
Technical Specifications

Humboldt Bay Power Plant

Unit 3

Eureka, California

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1.0 USE AND APPLICATION

1.1 Definitions

NOTE

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

<u>Term</u>	<u>Definition</u>
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
CERTIFIED FUEL HANDLER	A CERTIFIED FUEL HANDLER is an individual who complies with provisions of the CERTIFIED FUEL HANDLER training program required by Technical Specification 5.4.1.
ELEVATION	All elevations shall apply to a datum of mean lower low water (MLLW) level except where noted.
OPERABLE - OPERABILITY	A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its specified safety function(s) are also capable of performing their related support function(s).

1.0 USE AND APPLICATION

1.2 Logical Connectors**PURPOSE**

The purpose of this section is to explain the meaning of logical connectors.

Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are AND and OR. The physical arrangement of these connectors constitutes logical conventions with specific meanings.

BACKGROUND

Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentations of the logical connectors.

When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.

EXAMPLES

The following examples illustrate the use of logical connectors.

EXAMPLE 1.2-1**ACTIONS**

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Verify <u>AND</u> A.2 Restore	

In this example the logical connector AND is used to indicate that when in Condition A, both Required Actions A.1 and A.2 must be completed.

(continued)

1.2 Logical Connectors

EXAMPLES
(continued)EXAMPLE 1.2-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Trip <u>OR</u> A.2.1 Verify <u>AND</u> A.2.2 Reduce	

This example represents a more complicated use of logical connectors. Required Actions A.1 and A.2 are alternative choices, only one of which must be performed as indicated by the use of the logical connector OR and the left justified placement. Either of the Actions may be chosen. If A.2 is chosen, then both A.2.1 and A.2.2 must be performed as indicated by the logical connector AND.

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring the safe storage of irradiated fuel. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Times(s).
DESCRIPTION	The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.
EXAMPLES	The following examples illustrate the use of Completion Times with different types of Conditions.

(continued)

1.3 Completion Times

EXAMPLES
(continued)EXAMPLE 1.3-1ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required Action and associated Completion Time not met.	A.1 Verify..... <u>AND</u> A.2 Restore	6 hours 36 hours

Condition A has two Required Actions. Each Required Action has its own separate Completion Time. Each Completion Time is referenced to the time that Condition A is entered. The Required Actions of Condition A are to perform the verification required by ACTION A.1 within 6 hours and to perform the restoration required by ACTION A.2 within 36 hours. A total of 6 hours is allowed for performing ACTION A.1 and a total of 36 hours (not 42 hours) is allowed for performing ACTION A.2 from the time that Condition A was entered. If ACTION A.1 is completed within 3 hours, the time allowed completing ACTION A.2 is the next 33 hours because the total time allowed for completing ACTION A.2 is 36 hours.

IMMEDIATE
COMPLETION
TIMEWhen "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE	The purpose of this section is to define the proper use and application of Frequency requirements.
DESCRIPTION	<p>Each Surveillance Requirement (SR) has a specified frequency in which the surveillance must be met in order to meet the associated LCO. An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.</p> <p>The "Specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, "Surveillance Requirement (SR) Applicability." The "Specified Frequency" consists of the requirements of the frequency column of each SR, as well as certain Notes in the surveillance column that modify performance requirements.</p>
EXAMPLES	The following examples illustrate the various ways that frequencies are specified. In these examples, the applicability of the LCO (LCO not shown) is when irradiated fuel is stored in the fuel pool.

EXAMPLE 1.4.1SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify parameter is within limits	12 hours

Example 1.4-1 contains the type of SR most often encountered in the TS. The frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the surveillance initiates the subsequent interval. Although the frequency is stated as 12 hours, an extension of the time interval to 1.25 times the interval specified in the Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when a variable is outside specified limits, or the unit is outside the applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in the specified condition in the applicability of the LCO, and the performance of the surveillance is not otherwise modified, then SR 3.0.3 becomes applicable.

1.4 FrequencyEXAMPLES
(continued)EXAMPLE 1.4-2SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify parameter is within limits	Within 24 hours prior to moving irradiated fuel <u>AND</u> 24 hours thereafter

Example 1.4-2 has two Frequencies. The first is a one time performance Frequency, and the second is of the type shown in Example 1.4-1. The logical connector "AND" indicates that both Frequency requirements must be met. The use of "prior to" indicates that the surveillance must be performed once before the initiation of fuel handling activities. This type of Frequency does not qualify for the extension allowed by SR 3.0.2. "Thereafter" indicates future performances must be established per SR 3.0.2, but only after a specified condition is first met (i.e., the "prior to" performance in this example).

2.0 SAFETY LIMITS

This section is not applicable since Humboldt Bay Power Plant (HBPP) Unit 3 is permanently defueled.

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1	LCOs shall be met during the specified conditions in the Applicability, except as provided in LCO 3.0.2.
LCO 3.0.2	Upon discovery of the failure to meet an LCO, the required actions of the associated Conditions shall be met. If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the required action is not required unless otherwise stated.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

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- SR 3.0.1 SRs shall be met during specific conditions in the Applicability for individual LCOs unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.
-
- SR 3.0.2 The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the frequency is met.
-
- SR 3.0.3 If it is discovered that a Surveillance was not performed within its specified frequency, then compliance with the requirement to declare the LCO not met may be delayed from the time of discovery up to 24 hours or up to the limit of the specified frequency, whichever is less. This delay period is permitted to allow performance of the surveillance. If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met and the applicable Condition(s) must be entered. The Completion Times of the Required Actions begin immediately upon expiration of the delay period.
When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met and the applicable Condition(s) must be entered. The Completion Times of the Required Actions begin immediately upon failure to meet the Surveillance.
-

3.1 DEFUELED SYSTEMS

3.1.1 Fuel Storage Pool Water Level

LCO 3.1.1 The Fuel Storage Pool Water Level shall be at an ELEVATION greater than 10.5 feet.

APPLICABILITY: Whenever irradiated fuel is stored in the Fuel Storage Pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel Storage Pool Water Level not within limit.	A.1 Suspend all Fuel Handling Operations. <u>AND</u> A.2 Restore Fuel Storage Pool Water Level to within limits.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.1.1 Verify the Fuel Storage Pool Water Level is at an ELEVATION greater than 10.5 feet.	24 hours

3.1 DEFUELED SYSTEMS

3.1.2 Spent Fuel Pool Load Restrictions

LCO 3.1.2 Loads carried over the fuel in the spent fuel pool racks shall be limited to a weight of no greater than 330 pounds.

APPLICABILITY: Whenever irradiated fuel assemblies are stored in the spent fuel pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Load restriction not within limit.	A.1 Place the load in a safe position.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.2.1 Verify the load weight \leq 330 pounds.	Prior to moving each load over storage racks containing irradiated fuel.

3.1 DEFUELED SYSTEMS

3.1.3 Fuel Storage Pool Liner Water Level

LCO 3.1.3 The Fuel Storage Pool Liner Water Level shall be at an ELEVATION less than + 9 inches.

APPLICABILITY: Whenever irradiated fuel is stored in the Fuel Storage Pool, or when the water in the pool or liner is contaminated with radioactive materials.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel Storage Pool Liner Water Level not within limit.	A.1 Restore Fuel Storage Pool Liner Water Level to within limits.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.3.1 Verify the Fuel Storage Pool Liner Water Level is at an ELEVATION less than + 9 inches.	24 hours

4.0 DESIGN FEATURES

4.1 Site Location

HBPP Unit 3 is located in Humboldt County, California, approximately 4 miles southwest of the center of the city of Eureka, on a site owned and controlled by Pacific Gas & Electric Company.

4.2 Fuel Storage

- 4.2.1 The K_{eff} of the spent fuel storage pool shall be less than or equal to 0.95 for any configuration. This K_{eff} value is satisfied by having each fuel assembly in a container made of a neutron absorbing material. Fuel may be removed from the container to perform fuel handling activities in compliance with the configuration and assumptions in PG&E Calculation N-265 regarding spent fuel pool criticality.
 - 4.2.2 The number of fuel assemblies stored in the spent fuel storage pool shall not exceed 390.
 - 4.2.3 Fuel stored in the spent fuel storage pool shall have an average of U-235 enrichment of 2.5 weight percent or less.
-

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

-
- 5.1.1 The Plant Manager shall have the overall onsite responsibility for activities associated with Unit 3. He shall be accountable for adherence to the operating limits and requirements contained in these Technical Specifications. He shall delegate these responsibilities to other specified members of the plant staff during his absence.
 - 5.1.2 The Shift Foreman shall be responsible for the operational command function. He shall delegate these responsibilities to other specified members of the plant staff during his absence.
 - 5.1.3 The technical specification titles for members of the staff are generic titles. Unit-specific titles for the functions and responsibilities associated with these generic titles are identified in the Quality Assurance Plan.
-

5.0 ADMINISTRATIVE CONTROLS

5.2 Organization

5.2.1 Onsite and Offsite Organizations

Onsite and offsite organizations shall be established for unit operation and corporate management, respectively. The onsite and offsite organizations shall include the positions for activities affecting the safe storage of irradiated fuel.

- a. Lines of authority, responsibility, and communication shall be established and defined for the highest management levels through intermediate levels to and including all operating organization positions. These relationships shall be documented and updated, as appropriate, in the form of organization charts, functional descriptions of departmental responsibilities and relationships, and job descriptions for key personnel positions, or in equivalent forms of documentation. These requirements shall be documented in the Quality Assurance Plan and plant procedures.
- b. The Designated Manager shall be responsible for overall unit safe operation and shall have control over those onsite activities and resources necessary for maintenance and storage of irradiated fuel in a safe condition.
- c. The Designated Officer shall have corporate responsibility for overall plant nuclear safety and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to ensure the safe storage of irradiated fuel.
- d. The individuals who train the CERTIFIED FUEL HANDLERS and those who carry out radiation protection functions or perform quality assurance functions may report to the appropriate onsite manager; however, they shall have sufficient organizational freedom to ensure their ability to perform their assigned functions.

5.2.2 Facility Staff

- a. Each on duty shift shall be composed of at least the minimum shift crew composition shown in Table 5.2-1.
- b. At least one Certified Fuel Handler shall be onsite when fuel is in the spent fuel storage pool.
- c. The Unit 3 control room shall be continuously manned or, as an alternative, audible and visual annunciation of all alarms in Unit 3 shall be provided at a continuously manned control station in Units 1 or 2. A common annunciator may be used for all such alarms.
- d. An individual qualified in radiation protection procedures shall be onsite during fuel handling operations.

(continued)

5.2 Organization

5.2.2 Facility Staff (continued)

- e. All fuel handling operations shall be directly supervised by a qualified individual.
- f. Administrative procedures shall be developed and implemented to limit the working hours of unit staff who perform functions important to the safe storage of irradiated fuel assemblies. These procedures should follow the general guidance of the NRC Policy Statement on working hours (Generic Letter No. 82-12).
- g. The Shift Foreman shall be a CERTIFIED FUEL HANDLER.

TABLE 5.2-1
MINIMUM SHIFT CREW COMPOSITION (1)

POSITION	NUMBER OF INDIVIDUALS REQUIRED TO FILL POSITION
Certified Fuel Handler	1
Non-Certified Operator (2)	1

- (1) The actual shift crew composition may be less than the minimum requirements for a period of time not to exceed 2 hours in order to accommodate unexpected absences provided expeditious actions are taken to fill the required positions.
- (2) Non-Certified Operator must be at least an Auxiliary Operator.
-

5.0 ADMINISTRATIVE CONTROLS

5.3 Facility Staff Qualifications

5.3.1 Each member of the facility staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions, except for:

5.3.1.1 The Operations Manager shall be a CERTIFIED FUEL HANDLER.

5.3.1.2 The Radiation Protection Manager shall meet or exceed the qualifications of Regulatory Guide 1.8, Revision 2, April 1987.

5.0 ADMINISTRATIVE CONTROLS

5.4 Training

-
- 5.4.1 An NRC approved training and retraining program for the CERTIFIED FUEL HANDLERS shall be maintained.
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5.0 ADMINISTRATIVE CONTROLS

5.5 Procedures

5.5.1 Written procedures shall be established, implemented, and maintained covering the following activities:

- a. The procedures applicable to the safe storage of irradiated fuel recommended in Appendix "A" of Regulatory Guide 1.33, February 1978;
 - b. Fire Protection Program implementation;
 - c. Quality assurance for radiological effluent and environmental monitoring;
 - d. Fuel handling operations (including removal and reinstallation of the spent fuel pool cover);
 - e. All programs specified in Specification 5.6.
-

5.0 ADMINISTRATIVE CONTROLS

5.6 Programs and Manuals

The following programs shall be established, implemented and maintained.

5.6.1 Offsite Dose Calculation Manual (ODCM)

- a. The ODCM shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and in the conduct of the radiological environmental monitoring program; and
- b. The ODCM shall also contain the radioactive effluent controls and radiological environmental monitoring activities and descriptions of the information that should be included in the Annual Radiological Environmental Monitoring Report, and Annual Radioactive Effluent Release Report, required by Specification 5.7.2 and Specification 5.7.3, respectively.
- c. Licensee initiated changes to the ODCM:
 1. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:
 - i) sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and
 - ii) a determination that the change(s) will maintain the level of radioactive effluent control required by 10CFR 20.1302, 40CFR Part 190, 10CFR 50.36a and Appendix I to 10CFR 50, and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations;
 2. Shall become effective after review and acceptance by the Plant Staff Review Committee and approval of the Plant Manager; and
 3. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

(continued)

5.6 Programs and Manuals

5.6.2 Technical Specification (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

- a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.
- b. Licensees may make changes to Bases without prior NRC approval provided the changes do not involve either of the following:
 1. a change in the TS incorporated in the license; or
 2. a change to the updated DSAR or Bases that requires prior NRC approval as defined in 10CFR 50.59.
- c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the DSAR.
- d. Proposed changes that meet the criteria of Specification 5.6.2b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10CFR 50.71(e).

5.6.3 Fuel Storage Pool Water Chemistry Program

This program provides controls for monitoring fuel storage pool water chemistry to minimize the potential effects of corrosion which could affect the safe storage of irradiated fuel, and to minimize the potential dose to the public due to release of fuel storage pool water to groundwater. The program shall include identification of critical variables and control points for these variables. The program shall include sampling frequencies and define corrective actions to be taken for off control point chemistry conditions. The NRC will be notified prior to elimination or changes to the acceptance criteria for critical variables monitored.

5.6.4 Radioactive Effluent Controls Program

This program conforms with 10CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable (ALARA). The program (1) shall be contained in the ODCM, (2) shall be implemented by operating procedures, and (3) shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

1. Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM,
2. Limitations on the instantaneous (average over a one-hour period) concentrations of radioactive material released in liquid effluents to Humboldt Bay conforming to ten times the effluent concentration limits of 10CFR Part 20, Appendix B, Table 2, Column 2,

(continued)

5.6 Programs and Manuals

5.6.4 Radioactive Effluent Controls Program (continued)

3. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10CFR 20.1302 and with the methodology and parameters in the ODCM,
4. Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released to Humboldt Bay conforming to the dose design objectives of Appendix I to 10CFR Part 50,
5. Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days,
6. Limitations on the operability and use of the liquid effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual dose or dose commitment conforming to the dose design objectives of Appendix I to 10CFR Part 50,
7. Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the site boundary shall be established as follows:
 - a. For noble gases: less than or equal to an instantaneous dose rate (average over a one-hour period) of less than or equal to 500 mrem/yr to the total body and less than or equal to 3000 mrem/yr to the skin, and
 - b. For tritium and radionuclides in particulate form with half-lives greater than 8 days: less than or equal to a dose rate (averaged over a one-week period) of 1500 mrem/yr to any organ.
8. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary conforming to Appendix I to 10CFR Part 50,
9. Limitation on the annual and quarterly doses to a member of the public from tritium and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released to areas beyond the site boundary conforming to the dose design objectives of Appendix I to 10CFR Part 50, and
10. Limitations on the annual dose or dose commitment to any member of the public due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40CFR Part 190.

(continued)

5.6 Programs and Manuals

5.6.5 Neutron Absorber Surveillance Program

Samples of the neutron-absorbing material used to fabricate the spent fuel assembly containers shall be suspended in the spent fuel storage pool in the vicinity of the spent fuel assemblies. The Neutron Absorber Surveillance Program removes representative samples at specified intervals for examination and analysis to verify that the Boron-10 loading is greater than 0.005 grams per square centimeter.

5.0 ADMINISTRATIVE CONTROLS

5.7 Reporting Requirements

The following reports shall be submitted in accordance with 10CFR 50.4.

5.7.1 Occupational Radiation Exposure Report

An annual report shall be made of personnel exposure, in accordance with the requirements of 10CFR Part 20.2206. The report shall be submitted by April 30 of each year.

5.7.2 Annual Radiological Environmental Monitoring Report

The Annual Radiological Environmental Monitoring Report covering the operation of the unit during the previous calendar year shall be submitted by May 1 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in the ODCM, and in 10CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and 1V.C.

The Annual Radiological Environmental Monitoring Report shall include the results of analyses of radiological environmental samples and of environmental radiation measurements taken during the period pursuant to the quality related locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in the next annual report.

5.7.3 Annual Radioactive Effluent Release Report

The Annual Radioactive Effluent Release Report covering the activities of the unit in the previous year shall be submitted prior to April 1 of each year in accordance with 10CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and in conformance with 10CFR 50.36a and 10CFR Part 50, Appendix I, Section IV.B.I.

5.0 ADMINISTRATIVE CONTROLS

5.8 High Radiation Area

As provided in paragraph 20.1601(c) of 10CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10CFR Part 20:

- 5.8.1 High Radiation Areas with dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation:
- a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be opened as necessary to permit entry or exit of personnel or equipment.
 - b. Access to, and activities in, each such area shall be controlled by means of a Radiation Work Permit (RWP) or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
 - c. Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.
 - d. Each individual or group entering such an area shall possess:
 1. A radiation monitoring device that continuously displays radiation dose rates in the area, or
 2. A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or
 3. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or
 4. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter), and
 - (i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area, who is responsible for controlling personnel exposure within the area, or

(continued)

5.8 High Radiation Area

5.8.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation (continued):

- (ii) Be under the surveillance as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with individuals in the area who are covered by such surveillance.
- e. Except for individuals qualified in radiation protection procedures or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.

5.8.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 meter from the Radiation Source or from any Surface Penetrated by the Radiation:

- a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door or gate that prevents unauthorized entry, and, in addition:
 - 1. All such door and gate keys shall be maintained under the administrative control of the shift foreman, radiation protection manager, or is or her designee.
 - 2. Doors and gates shall remain locked except during periods of personnel or equipment entry or exit.
- b. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
- c. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.
- d. Each individual or group entering such an area shall possess:
 - 1. A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint.

(continued)

5.8 High Radiation Area

- 5.8.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation:** (continued)
2. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area, or
 3. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter), and
 - (i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area, who is responsible for controlling personnel exposure within the area, or
 - (ii) Be under the surveillance as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with and control every individual in the area, or
 4. In those cases where options (2) and (3), above, are impractical or determined to be inconsistent with the "As Low As is Reasonably Achievable" principle, a radiation monitoring device that continuously displays radiation dose rates in the area.
 - e. Except for individuals qualified in radiation protection procedures or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.
 - f. Such individual areas that are within a large area, such as the refueling building, where no enclosure exists for the purpose of locking and where no enclosure can reasonably be constructed around the individual area, need not be controlled by a locked door or gate nor continuously guarded, but shall be barricaded, conspicuously posted, and a clearly visible flashing light shall be activated at the area as a warning device.
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Technical Specifications

Bases

Humboldt Bay Power Plant

Unit 3

Eureka, California

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B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

BASES

LCOs	LCO 3.0.1 and 3.0.2 establish general requirements applicable to all Specifications and apply at all times, unless otherwise stated.
LCO 3.0.1	LCO 3.0.1 establishes the Applicability statement within each individual specification as the requirement for when the LCO is required to be met (i.e., when the facility is in the specified conditions of the Applicability statement of each specification).
LCO 3.0.2	<p>LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that:</p> <ul style="list-style-type: none">a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification; andb. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified. <p>Completing the Required Actions is not required when an LCO is met or is no longer applicable, unless otherwise stated in the individual Specifications.</p> <p>The Completion Times of the Required Actions are also applicable when a specified condition in the Applicability is entered intentionally. The reasons for intentionally relying on the ACTIONS include, but are not limited to, performance of Surveillances, preventive maintenance, corrective maintenance, or investigation of problems. Entering ACTIONS for these reasons must be done in a manner that does not compromise the safe storage of irradiated fuel. Intentional entry into ACTIONS should not be made for convenience.</p>

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs	SRs 3.0.1 through 3.0.3 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise specified.
SR 3.0.1	<p>SR 3.0.1 establishes the requirement that SRs must be met during the specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that surveillances are performed to verify that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO.</p> <p>Surveillances do not have to be performed when the facility is in a specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified.</p>
SR 3.0.2	<p>SR 3.0.2 permits a 25 percent extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers facility conditions that may not be suitable for conducting the Surveillance (e.g., other ongoing Surveillance or maintenance activities).</p> <p>The 25 percent extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs. Any exceptions to SR 3.0.2 are stated in the individual Specifications.</p> <p>The provisions of SR 3.0.2 are not intended to be used repeatedly merely as a convenience to extend Surveillance intervals or periodic Completion Time intervals beyond those specified.</p>

(continued)

BASES (continued)

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring an affected variable outside the specified limits when Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours applies from the point of time that it is discovered that the Surveillance has not been performed in accordance to SR 3.0.2, and not at the time that the specified Frequency was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of facility conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements. When a Surveillance with a Frequency based not on time intervals, but upon specified facility conditions or operational situations, is discovered not to have been performed when specified, SR 3.0.3 allows the full delay period of 24 hours to perform the Surveillance.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as a convenience to extend Surveillance intervals.

If Surveillance is not completed within the allowable delay period, then the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon expiration of the delay period. If Surveillance is failed within the delay period, then the variable is outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the Completion Time of the ACTIONS, restores compliance with SR 3.0.1.

B 3.1.1 Fuel Storage Pool Water Level

BASES

BACKGROUND	<p>The minimum water level in the fuel storage pool provides shielding and minimizes the general area dose when irradiated fuel is stored in the pool and during the movement of irradiated fuel.</p> <p>A general description of the fuel storage pool design is given in the DSAR. The assumptions of the fuel handling accident and heavy load drop accident are given in the DSAR. Although not explicitly stated in the DSAR, the minimum water level in the fuel storage pool prevents non-gaseous radioactivity from being released during these two accidents.</p>
APPLICABLE SAFETY ANALYSES	<p>Although the unit is permanently shutdown and defueled, a fuel handling accident or a heavy load drop accident in the fuel storage pool is still possible. The implications of a radiological release, as a result of a fuel handling accident, for conditions at the site boundary were assessed using the assumptions and methodology suggested in Regulatory Guide 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors." As described in the DSAR, the consequences of a heavy load drop accident are similar to those for a fuel handling accident</p> <p>A minimum water level in the fuel storage pool prevents the release of non-gaseous radioactivity for a fuel handling or a heavy load drop accident, by ensuring that the damaged fuel assemblies are immersed in the water.</p> <p>The spent fuel in the fuel storage pool has had more than 25 years of decay since reactor operation. Therefore, there is no need for fuel storage pool cooling, and the amount of radioactive iodine is negligible. As a result, the fuel storage pool does not need a minimum water level for iodine absorption following a fuel handling or heavy load drop accident, nor does the pool need a minimum water level to provide a heat sink for the spent fuel if pool cooling is lost.</p>
LCO	<p>The fuel storage pool water level is required to be at an elevation of greater than 10.5 feet.</p> <p>This water level preserves the assumptions of the fuel handling accident analysis and the heavy load drop into the fuel storage pool accident analysis. The water level also provides shielding to minimize the general area dose when irradiated fuel is stored in the pool or is being moved.</p>

(continued)

BASES

APPLICABILITY	This LCO applies whenever irradiated fuel assemblies are stored or moved in the fuel storage pool.
ACTIONS	<p><u>A.1</u></p> <p>When the initial conditions for mitigating an accident cannot be met, action should be taken to preclude the accident from occurring. When the fuel storage pool level is lower than the required level, fuel handling activities should be suspended immediately. This effectively precludes a fuel handling accident from occurring. This does not preclude movement of items to a safe position.</p> <p>Fuel handling activities as described in this specification include the movement of spent fuel or other loads over irradiated fuel assemblies.</p> <p><u>A.2</u></p> <p>This action is intended to restore the fuel storage pool level as soon as possible to minimize the time that the water level assumed in the accident analysis is not being met.</p>
SURVEILLANCE REQUIREMENTS	<p><u>SR 3.1.1.1</u></p> <p>This SR ensures that the water level is within the established limit. The water level in the fuel storage pool must be checked periodically. The 24 hour Frequency is based on engineering judgment and is considered adequate because of available indication of level changes and the large volume of water in the pool. Water level changes are controlled by facility procedures, and rapidly decreasing level changes are unlikely based on operating experience.</p>

B 3.1 DEFUELED SYSTEMS

B 3.1.2 Spent Fuel Pool Load Restrictions

BASES

BACKGROUND	<p>Spent fuel pool load restrictions pertain to a fuel handling accident which can cause a fuel assembly to drop onto another fuel assembly. The fuel handling accident was analyzed in the DSAR. The bases for the weight of loads allowed to be carried over the fuel assemblies is dependent on the damage that can be caused. For the fuel handling accident, the heavy load weight limit is equivalent to the weight of a fuel assembly, channel and lifting devices, which total approximately 330 pounds.</p> <p>A cover that weights more than 330 pounds has been installed over the spent fuel storage pool. This cover is exempt as a heavy load traveling over the spent fuel storage pool, as it is an integral part of the pool. Installation and removal of the cover is controlled administratively.</p>
APPLICABLE SAFETY ANALYSES	<p>The potential fuel handling accident involving the dropping of one irradiated fuel assembly has been analyzed in the DSAR. This analysis evaluated the potential impact due to dropping of a fuel assembly during fuel handling operations. This analysis concluded that the damage to the cladding of all fuel assemblies in the spent fuel pool would be a conservative bounding assumption for this type of accident. The dose the maximally exposed individual would receive would be 5.1 mRem, less than 1% of the 10 CFR Part 100 guideline value of 25 Rem to the whole body. The consequences of a fuel handling accident are minimal. Public dose would not be significantly increased.</p> <p>Appendix IB of the DSAR discusses the likelihood of a reactivity accident in the spent fuel pool due to a heavy load drop. The appendix describes the design, fabrication, and safety analysis performed for the addition of neutron-absorbing material, i.e. boral cans, in the spent fuel pool to ensure subcriticality following any event which results in a rearrangement of fuel assemblies. The appendix concludes that the neutron-absorbing material will ensure that k-effective will be less than 0.95 for the worst possible rearrangement of the fuel.</p>
LCO	Loads carried over fuel in the spent fuel pool racks shall be limited to a weight of no greater than 330 pounds.

(continued)

BASES

APPLICABILITY	This LCO is applicable whenever irradiated fuel assemblies are in the spent fuel pool.
ACTIONS	<u>A.1</u> Should the load limitations of the LCO be violated, Action A.1 requires that the load immediately be placed in a safe condition. This can be accomplished by moving the load to a location which is not over storage racks containing irradiated fuel. This action results in a condition which is acceptable per the LCO and no further actions are necessary.
SURVEILLANCE REQUIREMENTS	<u>SR 3 1.2 1</u> This SR requires that the load weighs \leq 330 lbs. prior to moving the load over the racks containing irradiated fuel.

B 3.1.3 Fuel Storage Pool Liner Water Level

BASES

BACKGROUND	A stainless steel liner covering the inside surface of the fuel storage pool was installed in 1963. It formed a nominal 1/4-inch gap between the walls and floor of the pool and the liner. The water level in the gap is maintained at a level below the fuel storage pool water level and below the exterior groundwater level. This is done to capture leakage from the fuel storage pool and to preclude leakage from the fuel storage pool or the liner gap to surrounding groundwater.
APPLICABLE SAFETY ANALYSES	Based on the fuel storage pool water radionuclide concentrations being maintained at low levels, the gap water level being maintained at a level that is less than both the fuel storage pool level and the surrounding groundwater level, and the limited amount of leakage to the gap per day, there is reasonable assurance that the leakage will have no environmental significance and will not affect the health and safety of the public.
LCO	The fuel storage pool liner water level is required to be at an elevation of less than + 9 inches. Monitoring and maintaining this liner water level minimizes the potential for leakage from the fuel storage pool to surrounding groundwater.
APPLICABILITY	This LCO applies whenever irradiated fuel assemblies are stored in the fuel storage pool, or when the water in the pool or liner is contaminated with radioactive materials.
ACTIONS	<u>A 1</u> This action is intended to restore the fuel storage pool liner level as soon as possible to minimize the potential for pool leakage to the surrounding groundwater.
SURVEILLANCE REQUIREMENTS	<u>SR 3 1.3 1</u> This SR ensures that the liner water level is within the established limit. The water level in the fuel storage pool liner gap must be checked periodically. The 24 hour Frequency is based on engineering judgement and is considered adequate because of the normally low rate of leakage into the gap and the available indication of pool level changes.