DOE PRINCETON PLASMA PHYSICS LABORATORY

RADIATION PROTECTION PROGRAM

ORIGINAL SIGNED 12/19/07

George Ascione **Date**

ORIGINAL SIGNED 12/19/07

Jerry Levine **Date**

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Article	10 CFR 835 Requirements	Implementation Commitment & Supporting Documentation	Status
Subpart A	**General Provisions**		
835.1	***Scope***		
835.1 a	General: The rules in this part establish radiation protection standards, limits, and program requirements for protecting individuals from ionizing radiation resulting from the conduct of DOE activities	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1	I
835.1 b	Exclusions. The requirements in this part do not apply to:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1	I
835.1 b1	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 i701 of the Atomic Energy Act.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1	I
835.1 b2	Activities conducted under the authority of the Deputy Administrator for Naval Reactors, as described in Pub. L. 98-525 and 106-65	N/A at PPPL	N/A
835.1 b3	Activities conducted under the authority of the Director, Naval Nuclear Propulsion Program, as described in Pub. L. 98-525	N/A at PPPL	N/A
835.1 b4	DOE activities conducted outside the US on territory under jurisdiction of a foreign government to the extent governed by occupational radiation protection requirements agreed to between the US and cognizant government	Implement as written in 10CFR835	I
835.1 b5	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	Implement as written in 10CFR835	I
835.1 b6	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 DOE authorized limit which has been approved by a Secretarial Officer in consultation with the Chief Health, Safety and Security Officer.	Implement as written in 10CFR835	I
835.1 b7	Radioactive material transportation not performed by DOE or a DOE Contractor.	Implement as written in 10CFR835	I
835.1 c	Occupational doses received as a result of excluded activities and radioactive material transportation, listed in paragraphs (b)(1) through (b)(4) and (b)(7) of this section, shall be included to the extent practicable when determining compliance with the occupational dose limits at §§ 835.202 and 835.207, and with the limits for the embryo/fetus at § 835.206. Occupational doses resulting from authorized emergency exposures and planned special exposures shall not be considered when determining compliance with the dose limits at §§ 835.202 and 835.207.	Implement as written in 10CFR835	I
835.1 d	The requirements in subparts F and G of this part do not apply to radioactive material transportation by DOE or a DOE contractor conducted:		
835.1 d1	Under the continuous observation and control of an individual who is knowledgeable of and implements required exposure control measures, or	Implemented as written, HP-OP-24, HP-OP-10, HP-OP-23	I
835.1 d2	In accordance with Department of Transportation regulations or DOE orders that govern such movements.	Implemented as written, HP-OP-24, HP-OP-10, HP-OP-23	I

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835.2	***Definitions***	***Definitions in 10CFR835 accepted.***	***I***
835.3	***General Rule***		
835.3 a	No person or DOE personnel shall take or cause to be taken any action inconsistent with the requirement of:	Implement as written in 10CFR835	I
835.3 a1	This part; or	Implement as written in 10CFR835	I
835.3 a2	Any program, plan, schedule, or other process established by this part	Implement as written in 10CFR835	I
835.3 b	With respect to a particular DOE activity, contractor management shall be responsible for compliance with the requirements of this part	Implement as written in 10CFR835	I
835.3 c	Where there is no contractor for a DOE activity, DOE shall ensure implementation of and compliance with the requirements of this part.	Implement as written in 10CFR835	I
835.3 d	Nothing in this part shall be construed as limiting actions that may be necessary to protect health and safety.	Implement as written in 10CFR835	I
835.3 e	For those activities that are required by 835.102, 835.901(e), 835.1202(a),and 835.1202(b), the time interval to conduct these activities may be extended….	Implement as written in 10CFR835	I
835.4	***Radiological Units***		
835.4	Unless otherwise specified, the quantities used in the records required by this part shall be clearly indicated in special units of curie, rad, roentgen, or rem, including multiples and subdivisions of these units, or other conventional units, such as, dpm, dpm/100 cm2 or mass units. The SI units, becquerel (Bq), gray (Gy), and sievert (Sv), may be provided parenthetically for reference with scientific standards.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.3	I
Subpart B	***Management and Administrative Requirements***		
835.101	***Radiation Protection Programs***		
835.101 a	A DOE activity shall be conducted in compliance with a documented radiation protection program (RPP) as approved by the DOE.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1	I
835.101 b	The DOE may direct or make modifications to a RPP	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1	I
835.101 c 1	The content of each RPP shall be commensurate with the nature of the activities.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1	I
835.101 c 2	Shall include forms, plans and measures for applying the as low as reasonably achievable (ALARA) process to occupational exposure.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
835.101 d	The RPP shall specify the existing and/or anticipated operational tasks that are intended to be within the scope of the RPP	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
	Except as provided in Sec. 835.101(i), any task outside the scope of a RPP shall not be initiated until an update of the RPP is approved by DOE	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
835.101 e	The content of the RPP shall address, but shall not necessarily be limited to, each requirement in this part	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I

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835.101 f	The RPP shall include plans, schedules, and other measures for achieving compliance with regulations of this part. Unless otherwise specified in this part, compliance with the amendments to this part published on June 8, 2007 shall be achieved no later than July 8, 2010.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
835.101 h	An update of the RPP shall be submitted to DOE	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
835.101 h 1	Whenever a change or an addition to the RPP is made	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
835.101 h 2	Prior to the initiation of a task not within the scope of the RPP	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
835.101 h 3	Within 180 days of the effective date of any modifications to this part	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
835.101 I	Changes, additions, or updates to the RPP may become effective without prior Department approval only if the changes do not decrease the effectiveness of the RPP and the RPP as changed, continues to meet the requirements of this part	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
	Proposed changes that decrease the effectiveness of the RPP shall not be implemented without submittal to an approval by the Department	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
835.101 j	An initial RPP or an update shall be considered approved 180 days after its submission unless rejected by DOE at an earlier date.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
835.102	***Internal Audits***		
835.102	Internal audits of all functional elements of the radiation protection program shall be conducted no less frequently than every 3 years and shall include program content and implementation.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10 and Procedure QA-002	I
835.103	Individuals responsible for developing and implementing measures necessary for ensuring compliance with the requirements of this part shall have the appropriate education, training, and skills to discharge these responsibilities.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10 and Procedure QA-002	I
835.104	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	Implement as written in 10CFR835; Reference ESHD 5008, Section 10 and Procedure QA-002	I
Subpart C	***Standards for Internal and External Exposure***		
835.201	***Reserved***		
835.202 a	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 (0.5 Sv);	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-01	I
835.202 a 1	A total effective dose of 5 rems (0.05 Sv);	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-01	I

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835.202 a 2	The sum of the deep dose equivalent for external exposures and the committed dose equivalent to any organ or tissue other than the lens of the eye of 50 rems (0.5 sievert)	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-01	I
835.202 a 3	An equivalent dose to the lens of the eye of 15 rems (0.15 Sv)	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-01	I
835.202 a 4	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 (0.5 Sv).	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-01	I
835.202 b	All occupational doses received during the current year, except doses resulting from planned special exposures conducted in compliance with 835.204 and emergency exposures authorized in accordance with 835.1302 shall be included within demonstrating compliance with 835.202 a and 835.207	Implement as written in 10CFR835; Reference ESHD 5008, Section 10 and Procedures HP-DOS-01, HP-OP-188	I
835.202 c	Doses from background, therapeutic and diagnostic medical radiation , and participation as a subject in medical research programs shall not be included in dose records or in the assessment of compliance with the occupation does limits.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10 and Procedures HP-DOS-01, HP-OP-188	I
835.203	***Combining internal and external dose equivalents resulting from DOE activities.***		
835.203 a	The total effective dose during a year shall be determined by summing the effective dose from external exposures and the committed effective dose from intakes during the year.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.203 and Procedures HP-DOS-01, HP-OP-188	I
835.203 b	Determinations of the effective dose shall be made using the radiation and tissue weighting factor values provided in § 835.2.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.203 and Procedures HP-DOS-01, HP-OP-188	I
835.204	***Planned Special Exposures***		
835.204 a	A planned special exposure may be authorized for a radiological worker to receive doses in addition to and accounted for separately from the doses received under the limits specified in Sec. 835.202(a), provided that each of the following conditions is satisfied.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 a 1	The planned special exposure is considered only in an exceptional situation when alternatives that might prevent a radiological worker from exceeding the limits in Sec. 835.202(a) are unavailable or impractical;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 a 2	The contractor management (and employer, if the employer is not the contractor) specifically requests the planned special exposure, in writing;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 a 3	Joint written approval is received from the appropriate DOE Headquarters program office and the Secretarial Officer responsible for environment, safety and health matters.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 b	Prior to requesting an individual to participate in an authorized planned special exposure, the individual's dose from all previous planned special exposures and all doses in excess of the occupational dose limits shall be determined.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I

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835.204 c	An individual shall not receive a planned special exposure that, in addition to the doses determined in Sec. 835.204(b), would result in a dose exceeding the following;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 c 1	In a year, the numerical values of the dose limits established at Sec. 835.202(a);	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 c 2	Over the individual's lifetime, five times the numerical values of the dose limits established at Sec. 835.202(a).	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 d	Prior to a planned special exposure, written consent shall be obtained from each individual involved. Each such written consent shall include:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 d 1	The purpose of the planned operations and procedures to be used;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 d 2	The estimated doses and associated potential risks and specific radiological conditions and other hazards which might be involved in performing the task;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 d 3	Instructions on the measures to be taken to keep the dose ALARA considering other risks that may be present.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 e	Records of the conduct of a planned special exposure shall be maintained and a written report submitted within 30 days after the planned special exposure to the approving organizations identified in Sec. 835.204(a)(3).	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.204 f	The dose from planned special exposures is not to be considered in controlling future occupational dose of the individual under Sec. 835.202(a), but is to be included in records and reports required under this part.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.204	I
835.205	***Determination of compliance for non-uniform exposure of the skin***		
835.205 a	Non-uniform exposures of the skin from X-rays, beta radiation, and/or radioactive material on the skin are to be assessed as specified in this section.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.205 and Procedure HP-DOS-01	I
835.205 b	For purposes of demonstrating compliance with Sec. 835.202(a)(4), assessments shall be conducted as follows;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.205 and Procedure HP-DOS-01	I
835.205 b 1	Area of skin irradiated is 100 cm2 or more. The non-uniform equivalent dose received during the year shall be averaged over the 100 cm2 of the skin receiving the maximum dose, added to any uniform equivalent dose also received by the skin, and recorded as the equivalent dose to any extremity or skin for the year.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.205 and Procedure HP-DOS-01	I
835.205 b 2	Area of skin irradiated is 10 cm2 or more, but is less than 100 cm2. The non-uniform equivalent dose (H) to the irradiated area received during the year shall be added to any uniform equivalent dose also received by the skin and recorded as the equivalent dose to any extremity or skin for the year. H is the equivalent dose averaged over the 1 cm2 of skin receiving the maximum absorbed dose, D, reduced by the fraction f, which is the irradiated area in cm2 divided by 100 cm2 (i.e., H = fD). In no case shall a value of f less than 0.1 be used.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.205 and Procedure HP-DOS-01	I

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835.205 b 3	Area of skin irradiated is less than 10 cm2. The non-uniform equivalent dose shall be averaged over the 1 cm2 of skin receiving the maximum dose. This equivalent dose shall:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.205 and Procedure HP-DOS-01	I
835.205 b 3 I	Be recorded in the individual's occupational exposure history as a special entry;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.205 and Procedure HP-DOS-01	I
835.205 b 3 II	Not be added to any other shallow dose equivalent to any extremity or skin recorded as the dose equivalent for the year.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.205 and Procedure HP-DOS-01	I
835.206	***Limits For embryo/fetus***		
835.206 a	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).	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.206 and Procedure HP-DOS-01	I
835.206 b	Substantial variation above a uniform exposure rate that would satisfy the limits provided in Sec. 835.206(a) shall be avoided.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.206 and Procedure HP-DOS-01	I
835.206 c	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.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.206 and Procedure HP-DOS-01	I
835.207	***Occupational Dose Limits For Minors***		
835.207	The dose limits for minors occupationally exposed to radiation and/or radioactive materials at a DOE activity are 0.1 rem (0.001 Sv) total effective dose in a year and 10 percent of the occupational dose limits specified at § 835.202(a)(3) and (a)(4).	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.207 and Procedure HP-DOS-01	i
835.208	***Limits for members of the public entering controlled areas***		
835.208	The total effective dose limit for members of the public exposed to radiation and/or radioactive material during access to a controlled area is 0.1 rem (0.001 Sv) in a year.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.208 and Procedure HP-DOS-01	I
835.209	***Concentrations of radioactive material in the air***		
835.209 a	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.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.209 and Procedure HP-OP-188	I
835.209 b	The estimation of internal dose shall be based on bioassay data rather than air concentration values unless bioassay data are:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.209 and Procedures HP-DOS-06, HP-OP-188	I
835.209 b 1	Unavailable;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.209 and Procedure HP-OP-188	I
835.209 b 2	Inadequate; or	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.209 and Procedure HP-OP-188	I
835.209 b 3	Internal dose estimates based on air concentration values are demonstrated to be as or more accurate	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.209 and Procedure HP-OP-188	I
Subpart D	***Reserved***		

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Subpart E	***monitoring of Individuals and Areas***		
835.401	***General Requirements***		
835.401 a 1	Monitoring of individuals and areas shall be performed to:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402	I
835.401 a 1	Demonstrate compliance with the regulations in this part;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402	I
835.401 a 2	Document radiological conditions;	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.403, 10.404, and Procedures HP-OP-04, HP-OP-09	I
835.401 a 3	Detect changes in radiological conditions;	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.403, 10.404, and Procedure HP-OP-05	I
835.401 a 4	Detect the gradual buildup of radioactive material;	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.403, 10.404, and Procedure HP-OP-49	I
835.401 a 5	Verify the effectiveness of engineered and administrative controls in containing radioactive material and reducing radiation exposure;	Implement as written in 10CFR835; Reference PPPL's Radiological ALARA Plan	I
835.401 a 6	Identify and control potential sources of individual exposure to radiation and/or radioactive material.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1400 and Procedure HP-OP-02	I
835.401 b	Instruments and equipment used for monitoring shall be:	Implement as written in 10CFR835; Reference PPPL's RPP	I
835.401 b 1	Periodically maintained and calibrated on an established frequency;	Implement as written in 10CFR835; Reference PPPL's RPP	I
835.401 b 2	Appropriate for the type(s), levels, and energies of the radiation(s) encountered;	Implement as written in 10CFR835; Reference PPPL's RPP	I
835.401 b 3	Appropriate for existing environmental conditions; and	Implement as written in 10CFR835; Reference PPPL's RPP	I
835.401 b 4	Routinely tested for operability	Implement as written in 10CFR835; Reference PPPL's RPP	I
835.402	***Individual Monitoring***		
835.402 a	For the purpose of monitoring individual exposures to external radiation, personnel dosimeters shall be provided to and used by:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-02	I
835.402 a 1	Radiological workers who, under typical conditions, are likely to receive one or more of the following:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-02	I
835.402 a 1 I	An effective dose of 0.1 rem (0.001 Sv) or more in a year;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-02	I
835.402 a 1 ii	An equivalent dose to the skin or to any extremity of 5 rems (0.05 Sv) or more in a year;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-02	I
835.402 a 1 iii	An equivalent dose to the lens of the eye of 1.5 rems (0.015 Sv) or more in a year;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-02	I

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835.402 a 2	Declared pregnant workers who are likely to receive from external sources an equivalent dose to the embryo/fetus in excess of 10 percent of the applicable limit at § 835.206(a);	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-02	I
835.402 a 3	Occupationally exposed minors likely to receive a dose in excess of 50 percent of the applicable limits at Sec. 835.207 in a year from external sources;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-02	I
835.402 a 4	Members of the public entering a controlled area likely to receive a dose in excess of 50 percent of the limit at Sec. 835.208 in a year from external sources; and	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-02	I
835.402 a 5	Individuals entering a high or very high radiation area.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-DOS-02	I
835.402 b	External dose monitoring programs implemented to demonstrate compliance with Sec. 835.402(a) shall be adequate to demonstrate compliance with the dose limits established in subpart C of this part and shall be:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedures HP-OP-188, HP-DOS-09	I
835.402 b 1	Accredited, or excepted from accreditation, in accordance with the DOE Laboratory Accreditation Program for Personnel Dosimetry; or	Implement as written in 10CFR835; Exception from DOELAP accreditation was granted by DOE on 8/3/05; NVLAP accredited processor is used.	I
835.402 b 2	Determined by the Secretarial Officer responsible for environment, safety and health matters to have performance substantially equivalent to that of programs accredited under the DOE Laboratory Accreditation Program for Personnel Dosimetry.	Implement as written in 10CFR835; Exception from DOELAP accreditation was granted by DOE on 8/3/05; NVLAP accredited processor is used.	I
835.402 c	For the purpose of monitoring individual exposures to internal radiation, internal dosimetry programs (including routine bioassay programs) shall be conducted for:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-06	I
835.402 c 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;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-06	I
835.402 c 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);	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-06	I
835.402 c 3	Occupationally exposed minors who are likely to receive a dose in excess of 50 percent of the applicable limit stated at Sec. 835.207 from all radionuclide intakes in a year; or	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-06	I
835.402 c 4	Members of the public entering a controlled area likely to receive a dose in excess of 50 percent of the limit stated at Sec. 835.208 from all radionuclide intakes in a year.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.402 and Procedure HP-DOS-06	I
835.402 d	Internal dose monitoring programs implemented to demonstrate compliance with Sec. 835.402(c) shall be adequate to demonstrate compliance with the dose limits established in subpart C of this part and shall be:	N/A at PPPL	N/A

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Article	10 CFR 835 Requirements	Implementation Commitment & Supporting Documentation	Status
835.402 d 1	Accredited, or excepted from accreditation, in accordance with the DOE Laboratory Accreditation Program for Radiobioassay; or,	N/A at PPPL	N/A
835.402 d 2	Determined by the Secretarial Officer responsible for environment, safety and health matters to have performance substantially equivalent to that of programs accredited under the DOE Laboratory Accreditation Program for Radiobioassay.	N/A at PPPL	N/A
835.403	***Air Monitoring***		
835.403 a	Monitoring of airborne radioactivity shall be performed:	Implement as written in 10CFR835; Reference Procedure HP-OP-06	i
835.403 a 1	Where an individual is likely to receive an exposure of 40 or more DAC-hours in a year; or	Implement as written in 10CFR835; Reference Procedure HP-OP-06	i
835.403 a 2	As necessary to characterize the airborne radioactivity hazard where respiratory protective devices for protection against airborne radionuclides have been prescribed.	Implement as written in 10CFR835; Reference Procedure HP-OP-06	i
835.403 b	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	Implement as written in 10CFR835; Reference Procedures HP-OP-40, HP-OP-188	i
835.405	***Receipt of packages containing radioactive material***		
835.405 a	If packages containing quantities of radioactive material in excess of a Type A quantity (as defined at 10 CFR 71.4) are expected to be received from radioactive material transportation, arrangements shall be made to either:	Implement as written in 10CFR835; Reference Procedures HP-OP-03, HP-OP-04, HP-OP-05	I
835.405 a 1	Take possession of the package when the carrier offers it for delivery; or	Implement as written in 10CFR835; Reference Procedures HP-OP-03, HP-OP-04, HP-OP-05	I
835.405 a 2	Receive notification as soon as practicable after arrival of the package at the carrier's terminal and to take possession of the package expeditiously after receiving such notification.	Implement as written in 10CFR835; Reference Procedures HP-OP-03, HP-OP-04, HP-OP-05	I
835.405 b	Upon receipt from radioactive material transportation, external surfaces of packages known to contain radioactive material shall be monitored if the package:	Implement as written in 10CFR835; Reference Procedure HP-OP-03	I
835.405 b 1	Is labeled with a Radioactive White I, Yellow II, or Yellow III label (as specified at 49 CFR 172.403 and 172.436-440); or	Implement as written in 10CFR835; Reference Procedure HP-OP-03	I
835.405 b 2	Has been transported as low specific activity material (as defined at 10 CFR 71.4) on an exclusive use vehicle (as defined at 10 CFR 71.4); or	Implement as written in 10CFR835; Reference Procedure HP-OP-03	I
835.405 b 3	Has evidence of degradation, such as packages that are crushed, wet, or damaged.	Implement as written in 10CFR835; Reference Procedure HP-OP-03	I
835.405 c	The monitoring required by paragraph (b) of this section shall include:	Implement as written in 10CFR835; Reference Procedure HP-OP-03	I
835.405 c 1	Measurements of removable contamination levels, unless the package contains only special form (as defined at 10 CFR 71.4) or gaseous radioactive material; and	Implement as written in 10CFR835; Reference Procedure HP-OP-03	I

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Article	10 CFR 835 Requirements	Implementation Commitment & Supporting Documentation	Status
835.405 c 2	Measurements of the radiation levels, if the package contains a Type B quantity (as defined at 10 CFR 71.4) of radioactive material.	Implement as written in 10CFR835; Reference Procedure HP-OP-03	I
835.405 d	The monitoring required by paragraph (b) of this section shall be completed as soon as practicable following receipt of the package, but not later than 8 hours after the beginning of the working day following receipt of the package	Implement as written in 10CFR835; Reference Procedure HP-OP-03	I
835.405 e	Monitoring pursuant to § 835.405(b) is not required for packages transported on a DOE site which have remained under the continuous observation and control of a DOE employee or DOE contractor employee who is knowledgeable of and implements required exposure control measures.	Implement as written in 10CFR835; Reference Procedure HP-OP-03	I
835.501	***Radiological Areas***		
835.501 a	Personnel entry control shall be maintained for each radiological area.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedure HP-OP-08	I
835.501 b	The degree of control shall be commensurate with existing and potential radiological hazards within the area.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedure HP-OP-08	I
835.501 c	One or more of the following methods shall be used to ensure control:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedure HP-OP-07	I
835.501 c 1	Signs and barricades;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedure HP-OP-07	I
835.501 c 2	Control devices on entrances;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedure HP-OP-07	I
835.501 c 3	Conspicuous visual and/or audible alarms;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedure HP-OP-07	I
835.501 c 4	Locked entrance ways; or	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedure HP-OP-07	I
835.501 c 5	Administrative controls.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedure HP-OP-07	I
835.501 d	Written authorizations shall be required to control entry into and perform work within radiological areas. These authorizations shall specify radiation protection measures commensurate with the existing and potential hazards.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedure HP-OP-07	I
835.501 e	No control(s) shall be installed at any radiological area exit that would prevent rapid evacuation of personnel under emergency conditions.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501	I
835.502	***High and Very High Radiation Areas***		
835.502 a	The following measures shall be implemented for each entry into a high radiation area:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-OP-08	I
835.502 a 1	The area shall be monitored as necessary during access to determine the exposure rates to which the individuals are exposed; and	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-OP-07	I
835.502 a 2	Each individual shall be 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.	N/A at PPPL	N/A

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Article	10 CFR 835 Requirements	Implementation Commitment & Supporting Documentation	Status
835.502 b	Physical controls. One or more of the following controls shall be used for each entrance or access point to a high radiation area where radiation levels exist such that an individual could exceed an equivalent dose to the whole body of 1 rem (0.01 Sv) in any one hour at 30 centimeters from the source or from any surface that the radiation penetrates:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-I-CP-22	I
835.502 b 1	A control device that prevents entry to the area when high radiation levels exist or upon entry causes the radiation level to be reduced below that level defining a high radiation area;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-I-CP-22	I
835.502 b 2	A device that functions automatically to prevent use or operation of the radiation source or field while individuals are in the area;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-I-CP-22	I
835.502 b 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;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-I-CP-22	I
835.502 b 4	Entryways that are locked. During periods when access to the area is required, positive control over each entry is maintained;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-I-CP-22	I
835.502 b 5	Continuous direct or electronic surveillance that is capable of preventing unauthorized entry;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-I-CP-22	I
835.502 b 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.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-I-CP-22	I
835.502 c	Very high radiation areas. In addition to the above requirements, additional measures shall be implemented to ensure individuals are not able to gain unauthorized or inadvertent access to very high radiation areas.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-I-CP-22	I
835.502 d	No control(s) shall be established in a high or very high radiation area that would prevent rapid evacuation of personnel.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.502 and Procedure HP-I-CP-22	I
Subpart G	***Posting and Labeling***		
835.601	***General Requirements***		
835.601 a	Except as otherwise provided in this subpart, postings and labels required by this subpart shall include the standard radiation warning trefoil in black or magenta imposed upon a yellow background.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.601 and Procedure HP-OP-07	I
835.601 b	Signs required by this subpart shall be clearly and conspicuously posted and may include radiological protection instructions.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.601 and Procedure HP-OP-07	I
835.601 c	The posting and labeling requirements in this subpart may be modified to reflect the special considerations of DOE activities conducted at private residences or businesses. Such modifications shall provide the same level of protection to individuals as the existing provisions in this subpart.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.601 and Procedure HP-OP-07	I
835.602	***Controlled Areas***		

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835.602 a	Each access point to a controlled area (as defined in § 835.2) shall be posted whenever radiological areas or radioactive material areas exist in the area. Individuals who enter only controlled areas without entering radiological areas or radioactive material areas are not expected to receive a total effective dose of more than 0.1 rem (0.001sievert) in a year.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.601 and Procedure HP-OP-07	I
835.602 b	Signs used for this purpose may be selected by the contractor to avoid conflict with local security requirements.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.601 and Procedure HP-OP-07	I
835.603	***Radiological areas and radioactive material areas***		
835.603	Each access point to radiological areas and radioactive material areas (as defined at Sec. 835.2) shall be posted with conspicuous signs bearing the wording provided in this section.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603 and Procedures HP-OP-07, HP-OP-08	I
835.603 a	Radiation area. The words ``Caution, Radiation Area'' shall be posted at each radiation area.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603 and Procedures HP-OP-07, HP-OP-08	I
835.603 b	High radiation area. The words ``Caution, High Radiation Area'' or ``Danger, High Radiation Area'' shall be posted at each high radiation area.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603 and Procedures HP-OP-07, HP-OP-08	I
835.603 c	Very high radiation area. The words ``Grave Danger, Very High Radiation Area'' shall be posted at each very high radiation area.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603 and Procedures HP-OP-07, HP-OP-08	I
835.603 d	Airborne radioactivity area. The words ``Caution, Airborne Radioactivity Area'' or ``Danger, Airborne Radioactivity Area'' shall be posted at each airborne radioactivity area.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603 and Procedures HP-OP-07, HP-OP-08	I
835.603 e	Contamination area. The words ``Caution, Contamination Area'' shall be posted at each contamination area.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603 and Procedures HP-OP-07, HP-OP-08	I
835.603 f	High contamination area. The words ``Caution, High Contamination Area'' or ``Danger, High Contamination Area'' shall be posted at each high contamination area.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603 and Procedures HP-OP-07, HP-OP-08	I
835.603 g	Radioactive material area. The words ``Caution, Radioactive Material(s)'' shall be posted at each radioactive material area.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603 and Procedures HP-OP-07, HP-OP-08	I
835.604	***Exceptions to posting requirements***		
835.604 a	Areas may be excepted from the posting requirements of Sec. 835.603 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.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603	I
835.604 b	Areas may be excepted from the radioactive material area posting requirements of Sec. 835.603(g) when:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603	I

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835.604 b 1	Posted in accordance with Sec.. 835.603(a) through (f); or	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603	I
835.604 b 2	Each item or container of radioactive material is labeled in accordance with this subpart such that individuals entering the area are made aware of the hazard; or	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603	I
835.604 b 3	The radioactive material of concern consists solely of structures or installed components which have been activated (i.e., such as by being exposed to neutron radiation or particles produced by an accelerator).	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603	I
835.604 c	Areas containing only packages received from radioactive material transportation labeled and in non-degraded condition need not be posted in accordance with Sec. 835.603 until the packages are monitored in accordance with Sec. 835.405.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.603	I
835.605	***Labeling items and containers***		
835.605	Except as provided at Sec. 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.'' The label shall also provide sufficient information to permit individuals handling, using, or working in the vicinity of the items or containers to take precautions to avoid or control exposures.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.601 and Procedure HP-OP-07	I
835.606	***Exceptions to labeling requirements***		
835.606 a	Items and containers may be excepted from the radioactive material labeling requirements of Sec. 835.605 when:	Implement as written in 10CFR835; Reference Procedure HP-OP-07	I
835.606 a 1	Used, handled, or stored in areas posted and controlled in accordance with this subpart and sufficient information is provided to permit individuals to take precautions to avoid or control exposures; or	Implement as written in 10CFR835; Reference Procedure HP-OP-07	I
835.606 a 2	The quantity of radioactive material is less than one tenth of the values specified in appendix E of this part and less than 0.1 Ci; or	Implement as written in 10CFR835; Reference Procedure HP-OP-07	I
835.606 a 3	Packaged, labeled, and marked in accordance with the regulations of the Department of Transportation or DOE Orders governing radioactive material transportation; or	Implement as written in 10CFR835; Reference Procedure HP-OP-07	I
835.606 a 4	Inaccessible, or accessible only to individuals authorized to handle or use them, or to work in the vicinity; or	Implement as written in 10CFR835; Reference Procedure HP-OP-07	I
835.606 a 5	Installed in manufacturing, process, or other equipment, such as reactor components, piping, and tanks; or	Implement as written in 10CFR835; Reference Procedure HP-OP-07	I
835.606 a 6	The radioactive material consists solely of nuclear weapons or their components.	Implement as written in 10CFR835; Reference Procedure HP-OP-07	I
835.606 b	Radioactive material labels applied to sealed radioactive sources may be excepted from the color specifications of Sec. 835.601(a).	Implement as written in 10CFR835; Reference Procedure HP-OP-07	I
Subpart H	***Records***		
835.701	***General Provisions***		

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Article	10 CFR 835 Requirements	Implementation Commitment & Supporting Documentation	Status
835.701 a	Records shall be maintained to document compliance with this part and with radiation protection programs required by Sec. 835.101.	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.702, 10.703 and Procedures HP-DOS-07, HP-OP-09	I
835.701 b	Unless otherwise specified in this subpart, records shall be retained until final disposition is authorized by DOE.	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.702, 10.703 and Procedures HP-DOS-07, HP-OP-09	I
835.702	Individual Monitoring Records		
835.702 a	Except as authorized by § 835.702(b), records shall be maintained to document doses received by all individuals for whom monitoring was conducted and to document doses received during planned special exposures, unplanned doses exceeding the monitoring thresholds of § 835.402, and authorized emergency exposures.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 b	Recording of the non-uniform equivalent dose to the skin is not required if the dose is less than 2 percent of the limit specified for the skin at § 835.202(a)(4). Recording of internal dose (committed effective dose or committed equivalent dose) is not required for any monitoring result estimated to correspond to an individual receiving less than 0.01 rem (0.1 mSv) committed effective dose. The bioassay or air monitoring result used to make the estimate shall be maintained in accordance with § 835.703(b) and the unrecorded internal dose estimated for any individual in a year shall not exceed the applicable monitoring threshold at § 835.402(c).	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c	The records required by this section shall:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 1	Be sufficient to evaluate compliance with subpart C of this part;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 2	Be sufficient to provide dose information necessary to complete reports required by subpart I of this part;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 3	Include the results of monitoring used to assess the following quantities for external dose received during the year:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 3 I	Committed effective dose;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 3 ii	Committed equivalent dose to any organ or tissue of concern; and	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 3 iii	The shallow dose equivalent to the skin; and	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 3 iv	The shallow dose equivalent to the extremities.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 4	Include the following information for internal dose resulting from intakes received during the year:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I

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835.702 c 4 I	Committed effective dose equivalent;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 4 ii	Committed dose equivalent to any organ or tissue of concern; and	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 4 iii	Identity of radionuclides.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 5	Include the following quantities for the summation of the external and internal dose:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 5 I	Total effective dose in a year;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 5 ii	For any organ or tissue assigned an internal dose during the year, the sum of the equivalent dose to the whole body from external exposures and the committed equivalent dose to that organ or tissue; and	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 5 iii	Cumulative total effective dose.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 c 6	Include the equivalent dose to the embryo/fetus of a declared pregnant worker.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 d	Documentation of all occupational doses received during the current year, except for doses resulting from planned special exposures conducted in compliance with Sec. 835.204 and emergency exposures authorized in accordance with Sec. 835.1302(d), shall be obtained to demonstrate compliance with Sec. 835.202(a). If complete records documenting previous occupational dose during the year cannot be obtained, a written estimate signed by the individual may be accepted to demonstrate compliance.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 e	For radiological workers whose occupational dose is monitored in accordance with Sec. 835.402, reasonable efforts shall be made to obtain complete records of prior years occupational internal and external doses.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 f	The records specified in this section that are identified with a specific individual shall be readily available to that individual.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 g	Data necessary to allow future verification or reassessment of the recorded doses shall be recorded.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.702 h	All records required by this section shall be transferred to the DOE upon cessation of activities at the site that could cause exposure to individuals.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I
835.703	***Other monitoring Records***		
835.703 a	Results of monitoring for radiation and radioactive material as required by subparts E and L of this part, except for monitoring required by Sec. 835.1102(d);	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.701-10.703 and Procedures HP-OP-05, HP-OP-09	I
835.703 b	Results of monitoring used to determine individual occupational dose from external and internal sources;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.702 and Procedure HP-DOS-07	I

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835.703 c	Results of monitoring for the release and control of material and equipment as required by Sec. 835.1101; and	Implement as written in 10CFR835; Reference ESHD 5008, Section 10	I
835.703 d	Results of maintenance and calibration performed on instruments and equipment as required by Sec. 835.401(b).	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.703 and Procedure HP-OP-10	I
835.704	***Administrative records***		
835.704 a	Training records shall be maintained, as necessary, to demonstrate compliance with Sec.. 835.901.	Implement as written in 10CFR835; Reference PPPL Training Procedure OCT-013	I
835.704 b	Actions taken to maintain occupational exposures as low as reasonably achievable, including the actions required for this purpose by Sec. 835.101, as well as facility design and control actions required by Secs. 835.1001, 835.1002, and 835.1003, shall be documented.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.704	I
835.704 c	Records shall be maintained to document the results of internal audits and other reviews of program content and implementation.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.704 and Procedure QA-002	I
835.704 d	Written declarations of pregnancy, including the estimated date of conception, and revocations of declarations of pregnancy shall be maintained.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.704	I
835.704 e	Changes in equipment, techniques, and procedures used for monitoring shall be documented.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.704	I
835.704 f	Records shall be maintained as necessary to demonstrate compliance with the requirements of Secs. 835.1201 and 835.1202 for sealed radioactive source control, inventory, and source leak tests.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.704	I
Subpart I	***Reports To Individuals***		
835.801	***Reports To Individuals***		
835.801 a	Radiation exposure data for individuals monitored in accordance with Sec. 835.402 shall be reported as specified in this section. The information shall include the data required under Sec. 835.702(c). Each notification and report shall be in writing and include: the DOE site or facility name, the name of the individual, and the individual's social security number, employee number, or other unique identification number.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.801 and Procedure HP-DOS-07	I
835.801 b	Upon the request from an individual terminating employment, records of exposure shall be provided to that individual as soon as the data are available, but not later than 90 days after termination. A written estimate of the radiation dose received by that employee based on available information shall be provided at the time of termination, if requested.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.801 and Procedure HP-DOS-07	I
835.801 c	Each DOE- or DOE-contractor-operated site or facility shall, on an annual basis, provide a radiation dose report to each individual monitored during the year at that site or facility in accordance with Sec. 835.402.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.801 and Procedure HP-DOS-07	I
835.801 d	Detailed information concerning any individual's exposure shall be made available to the individual upon request of that individual, consistent with the provisions of the Privacy Act (5 U.S.C. 552a).	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.801 and Procedure HP-DOS-07	I

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Article	10 CFR 835 Requirements	Implementation Commitment & Supporting Documentation	Status
835.801 e	When a DOE contractor is required to report to the Department, pursuant to Departmental requirements for occurrence reporting and processing, any exposure of an individual to radiation and/or radioactive material, or planned special exposure in accordance with Sec. 835.204(e), the contractor shall also provide that individual with a report on his or her exposure data included therein. Such report shall be transmitted at a time not later than the transmittal to the Department.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.801 and Procedure HP-DOS-07	I
Subpart J	***Radiation Safety Training***		
835.901	***Radiation Safety Training***		
835.901 a	Each individual shall complete radiation safety training on the topic established at 835.901c commensurate with the hazards in the area and the required controls:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.901	I
835.901 a 1	Before being permitted unescorted access to controlled areas;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.902 and Procedure HP-DOS-02	I
835.901 a 2	Before receiving occupational dose during access to controlled areas at a DOE site or facility	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.902 and Procedure HP-DOS-02	I
835.901 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.	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.901-10.903	I
835.901 b 1	Before being permitted unescorted access to radiological areas	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.901-10.903	I
835.901 b 2	Before performing unescorted assignments as a radiological worker.	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.901-10.903	I
835.901 c	Radiation safety training shall include the following topics, to the extent appropriate to each individual's prior training, work assignments, and degree of exposure to potential radiological hazards	Implement as written in 10CFR835; Reference PPPL's RPP and PPPL's Radiation Safety Training Program	I
835.901 c 1	Risks of exposure to radiation and radioactive materials, including prenatal radiation exposure	Implement as written in 10CFR835; Reference PPPL's RPP and PPPL's Radiation Safety Training Program	I
835.901 c 2	Basic radiological fundamentals and radiation protection concepts	Implement as written in 10CFR835; Reference PPPL's RPP and PPPL's Radiation Safety Training Program	I
835.901 c 3	Physical design features, administrative controls, limits, policies, procedures, alarms, and other measures implemented at the facility to manage doses and maintain doses ALARA, including both routine and emergency actions	Implement as written in 10CFR835; Reference PPPL's RPP and PPPL's Radiation Safety Training Program	I
835.901 c 4	Individual rights and responsibilities as related to implementation of the facility radiation protection program	Implement as written in 10CFR835; Reference PPPL's RPP and PPPL's Radiation Safety Training Program	I
835.901 c 5	Individual responsibilities for implementing ALARA measures required by 835.101	Implement as written in 10CFR835; Reference PPPL's RPP and PPPL's Radiation Safety Training Program	I
835.901 c 6	Individual exposure reports that may be requested in accordance with 835.801	Implement as written in 10CFR835; Reference PPPL's RPP and PPPL's Radiation Safety Training Program	I

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835.901 d	When an escort is used in lieu of training in accordance with paragraph a or b of this section the escort shall:	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.901-10.903 and Procedure HP-DOS-02	I
835.901 d 1	Have completed radiation safety training, examinations, and performance demonstrations required for entry to the area and performance of the work	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.901-10.903 and Procedure HP-DOS-02	I
835.901 d 2	Ensure that all escorted individuals comply with the documented radiation protection program.	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.901-10.903 and Procedure HP-DOS-02	I
835.901 e	Radiation safety training shall be provided to individuals when there is a significant change to radiation protection policies and procedures that may affect the individual and at intervals not to exceed 24 months.	Implement as written in 10CFR835; Reference PPPL's RPP	I
Subpart K	***Design and Control***		
835.1001	***Design and Control***		
835.1001 a	Measures shall be taken to maintain radiation exposure in controlled areas ALARA through engineered and administrative controls. The primary methods used shall be engineered controls (e.g., confinement, ventilation, remote handling, and shielding). Administrative controls shall be employed only as supplemental methods to control radiation exposure.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1001	I
835.1001 b	For specific activities where use of engineered controls is demonstrated to be impractical, administrative controls shall be used to maintain radiation exposures ALARA.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1001	I
835.1002	***Facility design and modifications***		
835.1002	During the design of new facilities or modification of existing facilities, the following objectives shall be adopted:	Implement as written in 10CFR835; Reference PPPL's Radiological ALARA Plan	I
835.1002 a	Optimization methods shall be used to assure that occupational exposure is maintained ALARA in developing and justifying facility design and physical controls.	Implement as written in 10CFR835; Reference PPPL's Radiological ALARA Plan	I
835.1002 b	The design objective for controlling personnel exposure from external sources of radiation in areas of continuous occupational occupancy (2000 hours per year) shall be to maintain exposure levels below an average of 0.5 mrem (5 microsieverts) per hour and as far below this average as is reasonably achievable. The design objectives for exposure rates for potential exposure to a radiological worker where occupancy differs from the above shall be ALARA and shall not exceed 20 percent of the applicable standards in Sec. 835.202.	Implement as written in 10CFR835; Reference PPPL's Radiological ALARA Plan	I

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Article	10 CFR 835 Requirements	Implementation Commitment & Supporting Documentation	Status
835.1002 c	Regarding the control of airborne radioactive material, the design objective shall be, under normal conditions, to avoid releases to the workplace atmosphere and in any situation, to control the inhalation of such material by workers to levels that are ALARA; confinement and ventilation shall normally be used.	Implement as written in 10CFR835; Reference PPPL's Radiological ALARA Plan	I
835.1002 d	The design or modification of a facility and the selection of materials shall include features that facilitate operations, maintenance, decontamination, and decommissioning.	Implement as written in 10CFR835; Reference PPPL's Radiological ALARA Plan	I
835.1003	***Workplace controls***		
835.1003	During routine operations, the combination of physical design features and administrative controls shall provide that:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
835.1003 a	The anticipated occupational dose to general employees shall not exceed the limits established at Sec. 835.202; and	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
835.1003 b	The ALARA process is utilized for personnel exposures to ionizing radiation.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.2	I
Subpart L	***Radioactive Contamination Control***		
835.1101	***Control of material and equipment***		
835.1101 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:	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.404, 10.1101 and Procedures HP-OP-04, HP-OP-10	I
835.1101 a 1	Removable surface contamination levels on accessible surfaces exceed the removable surface contamination values specified in appendix D of this part; or	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.404, 10.1101 and Procedures HP-OP-04, HP-OP-10	I
835.1101 a 2	Prior use suggests that the removable surface contamination levels on inaccessible surfaces are likely to exceed the removable surface contamination values specified in appendix D of this part.	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.404, 10.1101 and Procedures HP-OP-04, HP-OP-10	I
835.1101 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.	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.404, 10.1101 and Procedures HP-OP-04, HP-OP-10	I
835.1101 c	Material and equipment with fixed contamination levels that exceed the total contamination values specified in appendix D of this part may be released for use in controlled areas outside of radiological areas only under the following conditions:	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.404, 10.1101 and Procedures HP-OP-04, HP-OP-10	I
835.1101 c 1	Removable surface contamination levels are below the removable surface contamination values specified in appendix D of this part; and	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.404, 10.1101 and Procedures HP-OP-04, HP-OP-10	I
835.1101 c 2	The material or equipment is routinely monitored and clearly marked or labeled to alert personnel of the contaminated status.	Implement as written in 10CFR835; Reference ESHD 5008, Sections 10.404, 10.1101 and Procedures HP-OP-04, HP-OP-10	I

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Article	10 CFR 835 Requirements	Implementation Commitment & Supporting Documentation	Status
835.1102	***Control of areas***		
835.1102 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.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedures HP-OP-04, HP-OP-49	I
835.1102 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.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedures HP-OP-04, HP-OP-49	I
835.1102 c	Areas accessible to individuals where the measured total surface contamination levels exceed, but the removable surface contamination levels are less than, corresponding surface contamination values specified in appendix D of this part, shall be controlled as follows when located outside of radiological areas:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedures HP-OP-04, HP-OP-49	I
835.1102 c 1	The area shall be routinely monitored to ensure the removable surface contamination level remains below the removable surface contamination values specified in appendix D of this part; and	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedures HP-OP-04, HP-OP-49	I
835.1102 c 2	The area shall be conspicuously marked to warn individuals of the contaminated status.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedures HP-OP-04, HP-OP-49	I
835.1102 d	Individuals exiting contamination, high contamination, or airborne radioactivity areas shall be monitored, as appropriate, for the presence of surface contamination.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedures HP-OP-04, HP-OP-49	I
835.1102 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.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.501 and Procedure HP-OP-44	I
Subpart M	***Sealed Radioactive Source Control***		
835.1201	Sealed radioactive sources shall be used, handled, and stored in a manner commensurate with the hazards associated with operations involving the sources.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1404 and Procedure HP-OP-02	I
835.1202	***Accountable sealed radioactive sources***		
835.1202 a	Each accountable sealed radioactive source shall be inventoried at intervals not to exceed six months. This inventory shall:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1404 and Procedure HP-OP-02	I
835.1202 a 1	Establish the physical location of each accountable sealed radioactive source;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1404 and Procedure HP-OP-02	I
835.1202 a 2	Verify the presence and adequacy of associated postings and labels; and	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1404 and Procedure HP-OP-02	I
835.1203 a 3	Establish the adequacy of storage locations, containers, and devices.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1404 and Procedure HP-OP-02	I

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Article	10 CFR 835 Requirements	Implementation Commitment & Supporting Documentation	Status
835.1202 b	Except for sealed radioactive sources consisting solely of gaseous radioactive material or tritium, each accountable sealed radioactive source shall be subject to a source leak test upon receipt, when damage is suspected, and at intervals not to exceed six months. Source leak tests shall be capable of detecting radioactive material leakage equal to or exceeding 0.005 microcurie.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1404 and Procedure HP-OP-02	I
835.1202 c	Notwithstanding the requirements of paragraph (b) of this section, an accountable sealed radioactive source is not subject to periodic source leak testing if that source has been removed from service. Such sources shall be stored in a controlled location, subject to periodic inventory as required by paragraph (a) of this section, and subject to source leak testing prior to being returned to service.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1404 and Procedure HP-OP-02	I
835.1202 d	Notwithstanding the requirements of paragraphs (a) and (b) of this section, an accountable sealed radioactive source is not subject to periodic inventory and source leak testing if that source is located in an area that is unsafe for human entry or otherwise inaccessible.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1404 and Procedure HP-OP-02	I
835.1202 e	An accountable sealed radioactive source found to be leaking radioactive material shall be controlled in a manner that minimizes the spread of radioactive contamination.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1404 and Procedure HP-OP-02	I
Subpart N	***Emergency Exposure Situations***		
835.1301	***General Provisions***		
835.1301 a	A general employee whose occupational dose has exceeded the numerical value of any of the limits specified in Sec. 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:	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1301-10.1302	I
835.1301 a 1	Approval is first obtained from the contractor management and the Head of the responsible DOE field organization;	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1301-10.1302	I
835.1301 a 2	The individual receives counseling from radiological protection and medical personnel regarding the consequences of receiving additional occupational exposure during the year; and	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1301-10.1302	I
835.1301 a 3	The affected employee agrees to return to radiological work.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1301-10.1302	I
835.1301 b	All doses exceeding the limits specified in Sec. 835.202 shall be recorded in the affected individual's occupational dose record.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1301-10.1302	I
835.1301 c	When the conditions under which a dose was received in excess of the limits specified in Sec. 835.202, except those received in accordance with Sec. 835.204, have been eliminated, operating management shall notify the Head of the responsible DOE field organization.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1301-10.1302	I
835.1301 d	Operations after a dose was received in excess of the limits specified in Sec. 835.202, except those received in accordance with Sec. 835.204, may be resumed only with the approval of DOE.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1301-10.1302	I

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Article	10 CFR 835 Requirements	Implementation Commitment & Supporting Documentation	Status
835.1302	***Emergency Exposure Situations***		
835.1302 a	The risk of injury to those individuals involved in rescue and recovery operations shall be minimized.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1302	I
835.1302 b	Operating management shall weigh actual and potential risks against the benefits to be gained.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1302	I
835.1302 c	No individual shall be required to perform a rescue action that might involve substantial personal risk.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1302	I
835.1302 d	Each individual authorized to perform emergency actions likely to result in occupational doses exceeding the values of the limits provided at Sec. 835.202(a) shall be trained in accordance with Sec. 835.901(b) and briefed beforehand on the known or anticipated hazards to which the individual will be subjected.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1302	I
835.1304	***Nuclear Accident Dosimetry***	***N/A at PPPL***	***N/A***
Appendix A	Derived Air Concentrations (DAC) for Controlling Radiation Exposure to Workers at DOE Facilities	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1302	I
Appendix B	Reserved	**N/A**	
Appendix C	Derived Air Concentrations (DAC) for Workers from External Exposure During Immersion in a contaminated atmospheric cloud.	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1302	I
Appendix D	Surface Contamination Values	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1302	I
Appendix E	Values for Establishing Sealed Radioactive Source Accountability and Radioactive Material Posting and Labeling Requirements	Implement as written in 10CFR835; Reference ESHD 5008, Section 10.1302	I

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