RAS 9320

January 28, 2005

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
	)	Docket No. 70-3103-ML
Louisiana Energy Services, L.P.	)	
	)	ASLBP No. 04-826-01-ML
(National Enrichment Facility)	)	

REBUTTAL TESTIMONY OF
ROD M. KRICH AND PAUL G. SCHNEIDER
ON BEHALF OF LOUISIANA ENERGY SERVICES, L.P.
ON CONTENTION NIRS/PC EC-4 ("IMPACTS OF WASTE STORAGE")

I. WITNESS BACKGROUND

Q1. Please state your name, occupation, employer, and responsibilities relative to the licensing of Louisiana Energy Services, L.P.'s ("LES") proposed National Enrichment Facility ("NEF").

A1. I, Rod M Krich ("RMK"), am Vice President of Licensing, Safety, and Nuclear Engineering for LES, the applicant in this matter. I am presently "on loan" to LES from Exelon Nuclear, where I am Vice President Licensing Projects. I am responsible for leading the effort on behalf of LES to obtain a license from the U.S. Nuclear Regulatory Commission ("NRC"), as well as other necessary state and federal permits, to construct and operate the proposed National Enrichment Facility. A full statement of my professional qualifications was included with LES's initial prefiled testimony in this proceeding, submitted on January 7, 2005 (referred to hereinafter as "Krich Direct Testimony").

I, Paul G. Schneider ("PGS"), am a technical and management consultant working for SMG Inc, a consulting services company. I have been retained as an expert

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consultant by LES to assist in the evaluation of issues associated with the environmental impacts of deconverting depleted uranium hexafluoride to U_3O_8. I hold a BS degree in Physics and Mathematics from Wake Forest University and a MS degree in Physics from Emory University. I have more than 40 years of experience in the nuclear industry. This includes the design of chemical processing plants to convert depleted uranium hexafluoride to uranium oxide and a fluoride byproduct. I was previously employed by USEC Inc. as Director of the Nuclear Fuel Cycle and, prior to that, by Lockheed Martin as Director of the Atomic Vapor Laser Isotope Separation ("AVLIS") Program. As part of my responsibilities as Director of the Fuel Cycle at USEC Inc., I directed the activities to prepare a bid proposal to the Department of Energy to convert its stockpile of depleted uranium hexafluoride to a more stable form for permanent disposal. I led USEC's activities to select a cost-efficient process, determine the best disposition of its products, and then prepare a conceptual design of the processing plants. While at USEC Inc., I also managed the disposition of USEC's depleted uranium hexafluoride at the Starmet plant in Barnwell South Carolina, which involved the conversion by Starmet of the depleted uranium hexafluoride to DUF_4 and calcium fluoride. In this capacity, I oversaw the disposal of the DUF_4 and the calcium fluoride. A detailed statement of my professional qualifications is attached hereto.

Q2. Are you testifying in this proceeding as an expert?

A2. (RMK) Yes.

(PGS) Yes.

Q3. What is the purpose of this rebuttal testimony?

A3. (RMK, PGS) The purpose of this rebuttal testimony is to specifically address the written direct testimony of Dr. Arjun Makhijani regarding Contention NIRS/PC EC-4 in this

proceeding (referred to hereinafter as "Makhijani Direct Testimony"). This rebuttal testimony is limited to those portions of Dr. Makhijani's testimony that were not excluded by the Licensing Board in its Memorandum and Order (Ruling on Motions In Limine and Providing Administrative Directives) of January 21, 2005. We have reviewed those portions of Dr. Makhijani's testimony. We show how the issues raised by Dr. Makhijani were either addressed in our initial direct testimony in this proceeding or are irrelevant to the approach that LES intends to pursue for the deconversion of the depleted uranium hexafluoride to be generated by the NEF. We also provide some additional responses to issues raised by Dr. Makhijani. In general, as reflected in the Krich Direct Testimony, we conclude that LES and the NRC staff have performed a complete and adequate assessment of the potential environmental impacts associated with the construction and operation of a deconversion facility.

II. RESPONSE TO CLAIMS MADE IN THE PREFILED DIRECT TESTIMONY OF NIRS/PC WITNESS ARJUN MAKHIJANI

Q4. Please summarize the major opinions and conclusions stated by NIRS/PC witness Arjun Makhijani in his prefiled direct testimony relative to Contention NIRS/PC EC-4.

A4. (RMK, PGS) Dr. Makhijani makes the following five points in his direct testimony:

First, Dr. Makhijani makes the statement: "[T]he initial application, filed in December 2003, does not discuss the impact of deconversion at all. There is reference to the fact that DOE has contracted for the construction of DUF_6 conversion plants at Paducah and Portsmouth in the first Environmental Report at page 4.13-2, but there is no discussion of the impact of such plants." (Makhijani Direct Testimony, at 5).

Second, Dr. Makhijani raises a number of concerns related to the potential use by LES of a deconversion process that would upgrade to anhydrous hydrofluoric acid ("HF") the

HF produced from deconverting depleted uranium hexafluoride to U_3O_8. In fact, the concerns identified by Makhijani relative to upgrading HF to anhydrous HF are by far the principal focus of his testimony. These include the following statements:

- "If the preferred option of neutralizing the HF and disposing of the calcium fluoride is replaced by a decision by LES to produce and ship anhydrous HF (AHF), the potential environmental impacts on the environment are likely to be higher. . . .[T]he health and environmental impacts on routine operation from the greater volatility and general hazards posed by anhydrous HF versus aqueous HF were not analyzed by the DOE EIS for the Paducah or Portsmouth facilities cited by the NRC in the LES DEIS analysis . . . " (Makhijani Direct Testimony, at 7-8).

- "LES has not decided whether the hydrofluoric acid generated will be neutralized to form calcium fluoride (CaF_2) or distilled to form anhydrous hydrofluoric acid (AHF), however, the NRC stated that CaF_2 disposal was the only scenario that was reasonable to include in the DEIS . . . " (Makhijani Direct Testimony, at 10).

- "[I]f any consideration is to be given by LES to the possible production and sale of anhydrous hydrofluoric acid for reuse, than [sic] an examination of this option's environmental impacts should also be carried out." (Makhijani Direct Testimony, at 10).

- "There is no adequate discussion in the ER, the LES DEIS, or the DOE EISs for the Paducah and Portsmouth facilities of the anhydrous hydrofluoric acid (AHF) process or its operations issues, environmental impacts and transportation risks. LES has not yet formally selected a deconversion process, and the production of AHF process is one alternative under possible consideration." (Makhijani Direct Testimony, at 17).

- "The costs, operations issues, environmental impacts and transportation risks of AHF in the contest of deconversion of DUF_6 are at this stage not based on actual experience. If the preferred option of neutralizing the HF and disposing of the calcium fluoride as LLW is replaced by a decision to produce and ship anhydrous HF, the potential impacts on the environment are likely to be higher and should be considered in the LES EIS." (Makhijani Direct Testimony, at 18).

- "If any consideration is to be given by LES to the possible production and sale of anhydrous hydrofluoric acid for reuse, then an examination of this option's operations issues, environmental impacts and transportation risks should also be carried out." (Makhijani Direct Testimony, at 18).

- "If the preferred option of neutralizing the HF and disposing of the calcium fluoride as LLW is replaced by a decision to produce and ship anhydrous HF, the

potential impacts on the environment are likely to be higher." (Makhijani Direct Testimony, at 20).

Third, Dr. Makhijani contends that there currently are no DOE or general NRC guidelines that govern the free release of contaminated hydrofluoric acid or calcium fluoride (Makhijani Direct Testimony, at 7, 22-24).

Fourth, Dr. Makhijani contends that "a consideration of lower filter efficiency [for filtering hydrofluoric acid that would be generated in large amounts during routine operations of the deconversion facility] should be included in the assessment of the routine impacts of the deconversion facility." (Makhijani Direct Testimony, at 21-22).

Fifth, Dr. Makhijani asserts as a "fact" that "the cumulative transportation distances considered for the DOE facilities are different from those that may be required for shipping the material generated by the proposed LES facility." (Makhijani Direct Testimony, at 20).

Q5. Do you have a view about the five key points that Dr. Makhijani makes in his direct testimony, as you have just outlined them?

A5. (RMK, PGS) Yes. With respect to the first point above, related to whether the LES Environmental Report includes a discussion of the environmental impacts of a deconversion facility, Dr. Makhijani, himself, acknowledges that Revision 2 of the license application contains such a discussion on page 4.13-3 of the ER (*See* Makhijani Direct Testimony, at 5) . As Dr. Makhijani recognizes, Revision 2 of the application references the environmental evaluations undertaken by the Department of Energy for deconversion facilities to be built at Portsmouth, OH and Paducah, KY, as well as the NRC's Final Environmental Impact Statement for the Claiborne Enrichment Center. In view of this, we believe that the first paragraph of EC-4, which

contends that LES's ER "fails to discuss the environmental impacts" of a deconversion plant, is now moot.

Q6. With respect to the second issue in Dr. Makhijani's direct testimony, related to the possible use of a deconversion process that would upgrade the hydrofluoric acid from a deconversion plant to anyhdrous HF, do you have an opinion about the concerns identified by Dr. Makhijani?

A6. (RMK, PGS) Yes. As was noted in the Krich Direct Testimony, DOE's Programmatic Environmental Impact Statement ("PEIS"), which is incorporated by reference in the site-specific EISs for Paducah, KY and Portsmouth, OH, evaluated both the process that produces HF and the process that produces anhydrous HF: "The environmental impacts of both options (production of anhydrous HF for commercial use and neutralization of HF to CaF_2) were considered in this PEIS." (*See* Krich Direct Testimony, Answer 23). Similarly, "[t]wo technologies were considered for management of the HF following conversion of UF_6 to U_3O_8. The first process would upgrade the concentrated HF to anhydrous HF for sale. Anhydrous HF is a valuable product; one potential use for HF is in the production of UF_6 from natural uranium ore for feedstock to the gaseous diffusion process. The second process would neutralize the HF to CaF_2 for disposal or sale, depending on whether the CaF_2 with trace amounts of uranium could be marketed." (*See* Krich Direct Testimony Answer 23). Thus, it is clear that, contrary to Dr. Makhijani's statement in his direct testimony, the DOE PEIS did, in fact, evaluate both processes, the one that produces aqueous HF and the one that produces anyhdrous HR.

Q7. Question 7 and the answer thereto are proprietary and have been provided under separate cover.

A7. [Proprietary]

Q8. The third issue raised in the Makhijani Direct Testimony relates to the lack of any DOE or general NRC guidelines that govern the free release of contaminated hydrofluoric acid or calcium fluoride. Do you have an opinion about this issue?

A8. (RMK, PGS) Yes. Dr. Makhijani's concern on this issue appears to be twofold: (1) the ability of LES to sell or otherwise reuse the hydrofluoric acid resulting from the deconversion process on the open market (*See* Makhijani Direct Testimony, at 23); and (2) the ability of LES to dispose of the CaF_2 that would result from the neutralization of the hydrofluoric acid (Makhijani Direct Testimony, at 23).

As to the first concern, the important point to emphasize is that, as to the HF that would be produced as a result of the deconversion process, both the DOE PEIS and the site-specific EISs evaluate the environmental impacts associated with the possible sale of this HF, as well as the impacts associated with the disposal of the this HF. (Exhibit 18, at F-12; Exhibit 17, at 2-16 to 2-19; and Appendix E, Sections E.3 and E-4; Exhibit 16 at 2-17 to 2-18; and Appendix E, Sections E.3 and E.4). In discussing these impacts, the site-specific EISs explicitly discuss the process for ensuring that appropriate limits are established and enforced, noting that "authorized limits for DOE property that will be released from DOE control are established and implemented on a case-specific basis according to a process defined by DOE Order 5400.5, "Radiation Protection of the Public and the Environment," and further noting that this process is designed to ensure that "the level of residual radioactive material in the property to be released is as near to background levels as is reasonably practicable, as determined by applying the principles of the DOE ALARA process." (Exhibit 17, at. E-8-9; Exhibit 16, at E-8-9). Finally, DOE notes that if HF is proposed to be released for unrestricted use, the process of establishing and enforcing limits would include "coordination with the U.S. Nuclear Regulatory Commission or the

Responsible Agreement State agency." (Exhibit 17, at E-9; Exhibit 16, at E-9). Thus, whether or not LES intends to seek a commercial market for the HF -- and, at this point, LES does not intend to seek to sell the HF -- the DOE PEIS and the site-specific EISs contain an appropriate discussion of the regulatory issues associated with the release of the HF for unrestricted use.

As to the second issue, the DOE PEIS (Exhibit 18), as well as the two site-specific EISs for Portsmouth (Exhibit 16) and Paducah (Exhibit 17) contain a thorough discussion of the extent to which it is expected that the CaF_2 would be contaminated by the presence of uranium. For example, in Appendix F of the PEIS, DOE specifically states that "[t]he CaF_2 potentially produced in the U_3O_8 conversion process was assumed to have a uranium content of less than 1 ppm. (Exhibit 18, Volume 2, at F-64). This conclusion is supported by the commercial experience of Cogema at its W Plant in Pierrelatte, France, where the level of uranium contamination in the CaF_2 is routinely below 1 ppm. (*See* Exhibit 76). At such low levels of contamination, the CaF_2 could be disposed of in a municipal land fill. Indeed, there are examples of exactly this approach, where regulators have made decisions to authorize, or would be prepared to authorize, the disposal of CaF_2 in municipal landfills. (*See* Exhibits 21, 77, and 78). In any event, DOE's PEIS includes a thorough discussion of the waste management impacts associated with the disposal of CaF_2, whether disposed of in a municipal landfill or a low-level radioactive waste disposal facility. (*See* Exhibit 18, Volume 2, Section F.3.7.1). Similarly, the site-specific DOE EISs for the Portsmouth site (Exhibit 16) and Paducah site (Exhibit 17) both contain a discussion of the issues associated with the disposal of CaF_2 (*See* Exhibit 16, Section 5.2.3.7; Exhibit 17, Section 5.2.2.7). Importantly, as with HF, the site-specific EISs include a detailed discussion of the process for ensuring that the appropriate health and safety standards are established and applied in addressing the unrestricted release of CaF_2.

Thus, in response to Dr. Makhijani argument that "[t]he treatment and disposal of this [CaF_2] waste stream would add to the environmental impacts of the routine operation of the deconversion facility and these impacts should be considered for the specific case of the proposed LES facility in the ER and DEIS" (Makhijani Direct Testimony, at 23-24), the analysis in the DOE PEIS and the two site-specific EISs is both comprehensive and bounding of any impacts that might be experienced at the NEF.

Q9. With respect to the fourth issue in Dr. Makhijani's direct testimony, in which he contends that a "lower filter efficiency should be included in the assessment of the routine impacts of the deconversion facility", do you have an opinion on this issue?

A9. (RMK, PGS) Yes. First, in support of his argument that a "lower filter efficiency" should be included in the assessment, Dr. Makhijani premises his entire argument on a reference to a study that was apparently undertaken of "scrubber efficiency" in the scrap recovery operations at the uranium plant near Fernald, Ohio. On the ostensible basis that "low scrubber efficiency was frequently experienced" at this site, Dr. Makhijani contends that a lower filter efficiency should have been evaluated for the proposed deconversion plant. (*See* Makhijani Direct Testimony, at 20-22, and Violleque reference cited in footnote 20).

In reviewing the report cited by Dr. Makhijani, which is titled "The Fernald Dosimetry Reconstruction Project" (hereinafter referred to as "The Fernald Report"), it is clear that it has absolutely no applicability to the HF filter system that would be employed by a deconversion facility. The Fernald Report discusses two types of air filtration systems used at Fernald. One is a dust collector and the other is a scrubber. The dust collectors simply remove airborne particulate matter using large fiber vacuum cleaner bags. Scrubbers are treatment systems for cleaning effluents using liquid droplets. The units spray an acidic or caustic liquid

into the exhaust system that scavenges particulate matter and reactive gasses from the exhaust and collects the material using a mist collection system. Importantly, both systems are installed to remove uranium compounds (*i.e.*, particulates) from the effluent, not HF in a gaseous state.

Neither of the two systems addressed in the Fernald Report operates in a manner resembling an activated carbon system, which is the system that would be used to remove HF from the effluent at a deconversion facility. Indeed, it is important to bear in mind that the Fernald facility was built more than 50 years ago to meet then-applicable standards. By comparison, current operating experience with activated carbon systems, including the experience at Urenco's enrichment facilities has demonstrated the ability of these filters to operate reliability at high efficiencies. For these reasons, the Fernald Report is simply not relevant when comparing collection systems discussed in the report to the activated carbon systems that would be available to remove HF at a deconversion facility. Furthermore, activated carbon filters are not subject to corrosion by HF.

Second, Dr. Makhijani further states that "even if a 99.9 percent efficiency scrubber is installed, maintaining the efficiency at such a high level would be difficult and expensive due to the corrosive nature of HF. (*See* Makhijani Direct Testimony, p. 22, footnote 20). Yet there is absolutely no support for this statement anywhere in Dr. Makhijani's testimony. Thus there is no way to evaluate Dr. Makhijani's argument, as it is nothing more than an unsubstantiated assertion.

Third, it should be noted that the estimated process stack emissions of HF, as calculated by DOE in its PEIS, are truly de minimus, when compared to typical state standards for HF. For example, the estimated 24-hour maximum HF concentrations at representative

facility boundaries for the conversion to U_3O_8 with HF neutralization are 0.6 percent of the applicable state standard (*See* Exhibit 18, Volume 2, Section F.3.3.2).

Finally, as a matter of design, it is feasible to design a system that will achieve a very high level of filtering efficiency, based upon a simple trade-off between operating cost and release standards. Indeed, there is abundant operating experience that today's standards can be met with cost-efficient designs. In this regard, LES has committed to NRC that we will achieve a 99% efficiency for HF removal at the NEF, itself, and fully expect, therefore, that this level can be achieved for HF removal at a deconversion facility.

For the foregoing reasons, we strongly disagree with Dr. Makhijani's argument that the issue of "filter efficiency" was not adequately evaluated in the DOE environmental evaluations. In fact, Dr. Makhijani's testimony on this issue constitutes nothing more than an assertion, based upon a single reference that has no technical applicability to a deconversion facility, that "consideration of the impacts of lower filter efficiency should be included in the assessment".

Q10. With respect to the fifth issue in Dr. Makhijani's direct testimony, in which he asserts that "the cumulative transportation distances considered for the DOE facilities are different from those that may be required for shipping the material generated by the proposed LES facility", do you have an opinion on this issue?

A10. (RMK, PGS) Yes. As was noted in the Krich Direct Testimony, the DOE PEIS indicates that transportation impacts were evaluated for distances ranging from 155 to 3,100 miles [250 to 5,000 km], a range that would certainly bound transportation distances that might be involved in a private sector facility. (*See* LES Exhibit 18, Vol. 2, Appendix J, at J-10).

Q11. Does this conclude your testimony?

A11. (RMK, PGS) Yes.

PAUL G. SCHNEIDER

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SUMMARY

Nuclear industry professional with strong business and technical experience. Success as a consultant, a team member, and as team leader producing winning proposals. Operations and project management experience, combined with outside commercial general partnership interests as a General Manager and Board Member complements and enhances direct contributor role. Currently is a principal of a management and technical consultant service company. Has an active DOE Q clearance.

PROFESSIONAL ACCOMPLISHMENTS

Business Activities

- Identified and led the strategic initiative to bid for the DUF6 DOE contract, (depleted uranium hexafluoride conversion), and led the USEC team that designed the conversion plants. ($ 1.5 billion)
- Conducted an extensive study of alternative uses of HF derived from the deconversion of DUF6 and prepared the section of the DOE bid describinghow revenue would be derived from the innovative use of HF products and by-products.
- Managed USEC project to select business acquisitions and evaluate candidates.
- Managed the program to adapt the nuclear fuel cycle to accommodate the AVLIS enrichment process.
- Assisted in the development and preparation of USEC policies for acquisition and evaluation.
- Designed a computer model to analyze the lifecycle costs of our proposed conversion and disposition processes and conducted the analysis.
- Formed strategic ventures with General Electric and Cameco to develop and deploy natural uranium feed and enriched uranium product conversion services for an advanced enrichment process.
- Conducted site selection process to select location for USEC's two fuel cycle conversion facilities.
- Managed the pilot-scale demonstrations and completed the conceptual designs of two fuel cycle plants.
- Evaluated and selected construction sites for these conversion facilities
- Served as Y-12's representative to the nuclear weapon's complex'smodernization committee.
- Developed basis for new missions for Y-12.
- Led the Oak Ridge initiative to convince DOE to site the consolidated nuclear weapons complex on the Oak Ridge reservation.

Weapons Production

- Conducted an assessment for the National Nuclear Security Agency (NNSA)of the nation's supply of and demand for highly enriched uranium for NA-12.
- Introduced new management concepts for implementing a responsive infrastructure for NNSA.
- Evaluated the supply and demand of tritium use in the nationalnuclear stockpile for NNSA.
- Proposed options for the downblending of highly enriched uranium as part of the Secretary of Energy's non-proliferation initiative.
- Evaluated and recommended improved business and management practices for NA125.
- Managed Y-12 Plant production programs
- As Production Manager, maintained a perfect delivery schedule for weapons production.
- Developed and maintained excellent relationships with Y12 Plant primary customers, DOE-ALB, Los Alamos Laboratory, and Sandia Laboratories.

Intelligence Analysis

- Developed guidelines for nuclear warhead destruction and was instrumental in increasing the DOE IN 10 budget by 30%.
- Increased the productivity and responsiveness of the DOEHQ support organizations.
- Introduced and implemented the concept of pay for productivity to the intelligence analysts.
- Trained interagency intelligence teams how to recognize nuclear weapons production facilities.

Process and Instrumentation Development

- Provided new capabilities to the Y-12 Plant that resulted in new plan missions.
- Developed one of a kind radiographic, ultrasonic, gamma ray, eddy current, and thermal imaging NDE testing procedures and equipment for production component inspections.
- Increased the Y-12 Plant's capability to certify weapons for significantly longer stockpile life.
- Managed the transfer of ion plating (vacuum coating) technology to Metal Preparation Division.
- Led the first successful production implementation of a vacuum coating process for two new production programs.

EMPLOYMENT HISTORY

SMG Inc., Washington, DC
President **2002 to Present**

As a consultant to the USDOE/ NNSA, Mr. Schneider provides management and technical oversight of NNSA contractor plans and schedules, prepares top level facility performance requirements, evaluates NNSA business and management practices as requested by the Assistant Deputy Administrator.

USEC Inc., Bethesda, MD
Director Fuel Cycle, **1994 to 2001**

Direct nuclear fuel cycle activities in support of uranium enrichment services provided by USEC, Inc., a seller of uranium enrichment services to commercial nuclear power plants. Formerly a federal corporation, USEC became public in 1998. (Proposal Development)

- Identify and evaluate fuel cycle businesses for potential acquisition.
- Conduct financial due diligence on acquisition candidates.
- Develop business models for operating new acquisitions.
- Develop capability and capacity to integrate a metal based enrichment service with a gas based fuel cycle
- Negotiate agreements with key service suppliers to provide expertise and capital to deploy commercial facilities to provide conversion services.
- Develop strategies to obtain Nuclear Regulatory Commission license to build and operate these facilities.
- Identify commercial service providers to convert US highly enriched uranium to nuclear fuel.
- Evaluate and develop processes to convert depleted uranium to a suitable disposal form.
- Evaluate alternative enrichment technologies
- Set strategy and prepare detailed proposals to obtain large government contracts

LOCKHEED MARTIN (and predecessor business entities)
Research and Development Director, AVLIS Program **1991 to 1994**

Directed research and development of uranium conversion pocesses and fuel cycle integration activities for Lockheed Martin's Atomic Vapor Laser Isotope Separation (AVLIS) Program.

- Managed program of internal and external process demonstrations, interfaced with the nuclear fuel cycle industry, and managed technology transfer to the private sector.

Department Manager, Regular and Special Production Programs **1989 to 1991**

Managed the Y-12 weapons production programs. Supervised weapons Project Engineers, performed liaison function with the weapon designers, Department of Energy, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, and Sandia National laboratory

Senior Production Liaison, DOE Headquarters **1987 to 1989**

Consultant to the DOE for nuclear warhead dismantlement and radiation detection instrumentation in support of arms control negotiations.

- Served as DOE's intelligence analyst for nuclear weapons production related issues.
- Represented nuclear weapons production contractors, and managed the budget for IN-10, the Weapons Intelligence Branch.
- Prepared position briefings for DOE Secretary, Assistant Secretaries, and the Congress.

Group Leader, Y-12 Plant, **1979 to 1987**

Managed technical and administrative activities of 12 research and development specialists. Manage Research and Development for nondestructive testing, analytical instrumentation, mechanics, environmental monitoring, high-pressure technology and thermal physical properties.

Relevant Business Experience

Over past ten years, obtained considerable experience working with business and community leaders and gained extensive experience operating and managing successful businesses.

- As ***Managing Partner*** for two general partnerships, manage operations and financial aspects of $8 million worth of commercial prqperty in two East Tennessee business centers.
- Served as Chairman of the Board for privately held G&S Construction Company, Inc.

EDUCATION

MS Physics, Emory University, Atlanta, GA
BS Physics, Wake Forest University, WinstonSalem, NC
A graduate of the University of Chicago's executive development program and LockheedMartin's Advanced Senior Management Institute.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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Louisiana Energy Services, L.P.	)	ASLBP No. 04-826-01-ML
(National Enrichment Facility)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the "REBUTTAL TESTIMONY OF ROD M. KRICH AND PAUL G. SCHNEIDER ON BEHALF OF LOUISIANA ENERGY SERVICES, L.P. ON CONTENTION NIRS/PC EC-4 (IMPACTS OF WASTE STORAGE")" in the captioned proceeding have been served on the following by e-mail service, designated by **, on January 28, 2005 as shown below. Additional service has been made by deposit in the United States mail, first class, this 28th day of January 2005.

Chairman Nils J. Diaz
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Washington, DC 20555-0001

Commissioner Edward McGaffigan, Jr.
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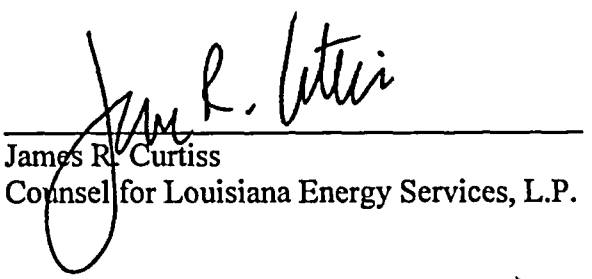

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