amend. #1 - 4-181-6

Form AEC-313 (2-57) ATOMIC ENERGY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

Form approved. Budget Bureau No. 38-R027.3.

INSTRUCTIONS.—Complete Items 1 through 16 if this is an initial application. If application is for renewal of a license, complete only Items 1 through 7 and indicate new information or changes in the program as requested in Items 8 through 15. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail two copies to: U. S. Atomic Energy Commission, P. O. Box E, Oak Ridge, Tenn. Attention: Isotopes Extension, Division of Civilian Application. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. An AEC Byproduct Material License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30 and the licensee is subject to Title 10, Code of Federal Regulations, Part 20.

1. (a) NAME AND STREET ADDRESS OF APPLICANT. (Institution, firm, hospital, person, etc.)

Veterans Administration Center Wilshire and Sawtelle Blvds Los Angeles 25, Calif. (b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1 (a).)

Same

DUPLICATION FOR DIV. GE 1932

2. DEPARTMENT TO USE BYPRODUCT MATERIAL

Cardiology Section

PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.)

4. INDIVIDUAL USER(S). (Name and title of individual(s) who will use or directly supervise use of byproduct material. Give training and experience in Items 8 and 9.E. Raymond Borun, Attending Phy. in Int. Medicine, V. A.; Asst. Prof. of Medicine in Residence, UCLA Med. Center and

Radioisotope Service-Vets Admin. Hosp. W. H. Blahd. M.D., Chief

5. RADIATION PROTECTION OFFICER (Name of person designated as radiation protection officer if other than individual user. Attach resume of his training and experience as in Items 8 and 9.)

W. H. Blahd, M. D. Chief, Radioisotope Service

 (a) BYPRODUCT MATERIAL. (Elements and mass number of each.) (b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER OF MILLICURIES OF EACH CHEMICAL AND/OR PHYSICAL FORM THAT YOU WILL POSSESS AT ANY ONE TIME. (If sealed source(s), also state name of manufacturer, model number, number of sources and maximum activity per source.)

Sodium 24

Na Cl in HCl - 2 mc maximum at any one time

7. DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If byproduct material is for "human use," supplement A (Form AEC-313a) must be completed in lieu of this item. If byproduct material is in the form of a sealed source, include the make and model number of the storage container and/or device in which the source will be stored and/or used.)

The material will be used to study sodium exchange in vitro in erythrocyte specimens

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Form AEC-313 (2/57)			IAL NAMED IN ITE				
TRAINING AND F	EXPERIENCE OF E	ACH INDIVIDU	TE HAMED IN HEY	A 4 (Use suppleme	ntal sh	eets if necessary))
8. TYPE OF TRAINING	DURATION TRAINING	OF	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)			
a. Principles and practices of radi		d. & Surg. lmin. Cent		16 m	0.6	Yes No	Yes No
b. Radioactivity measurement standar tion and monitoring techniques an struments	diza-	u u	п			Yes No	Yes No
c. Mathematics and calculations basic to use and measurement of radioactiv	1	11 11	п			Yes No	Yes No
d. Biological effects of radiation		n u	ti			Yes No	Yes No
9. EXPERIENCE WITH RADIATION. (A				OF EXPENSE ICE		TYPE O	F USE
ISOTOPE MAXIMUM AMOUNT Troll less than 100 up	WHERE EXPERIENCE GIAS HOSP O NO. CHAS I	., VAC, L.	.A. 16 mc	=		vitro vitro	
Iodine 131 less than 10 Fe 59 less than 100 uc		HOSP, VAC, Hosp., VAC		o-red cell s	1		ins and de
tess than 100 uc		Hosp., VAC,			1	vitro	
10. RADIATION DETECTION INSTRUME	NTS. (Use supplen	mental sheets if ne	cessary.)				
TYPE OF INSTRUMENTS (Include make and model number of each	NUMBER	RADIATION DETECTED	SENSITIVITY RANGE (mr/hr)	WINDOW THICKNE (mg/cm²)	ESS		USE rveying, measuring
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See License No. 4-1	181-2			•	1		
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11. METHOD, FREQUENCY, AND STANDA	ARDS USED IN CALIBE	KATING INSTRUME.	MIS LISTED ABOVE.				
See License No. 4-13	31-2						
12. FILM BADGES, DOSIMETERS, AND BIG		ES USED. (For film	n badges, specify method	of calibrating and pro	ocessing	3, or name of supp	plier.)
See License No. 4-							
	INFORMATIO	IN TO PE SUE	MITTED ON ADD	ITIONAL SHEET	<u> </u>		
13. FACILITIES AND EQUIPMENT. Described facility is attached. /Circle answer	ribe laboratory fac. t r) Yes No	ties and remote har	ndling equipment, storag See License 1	re containers, shielding No. 4-181-2	g, fume		
14. RADIATION PROTECTION PROGRAM testing procedures where applicable,	A. Describe the rad	liation protection p	rogram including contro	I measures. If applic	cation (overs sealed sou	rces, submit leak tion survey, serv-
icing, maintenance and repair of the			on to perform leak tests, e no. 4–181–1	and arrangements for	perfor	ming initial radiat	-, v
icing, maintenance and repair of the	Source. S	ce is employed, spe	on to perform leak tests, e no. 4-181-1 ecify name of company.	2 Otherwise, submit d	detailed	ming initial radial	ethods which will
icing, maintenance and repair of the 15. WASTE DISPOSAL. If a commercial be used for disposing of radioactive	I waste disposal service wastes and estimates CERTIFICATE	ce is employed, spe of the type and ar	on to perform leak tests, enc. 4-181-; ecify name of company, mount of activity involved nust be complete	Otherwise, submit do. See Lice ad by applicant	detailed	description of me	ethods which will 81-2
icing, maintenance and repair of the 15. WASTE DISPOSAL. If a commercial be used for disposing of radioactive	I waste disposal service wastes and estimates CERTIFICATE AL EXECUTING THIS THE 10, CODE OF FED	ce is employed, spin of the type and an CERTIFICATE ON IDERAL REGULATION	e no. 4-181- e no. 4-181- ecify name of company. mount of activity involved must be complete BEHALF OF THE APPLIC NS, PART 30, AND THA	Otherwise, submit d Otherwise, submit d See Lice ad by applicant ANT NAMED IN ITEM T ALL INFORMATION	detailed ense	description of me	ethods which will 81-2 APPLICATION IS
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Form AEC-313

ATOMIC ENERGY COMMISSION APPLICATION FOR BYPRODUCT MATERIAL LICENSE

Rage Two

Instructions: Complete Items 12 through 19 if this is a new application. This information may be omitted

from subsequent applications provise made in Item 5 to the application	ided the	ere is r	10 chan	ge in tl	ne informat	tion prev	iously s	submitte	d, and	refer	ence
is made in Item 5 to the application TRAINING AND EXPERIENCE							SER NA	MED IN	ITEM	3	
	E WII			11111				ON THE			COURSE
12. TYPE OF TRAINING			TRAINED			ON OF TRAIN	IING	(Circle an		(Circle	answer)
1. Principles and practices of radio-			Surg.				/			77	3 7.
logical health safety	Vet.A	.dm. C	enter.	L.A.	16	months		Yes	No	Yes	No
2. Radioactivity measurement stand- ardization and monitoring tech- niques and instruments	11 11 11	11 11	11 11 1	1 11	11	, u,		Yes	No	Yes	No
3. Mathematics and calculations basic to the use and measurement of radioactivity	11 11 11	11 11	11 11 f	1 11	TI .	tt -		Yes	No	Yes	No
	u ii u	11 11	11 11 1	1 11	i tt	11	:				3T-
4. Biological effects of radiation							(Yes	No _	Yes	No
5. Actual use of radioisotopes in the types and quantities for which application is being made, or equivalent experience	n n n	11 11	11 11 1	1 11	PE .	11	(Yes	No No	Yes	No
13. ISOTOPE HANDLING EXPERIENCE											
ISOTOPE MAXIMUM AMOUN			RE EXPER				N OF EXP			PE OF L	
Cr^{51} less than 100					Center,			mo.		ritro	
Iodine 131 less than 100					Center,			шо∙		ritro	
Fe 59 less than 100 less than 100	uc	GM&S	Hosp.	,۷.A.	Center,	L.A.;	TO MC	·;red	ng lar	sur do	Sagar
14. If Radiological Safety Officer named in provide equivalent information on "mentary sheet is attached (Circle answer)	Training	is diff	erent fre Experien	om indi	vidual user n Radioactiv	named in vity of R	Item 3, adiologic	use suppeal Safety	Officer Yes		eet to upple- No
PHYSICAL FACIL	ITIES,	EQUIF	MENT,	AND	RADIATION	N INSTRI	UMENT	ATION			
15. RADIATION DETECTION INSTRUMENTS (Use sept	rate sheet i	f necessar	ry)								
	JMBER AILABLE		DIATION TECTED	F	SITIVITY ANGE mr/hr)	WINDOW THICKNESS (mg/cm²)	USI	E (Monitorin	g, surveyir	ng, meas	euring)
See License No. 4-181-2										, <u></u>	
16. FILM BADGES, DOSIMETERS, AND OTHER PERSON	NEL MONI	ITORING	DEVICES !	INCLUDIN	G BIO-ASSAY PE	ROCEDURES					
See License No. 4-181-2							ŕ	•			
17. METHOD, FREQUENCY, AND STANDARDS USED I supplier)	N CALIBRA	TING IN	STRUMEN	TS LISTE	ABOVE (For file	lm badges spe	cify method	l of calibratio	n and pro	cessing,	or name
See License No. 4-181-2									•		
,											
18. (a) DESCRIBE BRIEFLY REMOTE HANDLING EQUIPMENT, STORAGE CONTAINERS, SHIELDING, AND LABORATORY FACILITIES (Working areas, fume hoods, etc.)											
See License No. 4-181-2											
(b) SKETCHES OF SUCH FACILITIES ARE ATTACHE	D (Circle ar	nawer)	•						Y	es	No
19. DESCRIBE BRIEFLY RADIATION SURVEYING PRO			THODS OF	DISPOSIN	G OF RADIOACT	TIVE WASTES	;				

See License No. 4-181-2

Form AEC-318 (9-55)

.TOMIC ENERGY COMMISSION APPLICATION FOR BYPRODUCT MATERIAL LICENSE

Form approved. Budget Bureau No. 38-R027.3.

Instructions: Complete Items 1 through 19 if this is a new application. If renewal is requested, complete only Items 1 through 11 provided that with respect to the other items there has been no change in the information previously submitted. Mail two copies to: U. S. Atomic Energy Commission, P. O. Box E, Oak Ridge, Tennessee, Attention: Isotopes Extension, Division of Civilian Application. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. General requirements for issuance

of an AEC Byproduct Material License are contain	ined in Title 10, Code o	of Federal Regulations, Part 30.	
1. (a) NAME AND SHIPPING ADDRESS OF APPLICANT	(b) ADDRESS(ES) AT WH (If different from shipp	ICH BYPRODUCT MATERIAL WILL BE USED	
(Institution, firm, hospital, person, etc.) Veterans Administration Center	(1) any or entry to me on opp	and the second	
Wilshire and Sawtelle Blvds.	Same		4
Los Angeles 25, Calif.			
2. DEPARTMENT TO USE BYPRODUCT MATERIAL			
Cardiology Section		And Done of Mod	
3. INDIVIDUAL USER (Name and title of individual(s) who will use or directly su	perrise use of by product material)	Asst. Prof. of Med.	Conte
A. E. Raymond Borun, Attending Physician	n in Internal Med.	, V.A. : Residence, OCLA Med	• Cen ce.
4. RADIOLOGICAL SAFETY OFFICER (Name of person qualified in radiological s	ajety, ij omer man matotawa user)		
William H. Blahd, M.D. 5. PREVIOUS LICENSE OR AUTHORIZATION NUMBER (If this is an application)	n for renewal of a license for hunred	uct material obtained under a prior license or authorize	ation for
radioisotope procurement)	,, , , , , , , , , , , , , , , , , , ,		i
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BYPRODUCT MATERIAL (OR IRRADIATION SERV	ICE DESIRED	
6. BYPRODUCT MATERIAL (Element and mass number) 7. CHEMICAL AND, OR		8. MAXIMUM AMOUNT OF RADIOACTIVITY IN CURIES THAT YOU WILL POSSESS AT ANY OF	I MILLI- NE TIME
		10 mc.	
Fotassium 42 K ₂ CC ₃	•	TO INC.	
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), IF IRRADIATION SERVICE IS DESIRED. STATE PERTINENT DETAILS S RADIOACTIVITY, IRRADIATION TIME IN DAYS, AND NEUTRON FLUX	BUCH AS: CHEMICAL COMPOSITI	ON AND WEIGHT IN GRAMS OF TARGET MA	IERIAL,
RADIOACTIVITI, IRRADIATION TIME IN DATA, AND NESTRON TEST			· 1
			1
STAT	EMENT OF USE		
 (a) DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE is to be used in or manufactured as a "sealed source" complete Supplement 	USED. (If material is for "human	use" complete Supplement A in lieu of this item. If	material
		hated mad blood gold speci	imens
In vitro studies of uptake and exchar	use of vac of them	bated red brood cerr spec.	1:::010
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(b) DESCRIBE PROCEDURES WHICH WILL BE OBSERVED TO MINIMIZE HA	ZARD FROM HANDLING, STORAG	E. AND DISPOSAL OF THE BYPRODUCT MATERIA	L
See License No. 4-191-4			•
See Lidenie Po. 4-11144		•	l
			1
	ERTIFICATE	•	
11. The applicant and any official executing this certificate	on behalf of the applicant	named in Item 1, certify that this appl	lication
is prepared in conformity with Title 10, Code of Federal tion contained herein, including any supplements attach	Regulations, Part 30, and led hereto is true and corr	do solemnly swear (or amrm) that an it	belief.
_			
State of California		Administration Center	
County of Los Argales	Applicant named in	PLA.1	
Subscribed and sworn to before me this 6500	By ////////////////////////////////////	Bure	
day of September, 1956	Mm. H. Bla	ahd, M.D., Acting Ch., Radi	
	Title of Certifying (EP 6 - 1956	Servi
The state of the s		The state of the s	
Notary Public My Commission Expires Sept. 21, 195		WOSTLEY, JR.	
18 U. S. C., Section 1001; Act of June 25, 1948; 62 Stat.	WARNING	CPAHAM MCSTLEY.	
18 U. S. C., Section 1001; Act of June 25, 1948; 62 Stat.	749; makes it a criminal	offende to make a willight dase state	
representation to any department or agency of the United	1 States as to any matter w	vitnimus himsorction cotvic	
(Conti	nued on reverse side)	Atomic Medicine Stratio	
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Date Received			No.	Copi	es		Applic	Application No. 4-181-6				
Company	Confidenti	al	Expiration Date 9-30-58 Referen					nce	nce No.			
Isotope	Form	Possession Limit	Use	is dr	vitro	stu	dies of u	pi	take an	<i>کید</i>		
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7. 8. 9.	16. 17. A B See revers	e side				·						
New Appl	ication		Tes	No	SCHA Revi	ew	Yes	NO)	Quimby			
313-A Re	viewed		Yes	No	Items Rep	oroduced:			Jacobson			
313-B Re	viewed		Yes	No					Robbins			
Precepto	r Statement		Yes	No	Reviewer	Date	Action	Da	te	Chief		
Instrume	Instrumentation Checked			No	MB	9/1/16	Approve	9-	26-56	PCA/JEA		
Telephone Call			Yes	(No)			Disapprove					
RSB File	s Checked		Yes	No			Cancelled					
RSB Revi	9 ₩		Yes	No			Revised					