NRC FORM 464 Part I (6-1998)

U.S. NUCLEAR REGULATORY COMMISSION

# RESPONSE TO FREEDOM OF INFORMATION ACT (FOIA) / PRIVACY ACT (PA) REQUEST

| FOIA/PA | RESPONSE NUMBER |
|---|---|
| 2000-0101 | 4 |

RESPONSE TYPE — FINAL — √ PARTIAL

REQUESTER: Denise Wilt

DATE: SEP 29 2000

## PART I. -- INFORMATION RELEASED

- No additional agency records subject to the request have been located.
- Requested records are available through another public distribution program. See Comments section.
- APPENDICES — Agency records subject to the request that are identified in the listed appendices are already available for public inspection and copying at the NRC Public Document Room.
- √ APPENDICES F — Agency records subject to the request that are identified in the listed appendices are being made available for public inspection and copying at the NRC Public Document Room.
- √ Enclosed is information on how you may obtain access to and the charges for copying records located at the NRC Public Document Room, ~~2120 L Street, NW, Washington, DC~~. 11555 Rockville Pike, Rockville, MD
- APPENDICES — Agency records subject to the request are enclosed.
- Records subject to the request that contain information originated by or of interest to another Federal agency have been referred to that agency (see comments section) for a disclosure determination and direct response to you.
- √ We are continuing to process your request.
- See Comments.

## PART I.A -- FEES

AMOUNT *

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* See comments for details

- You will be billed by NRC for the amount listed.
- You will receive a refund for the amount listed.
- None. Minimum fee threshold not met.
- Fees waived.

## PART I.B -- INFORMATION NOT LOCATED OR WITHHELD FROM DISCLOSURE

- No agency records subject to the request have been located.
- Certain information in the requested records is being withheld from disclosure pursuant to the exemptions described in and for the reasons stated in Part II.
- This determination may be appealed within 30 days by writing to the FOIA/PA Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Clearly state on the envelope and in the letter that it is a "FOIA/PA Appeal."

## PART I.C COMMENTS (Use attached Comments continuation page if required)

SIGNATURE - FREEDOM OF INFORMATION ACT AND PRIVACY ACT OFFICER

Carol Ann Reed Carol Ann Reed

APPENDIX F
RECORDS BEING RELEASED IN THEIR ENTIRETY

| NO. | DATE | DESCRIPTION/(PAGE COUNT) |
|---|---|---|
| 1. | 05/01/57 | Ltr to DBarrett fm LJohnson re: requesting license to permit handling of thorium and natural uranium (2 pages) |
| 2. | 05/24/57 | Ltr to LJohnson fm TRunion re: request for source material license to review 2 lb sample of uranium dioxide at Curtis Bay lab in development studies (1 page) |
| 3. | 05/22/58 | Ltr to JDelaney fm FHurley re: request a license to receive refined source material for research and bench-scale development (1 page) |
| 4. | 06/03/58 | Ltr to FHurley fm JDelaney re: license to receive possession of 1,200 lbs of source material for research (2 pages) |
| 5. | 01/21/59 | Ltr to JDelaney fm PMessina re: license request to receive refined source material for bench scale and pilot plant development studies at Curtis Bay (1 page) |
| 6. | 01/23/59 | Ltr to FHurley fm JDelaney re: license C-4132 to receive 3200 lbs of source material for research at Clarksville, MD and Curtis Bay, MD (2 pages) |
| 7. | 10/17/60 | Radiation Safety Check (1 page) |
| 8. | 06/26/61 | Ltr to DNussbaumer fm FFitch re: renewal of source materials license C-4132 (4 pages) |
| 9. | 07/03/61 | Source material license SMB-334 (2 pages) |
| 10. | 08/28/62 | Ltr to WGage fm DNussbaumer re: notice of license expiration (2 pages) |
| 11. | 08/23/63 | Ltr to WGage fm DNussbaumer re: notice of license expiration (1 page) |
| 12. | 04/29/64 | Ltr to FFitch fm DNussbaumer re: notice of license expiration (1 page) |
| 13. | 05/21/64 | Ltr to DNussbaumer fm FFitch re: renewal of SMB-334 (8 pages) |
| 14. | 06/15/64 | Ltr to FFitch fm RLayfield re: amended SMB-334 (2 pages) |
| 15. | 10/08/64 | Ltr to WGrace & Co. fm DNussbaumer re: notice of license expiration (1 page) |

| NO. | DATE | DESCRIPTION/(PAGE COUNT) |
|---|---|---|
| 16. | 04/26/67 | Ltr to WGrace & Co. fm DNussbaumer re: notice of license expiration for SMB-334 (1 page) |
| 17. | 05/26/67 | Ltr to DNussbaumer fm AGammill re: renewal of SMB-334 (8 pages) |
| 18. | 09/29/67 | Ltr to WGrace & Co. fm DNussbaumer re: notice of license expiration for SNM-840 (1 page) |
| 19. | 10/02/70 | Ltr to RPage fm DTelesca re: mailing address correction (1 page) |
| 20. | 03/24/72 | Ltr to DTelesca fm SSmiley re: uniform methods for monitoring effluents (1 page) |
| 21. | 04/01/72 | Ltr to addressees fm SSmiley re: waste mgmt program and certain effluent data (2 pages) |
| 22. | 04/10/72 | Ltr to addressees fm SSmiley re: dose determination following a nuclear accident (2 pages) |
| 23. | 11/29/72 | Memo to Files fm SSmiley re: withholding of proprietary information of WGrace & Co. (2 pages) |
| 24. | 12/11/72 | Ltr to AEC fm RHerbst re: allowance for particle size distribution in determining personnel exposure to airborne contamination (2 pages) |
| 25. | 12/27/72 | Ltr to GAshby fm FKruesi re: exposure of some employees (1 page) |
| 26. | 01/31/73 | Ltr to RHerbst fm RChitwood re: authorization to determine and limit personnel exposure to airborne radioactive (2 pages) |
| 27. | 02/01/73 | Ltr to CMcDonald fm GAshby re: permission to use the SP-5061 packaging for solutions containing chloride (1 page) |
| 28. | 02/05/73 | Ltr to RChitwood fm RHerbst re: withdrawing request for authorization to determine and limit personnel exposure to airborne radioactivity (1 page) |
| 29. | 02/12/73 | Ltr to GAshby fm SSmiley re: withholding proprietary information (1 page) |
| 30. | 02/12/73 | Memo to files fm SSmiley re: withholding of proprietary information (1 page) |
| 31. | 03/07/73 | Ltr to GAshby fm FKruesi re: final report on employee exposures (1 page) |
| 32. | 05/30/73 | Ltr to AEC fm RHerbst re: registering WGrace & Co. as a user of shipping containing, Model No. UNC 1484 (1 page) |

| NO. | DATE | DESCRIPTION/(PAGE COUNT) |
|---|---|---|
| 33. | 06/29/73 | Ltr to AEC fm RHerbst re: registering WGrace as a user of shipping container, Model No. RMG-181-I (1 page) |
| 34. | 09/27/73 | Ltr to RHerbst fm RPage re: SNM-840 amendment to reflect organizational changes (7 pages) |
| 35. | 10/30/73 | Ltr to AEC fm RHerbst re: data sheets summarizing fixed and removable contamination estimates (8 pages) |
| 36. | 12/03/73 | Ltr to AEC fm RHerbst re: SNM-840 termination request and additional radiological survey (2 pages) |
| 37. | 12/17/73 | Ltr to GAshby fm LRouse re: SNM-840 termination granted (1 page) |
| 38. | 12/17/73 | Materials Data Input S/SNM AEC Form-783 to terminate SNM-840 (1 page) |
| 39. | 01/11/74 | Ltr to GAshby fm WMiller re: annual fee for SNM-840 (2 pages) |
| 40. | 02/23/94 | License Evaluation Report for License C-03749 (1 page) |

CAL:JCD 40-946
Docket No. 40-86

MAY 1 1957

Davison Chemical Company
Division of W. R. Grace & Company
Baltimore 3, Maryland

Attention: Mr. David P. Barrett
General Manager

Gentlemen:

Reference is made to your letter of April 19, 1957, which requests a source material license to cover activities you describe at your Erwin, Tennessee plant, and which also requests a license to permit handling of thorium and natural uranium at your Research and Development Laboratories and Plants at Erwin, Tennessee, Baltimore, Maryland, and Pompton Plains, New Jersey.

Please describe your procedures to protect health and minimize danger to life or property during use and storage of source material, especially your procedures to avoid non-nuclear accidents such as fire and explosion.

On receipt of this information, further consideration will be given to issuance of the source material licenses you request.

Very truly yours,

DOCKETED
MAY 1 1957

Lyall Johnson
Chief, Licensing Branch
Division of Civilian Application

F|1

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DOCKET NO. 40-1042

DAVISON CHEMICAL COMPANY
DIVISION OF W. R. GRACE & CO.
BALTIMORE 3 · MARYLAND

May 24, 1957

Mr. Lyall Johnson
Atomic Energy Commission
Washington 25, D. C.

Dear Lyall:

We would like authorization for a Source Material License to receive a two pound sample of uranium dioxide at our Curtis Bay Laboratory for use in development studies. The material will be used in pelleting studies to determine the effect it has as an additive.

The material will be handled in a controlled manner so as to create no hazard to employees.

Very truly yours,

DAVISON CHEMICAL COMPANY
Division of W. R. Grace & Co.

T. C. Runion
Reactor Materials

TCR/mb

DOCKETED
U.S.A.E.C.

MAY 31 1957
DATE

RF
DOCKET OFFICER

F/2

PROPER NO. 40-2310


GRACE RESEARCH AND DEVELOPMENT DIVISION

W. R. GRACE & CO.

WASHINGTON RESEARCH CENTER

CLARKSVILLE, MD.

Telephone:
ATlas 6-2101
Clarksville, Md.

Reply to:
P. O. Box 2117
Baltimore 3, Maryland


May 22, 1958

File: 170

Mr. J. C. Delaney
Chief, Materials Section
Division of Licensing and Regulation
United States Atomic Energy Commission
Washington 25, D. C.

Dear Mr. Delaney:

The Grace Research and Development Division of W. R. Grace and Company, with principal offices at 7 Hanover Square, New York 5, N. Y., requests a license to receive refined source material for research and bench-scale development at the Washington Research Center, located on Maryland Route 32 near Clarksville, Maryland.

In anticipation of a license to be issued for a two-year period we wish to receive over the period, 600 pounds of natural uranium in the form of its water-soluble compounds, and 600 pounds of thorium in the form of thorium hydrate (wet cake) or the water-soluble compounds.

Our research will be directed toward nuclear fuel systems. This research will use wet chemical methods almost entirely. Even though health and safety problems are minimized, these materials will be handled so as to create no hazards to employees.

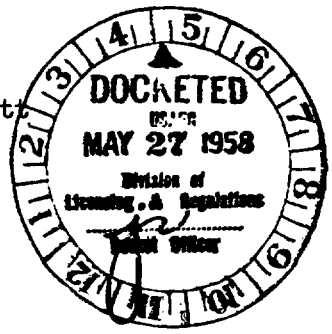
Wastes will be accumulated in stainless steel drums. It is requested that the license permit us to transfer uranium wastes to the Davison Division at Erwin, Tenn. and thorium wastes to the Davison Division at Curtis Bay, Md. for recovery and disposal. Both of these locations of our company now operate under AEC source material licenses.

Sincerely,

Forrest R. Hurley, Supervisor
Nuclear Chemistry Research

FRH:bhw

cc: W. T. Barrett

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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D.C.

IN REPLY REFER TO:
AE-3610
LRL:MD

SOURCE MATERIAL LICENSE

License No. C-4132

Dated: JUN 3 1960

W. R. Grace Research and Development Division
W. R. Grace & Co.
Washington Research Center
Clarksville, Maryland

Attention: Mr. Forrest H. Hurley, Supervisor
Nuclear Chemistry Research

Gentlemen:

Pursuant to the Atomic Energy Act of 1954 and Section 40.21 of the Code of Federal Regulations, Title 10 - Atomic Energy, Chapter 1, Part 40 - Control of Source Material, you are hereby licensed to receive possession of and title to , at the above stated location, twelve hundred (1,200) pounds of source material for research.

You are further licensed to transfer and deliver possession of and title to refined source material to any person licensed by the Atomic Energy Commission, within the limits of his license.

As a condition of this license, you are required to maintain records of your inventories, receipts and transfers of refined source material.

This license is subject to all the provisions of the Atomic Energy Act of 1954 now or hereafter in effect and to all valid rules and regulations of the U. S. Atomic Energy Commission, including 10 CFR 20, "Standards For Protection Against Radiation."

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.

This license shall expire June 30, 1960.

Encl:
10 CFR 20

FOR THE ATOMIC ENERGY COMMISSION

CC: Docket Officer
Document Room
S/ Health
M.M. Mann, Insp,

Dictator JJ

Approved JLD

J. C. Delaney
Chief, Materials Section
Licensing Branch
Division of Licensing and Regulation

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GRACE RESEARCH AND DEVELOPMENT DIVISION
W. R. GRACE & CO.
WASHINGTON RESEARCH CENTER
CLARKSVILLE, MD.

DOCKET NO. 40-2810

January 21, 1959

Telephone:
ELgin 5-8700
Baltimore, Md.

Reply to:
P. O. Box 3461
Baltimore 26, Maryland

Mr. J. C. Delaney, Chief
Material Section
Div. of Licensing and Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.

Dear Mr. Delaney:

The Process Development Department of the Grace Research and Development Division of W. R. Grace & Company, with principal offices at 7 Hanover Square, New York 5, New York, requests a license to receive refined source material for bench scale and pilot plant development studies at the pilot plants group located adjacent to the Davison Chemical Division Plant in Curtis Bay, Maryland. On June 3, 1958 you issued License No. C-4132 to our main research group at the Washington Research Center located on Maryland Route 32 near Clarksville, Maryland. The application for this earlier license had been submitted by Dr. Forrest R. Hurley on May 22, 1958.

Our bench scale and pilot plant work will also be directed toward the development of nuclear fuel systems. We anticipate a maximum requirement over a 2 year period of about 1,000 lbs. of natural uranium and about 1,000 lbs. of thorium in the form of hydrates, oxides, or other compounds.

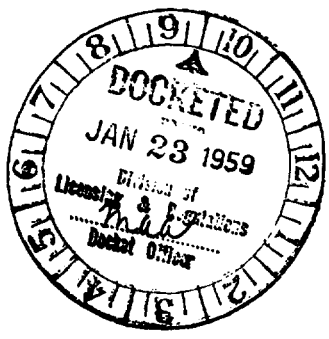
Part of our work will deal with both wet and dry chemicals handling. The safety practices developed at the Davison Division Plant in Erwin, Tennessee for handling both uranium and thorium materials and those applicable to the handling of thorium materials developed at the Davison Division Plant in Curtis Bay, Maryland will serve as guides for our activity in processing these materials. Recovery and disposal of any waste material accumulated by us can be handled by one or the other of the two Davison Division Plants. Both of these locations of our parent company now operate under AEC source material licenses.

Sincerely,

Philip Messina

Philip Messina —
Process Development Department

PM:cch

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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

IN REPLY REFER TO:
40-2210
LAL:ML

SOURCE MATERIAL LICENSE

License No. C-4172
Amendment # 1
Dated: JAN 2 3 1959

Grace Research and Development Division
W. R. Grace & Co.
Washington Research Center
Clarksville, Maryland

Attention: Mr. Forrest R. Hurley, Supervisor
Nuclear Chemistry Research

Gentlemen:

Pursuant to the Atomic Energy Act of 1954 and Section 40.21 of the Code of Federal Regulations, Title 10 - Atomic Energy, Chapter 1, Part 40 - Control of Source Material, you are hereby licensed to receive possession of and title to thirty-two hundred pounds of source material for research, bench scale and pilot plant development studies. This license extends to your facilities at Clarksville, Maryland and Curtis Bay, Maryland.

You are further licensed to transfer and deliver possession of and title to refined source material to any person licensed by the Atomic Energy Commission, within the limits of his license.

As a condition of this license, you are required to maintain records of your inventories, receipts and transfers of refined source material.

This license is subject to all the provisions of the Atomic Energy Act of 1954 now or hereafter in effect and to all valid rules and regulations of the U. S. Atomic Energy Commission, including 10 CFR 20, "Standards For Protection Against Radiation."

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.

This license shall expire June 30, 1960.

CC: Docket Officer
Document Room
S/H
M.M. Mann, Insp.

Dictator
Approved

FOR THE ATOMIC ENERGY COMMISSION

J. C. Delaney
Chief, Nuclear Materials Section
Licensing Branch
Division of Licensing & Regulation

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RADIATION SAFETY BR.
9/25/58

OCT 17 1960

# RADIATION SAFETY CHECK

Company W. R. GRACE & Co Docket No. 70-456

References Application of Oct 7, 1960

Material Requested $U^{235}$ Quantity 250 grams.

Weight % _____ Form _____ Quantity on hand at any one time: 250 gr.

Intended Use Chemistry development work involving uranium

**FACILITIES** Not Required _____ See Comments _____ Adequate ✓

| In Application: | | Not Required: |
|---|---|---|
| _____ | Hot cell | ✓ |
| ✓ | Vented area | _____ |
| _____ | Storage | ✓ |

**EQUIPMENT** Not Required _____ See Comments _____ Adequate ✓

| In Application: | | Not Required: |
|---|---|---|
| _____ | Processing | _____ |
| ✓ | Hood | _____ |
| ✓ | Dry box | _____ |
| ✓ | Filter absolute | _____ |
| _____ | Resp.Prot. | ✓ |
| _____ | Strge.Cont. | ✓ |
| _____ | Handling | _____ wet handling |

**INSTRUMENTS** Not Required _____ See Comments _____ Adequate ✓

| In Application: | | Not Required: |
|---|---|---|
| ✓ | Beta gamma | _____ |
| ✓ | Alpha | _____ |
| _____ | Neutron | ✓ |
| _____ | Air samplers | _____ |
| ✓ | Countg.(Scalers) | ✓ |
| _____ | Fluorimeter | ✓ |

**ADMINISTRATIVE PROCEDURES**
Not Required _____ See Comments _____ Adequate _____

**RADIATION PROTECTION PROCEDURES**
Not Required _____ See Comments _____ Adequate ✓

| In Application: | | Not Required: |
|---|---|---|
| _____ | Shipping | _____ |
| _____ | Handling | _____ |
| ✓ | Processing | _____ |
| _____ | Emergency | _____ |

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RADIATION SAFETY BR.
9/25/58

# RADIATION SAFETY CHECK

(Page 2)

RADIATION SURVEY PROCEDURES  Not Required _____  See Comments _____  Adequate ✓

| In Application: | Not Required: |
|---|---|
| _____ | Rad. levels _____ |
| ✓ | Contamination _____ |
| ✓ | Air Sampling _____ |
| ✓ | Effluents _____ |
| _____ | Leak testing ✓ |

PERSONNEL MONITORING  Not Required _____  See Comments _____  Adequate ✓

| In Application: | Not Required: |
|---|---|
| _____ | Film badges _____ 3 devices |
| ✓ | Dosimeters _____ |
| _____ | Calculations _____ |
| _____ | Urinalysis _____ |
| ✓ | Physical examination |

WASTE DISPOSAL  No Waste _____  See Comments _____  Adequate ✓

Estimated Quantity _____  Method:
- Burial _____
- Sewer _____
- Transfer ✓
- Incineration ___

O.K. with Part 20 _____
Requires approval _____

TRAINING & EXPERIENCE AVAILABLE

| In Application: | Not Required |
|---|---|
| ✓ | Rad. safety officer _____ |
| ✓ | Supervision _____ |
| _____ | Instruc. of Personnel ____ |

Not Required _____  See Comments _____  Adequate ✓

ADDITIONAL INFORMATION REQUESTED _____ (date)

Reviewed by C M.F.  Date approved OCT 17 1960

DOCKET NO. 40-2810

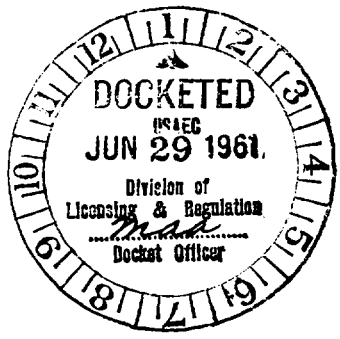
**W. R. GRACE & CO.**

**Research and Development Division**

WASHINGTON RESEARCH CENTER • CLARKSVILLE, MARYLAND

OK DFH 6/30/61

June 26, 1961




Atomic Energy Commission
Washington 25, D. C.

Attention: Mr. Donald A. Nussbaumer, Chief,
Source and Special Nuclear Materials Branch,
Division of Licensing and Regulation

Subject: Renewal of Source Materials License No. C-4132
by Research Division of W. R. Grace & Co.

Reference: 40-2810
L and R:DH

Dear Sir;

The information below is presented in support of our request on June 15, 1961 for renewal of Source Materials License No. C-4132 as desired in your letter received June 21st.

Source material license No. C-4132 covers our fundamental laboratory research at the Washington Research Center, Clarksville, Maryland, and our development work at Curtis Bay, Maryland. No production is involved. The activities of both sites, although differing somewhat in scope, are modest in regard to quantities handled and extent of work. Solution chemistry primarily is involved avoiding many of the standard hazards such as dusting, etc. In compliance with our general policy of high safety standards, A.E.C. and State regulations and the practices of the Davison Chemical Division plants are followed in this work. Within this framework, the information you requested in your letter received June 21st is summarized below:

(1) Maximum quantities of Source Material to be possessed and also to be processed at any one time:

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It is anticipated that a limit of a 100 pounds source material in process at one time should not restrict any expected operations. In actual practice, source material quantities in process at one time generally are of the order of 50 to 500 g. in the laboratories and up to 30 pounds in the development work.

It is my understanding that Source Materials License No. C-4132 permits the possession of up to 3200 pounds source material at one time. In practice, it is doubtful that conditions should arise that would make desirable the possession at one time of source material quantities approaching 1600 pounds.

(2) Description of the Activities to be performed:

At the Washington Research Center, standard laboratory manipulative procedures with up to 250 g. source material in solutions or suspensions generally are involved in the studies aimed at developing nuclear fuel systems. These are conducted with a past background that also has involved special nuclear materials and extremely toxic constituents which required establishing protected work areas, safe ventilating systems, and effective monitoring procedures.

The chemical process studies at Curtis Bay are in support of the Davison Chemical Division Erwin plant or based on the laboratory research. They involve studies and development of standard unit operations such as mixing, filtration, extracting, metallurgical, etc., and source material quantities as stated above.

(3) Safeguarding Procedures against Dust and Contamination Exposure through Escape of Radioactive Materials.

Wet chemical operations almost entirely are involved, avoiding dust hazards, etc. Effective continuing efforts are made to prevent area and personnel contamination. The limits and surveys specified in the A.E.C.'s "Standards for Protection Against Radiation, Part 20, Title 10, Code of Federal Regulations" are maintained. In fact, the laboratory group is equipped and trained to handle extremely toxic materials including the essential monitoring. An effective surveying and monitoring program is maintained and is the responsibility of Dr. J. D. Moyer, Radiation Protection Officer of the Washington Research Center Laboratories.

A medical department is located at the Washington Research Center familiar with the problems involved. Medical records, with periodic physical examinations are maintained on personnel participating in the work.

(4) Types of Instruments to perform Necessary Health and Safety Surveys and the Surveys that will be conducted.

Radiation:

(a) Sampling: Staplex Hi-volume Air Sampler, Model TFIA.

Millipore Filter Corp., model XX60 000 00 and associated membrane filters.

(b) Detection: Victoreen Cutie Pie Survey Meter, model 740B sensitivity range 0-100 mr/hr., window trickness 0.0005 inches mylar, detects alpha combination as well as gamma and beta.

Tracer Lab. Survey Meter, model SU14, sensitivity range 0-25 mr/hr., window thickness less than 2 mg/cm$^2$.

Nuclear Measurements Corp. model PC-3A, windowless gas flow proportional counter.

General laboratory surveys are made at regular intervals, at least once a month under minimum conditions. With special nuclear materials or toxic agents, monitoring is frequent and may become daily. Monitoring includes both air and smear sampling.

The medical departments maintains complete medical records on the personnel involved. A semi-annual physical examination is made including blood tests and chest X-ray. When required by the work activities, the medical department has made general weekly checks on personnel including vital capacity tests. The medical department is well equipped for first aid requirements and general personnel supervision and utilizes outside facilities for detailed physical examinations and blood tests.

I trust that this information will prove sufficient for evaluation of our application for renewal of the source materials license. Please do not hesitate to contact us if we can be of any further assistance.

Yours sincerely,

F. T. Fitch
Inorganic Chemical Research

FTF:jz

cc: A.E.C. (2)

Form AEC—410
(1-61)

UNITED STATES
ATOMIC ENERGY COMMISSION

# SOURCE MATERIAL LICENSE

Pursuant to the Atomic Energy Act of 1954, and Title 10, Code of Federal Regulations, Chapter 1, Part 40, "Licensing of Source Material," and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, possess and import the source material designated below; to use such material for the purpose(s) and at the place(s) designated below; and to deliver or transfer such material to persons authorized to receive it in accordance with the regulations in said Part. This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954 and is subject to all applicable rules, regulations, and orders of the Atomic Energy Commission, now or hereafter in effect, including Title 10, Code of Federal Regulations, Chapter 1, Part 20, "Standards for Protection Against Radiation," and to any conditions specified below.

| Licensee | 3. License No. |
|---|---|
| 1. Name **W. R. Grace & Company** | **SMB-334** |
| 2. Address **Research and Development Division<br>Washington Research Center<br>Clarksville, Maryland** | 4. Expiration Date<br>**June 30, 1964** |
| **Attention: Mr. F. T. Fitch** | 5. Docket No.<br>**40-2810** |

| 6. Source Material | 7. Maximum quantity of source material which licensee may possess at any one time under this license |
|---|---|
| **Uranium & Thorium** | **Sixteen hundred (1,600) pounds** |

CONDITIONS

8. Authorized use (Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.)

**For use at the licensee's facilities at Clarksville, Maryland and Curtis Bay, Maryland in accordance with the procedures described in the licensee's application dated June 15, 1961 as amended June 26, 1961.**

CC: Docket Officer
Document Room
S/H
Compl. w/c appl

Dictator DW 7/3/61
Approved DW 7/3/61

For the U. S. ATOMIC ENERGY COMMISSION

F/9

Date of issuance

Donald A. Nussbaum
Division of Licensing & Regulation

☆ U.S. GOVERNMENT PRINTING OFFICE: 1951—O-581691

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D.C.

IN REPLY REFER TO:
LR:DAN
70-456

AUG 28 1962

W. R. Grace & Co.
Research Division
Washington Research Center
Clarksville, Maryland

Attention: Mr. W. P. Gage, President, Research Division

SUBJECT: NOTICE OF LICENSE EXPIRATION

Gentlemen:

Notice is given that Special Nuclear Material License Number SNM-417, as amended, expires on October 31, 1962.

If you desire to continue your program using special nuclear material(s), an application for renewal of the license should be filed with this office. It is to your advantage to file such an application at least thirty (30) days before the expiration date of your existing license. The application should be submitted in letter form in quadruplicate. Your program will then be covered by your existing license until action is taken on your application for license renewal. (Title 10, Code of Federal Regulations, Part 70, Section 70.33(b)). If an application is received less than 30 days prior to the expiration date of your license and cannot be processed before your existing license expires, this could result in your possessing special nuclear material without a valid license.

If you do not wish to renew your license, please complete the enclosed form "Certification of Status of Special Nuclear Material Activities Under United States Atomic Energy Commission Special Nuclear Material License Number SNM-417", and return it to this office.

If you have obtained an amendment which has extended the expiration date of the above license or if a new license has been issued which supersedes the above license, please disregard this notice.

This notice of your license expiration is sent for your convenience and it should not be interpreted that similar notices will be sent in the future. The responsibility for timely submission of an application for license renewal remains with the licensee.

Distribution:
Compliance, HDQS
Compliance, Field
Formal
Doc. Rm.
Suppl.

Very truly yours,

F/10

Donald A. Nussbaumer, Chief
Source and Special Nuclear Materials Branch
Division of Licensing and Regulation

APPROVED DN

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D.C.

AUG 23 1963

IN REPLY REFER TO:
LR:DAN
70-486

W. R. Grace & Company
Research Division
Washington Research Center
Clarksville, Maryland

Attention: Mr. W. P. Cage, President
Research Division

SUBJECT: NOTICE OF LICENSE EXPIRATION

Gentlemen:

Notice is given that Special Nuclear Material License Number SNM-417 expires on October 31, 1963.

If you desire to continue your program using special nuclear material(s), an application for renewal of the license should be filed with this office. It is to your advantage to file such an application at least thirty (30) days before the expiration date of your existing license. The application should be submitted in letter form in quadruplicate. Your program will then be covered by your existing license until action is taken on your application for license renewal. (Title 10, Code of Federal Regulations, Part 70, Section 70.33(b)). If an application is received less than 30 days prior to the expiration date of your license and cannot be processed before your existing license expires, this could result in your possessing special nuclear material without a valid license.

If you do not wish to renew your license, please complete the enclosed form "Certification of Status of Special Nuclear Material Activities Under United States Atomic Energy Commission Special Nuclear Material License Number SNM-417", and return it to this office.

If you have obtained an amendment which has extended the expiration date of the above license or if a new license has been issued which supersedes the above license, please disregard this notice.

This notice of your license expiration is sent for your convenience and it should not be interpreted that similar notices will be sent in the future. The responsibility for timely submission of an application for license renewal remains with the licensee.

Distribution:
Formal
Doc. Rm.
Suppl
Compliance

Very truly yours,

F/11

DN 8/23/63

Donald A. Nussbaumer, Chief
Source and Special Nuclear Materials Branch
Division of Licensing and Regulation

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

IN REPLY REFER TO: 40-2810

APR 29 1964

W. R. Grace & Company
Research and Development Division
Washington Research Center
Clarksville, Maryland

Attention: Mr. F. T. Fitch

SUBJECT: NOTICE OF LICENSE EXPIRATION

Gentlemen:

Notice is given that Source Material License Number SMB-334 expires on June 30, 1964.

If you desire to continue your program using source material(s), an application for renewal of the license should be filed with this office. It is to your advantage to file such an application at least thirty (30) days before the expiration date of your existing license. The application should be submitted using Form AEC-2, enclosed, in accordance with the instructions provided with the form. Your program will then be covered by your existing license until action is taken on your application for license renewal. (Title 10, Code of Federal Regulations, Part 40, Section 40.43(b)). If an application is received less than 30 days prior to the expiration date of your license and cannot be processed before your existing license expires, this could result in your possessing source material without a valid license.

If you do not wish to renew your license, please complete the enclosed form "Certification of Status of Source Material Activities under United States Atomic Energy Commission Source Material License Number SMB-334", and return it to this office.

If you have obtained an amendment which has extended the expiration date of the above license or if a new license has been issued which supersedes the above license, please disregard this notice.

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CC: Document Room
Div. of Compliance

Very truly yours,

Enclosures:
10 CFR, 20 & 40
Form AEC-2
"Certification. . ."

DW

Donald A. Nussbaumer, Chief
Source & Special Nuclear Materials Branch
Division of Materials Licensing

F/12

DOCKET NO. 40-2810

File Copy

# W. R. GRACE & CO.

## RESEARCH DIVISION

Washington Research Center, Clarksville, Maryland 21029

Re: 40-2810

May 21, 1964

Donald A. Nussbaumer, Chief
Source and Special Nuclear Materials Branch
Division of Materials Licensing
United States Atomic Energy Commission
Washington, D. C. 20545

Subject: Renewal of Source Materials License SMB-334

Dear Sir:

Form AEC-2 completed in quadruplicate for renewal of Source Materials License SMB-334 is enclosed. It is requested that this license be renewed for a two year period and again cover possession of 1600 lbs. of source material in the form of hydrates, oxides, and salts for research and development studies on nuclear fuels. Our activities and operations remain similar to those described in past applications (File 40-2810).

Please do not hesitate to contact me if we can be of any further assistance.

Sincerely,

F. T. Fitch

FTF:blb

Enclosure

DOCKETED USAEC LICENSING & REGULATION MAY 26 1964 DOCKET OFFICER

COPY PROVIDED COMPLIANCE CHH 5/27/64

ACKNOWLEDGED

DOCKET [redacted] 40-2810

FORM AEC-2
(2-61)
Previous editions are obsolete.

FORM APPROVED
BUREAU OF BUDGET NO. 38-R002.8.

UNITED STATES ATOMIC ENERGY COMMISSION

File Copy

# APPLICATION FOR SOURCE MATERIAL LICENSE

Pursuant to the regulations in Title 10, Code of Federal Regulations, Chapter 1, Part 40, application is hereby made for a license to receive, possess, use, transfer, deliver or import into the United States, source material for the activity or activities described.

1. (*Check one*)
- ☐ (*a*) New license
- ☐ (*b*) Amendment to License No. _____
- ☒ (*c*) Renewal of License No. SMB-334
- ☐ (*d*) Previous License No. _____

2. NAME OF APPLICANT
Research Division, W. R. Grace & Co.

3. PRINCIPAL BUSINESS ADDRESS
Washington Research Center, Clarksville, Maryland

4. STATE THE ADDRESS(ES) AT WHICH SOURCE MATERIAL WILL BE POSSESSED OR USED
Washington Research Center, Clarksville, Maryland
Research Division, W. R. Grace & Co., Curtis Bay, Maryland

5. BUSINESS OR OCCUPATION
Chemical Research

6. (*a*) IF APPLICANT IS AN INDIVIDUAL, STATE CITIZENSHIP

(*b*) AGE

7. DESCRIBE PURPOSE FOR WHICH SOURCE MATERIAL WILL BE USED
Basic laboratory research at the Washington Research Center and development work at Curtis Bay for the development of nuclear fuel materials. No production is involved.

8. STATE THE TYPE OR TYPES, CHEMICAL FORM OR FORMS, AND QUANTITIES OF SOURCE MATERIAL YOU PROPOSE TO RECEIVE, POSSESS, USE, OR TRANSFER UNDER THE LICENSE

| (*a*) TYPE | (*b*) CHEMICAL FORM | (*c*) PHYSICAL FORM (*Including % U or Th.*) | (*d*) MAXIMUM AMOUNT AT ANY ONE TIME (*in pounds*) |
|---|---|---|---|
| NORMAL URANIUM | | | |
| URANIUM DEPLETED IN THE U-235 ISOTOPE | $UO_2Cl_2 \cdot 6H_2O$ oxides (hydrous) | Salts, solutions 5-53w/o Sols, ceramics 5-88w/o | 1000 lbs. |
| THORIUM | $Th(NO_3)_4 \cdot 4H_2O$ oxides (hydrous) | Salts, solutions 5-42w/o Sols, ceramics 5-88w/o | 600 lbs. |

(*e*) MAXIMUM TOTAL QUANTITY OF SOURCE MATERIAL YOU WILL HAVE ON HAND AT ANY TIME (*in pounds*)
1600 lbs.

9. DESCRIBE THE CHEMICAL, PHYSICAL, METALLURGICAL, OR NUCLEAR PROCESS OR PROCESSES IN WHICH THE SOURCE MATERIAL WILL BE USED, INDICATING THE MAXIMUM AMOUNT OF SOURCE MATERIAL INVOLVED IN EACH PROCESS AT ANY ONE TIME, AND PROVIDING A THOROUGH EVALUATION OF THE POTENTIAL HAZARDS ASSOCIATED WITH EACH STEP OF THOSE OPERATIONS.
Wet chemical operations are used avoiding dust hazards. The Research Center uses experimental quantities of 50-1000 g. Process studies are made with less than 30 lb. quantities. Activities at both sites are modest in extent and quantities. Systematic efforts control the main hazard of area and personnel contamination in compliance with our policy of high safety standards, AEC, and state regulations.

10. DESCRIBE THE MINIMUM TECHNICAL QUALIFICATIONS INCLUDING TRAINING AND EXPERIENCE THAT WILL BE REQUIRED OF APPLICANT'S SUPERVISORY PERSONNEL INCLUDING PERSON RESPONSIBLE FOR RADIATION SAFETY PROGRAM (OR OF APPLICANT IF APPLICANT IS AN INDIVIDUAL).
Laboratory Supervision-experienced Ph.D; Process development-experienced engineer. Dr. J. D. Moyer, Radiation Protection Officer, has Ph.D in chemistry, courses in radiochemistry and radiological health, 14 years radioisotope experience, and 4 years R.P.O. at this installation.

11. DESCRIBE THE EQUIPMENT AND FACILITIES WHICH WILL BE USED TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE OR PROPERTY AND RELATE THE USE OF THE EQUIPMENT AND FACILITIES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE: (*a*) RADIATION DETECTION AND RELATED INSTRUMENTS (including film badges, dosimeters, counters, air-monitoring and other survey equipment as appropriate. The description of radiation detection instruments should include the type of radiation detected and the range(s) of each instrument.)

See supplemental sheet, Item 11a

(*b*) METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED IN (*a*) ABOVE (for film badges, specify method of calibrating and processing, or name supplier.)

See supplemental Sheet, Item 11b

2943

DOCKETED
USAEC
LICENSING & REGULATION
MAY 26 1964
DOCKET OFFICER

16—76548-1

11(c). VENTILATION EQUIPMENT WHICH WILL BE USED IN OPERATIONS WHICH PRODUCE DUST, FUMES, MISTS, GASES, ETC.

Our solution chemistry and small scale sintering studies (no grinding) involve negligible dusting, misting, etc. Operations are in well ventilated hoods. Contained working spaces with absoluted filters were developed for more toxic materials and are available for any operation involving the above hazards.

12. DESCRIBE PROPOSED PROCEDURES TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE AND PROPERTY AND RELATE THESE PROCEDURES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE:
(a) PROCEDURES FOR USE OF NUCLEAR MATERIALS AND SAFETY FEATURES AND PROCEDURES TO AVOID NONNUCLEAR ACCIDENTS, SUCH AS FIRE, EXPLOSION, ETC., IN SOURCE MATERIAL STORAGE AND PROCESSING AREAS.

The laboratories emphasize a basic safety and inspection program. Factors to note are (1) modern fire-proof construction (2) in-use lab. minimum of source materials and flammables (3) safe storage areas for source materials and flammables.

(b) EMERGENCY PROCEDURES IN THE EVENT OF ACCIDENTS WHICH MIGHT INVOLVE SOURCE MATERIAL.

See supplemental sheet, item 12b, which is copy of our emergency instructions.

(c) DETAILED DESCRIPTION OF RADIATION SURVEY PROGRAM AND PROCEDURES.

Our background of being trained and equipped for Toxic Materials (past applications -File 40-2810) is being maintained. See supplemental sheet, item 12c for Survey Program.

13. WASTE PRODUCTS: *If none will be generated, state "None" opposite (a), below. If waste products will be generated, check here* ☒ *and explain on a supplemental sheet:*
(a) Quantity and type of radioactive waste that will be generated.
(b) Detailed procedures for waste disposal.

14. IF PRODUCTS FOR DISTRIBUTION TO THE GENERAL PUBLIC UNDER AN EXEMPTION CONTAINED IN 10 CFR 40 ARE TO BE MANUFACTURED, USE A SUPPLEMENTAL SHEET TO FURNISH A DETAILED DESCRIPTION OF THE PRODUCT, INCLUDING:
(a) PERCENT SOURCE MATERIAL IN THE PRODUCT AND ITS LOCATION IN THE PRODUCT.
(b) PHYSICAL DESCRIPTION OF THE PRODUCT INCLUDING CHARACTERISTICS, IF ANY, THAT WILL PREVENT INHALATION OR INGESTION OF SOURCE MATERIAL THAT MIGHT BE SEPARATED FROM THE PRODUCT.
(c) BETA AND BETA PLUS GAMMA RADIATION LEVELS (*Specify instrument used, date of calibration and calibration technique used*) AT THE SURFACE OF THE PRODUCT AND AT 12 INCHES.
(d) METHOD OF ASSURING THAT SOURCE MATERIAL CANNOT BE DISASSOCIATED FROM THE MANUFACTURED PRODUCT.

## CERTIFICATE

*(This item must be completed by applicant)*

15. *The applicant, and any official executing this certificate on behalf of the applicant named in Item 1, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 40, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.*

Research Division, W. R. Grace & Co.
*(Applicant named in Item 2)*

Dated May 22, 1964

BY: J. Gilman

President, W. R. Grace & Co., Research Divisi
*(Title of certifying official authorized to act on behalf of the applicant)*

WARNING: 18 U.S.C. Section ment or rep June 25, 1948; 62 Stat. 749; makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U.S. GOVERNMENT PRINTING OFFICE 16—76548-1

40-2810

File Copy

Supplemental Sheet No. 1
Form AEC-2

Research Division
W. R. Grace & Co.,
Clarksville, Maryland

Item 11a: Radiation Detection and Related Instruments

Sampling: Staplex Hi-volume Air Sampler, Model TF1A

Millipore Filter Corp., Air Pump, Model XX 60 000 000 and associated membrane filters.

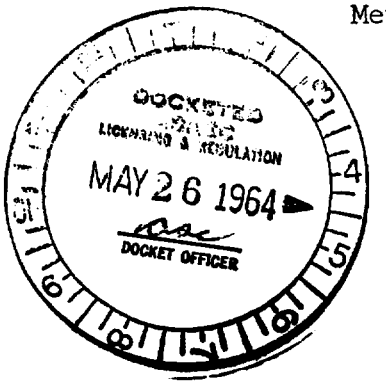
Detection: Victoreen Cutie Pie Survey Meter, Model 740B, sensitivity range 0-100 mr/hr. window thickness 0.0005 inches Mylar, detects alpha, beta and gamma.

Tracerlab Survey Meters (2), Model SU-14, sensitivity range 0-25 mr/hr. or 0-50,000 cpm, window thickness less than 2 mg/cm$^2$, detect alpha, beta and gamma.

Eberline Instrument Corp. Gas Proportional Counter Model PAC-3G, range 0-100,000 cpm., detects alpha.

Nuclear Measurements Corp. Windowless Gas Flow Proportional counter, counts alpha, beta and gamma. Range 0-> 100,000 dpm.

Item 11b: Methods, Frequency and Standards Used in Calibrating Instruments Listed in 11a.




Methods: The Victoreen Cutie Pie Survey Meter and the two Tracerlab SU-14 meters are calibrated with a cobalt-60 sealed source at various distances from the source.

The Tracerlab SU-14 meters and the Eberline PAC-3G alpha counter are calibrated by holding a standard alpha source as near as possible to the thin windows, simulating actual surveying.

The Nuclear Measurements proportional counter is calibrated by inserting standard alpha, beta, or gamma sources into the chamber and counting at the proper voltage.

Frequency: All survey and counting instruments are calibrated at least semi-annually with standard sources and tested for proper operation with smaller check sources at each use.

Standards Used:

Alpha - National Bureau of Standards
Uranium Oxide source, Standard Sample No. 4903-201-7-2

Beta - Nuclear Chicago carbon-14 source Model R-20, calibrated against National Bureau of Standards carbon-14 beta-ray standard, Sample No. P4075.

Supplemental Sheet No. 2
Form AEC-2

Research Division,
W. R. Grace & Co.,
Clarksville, Maryland

Item 11b: Continued

Gamma - Tracerlab R-31, 5 mc. calibrated cobalt-60 source.

Tracerlab R-7, $7.1 \times 10^{-4}$ mc calibrated cobalt-60 sources are corrected for decay at each calibration.

Permanent records are maintained on all calibrations.

Film badges or dosimeters are not issued because of the low level of beta and gamma radiation from the quantities of source material involved in the operations.

Research Division,
W. R. Grace & Co.,
Clarksville, Maryland

Item 12b:

## EMERGENCY PROCEDURES FOR WORK WITH SOURCE MATERIAL

The design of facilities and procedures are such that the spread of contamination would be minimized in the event of an accident involving source material. If an incident should occur in which source material is released, the following emergency procedures are to be followed:

1. Make a quick estimate of the situation and warn other occupants of the room. If any of the material is ariborne, hold your breath and retreat immediately to a safe distance.

2. If you have time, do what you can to avoid the spread of contaminating material.

3. Remove contaminated clothing and put on a clean laboratory coat kept nearby for such emergency. Thoroughly wash exposed parts of your body.

4. Immediately notify the Radiation Protection Officer (RPO), Project Supervisor, and if fire is involved, the Fire Department. Call the Medical Office if medical attention is needed.

5. Evacuate and close off the room, but, unless it is unsafe, remain in the immediate area until you can be checked for contamination.

6. Notify personnel in adjacent areas of the condition. Evacuate these areas if there is any doubt of the spread of contamination.

7. If fire is involved, the project supervisor and the RPO will direct the fire department in an effort to avoid spread of contamination.

8. The Project Supervisor and the RPO will plan and direct decontamination consistent with safety and the nature of the accident. Waste disposal will be done in an acceptable manner.

9. The RPO will perform a survey of the entire area and those areas where contamination may have been carried. Operation will be resumed only after safety is assured, the operation reviewed, and corrective measured taken.

10. The Project Supervisor will make necessary reports to the assigned AEC Operations Office according to the regulations issued for this purpose.

11. Immediate bioassay and mecical examination will be given to personnel involved in the accident.

Supplemental Sheet No. 4
Form AEC-2

Research Division,
W. R. Grace & Co.,
Clarksville, Maryland

Item 12c: Detailed Description of Radiation Survey Program and Procedures

Frequency

All work and storage areas are surveyed at least monthly for alpha contamination in air and on surfaces of benches, floors, desks, etc. Areas are surveyed periodically with an alpha survey instrument to detect fixed contamination.

Sampling

Air samples are taken by drawing a measured volume of air through filter paper impregnated with an antistatic agent.

Smear samples are collected by swiping impregnated filter paper over 1 $ft.^2$ areas.

Counting

Both air and smear samples are counted in the NMC windowless proportional counter at the voltage setting which measures only alpha activity.

Quantitation

Counting data are interpreted on the basis of the best available information on filtering efficiency of the paper, and absorption of alpha particles by the paper and dust. Activities are calculated to microcuries per cubic centimeter of air, and dpm/$ft.^2$ for smears.

Maximum Permissable Limits

Our maximum permissable limits are set at less than one-half the limits required or recommended in the following publications.

1. CFR, Title 10, Part 20, "Standards for Protection Against Radiation".
2. U.S.A.E.C. Dept. COO-12 (Rev.), "Health and Safety Considerations for Uranium Fuel Fabrication Facilities", by W. A. Brobst., Apr., 1,1958.
3. U.S.A.E.C. Dept. ORNL-332 "Applied Health Radiation Survey Instrumentation" pp. 118-122.

Corrective action is required, and follow-up surveys made when contamination exceeds 50% of the MPL's set forth in these articles.

Effluent Wastes

We have a developed method for measuring contamination in solutions by evaporation of measured volume and counting alpha activity on planchets. However, this procedure is rarely used since company regulations prohibit the disposal of any source material into the sewage system.

Research Division
W. R. Grace & Co.,
Clarksville, Maryland

Records

Permanent records are maintained for all surveys.

Bioassays

Each worker is given a urinalysis for source material semi-annually, with follow-up action and additional bioassay if the excretion rate exceeds 10% of the MPl recommended by the Health and Safety Div. of the U.S.A.E.C. Chicago Operations Office. Analyses are performed by Nuclear Science and Engineering Corporation, Pittsburgh, Pa. Results are incorporated in the workers permanent medical records. Each worker is also given a complete blood test semi-annually.

Shipment

Shipments of small experimental samples and waste source material are surveyed for gamma radiation and alpha contamination of surfaces. Packages are approved for shipment only if they meet the requirements of applicable postal or ICC regulations. Permanent records are maintained.

Item 13: Waste Products

(a) Quantity and Type of Radioactive Waste that will be Generated.

Wastes are generated in the course of the experimental work in the form of research samples, solutions, sols, and slurries. They correspond in quantity to the scale of the work, e.g., < 1000 g. for laboratory work and a few pounds for development work. They are stored and accumulated to the extent of up to several pounds before recovery.

(b) Detailed Procedures for Waste Disposal

The accumulated wastes are recovered as filter cake by precipitation with ammonia partially dried, and combined according to composition (uranium, thorium). They are packaged and stored until sufficient quantity (20-50 lbs.) to ship for recovery to W. R. Grace associated plants which process nuclear materials (e.g., Erwin plant, Tennessee, Nuclear Fuel Services, or Davison Chemical Co., Pompton Plains, N. Y. ).

JUN 15 1964

DML:CEM
40-2810

W. R. Grace & Company
Research Division
Washington Research Center
Clarksville, Maryland 21029

Attention: Mr. F. T. Fitch

Gentlemen:

Enclosed is Source Material License No. SMB-334.

Very truly yours,

Robert L. Layfield
Source and Special Nuclear
Materials Branch
Division of Materials Licensing

Enclosure:
License No. SMB-334

DISTRIBUTION:
Doc. Room
Compliance
N. Doulos
Suppl.
State Health (Lic. only)
Br. & Div. RFs

F/14

| DML | DML | | | | |
|---|---|---|---|---|---|
| CEM RRR | | | | | |
| McDonald:jb | RLayfield | | | | |
| 6/10/64 | 6/15/64 | | | | |

U. S. GOVERNMENT PRINTING OFFICE 16—62761-3

Form AEC-40
(7-61)

UNITED STATES
ATOMIC ENERGY COMMISSION

# SOURCE MATERIAL LICENSE

Pursuant to the Atomic Energy Act of 1954, and Title 10, Code of Federal Regulations, Chapter 1, Part 40, "Licensing of Source Material," and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, possess and import the source material designated below; to use such material for the purpose(s) and at the place(s) designated below; and to deliver or transfer such material to persons authorized to receive it in accordance with the regulations in said Part. This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954 and is subject to all applicable rules, regulations, and orders of the Atomic Energy Commission, now or hereafter in effect, including Title 10, Code of Federal Regulations, Chapter 1, Part 20, "Standards for Protection Against Radiation," and to any conditions specified below.

| Licensee | 3. License No. |
|---|---|
| 1. Name W. R. Grace & Company<br>Research Division<br>2. Address Washington Research Center<br>Clarksville, Maryland | SMB-334 |
| | 4. Expiration Date<br>June 30, 1967 |
| | 5. Docket No.<br>40-2810 |

| 6. Source Material | 7. Maximum quantity of source material which licensee may possess at any one time under this license |
|---|---|
| Uranium - Thorium | Sixteen hundred (1,600) pounds |

CONDITIONS

8. Authorized use (Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.)

For basic laboratory research and development work for the development of nuclear fuel materials in accordance with the procedures described in the licensee's application dated May 21, 1964.

9. Authorized places of use: The address stated in Item 2 above and Research Division, Curtis Bay, Maryland.

CSM 6/12/64 RRG 6/15/64

For the U. S. ATOMIC ENERGY COMMISSION

Date of issuance JUN 15 1964

Robert L. Layfield
Division of Materials Licensing

* U. S. GOVERNMENT PRINTING OFFICE : 1962 O - 632985

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

70-456

OCT 8 1964

W. R. Grace and Company
Research Division
Washington Research Center
Clarksville, Maryland

SUBJECT: NOTICE OF LICENSE EXPIRATION

Gentlemen:

Notice is given that Special Nuclear Material License Number SNM-417, as renewed expires on October 31, 1964.

If you desire to continue your program using special nuclear material(s), an application for renewal of the license should be filed with this office. It is to your advantage to file such an application at least thirty (30) days before the expiration date of your existing license. The application should be submitted in letter form in quadruplicate. Your program will then be covered by your existing license until action is taken on your application for license renewal. (Title 10, Code of Federal Regulations, Part 70, Section 70.33(b)). If an application is received less than 30 days prior to the expiration date of your license and cannot be processed before your existing license expires, this could result in your possessing special nuclear material without a valid license.

If you do not wish to renew your license, please complete the enclosed form "Certification of Status of Special Nuclear Material Activities Under United States Atomic Energy Commission Special Nuclear Material License Number SNM-417", and return it to this office.

If you have obtained an amendment which has extended the expiration date of the above license or if a new license has been issued which supersedes the above license, please disregard this notice.

This notice of your license expiration is sent for your convenience and it should not be interpreted that similar notices will be sent in the future. The responsibility for timely submission of an application for license renewal remains with the licensee.

Very truly yours,

BY MRA 10/7/64

Donald A. Nussbaumer, Chief
Source and Special Nuclear Materials Branch
Division of Materials Licensing

F115

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

IN REPLY REFER TO: DML:ND
40-2810

APR 26 1967

W. R. Grace & Company
Research Division
Washington Research Center
Clarksville, Maryland 21029

SUBJECT: NOTICE OF LICENSE EXPIRATION

Gentlemen: Attention: Mr. F. T. Fitch

Notice is given that Source Material License Number SMB-334 expires on June 30, 1967.

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This notice of your license expiration is sent for your convenience and it should not be interpreted that similar notices will be sent in the future. The responsibility for timely submission of an application for license renewal remains with the licensee.

Very truly yours,

Dictator ----------

Approved ----------

Donald A. Nussbaumer, Chief
Source & Special Nuclear Materials Branch
Division of Materials Licensing

Enclosures:
10 CFR, 20 & 40
Form AEC-2
"Certification . . ."

F116

W. R. GRACE & CO.

RESEARCH DIVISION

Washington Research Center, Clarksville, Maryland 21029

May 26, 1967

Docket No. 40-2810
Task No. T01
Docketed 5-29-67 D12

Mr. Donald A. Nussbaumer, Chief
Source & Special Nuclear Materials Branch
Division of Materials Licensing
USAEC
Washington, D. C. 20545

Regulatory Suppl File Cy.

Dear Mr. Nussbaumer:

RE: DML:ND
40-2810

Enclosed please find our application for renewal of Source Material License Number SMB-334.

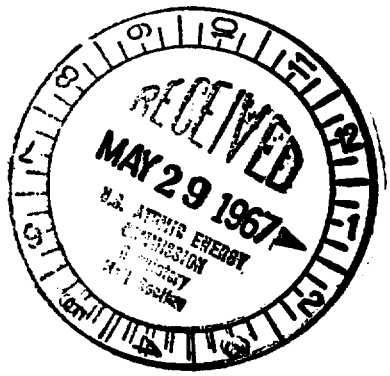
If you have any questions regarding this, please contact the undersigned.

Yours very truly,

A. M. Gammill
Security Officer

AMG:m

Enclosures




Copy Provided Compliance

F117

ACKNOWLEDGED

Cable - Gracerad Tel. (301) 531 - 5711 TWX - 301 286 2168

FORM AEC-2
(3-64)
Previous editions are obsolete.

FORM APPROVED
BUREAU OF BUDGET NO. 38-R002.

UNITED STATES ATOMIC ENERGY COMMISSION

# APPLICATION FOR SOURCE MATERIAL LICENSE

Pursuant to the regulations in Title 10, Code of Federal Regulations, Chapter 1, Part 40, application is hereby made for a license to receive, possess, use, transfer, deliver or import into the United States, source material for the activity or activities described.

Regulatory Suppl File C

1. (Check one)
- ☐ (a) New license
- ☐ (b) Amendment to License No. _____
- ☒ (c) Renewal of License No. SMB-334
- ☐ (d) Previous License No. _____

2. NAME OF APPLICANT
Research Division, W. R. Grace & Co.

3. PRINCIPAL BUSINESS ADDRESS
Washington Research Center, Clarksville, Maryland

4. STATE THE ADDRESS(ES) AT WHICH SOURCE MATERIAL WILL BE POSSESSED OR USED
Washington Research Center, Clarksville, Maryland
Research Division, W. R. Grace & Co., Curtis Bay, Maryland

Docket No. 40-2810
Tool
Docketed

5. BUSINESS OR OCCUPATION
Chemical Research

6. (a) IF APPLICANT IS AN INDIVIDUAL, STATE CITIZENSHIP

(b) AGE 5-29-67

7. DESCRIBE PURPOSE FOR WHICH SOURCE MATERIAL WILL BE USED
Basic laboratory research at the Washington Research Center and development work at Curtis Bay for the development of nuclear fuel materials. No production is involved.

8. STATE THE TYPE OR TYPES, CHEMICAL FORM OR FORMS, AND QUANTITIES OF SOURCE MATERIAL YOU PROPOSE TO RECEIVE, POSSESS, USE, OR TRANSFER UNDER THE LICENSE

| (a) TYPE | (b) CHEMICAL FORM | (c) PHYSICAL FORM (*Including % U or Th.*) | (d) MAXIMUM AMOUNT AT ANY ONE TIME (*in pounds*) |
|---|---|---|---|
| NATURAL URANIUM | | | |
| URANIUM DEPLETED IN THE U-235 ISOTOPE | $UO_2Cl_2 \cdot 6H_2O$, $UO_2(NO_3)_2 \cdot 6H_2O$, oxides (hydrous) | Salts, solutions 5-53w/o Sols, ceramics 5-98w/o | 1000 lbs. |
| THORIUM (ISOTOPE) | $Th(NO_3)_4 \cdot 4H_2O$ oxides (hydrous) | Salts, solutions 5-42w/o Sols, ceramics 5-98 w/o | 600 lbs. |

(e) MAXIMUM TOTAL QUANTITY OF SOURCE MATERIAL YOU WILL HAVE ON HAND AT ANY TIME (*in pounds*)
1600 lbs.

9. DESCRIBE THE CHEMICAL, PHYSICAL, METALLURGICAL, OR NUCLEAR PROCESS OR PROCESSES IN WHICH THE SOURCE MATERIAL WILL BE USED, INDICATING THE MAXIMUM AMOUNT OF SOURCE MATERIAL INVOLVED IN EACH PROCESS AT ANY ONE TIME, AND PROVIDING A THOROUGH EVALUATION OF THE POTENTIAL RADIATION HAZARDS ASSOCIATED WITH EACH STEP OF THOSE PROCESSES.
Wet chemical operations are used avoiding dust hazards. The Research Center uses experimental quantities of 50-1000 g. Process studies are made with less than 30 lb. quantities. Activities at both sites are modest in extent and quantities. Systematic efforts control the main hazard of area and personnel contamination in compliance with our policy of high safety standards, AEC, and state regulations.

10. DESCRIBE THE MINIMUM TECHNICAL QUALIFICATIONS INCLUDING TRAINING AND EXPERIENCE THAT WILL BE REQUIRED OF APPLICANT'S SUPERVISORY PERSONNEL INCLUDING PERSON RESPONSIBLE FOR RADIATION SAFETY PROGRAM (OR OF APPLICANT IF APPLICANT IS AN INDIVIDUAL).
Laboratory Supervision-experienced Ph.D; Process development-experienced engineer. Dr. J. D. Moyer, Radiation Protection Officer, has Ph.D. in chemistry, courses in radiochemistry and radiological health, 16 years radioisotope experience, and 6 years R.P.O. at this installation.

11. DESCRIBE THE EQUIPMENT AND FACILITIES WHICH WILL BE USED TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE OR PROPERTY AND RELATE THE USE OF THE EQUIPMENT AND FACILITIES TO THE OPERATIONS LISTED IN ITEM 9: INCLUDE: (a) RADIATION DETECTION AND RELATED INSTRUMENTS (including film badges, dosimeters, counters, air sampling, and other survey equipment as appropriate). The description of radiation detection instruments should include the instrument characteristics such as type of radiation detected, window thickness, and the range(s) of each instrument).

See supplemental sheet, Item 11a

(b) METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED IN (a) ABOVE INCLUDING AIR SAMPLING EQUIPMENT (for film badges, specify method of calibrating and processing, or name supplier).

See supplemental sheet, Item 11b

RECEIVED
MAY 29 1967
ATOMIC ENERGY COMMISSION
Regulatory Mail Section

1783

11(c). VENTILATION EQUIPMENT WHICH WILL BE USED IN OPERATIONS WHICH PRODUCE DUST, FUMES, MISTS, OR GASES, INCLUDING PLAN VIEW SHOWING TYPE AND LOCATION OF HOOD AND FILTERS. MINIMUM VELOCITIES MAINTAINED AT HOOD OPENINGS AND PROCEDURES FOR TESTING SUCH EQUIPMENT.

Our solution chemistry and small scale sintering studies (no grinding) involve negligible dusting, misting, etc. Operations are in well-ventilated hoods. Contained working spaces with absolute filters were developed for more toxic materials and are available for any operation involving the above hazards.

12. DESCRIBE PROPOSED PROCEDURES TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE AND PROPERTY AND RELATE THESE PROCEDURES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE: (a) SAFETY FEATURES AND PROCEDURES TO AVOID NONNUCLEAR ACCIDENTS, SUCH AS FIRE, EXPLOSION, ETC., IN SOURCE MATERIAL STORAGE AND PROCESSING AREAS.

The laboratories emphasize a basic safety and inspection program. Factors to note are (1) modern fire-proof construction (2) in-use lab.minimum of source materials and flammables (3) safe storage areas for source materials and flammables.

(b) EMERGENCY PROCEDURES IN THE EVENT OF ACCIDENTS WHICH MIGHT INVOLVE SOURCE MATERIAL.

See supplemental sheet, item 12b, which is copy of our emergency instructions.

(c) DETAILED DESCRIPTION OF RADIATION SURVEY PROGRAM AND PROCEDURES.

Our background of being trained and equipped for Toxic Materials (past applications - File 40-2810) is being maintained. See supplemental sheet, item 12c for Survey Program.

13. WASTE PRODUCTS: *If none will be generated, state "None" opposite (a), below. If waste products will be generated, check here* ☒ *and explain on a supplemental sheet:*

(a) Quantity and type of radioactive waste that will be generated.

(b) Detailed procedures for waste disposal.

14. IF PRODUCTS FOR DISTRIBUTION TO THE GENERAL PUBLIC UNDER AN EXEMPTION CONTAINED IN 10 CFR 40 ARE TO BE MANUFACTURED, USE A SUPPLEMENTAL SHEET TO FURNISH A DETAILED DESCRIPTION OF THE PRODUCT, INCLUDING:

(a) PERCENT SOURCE MATERIAL IN THE PRODUCT AND ITS LOCATION IN THE PRODUCT.

(b) PHYSICAL DESCRIPTION OF THE PRODUCT INCLUDING CHARACTERISTICS, IF ANY, THAT WILL PREVENT INHALATION OR INGESTION OF SOURCE MATERIAL THAT MIGHT BE SEPARATED FROM THE PRODUCT.

(c) BETA AND BETA PLUS GAMMA RADIATION LEVELS (*Specify instrument used, date of calibration and calibration technique used*) AT THE SURFACE OF THE PRODUCT AND AT 12 INCHES.

(d) METHOD OF ASSURING THAT SOURCE MATERIAL CANNOT BE DISASSOCIATED FROM THE MANUFACTURED PRODUCT.

## CERTIFICATE

(*This item must be completed by applicant*)

15. ***The applicant, and any official executing this certificate on behalf of the applicant named in Item 2, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 40, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.***

Research Division, W. R. Grace & Co.
(*Applicant named in Item 2*)

Dated May 26, 1967

BY: M. G. Sanchez
(*Print or type name under signature*)

Vice President
(*Title of certifying official authorized to act on behalf of the applicant*)

WARNING: 18 U.S.C. Section 1001; Act of June 25, 1948; 62 Stat. 749; makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U.S. GOVERNMENT PRINTING OFFICE: 1964—O-706-977 817—427—2

Supplemental Sheet No. 1
Form AEC-2

Docket No. 40-2810
Task No. TO1
Docketed 5-29-67 R2

Research Division
W. R. Grace & Co.,
Clarksville, Maryland

Regulatory Suppl File Cy.

Item 11a: Radiation Detection and Related Instruments

Sampling: Staplex Hi-volume Air Sampler, Model TFIA

Millipore Filter Corp., Air Pump, Model XX 60 000 000 and associated membrane filters.

Detection: Victoreen Cutie Pie Survey Meter, Model 74CB, sensitivity range 0-100 mr/hr window thickness 0.0005 inches Mylar, detects alpha, beta and gamma.

Tracerlab Survey Meters (2), Model SU-14, sensitivity range 0-25 mr/hr. or 0-50,000 cpm, window thickness less than 2 mg/cm$^2$, detect alpha, beta and gamma

Eberline Instrument Corp. Gas Proportional Counter Model PAC-3G, range 0-100,000 cpm., detects alpha.

Nuclear Measurements Corp. Windowless Gas Flow Proportional counter, counts alpha, beta and gamma. Range 0-> 100,000 dpm.

Item 11b: Methods, Frequency and Standards Used in Calibrating Instruments Listed in 11a.

Methods: The Victoreen Cutie Pie Survey Meter and the two Tracerlab SU-14 meters are calibrated with a cobalt-60 sealed source at various distances from the source.

The Tracerlab SU-14 meters and the Eberline PAC-3G alpha counter are calibrated by holding a standard alpha source as near as possible to the thin windows, simulating actual surveying.

The Nuclear Measurements proportional counter is calibrated by inserting standard alpha, beta, or gamma sources into the chamber and counting at the proper voltage.

Frequency: All survey and counting instruments are calibrated at least semi-annually with standard sources and tested for proper operation with smaller check sources at each use.

Standards Used:

Alpha - National Bureau of Standards
Uranium Oxide source, Standard Sample No. 4903-201-7-2

Beta - Nuclear Chicago carbon-14 source Model R-20, calibrated against National Bureau of Standards carbon-14 beta-ray standard, Sample No. P-675.

Supplemental Sheet No. 2
Form AEC-2

Research Division,
W. R. Grace & Co.,
Clarksville, Maryland

Item 11b: Continued

Gamma - Tracerlab R-51, 5 mc. calibrated cobalt-60 source.

Tracerlab R-7, $7.1 \times 10^{-4}$ mc calibrated cobalt-60 sources are corrected for decay at each calibration.

Permanent records are maintained on all calibrations.

Film badges or dosimeters are not issued because of the low level of beta and gamma radiation from the quantities of source material involved in the operations.

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

IN REPLY REFER TO: DML:ND 70-456

W. R. Grace & Company
Research Division
Washington Research Center
Clarksville, Maryland 21029

SEP 29 1967

SUBJECT: NOTICE OF LICENSE EXPIRATION

Gentlemen: Attention: Mr. T. G. Gibian

Notice is given that Special Nuclear Material License Number SNM-840 expires on November 30, 1967.

If you desire to continue your program using special nuclear material(s), an application for renewal of the license should be filed with this office pursuant to Title 10, Code of Federal Regulations, Part 70, Section 70.33. The application should be submitted in letter form in quadruplicate. It is to your advantage to file such an application at least thirty (30) days before the expiration date of your existing license. Your program will then be covered by your existing license until action is taken on your application for license renewal. (Section 70.33(b)). If an application is received less than 30 days prior to the expiration date of your license and cannot be processed before your existing license expires, this could result in your possessing special nuclear material without a valid license.

If you do not wish to renew your license, please complete the enclosed form "Certification of Status of Special Nuclear Material Activities Under United States Atomic Energy Commission Special Nuclear Material License Number-840 ", and return it to this office.

If you have obtained an amendment which has extended the expiration date of the above license or if a new license has been issued which supersedes the above license, please disregard this notice.

This notice of your license expiration is sent for your convenience and it should not be interpreted that similar notices will be sent in the future. The responsibility for timely submission of an application for license renewal remains with the licensee.

Very truly yours,

Donald A. Nussbaumer

Donald A. Nussbaumer, Chief
Source & Special Nuclear Materials Branch
Division of Materials Licensing

Enclosure:
"Certification . . ."

F/18

70-456

W. R. GRACE & CO.

RESEARCH DIVISION

Washington Research Center, Clarksville, Maryland 21029

October 2, 1970

United States
Atomic Energy Commission
Washington, D. C. 20545

ATTENTION: Mr. Ralph G. Page

Gentlemen:

Attached is the Material Status Report (Form AEC-742) for the period ending June 30, 1970. The delay in returning the report was due to an internal reorganization of the Washington Research Center.

In order to minimize difficulty in the future, will you please forward all correspondence concerning SNM-840 to: W. R. Grace & Company
Research Division
Washington Research Center
ATTN: Dr. M. G. Sanchez,
President Corporate Research Division
Clarksville, Maryland 21029.

Very truly yours,

D. R. Telesca
Plant Manager

cc: U. S. Atomic Energy Commission,
P. O. Box E
Oak Ridge, Tennessee 37830

Called 10/6/70 to F/19
Orig. MSR sent OR, VP signed MSR.

Cable - Gracerad Tel. (301) 531 - 5711 TWX - 710 862 1886

MAR 24 1972

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CO:HQ w/list of addressees (6)
SHSmiley
CKBeck
DR R/F

Docket No. 70-456
SNM-840

W. R. Grace & Company
ATTN: Mr. D. R. Telesca
Washington Research Center
Clarksville, Maryland 21029

Gentlemen:

It is becoming increasingly important that uniform methods be followed for monitoring effluents released to the environment from nuclear fuel processing and fabrication plants. At present there is considerable variation among fuel processors and fabricators in the methods for collecting and measuring the effluent data necessary to assess environmental impact.

The Commission intends to require licensees authorized to conduct fuel processing and fabrication activities to carry out specified effluent monitoring programs and to report to the Commission the data obtained within 60 days after January 1 and July 1 of each year. The report would contain information concerning the concentrations and quantities of radioactivity released to unrestricted areas in liquid and air effluents.

For this purpose we have developed a license condition for the monitoring and reporting of effluents, a draft copy of which is enclosed. This document specifies effluent monitoring programs which appear to be appropriate for most fuel processing and fabrication plants. In some cases there may be good reasons to supplement or modify the condition because of particular circumstances. The need for supplemental or modified programs will be determined on an individual case basis.

We would appreciate receiving your comments to help us finalize the condition. Comments should be furnished within 60 days from the date of this letter. Our present schedule for implementing the condition calls for the first report to be submitted within 60 days following January 1, 1973, covering the previous 6-month period.

Sincerely,

S. H. Smiley, Director
Division of Materials Licensing

Enclosure:
Draft License Condition

(See 10-25 for Concurrence) F/20

| OFFICE ▶ | DML | DML | DML | CO | DML | |
|---|---|---|---|---|---|---|
| SURNAME ▶ | RJDube/gl | LERouse | DANussbaumer | | SHSmiley | |
| DATE ▶ | 3/ /72 | 3/ /72 | 3/ /72 | 3/ /72 | 3/ /72 | |

CRESS 3/2
2028 R13 &
2021 R20

Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1971 —446 —184

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

APR 1 1972

70-456

Gentlemen:

Thank you for your response to our letter of July 13, 1971, which requested a description of your waste management program and certain effluent data. We are evaluating the information and data submitted by fuel processing and fabrication licensees in an effort to provide more definitive guidance with respect to "as low as practicable" as specified in Section 20.1 of 10 CFR Part 20.

Many of the responses to our letter included plans for modifications to waste treatment systems to further reduce quantities and concentrations of radioactivity in effluents. These planned modifications should be instituted as soon as possible.

As an interim measure, we believe that in keeping with the "as low as practicable" objective, appropriate steps should be taken to ensure that optimum use is made of currently installed waste treatment systems. Accordingly, we propose to add to your license the enclosed license condition dealing with the maintenance and use of effluent treatment systems. While the basic requirements of this condition are currently being met in most cases by licensees conducting fuel processing and fabrication operations, the enclosed condition would give regulatory effect to this management practice.

To obviate the need for further regulatory action, we request that you inform us within 30 days of your agreement to the addition of this condition to your license. Thank you for your cooperation.

Sincerely,

S. H. Smiley, Director
Division of Materials Licensing

Enclosure:
License condition

F121

## LICENSE CONDITION

### Use of Effluent Treatment Systems

A. The licensee shall maintain and use all effluent treatment systems installed to maintain releases of radioactive materials in effluents to unrestricted areas as far below the limits specified in 10 CFR Part 20 as practicable.

B. The licensee shall establish procedures adequate to assure that the effluent treatment systems are functioning properly and are meeting design objectives. The licensee shall take immediate steps to rectify any observed deficiencies as soon as practicable.

C. All other requirements of this license and of 10 CFR Part 20 shall be met.

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

APR 10 1972

70-456

Gentlemen:

The determination of dose following a nuclear accident is a matter of concern to the Commission. For operations where a criticality excursion is possible, it is the responsibility of the licensee to have the capability to provide for dose determination.

In order to provide for the development of criticality dosimetry and dose determination systems, nuclear accident dosimetry exercises will be conducted at the Dosimetry Applications Research Facility (DOSAR) of the Oak Ridge National Laboratory during a two-week period beginning July 17, 1972. Licensees who have special nuclear material in quantities sufficient to result in a criticality excursion are invited by DOSAR to participate and to test their own dosimetry system. If a licensee has not adopted a nuclear accident dosimetry system the program should provide valuable experience for the development of one. The first week of the program will include discussions by the participants of their dosimetry systems and a review of previous intercomparison studies. The second week will include lectures and laboratory demonstrations by members of the DOSAR staff.

Exposures of dosimeters will be made at the Health Physics Research Reactor (HPRR). ORNL will provide human-like phantoms, filled with an aqueous saline solution, which will be exposed simultaneously with the nuclear accident dosimeters. Part of the aqueous solution will be made available to the participants for use in determining the equivalent blood sodium activation resulting from each criticality burst of the reactor.

The tentative program has been arranged to provide a logical breaking point at the end of the first week for participants who are unable to attend the full program. A preliminary critique by participating groups of the first week's tests and reports of dose determinations is scheduled for Friday, July 21. However, participants are encouraged to attend the full two-week program.

F/22

The first two days of the comparison exercises will be used for orientation and to set up the experiments. The first burst of the reactor is expected to be on Wednesday of the first week. A second burst is scheduled for Thursday, with the reactor shielded with a low Z material. Time is scheduled during the week for counting the irradiated components of the dosimeters and for dose calculations.

A third burst is scheduled for the second week with the reactor shielded with a high Z material. Time will be available for a fourth burst, if required. A final critique for intercomparison study is scheduled on Friday, July 28.

Participants may arrange for counting facilities at ORNL. However, if at all possible, participants should bring their own system or make arrangements to have the irradiated dosimeter components flown back to their own plant for counting and for dose determinations, using the same equipment that would be used under actual emergency conditions.

The exercises will be conducted at no cost to the licensee except for the cost of sending personnel to participate. The names of those desiring to attend should be transmitted to:

Dr. John Poston
Dosimetry Applications Research Facility
Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee 37830

Questions concerning the exercises also may be addressed to Dr. Poston, telephone number, 615-483-1592. The seventh of these studies was conducted in 1971 and there were representatives from Germany, France, Canada, and ten groups in the United States.

We encourage each licensee authorized to possess substantial quantities of special nuclear material to consider sending a representative to participate in and observe these exercises.

Sincerely,

S. H. Smiley, Director
Division of Materials Licensing

NOV 9 0 1972

Docket No. 70-456

Files

WITHHOLDING OF PROPRIETARY INFORMATION OF W. R. GRACE & CO.

By letter dated July 6, 1972, W. R. Grace & Co., requested an amendment to License SNM-840 to include some proposed process changes and to update organizational and personnel changes. The request took the form of new and superseding pages to be inserted into the Grace application. Pages 22 through 28 of the submittal were marked "Grace Proprietary Information".

By letter dated July 14, 1972, W. R. Grace & Co., requested that these pages 22 through 28 be withheld from public inspection pursuant to 10 CFR 2.790(b). These pages disclose unpublished information regarding processes and equipment of competitive value which has been generated at private expenses, and information regarding processes and equipment under development at the Grace Research Center. This information has been provided to assist in the detailed review of the nuclear and radiological safety of the processes. Sufficient information is provided for the public to be reasonably assured of its health and safety and the information contained in these pages 22 through 28 is to be treated as proprietary data in accordance with 10 CFR 9.5(4). We have granted by letter to W. R. Grace & Co. its request for withholding for the reasons cited above.

for S. H. Smiley, Deputy Director
for Fuels and Materials
Directorate of Licensing

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RBChitwood, L:FFRB
DANussbaumer, L:FC
SHSmiley, L:FM

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L R/F

P/23

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| SURNAME ▶ | JCDelaney | RBChitwood | DANussbaumer | SHSmiley | | |
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Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U.S. GOVERNMENT PRINTING OFFICE: 1972 —463 —015

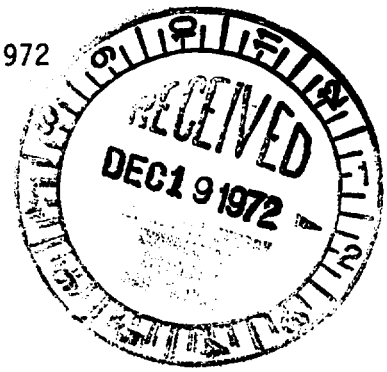
Regulatory File Cy. DOCKET NO. 70-456

# W. R. GRACE & CO.

## RESEARCH DIVISION

Washington Research Center, Clarksville, Maryland 21029

11 December 1972




Director of Regulation
U.S. Atomic Energy Commission
7920 Norfold Avenue
Bethesda, Maryland 20014

Ref: (1) 10 CFR 20, Para. 20.103 (a) and (c)
(2) Special Nuclear Materials License: SNM 840

Subject: Allowance for particle size distribution in determining personnel exposure to airborne contamination.

Dear Sir:

Authorization is requested to determine and limit personnel exposure to airborne radioactive contamination by sampling respirable size particles only using the National Environmental Instruments, Inc. Model C-115 Personnel Monitor and Lapel Sampler or its equivalent.

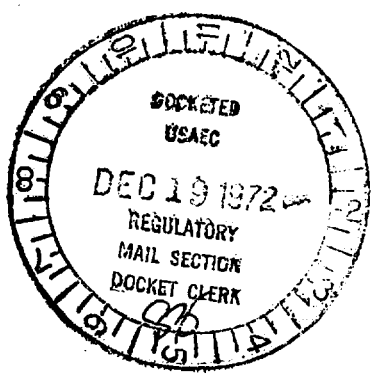
W. R. Grace & Co. proposes to augment and improve its method of air sampling to determine personnel exposure to airborne radioactive contamination by using personal air samplers whenever operations which are suspected to involve probably significant levels of airborne activity are done. Such operations may be identified before or during their execution by operating or radiation safety personnel. The specific equipment proposed for this use has an integral particle size classifier which permits respirable size particles only to reach the filter medium used to collect the air sample. We understand that the determination of exposure based on measurements of the activity in samples collected this way is precluded by Federal Regulations unless specifically authorized as requested by this letter.

If more information is required to disposition this request, please contact me at the above address or by telephone at (301) 531-5711, X 536.

Sincerely,

R. J. Herbst

R. J. Herbst
Radiation Protection Officer




RJH/cal

F/24

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AEC FORM 783
(4-71)

U.S. ATOMIC ENERGY COMMISSION

# MATERIALS DATA INPUT

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|---|---|---|---|---|
| 070-00456 | 06924 | 12/19/72 | | |

SECONDARY PROGRAM CODES:

| #1 | #2 | #3 | #4 | #5 |
|---|---|---|---|---|
| | | | | |

INDIVIDUAL LICENSEES

| NAME | NAME |
|---|---|
| NAME | NAME |
| NAME | NAME |

ORGANIZATION LICENSEE

ORGANIZATION NAME: W.R. Grace & Co

DEPARTMENT OR BUREAU:

TYPE OF ORGANIZATION: U. S. GOVERNMENT AGENCY | EDUCATIONAL INSTITUTION | MEDICAL INSTITUTION | [X] INDUST | OTHER

ADDRESS

| BUILDING, STREET | CITY | STATE | ZIP CODE |
|---|---|---|---|
| | Clarksville | MD | 21029 |

| APPLICANT'S COMMUNICATION DATED: | CLASSIFICATION | ASSIGNED TO: | RESULTING AMD. NO. |
|---|---|---|---|
| 12/11/72 | U | | |

ENCLOSURES:

UNCLASSIFIED DESCRIPTION:

Ltr., req. authorization to determine and limit personnel exposure to airborne radioactive contamination by sampling respirable size particles only using the National Environmental Instruments, Inc, Model C-115 Personnel Monitor and Lapel Sampler or its equivalent.

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2-RO
1-Page

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ACKNOWLEDGED

OTHER REFERRALS

| NAME | DATE | NAME | DATE |
|---|---|---|---|
| Chitwood:<br>W/2 extras | 12/19 | | |

crj

70-~~268~~
70-456

DEC 2 7 1972

W. R. Grace & Company
Washington Research Center
ATTN: Mr. G. E. Ashby
Vice President Research Division
Clarksville, Maryland 21029

Gentlemen:

This will acknowledge receipt of your interim report dated November 7, 1972, concerning the exposure of some of your employees to radioactive material. This matter was examined during a recent inspection of your facilities.

We understand that a final report of the incident is to be submitted by the Company. We will look forward to receiving that report.

Very truly yours,

Original signed by
F. E. Kruesi

F. E. Kruesi, Director
of Regulatory Operations

bcc: w/cpy ltr dtd 11/7/72
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DR Reading Files

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| DATE ▶ | 12/20/72 | | | | | |

Form AEC-318 (Rev. 9-53) AECM 0240

GPO 943—16—81465-1 445-078

L:FFRB:JCD
70-456

W. R. Grace & Co.
ATTN: Mr. R. J. Herbst
Radiation Protection Officer
Washington Research Center
Clarksville, Maryland 21029

Gentlemen:

Your letter dated December 11, 1972, requests authorization to determine and limit personnel exposure to airborne radioactive contamination by sampling only respirable size particles using the National Environmental Instruments, Inc. Model C-115 Personnel Monitor and Lapel Sampler or its equivalent.

According to Section 20.103(c)(2) the Commission may authorize a licensee to expose an individual in a restricted area to airborne concentrations in excess of the limits specified in Appendix B, Table I, 10 CFR 20, upon receipt of an application demonstrating that the concentration is composed in whole or in part of particles of such size that such particles are not respirable; and that the individual will not inhale in excess of the limits established in Appendix B, Table I.

Before we may further review your application you should submit the demonstration required by Section 20.103(c)(2).

Include data establishing the particle size distribution of the contamination prevailing in the atmosphere of the pertinent work spaces and explain how the respirable fractions as evaluated by the proposed sampler, compares to the respirable fraction that was utilized in establishing the concentration values in Column 1, Table 1, Appendix B, 10 CFR 20.

Describe the Model C-115 instrument and any acceptable alternate which you claim will not detect non-respirable particles. Provide data on its sampling characteristics and identify what fraction of inhalable particles it will detect.

F/26

What correlation have you experienced running samples simultaneously in atmospheres characteristic of the proposed work space, separated by a distance comparable to that between a worker's nose and his monitoring instrument?

Establish that inhalation of a radioactive material by employees' will be as low as practicable when taking credit for non-respirable size particles.

Establish the calibration frequency and method you will use to verify sampler performance and the respirable component of the atmosphere to which workers may be subject.

Sincerely,

Original signed by R. B. Chitwood

R. B. Chitwood, Chief
Fuel Fabrication and Reprocessing Branch
Directorate of Licensing

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|---|---|---|---|---|---|---|
| SURNAME ▶ | JCDelaney:pw | RBChitwood | WHRay | | | |
| DATE ▶ | 1/30/73 | 1/31/73 | 1/30/73 | | | |

DOCKET NO. 70-456

REGULATORY FILE CY

W. R. GRACE & CO.

GRACE

RESEARCH DIVISION

Washington Research Center, Clarksville, Maryland 21029

February 1, 1973

Mr. C. E. McDonald
Chief, Transportation Branch
Directorate of Licensing
USAEC
Washington, D. C. 20545

Dear Mr. McDonald:

Re: Docket No. 70-456

In response to your questions relative to our December 21, 1972 request for permission to use the SP-5061 packaging for solutions containing chloride, we agree to limit the use of the packages to the solutions described and not to release the packages for use by others for use with different solutions. The package will be designated as the WRG-10 Cl packaging and each package will be so marked.

We propose to use the Viton-Fluorelastomer or equivalent gasket in the polyethylene cap closure. This material is recommended by the manufacturer, the DuPont Company, for use at 230 F or less in 20% hydrochloric acid. The solutions to be shipped are much less corrosive than 20% HCl, and are therefore compatible with the gaskets to be used.

We trust that this answers your questions satisfactorily and that you will forward your approval promptly.

DOCKETED
USAEC
FEB 5 1973
REGULATORY
MAIL SECTION
DOCKET CLERK

Sincerely,

G. E. Ashby
Vice President
Nuclear

GEA:srh

F127

cc: Office of Hazardous Materials - DOT

877

ACKNOWLEDGED

Cable - Gracerad Tel. (301) 531 - 5711 TWX - 710 862 1886

DOCKET NO. 70-456

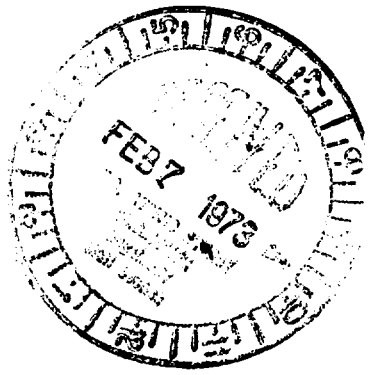
REGULATORY FILE CY

# W. R. GRACE & CO.

GRACE

## RESEARCH DIVISION

Washington Research Center, Clarksville, Maryland 21029




5 February 1973

R. B. Chitwood, Chief
Directorate of Licensing
Fuel Fabrication and Reprocessing Branch
U. S. Atomic Energy Commission
7920 Norfolk Avenue
Bethesda, Maryland 20014

Ref: (1) Docket 70-456
(2) Special Nuclear Material License, SNM 840
(3) Letter: R. J. Herbst to USAEC (11 Dec 1972)
(4) L:FFRB:JCD (31 Jan 1973)

Dear Sir:

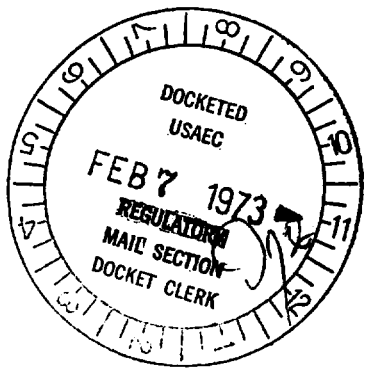
W. R. Grace & Co. withdraws its request for authorization to determine and limit personnel exposure to airborne radioactivity on the basis of air sampling respirable size particles only.

Thank you for considering our request.

Sincerely,

R. J. Herbst
Radiation Protection Officer

RJH/cal

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ACKNOWLEDGED

342

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SHSmiley, L:FM

L:FFR:JCD
70-456

W. R. Grace & Co.
ATTN: Mr. G. E. Ashby
Vice President, Nuclear
Washington Research Center
Clarksville, Maryland 21029

Gentlemen:

Your application dated December 11, 1972, requested that pages 23 and 23A of the enclosure thereto, be withheld from public inspection pursuant to 10 CFR 2.790(b).

After reviewing this information, we have determined that disclosure of the information contained therein is not required in the public interest nor by the provision of 10 CFR 9 and would adversely affect the interest of W. R. Grace and Company. Accordingly, we are withholding from public inspection the information contained in the above referenced pages pursuant to 10 CFR 2.790(b). Withholding of this information from public inspection shall not, however, affect the rights, if any, of persons properly and directly concerned to inspect these documents.

Sincerely,

Original Signed by
S. H. Smiley

S. H. Smiley, Deputy Director
for Fuels and Materials
Directorate of Licensing

F129

| OFFICE ▶ | L:FFR | L:FFR | OGC | L:FC | L:FM | |
|---|---|---|---|---|---|---|
| SURNAME ▶ | JCDelaney/slm | RBChitwood | M Kaufman | DANussbaumer | SHSmiley | |
| DATE ▶ | 1/30/73 | 2/8/73 | 2/5/73 | 2/9/73 | 2/10/73 | |

Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1972-466-983

FEB [illegible] 1973

Docket No. 70-456

(Files

WITHOLDING OF PROPRIETARY INFORMATION OF W. R. GRACE & CO.

By letter dated December 11, 1972, W. R. Grace & Co., requested an amendment to License SNM-840 to include some proposed process changes. The request took the form of superseding pages to be inserted into the Grace application. Pages 23 and 23A of the submittal were marked "Grace Proprietary Information".

W. R. Grace & Co., requested that these pages 23 and 23A be withheld from public inspection pursuant to 10 CFR 2.790(b). These pages disclose unpublished information regarding processes and equipment of competitive value which has been generated at private expenses, and information regarding processes and equipment under development at the Grace Research Center. This information has been provided to assist in the detailed review of the nuclear and radiological safety of the processes. Sufficient information is provided for the public to be reasonably assured of its health and safety and the information contained in these pages 23 and 23A is to be treated as proprietary data in accordance with 10 CFR 9.5(4). It should also be noted that these pages contain information that has previously been withheld by the Commission as proprietary. We have granted,by letter to W. R. Grace & Co., its request for withholding for the reasons cited above.

Original Signed by
S. H. Smiley

S. H. Smiley, Deputy Director
for Fuels and Materials
Directorate of Licensing

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L;FM R/F
L R/F

F/30

| OFFICE ▶ | L:FFRB | L:FFRB | L:FC | L:FM | | |
|---|---|---|---|---|---|---|
| SURNAME ▶ | JCDelaney:pw | RBChitwood | DANussbaumer | SHSmiley | | |
| DATE ▶ | 1/30/73 | 2/8/73 | 2/9/73 | 2/10/73 | | |

Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1972-466-983

I&E Central File

70-456

In reply refer to:
RO:RPB
SNM-340

MAR 7 1973

W. R. Grace & Company
Washington Research Center
ATTN: Mr. G. E. Ashby
Vice President
Nuclear
Clarksville, Maryland 21029

Gentlemen:

This will acknowledge your letter dated February 13, 1973, with the attached Final Report on the October 1972 exposure of several employees to radioactive material. We have no further questions at this time.

Very truly yours,

Original signed by
F. E. Kruesi

F. E. Kruesi, Director
of Regulatory Operations

bcc: PDR
NSIC
L:AEB
L:BMB
C. F. Eason, AWCRR, AGMES
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F/31

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|---|---|---|---|---|---|---|
| SURNAME ▶ | GHBidinger:ef<br>X-7347 | GWRoy | RHEngelken | FEKruesi | | |
| DATE ▶ | 3/5/73 | | | | | |

Regulatory File Cy.

DOCKET NO. 7-1456

# W. R. GRACE & CO.

## RESEARCH DIVISION

WASHINGTON RESEARCH CENTER
7379 ROUTE 32, COLUMBIA, MARYLAND 21044
Telephone 301 - 531-5711

May 30, 1973



Director, Division of Materials
Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Sir:

Re: Notification per 10 CFR 71.7 (b) (iii)

Please register

W. R. Grace & Co.
Washington Research Center
7379 Route 32
Columbia, Maryland 21044

SNM License No. 840

as a user of shipping container, Model No. UNC 1484, which is licensed [SNM 33 (71-25)] to be used for the delivery of licensed material to a carrier for transport by

Gulf-United Nuclear Fuels Corp.
P. O. Box 107
Hematite, Missouri 63047

Thank you.

Very sincerely,

Richard J. Herbst

RJH:srh



3593

F/3 2

DOCKET NO. 70-452


# W. R. GRACE & CO.

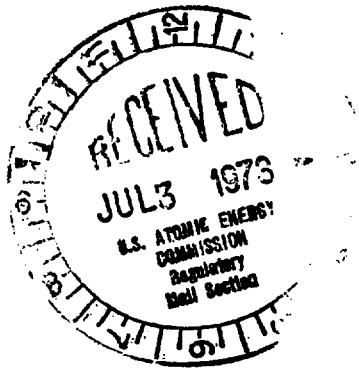
GRACE

## RESEARCH DIVISION

WASHINGTON RESEARCH CENTER
7379 ROUTE 32, COLUMBIA, MARYLAND 21044
Telephone 301 - 531-5711


Regulatory File Cy.

June 29, 1973




Director, Division of Materials
Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Sir:

Re: Notification per 10 CFR 71.7 (b) (iii)

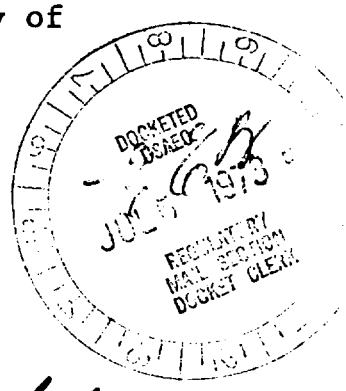
Please register

W. R. Grace & Co.
Washington Research Center
7379 Route 32
Columbia, Maryland 21044

SNM License No. 840

as a user of shipping container, Model No. RMG-181-I, which is licensed SNM 124(71-23) to be used for the delivery of licensed material to a carrier for transport by

Nuclear Fuel Services, Inc.
Erwin, Tennessee 37650




Thank you.

Very sincerely,

Richard J. Herbst

RJH:srh

F/33

5178

L:MPP:RBL
70-456

September 27, 1973

W. R. Grace and Company
ATTN: R. J. Herbst, SS Rep.
Research Division
Washington Research Center
Clarksville, Maryland 21029

Gentlemen:

We are issuing Amendment MPP-1 to your Special Nuclear Materials License No. SNM-840, effective the date of this letter, to reflect organizational changes within the AEC, and to add a new license condition which permits the use of Form AEC-284 to acknowledge receipt of nuclear material where receipt measurements cannot be completed within ten (10) days of receipt of material.

Sincerely,

Original Signed by
Ralph G. Page

R. G. Page, Chief
Materials and Plant Protection
Branch
Directorate of Licensing

Enclosure:
As stated

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JAPowers
RO-I

F/34

| CRESS T-17,015 R-01 9/12/73 | | | | | | |
|---|---|---|---|---|---|---|
| OFFICE ▶ | L:MPP | L:MPP | L:MPP | | | |
| SURNAME ▶ | LTyson:gr | RLindauer | RGPage | | | |
| DATE ▶ | 9/ /73 | 9/ /73 | 9/ /73 | | | |

Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U.S. GOVERNMENT PRINTING OFFICE: 1973—499-254

UNITED STATES
ATOMIC ENERGY COMMISSION

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LICENSE AMENDMENT
FOR
MATERIALS AND PLANT PROTECTION

Pursuant to the Atomic Energy Act of 1954, as amended, and Title 10, Code of Federal Regulations, Chapter 1, Part 70, the following amendment to the special nuclear material license identified below is hereby issued, incorporating requirements for control and accounting of special nuclear material.

---

Licensee

Name: The Research Division
of the W. R. Grace & Company

Address: Washington Research Center
Clarksville, Maryland 21029

License No. SNM-840

Amendment No. MPP-1 - Supersedes all previous safeguards amendments

Docket No. 70-456

---

CONDITIONS

1.0 FACILITY ORGANIZATION

1.1 The SS Representative shall develop, revise, implement, and enforce the nuclear material control procedures and manage an overall system of special nuclear material control.

1.2 Nuclear material control procedures and revisions thereto shall be approved by the Plant Manager. A manual containing all current nuclear material control procedures shall be maintained by the SS Representative.

1.3 The Plant Manager shall assure that the nuclear material control procedures are appropriately reflected in process specifications, manufacturing instructions, standard operating procedures, or similar detailed management instructions.

1.4 All delegations of safeguards responsibilities by the Plant Manager shall be in writing.

2.0 FACILITY OPERATION

2.1 Material Balance Areas (MBA's) shall be established by the Plant Manager.

2.2 Each MBA shall be an identifiable physical area into and out of which movement of special nuclear material can be measured.

2.3 Sufficient numbers of MBA's shall be established so that losses of special nuclear material can be identified and localized.

2.4 All operations within an MBA shall be the responsibility of a single employee who shall also be responsible for the custody of special nuclear material within his MBA.

3.0 MEASUREMENTS AND STATISTICAL CONTROLS

3.1 The licensee shall determine the U-235, U-233, and/or Pu content of all receipts, shipments, intentional discards, and material inventoried, along with the limits of error associated with these quantities. The licensee shall make sufficient measurements to substantiate the stated quantities and associated limits of error. Measurements are not required on items which have been determined by other means to contain less than ten (10) grams U-235, U-233, and/or Pu each. Limits of error as used herein means the boundaries within which the true or best value of the parameter being measured lies with a probability of 95%.

3.2 A program of standardizations and calibrations of measurement equipment and analytical procedures shall be maintained to provide data to substantiate the limits of error associated with all measurements required for safeguards purposes.

3.3 All measurements required by this amendment shall be reviewed annually by the Plant Manager. This review shall include a quantitative calculation of limits of error of the measurement system. The Plant Manager shall utilize data obtained through calibrations specified in Condition 3.2 to monitor performance of the measurement system to assure calculated limits of error are maintained between reviews. Records of reviews, calculations, and use of calibration data shall be kept by the Plant Manager.

3.4 After any physical inventory the material unaccounted for (MUF) and the limits of error associated with the material unaccounted for shall be computed promptly. The limits of error associated with MUF shall be calculated by statistically combining the limits of error determined for shipments, receipts, beginning inventory, ending inventory, and measured discards for the period since the last inventory.

3.5 If the quantity of MUF exceeds the associated limits of error, the licensee shall promptly notify the Atomic Energy Commission, Directorate of Regulatory Operations, Region I Office. The licensee shall investigate the MUF and notify the Region I Office of the Directorate of Regulatory Operations within thirty (30) days after the initial notice, specifying the probable reasons for the MUF and the corrective action taken or planned.

4.0 SHIPPING AND RECEIVING

4.1 All shipper-receiver differences shall be brought to the attention of the SS Representative, who shall evaluate these differences to determine whether they are statistically significant and of sufficient magnitude to warrant investigation. The SS Representative shall investigate all statistically significant differences which exceed $500 value. A shipper-receiver difference shall be considered statistically significant when (1) the difference exceeds the statistical combination of the limits of error of the shipper's and receiver's measurements, or (2) if the shipper's limit of error is unknown, the difference exceeds twice the limits of error for the receiver's measurement. Statistical analyses of past performance, measurement uncertainties, and other data shall be kept by the licensee.

5.0 STORAGE AND INTERNAL TRANSFERS

5.1 A documented system of control over special nuclear material stored and processed within the facility shall be maintained which will provide continuous knowledge of the location and quantity of all material contained in discrete, identifiable items or containers.

5.2 All transfers of special nuclear material between MBA's shall be documented to show the identity, quantity, and isotopic analysis of the material transferred. A system of controls shall be maintained by the licensee for the distribution and accounting of all transfer documents.

5.3 Each document supporting a transfer of material between MBA's shall be signed by the delegated individual.

6.0 INVENTORY

6.1 A complete physical inventory of all special nuclear material subject to this license shall be conducted at approximately twelve-month intervals, but in no case shall more than fourteen months elapse between inventories.

6.2 Prior to each complete physical inventory, written procedures shall be prepared which:

6.2.1 specify the extent to which each MBA is to be shut down and process equipment cleaned out;

6.2.2 specify the extent to which each MBA is to remain static during the inventory;

6.2.3 identify the basis for accepting for inventory purposes previously made measurements and their limits of error;

6.2.4 designate measurements to be made for inventory purposes to establish and demonstrate the limits of error associated with the quantity of material on inventory; and

6.2.5 identify the manner by which material on inventory will be listed to assure each item is inventoried and there are no duplications or omissions.

6.3 The book inventory shall be reconciled with and adjusted to the results of the physical inventory upon completion of the physical inventory.

6.4 Special physical inventories of an MBA shall be conducted whenever there is reason to believe that subsequent to the last prior physical inventory a particular MBA has experienced losses or gains that are different by a statistically significant amount from those expected.

7.0 RECORDS AND REPORTS

7.1 The licensee shall establish and maintain a records system which will provide sufficient information to maintain a material balance around each MBA and the total plant. These records shall contain information

pertaining to all receipts, shipments, measured discards, inventory, and MUF for each material balance. MBA and plant records shall be reconciled at the end of each accounting period. All entries in the records shall be supported by appropriate documents.

7.2 All measured discards and MUF shall be reported on a monthly basis by the SS Representative to the Plant Manager.

7.3 The licensee shall report on a monthly basis all intentional discards and material unaccounted for. The MUF shall be that which has been determined during the month as a result of completing a material balance around a single operation, a number of operations, or the entire plant. This report shall be made within fifteen (15) days after the end of the month in which the discard was made or the material unaccounted for was determined. Reports shall be sent to the U.S. Atomic Energy Commission, Directorate of Regulatory Operations, Region I Office. Each report shall be identified by the Reporting Identification Symbol(s) (RIS) assigned to the licensed operations and shall include a statement of the nature of the discards, the probable reasons for the MUF and any actions taken or planned with respect to the MUF.

7.4 In lieu of the requirement in 10 CFR 70.54 that the Form AEC-741 be completed and distributed within 10 days after receipt of nuclear material, the licensee may use a Form AEC-284 to acknowledge receipt where measurements cannot be completed in the time specified. Receipt measurements shall be completed and reported on the Form AEC-741 within 30 days after receipt of material.

8.0 MANAGEMENT OF MATERIALS CONTROL SYSTEM

8.1 Licensee management, independent of the SS Representative, and through the use of its independent nuclear materials auditors shall conduct, at least once each year, an internal review of the nuclear materials control procedures and management of the overall system of special nuclear material control, and report the findings to the Plant Manager.

8.2 An estimate of anticipated losses (measured discards plus MUF) for each period of time between inventories shall be prepared for each MBA, with the concurrence of the SS Representative, and shall be based on prior experience, throughput quantities and rates, etc. If losses exceed the estimate of those anticipated, they shall be investigated by the SS Representative and the results of his investigation shall be reported to the Plant Manager.

8.3 Any apparent loss of a discrete item or container of special nuclear material which cannot be resolved by an immediate investigation shall be reported to the SS Representative, who shall promptly notify the Atomic Energy Commission, Directorate of Regulatory Operations Region I Office, and shall conduct an investigation of the loss. The SS Representative shall report the results of his investigation to the Plant Manager.

FOR THE ATOMIC ENERGY COMMISSION

Date of Amendment 9/27/73

Ralph G Page
Materials and Plant Protection Branch
Directorate of Licensing

70-436

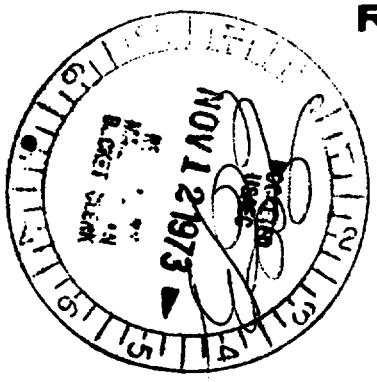
Regulatory File Cy.

# W. R. GRACE & CO.

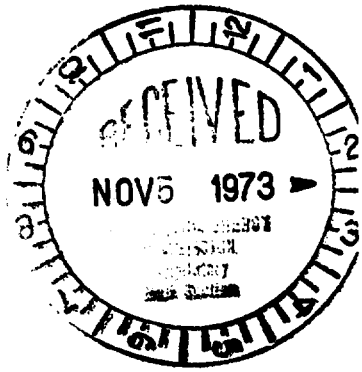
GRACE

## RESEARCH DIVISION

WASHINGTON RESEARCH CENTER
7379 ROUTE 32, COLUMBIA, MARYLAND 21044
Telephone 301 - 531-5711




October 30, 1973




Director, Division of Materials Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Sir:

The attached data sheets summarize additional fixed and removable contamination estimates made regarding light fixtures and appurtenances near the ceiling of our 16A Nuclear Facility. These data supplement those already supplied in our report of September 1973.

The average levels of fixed and removal contamination on these surfaces is 2205 and 28 dpm/100 $cm^2$, respectively. No individual measurements of fixed contamination were in excess of the Guideline(1) limit of 25,000 dpm/100 $cm^2$. We believe these data further confirm the success of our decontamination efforts.

Data are also included showing the results of action taken to decontaminate the surfaces of the narrow ledge of the mezzanine outside the railing. This ledge was shown to be contaminated by measurements which Mr. P. German (USAEC - Region 1) made during this inspection and survey on 24 and 25 October 1973. Decontamination to below the Guideline limits was achieved. To the best of our knowledge, this is the only area wherein Mr. German's measurements failed to corroborate our own findings.

We hope submitting these data will enable the Commission to finally disposition our request for termination of our SNM



F135

821

License and release for unrestricted use of the premises formerly relegated to our nuclear work.

Very sincerely,

R. J. Herbst

RJH/kh

Attachments

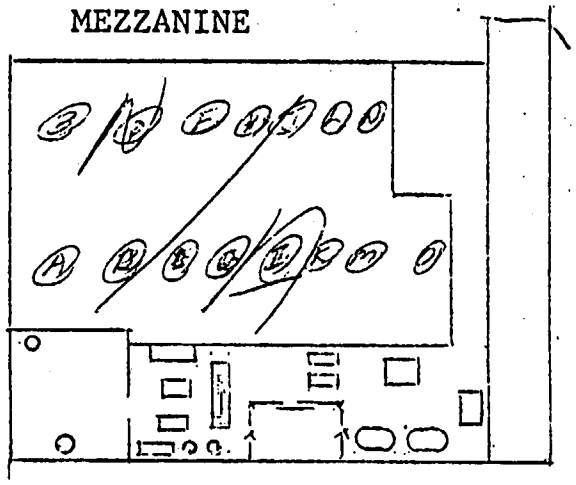
cc: Director, Directorate of Regulatory Operations - Region 1
U. S. Atomic Energy Commission
631 Park Avenue
King of Prussia, Pa. 19406

(1) Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source or Special Nuclear Material. U. S. Atomic Energy Commission, 22 April 1970.

# SMEAR SAMPL. DATA SHEET

DIAGRAM OF AREA

MEZZANINE



2560 - 48
3030

DATE 10/26/73

BUILDING OR AREA 16A - Light Fixtures & Appurtenances near Ceiling

SUSPECTED ACTIVITY EU

SMEARED BY C.T. Lambeth

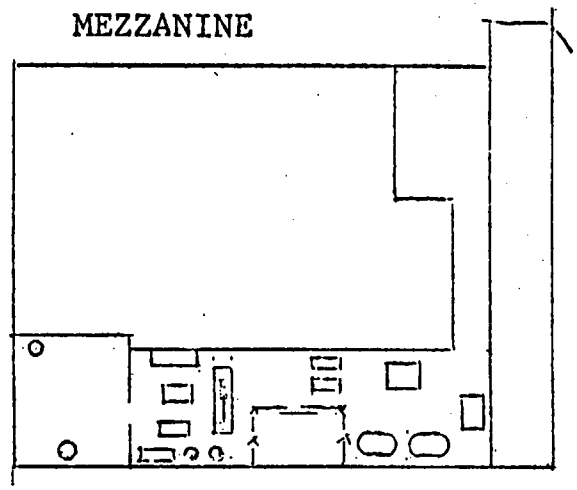
COUNTED BY R.J. Herbst

SUPERVISOR

| 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER | LOCATION | AREA OF SMEAR IN $100cm^2$ | ACTIVITY COUNTED α | ACTIVITY COUNTED β-γ | GROSS CPM | BKGND. CPM | NET CPM | EFFICIENCY | DPM/ $100cm^2$ Total | GOAL DPM/ $100cm^2$ | REMARKS |
| 26.1 | Light Fixture #A3 | 7.5 | ✓ | | 15 | 3 | 12 | 6/.48 | 6 | 1000 | |
| 26.2 | do #B3 | 7.5 | ✓ | | 30 | 3 | 27 | 6/.48 | 12 | " | |
| 26.3 | do #C3 | 7.5 | ✓ | | 74 | 3 | 71 | 6/.48 | 33 | " | |
| 26.4 | do #D3 | 7.5 | ✓ | | 17 | 3 | 11 | 6/.48 | 5 | " | |
| 26.5 | do #E3 | 7.5 | ✓ | | 51 | 3 | 48 | 6/.48 | 22 | " | |
| 26.6 | do #F3 | 7.5 | ✓ | | 75 | 3 | 72 | 6/.48 | 35 | " | |
| 26.7 | do #G3 | 7.5 | ✓ | | 27 | 3 | 24 | 6/.48 | 11 | " | |
| 26.8 | do #H3 | 7.5 | ✓ | | 28 | 3 | 25 | 6/.48 | 11 | " | |
| 26.9 | do #I3 | 7.5 | ✓ | | 40 | 3 | 37 | 6/.48 | 17 | " | |
| 26.10 | do #J3 | 7.5 | ✓ | | 224 | 3 | 221 | 6/.48 | 102 | " | |
| 26.11 | do #K3 | 7.5 | ✓ | | 21 | 3 | 18 | 6/.48 | 8 | " | |
| 26.12 | do #L3 | 7.5 | ✓ | | 64 | 3 | 61 | 6/.48 | 28 | " | |
| 26.13 | do #M3 | 7.5 | ✓ | | 22 | 3 | 19 | 6/.48 | 9 | " | |
| 26.14 | do #N3 | 7.5 | ✓ | | 43 | 3 | 40 | 6/.48 | 19 | " | |
| 26.15 | do #O3 | 7.5 | ✓ | | 12 | 3 | 9 | 6/.48 | 4 | " | |

# SMEAR SAMPLE DATA SHEET

DIAGRAM OF AREA




DATE 10/26/73

BUILDING OR AREA 16A - Ductwork nr Ceiling

SUSPECTED ACTIVITY Eu

SMEARED BY C.T. Lamberth

COUNTED BY R.J. Herbst

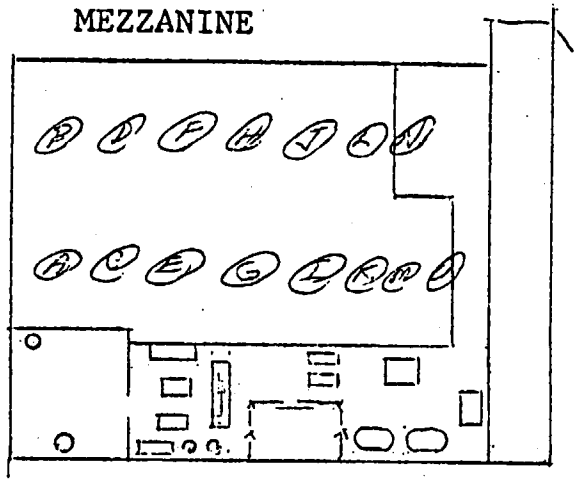
SUPERVISOR

| 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER | LOCATION | AREA OF SMEAR IN 100cm² | ACTIVITY COUNTED α | ACTIVITY COUNTED β-γ | GROSS CPM | BKGND. CPM | NET CPM | EFFICIENCY | DPM/100cm² Total | GOAL DPM/100 cm² | REMARKS |
| 26.16 | mezzanine floor nr railing | 2.5 | ✓ | | 23 | 3 | 20 | 7/48 | 24 | 1000 | |
| 26.17 | Ductwork @ #1 (inside) | 5.0 | ✓ | | 45 | 3 | 42 | 5/48 | 35 | " | |
| 26.18 | #2 (inside) | 5.0 | ✓ | | 37 | 3 | 34 | 5/48 | 28 | " | |
| 26.19 | #3 (inside) | 5.0 | ✓ | | 154 | 3 | 151 | 5/48 | 126 | " | |
| 26.20 | #4 top. | 7.5 | ✓ | | ~~154~~ 135 | 3 | ~~151~~ 132 | 7/48 | 53 | " | |
| 26.21 | #5 (inside) | 5.0 | ✓ | | 16 | 3 | 13 | 5/48 | 11 | " | |
| 26.22 | #6 (inside) | 5.0 | ✓ | | 173 | 3 | 170 | 5/48 | 142 | " | |
| 26.23 | #7 (outside) | 7.5 | ✓ | | 30 | 3 | 27 | 7/48 | 10 | " | |
| 26.24 | #8 | 7.5 | ✓ | | 24 | 3 | 21 | 7/48 | 8 | " | |
| 26.25 | #10 | 7.5 | ✓ | | 5 | 3 | 2 | 7/48 | 1 | " | |
| 26.26 | #11 | 7.5 | ✓ | | 26 | 3 | 23 | 7/48 | 9 | " | |
| 26.27 | #12 | 7.5 | ✓ | | 57 | 3 | 54 | 7/48 | 21 | " | |
| 26.28 | #13 | 7.5 | | | 7 | 3 | 4 | 7/48 | 2 | " | |
| | | 7 | | | | | | | 28 | | |
| | | | | | | | | AVG | | | |

# ~~SMEAR SAMPLE~~ DATA SHEET

PAC-4G Instrument

DIAGRAM OF AREA




DATE 10/25/73

BUILDING OR AREA 16A - Light Fixtures & ~~Appurtenances~~ on ceiling of Process Ar

SUSPECTED ACTIVITY EU

SMEARED BY N/A

COUNTED BY C.T. Lamberth

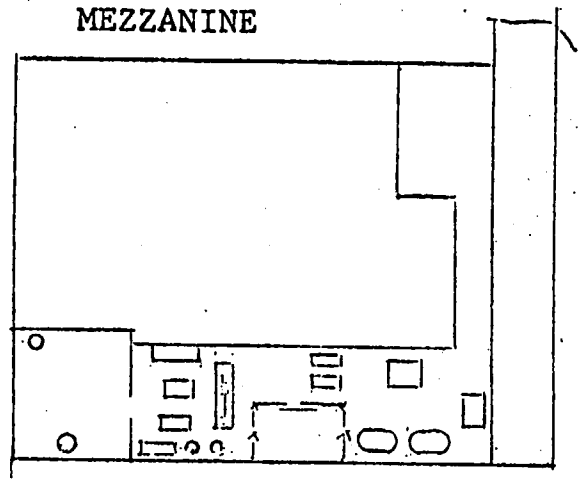
SUPERVISOR R.J. Hurst - 10/28/73

| 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER | LOCATION | AREA ~~OF SMEAR~~ $100cm^2$ | ACTIVITY COUNTED α | ACTIVITY COUNTED β-γ | GROSS CPM | BKGND. CPM | NET CPM | EFFICIENCY | DPM/ $100cm^2$ Total | GOAL DPM/100 $cm^2$ | REMARKS |
| A1 | Light Fixture | 0.6 | ✓ | | 200 | ≤50 | | .51 | 500 | 5000/25,000 | |
| A2 | Light Fixture | 0.6 | ✓ | | 300 | 50 | | .51 | 800 | " | |
| B1 | Light Fixture | 0.6 | ✓ | | 1500 | 50 | | .51 | 4800 | " | |
| B2 | " | 0.6 | ✓ | | 2000 | 50 | | .51 | 6500 | " | |
| C1 | " | 0.6 | ✓ | | 200 | 50 | | .5 | 500 | " | |
| C2 | " | 0.6 | ✓ | | 200 | 50 | | .5 | 500 | " | |
| D1 | " | 0.6 | ✓ | | 300 | 50 | | .5 | 800 | " | |
| D2 | " | 0.6 | ✓ | | 400 | 50 | | .5 | 1200 | " | |
| E1 | " | 0.6 | ✓ | | 1800 | 50 | | .5 | 5800 | " | |
| E2 | " | 0.6 | ✓ | | 1000 | 50 | | .5 | 3200 | " | |
| F1 | " | 0.6 | ✓ | | 2000 | 50 | | .5 | 6500 | " | |
| F2 | " | 0.6 | ✓ | | 1500 | 50 | | .5 | 4800 | " | |
| G1 | " | 0.6 | ✓ | | 1000 | 50 | | .5 | 3200 | " | |
| G2 | " | 0.6 | ✓ | | 600 | 50 | | .5 | 1800 | " | |
| H1 | " | 0.6 | ✓ | | 2200 | 50 | | .5 | 7200 | " | |

# ~~SMEAR SAMPLE~~ DATA SHEET

PAC-4G Instrument

DIAGRAM OF AREA




DATE 10/25/73

BUILDING OR AREA 16A – Appurtenances nr Light Fixtures & Ceiling of Process Area

SUSPECTED ACTIVITY EU

SMEARED BY N/a

COUNTED BY C. T. Lamberth.

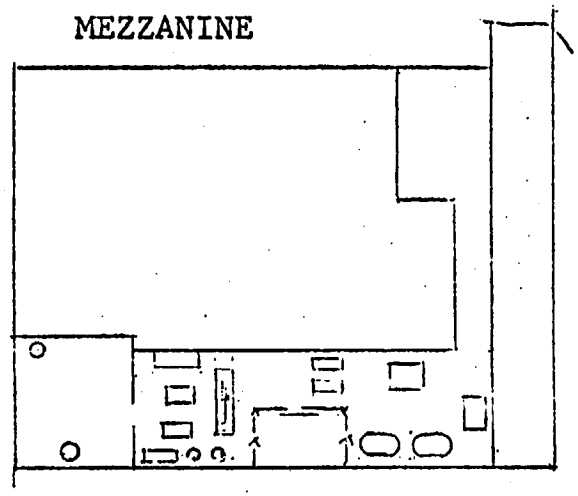
SUPERVISOR R. J. Nuttall - 10/25/73

| 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER | LOCATION | AREA ~~SMEARED~~ IN $100cm^2$ | ACTIVITY COUNTED α | ACTIVITY COUNTED β-γ | GROSS CPM | BKGND. CPM | NET CPM | EFFICIENCY | DPM/ $100cm^2$ Total | GOAL DPM/ $100 cm^2$ | REMARKS |
| I1 | Light Fixture | 0.6 | ✓ | | 100 | ≤50 | | .5 | 200 | 5000/25,000 | |
| I2 | Light Fixture | 0.6 | ✓ | | 300 | " | | .5 | 800 | " | |
| J1 | " | 0.6 | ✓ | | 800 | " | | .5 | 2200 | " | |
| J2 | " | 0.6 | ✓ | | 700 | " | | .5 | 2500 | " | |
| K1 | " | 0.6 | ✓ | | <100 | " | | .5 | 200 | " | |
| K2 | " | 0.6 | ✓ | | <100 | " | | .5 | 200 | " | |
| L1 | " | 0.6 | ✓ | | 1000 | " | | .5 | 3200 | " | |
| L2 | " | 0.6 | ✓ | | 1000 | " | | .5 | 3200 | " | |
| M1 | " | 0.6 | ✓ | | <100 | " | | .5 | 200 | " | |
| M2 | " | 0.6 | ✓ | | 400 | " | | .5 | 1200 | " | |
| N1 | " | 0.6 | ✓ | 400 | ~~400~~ | " | | .5 | 1200 | " | |
| N2 | " | 0.6 | ✓ | 800 | ~~800~~ | " | | .5 | 2500 | " | |
| O1 | " | 0.6 | ✓ | <100 | ~~300~~ | " | | .5 | 200 | " | |
| O2 | " | 0.6 | ✓ | | 300 | " | | .5 | 800 | " | |
| #8 | Duct @ #8 | 0.6 | ✓ | | 1000 | " | | .5 | 3200 | " | |

# ~~SMEAR SAMPLE~~ DATA SHEET

PAC-4G Instrument

DIAGRAM OF AREA




DATE 10/25/73

BUILDING OR AREA 16A — Ductwork or Ceiling

SUSPECTED ACTIVITY EU

SMEARED BY N/a

COUNTED BY C. T. Lamberth.

SUPERVISOR R. L. Hurst - 10/28/73

| 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER | LOCATION | AREA ~~OF SMEAR~~ IN $100cm^2$ | ACTIVITY COUNTED | | GROSS CPM | BKGND. CPM | NET CPM | EFFICIENCY | DPM/ $100cm^2$ Total | GOAL DPM/100 $cm^2$ | REMARKS |
| | | | $\alpha$ | $\beta-\gamma$ | | | | | | | |
| #6 & #7 | Ductwork @ 6&7 | 0.6 | ✓ | | 200 | ≤50 | | 0.5 | 500 | 5000/25,000 | |
| #12 | | 0.6 | ✓ | | 1500 | " | | .5 | 4800 | " | |
| #13 | | 0.6 | ✓ | | 800 | " | | .5 | 2450 | " | |
| | | | | | | | | | | | |
| | | | | | | | AVG = | | ~~2205~~ | | |
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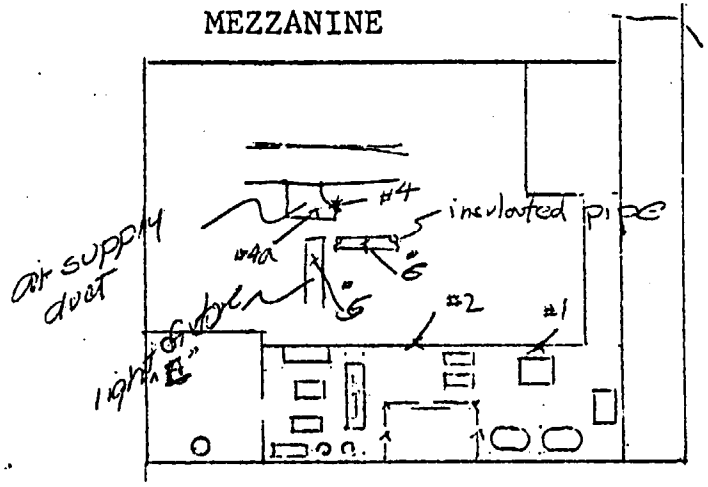
4385

# SMEAR SAMPLE DATA SHEET

DIAGRAM OF AREA




DATE 10/28/73

BUILDING OR AREA 16A - Process Area @ Ceiling

SUSPECTED ACTIVITY EU

SMEARED BY R. J. Herbst

COUNTED BY R. J. Herbst - 10/28/73

SUPERVISOR

| 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER | LOCATION | AREA OF SMEAR IN $100cm^2$ | ACTIVITY COUNTED α | ACTIVITY COUNTED β-γ | GROSS CPM | BKGND. CPM | NET CPM | EFFICIENCY | DPM/ $100cm^2$ Total | GOAL DPM/100 $cm^2$ | REMARKS |
| 28.4 | Outside of Air supply duct | 7.5 | ✓ | | 2843 | 5 | 2838 | .7/.51 | 1059 | ~~1000~~ 1000 | |
| 28.4a | " | 7.5 | ✓ | | 1869 | 5 | 1864 | .7/.51 | 696 | " | |
| 28.5 | Light Fixture "E" | 7.5 | ✓ | | 278 | 5 | 273 | .7/.51 | 102 | " | |
| 28.6 | Insulated Pipe | 7.5 | ✓ | | 726 | 5 | 721 | .5/.51 | 376 | " | |
| 28.1 | Mezzanine outside railing @ 1 | 7.5 | ✓ | | 485 | 5 | 480 | .6/.51 | 209 | " | |
| 28.2 | " @ 2 | 7.5 | ✓ | | 102 | 5 | 97 | .6/.51 | 42 | " | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 28.4 | Outside of Air Supply Duct | 7.5 | ✓ | | 92 | 2 | 90 | .7/.51 | 34 | 1000 | after demo. |
| 28.4a | " | 7.5 | ✓ | | 70 | 2 | 68 | .7/.51 | 25 | " | " |
| 28.5 | Light Fixture "E" | 5.0 | ✓ | | 72 | 2 | 70 | .7/.51 | 40 | " | " |
| 28.6 | Insulated Pipe | 7.5 | ✓ | | 443 | 2 | 441 | .5/.51 | 231 | " | " (wet) |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Regulatory File Cy.

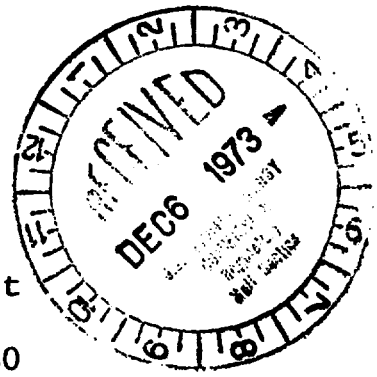
# W. R. GRACE & CO.

GRACE

## RESEARCH DIVISION

WASHINGTON RESEARCH CENTER
7379 ROUTE 32, COLUMBIA, MARYLAND 21044
Telephone 301 - 531-5711

December 3, 1973




Director, Division of Material Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Sir:

Subject: SNM License 840 Termination Request
Re: Additional Radiological Survey
Ref: Docket 70-456, License No. SNM-840

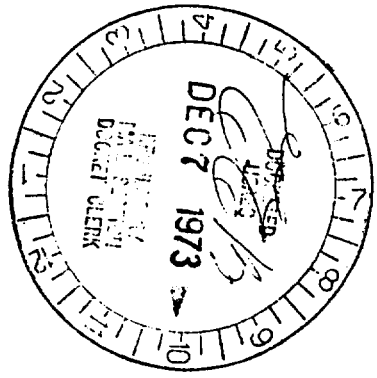
Please be advised that the sump tank and pump used to collect lab sink, shower and wash basin drainage in our Nuclear Facility have been disconnected, removed and disposed of by burial at an authorized burial site. The results of our radiological survey of the cellar used to house the sump and accessible pipe used to conduct the waste are attached. We conclude that there is no lingering radiological hazard associated with this space.

It is our understanding that disposition of the sump is the only open item impeding termination of our license. We believe this letter and the attached data will remove this obstacle and allow the Commission to act affirmatively on our request.

Very truly yours,

Richard J. Herbst

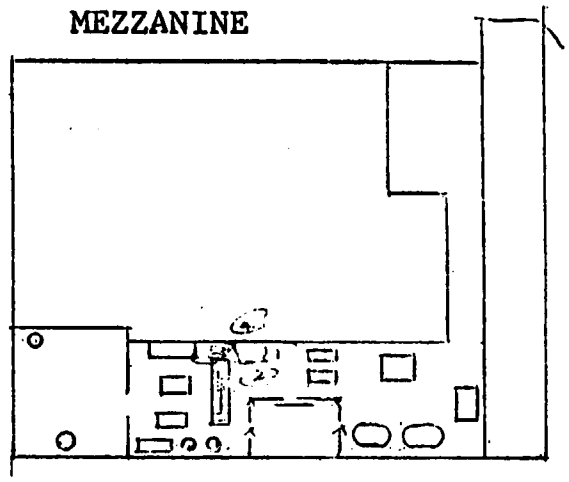
RJH:srh
Attachment
cc: Director, Directorate of
Regulatory Operations - Region I




A32

# SMEAR SAMPLE DATA SHEET

DIAGRAM OF AREA




2967
3030

DATE 11/28/73

BUILDING OR AREA 169 - Sanitary Sump

SUSPECTED ACTIVITY ~~U~~ E

SMEARED BY R. J. Herbst

COUNTED BY R. J Herbst

SUPERVISOR

| 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER | LOCATION | AREA OF SMEAR IN 100cm$^2$ | ACTIVITY COUNTED α | ACTIVITY COUNTED β-γ | GROSS CPM | BKGND. CPM | NET CPM | EFFICIENCY | DPM/ 100cm$^2$ Total | GOAL DPM/100 cm$^2$ | REMARKS |
| 28.1 | Sump #1 | 5 | ✓ | | 2 | 1 | 1 | 33/49 | 1.2 | 1000 | |
| 28.2 | Sump #2 | 5 | ✓ | | 11 | 1 | 10 | 33/49 | 15 | 1000 | |
| 28.3 | Sump #3 | 5 | ✓ | | 4 | 1 | 3 | 33/49 | 3.7 | 1000 | |
| 28.4 | Sump #4 | 5 | ✓ | | 5 | 1 | 4 | 33/49 | 4.9 | 1000 | |
| | | | | | | | | | | | |
| 28.5 | RM 3C measurements | | | | | | | | | | |
| | | 0.5 | ✓ | | 250 | 50 | 200 | 51 | 784 | 5000/25K | Avg. |
| | | 0.5 | ✓ | | 400 | 50 | 350 | 51 | 1373 | | Max. |
| | | 0.5 | | ✓ | Bkgd | | | | | | |
| | | | | | | | | | | | |
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L:FFRB:EJF
Docket 70-456

DEC 17 1973

W. R. Grace & Company
ATTN: Dr. G. E. Ashby
Vice President
Washington Research Center
Clarksville, Maryland 21029

Gentlemen:

In accordance with your application dated September 19, 1973, and supplements dated October 30, 1973 and December 3, 1973, and pursuant to Title 10, Code of Federal Regulations, Part 70, Special Nuclear Material License No. SNM-840 is hereby terminated.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed by
Leland C. Rouse

L. C. Rouse, Chief
Fuel Fabrication and Reprocessing
Branch
Directorate of Licensing

Distribution
PDR
State Health Official
Docket File
Branch R/F
L:FM R/F
RO, HQ (2)
HWerner, RO
RGPage, L
ACabell, DRA
BBrooks, L
LCRouse
RJDube
WTCrow
EJFrederick

F/37

| OFFICE ▶ | L:FFRB | L:FFRB | L:FFRB | | | |
|---|---|---|---|---|---|---|
| SURNAME ▶ | EJFrederick:lk | RJDube | LCRouse | | | |
| DATE ▶ | 12/12/73 | 12/17/73 | 12/17/73 | | | |

Form AEC-318 (Rev. 9-53) AECM 0240 GPO 643—16—81465-1 445-678

AEC FORM 783 (4-71)

# MATERIALS DATA INPUT S/SNM | 1- FILE COPY

## A. TYPE OF ACTION –

- [ ] NEW LICENSE
- [ ] NEW LICENSE AND NEW LICENSEE
- [ ] ENDMENT TO NEW LICENSE
- [ ] OTHER AMENDMENT
- [x] AMENDMENT TO TERMINATE
- [ ] CLERICAL CHANGE NO AMENDMENT
- [ ] VOID
- [ ] CHANGE LICENSEE NAME/ADDRESS

## B. INDICATIVE INFORMATION:

| DOCKET NUMBER | MAIL CONTROL NO. | DATE REQUEST REC'D | INSTITUTION CODE | PENDING PROG. CODE | ACTUAL PROG. CODE |
|---|---|---|---|---|---|
| 070-00456 | 08050 | 09-20-73 | 04003 | | |

SECONDARY PROGRAM CODES AS REQUIRED:

| #1 | #2 | #3 | #4 | #5 |
|---|---|---|---|---|
| | | | | |

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 LICENSEES

ORGANIZATION NAME (ALPHABETIC SEQUENCE): W. R. Grace & Company

DEPARTMENT OR BUREAU:

TYPE OF ORGANIZATION

- [ ] U. S. GOVERNMENT AGENCY
- [ ] EDUCATIONAL INSTITUTION
- [ ] MEDICAL INSTITUTION
- [x] INDUST
- [ ] OTHER

ADDRESS

| BUILDING, STREET | CITY | STATE | ZIP CODE |
|---|---|---|---|
| 7379 Route 32 | Columbia | MD | 21044 |

## C. STATISTICAL INFORMATION:

| LICENSE NUMBER | DATE LICENSE ISSUED OR ACTION COMPLETED | EXPIRATION DATE |
|---|---|---|
| SNM-840 | 12/17/73 | |

USAGE OF MEDICAL BYPRODUCT:

- [ ] FOR HUMAN USE ONLY
- [ ] FOR HUMAN AND NONHUMAN USE
- [ ] FOR NONHUMAN USE ONLY

POSSESSION OF THE MATERIAL IS AUTHORIZED IN ONE OF THE FOLLOWING AREAS:

- [ ] SAME AS 'STATE' IN ADDRESS
- [ ] ALL STATES
- [ ] ALL AGREEMENT STATES
- [ ] ALL NON-AGREEMENT STATES

AND/OR IN THE STATE(S), TERRITORY(S), COUNTRY CHECKED BELOW:

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

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

| | TYPE OF MATERIAL | AMOUNT AUTHORIZED | UNIT OF MEASUREMENT | SEALED/UNSEALED CONFIGURATION | MAXIMUM ENRICHMENT |
|---|---|---|---|---|---|
| [ ] | U235 | | [ ] GRAMS [ ] KILOGRAMS | [ ] SEALED [ ] UNSEALED | |
| [ ] | U233 | | [ ] GRAMS [ ] KILOGRAMS | [ ] SEALED [ ] UNSEALED | 'X' HERE IF FOR POWER REACTOR [ ] |
| [ ] | PU | | [ ] GRAMS [ ] KILOGRAMS | [ ] SEALED [ ] UNSEALED | |
| [ ] | URANIUM | | [ ] GRAMS [ ] KILOGRAMS | [ ] SEALED [ ] UNSEALED | |
| [ ] | THORIUM | | [ ] GRAMS [ ] KILOGRAMS | [ ] SEALED [ ] UNSEALED | RIS CODE |
| [ ] | TRITIUM | | [ ] MICRO-CURIES [ ] MILLI-CURIES [ ] CURIES | | |

## E. FEE CATEGORIES:

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [ ] | EX | [ ] | 1A | [ ] | 1B | [ ] | 1C | [ ] | 2A | [ ] | 2B | [ ] | 3A | [ ] | 3B | [ ] | 3C | [ ] | 3D | [ ] | 3E |
| [ ] | 4A | [ ] | 5A | | | | | | | | | | | | | | | | |

F/38

JAN 1 1 '74

Docket No. 70-456

W. R. Grace & Co.
Research Division
ATTN: G. E. Ashby
Vice President
Washington Research Center
Columbia, Maryland 21044

Gentlemen:

Enclosed is Invoice L-2794-74, as amended, which covers the annual fee for the period October 1, 1973, through December 17, 1973, for License SNM-840. (For the purpose of prorating fees, any portion of a month in which a license is in effect is considered as a whole month).

Please note that Section 170.31, Footnote 4, of the enclosed fee schedule provides that no annual fee will be waived unless the application filed prior to the due date of the annual fee contains all the information necessary to permit the Commission to cancel the license. The application for cancellation of License SNM-840 was filed prior to the due date (10/01/73) of the annual fee, but was supplemented by additional information submitted on October 30 and December 3, 1973. The annual fee, therefore, is being prorated for License SNM-840.

Sincerely,

Signed by
Wm. O. Miller

William O. Miller
Business Management Branch
Office of Administration -
Regulation

Enclosures:
1. Invoice L-2794-74, as amended
2. 10 CFR 170

Fee Paid

DISTRIBUTION:
License File
BMB R/F
RMiller, DRA

F139

| OFFICE ▶ | DRA:BMGT | DRA:BMGT | | | | |
|---|---|---|---|---|---|---|
| SURNAME ▶ | ASCabell:mlf | WOMiller | | | | |
| DATE ▶ | 1/8/74 | 1/ /74 | | | | |

Form AEC-318 (Rev. 9-53) AECM 0240 GPO 643—16—81465-1 445-678

FORM AEC 764
(10-72)
10 CFR 170

# INVOICE FACILITIES AND MATERIALS LICENSES

UNITED STATES ATOMIC ENERGY COMMISSION

CENTRAL ACCOUNTS BRANCH

WASHINGTON, D. C. 20545

Trans. w/ 1-11-74 letter.

W. R. GRACE & CO.
RESEARCH DIVISION
WASHINGTON RESEARCH CENTER
CLARKSVILLE, MD. 21029

NO. L-2794-74, as amended

DATE: JAN. 8. 1974

TERMS: NET 30 DAYS

LICENSE NO. SNM-840

| CATEGORY OF LICENSE | FEE FOR FACILITIES AND MATERIALS LICENSES PURSUANT TO 10 CFR 170 | AMOUNT |
|---|---|---|
| 1A | POSSESSION AND USE OF 201 KGS. OF SPECIAL NUCLEAR MATERIALS @ $10/KG. PLUS $10,000.<br><br>ANNIVERSARY DATE: 10/01/73<br>LICENSE AMENDED: 12/17/73<br><br>3/12 x $12,010 = $3002.50<br>(3 MOS. AUTH. @ $10/KG. PLUS $10,000 (201 KGS.))<br><br>ANNUAL FEE FOR THE PERIOD 10/01/73 - 12/31/73 | $ 3002.50 |
| | AMOUNT DUE ⟶ | $ 3002.50 |

MAKE CHECK PAYABLE TO U. S. ATOMIC ENERGY COMMISSION AND MAIL TO ABOVE ADDRESS WITH ENCLOSED CARD. PLEASE RETAIN INVOICE FOR YOUR RECORDS. PAYMENT OF THIS FEE DOES NOT CONSTITUTE APPLICATION FOR RENEWAL OF YOUR LICENSE PURSUANT TO THE COMMISSION'S REGULATIONS.

EXPERT SYSTEM LICENSE EVALUATION
REPORT FOR LICENSE C-03749

NAME OF LICENSEE: DAVISON CHEMICAL COMPANY DIV. OF W.R. GRACE & CO
LISTED SITE: LICENSEE'S CURTIS BAY LABORATORY
--- TYPE OF ACTIVITY OR FACILITY: LABORATORY/RESEARCH

---------- MATERIALS INFORMATION FOR THIS LICENSE ----------
--Information on type and form of materials--

| Material-- | --Form-- |
|---|---|
| URANIUM OXIDE | Loose material |

For evaluation purposes, amounts of the following materials were obtained

| ---Material-- | --Form-- | Amount | Unit | Score |
|---|---|---|---|---|
| URANIUM OXIDE | LOOSE | 2. | LB | |

FINAL DECISION FOR LOOSE MATERIALS:

POTENTIAL SITE CONTAMINATION:
ELIMINATED FROM CONSIDERATION FOR SITE CONTAMINATION
Reason for elimination: LOW SCORE OF MATERIALS

S E Q U E N C E  O F  R E C O R D E D  R E A S O N I N G

1. The loose materials on this license were not significant, and the site was eliminated from consideration on this basis.

COMMENTS FOR LICENSE EVALUATION
END OF COMMENTS FOR LICENSE EVALUATION

--- EXPERT SYSTEM EVALUATION WAS BASED ON THE ---
---- FOLLOWING INVENTORY RECORD -----
Docket Number: 40-01042 REGION RESPONSIBLE: I
LICENSEE NAME: DAVISON CHEMICAL COMPANY DIV. OF W.R. GRACE & CO
STREET ADDRESS: (NONE GIVEN) City: BALTIMORE 3
FIPS state code (principal operation): MD
Site used: LICENSEE'S CURTIS BAY LABORATORY
Disposition information present: NO DISPOSITION INFORMATION GIVEN
This license was listed as expired on 07/01/58
COMMENTS: 2 LBS OF URANIUM DIOXIDE DURING TERM OF LIC FOR USE IN DEV. STUDIES
JOB NUMBER: 1700 BOX NUMBER: 49

Date of last evaluation or revision: 02/23/94

F140