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December 22, 1999

DOCKET NUMBER
PROPOSED RULE PR 20
(64FR35090)

Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555

ATTN: Rulemaking and Adjudications Staff

Re: Release of Solid Materials at Licensed Facilities; Issues Paper, Scoping Process for Environmental Issues, and Notice of Public Meetings, 64 Fed. Reg. 35,090 (June 30, 1999)

Dear Sir or Madam:

The Metals Industry Recycling Coalition ("MIRC") is an ad hoc coalition of metals industry trade associations and is comprised of the American Iron and Steel Institute ("AISI"), the American Zinc Association ("AZA"), the Copper and Brass Fabricators Council ("CFBC"), the Nickel Development Institute ("NiDI"), the Specialty Steel Industry of North America ("SSINA"), and the Steel Manufacturers Association ("SMA"). All of the members of MIRC consume metal scrap to make new metal products. The "free release" of radioactively contaminated scrap from nuclear fuel cycle facilities into the stream of commerce will have a significant economic impact on the industries represented by this coalition. For the purposes of these comments, we define "radioactively contaminated scrap metal" as any scrap metal originating at a United States Nuclear Regulatory Commission ("NRC")-licensed fuel cycle facility or a facility that is, or was formerly, operated by the U.S. Department of Energy ("DOE"), because of the presumption that this material is or may be radioactively contaminated. MIRC opposes NRC policies or rulemaking activities that sanction or encourage the free release of radioactively contaminated scrap metals without any additional regulatory controls.

NRC is considering a rulemaking that would set specific requirements on release of solid materials from nuclear facilities, including the possible establishment of clearance standards for free release. 64 Fed. Reg. 35,090 (June 30, 1999). NRC has not sufficiently explored the economic

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impact and other effects on the metals industries that would result from the free release of radioactive scrap, nor has it given adequate consideration to alternative policies such as restricted release. MIRC representatives emphasized these points in a series of four workshops NRC held in connection this request for comments. The following comments summarize our concerns regarding the NRC's consideration of a rulemaking.

I. BACKGROUND

A. The Metals Industries

The metals industries in the United States comprise a significant part of the nation's industrial manufacturing base. The steel industry alone accounts for over $60 billion in direct sales of raw steel mill products each year, and the copper industry accounts for $10 billion in sales annually. These amounts do not include the value added by downstream finishing operations nor the total value of metal-containing products, which are many times the value of products coming from the mills.

The metals industries continuously strive to boost public confidence in the safety, strength, and recyclability of metal products. In 1997, a coalition of steel companies formed The Steel Alliance and are at the mid-point of a $100 million, five-year campagin promote the public image of steel as safe, strong and reliable. The metals industries invest significant time and resources in product promotion, sponsoring advertising, grass-roots initiatives, and educational activities. Moreover, all of the metals industries expend considerable resources on research regarding the effects of metals on human health and on the environment, with an emphasis on creating safer products.

B. Recycling

The industries represented by MIRC rely in part on scrap metal feedstocks to make new metal products. The recycling of scrap has become a sophisticated, technology-based industry. Highly controlled scrap selection and blending processes, supervised by metallurgists, and computer automation guarantee the proper mixtures of scrap, ore, and alloys, to meet detailed customer specifications. In fact, customers typically require specific testing procedures and certification regarding the content of products they purchase from MIRC members. Some customers, in fact, are requiring certification regarding radioactivity levels in their products.

The tonnages of scrap that are recycled by the metals industries are substantial. The steel industry recycled over 75 million tons of scrap last year. Over one half of the tonnage of steel produced in the United States is made from steel scrap. Nickel and copper also are recycled at very high rates. MIRC members make a major contribution to the environment by consuming enormous

tonnages of scrap that would otherwise litter the countryside. They accomplish significant energy savings by eliminating the energy intensive processes associated with refining iron ore. Using scrap as a feedstock, when possible, consumes a fraction of the energy required to make products from virgin metal ores.

C. Radiation Detection

Since the 1980s, metals companies have been installing and using sensitive, highly sophisticated radiation detection systems, to prevent the accidental melting of sealed sources that have escaped NRC regulation and were inappropriately discarded in the scrap supply, and to protect against potential health risks for workers. Inadvertent meltings of sealed sources can contaminate products, waste streams, mill equipment and the surrounding property. Such contamination has caused individual metals companies to incur tens of millions of dollars in clean-up and decontamination costs, per incident. These incidents can bankrupt individual metals companies. These companies have a financial interest in keeping radioactivity out of their mills, and have set their detectors to detect at or slightly above background radiation levels, to protect against the possibility of sealed sources ending up in the melt. Continuous improvements of radioactive scrap detection systems are ongoing.

D. Inadequate Standards for Release of Radioactively Contaminated Scrap

NRC has not promulgated uniform clearance standards to govern the release of solid materials that are, or may be, radioactively contaminated, from nuclear fuel cycle facilities. Instead, NRC, Agreement States, and DOE rely on a generic, five-page NRC guidance document entitled "Regulatory Guide 1.86, Termination of Operating Licenses for Nuclear Reactors" ("Reg. Guide 1.86"), which was published in 1974 without public notice and comment, for determining clearance standards on a case-by-case basis. This standard was based on the detection technology available at that time and not on public health or environmental considerations. It covers only surface radioactive contamination on solid materials, not volumetric radioactive contamination. Reg. Guide 1.86 is a wholly inappropriate standard today.

NRC also uses the allowable annual radiation dose limits for individuals[1/] to make case-by-case determinations.[2/] However, scrap released pursuant to Reg. Guide 1.86 or NRC annual radiation

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1/ See 10 C.F.R. § 20.2002

2/ MIRC is concerned that NRC may not have the statutory authority to allow the release of radioactively contaminated scrap into the stream of commerce. See Atomic Energy Act, ch. VII, 42

(continued...)

dose limits may not be fully protective of human health and will cause metals company detectors to alarm when no sealed sources are present.

The deregulation of the electric power generation industry and retirement of obsolete nuclear fuel cycle facilities will generate several hundred thousand tons or more of scrap metal, much of it radioactively contaminated, in the coming years. Additionally, the ongoing decommissioning and dismantling of facilities that were operated by DOE will produce an additional two to three million tons of radioactively contaminated scrap metal. This material, if released, would cause havoc to metals facilities' radiation detectors and their mills. For the reasons set forth below, NRC must not allow radioactive scrap metal to be free released into the economy, even if the NRC establishes dose-based clearance standards.

II. ENVIRONMENTAL AND ECONOMIC IMPACTS

NRC's Federal Register announcement and draft technical report, "NUREG-1640," do not sufficiently address, or fail to address at all, several of the environmental and economic impacts that would result if NRC established clearance standards for the free release of radioactively contaminated scrap metal. These impacts include: loss of public confidence in metal products, impact on recycling generally, and the impact on metals industry operations.

A. Loss of Public Confidence in Metal Products

The most significant adverse economic impact of the NRC's proposal to release contaminated metal would be the damage caused to the product integrity of metals. The release of radioactively contaminated scrap metal from nuclear facilities for unrestricted recycling into industrial and consumer products could adversely affect the marketability of metal products and severely tarnish the image of recycling. The establishment of release levels that NRC deems to be "safe" would not mitigate this problem. The public's perception is that any level or type of radioactivity is unsafe, official assurances to the contrary notwithstanding.

There have already been media reports shaping public perception on the free release program. For example:

2/ (...continued)
U.S.C. §§ 2111-2114 (restricting the interstate transfer of byproduct material). NRC will need to fully explain its legal authority as a predicate for undertaking any rulemaking that results in the release of radioactively contaminated materials. NRC will also need to provide an opportunity for public comments on this legal authority.

- ABC's World News Tonight with Peter Jennings on August 24, 1999, featured a segment entitled "Dangerous Recycling." Building on the DOE's recently announced investigation of whether nuclear weapons facility workers may have been exposed to dangerous levels of radiation, the segment warned ominously that "now, there is reason to believe that some material potentially dangerous to nuclear workers could be recycled all the way to your kitchen." The report cautioned that this low level radioactive metal "could be used for silverware, pots and pans, watches, eyeglasses . . . the zipper on your pants, your earrings, your belt buckle, a hip replacement joint, your baby carriage."

- A local Massachusetts newspaper reported "[I]f Tennessee regulators and the Department of Energy have their way, metal from plants like Yankee and other government nuclear facilities may come back to Massachusetts and other states — only this time the radioactive metal will be melted and molded into household items like spoons, toys, even braces for children's teeth."[3/]

- An article in the October 1998 issue of The Progressive referred to an expected hundredfold increase in output by the "radioactive metal processing industry" and suggested that this could cause close to an additional 100,000 cancer cases in the United States alone.[4/] Like the ABC World News report, The Progressive article draws attention to the everyday products that could contain radioactive metal: "Your IUD, and your bracelets, your silverware, the zipper on your crotch, the coins in your pocket, frying pans, belt buckles, that chair you're sitting on, the batteries that are in your car and motorbike, the batteries in your computer." It concludes with the vision of consumers bringing a Geiger counter to the department store when they are planning to buy frying pans or similar items.

The public, including the management and workers at metals companies, will neither understand nor accept the release of radioactively contaminated scrap from nuclear facilities and its use as a feedstock in the manufacture of consumer products. Aversion to perceived radioactive risk could lead consumers to avoid products made of metal, especially those with a recycled metal content. Assurances of safety by public officials are unlikely to sway the public.

Metals recycling industries have worked hard to build public confidence in the safety and utility of products made from recycled metal. This confidence would be lost if the public, rightly or

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3/ Patricia Norris, "Recycle: Nuclear Waste May Find Its Way Back" Springfield Union, December 6, 1999

4/ Anne-Marie Cusac, "Nuclear Spoons," The Progressive, October 1998 at 23.

wrongly, perceives such products to be unsafe. For this reason, metal companies have not, and will not, accept scrap that is known or perceived to be radioactively contaminated.[5/]

The NRC simply has not given serious consideration to the adverse market impact on the metals industries and on recycling. NRC must consider the economic consequences that will be incurred by the metal recycling industries against projected government savings and the ultimate gain of those who may profit from such policy decisions. For example, if the steel industry, which reports annual sales of approximately $60 billion, loses one percent of its market share, it incurs a $600 million loss. A one percent loss in market share for the copper industry alone would produce a loss of $100 million. This far exceeds the value of the total amount of scrap metal that will be made available from nuclear facilities over the next sixty years. In addition to the loss in sales, NRC must account for reductions in employment in the metals industries and the losses in sales of the suppliers of equipment, materials and services to the metals industries, to determine the true economic impact of free release.

B. Impact on Recycling

Currently, recycling is accurately perceived as a social good and thus something to be encouraged. The unrestricted release of radioactively contaminated metal for recycling would tarnish this perception. While introducing radioactive metal into the stream of commerce provides, for some, a short-term economic benefit, the consequences of public suspicion regarding the safety of recycled metal could be disastrous. The mere possibility that products made with recycled metals may contain materials that were released from nuclear facilities could cause a significant number of consumers to purchase consumer goods made of substitute materials or to demand certification that their products are made with mined virgin ores. Indeed, several customers of the metals industries are requiring certification that the metal components they buy are free of radioactive contamination. These customers' concerns are driven by consumer demand for safe products and by the necessity in sensitive applications, such as in computers, for the metal to be radiation free. Accordingly, free release would lead to an increase in the consumption of mined virgin ores, as consumers avoid products made with recycled metals.

5/ AISI hired an independent research firm to poll four focus groups on whether they would object to a program to release metal scrap from nuclear facilities that would ultimately be recycled into consumer products. Eighty percent of respondents stated that they would object to such a program.

C. Metals Industry Operations

Even if NRC establishes a dose-based clearance standard that it deems protective of public and worker health and the environment, and in doing so was able to maintain consumer confidence in metal products, there still would be a significant economic impact on the operations of metals companies from the release of scrap from nuclear facilities. Metals producers are already burdened by the problem of shielded radioactive sources that have escaped NRC's licensing program and have been improperly discarded in shipments of metal scrap destined for recycling. Often metals producers respond to detector alarms by stopping the production process wherever the radioactivity is detected and taking appropriate measures, which can include outright rejection of a load of scrap, hand sorting through a truckload of scrap, or prompt sequestration and notification of the proper authorities. These measures are necessary but impose unreasonable costs on the metals industries.

Free release presents a far more onerous problem than orphan sources. Free release of radioactively contaminated metal into the stream of commerce would greatly increase the volume of radioactive scrap arriving at metals companies. This poses a serious problem for the suppliers and transporters, who must manage and arrange for the ultimate disposition of the rejected scrap. It would have a similarly enormous adverse impact on the smaller producers, foundries, scrap dealers and processors, fabricators, and end product manufacturers. Metals companies experiencing several alarms daily would continue to incur enormous costs, compelling them to raise detection levels to above background, thereby exposing themselves to increased risk of inadvertently melting sealed sources. In sum, the metals industries and their customers derive no economic benefit from recycling radioactive scrap.

Furthermore, NRC has not adequately explored the impact of processing radioactively contaminated scrap metals on equipment in metals production facilities and at scrap processing operations. The NRC must consider the accumulation of radioactive materials on equipment and in metals industry by-product and waste streams, and exposure of workers and members of the public to this contamination.

D. Cost Shifting

Compelling the metals industries to accept increased radioactivity in their metal scrap feedstocks is economically inequitable and inefficient. The cost of disposing of radioactively contaminated metal scrap in low level radioactive waste landfills can cost several hundred dollars per square foot. If disposed in municipal landfills, this cost would drop to forty dollars per ton. Free release of radioactively contaminated scrap into the economy saves the nuclear power industry a significant amount of money, but at a much greater expense to metals companies. Under the current regulatory framework, nuclear fuel cycle and DOE facilities monitor scrap exiting their facilities to meet the allowable limits as determined on a case-by-case basis, but the level of monitoring required

is not sufficient to guarantee that metals companies do not receive radioactively contaminated scrap. Consequently, the burden falls on scrap metal brokers and processors and, ultimately, onto the metals industries, to screen the scrap metal for radioactivity.

The release of radioactively contaminated scrap into the stream of commerce should not be considered a "market solution," because there are no willing buyers of this scrap. Metals companies spend a substantial amount of money each year on detection and monitoring to ensure that they do not receive shipments of radioactive scrap. It is more economically efficient overall to require the nuclear power industry to adopt stringent monitoring to control radioactive contamination at a handful of facilities that are the sources of the scrap, rather than on the hundreds of metals facilities that would consume this material.

III. PROPOSED SOLUTIONS

In light of the increasing amount of materials, including scrap metal, coming from decommissioned nuclear fuel cycle and DOE-operated facilities, and the inefficiency and inconsistency associated with case-by-case determinations, MIRC recognizes the need for NRC to establish uniform dose-based clearance standards for radioactive isotopes. However, dose-based standards alone will not solve problems such as adverse consumer reaction to products made with radioactive metals, disincentives for recycling and cost shifting. MIRC cannot support the establishment of clearance standards in the absence of other measures deemed necessary to mitigate those consequences.

There are policy alternatives that, when implemented in combination with dose-based clearance standards, would be acceptable to MIRC, but were not explored in NRC's Federal Register announcement or in NUREG-1640. These two alternatives, "restricted release" and "modified unrestricted release," are described below.

A. Restricted Release

MIRC strongly supports a policy of "restricted release," whereby release of scrap metal from nuclear facilities meeting dose-based standards is limited to one of the two following options:

(1) Recycling or recovery at a dedicated, licensed facility for use only at an NRC-licensed fuel cycle facility or at nuclear facilities operated by the DOE; or

(2) Disposal into an appropriate landfill (i.e., licensed radioactive waste, low-level radioactive waste, municipal or industrial landfill).

Under the restricted release alternative, certain products could be manufactured from the radioactively contaminated scrap metal, as long as the metal stays within NRC licensing or DOE regulation as radioactive metal. NRC must emphasize to other agencies, notably DOE, that these restrictions should apply to releases of scrap from nuclear facilities not under NRC's jurisdiction. DOE facilities are a major source of radioactively contaminated scrap.

B. Modified Unrestricted Release

MIRC would support a program of releasing scrap metal from nuclear fuel cycle and DOE-operated facilities, provided NRC establishes dose-based clearance standards, and additional controls were put in place to protect the environment, public and worker health, and the integrity of metal products, as well as ensuring that metals companies do not face the operating problems associated with radioactive contamination in scrap. Such measures would have to include the following requirements, all of which must be met, before the scrap metal is released:

(1) the operator of the facility releasing the scrap reasonably believes and certifies that the scrap has not been radioactively contaminated;

(2) when tested under stringent monitoring and sampling protocols, and by detectors capable of detecting alpha, beta, and gamma radiation, the scrap metal does not exceed NRC dose-based clearance standards or background radiation levels for the area from which it is being released; and

(3) the scrap metal is manifested, labeled, and tracked.

Scrap metal meeting all of these requirements could then be free released. This will allow scrap metal that has not been contaminated by radioactivity to be returned to commerce, but would not allow material with added radioactivity to leave NRC or DOE control, except to an appropriate landfill.

The sampling and monitoring protocols (item (2)) would have to be sufficiently advanced to detect above-background levels of alpha, beta, and gamma radiation for all relevant isotopes. They also would have to include technology-based requirements for detectors and whistleblower protections to ensure compliance.

Manifesting, labeling and tracking requirements (item (3)) would have to be designed to ensure that any processing or recycling facility to which the scrap metal ultimately may be sent will be advised of its origin and can make an informed decision as to whether to accept the material. Manifests would have to indicate content, tonnage, origin, and radioactive content. These same restrictions must apply to metals being released from DOE facilities.

Metal items, or metal-containing equipment and products from licensed facilities that are to be re-used for their originally intended purpose, e.g., filing cabinets, and that meet the NRC's established dose-based standards, could be released off-site for re-use under this provision.

IV. Recommendations for Setting Health-Based Standards

NRC should be guided by the following considerations in setting the restricted release or modified restricted release standards.

A. Scientifically Sound, Health Risk-based Modeling

NRC standards should be scientifically sound and designed so as to preserve product integrity of metal products.

In selecting the benchmark dose level from which to calculate restricted release standards, NRC should be consistent with the guideline levels it has established in the past. For example, NRC's public dose limit is 100 millirems per year (100 mrem/yr),[6/] and its Subpart E dose criterion for the release of decommissioned structures and land is 25 mrem/yr.[7/] If NRC decides to use a significantly more stringent dose criterion for the release of solid materials from licensed facilities, it should explain why adoption of a lower dose criterion is necessary for public health reasons. NRC must also explain why it is reducing the permissible dose levels so as not to induce skepticism among members of the public, some of whom believe that exposure to any level or type of radiation whatsoever is unacceptable.

NRC release standards also should include detailed measurement, calibration, sampling, and instrumentation protocols to protect the public against the inadvertent release of contaminated material. The need for such standards is demonstrated by the unsophisticated and unreliable procedures permitted by the DOE contract with British Nuclear Fuels Ltd. for decontamination and decommissioning of the Oak Ridge site formerly operated by DOE.

6/ See 10 CFR § 20.1301; 64 Fed. Reg. 35,098 (1999).

7/ See 64 Fed. Reg. at 35,098. Similarly, EPA has exempted from regulation as a solid waste recycled coal ash used in concrete block which results in a dose of approximately 10 mrem/yr. See 64 Fed. Reg. at 35,095.

B. International Standards

The buying and selling of scrap takes place not only across state lines but internationally as well. Accordingly, the establishment of standards and restrictions on the release of radioactively contaminated scrap is an international issue.

The need for action at the international policymaking level has become painfully evident in recent years. International Atomic Energy Agency ("IAEA") spokesman Klaus Duftschmid noted in August 1998: "Since the break up of the Soviet Union, incidents of illicit trafficking of radioactive sources across borders and contamination of scrap metal imported from Eastern countries has considerably increased." Over 100,000 radioactive sources are unaccounted for in the Ukraine alone. The Russian Atomic Energy Ministry has announced plans to sell scrap metal from decommissioned nuclear submarines to help dispose of Russia's massive pileup of submarines and nuclear materials.[8/] Clearly, there is a need to better safeguard our borders against the entry of radioactively contaminated scrap or metal products.

While harmonization with international standards is desirable, this should not be a deciding factor in setting the release standards. Indeed, international bodies such as the IAEA and the European Commission ("EC") also are facing opposition from the prospective recipients of contaminated metal scrap and consumers. Instead, the release standards should be risk-based and reflect sound science. If standards established by NRC on that basis differ from those being considered by IAEA and EC, then the U.S. government should urge those bodies to adjust their own release standards to match those established here.

Accordingly, should NRC adopt the type of restricted release model that we support, the U.S. government should encourage the U.S.'s trading partners to adopt a similar model. International adoption of this policy would deter the arrival of radioactive metal into the U.S. from foreign sources. Regardless of whether the U.S. standards are adopted internationally, we urge the U.S. Customs Service to reject shipments of metal or metal products registering above normal background levels, even if the shipments meet NRC's restricted release standards. We believe that such a measure could be implemented in a way that is compatible with World Trade Organization ("WTO") rules.

8/ See The Washington Post, November 16, 1998.

V. CONCLUSION

NRC should not permit the unrestricted release of scrap metal from the facilities it licenses into the stream of commerce. Rather, it should establish a program of tight regulatory controls, that includes the establishment of scientifically sound, dose-based standards for the restricted release of such metal, that are fully protective of human health and the environment. This is the most economically equitable and environmentally sound solution. The metals industry cannot become a dumping ground for the discards of the global nuclear age.

MIRC is grateful to the NRC for the opportunity to comment on its consideration of a rulemaking to establish dose-based clearance standards and hopes that the agency will take into consideration the comments of a major sector of the U.S. economy in its decision. If you have any questions, please do not hesitate to contact us.

Sincerely,

JOHN L. WITTENBORN
CHRISTINA BECHAK