



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

March 12, 2003

MEMORANDUM TO: Melvyn N. Leach, Chief  
Special Projects and Inspection Branch  
Division of Fuel Cycle Safety  
and Safeguards

THRU: Joseph G. Glitter, Chief *JGG*  
Special Projects Section  
Special Projects and Inspection Branch, FCSS

FROM: Timothy C. Johnson *TJ*  
Senior Mechanical Systems Engineer  
Special Projects Section  
Special Projects and Inspection Branch, FCSS

SUBJECT: FEBRUARY 12 and 26, 2003, MEETING SUMMARY: LOUISIANA  
ENERGY SERVICES STATE SENATE HEARING

On February 12, 2003, U.S. Nuclear Regulatory Commission (NRC) staff attended a Tennessee State Senate Environment, Conservation, and Tourism Committee hearing in Nashville, Tennessee, to discuss the proposed Louisiana Energy Services (LES) gas centrifuge enrichment plant project planned for Hartsville, Trousdale County, Tennessee. NRC staff was scheduled to respond to questions on the NRC licensing process and the environmental impact statement preparation process applicable to licensing the proposed LES plant. However, due to time limitations, the hearing was not completed and was continued on February 26, 2003.

I am attaching the meeting summary for your use. This summary contains no proprietary or classified information.

Docket: 70-3103

Attachment: Louisiana Energy Services  
Meeting Summary

cc: William Szymanski/DOE  
Rod Krich/Exelon  
James Curtiss/W&S  
Mario Robles/USEC  
Jerry Clift/Trousdale  
Michael Marriotte/NIRS  
Ed Nanney/Tenn  
George Dials/LES

MEMORANDUM TO: Melvyn N. Leach, Chief  
Special Projects and Inspection Branch  
Division of Fuel Cycle Safety  
and Safeguards

March 12, 2003

THRU: Joseph G. Glitter, Chief  
Special Projects Section  
Special Projects and Inspection Branch, FCSS

FROM: Timothy C. Johnson  
Senior Mechanical Systems Engineer  
Special Projects Section  
Special Projects and Inspection Branch, FCSS

SUBJECT: FEBRUARY 12 and 26, 2003, MEETING SUMMARY: LOUISIANA  
ENERGY SERVICES STATE SENATE HEARING

On February 12, 2003, U.S. Nuclear Regulatory Commission (NRC) staff attended a Tennessee State Senate Environment, Conservation, and Tourism Committee hearing in Nashville, Tennessee, to discuss the proposed Louisiana Energy Services (LES) gas centrifuge enrichment plant project planned for Hartsville, Trousdale County, Tennessee. NRC staff was scheduled to respond to questions on the NRC licensing process and the environmental impact statement preparation process applicable to licensing the proposed LES plant. However, due to time limitations, the hearing was not completed and was continued on February 26, 2003.

I am attaching the meeting summary for your use. This summary contains no proprietary or classified information.

Docket: 70-3103  
Attachment: Louisiana Energy Services  
Meeting Summary

cc: William Szymanski/DOE  
Rod Krich/Exelon  
James Curtiss/W&S  
Mario Robles/USEC  
Jerry Clift/Trousdale  
Michael Marriotte/NIRS  
Ed Nanney/Tenn  
George Dials/LES

| <u>DISTRIBUTION:</u> | Docket: 70-3103 | ADAMS             | PUBLIC | NMSS r/f            | FCSS r/f |
|----------------------|-----------------|-------------------|--------|---------------------|----------|
| SPIB r/f             | RPierson        | ELeeds            |        | SLewis/OGC          |          |
| LClark/OGC           | DAyres/Reg II   | DSeymour/Reg II   |        | PLohaus/OSTP        |          |
| RHannah/Reg II       | PHiland/Reg III | BBartlett/Reg III |        | DLartland/Reg III   |          |
| VMitlyng/Reg III     | BSmith/EDO      | PLohaus/OSTP      |        | TCombs/OCA          |          |
| SFlanders/DWM        | THarris/DWM     | SWoods/DWM        |        | KEverly/NSIR        |          |
| DBrown               | YFaraz          | MChatterton       |        | RVirgilio/OSTP      |          |
| SGagner/OPA          | MLeach          | TPowell           |        | RTrojanowski/Reg II |          |

Hearing file

ADAMS Accession No.: **ML030710415**

G:\SPB\TCJ\LESGCMTGSUM2-12.WPD

\*SEE PREVIOUS CONCURRENCE

|      |              |  |           |    |                    |  |
|------|--------------|--|-----------|----|--------------------|--|
| OFC  | SPIB*        |  | SPIB*     | 2E | SPIB               |  |
| NAME | TCJohnson:dw |  | LGross    |    | <i>[Signature]</i> |  |
| DATE | 3/ 11 /03    |  | 3/ 12 /03 |    | 3/ 12 /03          |  |

C = COVER

E = COVER & ENCLOSURE  
OFFICIAL RECORD COPY

N = NO COPY

## Louisiana Energy Services Tennessee State Senate Environment Committee Hearing

Dates: February 12 and 26, 2003

Place: State Senate Environment, Conservation, and Tourism Committee Hearing Room  
Nashville, TN

Attendees: Lt. Governor D. Wilder  
State Senate Environment, Conservation, and Tourism Committee members  
T.C. Johnson/NRC  
G. Dials/Louisiana Energy Services (LES)  
R. Krich/LES  
B. Bruce/LES  
D. Gaines/LES  
R. Niel/LES  
W. Richman  
W. Calloway/Tennessee Environmental Council (TEC)  
E. Nadler/independent movie producer  
H. Thompson/Sumner County Executive  
B. Badgers/Citizens for Smart Choices  
M. Fox/Mayor of Lebanon, Tennessee

### Purpose:

The purpose of this hearing was to provide information to the Tennessee State Senate Environment, Conservation, and Tourism Committee and respond to questions related to the proposed LES gas centrifuge enrichment plant proposed to be located in Hartsville, Trousdale County, Tennessee. The hearing agenda is provided in Attachment 1. LES and NRC presentation information is provided in Attachments 2 and 3, respectively.

### Discussion:

On February 12, 2003, the Tennessee State Senate Environment, Conservation, and Tourism Committee held a hearing on the LES gas centrifuge enrichment plant proposed to be built in Trousdale County, Tennessee. B. Bruce began the LES presentations by providing general background information on the need for nuclear power. He also mentioned that the proposed LES plant is based on Urenco technology and cited the trip to the Urenco gas centrifuge plant in Almelo, The Netherlands, taken by a group of local officials. He also mentioned the Nuclear Fuel Services (NFS) facility in Erwin, Tennessee, and the fact that a Senate Commendation Resolution praising NFS was passed in April 2001. Mr. Bruce also mentioned that Trousdale County is considering zoning changes for the LES plant and that the plant must obtain an NRC license. He stated that there is a silent majority in the local communities that support the plant's construction.

Following Mr. Bruce's presentation, Lt. Governor Wilder stated that the LES plant would be a safe way to provide energy and was good environmental policy in light of the other options of using coal and oil. Sen. Walker reminded the Committee that there are substantial differences between LES and the nuclear activities that took place in Oak Ridge, Tennessee. He also said that there is no comparison with the hazardous exposures from Oak Ridge activities and the low exposures expected for the LES plant.

D. Gaines, a former superintendent of schools in Macon County, represented LES and spoke of the need for employment opportunities in the Trousdale County area for local young people. Following his presentation, Senator Cooper asked if there would be an Interstate connector route to the LES plant. LES indicated that there is no connector yet.

R. Neil, representing LES, discussed radiological risks from the proposed plant. He said that the concerns raised are similar to those raised in the development of the Waste Isolation Pilot Project in Carlsbad, New Mexico. He said that the NRC and the Environmental Protection Agency are responsible for the hazard risks. He said that mammograms typically produce 20 mrem of exposure and that therapeutic doses for cancer patients can be substantially higher. He compared this to natural background exposure levels.

Following Mr. Neil's presentation, Sen. Walker indicated that he wants more information on radiologic hazards. Mr. Neil stated that there is no direct correlation with actual radiological hazards and the low doses expected from the LES plant. Lt. Governor Wilder asked about the possibility of explosions. Mr. Neil responded that the LES facility would not be a weapons plant. Lt. Governor Wilder also asked how many have died of black lung disease. Mr. Neil responded that many have died of this disease in coal mining operations. Sen. Beavers asked how many jobs would be technical jobs that could be filled by local people. Mr. Neil stated that about 70 jobs would be technical, but there would be other less technical jobs as well. Sen. Beavers asked about the corrosiveness of uranium hexafluoride. Mr. Neil answered that NRC and the Department of Transportation regulate the transportation of this material and these issues would be addressed in the NRC licensing.

In his presentation, G. Dials indicated that the depleted uranium tails are considered a resource and would only be stored on-site temporarily. He stated that negotiations with the Four Lakes Regional Industrial Development Authority are underway to limit the amount of depleted uranium that could be stored. He also said that LES has just formed a panel to address options for depleted uranium disposition in addition to transfer to the Department of Energy (DOE). He said that the Envirocare and Nevada Test Site disposal areas could accept depleted uranium following conversion to an oxide. He said that LES would take possession of uranium hexafluoride unless there is a definitive plan for disposition of the tails.

Sen. Miller asked what would be the length of depleted uranium storage at the site. Mr. Dials stated that the quantity of depleted uranium would depend of the production levels at the plant and on remedial values. He said that when the material has no remedial value, it would be waste. He said that additional enrichment would also be a possibility and he is reluctant to rely totally on DOE for disposition. Sen. Walker asked how Urenco manages its depleted uranium. Mr. Dials indicated that it is stored on-site. Sen. Beavers asked if LES has agreements with the two disposal sites. Mr. Dials indicated that no agreement is in place, but LES has discussed the feasibility of disposal with the disposal site operators. Sen. Beavers also asked about the hazards of uranium hexafluoride. Mr. Dials stated that hazards are unlikely with the designs and administrative controls to be used. He said that depleted uranium does not have a high risk and mentioned that the mayor of Almelo, The Netherlands, is more concerned about liquid propane transportation than transportation of uranium hexafluoride. Sen. Beavers asked about the legacy of the tails. Mr. Dials stated that the depleted uranium tails will not be left on-site and referred to the NRC's decommissioning funding requirements. Sen. Cooper asked about exposures at the Paducah plant. Mr. Dials indicated that the Paducah plant has had releases, but the expected releases from the LES plant would be very small. He indicated that the European Urenco plants have no worker or public hazards. Sen. Southerland asked about

radon exposures. Mr. Dials stated that the average radiation dose in Trousdale County from natural background is 360 mrem/yr and the off-site doses at the Almelo plant are less than 2 mrem/yr. Sen. Walker referred to the letter from W. Magwood to the NRC, dated July 25, 2003. He asked if W. Magwood was a Bush appointee. Mr. Dials stated that Dr. Magwood serves at the pleasure of the Secretary of Energy and the Bush administration does not object to the transfer of technology from Urenco to the United States.

At this point, the hearing extended past the original time allocated and it was decided to reconvene on February 26, 2003, to continue through the agenda.

On February 26, 2003, the hearing resumed with Tennessee Transportation Commissioner Nicely responding to Senate questions on radioactive material transportation. He indicated that the planning process for improvements to Route 141, near the proposed LES plant, was just beginning and that funding for the improvements have not yet been budgeted. He also stated that no special State permits for transporting uranium hexafluoride are required unless the shipments are overweight or oversize. He said placarding would be required under Federal requirements.

W. Richman, a local engineer, indicated that based on his experience in the nuclear area, important issues need to be addressed up front. He discussed effluent release issues saying that he is hearing different things from LES. First, he heard that no water would be released and now 17,000,000 gallons would be released to the sewage system. He said that the depleted uranium tails is hazardous and the storage should be limited to a maximum of 90 days. He also said that the Envirocare commercial disposal site will not accept uranium hexafluoride and conversion to another compound would be required. He concluded by saying he wants the application released, clear plans for tails disposition released, a 2000 ton maximum tails storage limit placed on the site, and no water or air emissions from the plant.

Sen. Walker asked about the experience at the Oak Ridge site. Mr. Rickman said that higher standards should be applied. Sen. Walker asked if there had been any fatalities at Oak Ridge from the storage of 50,000 MT of uranium hexafluoride. Rickman said there have been no fatalities, but there is a financial burden. Sen. Walker stated that it was not clear there is a problem if there have not been any previous problems in storing depleted uranium tails.

Sen. Beavers asked if there would be a fluorination facility at the LES site. Mr. Rickman said that such a facility would be needed for conversion. Sen. Beavers also asked about wind patterns and tornado impacts at the site. Mr. Rickman indicated that he thought the application would need to address these concerns.

Sen. Ramsey stated that there have been few problems in the past handling the proposed materials and that the goal should be clean water and not necessarily pure water.

W. Callaway from TEC stated that LES has not provided answers to important questions and that the nuclear industry has not addressed waste disposal and depleted uranium disposition issues. He stated that Hartsville will become a waste repository.

Sen. Jackson asked if LES has a maximum limit and an public agreement for the plant, would Mr. Callaway still have concerns. Mr. Callaway indicated that he still has concerns and prefers downblending of high enriched uranium (HEU) rather than a new enrichment plant. He also said he wants a public referendum on the plant. Sen. Miller asked why is against the HEU

downblending project being proposed by Nuclear Fuel Services in Erwin, Tennessee. Mr. Callaway said that groundwater problems at the site need to be resolved.

E. Nadler, the producer of the film "Stealing the Fire," a film about the Urenco contractors passing classified information about its gas centrifuge technology to foreign countries, spoke about the security dangers of the plant. He said that Urenco's technology can be used to make nuclear bombs, that the technology has been stolen twice, and that the proposed LES plant would become a terrorist target.

Sen. Graves asked clarification of the purpose of the hearing. Sen. Miller stated that the hearing is for information only since the State legislature does not have a role in the local decisions related to zoning and the sale of the property to LES. He said that recently introduced legislation asking for a public referendum may come before the Committee in the future, but, at this time, no Committee action is being taken.

D. Fox, the Mayor of Lebanon, Tennessee, a city near the proposed site, but not in Trousdale County, discussed worker safety issues at the Paducah plant and concerns about contamination of the Cumberland River. He suggested that the local approval processes be slowed down and said that Trousdale County needs a public referendum.

H. Thompson, the Sumner County Executive, spoke in favor of the LES project, indicating that he respects the Urenco technology based on his visit to the Almelo plant. He said that there is no comparison between the proposed plant and the ones at Portsmouth and Paducah. He said that Tennessee needs foreign investment. He indicated that he did not favor a public referendum and the elected leaders should make the needed decisions. Mr. Thompson said that Sumner County rejected a public referendum proposal on February 3, 2003.

B. Badgers, from Citizens for Smart Choices, disputed the Sumner County vote on the public referendum and said that he was disillusioned by the Senate support of the LES project prior to hearing all the information at the February 12, 2003, hearing. He said that The Netherlands has twice revoked the Almelo facility license. He also indicated that the tails emit radiation and are chemical hazards.

T.C. Johnson then presented information of the NRC licensing process and the environmental review process. He indicated that NRC is an independent regulatory agency responsible for ensuring public and worker health and safety. NRC is, therefore, not a promoter of the proposed project, and will not issue a license unless LES can demonstrate it can meet NRC's safety requirements. Mr. Johnson also explained that NRC does not regulate DOE operations, except in a few cases specifically defined in law. Sen. Miller asked if he considered that the NRC regulations are acceptable. Mr. Johnson said yes. Sen. Beavers asked if tornado effects would be considered. Mr. Johnson indicated that tornado effects would be evaluated in the accident analyses. Mr. Johnson was asked about the dose limits for liquid effluent releases. He said that the limit in NRC regulations for liquid effluents is 50 mrem/yr and said that this value is less than the natural background radiation levels of about 300 mrem/yr for people living in Eastern United States. Sen. Walker asked if this was about the same as the amount from an X-ray. Mr. Johnson stated that the doses from X-rays presented at the earlier hearing session were about 40 mrem/yr and that the doses would generally be the same. Mr. Johnson was asked if NRC's regulations are better than DOE's. He stated that at a general level the regulations are the same, but they have been implemented differently. Mr. Johnson was asked about contamination that would remain at the site. He responded that NRC regulations require

contamination to be remediated and that to obtain a license LES would need to provide a decommissioning cost estimate and a financial mechanism to cover those costs.

Action Items:

None.



**MEMBERS:**

CHARLOTTE BURKS  
JERRY W. COOPER  
JO ANN GRAVES  
DOUG JACKSON  
RON RAMSEY  
STEVE SOUTHERLAND

**SENATE  
ENVIRONMENT, CONSERVATION  
AND TOURISM COMMITTEE**

**311 WAR MEMORIAL BUILDING  
NASHVILLE, TN 37243  
(615) 741-6955**

**CHAIRMAN:  
JEFF MILLER**

**VICE CHAIRMAN:  
MIKE WALKER**

**SECRETARY:  
MAE BEAVERS**

**EXECUTIVE SECRETARY  
JENNIFER YOUNG**

**RESEARCH ANALYST  
W. WALLER HENRY**

Wednesday, February 12, 2003  
10:30 am - 12:00 pm  
12/14 LP

**Public Hearing**

**Agenda for the Proposal to bring a Uranium Enrichment Facility to  
Hartsville, Tennessee:**

**LES Representatives**

Bill Bruce, LES Representative  
George Dials, President and CEO of LES  
Doyle Gaines, LES Hartsville Information Office Executive Director  
Robert H. Neil, Mechanical Engineer connected with LES

**Concerned Environmentalist**

Will Calloway, Tennessee Environmental Council  
Bill Badger, Trousdale county resident and member Citizens for Smart Choices  
Terry Sweeton, Citizens for Smart Choices

Bill Rickman, Chemical Engineer with experience in nuclear and environmental site  
clean up

Tim Johnson, Project Manager with the Nuclear Regulatory Commission will also be  
available for questions and discussion.





Louisiana Energy Services  
1133 Connecticut Avenue, NW, Suite 200  
Washington, D.C. 20036

For further information, contact:

Nan Kilkeary  
LES  
202-659-4344

John Van Mol  
Dye Van Mol Lawrence  
615-244-1818

### **LES REPORTS FORMATION OF TAILS DISPOSITION STUDY TEAM, ANNOUNCES MEMBERS**

Washington, DC, Feb. 11 -- LES (Louisiana Energy Services) today reported that it has formed a team of senior scientists to find an optimal environmental and economic solution to the tails disposition problem.

The team began working in October.

"As required, we will submit a plausible disposition strategy to the Nuclear Regulatory Commission. There are several possible options right now. However, we've been committed to finding an optimal solution for some time. The formation of the TDST (Tails Disposition Study Team) is an important part of that process," said George E. Dials, president and CEO of LES.

Dials said it could take up to two years for the team to make their final recommendations. Tails are the byproduct of uranium enrichment, a step in the nuclear fuel cycle. They have been stored on site at existing uranium enrichment plants, including sites in Paducah, KY, Portsmouth, OH, and Oak Ridge, TN.

LES has proposed building a \$1.1 billion uranium enrichment plant near Hartsville, TN.

"While other sites have not been compelled to deal with this issue, we think it is a fundamental business problem and we will find an optimal solution, one that meets both cost and environmental needs," Dials said.

Dr. Colin Heath, an independent nuclear consultant, recently agreed to head the team.

-more-

Here are the team members:

Dr. Colin Heath

Independent Contractor, Technical Study Coordinator  
Ph.D. Nuclear Engineering  
B.S., Chemical Engineering  
35 years of nuclear facility and nuclear waste disposal  
Member, International Expert Group on Disposal of Radioactive Waste  
Member, Geotechnical Board, National Research Council  
Testifies frequently before Congress, and the Nuclear Regulatory Commission

M. Leif Eriksson

Program Manager, Gram and Associates  
M. S., Geology  
24 years of nuclear waste management experience  
Consultant to National Academy of Science  
Consultant to International Atomic Energy Agency  
Consultant to Board on Radioactive Waste Management

Dr. Duane Catlett

Ph.D., Chemistry  
28 years as Senior Scientist and Program Manager at Los Alamos National Laboratory  
Program Manager, Rocky Flats Hazardous Materials clean-up project  
Co-author of more than 30 scientific papers

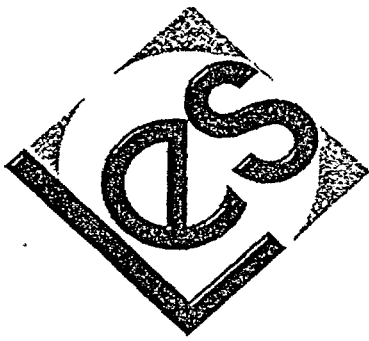
Special advisor to the TDST:

Robert Neill

M.S., Radioactive Hygiene  
23 years as Executive Director of the oversight Environmental Evaluation Group of the  
State of New Mexico  
Member, National Academy of Sciences  
Consultant to the Sierra Club  
Committee Member, several EPA Advisory committees

The team will call on additional expertise as needed to insure the development of an optimized, cost-effective approach for tails disposition while protecting the health and safety of the residents of Trousedale County and surrounding areas.

# # # # #



Louisiana Energy Services  
1133 Connecticut Avenue, NW, Suite 200  
Washington, D.C. 20036  
(202) 659-4344  
(202) 659-0791 Fax

February 12, 2003

TO: Members of the Tennessee General Assembly

FROM: George Dials, Chief Executive Officer

RE: TAILS DISPOSITION STUDY TEAM

I wanted you to have a copy of the attached news release, describing our efforts to make sure we find the most cost-effective and environmentally appropriate strategy to dispose of the "tails" from the uranium enrichment plant we have proposed.

Its message is that we will do better than basic NRC requirements when it comes to the disposition of tails from the uranium enrichment process. In our license application to the NRC, we will include what the NRC terms "plausible strategies" for the disposition of tails. This is a requirement for licensing.

We will go a step further and develop an optimized plan for disposition of the tails, taking into consideration all of the environmental aspects as well as economics. That's what our special study team has been directed to do.

My testimony today before the Senate Environment, Conservation and Tourism Committee is that we will not bring uranium hexafluoride to our proposed Hartsville Enrichment Plant until we have a definitive plan in place for the conversion, transportation and disposal of tails. We have previously agreed to a storage limit for the site and onerous penalties for violation that will make it more economical to dispose of the tails than to leave them in storage.

In summary, we believe our application will meet NRC requirements. In addition to that, we have hired the best minds in this field to help us determine the optimal tails disposal solution that makes sense for our project.

We will keep you posted on our progress.

## Doyle Gaines

Doyle Gaines has had a distinguished career as an educator and public servant. A graduate of Red Boiling Springs High School, he later received his doctorate in education from Tennessee Technological University, where he received the Flavius Smith Distinguished Alumnus Award in 1999. A permanent scholarship was named for him in 2002.

Gaines served in the US Navy for four years, including one year with the Atomic Energy Commission during H-Bomb tests in Bikini Atoll in the Marshall Islands.

He started his career as a teacher, guidance counselor and coach. Students he formerly taught now have leadership positions throughout middle Tennessee. He served for 14 years as the superintendent of Macon County School, and served the state of Tennessee as assistant commissioner of education.

He retired from education on Aug. 31, 1990, with 38 ½ years of service and was sworn in as the county executive of Macon County the next morning. He retired from that position in Sept., 2002, and now serves as Executive Director of the LES Information Office in Hartsville, TN.

He is currently president of the Tennessee Retired Teachers Association, and previously served as president of the Tennessee County Executive Association and Tennessee Association of Human Resource Agencies.

Doyle Gaines has received countless awards and honors for his public service. In 2002, the Macon County Commissioners named the new criminal justice center the "Doyle Gaines Justice Center" in his honor.

## **George E. Dials**

George Dials is president and CEO of LES (Louisiana Energy Services), where he is responsible for the organization and management of all corporate activities directed towards the licensing, engineering and design, financing, and construction of a new uranium enrichment plant in the U.S.

LES is an international partnership comprised of major participants in the nuclear fuels industry, Urenco, Cameco and Westinghouse, with three major nuclear utilities, Exelon, Entergy and Duke, as minority partners. LES plans to build a uranium enrichment plant in Hartsville, TN, using Urenco's centrifuge technology recognized as the most efficient, low-cost and safest in the world.

Dials has had a distinguished career in the nuclear energy field. He served as president and general manager of TRW Environmental Safety Systems, the operating contractor for the Yucca Mountain Project, the designated repository for the disposal of high-level nuclear waste. As manager of the Department of Energy's Carlsbad (NM) Area Office, he was directly responsible for licensing the Waste Isolation Pilot Plant, the world's first geologic repository for radioactive waste.

He has spent much of his career working with energy policy formulation, energy development and program management at national and state levels. He holds an engineering degree from the U.S. Military Academy at West Point, and two master's degrees in political science and nuclear engineering from the Massachusetts Institute of Technology.

He served as an infantry officer in the U.S. Army for 10 years, and was awarded a Silver Star for gallantry in ground combat and three Bronze Stars for valor while serving during the Vietnam War. During his Army service, he was a military research associate at Los Alamos National Laboratory (Los Alamos, NM) for two years.

Dials is the author of more than 60 general and technical articles and publications on energy, defense, and other issues.

### **Education**

- Master's degree in nuclear engineering, Massachusetts Institute of Technology
- Master's degree in political science, Massachusetts Institute of Technology
- Bachelor's degree in engineering, United States Military Academy

### **Activities and Achievements**

- New Mexico Distinguished Public Service Award, June 1998.
- U.S. Department of Energy Exceptional Service Medal, May 1998.
- Awarded Silver Star, Bronze Star with "V" for Valor, and 13 other military awards and decorations.
- All-East team, Eastern Collegiate Lightweight Football League, 1966.
- Over 60 technical publications, lectures, and congressional testimony on environmental, nuclear waste, energy, and defense issues.

## Rod M. Krich

Rod Krich is vice president of Licensing Projects for Exelon Nuclear, and serves as the licensing manager for LES. During his 25 years in the nuclear power industry he has held various positions in licensing and engineering. At Exelon, Krich has overall responsibility for leading Exelon Nuclear's licensing activities on such efforts as the Pebble Bed Modular Reactor and other future generation ventures.

In his position as vice president, regulatory services, Krich was responsible for interfacing with the Nuclear Regulatory Commission, state regulatory agencies, and the regulatory programs area for Commonwealth Edison's corporate office and the six stations.

Prior to Commonwealth Edison, he served as manager for regulatory affairs at Carolina Power & Light Company's H.B. Robinson Steam Electric Plant and was promoted to chief engineer in CP&L's nuclear engineering department. He was manager of the Limerick Licensing Branch at Philadelphia Electric Company's Nuclear Group Headquarters. He also had extensive licensing and regulatory experience at Virginia Power and Consumers Power Company, where he worked in the General Office and at the Palisades Plant. Krich also worked on the development of the High Temperature Gas-Cooled Reactor for General Atomics Company.

Krich received bachelor of science in mechanical engineering from New Jersey Institute of Technology and his master's degree in nuclear engineering from the University of Illinois.

## **U.S. Nuclear Power Statistics**

- Nuclear power accounts for about 20 percent of the nation's total electricity.
- Currently, there are 103 operating plants.
- 20 license renewals have been filed with the NRC and 20 more are expected within the next six years.
- 10 plant life extensions have been granted to existing plants by the NRC.

Source: Nuclear Energy Institute, 2003

## **2001 U.S. Supply of Enriched Uranium for Power Plant Usage**

- Russia – 55%
- France – 16%
- Holland, Germany and U.K. (Urenco) – 16%
- U.S. – 12%
- China – 1%

**Source: EIA Uranium Industry Annual 2001**





## Department of Energy

Washington, DC 20585

July 25, 2002

Mr. Martin J. Virgilio  
Director, Office of Nuclear Material  
Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Virgilio:

Thank you for inviting the Department of Energy to comment on the general policy issues raised by the Louisiana Energy Services (LES) in preparation for its enrichment plant license application. Given the proximity to the deadline, the Department is constrained to comment only on the overarching issues. We would, however, welcome the opportunity to address these or other subjects in greater detail if given more time to respond. With regard to:

Issue 1: Analysis of Need and No Action Alternative under National Environmental Policy Act (NEPA): The Department has concluded that nuclear energy will continue to play a critical future role in powering the American economy. The *National Energy Policy* estimates that electric utilities must increase capacity by at least 50 percent to keep up with demand in the next 2 decades. Nuclear utilities must increase proportionately if we are to maintain a balance between economic growth and protecting the environment from greenhouse gases.

Uranium enrichment is a critical step in the production of nuclear fuel. Within the past two years, domestic uranium enrichment has fallen from a capacity greater than domestic demand to a level that is less than half of domestic requirements. If the trend continues, 80 percent of projected demand in 2020 for nuclear power could be fueled from foreign sources.

In interagency discussions, led by the National Security Council, concerning the domestic uranium enrichment industry, there was a clear determination that the United States should maintain a viable, competitive, domestic uranium enrichment industry for the foreseeable future. The recent agreement between the Department and USEC Inc. reflects that policy objective of encouraging private sector investment in new uranium enrichment capacity. The Department firmly believes that there is sufficient domestic demand to support multiple domestic enrichers and that competition is important to maintain a healthy industry.

Having said the above, however, it is not the Department's intent to opine on the Nuclear Regulatory Commission's responsibilities under NEPA.



Printed with soy ink on recycled paper

Issue 5: Foreign Ownership: In its dialogue with the three Allied government partners in Urenco, Ltd. (Great Britain, The Netherlands, and Germany), the U.S. Government has expressed support for consideration by Urenco to partner with a U.S. company or companies for the purpose of transferring Urenco technology to new U.S. commercial uranium enrichment facilities. The following six talking points document the U.S. Government's concerns and are a matter of record.<sup>1</sup>

- "Maintaining a reliable and economical U.S. uranium enrichment industry is an important U.S. energy security objective.
- The U.S. Government supports the deployment of Urenco gas centrifuge technology in new U.S. commercial uranium enrichment facilities as a means of maintaining a reliable and economical U.S. uranium enrichment industry.
- Existing Department of Energy nuclear sites could be made available to facilitate timely licensing of a new U.S. commercial uranium enrichment facility and the facilities to build Urenco centrifuges in the U.S.
- The U.S. would place a high priority on ensuring nuclear nonproliferation and safeguards are in place and that protections for public health, safety, and the environment are maintained.
- The U.S. Government has encouraged USEC Inc. and other U.S. companies to explore with Urenco mutually viable economic terms or partnership arrangements for the purpose of transferring Urenco technology to a new U.S. commercial uranium enrichment facility.
- The U.S. Government would appreciate [the three Allied government's] support and encouragement for partnerships between U.S. companies and Urenco Limited to provide technology on economically viable terms for a new, economically competitive and reliable uranium enrichment plant in the United States utilizing Urenco gas centrifuge technology."

Issue 6: Tails Disposition: There has been no formal determination by NRC that depleted uranium is low-level radioactive waste for purposes of Section 3113 of the 1996 USEC Privatization Act. Consequently, the Department is not obligated to accept it for disposal unless and until NRC makes such a determination.

However, in view of the Department's plan to build depleted uranium disposition facilities and the critical importance the Department places on maintaining a viable domestic uranium enrichment industry, the Department acknowledges that Section 3113 may constitute a "plausible strategy" for the disposal of depleted uranium from the private sector domestic uranium enrichment plant license applicants and operators. The procedures and costs for this potential

---

<sup>1</sup> Unclassified excerpt from U.S. Department of State cable SECSTATE WASHDC 212326Z DEC 01 (NOTAL).

service are yet to be determined. The Department notes that Section 3113 (3) provides for reimbursement in an "amount equal to the Secretary's cost, including a pro rata share of any capital costs." Unlike Section 3113 (2), the reimbursement for the recovery of the costs for disposal of depleted uranium is not capped by the amount charged by commercial, State, regional or interstate compact entities for disposal services.

I appreciate the opportunity to comment on these very important issues. The Department is committed to working with NRC, industry, and other key stakeholders to facilitate the commercial deployment of advanced uranium enrichment technology in the United States. If you have any additional questions, please contact me or Mr. Larry Brown of my staff, at (202) 586-0843.

Sincerely,

A handwritten signature in black ink, appearing to read "Will Magwood", with a long horizontal flourish extending to the right.

William D. Magwood, IV, Director  
Office of Nuclear Energy, Science  
and Technology

The Honorable Don W. Fox, Mayor  
City of Lebanon

*Bezoekadres:*  
Stadhuisplein 1  
7607 EK Almelo  
Telefoon (0546) 54 12 00  
Fax: (0546) 54 13 41

*Postadres:*  
Postbus 5100  
7600 GC Almelo

Almelo, January 24 2003

Dear Mayor Fox:

Your concerns about the proposal to build a uranium enrichment plant in your region have been brought to my attention and I want to tell you that prior to the time a very similar plant was constructed in Almelo, many of our residents had some of the same concerns.

Hopefully, this brief letter concerning our experience in dealing with the plant will cause you to have fewer worries.

As I told the delegation from Trousdale County when they visited not long ago, we have had an excellent experience with Urenco's plant in Almelo. The plant has been operated very safely for over 25 years, with no ill effects to workers or townspeople who have chosen to live in the immediate area. Other industries, in fact, have moved into the immediate area of the plant, and it is quite a thriving section of our city.

Storage and transportation of the products and byproducts of the uranium enrichment process have not been a problem. The truck traffic is light compared to most industrial activities, and there have been no accidents at all.

Many of our residents have "grown up" with the plant, in a way of speaking, in that they have been staff members there for many years. And, of course, the plant's payroll and taxes make quite a nice contribution to our local economy.

If the city of Almelo's experience is any indicator, you may be looking forward to having a good corporate citizen as a neighbor, and a very safe, productive operation as an economic benefit to your region. You are more than welcome to visit us and check for yourself.

If you have specific questions that I may help you answer based on our experience, I would be happy to respond to them.

Sincerely,

Menno A.J. Knip  
Mayor of Almelo

# Usec to Build a Pilot Facility For Enrichment of Uranium

## Competition Intensifies With a Company Hoping To Put Up Tennessee Plant

By JOHN J. FIALKA

WASHINGTON—Usec Inc. will build a pilot uranium-enrichment plant in Ohio using centrifuge technology developed by the U.S. government, a move that intensifies a multibillion-dollar competition with a European-led consortium that hopes to build a commercial-sized enrichment plant in Tennessee.

In announcing plans for the pilot plant to be built in Portsmouth, Ohio, Usec President William H. Timbers said there may be room for only one commercial enrichment facility in the U.S. Allowing a foreign-owned company to control the market, he said, raised "sensitive" national security questions for the Bush administration.

Mr. Timbers and Usec have mounted a lobbying effort to put political roadblocks in front of its competitor, Louisiana Energy Services Inc., which is trying to get permits and a license to build and operate a plant near Hartselle, Tenn. The owners of LES include Urenco, a British-Dutch-German consortium that enriches uranium in Europe; Cameco Co., a Canadian uranium-mining firm; and three U.S. utilities that operate nuclear power plants, Duke Energy Corp., Exelon Corp. and Entergy Corp.

In 2004, a year before Usec's pilot plant would begin operating, the com-

pany will decide where to build a \$1 billion to \$1.5 billion commercial-sized plant in the U.S. Mr. Timbers said at a news conference here that for both the pilot and the commercial plant Usec will modify the design of a centrifuge that the U.S. Department of Energy used in the 1980s before it decided to abandon centrifuge-based enrichment.

Uranium enrichment is a complex industrial process that isolates and then concentrates U-235, the unstable uranium isotope that supports nuclear fission. The companies plan to make power-plant fuel, which requires a small percentage of enriched uranium. In large concentrations, enriched uranium can be used to make nuclear warheads.

"This is a very sensitive technology," said Mr. Timbers. "There are national issues here that need to be addressed," he added, asserting that the best decision for the Bush administration would be to support the Usec proposal.

LES President George E. Dials said his venture poses no national security issues, and that both the nuclear-power industry and the DOE have encouraged his project. "It seems Mr. Timbers is stuck on the concept of a monopoly, which is something we don't support."

Other industry experts believe the U.S. nuclear-fuel market could support both ventures.

"I think our nuclear security would be best served by having two suppliers," said Tom Neff, a physicist at Massachusetts Institute of Technology. He said both companies have good technology and reliable security. He dismissed Usec's concern about national security

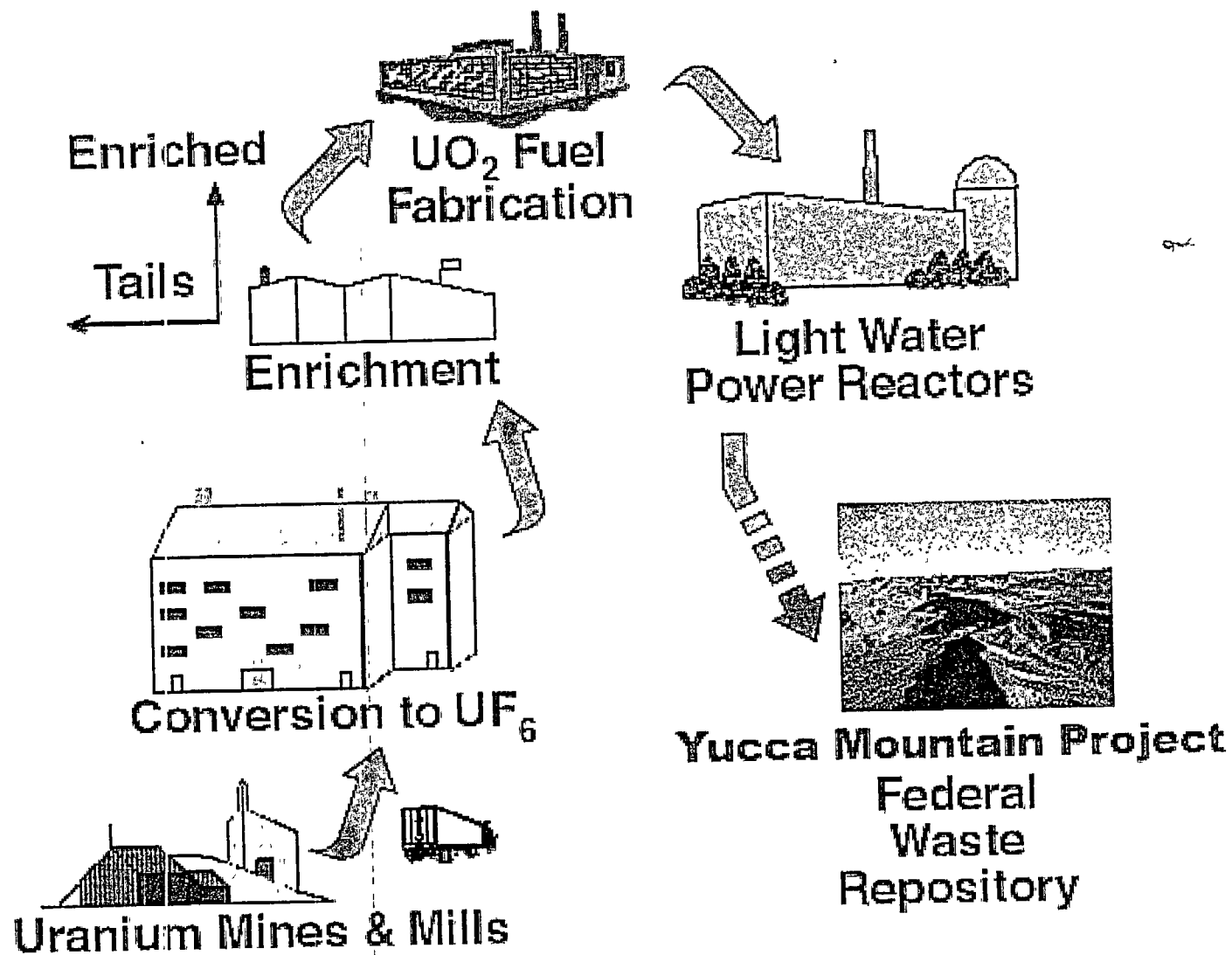
issues as "political hand waving" to gain a competitive edge over LES.

"LES has a technology that is already proven. Usec still has to demonstrate their technology," said Daniel Einbund, vice president of New York Nuclear Corp., a broker for nuclear fuel in Great Neck, N.Y. He said that Usec will have to demonstrate that technology derived from DOE designs in the 1970s can be improved with new materials and operated with computer-driven technology.

Mr. Timbers said Usec, which is based in Bethesda, Md., and was privatized by the U.S. in the 1990s to run existing Cold War-era enrichment plants, will spend \$150 million out of its cash flow to finance the pilot plant, which will have 240 centrifuges. Then it will develop a strategy to finance the commercial plant, which will have 12,000 machines and employ 500 to 600 workers.

The U.S. dropped its centrifuge enrichment program in the mid-1980s to concentrate on laser-based technology to separate U-235. The laser technology was later rejected by Usec, which concluded that centrifuge-based enrichment was more commercially viable. Usec is currently the world's largest supplier of nuclear power-plant fuel.

Article from the  
Dec. 5, 2002  
Wall Street Journal



## Economic benefits

### Plant Operations

210 permanent workers (current unemployment in Trousdale County is 140, per Labor Department) for 30 years  
Annual payroll of \$10.5 million  
Annual benefits of \$3.1 million  
Total worker expenditure per year \$13.6 million  
(Does not include corporate headquarters)

### Business Expenditures

Annual LES business expenditures in Trousdale County of \$941 thousand  
Annual LES business expenditures in Middle Tennessee of \$1.1 million  
Annual LES business expenditures nationally of \$7.6 million  
Total annual business expenditures locally of \$2 million

### Property Tax

\$2 million annually to Trousdale County (lowers as depreciation edges up)

### Annual Expenditure

Total annual expenditure in Trousdale County of \$16.5 million  
Total expenditure for the 30 year life of the plant \$495 million in Trousdale County

### Addition construction expenditures

785 job years to Trousdale County over eight year (primarily five) construction period  
\$20 million in additional payroll  
2390 job years for other counties  
\$150.3 additional payroll for other counties or region.  
Total construction payroll \$170 million

The above numbers do not include multiplier effects, when these dollars go back into the economy and create new jobs and payroll.



# LES Realities

Uranium Hexafluoride  $UF_6$ . Not dangerous when handled properly. Easy to handle properly.

Radiation from the plant. Not released. Ever.

Radiation in the plant. Less than a dental X-ray per year.

Transportation. Two or three trucks per day. Worldwide, two traffic accidents in 30 years, no release of material.

Jobs/Training. 250 permanent jobs; 400 construction jobs over five years. Workers will largely be hired locally (80% goal). Many operators will train in Europe, others locally at college and technical centers.

Tails. Usable by-product, what's left over after processing. Same extremely low radiation as material brought to the plant. Will be removed from Tennessee.

Water. City water goes into a closed system. No water from Cumberland River or back to the Cumberland River. Water monitored at all points.

Air. Filtered, monitored. No releases of material outside plant.

Land. No seepage. The Almelo NL plant site is free of radiation after 30 years of operation.

Decommissioning. NRC requires funds to be set aside to return site to natural state at end of production.

Economic Development. Similar plants in Europe have attracted other industries and jobs to their area and increased general prosperity. Greatly increased property taxes for construction needs such as schools, water system, roads, health care. Will more than double property tax base.

**Decisions are best made on facts, not fears.**

# Common Hazardous Materials

Source: International Occupational Safety & Health Information Centre (CIS)

| Hazardous Material    | Chief Hazards  | Protection Required  | We Know It As:   |
|-----------------------|--|--|--|
| Benzin                | Highly flammable explosive if vapor/air mixture. May be absorbed through the skin. Confusion, dizziness.   | No open flames, sparks, smoking. Ventilation or breathing equipment. Protective gloves, clothing.                  | Gasoline   |
| Paracetamol           | Combustible. Abdominal pain. Diarrhea. Unconsciousness.  | No open flames. Breathing protection. Eye protection. Protective gloves. Use P2 filter respirator.                 | Acetaminophen (Tylenol) and other aspirin substitutions. |
| Butane                | Extremely flammable. Explosive. Causes drowsiness; frostbite on contact with liquid.   | No open flames, sparks, smoking, closed system, ventilation, protective clothing.                                  | Three of the ingredients of Right Guard Deodorant        |
| Propane               | Extremely flammable. Explosive. Simple asphyxiant. Frostbite on contact.   | NO flames. Ventilation. Non-sparking tools. Insulating gloves and protective clothing.                             |  |
| Propylene Glycol      | Combustible, explosive mixture may be formed. Redness of eyes; eye pain.   | NO open flames. Ventilation. Protective gloves; safety glasses.  |  |
| Nicotine              | Combustible. Explosive mixture may be formed. Burning sensations. Vomiting. Convulsions. Dizziness, confusion. May be absorbed through skin. Pain in eyes. | No open flames. Ventilation above 95°C. Breathing protection. Protective clothing. Face shield and eye protection. | Common element of tobacco.                               |
| UF <sub>6</sub> (Hex) | Non-combustible, but gives off irritating or toxic fumes in a fire. Corrosive. Can cause skin burns. Abdominal cramps, shock or collapse upon ingestion.   | Avoid inhalation of fine dust. Protective gloves and clothing. Unbreakable packaging required.                     | Uranium hexafluoride                                     |

Taken to the extreme, almost everything in everyday life can be dangerous or scary – especially if not handled properly. The key is in proper handling and packaging – then the risks become acceptable.



*United States*  
*Nuclear Regulatory Commission*

---

**LOUISIANA ENERGY SERVICES GAS CENTRIFUGE PROJECT**

**BRIEFING FOR TENNESSEE STATE SENATE ENVIRONMENT,  
CONSERVATION, AND TOURISM COMMITTEE**

**FEBRUARY 26, 2003**

---



*United States*  
*Nuclear Regulatory Commission*

---

**OBJECTIVE**

- **PROVIDE BRIEF SUMMARY OF NRC LICENSING PROCESS**



*United States*  
*Nuclear Regulatory Commission*

---

**NRC LICENSING PROCESS**

- **NRC IS AN INDEPENDENT REGULATORY AGENCY.**
  - **NRC IS NOT A PROMOTER OF LOUISIANA ENERGY SERVICES (LES) PROJECT.**
  - **NRC WILL NOT ISSUE A LICENSE UNLESS LES DEMONSTRATES IT MEETS SAFETY REQUIREMENTS.**
-



*United States  
Nuclear Regulatory Commission*

---

- IN DECEMBER 2001, LES INFORMED US OF ITS INTENT TO SUBMIT GAS CENTRIFUGE ENRICHMENT PLANT APPLICATION.
  
  - LES IS CURRENTLY PROPOSING TO SUBMIT A LICENSE APPLICATION IN MARCH 2003.
-



*United States*  
*Nuclear Regulatory Commission*

---

- **UNDER NRC REGULATIONS:**
    - **PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT (EIS) IS REQUIRED**
    - **ENRICHMENT FACILITY CONSTRUCTION CANNOT BEGIN UNTIL A LICENSE FOR CONSTRUCTION AND OPERATION IS ISSUED.**
    - **HEARING IS REQUIRED BEFORE ISSUANCE OF LICENSE.**
  - **NRC WILL PERFORM A TECHNICAL REVIEW OF THE APPLICATION TO ENSURE IT MEETS NRC HEALTH AND SAFETY REQUIREMENTS (10 CFR PARTS 40 AND 70).**
-



*United States*  
*Nuclear Regulatory Commission*

---

- **NRC STAFF HAS HAD A SERIES OF PRE-APPLICATION MEETINGS WITH LES TO ENSURE COMMON UNDERSTANDING OF REQUIREMENTS.**
  
  - **NRC TECHNICAL REVIEW WILL TAKE 18-20 MONTHS.**
    - **NRC TO REVIEW APPLICATION;**
    - **REQUEST ADDITIONAL INFORMATION, IF NEEDED;**
    - **DOCUMENT SAFETY REVIEW IN SAFETY EVALUATION REPORT;**
-





*United States*  
*Nuclear Regulatory Commission*

---

- **PUBLIC WILL HAVE SEVERAL OPPORTUNITIES TO PROVIDE INPUT TO THE LICENSING PROCESS.**
  
  - **OPPORTUNITY TO PETITION FOR A HEARING WILL BE OFFERED SHORTLY AFTER APPLICATION IS SUBMITTED.**
  
  - **ENVIRONMENTAL REVIEW PROCESS**
    - **SCOPING MEETING**
  
    - **DRAFT EIS**
-



*United States*  
*Nuclear Regulatory Commission*

---

- SOME TECHNICAL MEETINGS TO BE HELD IN HARTSVILLE AREA.
- NRC HAS GAS CENTRIFUGE PROJECT WEBSITE  
(<http://www.nrc.gov/materials/fuel-cycle-fac/gas-centrifuge.html>)



*United States*  
*Nuclear Regulatory Commission*

---

**LOCAL MEETINGS**

- **NRC STAFF MET WITH TROUSDALE, WILSON, SMITH, MACON, AND SUMNER COUNTY EXECUTIVES AND STATE OF TENNESSEE OFFICIALS.**
  - **NRC STAFF PARTICIPATED IN PUBLIC INFORMATION MEETINGS SPONSORED BY TROUSDALE, MACON, AND SMITH COUNTIES.**
  - **NRC STAFF MET WITH TROUSDALE AND SMITH COUNTY COMMISSIONERS.**
-



*United States*  
*Nuclear Regulatory Commission*

---

**CONCLUSION**

- **NRC IS AN INDEPENDENT REGULATORY AGENCY.**
  - **NRC IS NOT A PROMOTER OF LES PROJECT.**
  - **NRC WILL NOT ISSUE A LICENSE UNLESS LES DEMONSTRATES IT MEETS SAFETY REQUIREMENTS.**
-