Recommendation 08-02

Title: Long Term Strategy for Disposal of Recyclable Material at the Paducah Gaseous Diffusion Plant

Background:

The U.S. Department of Energy (DOE) owns approximately 15,600 tons of high-purity (>99.9%) nickel which is volumetrically contaminated with uranium and trace quantities of technetium, neptunium and plutonium. Approximately 9,700 tons of unclassified nickel ingots are stored at the Paducah Gaseous Diffusion Plant (PGDP) and 5,600 tons of classified shredded nickel are stored at the former DOE uranium enrichment facility in Oak Ridge, Tennessee. In addition, DOE owns approximately 53 tons of unclassified aluminum ingots that have both volumetric and surface contamination and are stored at the PGDP. The nickel and aluminum were the byproducts of the Cascade Improvement and Cascade Uprating Projects conducted at Paducah, Portsmouth, Ohio, and Oak Ridge in the late 1970s and early 1980s.

On January 12, 2000, DOE placed a moratorium on the release of volumetrically contaminated metals pending a decision by the Nuclear Regulatory Commission (NRC) on establishment of national standards. The NRC continues to review this issue, and the moratorium remains in effect. On July 13, 2000, DOE further restricted the release of all scrap metals with radiation levels above the detectable background. Improved data collection and records management, public access to the data, public participation in the release decision process, and certification that all requirements are met were specified prior to release. This moratorium seeks to prevent public exposure to radiation above background resulting from recycling/reuse of contaminated DOE material in consumer products. However, the moratorium allows reuse for specific purposes by DOE-authorized nuclear facilities, the commercial nuclear industry and NRC licensees authorized to possess the material.

Restricted reuse of the nickel by DOE-authorized nuclear facilities, the commercial nuclear industry, or NRC licensees authorized to possess the material is the only viable near-term option for disposition of the ingots that could have economic benefit to DOE. Section V.4.c of DOE 5400.5, *Radiation Protection of the Public and Environment*, states that:

> Scrap metal that does not meet the requirements of Paragraphs V.4.a and V.4.b may be –
>
> (3) released for restricted recycling with a designated use (e.g., waste containers) if the material meets DOE approved Authorized Limits for the designated use and there is reasonable assurance that the property will not be recycled into general commerce.

Representative Ed Whitfield (R-KY) recently wrote a letter urging Energy Secretary Bodman to end the moratorium and allow communities to reap proceeds from nickel recycling. On May 9, 2007, DOE sought input through an Expression of interest (EOI) from industry representatives on the safe disposition of the nickel with an option for the disposition of the aluminum ingots at the PGDP. Use of the recycled nickel and possibly aluminum would be restricted to controlled government and/or commercial radiological applications. The EOI does not commit DOE to a subsequent solicitation. DOE reserved the right to issue joint, separate or hybrid solicitation(s) for any or all of the metal.

Recycling of the nickel and possibly the aluminum could have a positive economic effect on the Paducah community. Increased demand for nickel in the nuclear industry, increased market price, and advances in metal reprocessing capabilities make this an opportune time to proceed with recycling. It has been advocated that recycling and selling the nickel could be worth several hundred million dollars and the proceeds of selling the nickel should be returned to the community. Earlier in the year, a firm was considering building a factory here employing several dozen people to recycle the scrap nickel. The possibility of building a recycling plant in Paducah to recycle and clean the nickel should be emphasized in any solicitation for disposal of the nickel at PGDP. Companies have been able to use vaporization to reduce the contamination level in the nickel. Building a recycling plant at or near Paducah would be beneficial to the local community and could attract end users of the nickel to locate in the Paducah area.

The PGDP Citizens Advisory Board recommended to DOE in August that:

1. DOE should proceed with a solicitation for disposition of the nickel ingots at PGDP.
2. The solicitation for nickel ingots at the PGDP should be separate from other solicitations associated with the EOI to maximize the potential benefit to the Paducah community.
3. DOE should issue a solicitation for disposition of the aluminum ingots at the PGDP if EOI responses indicated economic viability.

Although no final decisions have been made regarding the disposition of the nickel at the PGDP and Oak Ridge, should DOE determine to sell the nickel, an expected release of the draft Request for Proposal would be issued in the spring of 2008. While the existing nickel ingots at PGDP represent a significant government resource, the eventual decontamination and decommissioning (D&D) of the Portsmouth and Paducah gaseous diffusion plants (GDPs) could generate quantities of recoverable and recyclable materials comparable to those currently existing. The extent of recycling will directly affect the amount of contaminated material that must be sent to on- or off-site disposal sites. It will also affect the scope and longevity of the processing envisioned in the upcoming nickel solicitation.

Recommendation:

The PGDP Citizens Advisory Board recommends the following with regard to disposal of nickel and other recyclable metals at the PGDP:

DOE should develop a strategy for disposal of all recyclable metals that will be generated during the D&D of the GDPs to maximize reuse/reclamation. This strategy should include:

a. Preparation of an overall strategy for disposition of all D&D recyclable metals, including final disposition of nickel in process equipment

b. Formulation of an incremental release strategy for recyclable metals to avoid unacceptable market upsets

c. Development of acceptable release criteria to private sector for radiation levels within all recyclable metals.

d. Reconsideration of moratorium on conditions for free release of volumetrically contaminated metals.