

LUNCHEON SPEAKER

COMMUNITY RELATIONS AND URANIUM ENRICHMENT IN LOUISIANA

Mary Boyd
Duke Engineering & Services, Inc.

In a week filled with topics like "nondestructive testing of the low level radioactive waste drums for uni-axial compressive strength and free liquid content," not to mention "high flux particle bed reactor systems for rapid transmutation of actinides and long-lived fission products," I figured the lesson here for me was to be lite, as in L-I-T-E, like Miller Lite.

Now conference organizer Roy Post must have had different thoughts, though, because he wanted--in keeping with the rest of the meeting--to name my talk "Public Outreach and Isotope Separations in Louisiana".

I pleaded for mercy and we compromised. So I'm here to discuss "community relations and uranium enrichment in Louisiana."

But to make sure you're primed for your afternoon activities, let me reassure you that before we're all through, there will be a discussion of depleted uranium hexafluoride, mixed waste, HEPA filters, gaseous effluent vent system, miscellaneous trash and as many other polysyllabic words I can think of.

But first the interesting stuff. Louisiana Energy Services, or L-E-S for short, will build the nation's first privately owned uranium enrichment facility. It will be the first commercial use of centrifuge technology for enrichment in the U. S. It's the first application to the U. S. Nuclear Regulatory Commission for a license for a major nuclear-related facility in almost 20 years. It will be the first facility to benefit from single-stage licensing legislation, which was passed by the U. S. Congress in 1990 for facilities that process uranium hexafluoride. And it will be the first nuclear-related facility in northern Louisiana.

The purpose of our plant is to provide an additional source of domestic enrichment for U. S. nuclear utilities. As you know, enrichment is one of several steps--mining, milling, conversion, enrichment and fabrication--in making nuclear fuel. At the Claiborne Enrichment Center, we will use thousands and thousands of centrifuges to physically separate uranium 235 from uranium 238. The centrifuges are about 12 feet high and 12 inches in diameter. They have rotors that spin more than a thousand times a second, concentrating the lighter U235 to the 3 to 4 percent level needed for commercial nuclear power plants. In the U. S., enrichment represents about 40 percent of the total cost of new nuclear fuel, so the savings that companies make by securing enrichment from Louisiana Energy Services will help hold down the cost of nuclear power.

I do have with me, by the way, my Claiborne Enrichment Center order book, so let me know afterward how many "SWU" you'd like.

"SWU" of course, stands for "separative work unit," which is the measure of enrichment production. It quantifies the level of force or energy and the amount of feed necessary to produce a certain enrichment level. The nominal production

capacity of the LES facility will be 1.5 million kilograms SWU per year. This is approximately 15 percent of the United States' annual commercial nuclear power plant requirements. One third of that capacity is committed to our utility partners.

Now let me introduce you by name to Louisiana Energy Services. We are a limited partnership consisting of URENCO, the European Enrichment Consortium that operates centrifuge enrichment facilities in the United Kingdom, the Netherlands and Germany; Fluor Daniel, the internationally known engineering and construction firm; and three bold, innovative utilities--Duke Power, Northern States Power and Louisiana Power & Light.

My company, Duke Engineering & Services, is under contract to Louisiana Energy Services to manage the licensing, quality assurance, community relations and partial design of the plant.

As manager of community relations, I have the pleasure of telling people the following:

- That this \$800 million facility will employ about 400 workers during construction and about 180 workers permanently.
- That we plan to hire the majority of the employees from the surrounding region.
- That we will eventually pay about \$6 to \$8 million a year in property taxes.
- That the local school board will receive a one-time tax benefit of about \$5 million.
- That the Claiborne Enrichment Center will be an extremely clean and safe operation.
- That there are no chemical conversions.
- That there is no nuclear fissioning.

The people receiving this message are in northwest Louisiana. Claiborne parish is a rural area--18,000 people in 720 square miles. The people are bright, caring and strongly tied to their local area. The nearest large urban area is Shreveport, which is about 50 miles away.

The economy of Claiborne parish is strongly based on oil and gas and has fluctuated with the ups and downs of that industry. When we announced our project in 1989, unemployment was about 13 to 14 percent. Now, thankfully, it's about half that.

How we selected Louisiana for this bellwether project is an interesting combination of technical, human and institutional factors.

Our centrifuge machines represent extremely sophisticated technology and a substantial investment of about \$500 million. Their reliability is critical to meeting customers' needs. Some of URENCO's European centrifuges have been spinning continuously for more than 16 years. It's understandable, then, that the need for reliability results in the main technical criterion for the plant--it must be sited where the

possibility of a damaging earthquake is very low. Northern Louisiana is such an area.

Our human factor is the knowledgeable and powerful Chairman of the Senate Energy and Natural Resources Committee, J. Bennett Johnston, favorite son of Plain Dealing, La. Senator Johnston has been a strong supporter of our project, well preceding even the formation of our partnership. When he learned we were starting our nationwide site search, he wondered whether our project could be located in Louisiana, since he was familiar with the environmental, safety and economic benefits of the European centrifuge facilities.

Our institutional catalyst is Louisiana Power & Light, which readily recognized three factors:

- It could get in on the ground floor of savings on enrichment for its customers.
- It could be responsible for bringing a great, 26-megawatt baseload electricity customer to its service area.
- The plant would provide jobs in LP&L's service area.

So thanks to mother nature, who blessed northern Louisiana with the suitable geology, to Senator Johnston's leadership and stewardship, and to Louisiana Power & Light, our project came to call Louisiana home.

As I stated earlier, there are no nuclear plants nearby. The only taste of nuclear Claiborne parish residents had had was back in 1987 when there was speculation about siting a low level waste disposal facility there. They didn't want it and they filled the local high school football stadium to tell the governor as much.

But a lot of the people who were opposed then are supporters of our facility today. I'd like to think communications has had something to do with that, even though we in this audience understand that radioactive waste facilities can be excellent neighbors.

This does not mean that there's no controversy about the plant. We went into this project with our eyes wide open, and we knew anything associated with the nuclear industry had the potential for controversy and concern. Most importantly, however, we knew from our previous experiences with Duke Power's seven nuclear units that public acceptance could be achieved if the technical credibility of the companies involved were high, if information were disseminated properly, if the licensing period was used advantageously and if we paid attention to local politics, culture and people.

And what fine people the residents of Claiborne parish are. There's Blake Hemphill, who now staffs our information office; Sherman Brown, a School Board Administrator; Emma Hilliard, a plant neighbor and former elected official; Jerry Pye, one of the local newspaper editors; Rev. Edward Fuller, presiding elder of two churches near our plant site; Dr. Nelson Philpot, resident director of the Louisiana State University Hill Farm Research Station; Ronnie Wafer, an employee of the Department of Social Services; Chick Ellis, owner of a general store near our plant site; and the inimitable Rev. "Flash" Gordon, a Presbyterian preacher and outspoken liberal.

I mention these folks because they made up the first group of residents that we took to Europe to see what centrifuge enrichment facilities were like. As you can tell, we took to the extreme a tool that has served us well in this business. By that I mean the plant tour. Since there are no facilities like ours yet in the U. S., we took two groups from the parish to see two

of the centrifuge enrichment facilities that are located close together in the Netherlands and Germany. We provided plant tours and the opportunity to meet with employees and a variety of local officials and residents. We also built in some unstructured time so the visitors could do interviews in the towns where these plants are located. We prepared a videotape from the first trip so others in the parish could share in the experience.

In 1990, we sponsored a trip by 20 residents to the Westinghouse Fuel Fabrication Facility in Columbia, S. C. and to Duke Power's OCONEE Nuclear Station and World of Energy visitor center. The purpose of the trip was to show the two parts of the fuel cycle after enrichment--fuel fabrication and use of that fuel in the reactor. Far more importantly, at OCONEE we wanted these folks to find out what it was like to have a nuclear facility in their community. So we arranged to have a number of local officials available--a county council representative, emergency planning officials, a merchant, a manufacturer, an education official, a real estate agent, a hospital administrator--to answer any questions about OCONEE or about having Duke Power as a citizen in their community. The visitors were also free to stop and talk with anyone in the community they wanted to--we just provided rental cars and said "go". This was an extremely successful effort. As a matter of fact, the participants joked that they were going to go back to Claiborne parish and say they no longer wanted an enrichment plant--they wanted a nuclear plant instead! We repeated the OCONEE portion of this trip for another group last summer, and it was equally successful.

Other activities we've undertaken include:

- Inviting educators selected by the school board supervisor to attend our summer teacher workshops on energy that we sponsor at Duke Power Co.
- Providing a tour of Duke Power's environmental laboratories where Louisiana visitors could see samples of Claiborne parish water that were being analyzed for information needed for our environmental report.
- Memberships in important statewide or regional organizations, such as the Louisiana Association of Business & Industry and the Southern Growth Policies Board.
- Opening an information office in Claiborne parish with visually appealing exhibits and a knowledgeable local resident as a community relations representative.
- Starting a newsletter that goes to every household in the parish.

Have we been successful?

The most frequent question we get at our office is when will the jobs be available--those far outweigh questions about the safety of the plant.

The day after we filed our license application, a group of parish leaders sent a telegram to the chairman of the NRC urging timely review of our application because of their belief in the safety of the plant and their eagerness for the jobs it will bring to Claiborne parish.

Last summer, the NRC held a public meeting to get comments on environmental issues that should be covered in the government's environmental impact statement on our project. Our supporters came early to the local high school

cafeteria while the opposition attempted to have a rally at the football stadium, their scene of triumph four years ago when they showed the governor they did not want a low level waste facility.

Boy, did that football stadium look pitiful with all those empty seats! Four years ago, more than 3,000 people gathered to say "no" to the government. Last summer, slightly more than 100 people--many of them just onlookers--were huddled together, and there were no elected officials or decision leaders in sight.

At the NRC meeting, the majority of folks in attendance were plant supporters. Most of the speakers in favor of the plant were people who had taken tours of the enrichment facilities or nuclear plant and could discuss knowledgeably the environmental issues they wanted the NRC to address. They are a core of support that is extremely effective.

And their eagerness for the plant occasionally gets frustrated by the length of the licensing process, which can seem unnecessarily long and at time unmoving to those who haven't lived through it before.

We announced our project in June 1989. In January 1991 we filed our 15-volume license application with the Nuclear Regulatory Commission. We believe the NRC can complete its required activities and issue a license in August 1993. We would immediately begin construction, which would lead to initial production of enriched uranium in early 1996.

An understandable issue of interest and concern in the parish is the ultimate disposition of depleted uranium hexafluoride. UF_6 is the chemical compound of uranium used in both gaseous diffusion enrichment plants and in gas centrifuge plants. UF_6 is used because it is the only uranium compound that is a gas at ordinary temperatures and because fluorine has only one isotope, so any weight variance between UF_6 molecules is due solely to the different isotopes of uranium.

UF_6 is stored and transported in specially designed cylinders constructed of carbon steel. Storage cylinders typically hold about 12,000 KG or 14 tons of the solid material.

The enrichment process involves splitting a UF_6 feed stream into a product stream enriched in U235 and a by-product stream depleted in U235.

The by-product stream consists of DUF_6 that still contains approximately 40 percent of its original U235. Approximately 5 to 10 KG of depleted uranium (DU) results from the production of 1 KG of low enriched uranium. Significant quantities of DU have been used in the U. S. in selected military and commercial applications. These include military projectiles, aircraft counterweights, and radiation shielding. Currently, the demand for this material is low.

At the Claiborne Enrichment Center, we expect to store 300 cylinders a year. Over a 30-year plant life, this requires less than 30 acres of our 442-acre site.

Although storage may not seem the ideal option from a public perception standpoint, I can assure you the issue has been thoroughly studied and the following major conclusions drawn:

1. DUF_6 is an energy resource with additional non-energy related uses. As such it should, wherever possible without increasing the risk to the public or the environment, be maintained in a useable, or at least retrievable, form in the interest of future generations.

2. Outdoor DUF_6 storage at the Claiborne Enrichment Center is safe and is the most economical option for DU management by LES. This option maximizes the possibility of future utilization or ownership transfer, which will minimize the disposition cost to LES.

We are, of course, required to demonstrate--before we are issued a license--the financial capability to dispose of the depleted uranium at the end of the life of the plant. Looking at the option of having the DU converted to a stable chemical form, such as uranium oxide, uranium tetrafluoride or uranium metal, and then disposed of as low-level waste, we estimate this would cost a total of about \$285 million, or about \$9.5 million per year over the 30-year life of the plant. In addition, we would spend about \$20 million for system cleaning, dismantling and decontamination.

Although those of us in the nuclear industry tend to think in the long term and have reality-based confidence in our ability to manage what are perceived to be waste problems, the perceptions of others, as we all know very well, can be quite different. An in Louisiana, where some industries haven't always been kind to the environment or demonstrated management integrity, the subject of depleted uranium storage is a sensitive one.

Those few but vocal ones who oppose our facility prefer to think LES will just go out of business in the dark of the night and leave the storage cylinders to rot. Our supporters are comfortable with most aspects of the plant, but I know they'd feel even better if we could announce that the depleted uranium would be removed on a frequent and regular basis.

Alas, we can't do that, so it just comes down to helping the residents develop confidence in those of us who deal with them everyday, in the LES management team and ultimately in the plant management.

Of the contentions admitted for litigation by the Atomic Safety and Licensing Board in the licensing process, the disposition of depleted uranium can probably be considered the major one. We won a clear victory recently, however, when the board agreed that DU was source material by statute and not mixed waste, as the intervenor had postulated.

We will have a slight amount of mixed waste at the site, but not enough to trigger the requirements of the resource conservation and recovery act. This comes from laboratory analysis work, in which particles of uranium become suspended in hazardous substances. In our license application, we stated that we expect to generate less than 750 gallons a year of mixed waste, but with the program we're developing to minimize its creation, we expect the actual figure could be less than 100 gallons.

In terms of low-level waste, which consists of the usual paper, clothing and wipes, we'll have about 16,000 pounds annually.

In other radiological waste, we'll have about 1,500 pounds of activated carbon and 1,850 pounds of ventilation filters annually. These are associated with our gaseous effluent ventilation system, which filters all air associated with the centrifuge process before it leaves the plant. The maximum annual release is projected to be about 10 grams of uranium. An individual at the plant boundary is projected to receive about 3 one-millionths of a millirem annually from air emissions. Actual operating experience at the URENCO plants in Europe has resulted in substantially lower releases.

For liquid releases, our administrative limits will be just five percent of the new part 20 regulations affecting nuclear-related facilities. As I explain it, this is as if the speed limit is 60 miles an hour, and LES is setting its cruise control at 3 miles an hour, but our foot is on the pedal at an even lower speed. And the alpha radiation in the liquid effluent will be equivalent to what is in drinking water.

I could continue providing information from our license application and from my experiences in Louisiana, but I think

by now you have a good idea that the Claiborne Enrichment Center will provide an excellent, competitive source of commercial enrichment to nuclear utilities, add economic value to the parish and demonstrate high quality environmental stewardship and corporate citizenship.

When the nuclear history book is written, the siting, licensing and public acceptance of the LES project will deserve a special chapter. Thank you for letting me give you a preview.