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Institute**

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Annette L. Vietti-Cook  
Secretary  
United States Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD

**OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF**

**Re: Comments of the American Iron and Steel Institute on Controlling the  
Disposition of Solid Materials, 68 Fed. 9595 (February 28, 2003)**

The American Iron and Steel Institute (AISI) is submitting the following comments regarding the United States Nuclear Regulatory Commission's (NRC) rulemaking on alternatives for controlling the disposition of solid materials that originate in restricted or impacted areas at NRC-licensed facilities. AISI is a non-profit association of North American companies engaged in the iron and steel industry. AISI's membership accounts for approximately two-thirds of the raw steel produced annually in the United States. AISI is comprised of 31 member companies and 144 associate and affiliate members who are suppliers to or customers of the steel industry. Scrap steel is a vital feedstock in the manufacturing of all steel produced in the United States today; therefore, we have a great vested interest in this issue.

The Metals Industries Recycling Coalition (MIRC), of which AISI was formerly a member, submitted comments in June 1999 (64 Fed. Reg. 35,090) detailing why the metals industry will not accept scrap metal containing residual radioactivity. Further, MIRC has submitted another statement (attached) responding to the NRC's recent suggested alternatives. We support MIRC's current statement and conclusion that radioactively contaminated scrap metal cannot be released, even on a "conditional" basis, into the stream of commerce. We feel that the appropriate policy option is to isolate the material from the public by requiring disposal of contaminated scrap metal at appropriate facilities.

The possibility that products made with recycled metals may contain materials that were released from nuclear facilities would place an overwhelming burden on the steel industry and its related industries. The contaminated scrap metal would undermine the ability of metal companies to comply with environmental laws and put them at greater risk of liability in civil suits. Even under the "conditional release" alternative,

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scrap metal is recycled many times over and radioactively contaminated scrap metal, originally used in manufacturing certain authorized products (*e.g.*, sewage piping), could eventually re-enter the recycling stream. The radioactive steel has the potential to be recycled and reused in other applications that would not be safe to the public not to mention the manufacturing plants themselves. Allowing radioactive scrap metal in to the stream of commerce simply would not isolate the public from contamination. Lastly, the mere threat of contaminated steel in the recycling stream would drive consumers to demand goods produced from mined virgin ores, which would run contrary to the goals of a recycling program. It would also encourage them to substitute alternative materials for steel, putting the steel industry at a competitive disadvantage.

AISI strongly urges the NRC to consider both the economic stability of the steel industry and the potential risks of subjecting the public to radioactively contaminated steel. AISI believes that isolating radioactively contaminated scrap metal is the only sensible option. Your proposals that call for disposal in appropriate RCRA landfills and NRC or Agreement State licensed LLW disposal sites are both desirable solutions that we vigorously endorse. Thank you for your time and effort in considering this matter.

Sincerely,

**Walter J. (Chip) Foley**

*American Iron and Steel Institute*  
Director, Market Development  
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Attachment

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June 30, 2003

Secretary  
United States Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD

**Re: Comments of the Metals Industries' Recycling Coalition on Controlling the Disposition of Solid Materials, 68 Fed. Reg. 9595 (February 28, 2003)**

Dear Sir or Madam:

On behalf of the Metals Industries Recycling Coalition ("MIRC") we are submitting the following comments in response to the United States Nuclear Regulatory Commission's ("NRC's") rulemaking on alternatives for controlling the disposition of solid materials that originate in restricted or impacted areas at NRC-licensed facilities. In response to NRC's instructions, we are sending, under separate cover, additional comments that address specifically the scope of the Environmental Impact Statement, to Ms. Phyllis Sobel at NRC. MIRC is an *ad hoc* coalition of metals industry trade associations and is comprised of The Copper and Brass Fabricators' Council ("CBFC"), the Nickel Development Institute ("NiDI"), the Specialty Steel Industry of North America ("SSINA") and the Steel Manufacturers Association ("SMA"). All of these groups represent major recycling industries that make a significant contribution to the environment by recycling enormous tonnages of scrap metal. They also incur significant expenditures to keep radioactive contamination out of their mills. Accordingly, MIRC's position is that no scrap metal from impacted or restricted areas at NRC-licensed facilities should be released into commerce.

MIRC submitted comments in response to NRC's Release of Solid Materials at Licensed Facilities, 64 Fed. Reg. 35,090 (June 30, 1999). See Letter from John L. Wittenborn to Secretary, NRC (Dec. 22, 1999). In the 1999 comments, MIRC explained why the metals industries will not accept scrap metal containing residual radioactivity and provided several public policy reasons why NRC should not allow the release of radioactively contaminated scrap metal into the stream of commerce. These comments also addressed some of the negative environmental and socioeconomic impacts resulting from the release of radioactively contaminated scrap metal from NRC-licensed facilities. In addition, MIRC proposed several alternative solutions for disposition of radioactively contaminated scrap metal. The comments in this letter are intended to supplement and update MIRC's 1999 comments.

## **I. MODIFICATIONS TO MIRC'S POSITION**

### **A. Definition of Radioactively Contaminated Scrap Metal**

MIRC's position with respect to radioactively contaminated scrap metal remains unchanged: It should not be released into the stream of commerce. MIRC has modified its position, however, on the definition of "radioactively contaminated scrap metal." MIRC defines radioactively contaminated scrap metal as scrap metal that originated in impacted or restricted areas at NRC-licensed facilities, because of the presumption that this material is or may be radioactively contaminated.<sup>1</sup> A large percentage of this metal contains residual radioactivity resulting from past operations or activities. In its 1999 comments to NRC, MIRC included within the scope of its definition of radioactively contaminated scrap metal any scrap metal originating at an NRC-licensed fuel cycle facility. Under its modified definition, MIRC would not consider scrap metal to be radioactively contaminated if it did not originate from the impacted or restricted areas, was never present in such areas, and that can be certified as never having been exposed to radiation.

MIRC still does not support unrestricted clearance of such metals. Safeguards are needed to ensure that scrap metal originating from within the perimeters of nuclear fuel cycle facilities was not contaminated and inadvertently removed from an impacted or restricted area. Such safeguards must be designed to: (1) protect the environment, public and worker health, and the integrity of metal products; and (2) ensure that metals companies do not face the operating problems associated with radioactive contamination in scrap. MIRC would support, in principle, policies and regulations that allow scrap metal not originating in impacted or restricted areas, to be released, provided that NRC requires at least one of the following safeguards before the metal is released:

- Where there is clear process knowledge that the scrap metal is not originating from a radiological areas, the operator of the facility releasing the scrap certifies that the scrap has not been radioactively contaminated;
- 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 dose-based clearance standards or background radiation levels for the area from which it is being released, whichever of the two is lower;<sup>2</sup> or

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<sup>1</sup> MIRC has adopted the same definition with respect to scrap metal originating within radiological areas at facilities are, or were formerly, operated by the United States Department of Energy,

<sup>2</sup> The sampling and monitoring protocols 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.

- The scrap metal must be manifested, labeled, and tracked.<sup>3</sup>

MIRC wishes to emphasize that this position applies only to scrap not originating from impacted or restricted areas at NRC licensed fuel cycle facilities, and that dose-based standards should be used in conjunction with a "nothing above background" standard, under which only scrap meeting the lower of the two would be released. Scrap metal that fails to meet this standard, and for which the facility operator is unwilling to undertake either of the other two safeguards, should be considered radioactively contaminated and sent to the appropriate disposition facility.

**B. Clearance of Radioactively Contaminated Scrap Metal Could Undermine Metals Companies' Ability to Comply with Environmental Laws and to Minimize Their Environmental Liabilities.**

Radioisotopes and activated materials present on or in scrap metal may partition to the metal, slag, or emission control dust. Even small concentrations may build up over time, especially in emission control baghouses at metals producing facilities, potentially leading to health risks to workers and expensive disposal requirements. By allowing the release of scrap metal with residual radioactivity into the economy, NRC would be increasing the risk of metals company property contamination. Policymakers must take into account the potential for accumulation of radioactive materials on equipment and in metals industry byproduct and waste streams, as well as potential exposures to workers and members of the public. Contamination of mill equipment would precipitate a massive unanticipated, cleanup problem for metals facilities. Contamination of waste streams may generate mixed wastes, for which disposition is prohibitively expensive. In addition to the obvious concerns about worker health, metals facilities may also be required to comply with more stringent regulatory requirements governing worker exposure, even though these companies are not — and have no desire to be — in the nuclear business. Recently, the Department of Labor announced that it is considering revising its comprehensive workplace exposure standard for ionizing radiation, which was published in 1974 with only minor revisions since that time.<sup>4</sup> NRC must explore more fully the impact of processing radioactively contaminated scrap metals on personnel or equipment in metals production facilities and at scrap processing operations.

The metals industries also are concerned about liability in potential civil suits. In 2001, a jury awarded more than one billion dollars in punitive damages to a landowner whose property

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<sup>3</sup> Manifesting, labeling and tracking requirements 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.

<sup>4</sup> See Department of Labor Semiannual Regulatory Agenda, 68 Fed. Reg. 30,552, 30,585 (May 27, 2003).

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was contaminated by radioactive materials left over from an oil field pipe operation.<sup>5</sup> The defendant company also was ordered to pay \$56 million to clean up the property and \$145,000 for lost property values. Metals companies do not want to face similar liabilities and therefore strive to keep radioactivity out of their mills. This jury decision also attests to the strong public aversion to even low levels of radioactive contamination, on which MIRC elaborated in its 1999 comments.

**C. MIRC Supports the Nuclear Power Industry's Position Against Releasing Radioactively Contaminated Scrap Metal Into the Stream of Commerce.**

The Nuclear Energy Institute ("NEI") recently asserted that it does not support public policies that would allow the release of scrap metal with detectable radioactive contamination, for recycling.<sup>6</sup> MIRC is pleased that NEI has adopted this position and supports the nuclear power industry's efforts to find alternative disposition options. NRC should give considerable weight to the fact that the industry seeking disposition (NEI) and the industries expected to receive or recycle the metal (MIRC) all agree that release of the scrap metal into the stream of common is not good public policy.

**II. MIRC Comments on NRC's Proposed Alternatives**

**A. NRC Must Consider Environmentally Sound Disposition Alternatives That Would Prevent the Release of Radioactively Contaminated Metals into the Stream of Commerce.**

Because MIRC members want to ensure that they do not receive unwanted radioactively contaminated scrap metal, they seek to ensure that there are environmentally sound, economically viable disposition options. As a matter of principle, MIRC supports any regulations or policy measures that would require disposal of radioactively contaminated scrap metal at appropriate disposal facilities, including landfills, in lieu of releasing this metal into the stream of commerce.

In connection with its pending rulemaking on controlling the disposition of solid materials from impacted or restricted areas at nuclear fuel cycle facilities, NRC recently invited the public to comment on five disposition alternatives. The first three alternatives (clearance under existing survey capabilities, clearance under a dose-based criterion, and conditional use) are not acceptable. Under the first two alternatives, NRC would allow scrap metal with

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<sup>5</sup> *Grefer v. Alpha Technical Services, Inc.*, CA 97-15004 (New Orleans Civ. Dist. Ct. May 22, 2001).

<sup>6</sup> Statement of Paul H. Genoa, Senior Project Manager, Plant Support, Nuclear Generation, NEI, at NRC Public Workshop on Controlling the Disposition of Solid Materials (May 21 & 22, 2003).

detectable contamination to be cleared from NRC regulatory authority and be released into the economy. Under the conditional use alternative, NRC would restrict the further use of materials to only certain authorized uses with limited public exposure. NRC's examples of such uses include metals in bridges, sewer lines, industrial components in a factory, or concrete in road fill. *Id.* at 9597. The fourth and fifth alternatives are, respectively, disposal at landfills regulated under the Resource Conservation and Recovery Act ("RCRA") Subtitle C or D and disposal at NRC/Agreement State-licensed Low-Level Radioactive Waste ("LLRW") disposal facilities. MIRC believes that these alternatives could have widespread support and encourages NRC to consider them more fully.

**B. "Conditional Release" Would Not Isolate Radioactive Contamination from the Public**

MIRC opposes the conditional use alternative, because it would allow the release of contaminated scrap metal into the economy. As MIRC has stated in numerous communications to NRC, the public simply will not accept the presence of "added" radioactivity in products made of metal, regardless of how such metals are used. Moreover, as MIRC explained to NRC in earlier communications, scrap metal is recycled many times over. Assuming, for the sake of argument, that a metals producing company would accept radioactively contaminated scrap metal and recycle it into a "conditional use" end use product (e.g., a steel beam), it is conceivable that metals in the product would re-enter the recycling stream before the radioisotopes have undergone sufficient decay. Rather, this scrap metal must stay within the NRC's licensing scheme or the Department of Energy complex.

**C. Disposition in a RCRA Subtitle C or D Facility Would Ensure that Radioactively Contaminated Scrap Metal is Isolated from the Public and Not Sent to Metals Facilities for Recycling.**

MIRC supports disposal of scrap metal originating from restricted or impacted areas at NRC-licensed facilities in RCRA Subtitle C or D landfills. Disposal in landfills subject to RCRA regulation probably is the only cost-effective disposition option that would isolate radioactively contaminated scrap metal from the public.

**1. RCRA Subtitle C (Hazardous Waste) Landfill**

RCRA creates a cradle-to-grave management system for hazardous waste to ensure proper treatment, storage, and disposal in a manner protective of human health and the environment. This management system would be appropriate for radioactively contaminated scrap metal, even if it is not a RCRA hazardous waste. RCRA Subtitle C landfills are subject to very stringent controls to ensure that hazardous constituents are not released into the environment. In fact, RCRA Subtitle C landfills arguably are more protective than LLRW disposal facilities. Except for LLRW disposal facilities, RCRA Subtitle C landfills probably comprise the "gold plated" disposition option, although NRC may find it necessary to require additional safeguards such as manifesting and mandatory reporting of discrepancies, which already apply to shipments of

“nonradioactive,” RCRA hazardous wastes. Under RCRA Section 3004(a), the United States Environmental Protection Agency (“EPA”) has promulgated unit-specific technical standard in its regulations, covering treatment, storage and disposal facilities (“TSDFs”) in 40 C.F.R. parts 264 and 265. Requirements applicable to RCRA Subtitle C landfills include, but are not limited to the following control measures:

- **Leachate control.** Owners and operators of Subtitle C landfills are required to have double liners and leachate collection and removal systems (“LCRS”) and leak detection systems. The owner or operator must establish a site-specific leachate flow rate, (action leakage rate or ALR), to indicate when each regulated unit’s system is not functioning properly.
- **Stormwater control.** Landfills must have stormwater run-on and run-off controls to prevent migration of hazardous constituents for at least a 25-year storm, and covers to prevent wind dispersal.
- **Prohibition on liquids.** The placement of bulk or noncontainerized liquid hazardous waste or hazardous waste containing free liquids in any landfill is prohibited. Placement of nonhazardous liquids in a Subtitle C landfill is generally prohibited.
- **Collapse prevention.** Moreover, to prevent significant voids that could cause collapse of final covers when containers erode, and to maintain and extend available capacity in hazardous waste landfills, containers placed in a landfill must be either at least 90 percent full or crushed, shredded, or in some other way reduced in volume.
- **Security.** Owners and operators are subject to stringent operating requirements, including security requirements to prevent unknowing entry of persons or livestock onto the active portions of the property, 24-hour surveillance (such as television monitoring or in-person monitoring by guards), artificial or natural barriers such as fences, and a means to control entry, at all times. Signs reading Danger: Unauthorized Personnel Keep Out” must be posted at each entrance. Under these conditions, it would be nearly impossible for an individual to enter a Subtitle C landfill and exhume buried scrap metal.
- **Inspections.** Owners and operator must inspect for malfunctions and deterioration in accordance with a written schedule and keep written records of these inspections.
- **Training.** Facility personnel must be trained to ensure compliance with all applicable regulations and in emergency response.
- **Location.** Locational standards ensure that Subtitle C landfills are not located in seismically unstable areas, or in 100-year floodplains, unless the owner can demonstrate that the waste can be removed safely before floodwaters reach the facility.
- **CQA.** Construction quality assurance (“CQA”) programs are required to ensure that all landfill units meet or exceed all design criteria and specifications in the permit, and must be implemented by a registered professional engineer.
- **Closure.** Subtitle C landfills are subject to stringent requirements at closure. One example is the requirement for a final cover over the landfill that can provide long-term minimization of liquid migration through the closed landfill, promote drainage, accommodate settling, and function with a minimum amount of maintenance.



- **Post-closure.** After closure, the owner or operator must comply with numerous post-closure requirements, covering such actions as monitoring and maintenance. In addition, the owner and operator must maintain the final cover, leak detection system, and groundwater monitoring system, as well as prevent run-on and run-off from damaging the final cover, and protect the surveyed benchmarks (*i.e.*, location and characteristics) of the landfill.
- **Financial Assurance.** Owners and operators are required by law to establish financial assurance for closure of Subtitle C landfills, by establishing closure trust funds, obtaining surety bonds guaranteeing payment into a closure trust fund or guaranteeing performance of closure, closure letter of credit or closure insurance. This ensures that there always will exist adequate funds to maintain the protectiveness of the landfill.
- **Notice in Perpetuity (Deed Restrictions).** Finally, within 60 days of certification of closure of a Subtitle C landfill, the owner or operator is required to record, in accordance with State law, a notation on the deed to the property to notify all prospective purchasers, *in perpetuity*, that the property was used to manage hazardous wastes and that its future use is restricted.

## 2. RCRA Subtitle D (Municipal Solid Waste or Industrial Waste) Landfill

Disposal in a landfill regulated under RCRA Subtitle D also could be sufficient to isolate the radioactively contaminated scrap metal from the public. Under RCRA Section 4001, EPA has promulgated unit-specific technical standards for municipal solid waste landfills ("MSWLFs"), in 40 C.F.R. part 258. MSWLFs are subject to some — but not all — of the same protections and standards that apply to hazardous waste landfills regulated under RCRA Subtitle C. One important distinction between hazardous waste landfills and MSWLFs is that many MSWLFs are set up so that they generate leachate, which can be re-circulated throughout waste to encourage decay.

MIRC's position is that radioactively contaminated scrap metal meeting protective dose-based standards and disposed of in RCRA Subtitle D landfills could be isolated from the public and not pose a threat to human health of the environment. Additional safeguards still may be required, however. Following is a summary of the relevant requirements applicable to RCRA Subtitle D landfills:

- **Leachate control.** RCRA Subtitle D regulations require a composite liner and a leachate collection system.
- **Run-on and run-off control.** Subtitle D regulations require MSWLF units to have run-on and run-off control systems. The construction and maintenance of a run-on control system is intended to prevent the flow of surface water onto the active portion of a unit during the period of greatest precipitation in a 25-year storm. A run-off control system, likewise, must be designed and operated to collect and control the water volume resulting from a 24-hour, 25-year storm. Run-off collected from the active portion of a landfill unit must be managed in accordance with Clean Water Act requirements.

- **Groundwater.** A groundwater monitoring system must be installed to yield samples from the uppermost aquifer that represent both the quality of background groundwater (usually from an upgradient well), and the extent of groundwater contamination at the waste management unit boundary (from downgradient wells). Groundwater must be monitored for 62 constituents (15 inorganic, 47 organic). The MSWLF owner and operator must establish a groundwater protection standard ("GWPS") for each of several dozen listed constituents ("Appendix II constituents") based on either Safe Drinking Water Act maximum contaminant levels or ("MCLs"), or, if no MCL has been established, the background concentration levels at the site. After exceeding any GWPS, the owner or operator is required to assess and implement corrective measures.
- **Security.** Access to MSWLF facilities must be controlled to prevent unauthorized people from entering the MSWLF. Owners and operators of all MSWLFs may use artificial or natural barriers, as necessary, to control public access to the facility and prevent unauthorized vehicular traffic and illegal dumping of wastes. It may be possible to require these measures in Subtitle D landfills accepting radioactively contaminated scrap metal, to protect against intruders seeking to exhume buried scrap metal.
- **Inspections.** Owners and operators must inspect for malfunctions and deterioration in accordance with a written schedule and keep written records of these inspections.
- **Training.** Facility personnel must be trained to ensure compliance with all applicable regulations and in emergency response.
- **Cover Material.** Owners and operators are required at the end of each operating day to place a cover of at least six inches of soil or an equivalent over exposed waste.
- **Location.** The regulations establish special siting restrictions and performance standards for six types of MSWLF site locations: airport surroundings, 100-year floodplains, wetlands, fault areas, seismic impact zones, and unstable areas.
- **Recordkeeping.** Owners and operators are required to keep records, at the site, on inspections, training, and notification.
- **Closure.** No later than 30 days after a MSWLF unit receives the final volume of waste, the owner and operator must begin closure activities. Closure standards require owners and operators to install a final landfill cover system that is designed to minimize soil erosion and infiltration of liquids through the cover. The cover's infiltration layer, consisting of at least 18 inches of earthen material, must be at least as impermeable as any bottom liner system or natural subsoils.
- **Post-closure.** After closure, the owner or operator must comply with numerous post-closure requirements. The owner and operator must maintain the final cover, leak detection system, and groundwater monitoring system, as well as prevent run-on and run-off from damaging the final cover, and protect the surveyed benchmarks (*i.e.*, location and characteristics) of the landfill.
- **Financial Assurance.** Owners and operators are required by law to establish financial assurance for closure of Subtitle D landfills, by establishing closure trust funds, obtaining surety bonds guaranteeing payment into a closure trust fund or guaranteeing performance of closure, closure letter of credit or closure insurance. This ensures that there will exist adequate funds to maintain the protectiveness of the landfill.

## II. DOSE-BASED STANDARDS

MIRC's position on the establishment of dose-based standards is that they should be established for scrap metal that will be disposed of in RCRA landfills and for scrap metal not originating from impacted or restricted areas.<sup>7</sup> Metals companies do not want to recycle scrap metal originating from impacted or restricted areas, so a dose-based standard should not be established for that purpose. MIRC has not developed a position on the specific dose on which the standard would be based but would accept a separate and higher (less stringent) limit for material destined for disposal in RCRA landfills. In addition, MIRC supports dose-based standards only if they are accepted by the general public and the scientific and public health communities.

## III. CONCLUSION

The metals industries do not want radioactively contaminated scrap metal to be released into the stream of commerce, and, indeed will not accept such metal if it arrives at the mill gates. MIRC also recognizes the difficulty of NRC's task in determining the appropriate disposition alternatives, which ideally should ensure that radioactively contaminated scrap metal is isolated from the public while not shifting the burden of the nuclear industry's waste problem onto the metals industries. MIRC believes that the RCRA landfill options present the most potential for agreement among all of the stakeholders.

If you have any questions, please do not hesitate to contact us.

Sincerely,



John L. Wittenborn  
Counsel to the  
METALS INDUSTRIES  
RECYCLING COALITION

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<sup>7</sup> Scrap metal that does not meet dose-based standards would have to be disposed of at a licensed LLRW disposal facility.