EXPORT LICENSE

NRC FORM 250

United States of America

Nuclear Regulatory Commission
Washington, D.C. 20555

NRC LICENSE NO.: PXB237.01

NRC DOCKET NO.: 11006412

LICENSE EXPIRES: September 30, 2025

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 export of the byproduct materials listed below, subject to the terms and conditions herein. This license is only valid if the licensee or 'Other Party (ies) to Export' maintain the requisite NRC or Agreement State domestic license(s).

LICENSEE

Baker Hughes Oilfield Operations, LLC
2001 Rankin Road
Houston, TX 77073

Attn: James Elrod

ULTIMATE CONSIGNEE(S) IN FOREIGN COUNTRY(IES)

Baker Hughes EHO Limited, Pakistan Branch
C-9, SITE Area 22/1 Block 9/10
Mangu Pir Road
Karachi
Pakistan

INTERMEDIATE CONSIGNEE(S) IN FOREIGN COUNTRY(IES)

None

OTHER U.S. PARTY(IES) TO EXPORT

None

APPLICANT'S REFERENCE: BHI-Pakistan PXB237.00

ULTIMATE DESTINATION: Pakistan

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

Shipments of [redacted], [redacted], [redacted], [redacted] and [redacted] for use in oil and gas well logging operations in Pakistan, is authorized. Each shipment is not to exceed Category 3 quantities. See page 2 and 3 for the total number of sources and maximum activity levels for each source.

Sealed sources shall remain in the custody of Baker Hughes EHO Limited, Pakistan Branch at all times and when not in use will be stored in a secure facility controlled by Baker Hughes EHO Limited, Pakistan Branch.

Licensee is responsible for compliance with all applicable export, and other domestic regulatory requirements, including all terms and conditions of domestic material possession licenses. Licensee, 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(g) at least 24 hours prior to shipment. See Page 4 for Mandatory Pre-shipment Notifications.

Licensee shall submit by February 1 of each year one copy of a report of all americium shipments (under this license or under a general license) during the previous calendar year required by 10 CFR § 110.54(b). The report must include: (1) a description of the material. including quantity: (2) approximate shipment dates; (3) a list of recipient countries, end users, and intended use keyed to the items shipped.

This license replaces PXB237.00 and amends its authority by extending the date of expiration from August 31, 2022 to September 30, 2025.

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 the other provisions of said Acts, now or hereafter in effect and to all valid rules and regulations of the Nuclear Regulatory Commission.

THIS LICENSE IS INVALID UNLESS SIGNED BELOW BY AUTHORIZED NRC REPRESENTATIVE

NAME AND TITLE: David L. Skeen Digitally signed by David L. Skeen Date: 2022.09.09 14:14:29 -04'00'

David L. Skeen, Deputy Director
Office of International Programs

DATE OF ISSUANCE: September 09, 2022

EXPORT LICENSE

Wire Line Operations in Pakistan

Type	Isotope	Individual Source Strength	Qty	Total Curie	Total Maximum Activity (TBq)	Use	Type of material
Density Logging	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Density logging	Byproduct material
Neutron Logging	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Neutron logging	Byproduct material
Well-site Verifier	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Neutron verifier	Byproduct material
Lab Source	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Lab Calibration	Byproduct material
Well-site Verifier	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Gamma Ray calibrator	Natural material
Lab Source	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Lab Calibration	Byproduct material
Lab Source	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Lab Calibration	Byproduct material
Lab Source	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Lab Calibration	Byproduct material
Production Logging	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Production Logging	Byproduct material
Production Logging	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Production Logging	Byproduct material
Crystal Detectors	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Density tool Verification	Byproduct material
Crystal Detectors	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Density tool Verification	Byproduct material
Crystal Detectors	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Density tool Verification	Byproduct material
Collar Markers	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Marking Drill Collar Location	Byproduct material

Drilling Services Operations in Pakistan

Type	Isotope	Individual Source Strength	Qty	Total Curie	Total Maximum Activity (TBq)	Use	Type of material
Density Logging	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Density logging	Byproduct material
Neutron Logging	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Neutron logging	Byproduct material
Well-site Verifier	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Neutron verifier	Byproduct material
Lab Source	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Lab Calibration	Byproduct material
Lab Source	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Gamma Ray calibrator	Natural material
Density Detectors	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Lab Calibration	Byproduct material
Density Detectors	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Lab Calibration	Byproduct material

MANDATORY ADVANCED NOTIFICATIONS PER 10 CFR PART 110.50(c)

The following Advanced Notifications must be made to both the NRC and, in case of exports, the government of the importing country in advance of each shipment:

Mandatory Advanced Notifications to the NRC are to be emailed to hoo.hoc@nrc.gov (preferred method) or faxed to the NRC at 301-816-5151. In the subject line of the email or on the fax cover page include: "10 CFR 110.50(c) Notification." For technical assistance, use the same e-mail address or call 301-287-9056.

Mandatory Advanced Notifications to the government of the importing country must be emailed or faxed to the appropriate foreign government authorities. To locate the point-of-contact for international Advanced Notifications see: http://www-ns.iaea.org/downloads/rw/imp-export/import-export-contact-points.pdf. In the subject line of the email or on the fax cover page include: "NOTIFICATION TO THE IMPORTING STATE PRIOR TO SHIPMENT OF CATEGORY 1 OR 2 RADIOACTIVE SOURCES." For technical assistance or for countries not listed, contact the Office of International Programs' export/import staff at 301-287-9056.

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 (Am-241)	60	1,600	0.6	16
Americium-241/Beryllium (Am-241/Be)	60	1,600	0.6	16
Californium-252 (Cf-252)	20	540	0.2	5.4
Curium-244 (Cm-244)	50	1,400	0.5	14
Cobalt-60 (Co-60)	30	810	0.3	8.1
Cesium-137 (Cs-137)	100	2,700	1.0	27
Gadolinium-153 (Gd-153)	1,000	27,000	10.0	270
Iridium-192 (Ir-192)	80	2,200	0.8	22
Plutonium-238[2] (Pu-238)	60	1,600	0.6	16
Plutonium-239/Beryllium[2] (Pu-239/Be)	60	1,600	0.6	16
Promethium-147 (Pm-147)	40,000	1,100,000	400	11,000
Radium-226[3] (Ra-226)	40	1,100	0.4	11
Selenium-75 (Se-75)	200	5,400	2.0	54
Stron ium-90 (Y-90)	1,000	27,000	10.0	270
Thulium-170 (Tm-170)	20,000	540,000	200	5,400
Ytterbium-169 (Yb-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 radionuclide 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
R2 = activity for radionuclides or source number 2
RN = activity for radionuclides or source number n

AR1 = activity limit for radionuclides or source number 1
AR2 = activity limit for radionuclides or source number 2
ARN = activity limit for radionuclides or source number n

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

[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 exports of Pu-238 and Pu-239/Be can be found in § 110.21.

[3] Discrete sources of Radium-226.