

May 3, 2002

MEMORANDUM TO: Ashok C. Thadani, Director  
Office of Nuclear Regulatory Research

FROM: Martin J. Virgilio, Director */RA/*  
Office of Nuclear Material Safety  
and Safeguards

SUBJECT: REQUEST FOR ASSISTANCE TO REVIEW GAS CENTRIFUGE  
ENRICHMENT FACILITY LICENSE APPLICATIONS

#### Introduction

The Office of Nuclear Material Safety and Safeguards (NMSS) is responsible for the licensing and regulation of gas centrifuge enrichment facilities. Urenco is planning on submitting a commercial-scale enrichment facility license application in the third or fourth quarter of calendar year 2002. In addition, the U.S. Enrichment Corporation (USEC) indicated that it plans to submit a license application for a lead cascade facility in the fourth quarter of calendar year 2002. USEC indicated that it would submit a commercial-scale enrichment facility license application in 2004. At this time, NMSS staff plans to review the applications in accordance with NUREG-1520, "Standard Review Plan for the Review of License Applications for a Fuel Cycle Facility." NMSS requires technical support in the areas of instrumentation and controls, human factors, seismic hazards, tornado hazard, and structural design. These needs are described in more detail in the attachment.

NMSS requests the Office of Nuclear Regulatory Research (RES) to provide, on a high-priority basis, technical assistance in the review of the applications for the gas centrifuge facilities in the areas of instrumentation and controls, human factors, seismic hazards, tornado hazard, and structural design. The scope of work to meet this request would include, but would not be limited to:

Acceptance review of applicable sections of the applications in accordance with NUREG-1520, "Standard Review Plan for the Review of License Applications for a Fuel Cycle Facility." This will be performed without technical contract support.

1. If the application is accepted for review, review of applicable sections of the applications in accordance with NUREG-1520, "Standard Review Plan for the Review of License Applications for a Fuel Cycle Facility."
2. Review of applicable sections of the Environmental Reports.
3. Provide technical project management for contracts with the Center for Nuclear Waste Regulatory Analyses (CNWRA) in the areas of seismic hazard, liquefaction-slope stability, tornado hazard, and structural analysis. NMSS is putting appropriate contracts for this work in place with the CNWRA and will provide funding for the work.

4. Prepare draft and final Safety Evaluation Report sections for the areas of instrumentation and controls, human factors, seismic hazards, tornado hazard, and structural design.

Contacts and Coordination

NMSS staff has coordinated this user need request with Mr. Michael E. Mayfield and Mr. Steven A. Arndt. Mr. Timothy C. Johnson will serve as the NMSS technical monitor for the activities in the areas of human factors, seismic hazard, tornado hazard, and structural design. Mr. Fred Burrows will serve as the NMSS technical monitor for the activities in the area of instrumentation and controls. Both Mr. Johnson (301) 415-7299 and Mr. Burrows (301) 415-8110 work in the Division of Fuel Cycle Safety and Safeguards.

Dockets: 70-7003  
70-3103

Attachment: Requested RES Assistance on  
Gas Centrifuge Facility Application Reviews

May 3, 2002

4. Prepare draft and final Safety Evaluation Report sections for the areas of instrumentation and controls, human factors, seismic hazards, tornado hazard, and structural design.

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Dockets: 70-7003, 70-3103

Attachment: Requested RES Assistance on  
Gas Centrifuge Facility Application Reviews

DISTRIBUTION: Docket Nos: 70-7003; 70-3103

ADAMS	Public	NMSS r/f	FCSS r/f	SFPO r/f	Hearing File
SPB r/f		ESuarez	LWert, RII	DAyres, RII	SArndt, RES
PHiland, RIII		DHartland	DMartin	MRadditz	

ADAMS Accession Number: **ML021150259**

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OFC	SPIB*		SPIB*		SPIB*		SPIB*		FCSS		NMSS	
NAME	TJohnson:dw		DHoadley: DH		JGitter: JG		Mleach: ML		Rpierson: RP		MVirgilio: M. Federline for	
DATE	4/ 23 /02		4/ 24 /02		4/ 24 /02		4/ 25 /02		5/ 01/ 02		5/ 03 /02	

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## Requested Research Assistance on Gas Centrifuge Facility Application Reviews

### A. Technical Issues

The Office of Nuclear Material Safety and Safeguards (NMSS) is responsible for the licensing and regulation of gas centrifuge enrichment facilities. Urenco is planning on submitting a commercial-scale enrichment facility license application in the third or fourth quarter of calendar year 2002. In addition, the U.S. Enrichment Corporation (USEC) indicated that it plans to submit a license application for a lead cascade facility in the fourth quarter of calendar year 2002. In about 2004, USEC indicated that it would submit a commercial-scale enrichment facility license application. At this time, NMSS staff plans to review the applications in accordance with NUREG-1520, "Standard Review Plan for the Review of License Applications for a Fuel Cycle Facility." U.S. Nuclear Regulatory Commission (NRC) staff will review the above applications in accordance with this standard review plan. The standard review plan addresses the areas needed for review of the application. Technical issues in the areas of instrumentation and controls, human factors, seismic hazards, tornado hazard, and structural design need to be reviewed.

### B. Regulatory Application

Parts 40 and 70 establish the requirements for issuance of a license for a uranium enrichment facility. These requirements derive from 1990 amendments to the Atomic Energy Act (Section 193) and establish procedural licensing requirements for uranium enrichment facilities. These requirements include mandatory formal hearings, preparation of an Environmental Impact Statement (EIS), a prohibition of construction until license issuance following the hearing, inspection of the constructed facility prior to license issuance, and public liability insurance. For a uranium enrichment facility construction and operating license, NRC staff will review a complete facility safety analysis, design of safety equipment and operator actions, management measures, an emergency plan, a physical protection plan, and a material accounting plan. In the definitions of the implementing regulations, a laboratory-scale facility designed for experimental or analytical purposes is exempted from the above requirements. It is possible that the lead cascade facility proposed by USEC could be a laboratory-scale facility designed for experimental or analytical purposes and could be licensed under the routine Part 40 and 70 requirements.

For a commercial-scale uranium enrichment facility, NRC must prepare an EIS. As a minimum, an environmental assessment (EA) would be prepared for the USEC lead cascade facility. The preparation of the EIS will include scoping, preparation of a scoping report, and preparation of a draft and final EIS. The preparation of an EA would involve the preparation of both a draft and final EA.

C. Products

The products needed by NMSS include:

1. Acceptance review comments on applicable sections of the license applications.
2. Comments on applicable sections of the license applications.
3. Comments on the Environmental Reports.
4. Draft and final Safety Evaluation Report sections for the areas of instrumentation and controls, human factors, seismic hazards, tornado hazard, and structural design.
5. Appropriate contract management documents for the Center for Nuclear Waste Regulatory Analyses (CNWRA) tasks in the areas of seismic hazard, liquefaction-slope stability, tornado hazard, and structural analysis.
6. For hearings, appropriate information will need to be developed to support litigation activities.

D. Schedule

Estimated review schedules for the license application reviews are as follows:

Activity	USEC Lead Cascade	USEC Full-Scale Facility	Urenco Full-Scale Facility
Submittal of Application	Fall 2002	2004	Fall 2002
Submittal of Environmental Report	Fall 2002	2004	Fall 2002
Acceptance Review Complete	30 days after submittal	30 days after submittal	30 days after submittal
Start Technical Review	30 days after submittal	30 days after submittal	30 days after submittal
Request for Additional Information	Winter 2003	6 months after submittal	Spring 2003
Prepare Draft SER Sections	Spring 2003	11 months after submittal	Fall 2003
Prepare Final SER Sections	Summer 2003	20 months after submittal	Summer 2004
Participate in Hearing, if Needed	2003	24 months after submittal	2004

E. Priority

The review of the gas centrifuge license applications will be high priority agency actions.

F. Level of Effort

The estimated levels of effort are as follows:

Technical Area	Project	FY03 (FTE)	FY04 (FTE)	FY05 (FTE)
Human factors	Lead Cascade	0.2		
	Urenco Full-Scale	0.2	0.2	
	USEC Full-Scale		0.2	0.2
Seismic, Tornado, and Structural	Lead Cascade	0.2		
	Urenco Full-Scale	0.3	0.3	
	USEC Full-Scale		0.3	0.3
Instrumentation and Controls	Lead Cascade	0.2		
	Urenco Full-Scale	0.3	0.3	
	USEC Full-Scale		0.3	0.3

G. Technical Monitor

Timothy C. Johnson (415-7299, email - TCJ) will serve as NMSS's principal contact for this technical assistance request.