September 13, 2002

Ms. Patricia Gorman
Conference of Radiation Control
Program Directors, Inc.
205 Capital Avenue
Frankfort, KY 40601

Dear Ms. Gorman:

I am responding to the Conference of Radiation Control Program Directors, Inc. (CRCPD), E-mail of July 15, 2002 requesting that the Nuclear Regulatory Commission (NRC) review and comment on the revisions to the CRCPD Suggested State Regulation (SSR) for Control of Radiation, Part N - Regulation and Licensing of Technologically Enhanced Naturally Occurring Materials (TENORM), the Rationale document, and the Implementation Guidance.

As you know, NRC does not have legal authority over TENORM. Our authority over radioactive materials is limited to source, special nuclear, and byproduct materials under the Atomic Energy Act (AEA), or those materials that are generally associated with the nuclear fuel cycle. Nevertheless, we have an interest in Part N and the standards that it establishes for TENORM. As a co-chair (with the Environmental Protection Agency) of the Interagency Steering Committee on Radiation Standards (ISCORS), we are responsible for facilitating consensus on allowable levels of radiation risk to the public and workers, and the promotion of consistent and scientifically sound risk management and assessment approaches for radiation protection. As a regulator of AEA materials, we are interested in having an appropriate degree of consistency in the regulation of radioactive materials, including TENORM. We have formed an Interagency Working Group that includes representatives from Federal and State agencies whose purpose is to explore the best approach to delineate their responsibilities with regard to low-level source material (as defined in 10 CFR Part 40) or materials containing less than 0.05% uranium or thorium. The approaches developed in Part N should be useful in this effort. We continue to recommend that both the Interagency Working Group and ISCORS be briefed on revised Part N because of the harmonization implications.

We have reviewed these documents in accordance with the guidelines set fourth in our August 10, 2001 letter to you. That letter provided our comments on the earlier draft of this standard.

As a result of our review, we have identified one portion of Part N (see number 8, enclosed) that we cannot comment on at this time. After you have had the opportunity to review our response, NRC staff is prepared to discuss and review the comment with CRCPD staff. We also are providing several comments for your consideration in the future revision. If you have any questions, or would like to arrange for discussion with NRC staff, please contact me or James Kennedy, Office of Nuclear Material Safety and Safeguards at (301) 415-6668 or e-mail: JEK1@NRC.GOV.

Sincerely,
/RA By Dennis M. Sollenberger Acting for/
Paul H. Lohaus, Director
Office of State and Tribal Programs

Enclosure:
As stated

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NRC Staff Comments on CRCPD's Resolution of August 10, 2001
Staff Comments on Draft Part N[1]
Suggested State Regulation (SSR)
Part N - Regulation and Licensing of
Technologically Enhanced Naturally Occurring Materials (TENORM)

1. Although Part N was developed with knowledge of what is reasonably achievable in regulating TENORM, it does not explicitly address the use of the ALARA (as low as is reasonably achievable) in its criteria. As noted by the National Academy of Sciences in its TENORM report, the ALARA objective "is the most important factor guiding agency actions aimed at radiation protection–much more important than established regulatory limits or goals." We recommend that a specification of ALARA principles and requirements appropriate to these materials be provided in Part N and/or its guidance.

   REVISION: Part N does not list ALARA in the standard but the accompanying guidance states clearly that ALARA does apply to Part N. Part N also includes ALARA indirectly by referencing Part D, CRCPD's standards for radiation protection. This comment has been resolved satisfactorily.

2. We recommend that CRCPD consider the use of the term "average member of the critical group" rather than "reasonably maximally exposed individual," in Section N.3. NRC, in its projections of future human activities, as well as many other organizations, uses the "average member of the critical group" approach recommended by the International Commission on Radiological Protection (ICRP), most recently in ICRP-77, to help ensure reasonableness in decision making. This critical group approach is used in NRC's July 1997 license termination rule. Further, the use of an average concentration in the release criterion N.7.b is inconsistent with your definition of a "reasonably maximally exposed individual" which considers exposure to the maximum concentration.

   REVISION: A new term, "average member of a critical group," has been added to Sec. N.7b.i. Although this term is not contained in the definition section, we acknowledge that it is defined by CRCPD in Part O, "Decommissioning" and that definition would apply here. This comment has been resolved satisfactorily.

3. The justification for exempting zircon, zirconia, and zircon products from Part N4.c needs to be strengthened. The rationale should state whether the exemption is for a specific industrial sector or all uses of these materials and address in more detail (for example with references) the basis for this exemption.

   REVISION: Part N has revised the exemption, clearly stating the activities exempted and those not exempted. This comment has been resolved satisfactorily.

4. In our comments on the previous version of Part N, we stated that the use of institutional controls needed to be addressed in greater detail. Among the issues we raised were

[1] CRCPD addressed NRC comments in its July 2002 draft of Part N and its Implementation Guidance

the need for some identification of the types of institutional controls that can be used and who will be responsible for implementing them in the future. The revised version of Part N no longer uses the term "institutional controls," but has instead substituted a new undefined term, "longevity related controls" that can be relied on for confining TENORM or remediating sites. Based on correspondence with members of the Part N working group, "longevity related controls" include institutional controls such as deed restrictions, government ownership, etc. As we recommended in our comments on the previous version of Part N, the use and limitations of these controls needs to be better defined in the standard or its implementing guidance.

REVISION: The Part N implementation guidance addresses generally the use of institutional controls (see page 5). Part N also reference Part D, which contains criteria virtually identical to NRC's LTR. Part N appears to allow for States to make judgments about the reliance to be placed on institutional controls. This comment has been resolved satisfactorily.

5. Part N is unclear on whether the dose standard in Section N.5d applies to the provisions for unrestricted use in N.7, or whether the criteria in N.7 by themselves are sufficient for release of facilities, equipment, and land. The standard should be clarified on this point.

REVISION: Part N has removed the dose standard for N.5d. It is now clear which criteria apply. This comment has been resolved satisfactorily.

6. The concentration standard in N.7.b. applies only to radium. The rationale should explain what consideration has been given to setting a concentration standard for other radionuclides.

REVISION: Part N has added a section on using the sum of fractions rule for sites with radium and other radionuclide concentrations. This comment has been resolved satisfactorily.

7. Section N.7a states that facilities and equipment will be released for unrestricted use if levels are below the values listed in Appendix A. Appendix A contains surface contamination values that are identical to those provided in Regulatory Guide (RG) 1.86 and its equivalent, Fuel Cycle Policy and Guidance Directive FC 83-23. These values have been commonly used by industry in the past and we note that these values were developed primarily through consideration of detection sensitivity. Since the RG 1.86 values are not dose-based, NRC does not use these values for the release of facilities (i.e., buildings) under 10 CFR 20 Subpart E. Dose modeling is used to determine the surface contamination levels on building surfaces that correspond to NRC's 0.25 millisievert (25 millirem) per year unrestricted use limit. However, the NRC will continue to use the RG 1.86 values for the release of equipment and materials during operation, to the extent allowed under the specific licenses. NRC maintains that the use of RG 1.86 contamination levels for the unrestricted release of facilities and buildings is inconsistent with a dose-based rule. NRC is re-examining its approach to the control of solid materials. At this time, as we note in Comment No. 8, the National Academy of Sciences is studying this issue. NRC continues to evaluate license requests on a case-by-case basis using existing guidance.

REVISION: Part N has changed N.7a to only apply to equipment. This comment has been resolved satisfactorily.

8. Sec. N.7c., "Transfer or Release for Conditional Use," allows the conditional transfer of contaminated equipment for metal recycling as long as radiation exposure rates do not exceed 50 uR/h, including background. NRC is currently in the preliminary stages of examining its approach on controlling solid material and has deferred a final decision on whether to proceed with rulemaking pending completion of a study by the National Academy of Sciences on possible alternatives for release of slightly contaminated materials. At this time, the Commission has not reached a conclusion regarding a preferred alternative for control of solid material, including criteria for release of scrap metal for recycling. Therefore, we are not in a position to offer comment on this criterion.

REVISION: Part N has not been changed. Since this comment was made in August 2001, the National Academy of Sciences has completed its study on releasing solid materials. The Commission, however, is considering this study and other information in determining a future course of action. We are therefore not able to offer a comment on this criterion in Part N at this time. This deferral comment is still open.

Comments on July 2002 Part N Documents for CRCPD Consideration in the Future

Revisions to Part N:

1. There is a footnote connotation to the exemption in N.4.d, yet there is no associated footnote. This type of problem with footnotes runs throughout with footnote symbols of "*" and numbers intermixed, apparently missing footnotes, the same connotation used several times in a single page, and some footnotes appearing on the page before the connotation.

2. Part N does not recognize that ICRP 68/72 dosimetry does not produce TEDE (or EDE or CEDE); only ICRP 30 methodology does. The doses calculated with ICRP 68/72 have different terminology, such as effective dose. Also, NRC is still evaluating the doses to workers in the zircon industry and has not yet concluded that doses will be less than 100 mrem/year. The possible exemption of some of the zircon industry is based on dose calculations using ICRP68 even though there are TEDE limits. If they also intend for ICRP 68 to be used to demonstrate compliance with limits, those limits shouldn't be called TEDE.

Implementation Guidance:

1. P. 8 of the Implementation Guidance states that the revised dose assessment has used the dosimetry of ICRP 68 which has been accepted by the NRC Commissioners and Technical Staff (NRC 99-077, April 1999). It states, starting on line 13, that "the Commission has recommended that ICRP Publication 68 dosimetry be considered for future rulemakings." In a future revision, CRCPD should consider using the following statement, which we believe more precisely states the Commission position: "The Commission has approved the staff granting exemptions on a case-by case basis for those licensees requesting to use the ICRP revised internal dosimetry models."