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MEMORANDUM FOR: Regional Administrators
Branch Chiefs
Division of Fuel Cycle and Material Safety, NMSS

FROM: Richard E. Cunningham, Director
Division of Fuel Cycle and Material Safety, NMSS

SUBJECT: POLICY AND GUIDANCE DIRECTIVE FC 83-23: TERMINATION OF BYPRODUCT, SOURCE AND SPECIAL NUCLEAR MATERIAL LICENSES

The enclosed final rule specifies licensee responsibility and requirements for terminating a license issued under 10 CFR Parts 30, 40 and 70. Among other things, a licensee is required to submit on or before the expiration date a radiation survey report to confirm the absence of radioactive materials or to specify existing levels of residual radioactive contamination present from past operations. A survey report is not required if a licensee can demonstrate the absence of radioactive contamination in some other manner, such as the use only of sealed sources that never showed evidence of leakage. If detectable levels of residual radioactive contamination attributable to licensed operations are found, the license continues in force until the Commission notifies the licensee in writing that the license is terminated. The purpose of this memorandum is to provide guidance to the Regions and Headquarters staff on the findings that need to be made before written notification is given that the license is terminated.

Review Procedure

Before terminating a license where residual radioactive material contamination is present from past licensed operations, NRC should determine whether:

1. a reasonable effort has been made to eliminate residual contamination, and

2. residual radioactive contamination is acceptably low to permit unrestricted release of the affected facilities.

If the levels of residual radioactive contamination on surfaces and in soil are a small fraction of those normally acceptable for unrestricted release (see Section below), it is not necessary for the licensee to describe the efforts he has made to reduce contamination levels.

Policy and Guidance Directive FC 83-3: Standard Review Plan (SRP) for Termination of Special Nuclear Material Licenses for Fuel Cycle Facilities, contains information that is generally useful for terminating any byproduct, source or special nuclear material license.

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In most cases involving short half-life radionuclides or operations involving only sealed sources, an independent confirmatory survey by NRC will not be necessary. Confirmatory surveys should always be made if the licensee's survey report appears suspect or past licensee operations involved the chemical processing of hundreds of milligrams of plutonium, tens of kilograms of enriched uranium 235 or hundreds of kilograms of source material. For materials licensees which used and processed hundreds of millicuries of long half-life radionuclides (> 1 yr), confirmatory surveys should also be made in all cases. If it is determined that a confirmatory survey will be made, a notice should be sent to the licensee informing him that the equipment and facilities should be held for NRC inspection. Discretion may be exercised as to whether a confirmatory survey is to be made if there is information available, such as inspection reports, which provides a basis for acceptance of the licensee's survey.

Contamination Levels Generally Acceptable for Unrestricted Release

- o Surface Contamination - See Enclosure 2
- o Soil Contamination - See Enclosure 3
- o Water Contamination - If surface or groundwater contamination is below EPA's National Interim Primary Drinking Water Regulations (EPA 570-9-76-003), the contamination is acceptable for unrestricted release.

If the levels of contamination exceed the levels discussed above and a judgment is made that further efforts to reduce the contamination is not necessary for termination of the license, an environmental impact assessment should be made to support the termination. Such cases should be brought to the attention of the Director of the Division of Fuel Cycle and Material Safety, NMSS, before the termination is dispatched.

Original Signed by
D. R. Chapell

Richard E. Cunningham, Director
Division of Fuel Cycle and
Material Safety, NMSS

Enclosures:
1. Final Rule: Amendments to 10 CFR Parts 30, 40 and 70 Specifying Licensee Responsibility for Nuclear Materials and Procedures for Termination of Specific Licenses

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2. Guidelines for Decontamination of Facilites and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material

*See previous concurrence sheets

Table on Acceptable Soil Contamination Levels

OFFICE	FCUP*	FCUF*	FCAF*	FCML	FCTC*	FCMC*	FC
SURNAME	WTCrow	RGPade/as	LCRouse	VLMiller	CEMacDonald	BSinger	RECunningham
DATE	8/8/83	8/8/83	8/8/83	11/3/83	8/12/83	8/12/83	11/4/83

GUIDELINES FOR DECONTAMINATION OF FACILITIES AND EQUIPMENT PRIOR TO RELEASE FOR UNRESTRICTED USE OR TERMINATION OF LICENSES FOR BYPRODUCT, SOURCE, OR SPECIAL NUCLEAR MATERIAL

U.S. Nuclear Regulatory Commission
Division of Fuel Cycle, Medical, Academic,
and Commercial Use Safety
Washington, DC 20555

May 1987

The instructions in this guide, in conjunction with Table 1, specify the radionuclides and radiation exposure rate limits which should be used in decontamination and survey of surfaces or premises and equipment prior to abandonment or release for unrestricted use. The limits in Table 1 do not apply to premises, equipment, or scrap containing induced radioactivity for which the radiological considerations pertinent to their use may be different. The release of such facilities or items from regulatory control is considered on a case-by-case.

1. The licensee shall make a reasonable effort to eliminate residual contamination.

2. Radioactivity on equipment or surfaces shall not be covered by paint, plating, or other covering material unless contamination levels, as determined by a survey and documented, are below the limits specified in Table 1 prior to the application of the covering. A reasonable effort must be made to minimize the contamination prior to use of any covering.

3. 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, provided that contamination at these locations is likely to be representative of contamination on the interior of the pipes, drain lines, or ductwork. Surfaces of premises, equipment, or scrap which are likely to be contaminated but 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 limits.

4. Upon request, the Commission may authorize a licensee to relinquish possession or control of premises, equipment, or scrap having surfaces contaminated with materials in excess of the limits specified. This may include, but would not be limited to, special circumstances such as razing of buildings, transfer to premises to another organization continuing work with radioactive materials, or conversation of facilities to a long-term storage or standby status. Such requests must:

   a. Provide detailed, specific information describing the premises, equipment or scrap, radioactive contaminants, and the nature, extent, and degree of residual surface contamination.

   b. Provide a detailed health and safety analysis which reflects that the residual amounts of materials on surface areas, together with other considerations such as prospective use of the premises, equipment, or scrap, are unlikely to result in an unreasonable risk to the health and safety of the public.

5. Prior to release of premises for unrestricted use, the licensee shall make a comprehensive radiation survey which establishes that contamination is within the limits specified in Table 1. A copy of the survey report shall be filed with the Division of Fuel Cycle, Medical, Academic, and Commercial Use Safety, U. S. Nuclear Regulatory Commission, Washington, DC 20555, and also the Administrator of the NRC Regional Office having jurisdiction. The report should be filed at least 30 days prior to the planned date of abandonment. The survey report shall:

   a. Identify the premises.

   b. Show that reasonable effort has been made to eliminate residual contamination.

   c. Describe the scope of the survey and general procedures followed.

   d. State the findings of the survey in units specified in the instruction.

Following review of the report, the NRC will consider visiting the facilities to confirm the survey.

TABLE 1

ACCEPTABLE SURFACE CONTAMINATION LEVELS

NUCLIDES[a]	AVERAGE[b c f]	MAXIMUM[b d f]	REMOVABLE[b e f]
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
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1000 dpm/100 cm^2	3000 dpm/100 cm^2	200 dpm/100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5000 dpm $\beta\gamma$/100 cm^2	15,000 dpm $\beta\gamma$/100 cm^2	1000 dpm $\beta\gamma$/100 cm^2

[a]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.

[b]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.

[c]Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

[d]The maximum contamination level applies to an area of not more than 100 cm^2.

[e]The amount of removable radioactive material per 100 cm^2 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 proportionally 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 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.

Acceptable Soil Contamination Levels

Kind of Material	Soil Concentration Level for unrestricted area
i) Natural Uranium (U-238 + U-234) with daughters present and in equilibrium	10 (pCi/gm of soil)
ii) Depleted Uranium or Natural Uranium that has been separated from its daughters Soluble or Insoluble	35 (pCi/gm of soil)
iii) Natural Thorium (Th-232 + Th-228) with daughters present and in equilibrium	10 (pCi/gm of soil)
iv) Enriched Uranium Soluble or Insoluble	30 (pCi/gm of soil)
v) Plutonium (Y) or (W) compounds	25 (pCi/gm of soil)
vi) Am-241 (W) compounds	30 (pCi/gm of soil)
vii) All Byproduct Material	Soil concentrations shall be determined on a case by case basis
viii) External Radiation	10 microroentgens/hr above background measured at one meter from the ground surface

ENCLOSURE 3