

**Written Testimony of Mr. Frank Hahne, Uranium Barter Manager
Fluor-B&W Portsmouth LLC
Before the Committee on Oversight and Government Reform,
Subcommittee on the Interior
April 22, 2015**

Please accept my regrets but due to a long standing scheduled conflict outside the United States, I am unable to participate in today's hearing. I submit this written testimony and respectfully ask that it be included in the record of today's hearing of the Subcommittee on the Interior of the Committee on Oversight and Government Reform.

Since 2012, I have served as the Uranium Barter Manager for Fluor-B&W Portsmouth LLC. My responsibilities include the management of a Department of Energy uranium barter program that monetizes over \$200 million in annual funding for the decontamination and decommissioning (D&D) of the former uranium enrichment facility in Piketon, Ohio.

Fluor-B&W Portsmouth LLC (FBP) is currently the contractor at the Portsmouth Ohio site who receives transfers of Department of Energy (DOE) owned natural UF₆ as barter transfers as set forth in our Prime contract (Contract DE-AC30-010CC4017). FBP completed transition on the Portsmouth site March 28, 2011 and executed the first natural uranium barter transfer from DOE in June 2011. Since June 2011 DOE has transferred 7,305 MTU to FBP through December 31, 2014. In turn, FBP has granted DOE \$824 million in credits towards FBP Decontamination & Decommissioning (D&D) services carried out at the Portsmouth Ohio site for DOE.

This material has been sold by FBP to Traxys North America (Traxys) under commercial contract terms that are confidential. Objectives of the FBP-Traxys UF₆ Sales Agreement were designed to structure a predictable and reliable source of supply that efficiently monetizes the UF₆ into the U.S. and international nuclear fuel markets. To minimize the impact upon the near-term spot market supply-demand-price balance, Traxys has placed over 50% of the DOE-to-FBP-to-Traxys UF₆ into long-term, multi-year contracts. In their response to the RFI in January Traxys has increased the quantity of material placed in forward-delivery contracts to approximately 90% of the material contracted from FBP to Traxys through early 2016. The 2009-2010 barter conducted by FBP's predecessor, United States Enrichment Corporation (USEC), resulted in 100% entering the spot market. FBP has voluntarily followed advice from the domestic industry to devise a supply chain model to minimize the amount of DOE bartered UF₆ entering the spot market and time shift it to forward deliveries, if possible. The FBP-to-Traxys model has moved from 100%-to-50%-to-10% of DOE bartered material being sold into the 0-12 months spot market.

The DOE UF₆ barter program has not had an adverse material impact on the domestic uranium industry as shown by recent DOE Energy Information Administration (EIA) data. A few observations:

- The price paid for United States origin uranium over the past 20 years has been at its highest in the last five years;
- United States uranium production has been increasing since barter began and is at its highest levels since 1997;
- United States uranium employment (2009-2012) has grown;
- United States uranium producers market capitalization has increased significantly over time with many approaching pre-Fukushima highs over the last three months; and
- Term and spot UF6 conversion prices are up 40% to 45%.

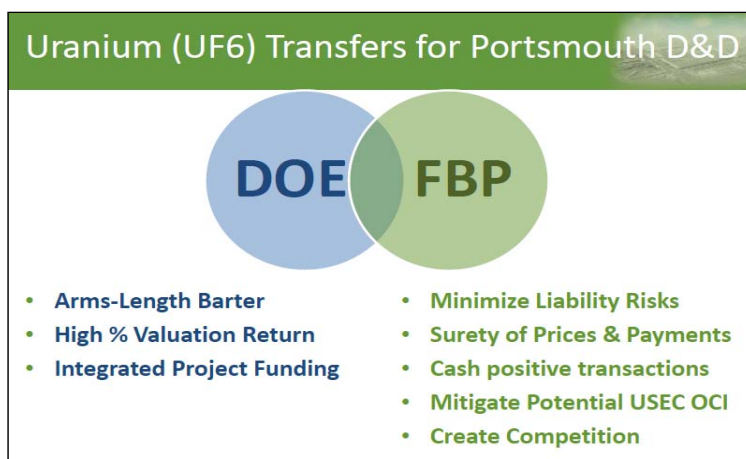
Background

The Portsmouth Site began operations to expand the supply of highly enriched uranium for military purposes, as well as to contribute fuel to a growing nuclear power industry. The more 3,000 acre site has three large process buildings built with more than 14,000 tons of steel to reinforce the concrete floors, 600 miles of process piping, and 1,000 miles of copper tubing. More than 500,000 cubic yards of concrete was used to complete the site. In 2001, uranium operations at the site ended, and closure operations began.

On August 16, 2010 the DOE selected Fluor-B&W Portsmouth LLC (FBP) as the winning contractor for a 5 year D&D contract at the Portsmouth Ohio site. As outlined in Section H.42 *Uranium Transfer*, DOE may transfer title for natural uranium hexafluoride to FBP on a quarterly basis in exchange for an equivalent fair market value of services.

On March 1, 2011 the Secretary made a determination for 4,560 MTU as UF6 to be bartered by DOE for Portsmouth D&D services from 1Q 2011 – 3Q 2013. USEC conducted the 1Q 2011 barter for DOE.

During the 7 months from October 2010 through May 2011 FBP established a structured uranium program within FBP to accept transfers from DOE. Fluor and B&W have no current uranium market presence. Therefore, FBP conducted a methodical investigation that resulted in the selection of an active uranium market participant to allow FBP to offer DOE the highest valuation possible. The combined goals pursued to meet both DOE and FBP's interests throughout this process are graphically summarized below:



The FBP-to-Traxys Contract allowed FBP to offer the highest value of D&D services to be bartered to DOE, while eliminating the highly publicized quarterly auctions. The contract met Fluor and B&W companies risk management requirements. To achieve this highest value FBP requires quantity flexibility to always remain within the DOE Secretarial Determination quarterly timing and quantity limits.

FBP identified companies that had experience taking U3O8/UF6 from DOE or from the United States-Russia Highly Enriched Uranium Purchase Agreement. Additional entities that had North American nuclear fuel cycle facilities in mining, milling, conversion, enrichment and fabrication were added to the list and active market entities were also identified. Initial screening parameters were used to visit with this list of about two dozen companies either face-to-face at WNA/NEI conferences or telephone/email exchanges to identify a short-list of FBP-qualified companies that expressed an interest during this 2011-2013 timeframe.

FBP initially approached a number of the largest electrical utilities to see if they would enter into a long-term UF6 supply contract with FBP; but found that during the 2011-2013 period were not interested in purchasing additional UF6 from FBP during that timeframe, or only a small quantity. During this competitive dialogue process, FBP communicated the most important criteria we were looking for to meet both FBP’s need for a secured transaction that yielded the highest value for the uranium—that would be translated by FBP into equivalent D&D services for DOE through the valuation process agreed to with DOE.

FBP ultimately selected Traxys of North America as the preferred company to enter a sales contract from FBP to Traxys. They offered the highest estimated value. Traxys agreed to post a surety of as part of its payment terms to give FBP assured product payment, which increased FBP’s confidence. Traxys met FBP’s original goal of finding an alternative that would give comparative value to the historical auction model, and also provided an “off-market” transaction that will be less disruptive to the market than quarterly auctions.

The Traxys contract not only met expectations for value, but also the necessary risk minimization goals for FBP. The arrangement allowed FBP to offer the highest value of D&D services to be bartered to DOE, while eliminating the highly publicized USEC quarterly auctions. The model met Fluor and B&W companies risk management requirements. FBP

required the flexibility of always remaining within the DOE Secretarial Determination quarterly timing and quantity limits that have been updated since 2011, in May of 2012 and May of 2014. Stability was achieved by having the entire forward quantities of UF6 placed under contract in advance.

In light of this introductory background, FBP offers its comments within the structure set forth in the DOE's Federal Register request for comments about RFI submitted information, DOE's analytical approach (including Factors for Consideration), the 2015 ERI report (ERI-2142.18-1501- *Analysis of the Potential Effects on the Domestic Uranium Mining, Conversion and Enrichment Industries of the Introduction of DOE Excess Uranium Inventory During CY 2015 Through 2024*) referenced within, and The Summary of Information Under Consideration. FBP has utilized the services, data and input from NAC International (NAC) to supplement FBP's insights and comments contained herein.

First, FBP is directly involved in approximately two-thirds or 68% of the total DOE equivalent natural uranium hexafluoride material transferred into the commercial markets during 2014. That would be 2,055 MTU as UF6 or an equivalent 5.2 million pounds of U3O8 that flow from the Environmental Management (EM) department of DOE. This material has been transferred to FBP by DOE at the rate of 600 MTU per calendar quarter, with the 4th quarter reduced to 255 MTU to equal the annual amount of 2,055 MTU.

“Domestic Industry” includes Portsmouth, Paducah and Oak Ridge sites”.

FBP believes that DOE/ERI has too narrowly defined the “Domestic Uranium Mining, Conversion and Enrichment Industries” since the positive effects upon FBP's 1,345 site employees and subcontractors should also be included in the industry analyses of the impact of uranium transfers (The number would be 1,824 if FBP subcontractors are included). Every industry trade association in the world includes not only primary suppliers, but also secondary suppliers and supply chain companies in their “Industry” populations. For example, even though there is only one active U.S. enrichment primary producer (URENCO-LES in Eunice NM) there are active nuclear services participants performing important roles within of the domestic enrichment industry. Remediation, reclamation, decontamination, decommissioning and waste management are all services that are a part of the total nuclear life-cycle and supply chain (i.e. Industry).

Domestic Industries	Domestic Location(s)	Source of Reference	No. of Employees/ Subcontractors
Uranium	See Detailed List in EIA Reference (CO, NE, TX, UT, WY, etc.)	DOE EIA Annual Report 2013 for Domestic Uranium Production Report	1,153
Conversion	Honeywell Metropolis IL	ERI-2142.17-1401/April 2014 – Public Record 53-2	300 (Est. Site Staff)
Conversion*	FBP Portsmouth – Piketon OH	FBP NIPC Response – FJ Hahne Letter	UF6 Transfer Ops staff (See below)
Enrichment	URENCO-LES Eunice NM	LES Information	300 (Estimated Ops Staff) 600 (Est Construction)
Enrichment	Portsmouth – Piketon OH Site Includes: FBP, BWCS, Centrus, and Subcontractors	FBP NIPC Response – FJ Hahne Letter	2,518 (Site Staff)
Enrichment	FGG - Paducah KY	FBP NIPC Response – FJ Hahne Letter	1,472
Enrichment**	B&W-Nuclear Fuel Services – Erwin, TN	Public Information	1,000(Site Staff) 130 (HEU-to-LEU Staff)
Enrichment	GLE - Wilmington NC	Not Available	Not Available
Enrichment	UCOR - Oak Ridge TN	2014 Annual Review -UCOR	1,400

* As an additional part of FBP’s commitment to the U.S. DOE to perform D&D services in a safe and cost-effective manner for the benefit of U.S. taxpayers we also include reclamation and recovery of materials that have potential commercial value—such as 30 year old natural uranium hexafluoride (UF6). FBP recovers, processes and then DOE barter the Excess Uranium Transfers to the commercial nuclear fuel supply chain through FBP. This reclaimed bartered resource has provided over 50% of the payroll in recent years to conduct D&D operations at the Portsmouth OH site.

** As an integral part of the U.S. National Non-proliferation mission NFS is the only active commercial plant that can downblend HEU into LEU (4.95%) for the U.S. Government. It requires a Category 1 U.S. NRC license to carry out such an elevated enrichment mission.

Legislation requires DOE to assess whether there is an adverse material impact on the domestic industry—not just the production portion of the industry. Industry includes more than just the primary producers. The industry also includes consumers, processors, traders, brokers, users and other service providers such as companies that provide drilling, transportation, decontamination and decommissioning (D&D) services. It is not possible to have sales without consumers and brokers and traders also play a role in sales. Production cannot occur without the services providers. A production facility must set aside funds to cover D&D and convince NRC that these funds are adequate to cover the costs. These entities have a significant stake in the industry and their interests should also be considered.

The U.S. utility fuel buyers/consumers have a particularly large interest in the outcome of the Secretarial determination. Not only may DOE’s actions affect the prices they pay but they could also have another impact. Currently DOE funds the D&D of the former enrichment sites from two sources: the barter of excess uranium and the D&D fund created from utility and government contributions. DOE has determined that these funds are inadequate and has proposed collecting additional funds from the users of the enriched uranium produced. If

DOE is successful the funds not provided by the barterers would come from the consumers, mostly U.S. electricity providers. Even if the barterers are only delayed due to a reduction in funding, D&D costs would rise substantially and require significant additional funds.

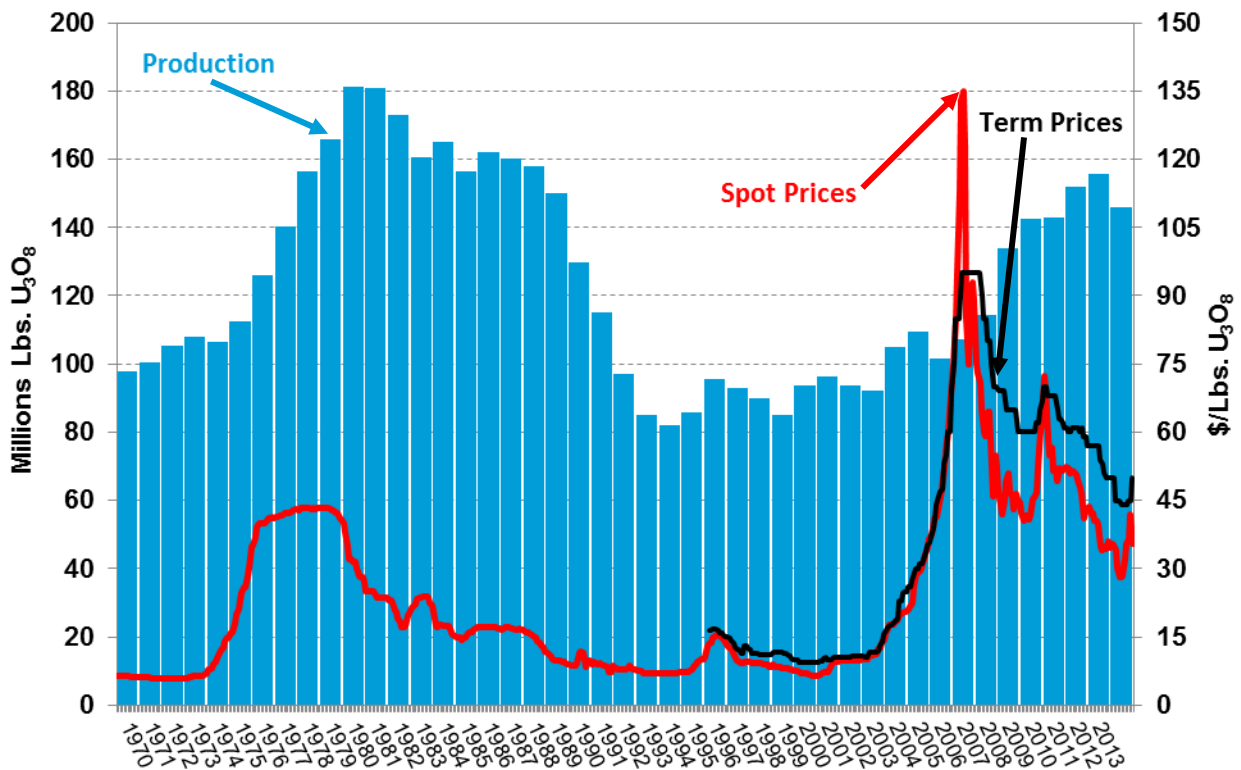
Uranium Market Prices

As reiterated in prior comments, the uranium price has fallen from its abnormal peak in 2007 due to overly optimistic expectations of miners resulting in too much expansion, particularly in Kazakhstan, and the loss of demand due to Fukushima. This inelasticity of supply is the reason (partially offset by the ending of HEU deliveries), not DOE inventory sales that caused an adverse position for those suppliers that did not lock in prices through long-term contracts during the high-price cycle. In 2014 world production fell modestly for the first time since 2006 (see figure 1) and consequently prices rose somewhat. However most of this reduction was due to production problems not voluntary cutbacks to adjust supply. As shown in figure 1, production tends to increase rapidly in response to higher prices but it takes a long time for decreases in production to occur when prices fall. Note that prices increased rapidly from a little over \$21 in 2005 to a peak of \$135 in 2007, only to fall back to \$59 by mid-2008 and about \$28 in mid-2014. Yet production continued to grow through 2013. For those unhedged producers to be able to recover, production must fall farther and/or demand must increase. In the short term the only significant increase in demand must come from the restart of operations for Japanese reactors, which is outside producer control and taking longer than expected. Yet despite the need to rationalize primary production, expansions continue:

- Kazatomprom announced that production in 2015 will again increase, adding 1.6 million pounds.
- Cameco stated in its February 9, 2015 Management discussion that its planned production for 2015 is expected to be 2.5 million to 3.7 million pounds higher than in 2014.
- Information from this same document indicates the other owners of the Cigar Lake project are planning to produce an additional 2.6 to 3.9 million pounds from Cigar Lake. *(Total 2015 Project outlook is 6-8 million pounds—on an overall plan to reach 18 million pounds per year by 2018)*
- Husab plans to begin mining by mid-year and processing ore by the end of the year or early next year.

These increases exceed the DOE planned sales. The point is that primary uranium production continues to expand even in the currently depressed market. Some of this expansion comes from companies also mining in the United States that continue to blame depressed prices on DOE inventory sales.

Figure 1 Price Impact on World U₃O₈ Production

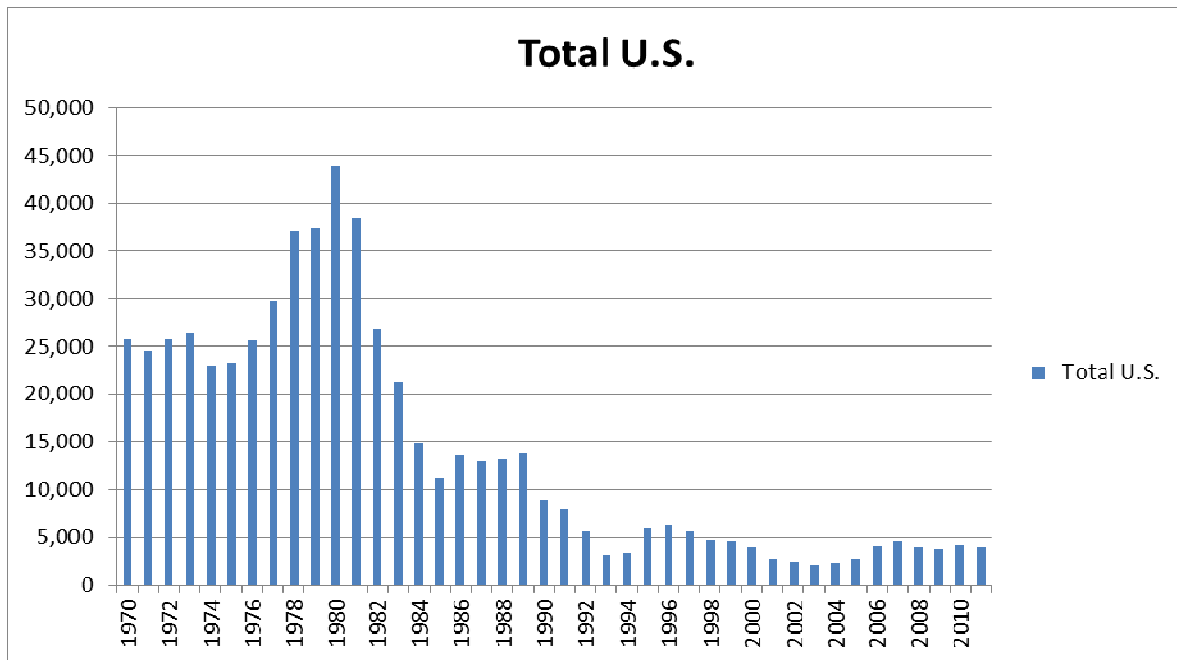


Production at Existing Facilities & Employment Levels

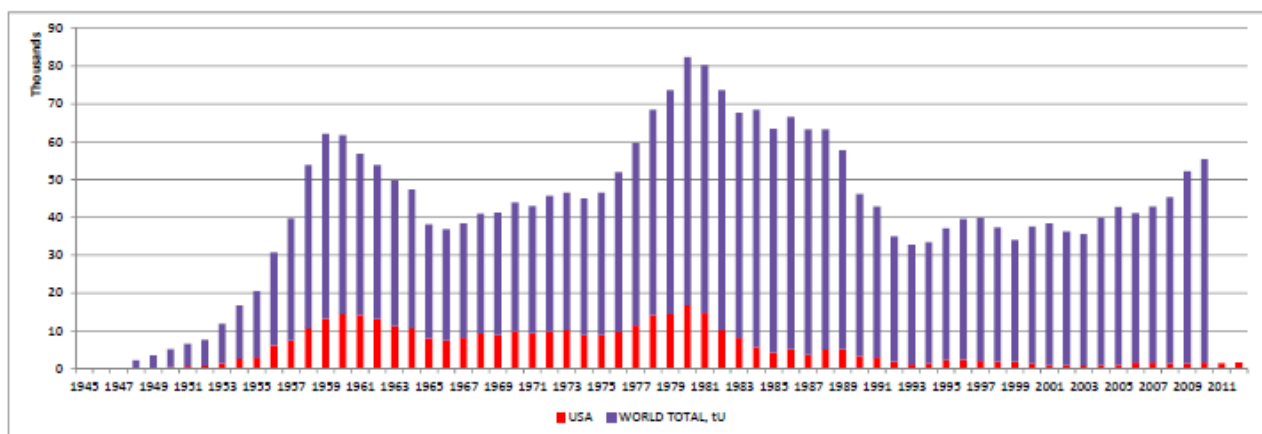
Uranium

There are several issues related to production and employment to which FBP wishes to comment. First, ERI discusses the impact of market prices on U.S. uranium production but does not address the impact of the DOE inventory sales on US producer sales volume. ERI states U.S. production has risen since the start of the DOE uranium inventory barter but despite this increase in production since 2009, the decline in market prices has affected the actual and planned production of some U.S. operations. ERI does not indicate the applicable period for which this statement applies. Therefore, NAC calculates...

U.S. production has averaged about 3% of world production over the past 11 years. Thus if U.S. producers maintain the same market share for any increased production due to a total elimination of DOE inventory sales, U.S. production would increase by only 220,000 pounds or 4.5%. This is certainly not an adverse material impact today nor will it be in the future.



USA Uranium Mining/Milling Production

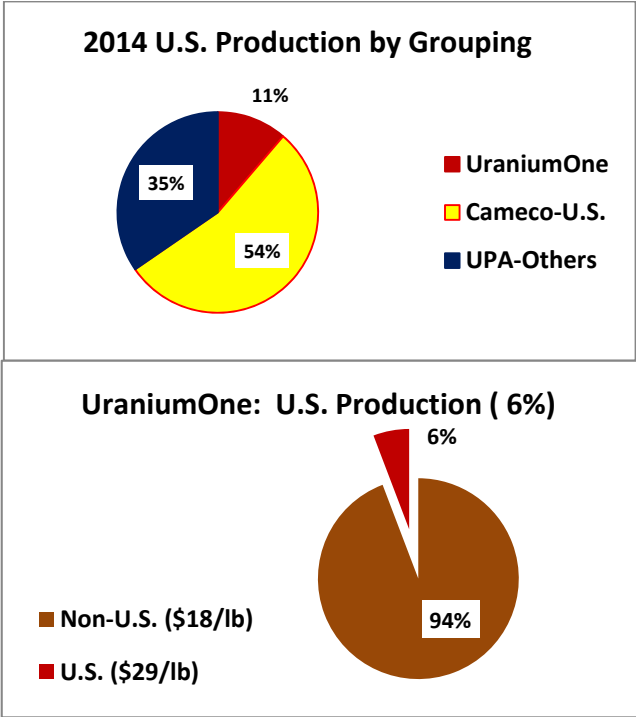


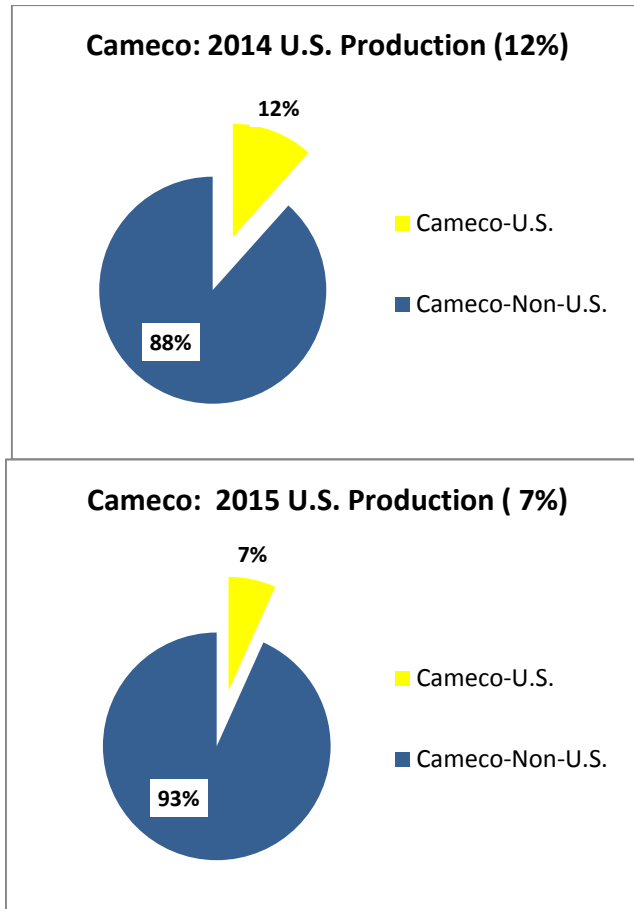
USA Uranium Mining/Milling Production compared to the Total Worldwide Production

Second, the UPA states that “UPA encourages the Department to work with uranium producers to facilitate the entry of the material into the market, as was done under the Megatons to Megawatts Agreement. Uranium producers can feed the material into long-term contracts, which will ease some of the pressure in the short-term when the market is oversupplied and there is little near-term demand from utilities.” **This implies that the sales are acceptable if they are sold through uranium producers but unacceptable if sold through a non-producer.** The logic appears to imply 1) that uranium producers are the only entities that can or will deliver this uranium through pre-existing contracts and 2) that somehow this will reduce the near-term market supply (as this is the only way in which there would be an easing of pressure).

As to the first point, this is absolutely untrue. Traxys stated in its response to DOE’s RFI on Excess Uranium Management that “approximately 90% of the quantities contracted to be purchased by Traxys has now already been committed to be sold to utility customers under forward delivery contracts and NOT in the spot market”.

As to the second point, a U.S. producer that has existing contracts either 1) has the required uranium in inventory to meet its delivery requirements; 2) plans to obtain the material from existing production; or 3) plans to purchase the uranium on the market. If the producer is unwilling to add to its current inventory or reduce its non-U.S. production, there would be no benefit to U.S. producers other than obtaining some profit from the DOE inventory sales. If the purchase results in an offset of U.S. production, U.S. production would be reduced. If the purchase replaces a purchase that otherwise would have been made from the market there is a loss in demand. Thus the only way DOE/FBP selling to a U.S. producer could benefit the market (for U.S. producers) would be if the purchaser has non-U.S. production and is willing to reduce that production by the quantity purchased. The producers that have international production have demonstrated a tendency for the opposite- lowering U.S. production while increasing non-USA production.





FBP observes that 2/3 of the 2014 U.S. production came from 2 international companies that have business models that will continue to expand non-U.S. production over U.S. production. In the case of Uranium One, now owned by Rosatom, their \$18/lb. cash cost to produce in Kazakhstan is only 60% of the \$29/lb. cost to produce in the U.S. Cameco U.S.’s share is also under pressure to continue to decline because Cigar Lake, the #1 corporate priority is to ramp up production to 18 million pounds per year (Cameco share = 50%) from 5M-6M/yr rate in 2015. Therefore, any additional near-term market share resulting from decreased DOE transfers will not directly increase those U.S. projects’ production.

Furthermore, FBP selected Traxys based on competitive offers received from a broad cross section of industry participants, including producers. **The Traxys selection allowed FBP to provide the resulting “best value” to the government, and thereby the U.S. Taxpayer.** Additionally, it diversified the uranium supply and avoided exacerbating the Concentration of Supply trend that domestic uranium buyers for nuclear power plants faced.

Third, the UPA also suggests that DOE “prohibit barter contracts that commence before or extend after the time period covered by a Secretarial determination”. The UPA states that since Traxys has sold substantially all of the DOE material for the next two years (2015-2016) under forward delivery contracts, this “practice is very damaging to our industry”. The UPA position is very difficult to understand. In previous statements (Brief of Amici Curiae,

Uranium Producers of America and National Mining Association, page 3, “The Ux Consulting study observed that the Department could readily mitigate the impact to domestic fuel suppliers from its proposed inventory sales if (1) it made long-term sales;...” the UPA has encouraged DOE to sell its excess uranium inventory on the term market not the spot market. Furthermore in this same document, the UPA says DOE should reform how this material enters the market by selling to uranium producers so they can feed the material into their term contracts. They do not elaborate on why selling the uranium to fulfill uranium producer versus Traxys term contracts is very damaging to the industry.

Lastly, DOE is required by law to make a Secretarial determination every two years and DOE is not allowed to sell any uranium unless that Secretarial determination concludes there is no material adverse impact on the domestic industries. Thus the legal framework precludes DOE from selling under long-term contracts. Therefore any buyer that wants to sell this material under a term contract must be willing to accept the price and supply risk that replacement material may need to be obtained on short notice. This is a substantial risk that Traxys has been willing to absorb and which has mitigated the market impact. It should be noted that Traxys is not guaranteed that any barter material will be available. Instead based upon Traxys’ response to the RFI they entered into purchase contracts, over and above the DOE-FBP-Traxys purchase quantities, to provide the assurance buyers required to assure supply under long-term contracts—something that DOE and/or FBP cannot provide.

Why did DOE increase the uranium disposition going into 2014—2021 timeframe? The ending of the Russian HEU deliveries under the Government-to-Government/Megatons-to-Megawatt deal in Dec 2013.



The U.S. Taxpayer’s \$325M Investment was held “off-market” for 10 Years (See Yellow Bars)

The US government agreed to pay \$157 million for the uranium that Russia had delivered in 1995 and 1996 and to amend the agreement to give Russia an amount of natural uranium equal to the uranium content in the LEU it delivered under the HEU deal beginning in 1997. This turned the US-Russian HEU agreement for the purchase of LEU into an agreement for the purchase of enrichment only. LEU deliveries resumed for a while, but in late 1998, Russia suspended deliveries again, because it was still

unable to sell the uranium that it got back and was not allowed to import it for its own use. At the time, the export of the natural uranium to Russia was prohibited, so the material was sitting, unused at USEC's facilities. This second crisis for the HEU deal was resolved in March 1999, when the US government paid Russia another \$325 million for the uranium content of the 1997 and 1998 LEU deliveries under the agreement. In addition, three Western mining and fuel services companies (owned primarily by non-US interests: Cameco, Cogema (now AREVA) and NUKEM (now Cameco) signed a long term contract with the Russian government giving them the option to purchase a substantial portion of future uranium deliveries under the HEU deal. This led to them reaping hundreds of millions of dollars while the U.S. taxpayer had agreed to without this ~11,000 MTU of UF₆ off of the commercial market. This is the natural UF₆ that DOE has been finally bringing to the commercial market from 2009 until present as part of their Excess Uranium Disposition program—funding the barter D&D services at the Portsmouth site in Ohio.

Long-Term Viability & Health

Uranium

UPA argues that the 2013 EIA data on uranium expenditures shows “the average cost to mine uranium in the United States is \$67.10 per pound (includes expenses for land, exploration, drilling, production, and reclamation) far above the spot market price of \$36.50 (as of January 19, 2015). Even when excluding expenses for land, exploration, and reclamation, the average direct production cost of \$47.41 per pound still exceeds current market prices.” If U.S. producers have average costs as high as asserted by the UPA (even at \$47.41), eliminating all DOE sales would not allow U.S. production to compete or achieve profitability until the next decade. In other words, other producers with lower costs could provide sufficient production to meet the demand without any U.S. production. If average U.S. production costs are as high as claimed by the UPA, no reduction in DOE sales is sufficient to allow them to succeed. This analysis was conducted using NAC's standard approach (as described in the attachment to the FBP submittal of January 22, 2015) but replacing NAC's estimated forward costs with \$47.41 for all U.S. producers.

U.S. uranium producers publish information which is useful in determining the potential impact of the DOE inventory sales on U.S. uranium producers in 2014. The following table provides a summary of this information.

Owner	Property	Production (lbs U ₃ O ₈)	Cash Costs (\$/lb U ₃ O ₈)	Total Costs (\$/lb U ₃ O ₈)	Realized Price (\$/lb U ₃ O ₈)	Sales (lbs U ₃ O ₈)	Revenue (\$ millions)
Uranium One	Willow Creek	563,100	29.00	60.38 ^a	32.50 ^b	535,800	18.30
Cameco	Crow Butte	600,000	36.83 ^c		47.53 ^e	600,000	28.52 ^d
Cameco	Smith Ranch	2,100,000	28.14 ^c		47.53 ^e	2,100,000	99.81 ^d
Energy Fuels	White Mesa	942,632		37.45 ^g	57.19	808,700 ^h	46.25
UR Energy	Lost Creel	547,992	19.73	34.49	51.22	517,800	26.52
Uranerz	Nichols Ranch	199,000		35.50	57.00	175,000	9.98
Uranium Energy	Hobson	35,000 ^f				0	0
Mestena ^d	Alta Mesa	0 ^f				0	0
Total		4,987,810				4,737,300	229.4

a) Total of reported operating and depreciation costs divided by the production

b) Reported revenue divide by production

c) Total reported for payroll, purchases, taxes, royalties, etc. divided by reported production

d) All production is assumed to have sold at the average price

e) Average reported sales price for all Cameco sales, prices for individual properties are not reported

f) Estimated but must be very small based on the reported values from other companies and the total reported by DOE

g) Calculated by dividing cost of sales by sales volume

h) Calculated by dividing revenue by the reported average price

Uranium One has a strategy of selling largely at the spot price and the revenue per pound shown in the above table shows an average 2014 price very close to the average monthly spot price (\$33.15).

Cameco reports that its portfolio includes a mix of fixed-price and market-related contracts, which is targeted to have a 40:60 ratio. According to Cameco this is a balanced and flexible approach that allows them to adapt to market conditions and put a floor on realized price, reduce volatility of future earnings and cash flow, and deliver the best value to shareholders over the long term. In its February 2014 Management discussion and analysis, Cameco states that for 2014 each \$5 per pound change in the Ux spot and long-term indicator would change revenue by \$67 million. Projected sales volume was reported as 31 to 33 million pounds. Assuming the middle of the range, Cameco was expecting to experience a \$2.09 per pound change in price for each \$5 per pound change in both the spot and term indicators.

Uranium Energy Corporation also has a strategy of selling at the prevailing spot price. According to a company presentation, they are highly leveraged to the price of uranium. The last year UEC published any usable cost information was in its fiscal year 2013 (ending July 31, 2013). The reported cost of sales was \$38.37 per pound U₃O₈. In September 2013 UEC announced that it would align its operations to market conditions. One of the actions taken was to slow the pace of mining at Palangana. The spot price at the end of September 2013 was \$35 per pound. This indicates a price likely above the market price even with no DOE sales.

The remainder of the U.S. production appears to be based on defined prices with little or no tie to spot prices.

Although NAC believes the ERI derived impact of DOE inventory sales on market prices of \$2.80 per pound was too high, even assuming the ERI value, the spot price in 2014 would have

averaged only \$35.95 per pound (\$33.15 + \$2.80). Any unhedged producer with costs above this value was not viable even if DOE sales totally disappeared. Thus those producers could have only been impacted by the DOE inventory sales to the extent they continued to produce and sell, even when their production was noncompetitive. Uranium Energy had costs higher than \$35.95 and did not make any sales; therefore they could not have been impacted by DOE sales. Uranium One had costs higher than \$35.95 but continued to produce and sell. Therefore it had a theoretical impact of \$1.5 million (535,800 pounds sold x \$2.80 per pound impact) due to DOE sales. Cameco did sell forward but a portion of the price it receives is tied to the spot and term market indicators. The breakdown of the impact of each price change is not disclosed nor is the exact sales. Assuming all production was sold and that both spot and term prices were reduced by \$2.80 per pound, the impact on Cameco would be \$1.17 per pound $((2.8/5) \times 2.09)$ for the 2.7 million pounds sold. This would equate to \$3.2 million.

Several companies produced more uranium than they sold in 2014. If one assumed all of this (250,500 pounds) would have been sold, if the spot price were \$2.80 per pound higher, instead of being held for future deliveries, then the result would be an additional impact of \$0.7 million. Theoretically one of the economic properties could have expanded beyond the level of its 2014 production adding an additional impact. However the three possibly competitive properties all expanded significantly and there is no indication a slight increase in price would have encouraged additional production. **The total 2014 revenue for the U.S. production industry is about \$229 million; therefore using the most impactful assumptions results in a total impact of \$5.4 million or 2.4%. This is certainly not an adverse material impact.**

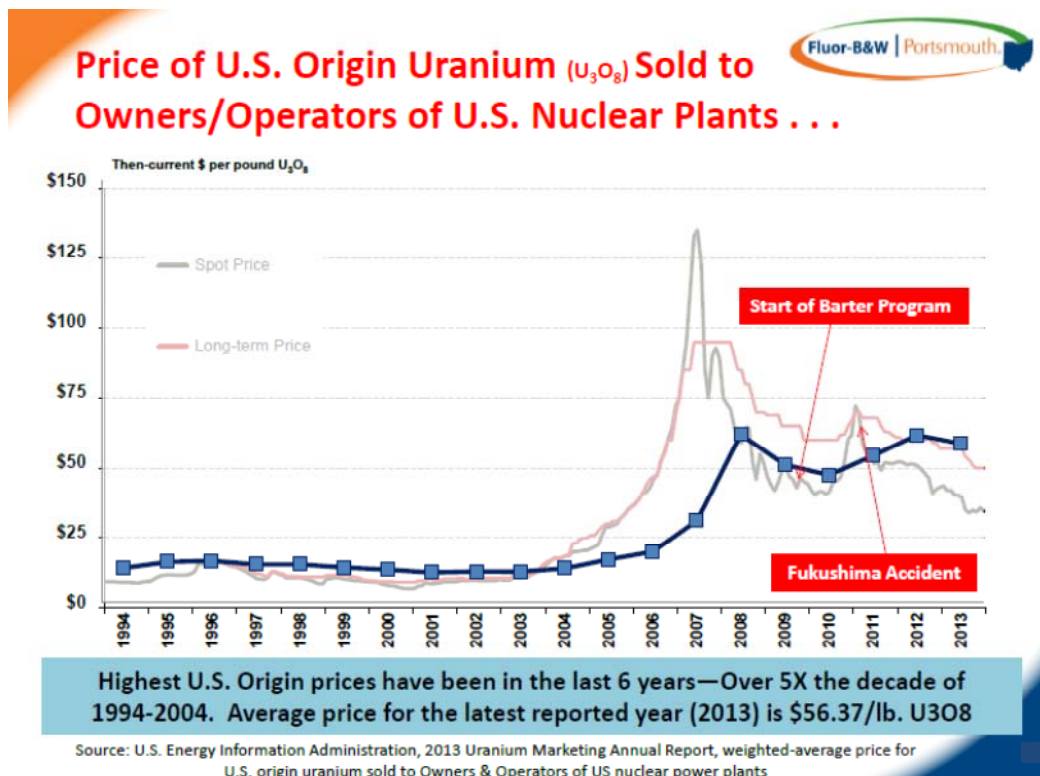
Realized Prices

The U.S. uranium mining industry is realizing much higher than spot prices for its sales. ERI's figure 4.13- Realized Uranium Prices of Companies with U.S. Production needs to be updated. The figure shows the average price received by UR Energy for its Lost Creek sales at around \$47 when the company publicly reports a price of \$51.22 per pound for 2014. ERI does not show the sales price for Uranerz which publicly reported a 2014 sales price of \$57.00 per pound. Uranium One just released its information for 2014. With these changes all of the U.S. producers, except the two producers that decided not to lock in high prices in earlier markets, are realizing prices well above current spot prices. Based on reported 2014 production, it appears that less than 15% of U.S. production is effectively unhedged, even lower than the 30% cited by ERI.

The 2014 data is shown below:

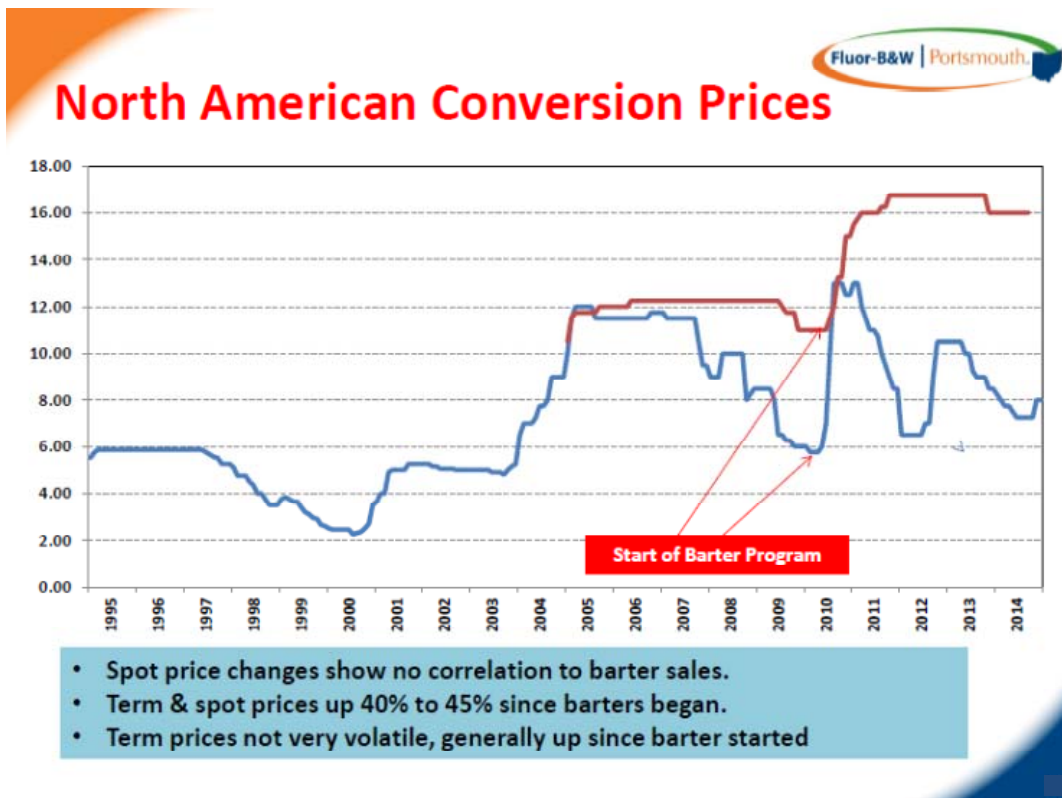
	Company	Property	2014 Production (lbs. U ₃ O ₈)	Average 2014 Sales Price \$/lb U ₃ O ₈
Now Owned by ARMZ	Uranium One (U1)	Willow Creek	563,100	32.50
	U.S. Subsidiary of Cameco	Cameco	Crow Butte	600,000
	Cameco	Smith Ranch	2,100,000	47.53
Balance of UPA Member Companies/Production Centers	Uranium Energy	Hobson (Palangana)	35,083	NA
	Energy Fuels	White Mesa	942,632	57.19
	Mestena	Alta Mesa	0	NA
	UR Energy	Lost Creek	547,992	51.22
	Uranerz	Nichols Ranch	199,000	57.00
Total			4,987,810	

Note: The total production in the table is slightly higher than reported by EIA (4,905,909 preliminary 2014 data), probably due to the lower precision reported for the Crow Butte and Smith Ranch production.



Conversion

ERI overstates the impact of DOE inventory sales on the Metropolis Works production costs because of erroneous assumptions as to the portion of costs that are fixed and variable. Very little support for these assumptions is provided. ERI assumes a unit cost to produce 8.9 million kgU of \$15 per kgU and that fixed costs are either 100% or 80% of total costs. Even assuming all labor costs are fixed this is substantially high and this is largely the cause of the over estimation of the impact of DOE sales on production costs. Based on the estimated loss in volume, ERI then calculates the effect of lower volume on production costs and concludes that cost of production increases by \$1.10 per kgU due to a change in production from 8.9 to 8.3 million kgU. NAC has performed an analysis that estimates costs for labor, electricity, other energy, utilities, external charges, raw materials and consumables, taxes and fees, depreciation and general and administrative expenses. **Based on this analysis the effect of dropping production from 8.9 to 8.3 million kgU per year would be only \$0.73 per kgU or a little less than 5%. The impact of going from 8.9 to 8.4 million kgU per of production would be \$0.60 per kgU or 4% (compared to ERI's estimate of \$0.90).**



REFERENCES:

1. Energy Resources International: 04 - ERI Analysis – February 20, 2015
2. Fluor-B&W Portsmouth: 15 - Comment from Fluor B&W Portsmouth Attachment A REDACTED
3. Fluor-B&W Portsmouth: 16 - Comment from Fluor B&W Portsmouth Attachment B REDACTED

The related documents can be found on DOE's website at:

- <http://www.energy.gov/ne/downloads/excess-uranium-management> .

My comments will reference these 3 References excerpts from Fluor-B&W Portsmouth's latest submittals to the Department of Energy's Request for Public Information that was due January 22, 2015 and the Department's follow up Notice of Public Comments that was due April 6, 2015.

FBP utilized NAC International (NAC) who provides energy consulting, information services and spent fuel management technologies to utilities, government agencies, producers, fuel vendors and financial institutions worldwide. Founded in 1968 as a nuclear services company NAC's offices span the globe—Atlanta Corporate Headquarters; London; Moscow. Please see Reference #15 and #16 for NAC's input utilized by FBP within this submittal.

Thank you for the opportunity to submit written testimony on behalf the more than 1800 employees and subcontractors at Fluor B&W Portsmouth.

Frank J. Hahne

2012—Present:

B&W Fluor-B&W Portsmouth Uranium Barter Manager

Mr. Hahne designed and currently manages a DOE uranium barter program that monetizes over \$200 million per annum funding for the Portsmouth OH site operations from DOE bartered UF6 to FBP. FBP is a Fluor and Babcock & Wilcox LLC supporting U.S. DOE's D&D activities at the previous Gaseous Diffusion Plant site.

2009—2011:

Director Business Development, B&W Technical Services Group, Oak Ridge, TN

Mr. Hahne career spans more than 40 years where he gained progressive experience in technical environments from industrial and systems engineering, market analyses, to management including general, engineering, business development, sales and marketing. In this current role for B&W Technical Services Group (TSG) he executed strategies to meet company's strategic growth objectives through opportunity assessment, capture management and contract execution. He was responsible for promoting new business opportunities and for establishing relationships with potential customers within those prospective markets, including medical isotopes.

2000—2008:

Vice President Business Development, Nuclear Fuel Services, Inc., Erwin, TN

Mr. Hahne was responsible for identifying market needs and developing cost-effective solutions. Mr. Hahne manages the business development growth of NFS. He is experienced in both the commercial and government markets and has successfully developed new products, product lines and nuclear fuel cycle facilities—financing, construction and commissioning. He has negotiated licensing and deployment contracts within the chemical process industry, nuclear fuel cycle and the Department of Energy. Functional areas served within NFS included:

- Sales – responsible for qualifying all opportunities, proposals and contracts for non-NR business;
- Marketing – responsible for all electronic and print collateral for NFS;
- Strategic Planning – led NFS' strategic planning process;
- Government Affairs –NFS Lobbying representation in DC and managed NFS' PAC;
- LLC Board Representation – served as NFS Board Member to Isotek LLC in Oak Ridge TN;

1991—1999:

President and CEO of NFS Radiation Protection Services, Groton CT.

NFS-RPS, a NFS subsidiary company, provides engineering services and solutions to the pharmaceutical and nuclear utility markets. Mr. Hahne led the acquisition of the company from General Dynamics and then served as President/CEO of NFS-RPS. He established a Joint Venture with a leading Silicon Valley computer architecture company to jointly develop and market total enterprise solutions for nuclear utilities, government sites internationally. He integrated the D&D and engineering services of this company into NFS' Environmental Sector based out of Tennessee.

1970—1990:

Vice President Uranium Operations Division of NAC International, Atlanta & Grand Junction:

Mr. Hahne had 20 years experience in the nuclear fuel cycle industry with NAC International, rising to Vice President Uranium Operations Division. His major areas of expertise were systems engineering, economic evaluations and program management. Mr. Hahne is a national and international expert on uranium supply. Mr. Hahne progressed as a Systems Analyst, Market Analyst, Division Controller, Project Manager, Program Manager and then General Manager of utility resource programs that developed independent uranium production companies that were independent subsidiaries of the parent companies. He provided consulting services to support finance, market assessments, operations and prudency reviews and he has made numerous presentations to industry trade organizations, corporate boards, Wall Street investment firms and other financial institutions.

Frank J. Hahne

Published Paper(s) at Industry Organizations:

- World Nuclear Association (WNA)/Uranium Institute (UI) (2 papers)
- Nuclear Energy Institute (NEI), Washington (4 papers)
- NAC International/Nuclear Assurance Corporation (NAC) (8 papers)
- World Nuclear Fuel Market (WNFM) (2 papers)

Qualifications

- MBA – Georgia State University, 1974
- BS – Industrial & Systems Engineering, Georgia Institute of Technology, 1970

Industry Committees

- Chairman of the Nuclear Energy Institute's Nuclear Fuel Supply Committee, 2014-Present
- Chairman of World Nuclear Association's Uranium Supply Subcommittee, 2014-Present

**Committee on Oversight and Government Reform
Witness Disclosure Requirement – “Truth in Testimony”
Required by House Rule XI, Clause 2(g)(5)**

Name: Frank Hahne

1. Please list any federal grants or contracts (including subgrants or subcontracts) you have received since October 1, 2012. Include the source and amount of each grant or contract.

N/A

2. Please list any entity you are testifying on behalf of and briefly describe your relationship with these entities.

Fluor-B&W Portsmouth LLC, Uranium Barter Program Manager

3. Please list any federal grants or contracts (including subgrants or subcontracts) received since October 1, 2012, by the entity(ies) you listed above. Include the source and amount of each grant or contract.

Fluor-B&W Portsmouth LLC is currently operating under Contract DE-AC30-010CC4017- Signed August 16, 2010. There has been no new awards issued since October 1, 2012.

I certify that the above information is true and correct.

Signature:



Date: April 20, 2015

Donald K. Murano, General Counsel and Secretary
Fluor-B&W Portsmouth, LLC
On behalf of Frank Hahne