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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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June 2, 1999
HGP-GO1-99-0024

Jeffrey M. Brueggeman, Project Manager
Decontamination and Decommissioning Project
Department of Energy-RL
P.O. Box 550
Richland, WA 99352

Dear Mr. Brueggeman,

Subject: **REVISED HGP RADIOLOGICAL PROTECTION PROGRAM**

The Supply System is pleased to submit a revised Radiological Protection Program, Revision 4, dated May 20, 1999 for your approval. The document was revised to incorporate the amended requirements of 10 CFR 835 issued on December 4, 1998.

The Supply System requests your approval of our revised HGP Radiological Protection Program. If you have any questions, please contact Mr. Loren Oakes (377-1073) of my staff..

Respectfully,

D. W. Fraley
Manager, WNP-1/3 & HGP
(Mail Drop 817)

Attachment

RADIATION PROTECTION PROGRAM

HGP-RP-100

REVISION 4

May 20, 1999

PREPARED FOR
WASHINGTON PUBLIC POWER SUPPLY SYSTEM

BY
GTS DURATEK INC.

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1.0 PURPOSE

This document meets the requirements for a Radiation Protection Program (RPP) specified in 10 CFR Part 835, "Occupational Radiation Protection." This document also includes those elements necessary to satisfy the implementation plan requirements of 10 CFR Part 820, "Procedural Rules for DOE Nuclear Activities."

This Radiation Protection Program will be used in association with applicable procedures and the Hanford Site Radiological Control Manual (HSRCM), HSRCM-1, Rev. 2 to assess and control work in areas that have been determined to be potentially contaminated at the Supply System's Hanford Generating Project (HGP) located on the Department of Energy's (DOE's) Hanford Site. Radiological controls are necessary to minimize safety and health risks to occupational workers, as well as members of the general public, from ionizing radiation and radioactive materials. This RPP establishes requirements which ensure that radiation exposure to the Supply System employees, subcontractors, visitors, and the general public is maintained As Low As Reasonably Achievable (ALARA) and that applicable radiation protection requirements and standards are met during all operations and support activities.

The RPP supports the DOE implementation of a radiological protection program as specified in 10 CFR 835 "Occupational Radiation Protection," and the U.S. Department of Energy Radiological Control Manual, DOE/EH-0256T. For 10 CFR 835, the documented RPP also fulfills the role of the document commonly referred to as an "Implementation Plan" in other DOE regulations. Implementing procedures support the policies established in the RPP.

2.0 CONTENT

This RPP is based upon the required elements of 10 CFR Parts 820 and 835, and is also based in part upon the DOE Technical Standard (DOE-STD-1082-94), "Preparation, Review, and Approval of Implementation Plans for Nuclear Safety Requirements." In addition, the RPP has also been developed in accordance with DOE Implementation Guide G-10 CFR 835/B1, Rev. 1.

Since the majority of the requirements contained in Part 835 are directly related to worker safety, they envelop all radiological work activities performed by the Supply System and its subcontractors at the HGP site. The documented RPP includes the programs, plans,

procedures, schedules, and other measures undertaken to ensure worker health and safety through compliance with 10 CFR 835.

This RPP is applicable to activities associated with decontamination and decommissioning (D&D) of the HGP steam/water systems and structures. The content of the RPP is commensurate with the nature of the activities performed and includes formal plans and measures for applying the ALARA process to occupational exposure (10 CFR 835.101(c)).

Information that has been gathered from the Bechtel Hanford summary report (BHI-00936, Characterization Plan for the Hanford Generating Plant) indicate that the levels of contamination are consistent with WHC-SD-NR-ER-100, Engineering Report of the Hanford Generating Plant Radiation Contamination Survey. The verification surveys conducted indicates that the level of contamination, in most cases, is slightly higher than the minimum detectable activity which the instruments are capable of reading. Smear surveys that were analyzed indicate that most of the contamination is fixed and is not removable. The information does not indicate or refer to any measurable dose rates in the facility or in any of the associated areas.

The Supply System has classified the D&D activities at the HGP as having a Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) Class 3 potential for radioactive contamination. These areas do not appear to have had any significant radiological impact from former site operations, and subsequent data supports this assumption.

Any contamination which might be found during the remainder of D&D activities is expected to be a small fraction of the appropriate derived concentration guideline level (DCGL) for HGP suspected contaminants. A potential exists that low level activity that is not associated with operations, such as naturally occurring radon and radon progeny, may be identified during cleanup operations.

Although the Supply System believes this to be a MARSSIM Class 3 contamination area, daily radiological support will be provided by the Supply System and its subcontractors during all D&D activities to ensure the radiological safety of personnel. The types of controls employed by the Supply System and its subcontractors will be similar to those normally found associated with MARSSIM Class 2 contamination areas. In addition, debris will be scanned for indications of radioactive contamination. Small percentages of selected debris types will undergo further interrogation via gamma spectroscopy to ensure the quality of the survey and measurement program utilized.

3.0 FORMAT

The Supply System is committed to the implementation of 10 CFR Part 835 in association with the HSRCM for the HGP. This RPP is formatted to meet the requirements of 10 CFR Part 835, 10 CFR Part 820, DOE's established review criteria for the RPP, and in general accordance with the Technical Standard referenced above.

A list of affected subcontractors and suppliers, as described in the Standard, has not been provided due to the scope of activities covered by this RPP, and to the fact that such a list would require continual modification to remain current. An alternate approach is being used. The Supply System will incorporate an addendum articulating the requirements of the approved HGP Radiation Protection Program into the contractual documents of all subcontractors and suppliers who perform activities within the scope of the Supply System's RPP. Each subcontractor or supplier will be required to certify agreement that they understand and will meet the requirements of the RPP prior to being allowed to perform radiological work.

It must be emphasized that this RPP applies only to the Supply System and its subcontractors' activities at the HGP Site.

Some requirements established by 10 CFR 835 are applicable only when specific options are exercised by the user. For example, 10 CFR 835.204 requirements for planned special exposures take effect only if cognizant managers exercise their prerogative to implement these options. These requirements may be judged to have no effect upon the RPP if activity managers determine that the subject options will not be enacted. For purposes of this RPP, the Supply System has made a determination of which options that are not to be implemented. In such cases, a brief statement explaining the intent to avoid such circumstances is provided in the HGP-specific provision block corresponding to that regulatory provision. Any changes to these policies will require an RPP revision to address the affected regulatory provision.

4.0 DEFINITION OF SCOPE

The Supply System defines the scope of applicability for this RPP as any maintenance or D&D activity carried out on behalf of the Supply System by its subcontractors and suppliers or any company or individual under formal agreement to perform radiological D&D activities under the Supply System's RPP that has the potential to result in:

(1) occupational exposure to ionizing radiation (as defined in 10 CFR 835.2),

(2) exposure of minors and members of the public (as defined in 10 CFR 835.2) to ionizing radiation during direct on-site access at a DOE site or facility, and

(3) exposures to the embryo/fetus of a declared pregnant worker (as defined in 10 CFR 835.2).

5.0 APPLICABLE FACILITIES/ACTIVITIES

This RPP is applicable to the radiological work activities related to D&D of the HGP. These activities are conducted for the Supply System at the HGP. The scope of this RPP includes all radiological work activities conducted at this facility. The HGP is located within the Hanford Site in the 100-N Area on the south bank of the Columbia River at river mile 380, approximately 35 river miles upstream and 32 road miles from the city of Richland, in the southeastern corner of the state of Washington. The main power plant building is 150 feet wide by 430 feet in length with a superstructure open crane bay 57 feet high. There are three below grade levels down to the minus 50-foot level.

The HGP primarily consists of two turbine generators which were powered by steam from the N Reactor. The HGP is located within the boundaries of the 100-NR-1 Operable Unit. The HGP facility is basically stabilized and ready for D&D.

The HGP steam system (piping and equipment) is potentially contaminated by radioactively contaminated steam from N Reactor. Characterization was performed in 1992 and 1993 on the majority of the suspect contaminated piping and equipment using routine survey methodologies and a remote tractor crawler unit equipped with survey instruments. The asbestos insulation on the piping at the HGP was also sampled and characterized, and was found to be not radiologically contaminated.

The HGP activities consist of D&D of Supply System facilities within the HGP boundaries. This involves removal, characterization, packaging and shipping of facility components to appropriate disposal sites (e.g. radioactive material to the Environmental Restoration Disposal Facility (ERDF) or salvage to be recycled, etc.).

Except as allowed by 10 CFR 835.101(I), the Supply System and its subcontractors will not initiate any task outside the scope of the RPP until DOE approves an update to the RPP that incorporates this scope change.

10 CFR 835.101(d) requires that "the RPP (Radiation Protection Program) shall specify the existing and/or anticipated operational tasks that are intended to be within the scope of the RPP." The Supply System has elected to utilize an alternative approach by

defining the scope of applicability as opposed to listing existing and/or anticipated operational tasks. The preceding applicability statements meet this requirement.

6.0 WORKPLACE RADIOLOGICAL HAZARDS

The primary occupational radiological hazards which may be encountered during D&D activities at the HGP consist of (if or when detectable) minimal direct radiation exposure hazards, minimal external contamination hazards, and potential uptakes of radioactive materials through inhalation, ingestion, injection or immersion. The types of radioactive materials which may be encountered consist of fission products, primarily Cobalt-60 and lesser quantities of Cesium-137. The types of radiations which may be encountered include exposure to beta particles and gamma rays. Radioactive materials which may be encountered in the workplace are in the range typical of environmental samples, picocuries of radioactivity per gram.

7.0 Qualification Of Radiological Control Technicians

The personnel that are scheduled to provide radiological control activities for the HGP are ANSI 3.1 qualified but will be trained to the DOE standards of 10 CFR 835 with the exception of the core fundamentals. Radiological Control Technician (RCT) personnel will complete an oral board review within six (6) months after the successful completion of their Site Academics training. Project RCT's are qualified to operate all of the instruments that will be provided to the project by the Radiological Control Organization.

8.0 REQUIREMENTS MATRIX

The matrix contained in this section specifically addresses all 234 requirements and provisions contained in 10 CFR Part 835 (as identified by EM-25). Each rule requirement is restated verbatim in the matrix, and is accompanied by sufficiently detailed information to establish the Supply System's commitment basis for that requirement. The degree of detail necessary for each requirement is handled on a case-by-case basis. In some instances, top-level controlling document references are supplemented by narrative text and/or clarifying definitions.

Some of the material extracted from 10 CFR 835 and provided in the matrix consists solely of titular or introductory material and does not clearly impose any requirements upon the user. In these cases, the corresponding HSRCM and HGP-specific provision blocks have been shaded to indicate that no provision must be developed or listed. The HSRCM and HGP-specific provision blocks corresponding to the regulatory definitions have not been shaded. Although the definitions generally do not establish any true

requirements, the use of definitions different from those published in 10 CFR 835 could result in non-compliance. Therefore, to assure that the meaning of a term used in the RPP is consistent with its meaning in 10 CFR 835, equivalent definitions in the HSRCM have been identified.

The combination of references and supplemental text contained in this matrix defines the Supply System's commitment basis to DOE. The matrix column titled "HGP-specific implementing provisions" includes clarifications, supplemental policy statements, references to Technical Basis Documents, and any other supplemental information used to clearly define the Supply System's commitment basis.

Nothing in this matrix is intended to deviate from the intent of 10 CFR 835. Where inconsistencies exist between the HSRCM and 10 CFR 835, the specific Articles listed are intended to demonstrate policy consistent with the intent of the Rule.

All HSRCM Articles cited in this matrix are taken from HSRCM-1, Revision 2, dated December 9, 1994.

Where the word "should" appears in referenced HSRCM Articles, for the purposes of this RPP this means that the Supply System has the responsibility either to implement the cited provision exactly or demonstrate the technical equivalency of an alternative approach in accordance with the provisions of HSRCM Article 113.

Where the verbiage of a referenced HSRCM Article is either modified or excerpted in order to more clearly capture the specific intent of the Rule requirement, such modification or excerpting is noted in parentheses in the matrix.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Subpart A - General Provisions - 0 requirements total in section **§ 835.1 Scope.**		
(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.		
(b) Exclusion. Except as discussed in paragraph © of this section, the requirements in this part do not apply to:		
(1) Activities that are regulated through a license by the Nuclear Regulatory Commission or a State under an Agreement with the Nuclear Regulatory Commission, including activities certified by the Nuclear Regulatory Commission under section 1701 of the A tomic Energy Act;		
(2) Activities conducted under the authority of the Director, Naval Nuclear Propulsion Program, as described in Public Law 98-525;		
(3) Activities conducted under the Nuclear Explosives and Weapons Surety Program relating to the prevention of accidental or unauthorized nuclear detonations. ~~(3) Activities conducted under the Nuclear Explosives and Weapons Safety Program relating to the prevention of accidental or unauthorized nuclear detonations; or~~		
(4) Radioactive material transportation as defined in this part; ~~(4) Background radiation, radiation doses received as a patient for the purposes of medical diagnosis or therapy, or radiation doses received from voluntary participation in medical research programs.~~		
(5) 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; or		

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(6) 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.		
© Occupational doses received as a result of excluded activities and radioactive material transportation, as listed in paragraphs (b)(1) through (b)(5) of this section, shall be considered 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.		
§ 835.2 Definitions. - 0 requirements total in section (a) As used in this part:		
Accountable sealed radioactive source means a sealed radioactive source having a half-life equal to or greater than 30 days and an isotopic activity equal to or greater than the corresponding value provided in appendix E of this part.	Glossary Accountable sealed radioactive source means a sealed radioactive source having a half-life equal to or greater than 30 days and an isotopic activity equal to or greater than the corresponding value provided in appendix A4 of the HSRCM.	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Airborne radioactive material or airborne radioactivity means radioactive material dispersed in the air in the form of dusts, fumes, particulates, mists, vapors, or gases. ~~Airborne radioactive material or airborne radioactivity means radioactive material in any chemical or physical form that is dissolved, mixed, suspended, or otherwise entrained in air.~~	Glossary Airborne radioactive material or airborne radioactivity means radioactive material dispersed in the air in the form of dusts, fumes, particulates, mists, vapors, or gases. ~~Glossary~~ ~~airborne radioactivity: Radioactive material in any chemical or physical form that is dissolved, mixed, suspended, or otherwise entrained in air.~~	This RPP incorporates the definition of the HSRCM.
Airborne radioactivity area means any area, accessible to individuals, where: (1) The concentration of airborne radioactivity, above natural background, exceeds or is likely to exceed the derived air concentration (DAC) values listed in appendix A or appendix C of this part; or (2) An individual present in the area without respiratory protection could receive an intake exceeding 12 DAC-hours in a week. ~~Airborne radioactivity area means any area where the measured concentration of airborne radioactivity, above natural background, exceeds or is likely to exceed 10 percent of the derived air concentration (DAC) values listed in appendix A or appendix C of this part.~~	Glossary Airborne radioactivity area means any area, accessible to individuals, where: (1) The concentration of airborne radioactivity, above natural background, exceeds or is likely to exceed 10 percent of the derived air concentration (DAC) guides. ~~Glossary~~ ~~airborne radioactivity area: Any area where the concentration of airborne radioactivity, above natural background, exceeds or is likely to exceed 10 percent of the derived air concentration (DAC) values. DAC values are contained in Appendices A and C of 10 CFR 835.~~	This RPP incorporates the definition of the HSRCM.
ALARA means "As Low As is Reasonably Achievable," which is the approach to radiation protection to manage and control exposures (both individual and collective) to the work force and to the general public to as low as is reasonable, taking into account social, technical, economic, practical, and public policy considerations. As used in this part, ALARA is not a dose limit but a process which has the objective of attaining doses as far below the applicable limits of this part as is reasonably achievable.	Glossary As Low As Reasonably Achievable (ALARA): An approach to radiological control to manage and control exposures (individual and collective) to the work force and to the general public at levels as low as is reasonable, taking into account social, technical, economic, practical and public policy considerations. As used in this Manual, ALARA is not a dose limit but a process that has the objective of attaining doses as far below the applicable controlling limits as is reasonably achievable.	This RPP incorporates the definition of the HSRCM.
Ambient air means the general air in the area of interest (e.g., the general room atmosphere), as distinct from a specific stream or volume of air that may have different properties.		This RPP incorporates the definition of 10 CFR Part 835.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Annual limit on intake (ALI) means the derived limit for the amount of radioactive material taken into the body of an adult worker by inhalation or ingestion in a year. ALI is the smaller value of intake of a given radionuclide in a year by the reference man (ICRP Publication 23) that would result in a committed effective dose equivalent of 5 rem (0.05 sievert) or a committed dose equivalent of 50 rem (0.5 sievert) to any individual organ or tissue. ALI values for intake by ingestion and inhalation of selected radionuclides are based on Table 1 of the U.S. Environmental Protection Agency's Federal Guidance Report No. 11, Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion, published September 1988. This document is available from the National Technical Information Service, Springfield, VA.	Glossary annual limit on intake (ALI): The derived limit for the amount of radioactive material taken into the body of an adult worker by inhalation or ingestion in a year. ALI is the smaller value of intake of a given radionuclide in a year by the reference man (ICRP Publication 23) that would result in a committed effective dose equivalent of 5 rems (0.05 sievert) or a committed dose equivalent of 50 rems (0.5 sievert) to any individual organ or tissue.	This RPP incorporates the definition of the HSRCM.
Background means radiation from: (I) Naturally occurring radioactive materials which have not been technologically enhanced; (ii) Cosmic sources; (iii) Global fallout as it exists in the environment (such as from the testing of nuclear explosive devices); (iv) Radon and its progeny in concentrations or levels existing in buildings or the environment which have not been elevated as a result of current or prior activities; and (v) Consumer products containing nominal amounts of radioactive material or producing nominal amounts of radiation.	Glossary background radiation: Radiation from: (1) Naturally occurring radioactive materials which have not been technologically enhanced; (2) Cosmic sources; (3) Global fallout as it exists in the environment (such as from the testing of nuclear explosive devices); (4) Radon and its progeny in concentrations or levels existing in buildings or the environment which have not been elevated as a result of current or prior activities; and (5) Consumer products containing nominal amounts of radioactive material or producing nominal amounts of radiation.	This RPP incorporates the definition of the HSRCM.
Bioassay means the determination of kinds, quantities, or concentrations, and, in some cases, locations of radioactive material in the human body, whether by direct measurement or by analysis, and evaluation of radioactive materials excreted or removed from the human body.	Glossary bioassay: The determination of the kinds, quantities, or concentrations, and, in some cases, locations of radioactive material in the human body, whether by direct measurement or by analysis and evaluation of radioactive materials excreted or removed from the human body.	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Calibration means to adjust and/or determine either: (I) The response or reading of an instrument relative to a standard (e.g., primary, secondary, or tertiary) or to a series of conventionally true values; or (ii) The strength of a radiation source relative to a standard (e.g., primary, secondary, or tertiary) or conventionally true values.	Glossary calibration: The process of adjusting or determining either: (1) The response or reading of an instrument relative to a standard (e.g., primary, secondary, or tertiary) or to a series of conventionally true values; or (2) The strength of a radiation source relative to a standard (e.g., primary, secondary, or tertiary) or conventionally true value.	This RPP incorporates the definition of the HSRCM.
Contamination area means any area, accessible to individuals, where removable surface contamination levels exceed or are likely to exceed the removable surface contamination values specified in appendix D of this part, but do not exceed 100 times those values. ~~Contamination area means any area where contamination levels are greater than the values specified in appendix D of this part, but less than or equal to 100 times those levels.~~	Glossary Contamination area means any area, accessible to individuals, where removable surface contamination levels exceed or are likely to exceed the removable surface contamination values specified in Table 2-2 of the HSRCM, but do not exceed 100 times those values. ~~Glossary~~ ~~contamination area: Any area where contamination levels are greater than the values specified in Chapter 2, Table 2-2, but less than or equal to 100 times those values.~~	This RPP incorporates the definition of the HSRCM.
Continuous air monitor (CAM) means an instrument that continuously samples and measures the levels of airborne radioactive materials on a "real-time" basis and has alarm capabilities at preset levels.	Glossary continuous air monitor (CAM): Instrument that continuously samples and measures the levels of airborne radioactive materials on a "real-time" basis and has alarm capabilities at preset levels.	This RPP incorporates the definition of the HSRCM.
Contractor means any entity under contract with the Department of Energy with the responsibility to perform activities at a DOE site or facility.		For purposes of this RPP, contractor refers to the Supply System who is under contract to the DOE to perform D&D activities at the HGP.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Controlled area means any area to which access is managed by or for DOE to protect individuals from exposure to radiation and/or radioactive material. ~~Controlled area means any area to which access is managed in order to protect individuals from exposure to radiation and/or radioactive material. Individuals who enter only the controlled area without entering radiological areas are not expected to receive a total effective dose equivalent of more than 100 mrem (0.001 sievert) in a year.~~	Glossary Controlled area means any area to which access is managed by or for DOE to protect individuals from exposure to radiation and/or radioactive material. For the Hanford Site, a Controlled Area by this definition is called a Radiologically Controlled Area to more precisely identify the reason for which control is established. ~~Glossary~~ ~~controlled area: Any area to which access is managed in order to protect individuals from exposure to radiation and/or radioactive materials. Individuals who enter only the controlled area without entering radiological areas are not expected to receive a total effective dose equivalent of more than 0.1 rem (0.001 sievert) in a year.~~ ~~H GLOSSARY~~ ~~For the Hanford Site, a Controlled Area by the above definition is called a Radiologically Controlled Area to more precisely identify the reason for which control is established.~~	This RPP incorporates the definition of the HSRCM.
Declared pregnant worker means a woman who has voluntarily declared to her employer, in writing, her pregnancy for the purpose of being subject to the occupational dose limits to the embryo/fetus as provided in § 835.206. This declaration may be revoked, in writing, at any time by the declared pregnant worker. ~~Declared pregnant worker means a woman who has voluntarily declared to her employer, in writing, her pregnancy for the purpose of being subject to the occupational exposure limits to the embryo/fetus as provided in § 835.206. This declaration may be revoked, in writing, at any time by the declared pregnant worker.~~	Glossary declared pregnant worker: means a woman who has voluntarily declared to her employer, in writing, her pregnancy for the purpose of being subject to the occupational exposure limits to the embryo/fetus as provided in Article 215. This declaration may be revoked, in writing, at any time by the declared pregnant worker.	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Derived air concentration (DAC) means, for the radionuclides listed in appendix A of this part, the airborne concentration that equals the ALI divided by the volume of air breathed by an average worker for a working year of 2000 hours (assuming a breathing volume of 2400 m3). For the radionuclides listed in appendix C of this part, the air immersion DACs were calculated for a continuous, non-shielded exposure via immersion in a semi-infinite atmospheric cloud. The value is based upon the derived airborne concentration found in Table 1 of the U.S. Environmental Protection Agency's Federal Guidance Report No. 11, Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion, published September 1988. This document is available from the National Technical Information Service, Springfield, VA.	Glossary derived air concentration (DAC): For the radionuclides listed in Appendix A of 10 CFR 835, the airborne concentration that equals the ALI divided by the volume of air breathed by an average worker for a working year of 2000 hours (assuming a breathing volume of 2400m3). For radionuclides listed in Appendix C of 10 CFR 835, the air immersion DACs were calculated for a continuous, non-shielded exposure via immersion in a semi-infinite atmospheric cloud. The values are based upon the derived airborne concentration found in Table 1 of the U. S. Environmental Protection Agency's Federal Guidance Report No. 11, Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion, published September 1988. This document is available from the Technical Information service, Springfield, Va.	This RPP incorporates the definition of the HSRCM.
Derived air concentration-hour (DAC-hour) means the product of the concentration of radioactive material in air (expressed as a fraction or multiple of the DAC for each radionuclide) and the time of exposure to that radionuclide, in hours.	Glossary Derived air concentration-hour (DAC-hour) means the product of the concentration of radioactive material in air (expressed as a fraction or multiple of the DAC for each radionuclide) and the time of exposure to that radionuclide, in hours.	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
DOE activity means an activity taken for or by DOE in a DOE operation or facility that has the potential to result in the occupational exposure of an individual to radiation or radioactive material. The activity may be, but is not limited to, design, construction, operation, or decommissioning. To the extent appropriate, the activity may involve a single DOE facility or operation or a combination of facilities and operations, possibly including an entire site or multiple DOE sites. ~~DOE activities means an activity taken for or by the DOE that has the potential to result in the occupational exposure of an individual to radiation or radioactive material. The activity may be, but is not limited to, design, construction, operation, or decommissioning. To the extent appropriate, the activity may involve a single DOE facility or operation or a combination of facilities and operations, possibly including an entire site.~~	Glossary DOE activity means an activity taken for or by DOE in a DOE operation or facility that has the potential to result in the occupational exposure of an individual to radiation or radioactive material. The activity may be, but is not limited to, design, construction, operation, or decommissioning. To the extent appropriate, the activity may involve a single DOE facility or operation or a combination of facilities and operations, possibly including an entire site or multiple DOE sites. ~~DOE activity: An activity taken for or by the DOE that has the potential to result in the occupational exposure of an individual to radiation or radioactive material. The activity may be, but is not limited to, design, construction, operation, decontamination or decommissioning. To the extent appropriate, the activity may involve a single DOE facility or operation or a combination of facilities and operations, possibly including an entire site.~~	The Supply System is the owner of the HGP performing the D&D.
Entrance or access point means any location through which an individual could gain access to areas controlled for the purposes of radiation protection. This includes entry or exit portals of sufficient size to permit human entry, irrespective of their intended use.	Glossary entrance or access point: Any location through which an individual could gain access to areas controlled for the purposes of radiation protection. This includes entry or exit portals of sufficient size to permit human entry, irrespective of their intended use.	This RPP incorporates the definition of the HSRCM.
General employee means an individual who is either a DOE or DOE contractor employee; an employee of a subcontractor to a DOE contractor; or an individual who performs work for or in conjunction with DOE or utilizes DOE facilities. ~~General employee means an individual who is either a DOE or DOE contractor employee; an employee of a subcontractor to a DOE contractor; or a visitor who performs work for or in conjunction with DOE or utilizes DOE facilities.~~	Glossary General employee means an individual who is either a DOE or DOE contractor employee; an employee of a subcontractor to a DOE contractor; or an individual who performs work for or in conjunction with DOE or utilizes DOE facilities. ~~Glossary~~ ~~general employee: An individual who is either a DOE or DOE contractor employee; an employee of a subcontractor to a DOE contractor; or a visitor who performs work for or in conjunction with DOE or utilizes DOE facilities.~~	For purposes of this RPP, general employee means an individual who is either a DOE or Supply System employee; an employee of a Supply System subcontractor to; or a visitor who performs work for or in conjunction with DOE or utilizes DOE facilities.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
High contamination area means any area, accessible to individuals, where removable surface contamination levels exceed or are likely to exceed 100 times the removable surface contamination values specified in appendix D of this part. ~~High contamination area means any area where contamination levels are greater than 100 times the values specified in appendix D of this part.~~	Glossary High contamination area means any area, accessible to individuals, where removable surface contamination levels exceed or are likely to exceed 100 times the removable surface contamination values specified in Chapter 2, Table 2-2, of this manual. ~~Glossary~~ ~~high contamination area: Any area where contamination levels are greater than 100 times the values specified in Chapter 2, Table 2-2, of this Manual.~~	This RPP incorporates the definition of the HSRCM.
High radiation area means any area, accessible to individuals, in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 0.1 rem (0.001 sievert) in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.	Glossary high radiation area: Any area, accessible to individuals, in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 0.1 rem (0.001 Sv) in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.	This RPP incorporates the definition of the HSRCM.
Individual means any human being.		This RPP incorporates the definition of 10 CFR Part 835.
Member of the public means an individual who is not a general employee. An individual is not a "member of the public" during any period in which the individual receives an occupational dose. ~~Member of the public means an individual who is not occupationally exposed to radiation or radioactive material. An individual is not a "member of the public" during any period in which the individual receives occupational exposure.~~	Glossary Member of the public means an individual who is not a general employee. An individual is not a "member of the public" during any period in which the individual receives an occupational dose. ~~Member of the public: Any individual or group of individuals who is not occupationally exposed to radiation or radioactive material. An individual is not a "member of the public" during any period in which the individual receives an occupational dose.~~	This RPP incorporates the definition of the HSRCM.
Minor means an individual less than 18 years of age.	Table 2-1 Minors and Students (under age 18)	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Monitoring means the measurement of radiation levels, airborne radioactivity concentrations, radioactive contamination levels, quantities of radioactive material, or individual doses and the use of the results of these measurements to evaluate radiological hazards or potential and actual doses resulting from exposures to ionizing radiation. ~~Monitoring means actions intended to detect and quantify radiological conditions.~~	Glossary Monitoring means the measurement of radiation levels, airborne radioactivity concentrations, radioactive contamination levels, quantities of radioactive material, or individual doses and the use of the results of these measurements to evaluate radiological hazards or potential and actual doses resulting from exposures to ionizing radiation. ~~Glossary~~ ~~monitoring: Actions intended to detect and quantify radiological conditions.~~	This RPP incorporates the definition of the HSRCM.
Nonstochastic effects means effects due to radiation exposure for which the severity varies with the dose and for which a threshold normally exists (e.g., radiation-induced opacities within the lens of the eye).		This RPP incorporates the definition of 10 CFR Part 835.
Occupational dose means an individual's ionizing radiation dose (external and internal) as a result of that individual's work assignment. Occupational dose does not include doses received as a medical patient or doses resulting from background radiation or participation as a subject in medical research programs. ~~Occupational exposure means an individual's exposure to ionizing radiation (external and internal) as a result of that individual's work assignment. Occupational exposure does not include planned special exposures, exposure received as a medical patient, background radiation, or voluntary participation in medical research programs.~~	Glossary Occupational dose means an individual's ionizing radiation dose (external and internal) as a result of that individual's work assignment. Occupational dose does not include doses received as a medical patient or doses resulting from background radiation or participation as a subject in medical research programs. ~~occupational dose: An individual's dose due to exposure to ionizing radiation (external and internal) as a result of that individual's work assignment. Occupational dose does not include planned special exposures, exposure received as a medical patient, background radiation, or voluntary participation in medical research programs.~~	This RPP incorporates the definition of the HSRCM.
Person means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, Government agency, any State or political subdivision of, or any political entity within a State, any foreign government or nation or other entity, and any legal successor, representative, agent or agency of the foregoing; provided that person does not include the Department or the United States Nuclear Regulatory Commission.		This RPP incorporates the definition of 10 CFR Part 835.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Radiation means ionizing radiation: alpha particles, beta particles, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. Radiation as used in this part, does not include non-ionizing radiation, such as radio- or micro-waves, or visible, infrared, or ultraviolet light.	Glossary radiation or ionizing radiation: Alpha particles, beta particles, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. Radiation as used in this manual does not include non-ionizing radiation, such as radio-, or micro-waves, or visible, infrared, or ultraviolet light.	This RPP incorporates the definition of the HSRCM.
Radiation area means any area accessible to individuals in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 0.005 rem (0.05 millisievert) in 1 hour at 30 centimeters from the source or from any surface that the radiation penetrates.	Glossary radiation area: Any area, accessible to individuals, in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 0.005 rem (0.05 mSv) in one hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.	This RPP incorporates the definition of the HSRCM.
Radioactive material area means any area within a controlled area, accessible to individuals, in which items or containers of radioactive material exist and the total activity of radioactive material exceeds the applicable values provided in appendix E of this part.	Glossary Radioactive material area means any area within a controlled area, accessible to individuals, in which items or containers of radioactive material exist and the total activity of radioactive material exceeds the applicable values provided in appendix 4A of the HSRCM.	This RPP incorporates the definition of the HSRCM.
Radioactive material transportation means the movement of radioactive material by aircraft, rail, vessel, or highway vehicle when such movement is subject to Department of Transportation regulations or DOE Orders that govern such movements. Radioactive material transportation does not include preparation of material or packaging for transportation, monitoring required by this part, storage of material awaiting transportation, or application of markings and labels required for transportation.	Glossary Radioactive material transportation means the movement of radioactive material by aircraft, rail, vessel, or highway vehicle when such movement is subject to Department of Transportation regulations or DOE Orders that govern such movements. Radioactive material transportation does not include preparation of material or packagings for transportation, monitoring required by this part, storage of material awaiting transportation, or application of markings and labels required for transportation.	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Radiological area means any area within a controlled area defined in this section as a "radiation area," "high radiation area," "very high radiation area," "contamination area," "high contamination area," or "airborne radioactivity area." ~~Radiological area means any area within a controlled area which must be posted as a "radiation area," "high radiation area," "very high radiation area," "contamination area," "high contamination area," or "airborne radioactivity area" in accordance with § 835.603.~~	Glossary Radiological area means any area within a controlled area defined in this section as a "radiation area," "high radiation area," "very high radiation area," "contamination area," "high contamination area," or "airborne radioactivity area." ~~Glossary~~ ~~radiological area: Any area within a controlled area (but not including the controlled area) which must be posted as required by Chapter 2, Part 3 of this Manual.~~ ~~H GLOSSARY~~ ~~Radiologically Controlled Area - See Controlled Area.~~	This RPP incorporates the definition of the HSRCM.
Radiological worker means a general employee whose job assignment involves operation of radiation producing devices or working with radioactive materials, or who is likely to be routinely occupationally exposed above 0.1 rem (0.001 sievert) per year total effective dose equivalent.	Glossary radiological workers: General employees who are required to complete Radiological Worker I or II training because their job assignment requires work on, with, or in the proximity of radiation producing machines or radioactive materials. A radiological worker has the potential of being exposed to more than 0.1 rem (1 mSv) per year, which is the sum of the dose equivalent from external irradiation and the committed effective dose equivalent from internal irradiation. A "radiological worker" may also be referred to as a "radiation worker" or a "radworker." Individuals who complete either Radiological Worker I or Radiological Worker II Training are considered radiological workers.	This RPP incorporates the definition of the HSRCM.
Real-time air monitoring means measurement of the concentrations or quantities of airborne radioactive materials on a continuous basis.	Glossary Real-time air monitoring means measurement of the concentrations or quantities of airborne radioactive materials on a continuous basis.	This RPP incorporates the definition of the HSRCM.
Representative, as applied to the sampling of radioactive material, means sampling in such a manner that the sample closely approximates both the amount of activity and the physical and chemical properties of the material (e.g., particle size and solubility in the case of air sampling of the aerosol to which workers may be exposed).	Glossary representative sample: A sample that closely approximates both the concentration of activity and the physical and chemical properties of material (e.g., particle size and solubility in case of air sampling of the aerosol to which workers may be exposed).	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Respiratory protective device means an apparatus, such as a respirator, worn by an individual for the purpose of reducing the individual's intake of airborne radioactive materials.	Glossary Respiratory protective device means an apparatus, such as a respirator, worn by an individual for the purpose of reducing the individual's intake of airborne radioactive materials.	This RPP incorporates the definition of the HSRCM.
Sealed radioactive source means a radioactive source manufactured, obtained, or retained for the purpose of utilizing the emitted radiation. The sealed radioactive source consists of a known or estimated quantity of radioactive material contained within a sealed capsule, sealed between layer(s) of non-radioactive material, or firmly fixed to a non-radioactive surface by electroplating or other means intended to prevent leakage or escape of the radioactive material. Sealed radioactive sources do not include reactor fuel elements, nuclear explosive devices, and radioisotope thermoelectric generators.	Glossary Sealed radioactive source means a radioactive source manufactured, obtained, or retained for the purpose of utilizing the emitted radiation. The sealed radioactive source consists of a known or estimated quantity of radioactive material contained within a sealed capsule, sealed between layer(s) of non-radioactive material, or firmly fixed to a non-radioactive surface by electroplating or other means intended to prevent leakage or escape of the radioactive material. Sealed radioactive sources do not include reactor fuel elements, nuclear explosive devices, and radioisotope thermoelectric generators.	This RPP incorporates the definition of the HSRCM.
Source leak test means a test to determine if a sealed radioactive source is leaking radioactive material.	Glossary Source leak test means a test to determine if a sealed radioactive source is leaking radioactive material.	This RPP incorporates the definition of the HSRCM.
Stochastic effects means malignant and hereditary diseases for which the probability of an effect occurring, rather than its severity, is regarded as a function of dose without a threshold for radiation protection purposes.		This RPP incorporates the definition of 10 CFR Part 835.
Survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. When appropriate, such an evaluation includes a physical survey of the location of radioactive material and measurements or calculations of levels of radiation, or concentrations or quantities of radioactive material present.	Glossary survey: An evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. When appropriate, such an evaluation includes a physical survey of the location of radioactive material and measurements or calculations of levels of radiation, or concentrations or quantities of radioactive material present.	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Very high radiation area means any area accessible to individuals in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rads (5 grays) in one hour at 1 meter from a radiation source or from any surface that the radiation penetrates.	Glossary very high radiation area: Any area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rads (5 grays) in one hour at 1 meter from a radiation source or from any surface that the radiation penetrates.	This RPP incorporates the definition of the HSRCM.
Week means a period of seven consecutive days.	Glossary Week means a period of seven consecutive days.	This RPP incorporates the definition of the HSRCM.
Year means the period of time beginning on or near January 1 and ending on or near December 31 of that same year used to determine compliance with the provisions of this part. The starting and ending date of the year used to determine compliance may be changed provided that the change is made at the beginning of the year and that no day is omitted or duplicated in consecutive years. ~~Year means the period of time beginning on or near January 1 used to determine compliance with the provisions of this part. The starting date of the year used to determine compliance may be changed provided that the change is made at the beginning of the year and that no day is omitted or duplicated in consecutive years.~~	Glossary Year means the period of time beginning on or near January 1 and ending on or near December 31 of that same year used to determine compliance with the provisions of this part. The starting and ending date of the year used to determine compliance may be changed provided that the change is made at the beginning of the year and that no day is omitted or duplicated in consecutive years. ~~year: The period of time beginning on or near January 1 used to determine compliance with the provisions of this Manual. The starting date of the year used to determine compliance may be changed provided that the change is made at the beginning of the year and that no day is omitted or duplicated in consecutive years.~~	This RPP incorporates the definition of the HSRCM.
(b) As used in this part to describe various aspects of radiation dose:		
Absorbed dose (D) means the energy absorbed by matter from ionizing radiation per unit mass of irradiated material at the place of interest in that material. The absorbed dose is expressed in units of rad (or gray) (1 rad = 0.01 gray).	Glossary absorbed dose (D): Energy absorbed by matter from ionizing radiation per unit mass of irradiated material at the place of interest in that material. The absorbed dose is expressed in units of rad (or gray) (1 rad = 0.01 gray).	This RPP incorporates the definition of the HSRCM.
Collective dose means the sum of the total effective dose equivalent values for all individuals in a specified population. Collective dose is expressed in units of person-rem (or person-sievert).	Glossary collective dose: The sum of the total effective dose equivalent values for all individuals in a specified population. Collective dose is expressed in units of person-rem (or person-sievert).	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Committed dose equivalent ($H_{T,50}$) means the dose equivalent calculated to be received by a tissue or organ over a 50-year period after the intake of a radionuclide into the body. It does not include contributions from radiation sources external to the body. Committed dose equivalent is expressed in units of rem (or sievert).	Glossary committed dose equivalent ($H_{T,50}$): The dose equivalent calculated to be received by a tissue or organ over a 50-year period after the intake of a radionuclide into the body. It does not include contributions from radiation sources external to the body. Committed dose equivalent is expressed in units of rem (or sievert).	This RPP incorporates the definition of the HSRCM.
Committed effective dose equivalent ($H_{E,50}$) means the sum of the committed dose equivalents to various tissues in the body ($H_{T,50}$), each multiplied by the appropriate weighting factor (w_T)--that is, $H_{E,50} = \Sigma w_T H_{T,50}$. Committed effective dose equivalent is expressed in units of rem (or sievert).	Glossary committed effective dose equivalent ($H_{E,50}$): The sum of the committed dose equivalents to various tissues in the body ($H_{T,50}$), each multiplied by the appropriate weighting factor (w_T)--that is, $H_{E,50} = \Sigma w_T H_{T,50}$. Committed effective dose equivalent is expressed in units of rem (or sievert).	This RPP incorporates the definition of the HSRCM.
Cumulative total effective dose equivalent means the sum of all total effective dose equivalent values recorded for an individual, where available, for each year occupational dose was received, beginning January 1, 1989. ~~Cumulative total effective dose equivalent means the sum of the total effective dose equivalents recorded for an individual for each year of employment at a DOE or DOE contractor site or facility, effective January 1, 1989.~~	Glossary cumulative total effective dose equivalent: The sum of the total effective dose equivalents recorded for an individual for each year of employment at a DOE or DOE contractor site or facility, effective January 1, 1989.	For purposes of this RPP, cumulative total effective dose equivalent means the sum of the total effective dose equivalents recorded for an individual for each year of employment at a DOE or Supply System HGP site or facility, effective January 1, 1989.
Deep dose equivalent means the dose equivalent derived from external radiation at a depth of 1 cm in tissue.	Glossary deep dose equivalent: The dose equivalent derived from external radiation at a tissue depth of 1 cm in tissue.	This RPP incorporates the definition of the HSRCM.
Dose is a general term for absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent as defined in this part.	Glossary Dose is a general term for absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent as defined in this part.	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Dose equivalent (H) means the product of absorbed dose (D) in rad (or gray) in tissue, a quality factor (Q), and other modifying factors (N). Dose equivalent is expressed in units of rem (or sievert) (1 rem = 0.01 sievert).	Glossary dose equivalent (H): The product of the absorbed dose (D) (in rad or gray) in tissue, a quality factor (Q), and all other modifying factors (N). Dose equivalent is expressed in units of rem (or sievert) (1 rem = 0.01 sievert).	This RPP incorporates the definition of the HSRCM.
Effective dose equivalent (H_E) means the summation of the products of the dose equivalent received by specified tissues of the body (H_T) and the appropriate weighting factor (w_T)--that is, $H_E = \acute{O} w_T H_T$. It includes the dose from radiation sources internal and/or external to the body. For purposes of compliance with this part, deep dose equivalent to the whole body may be used as effective dose equivalent for external exposures. The effective dose equivalent is expressed in units of rem (or sievert). ~~Effective dose equivalent (H_E) means the summation of the products of the dose equivalent received by specified tissues of the body (H_T) and the appropriate weighting factor (w_T)--that is, $H_E = \Sigma w_T H_T$. It includes the dose from radiation sources internal and/or external to the body. The effective dose equivalent is expressed in units of rem (or sievert).~~	Glossary Effective dose equivalent (H_E) means the summation of the products of the dose equivalent received by specified tissues of the body (H_T) and the appropriate weighting factor (w_T)--that is, $H_E = \acute{O} w_T H_T$. It includes the dose from radiation sources internal and/or external to the body. For purposes of compliance with this part, deep dose equivalent to the whole body may be used as effective dose equivalent for external exposures. The effective dose equivalent is expressed in units of rem (or sievert). ~~effective dose equivalent (H_E): The summation of the products of the dose equivalent received by specified tissues of the body (H_T) and the appropriate weighting factors (W_T) - that is ($H_E = \Sigma w_T H_T$). It includes the dose from radiation sources internal and/or external to the body. The effective dose~~ equivalent is expressed in units of rem (or sievert).	This RPP incorporates the definition of the HSRCM.
External dose or exposure means that portion of the dose equivalent received from radiation sources outside the body (i.e., "external sources"). ~~External dose or exposure means that portion of the dose equivalent received from radiation sources (e.g., "external sources") outside the body.~~	Glossary External dose or exposure means that portion of the dose equivalent received from radiation sources outside the body (i.e., "external sources"). ~~external dose or exposure: That portion of the dose equivalent received from radiation sources outside the body (e.g., "external sources").~~	This RPP incorporates the definition of the HSRCM.
Extremity means hands and arms below the elbow or feet and legs below the knee.	Glossary extremity: Hands and arms below the elbow or feet and legs below the knee.	This RPP incorporates the definition of the HSRCM.
Internal dose or exposure means that portion of the dose equivalent received from radioactive material taken into the body (e.g., "internal sources")	Glossary internal dose or exposure: That portion of the dose equivalent received from radioactive material taken into the body (e.g., "internal sources").	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
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Lens of the eye dose equivalent means the external exposure of the lens of the eye and is taken as the dose equivalent at a tissue depth of 0.3 cm.	Glossary lens of the eye dose equivalent: The external exposure of the lens of the eye and is taken as the dose equivalent at a tissue depth of 0.3 cm.	This RPP incorporates the definition of the HSRCM.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Quality factor (Q) means the modifying factor used to calculate the dose equivalent from the absorbed dose; the absorbed dose (expressed in rad or gray) is multiplied by the appropriate quality factor. (I) The quality factors to be used for determining dose equivalent in rem are as follow: ~~Quality factor means the principal modifying factor used to calculate the dose equivalent from the absorbed dose; the absorbed dose (expressed in rad or gray) is multiplied by the appropriate quality factor (Q).~~ ~~(I) The quality factors to be used for determining dose equivalent in rem are shown below:~~ QUALITY FACTORS Radiation Type — Quality Factor X-rays, gamma rays, positrons, electrons (including tritium beta particles) — 1 Neutrons, < 10 keV — 3 Neutrons, > 10 keV — 10 Protons and singly-charged particles of unknown energy with rest mass greater than one atomic mass unit — 10 Alpha particles and multiple-charged particles (and particles of unknown — 20 When spectral data are insufficient to identify the energy of the neutrons, a quality factor of 10 shall be used.	Glossary Quality factor (Q) means the modifying factor used to calculate the dose equivalent from the absorbed dose; the absorbed dose (expressed in rad or gray) is multiplied by the appropriate quality factor. (I) The quality factors to be used for determining dose equivalent in rem are as follow: ~~quality factor: The principal modifying factor used to calculate the dose equivalent from the absorbed dose; the absorbed dose (expressed in rad or gray) is multiplied by the appropriate quality factor (Q).~~	The Supply System accepts the provision as stated in 10 CFR 835 and the HSRCM.

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When spectral data are insufficient to identify the energy of the neutrons, a quality factor of 10 shall be used. (ii) When spectral data are sufficient to identify the energy of the neutrons, the following mean quality factor values may be used: QUALITY FACTORS FOR NEUTRONS [Mean quality factors, (maximum value in a 30-cm dosimetry phantom), and values of neutron flux density that deliver in 40 hours, a maximum dose equivalent of 0.1 rem (0.001 sievert). Where neutron energy falls between listed values, the more restrictive mean quality factor shall be used.] ~~When spectral data are insufficient to identify the energy of the neutrons, a quality factor of 10 shall be used.~~ ~~(ii) When spectral data are sufficient to identify the energy of the neutrons, the following mean quality factor values may be used:~~ ~~QUALITY FACTORS FOR NEUTRONS~~ ~~[Mean quality factors, Q (maximum value in a 30-cm dosimetry phantom), and values of neutron flux density that deliver in 40 hours, a maximum dose equivalent of 100 mrem (0.001 sievert).]~~		The HGP is a decontamination and decommissioning project involving radionuclides that do not emit neutrons. Therefore, quality factors for neutrons are not applicable to this RPP.

NEUTRON ENERGY (MeV)	MEAN QUALITY FACTOR	NEUTRON FLUX ($cm^{-2}s^{-1}$)
2.5×10^{-8} thermal	2	680
1×10^{-7}	2	680
1×10^{-6}	2	560
1×10^{-5}	2	560
1×10^{-4}	2	580
1×10^{-3}	2	680
1×10^{-2}	2.5	700
1×10^{-1}	7.5	115
5×10^{-1}	11	27
1	11	19
2.5	9	20
5	8	16
7	7	17

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Shallow dose equivalent means the dose equivalent deriving from external radiation at a depth of 0.007 cm in tissue.	Glossary shallow dose equivalent: The dose equivalent deriving from external radiation at a depth of 0.007 cm in tissue.	This RPP incorporates the definition of the HSRCM.
Total effective dose equivalent (TEDE) means the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures). ~~Total effective dose equivalent (TEDE) means the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures). For purposes of compliance with this part, deep dose equivalent to the whole body may be used as effective dose equivalent for external exposures.~~	Glossary Total effective dose equivalent (TEDE) means the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures). ~~total effective dose equivalent (TEDE): The sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures). Deep dose equivalent to the whole body may be used as effective dose equivalent for external exposures.~~	This RPP incorporates the definition of the HSRCM.

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Weighting factor (w_T) means the fraction of the overall health risk, resulting from uniform, whole body irradiation, attributable to specific tissue (T). The dose equivalent to tissue, (H_T), is multiplied by the appropriate weighting factor to obtain the effective dose equivalent contribution from that tissue. The weighting factors are as follows: WEIGHTING FACTORS FOR VARIOUS ORGANS AND TISSUES Organs or tissues, T — Weighting factor, w_T Gonads 0.25 Breasts 0.15 Red bone marrow 0.12 Lungs 0.12 Thyroid 0.03 Bone surfaces 0.03 Remainder[1] 0.30 Whole body[2] 1.00 [1]"Remainder" means the five other organs or tissues, excluding the skin and lens of the eye, with the highest dose (e.g., liver, kidney, spleen, thymus, adrenal, pancreas, stomach, small intestine, and upper large intestine). The weighting factor for each remaining organ or tissue is 0.06. [2]For the case of uniform external irradiation of the whole body, a weighting factor (w_T) equal to 1 may be used in determination of the effective dose equivalent. [1] "Remainder" means the five other organs or tissues with the highest dose (e.g., liver, kidney, spleen, thymus, adrenal, pancreas, stomach, small intestine, and upper large intestine). The weighting factor for each remaining organ or tissue is 0.06. [2] For the case of uniform external irradiation of the whole body, a weighting factor (wT) equal to 1 may be used in the determination of the effective dose equivalent.	Glossary weighting factor (w_T): The fraction of the overall health risk, resulting from uniform, whole body irradiation, attributable to specific tissue (T). The dose equivalent to the affected tissue, H_T, is multiplied by the appropriate weighting factor to obtain the effective dose equivalent contribution from that tissue. Appendix 2B	This RPP incorporates the definition of the HSRCM.

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Whole body means, for the purposes of external exposure, head, trunk (including male gonads), arms above and including the elbow, or legs above and including the knee.	Glossary whole body: For the purposes of external exposure, head, trunk (including male gonads), arms above and including the elbow, or legs above and including the knee.	This RPP incorporates the definition of the HSRCM.
© Terms defined in the Atomic Energy Act and not defined in this part are used consistent with the meanings given in the Act.		
(d) As used in this part, words in the singular also include the plural and words in the masculine gender also include the feminine and vice versa, as the case may be		

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§ 835.3 General rule. - 4 requirements total in section		
1 (a) No person or DOE personnel shall take or cause to be taken any action inconsistent with the requirements of: (1) This part; or (2) Any program, plan, schedule, or other process established by this part.	H113.1 (excerpt) "10 CFR 835.3(a) states: No person or DOE personnel shall take or cause to be taken an action inconsistent with the requirements of: (1) This part; or (2) Any program, plan, schedule, or other process established by this part."	Compliance with this requirement is implemented through adherence to procedures approved for use by the Supply System at the HGP.
(b) With respect to a particular DOE activity, contractor management shall be responsible for compliance with the requirements of this part.	H113.1 (excerpt) "10 CFR 835.3(b) states: with respect to a particular DOE activity, contractor management shall be responsible for compliance with the requirements of this part."	Compliance with this requirement is implemented through contractual requirements established between the Supply System and its subcontractors.
© Where there is no contractor for a DOE activity, DOE shall ensure implementation of and compliance with the requirements of this part.		The scope of this Radiation Protection Program is limited to contractor activities, (see section 2, applicability).
(d) Nothing in this part shall be construed as limiting actions that may be necessary to protect health and safety.	Article 231.10 (excerpt) "Physical barriers shall be set up such that they do not impede the intended use of emergency exits or evacuation routes." Article 316.4 (excerpt) "The selection of respiratory protection equipment should include consideration of worker safety." Appendix 3B.3 Physical Access Controls for High and Very High Radiation Areas "Physical access controls over HRAs and VHRAs shall be established in such a way that does not prevent a person from leaving the area." H113.1 "10 CFR 835.3(d) states: Nothing in this part shall be construed as limiting actions that may be necessary to protect health and safety."	Compliance with this requirement is implemented through adherence to procedures approved for use by the Supply System at the HGP. High and Very High Radiation Areas are not expected at the HGP. Therefore, entry into high radiation areas is not authorized under provisions of this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.

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(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 by a period not to exceed 30 days to accommodate scheduling needs.		
§ 835.4 Radiological Units 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. The SI units, becquerel (Bq), gray (Gy), and sievert (Sv), are only provided parenthetically in this part for reference with scientific standards. ~~Unless otherwise specified, the quantities used in the records required by this part shall be clearly indicated in special units of curie, rad, or rem, including multiples and subdivisions of these units. The SI units, becquerel (Bq), gray (Gy), and sievert (Sv), are only provided parenthetically in this part for reference with scientific standards. These SI units are not authorized for use in records required under this part.~~	H713.1f "10 CFR 835.4 states: 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. The SI units, becquerel (Bq), gray (Gy), and sievert (Sv), are only provided parenthetically in this part for reference with scientific standards. ~~"10 CFR 835.4 states:~~ ~~Unless otherwise specified, the quantities used in the records required by this part shall be clearly indicated in special units of curie, rad, or rem, including multiples and subdivisions of these units. The SI units, becquerel (Bq), gray (Gy), and sievert (Sv), are only provided parenthetically in this part for reference with scientific standards. These SI units are not authorized for use in records required under this part."~~	Compliance with this requirement is implemented through adherence to procedures approved for use by the Supply System at the HGP.
Subpart B--Radiation Protection Programs § 835.101 Radiation protection programs. - 15 requirements total in section		
(a) A DOE activity shall be conducted in compliance with a documented radiation protection program (RPP) as approved by the DOE.		Upon DOE approval, the Supply System's RPP establishes the documentation to implement § 835.101(a) as written. The RPP will be managed and controlled through the establishment of procedures approved for use by the Supply System at the HGP.
(b) The DOE may direct or make modifications to a RPP.		

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© The content of each RPP shall be commensurate with the nature of the activities performed and shall include formal plans and measures for applying the as low as reasonably achievable (ALARA) process to occupational exposures.		The Supply System's approved RPP establishes the documentation to implement § 835.101© as written. The RPP will be managed and controlled through the establishment of appropriate procedures approved for use by the Supply System at the HGP. Compliance with this requirement is implemented through procedure RP-AP-437 approved for use by the Supply System at the HGP. Eleven essential elements of ALARA Program - Policy and Management Commitment, Assignment of Responsibilities, Administrative Control Levels, Radiological Performance Goals/Indicators, ALARA Training, Plans and Procedures, Internal Assessments/Audits, Optimization Methodology, Radiological Design Review, Radiological Work/Experiment Planning, Records.
(d) The RPP shall specify the existing and/or anticipated operational tasks that are intended to be within the scope of the RPP. Except as provided in § 835.101(l), any task outside the scope of a RPP shall not be initiated until an update of the RPP is approved by DOE.		If any radiological activities are determined to be outside the scope of this RPP (as defined in section II), except as provided in § 835.101(l), the Supply System shall obtain DOE approval of revised RPP. The RPP will be managed and controlled through the establishment of appropriate procedures approved for use by the Supply System at the HGP.
(e) The content of the RPP shall address, but shall not necessarily be limited to, each requirement in this part.		Upon DOE approval, the Supply System's RPP implements § 835.101(e) as written. The RPP will be managed and controlled through the establishment of appropriate procedures approved for use by the Supply System at the HGP.

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(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 amendments to this part shall be achieved no later than 180 days following approval of the revised RPP by DOE. Compliance with the requirements of § 835.402(d) for radiobioassay program accreditation shall be achieved no later than January 1, 2002. ~~(f) Compliance with this part shall be achieved no later than January 1, 1996.~~		Compliance with this requirement is established.
~~15 (g) The RPP for an existing activity shall be submitted to the DOE no later than January 1, 1995.~~		This requirement is not applicable to the HGP.
16 ~~(h)~~ (g) An update of the RPP shall be submitted to DOE: (1) Whenever a change or an addition to the RPP is made;		The Supply System accepts requirement § 835.101(h)(1) as written. The RPP will be managed and controlled through the establishment of appropriate procedures approved for use by the Supply System at the HGP.
17 (2) Prior to the initiation of a task not within the scope of the RPP; or		The Supply System accepts requirement § 835.101(h)(2) as written. The RPP will be managed and controlled through the establishment of appropriate procedures approved for use by the Supply System at the HGP.
18 (3) Within 180 days of the effective date of any modifications to this part.		The Supply System accepts requirement § 835.101(h)(3) as written. The RPP will be managed and controlled through the establishment of appropriate procedures approved for use by the Supply System at the HGP.
19 ~~(i)~~ (h) 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.		The Supply System accepts requirement § 835.101(i) as written. The RPP will be managed and controlled through the establishment of appropriate procedures approved for use by the Supply System at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
20 Proposed changes that decrease the effectiveness of the RPP shall not be implemented without submittal to and approval by the Department.		The Supply System accepts requirement § 835.101(l) as written. The RPP will be managed and controlled through the establishment of appropriate procedures approved for use by the Supply System at the HGP.
21 ~~(j)~~ (l) An initial RPP or an update shall be considered approved 180 days after its submission unless rejected by DOE at an earlier date.		
§ 835.102 Internal audits. Internal audits of the radiation protection program, including examination of program content and implementation, shall be conducted through a process that ensures that all functional elements are reviewed no less frequently than every 36 months. ~~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.~~	Article 134.1 (excerpt) Internal audits of the radiation protection program, including examination of program content and implementation, shall be conducted through a process that ensures that all functional elements are reviewed no less frequently than every 36 months. ~~"Internal audits of the Radiological Control Program shall be conducted such that over a 3 year period, all functional elements are assessed for program performance, applicability, content and implementation."~~	"All functional elements of RPP" are those subparts of 10 CFR 835, specifically, standards for internal and external exposure, monitoring in the workplace (individual, area, and radioactive contamination control), entry control, posting and labeling, records, reports to individuals, radiation safety training, design and control, releases of materials and equipment from radiological areas, and accidents and emergencies. Compliance with this requirement is implemented through procedures approved for use by the Supply System at the HGP.
§ 835.103 Education, Training and Skills. 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.	Article 611 (excerpt) 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.	Compliance with this requirement is implemented through procedures approved for use by the Supply System at the HGP.
§ 835.104 Written Procedures. 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.		The Supply System accepts requirement § 835.104 as written.

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Subpart C--Standards for Internal and External Exposure § 835.202 Occupational exposure limits for general employees. - 6 requirements total in section		
(a) Except for planned special exposures conducted consistent with § 835.204 and emergency exposures authorized in accordance with § 835.1302, the occupational dose received by general employees shall be controlled such that the following limits are not exceeded in a year: ~~The occupational exposure to general employees resulting from DOE activities, other than planned special exposures under § 835.204 and emergency exposure situations under § 835.1302, shall be controlled so the following annual limits are not exceeded:~~		
24 (1) A total effective dose equivalent of 5 rems (0.05 sievert);	Article 213.1 (excerpt) "Dose limits are provided in Table 2-1 and shall not be exceeded." Table 2-1 (excerpt) "Type of Exposure - Radiological Worker: Whole Body (internal + external): 5 rem" Table 2-1 Notes.1 "Internal dose to the whole body shall be calculated as committed effective dose equivalent. The committed effective dose equivalent is the resulting dose committed to the whole body from internally deposited radionuclides over a 50-year period after intake. See Appendix 2B for the weighing factors to be used in converting organ dose equivalent to effective dose equivalent for the whole body dose." Appendix 2B (excerpt) Weighing Factors for Organs and Tissues HSRCM Glossary: whole body: "For the purposes of external exposure, head, trunk (including male gonads), arms above and including the elbow, or legs above and including the knee."	Compliance with this requirement is implemented through procedures approved for use by the Supply System at the HGP. Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
25 (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);	Article 213.1 (excerpt) "Dose limits are provided in Table 2-1 and shall not be exceeded." Table 2-1 (excerpt) "Type of Exposure - Radiological Worker: Extremity (hands and arms below the elbow; feet and legs below the knees) (and) any organ or tissue (other than lens of eye): 50 rem" Table 2-1 Notes.2 "The annual limit of exposure to "any organ or tissue" is based on the committed dose to that organ or tissue resulting from internally deposited radionuclides over a 50-year period after intake plus any external effective dose equivalent to that organ during the year." HSRCM Glossary: deep dose equivalent: "The dose equivalent derived from external radiation at a tissue depth of 1 cm in tissue."	Compliance with this requirement is implemented through procedure RP-OA-402 approved for use by the Supply System at the HGP. Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
26 (3) A lens of the eye dose equivalent of 15 rems (0.15 sievert); and	Article 213.1 (excerpt) "Dose limits are provided in Table 2-1 and shall not be exceeded." Table 2-1 (excerpt) "Type of exposure - Radiological Worker: Lens of Eye: 15 rem" HSRCM Glossary: lens of the eye dose equivalent: "The external exposure of the lens of the eye and is taken as the dose equivalent at a tissue depth of 0.3 cm."	Compliance with this requirement is implemented through procedure RP-OA-402 approved for use by the Supply System at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
27 (4) A shallow dose equivalent of 50 rems (0.5 sievert) to the skin or to any extremity.	Article 213.1 (excerpt) "Dose limits are provided in Table 2-1 and shall not be exceeded." Table 2-1 (excerpt) "Type of exposure - Radiological Worker: skin: 50 rem" Table 2-1 Notes.4 (excerpt) "See appendix 2C for guidance on non-uniform exposure of skin." Appendix 2C (excerpt) Non-Uniform Exposure of the Skin HSRCM Glossary: shallow dose equivalent: The dose equivalent deriving from external radiation at a depth of 0.007 cm in tissue." HSRCM Glossary: extremity: Hands and arms below the elbow or feet and legs below the knee."	Compliance with this requirement is implemented through procedure RP-OA-402 approved for use by the Supply System at the HGP. Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
(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 when demonstrating compliance with §§ 835.202(a) and 835.207. ~~28 (b) All occupational exposure received during the current year shall be included when demonstrating compliance with § 835.202(a).~~	Article 213.1 (excerpt) All occupational doses received during the current year, except doses resulting from planned special exposures conducted in compliance with Article 213.3 and emergency exposures authorized in accordance with 213.4, shall (835.202(b)) be included when demonstrating compliance with Table 2-1, occupational dose limits for general employees and minors. ~~Article 213.1 (excerpt)~~ ~~"All occupational exposure received during the current year shall be included when demonstrating compliance with Table 2-1 dose limits."~~ ~~Table 2-1 (excerpt)~~ ~~Summary of Dose Limits~~	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(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 occupational dose limits. ~~29 (c) Exposures from background, therapeutic and diagnostic medical radiation, and voluntary participation in medical research programs shall not be included in dose records or in the assessment of compliance with the occupational exposure limits.~~	Table 2-1 Notes.3 (excerpt) (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 occupational dose limits. ~~"Exposures due to background radiation, therapeutic and diagnostic medical procedures, and voluntary participation in medical research programs shall not be included in either personnel radiation dose records or assessment of dose against the limits in this Table."~~ ~~Table 2-1 (excerpt)~~ ~~Summary of Dose Limits~~	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
§ 835.203 Combining internal and external dose equivalents. ~~§ 835.203 Combining internal and external dose equivalents resulting from DOE activities. - 2 requirements total in section~~		
(a) The total effective dose equivalent during a year shall be determined by summing the effective dose equivalent from external exposures and the committed effective dose equivalent from intakes during the year. ~~30 (a) The total effective dose equivalent during a year shall be determined by summing the effective dose equivalent from external exposures and the committed effective dose equivalent from intakes during the year. For purposes of compliance with this part, deep dose equivalent to the whole body may be used as effective dose equivalent for external exposures.~~	Table 2-1 Notes.1 (excerpt) "Internal dose to the whole body shall be calculated as committed effective dose equivalent. The committed effective dose equivalent is the resulting dose committed to the whole body from internally deposited radionuclides over a 50-year period after intake." HSRCM Glossary: whole body dose "The sum of the annual deep dose equivalent for external exposures and the committed effective dose equivalent for internal exposures." HSRCM Glossary: total effective dose equivalent "The sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures). Deep dose equivalent to the whole body may be used as effective dose equivalent for external exposures." HSRCM Glossary: deep dose equivalent "The dose equivalent derived from external radiation at a tissue depth of 1 cm in tissue."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
31 (b) Determinations of the effective dose equivalent shall be made using the weighing factor values provided in § 835.2.	Table 2-1 Notes.1 (excerpt) "See appendix 2B for the weighing factors to be used in converting organ dose equivalent to effective dose equivalent for the whole body dose." Appendix 2B (excerpt) Weighing Factors for Organs and Tissues	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
~~32 (c) For the case of uniform external irradiation of the whole body, a weighing factor (w_t) equal to 1 may be used in the determination of the effective dose equivalent.~~	~~Appendix 2B (excerpt)~~ ~~"Whole Body Weighing Factor: 1.00"~~ ~~Appendix 2B Notes.3~~ ~~"For the case of uniform external irradiation of the whole body, a weighing factor equal to 1 may be used in the determination of the effective dose equivalent."~~	~~Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.~~

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
§ 835.204 Planned special exposures.		
33 (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 § 835.202(a), provided that each of the following conditions is satisfied: (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 § 835.202(a) are unavailable or impractical; ~~(1) The planned special exposure is considered only in an exceptional situation when alternatives that might prevent a radiological worker from exceeding the limit in § 835.202(a)(1) are unavailable or impractical;~~	~~Article 213.3 (excerpt)~~ ~~"Proposed use of the Planned Special Exposures as specified in 10 CFR 835 shall be applied only in extraordinary situations."~~ Article 722.12 "Authorized emergency doses and planned special exposures shall be accounted for separately, but maintained with the individual's occupational exposure records." H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. (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 § 835.202(a), provided that each of the following conditions is satisfied: (1) The planned special exposure is considered only in an exceptional situation when alternatives that might prevent a radiological worker from exceeding the limit in §-835.202(a)(1) are unavailable or impractical;"	Planned special exposures are not authorized under provisions of this RPP.

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34 (2) The contractor management (and employer, if the employer is not the contractor) specifically requests the planned special exposure, in writing; and	Article 213.3a "Proposed activity has been reviewed by the Radiological Control Manager and submitted by the senior site executive to the lead Secretarial Officer for approval." H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. (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 § 835.202(a), provided that each of the following conditions is satisfied: (2) The contractor management (and employer, if the employer is not the contractor) specifically requests the planned special exposure, in writing; and"	Planned special exposures are not authorized under provisions of this RPP.

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(3) Joint written approval is received from the appropriate DOE Headquarters program office and the Secretarial Officer responsible for environment, safety and health matters. ~~35 (3) Joint written approval from the appropriate DOE Headquarters program office and the Assistant Secretary for Environment, Safety and Health is received.~~	~~Article 213.3b~~ ~~"Proposed activity has been jointly approved by the Secretarial Officer and Assistant Secretary for Environment, Safety and Health."~~ H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. (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 § 835.202(a), provided that each of the following conditions is satisfied: (3) Joint written approval is received from the appropriate DOE Headquarters program office and the Secretarial Officer responsible for environment, safety and health matters. ~~(3) Joint written approval from the appropriate DOE Headquarters program office and the Assistant Secretary for Environment, Safety and Health is received."~~	Planned special exposures are not authorized under provisions of this RPP.
36 (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.	~~Article 213.3 (excerpt)~~ ~~"Proposed use of the Planned Special Exposures as specified in 10 CFR 835 shall be applied only in extraordinary situations."~~ H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. (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."	Planned special exposures are not authorized under provisions of this RPP.

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37 (c) An individual shall not receive a planned special exposure that, in addition to the doses determined in § 835.204(b), would result in a dose exceeding the following: (1) In a year, the numerical values of the dose limits established at § 835.202(a); and ~~(1) A total effective dose equivalent of 5 rems (0.05 sievert) in the current year; and~~	~~Article 213.3 (excerpt)~~ ~~"Proposed use of the Planned Special Exposure as specified in 10 CFR 835 shall be applied only in extraordinary situations."~~ H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. (c) An individual shall (835.204 (c)) not receive a planned special exposure that, in addition to the doses determined in Article 213.3.b, would result in a dose exceeding those established in Table 2-1 of the HSRCM. ~~(1) A total effective dose equivalent of 5 rems (0.05 sievert) in the current year; and"~~	Planned special exposures are not authorized under provisions of this RPP.
(2) Over the individual's lifetime, five times the numerical values of the dose limits established at § 835.202(a). ~~38 (2) A cumulative total effective dose equivalent of 25 rems (0.25 sievert).~~	~~Article 213.3 (excerpt)~~ ~~"Proposed use of the Planned Special Exposure as specified in 10 CFR 835 shall be applied only in extraordinary situations."~~ H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. © An individual shall not receive a planned special exposure that, in addition to the doses determined in § 835.204(b), would result in a dose exceeding the following: (2) A cumulative total effective dose equivalent of 25 rems (0.25 sievert)."	Planned special exposures are not authorized under provisions of this RPP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(d) Prior to a planned special exposure, written consent shall be obtained from each individual involved. Each such written consent shall include: ~~39 (d) Prior to a planned special exposure, written consent shall be obtained from each individual involved. Each individual shall be:~~	~~Article 213.3 (excerpt)~~ ~~"Proposed use of the Planned Special Exposure as specified in 10 CFR 835 shall be applied only in extraordinary situations."~~ H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. (d) Prior to a planned special exposure, written consent shall be obtained from each individual involved. Each individual shall be:"	Planned special exposures are not authorized under provisions of this RPP.
(1) The purpose of the planned operations and procedures to be used; ~~40 (1) Informed of the purpose of the planned operations and procedures to be used;~~	~~Article 213.3 (excerpt)~~ ~~"Proposed use of the Planned Special Exposure as specified in 10 CFR 835 shall be applied only in extraordinary situations."~~ H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. Each individual shall be: (1) Informed of the purpose of the planned operations and procedures to be used;"	Planned special exposures are not authorized under provisions of this RPP.

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(2) The estimated doses and associated potential risks and specific radiological conditions and other hazards which might be involved in performing the task; and ~~41 (2) Informed of the estimated doses and associated potential risks and special conditions and other hazards which might be involved in performing the task; and~~	~~Article 213.3 (excerpt)~~ ~~"Proposed use of the Planned Special Exposure as specified in 10 CFR 835 shall be applied only in extraordinary situations."~~ H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. Each individual shall be: (2) Informed of the estimated doses and associated potential risks and special conditions and other hazards which might be involved in performing the task; and"	Planned special exposures are not authorized under provisions of this RPP.
(3) Instructions on the measures to be taken to keep the dose ALARA considering other risks that may be present. ~~42 (3) Instructed in the measures to be taken to keep the dose ALARA considering other risks that may be present.~~	~~Article 213.3 (excerpt)~~ ~~"Proposed use of the Planned Special Exposure as specified in 10 CFR 835 shall be applied only in extraordinary situations."~~ H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. Each individual shall be: (3) Instructed in the measures to be taken to keep the dose ALARA considering other risks that may be present."	Planned special exposures are not authorized under provisions of this RPP.

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43 (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 § 835.204(a)(3).	Article 213.3 (excerpt) "Proposed use of the Planned Special Exposure as specified in 10 CFR 835 shall be applied only in extraordinary situations." Article 781.4 (excerpt) "Reports of individual exposure to radiation or radioactive material as a result of a planned special exposure (10 CFR 835.204(e)) shall be submitted to the Department in accordance with departmental occurrence reporting requirements." H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. (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 § 835.204(a)(3)."	Planned special exposures are not authorized under provisions of this RPP.
44 (f) The dose from planned special exposures is not to be considered in controlling future occupation dose of the individual under § 835.202(a), but is to be included in records and reports required under this part.	Article 213.3 (excerpt) "Proposed use of the Planned Special Exposure as specified in 10 CFR 835 shall be applied only in extraordinary situations." Article 722.12 "Emergency doses and planned special exposures shall be accounted for separately, but maintained with the individual's occupational exposure records." H213.3 (excerpt) "10 CFR 835.204 provides several additional conditions not specifically listed in the DOE RadCon Manual which must be satisfied before a radiological worker is authorized for a planned special exposure. 10 CFR 835.204 states: § 835.204 Planned special exposures. (f) The dose from planned special exposures is not to be considered in controlling future occupation dose of the individual under § 835.202(a), but is to be included in records and reports required under this part."	Planned special exposures are not authorized under provisions of this RPP.

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§ 835.205 Determination of compliance for non-uniform exposure of the skin. - 4 requirements total in section		
45 (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.	Appendix 2C "Non-uniform exposures of the skin from x-rays, beta radiation and radioactive materials on the skin, including hot particles shall be assessed and recorded as specified in the table below:"	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
(b) For purposes of demonstrating compliance with § 835.202(a)(4), assessments shall be conducted as follows:		
46 (1) *Area of skin irradiated is 100 cm² or more.* The non-uniform dose equivalent received during the year shall be averaged over the 100 cm² of the skin receiving the maximum dose, added to any uniform dose equivalent also received by the skin, and recorded as the shallow dose equivalent to any extremity or skin for the year.	Appendix 2C (excerpt) "Area of skin irradiated ≥ 100 cm² - averaged over the 100 cm² of skin receiving the maximum dose, added to any uniform dose equivalent also received by the skin, (and) recorded as the annual extremity or skin (shallow) dose equivalent (H)."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
47 (2) *Area of skin irradiated is 10 cm² or more, but is less than 100 cm².* The non-uniform dose equivalent (H) to the irradiated area received during the year shall be added to any uniform dose equivalent also received by the skin and recorded as the shallow dose equivalent to any extremity or skin for the year. H is the dose equivalent 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.	Appendix 2C (excerpt) "Area of skin irradiated ≥ 10 cm² and < 100 cm² - averaged over the 1 cm² of skin receiving the maximum dose (D), reduced by the fraction (f) which is the irradiated area in cm² divided by 100 cm² (i.e. H = fD), added to any uniform dose equivalent also received by the skin, (and) recorded as the annual extremity or skin (shallow) dose equivalent." H.App2C "Part 835.205(b) corresponds to Appendix 2C of the RadCon Manual. It contains an additional clarifying statement not found in the RadCon Manual which reads "In no case shall a value of f less than 0.1 be used"."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

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48 (3) *Area of skin irradiated is less than 10 cm²*. The non-uniform dose equivalent shall be averaged over the 1 cm² of skin receiving the maximum dose. This dose equivalent shall: (I) Be recorded in the individual's occupational exposure history as a special entry; and (ii) Not be added to any other shallow dose equivalent to any extremity or skin recorded as the dose equivalent for the year.	Appendix 2C (excerpt) "Area of skin irradiated < 10 cm² - averaged over the 1 cm² of skin receiving the maximum dose, not added to any other dose equivalent, extremity, or shallow dose equivalent (skin) recorded for the annual dose equivalent, (and) recorded in a person's radiation dose record as a special entry."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
§ 835.206 Limits for the embryo/fetus. - 3 requirements total in section		
49 (a) The dose equivalent 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 sievert).	Article 213.1 (excerpt) "Dose limits are provided in Table 2-1 and shall not be exceeded" Table 2-1 (excerpt) "Type of exposure - Declared pregnant worker: Embryo/Fetus" 0.5 rem per gestation period." HSRCM glossary: (excerpt) "Declared pregnant worker: A woman who has voluntarily declared to her employer, in writing, her pregnancy for the purpose of being subject to the occupational exposure limits to the embryo/fetus." Article 215.2a "For a declared pregnant worker who chooses to continue working as a radiological worker: The dose limit for the embryo/fetus from conception to birth (entire gestation period) is 500 mrem."	Compliance with this requirement is implemented through procedure RP-OA-402 approved for use by the Supply System at the HGP. Also, Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
50 (b) Substantial variation above a uniform exposure rate that would satisfy the limits provided in § 835.206(a) shall be avoided.	Article 215.2b "Measures shall be taken to avoid substantial variation above the uniform exposure rate necessary to meet the 500 mrem limit for the gestation period. Efforts should be made to avoid exceeding 50 mrem per month to the declared pregnant worker."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

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51 © If the dose equivalent to the embryo/fetus is determined to have already exceeded 0.5 rem (0.005 sievert) 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.	Article 215.3 "If the dose to the embryo/fetus is determined to have already exceeded 500 mrem when a worker notifies her employer of her pregnancy, the worker shall not be assigned to tasks where additional occupational radiation exposure is likely during the remainder of the gestation period."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
§ 835.207 Limits for minors. - 1 requirement total in section		
§ 835.207 Occupational dose limits for minors. The dose equivalent limits for minors occupationally exposed to radiation and/or radioactive materials at a DOE activity are 0.1 rem (0.001 sievert) total effective dose equivalent in a year and 10% of the occupational dose limits specified at § 835.202(a)(3) and (a)(4). ~~52 Any minor exposed to radiation and/or radioactive material during direct on-site access at a DOE site or facility shall not exceed 0.1 rem (0.001 sievert) total effective dose equivalent in a year.~~	Article 213.1 (excerpt) "Dose limits are provided in Table 2-1 and shall not be exceeded. The ~~All~~ occupational exposure received by general employees shall be controlled such that the limits in Table 2-1 are not exceeded in a year. Table 2-1 (excerpt) Summary of Dose Limits "Minors and Students (under age 18): Whole Body (annual limit)(internal + external)(is) 0.1 rem."	This dose limit applies to direct on-site access. Compliance with this requirement is implemented through procedure RP-OA-402 approved for use by the Supply System at the HGP.
§ 835.208 Limits for members of the public entering a controlled area. - 1 requirement total in section		
The total effective dose equivalent 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 sievert) in a year. ~~53 Any member of the public exposed to radiation and/or radioactive material during direct on-site access at a DOE site or facility shall not exceed 0.1 rem (0.001 sievert) total effective dose equivalent in a year.~~	Article 213.1 (excerpt) "Dose limits are provided in Table 2-1 and shall not be exceeded. The ~~All~~ occupational exposure received by general employees shall be controlled such that the limits in Table 2-1 are not exceeded in a year. ~~"Dose limits are provided in Table 2-1 and shall not be exceeded. All occupational exposure received during the current year shall be included when demonstrating compliance with Table 2-1 dose limits."~~ Table 2-1 (excerpt) Summary of Dose Limits "Visitors and Public: Whole Body (annual limit)(internal + external) (is) 0.1 rem."	This dose limit applies to direct on-site access. Compliance with this requirement is implemented through procedure RP-OA-402 approved for use by the Supply System at the HGP.

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§ 835.209 Concentrations of radioactive material in air. - 3 requirements total in section		
54 (a) The derived air concentration (DAC) values given in appendices A and C to of this part shall be used in the control of occupational exposures to airborne radioactive material.	Article 223.2 (excerpt) "Values of Derived Air Concentration (DAC) are provided in 10 CFR 835." HSRCM Glossary: derived air concentrations (DAC) (excerpt) For the radionuclides listed in Appendix A of 10 CFR 835, the airborne concentration that equals the ALI divided by the volume of air breathed by an average worker for a working year of 2000 hours (assuming a breathing volume of 2400 m^3). For radionuclides listed in Appendix C of 10 CFR 835, the air immersion DACs were calculated for a continuous, non-shielded exposure via immersion in a semi-infinite atmospheric cloud."	Compliance with this requirement is implemented through procedure RP-AM-430 approved for use by the Supply System at the HGP.
~~55 (b) With regard to inhalation exposures and external exposures from airborne radionuclides, compliance with this part shall be demonstrated through conformity with § 835.101 and § 835.202 which establishes the applicable regulatory limits.~~	~~Article 711 (excerpt)~~ ~~"Radiological control records shall be maintained as necessary to document compliance with the requirements of 10 CFR 835."~~	~~Compliance with this requirement is implemented through procedures RP-OA-402 and RP-AM-430 approved for use by the Supply System at the HGP.~~
56 © (b) The estimation of internal dose shall be based on bioassay data rather than air concentration values unless bioassay data are: (1) unavailable; (2) inadequate; or (3) internal dose estimates based ~~on representative air concentration values~~ on air concentration values are demonstrated to be as or more accurate.	Article 521.2 "The estimation of internal dose shall be based on bioassay data rather than air concentration values unless bioassay data are: a. unavailable b. inadequate c. internal dose estimates based on representative air concentration values are demonstrated to be as or more accurate."	The Supply System accepts § 835.209 56© as written. This requirement is implemented by the Supply System through radiological services provided by PNNL.

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Subpart D--[Reserved] Subpart E--Monitoring of Individuals and Areas ~~Subpart E--Monitoring in the Workplace~~ § 835.401 General requirements. - 10 requirements total in section		
a) Monitoring of individuals and areas shall be performed to: ~~(a) Monitoring of individuals and areas shall be performed to:~~		
57 (1) Demonstrate compliance with the regulations in this part;	Article 711 (excerpt) "Radiological control records shall be maintained as necessary to document compliance with the requirements of 10 CFR 835."	This requirement is subject to the graded approach through criteria established by a monitoring program. The program establishes administrative records for tracking and trending radiological conditions based on routine tasks, (radiation survey reports). Task descriptions and RWPs specify the frequency of radiological surveys. Technical Basis Document HGP-TBD-01 defines criteria for use of air sampling and continuous air monitors.
(2) Document radiological conditions; ~~58 (2) Document radiological conditions in the workplace;~~	Article 551.1 (excerpt) "Monitoring of areas shall (835.401 (a)) be performed to demonstrate compliance with the requirements of this manual." ~~"Radiological monitoring of radiation exposure levels, contamination and airborne radioactivity shall be conducted to characterize workplace conditions."~~ Article 711 (excerpt) "Radiological control records shall be maintained as necessary to document compliance with the requirements of 10 CFR 835." Article 712.1h, I (excerpt) "The records management program should include the following: h. Radiological Surveys I. Area Monitoring Dosimetry Results."	Compliance with this requirement is implemented through procedures RP-AM-430, RP-RC-432 and RP-RC-433 approved for use by the Supply System at the HGP.

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59 (3) Detect changes in radiological conditions;	Article 551.1 (excerpt) "Article 551.1 (excerpt) Monitoring of areas shall (835.401 (a)) be performed to demonstrate compliance with the requirements of this manual." ~~"Radiological monitoring of radiation exposure levels, contamination and airborne radioactivity shall be conducted to characterize workplace conditions."~~ Article 551.3 "Surveys for radiation, contamination and airborne radioactive materials shall be performed as specified in Technical Work Documents and Radiological Work Permits." Article 551.8 "Survey frequencies should be established based on potential radiological conditions, probability of change in conditions and area occupancy factors." Article 552.1 (excerpt) "Routine radiation surveys should be performed in accordance with the following minimum frequencies that are outlined in the HSRCM. ~~G. Upon initial entry & when levels are expected to change in HRAs"~~	Compliance with this requirement is implemented through procedures RP-AM-430, RP-RC-432 and RP-RC-433 approved for use by the Supply System at the HGP.
(4) Detect the gradual buildup of radioactive material; 60 (4) Detect the gradual buildup of radioactive material in the workplace; and	Article 551.1 (excerpt) "Monitoring of areas shall (835.401 (a)) be performed to demonstrate compliance with the requirements of this manual." ~~"Radiological monitoring of radiation exposure levels, contamination and airborne radioactivity shall be conducted to characterize workplace conditions."~~ Article 551.3 "Surveys for radiation, contamination and airborne radioactive materials shall be performed as specified in Technical Work Documents and Radiological Work Permits." Article 551.12 "Monitoring data in each building or area should be compiled and reviewed at least quarterly. Changes or trends should be noted and corrective actions assigned."	Compliance with this requirement is implemented through procedures RP-AM-430, RP-RC-432 and RP-RC-433 approved for use by the Supply System at the HGP. Note: For the purposes of this RPP, monitoring data shall be reviewed for increases or trends.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(5) Verify the effectiveness of engineering and process controls in containing radioactive material and reducing radiation exposure; and ~~61 (5) Verify the effectiveness of engineering and process controls in containing radioactive material and reducing radiation exposure.~~	Article 314.3 "Installed temporary shielding should be periodically inspected and surveyed to verify effectiveness and integrity." Article 551.1 (excerpt) "Radiological monitoring of radiation exposure levels, contamination and airborne radioactivity shall be conducted to characterize workplace conditions, to verify the effectiveness of physical design features and engineering and administrative controls." Article 551.11 "Monitoring results should be made available to line management and used in support of pre- and post-job evaluations, ALARA preplanning, contamination control and management of radiological control operations." Article 551.12 "Monitoring data in each building or area should be compiled and reviewed at least quarterly. Changes or trends should be noted and corrective actions assigned."	Compliance with this requirement is implemented through procedures RP-AM-430, RP-RC-432 and RP-RC-433 approved for use by the Supply System at the HGP. Note: For the purposes of this RPP, monitoring data shall be reviewed for increases or trends.

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(6) Identify and control potential sources of individual exposure to radiation and/or radioactive material. ~~62 (b) Area monitoring in the workplace shall be routinely performed, as necessary, to identify and control potential sources of personnel exposure to radiation and/or radioactive material.~~	Article 551.1 (excerpt) "Monitoring of areas shall (835.401 (a)) be performed to demonstrate compliance with the requirements of this manual." ~~"Radiological monitoring of radiation exposure levels, contamination and airborne radioactivity shall be conducted to characterize workplace conditions and to identify areas requiring postings."~~ Article 551.3 "Surveys for radiation, contamination and airborne radioactive materials shall be performed as specified in Technical Work Documents and Radiological Work Permits." Article 555.2 (excerpt) "Air sampling equipment shall be used in occupied areas where, under normal operating conditions, a person is likely to receive an annual intake of 2 percent or more of the specified Annual Limit of Intake (ALI) values (40 Derived Air Concentration (DAC) hours). " Article 555.3 (excerpt) "Continuous air monitoring equipment shall be installed in occupied areas where a person without respiratory protection is likely to be exposed to a concentration of radioactivity in air exceeding 1 DAC or where there is a need to alert potentially exposed workers to unexpected increases in the airborne radioactivity levels."	Compliance with this requirement is implemented through procedures RP-AM-430, RP-RC-432 and RP-RC-433 approved for use by the Supply System at the HGP. A Technical Basis Document HGP-TBD-01 defines criteria for use of air sampling and continuous air monitors.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(b) Instruments and equipment used for monitoring shall be: (1) Periodically maintained and calibrated on an established frequency; ~~63 © Instruments used for monitoring and contamination control shall be:~~ ~~(1) Periodically maintained and calibrated on an established frequency of at least once per year;~~	Article 555.5 (excerpt) "Air monitoring equipment shall be routinely calibrated and maintained on ~~at a~~ an established frequency. ~~of at least once per year."~~ Article 562.2 (excerpt) "Calibration procedures shall be developed for each radiological instrument type and should include frequency of calibration, precalibration requirements, primary calibration requirements, periodic performance test requirements, calibration record requirements and maintenance requirements." Article 562.3 (excerpt) "Pocket and electronic dosimeters and area radiation monitors should be calibrated at least annually." Article 563.1 "A program for preventive and corrective maintenance of radiological instrumentation should be established and documented." Article 563.3 "Radiological instruments shall undergo calibration prior to use following any preventive or corrective maintenance or any adjustment that voids the previous calibration. A battery change is not normally considered maintenance." Article 564.1 (excerpt) "Calibration facilities should perform inspections, calibrations, performance tests, calibration equipment selection and quality assurance in accordance with the recommendations of ANSI N323."	Compliance with this requirement is implemented through procedures RP-IN-418 and RP-IN-419 approved for use by the Supply System at the HGP. Cleaning of radiation monitoring equipment as part of preventive maintenance is not considered to void calibration. The Radiological Control Organization uses ANSI N323 (Rev. 1978) for portable instruments, and uses ANSI N323 as guidance for other types of monitoring equipment. ANSI N323 was written to address portable instruments and portions of it may not apply to other radiation monitoring equipment. The RCO calibrates all HGP instruments at a qualified instrument shop.

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64 (2) Appropriate for the type(s), levels, and energies of the radiation(s) encountered;	Article 552.4 "Radiation monitoring instruments shall be capable of measuring ambient radiation dose rates for the purposes of controlling radiation exposures." Article 562.1 (excerpt) "Radiological instruments shall be used only to measure the radiation for which their calibrations are valid. Calibrations shall use National Institute of Standards and Technology (NIST) traceable sources." Article 562.6 "In unusual and limited situations it may be necessary to use an instrument in an application other than that envisioned by the manufacturer. Special calibrations should be performed for use of instrumentation outside manufacturer's specifications. The instrument should be adjusted, calibrated and labeled to identify the special conditions and used only under the special conditions for which it was calibrated."	Compliance with this requirement is implemented through procedures RP-IN-418 and RP-IN-419 approved for use by the Supply System at the HGP.
65 (3) Appropriate for existing environmental conditions; and	Article 562.4 "The effects of environmental conditions, including interfering radiation, on an instruments shall be known prior to use." Article 562.6 (excerpt) "In unusual and limited situations it may be necessary to use an instrument in an application other than that envisioned by the manufacturer. Special calibrations should be performed for use of instrumentation outside manufacturer's specifications."	Compliance with this requirement is implemented through procedures RP-IN-418 and RP-IN-419 approved for use by the Supply System at the HGP.

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66 (4) Routinely tested for operability.	Article 551.2 "Monitoring shall be performed only by trained and qualified personnel using instruments that are properly calibrated and routinely tested for operability." Article 551.5 (excerpt) "Instruments used to perform radiation surveys shall be response-checked daily or prior to operation. When response checks are not within ±20 percent of the expected value, the instrument should be taken out of service. When response checks are not feasible, such as with instruments used to measure neutrons or tritium, compensatory actions should be established to ensure proper instrument performance." Article 555.7 (excerpt) "The proper operation of continuous air monitoring equipment should be verified by performing an operational check. Operational checks should include positive air-flow indication, non-zero response to background activity, and internal check sources or 60 Hz electronic checks when available. Continuous air monitoring equipment should be verified by checking for instrument response with a check source or with ambient levels of radon and thoron daughters." Article 562.5 (excerpt) "Functional tests should be used to assess information designs that include alarms. A functional test should be developed to test all components involved in an alarm or trip function and performed at least annually."	Compliance with this requirement is implemented through procedures RP-IN-418 and RP-IN-419 approved for use by the Supply System at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
§ 835.402 Individual monitoring. - 12 requirements total in section		
(a) For the purpose of monitoring individual exposures to external radiation, personnel dosimeters shall be provided to and used by: ~~(a) For the purpose of monitoring individual exposures to external radiation, personnel dosimetry 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 equivalent to the whole body of 0.1 rem (0.001 sievert) or more in a year; ~~67 (1) Radiological workers who, under typical conditions, are likely to receive one or more of the following:~~ ~~(I) An effective dose equivalent to the whole body of 0.1 rem (0.001 sievert) or more in a year;~~	Article 511.1a (excerpt) Radiological workers who, under typical conditions, are likely to receive one or more of the following: An effective dose equivalent to the whole body of 0.1 rem (0.001 sievert) or more in a year; ~~"Personnel dosimetry shall be required for the following: Personnel who are expected to receive an annual external whole body dose greater than 100 mrem."~~ Article 511.2 "Neutron dosimetry shall be provided when a person is likely to exceed 100 mrem annually from neutrons."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
(ii) A shallow dose equivalent to the skin or to any extremity of 5 rems (0.05 sievert) or more in a year; ~~68 (ii) A shallow dose equivalent to the skin or to any extremity of 5 rems (0.05 sievert) or more in a year;~~	Article 511.1a (excerpt) A shallow dose equivalent to the skin or to any extremity of 5 rems (0.05 sievert) or more in a year; ~~"Personnel dosimetry shall be required for the following: an annual dose to the extremities (including skin) greater than 10 percent of the corresponding limits specified in Table 2-1"~~ Table 2-1 (excerpt) "Type of Exposure - Radiological Worker: Extremity (hands and arms below the elbow; feet and legs below the knees) and skin: Annual Limit - 50 rem"	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

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(iii) A lens of the eye dose equivalent of 1.5 rems (0.015 sievert) or more in a year; ~~69 (iii) A lens of the eye dose equivalent of 1.5 rems (0.015 sievert) or more in a year;~~	Article 511.1a (excerpt) A lens of the eye dose equivalent of 1.5 rems (0.015 sievert) or more in a year; ~~"Personnel dosimetry shall be required for the following: (lens of the eye) greater than 10 percent of the corresponding limits specified in Table 2-1"~~ Table 2-1 (excerpt) "Type of Exposure - Radiological Worker: Lens of Eye: Annual Limit - 15 rem"	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
~~70 (iv) A deep dose equivalent from external exposures to any~~ organ or tissue other than the lens of the eye of 5 rems (0.05 sievert);	Article 511.1a (excerpt) "Personnel dosimetry shall be required for the following: organs and other tissues greater than 10 percent of the corresponding limits specified in Table 2-1" Table 2-1 (excerpt) "Type of Exposure - Radiological Worker: Any organ or tissues (other than lens of eye): 50 rem"	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
(2) Declared pregnant workers who are likely to receive from external sources a dose equivalent to the embryo/fetus in excess of 10 percent of the applicable limit at § 835.206(a); ~~71 (2) Declared pregnant workers who are likely to receive from external sources a dose equivalent to the embryo/fetus in excess of 10 percent of the applicable limit in § 835.206; or~~	Article 511.1b Declared pregnant workers who are likely to receive from external sources a dose equivalent to the embryo/fetus in excess of 10 percent of the applicable limit at Table 2-1; ~~"Personnel dosimetry shall be required for the following: Declared pregnant workers who are expected to receive from external sources a dose equivalent of 50 mrem or more to the embryo/fetus during the gestation period"~~	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
(3) Occupationally exposed minors likely to receive a dose in excess of 50 percent of the applicable limits at § 835.207 in a year from external sources; ~~72 (3) Minors and members of the public likely to receive, in 1 year, from external sources, a dose in excess of 50 percent of the applicable limits in §§ 835.207 and 835.208, respectively; or~~	Article 511.1c Occupationally exposed minors likely to receive a dose in excess of 50 percent of the applicable limits at § 835.207 in a year from external sources; ~~"Personnel dosimetry shall be required for the following: Minors and students, visitors and public expected to receive an annual external whole body dose equivalent of 50 mrem or more in a year."~~	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP. The Supply System has determined that minors will not be authorized access to RBAs and other Radiological Areas at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(4) Members of the public entering a controlled area likely to receive a dose in excess of 50 percent of the limit at § 835.208 in a year from external sources; and (5) Individuals entering a high or very high radiation area. ~~73 (4) Individuals entering a high or very high radiation area.~~	Article 334.3c (excerpt) "Minimum requirements for unescorted entry into Radiation Areas shall (HNF) include the following: Personnel dosimeters." Article 334.4a (excerpt) "Minimum requirements for unescorted entry into High Radiation Areas where dose rates exist such that a worker could exceed a whole body dose of 1 rem in one hour shall include the following: a. A determination of the worker's current exposure, based on primary and supplemental dosimeter readings."	High or very high radiation areas are not expected at the HGP. Therefore, entry into high or very high radiation areas is not authorized under provisions of this RPP.
(b) External dose monitoring programs implemented to demonstrate compliance with § 835.402(a) shall be adequate to demonstrate compliance with the dose limits established in subpart C of this part and shall be: (1) Accredited, or excepted from accreditation, in accordance with the DOE Laboratory Accreditation Program for Personnel Dosimetry; or (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. ~~(b) Personnel external dosimetry programs shall be adequate to demonstrate with 835.202, including routine dosimeter calibration and conformance with the requirements of the DOE laboratory Accreditation Program for Personnel Dosimetry.~~	Article 512.1 (excerpt) "A technical basis document shall be developed and maintained for the external dosimetry program." Article 512.2 "The technical basis document shall also address dosimeters monitoring radiation outside the scope of DOELAP, such as dosimetry associated with high-energy accelerators and extremity dosimeters."	This requirement is provided through sitewide radiological services provided by PNNL as specified under existing contract.
© For the purpose of monitoring individual exposures to internal radiation, internal dosimetry programs (including routine bioassay programs) shall be conducted for: ~~© For the purpose of monitoring individual exposures to internal radiation, internal dose evaluation programs (including routine bioassay programs) shall be conducted for:~~		

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(1) Radiological workers who, under typical conditions, are likely to receive a committed effective dose equivalent of 0.1 rem (0.001 sievert) or more from all occupational radionuclide intakes in a year; ~~75 (1) Radiological workers who, under typical conditions, are likely to receive 0.1 rem (0.001 sievert) or more committed effective dose equivalent, and/or 5 rems (0.05 sievert) or more committed dose equivalent to any organ or tissue, from all occupational radionuclide intakes in a year;~~	H521.1a(1) "10 CFR 835.402© states: (1) For the purpose of monitoring individual exposures to internal radiation, internal dose evaluation programs (including routine bioassay programs) shall be conducted for: (a) Radiological workers who, under typical conditions, are likely to receive 0.1 rem (0.001 sievert) or more committed effective dose equivalent, and/or 5 rems (0.05 sievert) or more committed dose equivalent to any organ or tissue, from all occupational radionuclide intakes in a year;"	This requirement is partially implemented through sitewide radiological services provided by PNNL as specified under existing contract.
(2) Declared pregnant workers likely to receive an intake or intakes resulting in a dose equivalent to the embryo/fetus in excess of 10 percent of the limit stated at § 835.206(a); ~~76 (2) Declared pregnant workers likely to receive an intake resulting in a dose equivalent to the embryo/fetus in excess of 10 percent of the limit stated in § 835.206; and~~	H521.1a(1) "10 CFR 835.402© states: For the purpose of monitoring individual exposures to internal radiation, internal dose evaluation programs (including routine bioassay programs) shall be conducted for: (b) Declared pregnant workers likely to receive an intake resulting in a dose equivalent to the embryo/fetus in excess of 10 percent of the limit stated in § 835.206; and"	This requirement is partially implemented through sitewide radiological services provided by PNNL as specified under existing contract.
(3) Occupationally exposed minors who are likely to receive a dose in excess of 50 percent of the applicable limit stated at § 835.207 from all radionuclide intakes in a year; or ~~77 (3) Minors and members of the public who are likely to receive, in 1 year, an intake resulting in a committed effective dose equivalent in excess of 50 percent of the limits stated in §§ 835.207 and 835.208, respectively.~~ (4) Members of the public entering a controlled area likely to receive a dose in excess of 50 percent of the limit stated at § 835.208 from all radionuclide intakes in a year.	H521.1a(1) "10 CFR 835.402© states: For the purpose of monitoring individual exposures to internal radiation, internal dose evaluation programs (including routine bioassay programs) shall be conducted for: © Minors and members of the public who are likely to receive, in 1 year, an intake resulting in a committed effective dose equivalent in excess of 50 percent of the limits stated in §§ 835.207 and 835.208, respectively." (d) Members of the public entering a controlled area likely to receive a dose in excess of 50 percent of the limit stated at § 835.208 from all radionuclide intakes in a year.	The Supply System has determined that they will not authorize minors or the public access to the Radiological Buffer Areas or other Radiological Areas associated with the HGP project.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(d) Internal dose monitoring programs implemented to demonstrate compliance with § 835.402© shall be adequate to demonstrate compliance with the dose limits established in subpart C of this part and shall be: (1) Accredited, or excepted from accreditation, in accordance with the DOE Laboratory Accreditation Program for Radiobioassay; or (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. ~~78 (d) Internal dose evaluation programs shall be adequate to demonstrate compliance with § 835.202.~~	Article 522.1 "A technical basis document shall be developed for the internal dosimetry program." Article 522.3 (excerpted & modified) "Baseline bioassay monitoring methods and frequencies shall be established for personnel who are likely to receive intakes resulting in a committed effective dose equivalent greater than 100 mrem." Article 522.3 (excerpt) "Routine bioassay monitoring methods and frequencies shall be established for personnel who are likely to receive intakes resulting in a committed effective dose equivalent greater than 100 mrem." Article 522.5 "Bioassay analyses shall also be performed when any of the following occurs: a. Facial or nasal contamination is detected that indicates a potential for internal contamination b. Airborne monitoring indicates the potential for intakes exceeding 100 mrem committed effective dose equivalent c. Upon direction of the Radiological Control Organization when an intake is suspected."	This requirement is implemented by the Supply System through sitewide radiological services provided by PNNL, as specified under existing contract.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
§ 835.403 Air monitoring. ~~§ 835.403 Area monitoring. - 7 requirements total in section~~		
(a) Monitoring of airborne radioactivity shall be performed: ~~(a) Measurements of radioactivity concentrations in the ambient air of the workplace shall be performed as follows:~~		
(1) Where an individual is likely to receive an exposure of 40 or more DAC-hours in a year; or ~~79 (1) Air sampling shall be performed in occupied areas where, under typical conditions, an individual is likely to receive an annual intake of 2 percent or more of the specified ALI values. For a given radionuclide and lung retention class, the ALI is the product of the DAC listed in appendix A of this part and the constant 2.4 x 10⁹ ml.~~	Article 555.2 Where an individual is likely to receive an exposure of 40 or more DAC-hours in a year; or ~~"Air sampling equipment shall be used in occupied areas where, under normal operating conditions, . for protection against airborne radionuclides have been prescribed annual intake of 2 percent or more of the specified Annual Limit of Intake (ALI) values (40 Derived Air Concentration (DAC) hours). An annual intake of 2 percent of a specified ALI generally represents a committed effective dose equivalent to a person of approximately 100 mrem."~~	Compliance with this requirement is implemented through procedures RP-AM-430 and RP-AM-431 approved for use by the Supply System at the HGP. Technical Basis Document HGP-TBD-01 defines criteria for use of air sampling and continuous air monitors.
(2) As necessary to characterize the airborne radioactivity hazard where respiratory protective devices for protection against airborne radionuclides have been prescribed. ~~80 Samples shall be taken as necessary to detect and evaluate the level or concentration of airborne radioactive material at work locations.~~	Article 551.1 (excerpt) "Radiological monitoring of radiation exposure levels, contamination and airborne radioactivity shall be conducted to ~~characterize workplace conditions~~ demonstrate compliance with the requirements of this manual." Article 551.3 "Surveys for radiation, contamination and airborne radioactive materials shall be performed as specified in Technical Work Documents and Radiological Work Permits." Article 555.1 (excerpt) "Air monitoring equipment should be used in situations where airborne radioactivity levels can fluctuate and early detection of airborne radioactivity could prevent or minimize inhalation of radioactivity by personnel. Air monitoring equipment includes portable and fixed air sampling equipment and continuous air monitors."	Compliance with this requirement is implemented through procedures RP-AM-430 and RP-AM-431 approved for use by the Supply System at the HGP. Technical Basis Document HGP-TBD-01 defines criteria for use of air sampling and continuous air monitors.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(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. ~~81 (2) Real-time air monitoring, using continuous air monitors as defined in § 835.2, shall be performed in normally occupied areas where an individual is likely to be exposed to a concentration of airborne radioactivity exceeding 1 DAC as specified in appendix A of this part or where there is a need to alert potentially exposed individuals to unexpected increases in airborne radioactivity levels.~~	Article 555.3 (excerpt) 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. ~~"Continuous air monitoring equipment shall be installed in occupied areas where a person without respiratory protection is likely to be exposed to a concentration of radioactivity in air exceeding 1 DAC or where there is a need to alert potentially exposed workers to unexpected increases in the airborne radioactivity levels."~~	Technical Basis Document HGP-TBD-01 defines criteria for use of air sampling and continuous air monitors.
82 (3) For the airborne radioactive material that could be encountered, real-time air monitors shall have alarm capability and sufficient sensitivity to alert potentially exposed individuals that immediate action is necessary in order to minimize or terminate inhalation exposures.	Article 555.6 "Continuous air monitoring equipment required by Article 555.3 shall have alarm capability and sufficient sensitivity to alert personnel that immediate action is necessary in order to minimize or terminate inhalation exposures."	Technical Basis Document HGP-TBD-01 defines criteria for use of air sampling and continuous air monitors.
~~83 (b) Monitoring of radiation in the workplace shall be performed using stationary (area) or portable radiation instruments, or a combination thereof.~~	~~Article 551.1 (excerpt)~~ ~~"Radiological monitoring of radiation exposure levels, contamination, and airborne radioactivity shall be conducted to characterize workplace conditions."~~ ~~Article 551.3~~ ~~"Surveys for radiation, contamination and airborne radioactive materials shall be performed as specified in Technical Work Documents and Radiological Work Permits."~~	~~Compliance with this requirement is implemented through subcontractor procedures RP-AM-430, RP-AM-432, and RP-RC-433 approved for use by the Supply System at the HGP.~~
84 The instruments shall be readily available	Article 551.5 (excerpt) "Instruments used to perform radiation surveys shall be readily available."	Compliance with this requirement is implemented through procedures RP-IN-418 and RP-IN-419 approved for use by the Supply System at the HGP.
85 and shall be capable of measuring ambient radiation dose rates for the purpose of controlling radiation exposures.	Article 552.4 "Radiation monitoring instruments shall be capable of measuring ambient radiation dose rates for the purpose of controlling radiation exposure	Compliance with this requirement is implemented through procedures RP-IN-418 and RP-IN-419 approved for use by the Supply System at the HGP.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
§ 835.404 [Reserved] ~~§ 835.404 Radioactive contamination control and monitoring. - 13 requirements total in section~~		
~~86 (a) Instruments and techniques used for radioactive contamination monitoring and control shall be adequate to ensure compliance with the requirements specified in this section.~~	~~Article 551.1 (excerpt)~~ ~~"Radiological monitoring of radiation exposure levels, contamination, and airborne radioactivity shall be conducted to characterize workplace conditions."~~ ~~Article 554.3~~ ~~"Contamination surveys should incorporate techniques to detect both removable and fixed contamination."~~	~~Compliance with this requirement is implemented through procedures RP-IN-418 and RP-IN-419 approved for use by the Supply System at the HGP.~~
~~87 (b) 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~~	~~Article 335.4 (excerpt)~~ ~~"Exit points from CAs, HCAs or ARAs should include the following:~~ ~~a. Step-off pad located outside the exit point, contiguous with the area boundary~~ ~~b. Step-off pads maintained free of radioactive contamination~~ ~~d. Contamination monitoring equipment located as close to the step-off pad as background radiation levels permit."~~ ~~Article 335.7 (excerpt)~~ ~~"Tools or equipment being removed from areas posted for surface or airborne radioactivity control shall be monitored for release or for retention in the contaminated tool crib."~~ ~~Article 342.1~~ ~~"Contamination levels caused by ongoing work shall be monitored and maintained ALARA."~~ ~~Article 551.8~~ ~~"Survey frequencies should be established based on potential radiological conditions, probability of change in conditions and area occupancy factors."~~	~~Establishment of "appropriate controls" to minimize inadvertent transfers of radioactive contamination from radiological areas to non-radiological areas under normal operating conditions. A graded approach will be employed.~~ ~~Compliance with this requirement is implemented through procedures RP-PP-410, RP-PP-412, RP-PP-413 and RP-RG-433 approved for use by the Supply System at the HGP.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~88 © Any area in which contamination levels exceed the values specified in appendix D of this part shall be:~~ ~~(1) Posted in accordance with § 835.603; and~~	~~H222.1b (excerpt)~~ ~~"Part 835.404© states:~~ ~~© Any area in which contamination levels exceed the values specified in appendix D of this part shall be: (1) Posted in accordance with § 835.603;"~~	~~Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.~~
~~89 (2) Controlled in a manner commensurate with the physical and chemical characteristics of the contaminant, the radionuclides present, and the fixed and removable contamination levels.~~	~~Article 222.1 (excerpt)~~ ~~"A surface shall be considered contaminated if either the removable or total radioactivity is detected above the levels in Table 2-2. If an area cannot be decontaminated promptly, then it shall be posted."~~ ~~H222.1a~~ ~~"The contamination values for ^{125}I are more conservative in Appendix D to 10 CFR 835 (20 dpm/100 cm^2 removable; 500 dpm/100 cm^2). The more conservative values in 10 CFR 835 shall be followed until further clarification is provided by DOE on this issue."~~ ~~H222.1b (excerpt)~~ ~~"Part 835.404© states:~~ ~~© Any area in which contamination levels exceed the values specified in appendix D of this part shall be (2) Controlled in a manner commensurate with the physical and chemical characteristics of the contaminant, the radionuclides present, and the fixed and removable contamination levels."~~	~~Compliance with this requirement is implemented through procedures RP-PP-410, RP-PP-412,RP-PP-413 and RP-RG-433 approved for use by the Supply System at the HGP.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~90 (d) Areas with fixed contamination exceeding the total radioactivity values specified in appendix D of this part may be located outside of radiological areas provided the following conditions are met:~~ ~~(1) Removable contamination levels are below the levels specified in appendix D of this part;~~	~~H222.1a~~ ~~"The contamination values for ^{125}I are more conservative in Appendix D to 10 CFR 835 (20 dpm/100 cm^2 removable; 500 dpm/100 cm^2). The more conservative values in 10 CFR 835 shall be followed until further clarification is provided by DOE on this issue."~~ ~~Article 222.3d (excerpt)~~ ~~"Removable contamination shall not exceed Table 2-2 values."~~ ~~Article 222.4~~ ~~"A Fixed Contamination Area (FCA) may be located outside CAs unless unrestricted access is likely to result in a dose to any person greater than 100 mrem in a year."~~ ~~H222.1(b)~~ ~~"10 CFR 835.404© states:~~ ~~© Any area in which contamination levels exceed the values specified in appendix D of 10 CFR 835 shall be:~~ ~~(1) Posted in accordance with § 835.603; and"~~	~~Compliance with this requirement is implemented through procedures RP-PP-410, RP-PP-412, RP-PP-413 and RP-RC-433 approved for use by the Supply System at the HGP.~~
~~91 (2) Unrestricted access to the area is not likely to cause any individual to receive a total effective dose equivalent in excess of 0.1 rem (0.001 sievert) in a year;~~	~~Article 222.4~~ ~~"A Fixed Contamination Area (FCA) may be located outside Contamination Areas (CAs) unless unrestricted access is likely to result in a dose to any person greater than 100 mrem in a year."~~	~~Compliance with this requirement is implemented through procedures RP-PP-410, RP-PP-412, RP-PP-413 and RP-RC-433 approved for use by the Supply System at the HGP.~~
~~92 (3) The area is routinely monitored;~~	~~Article 222.3a (excerpt)~~ ~~"The conditions for establishing and maintaining Fixed Contamination Areas include:~~ ~~Radiological surveys shall be performed to detect contamination that may become removable over time."~~ ~~Article 551.3~~ ~~"Surveys for radiation, contamination and airborne radioactive materials shall be performed as specified in Technical Work Documents and Radiological Work Permits."~~	~~Compliance with this requirement is implemented through procedures RP-AM-430, RP-RC-432, and RP-RC-433 approved for use by the Supply System at the HGP.~~
~~93 (4) The area is clearly marked to alert personnel of the contaminated status;~~	~~Article 222.3f (excerpt)~~ ~~"Markings should be clearly visible from all directions and contrast with the colors of the surface coatings."~~	~~Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~94 (5) Appropriate administrative procedures are established and exercised to maintain control of these areas; and~~	~~Article 222.3b~~ ~~"A formal inventory shall be maintained of FGAs."~~ ~~Article 234.1 (modified)~~ ~~"Areas shall be posted to alert personnel to the presence of external radiation in accordance with (§ 835.603)."~~	~~Compliance with this requirement is implemented through procedures RP-PP-410, RP-PP-412, and RP-PP-413 approved for use by the Supply System at the HGP.~~
~~95 (6) Dose rates do not exceed levels which would require posting in accordance with § 835.603.~~	~~Article 222.4~~ ~~"A FGA may be located outside GAs unless unrestricted access is likely to result in a dose to any person greater than 100 mrem in a year."~~	~~Compliance with this requirement is implemented through procedures RP-PP-410, RP-PP-412, and RP-PP-413 approved for use by the Supply System at the HGP.~~
~~96 (c) Entry control pursuant to § 835.501 and posting pursuant to § 835.603 are not required for areas with fixed contamination meeting the conditions of § 835.404(d).~~	~~Article 222.5 (excerpt)~~ ~~"A FGA is exempt from the general posting requirements of Article 231 and entry and exit requirements of Chapter 3."~~ ~~Article 235.4 (excerpt)~~ ~~"Areas meeting the criteria for FGAs specified in Table 2-4 and Article 222.3 do not have to be posted as GAs or HGAs."~~	~~Compliance with this requirement is implemented through procedures RP-PP-410, RP-PP-412, and RP-PP-413 approved for use by the Supply System at the HGP.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~97 (f) Appropriate monitoring to detect and prevent the spread of contamination shall be performed by individuals exiting radiological areas established to control removable contamination and/or airborne radioactivity.~~	~~H222.1a~~ ~~"The contamination values for ^{125}I are more conservative in Appendix D to 10 CFR 835 (20 dpm/100 cm^2 removable; 500 dpm/100 cm^2). The more conservative values in 10 CFR 835 shall be followed until further clarification is provided by DOE on this issue."~~ ~~Article 221.1 (modified and excerpted)~~ ~~"Personnel exiting (radiological areas as defined in 10 CFR 835.603) established for contamination control shall frisk for contamination as required. This does not apply to personnel exiting areas containing only radionuclides, such as tritium, that cannot be detected using hand-held or automatic frisking equipment."~~ ~~Article 221.2 (excerpt)~~ ~~"Monitoring for contamination should be performed using frisking equipment that under laboratory conditions can detect total contamination of at least the values specified in Table 2-2."~~ ~~Article 338.7 (modified)~~ ~~"Personal items, such as notebooks, papers and flashlights, shall be subject to the same frisking requirements (total contamination only) as the person carrying them."~~	~~Compliance with this requirement is implemented through procedures RP-AM-430, RP-RG-432, and RP-RG-433 approved for use by the Supply System at the HGP.~~
~~98 (g) Protective clothing shall be required for entry to areas in which removable contamination exists at levels exceeding those specified in appendix D to this part.~~	~~Article 325.1c~~ ~~1. "Personnel shall wear protective clothing during the following activities:~~ ~~c. As directed by the Radiological Control Organization or as required by the RWP."~~ ~~Article 335.1c~~ ~~"Minimum requirements for unescorted entry into GAs shall include the following:~~ ~~c. Protective clothing."~~ ~~Article 335.2c (excerpt)~~ ~~"Minimum requirements for unescorted entry into High Contamination Areas (HCAs) or Airborne Radioactivity Areas (ARAs) shall include the following:~~ ~~c. Protective clothing."~~	~~Compliance with this requirement is implemented through procedure RP-PP-410 approved for use by the Supply System at the HGP.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
§ 835.405 Receipt of packages containing radioactive material.		
(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: (1) Take possession of the package when the carrier offers it for delivery; or (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.	Article 423.14 14. 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: a. Take possession of the package when the carrier offers it for delivery; or b. 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.	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.405
(b) Upon receipt from radioactive material transportation, external surfaces of packages known to contain radioactive material shall be monitored if the package: (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 (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 (3) Has evidence of degradation, such as packages that are crushed, wet, or damaged.	Article 423.15 15. Upon receipt from radioactive material transportation, external surfaces of packages known to contain radioactive material shall be monitored if the package: a. 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 b. 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 c. Has evidence of degradation, such as packages that are crushed, wet, or damaged	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.405

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
© The monitoring required by paragraph (b) of this section shall include: (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 (2) Measurements of the radiation levels, unless the package contains less than a Type A quantity (as defined at 10 CFR 71.4) of radioactive material.	Article 423.16 16. The monitoring required by paragraph (b) of this section shall include: a. Measurements of removable contamination levels, unless the package contains only special form (as defined at 10 CFR 71.4) or gaseous radioactive material; and c. Measurements of the radiation levels, unless the package contains less than a Type A quantity (as defined at 10 CFR 71.4) of radioactive material.	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 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.	Article 423.16 a. 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.	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.405
Subpart F--Entry Control Program § 835.501 Radiological areas. - 7 requirements total in section		

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
99 (a) Personnel entry control shall be maintained for each radiological area.	Article 334.2 "Physical controls to prevent inadvertent or unauthorized access to High and Very High Radiation Areas shall be maintained in accordance with Appendix 3B." Article 334.10 "Administrative procedures shall be developed as necessary to implement area access controls. These procedures shall address measures implemented to ensure the effectiveness and operability of entry control devices, such as barricades, alarms, and locks." Article 335.8 "Administrative procedures shall be developed as necessary to implement area access controls. These procedures shall address measures implemented to ensure the effectiveness and operability of entry control devices, such as barricades, alarms, and locks."	Compliance with this requirement is implemented through procedure RP-PP-412 approved for use by the Supply System at the HGP. High or very high radiation areas are not expected at the HGP. Therefore, entry into high or very high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP.
100 (b) The degree of control shall be commensurate with existing and potential radiological hazards within the area.	Article 222.5 "A Fixed Contamination Area is exempt from the general posting requirements of Article 231 and entry and exit requirements of Chapter 3." Article 237.3 "Underground Radioactive Material Areas may be located outside Controlled Areas unless access is likely to result in individual doses greater than 100 mrem/year in a year from underground radioactive material." Article 334.2 "Physical controls to prevent inadvertent or unauthorized access to High and Very High Radiation Areas shall be maintained in accordance with Appendix 3B." Appendix 3B (titled) "Physical Access Controls for High and Very High Radiation Areas"	Compliance with this requirement is implemented through procedure RP-PP-412 approved for use by the Supply System at the HGP. Entry control programs are used to the degree commensurate with existing and potential radiological hazards within the area. High or very high radiation areas are not expected at the HGP. Therefore, entry into high or very high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.
101 © One or more of the following methods shall be used to ensure control:		

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(1) Signs and barricades;	Article 231.1 (excerpt) "Radiological posting shall be used to alert personnel to the presence of radiation and radioactive materials and to aid them in minimizing exposures and preventing the spread of contamination." Article 231.10 (modified and excerpted) "Physical barriers should be placed so that they are clearly visible from all (entry approaches)." Article 337.1 "The following measures should be used to prevent the spread of contamination across the boundaries of CAs, HCAs and ARAs: 1. Use solid barriers to enclose areas wherever practicable."	Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.
(2) Control devices on entrances;	Appendix 3B.1a (excerpt) Physical Access Controls for High and Very High Radiation Areas "One or more of the following features should be used for each entrance or access point to a HRA a. 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 HRA. Appendix 3B.2 (modified) "Additional measures shall be implemented to ensure personnel are not able to gain access to VHRAs when dose rates are in excess of the posting requirements of (Subpart G of 10 CFR 835)."	High or very high radiation areas are not expected at the HGP. Therefore, entry into high or very high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(3) Conspicuous visual and/or audible alarms;	Appendix 3B.1c, f (excerpt) "One or more of the following features should be used for each entrance or access point to a High Radiation Area (HRA) c. A control device that energizes a conspicuous visible or audible alarm signal so that the person entering the HRA and the supervisor of the activity are made aware of the entry. f. A control device that automatically generates audible or 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."	High radiation areas are not expected at the HGP. Therefore, entry into high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.
(4) Locked entrance ways; or	Article 334.7 "The number, issue and use of keys shall be strictly controlled where locked entryways are used to control access to HRAs and VHRAs." Appendix 3B.1d "One or more of the following features should be used for each entrance or access point to a HRA d. Entryways that are locked, except during periods when access to the area is required, with positive control over each entry."	High or very high radiation areas are not expected at the HGP. Therefore, entry into high or very high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.
(5) Administrative controls.	Article 334.10 (RAs, HRAs, VHRAs) and 335.8 (CAs, HCAs, ARAs) (excerpt) "Administrative procedures shall be developed as necessary to implement area access controls." Article 341.1 "Radiological work activities shall be conducted as specified by the controlling technical work document and RWP."	High or very high radiation areas are not expected at the HGP. Therefore, entry into high or very high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.

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(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. ~~102 (d) Administrative procedures shall be written as necessary to demonstrate compliance with the provisions of this section.~~	Article 334.10 (RAs, HRAs, VHRAs) and 335.8 (CAs, HCAs, ARAs) (excerpt) "Administrative procedures shall be developed as necessary to implement area access controls." Article 341.1 "Radiological work activities shall be conducted as specified by the controlling technical work document and RWP."	High or very high radiation areas are not expected at the HGP. Therefore, entry into high or very high radiation areas is not authorized under provisions of this RPP and administrative procedures to implement HRA and VHRA controls are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.
~~103 These administrative procedures shall include actions essential to ensure the effectiveness and operability of barricades, devices, alarms, and locks.~~	Article 334.10 (RAs, HRAs, VHRAs) and 335.8 (CAs, HCAs, ARAs) "Administrative procedures shall be developed as necessary to implement area access controls. These procedures shall address measures implemented to ensure the effectiveness and operability of entry control devices, such as barricades, alarms, and locks."	High or very high radiation areas are not expected at the HGP. Therefore, entry into high or very high radiation areas is not authorized under provisions of this RPP and administrative procedures to implement HRA and VHRA controls are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.
~~104 Authorizations shall be required to perform specific work within the area and shall include specific radiation protection measures.~~	Articles 322.3 and 322.4 (modified and excerpted) "Administrative mechanisms, such as RWPs, written procedures, or experiment authorizations shall be used to control nonroutine operations as well as routine or repetitive operations, such as tours and inspections."	Administrative mechanisms, such as RWPs or procedures used for entry control into radiological areas must be authorized by the Radiological Control Organization. Revisions or extensions to these mechanisms shall be subject to the same approval process. Compliance with this requirement is implemented through procedure RP-PP-410 approved for use by the Supply System at the HGP.

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105 (e) No control(s) shall be installed at any radiological area exit that would prevent rapid evacuation of personnel under emergency conditions.	Article 231.10 (excerpt) "Physical barriers shall be set up such that they do not impede the intended use of emergency exits or evacuation routes." Appendix 3B.3 "Physical access controls over HRAs and VHRAs shall be established in such a way that does not prevent a person from leaving the area."	The Supply System accepts requirement § 835.501(e) as written.

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§ 835.502 High and very high radiation areas. - 3 requirements total in section (a) 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; and (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 deep dose equivalent during the entry.		High radiation areas are not expected at the HGP. Therefore, entry into high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.
106 ~~(a) High radiation areas.~~ (b) Physical controls. One or more of the following features shall be used for each entrance or access point to a high radiation area where radiation levels exist such that an individual could exceed a deep dose equivalent to the whole body of 1 rem (0.01 sievert) in any one hour at 30 centimeters from the source or from any surface that the radiation penetrates:	Appendix 3B.1 (excerpt) "One or more of the following features shall be used for each entrance or access point to a HRA where radiation levels exist such that a person could exceed a whole body dose of 1 rem in any one hour:" HSRCM Glossary: high radiation area "Any area, accessible to individuals, in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 0.1 rem in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates."	High radiation areas are not expected at the HGP. Therefore, entry into high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.
(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;	Appendix 3B.1a "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 HRA."	High radiation areas are not expected at the HGP. Therefore, entry into high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.

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(2) A device that functions automatically to prevent use or operation of the radiation source or field while individuals are in the area; ~~(2) A device that functions automatically to prevent use or operation of the radiation source or field while personnel are in the area;~~	Appendix 3B.1b "A device that functions automatically to prevent use or operation of the radiation source or field while personnel are in the area."	High radiation areas are not expected at the HGP. Therefore, entry into high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. The use of radiation generating devices (RGDs) is not authorized under provisions of this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.
(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;	Appendix 3B.1c "A control device that energizes a conspicuous visible or audible alarm signal so that the person entering the HRA and the supervisor of the activity are made aware of the entry."	High radiation areas are not expected at the HGP. Therefore, entry into high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.
(4) Entryways that are locked. During periods when access to the area is required, positive control over each entry is maintained;	Appendix 3B.1d "Entryways that are locked, except during periods when access to the area is required, with positive control over each entry."	High radiation areas are not expected at the HGP. Therefore, entry into high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.

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(5) Continuous direct or electronic surveillance that is capable of preventing unauthorized entry;	Appendix 3B.1e "Continuous direct or electronic surveillance that is capable of preventing unauthorized entry."	High radiation areas are not expected at the HGP. Therefore, entry into high radiation areas is not authorized under provisions of this RPP and controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.
(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.	Appendix 3B.1f "A control device that automatically generates 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."	High radiation areas are not expected at the HGP. Therefore, entry into high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. The use of radiation generating devices (RGDs) is not authorized under provisions of this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
© 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. ~~107 (b) *Very high radiation areas.* In addition to the above requirements, additional measures shall be implemented to ensure individuals are not able to gain access to very high radiation areas when dose rates are in excess of the posting requirements of § 835.603(c).~~	Article 334.5 (modified and excerpted) "Workers shall be prevented from entry to VHRAs when the radiation source is exposed and very high radiation fields are present. In addition to the controls required in (Appendix 3B), a survey shall be made prior to the first entry to the area after the source has been secured or shielded to verify the very high radiation field has been terminated." Appendix 3B.2 (modified) "In addition to the above requirements, additional measures shall be implemented to ensure personnel are not able to gain access to VHRAs when dose rates are in excess of the posting requirements of (§ 835.603(c))." HSRCM Glossary: Very High Radiation Area: "Any area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rads (5 grays) in one hour at 1 meter from a radiation source or from any surface that the radiation penetrates."	Very high radiation areas are not expected at the HGP. Therefore, entry into very high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.
108 ~~©~~ (d) No control(s) shall be established in a high or very high radiation area that would prevent rapid evacuation of personnel.	Article 231.10 (excerpt) "Physical barriers shall be set up such that they do not impede the intended use of emergency exits or evacuation routes." Appendix 3B.3 "Physical access controls over HRAs and VHRAs shall be established in such a way that does not prevent a person from leaving the area."	High or very high radiation areas are not expected at the HGP. Therefore, entry into high or very high radiation areas is not authorized under provisions of this RPP and physical controls to prevent inadvertent or unauthorized access are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.

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Subpart G--Posting and Labeling § 835.601 General requirements. - 5 requirements total in section *Note: See also § 835.605.*		
~~109 (a) Working areas that require posting because of the presence, or potential presence, of radiation and/or radioactive material are delineated in the subsequent paragraphs of this section. Radioactive items or containers of radioactive materials, shall be individually labeled if adequate warning is not provided by control measures and required posting.~~	H222.1a "The contamination values for ^{125}I are more conservative in Appendix D to 10 CFR 835 (20 dpm/100 cm^2 removable; 500 dpm/100 cm^2). The more conservative values in 10 CFR 835 shall be followed until further clarification is provided by DOE on this issue." Chapter 4, Part 1 (excerpt) "Radioactive material is any material, equipment or system component determined to be contaminated or suspected of being contaminated. Items located in known or suspected CAs, HCAs or ARAs and having the potential to become contaminated are considered radioactive material. Radioactive material also includes activated material, sealed and unsealed sources, and materials that emit radiation." Article 411.2 "Except for sealed and unsealed sources, radioactive material located within CAs, HCAs or ARAs does not require specific labeling or packaging." Article 412.1 (modified) "Radioactive material outside CAs, HCAs, or ARAs shall be labeled (as required) in accordance with (§ 835.601(a))." Article 412.2 (g modified) "The following are not subject to labeling requirements: a. Radioactive material surveyed and determined to have contamination levels lower than Table 2-2 values b. Radioactive material or containers packaged and labeled for off-site shipment in accordance with DOT regulations c. Personal Protective Equipment and Clothing	Compliance with this requirement is implemented through procedure RP-PP-413 approved for use by the Supply System at the HGP.

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	d. Radiological control samples such as air, process and soil samples or swipes that are in the custody of Radiological Control personnel or personnel properly trained in the handling, packaging and transport of these samples e. Equipment or installed system components undergoing maintenance covered by a RWP f. Portable tools and equipment with fixed contamination permanently marked with yellow or magenta and maintained in a contaminated tool crib or storage and distribution area g. Installed system components located within an area, the entrance to which is posted in accordance with (Subpart G of 10 CFR 835) h. Nuclear weapon components I. Historical items, such as uranium hexafluoride cylinders and large items used in demonstration projects, located within a RMA; such items shall be properly labeled when they are removed from a RMA j. Short-lived (half-life of 1 hour or less) radioactive material generated during an irradiation (i.e., research samples while an experiment is being conducted, etc.) that is immediately used."	
~~110 (b) DOE approved signs, labels, and radiation symbols shall be used to identify areas specified in this subpart.~~	H231.1 (excerpt) "Part 835.601(b) states: (b) DOE approved signs, labels, and radiation symbols shall be used to identify areas specified in the subpart."	Compliance with this requirement is implemented through procedures RP-PP-411 and RP-PP-413 approved for use by the Supply System at the HGP.
(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. ~~111 © Required signs and labels shall have a yellow background. The radiation symbol shall be black or magenta.~~	Article 231.2 (excerpt) "Signs shall contain the standard radiation symbol colored magenta or black on a yellow background. Lettering shall be either magenta or black." Article 412.3 "Labels shall have a yellow background with a magenta or black standard radiation symbol. Lettering shall be magenta or black."	Compliance with this requirement is implemented through procedures RP-PP-411 and RP-PP-413 approved for use by the Supply System at the HGP.

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(b) Signs required by this subpart shall be clearly and conspicuously posted and may include radiological protection instructions. ~~112 (d) Signs required by this subpart shall be clear and conspicuously posted~~	Article 231.3 (excerpt) "Signs shall be conspicuously posted, clearly worded."	Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.
~~113 and may include radiological protection instructions.~~	~~Article 231.3 (excerpt)~~ ~~"Signs shall be conspicuously posted, clearly worded, and where appropriate, may include radiological control instructions."~~	~~This is a provision and not a requirement.~~ ~~The Supply System accepts provision~~ ~~§ 835.601(d).02 as written.~~
© 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. ~~114 (e) The posting requirements in this section may be modified to reflect the special considerations of DOE activities conducted at private residences.~~	Article 371 (excerpt) "For the following specific subject areas, the radiological requirements may be modified by the limited application of provisions of Article 113.3. Article 371.10 "Postings of privately owned and adjacent property."	The Supply System does not anticipate conducting any activities at private residences. This optional relaxation of the posting requirements will not be implemented in the Supply System RPP.
~~115 Such modifications shall provide the same level of protection to individuals as the existing provisions in this section.~~	~~Article 371 (excerpt)~~ ~~"For the following specific subject areas, the radiological requirements may be modified by the limited application of provisions of Article 113.3.~~ ~~Article 371.10~~ ~~"Postings of privately owned and adjacent property."~~	~~This is a provision and not a requirement.~~ ~~The Supply System accepts provision § 835.601(e) as written.~~
§ 835.602 Controlled areas. - 1 requirement total in section		

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(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 equivalent of more than 0.1 rem (0.001 sievert) in a year. ~~116 (a) Each access point to a controlled area (as defined in § 835.2) shall be posted, identifying it as a controlled area, whenever radioactive material and/or radiation fields which would require posting under § 835.603 may be present in the area.~~	Article 232.1 (modified) "Each access point to a RCA shall be posted, identifying it as a RCA, whenever radioactive materials or radiation fields which would require posting (as defined in § 835.603) (except for FCAs) may be present in the area."	"Each access point to a controlled area" means only those points that are designated normal access points. Potential access points that, in order to provide entry to a controlled area, would require cognizant circumvention of barriers or other obstacles (for example, requiring off-road desert travel in areas clearly marked as "no trespassing") are excluded from this definition. Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.
117 (b) Signs used for this purpose may be selected by the contractor to avoid conflict with local security requirements.	Article 232.2 (excerpt) "The contractor may select the type of sign used to avoid conflict with local security requirements."	This is a provision and not a requirement. The Supply System accepts provision § 835.602(b) as written.
§ 835.603 Radiological areas and radioactive material areas. ~~§ 835.603 Radiological areas. - 7 requirements total in section~~		
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. ~~118 Each access point to a radiological area (as defined in § 835.2) shall be posted with conspicuous signs bearing the wording provided in this section.~~	H231 (excerpt) "Part 835.603 states: Each access point to a radiological area (as defined in § 835.2) shall be posted with conspicuous signs bearing the wording provided in this section."	Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP. Note: "radiological area" posting commitment is limited to only those areas specified in 10 CFR 835, not DOE Radiological Control Manual.

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(a) Radiation Area. The words "Caution, Radiation Area" shall be posted at each radiation area. ~~119 (a) *Radiation Area.* The words "Caution, Radiation Area" shall be posted at any area accessible to individuals in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 0.005 rem (0.05 millisievert) in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.~~	Article 234.1 (excerpt) "Areas shall be posted to alert personnel to the presence of external radiation in accordance with Table 2-3 and Article 231." Article 234.7 (excerpt) "Dose received in an hour may be used as the criterion for posting." Table 2-3 (excerpt) Criteria for Posting Radiation Areas "Radiation Area: Dose Rate Criteria - > 0.005 rem/hr and ≤ 0.1 rem/hr at 30 cm: Posting - "CAUTION, RADIATION AREA"." HSRCM Glossary: radiation area "Any area, accessible to individuals, in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 0.005 rem in one hour at 30 cm from the radiation source or from any surface that the radiation penetrates."	Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.
(b) High Radiation Area. The words "Caution, High Radiation Area" or "Danger, High Radiation Area" shall be posted at each high radiation area. ~~120 (b) *High Radiation Area.* The words "Danger, High Radiation Area" shall be posted at any area accessible to individuals in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 0.1 rem (0.001 sievert) in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.~~	Article 234.1 (excerpt) "Areas shall be posted to alert personnel to the presence of external radiation in accordance with Table 2-3 and Article 231."." Article 234.7 (excerpt) "Dose received in an hour may be used as the criterion for posting; the unit "rad" is associated with dose rates that pose an immediate danger." Table 2-3 (excerpt) Criteria for Posting Radiation Areas "High Radiation Area: Dose Rate Criteria - > 0.1 rem/hr at 30 cm and ≤ 500 rad/hr at 100 cm: Posting - "DANGER, HIGH RADIATION AREA"." HSRCM Glossary: high radiation area "Any area, accessible to individuals, in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 0.1 rem in 1 hour at 30 cm from the radiation source or from any surface that the radiation penetrates."	High radiation areas are not expected at the HGP. Therefore, entry into high radiation areas is not authorized under provisions of this RPP and high radiation area posting requirements are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.

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© Very High Radiation Area. The words "Grave Danger, Very High Radiation Area" shall be posted at each very high radiation area. ~~121 © *Very High Radiation Area.* The words "Grave Danger, Very High Radiation Area" shall be posted at any area accessible to individuals in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rads (5 grays) in one hour at 1 meter from a radiation source or from any surface that the radiation penetrates.~~	Article 234.1 (excerpt) "Areas shall be posted to alert personnel to the presence of external radiation in accordance with Table 2-3 and Article 231."." Article 234.7 (excerpt) "Dose received in an hour may be used as the criterion for posting; the unit "rad" is associated with dose rates that pose an immediate danger." Table 2-3 (excerpt) Criteria for Posting Radiation Areas "Very High Radiation Areas: Dose Rate Criteria - > 500 rad/hr at 100 cm: Posting - "GRAVE DANGER, VERY HIGH RADIATION AREA"." HSRCM Glossary: very high radiation area "Any area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rads (5 Grays) in one hour at 1 meter from a radiation source or from any surface that the radiation penetrates."	Very high radiation areas are not expected at the HGP. Therefore, entry into very high radiation areas is not authorized under provisions of this RPP and very high radiation area posting requirements are not applicable to this RPP. Technical Basis Document HGP-TBD-04 provides justification why High and Very High Radiation Areas are not expected at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(d) Airborne Radioactivity Area. The words "Caution, Airborne Radioactivity Area" or "Danger, Airborne Radioactivity Area" shall be posted at each airborne radioactivity area. ~~122 (d) *Airborne Radioactivity Area.* The words "Caution, Airborne Radioactivity Area" shall be posted for any occupied area in which airborne radioactivity levels exceed, or are likely to exceed, 10 percent of the DAC value listed in appendix A or appendix G of this part.~~	Article 235.1 (excerpt) "Areas shall be posted to alert personnel to contamination in accordance with Table 2-4 and Article 231." Article 223.2 (modified) "Occupied areas with airborne concentrations of radioactivity that are greater than or potentially greater than 10 percent of a Derived Air Concentration shall be posted (in accordance with 10 CFR 835). For most radionuclides, air containing 10 percent of a DAC results in a committed effective dose equivalent of approximately 10 mrem if inhaled continuously for one work week. Values of DACs are provided in 10 CFR 835." Table 2-4 (excerpt) Criteria for Posting CAs, HCAs, and ARAs "Airborne Radioactivity: Criteria - Concentrations (µCi/cc) > 10% of any DAC value: Posting - "CAUTION, AIRBORNE RADIOACTIVITY AREA"." HSRCM Glossary: airborne radioactivity area "Any area where the concentration of airborne radioactivity, above natural background, exceeds or is likely to exceed 10 percent of the derived air concentration (DAC) values. DAC values are contained in Appendices A and C of 10 CFR 835."	Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.

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(e) Contamination Area. The words "Caution, Contamination Area" shall be posted at each contamination area. ~~123 (e) *Contamination Area.* The words "Caution, Contamination Area" shall be posted where contamination levels exceed values listed in appendix D of this part, but are less than or equal to 100 times those values.~~	Article 235.1 (excerpt) "Areas shall be posted to alert personnel to contamination in accordance with Table 2-4 and Article 231." Table 2-4 (excerpt) Criteria for Posting Contamination, High Contamination and Airborne Radioactivity Areas "Contamination: Criteria - Contamination levels (dpm/100 cm^2) > 1 time but ≤ 100 times Table 2-2 values: Posting - "CAUTION, CONTAMINATION AREA"." HSRCM Glossary: contamination area "Any area where contamination levels are greater than the values specified in Chapter 2, Table 2-2, but less than or equal to 100 times those values." H222.1a "The contamination values for ^{125}I are more conservative in Appendix D to 10 CFR 835 (20 dpm/100 cm^2 removable; 500 dpm/100 cm^2). The more conservative values in 10 CFR 835 shall be followed until further clarification is provided by DOE on this issue."	Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.

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(f) High Contamination Area. The words "Caution, High Contamination Area" or "Danger, High Contamination Area" shall be posted at each high contamination area. ~~124 (f) *High Contamination Area.* The words "Danger, High Contamination Area" shall be posted where contamination levels are greater than 100 times the values listed in appendix D of this part.~~	Article 235.1 (excerpt) "Areas shall be posted to alert personnel to contamination in accordance with Table 2-4 and Article 231." Table 2-4 (excerpt) Criteria for Posting Contamination, High Contamination and Airborne Radioactivity Areas "High Contamination: Criteria - Contamination levels (dpm/100 cm^2) > 100 times Table 2-2 values: Posting - "DANGER, HIGH CONTAMINATION AREA"." HSRCM Glossary: high contamination area "Any area where contamination levels are greater than 100 times the values specified in Chapter 2, Table 2-2, of this Manual." H222.1a "The contamination values for ^{125}I are more conservative in Appendix D to 10 CFR 835 (20 dpm/100 cm^2 removable; 500 dpm/100 cm^2). The more conservative values in 10 CFR 835 shall be followed until further clarification is provided by DOE on this issue."	Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.
(g) Radioactive Material Area. The words "Caution, Radioactive Material(s)" shall be posted at each radioactive material area.	Article 236 (excerpt) The words "Caution, Radioactive Material (s) shall be posted at each radioactive material area. The posting shall meet the requirements in Article 231."	Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.

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§ 835.604 Exceptions to posting requirements. (a) Areas may be excepted from the posting requirements of § 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.		The Supply System accepts the provisions as defined in § 10 CFR 835.604
(b) Areas may be excepted from the radioactive material area posting requirements of § 835.603(g) when: (1) Posted in accordance with § 835.603(a) through (f); or (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 (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 in an accelerator).	Article 236.3 3. Areas may be excepted from the radioactive material area posting requirements of § 835.603(g) when: a. Posted in accordance with § 835.603(a) through (f); or b. 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 c. 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 in an accelerator).	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.604
© Areas containing only packages received from radioactive material transportation labeled and in non-degraded condition need not be posted in accordance with § 835.603 until the packages are monitored in accordance with § 835.405.	Article 231.16 © Areas containing only packages received from radioactive material transportation labeled and in non-degraded condition need not be posted in accordance with § 835.603 until the packages are monitored in accordance with § 835.405.	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.604
§ 835.605 Labeling items and containers. 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." 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.	Article 412.1 1. Except as provided in 411.2 and 412.2, 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.	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.605

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§ 835.606 Exceptions to labeling requirements. (a) Items and containers may be excepted from the radioactive material labeling requirements of § 835.605 when: (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	Article 412.2 2. Items and containers may be excepted from the radioactive material labeling requirements Article 412.1 when:	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.606
(2) The quantity of radioactive material is less than one tenth of the values specified in appendix E of this part; or	a. The quantity of radioactive material is less than one tenth of the values specified in appendix E of this part; or	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.606
(3) Packaged, labeled, and marked in accordance with the regulations of the Department of Transportation or DOE Orders governing radioactive material transportation; or	b. Packaged, labeled, and marked in accordance with the regulations of the Department of Transportation or DOE Orders governing radioactive material transportation; or	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.606
(4) Inaccessible, or accessible only to individuals authorized to handle or use them, or to work in the vicinity; or	c. Inaccessible, or accessible only to individuals authorized to handle or use them, or to work in the vicinity; or	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.606
(5) Installed in manufacturing, process, or other equipment, such as reactor components, piping, and tanks.	d. Installed in manufacturing, process, or other equipment, such as reactor components, piping, and tanks.	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.606
(6) The radioactive material consists solely of nuclear weapons or their components.	e. The radioactive material consists solely of nuclear weapons or their components.	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.606
(b) Radioactive material labels applied to sealed radioactive sources may be excepted from the color specifications of § 835.601(a).	Article 412.4 (excerpt) Radioactive material labels applied to sealed radioactive sources may be excepted from the color specifications of § 835.601(a).	The Supply System accepts the provisions as outlined in the HSRCM and as defined in § 10 CFR 835.606
Subpart H--Records § 835.701 General provisions. - 2 requirements total in section		

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125 (a) Records shall be maintained to document compliance with this part and with radiation protection programs required by § 835.101.	Article 711 (excerpt) "Radiological control records shall be maintained as necessary to document compliance with the requirements of 10 CFR 835." Article 712.2 "Where radiological services (for example, dosimetry and laboratory analyses) are purchased, there should be a clear agreement regarding records responsibility during performance of the service. Records of results should reside in the custody of the originating contract organization." Article 722.1 "Records of doses received by all individuals for whom individual monitoring was performed shall be maintained. These records shall be sufficient to evaluate compliance with all applicable dose limits and monitoring and reporting requirements." Article 731.2 "Records of doses, including zero dose, received by all visitors for whom monitoring was performed shall be maintained. These records shall be sufficient to evaluate compliance with all applicable dose limits and monitoring and reporting requirements."	Compliance with this requirement is implemented through procedure RP-OA-439 approved for use by the Supply System at the HGP. Note: The following may be contained on the same record. The following records are taken from Occupational Radiation Exposure Record-Keeping and Recording Implementing Guide, G-10 CFR 835/H1 - Rev. 1, September 1994 and defines records to be generated and maintained. Only those records applicable to provisions of this RPP are included: 1. Individual monitoring records as applicable a. internal exposures b. internal and external dose histories c. summation of internal and external doses d. lifetime occupational exposure e. supportive data for individual exposures (I) exposure investigations (ii) in vitro bioassay data (iii) in vivo bioassay data (iv) bioassay data interpretation f. Training records which will include practical factors records (I) GERT (ii) Radiological Worker training (iii) periodic retraining (iv) training of Radiological Control Technicians (v) training of emergency response personnel (vi) instructor training

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		g. additional individual records (I) records of authorization to exceed Administrative Control Levels (ii) documentation of counseling for declared pregnant workers, individuals who have exceeded the dose limits and who wish to return to work in radiological areas during the current year h. records of embryo/fetus exposure and pregnant workers I. medical records (I) pre-employment, if available, and periodic medical examinations (ii) medical evaluations of treatment in support of radiological protection program (iii) records of non-occupational radiation doses, if available 2. radiological status of work area: a. radiation safety analysis and evaluation reports b. Radiation Work Procedures and Permits c. radiation and contamination surveys d. records of releases of potentially contaminated materials and equipment from radiological areas e. airborne radioactivity monitoring 3. records of monitoring methods a. radiation protection policies and procedures b. evaluation of exposure data c. capabilities of dosimeters and instruments d. calibration and maintenance records e. 10 CFR 835 audits and programmatic reviews f. changes to procedures and methods g. area dosimeter monitoring records 3. ALARA records

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126 (b) Unless otherwise specified in this subpart, records shall be retained until final disposition is authorized by DOE.	Article 711 (excerpt) "Radiological control records shall be maintained as necessary to document compliance with the requirements of 10 CFR 835. These records should be managed for the prescribed retention period." Article 774.1 (excerpt) "10 CFR 835 describes procedures for retaining records. Upon cessation of activities that could result in the occupational exposure of individuals, all required records shall be transferred to DOE."	Compliance with this requirement is implemented through procedure RP-OA-439 approved for use by the Supply System at the HGP. Radiological control records to be maintained will be those records generated by applicable portions of this RPP.
§ 835.702 Individual monitoring records. ~~§ 835.702 Individual monitoring records.~~ - 21 requirements total in section		

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(a) Records shall be maintained to document doses received by all individuals for whom monitoring was required pursuant to § 835.402 and to document doses received during planned special exposures, unplanned doses exceeding the monitoring thresholds of § 835.402, and authorized emergency exposures. ~~127 (a) Records shall be maintained to document doses received by all individuals for whom monitoring was required pursuant to § 835.402 and doses received during planned special exposures, accidents, and emergency conditions.~~	Article 722 (excerpt) Records shall be maintained to document doses received by all individuals for whom monitoring was required pursuant to § 835.402 and to document doses received during planned special exposures, unplanned doses exceeding the monitoring thresholds of § 835.402, and authorized emergency exposures. Article 722.3 "Routine and special records related to radiation doses shall be retained for each person monitored. This shall include records of zero dose. Procedures, data and supporting information needed to reconfirm a person's dose at a later date shall be maintained." Article 722.12 "Emergency doses and planned special exposures shall be accounted for separately, but maintained with the individual's occupational exposure records." Article 723.1 "The complete records of radiological incidents and occurrences involving personnel dose shall be retained." Article 731.2 (excerpt) "Records of doses, including zero dose, received by all visitors for whom monitoring was performed shall be maintained."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP. Planned special exposures in accordance with 10 CFR 835.204 are not unauthorized under provisions of this RPP. Emergency exposures in accordance with 10 CFR 835.1302 are not authorized under provisions of this RPP. Area TLD monitoring has been incorporated to validate exposures are <100 mrem/yr. This requirement is partially implemented through sitewide Radiological services provided by PNNL as specified under existing contract.
	Appendix 2A (modified and excerpted) "Emergency doses are in addition to and accounted for separately from the doses received under the limits in Table 2-1."	

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(b) The results of individual external and internal dose monitoring that is performed, but not required by § 835.402, shall be recorded. Recording of the non-uniform shallow dose equivalent 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). ~~128 (b) The results of individual external and internal dose measurements that are performed, but are not required by § 835.402, shall be recorded. Recording of the non-uniform shallow dose equivalent to the skin caused by contamination on the skin (see § 835.205) is not required if the dose is less than 2 percent of the limit specified for the skin in § 835.202(a)(4).~~	Article 722.1 (excerpt) The results of individual external and internal dose monitoring that is performed, but not required by § 835.402, shall be recorded. Article 722.3 (excerpt) "Routine and special records related to radiation doses shall be retained for each person monitored. This shall include records of zero dose." Article 722.13 (excerpt) "Records of non-uniform dose to the skin caused by contamination on the skin need not be retained in personnel dose records if the dose is less than 2 percent of the limit for the skin in Table 2-1." Article 731.2 (excerpt) "Records of dose, including zero dose, received by all visitors for whom monitoring was performed shall be maintained." Table 2-1 (excerpt) "Type of exposure - Radiological Worker: skin: 50 rem"	Compliance with this requirement is implemented through procedure RP-OA-439 approved for use by the Supply System at the HGP.

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© The records required by this section shall:		
(1) Be sufficient to evaluate compliance with subpart C of this part; ~~129 (1) Be sufficient to evaluate compliance with § 835.202;~~	Article 711 (excerpt) "Radiological control records shall be maintained as necessary to document compliance with the requirements of 10 CFR 835."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

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(2) Be sufficient to provide dose information necessary to complete reports required by subpart I of this part; ~~130 (2) Be sufficient to provide dose information necessary to complete reports required by subpart I of this part and by Departmental requirements for occurrence reporting and processing;~~	Article 722.1 Records shall be maintained to document doses received by all individuals for whom monitoring was required pursuant to § 835.402 and to document doses received during planned special exposures, unplanned doses exceeding the monitoring thresholds of § 835.402, and authorized emergency exposures. Article 722.3 (excerpt) "Routine and special records related to radiation doses shall be retained for each person monitored." Article 722.6 "Records of the summation of external dose and committed dose equivalent to any organ receiving a reportable dose shall be maintained for the individual receiving such dose." Article 722.7 "The total effective dose equivalent received by each monitored individual shall be maintained for each year the individual is monitored." Article 722.8 "The dose equivalent to the embryo/fetus of a declared pregnant worker shall be maintained with the occupational exposure records for that worker." Article 722.9 "Records of lifetime occupational dose, including cumulative TEDE since January 1, 1989, should be maintained with the individual's occupational exposure records." Article 722.12 "Emergency doses and planned special exposures shall be accounted for separately, but maintained with the individual's occupational exposure records." Article 723.1 "The complete records of radiological incidents and occurrences involving personnel dose shall be retained." Article 731.2 "Records of doses received by all visitors for whom monitoring was performed shall be maintained. These records shall be sufficient to evaluate compliance with all applicable dose limits and monitoring and reporting	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP. Planned special exposures in accordance with 10 CFR 835.204 are not unauthorized under provisions of this RPP. Emergency exposures in accordance with 10 CFR 835.1302 are not authorized under provisions of this RPP.

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(3) Include the following quantities for external dose received during the year: ~~(3) Include the following quantities for external dose received during the year:~~		
(I) The effective dose equivalent from external sources of radiation (deep dose equivalent may be used as effective dose equivalent for external exposure); ~~131 (I) The effective dose equivalent from external sources of radiation (deep dose equivalent may be used as effective dose equivalent for external exposure);~~	Table 2-1 (modified and excerpted) Summary of Dose Limits "Radiological Worker (and) Minors and Students (and) Visitors and Public: Whole Body: (internal + external)." Article 722.4 (a is an excerpt) "External dose records shall include the following: a. Applicable whole body dose results measured with personnel dosimeters b. Evaluations resulting from anomalous dose results such as unexpected high or low doses c. Dose reconstructions from lost or damaged dosimeters, or for unbadged workers d. Evaluations of nonuniform radiation doses."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
(ii) The lens of the eye dose equivalent; ~~132 (ii) The lens of the eye dose equivalent;~~	Table 2-1 (excerpt) Summary of Dose Limits "Radiological Worker: Lens of Eye." Article 512.4 (excerpt) "Personnel exposures to the lens of the eye shall be reported separately when monitored." Article 722.4 (excerpt) "External dose records shall include the following: a. Applicable eye dose results measured with personnel dosimeters."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

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(iii) The shallow dose equivalent to the skin; and ~~133 (iii) The shallow dose equivalent to the skin; and~~	Table 2-1 (excerpt) Summary of Dose Limits "Radiological Worker: skin" Article 512.4 (excerpt) "Personnel exposures to the skin shall be reported separately when monitored." Article 722.4 (excerpt) "External dose records shall include the following: a. Applicable skin dose results measured with personnel dosimeters	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
(iv) The shallow dose equivalent to the extremities. ~~134 (iv) The shallow dose equivalent to the extremities.~~	Table 2-1 (excerpt) Summary of Dose Limits "Radiological Worker: Extremity (hands and arms below the elbow; feet and legs below the knees." Article 512.4 (excerpt) "Personnel exposures to the extremities shall be reported separately when monitored." Article 722.4 (excerpt) "External dose records shall include the following: a. Applicable extremity dose result measured with personnel dosimeters, including all multiple dosimeter badging results."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
(4) Include the following information for internal dose resulting from intakes received during the year: ~~(4) Include the following quantities for internal dose resulting from intakes received during the year:~~		

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(l) Committed effective dose equivalent; ~~135 (l) Committed effective dose equivalent;~~	Chapter 2, Part 1 (excerpt) "The committed effective dose equivalent is used to assign internal dose received by personnel at DOE facilities. The committed effective dose equivalent is the resulting dose committed to the whole body from internally deposited radionuclides over a 50-year period after intake." Table 2-1 (modified and excerpted) Summary of Dose Limits "Radiological Worker (and) Minors and Students (and) Visitors and Public: Whole Body (internal + external) Radiological Worker: Any organ or tissue." Table 2-1:Notes.1 "Internal dose to the whole body shall be calculated as committed effective dose equivalent. The committed effective dose equivalent is the resulting dose committed to the whole body from internally deposited radionuclides over 50-year period after intake. See Appendix 2B for the weighing factors to be used in converting organ dose equivalent to effective dose equivalent for the whole body dose." Reference Appendix 2B Weighing Factors for Organs and Tissues Article 722.5 (b is an excerpt) "Internal dose records shall include the following: a. Applicable whole body and lung counting results (including chest wall thickness measurements where applicable) b. Applicable urine, fecal and specimen analysis results c. Dose assessment, as required."	Compliance with this requirement is implemented by the Supply System through services provided PNNL and procedure RP-OA-402 approved for use by the Supply System at the HGP.

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(ii) Committed dose equivalent to any organ or tissue of concern; and ~~136 (ii) Committed dose equivalent to any organ or tissue of concern; and~~	Table 2-1 (excerpt) Summary of Dose Limits "Radiological Worker: Any organ or tissue." Table 2-1: Notes.2 "The annual limit of exposure to "any organ or tissue" is based on the committed dose to that organ or tissue resulting from internally deposited radionuclides over a 50-year period after intake plus any external effective dose equivalent to that organ during the year." Article 722.5 (b is an excerpt) "Internal dose records shall include the following: a. Applicable whole body and lung counting results (including chest wall thickness measurements where applicable) b. Applicable urine, fecal and specimen analysis results c. Dose assessment, as required." Article 722.6 "Records of the summation of external dose and committed dose equivalent to any organ receiving a reportable dose shall be maintained for the individual receiving such dose."	Compliance with this requirement is implemented by the Supply System through services provided PNNL and procedure RP-OA-402 approved for use by the Supply System at the HGP.

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(iii) Identity of radionuclides. ~~137 (iii) Estimated intake and identity of radionuclides.~~	Article 523.1-6 "Interpretations of bioassay results and subsequent dose assessments should include the following: 1. Characteristics of the radionuclide, such as chemical and physical form 2. Bioassay results and the person's previous exposure history 3. Exposure information, such as route of intake and time and duration of exposure 4. Biological models used for dosimetry of radionuclides 5. Models to estimate intake or deposition and to assess dose 6. Intra departmental coordination between the Radiological Control Organization and the medical organization for doses that may require medical intervention." Article 722.5b "Internal dose records shall include the following: b. Applicable urine, fecal and specimen analysis results, including estimated intake and identity of radionuclides."	Compliance with this requirement is implemented by the Supply System through services provided PNNL and procedure RP-OA-402 approved for use by the Supply System at the HGP.

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5) Include the following quantities for the summation of the external and internal dose: ~~(5) Include the following quantities for the summation of the external and internal dose:~~		
(I) Total effective dose equivalent in a year; ~~138 (I) Total effective dose equivalent in a year;~~	Table 2-1 (modified and excerpted) Summary of Dose Limits "Radiological Worker: Whole Body (internal + external): Annual Limit (= TEDE)" Article 722.7 "The total effective dose equivalent received by each monitored individual shall be maintained for each year the individual is monitored."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
(ii) For any organ or tissue assigned an internal dose during the year, the sum of the deep dose equivalent from external exposures and the committed dose equivalent to that organ or tissue; and ~~139 (ii) For any organ or tissue assigned an internal dose during the year, the sum of the deep dose equivalent from external exposures and the committed dose equivalent to that organ or tissue; and~~	Table 2-1 (excerpt) Summary of Dose Limits "Radiological Worker: Any organ or tissue." Table 2-1: Notes.2 "The annual limit of exposure to "any organ or tissue" is based on the committed dose to that organ or tissue resulting from internally deposited radionuclides over a 50-year period after intake plus any external effective dose equivalent to the organ during the year." Article 722.6 "Records of the summation of external dose and committed dose equivalent to any organ receiving a reportable dose shall be maintained for the individual receiving such a dose."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
(iii) Cumulative total effective dose equivalent. ~~140 (iii) Cumulative total effective dose equivalent received from external and internal sources while employed at the site or facility, since January 1, 1989.~~	Article 212.2 "The internal contribution to lifetime occupational dose should continue to be reassessed as further bioassay results and improved methods for assessing internal dose become available. Article 722.9 "Records of lifetime occupational dose, including cumulative total effective dose equivalent since January 1, 1989, should be maintained with the individual's occupational exposure records."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

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(6) Include the dose equivalent to the embryo/fetus of a declared pregnant worker. ~~141 (6) Include the dose equivalent to the embryo/fetus of a declared pregnant worker.~~	Table 2-1 Summary of Dose Limits "Declared Pregnant Worker: Embryo/Fetus." Article 722.8 "The dose equivalent to the embryo/fetus of a declared pregnant worker shall be maintained with the occupational exposure records for that worker."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
d) Documentation of all occupational doses received during the current year, except for doses resulting from planned special exposures conducted in compliance with § 835.204 and emergency exposures authorized in accordance with § 835.1302(d), shall be obtained to demonstrate compliance with § 835.202(a). ~~142 (d) Documentation of all occupational exposure received during the current year shall be obtained when demonstrating compliance with § 835.202(a).~~	Article 213.1 (excerpt) "All occupational exposure received during the current year shall be included when demonstrating compliance with Table 2-1 dose limits." Article 213.2c "Radiological workers from other DOE or DOE contractor facilities may receive occupational exposure as a radiological worker if they: c. Provide their radiation dose records for previous years and written estimates, signed by the individual, for the current year." Article 721.1-4 (3 is an excerpt) "Records detailing an employee's preemployment and employment history and the associated radiation dose shall be maintained. The following information should be maintained: 1. Previous work history detailing radiological work assignments, to the extent practical, and yearly doses at other DOE and non-DOE facilities. 2. Nuclear Regulatory Commission Form 4 or equivalent that documents previous occupational radiation doses 3. Ongoing work history documenting radiation doses. 4. When issued, DOE standardized forms to document previous and ongoing radiation doses." Article 722.1 "Records of doses received by all individuals for whom individual monitoring was performed shall be maintained. These records shall be sufficient to evaluate compliance with all applicable dose limits and monitoring and reporting requirements."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

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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. ~~143 In the absence of formal records of previous occupational exposure during the year, a written estimate signed by the individual may be accepted.~~	Article 213.2c "Radiological workers from other DOE or DOE contractor facilities may receive occupational exposure as a radiological worker if they: c. Provide their radiation dose records for previous years and written estimates, signed by the individual, for the current year."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
(e) For radiological workers whose occupational dose is monitored in accordance with § 835.402, reasonable efforts shall be made to obtain complete records of prior years occupational internal and external doses. ~~144 (e) Efforts shall be made to obtain records of prior years occupational internal and external exposure.~~	Article 213.2c "Radiological workers from other DOE or DOE contractor facilities may receive occupational exposure as a radiological worker if they: c. Provide their radiation dose records for previous years and written estimates, signed by the individual, for the current year."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
145 (f) The records specified in this section that are identified with a specific individual shall be readily available to that individual.	Article 712.4 (excerpt) "Detailed information concerning an individual's exposure shall be made available to that individual, upon request." Article 722.2 "Radiation dose records shall contain information sufficient to identify each person, including social security or employee number."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
146 (g) Data necessary to allow future verification or reassessment of the recorded doses shall be recorded.	Article 722.3 "Routine and special records related to radiation doses shall be retained for each person monitored. This shall include records of zero dose. Procedures, data and supporting information needed to reconfirm a person's dose at a later date shall be maintained."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
147 (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.	Article 774.1 (excerpt) "10 CFR 835 describes procedures for retaining records. Upon cessation of activities that could result in the occupational exposure of individuals, all required records shall be transferred to DOE."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
§ 835.703 Other monitoring records. ~~§ 835.703 Monitoring and workplace records.~~ - 5 requirements total in section		
The following information shall be documented and maintained:		
(a) Results of monitoring for radiation and radioactive material as required by subparts E and L of this part, except for monitoring required by § 835.1102(d); ~~148 (a) Results of surveys for radiation and radioactive material in the workplace as required by §§ 835.401, 835.403, and 835.404;~~	Article 752.1 (excerpt) "Records of radiation surveys shall include, at a minimum, the following information: a. Instrument model and serial number b. Results of the measurements of area dose rates" Article 753.1 (excerpt) "Records of airborne radioactivity shall include, at a minimum, the following information: a. Model and serial numbers of the sampler and laboratory counting instrument when available or unique identifier of each sampler and instrument. b. Location of fixed air samplers c. Location of portable air samplers used for a survey d. Air concentrations in general airborne areas and breathing zones e. Supporting parameters, including collection efficiency, flow rate, duration of sampling, correction factors and filter medium." Article 754.1 (excerpt) "Records of contamination surveys shall include, at a minimum, the following information: a. Model and serial number of counting equipment. b. Contamination levels (using appropriate units) and appropriate supporting parameters including counting efficiency, counting time, correction factors, type of radiation and whether the contamination was fixed or removable. c. Location of areas found to contain hot particles or high concentrations of localized contamination d. Follow-up survey results for decontamination processes cross-referenced to the original survey."	Compliance with this requirement is implemented through procedure RP-OA-439 approved for use by the Supply System at the HGP.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(b) Results of monitoring used to determine individual occupational dose from external and internal sources; ~~149 (b) Results of surveys, measurements, and calculations used to determine individual occupational exposure from external and internal sources;~~	Article 722.4 "External dose records shall include the following: a. Applicable extremity, skin, eye and whole body dose results measured with personnel dosimeters, including all multiple dosimeter badging results b. Evaluations resulting from anomalous dose results such as unexpected high or low doses c. Dose reconstructions from lost or damaged dosimeters, or for unbadged workers d. Evaluations of nonuniform radiation doses." Article 722.5 "Internal dose records shall include the following: a. Applicable whole body and lung counting results (including chest wall thickness measurements where applicable) b. Applicable urine, fecal and specimen analysis results, including estimated intake and identity of radionuclides c. Dose assessment, as required." Article 752.1b (excerpt) "Records of radiation surveys shall include: b. Results of the measurements of area dose rates." Article 753.1d, e (excerpt) "Records of airborne radioactivity shall include: d. Air concentrations in general airborne areas and breathing zones e. Supporting parameters, including collection efficiency, flow rate, duration of sampling, correction factors and filter medium."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
© Results of monitoring for the release and control of material and equipment as required by § 835.1101; and ~~150 © Results of surveys for the release of material and equipment as required by § 835.1101(d); and~~	Article 421.5 (excerpt) Results of monitoring for the release and control of material and equipment as required by § 835.1101 and should not exceed the values of Table 2-2. "Records for release of surveyed materials shall describe the property, date of last survey, identity of the person who performed the survey, type and identification number of the survey instruments used, and survey results."	Compliance with this requirement is implemented through procedure RP-OA-439 approved for use by the Supply System at the HGP.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(d) Results of maintenance and calibration performed on instruments and equipment as required by § 835.401(b). ~~151 (d) Results of maintenance and calibration performed on:~~ ~~(1) Instruments used for area monitoring and contamination control as required by § 835.401; and~~	Article 564.1d (excerpt) "Calibration facilities should take the following actions: d. Generate records of calibration, functional tests and maintenance." Article 761.1, 2, 3, 4 (2 is an excerpt) 1. "Calibration records for fixed, portable, and laboratory radiation measuring equipment and individual monitoring devices shall be maintained and include frequencies, method, dates, personnel, training and traceability of calibration services to National Institute of Science and Technology or other acceptable standards." 2. Calibration records should be maintained for the following equipment: a. Portable survey instruments c. Laboratory, counting room and fixed radiation measuring equipment e. Radiation area monitors f. Portal monitors and other personnel contamination monitors h. Air sampling equipment I. Tool and waste monitoring equipment j. Protective clothing and equipment monitors. 3. Documentation of instrument operational checks shall be maintained for a period not less than the calibration period of the instrument. 4. Maintenance histories, including the nature of any defects and corrective actions taken, and calibration results for each instrument shall be created and retained." Article 762 "Records of additional tests and checks of instrumentation used in conjunction with a suspected overexposure, questionable indication or unusual occurrence should be retained. In addition, records of special instrument calibrations and modifications made in accordance with Article 562.6 should be retained."	Compliance with this requirement is implemented through procedure RP-OA-439 approved for use by the Supply System at the HGP. This requirement is implemented by the Radiological Control Organization.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~152 (2) Devices used for individual monitoring as required by §§ 835.401 and 835.402.~~	Article 761.1, 2, 3, 4 (2 is an excerpt) "Calibration records for fixed, portable, and laboratory radiation measuring equipment and individual monitoring devices shall be maintained and include frequencies, method, dates, personnel, training and traceability of calibration sources to National Institute of Science and Technology or other acceptable standards. 2. Calibration records should be maintained for the following equipment: b. Bioassay measurement equipment c. Laboratory, counting room and fixed radiation measuring equipment g. Pocket and electronic dosimeters h. Air sampling equipment 3. Documentation of instrument operational checks shall be maintained for a period not less than the calibration period of the instrument. 4. Maintenance histories, including the nature of any defects and corrective actions taken, and calibration results for each instrument shall be created and retained." Article 762 (excerpt) "Records of additional tests and checks of instrumentation used in conjunction with a suspected overexposure, questionable indication or unusual occurrence should be retained."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP. Copies of current training records are maintained at the HGP RCO office. Historical training records are maintained by FDH for DOE. This requirement is partially implemented by the RCO. This requirement is partially implemented through sitewide radiological services provided by PNNL as specified under existing contract.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
§ 835.704 Administrative records. - 5 requirements total in section		
153 (a) Training records shall be maintained, as necessary, to demonstrate compliance with §§ 835.901, 835.902, and 835.903.	Article 612.3 (excerpt) "Documentation of previous training shall include the individual's name, date of training, topics covered, and name of the certifying individual." Article 725.1, 3, 4, 5, 6 (3-6 are excerpts, 725.3e is modified) 1. "Records of training and qualification in radiological control shall be maintained to demonstrate that a person received appropriate information to perform the work assignment in a safe manner. Qualification standard records shall be retained for on-the-job and practical factor training as well as for formal classroom training. 3. Personnel training records shall be controlled and retained. At a minimum, these records shall include the following: a. Course title b. Attendance sheets with instructor's name c. Employee's name (and) identification number d. Date of training e. Identification of the examination or examination form, including sufficient data to identify which test each person completed f. Verification document or record confirming satisfaction of the training requirement g. Documentation related to exceptions for training requirements and extensions of qualification h. Quizzes and tests with the date and signature of the person trained	Compliance with this requirement is implemented through procedure RP-OA-439 approved for use by the Supply System at the HGP.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
	4. Records shall be retained for the following types of training: a. General employee radiological training b. Radiological Worker training c. Periodic retraining e. Training of radiological control personnel f. Instructor training h. Orientation and training of visitors I. Training of emergency response personnel. 5. The following instructional material shall be maintained: a. Course name b. Instructor's manuals, course content, or lesson plans containing topical outlines. c. Video and audio instructional materials d. Handouts or other materials retained with the master copy of the course e. Job-specific training documents, such as instrument use, radiological procedures, Radiological Work Permit special training requirements, pre-job briefings and mock-up training. 6. Documentation of training and qualification received at another DOE location need not be duplicated."	
154 (b) Actions taken to maintain occupational exposures as low as reasonably achievable, including the actions required for this purpose by § 835.101, as well as facility design and control actions required by §§ 835.1001, 835.1002, and 835.1003, shall be documented.		Compliance with this requirement is implemented through procedure RP-AP-437 approved for use by the Supply System at the HGP.
155 © Records shall be maintained to document the results of internal audits and other reviews of program content and implementation.	Article 743 (excerpt) "Records of quality assurance reviews and audits developed for Radiological Control functions shall be retained."	Compliance with this requirement is implemented through procedure RP-OA-439 approved for use by the Supply System at the HGP.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(d) Written declarations of pregnancy, including the estimated date of conception, and revocations of declarations of pregnancy shall be maintained. ~~156 (d) Written declarations of pregnancy shall be maintained.~~	Article 215 "After a female worker voluntarily notifies her employer in writing that she is pregnant, for the purposes of fetal/embryo dose protection, she is considered a declared pregnant worker. This declaration may be revoked, in writing, at any time by the declared pregnant worker." Article 723.3 (excerpt) "Written declarations of pregnancy, including the estimated date of conception, and revocations of declarations of pregnancy shall be maintained." ~~"Records of the formal written declaration of pregnancy shall be maintained. Records of revocations of such declarations should also be maintained."~~	Compliance with this requirement is implemented through procedure RP-OA-439 approved for use by the Supply System at the HGP.
(e) Changes in equipment, techniques, and procedures used for monitoring shall be documented. ~~157 (e) Changes in equipment, techniques, and procedures used for monitoring in the workplace shall be documented.~~	Article 551.4 (excerpt) "The Radiological Control Organization shall perform and document a review of the adequacy of sampling and monitoring systems as part of any facility or operational changes affecting radiological control." Article 751.2 "Records shall be maintained to document changes in monitoring equipment, techniques, and procedures.	Compliance with this requirement is implemented through procedure RP-OA-439 approved for use by the Supply System at the HGP. Note: for the purposes of this RPP, documented reviews are limited to those reviews of sampling and monitoring systems directly related to occupational worker safety (for example, area monitoring and air sampling) and not process monitoring.
(f) Records shall be maintained as necessary to demonstrate compliance with the requirements of §§ 835.1201 and 835.1202 for sealed radioactive source control, inventory, and source leak tests.		
Subpart I--Reports to Individuals § 835.801 Reports to individuals. - 9 requirements total in section		

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
(a) Radiation exposure data for individuals monitored in accordance with § 835.402 shall be reported as specified in this section. ~~158 (a) Radiation exposure data for individuals monitored in accordance with § 835.402 shall be reported as specified in this section.~~		Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
The information shall include the data required under § 835.702(c). ~~159 The information shall include the data required under § 835.702(c)~~.		Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
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. ~~160 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 or employee number.~~	Article 781.3 (modified and excerpted) "Reports of individual doses shall include the site or facility name, the individual's name and social security or employee number, and all dose information required by Articles 511 and 521"	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
161 (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.	Article 781.1 (excerpt) "Upon request, an individual shall receive a current radiation dose record." Article 781.2 (excerpt) "Terminating employees shall be provided a report, within 90 days of the last day of employment, that summarizes radiation dose for the total period of employment at the reporting facility." Article 732 (modified and excerpted) "Monitoring results, including zero dose, should be reported to each visitor monitored in accordance with (10 CFR 835) and shall be reported no later than 90 days after the end of the visit."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
162 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.	Article 781.2 (excerpt) "A written estimate, based upon available information, shall be provided upon termination, if requested."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
163 © 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 § 835.402.	Article 781.1 (excerpt) "Personnel who are monitored by the personnel dosimetry program shall be provided an annual report of their dose."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
164 (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).	Article 541.8 "An assessment of skin exposure requires time to conduct a detailed evaluation. Assessments shall be conducted in accordance with Appendix 2C and, promptly after completion, the results should be explained to the persons affected." Article 712.4 "Detailed information concerning an individual's exposure shall be made available to that individual, upon request, consistent with the Privacy Act of 1974, which contains requirements to protect the privacy of individual records."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.
165 (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 § 835.204(e), the contractor shall also provide that individual with a report on his or her exposure data included therein.	Article 781.4 (excerpt) "Reports of individual exposure to radiation or radioactive material required under DOE Order 232.1 or as a result of a planned special exposure (10 CFR 835.204(e)) shall be submitted to the Department in accordance with departmental occurrence reporting requirements. Copies of the individual dose information contained in these reports shall be provided to the affected individual."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP. Planned special exposures are hot authorized under provisions of this RPP. "Departmental requirements" means DOE Order 232.1A, August 1, 1997.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
166 Such report shall be transmitted at a time not later than the transmittal to the Department.	Article 781.4 (excerpt) "Copies of the individual dose information contained in these reports shall be provided to the affected individual at a time not later than transmittal of the report to the Department."	Technical Basis Document HGP-TBD-03 provides justification that individual monitoring for exposure to external radiation will not be required by 10 CFR 835.402(a) at the HGP.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Subpart J--Radiation Safety Training § 835.901 ~~General employees.~~ - Radiation safety training. ~~6 requirements total in section~~		
(a) Each individual shall complete radiation safety training on the topics established at § 835.901© 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. ~~167 (a) All general employees shall be trained in radiation safety prior to receiving occupational exposure during access to controlled areas at a DOE site or facility.~~	Article 331 "Successful completion of ~~Visitor Orientation or~~ General Employee Radiological Training is required for unescorted entry into Controlled Areas." Article 622.1 (excerpt) "Members of the public shall receive radiation safety training prior to being permitted unescorted access to Radiologically Controlled Areas." This training shall address radiation safety training topics in Article 613. ~~Visitors who enter the Controlled Area shall receive a radiological safety orientation that should include the following topics:~~ ~~a. Basic radiation protection concepts~~ ~~f. Adherence to posting and labeling."~~ HSRCM Glossary Occupational Dose: an individual's dose due to exposure to ionizing radiation (external and internal) as a result of that individual's work assignment. Occupational dose does not include planned special exposures, exposure received as a medical patient, background radiation, or voluntary participation in medical research programs. General Employee: An individual who is either a DOE or DOE contractor employee; an employee of a subcontractor to a DOE contractor; or a visitor who performs work for or in conjunction with DOE or utilizes DOE facilities.	DOE/EH-0258T-1 (1992) General Employee Radiological Training and Radiological Worker Training, Program Management Manual Article 122 (excerpt) - GERT "Description of program: ALARA Concept Emergency Procedures Employee Responsibilities Ionizing Radiation Radiological Controls" The Supply System and subcontractor employees must successfully complete GERT if they enter Radiologically Controlled Areas and they routinely encounter radiation safety barriers, postings, or radioactive materials. Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training. Clarification: For those personnel who are not general employees and who receive dose during tours where the tour is not part of that individual's work assignment, the dose is not considered "occupational dose." These personnel will receive visitor orientation prior to accessing Radiologically Controlled Areas. Clarification: Radiological Worker Training satisfies the requirements for GERT.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~168 Allowance may be made for previous DOE training on generic radiation safety topics (i.e., those not specific to a site or facility), provided the training was received at another DOE site or facility within the past 2 years.~~	~~Article 612.3 (excerpt)~~ ~~Site-specific aspects of the radiological training shall be completed. Site-specific training for General Employee Radiological Training may be included with other site orientation training."~~	~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~
~~169 Documentation of the previous training shall clearly identify the individual's name, date of training, topics covered, and name of the certifying individual.~~	~~Article 612.3 (excerpt)~~ ~~"Documentation of previous training shall include the individual's name, date of training, topics covered, and name of the certifying official."~~ ~~Article 725.6 (excerpt)~~ ~~"Documentation of training and qualification received at another DOE location need not be duplicated."~~	~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~170 The knowledge of radiation safety possessed by general employees shall be verified by examination.~~	~~Article 613.1 (excerpt)~~ ~~"Examinations for GERT shall be used to demonstrate satisfactory completion of theoretical and classroom material."~~ ~~Article 613.9 (excerpt)~~ ~~"The Radiological Control Manager is authorized to approve alternative temporary training methods for those lacking reading and comprehension skills in the English language until adequate English skills can be achieved. Training in an alternate language should be equivalent to training in English. Visitor orientation and the use of trained escorts provide an alternate to training with the concurrence of the Radiological Control Manager."~~ ~~Article 622.2 (excerpt)~~ ~~"Radiological Orientation for Visitors:~~ ~~An examination is not required."~~ ~~HSRCM Glossary~~ ~~Occupational dose: an individual's dose due to exposure to ionizing radiation (external and internal) as a result of that individual's work assignment. Occupational dose does not include planned special exposures, exposure received as a medical patient, background radiation, or voluntary participation in medical research programs.~~ ~~General Employee: An individual who is either a DOE or DOE contractor employee; an employee of a subcontractor to a DOE contractor; or a visitor who performs work for or in conjunction with DOE or utilizes DOE facilities.~~	~~The Supply System and subcontractor employees must successfully complete GERT if they enter Radiologically Controlled Areas and they routinely encounter radiation safety barriers, postings, or radioactive materials.~~ ~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~ ~~Clarification: For those personnel who are not general employees and who receive dose during tours where the tour is not part of that individual's work assignment, the dose is not considered "occupational dose". These personnel will receive visitor orientation prior to accessing Radiologically Controlled Areas.~~ ~~Clarification: Radiological Worker Training satisfies the requirements for GERT.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~171 (b) Retraining shall be provided when there is a significant change to radiation protection policies and procedures that affect general employees~~	~~Article 613.3 (excerpt)~~ ~~"GERT shall be completed every 2 years. Changes to the program shall be incorporated as they are identified and a decision made if retraining prior to the 2 year period is needed."~~ ~~Article 613.5 (excerpt)~~ ~~"Site-specific training and refresher training shall include changes in requirements."~~	~~"Significant change" means a change which, if it is implemented and training is not provided, could result in increased occupational exposures or potential loss of control of radioactive material, without an increase in work scope, resulting from personnel following the previous practices.~~ ~~Radiological Control initiates review for significant change whenever central program procedures are revised; training group then determines level of training needed and incorporates into GERT.~~ ~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~
~~172 and shall be conducted at intervals not to exceed 2 years.~~	~~Article 613.3 (excerpt)~~ ~~"GERT shall be completed every 2 years."~~	~~DOE/EH-0258T-1 (1992) General Employee Radiological Training and Radiological Worker Training, Program Management Manual~~ ~~Article 126 (excerpt)~~ ~~"Upon completion of initial training of GERT, a retraining program shall be completed every two years."~~ ~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~§ 835.902 Radiological workers. - 7 requirements total in section~~		
(b) Each individual shall demonstrate knowledge of the radiation safety training topics established in § 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 ~~173 Radiological worker training programs and retraining shall be established and conducted at intervals not to exceed 2 years to familiarize the worker with the fundamentals of radiation protection and the ALARA process.~~	Article 613.4 Each individual shall demonstrate knowledge of the radiation safety training topics established in § 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 ~~"Radiological Worker I and II retraining shall be completed every 2 years to familiarize the worker with the fundamentals of radiation protection and the ALARA process."~~ Article 643.7 "Personnel who maintain qualifications as Radiological Control Technicians satisfy the requirements of RW II training."	DOE/EH-0258T-1 (1992) General Employee Radiological Training and Radiological Worker Training, Program Management Manual Article 126 (excerpt) Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training. "Upon completion of initial training of RW I and RW II, a retraining program shall be completed every two years." Note: Retraining for the fundamentals of radiation protection and the ALARA process will be determined using a systematic analysis.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
174 Training shall include both classroom and applied training.	Article 632.3 (excerpt) "Radiological Worker I training, including High/Very High Radiation Area training, should encompass at a minimum the following site-specific practical factors: a. Entering and exiting simulated RAs (and H/VHRAs when such training is included) b. Performance of frisking for personnel contamination, as applicable d. Anticipated response to alarm situations." Article 633.2 (excerpt) "RW II training shall encompass at a minimum the following site-specific practical factors: a. Donning of protective clothing b. Entering and simulated CA and HRA to perform a task d. Anticipated response to simulated alarms e. Removing protective clothing and equipment and subsequently exiting the simulated area f. Performance of frisking for personnel contamination." Article 631.4 "Radiological Worker I training is not a prerequisite for Radiological Worker II training."	Article 142 (excerpt) "A practical factors evaluation shall be used to demonstrate satisfactory completion of DOE/EH-0258T-1 (1992) General Employee Radiological Training and Radiological Worker Training, Program Management Manual Article 122 (excerpt) "Description of Programs: Radiological Fundamentals Biological Effects Radiation Limits ALARA Program Personnel Monitoring Program Radiological Postings and Controls Radiological Emergencies Practical Exercise" skills for RW I and RW II training." Article 143 (excerpt) "RW I and II standardized core training programs are designed to be delivered in a classroom setting. An alternate delivery method may be implemented with computer based training equipment." Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~175 Training shall either precede assignment as a radiological worker or be concurrent with assignment as a radiological worker if the worker is accompanied by and under the direct supervision of a trained radiological worker.~~	~~Article 632.1 (excerpt)~~ ~~"Workers whose job assignments require access to Radiological Buffer Areas and Radiation Areas shall complete DOE standardized core RW I training and site-specific RW I training before being permitted to enter these areas without a qualified escort."~~	~~Note: The RW training material will meet the intent of all DOE standardized core training objectives having applicability as identified using a systematic analysis.~~ ~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~
~~176 Radiological worker training not specific to a given site or facility may be waived provided that: this training has been received at another DOE site or facility within the past 2 years; there is provision of proof of training in the form of a certification document containing the individual's name, date of training, and specific topics covered; and an appropriate official has certified the training of the individual.~~	~~Article 612.3 (excerpt)~~ ~~"Documentation of previous training shall include the individual's name, date of training, topics covered, and name of the certifying official. Site-specific aspects of the radiological training shall be completed."~~	~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~177. The knowledge of radiation safety possessed by radiological workers shall be verified by examination prior to an unsupervised assignment.~~	~~Article 613.1 (excerpt)~~ ~~"Examinations for RW I and II training shall be used to demonstrated satisfactory completion of theoretical and classroom material."~~ ~~Article 631.3~~ ~~"Workers may challenge RW I or II standardized core knowledge requirements by passing a comprehensive examination. If unsuccessful in one attempt, the entire standardized core RW I or II shall be completed. Challenges do not apply to the site specific portions."~~	~~DOE/EH-0258T-1 (1992) General Employee Radiological Training and Radiological Worker Training, Program Management Manual~~ ~~Article 125 (excerpt)~~ ~~"Proficiency Requirements:~~ ~~A written examination and a practical factors evaluation shall be used to demonstrate satisfactory completion of RW I and RW II training."~~ ~~Article 141 (excerpt)~~ ~~"Written examinations and/or Computer Based Training Examinations shall be used to demonstrate satisfactory completion of theoretical and classroom material for RW I and RW II."~~ ~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~
		~~Article 142 (excerpt)~~ ~~"A practical factors evaluation shall be used to demonstrate satisfactory completion of skills for RW I and RW II training."~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~178 The training shall include procedures specific to an individual's job assignment.~~	~~Article 612.3 (excerpt)~~ ~~"Site-specific aspects of the radiological training shall be completed. Site-specific training for RW I and II training may be included with other site orientation training."~~ ~~Article 632.2~~ ~~"RW I training shall use the DOE standardized core course training materials and in addition shall emphasize site-specific information."~~ ~~Article 633.1~~ ~~"RW II training shall use the standardized core course training materials and in addition shall emphasize site-specific information."~~	~~"Procedures specific to an individual's job assignment" means examples of the situations/tasks to which the individual may be exposed, and not necessarily all procedures specific to that individual's job assignment. The Supply System commits to meeting the above criteria.~~ ~~Note: The RW training material will meet the intent of all DOE standardized core training objectives having applicability as identified using a systematic analysis.~~ ~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP.~~
~~179 The level of training is to be commensurate with each worker's assignment.~~	~~Article 612.3 (excerpt)~~ ~~"Site-specific aspects of the radiological training shall be completed. Site-specific training for RW I and II training may be included with other site orientation training."~~ ~~Article 632.2~~ ~~"RW I training shall use the DOE standardized core course training materials and in addition shall emphasize site-specific information."~~ ~~Article 633.1~~ ~~"RW II training shall use the standardized core course training materials and in addition shall emphasize site-specific information."~~	~~"Level of training commensurate with each worker's assignment" means the criteria set forth through the DOE Radiological Worker Training Program.~~ ~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
© 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: (1) Risks of exposure to radiation and radioactive materials, including prenatal radiation exposure; (2) Basic radiological fundamentals and radiation protection concepts; (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; (4) Individual rights and responsibilities as related to implementation of the facility radiation protection program; (5) Individual responsibilities for implementing ALARA measures required by § 835.101; and (6) Individual exposure reports that may be requested in accordance with § 835.801.	Article 613 © 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: (1) Risks of exposure to radiation and radioactive materials, including prenatal radiation exposure; (2) Basic radiological fundamentals and radiation protection concepts; (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; (4) Individual rights and responsibilities as related to implementation of the facility radiation protection program; (5) Individual responsibilities for implementing ALARA measures required by § 835.101; and (6) Individual exposure reports that may be requested in accordance with § 835.801.	Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.
~~§ 835.903 Radiological control technician. - 8 requirements total in section~~		

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~180 Training and retraining programs for radiological control technicians shall be established and conducted at intervals not to exceed 2 years to familiarize technicians with the fundamentals of radiation protection and the proper procedures for maintaining exposures ALARA.~~	~~Article 643.2 (excerpt)~~ ~~"The RCT should begin a 2-year cycle of continuing training required for requalification. Every requalification requires completion of practical training, a comprehensive written examination and a final Oral Examination Board."~~	~~The Radiological Control Technician Training Program is designed such that RCTs go through final requalification in the last six months before their training expires.~~ ~~DOE/EH-0262T-1 (1992) Radiological Control Technician, Training Program Management Manual~~ ~~Article 125.1, 3~~ ~~"Requalification:~~ ~~1. A 2-year cycle of continuing training is required for requalification. Continuing training should serve as the basis for requalification."~~ ~~3. A comprehensive written examination and oral examination board are required within the last six months of the biennial requalification cycle. Requalification shall consist of participation in continuing training, successful performance of tasks selected for requalification, successful completion of a comprehensive written examination and successful completion of an oral examination board."~~
		~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~181. This program shall include both classroom and applied training.~~		~~DOE/EH-0262T-1 (1992) Radiological Control Technician, Training Program Management Manual~~ ~~Article 122.3c, 4 (excerpt)~~ ~~"3c. The standardized academics training is designed to be delivered in a classroom setting. Examples of alternate delivery methods are:~~ ~~1) Self-study of Phase I academic materials in support of comprehensive challenge exams for personnel who exceed entry-level pre-requisites~~ ~~2) Self-study for initial and continuing training~~ ~~3) Computer-based training~~ ~~4. Phase I academic objectives provide the basis for skills and tasks to be performed in Phase II. Practical training utilizes a mixture of classroom and hands-on training. Phase IV - Facility Practical Training~~ ~~Tasks unique to a facility."~~ ~~The Supply System commits to implementing requirement § 835.903 as written.~~
		~~Note: The RCT training material will meet the intent of all DOE standardized core training objectives having applicability as identified using a systematic analysis.~~ ~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~182. The training shall either precede performance of tasks assigned to radiological control technicians or be concurrent with such task assignments if the individual is accompanied by and under the direct supervision of a trained individual.~~	~~Article 614.5~~ ~~"On the job trainees shall be under control of qualified personnel. Before performing a job function without direct supervision, a trainee with partially completed qualifications shall have completed the qualifications for that task."~~	~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP.~~
~~183. The required level of knowledge of radiation safety possessed by radiological control technicians shall be verified by examination to include demonstration prior to any unsupervised work assignment.~~	~~Article 613.1 (excerpt)~~ ~~"Examinations for RCT qualification shall be used to demonstrate satisfactory completion of theoretical and classroom material."~~ ~~Article 615.1 (excerpt)~~ ~~"An Oral Examination Board shall determine the qualification of candidates for RCT and Supervisor positions."~~ ~~Article 642.1~~ ~~"RCT qualification consists of the standardized core course training material, on-the-job training per the Qualifications Standards, and passing both a final comprehensive written examination and final Oral Examination Board."~~ ~~Article 642.3~~ ~~"RCT candidates who have prerequisite knowledge, such as college credit, operational experience or related qualifications, may satisfy individual sections of the standardized core course training requirements by passing comprehensive challenge examinations."~~ ~~Article 643.1~~ ~~"Following successful completion of standardized core course requirements including practical training, the RCT shall pass both a comprehensive written examination and an Oral Examination Board for final qualification."~~	~~DOE/EH-0262T-1 (1992) Radiological Control Technician, Training Program Management Manual~~ ~~Article 122.4c (excerpt)~~ ~~"Once a trainee demonstrates task qualification, and has obtained the appropriate signature requirements, he/she may perform that task without direct supervision."~~ ~~Article 141.1~~ ~~"Examinations shall be used to demonstrate satisfactory completion of academic training."~~ ~~Article 142.1 (excerpt)~~ ~~"A final comprehensive written examination shall be administered within the last six months of biennial re-qualification.~~ ~~Note: The RCT training material will meet the intent of all DOE standardized core training objectives having applicability as identified using a systematic analysis.~~ ~~Compliance with this requirement is implemented through procedures RP-TR-441 and RP-TR-443 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~184. The training program shall include procedures specific to the site or facility where the technician is assigned.~~	~~Article 614.3~~ ~~"The Qualification Standards from the standardized core course shall be supplemented to include site-specific elements."~~ ~~Article 614.4~~ ~~"Qualification Standards for the RCT position shall include on-the-job training to provide hands-on experience directly applicable to the job."~~	~~Article 122.4~~ ~~"Phase II - Practical Training:~~ ~~RCTs are taught to apply academic knowledge to the site-specific tasks."~~ ~~Article 122.6~~ ~~"Phase IV - Facility Practical Training:~~ ~~The tasks common to all facilities on site should be included in training with the core tasks. Tasks unique to a facility should be added to the training program qualification standard."~~ ~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~
~~185. The level of training shall be commensurate with the technician's assignment.~~	~~Article 614.3~~ ~~"The Qualification Standards from the standardized core course shall be supplemented to include site-specific elements."~~ ~~Article 614.4~~ ~~"Qualification Standards for the RCT position shall include on-the-job training to provide hands-on experience directly applicable to the job."~~	~~The criteria for "level of training" is as specified above within the RCO Radiological Control Technician Training Program.~~ ~~Note: The RCT training qualification standards will meet the intent of all DOE standardized core qualification standards having applicability as identified using a systematic analysis.~~ ~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~186 Allowance may be made for previous DOE training on generic radiation safety topics (i.e., those not specific to a site or facility), provided the training was received within the past 2 years.~~	~~Article 612.3 (excerpt)~~ ~~"Successful completion of the standardized courses for Radiological Control Technician at one DOE site within the past two years shall be recognized by other DOE sites. However, site-specific aspects of the radiological training shall be completed."~~	~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~
~~187 Documentation of the previous training shall clearly identify the individual's name, date of training, topics covered, and name of the certifying individual.~~	~~Article 612.3 (excerpt)~~ ~~"Documentation of previous training shall include the individual's name, date of training, topics covered, and name of the certifying official."~~ ~~Article 725.6 (excerpt)~~ ~~"Documentation of training and qualification received at another DOE location need not be duplicated."~~	~~Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.~~
(d) When an escort is used in lieu of training in accordance with paragraph (a) or (b) of this section, the escort shall: (1) Have completed radiation safety training, examinations, and performance demonstrations required for entry to the area and performance of the work; and (2) Ensure that all escorted individuals comply with the documented radiation protection program.	Article 635 When an escort is used in lieu of training in accordance with paragraph (a) or (b) of this section, the escort shall: (1) Have completed radiation safety training, examinations, and performance demonstrations required for entry to the area and performance of the work; and (2) Ensure that all escorted individuals comply with the documented radiation protection program.	Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.
(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. Such training provided for individuals subject to the requirements of § 835.901(b)(1) and (b)(2) shall include successful completion of an examination.		Compliance with this requirement is implemented through procedure RP-TR-441 approved for use by the Supply System at the HGP. This requirement is fulfilled by the Supply System who is responsible for the required training.
§ 835.902 [Removed and Reserved]. § 835.903 [Removed and Reserved].		

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Subpart K--Design and Control § 835.1001 Design and control. - 4 requirements total in section		
(a) Measures shall be taken to maintain radiation exposure in controlled areas ALARA through physical design features and administrative control. ~~188 (a) Measures shall be taken to maintain radiation exposure in controlled areas as low as is reasonably achievable through facility and equipment design and administrative control.~~	Article 311 (excerpt) "Technical requirements for the conduct of work, including construction, modifications, operations, maintenance and decommissioning, should ~~shall~~ incorporate radiological criteria to ensure safety and maintain radiation exposures ALARA. The primary methods used to maintain exposures ALARA shall be physical ~~facility and equipment~~ design features. These features may be augmented by administrative and procedural requirements. To accomplish this, the design and planning processes should incorporate radiological considerations in the early planning stages."	Compliance with this requirement is implemented through procedure RP-AP-437 approved for use by the Supply System at the HGP.
The primary methods used shall be physical design features (e.g., confinement, ventilation, remote handling, and shielding). ~~189 The primary methods used shall be physical design features (e.g., confinement, ventilation, remote handling, and shielding).~~	Article 311 (excerpt) "The primary methods used to maintain exposures ALARA shall be physical ~~facility and equipment~~ design features." Article 316.1 (excerpt) "The minimization and control of internal exposure should be conducted in accordance with the following hierarchy of controls: 1. Engineering controls, including containment of radioactive material at the source wherever practicable, should be the primary method of minimizing airborne radioactivity and internal exposure to workers."	Compliance with this requirement is implemented through procedure RP-PP-413 and RP-AP-437 approved for use by the Supply System at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Administrative controls shall be employed only as supplemental methods to control radiation exposure. ~~190 Administrative controls and procedural requirements shall be employed only as supplemental methods to control radiation exposure.~~	Article 311 (modified and excerpted) "(Physical ~~Facility and equipment~~ design) features may be augmented by administrative and procedural requirements." Administrative controls shall be employed only as supplemental methods to control radiation exposure. Article 316.2 "The minimization and control of internal exposure should be conducted in accordance with the following hierarchy of controls: 2. Administrative controls, including access restrictions and the use of specific work practices designed to minimize airborne contamination, should be used as the secondary method to minimize worker internal exposure."	Compliance with this requirement is implemented through procedure RP-AP-437, RP-PP-413 and approved for use by the Supply System at the HGP.
(b) For specific activities where use of physical design features is demonstrated to be impractical, administrative controls shall be used to maintain radiation exposures ALARA. ~~191 (b) For specific activities where use of physical design features are demonstrated to be impractical, administrative controls and procedural requirements shall be used to maintain radiation exposures ALARA.~~	Article 311 (modified and excerpted) " For specific activities where use of physical design features is demonstrated to be impractical, administrative controls shall be used to maintain radiation exposures ALARA." ~~For specific activities where use of physical design features are demonstrated to be impractical, administrative controls and procedural requirements shall be used to maintain radiation exposures ALARA.~~ ~~Article 316.2~~ "The minimization and control of internal exposure should be conducted in accordance with the following hierarchy of controls: 2. Administrative controls, including access restrictions and the use of specific work practices designed to minimize airborne contamination, should be used as the secondary method to minimize worker internal exposure."	Compliance with this requirement is implemented through procedure RP-AP-437 approved for use by the Supply System at the HGP.
§ 835.1002 Facility design and modifications. - 7 requirements total in section		
During the design of new facilities or modification of ~~old~~ existing facilities, the following objectives shall be adopted:		

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
192 (a) Optimization methods shall be used to assure that occupational exposure is maintained ALARA in developing and justifying facility design and physical controls.	Article 128.1.a "Individual worker dose shall be ALARA and should be less than 500 mrem per year." Article 312.7 "Optimization techniques, including cost-benefit analysis, represent a fundamental part of radiological design analysis and work review. For review of minor activities with low associated doses, a cost-benefit evaluation is an intrinsic part of the engineering review process and a detailed evaluation is not necessary. For review and planning of major tasks involving higher collective dose expenditures, a detailed and documented evaluation shall be performed."	Compliance with this requirement is implemented through procedure RP-AP-437 approved for use by the Supply System at the HGP.
193 (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	H128.1 (excerpt) "10 CFR 835.1002(b) states: 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"	Compliance with this requirement is implemented through procedure RP-AP-437 approved for use by the Supply System at the HGP.
194 and as far below this average as is reasonably achievable.	Article 128.1a (excerpt) "In addition, the following radiological control design criteria are provided for new facilities and major modifications to existing facilities: a. Individual worker dose shall be ALARA." Article 128.2 "Facilities currently under construction should be evaluated." H128.1 (excerpt) "10 CFR 835.1002(b) states: 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."	Compliance with this requirement is implemented through procedure RP-AP-437 approved for use by the Supply System at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
195 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 § 835.202.	H128.1 (excerpt) "10 CFR 1002(b) states: 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 reasonable 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 § 835.202."	Compliance with this requirement is implemented through procedure RP-AP-437 approved for use by the Supply System at the HGP.
196 (c) Regarding the control of airborne radioactive material, the design objective shall be, under normal conditions, to avoid releases to the workplace atmosphere	Article 128.1c "Control of contamination should be achieved by containment of radioactive material." Article 316.1 "Engineering controls, including containment of radioactive material at the source wherever practicable, should be the primary method of minimizing airborne radioactivity and internal exposure to workers."	Compliance with this requirement is implemented through procedure RP-AP-437 approved for use by the Supply System at the HGP.
197 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.	Article 128.1a (excerpt) "In addition, the following radiological control design criteria are provided for new facilities and major modifications to existing facilities: a. Individual worker dose shall be ALARA." Article 311 (modified and excerpted) "Regarding the control of airborne radioactive material, the primary methods used to maintain exposures ALARA shall be facility and equipment design features (such as confinement and ventilation). These features may be augmented by administrative and procedural requirements."	Compliance with this requirement is implemented through procedure RP-AP-437 approved for use by the Supply System at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
198 (d) The design or modification of a facility and the selection of materials shall include features that facilitate operations, maintenance, decontamination, and decommissioning.	Article 128.1d (excerpt) "The following radiological control design criteria are provided for new facilities and major modifications to existing facilities: d. Efficiency of maintenance, decontamination, operations, and decommissioning shall be maximized Article 128.2 "Facilities currently under construction should be evaluated and the above criteria applied where practicable."	Compliance with this requirement is implemented through procedure RP-AP-437 approved for use by the Supply System at the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
§ 835.1003 Workplace Controls. ~~§ 835.1003 Control procedures. - 4 requirements total in section~~		
During routine operations, the combination of physical design features and administrative controls shall provide that: ~~(a) During routine operations, the combination of design features and administrative control procedures shall provide that:~~		
(a) The anticipated occupational dose to general employees shall not exceed the limits established at § 835.202; and (b) The ALARA process is utilized for personnel exposures to ionizing radiation. ~~199 (1) The anticipated magnitude of the total effective dose equivalent shall not exceed 5 rems (0.05 sievert) in a year;~~	Article 213.1 (excerpt) "Dose limits are provided in Table 2-1 and shall not be exceeded. All occupational exposure received during the current year shall be included when demonstrating compliance with Table 2-1 dose limits." Table 2-1 (excerpt) Summary of Dose Limits "Radiological Worker: Whole Body (internal + external): Annual Limit - 5 rem." Article 311 (modified and excerpted) "The primary methods used to maintain (TEDE < or = 5 rem) in a year shall be facility and equipment design features. These features may be augmented by administrative and procedural requirements."	Compliance with this requirement is implemented through procedure RP-OA-402 approved for use by the Supply System at the HGP.
~~200 (2) The anticipated magnitude of the committed dose equivalent to any organ or tissue, plus any deep dose equivalent from external exposure, shall not exceed 50 rems (0.5 sievert) in a year; and~~	~~Article 213.1 (excerpt)~~ ~~"Dose limits are provided in Table 2-1 and shall not be exceeded. All occupational exposure received during the current year shall be included when demonstrating compliance with Table 2-1 dose limits."~~ ~~Table 2-1 (excerpt)~~ ~~Summary of Dose Limits~~ ~~"Radiological Worker: Any organ or tissue (other than lens of eye) and skin: Annual Limit - 50 rem."~~ ~~Article 311 (modified and excerpted)~~ ~~"The primary methods used to maintain (committed dose equivalent to any organ or tissue, plus any deep dose equivalent from external exposure < or = 50 rem) in a year shall be facility and equipment design features. These features may be augmented by administrative and procedural requirements."~~	~~Compliance with this requirement is implemented through procedure RP-OA-402 approved for use by the Supply System at the HGP.~~

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
~~201 (3) Exposure levels are as low as reasonably achievable.~~	~~Article 111 (excerpt)~~ ~~"The DOE Radiological Control Policy shown below summarizes the elements of the DOE Radiological Health and Safety Policy and is intended to guide the actions of every person involved in radiological work throughout the Department.~~ ~~Table: Department of Energy Radiological Control Policy - ALARA - Personal radiation exposure shall be maintained As Low As Reasonably Achievable (ALARA). Radiation exposure of the work force and public shall be controlled such that radiation exposures are well below regulatory limits and that there is no radiation exposure without commensurate benefit."~~ ~~Article 128.1 (excerpt)~~ ~~"The following radiological control design criteria are provided for new facilities and major modifications to existing facilities:~~ ~~a. Individual worker dose shall be ALARA."~~ ~~Article 311 (excerpt)~~ ~~"The primary methods used to maintain exposures ALARA in a year shall be facility and equipment design features. These features may be augmented by administrative and procedural requirements."~~	~~Compliance with this requirement is implemented through procedure RP-OA-402 and RP-AP-437 approved for use by the Supply System at the HGP.~~

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~~202 (b) Compliance with the requirements in paragraph (a) of this section shall be demonstrated by appropriate monitoring pursuant to the provisions of subpart E.~~	~~Article 344.3~~ ~~"During the performance of jobs for which a pre-job dose estimate was made, the Radiological Control Organization, in cooperation with line management, should periodically monitor collective dose accumulation and compare it with the pre-job dose estimate. Differences should be reviewed to identify causes and assess the need for corrective actions."~~ ~~Article 551.1 (excerpt)~~ ~~"Radiological monitoring of exposure levels, contamination and airborne radioactivity shall be conducted to verify the effectiveness of physical design features and engineering and administrative controls."~~ ~~Article 551.11~~ ~~"Monitoring results should be made available to line management and used in support of pre- and post job evaluations, ALARA preplanning, contamination control and management of radiological control operations."~~	~~Compliance with this requirement is implemented through procedure RP-OA-402, RP-AP-437 and HGP-TBD-02 and 03 approved for use by the Supply System at the HGP.~~
Subpart L - Radioactive Contamination Control ~~Subpart L- Releases of Materials and Equipment from Radiological Areas~~		
The following requirements apply for the release of materials and equipment from radiological areas for use in controlled areas:		
§ 835.1101 Control of material and equipment. ~~§ 835.1101 Releases of materials and equipment from radiological areas.~~ ~~—7 requirements total in section~~		
The following requirements apply for the release of materials and equipment from radiological areas for use in controlled areas:		

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(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 (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. ~~203 (a) In radiological areas established to control surface or airborne radioactive material, material and equipment shall be treated as radioactive material~~	Chapter 4, Part 1 (excerpt) "Radioactive material is any material, equipment or system component determined to be contaminated or suspected of being contaminated. Items located in known or suspected CAs, HCAs or ARAs and having the potential to become contaminated are considered radioactive material. Radioactive material also includes activated material, sealed and unsealed sources, and materials that emit radiation." Article 411.1 (excerpt) "Materials in CAs, HCAs, or ARAs shall be considered contaminated until surveyed and released. These survey and release requirements do not apply to ARAs where only gaseous, short-lived (half-life of 1 hour or less) activation products are present."	Compliance with this requirement is implemented through procedures RP-RAM-300 and RP-RAM-301 approved for use by the Supply System at the HGP.
~~204 and shall not be released from radiological areas to controlled areas if either of the following conditions exist: (1) Measurements of accessible surfaces show that either the total or removable contamination levels exceed the values specified in appendix D to this part; or~~ ~~(2) Prior use suggests that the contamination levels on inaccessible surfaces are likely to exceed the values specified in appendix D to this part.~~	Article 222.1 (excerpt) "A surface shall be considered contaminated if either the removable or total radioactivity is detected above the levels in Table 2-2." H222.1a "The contamination values for ^{125}I are more conservative in Appendix D to 10 CFR 835 (20 dpm/100 cm^2 removable; 500 dpm/100 cm^2). The more conservative values in 10 CFR 835 shall be followed until further clarification is provided by DOE on this issue." Article 421.1 (excerpt) "Radioactive material in CAs, HCAs, or ARAs shall be surveyed prior to release. Unpackaged radioactive material to be released to CAs shall be demonstrated to have contamination levels less than Table 2-2 values. Article 554.4 (excerpt) "Items with inaccessible surfaces which were located in known or suspected contamination areas and had the potential to become contaminated at levels likely to exceed Table 2-2 values shall be treated as potentially contaminated and subject to administrative controls."	Compliance with this requirement is implemented through procedures RP-RAM-300 and RP-RAM-301 approved for use by the Supply System at the HGP.

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(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. ~~205 (b) Material and equipment exceeding the total or removable contamination levels specified in appendix D to 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 and control procedures are established and exercised.~~	Article 413.1 "Radioactive material that is outside Contamination, High Contamination or Airborne Radioactivity Areas and is confirmed or suspected of having removable radioactive contamination levels greater than Table 2-2 values shall be securely wrapped in plastic or placed in a container." H421.2 (excerpt) "Material and equipment with fixed contamination levels that exceed the total contamination limits specified in Table 2-2, and that have removable contamination less than Table 2-2 levels, may be released for use in controlled areas outside of the radiological areas." H421.3 (excerpt) "Radioactive material with removable contamination levels greater than Table 2-2 values shall be packaged prior to release to Controlled Areas." H423.2 (excerpt) "10 CFR 835.1101(b) states: Material and equipment exceeding the total or removable contamination levels specified in appendix D to 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 and control procedures are established and exercised." 423.3 (excerpt) "On-site transfers over nonpublic thoroughfares or between facilities on the same site shall be performed in accordance with written procedures utilizing pre-approved routes." 423.4 (excerpt) "On-site transfers over public thoroughfares shall be performed in accordance with Department of Transportation, state and local shipping requirements and pre-approved agreements." Article 551.3 "Surveys for radiation, contamination and airborne radioactive materials shall be performed as specified in Technical Work Documents and Radiological Work Permits."	The criteria for "appropriate monitoring and control procedures" means using HGP administrative procedures to prevent the release of contained radioactive materials during routine handling. This includes monitoring frequencies as specified under those procedures. Compliance with this requirement is implemented through procedures RP-RAM-300 and RP-RAM-301 approved for use by the Supply System at the HGP.

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© Material and equipment with fixed contamination levels that exceed the total surface 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: (1) Removable surface contamination levels are below the removable surface contamination values specified in appendix D of this part; and ~~206 © Material and equipment with fixed contamination levels that exceed the limits specified in appendix D of this part may be released for use in controlled areas outside of the radiological areas with the following provisions:~~ ~~(1) Removable contamination levels are below the level specified in appendix D of this part; and~~	H222.~~1a~~ "DOE 5400.5 describes radiological criteria for releasing material to controlled areas. Release of radioactive material to uncontrolled areas shall (HNF) be performed in accordance with the requirements of DOE 5400.5." ~~"The contamination values for ^{125}I are more conservative in Appendix D to 10 CFR 835 (20 dpm/100 cm^2 removable; 500 dpm/100 cm^2). The more conservative values in 10 CFR 835 shall be followed until further clarification is provided by DOE on this issue."~~ Article 411.1 (excerpt) "Materials in CAs, HCAs, or ARAs shall be considered contaminated until surveyed and released. These survey and release requirements do not apply to ARAs where only gaseous, short-lived (half-life of 1 hour or less) activation products are present." Article 421.2 (excerpt) "Material with fixed contamination levels that exceed the total contamination limits specified in Table 2-2, and that have removable contamination less than Table 2-2 levels, may be released for use in controlled areas outside of the radiological areas."	Compliance with this requirement is implemented through procedures RP-RAM-300 and RP-RAM-301 approved for use by the Supply System at the HGP.

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(2) The material or equipment is routinely monitored and clearly marked or labeled to alert personnel of the contaminated status.- ~~207 (2) Materials shall be routinely monitored, clearly labeled, or tagged to alert personnel of the contaminated status;~~	H222.~~1a~~ "DOE 5400.5 describes radiological criteria for releasing material to controlled areas. Release of radioactive material to uncontrolled areas shall (HNF) be performed in accordance with the requirements of DOE 5400.5." ~~"The contamination values for ^{125}I are more conservative in Appendix D to 10 CFR 835 (20 dpm/100 cm^2 removable; 500 dpm/100 cm^2). The more conservative values in 10 CFR 835 shall be followed until further clarification is provided by DOE on this issue."~~ Article 412.1 (modified and excerpted) "Material and equipment with fixed contamination located outside CA, HCA, or ARAs shall be labeled with "CAUTION, FIXED CONTAMINATION"." Article 412.2 "The following are not subject to labeling requirements: a. Radioactive material surveyed and determined to have contamination levels lower than Table 2-2 values b. Radioactive material or containers packaged and labeled for off-site shipment in accordance with Department of Transportation Regulations c. Personal Protective Equipment and Clothing d. Radiological control samples such as air, process and soil samples or swipes that are in the custody of Radiological Control personnel or personnel properly trained in the handling, packaging and transport of these samples e. Equipment or installed system components undergoing maintenance covered by a Radiological Work Permit f. Portable tools and equipment with fixed contamination permanently marked with yellow or magenta and maintained in a contaminated tool crib or storage and distribution area g. Installed system components located within an area, the entrance to which is posted in accordance with (§ 835.603) h. Nuclear weapon components	Compliance with this requirement is implemented through procedures RP-RAM-300 and RP-RAM-301 approved for use by the Supply System at the HGP.

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~~208 appropriate administrative procedures shall be established and exercised to maintain control of these items.~~	H222.1a "The contamination values for ^{125}I are more conservative in Appendix D to 10 CFR 835 (20 dpm/100 cm^2 removable; 500 dpm/100 cm^2). The more conservative values in 10 CFR 835 shall be followed until further clarification is provided by DOE on this issue." Article 421.2 (excerpt) "Material with fixed contamination levels that exceed the total contamination limits specified in Table 2-2, and that have removable contamination less than Table 2-2 levels, may be released for use in controlled areas outside of the radiological areas. These items shall be controlled in accordance with administrative procedures." Article 421.4 "Material not immediately removed from CAs, HCAs, or ARAs after survey shall be controlled to prevent contamination while awaiting release."	Compliance with this requirement is implemented through procedures RP-RAM-300 and RP-RAM-301 approved for use by the Supply System at the HGP.
Note: See § 835.703(c). ~~209 (d) The records for release of material and equipment shall describe the property, date on which the release survey was performed, identity of the individual who performed the survey, type and identification number of the survey instrument used, and results of the survey.~~	Article 421.5 "Records for release of surveyed materials shall describe the property, date of last survey, identity of the person who performed the survey, type and identification number of the survey instruments used, and survey results."	The criteria for "describe the property" requirement can be met with general descriptions that adequately characterize the released contents. Compliance with this requirement is implemented through procedure RP-RAM-301 approved for use by the Supply System at the HGP.

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§ 835.1102 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.	Article 551.1 (excerpt) "Monitoring of areas shall be performed to: a. Demonstrate compliance with the requirements of this manual; b. Document radiological conditions; c. Detect changes in radiological conditions; d. Detect gradual buildup of radioactive material; e. Verify the effectiveness of engineering and process controls in containing radioactive material and reducing radiation exposure. f. Identify and control potential sources of individual exposure to radiation and / or radiative material. ~~"Radiological monitoring of radiation exposure levels, contamination, and airborne radioactivity shall be conducted to characterize workplace conditions."~~ Article 554.3 "Contamination surveys should incorporate techniques to detect both removable and fixed contamination."	Compliance with this requirement is implemented through procedures RP-IN-418 and RP-IN-419 approved for use by the Supply System at the HGP.

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(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. © 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: (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 (2) The area shall be conspicuously marked to warn individuals of the contaminated status. (d) Individuals exiting contamination, high contamination, or airborne radioactivity areas shall be monitored, as appropriate, for the presence of surface contamination. (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.	H222.1, 3 b (excerpt) "Part 835.404© (b) states: © (b) Any area in which contamination levels exceed the values specified in appendix D of this part shall be: (1) Posted in accordance with § 835.603;" © 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: (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 (2) The area shall be conspicuously marked to warn individuals of the contaminated status. (d) Individuals exiting contamination, high contamination, or airborne radioactivity areas shall be monitored, as appropriate, for the presence of surface contamination. (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.	Establishment of "appropriate controls" to minimize inadvertent transfers of radioactive contamination from radiological areas to non-radiological areas under normal operating conditions. A graded approach will be employed. Compliance with this requirement is implemented through procedures RP-PP-410, RP-PP-412, RP-PP-413 and RP-RC-433 approved for use by the Supply System at the HGP. Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.
Subpart M--Sealed Radioactive Source Control § 835.1201 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.		

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§ 835.1202 Accountable sealed radioactive sources. (a) Each accountable sealed radioactive source shall be inventoried at intervals not to exceed six months. This inventory shall: (1) Establish the physical location of each accountable sealed radioactive source; (2) Verify the presence and adequacy of associated postings and labels; and (3) Establish the adequacy of storage locations, containers, and devices. (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. © 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.	Article 431.3,4,5,6 (Excerpt) 3. Each accountable sealed radioactive source shall be inventoried at intervals not to exceed six months. This inventory shall: (a) Establish the physical location of each accountable sealed radioactive source; (b) Verify the presence and adequacy of associated postings and labels; and © Establish the adequacy of storage locations, containers, and devices. 4. 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. 5. 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.	Compliance with this requirement is implemented through procedures RP-PP-410, RP-PP-412, RP-PP-413 and RP-RC-433 approved for use by the Supply System at the HGP. Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.
(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. (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.	6. 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. 7. An accountable sealed radioactive source found to be leaking radioactive material shall be controlled in a manner that minimizes the spread of radioactive contamination.	Compliance with this requirement is implemented through procedures RP-PP-410, RP-PP-412, RP-PP-413 and RP-RC-433 approved for use by the Supply System at the HGP. Compliance with this requirement is implemented through procedure RP-PP-411 approved for use by the Supply System at the HGP.

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Subpart N--Emergency Exposure Situations § 835.1301 General provisions. ~~Subpart N--Accidents and Emergencies~~ ~~§ 835.1301 General provisions. --7 requirements total in section~~		
(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: ~~(a) A general employee whose occupational exposure has exceeded any of the limits specified in §§ 835.202 or 835.205 may be permitted to return to work in radiological areas during the current year providing that all of the following conditions are met:~~		
210 (1) Approval is first obtained from the contractor management and the Head of the responsible DOE field organization;	Article 211.1 (modified and excerpted) "Approval by the appropriate Secretarial Officer or designee shall be required prior to allowing a person to exceed the (dose limits)." Article 211.4 (modified and excerpted) "No person shall be allowed to go above the (dose limits) without the prior approval of the contractor senior site executive."	In the event the circumstances outlined in § 835.1301(a) occurs, the provisions in 835.1301 shall be followed. The Supply System implements requirement § 835.1301(a)(1) through administrative documents.
211 (2) The individual receives counseling from radiological protection and medical personnel regarding the consequences of receiving additional occupational exposure during the year; and		In the event the circumstances outlined in § 835.1301(a) occurs, the provisions in 835.1301 shall be followed.
212 (3) The affected employee agrees to return to radiological work.		In the event the circumstances outlined in § 835.1301(a) occurs, the provisions in 835.1301 shall be followed.

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(b) All doses exceeding the limits specified in § 835.202 shall be recorded in the affected individual's occupational dose record. ~~213 (b) All exposures exceeding the limits specified in §§ 835.202 or 835.205 shall be recorded in the affected individual's occupational exposure file and reported to the DOE in accordance with Departmental requirements for occurrence reporting and processing.~~	Article 722.12 "Emergency doses and planned special exposures shall be accounted for separately, but maintained with the individual's occupational exposure records." Article 723.1 "The complete records of radiological incidents and occurrences involving personnel dose shall be retained." Article 781.4 (excerpt) "Reports of individual exposure to radiation or radioactive material required under DOE Order 232.1 or as a result of a planned special exposure (10 CFR 835.204(e)) shall be submitted to the Department in accordance with departmental occurrence reporting requirements."	This requirement is implemented by the Supply System through sitewide radiological services provided by PNNL as specified under existing contract. Clarification: "Departmental requirements" means DOE Order 232.1A, August 1, 1997.
© When the conditions under which a dose was received in excess of the limits specified in § 835.202, except those doses received in accordance with § 835.204, have been eliminated, operating management shall notify the Head of the responsible DOE field organization. ~~214 © When the conditions under which the emergency or accident exposures were received have been eliminated, operating management shall notify the Head of the responsible DOE field organization.~~		The Supply System accepts requirement § 10 CFR 835.1301© as written.
(d) Operations after a dose was received in excess of the limits specified in § 835.202, except those received in accordance with §835.204, may be resumed only with the approval of DOE. ~~215 (d) Operations after an emergency or accidental exposure in excess of the limits specified in §§ 835.202 or 835.205 may be resumed only with the approval of the DOE.~~	H345.4 (excerpt) "10 CFR 835.1301(d) states: Operations after a dose was received in excess of the limits specified in § 835.202, except those received in accordance with §835.204, may be resumed only with the approval of DOE. ~~Operations after an emergency or accidental exposure in excess of the limits specified in §§ 835.202 or 835.205 may be resumed only with the approval of the DOE."~~	The Supply System accepts requirement § 10 CFR 835.1301(d) as written.

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~~216 (e) Occurrence reports to DOE regarding emergencies and/or accidents shall be prepared and submitted in accordance with Departmental requirements for occurrence reporting and processing.~~	Article 781.4 (excerpt) "Reports of individual exposure to radiation or radioactive material required under DOE Order 232.1 or as a result of a planned special exposure (10 CFR 835.204(e)) shall be submitted to the Department in accordance with departmental occurrence reporting requirements."	Clarification: "Departmental requirements" means DOE Order 232.1A, August 1, 1997.

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§ 835.1302 Emergency exposure situations. - 5 requirements total in section		
217 (a) The risk of injury to those individuals involved in rescue and recovery operations shall be minimized.	Appendix 2A (excerpt) Guidelines for Control of Emergency Exposures "In extremely rare cases, emergency exposure to radiation may be necessary to rescue personnel or to protect major property. Emergency exposures may be authorized in accordance with the provisions contained in 10 CFR 835." Appendix H2A (excerpt) "10 CFR 835.1302(a) states, The risk of injury to those individuals involved in rescue and recovery operations shall be minimized."	Emergency exposures in accordance with 10 CFR 835.1302 are not authorized under provisions of this RPP.
(b) Operating management shall weigh actual and potential risks against the benefits to be gained. ~~218 (b) Operating management shall weigh actual and potential risks to rescue and recover individuals against the benefits to be gained.~~	Appendix 2A (excerpt) Guidelines for Control of Emergency Exposures "Emergency exposures may be authorized in accordance with the provisions contained in 10 CFR 835."	Emergency exposures in accordance with 10 CFR 835.1302 are not authorized under provisions of this RPP.
© No individual shall be required to perform rescue action that might involve substantial personal risk. ~~219 © Rescue action that might involve substantial personal risk shall be performed by volunteers.~~	Appendix 2A (excerpt) "10 rem and 25 rem dose limits - Only on a voluntary basis where lower dose limit not practicable; >25 rem - Only on a voluntary basis to personnel fully aware of the risks involved."	Emergency exposures in accordance with 10 CFR 835.1302 are not authorized under provisions of this RPP.

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~~220 (d) The dose limits for individuals performing these operations are as follows:~~ **Guidelines for Control of Emergency Exposures** DOSE LIMIT[1] (Whole Body) / ACTIVITY PERFORMED / CONDITIONS 5 rems / All / 10 rems / Protecting major property / Where lower dose limit not practicable 25 rems / Lifesaving or protection of large populations / Where lower dose limit not practicable >25 rems / Lifesaving or protection of large populations / Only on a voluntary basis to personnel fully aware of the risks involved [1] The lens of the eye dose limit is three times the listed values. The shallow dose limit to the skin of the whole body and the extremities is ten times the listed values. These doses are in addition to and accounted for separately from the doses received under the limits in §§ 835.202 and 835.205.	Appendix 2A (excerpt) Guidelines for Control of Emergency Exposures "Dose Limit (TEDE): 5 rem; Dose Limit (TEDE): 10 rem - Protecting major property: Conditions - Only on a voluntary basis where lower dose limit not practicable; Dose Limit (TEDE): 25 rem - Lifesaving or protection of large populations: Conditions - Only on a voluntary basis where lower dose limit not practicable; Dose Limit (TEDE): >25 rem - Lifesaving or protection of large populations: Conditions - Only on a voluntary basis to personnel fully aware of the risks involved. Notes: 1. The lens of the eye dose limit should be three times the listed values. 2. The shallow dose limit to the skin of the whole body and the extremities is ten times the listed values."	Emergency exposures in accordance with 10 CFR 835.1302 are not authorized under provisions of this RPP.

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(d) Each individual authorized to perform emergency actions likely to result in occupational doses exceeding the values of the limits provided at § 835.202(a) shall be trained in accordance with § 835.901(b) and briefed beforehand on the known or anticipated hazards to which the individual will be subjected. ~~221 (e) Each individual selected shall be trained in accordance with § 835.902 and briefed beforehand of the known or anticipated hazards to which the individual will be subjected.~~	Appendix 2A (excerpt) "Emergency exposures may be authorized in accordance with the provisions contained in 10 CFR 835." Article 656.1-6 "Provisions shall be in place to accommodate rapid site and radiological area access by on-site and off-site emergency workers such as firefighters, medical personnel, and security personnel. 1. Emergency response personnel, from both on-site and off-site, may be required to work in radiological areas. 2. Emergency response personnel should receive special radiological worker training commensurate with the situations they are likely to encounter. 3. Such training should be based on the Radiological Worker standardized core course and site-specific training materials. 4. If such workers are not trained, trained escorts should be assigned. 5. Training should make it clear that lifesaving has priority over radiological controls. 6. Records of this training should be maintained."	Emergency exposures in accordance with 10 CFR 835.1302 are not authorized under provisions of this RPP.
~~§ 835.1304 Nuclear accident dosimetry. - 5 requirements total in section~~		
222 (a) Installations possessing sufficient quantities of fissile material to potentially constitute a critical mass, such that the excessive exposure of ~~personnel~~ individuals I to radiation from a nuclear accident is possible, shall provide nuclear accident dosimetry for those personnel.	Article 515 "DOE 5480.11 specifies the requirements for a Nuclear Accident Dosimetry Program when sufficient quantities and kinds of fissile material exist to potentially constitute a critical mass as defined in DOE 5480.5 and where exposure of personnel to radiation from a nuclear accident is possible." Note: Reference only those parts of 5480.11 and 5480.5 listed in next column	Technical Basis Document HGP-TBD-04 provides justification that fissile materials and TRU waste are insignificant components of the radioactive material composition at the HGP and that insufficient quantities of fissile material is present to potentially constitute a critical mass. Therefore, the requirements of 10 CFR 835.1304 are not applicable to the HGP.
(b) Nuclear accident dosimetry shall include the following:		

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223 (1) A method to conduct initial screening of ~~personnel~~ individuals involved in a nuclear accident to determine whether significant exposures to radiation occurred;	Article 515 "DOE 5480.11 specifies the requirements for a Nuclear Accident Dosimetry Program when sufficient quantities and kinds of fissile material exist to potentially constitute a critical mass as defined in DOE 5480.5 and where exposure of personnel to radiation from a nuclear accident is possible." Note: Reference only those parts of 5480.11 and listed in next column	Technical Basis Document HGP-TBD-04 provides justification that fissile materials and TRU waste are insignificant components of the radioactive material composition at the HGP and that insufficient quantities of fissile material is present to potentially constitute a critical mass. Therefore, the requirements of 10 CFR 835.1304 are not applicable to the HGP.
224 (2) Methods and equipment for analysis of biological materials;	Article 515 "DOE 5480.11 specifies the requirements for a Nuclear Accident Dosimetry Program when sufficient quantities and kinds of fissile material exist to potentially constitute a critical mass as defined in DOE 5480.5 and where exposure of personnel to radiation from a nuclear accident is possible." Note: Reference only those parts of 5480.11 listed in next column	Technical Basis Document HGP-TBD-04 provides justification that fissile materials and TRU waste are insignificant components of the radioactive material composition at the HGP and that insufficient quantities of fissile material is present to potentially constitute a critical mass. Therefore, the requirements of 10 CFR 835.1304 are not applicable to the HGP.
225 (3) A system of fixed nuclear accident dosimeter units; and	Article 515 "DOE 5480.11 specifies the requirements for a Nuclear Accident Dosimetry Program when sufficient quantities and kinds of fissile material exist to potentially constitute a critical mass as defined in DOE 5480.5 and where exposure of personnel to radiation from a nuclear accident is possible." Note: Reference only those parts of 5480.11 listed in next column	Technical Basis Document HGP-TBD-04 provides justification that fissile materials and TRU waste are insignificant components of the radioactive material composition at the HGP and that insufficient quantities of fissile material is present to potentially constitute a critical mass. Therefore, the requirements of 10 CFR 835.1304 are not applicable to the HGP.
(4) Personal nuclear accident dosimeters. ~~226 (4) Personal nuclear accident dosimeters worn by all personnel who enter locations in which installed criticality alarm systems are required.~~	Article 515 "DOE 5480.11 specifies the requirements for a Nuclear Accident Dosimetry Program when sufficient quantities and kinds of fissile material exist to potentially constitute a critical mass as defined in DOE 5480.5 and where exposure of personnel to radiation from a nuclear accident is possible." Note: Reference only those parts of 5480.11 listed in next column	Technical Basis Document HGP-TBD-04 provides justification that fissile materials and TRU waste are insignificant components of the radioactive material composition at the HGP and that insufficient quantities of fissile material is present to potentially constitute a critical mass. Therefore, the requirements of 10 CFR 835.1304 are not applicable to the HGP.

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10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Appendix A to Part 835 - Derived Air Concentrations (DAC) for Controlling Radiation Exposure to Workers at DOE Facilities - 1 requirement total in section		
227 To allow for an actual measured equilibrium concentration or a demonstrated equilibrium concentration, the values given in this table should be multiplied by the ratio (100%/actual%) or (100%/demonstrated%), respectively.	Article 223.2 (excerpt) "Values of Derived Air Concentration values are provided in 10 CFR 835." Glossary: airborne radioactivity area "DAC values are contained in Appendices A and C of 10 CFR 835." Glossary: derived air concentration "For the radionuclides listed in Appendix A of 10 CFR 835, the airborne concentration that equals the ALI divided by the volume of air breathed by an average worker for a working year of 2000 hours."	Compliance with this requirement is implemented through procedure RP-AM-431 approved for use by the Supply System at the HGP.
228 Alternatively, the DAC values for Rn-220 and Rn-222 may be replaced by 1 WL and 1/3 WL, respectively, for appropriate limiting of daughter concentrations.		This is a provision and not a requirement. The Supply System accepts provision in 10 CFR 835, Appendix A as written.
Appendix B to Part 835 - Alternative Absorption Factors and Lung Retention Classes for Specific Compounds - 0 requirements total in section		
Appendix C to Part 835 - Derived Air Concentrations (DAC) for Workers from External Exposure During Immersion in a Contaminated Atmospheric Cloud - 1 requirement total in section		
229 The DAC values are given for individual radionuclides. For known mixtures of radionuclides, the sum of the ratio of the observed concentrations of a particular radionuclide and its corresponding DAC for all radionuclides in the mixture must not exceed 1.0. For unknown radionuclides, the most restrictive DAC (lowest value for those isotopes not known to be absent) shall be used.	Article 223.2 (excerpt) "Values of Derived Air Concentrations are provided in 10 CFR 835." HSRCM Glossary: airborne radioactivity area "DAC values are contained in Appendices A and C of 10 CFR 835." HSRCM Glossary: derived air concentration (excerpt) "For the radionuclides listed in Appendix C of 10 CFR 835, the air immersion DACs were calculated for a continuous, non-shielded exposure via immersion in a semi-infinite atmospheric cloud."	Compliance with this requirement is implemented through procedure RP-AM-431 approved for use by the Supply System at the HGP.

Restatement of the Requirement	Policy and Commitment Basis	
10 CFR Part 835	Hanford Site Radiological Control Manual-1, Revision 2 Provisions Effective Date: 12/21/94	HGP-Specific Implementing Provisions
Appendix D to Part 835 - Surface Radioactivity Values - 5 requirements total in section	Table 2-2 (excerpt) Summary of Contamination Values [I-125 is under 200 dpm/100 cm^2 column in the DOE RCM and is under 20 dpm/100 cm^2 column in 10 CFR 835.]	
230 Footnote 1: Where surface contamination by both alpha and beta-gamma-emitting nuclides exist, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.	Table 2-2, Note 1 "The values in the Table apply to radioactive contamination deposited on, but not incorporated into the interior of the contaminated item. Where contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for the alpha- and beta-gamma-emitting nuclides apply independently."	Compliance with this requirement is implemented through procedure RP-RC-433 approved for use by the Supply System at the HGP.
231 Footnote 3: The levels may be averaged over one square meter provided the maximum surface activity in any area of 100 cm^2 is less than three times the value specified. For purposes of averaging, any square meter of surface shall be considered to be above the activity guide G if: (1) From measurements of a representative number n of sections, it is determined that $1/n \sum^n S^i \geq G$, where S^i is the dpm/100 cm^2 determined from measurement of section I; or	Table 2-2, Note 3 "The levels may be averaged over 1 square meter provided the maximum activity in any area of 100 cm^2 is less than three times the values in Table 2-2."	Compliance with this requirement is implemented through procedure RP-RC-433 approved for use by the Supply System at the HGP.
232 (2) it is determined that the sum of the activity of all isolated spots or particles in any 100 cm^2 area exceeds 3G.	Table 2-2, Note 3 "The levels may be averaged over 1 square meter provided the maximum activity in any area of 100 cm^2 is less than three times the values in Table 2-2."	Compliance with this requirement is implemented through procedure RP-RC-433 approved for use by the Supply System at the HGP.
233 Footnote 4: The amount of removable radioactive material per 100 cm^2 of surface area should be determined by swiping the area with dry filter or soft absorbent paper, applying moderate pressure, and then assessing the amount of radioactive material on the swipe with an appropriate instrument of known efficiency. (Note - The use of dry material may not be appropriate for tritium.)	Table 2-2, Note 2 (excerpt) "The amount of removable radioactive material per 100 cm^2 of surface area should be determined by swiping the area with dry filter or soft absorbent paper while applying moderate pressure and then assessing the amount of radioactive material on the swipe with an appropriate instrument of known efficiency."	Compliance with this requirement is implemented through procedure RP-RC-433 approved for use by the Supply System at the HGP.
234 When removable contamination on objects of surface area less than 100 cm^2 is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped.	Table 2-2, Note 2 (excerpt) "For objects with a surface area less than 100 cm^2, the entire surface should be swiped, and the activity per unit area should be based on the actual surface area."	Compliance with this requirement is implemented through procedure RP-RC-433 approved for use by the Supply System at the HGP.