

DCD(SPO3)

R: SP-99-074

From: <DO'Dowd@dhhs.state.nh.us>
To: OWFN_DO.owf1_po(FCC)
Date: Mon, Nov 8, 1999 3:55 PM
Subject: Response to SP-99-074 Request for Information

Dear Mr. Combs:

In response to your request stated in SP letter 99-074, attached is the response from New Hampshire's Bureau of Radiological Health to Questions 42 and 43 from the U.S. Congress' Committee on Commerce:

(See attached file: Nrc91105.doc)

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Thank you,

Dennis O'Dowd, Supervisor
Radioactive Material Section
Bureau of Radiological Health

11-8-99

SP-A-4

SP-AG-18

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N. H. BUREAU OF RADIOLOGICAL HEALTH
Response to
“Request for Technical Information” (SP-99-074)

References:

- New Hampshire Rules for the Control of Radiation. (NHRCR), He-P 4000 - 4099, He-P 2004, He-P- 2094.
- RSA 125-F:1-25 and RSA 125-77-b NH Laws-Radiological Health Program

Response to Question 42

From New Hampshire Rules for the Control of Radiation (NHRCR)

He-P 4003.01(s) "**Byproduct material**" means:

- (1) "Byproduct material" as defined in RSA 125-F:3; (see below) and
- (2) 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 except underground ore bodies depleted by these solution extraction operations.

RSA 125-F:3 II "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.

He-P 4060.02 (k) "**Disposal**" means that portion of a land disposal facility which is used for disposal of waste, consisting of disposal units and a buffer zone.

Note: Disposal as defined above is specific to Part He-P 4060 entitled "Licensing Requirements for Disposal of Low-Level Radioactive Waste" Disposal is not specifically defined as it applies to removal of radioactive material by transfer, decay in storage, effluent release or as authorized by He-P 4023 entitled "Waste Disposal".

"**Effluent**" No definition exists in NHRCR

"**Transfer**" No definition exists in NHRCR

"**Release Limits**" No definition exists in NHRCR

He-P 4003.01(eq) "**Waste**" means those low-level radioactive wastes as defined in RSA 125-F:3 X.

RSA 125-F:3 X "Low-level radioactive waste" means radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or byproduct material as defined in paragraph II. NOTE: "byproduct material" as is defined in paragraph II is stated above.

Response to Question 43

Portions of the NHRCR allow for unrestricted release of solid material as follows:

He-P 4023.04 Treatment or Disposal by Incineration. A licensee may treat or dispose of licensed material by incineration only in the form and concentration specified in He-P 4023.05 or as specifically approved by the DHHS/BRH pursuant to He-P 4023.02.

He-P 4023.05 Disposal of Specific Wastes.

(a) A licensee shall dispose of the following licensed material as if it were not radioactive:

(1) 1.85 kBq (0.05 μ Ci), or less, of hydrogen-3 or carbon-14 per gram of medium used for liquid scintillation counting; and

(2) 1.85 kBq (0.05 μ Ci), or less, of hydrogen-3 or carbon-14 per gram of animal tissue, averaged over the weight of the entire animal.

(b) A licensee shall not dispose of tissue having been treated with radioactive material pursuant to He-P 4023.05(a)(2) in a manner that would permit its use either as food for humans or as animal feed.

(c) The licensee shall maintain records in accordance with He-P 4021.09

He-P 4021.20 Additional Requirements.

(a) Each specific licensee shall, no less than 30 days before vacating or relinquishing possession or control of premises which may have been contaminated with radioactive material as a result of licensee's activities, notify the DHHS/BRH in writing of intent to vacate.

(b) If in the course of a survey as required by He-P 4022.01, a licensee should find a surface contaminated to levels in excess of the values specified in Table 4021.1, [Column 1,] the licensee shall immediately institute measures to reduce the contamination to the levels specified.

(c) No licensee shall allow surfaces or surfaces of objects contaminated to levels in excess of the values specified in Table 4021.1, to be released to unrestricted areas.

(d) Where surface contamination by both alpha and beta-gamma emitting isotopes exists, the limits established for alpha and beta-gamma emitting isotopes shall apply independently.

(e) The radioactivity on the interior surfaces of pipes, drain lines or ductwork shall be determined by making measurements at all traps and other appropriate access points to the interior of the pipes, drain lines or ductwork.

(f) Surfaces of premises, equipment or scrap that may be contaminated and that are of such size, construction or location as to make the surface inaccessible for purposes of measurement, shall be presumed to be contaminated in excess of the levels.

(g) The amount of removable radioactive material per 100 square centimeters (cm^2) of surface area shall

be determined by wiping that area, with dry filter or soft absorbent paper and with the application of moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency.

(h) For objects of lesser than 100 cm² surface area, the entire surface shall be wiped and the above levels reduced in direct proportion to the area of the object.

(i) Measurements of fixed contaminant shall not be averaged over more than 1.0 square meter.

(j) For objects of lesser than 1.0 square meter area the average shall be derived from measurements made on each of the surfaces of the object.

(k) Disintegrations per minute (dpm) shall be determined by correcting the counts per minute observed by an appropriate detector and count rate meter, for background, efficiency, and geometric factors associated with the instrumentation.

(l) Fixed beta-gamma contamination levels shall be measured through not more than 7 milligrams per square centimeter of total absorber.

He-P 4021.21 Permissible Levels of Surface Contamination. Levels of surface contamination shall be in compliance with the restrictions set forth in the Rules cited in Table 4021.1 below.

Table 4021.1 Permissible Levels of Surface Contamination

<u>NUCLIDE</u>	<u>FIXED</u>		<u>REMOVABLE</u>
	<u>Average</u>	<u>Maximum</u>	
U-nat, U-235 U-238 and associated decay products	5,000 dpm α /100 cm ²	15,000 dpm α /100 cm ²	1,000 dpm α /100 cm ²
Transuranics, Ra-226,Ra-228, Th-230,Th-228 Pa-231, Ac-227, I-125,I-129	100 dpm/100 cm ²	300 dpm/100 cm ²	20 dpm/100 cm ²
<u>NUCLIDE</u>	<u>FIXED</u>		<u>REMOVABLE</u>
	<u>Average</u>	<u>Maximum</u>	
Th-nat, Th-232 Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000 dpm/100 cm ²	3,000 dpm/100 cm ²	200 dpm/100 cm ²
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous except Sr-90 and others noted above.	5,000 dpm βλ/100 cm ²	15,000 dpm β λ/100 cm ²	1,000 dpm βλ/μ100 cm ²