The Honorable Steven Chu
Secretary
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

via email to The.Secretary@hq.doe.gov and *Scrap_PEAcomments@hq.doe.gov*

Re: Opposition to Proposed Lifting of Suspension of Recycling Radioactively-Contaminated Metals into the Consumer Metal Supply (77FR73996)

February 10, 2013

Dear Secretary Chu:

We write to express our opposition to your recent proposal to allow the release of radioactively contaminated metals from the Department of Energy (DOE) and National Nuclear Security Administration (NNSA) nuclear complex into the consumer metal supply, and disposal and incineration as regular nonradioactive trash.

Your decision, if finalized, would by its own terms (a millirem per year per lot or stream, DOE EA 1919 pg. 5, footnote 3) allow members of the public to be exposed to the equivalent of dozens of chest X-rays over their lifetimes from exposure to DOE nuclear waste, with no medical benefit and no informed consent. Physicians are careful to order X-ray examinations only when necessary because, as the National Academy of Sciences has repeatedly determined, all doses of radiation increase the risk of inducing cancers and leukemia and are harmful especially to vulnerable populations such as the unborn child.

This DOE proposal, if implemented, will contaminate the consumer metal supply. Treating contaminated metal like regular trash that goes to landfills, incinerators and recycling will lead to widespread exposure of the unwitting public. We think this is a dangerous and misguided policy that violates the fundamental medical ethic to "do no harm." It is medically contraindicated to deliberately administer unnecessary and potentially continuous radiation doses to the population at large, especially when they are completely preventable and serve no benefit to the recipients.

Because of widespread concern about the potential public health impacts of exposing the public to unnecessary radiation, former DOE Secretary Bill Richardson suspended the practice[1] and directed that new rules be established that would bar the release of metals with detectible radiation above background radiation levels. That suspension has remained in place for a dozen years, but the new rule[2] that DOE adopted (with no public input) does not prevent radioactive

[1] Department of Energy press release: Secretarial Announcement of Suspension of Release of Materials (Metals) from DOE Facilities July 13, 2000 http://www.nirs.org/radwaste/outofcontrol/appendix_d.pdf;

[2] DOE Order 458.1 establishes procedures to release contaminated metal using self-determined "authorized limits." https://www.directives.doe.gov/directives/0458.1-BOrder-admc2/view

releases; rather it sets up steps to allow dispersion of DOE-generated radioactivity. If the suspension is lifted, it will allow contaminated metal to be released into recycling and regular trash.

You have now signed off on a recommendation to end the suspension and allow contamination of the metal supply[3] with the additional option of considering contaminated metal to be solid waste[4]. We believe that this would be a significant mistake from a public health protection standpoint and urge you not to proceed with it. We advocate for no release. If DOE insists on release, it should not be done until a full PEIS, including adequate public input with hearings in many locations away from DOE sites, is completed. The background for and discussion of the basis for this request is provided below.

We need to carefully limit public exposure to radiation only to that which is unavoidable or is medically necessary, i.e. when the health benefit outweighs the health risk. Exposing members of the public to radiation, without their knowledge or consent, merely to avoid the trouble of properly disposing of radiation waste, is unwise at best from a public health standpoint. We urge you to maintain and make permanent the ban that has been in place for over a decade on the release of metals from radiation areas into commercial recycling and regular and hazardous waste disposal facilities. Ideally the ban would expand to cover all radioactive wastes, not only metal.

Sincerely,

Catherine Thomasson, M.D.
Executive Director
Physicians for Social Responsibility

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[3] Alternative 1 Draft DOE EA-1919 page 7 (pg. 14 of pdf)
http://energy.gov/sites/prod/files/DOE-EA-1919_Draft_EA_December_2012.pdf

[4] Alternative 2 Draft DOE EA-1919 page 9 (pg. 16 of pdf)
http://energy.gov/sites/prod/files/DOE-EA-1919_Draft_EA_December_2012.pdf
Releasing the metal as waste is not clearly described in the EA-1919 in which only 2 sentences describe the option, but following "…approved disposal methods at appropriate disposal sites…" could allow radioactive waste into solid or hazardous (not radioactive) waste facilities. If the metal were to continue to be considered 'radioactive' waste requiring radioactive disposal options, there would be no change from the current situation which requires all metal in radioactive areas to be considered radioactive waste. DOE 458.1

Background

Decades of secrecy and inadequate environmental practices resulted in severe pollution throughout the DOE nuclear complex. DOE facilities are among the most contaminated sites in the world. Cleanup activities, however, have not always reflected lessons learned from past mistakes. In the late 1990s it was revealed, for example, that DOE was proposing to not dispose of contaminated metals from its Oak Ridge facility in appropriate disposal sites but rather to sell the material as scrap to enter consumer use. Shortly thereafter it was revealed that contaminated metals from DOE's Santa Susana Field Laboratory had already been shipped to a metal recycler and melted down into the consumer metal supply. These and other actions produced an outcry which led Secretary Richardson to suspend the practice, and then issue an order requiring new rules be established barring the release of metals with detectible contamination above background. Subsequently, when public comment expressed concern about potential loopholes in the proposed rules and inadequate controls to assure that materials declared clean really were, Richardson ordered that a Programmatic Environmental Impact Statement (PEIS) be performed, making that a condition for ending the moratorium on releasing clean metals from radiological areas. Secretary Richardson also set as conditions waiting for results of a National Academy of Sciences study and, for volumetrically contaminated materials at least, for NRC to establish rules.

NRC decided against issuing rules allowing the release and recycling of contaminated metals. The NAS study concluded that there was such public concern about such a practice that it should not be approved unless there were significant public processes initiated to create a consensus on its acceptability. The PEIS that was started in 2001 was halted due to conflicts of interest and no public process has been conducted.

Yet DOE now proposes to ignore all those past conditions and simply revive the same old troubling policy of recycling contaminated metals, indeed, using 40-year-old standards that were never based on health considerations in the first place. As the NAS noted, those release criteria were established not based on risk but on the ready capability of field measurement instruments at the time—in other words, what was easy to measure 40 years ago, as opposed to what was arguably safe. But even according to the information provided by DOE in its Draft Programmatic Environmental Assessment (PEA), such standards pose an unacceptable and unnecessary health risk.

Discussion

The current DOE bans (scrap metal "suspension"[5] and volumetric metal "moratorium"[6]) on release of metal from radioactive areas of the nuclear weapons complex prohibit metal from

[5] Department of Energy press release: Secretarial Announcement of Suspension of Release of Materials (Metals) from DOE Facilities July 13, 2000 http://www.nirs.org/radwaste/outofcontrol/appendix_d.pdf;
DOE Secretarial Memo on Release of Surplus and Scrap Materials July 13, 2000
http://www.nirs.org/radwaste/outofcontrol/appendix_e.pdf

[6] Department of Energy press release: Energy Secretary Richardson Blocks Nickel Recycling…January12, 2000
http://www.nirs.org/radwaste/outofcontrol/appendix_c.pdf

going into commercial recycling or uncontrolled disposal.

DOE proposes to allow metal contaminated at DOE's own self 'authorized' release limits (as described in DOE Order 458.1, adopted with no opportunity for public input) based on disintegrations per minute (dpm) per 100 square centimeters for different groupings of radionuclides. These come from Regulatory Guide 1.86 of the old Atomic Energy Commission—an agency that doesn't even exist any more—and were never intended to be used for release of contaminated materials for recycling. The levels in Reg. Guide 1.86 have no health basis, but were purely based on what a hand-held instrument could easily see nearly half a century ago. DOE claims—but nowhere produces in the documents released any proof that this is the case—that those levels would result in no more than 1 millirem per year (mr/yr) of exposure.

A Nuclear Regulatory Commission report, Draft NUREG-1640, demonstrates that that claim is incorrect. For many isotopes, doses an order of magnitude higher are estimated. For example, cobalt-60 is estimated in that report to produce about 15 mr/yr at the dpm level allowed for release in Reg. Guide 1.86.

Furthermore, DOE makes clear that the limits it proposes for free release apply to each consignment ("lot" or "stream") of metal, and that there could be multiple lots or streams of radioactive metal released over the years, each supposedly producing 1 mr/yr of exposure. DOE concedes that doses would thus be some multiple of 1 mr/yr, but asserts that this would be acceptable because it would be unlikely to exceed 100 mr/yr; the total dose considered acceptable for members of the public from all DOE's air, water, waste and other emissions and releases. As indicated in the previous paragraph, because DOE has made no attempt in the PEA to demonstrate that these limits in fact would produce no more than 1 mr/yr individually, multiple shipments collectively could produce far more than 100 mr/yr.

But even if one merely focuses on the 1 mr/yr public exposure assertion by DOE for each lot or stream, this would be unacceptable from a public health standpoint. A single view chest X-ray for medical purposes, for example, produces about 2 mr of exposure. Thus 1 mr/yr, allowed as it is year after year over one's lifetime, would, yield 70 mr, or about 35 chest X-rays over a 70 year lifetime. But there would be no medical benefit, no informed consent, only added risk with no commensurate health reason for taking on that risk.

Even if DOE were correct that the maximum dose was 1 mr/yr per shipment of contaminated material, that dose is at the higher risk end of what EPA considers acceptable for a Superfund site after cleanup.[7] The official conversion for dose to risk, from EPA and from the NAS,[8] is about 1.14×10^{-3} cancers per person-rem of exposure. (For example ~1 person gets

[7] EPA, 1991. Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions, Office of Emergency and Remedial Response, Washington, DC. OSWER 9355.0-30. As stated in the EPA (1991) memorandum, "EPA uses the general 10 e-4 to 10 e-6 risk range as a "target range" within which the Agency strives to manage risks as part of a Superfund cleanup."

[8] HEALTH RISKS FROM EXPOSURE TO LOW LEVELS OF IONIZING RADIATION BEIR VII PHASE 2, Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation Board on Radiation Effects Research, Division on Earth and Life Studies, NATIONAL RESEARCH COUNCIL *OF THE NATIONAL ACADEMIES,* THE NATIONAL ACADEMIES PRESS, Washington, D.C., **www.nap.edu**; page 283, Table 12-9.

cancer in 1000 each receiving a rem or one in 10,000 each receiving .1 rem, and so on). 70 mr (1 mr/yr over a 70 year lifetime, as allowed under the DOE standard per contaminated group of metal released) thus increases cancer risk by about 10^{-4}, or 1 in 10,000, the upper end of the risk range EPA uses for all chemical carcinogens and for radionuclides in its Superfund program. It aims for 1 in a million (10^{-6}) risk and falls back to no higher than 10^{-4} if 10^{-6} for some reason can't be achieved.

But since multiple streams, each at 1 mr/yr, are allowed under the proposed policy, producing up to 100 mr/yr collectively, one should note that 100 mr/yr produces about a one in a hundred risk. Do we really find it medically acceptable to give people radiation for no medical purpose and which will result in a cancer in, on average, every hundredth person exposed? We say no.

However, the actual situation in the DOE PEA and proposed policy is actually far worse than described above. While DOE claims that the radioactivity levels allowed under the DOE release criteria would result in no more than 1 mr/yr per shipment, footnote "e" to the release criteria table [Table A-1 Release Criteria for Surface Activity (dpm/100 cm^2)] on p. 30 states that contaminated metals can be free released if the dose rate at 1 cm is no more than 1 millirad per hour for beta-gamma activity. For beta-gamma radiation, a millirad and a millirem are essentially interchangeable, so DOE's actual release table, rather than restricting doses to 1 millirem per year, is actually restricting it to 1 millirem per hour. Since there are 8760 hours in a year, DOE's maximum dose limit is 8760 mr/yr, not 1 mr/yr, according to DOE's own table. (The dose at 1 cm, in the table, is actually relevant, because metal recycling can result in metals being in intimate human contact, for example, earrings, belt buckles, zippers, dental braces, surgical implants, and so on.)

Let us be clear: even were the claim in the beginning of the PEA accurate (and no technical basis for it is provided) that each shipment would result in doses no greater than 1 mr/yr, and even assuming only one shipment, not multiple ones as permitted under the proposed standard, 1 mr/yr is the equivalent of a medically unnecessary chest X-ray every other year of one's life. There is no justification for such an imposition on the American public.

DOE produces the radioactive waste. It contaminated these materials. It should dispose of them properly. The American public should not be made into a kind of cheap disposal receptacle for DOE's radioactive waste, nor should regular trash facilities, not intended to isolate long-lasting radioactive metals from the DOE NNSA nuclear weapons sites' radioactive areas.