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**New York State Energy Research and Development Authority**

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November 8, 1999

Mr. Tom O'Brien  
Office of State Programs  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Reference: Office of State Programs' Request for Technical Information, November 2, 1999 (SP-99-074)

Dear Mr. O'Brien:

I am writing in partial response to the above referenced request.

Under New York State's 1962 regulatory "agreement" with the U.S. Nuclear Regulatory Commission (then the Atomic Energy Commission), four agencies share responsibility for regulating the receipt, possession and use of radioactive material - the New York State Departments of Environmental Conservation, Health and Labor, and the New York City Department of Health.

In part, the Office of State Programs requested information on regulatory definitions and release criteria to assist in responding to questions raised by members of the House Commerce Committee in a letter to NRC dated October 25, 1999. The Office further requested that this information be submitted by November 8, 1999. The respective responses of the New York regulatory agencies are attached.

If you have any questions on this matter, please feel free to contact me. I may be reached at 518-862-1090, extension 3302.

Sincerely,

John P. Spath, Director  
Radioactive Waste Policy  
and Nuclear Coordination

cc: Clayton Bradt/Peter Chiefari  
Barbara Youngberg/Paul Merges  
Steve Gavitt/ Karim Rimawi  
Gene Miskin

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**New York State Department of Environmental Conservation's Response to  
NRC's November 2, 1999 Request for Technical Information (SP-99-074)**

**Question 42 - Definitions in DEC's Radioactive Materials Regulations**

**"Waste"**

6 NYCRR 381.4 (q) "Low-level radioactive waste" or "LLRW" or "waste" means radioactive material that is not high-level radioactive waste, transuranic waste, spent nuclear fuel or the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, and the U.S. Nuclear Regulatory Commission consistent with federal law classifies as low-level radioactive waste.

6 NYCRR 382.2 (34) "Low-level radioactive waste" or "waste" means those low-level radioactive wastes that are acceptable for disposal in a land disposal facility pursuant to the provisions of this Part. For the purpose of this Part, low-level radioactive waste has the same meaning as in the federal Low-Level Radioactive Waste Policy Amendments Act of 1985, 42 U.S.C. Section 2021b, et seq. (see Section 382.99 of this Part) that is, radioactive material that:

(i) is not classified as high-level radioactive waste, spent nuclear fuel, or byproduct material as defined in Section 11e(2) of the Atomic Energy Act; and

(ii) is classified as low-level radioactive waste consistent with federal law and in accordance with paragraph (1) above by the U.S. Nuclear Regulatory Commission.

**"Disposal"**

6 NYCRR 381.4 (k) "Disposal" means the discharge or deposit of low-level radioactive waste at an authorized treatment, storage or disposal facility for the purpose of isolating this low-level radioactive waste from the biosphere inhabited by man.

6 NYCRR 382.2 (16) "Disposal" means the isolation of radioactive wastes from the biosphere inhabited by humans and containing their food chains by emplacement in land disposal facilities.

"Effluent" is not defined in DEC's radioactive materials regulations.

**"Byproduct material"**

6 NYCRR 383-2(7) "Byproduct material" means any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material.

Neither "transfer" nor "release limits" are defined in DEC's radioactive materials regulations.

### **Question 43 - Radiological Release Criteria**

The only solid material that DEC releases for unrestricted use is soil on sites that are remediated to remove radioactive contaminants. The criterion is set by a guidance document, *Cleanup Guideline for Soils Contaminated with Radioactive Materials*, Division of Solid & Hazardous Materials Technical Administrative Guidance Memorandum 4003 ("TAGM 4003"). It is accurately summarized in the 1993 chart NRC distributed with SP-99-074, i.e., "<10 mrem/yr and ALARA excluding background."

**New York State Department of Labor's Response to NRC's November 2, 1999 Request for Technical Information (SP-99-074)**

The New York State Department of Labor regulates commercial and industrial uses of radioactive material under Industrial Code Rule 38 (12 NYCRR 38). We take issue with a number of assertions made in the October 25, 1999 letter to Chairman Dicus and reserve the right to comment more fully at a latter date. Our responses to the specific items requested in SP-99-074 are as follows:

- |     |                      |   |
|-----|----------------------|---|
| 42. | <u>Definitions.</u>  | <u>12 NYCRR 38.3</u>                        |
|     | waste -              | not defined                                 |
|     | disposal -           | not defined                                 |
|     | effluent -           | not defined                                 |
|     | byproduct material - | 38.3 (a) (14) (Identical to 10 CFR 20.1003) |
|     | transfer -           | not defined                                 |
|     | release limits -     | not defined                                 |

43. The members of Congress who authored the October 25, 1999 letter to Chairman Dicus are apparently under the misconception that the United States Nuclear Regulatory Commission regulates the Agreement States. In the Commission's response, it should be made clear that the Commission and the States are independent regulatory authorities, which, although committed to using their best efforts to cooperate in the development of regulations for protection against radiation hazards, are not bound, either by law or regulation, to do so. Previous assertions of the Commission staff notwithstanding, the Commission can terminate or suspend an agreement on its own initiative only if it finds such action is required to protect the public health and safety.

The release of solid materials from facilities licensed by the New York State Department of Labor is done on a case-by-case basis in accordance with Industrial Code Rule 38, Section 38.23 (b). This requires that before any property suspected of being contaminated is released, it must be decontaminated to the limits specified in Table 5 of Section 38.41. It further requires that a radiological survey of the property be submitted and accepted as demonstrating that any residual contamination is as low as reasonably achievable before the property can be released.

**38.23 Vacating installations and property. (a) *Installations* .....**

**(b) *Property*.** No machinery, instruments, laboratory equipment or any other property used in contact with or in close proximity to radioactive material in a licensed installation shall be assigned, sold, leased or transferred to an unlicensed person unless such property has been permanently decontaminated below or equal to the limits specified in Table 5 of Section 38.41 of this Part (rule). A survey shall be made after such decontamination and submitted to the commissioner. No such property shall be assigned, sold, leased or transferred until such survey has been accepted by the commissioner.

Table 5

ACCEPTABLE SURFACE CONTAMINATION LEVELS

NUCLIDE <sup>a</sup>	AVERAGE <sup>b,c,f</sup>	MAXIMUM <sup>b,d,f</sup>	REMOVABLE <sup>b,e,f</sup>
U-nat, U-235, U-238, and associated decay products except Ra-226, Th-230, Ac-227, and Pa-231	5,000 dpm alpha/ 100 cm <sup>2</sup>	15,000 dpm alpha/ 100 cm <sup>2</sup>	1,000 dpm alpha/ 100 cm <sup>2</sup>
Transuranics, Ra-223 Ra-224, Ra-226, Ra-228, Th-nat, Th-228, Th-230, Th-232, U-232, Pa-231, Ac-227, Sr-90, I-125, I-126, I-129, I-131, I-133	1,000 dpm/100 cm <sup>2</sup>	3,000 dpm/100 cm <sup>2</sup>	200 dpm/100 cm <sup>2</sup>
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5,000 dpm beta, gamma/100cm <sup>2</sup>	15,000 dpm beta, gamma/100 cm <sup>2</sup>	1,000 dpm beta gamma/100 cm <sup>2</sup>

<sup>a</sup> Where surface contamination by both alpha and beta-gamma emitting nuclides exists, the limits established for alpha and beta-gamma emitting nuclides should apply independently.

<sup>b</sup> As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

Table 5 (Continued)

**ACCEPTABLE SURFACE CONTAMINATION LEVELS**

- ° Measurements of average contamination level should not be averaged over more than one square meter. For objects of less surface area, the average should be derived for each object.
- d The maximum contamination level applies to an area of not more than 100 cm<sup>2</sup>.
- ° The amount of removable radioactive material per 100 cm<sup>2</sup> of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionately and the entire surface should be wiped.
- f The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 centimeter and 1.0 mrad/hr at 1 centimeter, respectively, measured through not more than 7 mg/cm<sup>2</sup> of total absorber.

**New York State Department of Health's Response to NRC's November 2,  
1999 Request for Technical Information (SP-99-074)**

**Q: Do the NRC, Tennessee and the other agreement states have a common definitions for such words as "waste," "disposal," "effluent," "byproduct material," "transfer" and "release limits"? Please provide those definitions.**

**A: We do not have definitions in our regulations for "waste," "disposal," "effluent," "transfer," or "release limits." We do have a definition for "byproduct material." 10NYCRR, Section 16.2(a)(15) states:**

**Byproduct material means:**

**(i) Any radioactive material, except special nuclear material, yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material; and**

**(ii) The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface waste resulting from uranium or thorium solution extraction processes. Underground ore bodies depleted by these solutions extraction operations do not constitute "byproduct material" within this definition.**

Please note that although there are no definitions for "effluent," "release limits" or "transfer," these words do appear in regulation. For example, Section 16.111 "Transfer of radioactive material" specifies the requirements for transfer of radioactive material from a licensee to others. Appendix 16-A, Table 7 "Radioactive Surface Contamination Limits" provides values for the release of materials or facilities. Appendix 16-C, Table 2 lists air and water effluent concentration limits.

**Q2: What if any, radiological criteria (e.g., total activity, activity per unit area, or dose rate) that pertain to the unrestricted release of solid materials are used in any state standard, guidance, or State licensing authorizations. If the criteria differentiate between surficial and volumetric contamination, please identify that fact.**

**A: There are a few mechanisms that allow the unrestricted release of solid materials. These are:**

Patients that are administered radioactive materials for diagnostic or therapeutic purposes. The criteria for release is based on an estimation or calculation by the licensee that another individual is not likely to receive more than 500mrem from the patient. If it is likely that another individual could receive more than 100mrem then the licensee must provide written information to the patient on the risks of radiation and methods to reduce exposure to others.

Radioactive materials with half-lives of 90 days or less, held for decay-in-storage(DIS). The criteria are that these materials be held for 10 half-lives and prior to disposal, surveyed to determine that its radioactivity cannot be distinguished from background. Note; This is not exactly "unrestricted" release since the materials should be disposed as "normal waste." However this doesn't prohibit recycling.

Any equipment or facility that has a surface contamination of less than the specified value in Table 7 of Appendix 16-A of Part 16. The criterion is listed in Table 7.

Other scenarios are evaluated on a case by case basis. The department utilizes available programs such as RESRAD to estimate potential doses to critical members of the public from such



a release. Normally for situations involving the decommissioning of contaminated lands, the department will work with the NYSDEC to make a determination on acceptable release concentrations and restrictions, if necessary. For these evaluations, the 10 mrem/yr guidance developed by DEC is used. For any requests for the recycling of contaminated materials, the Department would use other guidance such as those developed by, ICRP, NCRP and IAEA (e.g., 1mrem/yr dose to a member of the public) prior to making any determination on release.



# THE CITY OF NEW YORK DEPARTMENT OF HEALTH

Rudolph W. Giuliani  
Mayor

Neal L. Cohen, M.D.  
Commissioner

## Bureau of Radiological Health


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### MEMORANDUM

DATE: November 5, 1999

TO: Jack Spath  
NYSERDA

FROM: Gene Miskin,   
Director

SUBJECT: NRC information request of November 2, 1999

For question #42, our regs only have definitions for waste and byproduct material. Definitions are as follows:

"Waste" means those low-level radioactive wastes that are acceptable for disposal in a land disposal facility. For the purposes of this definition, low-level waste has the same meaning as in the Low-Level Radioactive Waste Policy Act, 96-573, as amended by P.L. 99-240, effective January 15, 1986; that is, radioactive waste (a) not classified as high-level radioactive waste, spent nuclear fuel, or byproduct material as defined in Section 11e.(2) of the Atomic Energy Act (uranium or thorium tailings and waste) and (b) classified as low-level radioactive waste consistent with existing law and in accordance with the U.S. Nuclear Commission.

"Byproduct material" means:

- (i) Any radioactive material, except special nuclear material, yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material; and
- (ii) The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including

discrete surface wastes resulting from uranium or thorium solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute "byproduct material" within this definition.

For question #43 our regs don't have any radiological criteria for the unrestricted release of solid materials. We would defer to DEC in this area.

Hope this is helpful.