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DOCKET NO: 40-7455
LICENSE NO: SMA-1018
LICENSEE: Whittaker Corporation
SUBJECT: SAFETY EVALUATION REPORT - REQUEST FOR LICENSE AMENDMENT
TO RELEASE PROPERTY FOR UNRESTRICTED USE

I. INTRODUCTION

By letter dated March 19, 1984, Whittaker requested that Source Material License SMA-1018 be amended to delete a majority of the former processing site in Greenville, Pennsylvania from the authorized places of use. The remainder of the property, which contains slag materials containing thorium and uranium, would remain under license.

II. BACKGROUND

Beginning in the 1960's, ferro-columbium and ferro-nickel alloys were produced by an aluminothermic process under Source Material License SMA-1018 at a site in Greenville, Pennsylvania. The columbium ores and nickel scrap used in this process as raw feed materials contained licensable quantities of source material with concentrations of thorium up to approximately 2 percent. Small quantities of uranium were also present. The source material was considered by the licensee to be an unwanted contaminant and these materials remained in the waste slag generated by the aluminothermic process. The slag was retained onsite as fill in area immediately adjacent to the Shenango River.

By early 1974, Whittaker had terminated operations involving source material. In later 1974, the property was sold to Exomet, Inc., with Whittaker retaining responsibility for the source material remaining on the site. Decontamination of the majority of the site, including most of the processing areas, was begun by Applied Health Physics in July 1974, and the site was certified as acceptable for release for unrestricted use in June 1975. Additional surveys and decontamination were performed by Radiation Management Corporation in 1983, and by Energy Impact Associates.

III. SCOPE OF REVIEW

The review of Whittaker's application for amendment to the license included the following:

- a. A review of the licensee's application and survey results. Included in this review was data collected by Applied Health Physics, Inc., Westinghouse, and Radiation Management Corporation from 1974 through 1983.

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- b. A confirmatory survey by Oak Ridge Associated Universities Radiological Site Assessment Program (ORAU).
- c. A review of the need for additional actions at this time in light of the present status of activities and the license.
- d. Site visits on March 19-21, and June 19-20, 1984.

IV. DISCUSSION

The amendment request dated March 19, 1984, designated the areas within the Greenville site as A and B on an attached map. Region A, on the southeast side of the property adjacent to the Shenango River, contains the slag materials and will remain under the license. Region B, constituting the rest of the site, was the area which Whittaker proposed be deleted from the license. By letter dated May 20, 1985, Whittaker provided to the Nuclear Regulatory Commission (NRC) an updated survey plat of the property. On this updated plat, the area (Region B) requested for release is designated "Greenville Metals, Inc.". The area previously designated as Region A was titled "Whittaker Corp.".

The radiological condition of the property has been documented by Whittaker in letters and reports from 1975 to 1984. This information indicated that Region B had been decontaminated and met the criteria for unrestricted use. To confirm the adequacy of the decontamination performed by Whittaker, a confirmatory survey was performed by ORAU under contract to the NRC. This survey was conducted from June 11-29, 1984. A draft report dated September 1984, was reviewed and comments incorporated into the final report dated November 1984.

The criteria for release of property and materials for unrestricted use are given in two Branch Technical Positions and are attached as Annex A of this report. The first, "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated July 1982, deals with surface contamination levels. The second, "Disposal or Onsite Storage of Thorium or Uranium Wastes From Past Operations," 46 FR 52061, dated October 23, 1981, contains acceptable concentrations of radionuclides in soils. Contamination levels below these criteria are considered not to have any significance for individuals occupying the area. However, simply demonstrating that the criteria have been met is not in itself sufficient when reasonable efforts to decontaminate the area would be effective in further reducing the contamination levels, consistent with the As Low As Reasonably Achievable (ALARA) concept.

The ORAU survey resulted in findings of many isolated areas of contamination which were removed by the licensee during the survey. Most of this activity was in the form of pieces of slag, and therefore, removal from Region B to Region A was relatively straightforward. In addition to these isolated areas of activity, several areas were noted which were not immediately removed by the licensee. These areas included several pieces of nickel alloy containing thorium, slag piled in the center of the region from processes recently conducted by Air

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Products and Chemicals (AP&C), and several areas in the drainage area and in one end of the Aluminathermic Building. The location of these areas was noted in the final report prepared by ORAU.

By letters dated August 17, and October 29, 1984, the contaminated areas remaining onsite were identified to Whittaker and decontamination requested. Decontamination in the drainage area and the Aluminathermic Building was conducted by the licensee in November 1984. The slag generated by AP&C was segregated into contaminated and uncontaminated portions by a contractor of AP&C (Energy Impact Associates) during the same time period. Contaminated materials from the drainage area and Aluminathermic Building were transferred to Region A of the site, while the contaminated slag segregated by AP&C was drummed and shipped for burial at Hanford, Washington. Contaminated metal pieces were removed from the property and an investigation undertaken by NRC Region I to determine the source of the material. The results of this decontamination activity were provided to the NRC by letter dated November 27, 1984 from Whittaker. These results were confirmed by ORAU on December 6, 1984, and documented by a letter dated December 18, 1984.

A comparison of the licensee's data and the confirmatory survey results with the applicable criteria for unrestricted release indicates that the contamination levels and direct radiation levels found in the buildings on the site are considerably below the acceptable level. In several locations, elevated direct radiation was observed in conjunction with stores of materials, such as firebrick, which naturally contains radioactive materials. These materials are common in industry and the radiation levels do not pose any significant hazard to individuals. The soil concentrations observed in surface and subsurface samples are also well below the levels considered acceptable for unrestricted use (10 picocuries per gram for total thorium). Areas which exceeded these criteria at the time of the initial survey have since been further decontaminated as described above. The staff concludes, on the basis of its review of the data, that the licensee has made an appropriate effort to decontaminate the property and that the site (Region B) meets the established criteria for release for unrestricted use. The staff, therefore, recommends that the license be amended to remove Region B. Accordingly, Condition 10 of SMA-1018 shall read as follows:

10. Authorized Place of Use: The site in Greenville, Pennsylvania, designated as "Whittaker Corp.," shown by the plat submitted by letter dated May 20, 1985.

The present license, SMA-1018, is effective under the timely renewal provisions of 10 CFR 40.43, with the application for renewal dated November 29, 1974. On November 11, 1975, Amendment No. 2 was issued which authorized decontamination and storage of source material, but not final disposition. Since the time of the renewal application, considerable effort has been expended by Whittaker in determining the characteristics of the waste slag material and in decontamination of the property. The licensee has not presented a plan which outlines the alternatives for disposition of the slag material, analyzes the options available, and proposes a method for final disposition. The staff, therefore, recommends that

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the following condition be added to the license to initiate consideration of alternatives for final disposition of the waste slag and provide the environmental information necessary for an environmental assessment.

11. Within 6 months of the issuance of this amendment, the licensee shall prepare and submit to the Uranium Fuel Licensing Branch a plan for the ultimate disposition of the waste slag materials presently located on the site. This plan shall investigate alternatives for waste disposal including, but not limited to, stabilization in place, removal and disposal at other sites within the State of Pennsylvania, and removal and disposal at sites outside of the State of Pennsylvania. The submittal shall identify and discuss the factors that were considered in the design of the plan, including environmental impacts, in sufficient detail to enable an independent review.

To provide an appropriate time period for the submittal of environmental information and preparation and review of plans for disposition of the slag, the staff recommends that the expiration date of the license be revised to provide a three-year time period from the issuance of this amendment. During this time, it is expected that plans will be made and the disposition of the waste determined. The staff, therefore, recommends that Condition 4 of SMA-1018 be revised to July 31, 1988.

Whittaker has been monitoring the condition of the Greenville site monthly for a number of years. This monitoring has usually taken the form of a visual inspection of the area to determine if conditions have been altered. While such an inspection is important, radiological parameters such as exposure rate and groundwater activity should also be monitored to ensure that the radiological as well as physical parameters of the waste storage area remain unchanged. Evidence presented by the licensee indicates that the waste slag is an insoluble, rock material which is not susceptible to leaching or erosion. Under these conditions, a quarterly monitoring program is appropriate to verify the condition of the site. The staff, therefore, recommends that the following condition be incorporated into the license to provide for a site inspection program for both radiological and physical parameters.

12. The licensee shall conduct, on at least a quarterly basis, a monitoring program that consists of the following:
 - a. Visual inspection of the site for erosion.
 - b. Sampling of groundwater from monitoring wells present in the slag area and analysis for gross alpha and beta activity.
 - c. Sampling of the Shenango River (surface and sediment) at points upstream, adjacent to, and downstream from the site, with analysis for gross alpha and beta activity.
 - d. Measurement of direct radiation levels at 1 meter above the ground at all boundaries of the site.

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Although previously discussed with the licensee, the submittals from Whittaker dated March 19, 1984, and May 20, 1985, do not address the control of access to the property. At the present time, the entire site is surrounded by a fence, with a guard posted at the entrance. However, upon release of Region B, the new licensed site will constitute only a part of the original area, and there are currently no provisions which would prevent the movement of materials and personnel to and from the licensed area. This situation could result in the recontamination of the area which has been decontaminated and released for unrestricted use. The staff, therefore, recommends that the following condition be incorporated into the license to provide access control for the licensed site.

13. The licensee shall restrict access to the site by a means, such as a fence, which will prevent the unauthorized movement of personnel and materials to and from the licensed area.

This amendment request and revised license have been discussed with J. McFadden, NRC Region I, and he feels that the license as proposed adequately addresses all of Region I's concerns.

V. CONCLUSIONS AND RECOMMENDATIONS

Upon completion of a review of the licensee's application for amendment and supporting survey data, and confirmation of the radiological data by ORAU, the staff has concluded that the licensee has made an appropriate effort to decontaminate the property and that Region B of the site meets the established criteria for release for unrestricted use.

The staff, therefore, recommends that the license be amended and revised in its entirety to release Region B for unrestricted use, subject to the following conditions.

10. Authorized Place of Use: The site in Greenville, Pennsylvania, designated as "Whittaker Corp.," shown by the plat submitted by letter dated May 20, 1985.
11. Within 6 months of the issuance of this amendment, the licensee shall prepare and submit to the Uranium Fuel Licensing Branch a plan for the ultimate disposition of the waste slag materials presently located on the site. This plan shall investigate alternatives for waste disposal including, but not limited to, stabilization in place, removal and disposal at other sites within the State of Pennsylvania, and removal and disposal at sites outside of the State of Pennsylvania. The submittal shall identify and discuss the factors that were considered in the design of the plan, including environmental impacts, in sufficient detail to enable an independent review.
12. The licensee shall conduct, on at least a quarterly basis, a monitoring program that consists of the following.
 - a. Visual inspection of the site for erosion.

- b. Sampling of groundwater from monitoring wells present in the slag area and analysis for gross alpha and beta activity.
 - c. Sampling of the Shenango River (surface and sediment) at points upstream, adjacent to, and downstream from the site, with analysis for gross alpha and beta activity.
 - d. Measurement of direct radiation levels at 1 meter above the ground at all boundaries of the site.
13. The licensee shall restrict access to the site by a means, such as a fence, which will prevent the unauthorized movement of personnel and materials to and from the licensed area.

~~DONALD A. COOL~~

Donald A. Cool, Ph.D.
 Uranium Process Licensing Section
 Uranium Fuel Licensing Branch
 Division of Fuel Cycle and
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Original Signed By:
 W. T. Crow

Approved by:

W. T. Crow, Section Leader

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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 and Material Safety
Washington, D.C. 20555

July 1982

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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 Fuel Cycle and Material Safety, USNRC, Washington, D.C. 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-232, 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.

The Assistant Secretary finds that good cause exists for not publishing the supplement to the Puerto Rico State Plan as a proposed change and making the Regional Administrator's approval effective upon publication for the following reasons:

1. The standards are identical to the Federal standards which were promulgated in accordance with Federal law meeting requirements for public participation.

2. The standards were adopted in accordance with the procedural requirement of State Law and further participation would be unnecessary.

The decision is effective October 22, 1981.

(Sec. 15 Pub. L. 91-398, 84 Stat. 1608 (29 U.S.C. 607))

Signed at New York City, New York, this 15th day of June 1981.

Roger A. Clark,

Regional Administrator.

(FR Doc. 83-10743 Filed 10-19-83; 843 AM)
BILLING CODE 4810-26-M

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Reactor Safeguards, Subcommittee on Callaway Plant Location Change

The ACRS Subcommittee on Callaway Plant will hold a meeting on November 4 and 5, 1981, at the HOLIDAY INN-WEST, 1900 I-70 Drive Southwest, Columbia, MO instead of the Hilton Inn.

Notice of this meeting was published in the Federal Register on October 19, 1981 (46 FR 51329), and all other items remain the same except for the location change as indicated above.

Dated: October 19, 1981.

John C. Hoyle,

Advisory Committee, Management Officer,

(FR Doc. 83-10743 Filed 10-19-83; 843 AM)
BILLING CODE 7540-01-M

Disposal or Onsite Storage of Thorium or Uranium Wastes From Past Operations

AGENCY: Nuclear Regulatory Commission (NRC).

ACTION: Discussion of options for NRC approval of applications for disposal or onsite storage of thorium or uranium wastes; interim use and public comment.

SUMMARY: This notice discusses five options for NRC approval of disposal or onsite storage of thorium or uranium wastes from past nuclear operations. The options are contained in a Branch

Technical Position for administration by the Uranium Fuel Licensing Branch, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards.

DATES: Comments on the options for disposal or onsite storage of thorium or uranium are encouraged. Such comments will be considered in any subsequent revision of the Branch Technical Position. Comments are due December 22, 1981.

Note.—Comments received after the expiration date will be considered if it is practical to do so, but assurance of consideration cannot be given except as to comments filed on or before that date.

FOR FURTHER INFORMATION CONTACT: Ralph G. Page, Chief, Uranium Fuel Licensing Branch, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, Washington, D.C. 20555, telephone 301-427-4309.

SUPPLEMENTARY INFORMATION

I. Introduction

Some of the sites formerly used for processing thorium and uranium are known today to be contaminated with residual radioactive materials. Some are currently covered by NRC licenses. Others were once licensed, but the licenses to possess and use material have expired. In many cases, the total amount of contaminated soil is large, but the activity concentrations of radioactive materials are believed sufficiently low to justify their disposal on privately owned lands or storage onsite rather than their transport to a licensed radioactive materials disposal (commercial) site. In many instances packaging and transporting these wastes to a licensed disposal site would be too costly and not justified from the standpoint of risk to the public health or cost-benefit. Furthermore, because of the total volume of these wastes, limited commercial waste disposal capacity, and restrictions placed on receipt of long-lived wastes at commercial sites, it is not presently feasible to dispose of these wastes at commercial low-level waste disposal sites.

Effective January 28, 1981, NRC regulations in 10 CFR 20, "Standards for Protection Against Radiation", were amended (45 FR 71761-71762) to delete § 20.204 which provided general authority for disposal of radioactive materials by burial in soil. Under the amended regulations, licensees must apply for and obtain specific NRC approval to dispose of radioactive materials in this manner under the provisions of 10 CFR 20.205. A case-by-case review was believed needed to

assure that burial of radioactive wastes would not present an unreasonable health hazard at some future date.

The deleted provisions of § 20.204 previously permitted burial of up to 100 milligrams of thorium or natural uranium at any one time, with a yearly limitation of 12 burials for each type of material at each site. The only disposal standards specified were (1) burial at a minimum depth of four feet, and (2) successive burials separated by at least six feet. Thus a total of 12 curies of these materials were permitted to be disposed of each year by burial in a 12 foot by 18 foot or larger plot of ground.

Under the amended regulations, it is incumbent on an applicant who wants to bury radioactive wastes to demonstrate that local land burial is preferable to other disposal alternatives. The evaluation of the application takes into account the following information: Types and quantities of material to be buried.

Packaging of waste

Burial location

Characteristics of burial site

Depth of burial

Access restrictions to disposal site

Radiation safety procedures during disposal operations

Recordkeeping

Local burial restrictions, if any

For applications involving disposal of soils contaminated with low level concentrations of thorium and uranium (other than concentrations not exceeding EPA cleanup standards), the matters of principal importance are: Concentrations of thorium and uranium (either in secular equilibrium with their daughters or without daughters present).

Volume of contaminated soil

Costs for offsite and onsite disposal

Availability of offsite burial space

Disposal site characteristics

Depth of burial and accessibility of buried wastes

State and local government views

II. Branch Technical Position

There are five acceptable options for disposal or onsite storage of thorium and uranium contaminated wastes. Applications for disposal or storage will be approved if the guidelines discussed under any option are met. Applications for other methods of disposal may be submitted and these will be evaluated on their own merits.

1. Disposal of acceptably low concentrations (which meet EPA cleanup standards) of natural thorium with daughters in secular equilibrium, depleted or enriched uranium, and

uranium ore with daughters in secular equilibrium with no restriction on burial method.

Under this option, the concentrations of natural thorium and depleted or enriched uranium wastes are set sufficiently low that no member of the public is expected to receive a radiation dose commensurate from the disposed materials in excess of 1 millirem per year to the lung or 5 millirems per year to the bone from inhalation and ingestion, under any foreseeable use of the material or property. These radiation dose guidelines were recommended by the Environmental Protection Agency (EPA) for protection against transuranium elements present in the environment as a result of unplanned contamination (42 FR 60956-60959). In addition, the concentrations are sufficiently low so that no individual may receive an external dose in excess of 10 microrem per hour above background. This is compatible with guidelines EPA proposed as cleanup standards for inactive uranium processing sites (45 FR 2556-2563).

For natural uranium ores having daughters in equilibrium, the concentration limit is equal to that set by the EPA (45 FR 2556-2563) for radium-226 (i.e., 5 pCi/gm including background) and its decay products.

The concentrations specified below are believed appropriate to apply. It is expected, however, that currently licensed operations will be conducted in such a manner as to minimize the possibility of soil contamination and when such occurs the contamination will be reduced to levels as low as reasonably achievable.

Kind of material	Concentration pCi/gm
Natural thorium (Th-232 plus Th-232's daughters are present and in equilibrium)	10
Depleted uranium	35
Enriched uranium	30
Natural uranium ores (U-238 plus U-238's daughters are present and in equilibrium)	10

The analysis upon which the Branch Technical Position is based is available for inspection at the Commission's Public Document Room at 1717 H St., N.W., Washington, D.C.

The concentrations specified under this option may be compared with naturally occurring thorium and uranium ore concentrations of 1.3 pCi/gm in igneous rock and uranium concentrations of 120 pCi/gm in Florida phosphate rock and 50-60 pCi/gm in Tennessee bituminous shale. Concentration limits for natural thorium

and natural uranium ore wastes containing daughters not at secular equilibrium can be calculated on a case-by-case basis using the applicable isotopic activities data.

2. Disposal of certain low concentrations of natural thorium with daughters in secular equilibrium and depleted or enriched uranium with no daughters present when buried under prescribed conditions with no subsequent land use restrictions and no continuing NRC licensing of the material.

Under this option the concentrations of natural thorium and uranium are set sufficiently low so that no member of the public will receive a radiation dose exceeding those discussed under option 1 when the wastes are buried in an approved manner absent intrusion into the burial grounds. This option will require establishing prescribed conditions for disposal in the license, such as depth and distribution of material to minimize the likelihood of intrusion. Burial will be permitted only if it can be demonstrated that the buried materials will be stabilized in place and not be transported away from the site.

Acceptability of the site for disposal will depend on topographical, geological, hydrological and meteorological characteristics of the site. At a minimum, burial depth will be at least four feet below the surface. In the event that there is an intrusion into the burial ground, no member of the public will likely receive a dose in excess of 170 millirems to a critical organ. An average dose not exceeding 170 millirems to the whole body for all members of a general population is recommended by international and national radiation expert bodies to limit population doses. With respect to limiting doses to individual body organs, the concentrations are sufficiently low that no individual will receive a dose in excess of 170 millirems to any organ from exposure to natural thorium, depleted uranium or enriched uranium.

The average activity concentration of radioactive material that may be buried under this option in the case of natural thorium (Th-232 plus Th-232's daughters) is 50 pCi/gm if all daughters are present and in equilibrium; for enriched uranium it is 100 pCi/gm if the uranium is soluble and 250 pCi/gm if insoluble; for depleted uranium it is 100 pCi/gm if the uranium is soluble and 300 pCi/gm if insoluble. Natural uranium ores containing radium-226 and its daughters are not included under this option, because of possible radon-222 emanations and resultant higher than acceptable exposure of individuals in private residences if houses were built over buried materials.

3. Disposal of low concentrations of natural uranium ores, with all daughters in equilibrium, when buried under prescribed conditions in areas zoned for industrial use and the recorded title documents are amended to state that the specified land contains buried radioactive materials and are conditioned in a manner acceptable under state law to impose a covenant running with the land that the specified land may not be used for residential building. (There is no continuing NRC licensing of the material.)

Disposal will be approved if the burial criteria outlined in option 2 (including burial at a minimum of 4 feet) are met. Depending upon local soil characteristics, burials at depths greater than 4 feet may be required in order to assure protection against radon-222 releases (daughter in decay chain of uranium-238 and uranium-234). It is necessary that the recorded title documents be amended to state in the permanent land records that no residential building should be permitted over specified areas of land where natural uranium ore residues (U-238 plus U-234) in concentrations exceeding 10 pCi/gm has been buried. Industrial building is acceptable so long as the concentration of buried material does not exceed 40 pCi/gm of uranium (i.e., Ra-226 shall not exceed 20 pCi/gm).

4. Disposal of land-use-limited concentrations of natural thorium or natural uranium with daughters in secular equilibrium and depleted or enriched uranium without daughters present when buried under prescribed conditions in areas zoned for industrial use and the recorded title documents are amended to state that the land contains buried radioactive material and are conditioned in a manner acceptable under state law to impose a covenant running with land that the land (1) may not be excavated below stated depths in specified areas of land unless cleared by appropriate health authorities, (2) may not be used for residential or industrial structures over specified areas where radioactive materials in concentrations higher than specified in options 2 and 3 are buried, and (3) may not be used for agricultural purposes in the specified areas. (There is no continuing NRC licensing of the disposal site.)

Under this option, conditions of burial will be such that no member of the public will receive radiation doses in excess of those discussed under option 1 absent intrusion into the burial ground. Criteria for disposal under these conditions is predicated upon the assumption that intentional intrusion is less likely to occur if a warning is given

in land documents of record not to excavate below burial depths in specified areas of land without clearance by health authorities not to construct residential or industrial building on the site and not to use specified areas of land for agricultural purposes. Because of this, we believe it appropriate to apply a maximum critical organ exposure limit of 500 millirems per year to thorium and uranium buried under this restriction instead of 170 millirems as used in options 2 and 3. In addition, any exposure to such materials is likely to be more transient than assumed (essentially continual exposure) under these options. These two factors combine to increase the activity concentration limits calculated under option 2 by about 10. Thus, the average concentration that may be buried under this option for thorium (T_{232} plus T_{230}) is 500 pCi/gm if all daughters are present and in equilibrium for enriched uranium it is 1000 pCi/gm if the uranium is soluble and 2500 pCi/gm if insoluble and for depleted uranium it is 1000 pCi/gm if the uranium is soluble and 3000 pCi/gm if insoluble.

With respect to natural uranium with daughters present and in equilibrium, the concentration that may be buried under this option is 200 pCi/gm of U_{238} plus U_{234} plus 100 pCi/gm Th_{232} . This concentration is based on a limited exposure of 1.4 hours per day to limit the radon dose to less than 0.5 working level month (WLM) which is equivalent to continuous exposure to 0.02 working level (WL). Depending upon local soil characteristics, burial at depths greater than 4 feet may be required.

SUMMARY OF MAXIMUM CONCENTRATIONS PERMITTED UNDER DISPOSAL OPTIONS

Kind of Material	Disposal Options			
	1	2	3	4
Enriched Uranium (U_{235} + U_{238}) with daughters present and in equilibrium	10	50		500
Enriched Uranium (U_{235} + U_{238}) with daughters present and in equilibrium	10		50	500
Depleted Uranium	25	100		1,000
Thorium	25	200		2,500
Enriched Uranium	30	100		1,000
Thorium	30	250		2,500

1. Based on EPA radon standard.
2. Concentration limit on thorium radon dose is 170 millirems.
3. Concentration limit on thorium radon dose is 500 millirems.
4. Concentration limit on thorium radon dose is 500 millirems.
5. Concentration limit on thorium radon dose is 500 millirems.

3. Storage of licensed concentrations of thorium and uranium onsite pending

the availability of an appropriate disposal site.

When concentrations exceed those specified in option 4, long term disposal other than at a licensed disposal site will not normally be a viable option under the provisions of 10 CFR 20. In such cases, the thorium and uranium may be permitted to be stored onsite under an NRC license until a suitable method of disposal is found. License conditions will require that radiation doses not exceed those specified in 10 CFR Part 20 and be maintained as low as reasonably achievable.

Before approving an application to dispose of thorium or uranium under options 2, 3, or 4, NRC will solicit the view of appropriate State health officials within the State in which the disposal would be made.

Dated at Silver Spring, Maryland this 15th day of October, 1971.

Richard E. Cunningham,

Director, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards

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OFFICE OF PERSONNEL MANAGEMENT

Postponement of Application Deadline for Fund-Raising Privileges Among Federal Employees by Private Voluntary Organizations

Section 3.40 of the "Manual on Fund-Raising Within the Federal Service for Voluntary Health and Welfare Agencies" sets December 1 of each year as the deadline by which national voluntary agencies must submit applications for participation in the Combined Federal Campaign (CFC) to be conducted in the fall of the following year. This year's deadline is being postponed from December 1, 1971, to February 1, 1972. In June 1971, the U.S. Office of Personnel Management (OPM) announced that the eligibility criteria for participation in the 1971-72 CFC are being renewed. The deadline date is being postponed to avoid national voluntary agencies having to revise their applications to meet eligibility criteria which may be changed.

Donald J. Detrick,

Director,

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OFFICE OF THE UNITED STATES TRADE REPRESENTATIVE

Resolution of Complaint of Price-Undercutting of Subsidized Cheese Imports

On October 2, 1971, the United States Trade Representative received a letter from the Secretary of Agriculture informing him of the Secretary's finding that imported Grade A Swiss type cheese produced in Finland has been offered for sale in the United States at duty-paid wholesale prices which are five cents per pound less than the domestic wholesale market price of similar cheese produced in the United States.

In accordance with Section 701(c)(2) of the Trade Agreements Act of 1979 (the Act) (19 U.S.C. 1301 note), the Office of the United States Trade Representative notified Finland of the price undercutting determination made by the Secretary of Agriculture, requested that corrective action be taken, and asked for appropriate assurances concerning the commitments made in the Arrangement Between the United States and Finland Concerning Cheese.

On October 14, 1971, Finland notified the United States Trade Representative that measures have been taken to ensure that the duty-paid wholesale price of imported Grade A Swiss type cheese produced in Finland will not be less than the domestic wholesale market price of similar cheese produced in the United States. In addition, Finland gave assurance that it will respect the price commitments in the Arrangement. Since the above notification by Finland has occurred within the 15-day period provided in Section 701(c)(2) of the Act, the United States Trade Representative has notified the Secretary of Agriculture of his belief that no further action is required.

William E. Brock,

United States Trade Representative,

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SECURITIES AND EXCHANGE COMMISSION

(Release No. 33861; 7-6-72)

Arkansas Power & Light Co. Proposed Issuance and Sale of First Mortgage Bonds

October 12, 1971.

Arkansas Power & Light Company