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Joan Claybrook, President

U.S. NUCLEAR REGULATORY COMMISSION
In the Matter of LOUISIANA ENERGY SERVICES, LP
Docket No. 70-3103ML Official Exhibit No. 74
OFFERED by: Applicant/Licensee Intervenor NIRS/PC
NRC Staff Other
IDENTIFIED on Witness/Panel M. Sheehan
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Reporter/Clerk

URENCO LIMITED

A CORPORATE PROFILE

April 2004

A Report by Public Citizen's Critical Mass Energy & Environment Program

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Behind LES and its plan to build a controversial uranium enrichment plant in New Mexico is another company that is not well known in the United States. Urenco Limited is an unusual corporation controlled by government and private sector interests in Europe. It has been a lightning rod for anti-nuclear activism in three countries, and lax security at its operations has been cited as a factor in the illicit spread of nuclear technology to countries such as Pakistan, Iraq, Libya, and North Korea. The following is a background report on Urenco.

Urenco Limited Headquarters:
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Marlow
Buckinghamshire
SL7 2NL
United Kingdom
Tel. 44 (0) 1628 486 941
www.urenco.com

2002 Financial Results (latest available):

Revenues: 632.5 million euros (about $663 million)
After-tax profit: 87.3 million euros (about $ 92 million)

Employees: about 1,800

Urenco is one of the world's leading producers of low-enriched uranium for nuclear power plants. The company, which claims a global market share of more than 13 percent, operates three enrichment plants, located in Almelo, Holland (operating under the auspices of Urenco Nederland B.V); Capenhurst, England (Urenco Capenhurst Limited); and Gronau, Germany (Urenco Deutschland GmbH). It also has a research and development facility in Jülich, Germany, and a marketing office in Washington, D.C. Along with nuclear fuel, Urenco provides related products such as medical and industrial isotopes.

Urenco was established as the Urenco Group in 1971 to carry out a plan by Britain, West Germany, and Holland to jointly develop a capacity for uranium enrichment. Although it was sanctioned at the governmental level through the Treaty of Almelo, Urenco was structured as a profit-making corporation owned by private interests as well as public agencies. Urenco was originally a marketing agent for the three separate enrichment facilities, but in 1993 they were united under Urenco Limited as a holding company. Today Urenco is controlled by British Nuclear Fuels, the Dutch government's Ultra-Centrifuge Nederland and the German joint venture URANIT, which is owned by the utility companies RWE and E.ON.

The creation of Urenco was a key part of the effort by European countries to break free of the enrichment monopoly held by the United States in the West since the advent of nuclear power. The Europeans were not, however, united in this effort. When France was excluded from Urenco, it set up a rival consortium called Eurodif along with Spain, Italy, Belgium and Iran. Eurodif focused on the established technology of diffusion, while Urenco promoted the untested but potentially more energy-efficient centrifuge process.

Urenco did not limit its customer base to Europe. In the mid-1970s, the company negotiated a multi-billion-dollar deal to sell large quantities of enriched uranium to Brazil, whose government was dominated by the military at the time. This raised concerns that the uranium could be converted to weapons use. Public opposition in Holland was so strong that Urenco had to delay the deal until Brazil agreed to safeguards imposed by the International Atomic Energy Agency.[i]

Even more troubling than the possibility that Brazil might divert its Urenco uranium were the reports that Pakistan was actively developing a nuclear weapons program with the assistance of a scientist, Dr. Abdul Quadeer Khan, who had worked for a Dutch subcontractor to Urenco and was thought to have had access to sensitive information. A 1980 report by the Dutch government found that Khan had at least attempted to obtain such information, though the report said it was unclear whether he had succeeded.[ii] Numerous journalistic accounts later reported that Khan did indeed obtain detailed information about Urenco's centrifuge process while working for the subcontractor, Fyssich Dynamisch Oderzoekslaboratorium (commonly known as FDO). Among these was an article in *Time* magazine that also stated that Khan had brought home to Pakistan the names of more than 100 Western firms that could provide the equipment needed for a centrifuge plant.[iii] In 1987 the offices of one such company—Leybold-Heraeus, a key contractor for Urenco--was raided by West German customs officials.[iv] In 1985, Khan was convicted in absentia on charges of stealing confidential papers and was sentenced to four years in prison, but the verdict was later overturned on a legal technicality. Nonetheless, he was expelled from Holland in 1989.[v]

Urenco's name also emerged in reports about the illicit transfer of nuclear weapons technology to the Saddam Hussein government in Iraq. In 1990, *Nuclear Fuel* magazine published an interview with Bruno Stemmler, a centrifuge expert who had worked for MAN Technologien, a German supplier for Urenco. Stemmler said that during a trip to Iraq in 1988 he was shown design blueprints that resembled Urenco's first-generation centrifuge. Stemmler was quoted as saying that he had no idea how the blueprints got there, but the magazine reported that German investigators believed that Stemmler and another former MAN employee, Walter Busse, may have illegally diverted centrifuge design know-how to the Iraqis.[vi]

Later press reports named Karl-Heinz Schaab, a former senior technician in the Urenco centrifuge development program, as also being investigated for selling secret information to the Iraqis.[vii] Referring to Urenco's role in these investigations, a U.S. Department of Energy official said: "We've seen a consistent pattern of data leaving that program, and that's an indication they have a major security problem...Urenco has a lot of explaining to do."[viii] In 1999, Schaab was convicted of treason in a German court.[ix]

Urenco also came under fire from the United Nations, which accused the company of obtaining uranium from Namibia without permission. The UN had asserted authority over Namibia in 1967, but the apartheid government of South African continued to exercise control of the territory and its mineral wealth. A Urenco spokesperson responded to the charge by saying "we don't know where the stuff comes from."[x] (The case was later dropped as Namibia moved toward independence in 1990.)

Urenco got a big boost in 1982, when the Uranium Enrichment Group of Australia consortium chose its technology in an international competition, a decision that was reported to be based on "economic superiority."[xi] In 1984 Urenco got its first contract in the United States, with Boston Edison, following a decision by the U.S. Department of Energy to allow American nuclear power plants to order fuel from abroad for the first time.[xii]

Soon Urenco began to explore the idea of not only selling but also producing in the United States. In 1987, it hired the engineering company Fluor Corp. to do a detailed cost study of building a U.S. centrifuge plant.[xiii] Urenco apparently liked the results of the study. In June 1989 it joined with four U.S. partners—including Fluor subsidiary Fluor Daniel Inc. and electric utilities Duke Power, Graystone Corp. (a subsidiary of Northern States Power Co.) and Louisiana Power & Light Company—to form a joint venture called Louisiana Energy Services (LES). The venture planned to spend $750 million to build the first privately owned enrichment plant in the United States. The three utilities involved operated a total of 11 nuclear power stations. Urenco was to have the largest equity interest in the venture—about 47 percent—followed by Duke Power with about 29 percent, Fluor Daniel with about 13 percent and shares below 10 percent each for Northern States Power and Louisiana Power & Light.[xiv]

According to press reports, the plant, which was to be located in the northern Louisiana town of Homer, was strongly supported behind the scenes by Senator J. Bennett Johnston (D-La.), Chairman of the Senate Energy & Natural Resources Committee.[xv] Once Johnston went public with his support, he did so with intensity. Speaking of the project, he told an interviewer: "I stake my political life on it, my integrity...This is not a subject on which reasonable minds can disagree."[xvi]

Some minds did disagree. A local group called Citizens Against Nuclear Trash (CANT) was formed to oppose the project, and it received permission from the Nuclear Regulatory Commission to intervene in the licensing process. CANT was joined by national environmental groups as well as by civil rights organizations such as the NAACP, which raised concerns over the fact that the site of the plant was very close to two predominantly African-American communities. LES rejected the environmental racism charge and asserted that the experience of Urenco facilities in Europe showed that centrifuge plants "can be constructed and operated without human health or environmental effects on any populations."[xvii]

The roadblocks put up by CANT and other opponents, including the Nuclear Information & Resource Service, stretched out the approval process. In 1997, eight years after the project was announced, the Atomic Safety & Licensing Board of the Nuclear Regulatory Commission rejected the LES application, questioning the need for the facility and agreeing with CANT that

the location raised issues of environmental racism. The following year Urenco and its partners abandoned the plan.

Urenco started facing other problems in North America when the United States Enrichment Corporation (USEC), which was privatized in 1998, accused Urenco (as well as Eurodif) of dumping fuel in the U.S. market. In May 2001, the U.S. Department of Commerce imposed a 3.72 percent countervailing duty on Urenco and 13.94 percent on Eurodif.[xviii] Two months later the Commerce Department added an anti-dumping duty, which in the case of Urenco was 3.35 percent—though only for fuel produced in Britain.[xix] The Urenco duties were each later reduced to about 2.2 percent. In September 2003, the U.S. Court of International Trade overturned the anti-dumping penalties but upheld the countervailing duties.

Urenco and USEC were also at odds when Urenco and a revised lineup of partners (including British Nuclear Fuels subsidiary Westinghouse Electric and affiliates of three U.S. utilities: Exelon, Entergy and Duke Energy) reconstituted LES and began planning a $1.1 billion enrichment plant to be located in Tennessee.[xx] USEC was not the only source of opposition. As in Louisiana, local residents in the area, about 40 miles northeast of Nashville, formed an organization—Citizens for Smart Choices—to fight the project. Public officials also had their doubts. The Trousdale County Commission approved a set of restrictions that were stricter than federal standards, a move that was prompted by concerns that the company was not being completely candid. "From the start they didn't tell the truth," Trousdale County Attorney Betty Lou Taylor told *The Tennessean* newspaper.[xxi]

In September 2003, LES announced that it was abandoning Tennessee and looking to yet another site for the enrichment plant, this time in Lea County, New Mexico. The plan received strong support from various public officials (including Senator Pete Domenici (R-N.M.)) and the state agreed to provide tax incentives, but community opposition emerged once again. A group called Citizens Nuclear Information Center was formed under the leadership of retired businessman Lee Cheney. The most serious concern about the plant, Cheney told the *Albuquerque Journal*, was that there was no plan for disposal of the radioactive waste generated by the facility.[xxii]

This time around, LES and its supporters tried to change the rules of the game in favor of the project, which now had a $1.2 billion price tag. An aide to Sen. Domenici reportedly arranged for a provision to be inserted in a key energy bill that would require the U.S. Nuclear Regulatory Commission (NRC) to reach a licensing decision on new enrichment plants within two years, far less than the five years the NRC spent weighing an earlier LES application. The aide, Alex Flint, previously worked as a lobbyist for Exelon Corp., one of the LES partners.[xxiii] The energy bill, including the provision, is still pending in Congress.

Urenco also continues to be embroiled in controversy regarding nuclear proliferation. Beginning in late 2003, a series of press reports alleged that Pakistan was involved in transferring nuclear technology to Iran and that this technology ultimately came from Urenco, allegedly via the same 1970s theft of materials by Abdul Qadeer Khan discussed below.[xxiv] Khan later confessed publicly that he transferred nuclear secrets to Libya and North Korea. He was fired from his position as a science advisor to the Pakistani government, yet he was shielded from prosecution thanks to a pardon granted by Pakistani President Musharraf.

These matters became an issue in New Mexico for LES, now 70.5 percent owned by Urenco. One newspaper in the state wrote that "Urenco has also long been suspected as the unwitting source of nuclear technology that put Pakistan on the map as a nuclear power."[xxv]

Back in Europe, Urenco has been undergoing some structural changes. In October 2003, the company was divided into two parts: Urenco Enrichment Co. and Enrichment Technology Co. (ETC). The following month, the French government-owned nuclear group Areva agreed to purchase a 50 percent equity interest in ETC, which consists of Urenco's centrifuge equipment business. The move was seen as part of a plan by Areva to expand its enrichment business—it already controls Urenco's rival Eurodif—in preparation for an expected privatization of the group. At the same time, Areva announced that it would be adopting centrifuge technology at Eurodif's enrichment plant in France.

URENCO'S ENVIRONMENTAL RECORD

In September 2002 staff members of the NRC met with representatives of LES and were given a presentation on the operating experience of the Urenco facilities in Europe. The NRC staffers were told that there had been two releases to the environment at the Almelo facility in 1998 and 1999, but the significance of the events was downplayed. There had been a total of 13 releases of small quantities of uranium hexafluoride in the history of Urenco, mostly in the earlier history of the company. The LES representatives claimed that "in over 30 years of operation URENCO has had no incidents of significant consequence."[xxvi]

Here are some additional details about the three Urenco enrichment plants from publicly available sources:

Capenhurst, UK. In August 2001, fire crews were called to the plant after a leak of uranium hexafluoride. Urenco declared it a "building emergency" and evacuated the immediate areas, but the company and local authorities insisted there was no risk to the public.[xxvii] In March 2004, a truck carrying radioactive material from the plant was in an accident in Capenhurst and overturned, causing one of the containers it was carrying to crack. Decontamination units were brought to the scene.[xxviii] A 2002 report by the British Geological Survey found elevated levels of uranium in stream sediment near the Capenhurst facility.[xxix]

Almelo, Holland. Urenco's Dutch plant has been the target of protests since the late 1970s. In April 1983, for example, several thousand protestors, many of them carrying flaming torches, marched to the plant.[xxx] A protest at Almelo was held as recently as January 2004.[xxxi] In 1994, the group WISE-Amsterdam reported that radiation levels at the Almelo plant were well in excess of the limits stated in the facility's license.[xxxii] WISE has also criticized Urenco for sending its tails (depleted uranium) to Russia for re-enrichment, resulting in waste that is kept under conditions that are much less stringent than in Holland.[xxxiii]

Gronau, Germany. The Gronau plant has also been the scene of numerous protests, especially in 2002 after Urenco announced plans for increasing the capacity of the facility.[xxxiv] In March 2004

rainwater caused a short circuit in an air pressure sensor at the plant, causing the ventilation system to fail. The problem was reportedly corrected in 70 minutes.[xxxv]

Urenco has been surrounding by controversy for just about its entire history. As hard as the company tries to proclaim the safety of its operations, there continues to be serious opposition to its uranium enrichment activities both in Europe and North America. The environmental issues, along with the questions about Urenco's contribution (albeit unwitting) to nuclear proliferation, will make the LES deal as hard a sell in New Mexico as it was in Louisiana and Tennessee.

NOTES

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[iv]. Simon Henderson, "Cologne Company Raided Over Supply of Nuclear Equip ment Plans to Pakistan," *Financial Times*, April 30, 1987, p.2.

[v]. "Pakistani Nuclear Physicist Expelled from Netherland," Associated Press, January 3, 1989.

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[xix]. "Urenco Response to U.S. Department of Commerce's Preliminary Anti-Dumping Determination," Business Wire, July 6, 2001.

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[xxiii]. John J. Fialka, "Energy Bills Helps Firm with NRC—Lobbyist Turned Aide Shepherds a Provision Assisting Former Employer," *Wall Street Journal*, December 4, 2003, p.A4.

[xxiv]. See, for example: Douglas Frantz, "Iran-Pakistan Atomic Link Seen," *Los Angeles Times*, November 28, 2003, p.A1 and William J. Broad, David Rohde and David E. Sanger, "Inquiry Suggests Pakistanis Sold Nuclear Secrets," *New York Times*, December 22, 2003, p.A1.

[xxv]. Ben Neary, "Issues With LES Parent Company Might Be Red Flags," *Santa Fe New Mexican*, December 9, 2003, p.A-4.

[xxvi]. A summary of the meeting between NRC staff members and LES representatives held on September 5, 2002 can be found online at <http://www.nrc.gov/materials/fuel-cycle-fac/ml022660310.pdf>. The reference to the two releases at Almelo can be found on the third page of the memo. The other information and the quote can be found in the slide presentation appended to the memo.

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[xxix]. British Geological Survey, *Uranium Anomalies Identified Using G-BASE Data*, Internal Report IUR/02/001, 2002; available online at <http://www.antenna.nl/wise/uranium/pdf/ir02_001.pdf>.

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[xxxii]. See <http://www.antenna.nl/wise/407/4028.html>.

[xxxiii]. See <http://www.indymedia.nl/nl/2002/11/7420.shtml>.

[xxxiv]. See <http://www.antenna.nl/wise/uranium/epeur.html#UREGRONAU>.

[xxxv]. *Gronauer Nachrichten*, March 25, 2004; cited at <http://www.antenna.nl/wise/uranium/epeur.html#UREGRONAU>.