



# WYOMING MINING ASSOCIATION

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September 14, 2016

Ms. Cheryl Moss Herman  
U.S. Department of Energy  
Office of Nuclear Energy  
Mailstop NE-52  
19901 Germantown Road  
Germantown, MD 20874-1290

**Subject: Wyoming Mining Association (WMA) Comments on the Department of Energy (DOE) Notice Entitled *Excess Uranium Management: Effects of DOE Transfers of Excess Uranium on Domestic Uranium Mining, Conversion, and Enrichment Industries; Request for Information, Federal Register Volume 81, Number 138, Tuesday, July 19, 2016, Notices pages 46917 to 46918***

Dear Ms. Herman:

The Wyoming Mining Association (WMA) is an industry association representing mining companies, contractors, vendors, suppliers and consultants in the State of Wyoming. Among its mining industry members are uranium recovery licensees, including five (5) operating in-situ uranium recovery licensees, one conventional uranium recovery operator in standby, several companies planning new uranium recovery operations that are currently in the permitting process and several companies conducting final reclamation/restoration operations.

Total uranium concentrate (U<sub>3</sub>O<sub>8</sub>) production in the United States in 2015 was 3,343,000 pounds (U.S. Energy Information Administration [EIA] - *2015 Domestic Uranium Production Report*). 2015 Wyoming uranium production was 2,563,000 pounds U<sub>3</sub>O<sub>8</sub> (World Nuclear Association - <http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/appendices/us-nuclear-fuel-cycle-appendix-1-us-uranium-mining.aspx>). Wyoming contributes the largest share of any state to the total production of uranium in the United States. As such the issues raised in this *Request for Information* are of special concern to the WMA and its uranium recovery industry members.

The following are WMA's comments on the ***Excess Uranium Management: Effects of DOE Transfers of Excess Uranium on Domestic Uranium Mining, Conversion, and Enrichment Industries; Request for Information***.

### **Adverse Material Impact**

The Department of Energy (DOE or Department) has failed to define "*Adverse Material Impact*". The USEC Privatization Act (P.L. 104-134), states that before making any uranium transfers, the Department must certify proposed transfers will not have "...an adverse material impact on the domestic uranium mining, conversion, or enrichment industry." Absent a clear definition of the phrase's meaning, the domestic uranium industry has no means to measure the effect of the Department's barter transactions on the uranium markets.

As far as the Wyoming uranium recovery industry is concerned, the best way to define "*adverse material impact*" is to compare the value of the uranium being transferred to the average cost to produce uranium in the United States. Simply put, the Department should define adverse material impact as any proposed uranium transfer where the value of the uranium at the time of the transfer (as measured by the spot price) is below the cost of producing uranium in the U.S. According to the EIA, the average total cost for U.S. uranium production was

\$66.86<sup>1</sup> per pound in 2015. The total average cost includes exploration, production, restoration, land, plant capital, wellfield capital, regulatory permitting, etc. EIA estimates average production costs alone at \$35.45 per pound. The WMA recommends DOE stop all transfers when the spot market price is below the EIA reported production cost (currently \$35.45 per pound) and severely limit transfers when the spot price is below the total production cost (\$66.86 per pound).

If the value of uranium DOE is proposing to transfer, as measured by the spot market price at the time of the transfer, is below U.S. production costs, DOE should conclude any transfer will have an adverse material impact and should cease further transfers until the market recovers. With the current uranium spot price at \$25.25 (as of September 12, 2016), DOE should halt any additional transfers in 2016 and postpone all future transfers until the market price recovers.

In addition to establishing a clear metric for adverse material impact, DOE should also look at the overall health of the domestic industry, as measured by the percent of U.S. reactor requirements that is met with domestic uranium. In 2008, the DOE approved a management plan that limited transfers to 10 percent of domestic fuel requirements. We recommend DOE reinstate that policy.

Finally, under no circumstance should DOE transfer more uranium than the U.S. uranium industry is producing. In 2015 and 2016, the total amount of DOE uranium impacting the market, including the TVA BLEU material, approaches 14.2 million pounds<sup>2</sup>. Over this timeframe, this amount of DOE material is more than double U.S. production and is also well above 10% of U.S. 2015 and 2016 reactor requirements.

### **Providing Transparency on Inventory and Developing New Management Plan**

Before issuing another Secretarial Determination, WMA encourages the Department to make additional information publicly available about the excess uranium inventory, including the amount and type of material that remains in inventory and any plans to declare additional material to be excess to national security needs.

In addition, an agreement needs to be reached regarding what the nation's national security needs are. In an increasingly unstable world, national security needs may increase dramatically.

WMA also requests that the Department update its inventory management plan, including reforming how the material enters the market. Certain segments of the domestic uranium recovery industry have urged the Department to consider working with the industry to sell the material through stakeholder long-term contracts, which would lessen the impact on the industry and market and provide taxpayers better value for this asset. Unfortunately, the Department has never responded. WMA encourages the Department to engage the key stakeholders to identify ideas to lessen the impact of future uranium transfers on the domestic uranium and conversion industries.

In the July 2013 Department's *Excess Uranium Inventory Management Plan* (2013 Plan), it stated that it "*is committed to managing excess inventories in a manner that ... Is consistent with and supportive of the maintenance of a strong domestic uranium industry.*" It is evident that a strong domestic uranium industry has not been maintained, with production dropping 30 percent from 4.7 M lbs in 2013 to 3.3 M lbs in 2015<sup>3</sup> and a further drop expected in 2016. Drilling is the harbinger metric for the uranium recovery industry's maintenance and growth, and has dropped over 70 percent from 3.8 M feet in 2013 to 0.9 M feet in 2015<sup>4</sup>. It is clear that the

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<sup>1</sup> EIA 2015 Domestic Uranium Production Report published May 2016 (\$223.5 M Total Expenditures in Table 8 / Total Uranium Concentrate Production @ 3.343 M lbs in Table 3).

<sup>2</sup> UxC Uranium Market Outlook 2016 Q3, Table B-15

<sup>3</sup> EIA 2015 Domestic Uranium Production Report published May 2016 - Table 3. U.S. uranium concentrate production, shipments, and sales, 2003-15, Total Uranium Concentrate Production

<sup>4</sup> EIA 2015 Domestic Uranium Production Report published May 2016 - Table 1. U.S. uranium drilling activities, 2003-15, Exploration and Development Drilling

domestic industry is not strong and is in fact struggling to survive. The WMA requests that the Department honor its commitment in the 2013 Plan and halt further transfers until such time as the uranium and conversion markets recover.

### **Responses to Specific Request for Information (RFI) Questions**

TradeTech, a leading uranium market analyst, was commissioned by the Uranium Producers of America (UPA) to conduct an assessment of the impact of Department uranium transfers on the domestic uranium recovery industry. Some of the highlights of this assessment are cited below.

#### **(1) What are current and projected conditions in the uranium markets and the domestic uranium mining, conversion, and enrichment industries?**

The domestic uranium recovery and conversion industries are struggling to survive. The spot price on July 15, 2016 was \$25.00/lb U<sub>3</sub>O<sub>8</sub>, the lowest price since 2005. Long-term prices have been impacted as well, dropping from \$70 to \$38 per pound U<sub>3</sub>O<sub>8</sub>. The uranium and conversion markets continue to suffer with persistent oversupply from price insensitive sources and limited uncommitted demand. In response to these adverse market conditions, the domestic uranium recovery industry has lost about half of its workforce since 2012 and production has been halted at various sites. Domestic uranium production has declined by 32 percent<sup>5</sup> between 2014 and 2015.

This trend of industry contraction continues. For the first half of 2016, U.S. uranium concentrate production totaled 1,371,828 pounds U<sub>3</sub>O<sub>8</sub>. This amount is 29% lower than the 1,944,388 pounds produced during the first half of 2015<sup>6</sup>. The largest domestic uranium producer in the United States, Cameco, recently announced plans to halt U.S. production until the market recovers. With this announcement came notifications of worker layoffs which directly impact Wyoming's economy.

TradeTech notes:

*Suppliers in today's uranium market face significant challenges, including oversupply, discretionary demand, reduced contractual coverage among buyers, and a heightened risk profile in the capital markets.*

*Declining uranium producer profit margins further reflect the circumstances that have defined the domestic uranium industry in the post-Fukushima period. In recent years, many uranium producers have interpreted persistently low spot prices, declining realized prices, low liquidity, and reduced appetite for term contracting among buyers as significant market signals and have consequently reduced, deferred, or mothballed production. Price-insulated, price-insensitive, and politically strategic supply sources are not responsive to such signals and continue to flow into the market, postponing a potential market recovery.*

*These factors combined have placed sustained downward pressure on uranium prices, the adverse material effect of which has been net losses totaling over \$105 million dollars for US uranium producers with active domestic uranium production centers in the USA in 2015.*

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<sup>5</sup> EIA 2015 Domestic Uranium Production Report published May 2016 - page 1: "Total production of U.S. uranium concentrate in 2015 was 3.3 million pounds U<sub>3</sub>O<sub>8</sub>, 32% less than in 2014"

<sup>6</sup> EIA Domestic Uranium Production Report 2<sup>nd</sup> Quarter 2016, published August 2016 - Table 1. Total production of uranium concentrate in the United States, 1996 – 2<sup>nd</sup> Quarter 2016

The effects of the current market conditions and Department transfers will be magnified as legacy contracts at higher prices continue to expire. This nation is on the verge of a national security crisis when it comes to ensuring we have a stable indigenous supply of uranium for our nuclear power plants. This country now imports or relies on DOE transfers for about 93 percent of the uranium needed to fuel domestic nuclear reactors.

**(2) What market effects and industry consequences could DOE expect from continued transfers at annual rates comparable to the transfers described in the 2015 Secretarial Determination?**

According to the analysis conducted by TradeTech, DOE transfers have had a cumulative impact of \$16.95 per pound over the 2012-2015 time frame. The annual impact has increased each year, with an average spot price reduction of \$4.24/lb per year. In 2015, despite a lower transfer rate, TradeTech calculated the drop in spot price attributable to DOE transfers at \$6.14/lb, a 47.6 percent increase above the 2014 median impact. Over the 2012-2015 period, the annual price drop attributable to DOE transfers has increased an average of about 31.3 percent per year (see TradeTech Figure 3 – Median Impact).

If transfers continue over the next three years at TradeTech's 2015 median impact of \$6.14/lb, the cumulative impact on uranium producers will average \$35.46 per pound over the 2012-2018 period. However, if the annual rate of impact continues to increase at the 31.3 percent average annual rate evident over the 2012-2015 period, the total cumulative impact will reach \$49.64 per pound. By any measure, these are clearly adverse material impacts.

TradeTech noted:

*Over the last six months, the long-run uranium spot price decline has gained momentum. This has served to highlight the fact that while a marginal spot price reduction that can be linked to a specific cause may not appear to be especially impactful in the short-run, there appears to be a compounding accelerating effect when none of the factors abate for an extended period of time.*

TradeTech concludes additional Department transfers will continue to have a "measurable adverse material impact" on uranium market prices and producers. This is not a surprising conclusion, particularly when the Department is transferring uranium at a value below average U.S. production costs.

**(3) Would transfers at a lower annual rate or a higher annual rate significantly change these effects and, if so, how?**

Any transfers in the current market environment are very detrimental. Higher rates of transfers would be devastating. As discussed above, market conditions have deteriorated considerably since the Department issued its last Secretarial Determination in May 2015. While a lower annual rate of transfers would certainly be an improvement, WMA requests that further transfers be suspended until the market can recover.

Department uranium transfers in these market conditions are wasting a valuable taxpayer resource and are causing serious harm to a vital domestic industry.

The Department is statutorily required to ensure its transfers are not having an "adverse material impact" on the domestic uranium recovery industry. Prior to examining the impacts of uranium transfers, the Department must define what constitutes an "adverse material impact". The Department's failure to define "adverse material impact" forces the WMA to conclude that the Department's decisions are driven by the level of funding required to maintain the pace of the remediation projects as opposed to the impact the transfers are having on the domestic uranium recovery, conversion, and enrichment industries. TradeTech's concluding remarks in its report summarize the situation well:

*Looking to the future, TradeTech's models indicate that DOE material transfers entering the spot uranium will continue to have a measurable adverse material impact on uranium market prices and, by extension,*

*uranium producers. If DOE were to completely cease material transfers, then producers would see improvement in the market.*

**(4) Are there any anticipated changes in these markets that may significantly change how DOE transfers affect the domestic uranium industry?**

The challenges facing the domestic uranium industry are expected to worsen with the Department's price insensitive transfers continuing to impact the market and the limited uncommitted demand able to absorb them. Market prices are expected to remain under pressure until the market returns to a production-driven as opposed to inventory-driven market. As domestic nuclear reactors continue to go offline, higher priced long-term legacy uranium supply contracts expire, and surplus Department material continues to enter the market, conditions will continue to deteriorate for the production industry.

EIA data show a 23 percent increase (25 M lbs) in U.S. utility inventory from 111 M pounds U3O8 equivalent at the end of 2010 to 136 M pounds at the end of 2015<sup>7</sup>. Trade Tech information from the Euratom Supply Agency revealed an increase of 17 M pounds over the same period. In total, this is a 42 M lb increase in utility inventories. DOE material impacting the market over the same period totals 39.1 M pounds<sup>8</sup>. Clearly, it can be concluded that much of the inventory increase is a direct result of the Department's material transfers. Inventory will need to be absorbed into reactor requirement schedules before a market recovery can materialize.

The balance of the Department's transfers for the 3<sup>rd</sup> and 4<sup>th</sup> quarter 2016 are approximately 1,300 M metric tons U (3.4 M lbs U3O8) and completely overwhelm both the U.S. and the non-U.S. uncommitted utility demand of only 0.3 M lbs for the remainder of 2016<sup>9</sup>. In essence, the Department's price insensitive material effectively consumes any available market for domestic producers. As long as the uncommitted demand in the uranium market is unable to absorb the Department's price insensitive supply along with other material for sale, prices will continue to be severely impacted.

Knowing there is excess price insensitive material entering the market, the trading community will often sell material for future delivery periods below the existing spot price or forward price curve in order to entice a utility to purchase material they do not need in the near term. This translates into pricing pressure across the entire uranium market enabling acquisition at lower prices, often at later dates. In these cases, the excess supply is absorbed primarily by the trading community that then finances the material for forward sales. As a result, this delays the prospect for a price recovery by "stealing" future uncommitted demand that would otherwise be available in upcoming years. Halting of price insensitive material entry into the fuel markets would be immensely constructive for the domestic uranium and conversion markets. As opposed to current methods, working with the stakeholders to help craft a more market friendly plan for disposition of the Department's excess inventory would yield better returns for the taxpayer, the Department and the uranium recovery and conversion industries as well.

In the early to mid-2020s, the prospect for a market recovery appears to have strong potential. The level of uncommitted demand is large enough to absorb supply from producers, as well as excess inventory anticipated from the Department without the extreme price pressure resulting from the Department's current disposition methods. The macro supply-demand picture is projected to improve in this time frame, with aggregate forces showing characteristics more favorable to absorb excess Department inventory. This of course is partly dependent on a halt of material being transferred into the market between now and then. We suggest that the Department take note of these market dynamics and work with the stakeholders to help manage this nation's excess uranium and conversion inventories.

**Conclusion**

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<sup>7</sup> EIA 2015 and 2014 Uranium Marketing Annual Reports – Table 23

<sup>8</sup> UxC Uranium Market Outlook Q3 2016 and Q4 2013 – Table B-15

<sup>9</sup> UxC Uranium Market Outlook Q3 2016, Table B-10

DOE has failed in previous Secretarial Determinations to recognize the importance of the domestic uranium industry to our nation's energy security and independence. Congress enacted U.S. Code Section 2297h-10(d) in order to assure that the disposition of the government's excess uranium inventories would not adversely impact the domestic uranium recovery and conversion industries. In past Determinations, the Department has valued the programs that benefit from its barter transactions more than the health of the domestic uranium recovery industry. This action has been called into question by the Court, and the Department must now consider implementing an objective method by which to conduct its Secretarial Determinations. While it is unfortunate that the revenues from the Department's barter transactions may not be available temporarily using such a test, the Department, like the domestic uranium recovery and conversion industry, must recognize the market realities in which domestic companies are struggling to survive, and recognize the potential for increased taxpayer returns using such a method.

The Wyoming Mining Association urges the Department of Energy to consider the condition of the current U.S. uranium and conversion industry and halt transfers until the market recovers. Specifically, WMA recommends DOE stop all transfers when the spot market price is below the EIA reported production cost (currently \$35.45 per pound) and severely limit transfers when the spot price is below the total production cost (\$66.86 per pound). We also encourage DOE to define "adverse material impact" before proceeding with another Secretarial Determination and work with industry to develop a more market friendly plan for disposition of DOE's excess inventory.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jonathan Downing". The signature is stylized and fluid, with a long horizontal stroke extending to the right.

Jonathan Downing  
Executive Director

cc: Katie Sweeney - National Mining Association (NMA)