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FOR

DOCKET NUMBER
PROPOSED RULE PR-19,24,30 etal (220)
(50 FR 51992)

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May 12, 1986

O. D. KINGSLEY, JR.
VICE PRESIDENT, NUCLEAR OPERATIONS

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Docketing and Service Branch

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No.: 50-416
License No.: NPF-29
File: 0260/15319
Comments on Proposed Revision
to Standards for Protection
Against Regulation
AECM-86/0118

Mississippi Power and Light Company (MP&L), on behalf of Grand Gulf Nuclear Station (GGNS), is responding to your request for comments on the proposed revision to 10 CFR Parts 19 et al., "Standards for Protection Against Radiation," published in Volume 51 of the Federal Register at 1092 on January 9, 1986.

MP&L's comments are attached. If you have any questions, please contact Dr. Larry R. McKay at (601) 969-2432.

Yours truly,

ODK:dmm
Attachment

cc: (See Next Page)

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ATTACHMENT

COMMENTS ON PROPOSED REVISION
OF 10CFR PART 20 "STANDARDS FOR PROTECTION AGAINST RADIATION"
BY MISSISSIPPI POWER & LIGHT COMPANY

General Comments:

1. The current methodology employed by licensees to demonstrate offsite doses to members of general public are ALARA utilizes concepts introduced by ICRP-2 in 1959. Also, the supporting documents (Regulatory Guides, NUREGS, etc.) issued by the NRC which provide guidance for demonstrating compliance with 10CFR50 Appendix I also reflect the ICRP-2 methodology. The NRC staff has indicated in the proposed revision to 10CFR20 that no adjustment or revision to the supporting documentation is proposed at this time. Utilizing ICRP-2 methodology for calculating doses to the general public while using ICRP-26,30 methodology to calculate doses to occupational workers creates a double standard. The double standard would be impossible to justify and not in the interest of sound radiation protection principles. Therefore, all supporting regulatory guidance reflecting ICRP-26,30 methodology should be published prior to implementation of the proposed changes to 10CFR20. Also, the cost involved with implementing these charges will be considerable and should be factored into any cost benefit analysis that is performed.

2. The NRC should encourage and assist in the development of training programs to assist licensees in understanding and implementing the revised standards. Such programs should be a mandatory part of the implementation procedure.

3. The impact of revised 10CFR20 upon the Grand Gulf Nuclear Station will be primarily in the area of dosimetry. It is estimated that approximately five man-years of effort will be needed to make the incorporation on a one-time basis; additionally, an expenditure of $50,000 to $100,000 will be required to develop software and revise dosimetry records. After the revision is in-place, an additional four man-years of effort will be required on a continuous basis to maintain the program.

Specific Comments:

1. The NRC staff has suggested in "Section XVIII" that dose rates of 1 millirem per year or less to large numbers of people be considered below the limit of regulatory concern and that this dose rate be used

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as a cut-off for calculating collective doses to the population. However, the current text seems to have been designed to support a value of 0.1 millirem/yr. and inadequately justifies the choice of 1 millirem. This should be clarified. Also, missing from Figure 1 is a value for "de minimis for most exposed individual member of public". The determination of this value would be most beneficial to the nuclear industry in that the existing dose calculation methodologies utilize the concept of the maximum exposed individual.

2. Section 20.208 (footnote) states, "This factor of 2 recognizes potential differences in biological factors that could result in the embryo/fetus receiving an effective dose equivalent greater than that of the pregnant woman... ." This factor should be deleted entirely or treated more realistically. A simplistic case: when the embryo's thyroid is measured in milligrams or micrograms the effective dose equivalent to the embryo for an intake of iodine by the pregnant woman is a thousand to a million times greater. Thus, an intake of 10 microcuries of iodine-131 by a pregnant woman during an in vivo diagnostic test results in a thyroidectomizing dose to the embryo or early fetus.

3. Section 20.502 defines conditions requiring individual monitoring of external and internal occupational dose. Part (a)(1) under this section requires monitoring of adults exposed under circumstances that could result in the individual receiving in one year from the sources external to the body a dose in excess of 10% of the annual limit of 5 rem. This 0.5 rem value received over a 2000 hour annual occupational exposure would result in a dose rate required for monitoring of 0.25 millirem per hour. The current requirement is 25% of the quarterly limit of 1.25 rem which over the quarterly occupational exposure period of 500 hours results in a dose rate of 0.6 millirem per hour.

Many commercial nuclear licensees determine radiation control areas as areas requiring individual dose measuring devices. Additionally, facilities have been designed with appropriate shielding to assure that unrestricted area dose rates are less than 0.6 millirem per hour in accordance with present 20.105(b)(2), i.e., less than 100

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millirem per seven days (168 hours) of continuous occupancy. Implementation of the proposed revision which defines the unrestricted area; but, provides no comparable "close-in" guidance for dose rates only the general public value of 0.5 rem per year, and the reference level of 0.1 rem per year; may require the addition of shielding to or enlarging the restricted areas around existing facilities. This reduction in dose rate at restricted area boundaries will impact not only nuclear power production facilities, but, X-ray and nuclear medicine facilities at hospitals, clinics and universities as well. Due to the cost of additional shielding and the administrative problems associated with enlarging restricted areas, the proposed revision could require licensees of nuclear power facilities to provide individual monitoring devices to everyone entering the plant site; a practice not typical for PWRs.

If the intent in implementing the proposed revision is to put equal emphasis on external and internal exposures. The proposed revision should be changed to reflect the recommendations of ICRP-26 that monitoring should be required when annual exposures might exceed 3/10ths (30%) of the annual dose equivalent limits. The dose equivalent limits as defined by the ICRP include external plus internal exposures; 30% of the annual limits would represent a requirement for monitoring at an occupational dose rate of 0.75 millirem/hour, which would not represent a significant change from the existing regulations.

4. Section 20.502(b) (3) implies that any time a respirator is used the intake must be assessed and the effective dose commitment calculated. The paragraph should be revised to include a lower limit cutoff for the adult exposed under circumstances that could result in an intake in a year in excess of 30% of the ALI.

5. Section 20.502(b) states, "Each licensee shall assess the intake of radioactive material by and the committed effective dose equivalent to - ... " Section 20.1104(d) states, in preparing the NRC Form 4, "the licensee shall attempt to obtain reports of the individual's previously accumulated effective dose equivalent... ." Section 20.1106(d) states, "Each licensee shall add the assessments of

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individual external dose equivalent and internal effective dose equivalent... ." Instructions for preparation of NRC Form 4 states, under Item 11 (Whole Body), "Enter the sum of the (whole body, external) deep dose equivalent and the committed effective dose equivalent for each period of employment... ." With respect to NRC Form 5, Item 14 is titled "Committed Effective Dose Equivalent" and is determined by assuming "that an intake equivalent to one ALI will result in a committed effective dose equivalent of 5 rems." Under "dose definitions" this term should be reserved for "...the sum of the products of the weighting factors applicable to each of the body organs or tissues which are irradiated and the committed dose equivalent." It appears that the intent is to assess the dose commitment due to an intake, at the time the intake has been established quantitatively; this should be stated unequivocally and the corresponding units used consistently.

6. Section 20.703(a)(1) states "If the exposure is later found to be greater than estimated, the corrected value shall be used". This implies that even if exposures are later found to be smaller than estimated by appropriate bioassay techniques, the true actual exposure cannot be used. This contradicts current requirements stated in 20.103(c)(1). The current language should be retained which allows substitution of the lower corrected values.

7. Section 20.904(a) states each container of licensed material bears a durable, clearly visible label identifying the radionuclides, the estimate of the quantity of radioactivity, and the date for which the activity is estimated. Compliance with this regulation would require that each container (drums, bags, etc.) be assessed as to the activity (microcurie) and radionuclides present. This language represents a change to existing regulations under Section 20.203 where the requirements include "sufficient information to permit individuals handling or using the containers, or working in the vicinity thereof, to take precautions to avoid or minimize exposures". Determination of activity and radionuclides is required only "as appropriate". In most cases, activity and radionuclide content determinations would not provide information to the workers in the vicinity which would be

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beneficial in avoiding or minimizing exposures. Section 20.703(a)(1) should be revised to reflect the current wording under 20.203, substituting "radionuclide" for "kinds of material" in the "as appropriate" statement.

8. Section 20.1002 describes methods for obtaining approval of proposed disposal procedures. Section(a)(4) requires procedures to insure that doses are maintained ALARA and within the dose limits of this part. 10CFR50 Appendix I defines ALARA doses for liquid and gaseous effluents. The NRC staff should also define ALARA doses for solid waste effluents for purposes of demonstrating compliance with 20.1002(a)(4). Logic would dictate that doses previously defined as ALARA for gases and liquid effluents should be appropriate for solid waste effluents. Therefore, consideration should be given to defining ALARA doses from solid waste effluents which are comparable to those doses previously defined as ALARA for gases and liquid effluents in 10CFR50 Appendix I.

9. Section 20.1206(b) introduces a new term, subject of the statistical summary report, "total effective dose equivalent" not otherwise defined. The intent seems to be the sum of columns 16 and 17 under heading "Summation of Effective Dose Equivalent" of the NRC Form 5. The proposed revision has the terms: accumulated, total and summation used as modifiers of effective dose equivalent while the intent could be satisfied by "cumulative". When it is necessary to establish the integration period an appropriate modifier could be prefixed, e.g., lifetime, calendar year or calendar quarter. Consideration should also be given to making the 20.1206(b) report a two-part report; one, the same as the old 20.407 report; the second, as described in 20.1206(b). This would allow the database building of direct radiation exposure information to continue.