2022 10 CFR 835 *Occupational Radiation Protection* Triennial Assessment

Criterion

May 23-25, 2022

# Subpart A General Provisions (§835.1-835.4)

N/A

# Subpart B Management and Administrative Requirements (§835.101-835.104)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| 101 Radiation protection programs.  (a) A DOE activity shall be conducted in compliance with a documented radiation protection program (RPP) as approved by the DOE. |  |  |  |
| 101 Radiation protection programs.  (d) The RPP shall specify the existing and/or anticipated operational tasks that are intended to be within the scope of the RPP. |  |  |  |
| 101 Radiation protection programs.  (f) The RPP shall include plans, schedules, and other measures for achieving compliance with regulations of this part. |  |  |  |
| Written procedures shall be developed and implemented as necessary to ensure compliance with this part, commensurate with the radiological hazards created by the activity and consistent with the education, training, and skills of the individuals exposed to those hazards. |  |  |  |

# Subpart C Standards for Internal and External Exposure (§835.201-835.209)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| The equivalent dose limit for the embryo/fetus from the period of conception to birth, as a result of occupational exposure of a declared pregnant worker, is 0.5 rem (0.005 Sv). |  |  |  |
| If the equivalent dose to the embryo/fetus is determined to have already exceeded 0.5 rem (0.005 Sv) by the time a worker declares her pregnancy, the declared pregnant worker shall not be assigned to tasks where additional occupational exposure is likely during the remaining gestation period. |  |  |  |
| The derived air concentration (DAC) values given in appendices A and C of this part shall be used in the control of occupational exposures to airborne radioactive material. |  |  |  |
| Real-time air monitoring shall be performed as necessary to detect and provide warning of airborne radioactivity concentrations that warrant immediate action to terminate inhalation of airborne radioactive material. |  |  |  |

# Subpart D [reserved]

N/A

# Subpart E Monitoring of Individuals and Areas (§835.401-835.405)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| Monitoring of individuals and areas shall be performed to:  (1) Demonstrate compliance with the regulations in this part; |  |  |  |
| Monitoring of individuals and areas shall be performed to:  (2) Document radiological conditions; |  |  |  |
| Monitoring of individuals and areas shall be performed to:  (3) Detect changes in radiological conditions; |  |  |  |
| Monitoring of individuals and areas shall be performed to:  (4) Detect the gradual buildup of radioactive material; |  |  |  |
| Monitoring of individuals and areas shall be performed to:  (5) Verify the effectiveness of engineered and administrative controls in containing radioactive material and reducing radiation exposure." |  |  |  |
| Monitoring of individuals and areas shall be performed to:  (6) Identify and control potential sources of individual exposure to radiation and/or radioactive material. |  |  |  |
| Instruments and equipment used for monitoring shall be:  (1) Periodically maintained and calibrated on an established frequency; |  |  |  |
| Instruments and equipment used for monitoring shall be:  (2) Appropriate for the type(s), levels, and energies of the radiation(s) encountered; |  |  |  |
| For the purpose of monitoring individual exposures to external radiation, personnel dosimeters shall be provided to and used by:  (1) Radiological workers who, under typical conditions, are likely to receive one or more of the following:  (i) An effective dose of 0.1 rem (0.001 Sv) or more in a year; |  |  |  |
| For the purpose of monitoring individual exposures to internal radiation, internal dosimetry programs (including routine bioassay programs) shall be conducted for:  (1) Radiological workers who, under typical conditions, are likely to receive a committed effective dose of 0.1 rem (0.001 Sv) or more from all occupational radionuclide intakes in a year; |  |  |  |
| For the purpose of monitoring individual exposures to internal radiation, internal dosimetry programs (including routine bioassay programs) shall be conducted for:  (2) Declared pregnant workers likely to receive an intake or intakes resulting in an equivalent dose to the embryo/fetus in excess of 10 percent of the limit stated at §835.206(a); |  |  |  |

# Subpart F Entry Control Program (§835.501-835.502)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| Personnel entry control shall be maintained for each radiological area. |  |  |  |
| The degree of control shall be commensurate with existing and potential radiological hazards within the area. |  |  |  |
| The following measures shall be implemented for each entry into a high radiation area: (1) The area shall be monitored as necessary during access to determine the exposure rates to which the individuals are exposed; |  |  |  |

# Subpart G Posting and Labeling (§835.601-835.606)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| Signs required by this subpart shall be clearly and conspicuously posted and may include radiological protection instructions. |  |  |  |
| Each access point to radiological areas and radioactive material areas (as defined at §835.2) shall be posted with conspicuous signs bearing the wording provided in this section. |  |  |  |
| Except as provided in §835.606, each item or container of radioactive material shall bear a durable, clearly visible label bearing the standard radiation warning trefoil and the words” Caution, Radioactive Material" or "Danger, Radioactive Material." |  |  |  |

# Subpart H Records (§835.701-835.704)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| Records shall be maintained to document compliance with this part and with radiation protection programs required by §835.101 [Radiation protection programs]. |  |  |  |
| The following information shall be documented and maintained:  (a) Results of monitoring for radiation and radioactive material as required by Subpart E [Monitoring of Individuals and Areas] and Subpart L [Radioactive Contamination Control] of this part, except for monitoring required by §835.1102(d); |  |  |  |

# Subpart I Reports to Individuals (§835.801)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| Radiation exposure data for individuals monitored in accordance with §835.402 shall be reported as specified in this section. |  |  |  |

# Subpart J Radiation Safety Training (§835.901-903)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| Radiation safety training.  (a) Each individual shall complete radiation safety training on the topics established at §835.901(c) commensurate with the hazards in the area and the required controls:  (1) Before being permitted unescorted access to controlled areas; and  (2) Before receiving occupational dose during access to controlled areas at a DOE site or facility. |  |  |  |
| Radiation safety training.  (b) Each individual shall demonstrate knowledge of the radiation safety training  topics established at §835.901(c), commensurate with the hazards in the area and required controls, by successful completion of an examination and performance demonstrations:  (1) Before being permitted unescorted access to radiological areas; and  (2) Before performing unescorted assignments as a radiological worker. |  |  |  |

# Subpart K Design and Control (§835.1001-835.1003)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| 1001 Design and control.  (a) Measures shall be taken to maintain radiation exposure in controlled areas ALARA through engineered and administrative controls. |  |  |  |
| Workplace Controls.  During routine operations, the combination of engineered and administrative controls shall provide that:  (a) The anticipated occupational dose to general employees shall not exceed the limits established at §835.202; and |  |  |  |
| During routine operations, the combination of engineered and administrative controls shall provide that:  (b) The ALARA process is utilized for personnel exposures to ionizing radiation. |  |  |  |

# Subpart L Radioactive Contamination Control (§835.1101-835.1102)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| Control of material and equipment.  (a) Except as provided in paragraphs (b) and (c) of this section, material and equipment in contamination areas, high contamination areas, and airborne radioactivity areas shall not be released to a controlled area if:  (1) Removable surface contamination levels on accessible surfaces exceed the removable surface contamination values specified in appendix D of this part; or |  |  |  |
| Control of material and equipment.  (b) Material and equipment exceeding the removable surface contamination values specified in appendix D of this part may be conditionally released for movement on-site from one radiological area for immediate placement in another radiological area only if appropriate monitoring is performed and appropriate controls for the movement are established and exercised. |  |  |  |
| Control of areas.  (a) Appropriate controls shall be maintained and verified which prevent the inadvertent transfer of removable contamination to locations outside of radiological areas under normal operating conditions. |  |  |  |
| Control of areas.  (b) Any area in which contamination levels exceed the values specified in appendix D of this part shall be controlled in a manner commensurate with the physical and chemical characteristics of the contaminant, the radionuclides present, and the fixed and removable surface contamination levels. |  |  |  |
| Control of areas.  (d) Individuals exiting contamination, high contamination, or airborne radioactivity areas shall be monitored, as appropriate, for the presence of surface contamination. |  |  |  |
| Control of areas.  (e) Protective clothing shall be required for entry to areas in which removable contamination exists at levels exceeding the removable surface contamination values specified in appendix D of this part. |  |  |  |

# Subpart M Sealed Radioactive Source Control (§835.1201-835.1202)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| Sealed radioactive source control.  Sealed radioactive sources shall be used, handled, and stored in a manner commensurate with the hazards associated with operations involving the sources. |  |  |  |
| Accountable sealed radioactive sources.  (b) [continued] Source leak tests shall be capable of detecting radioactive material leakage equal to or exceeding 0.005 μCi. |  |  |  |

# Subpart N Emergency Exposure Situations (§835.1301-835.1304)

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| Performance Criteria | Discussion/Objective Evidence | Meets Criteria? | |
| **Yes** | **No** |
| General provisions.  (a) A general employee whose occupational dose has exceeded the numerical value of any of the limits specified in §835.202 as a result of an authorized emergency exposure may be permitted to return to work in radiological areas during the current year providing that all of the following conditions are met:  (1) Approval is first obtained from the contractor management and the Head of the responsible DOE field organization; |  |  |  |
| Nuclear accident dosimetry.  (a) Installations possessing sufficient quantities of fissile material to potentially constitute a critical mass, such that the excessive exposure of individuals to radiation from a nuclear accident is possible, shall provide nuclear accident dosimetry for those individuals.  <Verify as N/A for Fermilab> |  |  |  |