EXPORT AND IMPORT LICENSE

NRC FORM 250P

United States of America
Nuclear Regulatory Commission
Washington, D.C. 20555

NRC LICENSE NO.: CBP106

LICENSE EXPIRES: August 31, 2010

Pursuant to the Atomic Energy Act of 1954, as amended, and the regulations issued by the Nuclear Regulatory Commission (NRC) pursuant thereto, and in reliance on statements and representations heretofore made by the applicant/licensee, this license is hereby issued authorizing the licensee to import and/or export the byproduct materials listed below, subject to the terms and conditions herein. This license is only valid if the licensee maintains the requisite NRC or Agreement State domestic licenses.

LICENSEE

Halliburton Energy Services
2107 City West Boulevard, Building 2
Houston, TX 77042

Attn: Cindy Dorris

APPLICANT'S REFERENCE: HES2534

ULTIMATE FOREIGN CONSIGNEE(S)

HLS Asia Ltd.
C-2, Sector-57
Noida-201301
India

HLS Asia Ltd.
109 Aurobindo Place Market
Kauz Khaz, New Delhi 110016
India

INTERMEDIATE FOREIGN AND/OR DOMESTIC CONSIGNEE(S)

NONE

OTHER PARTY(IES) TO EXPORT/IMPORT

Halliburton Energy Services
3000 N Sam Houston Parkway East
Building M, Room M1F21
Houston, TX 77032-3219
(Supplier/recipient)

COUNTRY(IES) OF ULTIMATE DESTINATION: India and the United States

CONDITIONS, NOTES, AND DESCRIPTIONS OF 10 CFR PART 110, APPENDIX P, BYPRODUCT MATERIALS TO BE EXPORTED AND/OR IMPORTED
(NOTE: SEE PAGE 2 FOR DEFINITIONS OF CATEGORY 1 AND CATEGORY 2)

Import and export of Category 2 quantities of Americum-241, Americum-241/Beryllium contained in sealed sources, for use in oil and gas well logging operations to and from India, are authorized.

Halliburton Energy Services is responsible for compliance with all applicable import, export, and other domestic regulatory requirements, including all terms and conditions of domestic materials licenses. Halliburton Energy Services, if not already submitted with your application, must submit information required by 10 CFR §110.32(d) and pertinent documentation required by 10 CFR §110.32(h) at least **24 hours prior to shipment**. See Page 2 for Mandatory Pre-Shipment Notifications.

Halliburton Energy Services shall submit by February 1 of each year one copy of a report of all americium shipments during the previous calendar year. The report must include: (1) A description of the material, including quantity; (2) Approximate shipment dates; and (3) A list of recipient countries, end users, and intended use keyed to the items shipped.

License expiration date is based upon established limits.

//END//

Neither this license nor any right under this license shall be assigned or otherwise transferred in violation of the provisions of the Atomic Energy Act of 1954, as amended.

This license is subject to the right of recapture or control by Section 108 of the Atomic Energy Act of 1954, as amended, and to all of the other provisions of said Act, now or hereafter in effect and to all valid rules and regulations of NRC.

THIS LICENSE IS INVALID UNLESS SIGNED BELOW BY AUTHORIZED NRC REPRESENTATIVE

NAME AND TITLE: Scott W. Moore, Deputy Director
Office of International Programs

DATE OF ISSUANCE: August 14, 2008

Table 1: Appendix P to Part 110–Category 1 and Category 2 Radioactive Material Threshold Limits

Radioactive Material	Category 1		Category 2	
	Terabequerels (TBq)	Curies (Ci)[1]	Terabequerels (TBq)	Curies (Ci)1
Americium-241	60	1,600	0.6	16
Americium-241/Beryllium	60	1,600	0.6	16
Californium-252	20	540	0.2	5.4
Curium-244	50	1,400	0.5	14
Cobalt-60	30	810	0.3	8.1
Cesium-137	100	2,700	1.0	27
Gadolinium-153	1,000	27,000	10.0	270
Iridium-192	80	2,200	0.8	22
Plutonium-238[2]	60	1,600	0.6	16
Plutonium-239/Beryllium[2]	60	1,600	0.6	16
Promethium-147	40,000	1,100,000	400	11,000
Radium-226[3]	40	1,100	0.4	11
Selenium-75	200	5,400	2.0	54
Strontium-90 (Y-90)	1,000	27,000	10.0	270
Thulium-170	20,000	540,000	200	5,400
Ytterbium-169	300	8,100	3.0	81

Calculation of Shipments Containing Multiple Sources or Radionuclides:

The "sum of fractions" methodology for evaluating combinations of radionuclides being transported, is to be used when import or export shipments contain multiple sources or multiple radionuclides. The threshold limit values used in a sum of the fractions calculation must be the metric values (i.e., TBq).

I. If multiple sources and/or multiple radionuclides are present in an import or export shipment, the sum of the fractions of the activity of each radionuclides must be determined to verify the shipment is less than the Category 1 or 2 limits of Table 1, as appropriate. If the calculated sum of the fractions ratio, using the following equation, is greater than or equal to 1.0, then the import or export shipment exceeds the threshold limits of Table 1 and the applicable security provisions of this part apply.

II. Use the equation below to calculate the sum of the fractions ratio by inserting the actual activity of the applicable radionuclides or of the individual sources (of the same radionuclides) in the numerator of the equation and the corresponding threshold activity limit from the Table 1 in the denominator of the equation. Ensure the numerator and denominator values are in the same units and all calculations must be performed using the TBq (i.e., metric) values of Table 1.

R1 = activity for radionuclides or source number 1 — AR1 = activity limit for radionuclides or source number 1
R2 = activity for radionuclides or source number 2 — AR2 = activity limit for radionuclides or source number 2
RN = activity for radionuclides or source number n — ARN = activity limit for radionuclides or source number n

$$\sum_{1}^{n}\left[\frac{R_1}{AR_1}+\frac{R_2}{AR_2}+\frac{R_n}{AR_n}\right] \geq 1$$

MANDATORY NOTIFICATIONS: Notifications required by 10 CFR 110.50(b) (4) are to be emailed to hoo1@nrc.gov (preferred method) or faxed to 301-816-5151. In the subject line of the email or on the fax cover page include: "10 CFR 110.50(b)(4) Notification." To contact someone in the Operations Center, use the same e-mail address or call 301-816-5100. Difficulties notifying the U.S. Nuclear Regulatory Commission must be promptly reported to the Office of International Programs' import/export licensing staff at 301-415-2342 or 415-3329.

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[1] The values to be used to determine whether a license is required are given in TBq. Curie (Ci) values are provided for practical usefulness only and are rounded after conversion.

[2] The limits for Pu-238 and Pu-239/Be in this table apply for imports to the U.S. The limits for exports of Pu-238 and Pu-239/Be can be found in § 110.21.

[3] Discrete sources of Radium-226.