

RELATED CORRESPONDENCE

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

**OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF**

In the Matter of

Docket No. 70-3103

Louisiana Energy Services, L.P.
National Enrichment Facility

ASLBP No. 04-826-01-ML

**SUPPLEMENTAL RESPONSES ON BEHALF OF
PETITIONERS
NUCLEAR INFORMATION AND RESOURCE SERVICE
AND
PUBLIC CITIZEN
TO INTERROGATORIES
BY COMMISSION STAFF**

Pursuant to the Memorandum and Order of the Atomic Safety and Licensing Board dated October 20, 2004, Petitioners Nuclear Information and Resource Service and Public Citizen ("NIRS/PC") respond further herein, relative to Dr. Michael Sheehan, to Interrogatory 3, served by the Staff of the Nuclear Regulatory Commission on September 9, 2004.

INTERROGATORY NO. 3:

Identify any person you will use as a witness in this proceeding to testify regarding the admitted NIRS/PC contentions. If you rely on any such person as an expert witness, state the details of each witness's education, professional qualifications, and employment history; state the subject matter on which each of the witnesses is expected to testify at the hearing; describe the facts and opinions to which each witness is expected to testify, including a summary of the grounds for each opinion; and identify all documents, data, or other information which each witness has reviewed and considered or is expected to rely on for his or her testimony.

Response: The following response consists of an outline of the proposed testimony of Dr. Michael F. Sheehan, based upon the current status of his research and investigation at the date of this response. What follows are, first, general conclusions and, second, an outline of the testimony and more detailed and more tentative conclusions. All of this material is presented as of this point in research and preparation for testimony to be presented in detail two months hence, on December 30, 2004. None of these conclusions are irreversible. The definitive work will be the actual testimony as filed.

I. Introduction and General Conclusions

- A. The construction of the National Enrichment Facility ("NEF") by Louisiana Energy Services, L.P. ("LES") will not logically produce a competitive market in the U.S. with two producers.
- B. The construction of the NEF facility would threaten the economic viability of the American Centrifuge and Paducah Plants of USEC, Inc. ("USEC").
- C. There will be an adequately improved competitive supply without the NEF facility.
- D. The replacement of USEC by Urenco as the dominant U.S. producer would not improve the security of U.S. supply.
- E. The calculation of the benefits associated with the NEF facility is faulty.

What follows now are more specific conclusions and the overall outline of the testimony.

II. NEPA Requirements

A. Statutes, Rules

B. Cases

C. Texts, e.g.,

1. Bass et al., *The NEPA Book*, 2nd ed. (2001)

2. OLI, *Mastering NEPA*, 2001

III. The Environmental Report (“ER”) and the Statement of Need

A. The concepts of two “Domestic” Producers and “Competition”

B. National Security

IV. Low-enriched uranium (“LEU”) Supply and Demand in the U.S.

A. Current and estimated supply of LEU by USEC, Inc.

1. Paducah Gaseous Diffusion Plant (“GDP”)

2. USEC/US/Russia Highly-enriched uranium (“HEU”) Agreement

3. The American Centrifuge Plant alternative in Ohio

B. U.S. Domestic Demand

1. Demand Estimates

2. Sources of Supply

a. Paducah GDP

b. Existing Urenco European Centrifuge Capacity

c. Existing Eurodif GDP Capacity

d. Planned Expansion of Urenco Capacity

e. Planned Urenco-Cogema Centrifuge Capacity

f. Russia/US HEU Program

g. Other

V. Technology and the Structure and Evolution of the Market

- A. Centrifuge technology has generally lower operating costs than gaseous diffusion technology.
- B. New planned centrifuge capacity expansions by Urenco at Almelo and Gronau (and perhaps Capenhurst) sharply increase Urenco's European supply capability.
- C. The joint venture between Urenco and Cogema to develop new centrifuge capacity at Tricastin will substantially increase supply at Tricastin and apparently lower operating costs relative to the existing Eurodif GDP. This means that a good deal of relatively uneconomic capacity will be replaced by more economical capacity.
- D. USEC's American Centrifuge Plant, to be built at Piketon, Ohio, currently in the licensing phase, would (if financially viable) provide an initial 3.5 million separative work unit ("SWU") capability and may be expanded to 7 million SWU.
- E. The market appears to have characteristics of natural monopoly. It is difficult to verify this in detail because the Applicant has refused to provide price and cost data and has instructed its experts not to provide this data.
- F. USEC's ability to obtain funding for the construction of its proposed American Centrifuge Plant is uncertain and will depend in some significant degree on whether the NEF is built and comes into production.
- G. It may be that Urenco's pockets are deeper than USEC's. If so, and especially so if the market has natural monopoly attributes, then financing for the American Centrifuge Plant is less likely to occur, or if it does occur, will involve higher

capital costs to USEC. Higher capital costs, other things being equal, will require USEC to charge higher prices. Higher prices, again other things being equal, will mean that the American Centrifuge Plant will be less viable than the NEF plant.

- H. Western European producers have been guilty of dumping in U.S. markets in the past.
- I. The current anti-dumping litigation may result in less restrained access to U.S. markets for Urenco and Eurodif.
- J. SWU prices facing U.S. utilities rise and fall based on the characteristics of the market and the vector of price characteristics at different levels of production versus willingness to pay.
- K. Characteristics of the market include:
 - 1. A high concentration of ownership and/or control.
 - 2. A substantial differential in the financial staying power of contending market entities.
 - 3. Legal constraints on behavior in the market, e.g., predatory pricing or “dumping.”
 - 4. Very high capital costs for new plants.
 - 5. A desire by Urenco to break into the U.S. market.

VI. Where LES’s ER Presentation Goes Wrong

- A. LES’s ER analysis is based on the assumption that USEC’s capacity will be economically viable in the face of Urenco’s new NEF facility. If this is not so, then the first claim that the NEF will fill a “need,” i.e., provide the presence of two U.S. plants as competitors, is illusory.

- B. The second of Urenco's two assertions that a need will be filled involves "security of supply." The same analysis applies here. If the appearance of the Urenco NEF plant in the U.S. effectively prevents the establishment of a viable ongoing competitor, then "security of supply" will not only not have been enhanced, but U.S. utilities will be left the victims of a powerful foreign industrial combination with a history of anti-competitive practices and doubtful credentials in the area of nuclear technology security.
- C. If Urenco, via the NEF, can eliminate USEC as a viable competitor, then the viability of the US/Russia/USEC HEU Agreement (and its future extension) is called into doubt. There is no apparent reason Urenco would want to replace USEC in marketing Russian LEU under a HEU agreement, when the HEU agreement's demise would provide a market for, and higher capacity factors for, Urenco's new capacity additions both in New Mexico and Europe.
- D. Most of the analysis in LES's Environmental Report seems to be based on the assumption that USEC's "competing" capacity is the Paducah GDP and not the proposed American Centrifuge Plant. See, e.g., ER §8.4.
- E. If the competing plant is USEC's Paducah GDP, it seems unlikely (based on Urenco's view of the competitiveness of GDP versus centrifuge plants) that the Paducah GDP could survive in head-to-head competition with Urenco's NEF and Urenco's deep pockets.
- F. On the other hand, if USEC is to have a chance to survive against Urenco's NEF, then it seems that the contending plant would be USEC's American Centrifuge plant. The operating cost characteristics of this plant, however, are not those used

for comparison purposes by LES in the ER, and this plant tends to be dismissed out of hand. See e.g., ER §7.3-1 and ER § 1.1-20.

G. In light of this analysis, swapping one U.S. producer for a U.S. plant built by the dominant Western European producer would not be an improvement in the “competitiveness” of the domestic market.

1. LES dismisses USEC’s ability to attract financing for, and build, the 3.5 to 7.0 million SWU American Centrifuge Plant in Ohio. See, e.g., LES ER §1.1-20.

2. Further, even if the American Centrifuge Plant would be a lower cost plant than the NEF, this doesn’t mean that it would be economically viable against a deep pocket antagonist even with somewhat higher production costs.

H. The local economic development impacts of building the NEF would be netted out to zero or less against offsetting losses elsewhere in the U.S., if the construction of the NEF were to put USEC out of business.

I. Urenco has deeper pockets than USEC, in the sense that its capital resources are greater. A fight between two companies, each with a very high fixed cost new plant to get up and running, will be likely to lead to predatory pricing and the elimination of the plant whose owner has the shallower pockets.

J. Urenco, and the European producers generally, have a history of “dumping” violations and related market abuses.

K. Security of the U.S. market will not be enhanced by the elimination of the only indigenous U.S. producer and its replacement by the dominant European

producer.

L. Competitiveness of the NEF

1. The fixed cost of the NEF is very high;
 - a. Decommissioning costs are substantial.
 - b. Disposal costs for DUF₆ are speculative and potentially very expensive.
 - c. DUF₆ cannot stay on site after closure of the NEF.
2. Western European producers have announced substantial expansions of centrifuge capacity. This will mean that prices should fall, other things being equal. This will make it more difficult for either the NEF or the American Centrifuge Plant to reach its breakeven level of sales, and significantly more so if both the NEF plant and the American Centrifuge Plant are in the market.
 - a. There is no reason to suppose—and there has been no showing—that the NEF plant is economical.
 - b. The NEF plant may well be economical only if the American Centrifuge Plant is defeated.

VII. Other Aspects of the Cost-Benefit Analysis for NEF, as set forth in the ER and the DEIS:

- A. Unreasonable assumptions about the impact on the American Centrifuge Plant of the construction of the NEF.
 1. LES assumes that the job and tax benefits claimed for the construction and operation of the NEF will not be offset by a loss of corresponding benefits if the construction of the Urenco plant results in the elimination of the

American Centrifuge Plant in Ohio.

2. To the degree that the NEF is not built, and USEC does not expand its aggregate capacity (switching from Paducah to American Centrifuge in roughly equal capacity), and expansions in demand by American utilities are served by Urenco's newly expanded European capacity, the environmental effects of DUF₆ disposal are shifted to Europe and out of the cost benefit calculus.¹
- B. Water for the NEF will come from the Ogallala Aquifer. This is a very important, multi-state water resource that is currently being mined. Establishing the NEF plant in this area of New Mexico will exacerbate this problem, compared with establishing the equivalent plant in Ohio.
- C. DUF₆ disposal. The competitiveness of NEF relative to European supply will be affected by the cost of disposal of DUF₆ in the U.S., compared to the cost of disposal of DUF₆ for European plants.
- D. LES is equivocal about movement of DUF₆ offsite. The longer the material stays onsite, other things equal, the greater the environmental risk. LES has agreed to no "long term storage" of the DUF₆ on site. See, e.g., ER 8.10-1. At the same time, LES says the decommissioning of the plant will end no later than 2038. See DEIS 7-5. On the other hand, LES defines "long term storage" not as storage past 2038, but as storage "beyond the life of the plant." See ER 8.10-1. The expectation that all DUF₆ will be offsite by 2038 is thus hedged by the possibility of a license renewal that might be allowed, if for some reason it were not cost

¹ The dollar cost of the disposal would of course be reflected in the price.

effective to remove the DUF₆ by 2038. A clear statement by LES that all the DUF₆ will be offsite by 2038, without fail, and that there will be no license renewals justifying further and longer term storage does not appear in the ER.

VIII. Conclusions:

- A. Cost and price data would be useful in the analysis of the markets involved here to determine the likely impact of the NEF facility on the viability of the American Centrifuge and Paducah Plants. Unfortunately, this data is being withheld by LES.
- B. Based on the data at hand, then, it would appear that a likely outcome of the construction of the NEF would be the displacement of the American Centrifuge Plant. If this were to happen, then there would be two U.S. plants—NEF and Paducah. LES claims that Paducah would not be price competitive when faced with a centrifuge plant. This would either mean that the two plants divide the market as oligopolists, in which case there would be no benefits of a competitive market, since the market would be oligopolistic and not competitive even in LES' terms. Alternatively, LES would take advantage of its lower production costs and drive the Paducah GDP out of business. This would leave the NEF plant with a monopoly of domestic production, as well as an identity of interest with its European controllers—which would not bode well for American purchasers.
- C. There are other problems with the analysis in the ER which Dr. Sheehan has touched on above.
- D. Dr. Sheehan is only part way through his research agenda—some of which is held up by the refusal of the Applicant to respond to a number of discovery requests and

deposition questions. The analyses above will be further elaborated as more data becomes available and it becomes possible to examine the ER and the DEIS in greater depth.

The foregoing responses are true and correct to the best of my knowledge.

Michael Mariotte
Michael Mariotte
Executive Director
Nuclear Information and Resource Service

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November 1, 2004

District of Columbia : SS
Subscribed and sworn to before me
this 1st day of Nov 2004
Kamal Islam
Notary Public
District of Columbia
My commission expires _____

KAMAL ISLAM
Notary Public
District of Columbia
My Commission Expires 2/1/06

CERTIFICATE OF SERVICE

Pursuant to 10 CFR § 2.305 the undersigned attorney of record certifies that on November 1, 2004, the foregoing Supplemental Responses on Behalf of Petitioners Nuclear Information and Resource Service and Public Citizen to Interrogatories by Commission Staff was served by electronic mail and by first class mail upon the following:

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