



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

~~CORRECTED COPY~~

MATERIAL LICENSE

MONSANTO INDUSTRIAL CHEMICALS COMPANY

License Number 24-16931-02E
Amendment No. ~~01~~ 02

~~In accordance with application dated March 24, 1981~~ License Number 24-16931-02E
is amended in its entirety to read as follows:

Pursuant to the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended (Public Law 93-438); 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material"; Section ~~32.18, 32.19 and 32.20~~ ^{32.11} 10 CFR Part 32, "Specific Domestic Licenses to Manufacture or Transfer Certain Items Containing Byproduct Material"; application dated March 24, 1981; a license is hereby issued to Monsanto Industrial Chemicals Company, P.O. Box 8, St. Peters, Missouri ^{30.} to distribute licensed material to persons exempt from licensing pursuant to Section ~~30.1~~ 10 CFR Part 30, or equivalent provisions of the regulations of any Agreement State.

This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and other applicable rules, regulations, and orders of the U. S. Nuclear Regulatory Commission now or hereafter in effect.

This license does not authorize possession of licensed material.

This license shall expire on June 30, 1986.

FOR THE U. S. NUCLEAR REGULATORY COMMISSION

Original Signed By

Paul R. Guinn

Material Licensing Branch

Division of Fuel Cycle and Material Safety

Date SEP 01 1981

9702260378 970106
PDR FOIA
NEITZEL96-314 PDR

76 9/1/81

A1123

Note to Glenda:

Re: 24-16931-02E

Based on the way the subject license is worded, i.e., "Section 32.18....", the correct fee category, based on the 6/19/81 renewal, is 3I, for which a renewal fee of \$150 was due. I agree with your note that there doesn't seem to be any real difference between the original application and the renewal application. I suppose the only difference I see is that §32.11 refers to "byproduct material in exempt concentrations" whereas §32.18 refers to "exempt quantities of byproduct material".

I can't clearly define the difference between "exempt concentrations" and "exempt quantities of byproduct material"; but in reading §32.11, it seems to me that a licensee would have to be introducing or incorporating byproduct material into a product in order to qualify for §32.11 licensing. Monsanto doesn't appear to be introducing byproduct material into a product, but rather, they work with a product (the silicon wafers) which have already been made radioactive by an outside source - the University of Missouri reactor (per sections 4 & 5 of Monsanto's application). So I'm inclined to think that, when the original license was issued it was mistakenly issued under §32.11.

All we need to do at this point is to change fee category to 3I and collect an additional \$40 renewal fee. Give me a call if you have any further thoughts or questions on this.

mac
Allen Cabell
10/29/81

11/24

24-16931-02E 1P

NOV 19 1981

Monsanto Industrial Chemicals Company
Electronics Division
ATTN: Mr. Gerald A. Gayer
General Superintendent
Manufacturing
P.O. Box 8
St. Peters, Missouri 63376

DISTRIBUTION:
License File (24-16931-
02E)
Pending Fee File
ASCabell, LFMB
GJackson, LFMB
LFMB R/F (SS)
LFMB R/F (Beth)

Gentlemen:

Amendment No. 1 to License 24-16931-02E was issued June 19, 1981, in response to your March 24, 1981 application for renewal. A renewal fee of \$110 was paid per fee Category 3L of \$170.31 of the enclosed 10 CFR 170.

The subject amendment, however, was issued pursuant to §32.18 of the Commission's regulations. Licenses issued pursuant to §32.18 are subject to fee Category 3I, which covers licenses authorizing the distribution of exempt quantities of byproduct material. Consequently, we should have collected a renewal fee of \$150 as specified in fee Category 3I.

Please remit the additional \$40 fee to the U.S. Nuclear Regulatory Commission and mail it to my attention. When remitting the fee, please refer to CONTROL NUMBER 07425.

We apologize for any inconvenience to your Company. If you have any questions concerning this matter, please let us know.

Sincerely,

Original Signed By
Glenda Jackson

Glenda Jackson
License Fee Management Branch
Silver Spring Office
Office of Administration

Enclosure:
10 CFR 170

A/125

9907110307 12

OFFICE	LFMB:ADM						
SURNAME	ASCabell/GJackson:vm1						
DATE	11/19/81	11/19/81					

Monsanto

ELECTRONIC DIVISION

Monsanto Company
P. O. Box 8
St. Peters, Missouri 63376
Phone: (314) 272-6281
TWX (910) 760-2941

July 7, 1982

Director of Nuclear Material Safety
and Safeguards
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

The attached report is submitted pursuant to paragraph 32.12, 10 CFR 32 entitled "Material Transfer Reports" as applied to specific license 24-16931-01 and 24-16931-02E issued to Monsanto Company for the purposes of possessing, handling and distributing semiconductor grade silicon that has undergone neutron transmutation doping by irradiation with thermal neutrons.

As indicated in the license application, the only nuclide detected in the float zone type silicon handled to date is phosphorus-32 and incoming monitoring procedures insure that the concentration of this nuclide does not exceed the exempt concentration specified in paragraph 30.14, 10 CFR-30, i.e., 2×10^{-4} microcuries per gram. Consequently, this is the maximum level that could be contained in any specimen at the time of transfer to our customers. Since at least one half-life (14.6 days) almost invariably elapses between the receipt of irradiated material and its transfer to others, the level will generally be much lower than this exempt concentration.

We trust that this report will meet the requirements of the regulations.

Sincerely yours,


Horst G. Kramer
Radiation Protection Officer

HGK:lt
Att.

cc: U.S. Nuclear Regulatory Commission
Region III, Material Licensing Section
799 Roosevelt Road
Glen Ellyn, IL 60137

G. E. Kupchinsky - St. Peters

A/126

4402-110304 2PP

Material Transfer Report

Submitted to

Nuclear Regulatory Commission

Pursuant to

Paragraph 32.12, 10 CFR 32

to period

June 30, 1981 to June 30, 1982

Type and quantity of product into which by-product has been introduced:

7,244.019 kilograms of semiconductor grade elemental silicon
transferred during period.

Owner of material at time of by-product introduction:

Monsanto Electronics Division, an operating unit of Monsanto Co.,
800 N. Lindbergh Blvd., St. Louis, MO. 63166

Type and Quantity of radionuclide introduced into each such product:

Phosphorus-32 at a maximum concentration of 2×10^{-4} microcuries/
gram at time of receipt from irradiating facility.

Initial concentration of radionuclide in product at time of transfer:

2×10^{-4} microcuries/gram maximum



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MONSANTO INDUSTRIAL CHEMICALS COMPANY

License Number 24-16931-02E
Amendment No. 02

License Number 24-16931-02E is amended in its entirety to read as follows:

Pursuant to the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended (Public Law 93-438); 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material"; Section 32.11, 10 CFR Part 32, "Specific Domestic Licenses to Manufacture or Transfer Certain Items Containing Byproduct Material"; application dated March 24, 1981; a license is hereby issued to Monsanto Industrial Chemicals Company, P.O. Box 8, St. Peters, Missouri to distribute licensed material to persons exempt from licensing pursuant to Section 30.14, 10 CFR Part 30, or equivalent provisions of the regulations of any Agreement State.

This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and other applicable rules, regulations, and orders of the U. S. Nuclear Regulatory Commission now or hereafter in effect.

This license does not authorize possession of licensed material.

This license shall expire on June 30, 1986.

FOR THE U. S. NUCLEAR REGULATORY COMMISSION
Original Signed By
Paul R. Quinn
Material Licensing Branch
Division of Fuel Cycle and Material Safety

Date SEP 07 1982

Section 902 error
4th day

4402-110310 380

PG
9/4/82

A/128

MATERIALS DATA INPUT - INDUSTRIAL, MEDICAL, SPECIAL NUCLEAR

A. TYPE OF ACTION AND IDENTIFICATION CODES

NEW LICENSE	AMENDMENT TO RENEW LICENSE	AMENDMENT TO TERMINATE	BOOK NUMBER	MA CONTROL NUMBER	DATE NAME
NEW LICENSE AND NEW LICENSEE	OTHER AMENDMENT	CLERICAL CHANGE NO AMENDMENT	4	030-14013	12200

B. INDICATIVE INFORMATION

INDIVIDUAL LICENSEES	NAME (Last, first, middle)	NAME (Last, first, middle)
	NAME (Last, first, middle)	NAME (Last, first, middle)
	NAME (Last, first, middle)	NAME (Last, first, middle)

ORGANI- ZATION LICENSEES	ORGANIZATION NAME (Alphabetic Sequence)	ORGANIZATION NAME (Alphabetic Sequence)
	DEPARTMENT OR BUREAU	DEPARTMENT OR BUREAU

ADDRESS	BUILDING, STREET	CITY	STATE	ZIP CODE
	501 Old Highway 79, P.O. Box 3	St. Petersburg	FL	33706

TYPE OF APPLICANT	U.S. GOVERNMENT AGENCY	DATE REQUEST RECEIVED	INSTITUTION CODE	PENDING PROG. CODE	ACTUAL PROG. CODE
	INDIVIDUAL LICENSEE	08/13/82	16931		

SECONDARY PROGRAM CODES (As required)				
#1	#2	#3	#4	#5

LICENSE NUMBER	DATE LICENSE ISSUED OR ACTION COMPLETED	EXPIRATION DATE
24-16931-02E		

BYPRODUCT	CHEMICAL OR PHYSICAL FORM	POSSESSION LIMIT
See attached - (no incoming)		

A/127

MAIL TO:	DATE MAILED	REVIEWER	DATE COMP
Alvin G. Gayer		TG	8/2

MATERIALS DATA INPUT - INDUSTRIAL, MEDICAL, SOURCE SPECIAL NUCLEAR

A. TYPE OF ACTION AND IDENTIFICATION CODES

NEW LICENSE	AMENDMENT RELEASED	AMENDMENT NO TERMINATE	LICENSE NUMBER	MAIL CONTROL NUMBER	CHARGE NAME ADDRESS X 001
NEW LICENSE AND NEW LICENSEE	XX OTHER AMENDMENT	CLERICAL CHANGE NO AMENDMENT	4	030-12015	12268

B. INDICATIVE INFORMATION

INDIVIDUAL LICENSEES	NAME (Last, First, Middle)	NAME (Last, First, Middle)
	NAME (Last, First, Middle)	NAME (Last, First, Middle)
	NAME (Last, First, Middle)	NAME (Last, First, Middle)

ORGANIZATION	ORGANIZATION NAME (Alphabetic Sequence) Monsanto Industrial Chemicals Company
LICENSEES	DEPARTMENT OR BUREAU Electronics Division

ADDRESS	BUILDING, STREET 501 Old Highway 79, P.O. Box 8	CITY St. Peters	STATE MO	ZIP CODE 63376
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6	TYPE OF APPL	U.S. GOVERNMENT AGENCY INDIVIDUAL LICENSEE ORGANIZATIONAL LICENSEE	DATE REQUEST RECEIVED 08/13/82	INSTITUTION CODE 16931	PENDING PROG. CODE	ACTUAL PROG. CODE
	B3B					
SECONDARY PROGRAM CODES (As required)						
#1		#2		#3		#5
7		LICENSE NUMBER 24-16931-02E		DATE LICENSE ISSUED OR ACTION COMPLETED SEP 17 1982		EXPIRATION DATE

C. STATISTICAL INFORMATION

MEDICAL CATEGORY:	FOR HUMAN USE ONLY	FOR HUMAN AND NONHUMAN USE	FOR NONHUMAN USE ONLY
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D. POSSESSION OF THE MATERIAL IS AUTHORIZED IN ONE OF THE FOLLOWING AREAS

AND/OR IN THE STATE(S), TERRITORY(IES), COUNTRY CHECKED (At right)	SAME AS "STATE" IN ADDRESS		ALL STATES		ALL NON-AGREEMENT STATES	
	AL - ALABAMA	GA - GEORGIA	MD - MARYLAND	NJ - NEW JERSEY	SC - SOUTH CAROLINA	WY - WYOMING
	AK - ALASKA	HI - HAWAII	MA - MASSACHUSETTS	NM - NEW MEXICO	SD - SOUTH DAKOTA	
	AZ - ARIZONA	ID - IDAHO	MI - MICHIGAN	NY - NEW YORK	TN - TENNESSEE	AS - AMERICAN SOMOA
	AR - ARKANSAS	IL - ILLINOIS	MN - MINNESOTA	NC - NORTH CAROLINA	TX - TEXAS	CZ - CANAL ZONE
	CA - CALIFORNIA	IN - INDIANA	MS - MISSISSIPPI	ND - NORTH DAKOTA	UT - UTAH	GU - GUAM
	CO - COLORADO	IA - IOWA	MO - MISSOURI	OH - OHIO	VT - VERMONT	PR - PUERTO RICO
	CT - CONNECTICUT	KS - KANSAS	MT - MONTANA	OK - OKLAHOMA	VA - VIRGINIA	VI - VIRGIN ISLANDS
	DE - DELAWARE	KY - KENTUCKY	NE - NEBRASKA	OR - OREGON	WA - WASHINGTON	
	DC - WASHINGTON, DC	LA - LOUISIANA	NV - NEVADA	PA - PENNSYLVANIA	WV - WEST VIRGINIA	CN - CANADA
	FL - FLORIDA	ME - MAINE	NH - NEW HAMPSHIRE	RI - RHODE ISLAND	WI - WISCONSIN	

D. POSSESSION LIMITS OF SOURCE AND SPECIAL NUCLEAR MATERIALS AND TRITIUM

SOURCE MATERIAL CEILING		G - GRAMS		SNM CEILING		G - GRAMS		IF FOR POWER REACTOR	
		Kg - KILOGRAMS				Kg - KILOGRAMS		("X" here)	

*MATERIAL	AMOUNT	UNIT	CONFIG	ENRICH	*MATERIAL	AMOUNT	UNIT	CONFIG	ENRICH
U5 - U235		G	S				G	S	
		Kg	UNS				Kg	UNS	
U3 - U233		G	S				G	S	
		Kg	UNS				Kg	UNS	
PU=Plutonium		G	S				G	S	
		Kg	UNS				Kg	UNS	
UR=Uranium		G	S				G	S	
		Kg	UNS				Kg	UNS	
TH=Thorium		G	S				G	S	
		Kg	UNS				Kg	UNS	
		G	S				G	S	
		Kg	UNS				Kg	UNS	
		G	S				G	S	
		Kg	UNS				Kg	UNS	
H3-Tritium		CURIES							
		MILLCURIES							
		MICROCURIRES							

*Use two-digit codes.

S-SEALED.

UNS-UNSEALED

Monsanto

ELECTRONIC DIVISION

Monsanto Company
P. O. Box 8
St. Peters, Missouri 63376
Phone: (314) 272-6281
TWX (910) 760-2941

September 23, 1982

United States Nuclear Regulatory Commission
Material Licensing Branch
Division of Fuel Cycle and Material Safety
Washington, D.C. 20555

Gentlemen:

On July 27, 1982, Mr. W. P. Reichhold of your Region III Office conducted a routine safety inspection of our plant. Based on discussions with Mr. Reichhold during his inspection, we request that the following amendments be made to our Byproduct Materials Licenses 24-16931-01 and 24-16931-02E:

1. On License 24-16931-01, amend line 12 to read:

"12. Licensed material shall be used by, or under the supervision of, William E. Groce, Eugene R. Skillington, or Lloyd B. Andrew.
2. The new Radiation Protection Officer is Mr. Lloyd B. Andrew, Industrial Hygienist.
3. In the Supporting Data for a Specific License, Section 9 (Radiation Protection Program, Paragraph 1), delete the words "and outgoing".
4. In the same Supporting Data, replace Section 8 (Personnel and Training) with the attached, new Section 8.

A check for \$80 is attached to this letter.

14207	3A-1430
Amount \$80	
Category	
Date Check Rec'd 10/15/82	
By Brown	
C.N. 12689-01 3A	

Sincerely,

Ralph D. Hartung
Ralph D. Hartung
General Superintendent
Manufacturing

Amendment	
RECEIVED BY IFMD	
Date	10/15/82
Log	Oct 16 3
By	Brown
Orig. To	
Action Compl.	11/17/82

cc: Mr. W. P. Reichhold
US Nuclear Regulatory Commission
Region III
Materials Radiation Protection Section 1
799 Roosevelt Road
Glen Ellyn, IL 60137

COPIES SENT TO OFF. OF
INSPECTION AND ENFORCEMENT

a unit of Monsanto Company

8. PERSONNEL AND TRAINING

Individuals involved in manufacturing processes involving irradiated silicon and/or the radiation protection program are listed along with their educational background and pertinent experience.

William E. Groce, Superintendent of Float Zone Manufacturing, has a B. Sc. in Chemical Engineering from Texas A&M, and a M. Chem. Eng. from the University of Texas, Austin. He did graduate work in X-ray diffraction.

Eugene R. Skillington, NTD Laboratory Supervisor, a high-school graduate, has approximately three years of experience measuring radioactivity while working under the direction of two former Radiation Protection Officers (B. D. Stone and K. E. Storms). Mr. Skillington also attended a one-day radiation safety training course conducted at the University of Missouri Reactor Facility in Columbia, Mo., given by Mr. Steve Gunn, Reactor Service Engineer, and Mr. Orval Olsen, Manager of Reactor Health Physics, in February 1981.

Lloyd B. Andrew, Industrial Hygienist and Radiation Protection Officer, has a B.S. degree in Biology (with a minor in Health Physics) from the Virginia Polytechnical Institute, and an M.S. degree in Industrial Hygiene from Texas A&M. He has done some undergraduate work at the nuclear power plant at Calvert Cliffs, MD.

Randall G. Arnott, Safety and Property Protection Supervisor, has a B.A. in Political Science from Fairmont State College, West Virginia, and an M.S. in Safety Management from West Virginia University. He has also been certified as a Hazard Control Manager by the International Hazards Control Board, Bethesda, Maryland.

OCT 2 1982

Monsanto Company
ATTN: Mr. Ralph D. Hartung
General Superintendent Manufacturing
P.O. Box 8
St. Peters, Missouri 63376

Gentlemen:

This refers to your letter dated September 23, 1982, for an amendment to Materials Licenses 24-16931-01 and 24-16931-02E.

We received your check for \$80. Your application, however, is subject to amendment fees totalling \$150 as specified in Section 170.31 (3A & 3I) of 10 CFR 170, copy enclosed. Payment of the additional \$70 should be made to the U.S. Nuclear Regulatory Commission and mailed to my attention.

Your application will be sent to the Licensing staff for processing upon receipt of the additional fee. When submitting the fee, please refer to CONTROL NUMBER 12688.

Sincerely,

Original Signed by

for A. S. Cabell

Glenda Jackson
License Fee Management branch
Office of Administration

Enclosure:
10 CFR 170

DISTRIBUTION:
Pending Fee File
Mtls. Reading File
Weekly Reading File

A/131

9702110316 1P

OFFICE	LFMB:ADM	LFMBADM					
SURNAME	EBrown:rej	GJackson					
DATE	10/20/82	10/20/82					

FCML:FCD
(12688, 12689)
030-11884, 030-12015

Monsanto Company
Electronics Division
ATTN: Ralph D. Hartung
General Superintendent, Manufacturing
501 Old Highway
P.O. Box 8
St. Peters, MO 63376

Gentlemen:

This refers to your letter dated September 23, 1982, requesting amendments of your Material License Nos. 24-16931-01 and 24-16931-02E.

In order to complete our review of your request, please provide the following information:

1. Clarification of the correct name of your company to be used with your licenses. We are not sure whether it should be Monsanto Company or Monsanto Industrial Chemicals Company.
2. Please confirm that Messrs. William E. Groce, and Lloyd B. Andrew have received the radiation safety training course conducted at the University of Missouri in accordance with the statement made in the first paragraph of Section 8.A of your supporting data for a license or give their specific training and experience with radioactive materials as required by Items 16 and 17 of enclosed Regulatory Guide 10.7.

A/132

970211035 ZPP

Monsanto Company

2

We will continue our review of your application upon receipt of this information.
Please reply in duplicate and refer to Control Nos. 12689 and 12688.

Sincerely,

Frank C. Davis
Material Licensing Branch
Division of Fuel Cycle
Material Safety

Enclosure: Regulatory Guide 10.7

St. Br. Dist.

CRESS:SS
5520
12/7/82

FCML
FCDavis:mw
12/ /82

FCML
JWNHickey
12/ /82

Handwritten: I4
Handwritten: CC36
Monsanto

ELECTRONICS DIVISION

Monsanto Company
P. O. Box 8
St. Peters, Missouri 63376
Phone: (314) 272-6281
TWX (910) 763 0776

January 10, 1983

Frank C. Davis
Material Licensing Branch
Division of Fuel Cycle
Material Safety
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555



Mr. Frank Davis:

To help you in reviewing our license amendments (Control Nos. 12689 and 12688) I am providing the following information which you requested.

1. Our name has changed and it is now Monsanto Company, Electronics Division.
2. William E. Groce and myself have not received the radiation safety training course conducted at the University of Missouri. We are presently scheduled to attend the course February 16, 1983.

Attached is supporting data, training and experience with radioactive materials.

Please send any further correspondence to my attention.

Handwritten: Lloyd Andrew

Lloyd B. Andrew, III
Radiation Protection Officer

/sec

Individuals involved in manufacturing processes involving irradiated silicon and/or the radiation protection program are listed along with their educational background and pertinent experience.

William E. Groce, Superintendent of Float Zone Manufacturing, has a B. Sc. in Chemical Engineering from Texas A&M, and a M. Chem. Eng. from the University of Texas, Austin. He did graduate work in X-ray diffraction.

Eugene R. Skillington, NTD Laboratory Supervisor, a high-school graduate, has approximately three years of experience measuring radioactivity while working under the direction of two former Radiation Protection Officers (B. D. Stone and K. E. Storms). Mr. Skillington also attended a one-day radiation safety training course conducted at the University of Missouri Reactor Facility in Columbia, Mo., given by Mr. Steve Gunn, Reactor Service Engineer, and Mr. Orval Olsen, Manager of Reactor Health Physics, in February 1981.

Lloyd B. Andrew, Industrial Hygienist and Radiation Protection Officer, has a B.S. degree in Biology (with a minor in Health Physics) from the Virginia Polytechnical Institute, and an M.S. degree in Industrial Hygiene from Texas A&M. He has done some undergraduate work at the nuclear power plant at Calvert Cliffs, MD.

Randall G. Arnott, Safety and Property Protection Supervisor, has a B.A. in Political Science from Fairmont State College, West Virginia, and an M.S. in Safety Management from West Virginia University. He has also been certified as a Hazard Control Manager by the International Hazards Control Board, Bethesda, Maryland.

FEB 8 1983

FCML:FCD
(12688, 12689)
030-11884, 030-12015

Monsanto Company
Electronics Division
ATTN: Lloyd B. Andrew, III
Radiation Protection Officer
501 Old Highway
P.O. Box 8
St. Peters, MO 63376

Gentlemen:

This refers to your letter dated January 10, 1983, providing information in support of your request for amendment to Materials License Nos. 24-16931-01 and 24-16931-02E. We plan to continue review of your request upon receipt of information confirming that Messrs. William E. Groce and yourself have attended and successfully completed the radiation safety training course to be conducted by the University of Missouri on February 16, 1983, in accordance with the license requirements.

We will continue our review of your application upon receipt of this information. Please reply in duplicate and refer to Control Nos. 12688 and 12689.

Sincerely,

Frank C. Davis
Material Licensing Branch
Division of Fuel Cycle and
Material Safety

St. Br. Dist.

CRESS:SS
5520
2/1/83

FCML ^{P(1)}
FCDavis:mmw
2/4/83

FCML ^{9.0}
JWNHickey
2/1/83

A/134

970244353 IP

0453

Monsanto

ELECTRONICS DIVISION

'83 MAR 25 AIO:39

Monsanto Company
P. O. Box 8
St. Peters, Missouri 63376
Phone: (314) 272-6281
TWX (910) 763-0776

March 21, 1983

Frank C. Davis
Material Licensing Branch
Division of Fuel Cycle
Material Safety
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. Frank Davis,

This letter is in response to our application for license ammendments, control numbers 12689 and 12688. As you requested I am confirming that Bill R. Grooms, Randall G. Arnott, and Lloyd B. Andrew have received the radiation safety training course. In accordance with our supporting data on February 16, 1983 we attended the course taught by Mr. Orval Olsen at the University of Missouri's Reactor Facility in Columbia, MO.

Please note that the Superintendent of Float Zone Manufacutring has changed to Bill Grooms. I have attached (in duplicate) the supporting data of personnel training and experience with radioactive materials.

If I can be of further assistance please feel free to contact me.

Lloyd B. Andrew

Lloyd B. Andrew, III
Radiation Protection Officer

LBA/sc

COPIES SENT TO CFF. OF
INSPECTION AND ENFORCEMENT

Personnel and Training:

Individuals involved in manufacturing processes involving irradiated silicon and/or the radiation protection program are listed along with their educational background and pertinent experience.

Billie R. Grooms, Superintendent of Float Zone Manufacturing, a high-school graduate, Trade School graduate - Electronics, attended 1-day Radiation Safety Training course conducted at the University of Missouri's Reactor Facility in Columbia, MO, given by Mr. Orval Olsen, Manager of Reactor Health Physics, in February 1983.

Eugene R. Skillington, NTD Laboratory Supervisor, a high-school graduate, has approximately three years of experience measuring radioactivity while working under the direction of two former Radiation Protection Officers (B.D. Stone and K. E. Storms). Mr. Skillington also attended a one-day radiation safety training course conducted at the University of Missouri Reactor Facility in Columbia, MO., given by Mr. Steve Gunn, Reactor Service Engineer, and Mr. Orval Olsen, Manager of Reactor Health Physics, in February 1981.

Lloyd B. Andrew, Industrial Hygienist and Radiation Protection Officer, has a B.S. degree in Biology (with a minor in Health Physics) from the Virginia Polytechnical Institute, and an M.S. degree in Industrial Hygiene from Texas A&M. He has done some undergraduate work at the nuclear power plant at Calvert Cliffs, MD. Attended a 1-day radiation safety training course conducted at the University of Missouri Reactor Facility in Columbia, MO. given by Mr. Orval Olsen.

Randall G. Arnott, Safety and Property Protection Supervisor, has a B.A. in Political Science from Fairmont State College, West Virginia, and an M.S. in Safety Management from West Virginia University. He has also been certified as a Hazard Control Manager by the International Hazards Control Board, Bethesda, Maryland. Attended a 1-day radiation safety training course conducted at the University of Missouri Reactor Facility in Columbia, MO. given by Mr. Orval Olsen.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
MONSANTO COMPANY
501 HIGHWAY 79
P. O. BOX 8
ST. PETERS, MISSOURI 63376

License Number 24-16931-02E
Amendment No. 03

In accordance with letters dated September 23, 1982, January 10, 1983, and March 21, 1983, License Number 24-16931-02E is amended in its entirety to read as follows:

Pursuant to the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended (Public Law 93-438); 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material"; Section 32.11, 10 CFR Part 32, "Specific Domestic Licenses to Manufacture or Transfer Certain Items Containing Byproduct Material"; application dated March 24, 1981; and letters dated January 10, 1983, March 21, 1983; a license is hereby issued to Monsanto Company, 501 Highway 79, P.O. Box 8, St. Peters, Missouri to distribute licensed material to persons exempt from licensing pursuant to Section 30.14, 10 CFR Part 30, or equivalent provisions of the regulations of any Agreement State.

This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and other applicable rules, regulations, and orders of the U. S. Nuclear Regulatory Commission now or hereafter in effect.

This license does not authorize possession of licensed material.

This license shall expire on June 30, 1986.

APR 18 1983

DATE _____

FOR THE U.S. NUCLEAR REGULATION COMMISSION

Original Signed By
John W. N. Hickey

By _____
Material Licensing Branch
Division of Fuel Cycle and
Material Safety
Washington, D. C. 20555

AK 4/14/83
FED

9702110413 27P

MATERIALS DATA INP - INDUST AL MEDICAL SOURCE AL NUCLEAR

A. TYPE OF ACTION AND IDENTIFICATION CODES

NEW LICENSE	RENEWAL PERMIT	RENEWAL PERMIT	RENEWAL PERMIT	RENEWAL PERMIT	RENEWAL PERMIT	RENEWAL PERMIT
NEW LICENSE	OTHER AMENDMENT	OTHER AMENDMENT	OTHER AMENDMENT	OTHER AMENDMENT	OTHER AMENDMENT	OTHER AMENDMENT

B. INDICATIVE INFORMATION

INDIVIDUAL LICENSEES	NAME (Last, First, Middle)	NAME (Last, First, Middle)
	NAME (Last, First, Middle)	NAME (Last, First, Middle)
	NAME (Last, First, Middle)	NAME (Last, First, Middle)

ORGANIZATION	ORGANIZATION NAME (Alphabetic Sequence)
LICENSEES	DEPARTMENT OR BUREAU

34-16931-02E *10/4/82 St. Peter's MO 63376*

	RADIOACTIVE MATERIAL LISTED IN	INDICATE DESIRED ITEMS	MAXIMUM POSSESSION LIMITS (in millicuries)
1	10 CFR 35.100, SCHEDULE A, GROUP I		As needed
2	10 CFR 35.100, SCHEDULE A, GROUP II		As needed
3	10 CFR 35.100, SCHEDULE A, GROUP III		
4	10 CFR 35.100, SCHEDULE A, GROUP IV		As needed
5	10 CFR 35.100, SCHEDULE A, GROUP V		As needed
6	10 CFR 35.100, SCHEDULE A, GROUP VI		
7	10 CFR 31.11, FOR IN VITRO STUDIES		
8	AMERICIUM 241 ANATOMICAL MARKER		14 mCi
9	XENON 133 As gas or gas in saline for blood flow and pulmonary function studies		
10	IODINE 131 As iodide for treatment of hyperthyroidism and cardiac dysfunction		
11	IODINE 131 As iodide for treatment of thyroid carcinoma		
12	PHOSPHORUS 32 As soluble phosphate for treatment of polycythemia vera, leukemia and bone metastases		
13	PHOSPHORUS 32 As colloidal chromic phosphate for intracavitary treatment of malignant effusions		
14	DEPLETED URANIUM FOR SHIELDING		Kg

BYPRODUCT	FORM	POSSESSION LIMITS	USE
16 C-14	Any		In Vitro Studies
17 H-3			Animal Studies
18 I-125	Prepackaged Units		Standard for Instrument Calibration
19 I-131			
20 P-32			
21 Sr-90	Sealed Source		Treatment of Superficial Eye Disease
22 Cs-137			
23	CONTINUED ON THE REVERSE OF THIS PAGE		

CONDITIONS				USERS	
				NAME	AUTHORIZATIONS
1B	9A	52			
5	9B	53			
6A	9C				
6B	1B	62			
7A	50A				
7B	50B	95			

10A(1)(2)(3)BCD	OTHER CONDITIONS (Specify)
11A(1)(2)(3)BCD	
1B APPL DATED	
LETTERS DATED	
MODEL ALARA PROGRAM	

MAIL TO	REVIEWER	DATE COMPLETED
<i>Allen Lloyd B. Andrew</i>	<i>4/14/83</i>	<i>4/18/83</i>

Monsanto

ELECTRONICS DIVISION

Monsanto Company
P. O. Box 8
St. Peters, Missouri 63376
Phone: (314) 272-6281
TWX (910) 763-0776

*83 JUL 29 P2:25

July 22, 1983

Director of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

The attached report is submitted pursuant to paragraph 32.12, 10 CFR 32 entitled, "~~Material Transfer Reports~~" as applied to specific license 24-16931-01 and 24-16931-02E issued to Monsanto Company for the purposes of possessing, handling, and distributing semiconductor grade silicon that has undergone neutron transmutation doping by irradiation with thermal neutrons.

As indicated in the license application, the only nuclide detected in the float zone type silicon handled to date is phosphorus-32 and incoming monitoring procedures insure that the concentration of this nuclide does not exceed the exempt concentration specified in paragraph 30.14, 10 CFR-30, i.e., 2×10^{-4} microcuries per gram. Consequently, this is the maximum level that could be contained in any specimen at the time of transfer to our customers. Since at least one half-life (14.6 days) almost invariably elapses between the receipt of irradiated material and its transfer to others, the level will generally be much lower than this exempt concentration.

We trust that this report will meet the requirements of the regulations.

Sincerely yours,

Lloyd Andrew

Lloyd B. Andrew III
Radiation Protection Officer

LEA:kj

Att.

cc: U.S. Nuclear Regulatory Commission
Region III, Material Licensing Section
799 Roosevelt Road
Glen Ellyn, IL 60137

A/137

9702120042 ZPP

Material Transfer Report

Submitted to

Nuclear Regulatory Commission

Pursuant to

Paragraph 32.12, 10 CFR 32

to period

June 30, 1982 to June 30, 1983

Type and Quantity of product into which by-product has been introduced:

6,463.451 kilograms of semiconductor grade elemental silicon transferred during period.

Owner of material at time of by-product introduction:

Monsanto Electronic Materials Company, an operating unit of Monsanto Co.,
800 N. Lindbergh Blvd., St. Louis, MO 63166

Type and Quantity of radionuclide introduced into each such product:

Phosphorus-32 at a maximum concentration of 2×10^{-4} microcuries/gram at time of receipt from irradiating facility.

Initial concentration of radionuclide in product at time of transfer:

2×10^{-4} microcuries/gram maximum



C666

Monsanto
The Silicon
Technology
People

Monsanto Electronic Materials Company
P.O. Box 8
St. Peters, Missouri 63376
Phone (314) 272-6281

August 28, 1984

Director of Nuclear Material
Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

The attached report is submitted pursuant to paragraph 32.12, 10 CFR 32 entitled, "Material Transfer Reports" as applied to specific license 24-16931-01 and 24-16931-02E issued to Monsanto Company for the purposes of possessing, handling, and distributing semiconductor grade silicon that has undergone neutron transmutation doping by irradiation with thermal neutrons.

As indicated in the license application, the only nuclide detected in the float zone type silicon handled to date is phosphorus-32 and incoming monitoring procedures ensure that the concentration of this nuclide does not exceed the exempt concentration specified in paragraph 30.14, 10 CFR-30, i.e., 2×10^{-4} microcuries per gram. Consequently, this is the maximum level that could be contained in any specimen at the time of transfer to our customers. Since at least one half-life (14.6 days) almost invariably elapses between the receipt of irradiated material and its transfer to others, the level will generally be much lower than this exempt concentration.

We trust that this report will meet the requirements of the regulations.

Sincerely yours,

Lloyd Andrew

Lloyd B. Andrew, III
Radiation Protection Officer

LBA/kj
Att.

cc: U.S. Nuclear Regulatory Commission
Region III, Material Licensing Section
799 Roosevelt Road
Glen Ellyn, IL 60137

COPY SENT REGION III

Material Transfer Report

Submitted to

Nuclear Regulatory Commission

Pursuant to

Paragraph 32.12, 10 CFR 32

to period

June 30, 1983 to June 30, 1984

Type and Quantity of product into which by-product has been introduced:

3,628.8 kilograms of semiconductor grade elemental silicon
transferred during period.

Owner of material at time of by-product introduction:

Monsanto Electronic Materials Company, an operating unit of
Monsanto Company, 800 N. Lindbergh Blvd., St. Louis, MO 63166

Type and Quantity of radionuclide introduced into each such product:

Phosphorus-32 at a maximum concentration of 2×10^{-4} microcuries/
gram at time of receipt from irradiating facility.

Initial concentration of radionuclide in product at time of transfer:

2×10^{-4} microcuries/gram maximum