A-A38-2
PDR

SEP 0 2 1988

MEMORANDUM FOR: Raymond F. Fraley, Executive Director, Advisory Committee on Reactor Safeguards

FROM: Victor Stello, Jr., Executive Director for Operations

SUBJECT: STAFF RESPONSE TO ACRS COMMENTS ON 10 CFR PART 20 REVISION

On May 31, 1988 the NRC staff involved with the revision of 10 CFR Part 20 briefed the ACRS Subcommittee on Occupational and Environmental Protection Systems and on June 3, 1988 briefed the full Advisory Committee on the Part 20 revisions. The Chairman of the ACRS made recommendations on Part 20 to Chairman Zech in a memorandum dated June 7, 1988.

We have considered carefully the recommendations made by the ACRS and have adopted the suggestions to provide lists of technical issues that would be resolved in other rulemaking proceedings and regulatory guides needed for implementation of 10 CFR Part 20. These lists will appear in the Statement of Considerations for the Part 20 rule. Our responses to other ACRS recommendations are enclosed.

Considerable time was devoted, in the development of the final revised Part 20, to the issues related to the use of the committed dose equivalent and the exemption for long-lived radionuclides which was in the proposed rule but was later deleted. Alternative approaches to resolving this issue were prepared by the Part 20 working group and analyzed by the Part 20 Steering Committee with considerable discussion before a position was adopted. We believe that the staff's position on this issue is consistent with the ICRP and NCRP recommendations, with the Federal guidance on occupational exposure, and with previous NRC regulatory positions.

If the ACRS staff or the Committee members have any questions on our response, they should contact Harold Peterson (301-492-3640), the Part 20 Program Manager.

Original signed by
Victor Stello

Victor Stello, Jr.
Executive Director for Operations

Enclosure:
Staff Responses to ACRS Comments

Record Note: Responses developed by Dr. Donald Cool, NMSS and H. Peterson, RES

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Response to ACRS Comments on 10 CFR 20,
"Standards for Protection Against Radiation"

The following are the NRC staff responses to comments prepared by the Advisory Committee on Reactor Safeguards on the subject Proposed Revisions of 10 CFR 20, "Standards for Protection Against Radiation." These responses will follow the order of the specific comments given in the letter dated June 7, 1988 from W. Kerr, Chairman, ACRS, to Chairman Zech.

The ACRS made two general recommendations that the NRC staff has incorporated in the Part 20 Federal Register notice. The first was to list the issues that were being resolved either by other NRC rulemaking proceedings or that would be resolved at a later date. This list of issues is presented in Section III (pages 15-16) of the Statement of Consideration.

The second ACRS general recommendation was for a list of Regulatory Guides that the staff was planning to issue to provide further guidance on implementation of the Part 20 rule. A list of the topics for the most important Regulatory Guides that the staff believes necessary is given in Section IV (page 17) of the statement. Although the ACRS recommendations suggested that schedules for these guides be included, the staff is presently carrying out a detailed examination of the Regulatory Guides needed to implement Part 20 so that publishing detailed schedules at this time would be premature.

1. Recommendation: We agree that application of the committed effective dose equivalent is the proper approach to follow in planning for radiation protection and in controlling exposures from nuclear activities. However, the committed effective dose equivalent does not constitute a sufficient basis in itself for evaluating the potential health effects of radiation exposures in individuals. Such evaluation should be based on estimates of the actual absorbed dose for the period of exposure appropriate to the

individual case. For this reason, in the case of radionuclides having long effective half-lives, it is recommended that licensees be provided the option of using the annual effective dose equivalent in the determination of compliance with 10 CFR 20.

Response: The NRC staff agrees that the committed effective dose equivalent is the proper approach for planning radiation protection and controlling exposure. This approach is the one upon which the ICRP recommendation is based, and the approach has also been adopted in the Federal Guidance for Occupational Exposures signed by the President on January 20, 1986. A second approach, the use of the annual effective dose equivalent, was provided in the proposed rule as a potential alternative to the committed effective dose equivalent for certain long-lived isotopes. Considerable comment, both pro and con, was received on this proposal. As a result, the staff has decided not to allow use of the annual effective dose equivalent for the following reasons:

a. The approach is inconsistent with the recommendations of the ICRP upon which the revision is based.

b. The Federal Guidance, while allowing the use of annual effective dose equivalent, limits its use to situations where control of the workplace has been violated. It was not considered as appropriate for normal operations and routine radiation protection. This position was reiterated by Allan Richardson, EPA, during the ACRS meeting.

c. The basic standards contained in 10 CFR Part 20 should be applicable to all licensees. An exception for certain licensees, principally fuel cycle facilities, would be inconsistent with this approach.

d. Although cited as the reason for high costs to fuel cycle facilities, the committed effective dose equivalent is the approach under which these licensees have been regulated on the past. A more important

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reason for costs to these fuel facilities is the change in the Annual Limit of Intake necessitated by the metabolic models and data developed since the original 10 CFR Part 20 was promulgated 25 years ago.

2. Recommendation: The proposed regulations exempt "medical research programs" from the given dose limits; in a similar manner, they exempt excreta from medical patients for release to sanitary sewers. We suggest that an analysis be made of the potential health impacts of these exemptions. Also of possible benefit would be a survey of related practices in other countries.

Response: The NRC staff currently has underway a contract with PNL to examine dose pathways associated with sanitary sewer sludge. This research should provide information on the potential impacts of sanitary sewer releases. These exemptions are currently part of the regulations, and the NRC staff has not been presented evidence to withdraw the exemption. Comments on the proposed revision tended to support further expansion of exemption.

3. Recommendation: Several of the definitions included in the proposed revision appear to be incomplete or to contain errors. These are:

a. "Natural background" - this should emphasize that the exempted sources do not include those of natural origin that have been "technologically enhanced."

b. "Whole-body" - this definition states that a dose equivalent to the head will be recorded as to the whole body. Consideration should be given to the development of weighting factors for converting partial external body exposures into equivalent whole-body doses.

Response: The NRC staff does not propose to make any changes to the definition of "Natural Background." The ACRS proposal would remove

"technologically enhanced natural radiation" from the exempted materials. Although this might be desirable, most "technologically enhanced radioactive materials" are not within NRC's statutory authority to regulate and should remain excluded.

The definition of whole body remains as previously defined in the regulations. However, an allowance for development and use of external weighting factors has been added by a change to the definition of "weighting factor" and a modified discussion in the Statement of Consideration for the final rule.

4. Recommendation: The revised regulations do not allow any exemptions from the security requirements that cover access to licensed materials. Quantities of certain radionuclides that represent minimal risk to health should be exempted form these requirements.

Response: The NRC has had a longstanding policy that control should be maintained over radioactive materials not only to limit radiation exposures, but also to prevent contamination of the workplace and the environment. Certain quantities and forms of materials are granted exemptions from the requirements of 10 CFR 20, and these materials would therefore not be subject to the security requirements. The staff does not believe that further exemptions are appropriate at this time.

5. Recommendation: The proposed regulations require that recipients monitor for radioactive contamination and external dose rates, all transportation packages labeled as containing radioactive materials. We believe that monitoring for external radiation levels should be required only for those packages that are required to have a warning label for external radiation.

Response: The Part 20 requirement to promptly monitor packages of radioactive material on receipt was added to the regulations in response to two incidents in the mid-1970's; one where spilled material was widely spread because the leakage was not promptly discovered over a weekend, and

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one where a sealed source was partially unshielded during transport. These incidents demonstrated the potential for serious radiological consequence where packaging became ineffective with no associated transportation accident which would serve as a warning of danger. With no requirements for carriers to have radiation monitoring capability, the monitoring rule was imposed on licensees who receive packages of radioactive material. The rule was issued and made effective in May 1974 allowed by the issuance of Regulatory Guide 7.3, "Procedures For Picking Up and Receiving Packages of Radioactive Material." That regulatory guide notes that the general survey requirement of Part 20 would require some form of physical survey of each package received by a licensee, prior to being placed in use, for the radiation protection of the user and the licensee's facility. The requirements of § 20.205 have added the requirement that package monitoring be done on an expeditious basis for the protection of the transportation system. Any discovered leakage of radioactive material or radiation in excess of appropriate limits would be promptly reported so that remedial action could be taken with respect to contaminated vehicles and associated baggage and any exposed persons.

The rule in § 20.205 has provided reasonable assurance that leakage of excessive radiation or radioactive material during transport will be discovered and reported on a timely basis. The rule has not, however, resulted in any reports of significance, the few reports received being primarily reports of fuel casks received with excessive external contamination due to "weeping" during transport. Based on this record over 14 years, the staff believes that the relaxation most needed is with respect to the promptness provisions which now require that personnel be made available over weekends to promptly monitor packages received. The staff does not consider that a relaxation in the type of packages being monitored is either justified or useful. Monitoring of labeled packages is similar to the existing rule but easier to apply To monitor only for packages labeled to indicate existing moderate external radiation levels (i.e. The Yellow-III label in DOT regulations, 49 CFR 172.403) would not serve the purpose of this requirement, which is to look at packages which

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have the potential for serious consequence due to package failure during transport or as a result of inadequate package preparation for transport. Thus, the staff believes that the requirement for monitoring of all labeled packages is appropriate.

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

Joe Mate,

It is my understanding that I am to assist you with technical evaluations of comments you may receive during your interviews to determine reporting criteria for the revision of Part 20.403. My assignments may not allow me to personally accompany you on all your interviews so I have drawn up a general outline of items which should be addressed in each interview. It includes my understanding of the last draft revision you issue plus proposed additional criteria based on Part 50.72. Please let me know what you think of the outline and how you plan to complete the interviews so we can draw up a new draft revision.

Kevin Ramsey
NMSS x20534

Post-it "routing request pad 7664

ROUTING - REQUEST

To Don Cool
I mailed this to Joe Mate. What do you think?
From Kevin
Date 9/6/88

Please
[X] READ
[ ] HANDLE
[ ] APPROVE
and
[ ] FORWARD
[ ] RETURN
[ ] KEEP OR DISCARD
[X] REVIEW WITH ME

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REPORTING CRITERIA TO BE KEPT IN § 20.403
FOR ALL LICENSEES

(a) Immediate notification (within 1 hour of discovery)

(1) Exposure to: Whole body > or = 25 Rem
Skin of whole body > or = 150 Rem
Extremities > or = 375 Rem

(2) Radioactivity release: $\frac{(mCi/ml/hour)}{24 \text{ hours}}$ > 5000 x Appendix B, Table II

REPORTING CRITERIA TO BE MOVED TO PARTS 30, 40 and 70

(3) Loss of use or operation > or = 1 week of:

(i) Any device or equipment containing material > 100 x Appendix C
OR
(ii) Any room or building used for usage or storage of material > 100 x Appendix C

(4) Damage reasonably expected to cause:

(i) Repair/replacement costs for any device or equipment containing material > 100 x Appendix C.

+ (ii) Repair/replacement costs for any room or building used for usage or storage of material > 100 x Appendix C,

+ (iii) Decontamination and disposal costs

= Total cost > $200,000.00

COMMENTS:

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REPORTING CRITERIA TO BE KEPT IN § 20.403
FOR ALL LICENSEES

(b) 24-hour notification (from time of discovery)

(1) Exposure to: Whole body > or = 5 Rem
Skin of whole body > or = 30 Rem
Extremities > or = 75 Rem

(2) Radioactivity release: $\frac{(\text{mCi/ml/hour})}{24 \text{ hours}}$ > 500 x Appendix B, Table II

REPORTING CRITERIA TO BE MOVED TO PARTS 30, 40 and 70

(3) Loss of use or operation > 1 day of:

(i) Any device or equipment containing material > 100 x Appendix C
OR
(ii) Any room or building used for usage or storage of material > 100 x Appendix C

(4) Damage reasonably expected to cause:

(i) Repair/replacement costs for any device or equipment containing material > 100 x Appendix C,

+ (ii) Repair/replacement costs for any room or building used for usage or storage of material > 100 x Appendix C,

+ (iii) Decontamination and disposal costs,

= Total cost > $2,000.00

(5) Any decontamination or cleanup activity requiring > 12 hours to complete.

COMMENTS:

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OTHER PROPOSED CRITERIA FOR SUBMITTING A REPORT WITHIN 1 HOUR
(to be added to Parts 30, 40 and 70)

(1) Any event, natural phenomenon or other condition that poses an actual threat to the safety of the licensed material or significantly hampers licensee personnel in the performance of duties necessary for safe operations, including fires, storms, toxic gas releases or radioactive releases.

COMMENTS:

OTHER PROPOSED CRITERIA FOR SUBMITTING A REPORT WITHIN 24 HOURS
(to be added to Parts 30, 40 and 70)

(1) Any condition found during non-operational periods that if allowed to exist during licensee operations would seriously degrade principal safety barriers or significantly compromise safety.

COMMENTS:

(2) Any event or condition that results in manual or automatic actuation of any Engineered Safety Feature (ESF). Preplanned actuation of any ESF for testing or drills need not be reported.

COMMENTS:

(3) Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems needed to control releases of radioactive materials or mitigate the consequences of an accident.

COMMENTS:

(4) Any event requiring the transport of a radioactively contaminated person to a medical facility for treatment.

COMMENTS:

(5) Any event or situation, related to the health and safety of the public or licensee personnel, or protection of the environment, for which:

(i) A news release has been or will be made,
OR
(ii) Notification to other government agencies has been or will be made.

COMMENTS:

OTHER SPECIFIC CASES OR PROBLEMS WITH LICENSEE REPORTS:

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PROPOSED NEW CRITERIA TO REQUIRE FOLLOW-UP NOTIFICATION

(1) If further degradation in the level of safety or significant worsening of conditions not previously reported occurs,
or
(2) If results of ensuing evaluations or assessments are obtained, response/protective measures are not effective or information relating to original report is not understood.

COMMENTS: