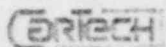


CARPENTER TECHNOLOGY CORPORATION

SPECIAL PRODUCTS DIVISION

PO BOX 20536 SAN DIEGO, CALIFORNIA 92120 • (714) 448-1000



DATE: October 10, 1980

REVISED
EXPORT LICENSE APPLICATION
FOR
ZIRCALOY-4 AND HAFNIUM REACTOR COMPONENTS
ATUCHA CNA-2 NUCLEAR POWER STATION
CARTECH SPD 8-417-020N

The following information is given in accordance with that information which is required by Paragraph 110.31, General Requirements of 10CFR Part 110.

a. NAME AND U.S. ADDRESS OF APPLICANT:

Carpenter Technology Corporation
Special Products Division
Post Office Box 20536
San Diego, California 92120

b. NAME AND ADDRESS OF SUPPLIER OF EQUIPMENT AND MATERIAL IF DIFFERENT FROM THE APPLICANT:

None

c. NAME AND ADDRESS OF ULTIMATE CONSIGNEE:

Comision Nacional de Energia Atomica (CNEA)
Lima, Argentina

d. NAME AND ADDRESS OF INTERMEDIATE CONSIGNEE:

Kraftwerk Union Aktiengesellschaft (KWU)
D-8520 Erlangen
Postfach 3220
Hammerbacherstrasse 12 + 14
West Germany

e. DATE OF PROPOSED FIRST SHIPMENT:

December, 1980

f. DATE OF PROPOSED COMPLETION OF FINAL SHIPMENT:

Last Quarter of 1982

g. CONTRACTUAL DELIVERY DATE, IF ESTABLISHED.

Start December, 1980 and deliver through September, 1982

8011180 866

h. PROPOSED EXPIRATION OF EXPORT LICENSE:

Last quarter of 1983

i. END USE OF MATERIAL BY ALL CONSIGNEES:

Product requiring export license consists of Zircaloy-4 and Hafnium tubes to be installed by Kraftwerk Union in the ATUCHA CNA-2 nuclear power plant near Lima, Argentina.

ATUCHA CNA-2 is a pressurized heavy water moderated and cooled reactor designed for 700 megawatt of electrical power generation. Operation of the nuclear power plant will be by CNEA to produce electric power for the Argentina public power grid.

The Zircaloy-4 and Hafnium tubes will be installed as original equipment within the pressure vessel during construction of the reactor. Kraftwerk Union will be responsible for the design and construction of the reactor and plant.

PARAGRAPH 110.32, ADDITIONAL REQUIREMENTS:

a. GENERAL DESCRIPTION OF EQUIPMENT:

General description and quantity of Zircaloy-4 and Hafnium items proposed for export are as follows:

1. Calandria (Shroud) Tube

Quantity: 500 pieces
Material: Zircaloy-4
Size: 108.2 I.D. x 1.73 Wall x 6000 mm (welded tube)

The Calandria (Shroud) tubes, when installed, extend through the moderator tank within the pressure vessel. Functions of the Calandria (Shroud) tubes are to act as a coolant channel for heavy water and to maintain separation of coolant heavy water from moderator heavy water. Fuel assemblies are inserted within the tubes.

2. Test Calandria (Shroud) Tube

Quantity: 48 pieces
Material: Zircaloy-4
Size: 108.2 I.D. x 1.73 Wall x 480 mm (welded tube)

The test samples will be used by RWU for proofing the tooling and technique required for installation of the Calandria (Shroud) tube in the reactor. The test samples are not intended for installation in the reactor.

3. Wrapper Foil

Quantity: 697 Kg.
Material: Zircaloy-4
Size: 0.127 mm Thick x 152 mm Wide x 5486 meter

The Foil is wrapped around the Calandria (Shroud) tube to increase the thermal barrier between coolant and moderator heavy water.

4. Isolation Tube

Quantity: 500 pieces
Material: Zircaloy-4
Size: 118 O.D. x 0.305 Wall x 6000 mm (welded tube)

The tube is placed around the Calandria (Shroud) tube after installation of wrapper foil to increase the thermal barrier between coolant and moderator heavy water.

5. Downcomer Tube

Quantity: 5 pieces
Material: Zircaloy-4
Size: 242 I.D. x 4 Wall x 5005 mm (welded tube)

The Downcomer tube is installed in the reactor to channel the moderator heavy water circulation.

6. Connector Tube

Quantity: 30 pieces
Material: Zircaloy-4
Size: 228 I.D. x 10 Wall x 130 mm (machined ring)

The Connector tube will be shipped to KWU where the tube will be mechanically joined to a stainless steel ring. The tube with ring will be returned to Carpenter Technology Corporation - Special Products Division for girth welding to each end of the Downcomer tube.

7. Control Rod Guide Tube

Quantity: 30 pieces
Material: Zircaloy-4
Size: 85.3 I.D. x 3 Wall x 6800 mm (seamless tube)

The guide tube is installed in the reactor to guide the movement and placement of the Hafnium control rod.

8. Control Rod Drive Tube

Quantity: 24 pieces
Material: Hafnium
Size: (12 pieces) 80 O.D. x 3 Wall x 3000 mm)
(12 pieces) 66 O.D. x 3 Wall x 3000 mm) (welded tube)

The Hafnium tube controls the core neutron reactivity and is inserted in the Control Rod guide tube.

b. DESIGN POWER LEVEL:

700 megawatts electric

c. NAME OF INSTALLATION:

Atucha CNA 2

d. LOCATION OF WHERE EQUIPMENT IS TO BE USED:

Near Lima, Argentina

e. DATE WHEN EQUIPMENT IS NEEDED ABROAD:

Starting Decem' er, 1980

f. TOTAL DOLLAR VALUE OF ALL ITEMS TO BE EXPORTED UNDER THE REQUESTED LICENSE:

Approximately five million seven hundred and thirty thousand dollars (\$5,730,000)

g. LIST OF ITEMS TO BE EXPORTED:

Under Appendix A, List of Nuclear Equipment, Item A(6), the class under which the export items would fall is as follows:

Zircaloy-4 tubes (Item 1 through 7) would fall under the class "Zirconium Tubes"

Hafnium tubes (Item 8) would fall under the class, "Reactor Control Rods".