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UNITED STATES GOVERNMENT

Memorandum

TO : R. E. Hollingsworth, General Manager
THRU: J. V. Vinciguerra, EAGM

FROM : Ernest B. Tremmel, Director
Division of Industrial Participation

SUBJECT: VISIT TO DUKE POWER COMPANY

DATE: MAR 26 1971

50-269

Mr. Ritzmann and I visited Charlotte, North Carolina, Wednesday, March 23, to brief Duke Power Company on the nuclear industry and learn about the status of their evaluations for the next additions to their system. Duke Power personnel shown on the attached list attended the meeting.

Mr. Parker explained that Duke Power Company has requested bids from Babcock & Wilcox, Combustion Engineering, General Electric and Westinghouse for two steam supply systems, each of which can range in capacity from 710 to 750 Mwe net initial rating, plus first cores. These plants would be placed on line May 1, 1971 and May 1, 1972. They will receive these bids on Monday, March 28, and evaluate and compare them with similar sized fossil fuel units. While Mr. Parker would not predict the utility's decision, he left the impression that the nuclear plants have an excellent chance of being selected.

Mr. Lee explained that if nuclear plants were chosen they had decided to build them in the conventional manner used by Duke Power for construction of fossil fuel units. He said that the reactor manufacturers had been asked to bid on all equipment associated with the nuclear steam supply system (i.e., pressure vessel, primary steam piping, steam generator, pressurizer, primary system circulation pumps, reactor water makeup system, etc.) and to furnish a performance guarantee for this primary system. Duke Power will be responsible for the structural work, containment vessel, conventional piping, and supply all of the more or less conventional items in the containment vessel. The manufacturers have been requested to bid on the first core on the following three bases:

1. The manufacturer fabricates and delivers the core to the site. Title passes to Duke Power at the site. The manufacturer then takes the spent fuel after the cooling-off period and title passes back to the manufacturer when the core leaves the site. The manufacturer will guarantee the burnup.

R. E. Tremmel

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2. The same as above except the manufacturer has no responsibility for spent fuel. In addition to guaranteeing the burnup, the manufacturer will guarantee some constituency of the spent fuel, i.e., final U-235 and plutonium isotope content.
3. Duke Power will deliver a specified quantity of enriched UF₆ to the reactor manufacturer or core supplier. The core supplier will fabricate the core and guarantee the burnup and final constituency of the spent fuel. Title to the UF₆ will remain with Duke Power throughout the fabrication process, and Duke will assume responsibility for spent fuel.

They have also made it clear that they would be willing to consider any other options that the manufacturer wishes to offer.

Mr. Lee explained that they had asked each manufacturer bidding to calculate the fuel cycle cost based upon the manufacturer's guarantees and Duke Power Company parameters for cost of ore, cost of conversion of U₃O₈ to UF₆, cost of separative work, cost of reprocessing, and value of plutonium. Duke Power varied these parameters to reflect anticipated changes in future years.

Mr. Lee explained that while they would examine the above options on economic ground rules, they were inclined toward Option #3 which gave them complete control of the fuel cycle. In this regard, he mentioned that they had contacted eleven uranium ore suppliers asking them to bid on one million pounds of yellow cake delivered to Metropolis, Illinois, in late 1968 or early 1969. He said these bids were due March 30.

Mr. Lee described proposed sites pointing out that none had access to deep water. Field fabrication of the pressure vessel may, therefore, be required and he inquired about the status of this technology. We recommended that he discuss this with appropriate personnel of the Division of Reactor Development and Technology and Regulator Staff. We offered to set up such meetings. Mr. Lee said he would call next week after they have had time to review their bids.

We inquired about Duke Power's anticipated expansion plans. Mr. Lee furnished us with the attached company confidential expansion schedule if they should decide to go nuclear. This schedule includes 1000 to 1250 nuclear units for on-line operation by 1980. Mr. Lee said that they had reviewed the technology and were convinced that these size units would be feasible in these time periods and again emphasized the importance of field fabrication of pressure vessels.

Mr. Lee also asked about the commercial status of chemical processing and noted that their anticipated nuclear growth combined with that of Carolina Power & Light and other members of their pool might give a reprocessing load large enough to support a reprocessing plant on their system. We pointed out the legal requirement that radioactive wastes must be disposed of either on State or Federally owned land.

Mr. Parker mentioned that they noticed that Dr. Seaborg would be in Charlotte to deliver a talk on April 2 and said that he would very much like to have Mr. McGuire, President, and other key staff meet with Dr. Seaborg to brief him on their plans. I told Mr. Parker that we would be very happy to see if the Chairman's April 2 schedule could be arranged to accommodate their request.

Duke Power is very interested in nuclear power and we were impressed with their thorough knowledge of the nuclear field. We were happy to learn that they would pursue construction of a nuclear plant along the conventional approach and received the impression that they will be receptive to any suggestions we have to offer.

Enclosures:
As stated

cc: P. Fine, OA&F
G. Kavanagh, AGMR
~~H. Price, REG~~
M. Shaw, RD&T

DUKE POWER COMPANY ATTENDEES
AT NUCLEAR INDUSTRY BRIEFING
HELD IN CHARLOTTE, NORTH CAROLINA
MARCH 23, 1966

Paul H. Barton, Project Engineer
W. J. Burton, Manager
Henry Cheney, Supervisor
Edward C. Fiss, Nuclear Engineer
T. J. Garrett, Pres., Mill-Power Supply
William H. Grigg, Asst. General Counsel
F. R. Jackson, Principal Mechanical Engineer
William S. Lee, Vice President
G. G. Mattison, Sp. V. P. Prod. & Trans.
B. B. Parker, Exec. V. P. Power Operations
R. K. Pierce, Supervisor
Robert F. Smith, Purchasing Agent
Austin C. Thies, Asst. Vice President
C. E. Watkins, Asst. Vice President

NUCLEAR UNIT EXPANSION SCHEDULE

<u>YEAR</u>	<u>NEW UNIT</u>
1971	710 mw nuclear + 140 mw hydro
1972	750 mw nuclear
1973	40 mw stretch realization
1974	160 mw hydro + 150 mw pumped hydro
1975	1000 mw nuclear
1976	1000 mw nuclear
1977	-
1978	1000 mw nuclear + 300 mw pumped hydro
1979	1000 mw nuclear
1980	1250 mw nuclear
1981	-
1982	1500 mw nuclear
1983	1500 mw nuclear
1984	1000 mw pumped hydro
1985	1500 mw nuclear
1986	-
1987	2000 mw nuclear
1988	2000 mw nuclear
1989	2000 mw nuclear
1990	1500 mw pumped hydro

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