CORRECTED COPY		PAGEOFPAGES
U.S. NUCLEAR F	REGULATORY COMMISSION	Amendment No. 19
MATER	RIALS LICENSE	
Pursuant to the Atomic Energy Act of 1954, as amended, the Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 3 made by the licensee, a license is hereby issued authorizing to special nuclear material designated below; to use such materia such material to persons authorized to receive it in accordance contain the conditions specified in Section 183 of the Atom regulations, and orders of the Nuclear Regulatory Commission	6, 39, 40, and 70, and in reliance the licensee to receive, acquire, al for the purpose(s) and at the p e with the regulations of the appl nic Energy Act of 1954, as am	on statements and representations heretofore possess, and transfer byproduct, source, and blace(s) designated below; to deliver or transfer icable Part(s). This license shall be deemed to ended, and is subject to all applicable rules,
Licensee	In accordance wi April 10, 2012,	th the application dated
1. E.I. du Pont de Nemours and Company, Inc.		er 07-13441-02 is amended in
Stine-Haskell Research Center	its entirety to rea	
Stille-Haskell Research Center	BREA	
2. P.O. Box 30	4 Expiration dat	e August 31, 2022
Newark, Delaware 19714-0030	5. Docket No. 03	
		. 07-00455-02, 07-00455-27, and
S	07-00455-41	
Ш C		L.
nuclear materialA. Any byproduct material with atomic numbers 1 through 83B. Hydrogen 3C. Carbon 14C. Carbon 14D. Phosphorus 32D. AnyE. Phosphorus 33F. Sulfur 35G. Krypton 85H. Iodine 125H. AnyI. Iodine 131J. Nickel 63J. Plated Labora Plated Technol Merck Source	Foils (Isotope Products tories Model Custom Source; AEA ology (formerly ham Corp.) Model plated source; DuPont Model custom plated ; or Radiochemical Amersham Model	 8. Maximum amount that licensee may possess at any one time under this license A. 10 millicuries per radionuclide and 200 millicuries total B. 20 curies C. 20 curies D. 1 curie E. 1 curie F. 5 curies G. 50 millicuries H. 1 curie I. curie J. 1 curie total and no single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State
K. Sealed	Sources (Isotope	K. 200 millicuries total and no

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6.	Byproduct, source, and/or special nuclear material	7. Chemical and/or ph	ysical form 8	 Maximum amount that licensee may possess at any one time under this license 				
K.	Krypton 85	Products Labora NER-8295, NER NER8275; or 3M	-8285, and	single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State				
L.	Iron 55	L. Sealed Sources Nuclear Model 6 696-696803, and DuPont Model N Amersham/Searl 696782, IEC, IEC IEC.D1; Isotope XFB; or QSA Glo IEC.A1)	96-696782, 696942; ER-460A; e Model 696- C.A1, and Products	. 750 millicuries total and no single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State				
M.	Cadmium 109	M. Sealed Sources (Amersham/Sear CUC; Texas Nuc 696782, 570-057 57242B, 696-696 696-696803; Dul NER-465; QSA (CUC.D1 and CU Isotope Products Model XFB-3)	le Model lear 696- 371B, 570- 782, and Pont Model Global Model C.P1; or	A. 200 millicuries total and no single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State				
N.	Americium 241	N. Sealed Sources (Amersham/Sear AMC and AMC.E Nuclear 696-696 696280, and 696 QSA Global Mod AMM1001, and A Isotope Products Model XFB-4, GI Nuclear Radiatio Developments (N A-001; or DuPon Model NER-478)	le Model 01; Texas 782, 696- -696803; el AMCL, MC.P4; Laboratory FS, and XFB; n IRD) Model t Merck	N. 500 millicuries total and no single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State				

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 Byproduct, source, and/or special 7. Chemical and/or nuclear material 	physical form 8. Maximum amount that licensee may possess at any one time under this license				
O. Curium 244 O. Sealed Source Model CLCL o Products Mode	es (Amersham O. 200 millicuries total and no single source to exceed the				
and A-3402; 31 4F6S, 4FST, a Gamma Indust VDHP; or Ame CDC.711M, CI	earle Model ope Products odel GFS-3, 225, M Model 4D6P, and 4F6P; tries Model DC.700, C.93, CDC.800, single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State				
 Q. Cesium 137 Q. Sealed Source (Amersham/Searle Model CDC.701 or Isotope Products Laboratory Model GFS-3) Q. 50 millicuries total and no single source to exceed the maximum activity specified the certificate of registration issued by the U.S. Nuclear Regulatory Commission or a Agreement State 					
9. Authorized use:					
 9. Authorized use: A. through I. Research and development as defined in 10 CFR 30.4; animal studies. J. To be used for sample analysis in gas chromatography devices that have been registered either with the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State and have been distributed in accordance with a Commission or Agreement State specific license authorizing distribution to persons specifically authorized by a Commission or Agreement State license to receive, possess, and use the devices. K. To be used for static charge elimination in devices that have been registered either with the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State and have been distributed in accordance with a Commission or Agreement State license to receive, possess, and use the devices. K. To be used for static charge elimination in devices that have been registered either with the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State and have been distributed in accordance with a Commission or Agreement State specific license authorizing distribution to persons specifically authorized by a Commission or Agreement State specific license authorizing distribution to persons specifically authorized by a Commission or Agreement State license to receive, possess, and use the devices. 					

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L. th	rough	O. To be used for calibration of and/or sample and or x-ray fluorescence devices that have been r Commission under 10 CFR 32.210 or with an A	egistered either with the U.S. Nuclear Regulatory
			State specific license authorizing distribution to
		persons specifically authorized by a Commissi possess, and use the devices.	on or Agreement State license to receive,
		nan Model No. CS200 and SA1 fixed gauging devic	
Q.	In Luc	llum Model No. 299 series portable gauging device	s for measuring physical properties of materials.
		~	
			s Z
10.	A.	Licensed material may be used or stored at the li Research Center 1090 Elkton Road, Newark, De Mill Road, Wilmington, Delaware; Glasgow Site, 3 Chestnut Run Plaza, 4417 Lancaster Pike, Wilmi	l <mark>aware; E</mark> xperimental Station 700-779 Powder 3 <mark>209 Su</mark> nset Lake Road, Newark, Delaware; and
	B.	Licensed material in Items 6.L. through 6.N. may anywhere in the United States where the U.S. Nu jurisdiction for regulating the use of licensed mate jurisdiction within Agreement States.	clear Regulatory Commission maintains
		If the jurisdiction status of a Federal facility within should contact the Federal agency controlling the proposed job site is an area of exclusive Federal materials at job sites in Agreement States not un obtained from the appropriate state regulatory ag	e job site in question to determine whether the jurisdiction. Authorization for use of radioactive der exclusive Federal jurisdiction shall be
11.	A.	Licensed material shall only be used by, or under writing, by the Radiation Safety Committee. The designated as users for 3 years following the last	licensee shall maintain records of individuals
	B.	Licensed material in Items 6.J. through 6.O may the physical presence of individuals who have reduced April 21, 2012, Revision 2 (July 26, 2012), Officer.	
12.	The	Radiation Safety Officer for this license is John M.	Brisbin.
13.	The	licensee shall not use licensed material in or on hu	man beings.

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14.		licensee shall not use licensed material in field appl rwise by specific condition of this license.	ications where it is released except as provided
15.		licensee may use carbon-14 in outdoor field applica 2, and the application dated April 17, 2012, Revision	
16.		erimental animals, or the products from experimentansed materials shall not be used for human consump	
17.	A.	Sealed sources shall be tested for leakage and/or months or at the intervals specified in the certifica Regulatory Commission under 10 CFR 32.210 or State.	te of registration issued by the U.S. Nuclear
	В.	Notwithstanding Paragraph A of this Condition, se particles shall be tested for leakage and/or contan	
	C.	Each sealed source fabricated by the licensee sha defects, leakage, and contamination prior to any u	
	D.	In the absence of a certificate from a transferor ind the intervals specified in the certificate of registrat Commission under 10 CFR 32.210 or under equiv the transfer, a sealed source received from anothe and the test results received.	ion issued by the U.S. Nuclear Regulatory valent regulations of an Agreement State, prior to
	E.	Sealed sources need not be tested if they contain radioactive gas; or the half-life of the isotope is 30 100 microcuries of beta- and/or gamma-emitting nalpha-emitting material.	days or less; or they contain not more than
	F.	Sealed sources need not be tested if they are in s they are removed from storage for use or transferr within the required leak test interval, they shall be shall be stored for a period of more than 10 years contamination.	red to another person and have not been tested tested before use or transfer. No sealed source
	G.	The leak test shall be capable of detecting the pre- radioactive material on the test sample. If the test (185 becquerels) or more of removable contamina Regulatory Commission in accordance with 10 CF immediately from service and decontaminated, rep Commission regulations.	t reveals the presence of 0.005 microcurie ation, a report shall be filed with the U.S. Nuclear R $30.50(c)(2)$, and the source shall be removed

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	H.		g leak test sample collection and analysis, shall be becifically licensed by the U.S. Nuclear Regulatory uch services.
	I.	Records of leak test results shall be kept in units 5 years.	of microcuries and shall be maintained for
18.		led sources or detector cells containing licensed mana source holders by the licensee.	aterial shall not be opened or sources removed
19.	U.S. unde inve	licensee shall conduct a physical inventory every si Nuclear Regulatory Commission, to account for all er the license. Records of inventories shall be main ntory and shall include the radionuclides, quantities the date of the inventory.	I sources and/or devices received and possessed ntained for 5 years from the date of each
20.	shall	ntenance, repair, cleaning, repl <mark>acement,</mark> and dispos I be performed only by the device manufacturer or c ne U.S. Nuclear Regulatory Commission or an Agre	other persons specifically authorized
21.	A.	Detector cells containing a titanium tritide foil or a conjunction with a properly operating temperature temperatures from exceeding that specified in the 10 CFR 32.210.	e control mechanism which prevents the foil
	В.	When in use, detector cells containing a titanium to the outside.	tritide foil or a scandium tritide foil shall be vented
22.	A.	Each gauge shall be tested for the proper operation indicator, if any, at intervals not to exceed 6 mont certificate of registration issued by the U.S. Nucle 10 CFR 32.210 or the equivalent regulations of an	ths or at such longer intervals as specified in the ear Regulatory Commission pursuant to
	В.	Notwithstanding the periodic on-off mechanism (s not apply to gauges that are stored, not being use locked position. The gauges exempted from this	ed, and have the shutter lock mechanism in a
23.	reloc and (i.e., shut	following services shall not be performed by the lice cation, removal from service, dismantling, alignment non-routine maintenance or repair of components r the sealed source, the source holder, source drive ter control, shielding). These services shall be perf ne U.S. Nuclear Regulatory Commission or an Agre	nt, replacement, disposal of the sealed source related to the radiological safety of the gauge e mechanism, on-off mechanism (shutter), formed only by persons specifically licensed

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24.		licensee may initially mount a gauge if permitted by Nuclear Regulatory Commission or an Agreement S						9
	A.	The gauge must be mounted in accordance with w	vritten instructions	provideo	d by	the m	anufa	acturer;
	В.	The gauge must be mounted in a location compati "Limitations and/or Other Considerations of Use" in U.S. Nuclear Regulatory Commission or an Agree	n the certificate of					
	C.	The on-off mechanism (shutter) must be locked in be otherwise fully shielded;	the off position, if	applicat	ole, c	or the	sourc	æ must
	D.	The gauge must be received in good condition (i.e	., package was no	ot damag	ged);	and		
	E.	The gauge must not require any modification to fit	in the proposed lo	cation.				
	rema pers	nting does not include electrical connection, activation ain fully shielded and the gauge may not be used un on specifically licensed by the U.S. Nuclear Regulat form such operations.	til it is installed and	d made	oper	ationa	al by a	а
25.	A.	The licensee may maintain, repair, or replace devi radiological safety of the device and that do not re to come into contact with the primary beam or in ir	sult in the potentia	al for any	port	tion o	f the l	body
	В.	The licensee may not maintain, repair, or replace a sealed source, the source holder, source drive me control, or shielding, or any other component relate except as provided otherwise by specific condition	chanism, on-off m ed to the radiologi	echanis	m (sl	hutter	.), shu	utter
26.	Prior to initial use and after installation, relocation, dismantling, alignment, or any other activity involving the source or removal of the shielding, the licensee shall assure that a radiological survey is performed to determine radiation levels in accessible areas around, above, and below the gauge with the shutter open. This survey shall be performed only by persons authorized to perform such services by the U.S. Nuclear Regulatory Commission or an Agreement State.						le	
27.	The licensee shall operate each device containing licensed material within the manufacturer's specified temperature and environmental limits such that the shielding and shutter mechanism of the source holder are not compromised.							

28. The licensee shall assure that the shutter mechanism, for each device containing licensed material,

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	to th proc	cked in the closed position during periods when a pole direct radiation beam. The licensee shall review a edures whenever a new device is obtained to incorport mmendations.	and modify, as appropriate, its "lock-out"			
29.		led sources or source rods containing licensed mate etached from source rods or gauges by the licensee				
30.	una or its	h portable nuclear gauge shall have a lock or outer luthorized or accidental removal of the sealed source s container must be locked when in transport or stor reillance of an authorized user.	e from its shielded position. The gauge			
31.	Any cleaning, maintenance, or repair of the gauges that requires detaching the source or source rod from the gauge shall be performed only by the manufacturer or by other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.					
32.		licensee is authorized to hold byproduct material widays for decay-in-storage before disposal without re				
	A.	Monitors byproduct material at the surface before cannot be distinguished from the background radi detection survey meter set on its most sensitive s	ation level with an appropriate radiation			
	В.	Removes or obliterates all radiation labels, except containers and that will be managed as biomedicaticensee; and				
	C.	Maintains records of the disposal of licensed mate date of disposal, the survey instrument used, the measured at the surface of each waste container, the disposal.	background radiation level, the radiation level			
33.	Pursuant to 10 CFR 20.1302(c) and 10 CFR 20.2002, the licensee is authorized to dispose of licensed material by incineration, provided the gaseous effluent from incineration does not exceed the limits specified for air in Appendix B, Table II, 10 CFR Part 20.					
34.	Pursuant to 10 CFR 20.2002, the licensee may dispose of incinerator ash containing radioactive materials with atomic numbers 1 through 83, except as identified below, as ordinary waste in a landfill provided that the concentration of radionuclides (in microcuries per gram of ash) at the time of disposal are no greater than the values of Table II, Column 2, 10 CFR Part 20, Appendix B. For hydrogen-3, carbon-14, aluminum-26, chlorine-36, silver-108m, niobium-94, iodine-129, technetium-99, and thallium-204, the concentration can be no greater than one-tenth of the value in Table II, Column 2, 10 CFR Part 20, Appendix B. If more than one radionuclide is present in the ash, then the sum of					

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	fracti	ons rule applies.							
35.	soil r aver	vithstanding 10 CFR 20.2001, the licens naterial as normal waste, if the plant and aged over the weight of the plant and so microcuries for hydrogen-3 and 10 micro	d soil m bil mate	aterial contains less th rial, and the quantity po	an 0.00	2 mi	crocui	rie pe	er gram
36.		licensee is authorized to transport licens FR Part 71, "Packaging and Transporta			th the pr	ovisi	ons o	f	
37.	chan appr	vithstanding the requirements of License ges and changes to procedures specific oved by the U.S. Nuclear Regulatory Co mission approval as long as:	cally ide	ntifi <mark>ed in the c</mark> ondition on a <mark>nd inco</mark> rporated in	, which v	were	previ	ously	
	A.	The proposed revision is documented, Committee in accordance with establis					s Radi	ation	Safety
	В.	The revised program is in accordance conditions, and will not decrease the e						e lice	ense
	C.	The licensee's staff is trained in the re	vised p	rocedures prior to impl	ementat	tion.			
	D.	The licensee's audit program evaluate	es the ef	fectiveness of the cha	nge and	its i	mplen	nenta	tion.
38.	Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.								
	А. В.								
			For th	e U.S. Nuclear Regula	tory Cor	nmis	sion		
Date		September 24, 2012	By	Original signed by l	Dennis	R. La	awyeı	-	
			— J	Dennis R. Lawyer					

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