RULEMAKING ISSUE

(Notation Vote)

November 25, 1985 SECY-85-373

For: The Commissioners

From: William J. Dircks
Executive Director for Operations

Subject: DENIAL OF DOE REQUEST FOR EXEMPTION TO PERMIT SALVAGING CONTAMINATED SMELTED ALLOYS

Purpose: To obtain Commission approval for denying the Department of Energy (DOE) request, and for publishing a notice withdrawing the proposed rule, published in 1980, which would have granted the request.

Category: This paper covers a minor policy matter. The Commission originally approved the proposed rule that the staff is now recommending be withdrawn.

Issue: Should the Commission issue an exemption from licensing requirements for smelted alloys containing technetium-99 and/or low-enriched uranium as residual radioactive contamination.

Alternatives:

1. Maintain the status quo by denying the DOE request for exemption. This will continue the present requirement for a specific license for technetium-99 or low-enriched uranium contained in smelted alloys, regardless of concentration levels.

2. Establish exemptions for small concentrations of technetium-99 and/or low-enriched uranium as residual contamination in smelted alloys. This would allow DOE to salvage its smelted alloys in commercial channels.

Background: Under current NRC regulations, no person may possess, use, or transfer technetium-99 or low-enriched uranium (defined in §70.51(a)(2) as that uranium whose isotope content is less than

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20 percent uranium-235 by weight) as contaminants in metals except as authorized in a specific license issued by the NRC pursuant to 10 CFR Parts 30 or 70.

The Department of Energy has completed Cascade Improvement Programs and Cascade Upgrading Programs at all three U.S. uranium enrichment plants--Oak Ridge, TN; Portsmouth, OH; and Paducah, KY--which has produced large quantities of valuable metal scrap that is slightly contaminated with uranium and technetium-99. In the early 1970s, an AEC market survey showed that no scrap dealers or processors would purchase any of the metal scrap generated by the programs if their customers would be required to hold specific licenses to possess or use technetium-99 or low-enriched uranium in recycled metal.

Sizeable quantities of enrichment plant scrap have been generated--65,000 metric tons of iron and steel; 8,400 metric tons of nickel; 3,100 metric tons of copper; and 5,000 metric tons of aluminum. If the metal scrap must be considered as radioactive waste, it will cost over $1.8 million to bury the waste in 50,000 cubic meters of space at low-level waste disposal facilities.

If the metal scrap could be converted into salable smelted alloys, it would have a total net benefit of $57.6 million (in 1981 dollars), including burial costs avoided, plus about one billion KW-hr of energy saved by recycling scrap instead of producing virgin metal.

Based on these and other factors, the Director, Division of Waste Management and Transportation, AEC, by memorandum dated February 12, 1974, (Enclosure A-1) requested the assistance of the Director, Directorate of Regulatory Standards, AEC, in establishing a de minimis quantity for enriched uranium in scrap metal. The memorandum of response, dated March 28, 1974, noted impending legislation to amend the Atomic Energy Act of 1954 to authorize AEC to exempt special nuclear material and suggested coordination so that the language of any proposed exemption would be consistent with the legislation. After further consideration and data collection, ERDA (a successor of AEC) by letter dated September 8, 1976, transmitted to NRC an environmental impact assessment in which ERDA proposed: (1) An exemption of smelted metal contaminated with uranium enriched up to 20 percent uranium-235 providing the total uranium content in the metal does not exceed 17.5 parts per million; and (2) The addition of technetium-99 at a concentration of 8.6×10^{-2} microcuries/gram (equivalent to 5 parts per million) to Column II, Schedule A, 10 CFR 30.70, "Exempt Concentrations."

Discussion:

Proposed Rule and DES

The staff proposed (SECY-80-384) and the Commission approved publication of a proposed rule, which was published in the Federal Register on October 27, 1980 (45FR70874), which would grant the AEC (now DOE) request. The public response included more than 3,700 comments overwhelmingly opposed to the proposed rule because of its potential for the introduction of radioactive material into consumer products.

There were 27 letters of comment on the Draft Environmental Statement (DES), NUREG-0518, made available with the proposed rule, including one from the Environmental Protection Agency (EPA). A copy of the EPA letter is included as Enclosure A-2. EPA rated the DES as inadequate. EPA noted that "...the analysis did not adequately consider impacts on industries, such as photographic product and radiation detection industries, whose processes, products, or services could be adversely impacted by metals contaminated by radioactive materials." A second major area of comment by EPA has to do with projected individual radiation exposures. EPA recognized the conservatism in the calculated exposure estimates, but nevertheless concluded that "...the result is individual doses from consumer products which appear high when judged by modern radiation protection philosophy." EPA noted that the individual doses incurred are below regulatory limits, but are not justified in the DES on an ALARA basis. One way to consider ALARA in this context is that resulting doses should be zero because the radioactive component of the smelted alloys does not produce a direct benefit to the people exposed as it does, for example, in the case of smoke detectors containing a radioactive element.

The staff and its contractor have tried to revise the Environmental Impact Statement to reflect consideration of the EPA and public comments. However, the broad issues of ALARA exposures of individuals and adequate consideration of industrial impacts are difficult to address. In the absence of Federal guidance on generally applicable environmental concentrations of residual radioactivity, we have been unable to develop an environmental impact statement which adequately considers the virtually infinite combination of potential pathways and mechanisms for eventual reconcentration of the radioactive contaminants or introduction of those contaminants into national and international commerce and into a variety of consumer products. The broad issues raised by EPA are compounded by the very long half-lives of the radioactive contaminants involved, necessitating projections into the future regarding marketing trends, metallurgical processes, electronic improvements, etc., which cannot even be imagined at the present time (e.g., imagine

trying to envision the widespread use of home computers 20 years ago).

EPA has raised issues which staff believes can only be resolved by setting Federal guidance through a careful deliberative process based on consultation with implementing agencies including agencies with regulatory responsibilities and those agencies which must actually perform cleanup and decontamination operations. The guidance should be general and not facility or activity related in view of the broad scope of problems and agencies involved. It should identify and address those broad principles and implementing factors which must be considered (i.e., costs, "as low as reasonably achievable" considerations, basic health and safety limits, etc.) and establish guidelines or methods and ways for the performing or regulatory agency to consider these principles and factors as it evaluates specific activities or facilities. The same issues are present in recycling and reuse of decontaminated lands, facilities, equipment, etc., associated with the decontamination and decommissioning of nuclear fuel cycle facilities. Our letter dated June 4, 1984 to EPA (Enclosure A-3) urged EPA to develop such national guidelines in a form of Federal guidance approved by the President and agreed to commit NRC resources to this end. A second letter to EPA (Enclosure A-4), requesting that EPA take the lead in establishing Federal guidance, was sent on June 20, 1985. EPA responded (Enclosure A-5) to our letter of June 20, 1985 to develop Federal guidance on residual radioactivity in a positive manner. We have been advised that EPA's residual radioactivity guidance program is still in the formative stage, but EPA plans to develop Federal guidance on a "vigorous" basis and would welcome NRC's help and participation. We plan to work with EPA with whatever resources are necessary to effect a timely resolution of this problem.

Additional Considerations

NRC already has several requests in-house related to recycle or disposal of materials slightly contaminated with radioactive material with which it will be difficult to deal without environmental guidelines from EPA, with the most difficult being the smelted alloy request. We expect additional requests in the next several years as nuclear facilities and activities are decommissioned or modified. We understand a number of European countries (e.g., France, Sweden, Germany) and the United Kingdom have recycle programs which may result in circulation of radioactively contaminated products in international commerce. More and more questions are being raised concerning the proper disposition of large quantities of materials which are slightly contaminated. For example, should slightly contaminated materials be authorized for unrestricted recycle simply because they represent some value to the owner, or should even small radiation exposures to the public be

balanced by benefit to the public? Should there be an international convention which addresses the questions associated with the export/import of materials or consumer products which contain small concentrations of radioactive materials from recycle programs?

Staff View

Until Federal guidance relative to generally applicable standards for assessing unrestricted release and potential reuse of land, facilities, equipment and materials with radioactive contamination is developed by EPA, the NRC staff does not believe that a generally acceptable environmental impact assessment concerning unrestricted release and potential reuse of smelted alloys contaminated with small quantities of very long half-life radioactive material can be prepared. Therefore, it is the view of the staff that the DOE request should be denied without prejudice (Alternative 1) and that we substantially increase our efforts to work with EPA in its development of the necessary Federal guidance. In this regard, Enclosure D is a letter from the Chairman to the Administrator, EPA, reiterating and emphasizing our earlier requests for the development by EPA of Federal guidance relative to residual radioactive contamination criteria governing the unrestricted release and potential reuse of decontaminated materials and equipment generated in conjunction with nuclear activities.

Recommendations: That the Commission:

1. Approve a letter to DOE (Enclosure B) denying DOE's request for rulemaking action without prejudice to its resubmittal once Federal guidelines have been developed and approved by the President;

2. Approve a Federal Register notice (Enclosure C) withdrawing the proposed rule which would have granted the DOE request; and

3. Approve sending a letter to EPA (Enclosure D) from the Chairman requesting EPA assistance in developing Federal guidance on environmental limits for residual radioactive contamination.

4. Note:

   a. Appropriate Congressional Committees will be informed by a letter similar to that provided by Enclosure E; and

   b. A public announcement will be issued (Enclosure F).

William J. Dircks
Executive Director for Operations

Enclosures:
A. Background correspondence
   1. AEC (DOE) request dtd 2-12-74
   2. EPA comment ltr dtd 1-26-81
   3. NRC ltr to EPA dtd 6-4-84
   4. NRC staff ltr dtd 6-20-85 to EPA
   5. EPA response to NRC dtd 7-30-85
B. Draft ltr. to DOE denying request
C. Draft Federal Register Withdrawal Notice
D. Draft ltr. from Chairman to EPA Administrator
E. Draft Congressional notification ltr.
F. Draft public announcement

Commissioners' comments or consent should be provided directly to the Office of the Secretary by c.o.b. Wednesday, December 11, 1985.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Wednesday, December 4, 1985, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

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ENCLOSURE A

ENCLOSURE A-1
DOE REQUEST

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

FEB 12 1974

Lester Rogers, Director, Directorate of Regulatory Standards

REQUEST FOR ASSISTANCE TO ESTABLISH A DE MINIMUS QUANTITY OF ENRICHED URANIUM IN 10 CFR 70

A study for the disposal of uranium contaminated ferrous scrap is being performed by OR for WMT. The quantities of ferrous scrap generated and anticipated from the cascade improvement and upgrading programs (CIP-CUP) by 1980 are approximately 34,000 tons and would be worthwhile conserving. A large part of the ferrous scrap inventory at OR contractor sites will be contaminated with uranium enriched from 0.3% up to a maximum of 6.0%. Additional quantities of ferrous and non-ferrous metals contaminated with enriched uranium can be expected to be generated AEC-wide as excess facilities are decontaminated and decommissioned.

A primary concern to the recovery of this type of scrap is the fact that in 10 CFR 70 no de minimus quantity has been established for enriched uranium. As a result, this prohibits anyone from processing unimportant or negligible amounts of special nuclear material without a license and prevents the unrestricted sale of a smelter or foundry product, regardless of the enriched uranium content. We, therefore, would appreciate your assistance in attempting to establish, by means of a proposed amendment to 10 CFR 70, a de minimus quantity for enriched uranium in scrap metal. If this can be done, it will greatly contribute to the feasibility of salvaging metals contaminated with low uranium enrichment. Mr. R. F. Barker of your staff has had discussions with WMT staff on this subject.

Enclosed for your information and use is a proposal prepared by W. E. Shaw, NLO, for a de minimus quantity of enriched uranium along with an explanation of its methods and rationale. WMT has reviewed the proposal and favors the constant U-235 method.

Preliminary discussions with RRD and NR personnel indicate that they would not be opposed to the proposed de minimus quantity concept.

F. K. Pittman, Director
Division of Waste Management
and Transportation

Enclosure
As stated

cc: J. L. Schwennesen, PMM
T. A. Nemzek, RRD
R. H. Steele, NR
J. A. Lenhard, OR
M. B. Biles, OS
J. Swinebroad, DBER

ENCLOSURE A-2
EPA COMMENT LETTER

(26)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

PROPOSED RULE PR misc notice
Neg 0518
45 FR 70877

JAN 26 1981

OFFICE OF THE ADMINISTRATOR

JAN 28 1981
Office of the Secretary
Docketing & Service
Br...

Honorable Samuel Chilk
Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Chilk:

The Environmental Protection Agency (EPA) has reviewed NUREG-0518, The Draft Environmental Statement (DES) Concerning Proposed Rulemaking Exemption from Licensing Requirements for Smelted Alloys Containing Residual Technetium-99 and Low-enriched Uranium. The enclosed specific comments and the following general comments are for your consideration.

EPA is concerned about several aspects of this DES. We do not believe that either the environmental or economic analyses and discussions support the broad applicability of the proposed rule. The only materials surveyed and well documented as to quantity and radioisotopic composition are the materials from the Cascade Improvement and Cascade Uprating Programs (CIP/CUP). The entire analysis is based on these materials, but the exemption would pertain to any smelted alloy contaminated with technetium-99 (Tc-99) or low-enriched uranium (LEU) from any source. The quantity and contamination level of other candidate scrap is admitted to be unknown. Further, there seems to be very little commercial necessity for this rule since in most fuel cycle facilities the contamination of materials by Tc-99 and LEU will be accompanied by much higher levels of activation and fission product contamination. The forthcoming studies on decommissioning of facilities should provide information on the materials available for recycle. Therefore, EPA sees no need to expand the proposed action beyond the materials to be recovered in the CIP/CUP, at least until more is known about other scrap material sources.

However, even with this narrowing of the scope of the proposed rulemaking, the analysis does not adequately consider impacts on industries, such as photographic product and radiation detection industries, whose processes, products, or services could be adversely impacted by metals contaminated by radioactive materials. There needs to be such analysis and also consideration of provisions to inform the initial buyer that the material is contaminated.

We realize that the dose analysis of the potential commercial products is conservative. However, the result is individual doses from consumer products which appear high when judged by modern radiation protection philosophy. The individual doses incurred are below regulatory limits, but are not justified in the DES on an "as low as reasonably achievable" basis.

To avoid the potential problems of industrial or consumer use we recommend that the Nuclear Regulatory Commission (NRC) give more consideration to recycle of the materials within the nuclear industry. Another alternative which analysis may show feasible is to consider commercial uses that, at least following the initial smelting, place the material in products that minimally expose individuals, e.g., battery components or rails.

In light of our review and in accordance with EPA procedures, we have rated the statement Category 3 (Inadequate). If you or your staff have any questions concerning our rating or comments, please do not hesitate to call on us.

Sincerely yours,

William N. Hedeman, Jr.
Director
Office of Environmental Review

Enclosure

U.S. ENVIRONMENTAL PROTECTION AGENCY
SPECIFIC COMMENTS ON NUREG-0518
THE DRAFT ENVIRONMENTAL STATEMENT CONCERNING
PROPOSED RULEMAKING EXEMPTION FROM LICENSING REQUIREMENTS
FOR SMELTED ALLOYS CONTAINING RESIDUAL TECHNETIUM-99
AND LOW-ENRICHED URANIUM

The comments are listed below corresponding to the pages of the draft environmental statement where the text to which they refer is located.

Technical comments

1. Page 2-10, Table 2.6 and Page 2-13, Tables 2.9 and 2.10: Portions of these tables are not internally consistent, viz.:

Table 2.6: For aluminum, how can the average uranium content be 200 parts per million (ppm) if the highest uranium content is 100 ppm?

Table 2.9: If the input into the furnace is 5,332 grams how can the output be 5,703 grams, particularly with a recovery rate of 99.4%?

Table 2.10: Similar to the problem in Table 2.6, how can the average uranium content in the slag be 8,480 ppm if the highest content is 2,350 ppm?

2. Page 4-1, second paragraph: It is understood that complete determinations of isotopic concentrations are not frequently made for scrap metals; however, there should be some regulatory mechanism so that at least elemental, if not isotopic, determinations for uranium and technetium will be made frequently enough, as determined by the NRC, to maintain a product which meets the requirements.

3. Page 4-15, first paragraph and Page 4-20, Table 4.12: While most of the doses listed for both individuals and populations are indeed extremely low, there are individual cases which are not in keeping with the "as low as reasonably achievable" philosophy. The worst cases shown are for copper bracelets (300 mrem/year) and bone prostheses (200 mrem/year). These doses are relatively high in themselves no matter how limited the areas of exposure.

Furthermore, the items named above, together with desks and belt buckles, are consumer products as defined in NUREG/CR-1775, the Nuclear Regulatory Commission's (NRC) Environmental Assessment of Consumer Products Containing Radioactive Material. EPA believes that recycled alloys should not be used in consumer products at least until after the first cycle of smelting and reuse. The following is a quote from the Summary section of Chapter 8 in NUREG/CR-1775:

> In the case of both decorative glassware and glazed ceramic products, some exposure of the public to ionizing radiation will result. In some instances, these exposures may be significant. The currently promulgated philosophy is that all exposures should be kept to levels which are "as low as reasonably achievable" (ALARA), and that no exposures should be incurred without a commensurate benefit (NCRP 75). Since the use of uranium in these products results in little or no benefit in terms of the health or well-being of the public, and since suitable substitutes for uranium exist for this application, it can be concluded that the exposures incurred as a result of product distribution and use, while low in most cases, are unnecessary and unwarranted.

Through analogy with the proposed rulemaking, this statement presents a strong and logical argument by NRC itself to not allow the use of these recovered alloys in consumer products.

4. Page 4-20, Table 4.12: The individual doses in the table do not in all cases correspond to the text. It would also be helpful if relative contributions of the beta and gamma doses were listed.

5. Page 4-22, Table 4.14: The health effects conversion factors in the referenced document were modified in the final version of the report. Table E.3.1 in DOE/EIS-00456F now shows ranges based on a number of estimates. These should be incorporated in the final ES.

6. Page 4-27, Section 4.4.2: We believe that this section does not adequately assess the impacts on industries, such as photographic products and radiation detection industries, whose processes, products, or services could be adversely affected by metals contaminated by radioactive material. More industries should be examined as to their sensitivity and the extent of the impact upon them.

The DES should consider a provision to inform at least the initial buyer that the material is contaminated. This is emphasized by looking at Table A.4 where uranium background concentrations in various materials are from 500 - 2000 times lower than the proposed limit.

7. Pages 4-31 and 7-1: It is implied on these pages that the energy for operating the smelting operations will come from the combustion of fossil fuels, most likely coal. However, there is no analysis presented showing the health effects which may be caused by the air and water pollution from the combustion operation. These effects could overshadow the radiological impacts of the proposed action. The combustion operation will almost certainly have a greater impact on the local health and environment than will the radiation involved. The FES should discuss those impacts.

8. Page 5-1, Section 5.1: What is the meaning of the phrase, "...150 micrograms/liter, would have in all probability no toxic effect on the recipient."? More quantitative statements than "in all probability" must be made to give meaning to an analysis. Such a statement communicates only minimal information with much left to the interpretation of the reader. This type of statement is very weak support for the justification of an action. EPA urges NRC to better quantify this statement and any similar statements.

9. Page 6-1, Section 6-1: There are several alternatives which should be evaluated by NRC. One alternative which should be explored by NRC would be to control the initial release of smelted material to nonconsumer product industries and then allow unrestricted use of the material after that. This may further assure very low levels of contamination in recycled metals.

Another recommendation is to give more consideration to recycling materials within the nuclear industry where minor exposures such as those addressed here would probably be acceptable.

A third alternative which was inadequately addressed in the DES is the recycle of the DOE materials back to DOE facilities. The supporting documentation (Reference 3 of Section 6, Letter from R.J. Hart, USERDA, to R.G. Romatowski, USERDA) concerning the Reduction Pilot Plant (a nickel powder plant) in Huntington, West Virginia, was not support for any decision regarding the economic feasibility of recycle of the materials to DOE uses. A more complete evaluation is needed to realistically evaluate this option.

10. Page 6-8: The basis for the uranium limit is the definition of source material and the definition of low-enriched uranium. While this lends consistency to NRC regulations, it is not based on an as low as reasonably achievable approach. This is why we stress the need for more careful consideration of industrial and consumer uses of the material, the long term impacts, and serious consideration of alternatives.

11. Page C-2: The organ dose conversion factors given in the tables were superceded in June 1978 by NUREG/CR-0150. The more recent factors should be used. The external dose conversion factors should be checked against NUREG/CR-0494.

Economic Analysis

1. Page 1-3, Section 1.4.b, 1st paragraph: In the sentence "All net benefits have discounted the burial of the scrap," the word "discounted" should be omitted and the sentence reworded to convey the notion that the avoidance of the scrap burial cost has been considered in the calculation of the net benefit. The word "discounted" is so closely aligned with its "present value" connotation that some readers may not understand the intended meaning.

2. Pages 3-1 , Section 3.1: In the industry production and consumption profiles, data on imports, exports, and inventories (if applicable) should be presented to give a comprehensive distribution of the commodity. This information is particularly relevant in the case of nickel since there is a heavy reliance on imports.

3. Page 3-4, Section 3.1.2.4: What is the relationship of the price of imported nickel and the price for domestic nickel? Are the price data in Table 3.2 an average of the two? The apparent decrease in the forecasted real price of nickel (Table 3.3) from the historical price trend (Table 3.2) needs to be explained. In light of the near-monopoly conditions existing in this industry, one would intuitively not expect a decrease.

4. Page 3-5, Section 3.1.5: The conclusion that the sale of contaminated nickel will not have a significant impact on nickel prices needs to be studied in more depth. Although the contaminated nickel represents only 3 percent of consumption, it represents about one-third of the total nickel recovered from old scrap (Table 3.1). The relative economics of the imported nickel market, the domestic primary market, and the domestic secondary market (recovered from old scrap) needs to be investigated before a conclusion can be reached.

5. Page 4-28, Section 4.5.1: As shown, there is no basis presented in which to relate the estimated increase in income in the Oak Ridge area due to the proposed regulation. An economic measure for Oak Ridge should be presented so that the relative impact of the incremental income effect can be determined.

6. Page 7-2: Section 7.4 should be retitled "Expected Economic Benefits and Costs" since there is no discussion of environmental or health benefits or costs.

7. Page 7-6, Table 7.4: Forecasted price for 1979 should be $2590 instead of $2500, according to Table 3.6.

Page 7-6, Table 7.5: Units in the column heading "Quantity of Copper" need to be corrected as well as the reference (*) for the first footnote.

8. Page 7-12, Section 7.4.4.: Revenues and costs incurred by commercial smelter operators are omitted since they are not borne by the Government. This assumption is inconsistent with the approach followed in the case of the Oak Ridge smelter where the net community impacts, i.e., incremental income, were included in the calculation of the net benefit. Community impacts are also not benefits to the Federal Government. EPA believes that both the costs and revenues borne by the commercial operators should be included in the calculation of the net benefit and that the analysis should not be restricted to only Federal Government costs and benefits.

9. Page 7.13, Section 7.4.5: We see no reason why the community impacts, i.e., incremental income, should be included in the net benefit calculation for the Oak Ridge smelter but excluded for the Fernald smelter. Just because, in the case of Fernald, the workers will come from Cincinnati and will have a minor impact on the Cincinnati economy does not mean that extra income will not be generated by the construction of this facility. The analysis needs to be consistent.

ENCLOSURE A-3
NRC LTR TO EPA

JUN 4 1984

Mr. Joseph A. Cannon
Assistant Administrator for Air and Radiation
U. S. Environment Protection Agency
Washington, DC 20460

Dear Mr. Cannon:

This is to express my appreciation for the opportunity to participate in your April 30, 1984 meeting on decommissioning and to confirm the NRC views expressed during the meeting.

The NRC considers decommissioning guidelines to be urgently needed and is prepared to commit resources towards their development. Therefore, we will be pleased to participate in the interagency work group you are forming. Dr. William A. Mills is designated as the NRC representative to the interagency group and Mr. Don F. Harmon is designated alternate. Mr. Harmon ((301) 427-4566) will serve as the NRC contact for scheduling meetings and exchanging information, etc.

As noted during the meeting, guidelines are needed for the unrestricted release and potential reuse of an extremely wide range of decontaminated lands, facilities, equipment, etc. For example, NRC's licensed facilities and activities include, among other things, commercial nuclear power plants, uranium fuel manufacturing facilities, uranium mills, radiopharmaceutical manufacturers, nuclear medicine applications, and broad research and development facilities. Also, there are many Federal and State agencies involved. Federal agencies include, among others, DOE, DOD, HUD, NASA, HHS, and NASA. State agencies include 27 "Agreement States" which are responsible for licensing nuclear materials and activities within their states under Section 274 of the Atomic Energy Act.

In view of the broad range of facilities and agencies involved, we believe that the development of EPA guidance and guidelines should be a careful deliberative process based on consultation with implementing agencies, including agencies with regulatory responsibilities and those agencies which must actually perform cleanup and decontamination operations. This broad range of facilities and agencies and the need for a careful, deliberative development process were the major reasons for strongly encouraging, in my letter of April 19, 1984, and at your meeting, that EPA guidance be in the form of Federal Guidance approved by the President. Standards by EPA under the authority of the Atomic Energy Act and Reorganization Plan No. 3 of 1970, to establish "generally applicable environmental standards," would not provide the broad, consistent, and deliberative coverage necessary since some radioactive materials, e.g., radium and accelerator produced radioactive materials, are not included under the Atomic Energy Act.

The guidance should be general and not facility or activity specific in view of this broad scope of problems. It should identify and address those broad

principles and implementing factors which must be considered (i.e., costs, "as low as reasonably achievable" considerations, basic health and safety limits, etc.) and establish guidelines or methods and ways for the performing or regulatory agency to consider such principles and factors as it evaluates specific activities or facilities. This does not necessarily mean, however, that general guidance cannot have quantitative elements. In particular, we believe that quantitative guidance may be practical and appropriate for some specific types of sources, such as contaminated materials from which the significant exposure is external to the body and results from gamma ray emissions.

Finally, we fully agree that some form of public participation in the development of recommendations is necessary. I suggest that EPA call for an early initial meeting of the interagency work group to address this and other issues and to develop the necessary plans for developing Federal guidelines for cleanup, decontamination, and decommissioning of radioactive sites and materials.

Sincerely,

Original signed by:
ROBERT B. MINOGUE

Robert B. Minogue, Director
Office of Nuclear Regulatory Research

ENCLOSURE A-4
RECENT LTR TO EPA

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUN 20 1985

Mr. Charles L. Elkins
Acting Assistant Administrator
for Air and Water
U.S. Environmental Protection Agency
Washington, DC 20460

Dear Mr. Elkins:

In a letter to the Environmental Protection Agency dated June 4, 1984 (copy enclosed), I pointed out our urgent need for guidelines governing the unrestricted release and potential reuse of a wide range of decontaminated lands, facilities, equipment, and materials. The purpose of this letter is to reiterate this need and again request expeditious action by EPA for the development of such guidelines.

Since sending that letter, several situations have developed within the Nuclear Regulatory Commission (NRC) whereby our need for guidelines has significantly increased. For example, we are finalizing our staff recommendation to the Commission on a Department of Energy (DOE) request for authorization to release for unrestricted use slightly contaminated scrap metal from their gaseous diffusion plant expansion program. Another example is a petition for rulemaking we received from the Edison Electric Institute and the Utility Nuclear Waste Management Group to issue a regulation which would allow the unrestricted disposal of low level radioactively contaminated waste oil from nuclear power plants. Another request was received to develop a position and related guidance to define the lower threshold of licensed radioactive material contamination of solid materials which require disposition as licensed materials. Along these same lines, the University of Utah has petitioned the NRC to set exempt levels of short lived radionuclides for disposal in sanitary landfills. Finally, we need the subject guidelines to develop residual radioactive contamination limits for decommissioning nuclear facilities.

A major consideration in developing our response to the DOE request is our inability to develop an environmental impact statement which will be accepted as adequately considering the virtually infinite combination of potential pathways and mechanisms for eventual reconcentration through industrial processes or marketing alternatives of the radioactive contaminants or introduction of those contaminants into national and international commerce and into a variety of consumer products. This inability arises from the lack of generally accepted national guidelines defining acceptable generally applicable environmental concentrations of residual radioactivity and which could be used to define a reasonable scope of environmental impact analysis of

proposed activities. The development of such guidelines we believe is within the mission of EPA. Also, the large number of adverse public and other comments responding to a Notice of Proposed Rulemaking and a corresponding Draft Environmental Statement relative to the DOE request were based on the "unrestricted" nature of the proposed releases which could eventually result in contamination of consumer products, and on the very long lifetimes of the radioactive contaminants. Among other things, this raises the question of how far into the future the EIS must address potential changes in technology and uses of materials in question in types of consumer products which cannot even be imagined at the present time (e.g., imagine trying to envision the widespread use of home computers 20 years ago).

We are concerned that the DOE request, and the others identified above, are only a few of many similar requests that we can expect in the next several years as nuclear facilities and activities are decommissioned or modified. More and more questions are being raised concerning the proper disposition of large quantities of materials which are slightly contaminated. For example, should slightly contaminated materials be authorized for unrestricted recycle simply because they represent some value to the owner, or should even small radiation exposures to the public be balanced by benefit to the public? Should there be an international convention which addresses the questions associated with the export/import of materials or consumer products which contain small concentrations of radioactive materials from recycle programs?

My previous letter to EPA noted that, in view of the broad range of facilities and agencies involved, the development of EPA guidance and guidelines should be a careful deliberative process based on consultation with implementing agencies, including agencies with regulatory responsibilities and those agencies which must actually perform cleanup and decontamination operations. This broad range of facilities and agencies and the need for a careful, deliberative development process were the major reasons for strongly encouraging that EPA develop its guidance in the form of Federal Guidance approved by the President. The letter further noted that the guidance should be general and not facility or activity specific in view of this broad scope of problems. The guidelines should identify and address those broad principles and implementing factors which must be considered (i.e., costs, "as low as reasonably achievable" considerations, basic health and safety limits, etc.) and establish guidelines or methods and ways for the performing or regulatory agency to consider such principles and factors as it evaluates specific activities or facilities.

I would appreciate your support in working towards an expeditious solution to this urgent problem. In this regard, I have asked Mr. Karl Goller of my staff to contact your Mr. Richard Guimond to arrange for an early meeting of our

staffs to explore ways of mutual cooperation for working to solve this problem. Your personal attention and support would be a major factor in the success of this effort.

Sincerely,

Robert B. Minogue, Director
Office of Nuclear Regulatory Research

ENCLOSURE A-5

EPA RESPONSE TO NRC

JUL 30 1985

Robert B. Minogue, Director
Office of Nuclear Regulatory Research
Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Minogue:

This is in response to your letter of June 20, 1985, urging the Environmental Protection Agency (EPA) to expedite the development of guidelines for acceptable levels of residual radioactivity on lands, facilities, equipment, and materials to be released for unrestricted public use. You further recommended that EPA develop such guidelines in close consultation with other agencies having regulatory or operational responsibilities for residual radioactivity.

Your assessment of the need for residual radioactivity criteria and your approach to meeting those needs are consistent with our own views, and very welcome. On April 30, 1984, Mr. Joseph A. Cannon, my predecessor, met with you and officials from other interested agencies to emphasize EPA's intention to work closely with them to develop residual radioactivity criteria and to solicit their cooperation. Since then our staffs have had some useful preliminary exchanges, but EPA's need to divert resources to comply with court-ordered schedules on other work has produced less progress on residual radioactivity criteria than we had hoped for.

Mr. Guimond and Mr. Goller have now met as you suggested, and I am gratified to hear they had a most productive exchange of views. As Mr. Guimond emphasized, our residual radioactivity criteria program is still in a formative stage. We are eager to apply available resources to the most important issues, in a manner that promises to yield the wisest and most socially useful results. We believe that working closely with the Nuclear Regulatory Commission (NRC) and other interested agencies and the States is the best approach, and that Federal guidance is an appropriate format for addressing many, if not all, of the most pressing issues. Mr. Guimond referred to an internal EPA review process we expect to complete in August that I anticipate will endorse our vigorous pursuit of this approach.

I would like to restate the needs you referred to in your letter - and which our staffs have since discussed - and briefly indicate how we may change our program as a result.

1. Criteria for release of land and buildings for use without restrictions based on residual radioactivity:

This has been the first objective of our residual radioactivity project. Your office (through Dr. William A. Mills, now replaced by Mr. Robert E. Alexander) has been our primary NRC contact on this work. We expect to continue this emphasis with increased resources. We expect to issue an ANPR shortly, and reconvene the interagency group in early fall.

2. Criteria for recycling materials and equipment without restrictions based on residual radioactivity:

As your letter noted, recycling issues are complex and difficult to analyze and resolve. Our current resources are inadequate to explore these issues in depth. We have planned to work on this after we resolve the more tractable residual radioactivity issues associated with criteria for lands and buildings. Mr. Goller emphasized, however, that NRC urgently needs at least a methodology for evaluating increasingly numerous requests for license exemptions for the reuse of various slightly contaminated materials and equipment. He further noted, and my staff agreed, that criteria for unrestricted use of buildings cannot be developed entirely separately from consideration of reusing equipment and materials. My staff is exploring the possibility of addressing some of your needs in this area sooner than we have planned, through Federal guidance on generic methodological issues. We will initiate meetings to discuss possible components to be addressed to achieve this with NRC and other interested agencies during the next few weeks.

3. Criteria for designating low-level waste streams as having radioactivity levels that are "below regulatory concern" (BRC):

Such wastes could be disposed of without regard for their radioactivity, e.g., at sites that are not regulated for radiation protection. Such criteria are being developed as part of our standards for low-level radioactive waste. Our primary liaison with NRC has been Mr. Leo Higginbotham in the Waste Management Division. These BRC criteria would apply only to disposal of true wastes, however, and not to entities whose potential usefulness is manifest. Although the precedents established for wastes may be useful, consideration of BRC criteria applicable to reusable entities clearly falls within the scope of the residual radioactivity program, and could be considered as part of the program under item 2, above.

I appreciate your interest in working together constructively to protect the public from unreasonable exposures to residual radioactivity.

Sincerely,

Charles L. Elkins
Acting Assistant Administrator
for Air and Radiation

cc: Mr. Karl Goller, NRC
Mr. Robert E. Alexander, NRC
Mr. Leo Higginbotham, NRC

ENCLOSURE B

ENCLOSURE B

DRAFT DENIAL LETTER TO DOE

Mr. John R. Longenecker
Deputy Assistant Secretary
for Uranium Enrichment
Office of Nuclear Energy
Department of Energy
Washington, D.C. 20545

Dear Mr. Longenecker:

This responds to your letter of March 25, 1985, concerning NRC action on amendments to 10 CFR Parts 30 and 70 that would permit DOE to sell the large quantities of scrap metal made available as a result of the recently completed gaseous diffusion plant expansion program.

NRC published a proposed rule in 1980 in response to the request to exempt DOE smelted alloys from licensing requirements. EPA comments on the environmental impact statement (EIS) and public comments on the rule raise issues concerned with potential radiation exposures for large numbers of people and with potential interference with the operation of radiation-sensitive equipment fabricated from metals containing residual contamination of extremely long-lived radionuclides. The response to the proposed rule included more than 3700 public comments mostly opposing the rule because of its potential for the introduction of radioactive material into consumer products. The EPA comments are enclosed for your information.

In addition to your request which involves the complication of technological enhancement of recycled materials, we have several other pending requests to allow the unrestricted release of radioactively contaminated materials. Recognizing the need for national guidelines in this area, we have urged the Environmental Protection Agency, in our letters dated June 4, 1984 and June 20, 1985, copies enclosed, to develop standards for unrestricted releases in consultation with implementing agencies. The EPA response dated July 30, 1985 is also enclosed for your information.

Given the present lack of national guidelines, the public concern associated with the exemption of this material, and the implications of the precedent which may be set by such an exemption at a time when questions are being raised concerning the proper disposition of large quantities of slightly radioactively contaminated solid materials, we have no alternative at the present time but to deny your request. This does not prejudice your resubmittal of the request when adequate national guidelines have been established to allow a reasonable evaluation of the proposal.

Sincerely,

Robert B. Minogue, Director
Office of Nuclear Regulatory Research

Enclosures:
1. EPA Comments
2. NRC Ltr. to EPA (6-20-85)
3. EPA Response to NRC (7-30-85)

Enclosure B

ENCLOSURE C

[7590-01]

ENCLOSURE C

WITHDRAWAL NOTICE

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 30, 32, 70, and 150

Exemption of Technetium-99 and Low-Enriched Uranium as Residual Contamination in Smelted Alloys

AGENCY: Nuclear Regulatory Commission.

ACTION: Withdrawal of proposed rule.

SUMMARY: The Nuclear Regulatory Commission is withdrawing a proposed rule, published in the Federal Register on October 27, 1980 (45 FR 70874), which would have established an exemption from licensing and other requirements for smelted alloys containing residual contamination in the form of low-enriched uranium and/or technetium-99. This action is being taken because of comments received on the proposed rule and associated draft environmental statement and in anticipation of the development of generally applicable Federal guidelines regarding the unrestricted release and potential reuse of lands, facilities, equipment and materials having residual radioactive contamination by the Environmental Protection Agency. The NRC is also denying, without prejudice, a Department of Energy request for an exemption from NRC regulations which would have allowed the Department to recycle contaminated smelted alloys salvaged from its uranium enrichment facilities.

DATE:

FOR FURTHER INFORMATION CONTACT: D. R. Hopkins, Office of Nuclear Regulatory Research, U. S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 443-7878.

SUPPLEMENTARY INFORMATION: On October 27, 1980, the Nuclear Regulatory Commission published in the Federal Register (45 FR 70874) proposed amendments to 10 CFR Parts 30, 32, 70, and 150 of its regulations. Proposed new §30.21 and §70.15 would exempt any person to the extent that person received, possessed, used or transferred smelted alloys containing less than 5 parts per million (ppm) of technetium-99 and/or 17.5 ppm of low-enriched uranium from the requirements for a license set forth in Section 81 of the Atomic Energy Act, as amended, and in 10 CFR Parts 30-35 and 70. Proposed new §§32.30 and 70.38 establish requirements for a specific license for persons desiring to smelt scrap metals or to initially transfer for distribution or sale smelted alloys containing low-enriched uranium and/or technetium-99 to exempt persons. Proposed new §150.15 would continue the Commission's licensing and regulatory requirements for those activities in Agreement States.

The NRC received an unusually large number of comments (more than 3700) in response to the proposed rule. Most comments opposed the changes because of their potential for allowing the introduction of radioactive material into consumer products. The NRC also received a number of comments concerning the Draft Environmental Statement (DES) made available with the proposed rule. These comments included a letter from the Environmental Protection Agency, stating that (1) calculated individual doses

are below regulatory limits but are not justified in the DES on an as-low-as-reasonably-achievable basis; and (2) the analysis does not adequately consider potential impacts on industries, such as photographic products and radiation detection industries, whose processes, products or services could be adversely impacted by metals contaminated by radioactive materials.

The NRC has requested that EPA develop guidelines for regulations governing the unrestricted release and potential reuse of a wide range of low-level radiation-contaminated lands, facilities, equipment and material. The development of these guidelines, for subsequent signature of the President, is within the mission of EPA. The NRC has suggested that, in view of the broad range of facilities and agencies involved and the need for a careful, deliberative development process, EPA should proceed with the development of this guidance.

The proposed rule published in 1980 was the result of a request from the Department of Energy (DOE) for rulemaking to allow it to recycle large quantities of waste metals generated from an upgrading of its uranium enrichment facilities. Associated with this action to withdraw the proposed rulemaking, NRC is denying the DOE request without prejudice to its resubmittal once Federal guidance has been issued. After the requested guidelines have been issued, the NRC will reconsider rulemaking to exempt low-radiation-level smelted alloys and other materials from licensing and other NRC requirements.

Dated at Washington, D.C. this _____ day of _____, 1985,

For the Nuclear Regulatory Commission.

_____

Samuel J. Chilk,
Secretary of the Commission

ENCLOSURE D

ENCLOSURE D

DRAFT LETTER FROM CHAIRMAN TO EPA ADMINISTRATOR

Honorable Lee M. Thomas
Administrator
U. S. Environmental Protection Agency
Washington, DC 20460

Dear Mr. Thomas:

The purpose of this letter is to confirm the commitment of the Nuclear Regulatory Commission (NRC) to assist EPA in its development of Federal guidance on residual radioactive contamination criteria and/or methodology for governing the unrestricted release and potential reuse of a wide range of contaminated lands, facilities, equipment, and materials generated in conjunction with nuclear activities. The NRC urgently needs such guidance and we believe other Federal agencies, such as the Departments of Energy and Defense, would also benefit significantly from such guidance.

In previous NRC staff correspondence to EPA staff, it was noted that, in view of the broad range of facilities and agencies involved, the development of EPA guidance on acceptable residual radioactive contamination criteria and methodology for evaluation of proposals should be a careful, deliberative process based on consultation with implementing agencies, including agencies with regulatory responsibilities and those agencies which must actually perform cleanup and decontamination operations. This broad range of agencies and facilities, and the need for a careful, deliberative development process are the major reasons for encouraging EPA to issue such guidance in the form of Federal guidance approved by the President. It was also noted in this earlier correspondence that the guidance should be general and not facility or activity specific, that it should identify and address both principles and implementing factors which must be considered (i.e., costs, "as low as reasonably achievable" considerations, basic health and safety limits, etc.), and should establish acceptable methods for their use by the Federal agencies.

The July 30, 1985 response by Charles L. Elkins, Acting Assistant Administrator for Air and Radiation is very encouraging and provides a firm basis for EPA/NRC cooperation in this area. I am pleased to note that EPA plans to continue its work in developing Federal guidance for release of land and buildings for use without restrictions based on residual radioactivity, and for designating low-level waste streams as having radioactivity levels that are "below regulatory concern." It is also encouraging that the EPA staff is exploring the possibility of addressing some of our immediate needs for criteria on recycling materials and equipment without restrictions based on residual radioactivity on an earlier schedule than originally planned. We agree with the EPA's priorities as stated by Mr. Elkins, and appreciate his cooperative approach.

The efforts already underway at EPA will be very helpful to NRC in its efforts to properly regulate decommissioning and waste disposal activities. We recognize that the recycle of slightly contaminated materials is a difficult issue, but one which is important worldwide. I hope you will be able to find additional resources to work on its resolution. The NRC is prepared to provide staff support to EPA's efforts in analyis of issues which are particularly pertinent to the activities which we regulate.

While arrangements for our cooperative efforts with you are being worked out by our respective staffs, I want to confirm the NRC's commitment to assist you in the resolution of these important issues.

Sincerely,

Nunzio J. Palladino
Chairman

Enclosure D

ENCLOSURE E

ENCLOSURE E

DRAFT CONGRESSIONAL NOTIFICATION

Dear Chairman:

Enclosed for the information of the Subcommittee is a copy of a Notice of Withdrawal of a Proposed Rule to be published in the Federal Register. The proposd rule, which was published in the Federal Register on October 27, 1980, would have exempted smelted alloys containing very small quantities of residual radioactivity from NRC regulatory requirements. Specifically, the proposed rule would have allowed the U.S. Department of Energy to recycle in commerical channels about $57 million worth of smelted alloys produced in the upgrading of the Department's gaseous diffusion plants.

This action is being taken because of comments received on the proposed rule and associated draft environmental statement and anticipation of the development of generally applicable Federal guidelines regarding the unrestricted release and potential reuse of lands, facilities, equipment and material having residual radioactive contamination by the Environmental Protection Agency.

Sincerely,

Robert B. Minogue, Director
Office of Nuclear Regulatory Research

ENCLOSURE F

ENCLOSURE F

DRAFT PUBLIC ANNOUNCEMENT

NRC WITHDRAWS PROPOSED LICENSE EXEMPTION FOR SMELTED ALLOYS

The Nuclear Regulatory Commission is withdrawing proposed amendments to its regulations which would have exempted, from NRC licensing requirements, the use of smelted alloys--contaminated with small amounts of radioactive technetium-99 or low-enriched uranium--in consumer and other products.

The request for an exemption was made by what is now the Department of Energy in 1974 and the proposed amendments were published for public comment in 1980. In addition to withdrawing the proposed amendments, the Commission is denying the Department of Energy's request and is renewing a request for the Environmental Protection Agency to take the lead in developing federal guidelines for the unrestricted release and possible use of lands, facilities, equipment and materials having residual radioactive contamination.

Under the proposed amendments, contaminated metals--steel, copper, nickel and aluminum, for example--could have been converted into smelted scrap which then could have been sold, without an NRC license, for reuse in consumer and other products such as copper wiring, stainless steel kitchen sinks, cast iron frying pans, iron and steel metal building panels and concrete reinforcing rods. In addition to the economic benefits which could have resulted from the conversion and reuse of the materials, the costs of burying the materials at low-level radioactive waste disposal sites would have been avoided as would the production of new materials.

Over 3000 public comments (primarily opposed) were received on the proposed amendments and additional comments were received on a draft environmental statement which was prepared to support the proposed action.

After considering these comments, the Commission has concluded that, at this time, it is not possible to prepare a final environmental statement which

adequately addresses all of the various ways the radioactive materials could be reconcentrated or introduced into national and international commerce and into a variety of consumer products.

In addition, the Environmental Protection Agency has pointed out that the draft environmental statement did not adequately consider potential adverse impacts on industries such as photographic products and radiation detection equipment. The EPA also expressed concern that potential radiation doses to individual members of the public, while below regulatory limits, were not justified on an "as low as reasonably achievable" basis. To do that, taking into account the long half lives of the radioactive materials involved, would require projections into the future regarding such things as marketing trends and metallurgical processes.

The Commission has concluded that these issues can only be resolved by establishing federal guidelines based on consultations with other regulatory agencies as well as agencies which actually perform cleanup and decontamination operations. The NRC, in 1984 and 1985, asked the EPA to initiate this work and plans to follow up with another letter and a commitment of resources to assist with the work.

The Commission also believes federal guidelines will be necessary to deal with other requests involving the use of materials or facilities contaminated with small amounts of radioactive materials, particularly as more nuclear facilities and activities are decommissioned in the future. Such guidelines also would be useful in addressing issues raised by the introduction of products contaminated with small amounts of radioactive materials into international commerce.

Notice of the withdrawal of the proposed amendments to Parts 30, 32, 70 and 150 of the Commission's regulations is being published in the Federal Register on (date).

ENCLOSURE F