

FostoriaFOSTORIA GLASS COMPANY
MOUNDSVILLE, WEST VIRGINIA, U.S.A.

September 26, 1958

J. C. Delaney, Chief
Division of Licensing & Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.



Dear Mr. Delaney:

We plan the use of depleted uranium compounds in our plant at Moundsville, West Virginia; and hereby request that an appropriate source material license be issued. It is our intention to purchase depleted uranium, containing 0.36 per cent or less of U-235, in the form of U_3O_8 , $Na_2U_2O_7$, or UF_4 for use as a coloring agent in glass for glass tableware and artware manufacture. We should like the license to cover a quantity of 1000 pounds of U_3O_8 content per year for minimum of two years.

The following sections describe the process steps involving the use of uranium, the records to be maintained to implement the control of source material as described in 10-CFR40 and the precautions to be taken to implement the control of radiation as described in 10CFR20.

PRODUCTION PROCESS. Depleted uranium products will be received in steel drums of 100 pounds net weight, and will be placed in a specifically designated storage area. Approximately 200 pounds of material will be stored in this area at a given time, and the door to the room will be kept locked except during material movement.

The uranium product will be removed from the storage area and weighed out in appropriate batch sizes along with other of the glass components in a well ventilated and hooded area. The material will then be charged into a mixer mixed for approximately 5 minutes and the mixer discharged into a batch wagon. The batch is then transferred in the wagon and filled by shoveling into a closed glass pot and the batch melted into glass. The glass is then drawn by hand from these closed pots and formed into glassware.

The final glass will contain from approximately 0.25 to 2.0 per cent depleted U_3O_8 depending upon the type of color which is produced. Any waste product which we will have will be in the form of glass and will be re-melted for further use or can be buried at the dump.

Experience of our organization prior to 1942 with normal uranium products showed that little uranium was lost in any of the foregoing operations. Considerable precaution was taken to prevent dust losses and glass spills since the uranium component of the glass was quite expensive compared to most coloring agents.

Some deviation from the described processing sequence may be expected from time to time. However, the fundamental principles of locked storage, well ventilated and hooded areas for operations in which dust might be generated and precautions against spillage will not change.

RECORDS FOR CONTROL OF SOURCE MATERIAL. Records of receipts and consumption of uranium materials will be available in our routine accounting records for AEC inspection.

HEALTH AND SAFETY. Personnel involved in the handling of depleted uranium products will not be subject to radiation doses in excess of legal limit as set forth in 10CFR20. Film badges will be worn by applicable personnel if it is established that such personnel are likely to receive a dose in excess of 25 per cent of the legal limit. Film badges and associated services will be obtained from reputable organizations experienced in the implementation of radiation safety such as Tracerlab, Inc., Waltham, Massachusetts; St. John X-Ray Laboratory, Califon, New Jersey; or R. S. Landauer, Jr. & Company, Park Forest, Illinois.

Periodic radiation surveys will be made by members of our organization or by our suppliers to determine the level of radiation at different points in the storage and processing areas. Such surveys will be conducted using a portable survey meter such as that of Nuclear Measurements Company, Model GS-3L Geiger counter.

Personnel will not be subjected to airborne radioactive material in concentrations in excess of the maximum established in 10CFR20. Such will be effected by conducting all operations in which there is a chance of dusting in well ventilated hoods or by the use of appropriately designed respirators, or both.

We shall appreciate your early and favorable attention to our request.

Very truly yours,

FOSTORIA GLASS COMPANY

A. E. Williams

A. E. Williams
Technical Director

AEW:NLT

Sworn to and subscribed before me a Notary Public for the County of Marshall State of West Virginia the 26th day of September 1958.

Herbert R. O'Neil
Notary Public

MY COMMISSION EXPIRES Feb. 25, 1956

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
WASHINGTON, D.C. 20555

August 19, 1996

NRC INFORMATION NOTICE 96-47: RECORDKEEPING, DECOMMISSIONING NOTIFICATIONS
FOR DISPOSALS OF RADIOACTIVE WASTE BY LAND
BURIAL AUTHORIZED UNDER FORMER 10 CFR 20.304,
20.302, AND CURRENT 20.2002

Addressees

All U.S. Nuclear Regulatory Commission licensees.

Purpose

NRC is issuing this information notice to: (1) inform addressees of problems identified at several sites where disposals of radioactive waste by land burial were made under the authorization of former 10 CFR 20.304 and 10 CFR 20.2002 (revision to the former 10 CFR Section 20.302); (2) emphasize recordkeeping requirements of such burials; and (3) remind licensees of the submittal dates (September 15, and October 15, 1996) for compliance with "Final Rule on Timeliness in Decommissioning of Materials Facilities" (59 FR 36026, effective August 15, 1994) (hereafter called the "Timeliness Rule"). This information notice emphasizes the current NRC position on recordkeeping and notification requirements for such disposals. NRC expects that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems to those identified. However, suggestions contained in this information notice are not NRC requirements; therefore, no specific action or written response is required, other than as specified for compliance with the regulations described herein.

Description of Circumstances

On-site burials have been problematic for licensees during their decommissioning of sites containing such burials. A limited number of past burial sites have been required to be exhumed during decommissioning, even though the materials in these sites were disposed of in accordance with former 10 CFR 20.304 requirements. In certain cases, portions of the buried materials were required to be shipped off-site to a licensed disposal facility, before NRC released the site for unrestricted use. Based on this experience, NRC regulations now require licensees to notify NRC if they have burial sites that may require decommissioning and to maintain records of these burials.

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Discussion

The Timeliness Rule includes requirements pertaining to buildings and outside areas that have been unused for a period of 24 months, at facilities licensed under 10 CFR Parts 30, 40, 70, and 72. Outside areas include those where disposals made pursuant to former 10 CFR 20.304, 20.302, and current 20.2002, which is the focus of this information notice. Further, this information notice reiterates the NRC position on the applicability of its present decommissioning rules. This NRC position was first stated in the Final Rule on the "General Requirements for Decommissioning Nuclear Facilities" (53 FR 24021), published June 27, 1988 (hereafter called "Decommissioning Rule"), and repeated in NRC NUREG-1444, "Site Decommissioning Management Plan."

Burial of certain quantities of radioactive waste in soil by licensees without prior Agency approval was authorized on January 29, 1959 (22 FR 548). Originally, this authorization was codified in former 10 CFR 20.304. On January 28, 1981, the Commission concluded that it was inappropriate to continue generic authorizations of burials pursuant to 10 CFR 20.304 without regard to factors such as location of burial, concentrations of radioactive material, form of packaging, and notification of NRC, and therefore NRC rescinded 10 CFR 20.304 (45 FR 71761). As of January 28, 1981, licensees wishing to perform on-site disposals of the type previously authorized under 10 CFR 20.304 were required to obtain prior NRC approval in accordance with 10 CFR 20.302. The current requirements of 10 CFR 20.2002 (revised from 10 CFR 20.302) remain in force.

The evaluations required before the Commission terminates a license or makes a regulatory decision related to disposed material were discussed in the supplemental information to the Decommissioning Rule. There, the Commission stated that it "...will take a hard look at the extent to which the site has been previously used to dispose of low-level radioactive waste by land burial and decide what remedial measures, including removal of such soil off-site, are appropriate before the site can be released for unrestricted use and the license terminated." The Timeliness Rule established specific time periods for decommissioning unused areas of an operating site and for decommissioning the entire site, on termination of operations.

This information notice describes the recordkeeping requirements for disposals authorized under former 10 CFR 20.304 and 20.302 regulations, as well as the current 10 CFR 20.2002, and the notification requirements in the Timeliness Rule for these disposal sites. Note that, in this information notice, references to 10 CFR 20.2002, also apply to previous disposals under former 10 CFR 20.302.

1. Recordkeeping

At the time of decommissioning, complete records of 10 CFR 20.304, 20.302, and Section 20.2002 disposals are necessary for NRC to evaluate the acceptability of the disposals. Each licensee is required, per 10 CFR 20.2108, to maintain records of disposals made under 10 CFR 20.2002, and to preserve such records until the Commission terminates the license requiring these records. Former 10 CFR 20.401(c)(3) stated that records of disposals made pursuant to 10 CFR Section 20.302, and 20.304 should be maintained until the Commission authorizes their disposition. In addition, the final rule on "Decommissioning Recordkeeping and License Termination: Documentation Additions," issued July 26, 1993 (58 FR 39628), requires a single document listing (1) all areas outside restricted areas where current and previous wastes have been buried, (as documented under 10 CFR Section 20.2108); and (2) other information necessary to ensure that decommissioning is carried out in accordance with the Commission's regulations. This rule is applicable to licenses issued under 10 CFR Parts 30, 40, 70, and 72. See 10 CFR 30.35(g)(3), 40.46(f)(3), Part 70.25(g)(3), and 72.30(d)(3).

At present, 10 CFR 20.2002 states that the licensee must apply to the Commission for approval of proposed procedures to dispose of licensed material in a manner not otherwise authorized in 10 CFR Part 20. The former 10 CFR 20.302 required this also. After the application is approved by NRC, records of actual 10 CFR 20.2002 disposals must be maintained per 10 CFR 20.2108. These records should be sufficient to demonstrate compliance with the approved procedures contained in the application.

Pursuant to the former 10 CFR 20.401 requirements, the records of disposals performed under former 10 CFR 20.304 were required. The following requirements were placed on burials made under 10 CFR 20.304:

1. the total quantity of licensed and other radioactive material buried at any one location and time does not exceed, at the time of burial, 1000 times the amount specified in Appendix C to Part 20;
2. the burial is at a minimum depth of four feet, and
3. successive burials are separated by distances of at least 6 feet and not more than 12 burials are made in any year.

NRC expects that licensees who disposed of radioactive waste in accordance with Section 20.304, 20.302, and 20.2002, comply with the applicable recordkeeping requirements. Further, if the NRC determines that the minimum

records required for disposals that may pose a significant risk to the public after release have not been kept, the licensee may then be expected to characterize the disposal sites by compiling the necessary information (e.g., sampling and survey data). The acceptability of the timing and extent of characterization will be determined by the NRC on a case-by-case basis.

2. Decommissioning

Disposals made pursuant to former 10 CFR 20.304, 20.302, and current 20.2002 at facilities licensed under 10 CFR Parts 30, 40, 70, and 72, and that have been unused for NRC licensed operations for a period of 24 months, are subject to the requirements of the Timeliness Rule. For timing provisions see 10 CFR 30.36(d), 40.42(d), 70.38(d), and 72.54(d). The following guidance was provided in the Timeliness Rule, "Statements of Consideration" (59 FR 36033):

VII Implementation

The timing provisions of this rule begin on the effective date. Thus, licensees that currently have unused facilities at the time of publication of the final rule would not need to submit notifications required by this rule earlier than 2 years after the rule becomes effective. This provides these licensees with the same period of time (2 years) in which to determine whether the unused facility would be put into use again or submit notification as required by the rule.

Therefore, licensees who have unused outside areas (i.e., burial areas) that contain elevated levels of licensed radioactive materials, and have declared that licensed operations have ceased in those areas, are subject to the Timeliness Rule. In addition, for an outside area (i.e., burial area) that has been unused for NRC licensed operations for a period of 24 months prior to August 15, 1996, the licensee should:

1. No later than October 15, 1996, notify NRC of the above and either:
(1) begin decommissioning; or (2) submit, within 12 months of notification, a decommissioning plan, if required by the regulations; or
2. Submit a request to extend the above time periods by no later than September 15, 1996, in accordance with the provisions of the rule.

When notifying NRC, as stated above, the licensee should specify the type of outside area that is being considered for decommissioning (storage area, Section 20.304 burial, land application, etc.).

During decommissioning, NRC will evaluate disposals authorized under former Section 20.304, 20.302, and current 20.2002 to determine their potential impact on the health and safety of the public. The acceptability of a disposal will depend on two factors: (1) the potential for the disposed material to migrate and significantly contaminate the groundwater; and (2) the potential for significant exposure to members of the public who may, at some time in the future, develop and use the disposal site for a private residence, farm, business, or other purpose.

The NRC staff is currently developing a methodology that can be used to determine the acceptability of prior burials. This methodology will be used as a screening tool to determine which burial sites have the greatest potential to impact public health and safety. This screening tool will be based on the total activity disposed of in the burial ground and the potential for that activity to produce a significant dose to a member of the public. Staff will require no further effort on sites that pass this screening. Those sites that do not pass the screening would require more detailed environmental pathway analysis. This may require site characterization information and adose assessment. The staff will consider the magnitude of the projected dose, and existing radiological criteria for decommissioning, to determine in conjunction with the objective of keeping residual contamination levels as low as reasonably achievable if the waste may pose a significant risk to the public and if the burial requires remediation. This methodology will be completed and distributed for use by the licensees prior to September 15, 1996.

Currently NRC does not have a list of sites that contain former 10 CFR 20.304 burials. Therefore, it would be beneficial for licensees affected by this notice, to notify the staff that it is in possession of a burial site, by the October 15, 1996 deadline, even though many of those sites will not need to be remediated. In the alternative, NRC will acquire this information during routine inspections. Once the licensee has notified NRC, it can then use the screening methodology to determine if its burial site requires further action. If the burial site passes the screening method, the licensee would notify NRC that the site passed and would not need to take further action. If the site does not pass, then the licensee would have to further assess the prior burial through site characterization and/or radiological surveys and potentially submit a decommissioning plan and proceed with decommissioning in accordance with NRC's existing requirements.

This information notice requires no specific action or written response. However, licensees must comply with the notification requirements in the Timeliness Rule as stated above. As stated in NRC's revised enforcement policy (NUREG-1600), failure to meet requirements in the Timeliness Rule can be classified as a Severity Level III violation and subject to a civil penalty. Licensees who notify NRC should provide such notices to the appropriate offices listed in Sections 30.6, 40.5, 70.5, and 72.4 of the regulations. If you have any questions about the information in this notice, please contact the technical contacts listed below or the appropriate regional office.

Margaret V. Federline

Margaret V. Federline, Acting Director
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Technical contacts: David N. Fauver, NMSS
(301) 415-6625
E-mail: dnf@nrc.gov

Heather M. Astwood, NMSS
(301) 415-5819
E-mail: hma@nrc.gov

Attachments:

1. List of Recently Issued NMSS Information Notices
2. List of Recently Issued NRC Information Notices

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 Industrial and
Medical Nuclear Safety
Washington, DC 20555

August 1987

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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 basis.

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 of premises to another organization continuing work with radioactive materials, or conversion 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 Industrial and Medical Nuclear 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.

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

^aWhere surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.

^bAs 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.

^cMeasurements 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.

^dThe maximum contamination level applies to an area of not more than 100 cm².

^eThe amount of removable radioactive material per 100 cm² 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.

^fThe 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

<u>Kind of Material</u>	<u>Soil Concentration Level for unrestricted area</u>
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-230) 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