(29-1	Hoo-5 mu	indiment He	···) & m ; .		· · · ·
Form AEC-318 (9-55)	APPLICATIO	ATOMIC ENERGY CO	MMISSION MATERIAL LICE	DUF	Form approved. Budget Bureau. No. 34 Rolla.
only Items 1 mation previo Tennessee A	through 11 provided usly submitted. Ma ttention: Isotopes	that with respect to il two copies to: U. S Extension. Division	S. Atomic Energy (ommission,	A is requested, complete n no change in the infor- <u>P. O. Box E, Oak Ridge</u> , Upon approval of this equirements for issuance egulations, Part 30.
Rese Curt Queh	PING ADDRESS OF APPLICANT Applial, person, etc.) earch Division ciss-Wright Corp. anna, Fa. Attn: se Byproduct Material	•	(b) ADDRESS(ES) AT WHIG (If different from shippi Same a:	H BYPRODUCT M ng address) 5 l. (a)	ATERIAL WILL BE USED
·		Nuclear Power		<u>_</u>	· · · · · · · · · · · · · · · · · · ·
•	(Name and title of individual(s) u				· · ·
Gilbert	W. Smith - Senic ETY OFFICER (Name of person	or Research Chem	ist	·	<u> </u>
1. ADIOLOGICAL DAI	•	J. Roberts			•
5. PREVIOUS LICENSE radioisotope procurem	sent)	R (If this is an application for re	newal of a license for byprodu	ct material obtained	under a prior license or authorization for
	29-460-	OT MATERIAL OF IN	PADIATION CEDVI	OF DECIDER	····
6. BYPRODUCT MATER	RIAL (Element and mass number)			8. MAXIMUM AM	OUNT OF RADIOACTIVITY IN MILLI- OU WILL POSSESS AT ANY ONE TIME
. Co 60		5 ml. of sol MBS std. source		0.1	
. 00 00	,	ndo Stu. Source	(020.00.4915)	0.1	Inc
	RADIATION TIME IN DAYS, A		NT OF HEE		
10. (a) DESCRIBE PURI is to be used in or	OSE FOR WHICH BYPRODUC manufactured as a "sealed source		NT OF USE (If material is for "human us lition to this item.)	e" complete Suppl	ement A in lieu of this item. If material
		rument calibrati ochemical techni		lization d	of
(6) DESCRIBE PROCE				•	F THE BYPRODUCT MATERIAL
	ed access laboration hysics personnel				
	•.	•	· · · ·		
		CERTI	FICATE		
is prepared in c	onformity with Title 10.	. Code of Federal Regul	ations. Part 30. and de	o solemnly swe	l, certify that this application ar (or affirm) that all informa- of our knowledge and belief.
State of		ed 39 his 1956	Applicant named in I Applicant named in I By <u>Applicant named in I</u> By <u>Applicant named in I</u> Title of Certifying Off	Depuise C	fficer quite
Noter Public	CLEARFIELD. PA	uch f	Date	ei, 29, 1	× 3 6 12 ·
18 U. S. C., Sect representation to	MISSION EXPIRES M tion 1001; Act of June 2 any department or age	5. 1948: 62 Stat. 749: n	NING nakes it a criminal off s as to any matter wit	ense to make a hin its jurisdic	a willfully false statement or tion.

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Form AEC-818	APPL								
from subsequent	t applications pro	ovided th	ugh 19 if this is a here is no change which this inform	in th	ie informa	tion previo	information usly submitt	may ed, an	be on d refe
TRAINING	AND EXPERIE	NCE WI	TH RADIOACTIV	ITY	OF INDIV	IDUAL USE	R NAMED I	N ITE	M 3
12 TYPE OF TRAINING			WHERE TRAINED		DURAT	ION OF TRAININ	G ON TH		FORM. (Circ
1. Principles and practices of radio- logical health safety			ORNL		9 years		Yes	No	Yes
ardization an niques and in	measurement stand ad monitoring tech struments	h-	: . 11 :	. :	- 11	1 - 11	· Yes	· No	Yes
	cs and calculation ise and measurementy		88		1	years	Yes	No	Yes
4. Biological effe	ects of radiation				·····	•••.	- Yes	No	Yes
5. Actual use of types and qua plication is be	radioisotopes in th antities for which ap ing made, or equiva	he p-	ORNL		<u></u> с	years			
13. ISOTOPE HANDLING E		•••				-	(Yes)	No	Yes
	MAXIMUM AMO	TUNT	WHERE EXPERIENC	CE WAS	5 GAINED	DURATION	OF EXPERIENCE		TYPE O
Co 60 Pu 239) 10 mc l gram	n.	ORNL		•	6 months 4 years		Calibra Electroc and mis	
Ga 72	100 mc		31:			l yea	ar		acer
provide equivale	nt information on attached (Circle an	"Trainin nswer)	g and Experience	With	Radioact	ivity of Rad	iological Safet	y Offic Yes	er."
mentary sheet is 15. RADIATION DETECTIO TYPE OF INSTR	nt information on attached (Circle an PHYSICAL FAC IN INSTRUMENTS (Use a UMENTS	"Trainin nswer) CILITIES, separate sheet NUMBER	g and Experience EQUIPMENT, A if necessary) RADIATION	With ND 1 SENS R	RADIATIO	WINDOW THICKNESS	iological Safet	y Offic Yes	er."
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Form AE((9-55)	APPLICATIO	ATOMIC ENERGY COMMISSION FOR BYPRODUCT MATE	•	Form approved. Budget Bureau No. 38-R027.3.
only It mation Tennes applica	CTIONS: Complete Items 1 ems 1 through 11 provided previously submitted. Ma see, Attention: Isotopes tion, the applicant will rece	through 19 if this is a new that with respect to the oth il two copies to: U. S. Atom Extension, Division of Ci	application. If f er items there has ic Energy Commis vilian Applicatio rial License. Ger	Change the line of the second secon
Resea Curti Clift		Cur	ESS(ES) AT WHICH BYPRO ernt from shipping address) earch Divisio tiss-Wright C hanna, Pa	•
	ENT TO USE BYPRODUCT MATERIAL Nuclear ALUSED (Norma and title of Individual(A))	Power_Department	uct material	
	Garly	le J. Roberts gualified in radiological safety, if other than in		
	Garly	le J. Roberts_		obtained under a prior license or authorization for
Tadioisotop	e procurement) 29-460-1	e		
		CT MATERIAL OR IRRADIAT		
6. BYPRODU	CT MATERIAL (Element and mass number)	7. CHEMICAL AND/OR PHYSICAL FORM (number)	Or catalog 8. MAXII CURIES	MUM AMOUNT OF RADIOACTIVITY IN MILLI- S THAT YOU WILL POSSESS AT ANY ONE TIME
AgllO		metallic wire		10
		pertinent details such as: chemic. ND NEUTRON FLUX be irradiated at ENL (usted so that limit of STATEMENT OF U	3 x 10 ¹² n/ 10mc of Ag ¹¹	weight in grams of target material. sec/cm ²) for about o is not exceeded.
Feasa	bility study for meth		is for "human use" completem.) of rotation of	
Mater	ial will be handled o	RVED TO MINIMIZE HAZARD FROM HANDI nly by trained scienti ll be under surveillan	fic personnel	in controlled access
		•		
		CERTIFICATE		
is prepartion constraints of County Subsc	need in conformity with Title 10 ntained herein, including any s New Jersey	, Code of Federal Regulations, Pa applements attached hereto, is tr Appli this	irt 30, and do solemn ue and correct to th with - Urig cant named in Iten 1 aly W	a Item 1, certify that this application mly swear (or affirm) that all informa- ne best of our knowledge and belief. at Corporation
18 U. S. represen	C., Section 1001; Act of June	WARNING 25, 1948; 62 Stat. 749; makes it a ncy of the United States as to an	criminal offense to	make a willfully false statement or
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Form AEC-818	ATOMIC ENERGY COMMISSION APPLICATION FOR BYPRODUCT MATERIAL L						E	Page	Two	
from subseque	s: Complete Items ent applications pr em 5 to the applic	rovided the	ere is no change	e in th	e inforn	nation previou	information m usly submitted,	ay be or , and refe	nitted erence	
TRAINI	NG AND EXPERI	ENCE WIT	H RADIOACTI	VITY	OF IND	IVIDUAL USE	R NAMED IN 1	ITEM 3		
12. TYPE OF TRAINING	3		WHERE TRAINED		DUR	ATION OF TRAININ	G ON THE JO (Circle ansu		FORMAL COURSE (Circle answer)	
1. Principles logical heal	and practices of rad	io-					Yes N	to Yes	No	
ardization	ity measurement star and monitoring tec instruments	ch-				• • •	• Yes • N	Ko Yes	· No	
3. Mathema basic to the	tics and calculation tics and measurement ivity	ons ent	•				Yes N	Io Yes	· No	
	•					•				
5. Actual use	effects of radiation. of radioisotopes in t quantities for which s	the			<u> </u>	•	Yes N	to Yes	No	
plication is lent experie	being made, or equivence	va-				,,	Yes N	io Yes	No	
13. ISOTOPE HANDLIN	G EXPERIENCE		WHERE EXPERIEN	ICE WAS	GAINED	DURATION	OF EXPERIENCE	TYPE O	E 116E	
provide equiva	l Safety Officer name alent information or is attached (Circle of PHYSICAL FA	n "Training inswer)	is different from and Experience EQUIPMENT,	With	Radioad	ctivity of Radi	iological Safety	ementary Officer." Yes	sheet to Supple- No	
15. RADIATION DETEC	TION INSTRUMENTS (Use	separate sheet i	f necessary)			1				
TYPE OF INS (Include make and m	odel number of each)		JMBER RADIATION SENS AILABLE DETECTED R/ (p			WINDOW THICKNESS (mg/cm ²)	USE (Monitoring,	E (Monitoring, surreying, measuring)		
					:			•	•	
16. FILM BADGES, DOS	IMETERS, AND OTHER PER	RSONNEL MONI	TORING DEVICES INC	LUDING	BIO-ASSA	Y PROCEDURES				
17. METHOD, FREQUEI supplier)	NCY, AND STANDARDS US	ED IN CALIBRA	TING INSTRUMENTS	LISTED	ABOVE (Fo	r film badges specify	method of calibration o	and processin	g, or n ame	
18. (a) DESCRIBE BRIE	EFLY REMOTE HANDLING	EQUIPMENT, S	TORAGE CONTAINER	S, SHIEL	DING, ANE	D LABORATORY FA	CILITIES (Working are	as, fume hoo	ds, etc.)	
(b) SKETCHES OF SU	CH FACILITIES ARE ATTAC	CHED (Circle and	swer)					Yes	No	
19. DESCRIBE BRIEFLY	Y RADIATION SURVEYING	PROCEDURES A	ND METHODS OF DIS	POSING	OF RADIO/	ACTIVE WASTES		•		

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U. S. GOVERNMENT PRINTING OFFICE 10-57264-5

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Forra AEC-313 (9-55)	APPLICATIC	ATOMIC ENERGY CO	MMISSION -	•	Form approved. Budget Bureau N	70. 38-R027.3.
mation previo Tennessee, A application, t	: Complete Items 1 through 11 provided usly submitted. Ma ttention: Isotopes he applicant will rece product Material Li	ail two copies to: U. Extension, Divisio ive an AEC Byprod	S. Atomic Energy (n of Civilian Apput tot Material Licens	Commission; plication. e. General r	P. O. Box E. Upon approv equirements f	Dal Ridge, al of this or issuance
Research Div	t Corporation		(b) ADDRESS(ES) AT WHI (Udifferent from shipp) Bldg59 Wright Areo. D Curtiss-Wrigh	ing address)		
2. DEPARTMENT TO U Che	SE BYPRODUCT MATERIAL	· · ·	•			
3. INDIVIDUAL USER	(Name and title of individual(s) s 1111am Wolkowitz		use of byproduct material)		14 mai	· •
C	ETY OFFICER (Name of person arlyle J. Robert	<u>s</u>				••
radioisotope procurem	OR AUTHORIZATION NUMBE (ent) 38,34811,31590	R (If this is an application for r	enewal of a license for byprodu	ict material obtained	under a prior license o	r authorization for
6. BYPRODUCT MATER	BYPRODU RIAL (Element and mass number)	CT MATERIAL OR 1			O IOUNT OF RADIOAC YOU WILL POSSESS A	TIVITY IN MILLI-
- -		number)	• • •	CURIES THAT 1	YOU WILL POSSESS A	TANY ONE TIME
50 mg. each	ERVICE IS DESIRED, STATE I RADIATION TIME IN DAYS, A BeO, MgO, SiC, Lation is 100 hr	Zr0, Si, Al203.	C (Charcoal);	oo5 mg UO	IN GRAMS OF TAF 2 (natural)	•
	COL COD INVIAL BYRDODIC		INT OF USE	- Marina Tala Guant		
	POSE FOR WHICH BYPRODUC manufactured as a "sealed source ation is request rials.					
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	DURES WHICH WILL BE OBSER		•			••
until the	al irradiated a activity does n of through the R	ot exceed 500 m	c. After study vice Co. of Jam	, the material data is the material of the material data with the material data is the materi	erials will Y.	site be
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is prepared in c	and any official executin onformity with Title 10 herein, including any su	. Code of Federal Regul	lations. Part 30. and d	o solemnly swe	ar (or affirm) the	at all informa-
County of	Jersey ssaic ad sworn to before me t May 1956		Applicant normal of the second	ym 1 Y K Tannie Icial , 1/1 , 1/2	ier, Nachte 1571	- Shite
Notory-Rublic	the -	of the first	Date INING .		- <i>Y</i>	······
18 U.S.C., Sect representation to	ion 1001; Act of June 2 any department or age	25, 1948; 62 Stat. 749; ncy of the United State	makes it a criminal off s as to any matter wit	iense to make : hin its jurisdic	a willfully false a tion.	statement or

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Form AEC-818 of the training the			ATOMIC ENERGY N FOR BYPROD			L LICENSE				Page	- 59 Cwo~
from subsequent is made in Item	Complete Items 12 applications provi 5 to the applicatio	ded t n on	here is no change which this inform	in th natio	ne informat on appears.	ion previou	isly si	ıbmitt -	ed, an	d refer	itted ence
[AND EXPERIENC	E WI	TH RADIOACTIV	<u>ITY</u>	OF INDIVI	DUAL USEF	R NAR			· · · ·	
12. TYPE OF TRAINING	WHERE TRAINED DURATION OF TRAINING							ON THE JOB (Circle answer)			COURSE
	practices of radio- safety.	Univ. Chicago O.R.N.L.		8 months 10 years			(Yes)	No	Yes	No	
2. Radioactivity ardization and niques and ins	measurement stand- l monitoring tech- truments		C K-25 Oak R: .N.L.	idge	l yea 10 year			Yes)	No	Yes	No
3. Mathematic	s and calculations e and measurement		C K-25 Oak R: N.L.	idge	l year 10 year		V	(Yes)	No	Yes	No
4. Biological effe	cts of radiation	Uni	v. of Chicago	0	8 mont	hs		(es)	No	Yes	No
types and qua plication is bei	radioisotopes in the ntities for which ap- ng made, or equiva-	O.R	.N.L.		10 year	°S	·	Yes	No	Yes	No
13. ISOTOPE HANDLING ED								res	110	<u>1es</u>	
ISOTOPE	MAXIMUM AMOUNT	r	WHERE EXPERIEN	CE WAS	S GAINED	DURATION O	F EXPE	RIENCE		TYPE OF	USE
Neptunium 237 Radium Technetuin	10 mg 99	i	0.R.N.L. CCCC 10-25 0.R.N.L.		· l year l year l year l year			Snr		1. Chem	
14. If Radiological Sa provide equivaler mentary sheet is	afety Officer named in it information on "I attached (Circle answ	rainir	4 is different from g and Experience	indiv With	vidual user i Radioactiv	named in Ite ity of Radio	em 3, ologica	use sup d Safet	plemer v Offic Ves	jer." 8	heet to Supple- No
	PHYSICAL FACIL	ITIES	, EQUIPMENT, A	ND	RADIATION	INSTRUM	ENTA	TION			
15. RADIATION DETECTION	INSTRUMENTS (Use sepa	rate shee	l if necessary)								
TYPE OF INSTRU (Include make and model	number of each) AVA	MBER	RADIATION DETECTED	R. (1	nr/hr)	WINDOW THICKNESS (mg/cm ²)	USE	(Monitori	ng, surve	ying, mea	suring)
Tracer-Lab. Me		1 25-2 1 1.02-		- 1 - 1			x	x		x	
11 11 11		•			,000			· x	x		x
16. FILM BADGES, DOSIME 30 Film Badges	TERS, AND OTHER PERSON	NEL MO	NITORING DEVICES INC	LUDING	G BIO-ASSAY PR	Incedures	Doit	<u> </u>	Char	ngon	
11 Dosimeters	•	541	/A '			Victoreen			Und.	- Bor	
l Tracelab Le 25 Victoreen P	b Monitor Su-3 ocket Chambers		-3A	'22 -Y	Vi	ctoreen	Mino	meter	MI	•	
17. METHOD, FREQUENCY	AND STANDARDS USED IN	CALIB	RATING INSTRUMENTS	LISTED	ABOVE (For file	m badges specify :	method a	of calibrati	on and p	rocessing,	or name
aupplier) <u>Calibration S</u> 0.8 millicuri	tandards e CO ^{6U} source) CO ⁶⁰ . source)	 at 2	mo. interva	 ls	Film bad	lges chec	ked	by Tr	acer	Lab.	
• •											
18. (a) DESCRIBE BRIEFLY Radi-arm (ato 2 Pb pigs 6"	mic center) 3 lead 1 fume ho	sect	ions 0- 4 ft.				ILITIES	(Working	areas, Ju	me boods	, etc.)
2 Pb " 2"	lead gloves, mocks shoe co acilities are attached		100 Pb bric		e pit				•	_{čes} (Nb
19. DESCRIBE BRIEFLY RA						VEWASTES					
Lab monitor	on continuous Radiological	ly.	All operatio	ons	under scr		rad	iolog	ical	offi	cer.

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8. S. GOVERNMENT PRINTING OFFICE 16-57264-5