

ADMINISTRATIVE CONTROLS

ANNUAL REPORTS ¹

6.9.1.4 Annual reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March 1 of each year. The initial report shall be submitted prior to March 1 of the year following initial criticality.

6.9.1.5 Reports required on an annual basis shall include:

- a. A tabulation of the number of station, utility, and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated man-rem exposure according to work and job functions² (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (describe maintenance), waste processing, and refueling). The dose assignments to various duty functions may be estimated based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling less than 20 percent of the individual total dose need not be accounted for. In the aggregate, at least 80 percent of the total whole body dose received from external sources should be assigned to specific major work functions.
- b. Documentation of all challenges to the pressurizer power operated relief valves (PORVs) or pressurizer safety valves.

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1. A single submittal may be made for a multiple unit site. The submittal should combine those sections that are common to all units at the site.
 2. This tabulation supplements the requirements of Section 20.407 of 10 CFR Part 20.

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PROMPT NOTIFICATION WITH WRITTEN FOLLOWUP (Continued)

- d. Reactivity anomalies involving disagreement with the predicted value of reactivity balance under steady-state conditions during power operation greater than or equal to $1\% \Delta k/k$; a calculated reactivity balance indicating a shutdown margin less conservative than specified in the technical specifications; short-term reactivity increases that correspond to a reactor period of less than 5 seconds or, if subcritical, an unplanned reactivity insertion of more than $0.5\% \Delta k/k$; or occurrence of any unplanned criticality.
- e. Failure or malfunction of one or more components which prevents or could prevent, by itself, the fulfillment of the functional requirements of systems required to cope with accidents analyzed in the SAR.
- f. Personnel error or procedural inadequacy which prevents or could prevent, by itself, the fulfillment of the functional requirements of systems required to cope with accidents analyzed in the SAR.
- g. Conditions arising from natural or man-made events, that, as a direct result of the event, require plant shutdown, operation of safety systems, or other protective measures required by technical specifications.
- h. Errors discovered in the transient or accident analyses or in the methods used for such analyses as described in the safety analysis report or in the bases for the technical specifications that have or could have permitted reactor operation in a manner less conservative than assumed in the analyses.
- i. Performance of structures, systems, or components that requires remedial action or corrective measures to prevent operation in a manner less conservative than that assumed in the accident analyses in the safety analysis report or technical specifications bases; or discovery during plant life of conditions not specifically considered in the safety analysis report or technical specifications that require remedial action or corrective measures to prevent the existence or development of an unsafe condition.
- j. Offsite releases of radioactive materials in liquid and gaseous effluents which exceed the limits of Specification 3.11.1.1 or 3.11.2.1.
- k. Failure of the pressurizer PORV's or pressurizer safety valves.

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The radioactive effluent release report to be submitted 60 days after January 1 of each year shall also include an assessment of radiation doses to the likely most exposed real individual from reactor releases for the previous calendar year to show conformance with 40 CFR 190, Environmental Radiation Protection Standards for Nuclear Power Operation. Acceptable methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Revision 1. The SKYSHINE Code (available from Radiation Shielding Information Center, ORNL) is acceptable for calculating the dose contribution from direct radiation due to N-16.

The radioactive effluent release reports shall include an assessment of radiation doses from the radioactive liquid and gaseous effluents released from the unit during each calendar quarter as outlined in Regulatory Guide 1.21. In addition, the unrestricted area boundary maximum noble gas gamma air and beta air doses shall be evaluated. The assessment of radiation doses shall be performed in accordance with the ODCM.

The radioactive effluent release reports shall also include any licensee initiated changes to the ODCM made during the 6 month period.

RADIAL PEAKING FACTOR LIMIT REPORT

6.9.1.14 The F_{xy}^{RTP} limit for Rated Thermal Power (F_{xy}^{RTP}) shall be provided to the |

Director of the Regional Office of Inspection and Enforcement, with a copy to the Director, Nuclear Reactor Regulation, Attention Chief of the Core Performance Branch, U. S. Nuclear Regulatory Commission, Washington, DC 20555 for all core planes containing bank "D" control rods and all unrodded core planes at least 60 days prior to cycle initial criticality. In the event that the limit would be submitted at some other time during core life, it will be submitted 60 days prior to the date the limit would become effective unless otherwise exempted by the Commission.

Any information needed to support F_{xy}^{RTP} will be by request from the NRC and need not be included in this report.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the Director of the Office of Inspection and Enforcement (Regional Office) within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS (Continued)

2. When the F_{xy}^C is less than or equal to the F_{xy}^{RTP} limit for the appropriate measured core plane, additional power distribution maps shall be taken and F_{xy}^C compared to F_{xy}^{RTP} and F_{xy}^L at least once per 31 EFPD.
 - e. The F_{xy} limit for Rated Thermal Power (F_{xy}^{RTP}) shall be provided for all core planes containing bank "D" control rods and all unrodded core planes in a Radial Peaking Factor Limit Report per specification 6.9.1.14.
 - f. The F_{xy} limits of e, above, are not applicable in the following core plane regions as measured in percent of core height from the bottom of the fuel:
 1. Lower core region from 0 to 15%, inclusive.
 2. Upper core region from 85 to 100% inclusive.
 3. Grid plane regions at $17.8 \pm 2\%$, $32.1 \pm 2\%$, $46.4 \pm 2\%$, $60.6 \pm 2\%$ and $74.9 \pm 2\%$, inclusive
 4. Core plane regions within $\pm 2\%$ of core height (± 2.88 inches) about the bank demand position of the bank "D" control rods.
 - g. With F_{xy}^C exceeding F_{xy}^L , the effects of F_{xy} on $F_Q(Z)$ shall be evaluated to determine if $F_Q(Z)$ is within its limit.
- 4.2.2.3 When $F_Q(Z)$ is measured pursuant to Specification 4.10.2.2, an overall measured $F_Q(Z)$ shall be obtained from a power distribution map and increased by 3% to account for manufacturing tolerances and further increased by 5% to account for measurement uncertainty. When the number of available moveable detector thimbles is less than 75%* of the total, the 5% measurement uncertainty shall be increased to $[5\% + (3-T/12.5)(2\%)]$ where T is the number of available thimbles.

* See footnote on page 3/4 3-37 for limitation

POWER DISTRIBUTION LIMITS

PASES

An evaluation of DNB and test data from experiments of fuel rod bowing in subchannels containing thimble cells has identified that it is appropriate to impose a penalty factor to the accident analyses DNBR results. Accordingly, a thimble cell rod bow penalty as a function of fuel burnup, is applied to the measured values of the enthalpy rise hot channel factor,

$F_{\Delta H}^N$. Additional inplant operational data and DNB tests designed to quantify the effects of rod bow have provided a basis for reducing the penalty applied to the enthalpy rise hot channel factor to account for rod bow effects. The necessary penalty is applied as a function of fuel burnup (See Figure 3.2-4).

The radial peaking factor $F_{xy}(Z)$ is measured periodically to provide assurance that the hot channel factor, $F_Q(Z)$, remains within its limit.

The F_{xy} limit for Rated Thermal Power (F_{xy}^{RTP}) as provided in the Radial

Peaking Factor Limit Report per specification 6.9.1.14 was determined from expected power control maneuvers over the full range of burnup conditions in the core.

3/4.2.4 QUADRANT POWER TILT RATIO

The quadrant power tilt ratio limit assures that the radial power distribution satisfies the design values used in the power capability analysis. Radial power distribution measurements are made during startup testing and periodically during power operation.

The limit of 1.02 at which corrective action is required provides DNB and linear heat generation rate protection with x-y plane power tilts.

The two hour time allowance for operation with a tilt condition greater than 1.02 but less than 1.09 is provided to allow identification and correction of a dropped or misaligned rod. In the event such action does not correct the tilt the margin for uncertainty on F_Q is reinstated by

reducing the maximum allowed power by 3 percent for each percent of tilt in excess of 1.0.