New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Robert F. Flacke
Commissioner

September 13, 1982

Mr. Joel Lubenau
State Agreements Program
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Lubenau:

Enclosed for your review and comments is a copy of my memo to Mr. Williams of Counsel's Office and the draft revision to Part 380.

I will keep you informed of the status of this proposed revision.

Very truly yours,

Thomas J. Cashman
Chief
Toxics & Radiation Section
Bureau of Source Control

Enclosure

New York State Department of Environmental Conservation

MEMORANDUM

TO: Dick Williams
FROM: Tom Cashman T. J. C.
SUBJECT: Revision of Part 380

DATE: August 31, 1982

If DEC retains regulatory responsibility for radioactive material, we must amend the footnotes to Appendix 5 (380.9). This is required by NRC in order for DEC to maintain the compatibility requirement with existing NRC regulations.

The proposed revisions, copy attached, are minor and will conform to existing Federal Regulations. It would not appear that a public hearing is needed for this minor change. Will you advise of the appropriate procedure to follow in enacting the amendment to Part 380.

rs
Attachment

DRAFT
TC:rs
8-31-82

p 411 Delete all of footnote 3 and replace with

3 These radon concentrations are appropriate for protection from radon-222 combined with its short-lived daughters. Alternatively the value in Schedule 1 may be replaced by one-third(1/3) "working level." (A "working level" is defined as any combination of short-lived radon-222 progeny, polonium-218, lead-214, bismuth-214 and polonium-214, in one liter of air, without regard to the degree of equilibrium, that will result in the ultimate emission of 1.3×10^5MeV of alpha particle energy.) The Schedule 2 value may be replaced by one-thirtieth(1/30) of a "working level." The limit on radon-222 concentrations may be based on an annual average.

p 410 Add 4 to:

U-234	S 4
U-235	S 4
U-238	S 4
U-natural	S 4

p 412 Add a footnote

4 For soluble mixtures of U-238, U-234 and U-235 in air, chemical toxicity may be the limiting factor. If the percent by weight (enrichment) of U-235 is less than 5, the concentration value in Schedule 1 Column 1 is 0.2 milligrams uranium per cubic meter of air and the concentration value for Schedule 2 column 1 is 0.007 milligrams uranium per cubic meter of air. The specific activity for natural uranium is 6.77×10^{-7} curies per gram U. The specific activity for other mixtures of U-238, U-235 and U-234, if not known, shall be:

$SA = 3.6 \times 10^{-7}$ curies/gram U for U-depleted

$SA = (0.4 + 0.38E + 0.0034E^2)10^{-6}$ if $E \geq 0.72$ and where E is the percentage by weight of U-235, expressed as a percent.

Reasons for Change or Addition

The "working level" is the accepted measure of the health effect of short lived progeny of radon-222 by State and National Authorities. The working level has replaced the table given in footnote 3, page 411 because it is a more accurate measure of lung dose. The procedure in old footnote 3 results in an indirect measure of lung dose because it is based on certain assumptions as to the state of equilibrium between radon-222 and its progeny RaA, RdB, RaC and RaC!

The new footnote 4 is required to identify and clarify the difference between chemical toxicity of uranium and the radioactive toxicity. The allowable concentrations of depleted and natural uranium, in soluble form are based on chemical toxicity, at 5% enrichment or greater in U-235 the redioactive toxicity of uranium represents a greater hazard than the chemical toxicity. The specific activity of depleted, natural, and enriched uranium have been defined by the new footnote. This eliminates confusion that existed in the interpretation of allowable concentrations of U-238, U-235, U-234, and U-natural because the concentration of each uranium isotope is a function of the degree of enrichment. Further, the specific activity of depleted uranium has now been defined.