

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

ACC

1. APPLICANT'S USE		a. DATE OF APPLICATION Aug. 26, 1980		b. APPLICANT'S REFERENCE ZE-60191		2. NRC USE		a. LICENSE NO. X-Comp 443		d. DOCKET NO. 11002181	
3. APPLICANT'S NAME AND ADDRESS a. NAME W. F. Pochal Westinghouse Electric Corporation b. STREET ADDRESS Westinghouse Circle Industrial & Gov't. Tube Div. c. CITY Horseheads, N.Y. 14845 d. TELEPHONE NUMBER (Area Code - Number - Extension) (607) 796-3221						4. SUPPLIER'S NAME AND ADDRESS (Complete if applicant is not supplier of material) RIS SAME AS #3					
5. FIRST SHIPMENT SCHEDULED 1/30/81		6. FINAL SHIPMENT SCHEDULED 1/30/81		7. APPLICANT'S CONTRACTUAL DELIVERY DATE 1/30/81		8. PROPOSED LICENSE EXPIRATION DATE 8/26/81		9. U.S. DEPARTMENT OF ENERGY CONTRACT NO. (If Known)			
10. ULTIMATE CONSIGNEE a. NAME OARI Research Establishment JAPAN ATOMIC ENERGY RESEARCH INSTITUTE b. STREET ADDRESS 3607 Aza-Shinbori, Narita-Cho, Oarai-Machi c. CITY - STATE - COUNTRY Higashi, Ibaraki-Gun, Ibaraki-Ken, Japan						11. ULTIMATE END USE (Include plant or facility name) See attached write-up of purpose of study. 11a. EST. DATE OF FIRST USE					
12. INTERMEDIATE CONSIGNEE a. NAME b. STREET ADDRESS c. CITY - STATE - COUNTRY						13. INTERMEDIATE END USE ----- 13a. EST. DATE OF FIRST USE					
14. INTERMEDIATE CONSIGNEE a. NAME b. STREET ADDRESS c. CITY - STATE - COUNTRY						15. INTERMEDIATE END USE ----- 15a. EST. DATE OF FIRST USE					
16. NRC USE		17. DESCRIPTION (Include chemical and physical form of nuclear material; give dollar value of nuclear equipment and components)				18. MAX. ELEMENT WEIGHT		19. MAX. WT. %	20. MAX ISOTOPE WT.	21. UNIT	
		3 pcs. WL-23448 In-Core Radiation Detectors TOTAL COST: \$6187.50									
22. COUNTRY OF ORIGIN - SOURCE MATERIAL U.S.A.				23. COUNTRY OF ORIGIN-SNM WHERE ENRICHED OR PRODUCED Unknown				24. COUNTRIES WHICH ATTACH SAFEGUARDS (If Known)			
25. ADDITIONAL INFORMATION (Use separate sheet if necessary) Department of Commerce Form 629 and Application Letter from J.A.E.R.I.											
26. The applicant certifies that this application is 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 W.F. Pochal				b. TITLE Manager, Customer Service					

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OARAI RESEARCH ESTABLISHMENT

NARITA-CHO, OARAI-MACHI, HIGASHI IBARAKI-GUN, IBARAKI-KEN, JAPAN

July 28, 1980

For What Purpose Is This Product Used

1. Comprehensive Study Subject
Equipping of Irradiation System
2. Purpose of Study

In order that Japan Atomic Energy Research Institute (Oarai Lab.) may take measurement, on a continuous basis, of calorific fission of fuel samples being irradiated with capsule, they will measure temperature and burn-up characteristics of the sensitivity, in the hope that micro fission chamber, as an instrumentation for the above purpose, can be utilized on a practical basis.

They now find that calorific value of fuel samples irradiated with JMTR's capsule by the method whereby fluence monitor, such as Co and Fe is measured and also measurement is taken through thermal calculation from indicating temperature of thermoelectric couple. In the former case, data-taking is impossible while at an irradiation and an effect upon neutron spectra will have to be considered. In the latter case, due to the necessity of its having to be assumed through thermal calculation, there is a wide discrepancy arising from variation in capsule-making dimension and also assumed discrepancy in gamma calorific volume is substantial.

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Due to the foregoing reason, fission chamber that is capable of continuously measuring calorific volume will be installed in capsule instrumentation. Incidentally, as for JMTR's capsule, an internal cylinder, 40 x 35 x 29mm in dia., is put in as external cylinder and capsule is irradiated, with fission samples built into internal cylinder. Moreover, the fission chamber, in terms of temperature characteristic, must be inserted into the portion whose temperature is 300°C or below, so there is an extreme limit to the insertion position, and it must be as small as possible in diameter. Thermoelectric couple now being used for measuring temperature is 1.0mm to 1.6mm in dia. and the diameter of the fission chamber must be close to that of the thermoelectric couple.

3. Use of data taken and advantage of use

Capsule instrumentation will be disposed after irradiation of the capsule. Further, as the fission chamber cannot be calibrated outside the reactor, calibration is not possible before the chamber is mounted on the capsule. Therefore, when a fission chamber is available on a practical basis, data taken at this experiment are to be utilized.

4. Instruction for use of the system

In addition to JMTR, Japan Atomic Energy Research Institute (Oarai Lab.) now has critical experiment system that is almost equal in reactor core to that of JMTR.

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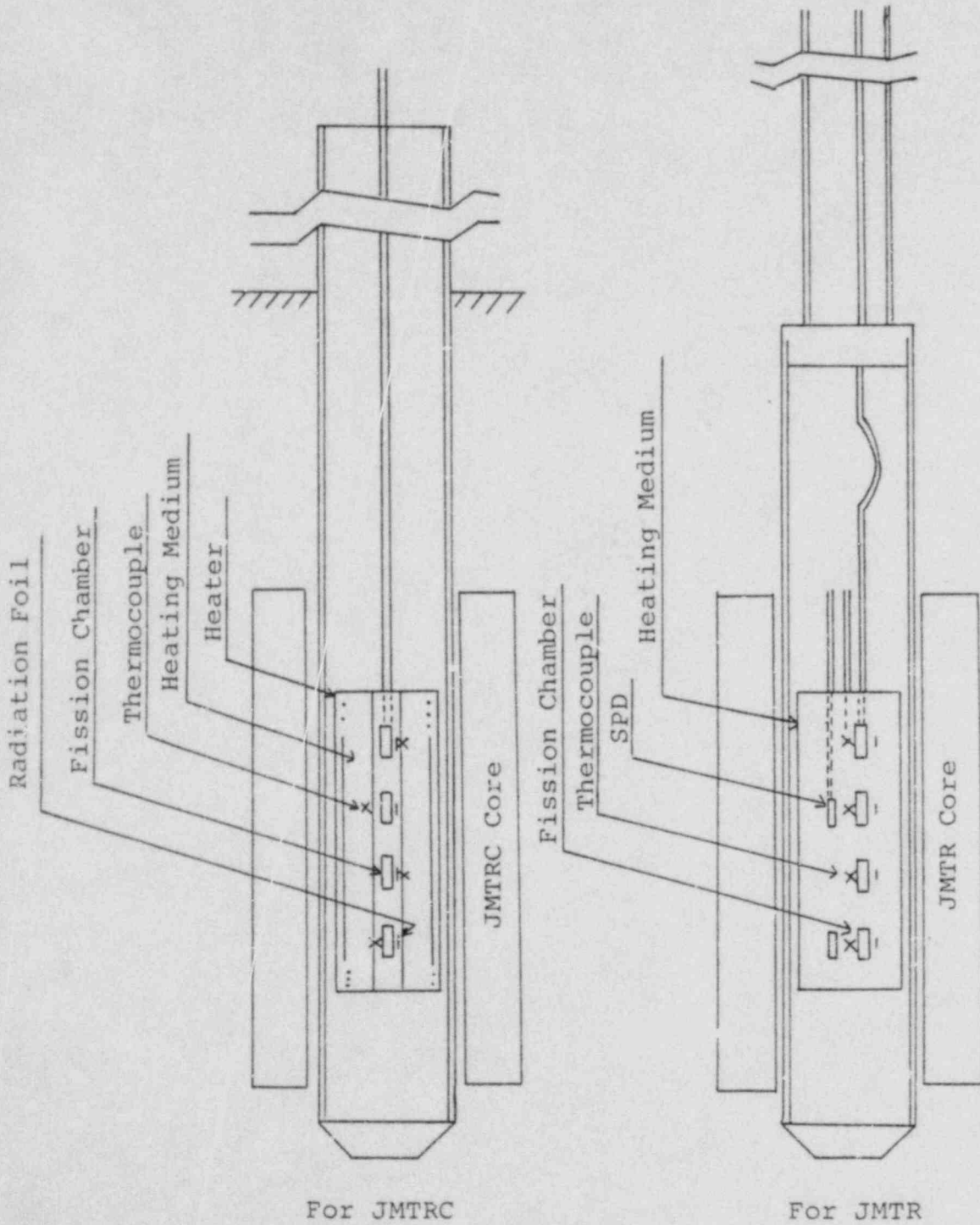
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Capsule for Calibration of Fission Chamber

JAPAN ATOMIC ENERGY RESEARCH INSTITUTE

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They take measurement of temperature characteristic of the fission of chamber by using JMTR and measurement of burn-in characteristics, which cannot be measured with JMTRC, is taken by use of JMTR.

In the light of the foregoing, two capsules for both JMTR and JMTRC as in the accompanying sheet (diagram), will be made. Moreover, heaters for temperature characteristic test is expected to be built into capsule for JMTRC. For the calibrating of fission chambers, radioactive lamination such as fission foil, Co, etc. are to be used.

* JMTR = Japan Material Testing Reactor

PWR, 90% enriched Uranium fuel.

Located in Oarai Research Establishment of
J.A.E.R.I.

T. Ishii

T. Ishii
Member of the 1st Irradiation
Section of J.M.T.R.
Oarai Lab. of J.A.E.R.I.

Encl: