



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

DCS/DF02

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JAN 9 1990

Mr. Carlton E. Thorne, Director  
Office of Nuclear Export Control  
Bureau of Oceans and International  
Environmental and Scientific Affairs  
U. S. Department of State  
Washington, D.C. 20520

Dear Mr. Thorne:

Enclosed is an application for an export license XMAT0342 received recently by the Nuclear Regulatory Commission for the export of 2,500 kilograms of heavy water. The heavy water is to be upgraded in Canada and returned to the United States to be used as a medium in algae growth for biochemical production in medical research.

Before taking action on this request, we would appreciate your views, in accordance with established procedures and from the overall perspective of the Executive Branch, as to whether the proposed export meets the applicable criteria in the Atomic Energy Act of 1954 as amended by the Nuclear Non-proliferation Act of 1978.

Sincerely,

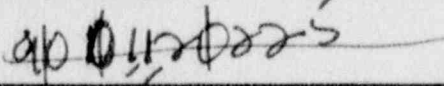
C. N. (Mike) Smith, Assistant Director  
for International Security, Exports and  
Materials Safety  
International Programs  
Office of Governmental and Public Affairs

Enclosure:  
Appl. dtd 12/28/89  
(XMAT0342 - Canada)

cc w/Enclosure:  
T. Hart, DOE  
R. DeLaBarre, DOS  
N. Martin, DOE  
M. Rosenthal, ACDA  
G. Brubaker, DOD  
G. Kuzmycz, DOC

9001160244 900109  
PDR XPORT PNU  
XMAT-0342

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

1. APPLICANT'S USE		a. DATE OF APPLICATION 12/28/89		d. APPLICANT'S REFERENCE BFFF 7926		2. NRC USE		a. DOCKET NO. 11004237		b. LICENSE NO. XNATO342		
3. APPLICANT'S NAME AND ADDRESS						4. SUPPLIER'S NAME AND ADDRESS <i>(Complete if applicant is not supplier of material)</i>						
a. NAME Martek Corporation						a. NAME RIS						
b. STREET ADDRESS 6480 Dobbin Road						b. STREET ADDRESS						
c. CITY Columbia			STATE MD		ZIP CODE 21045		b. STREET ADDRESS					
d. TELEPHONE NUMBER (Area Code - Number - Extension) (301) 740-0081						c. CITY			STATE		ZIP CODE	
5. FIRST SHIPMENT SCHEDULED		6. FINAL SHIPMENT SCHEDULED		7. APPLICANT'S CONTRACTUAL DELIVERY DATE		8. PROPOSED LICENSE EXPIRATION DATE		9. U.S. DEPARTMENT OF ENERGY CONTRACT NO. (If Known)				
1/10/90		12/31/90		Unknown		12/31/90		Unknown				
10. ULTIMATE CONSIGNEE						11. ULTIMATE END USE <i>(Include plant or facility name)</i>						
a. NAME Ontario Hydro; Bruce Heavy Water Plant						To upgrade heavy water and return to Martek Corporation. This heavy water is used as a medium to grow algae for the production of biochemicals useful in medical research.						
b. STREET ADDRESS Laboratory; c/o Mr. Brian Taus						11a. EST. DATE OF FIRST USE						
c. CITY - STATE - COUNTRY Tiverton, Ontario Canada NOG2TO						in medical research						
12. INTERMEDIATE CONSIGNEE						13. INTERMEDIATE END USE						
a. NAME None						13a. EST. DATE OF FIRST USE						
b. STREET ADDRESS						15. INTERMEDIATE END USE						
c. CITY - STATE - COUNTRY						15a. EST. DATE OF FIRST USE						
14. INTERMEDIATE CONSIGNEE						15. INTERMEDIATE END USE						
a. NAME None						15a. EST. DATE OF FIRST USE						
b. STREET ADDRESS						15. INTERMEDIATE END USE						
c. CITY - STATE - COUNTRY						15a. EST. DATE OF FIRST USE						
16. NRC USE	17. DESCRIPTION <i>(Include chemical and physical form of nuclear material; give dollar value of nuclear equipment and components)</i>					18. MAX. ELEMENT WEIGHT	19. MAX. WT. %	20. MAX. ISOTOPE WT.	21. UNIT			
	Downgraded heavy water (unirradiated deuterium oxide)  2,500 kg = \$500,000					2,500 kg		99.8% D <sub>2</sub> O				
22. COUNTRY OF ORIGIN - SOURCE MATERIAL			23. COUNTRY OF ORIGIN - SNM WHERE ENRICHED OR PRODUCED			24. COUNTRIES WHICH ATTACH SAFEGUARDS (If Known)						
U.S.			Canada			None						
25. ADDITIONAL INFORMATION (Use separate sheet if necessary)												
												
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						
			J. Belente			Senior V.P. Operations						
Copies to Herten & DCS/DFed on 1/4/90. BK												



# MARTEK CORPORATION

6480 DOBBIN ROAD

COLUMBIA, MARYLAND 21045

(301) 740-0081

FAX (301) 740-2985

Mr. R.N. Moore  
Assistant Director for International Security  
Nuclear Regulatory Commission  
Mail Station 3-H-5  
Washington, DC 20555

XMAT0342  
11004237

Dear Mr. Moore:

Martek Corporation's NRC export licence (#XMAT0335) for deuterium oxide expired on August 31, 1989. We are now requesting a new export license for deuterium oxide with an increase in export quantity from 975.5 kg to 2,500 kg.

We plan to increase our manufacturing capacity of deuterium-labeled biochemicals over the next year and a half. Our present plan is to continue to import 99.8% D<sub>2</sub>O from Ontario Hydro (Canada). This heavy water is used as a medium to grow algae for the production of labeled biochemicals useful in medical research. After growing and harvesting these cells, the used D<sub>2</sub>O is returned to Canada for upgrading. As a consequence of this constant recycling, there should be no more than about 500 kg on the premises at any one time.

If you would like any further details of our processes, I would happy to provide this information.

Sincerely,

Jacques Delente  
Senior Vice-President, Operations

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