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Submitted via email: RFI-UraniumTransfers@hq.doe.gov

Ms. Cheryl Moss Herman
U.S. Department of Energy
Office of Nuclear Energy
Mailstop B-409
19901 Germantown Rd.
Germantown, MD 20874-1290

Subject: Office of Nuclear Energy Request for Information in Support of Secretarial Determination
Covering Transfers of Uranium (81 FR 46917)

Dear Ms. Herman:

I am writing in response to the Office of Nuclear Energy Request for Information (RFI) regarding the potential impact of U.S. Department of Energy (DOE) transfers in the uranium markets (81 FR 46917). My comment, detailed in the attached, relates to the need to forego near-term downblending of highly enriched uranium (HEU) below 20%, in anticipation of the demand for such material in support of upcoming advanced reactor development.

If you have any questions regarding these comments, please feel free to contact me at your convenience.

Sincerely,



Peter S. Hastings, PE

Responses of Peter Hastings (The Hastings Group, LLC) to
Office of Nuclear Energy Request for Information in Support of
Secretarial Determination Covering Transfers of Uranium (81 FR 46917)

Background

As discussed in the RFI, DOE is preparing for a potential new Secretarial Determination covering transfers of uranium for cleanup services at the Portsmouth Gaseous Diffusion Plant and for downblending of highly-enriched uranium (HEU) to low-enriched uranium (LEU). The RFI solicits information from the public about the uranium markets and domestic uranium industries, and the potential effects of DOE transfers in the uranium markets and possible consequences for the domestic uranium mining, conversion and enrichment industries, and indicates DOE will consider this information in deciding whether transfers would have an adverse material impact on the industry.

Comments

Several entities, including a number of startup organizations, are developing advanced reactor designs intended to facilitate clean, safe energy production with significant enhancements in safety margins, and also to meet emerging demands for off-grid energy solutions. These efforts also support a national imperative to maintain and enhance US leadership in new nuclear development.

Many of these advanced, non-light-water designs are expected to rely on nuclear fuel enriched above 5% U-235. Most (if not all) domestic civilian enrichment facilities and fuel fabricators are limited by license to less than 5%.

Amending these facility licenses to increased enrichments is possible, but would represent a substantial cost and resource burden, particularly for initial advanced reactor deployments to undertake on their own.

Alternatively, an existing reserve of HEU – currently slated for downblending to below 5% – could support this important industry initiative and provide sufficient time for the market to develop such that converting existing facilities to support higher enrichments would be cost effective. Limited downblending to just below 20% (e.g., 19.75%) would enable holding this material in reserve for these purposes. Continued downblending below this level (i.e., to below 5%) would effectively make this material unavailable in support of these advanced designs, at least without reenrichment.

In the absence of an urgent market need for 5% material, it is an unnecessary expenditure of time and resources to eliminate this material through downblending to 5%. It also increases the burden on the industry and the cost of material in support of advanced reactors. Deferring an appropriate amount of material downblending below 19.75% saves that cost.

I am aware of estimates of the amount of material needed to hold in reserve in the range of 20 to 200 metric tons of HEU to produce 19.75% enriched uranium. I am insufficiently versed in the details of this analysis to substantiate it as part of these comments, but recommend DOE conduct an assessment of the necessary amount for deferral and program it into the upcoming Determination.

The RFI asks for input on “adverse material impact on the domestic uranium mining, conversion, or enrichment industry,” and also requests “comments on other topics that commenters consider significant in preparing for a potential new Secretarial Determination.” It is my belief that needless

downblending below 19.75% constitutes an adverse impact to domestic mining, conversion, and enrichment, because of the potential cycling of those market sectors to account for new advanced reactor deployment, when it is also possible that market might not develop predictably in the near term. On the other hand, holding material in reserve at 19.75% preserves the opportunity to support new reactor initiatives, while allowing the higher-enrichment market to develop more predictably in response to customer needs. Holding this material in reserve also supports an essential need for any near-term new reactor development.