

APPLICATION FOR LICENSE TO EXPORT NUCLEAR  
MATERIAL AND EQUIPMENT (See Instructions on Reverse)

|   |  |   |  |  |  |   |  |   |  |                |  |                     |  |          |  |
|---|--|---|--|--|--|---|--|---|--|----------------|--|---------------------|--|----------|--|
| 1. APPLICANT'S USE  |  | 2. DATE OF APPLICATION  |  | 3. APPLICANT'S REFERENCE                               |  | 4. NRC USE  |  | 5. LICENSE NO.  |  | 6. DOCKET NO.  |  |                     |  |          |  |
|   |  | 3-8-79  |  | U-7949   |  |   |  | X Com 0206  |  | 11070 532      |  |                     |  |          |  |
| 7. APPLICANT'S NAME AND ADDRESS   |  |   |  |  |  | 8. SUPPLIER'S NAME AND ADDRESS                    |  |   |  |                |  |                     |  |          |  |
| a. NAME<br>Reuter-Stokes, Inc.  |  |   |  |  |  | b. NAME<br>RIS                                    |  |   |  |                |  |                     |  |          |  |
| b. STREET ADDRESS<br>18530 South Miles Parkway  |  |   |  |  |  | c. STREET ADDRESS                                 |  |   |  |                |  |                     |  |          |  |
| c. CITY<br>Cleveland  |  |   |  | STATE<br>OHIO  |  | ZIP CODE<br>44128                                 |  | d. STREET ADDRESS                                     |  |                |  |                     |  |          |  |
| d. TELEPHONE NUMBER (Area Code - Number - Extension)<br>216-475-3434  |  |   |  |  |  | e. CITY   |  | STATE   |  | ZIP CODE       |  |                     |  |          |  |
| 9. FIRST SHIPMENT SCHEDULED   |  | 10. FINAL SHIPMENT SCHEDULED  |  | 11. APPLICANT'S CONTRACTUAL DELIVERY DATE              |  | 12. PROPOSED LICENSE EXPIRATION DATE              |  | 13. U.S. DEPARTMENT OF ENERGY CONTRACT NO. (If Known) |  |                |  |                     |  |          |  |
| 9-7-79  |  | 9-7-79  |  |  |  |   |  |   |  |                |  |                     |  |          |  |
| 14. ULTIMATE CONSIGNEE  |  |   |  |  |  | 15. ULTIMATE END USE                              |  |   |  |                |  |                     |  |          |  |
| a. NAME<br>Research Reactor PARR  |  |   |  |  |  | b. NAME<br>Research Reactor PARR                  |  |   |  |                |  |                     |  |          |  |
| b. STREET ADDRESS<br>Pinstech, Nilore   |  |   |  |  |  | c. STREET ADDRESS<br>Pinstech, Nilore             |  |   |  |                |  |                     |  |          |  |
| c. CITY - STATE - COUNTRY<br>Rawalpindi, Pakistan   |  |   |  |  |  | d. CITY - STATE - COUNTRY<br>Rawalpindi, Pakistan |  |   |  |                |  |                     |  |          |  |
| 16a. EST. DATE OF FIRST USE   |  |   |  |  |  | 60 days after receipt                             |  |   |  |                |  |                     |  |          |  |
| 17. INTERMEDIATE CONSIGNEE  |  |   |  |  |  | 18. INTERMEDIATE END USE                          |  |   |  |                |  |                     |  |          |  |
| a. NAME   |  |   |  |  |  |   |  |   |  |                |  |                     |  |          |  |
| b. STREET ADDRESS   |  |   |  |  |  |   |  |   |  |                |  |                     |  |          |  |
| c. CITY - STATE - COUNTRY   |  |   |  |  |  |   |  |   |  |                |  |                     |  |          |  |
| 19. INTERMEDIATE CONSIGNEE  |  |   |  |  |  | 20. INTERMEDIATE END USE                          |  |   |  |                |  |                     |  |          |  |
| a. NAME   |  |   |  |  |  |   |  |   |  |                |  |                     |  |          |  |
| b. STREET ADDRESS   |  |   |  |  |  |   |  |   |  |                |  |                     |  |          |  |
| c. CITY - STATE - COUNTRY   |  |   |  |  |  |   |  |   |  |                |  |                     |  |          |  |
| 21a. EST. DATE OF FIRST USE   |  |   |  |  |  |   |  |   |  |                |  |                     |  |          |  |
| 16. NRC USE   |  | 17. DESCRIPTION   |  |  |  |   |  | 18. MAX. ELEMENT WEIGHT                               |  | 19. MAX. WT. % |  | 20. MAX ISOTOPE WT. |  | 21. UNIT |  |
|   |  | (Include chemical and physical form of nuclear material; give dollar value of nuclear equipment and components) |  |  |  |   |  | DOES NOT APPLY  |  |                |  |                     |  |          |  |
|   |  | Reuter-Stokes Model RS-C2-2511-137 Ion Chamber. See data sheet 9.10 attached.<br>\$1,275.00                     |  |  |  |   |  | RECEIVED U.S. NRC<br>1979 MAR 19 AM 11 07             |  |                |  |                     |  |          |  |
|   |  | 8911030067 B91031<br>PDR FOIA<br>KELLERB9-457 PDR   |  |  |  |   |  | EXPORT/IMPORT AND INTERNATIONAL SFGRS                 |  |                |  |                     |  |          |  |
| 22. COUNTRY OF ORIGIN - SOURCE MATERIAL   |  |   |  | 23. COUNTRY OF ORIGIN - SNM WHERE ENRICHED OR PRODUCED |  |   |  | 24. COUNTRIES WHICH ATTACH SAFEGUARDS (If Known)      |  |                |  |                     |  |          |  |
| NONE  |  |   |  | NONE   |  |   |  |   |  |                |  |                     |  |          |  |
| 25. ADDITIONAL INFORMATION (Use separate sheet if necessary)  |  |   |  |  |  |   |  |   |  |                |  |                     |  |          |  |
| * Copy to FDR and ADC 3/19/79 *   |  |   |  |  |  |   |  |   |  |                |  |                     |  |          |  |
| 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   |  |   |  | b. TITLE  |  |                |  |                     |  |          |  |
|   |  |   |  | Joseph D. Skarupa                                      |  |   |  | Joseph D. Skarupa, Sales Manager                      |  |                |  |                     |  |          |  |

# RS-C2-2511-137 Neutron Ionization Chamber

For  
Critical Facility Instrumentation  
Reactor Instrumentation  
Neutron Monitoring

The RS-C2-2511-137 is our most sensitive un-compensated thermal neutron ionization chamber. Neutron sensitivity is obtained from the 96% enriched B-10 of the  $BF_3$  fill gas. It is almost one decade higher than that of B-10 lined chambers of comparable size while gamma sensitivity is only 2 X higher. The advantages of such high sensitivity are:

1. High *signal/gamma + noise* ratio permitting thermal neutron measurements at low flux levels.
2. Operation without need for gamma compensation at higher gamma levels than is possible with B-10 lined chambers.\*

Aluminum alloy is used in construction for low neutron absorption and residual activity. All seals are directly bonded ceramic to metal and insulators are high purity alumina ceramic.

The chamber envelope is heli-arc welded and has been designed to insure long term, stable high temperature operation.

\*In the early years of reactor instrumentation  $BF_3$  filled ionization chambers were frequently used. Concern about reactor poisoning and corrosion if a chamber should leak  $BF_3$  gas may be responsible for their limited use in later years. In our 20 years of manufacturing no such failure of  $BF_3$  filled chambers has ever been reported to us.



TYPE HN CONNECTOR  
MATES WITH ANY  
SERIES HN PLUG, SUCH  
AS MIL-UG-59 A/D

10.68"  
(271.7)  
SENSITIVE  
LENGTH

(33)

18.35"  
(465.1)

0.875"  
(22.2)  
REF

3.12"  
(79.0)  
DIA

(CM)