change or addition to the RPP is made, within 180 days of the effective date of changes to 10 CFR 835, or prior to the initiation of a task not within the current scope of the RPP. Changes, additions, or updates to this plan may become effective without prior DOE approval only if the changes do not decrease the effectiveness of the RPP and the changed program continues to meet the requirements of 10 CFR 835. [§§835.101(g) & 101(h)]

The initial RPP or an update shall be considered approved 180 days after its submission unless rejected by DOE at an earlier date. [§835.101(i)]

As an integral part of the RPP, CWI has and will continue to develop and implement written procedures as necessary to maintain compliance with the requirements of 10 CFR 835 commensurate with the radiological hazards created by the activity and consistent with the education, training and skills of the individuals exposed to those hazards. [§835.104]

2.4 Exclusions

The requirements of this RPP **do not** apply to activities excluded by 10 CFR 835.1(b) [§835.1(b)]:

1. Activities that are regulated through a license by the Nuclear Regulatory Commission (NRC) or a State under an Agreement with the NRC, including activities certified by the NRC under Section 1701 of the Atomic Energy Act. CWI activities that are regulated by NRC include Three Mile Island and Fort St. Vrain Independent Spent Fuel Storage Installations
2. Activities conducted under the authority of the Deputy Administrator for Naval Reactors, as described in Public L. 98-525 and 106-65
3. Activities conducted under the Nuclear Explosives and Weapons Surety Program relating to the prevention of accidental or unauthorized nuclear detonations
4. DOE activities conducted outside the United States on territory under the jurisdiction of a foreign government to the extent governed by occupational radiation protection requirements agreed to between the United States and the cognizant government
5. Background radiation, radiation doses received as a patient for the purposes of medical diagnosis or therapy, or radiation doses received from participation as a subject in medical research programs

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6. Radioactive material on or within material, equipment, and real property which is approved for release when the radiological conditions of the material, equipment, and real property have been documented to comply with the criteria for release set forth in a DOE authorized limit which has been approved by a Secretarial Officer in consultation with the Chief Health, Safety and Security Officer
7. Radioactive material transportation not performed by DOE or a DOE contractor.

Occupational doses from excluded activities and radioactive material transportation, as listed above in items 1 to 4 and 7, are included to the extent practicable when determining compliance with the occupational dose limits specified in 10 CFR 835.202, 206 and 207. Occupational doses from authorized emergency exposures and planned special exposures are not considered when determining compliance with the occupational dose limits specified in 10 CFR 835.202 and 207. [§835.1(c)]

3. REQUIREMENTS

CWI is currently in compliance with 10 CFR 835 as amended June 8, 2007. Furthermore, CWI is compliant with the latest amendment (76 FR 20489) published April 13, 2011. [§835.101(f)]

No exemptions to the requirements of 10 CFR 835 have been requested in this RPP.

4. RPP FUNCTIONAL ELEMENTS

4.1 Organization and Administration

The Environmental, Safety, Health, and Quality (ESH&Q) organization which is independent of project organizations has the overall authority and responsibility for developing and maintaining the RPP. This authority and responsibility is delegated to the Radiological Control Directorate.

The Radiological Control organization consists of two primary functions: (1) the Radiological Control Directorate and (2) the Radiological Control Operations organization. The Radiological Control Directorate provides services and support to all ICP facilities and the Radiological Control Operations organization provides facility-specific support to ensure proper implementation of the RPP at ICP facilities. Staffing levels are determined and maintained as required by the specific radiation protection needs of ICP facilities.

The Radiological Control Director reports to the Vice President of the ESH&Q organization and provides programmatic/technical direction and oversight for the Radiological Control program. The Radiological Control Director is responsible for setting radiological control policy and for developing and maintaining the resulting implementing procedures. In addition, the Director has the responsibility for planning, administering and maintaining the ICP RPP with support from line management at all levels. The Radiological Control Director, Radiological Control Managers and professional staff have the appropriate education, training and skills to develop and implement measures necessary for ensuring compliance with 10 CFR 835. [§835.103]

Through periodic review, the Radiological Control Director ensures that the RPP functional elements are appropriately implemented and maintained. Internal audits of the ICP RPP are conducted such that over a 36-month period, all functional elements are assessed for program performance, applicability, content, and implementation. CWI performs assessments on the Radiological Control

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program by members of the radiological control organization and through various mechanisms, such as Project Evaluation Board (PEB) assessments, Management Workplace Visits, Executive Safety Review Board (ESRB) reports required by SAR-100, Management Self Assessments (MSA), Contractor Readiness Assessments for startup of operational activities and Quality Assurance assessments. Ultimately, line management organizations at each facility have the overall authority and responsibility for implementing and complying with the RPP and for ensuring that workers are adequately protected from radiological hazards. [§835.102]

4.2 ALARA

The purpose of the ICP ALARA program is to keep radiation exposures within the regulatory limits and ensure that radiation exposures are as low as reasonably achievable, including the reduction and control of radioactive contamination. Adherence to the ALARA program is considered defense in-depth and helps to maintain the highest standards of radiological safety by controlling public and employee radiation exposure within applicable limits and keeping exposures within ALARA guidelines. The ALARA process is an approach to radiological control to reduce and control individual and collective radiation exposures of the work force and the general public. It is implemented through appropriate control of radioactive material, contamination and airborne radioactivity.

The ALARA program takes into account social, technical, economic, practical and public policy considerations in maintaining occupational radiation exposures and radiological releases to levels that are ALARA. The ALARA program requires a technical evaluation of the hazards in radiological work and an integration of the protection requirements to achieve ALARA. The ALARA program is implemented through optimization, considering the benefits arising out of the activity, potential detriments from the activity and possible detriments from not performing the activity.

Management is responsible for promoting ALARA awareness and implementing measures commensurate with the nature of the activities for reducing and keeping occupational exposures ALARA by using the following methods [§§835.101(c), 1001, 1002 & 1003]:

- Allocating the appropriate technical, administrative, and supervisory resources necessary
- Pursuing those activities, concepts, and methods, including cost/benefit analyses when necessary, that result in compliance with ALARA goals and objectives
- Ensuring that preparations for high-radiological consequence work includes ALARA reviews that are performed in accordance with company-level procedures
- Ensuring review of facility design and modifications to ensure the requirements of 10 CFR 835, Subpart K, “Design and Control” are met through engineered and administrative controls
- Occupational exposure information is provided to management for review of the ALARA status of personnel
- Establishing ALARA committees to provide focus and direction for reducing radiation exposures that includes:

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- A senior ICP manager, which is appointed by the senior site executive as the chair of the ICP ALARA Committee. Committee members normally include the chairperson of each project ALARA Committee and the Radiological Control Director and staff
- Appointing an ALARA coordinator to oversee and evaluate efforts and provide technical assistance to identify needed improvements. The ALARA coordinator is appointed by the ICP Radiological Control Director and provides technical support and assistance to the ICP ALARA Committee in implementing the ALARA program
- Establishing and tracking ALARA goals for facilities, projects, and organizations (considering the projected work scope) and for individuals
- Reviewing and concurring on administrative control levels to ensure individual radiation doses are ALARA and below the regulatory limits specified in 10 CFR 835 Subpart C. A process exists that involves the Radiological Control Director and Senior management to authorize individuals to exceed the administrative control level.

4.3 External Dosimetry

The external dosimetry program provides the following: dosimeters and processing, dose determinations, dose record maintenance, and dose reporting. The thermoluminescent dosimetry (TLD) program is accredited by the DOE Laboratory Accreditation Program for Personnel Dosimetry (DOELAP). [§835.402(b)]

The purpose of the external dosimetry program is to monitor the external dose received by individuals and ensure individual doses are maintained within regulatory limits. The program is composed of the following components: [§§835.401(a) & 402(a)]

- The monitoring of the external radiation dose received by radiological workers who are likely to receive an effective dose of 100 mrem or more in a year; an equivalent dose to the skin or to any extremity of 5 rems or more in a year; or an equivalent dose to the lens of the eye of 1.5 rems or more in a year
- Monitoring of declared pregnant workers who are likely to receive an equivalent dose to the embryo/fetus in excess of 50 mrem, from external sources
- Monitoring of minors and members of the general public entering a controlled area likely to receive a dose in excess of 50 mrem
- Monitoring of individuals entering a high or very high radiation area.

The effective dose is determined using the radiation and tissue weighting factor values provided in 10 CFR 835.2. The summing of the effective dose from external exposures and the committed effective dose from intakes during the year will result in the total effective dose during a year. [§835.203]

Non-uniform exposures of the skin from radioactive material are assessed as specified in 10 CFR 835.205. [§835.205]

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4.4 Internal Dosimetry

CWI has established an Internal Dosimetry Program to monitor and determine the quantity of radioactive material taken into the human body and to assess the resultant equivalent dose to tissues and organs as well as the whole body by applying the tissue weighting factor values defined in 10 CFR 835.2. The committed effective dose from intakes during the year is combined with the effective dose from external exposures to determine the total effective dose during a year. The in vivo and in vitro sample analysis programs are accredited by the DOE Laboratory Accreditation Program for Radiobioassay [§§835.203, 401(a) & 402(d)].

The Internal Dosimetry Program is established to monitor individual exposures to internal radiation and is conducted for: [§835.402(c)]

1. Radiological workers who, under typical conditions, are likely to receive a committed effective dose of 100 mrem or more from all occupational radionuclide intakes in a year
2. Declared pregnant workers likely to receive an intake or intakes resulting in an equivalent dose to the embryo/fetus in excess of 50 mrem
3. Occupationally exposed minors who are likely to receive a dose in excess of 50 mrem from all radionuclide intakes in a year
4. Members of the public entering a controlled area likely to receive a dose in excess of 50 mrem from all radionuclide intakes in a year.

The estimation of internal dose is based on bioassay data rather than air concentration values unless bioassay data are: [§835.209(b)]

- a. Unavailable
- b. Inadequate
- c. Internal dose estimates based on air concentration values are demonstrated to be as or more accurate.

4.5 Area Monitoring and Control

4.5.1 Radiation Monitoring and Control

Monitoring in the workplace is routinely performed, as necessary, to: [§835.401(a)]

- Document radiological conditions in the workplace
- Detect changes in radiological conditions
- Detect the gradual buildup of radioactive material in the workplace
- Verify the effectiveness of engineered and administrative controls in containing radioactive material and reducing radiation exposure

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- Identify and control potential sources of individual exposure to radiation and/or radioactive material
- Demonstrate compliance with the requirements of 10 CFR 835.

All occupational doses received during the current year, except for planned special exposures and emergency exposures, are included when demonstrating compliance with 10 CFR 835. Doses from background, therapeutic and diagnostic medical radiation, and participation as a medical research subject, are not included in dose records or in assessment of compliance with the occupational dose limits. Occupational doses received by general employees, with the exception of planned special exposures and emergency exposures, are controlled such that the following limits are not exceeded in a year: [§835.202]

- A total effective dose of 5 rems – CWI has established an administrative control level (ACL) that is evaluated in accordance with site level procedures to ensure the regulatory limit is not exceeded
- The sum of the equivalent dose to the whole body for external exposures and the committed equivalent dose to any organ or tissue, other than the skin or the lens of the eye, of 50 rems
- An equivalent dose to the lens of the eye of 15 rems
- The sum of the equivalent dose to the skin or to any extremity for external exposures and the committed equivalent dose to the skin or to any extremity of 50 rems.

The dose limit for occupationally exposed minors and members of the public is limited to a total effective dose of 0.1 rem in a year. [§835.207 & 208]

Occupational exposure to the declared pregnant worker is controlled such that the embryo/fetus, from period of conception to birth, does not exceed 0.5 rem. Substantial variation above a uniform exposure rate that would satisfy this limit is avoided. If the limit has already been exceeded at the time of declaration, the declared pregnant worker is not assigned any tasks where additional occupational exposure is likely during the remaining gestation period. [§835.206]

4.5.1.1 Planned Special Exposures—Planned special exposures may be authorized, and accounted for separately, for radiological workers to receive doses in addition to the limits specified in 10 CFR 835.202(a) provided: [§835.204]

- Exposure is only considered in an exceptional situation when alternatives are not available
- Exposure is requested in writing
- Joint written approval is received from DOE and the Secretarial Officer responsible for environment, safety and health matters
- All previous doses from planned special exposures and doses in excess of the occupational dose limits are determined
- Planned special exposure added to previous doses, will not result in an individual exceeding the annual dose limit in 10 CFR 835.202(a), and the individual's lifetime dose exceeding five times the dose limits in 10 CFR 835.202(a)

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- Written consent is obtained that explains the purpose of the operation, the estimated doses, associated potential risks, radiological hazards, and ALARA measures to be taken
- Records of the planned special exposure are maintained and a written report submitted to the approving organizations
- Dose from the planned special exposure is not considered in controlling future occupational doses, but is included in required records and reports.

4.5.2 Airborne Radioactivity Monitoring and Control

CWI has implemented an air monitoring program that is designed to monitor the effectiveness of engineered and administrative controls, aid in determining the internal dose to workers and is part of the overall ALARA program. Air samples are taken as necessary to detect and evaluate the level of airborne radioactivity at the work locations. Monitoring of airborne radioactivity is performed where an individual is likely to receive an exposure of 40 or more DAC-hours per year, or as necessary to characterize the airborne radioactivity hazard when respiratory protection is worn. Real-time air monitoring is performed as necessary to detect and provide warning of airborne radioactivity concentrations that warrant immediate action to terminate inhalation of airborne radioactive material. [§§835.401(a) & 403]

Derived air concentration (DAC) values are obtained from 10 CFR 835 Appendices A and C for controlling occupational exposures to airborne radioactive material. [§835.209(a)]

4.5.3 Contamination Monitoring and Control

CWI has implemented a contamination and monitoring program that is designed to prevent movement of radioactive contamination from contamination areas, high contamination areas and airborne radioactivity areas to controlled areas except under specific conditions provided in the rule during normal operations. The program is also designed to monitor personnel, material and equipment leaving these areas. Additionally, the program is designed to monitor and document radiological conditions to demonstrate compliance with 10 CFR 835; detect changes and gradual buildup in radiological conditions; verify the effectiveness of engineered and administrative controls in containing radioactive material; and identify and control potential sources of individual exposure to radioactive material. [§835.401(a)]

Control of radioactive contamination is required to prevent the inadvertent transfer of removable contamination to locations outside of radiological areas under normal operating conditions. Areas exceeding the values in 10 CFR 835 Appendix D are controlled in a manner commensurate with the radiological and chemical hazard, which includes the wearing of protective clothing and monitoring upon exit. Areas accessible to individuals, outside of radiological areas, where the total contamination level exceeds, but the removable contamination level is less than, the values specified in 10 CFR 835 Appendix D, are conspicuously marked to warn individuals of the contamination status, and routinely monitored for removable contamination to ensure the level remains below the specified limit. [§835.1102]

Non-uniform exposures of the skin from radioactive material are assessed as specified in 10 CFR 835.205. [§835.205]

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4.5.4 Instrument Calibration and Maintenance

The instrument calibration and maintenance program ensures fixed and portable radiological control monitoring instruments and equipment are calibrated, maintained, and routinely tested for operability. The program ensures that the instruments used at the ICP are appropriate for existing environmental conditions and the types, levels, and energies of the radiations encountered. [§835.401(b)]

4.6 Radiological Controls in the Workplace

The primary method used to control radiation exposure in the workplace is engineered controls. Engineered controls are augmented with administrative controls that include: (1) Radiation Work Permits (RWPs) and approved work control documents, (2) the use of area entry/exit requirements to control access to and from radiological areas, and (3) radiological postings and barriers. Proposed maintenance and modification plans are reviewed to identify and incorporate radiological control requirements.

All employees have the authority and responsibility to Step Back or Stop Work for any situation believed to be potentially unsafe including work that is noncompliant, or at any time they are uncertain of how to proceed for any reason.

4.6.1 Radiological Work Planning

Work planning is the responsibility of line management. The radiological review requirements are contained in the work control program to plan radiological work. Written authorization (e.g., radiological work permits) is required to control entry into and perform work within radiological areas. These authorizations specify radiation protection measures commensurate with the existing and potential hazards and establish radiological controls for intended work activities, while ensuring the occupational dose limits in 10 CFR 835.202 are not exceeded and doses are maintained ALARA. A formal ALARA review is performed for work that exceeds established planning thresholds and high-radiological consequence work. [§§835.501(d), 1001(b) & 1003]

4.6.2 Entry and Exit Controls

The entry control program is required for each radiological area to ensure that only trained and qualified personnel are allowed to enter and perform work. The degree of control is commensurate with the existing and potential radiological hazards in the area, using one or more of the following methods: signs and barricades; control devices on entrances; conspicuous visual and/or audible alarms; locked entrance ways; or administrative controls. No controls are installed at radiological area exits that would prevent rapid evacuation of personnel under emergency conditions. Radiation safety training, commensurate with the hazards in the area and the required controls, is required before unescorted access to controlled areas is permitted. The primary controls for entry into radiological areas are RWPs, signs, and barricades. The RWP informs employees of area radiological conditions and specifies radiation protection measures for specific work activities. An equivalent administrative mechanism, such as formal written procedures, may be used in lieu of the RWP. [§835.501]

The following measures are implemented for each entry into a high radiation area (i.e., >0.1 rem/hr at 30 cm):

1. The area is monitored as necessary during access to determine the exposure rates to which individuals are exposed

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2. Each individual is monitored by a supplemental dosimetry device or other means capable of providing an immediate estimate of the individual's integrated equivalent dose to the whole body during the entry. [§835.502(a)]

Entry into high radiation areas where an individual can exceed an equivalent dose to the whole body of 1 rem in one hour at 30 centimeters from the source or from any surface that the radiation penetrates (this is defined as a Locked High Radiation Area at the ICP) have one or more of the following physical controls (i.e., >1 rem/hr at 30 cm): [§835.502(b)]

1. A control device that prevents entry to the area when the high radiation levels exist, or upon entry causes the radiation level to be reduced to below the level defining a high radiation area
2. A device that functions automatically to prevent use or operation of the radiation source or field while individuals are in the area
3. A control device that energizes a conspicuous visible or audible alarm signal so that the individual entering the high radiation area and the supervisor of the activity are made aware of the entry
4. Locked entryways, or positive control during access
5. Continuous direct or electronic surveillance that is capable of preventing unauthorized entry
6. A control device that will automatically generate audible and visual alarm signals to alert personnel in the area before use or operation of the radiation source and in sufficient time to permit evacuation of the area or activation of a secondary control device that will prevent use or operation of the source.

In addition to the above, very high radiation areas have additional measures implemented to ensure individuals are not able to gain unauthorized or inadvertent access (i.e., >500 rads/hr at 100 cm). No control is used that would prevent a rapid evacuation of personnel. [§§835.502(c) & 502(d)]

4.6.3 Posting and Labeling

The posting and labeling program ensures radioactive material areas, radiological areas, and items and containers of radioactive material are appropriately posted and/or labeled in accordance with 10 CFR 835 Subpart G. The purpose of the program is to alert personnel regarding the radiological status of the item or area and to prevent any inadvertent entry or dose to the worker. [§§835.601, 602, 603, 605, and 606]

Areas may be excepted from the posting requirements for radiological areas or radioactive material areas for periods of less than 8 continuous hours when placed under continuous observation and control of an individual knowledgeable of, and empowered to implement, required access and exposure control measures. Additionally, a radioactive material area is only required to be posted when radioactive material containers exist outside of radiological areas, are not individually labeled in accordance with 10 CFR 835.605, or when labeled packages received from radioactive material transportation are in a degraded condition. [§835.604]

Items and containers may also be excepted from radioactive material labeling when the quantity of radioactive material is less than one tenth of the values specified in 10 CFR 835 Appendix E, and less than 0.1 Ci. [§835.606(a)]

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4.6.4 Release of Materials and Equipment

Contaminated or potentially contaminated material and equipment are controlled in accordance with 10 CFR 835.1101. Materials and equipment in contamination, high contamination, or airborne radioactivity areas are considered contaminated until surveyed and released. This program ensures that no material or equipment with removable contamination above the values specified in 10 CFR 835 Appendix D are unconditionally released to a controlled area. [§835.1101]

4.6.5 Sealed Radioactive Source Accountability and Control

The sealed radioactive source program ensures that radioactive sealed sources are used, handled, and stored in a manner commensurate with the hazards associated with operations involving the source and sets the accountability requirements for sources. [§§835.1201 & 1202]

4.6.6 Radioactive Material Transportation and Receipt

CWI has established procedures that control the receipt of packages containing radioactive material as defined in 49 CFR 173.403, verifying that the radiation and contamination limits specified in 49 CFR 173.441 and 443 are met. These procedures ensure proper controls of all such packages from the time of receipt and include timing requirements for receipt surveys and interim storage. [§835.405]

The requirements of Subparts F (Entry Control Program) and G (Posting and Labeling) of 10 CFR 835 do not apply when it is under the continuous observation and control of an individual who is knowledgeable of and implements required exposure control measures, or in accordance with Department of Transportation regulations or DOE orders that govern such movements. [§835.1(d)]

Monitoring as required by 10 CFR 835.405(b) is not required for packages transported on a DOE site which have remained under the continuous observation and control of a CWI employee or subcontractor who is knowledgeable of and implements required exposure control measures. [§835.405(e)]

4.7 Emergency Exposure Situations

ICP will ensure the risk to employees involved in rescue and recovery operations will be minimized. ICP management will weigh the actual and potential risks against the benefits to be gained. No employee will be required to perform rescue action that might involve substantial personal risk. Individuals authorized to perform emergency actions that are likely to result in occupational doses exceeding the limits specified in 10 CFR 835.202(a) will be trained as a radiological worker and briefed beforehand on the known or anticipated hazards to which the individual will be subjected. [§835.1302]

An ICP employee who has exceeded dose limits specified by 10 CFR 835.202 due to an authorized emergency exposure may be permitted to return to work in radiological areas provided that approval is obtained by the ICP Radiological Control Director and by the Head of the DOE field office; individual receives counseling regarding the consequences of receiving additional occupational exposure; and the employee agrees to return to radiological work. All doses exceeding the limits specified in 10 CFR 835.202 will be recorded in the employee's occupational dose record. The Head of the DOE field organization will be notified and must approve of commencing operations, that have been suspended due to an employee's dose exceeding the specified limits, when conditions have been eliminated that caused the employee's dose to exceed the limits specified in 10 CFR 835.202. [§835.1301]

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4.8 Nuclear Accident Dosimetry

The nuclear accident dosimetry program includes personal nuclear accident dosimeters and installed nuclear accident dosimeters in areas determined to contain sufficient quantities of fissile material to potentially constitute a critical mass such that excessive exposure of individuals to radiation from a nuclear accident is possible. Programs are in place to collect the required dose information in the event of a criticality and include a method for initial screening of individuals involved in a nuclear accident and analysis of biological materials. [§835.1304]

4.9 Records

CWI generates and maintains radiation protection records sufficient to demonstrate compliance with requirements in accordance with 10 CFR 835 Subpart H. [§§835.701, 702, 703, & 704]

Unless specified otherwise the quantities used in records will indicate special units of curie, rad, roentgen, or rem, or multiples and subdivisions thereof, or conventional units, such as dpm, dpm/100 cm², or mass units. SI units, such as Becquerel (Bq), gray (Gy), and sievert (Sv) may be used parenthetically for reference with scientific standards. [§835.4]

4.10 Reports to Individuals

Reports to individuals are produced and distributed as specified in 10 CFR 835.801. These records include documentation of the radiation doses of individuals and are available as prescribed by the Privacy Act of 1974. At a minimum, exposure reports to individuals are provided under the following conditions: [§835.801]

- Upon request from an individual terminating employment, records of dose are provided to that individual as soon as the data are available, but not later than 90 days after termination
- If requested, a written estimate of radiation dose based on available information at the time of termination is provided
- Annually to individuals monitored during the year
- If requested, detailed exposure information shall be made available to the individual upon request of that individual
- Reports to individuals when ICP is required to report to DOE pursuant to occurrence reporting and processing, or planned special exposures.

4.11 Radiation Safety Training

CWI radiation safety training program ensures the training is commensurate with employees' duties and nature of the activities performed at each facility or project. Radiation safety training is performed to meet the requirements of 10 CFR 835.901, Radiation Safety Training. [§835.901]

DOE standardized core courses are used to the extent practicable and supplement facility/project-specific information.

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10 CFR 835.901, “Radiation Safety Training,” establishes requirements for radiation safety training programs for two categories of individuals: (1) individuals who are permitted unescorted access to controlled areas and who are occupationally exposed to radiation and (2) individuals who are permitted unescorted access to radiological areas and who perform unescorted assignments as radiological workers. These training programs are referred to as General Employee Radiological Training (GERT) and Radiological Worker Training (RWT) (I and II), respectively.

The requirements for RWT and GERT are found in the RCM and other company plans and procedures. Facility line management ensures that all individuals receive appropriate training in radiological controls for their work assignments. All individuals requiring unescorted access to radiological areas receive RWT, which covers facility-specific technical and practical training, and stresses the individual’s responsibilities for safely working with radiation and radioactive materials. The training emphasizes the nature of radiological conditions and control of radiation exposure. [§835.901]

Radiological Control personnel are trained to meet the requirements specified in the RCM. These requirements address the education, training, and skills required of individuals who are responsible for developing and implementing measures necessary for ensuring compliance with 10 CFR 835. This includes RCTs, the RCT foremen, RCT Supervisors, the Radiological Control managers, radiological engineers, and other technical Radiological Control staff. [§835.103]