

NRC FORM 7

(3-94)

10 CFR 110

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0027

EXPIRES: 3-31-97

APPLICATION FOR LICENSE TO EXPORT
NUCLEAR MATERIAL AND EQUIPMENT

(See Instructions on Reverse)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 17 HOURS. THE MANDATORY SUBMITTAL IS REVIEWED TO ENSURE THAT THE APPLICABLE STATUTORY, REGULATORY, AND POLICY CONSIDERATIONS ARE SATISFIED. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (7-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0027), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

1. APPLICANT'S USE ----->		a. DATE OF APPLICATION 2/25/97		b. APPLICANT'S REFERENCE PHUSXC-001		2. NRC USE ----->		a. DOCKET NUMBER 11004941		b. LICENSE NUMBER XCOM1103			
3. APPLICANT'S NAME AND ADDRESS a. NAME Philips Electronics N.A. Corporation b. STREET ADDRESS (Facility Site) 21 Grace Church Street c. CITY Port Chester d. STATE NY e. ZIP CODE 10573 f. TELEPHONE NUMBER (Area Code - Number - Extension)						4. SUPPLIER'S NAME AND ADDRESS (Complete if applicant is not supplier of material) a. NAME Philips Elmet a div of Philips Electronics b. STREET ADDRESS 1560 Lisbon Road c. CITY Lewiston d. STATE ME e. ZIP CODE 04011							
5. FIRST SHIPMENT SCHEDULED ASAP		6. FINAL SHIPMENT SCHEDULED N/A		7. APPLICANT'S CONTRACTUAL DELIVERY DATE 8/23/96		8. PROPOSED LICENSE EXPIRATION DATE 12/31/97		9. U.S. DEPARTMENT OF ENERGY CONTRACT NO. (If known)					
10. ULTIMATE FOREIGN CONSIGNEE a. NAME CONUAR Nucleares Argentio b. STREET ADDRESS (Facility Site) Centro Atomica Ezeiza/PDO Esteban Echeverria c. CITY Buenos Aires d. COUNTRY Argentina						11. ULTIMATE END USE (Include plant or facility name) To be used in moly boats for sintering of uranium oxide pellets in our Lindberg sintering furnaces. The pellets will be used for nuclear fuel generation. 11a. DATE REQUIRED ASAP							
12. INTERMEDIATE FOREIGN CONSIGNEE a. NAME b. STREET ADDRESS c. CITY d. COUNTRY						13. INTERMEDIATE END USE USE CODE 13a. DATE REQUIRED							
14. INTERMEDIATE FOREIGN CONSIGNEE a. NAME b. STREET ADDRESS (Facility Site) c. CITY d. COUNTRY						15. INTERMEDIATE END USE USE CODE 15a. DATE REQUIRED							
16. COM CODE		17. DESCRIPTION (Include chemical and physical form of nuclear material; give dollar value of nuclear equipment and components.) ECCN: 2A50B molybdenum fabricated parts 30 base plates - \$1,035.00 110 studs - 24,300.00 Total value 25,335.00				18. MAX. ELEMENT WEIGHT 6271bs 284.3 kilo		19. MAX. WT. %		20. MAX. ISOTOPE WEIGHT		21. UNIT pcs	
22. COUNTRY OF ORIGIN -- SOURCE MATERIAL United States				23. COUNTRY OF ORIGIN -- SNM WHERE ENRICHED OR PRODUCED N/A				24. COUNTRIES WHICH ATTACH SAFEGUARDS (If known)					
25. ADDITIONAL INFORMATION ON CONSIGNEES, END USES, AND PRODUCT DESCRIPTION (Use separate sheet if necessary) We previously had license approved to this consignee and product by the United States Department of Commerce, attached is a copy of approved license.													
26. The applicant certifies that this application is prepared in conformity with Title 10, Code of Federal Regulations, and that all information in this application is correct to the best of his/her knowledge.													
27. AUTHORIZED OFFICIAL				a. SIGNATURE Phyllis L. Higinbotham				b. TITLE Manager, Philips U.S. Export Control					

NRC FORM 7 (3-94)

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PDR EXPORT
XCOM-1103
PDR

MOLYBDENUM COMPONENTS USED IN HIGH TEMPERATURE PROCESSING OF MATERIALS

PROPERTIES

Molybdenum is one of the so called "refractory metals" and among them, it probably has the largest commercial volume and most diverse number of applications. The properties of molybdenum which make it of value in industrial applications are:

1. It has a melting point of 2610 C, allowing it to be heated to temperatures in the range of 1800 C and still retain its shape and strength.
2. It is non-reactive with a variety of materials at temperatures in the range of 1800 C. Among those materials are:

- Uranium Oxide
- Aluminum Oxide
- Zirconium Oxide
- Tungsten
- Hydrogen
- Nitrogen

TYPICAL INDUSTRIAL APPLICATIONS

A major use for molybdenum is in the construction of firing boats, heating elements and other parts for high temperature, hydrogen/nitrogen atmosphere furnaces. Molybdenum is used because it can withstand operating at temperatures of 1800 C and beyond. It is non-reactive at high temperature with the furnace atmosphere as well as the furnace hearths and insulating materials which are made of aluminum oxide or zirconium oxide.

Such furnaces and boats are commonly used for the high temperature firing of ceramic materials such as uranium oxide and aluminum oxide. In this ceramic process, uranium oxide or aluminum oxide powder is mixed with a binder so it can be compressed in a die to form a powder compact which will

hold its shape until firing or "ceramicizing" takes place. The pressed but unfired parts are referred to as "green."

The "green" parts are placed in a containers which are simply an open box, boat, tray, or slab configuration, fabricated from molybdenum sheet. The container is placed in the furnace and the parts are fired into a ceramic over a period of several hours at temperatures in the range of 1800 C.

Another parallel application in industry is the metallization of alumina ceramic substrates for the semiconductor / electronics industries. In this case, slurry inks containing powdered metal must be fired and fused to the alumina. The same or similar boats and furnaces are used.

The same equipment and process is used in the production of molybdenum metal itself. The pressed ("green") molybdenum ingots are fired in the same manner as uranium oxide, aluminum oxide or metallized alumina substrates.

Tungsten carbide and tungsten alloys are also processed in a similar manner.

CONCLUSION

The use of high temperature hydrogen atmosphere furnaces and molybdenum boats or carriers is a common industrial practice which has been in existence for at least seventy-five years. The function of the carrier is only to keep the product off of the furnace floor. Designs of boats vary, but only to optimize thru-put or to adapt to the shape and size of the finished parts. Tungsten sheet could be used as an alternate boat material, but molybdenum is generally more economical.

Any of the firms involved in the industrial processes discussed above could use their process and equipment interchangeably with the other. Firms producing or operating such furnaces and utilizing molybdenum boats are:

1. Aluminum Oxide Ceramics

IBM, E. Fishkill, N.Y.

Coors Porcelain, Boulder, Col. and Chattanooga, Tenn.

Kyocera Ceramics, Japan

2. Metallization of Alumina Substrates

Same as 1 above

3. Molybdenum Producers

Phillips Lighting, Lewiston, Me.

Osram Sylvania, Munich, Germany/Towanda, Pa.

Tokyo Tungsten, Japan

Metallwerk Plansee, Austria

G. E., Cleveland, O.

Teledyne, Huntsville, Ala.

CSM, Cleveland, O

4. Furnace Producers

CM, Bloomfield, N. J.

BTU, Billerica, Mass.

Harpur, Rochester, N. Y.

Lindburg, Chicago, Ill.

Schmetz, Germany

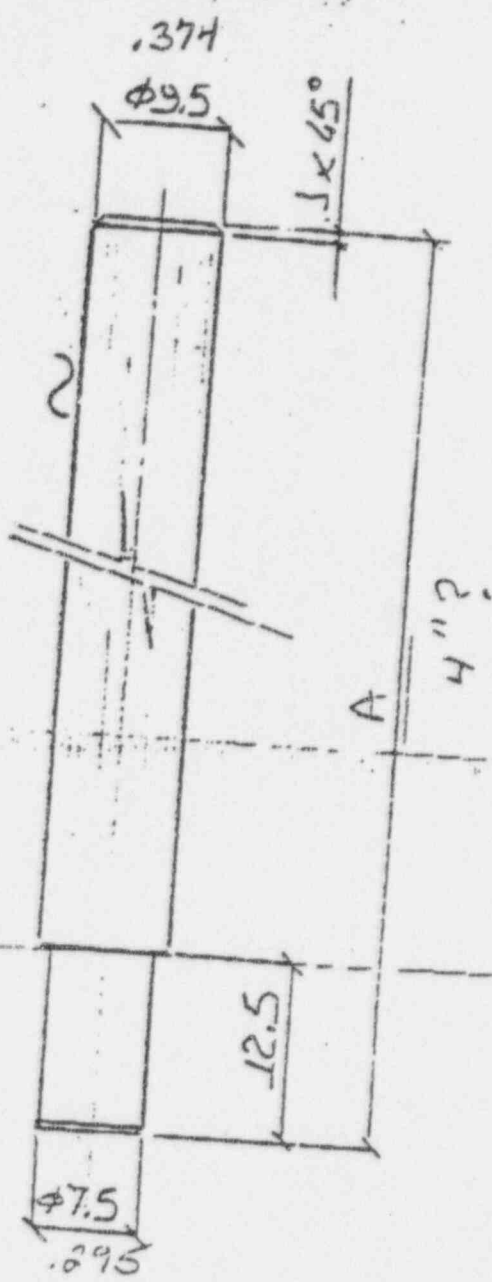
5. Tungsten Carbide producers

Powder Alloys Div. of Teledyne, Clifton, N. J.


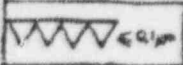
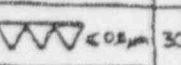
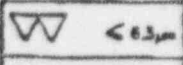
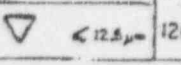
Kennametal, Pittsburgh, Pa.

FOR 10 PLATES BOAT
PARA NAVE DE 10 PLACAS
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NOT FOR MANUFACTURING
NO APTO PARA FABRICACION



Eliminate rough seams and all other edges
ELIMINAR REB. Y BORDES FILOSOS

Nº	DENOMINACION				CANT.	MATERIAL				OBSERVACIONES	
ESCALA 2:1	MATERIAL Molibdeno				TOLERANCIA SIN ESPECIFICACION SEGUN (DIN 7166 GRADO MEDIO)						 SOCIETÀ ANONIMA
DIBUJO	GF	K	5	B/1	MEDIDAS DE LONGITUD Y CILINDRICAS				ANGULOS LADO MAS CORTO		
CONTROL					hasta 6	±0.1	315 hasta 1000	±0.08	hasta 10°	±1°	
APROBO					6 hasta 30	±0.2	1000 hasta 2000	±1.2	10 hasta 50°	±30°	
RUGOSIDADES RA					30 hasta 120	±0.3	2000 hasta 4000	±2	50 hasta 120°	±20°	
 ≤ 9.1µm  ≤ 0.8µm					120 hasta 315	±0.5	4000 hasta 8000	±3	mayor de 120°	±10°	PROHIBIDA LA REPRODUCCION Y/O COMUNICACION A TERCEROS SIN N/ AUTORIZACION ESCRITA
 ≤ 6.3µm  ≤ 12.5µm											
DENOMINACION CONJUNTO		HOLY STUD FOR CANAL EGGS								Nº 8401	
DENOMINACION PIEZA		TERZO MOLINO. NAVES. 14750								Nº 8401056	

PHILIPS ELMET

To: GERARDO CHERNITSKY,
LINDBERG S.A.

Date: JANUARY 15, 1996

Fax #: 011-55-54-1-454-9050

Pages: ONE, INCLUDING THIS COVER SHEET.

From: CHRISTOPHER H. PARADIS

Subject: CONUAR-MOLY BASES AND STUDS

MOLYBDENUM FABRICATED PARTS

PRICE: USD 1,035.00/PC

PRICE: USD 24.30/PC

SHIPMENT: 14 WEEKS AFTER ORDERED
TERMS: WIRE TRANSFER PRIOR TO SHIPMENT
PRICES INCLUDE 10% COMMISSION FOR LINDBERG

THIS QUOTE IS SUBJECT TO PHILIPS ELMET'S STANDARD TERMS AND CONDITIONS.

SALE OF THESE PARTS ARE SUBJECT TO UNITED STATES EXPORT REGULATIONS
AND LICENSES

BEST REGARDS.

CHRISTOPHER H. PARADIS
EXPORT TRADE SPECIALIST
PHILIPS ELMET

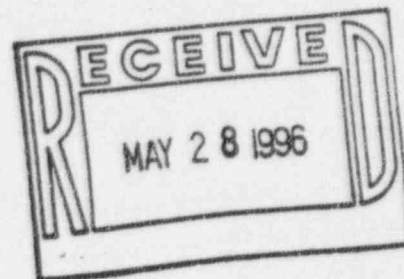
CC: S. VANSAVAGE

FILE COPY



COMBUSTIBLES NUCLEARES ARGENTINOS S.A.

PHILIPS ELMET CORP.
1560 Lisbon Road
LEWISTON, MAINE 04240
USA



Re: Our Purchase Order # 17252.

We hereby certify that materials covered by above order (molybdenum bases and pins) will be used in moly boats for sintering of uranium oxide pellets in our Lindberg sintering furnaces. The uranium oxide pellets will be used for nuclear fuel generation.

JORGE MARCENARO, Eng.

PRODUCTION MANAGER.

Buenos Aires, May 16th, 1996



COMBUSTIBLES NUCLEARES ARGENTINOS S.A.

CENTRO ATOMICO EZEIZA
Paseo ESTEBAN ECHEVERRIA
Prov. de Buenos Aires
Direccion Postal
CASILLA DE CORREO 5384
1000 CAP. FEDERAL
Tel: 480-0622/24/25/33/36 # 38
47/48/51
FAX 480-0653/0604/0761
GCAS: 1061630011 - I.V.A. 80999124 - C.U.I.T. 30-58967380-4

ORDEN DE COMPRA

VER CONDICIONES GENERALES

SEÑORES: PHILIPS ELMET CORP.
1560 LISBON ROAD
LEWISTON, MAINE 04240
USA

CODIG

COMP

R	CODIGO DEL MATERIAL Nº DE PLANO	R E V	USO INTERNO		MPT TH Nº	DESCRIPCION DEL MATERIAL
			Nº REQ	FECHA ENTREGA		
001	511.511.32849.1		328491	28/06/96		BASES DE MOLIBDENO PARA NAVE ABIERTA SEGUN PLANO N° 84.010.50 NUMERADA
002	511.511.32849.2		328492	28/06/96		PERNOS DE MOLIBDENO PARA NAVE ABIERTA SEGUN PLANO 84 LARGO A: 107,5 mm

FOR PUERTO DE EE.UU.

PLAZO DE ENTREGA: 14 SEMANAS DE RECEPCION DE ORDEN DE COMPRA.

CONDICIONES DE PAGO: TRANSFERENCIA BANCARIA CONTRA AVISO DE MATERIAL PARA EMBARQUE.

NOTA: LA GESTION ADMINISTRATIVA QUE INCLUYE LA REMISION DE LA PRESENTE COMPRA Y EL SEGUIMIENTO EN TIEMPO Y FORMA DEL EMBARQUE, SE EFECTUARA A NIVEL DEL REPRESENTANTE LOCAL, LA FIRMA:

LINDEROS ARGENTINA SA, CRUCELO GERAL, BELGRANO 5782- TABLADA - BUENOS AIRES

IMPORTE TOTAL
(EN LETRAS)

SON DOLAR EE.UU. (C TREINTA Y TRES MIL SETECIENTOS
VEINTITRES *****

CONDICIONES DE PAGO:

SEGUN NOTA.

LOS PRECIOS INDICADOS SON

FIJOS E INAM

CORRESPONDENCIA A:

CASILLA DE CORREO 5384 - 1000 - CAPITAL F

EN DE COMPRA

Nº 017252

A CITAR EN
REMITOS
Y
FACTURAS

CONDICIONES GENERALES AL DORSO

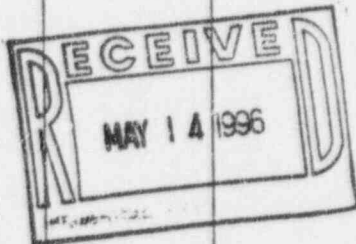
FECHA 22/08/1995

CODIGO PROVEEDOR 020336

HOJA 1 DE 2

COMPRADOR 00004

MATERIAL	UM	CANTIDAD	PRECIO UNITARIO (SIN IVA)	PRECIO TOTAL (SIN IVA)
SEC. 001 A NAVE ABIERTA 50 NUBERADAS D01 a D30 SEC. 001 N PLANO 84.010.56	U	30	DOLAR EE.UU. (C) 1.035,0000	DOLAR EE.UU. (C) 31.050,0000
	U	110	24,3000	2.673,0000
			SUB-TOTAL	33.723,00



MATERIAL LISTO

PRESENTE ORDEN DE
CTUARA A TRAVES

BUENOS AIRES-

33.723,00

% IVA

TOTAL (CON IVA)

IOS E INAMOV.

NE 06/08/96

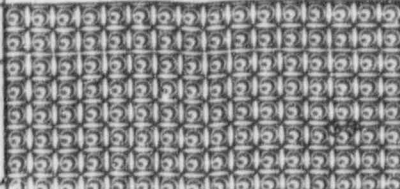
TRANSPORTE A
CARGO DE

EMBALAJE A
CARGO DE

1000 - CAPITAL FEDERAL

CONUAR

PROV.



Philips Lighting

PHILIPS

CUSTOMER SERVICE

PHILIPS ELMET

1560 LISBON RD. • LEWISTON, MAINE 04240

TEL (207)784-3591 • 1(800)343-8008 • TWX (710)223-0675 • FAX (207)786-8924

A DIVISION OF NORTH AMERICAN PHILIPS CORPORATION

DATE

5/17/96

PAGE

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CONUAR NUCLEARES ARGENTIO
CASILLA DE CORREO 5384
1000 CAP FEDERAL
BUENOS AIRES, ARGENTINA

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CONUAR NUCLEARES ARGENTIO
CENTRO ATOMICO EZEIZA
PDU ESTEBAN ECHEVERRIA
BUENOS AIRES, ARGENTINA

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77

S NUCLEARES

ED

8/23

CUSTOMER NO	REFERENCE NO	ORDER NO	ORDER DATE	SHIP DATE	SHIP VIA	TERMS
19000	017252	0093986	5/17/96	8/23/96	TRUCK TO AIR SEA FC	WIRE TRANSF
LOCATION	ITEM NUMBER	DESCRIPTION	U/M	QUANTITY ORDERED	PRICE	
		CIF BUENOSAIRES, ARGENTINA EXPORT LICENSE REQUIRED TO SHIP DO NOT SHIP W/O COPY OF EXPORT LICENSE FROM U.S. COMMERCE DEPT. AIR SEA FOR. ORDERS SHIP TO: C/O D.C.L.: 9 HEAR ROAD HOLDENROCK, MA 02143				
V0	LF-40609	FP NO 15MM 84.010.50 CONUAR DWG2 84.010.50 NUMBER PLATES 001 TO 030	PC	30	1,035.0000	
V2	LF-40610	FR NO 9.5MM 84.010.56 "A" CONUAR DWG2 84.010.56	PC	110	24.1000	

GROSS MARGIN INFO.

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ACKNOWLEDGMENT

THANK YOU FOR YOUR ORDER. IF WE CAN BE
OF ANY OTHER SERVICE, PLEASE CONTACT THE
UNDERSIGNED.

SINCERELY YOURS

FAX TRANSMISSION

PHILIPS ELMET CORPORATION

1560 LISBON ROAD
LEWISTON, MAINE 04240 U.S.A.
(207) 784-3581, Ext 100
FAX: (207) 786-6924

To: Phyliss Wigginton, Date: JULY 23, 1996
Export Control Manager- PENAC -
Fax #: Auto Dial Pages: TWO, INCLUDING THIS COVER
From: Christopher H. Paradis SHEET.
Subject: Export License: Conuar Nucleares-Argentina

PLEASE SEE ATTACHED REPLY RECEIVED FROM "BXA" TODAY. THE ECCN NUMBER SUBMITTED AS 1C117 IS FOR MOLYBDENUM RAW MATERIALS. WE BELIEVE THE CORRECT ECCN NUMBER TO BE 2A50B. WITH THIS INFORMATION YOU SHOULD BE ABLE RESUBMIT THE LICENSE REQUEST. PLEASE CONFIRM IF YOU WOULD LIKE ORIGINAL COPY OF BXA REPLY SENT TO YOU VIA COURIER OF POST.

IF YOU SHOULD HAVE ANY QUESTIONS PLEASE CALL ME.

BEST REGARDS,
CHRISTOPHER H. PARADIS
PHILIPS ELMET

116

12

19,5

43,25



APTO PARA FABRICACION

FIRMA

ACELERACION

FECHA



Nº	DE NOMINACION	CANT	MATERIAL	OBSERVACIONES
ESCALA	1:1			
DIBUJO	15 3 91			
CONTROL	15 3 91			
RUGOSIDADES RA	15 3 91			
DE NOMINACION CONJUNTO	15 3 91			
DE NOMINACION	15 3 91			
PIEZA	15 3 91			
TOLERANCIA SIN ESPECIFICACION (DIN 7168)				
MEDIDAS DE LONGITUD Y CILINDRICAS				
hasta 6 ± 0,1				ANGULOS LADO MAS COFIO hasta 10 ± 1°
6 hasta 30 ± 0,2				10 hasta 50 ± 30°
30 hasta 120 ± 0,3				50 hasta 120 ± 20°
120 hasta 315 ± 0,5				mayor de 120 ± 10°
HORNO DE SINTERIZADO				
BASE DE MOLIBDENO				
Nº 84.010.00				
Nº 84.010.50				



PROHIBIDA LA REPRODUCCION
Y/O COMUNICACION A TERCEROS
SIN N/AUTORIZACION ESCRITA



1. Longitudinal Section = 116 x 12 x 21 x 61.5
 2. Transverse Section = 116 x 12 x 21 x 61.5
 3. Longitudinal Section = 116 x 12 x 21 x 61.5



3229 A2

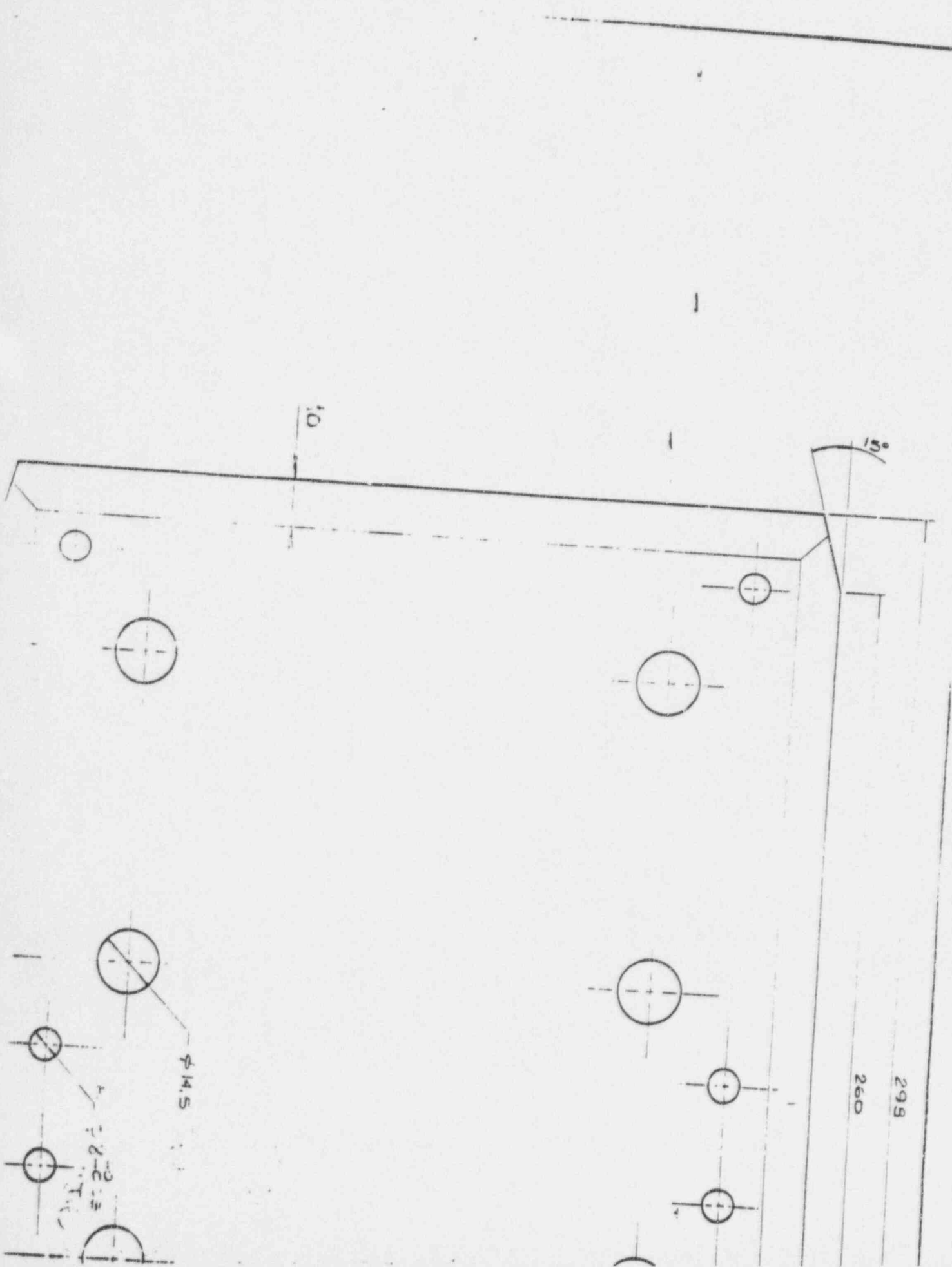
2.55

122.5

160

38.75





299

260

EXPORT LICENSE D222744

VALIDATED: JUL 20 1995

EXPIRES: JUL 31 1997



UNITED STATES DEPARTMENT OF COMMERCE
BUREAU OF EXPORT ADMINISTRATION
P.O. Box 273, Ben Franklin Station
Washington, DC 20044

THIS LICENSE AUTHORIZES THE LICENSEE TO CARRY OUT THE EXPORT TRANSACTION DESCRIBED ON THE LICENSE (INCLUDING ALL ATTACHMENTS). IT MAY NOT BE TRANSFERRED WITHOUT PRIOR WRITTEN APPROVAL OF THE OFFICE OF EXPORT LICENSING. THIS LICENSE HAS BEEN GRANTED IN RELIANCE ON REPRESENTATIONS MADE BY THE LICENSEE AND OTHERS IN CONNECTION WITH THE APPLICATION FOR EXPORT AND IS EXPRESSLY SUBJECT TO ANY CONDITIONS STATED ON THE LICENSE, AS WELL AS ALL APPLICABLE EXPORT CONTROL LAWS, REGULATIONS, RULES, AND ORDERS. THIS LICENSE IS SUBJECT TO REVISION, SUSPENSION, OR REVOCATION WITHOUT PRIOR NOTICE.

APPLICANT CONTROL NUMBER: C747545

PHILIPS ELECTRONICS NORTH AMERICA
C/O CHRISTOPHER PARADIS/PHILIPS ELMET
1560 LISBON ROAD
LEWISTON, ME 04240

PURCHASER:
LINDBERG ARGENTINA SA
CRUCERO GRAL
BELGRANO, ARGENTINA

TO: LCM
FROM: STAVE
VAN SWAAT

ULTIMATE CONSIGNEE:
CONUAR COMBUSTIBLES NUCLEARES
ARGENTINOS SA
CASILLA DE CORREO 5384
BUENOS AIRES, ARGENTINA

INTERMEDIATE CONSIGNEE:

COMMODITIES:

QTY DESCRIPTION

ECCN

TOTAL
PRICE

10 BOATS FABRICATED FROM PURE MOLYBDENUM

2A50

\$19,800

TOTAL:

\$19,800

PROCESSING CODE:

THE EXPORT ADMINISTRATION REGULATIONS REQUIRE YOU TO TAKE THE FOLLOWING ACTIONS WHEN EXPORTING UNDER THE AUTHORITY OF THIS LICENSE.

- A. RECORD THE EXPORT COMMODITY CONTROL NUMBER IN THE BLOCK PROVIDED ON EACH SHIPPER'S EXPORT DECLARATION (SED).
- B. RECORD YOUR VALIDATED LICENSE NUMBER IN THE BLOCK PROVIDED ON EACH SED.
- C. PLACE A DESTINATION CONTROL STATEMENT ON ALL BILLS OF LADING, AIRWAY BILLS, AND COMMERCIAL INVOICES.

RIDERS AND CONDITIONS:

1. THE ITEMS AUTHORIZED FOR EXPORT ARE NOT TO BE USED IN ANY OF THE SENSITIVE NUCLEAR ACTIVITIES DESCRIBED IN SECTION 778.3 OF THE EXPORT

EXPORT LICENSE D222744

VALIDATED: JUL 20 1995

EXPIRES: JUL 31 1997



UNITED STATES DEPARTMENT OF COMMERCE
BUREAU OF EXPORT ADMINISTRATION
P.O. Box 273, Ben Franklin Station
Washington, DC 20044

ADMINISTRATION REGULATIONS.

2. APPLICANT MUST INFORM CONSIGNEE OF ALL LICENSE CONDITIONS.
3. NO RESALE, TRANSFER, OR REEXPORT OF THE ITEMS LISTED ON THIS LICENSE IS AUTHORIZED WITHOUT PRIOR AUTHORIZATION BY THE U.S. GOVERNMENT.

