

UNITED STATES ATOMIC ENERGY COMMISSION  
DIVISION OF COMPLIANCE

## INSPECTION FINDINGS AND LICENSEE ACKNOWLEDGMENT

<b>1. LICENSEE</b> The Dow Chemical Co. Midland, Michigan 48640		<b>2. REGIONAL OFFICE</b> DIRECTOR OF REGULATORY RELATIONS REGION 1 799 ROCKFORD ROAD GLEN ELLEN, ILLINOIS 60137	
<b>3. DOCKET NUMBER(S)</b> 40-17	<b>4. LICENSE NUMBER(S)</b> 2A-00265-07, STB-527-7	<b>5. DATE OF INSPECTION</b> 8/21-22/74	
<b>6. INSPECTION FINDINGS</b> The inspection was an examination of the activities conducted under your license as they relate to radiation safety and to compliance with the Commission's rules and regulations and the conditions of your license. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector. The findings as a result of this inspection are as follows:  <input type="checkbox"/> No items of noncompliance or unsafe conditions were found.  The following items of noncompliance related to records, signs, and labels were found:  <input type="checkbox"/> A. Rooms or areas were not properly posted to indicate the presence of a RADIATION AREA. 10 CFR 20.203(b) or 34.42 <input type="checkbox"/> B. Rooms or areas were not properly posted to indicate the presence of a HIGH RADIATION AREA. 10 CFR 20.203(c) (1) or 34.42 <input type="checkbox"/> C. Rooms or areas were not properly posted to indicate the presence of an AIRBORNE RADIOACTIVITY AREA. 10 CFR 20.203(d) <input type="checkbox"/> D. Rooms or areas were not properly posted to indicate the presence of RADIOACTIVE MATERIAL. 10 CFR 20.203(e) <input type="checkbox"/> E. Containers were not properly labeled to indicate the presence of RADIOACTIVE MATERIAL. 10 CFR 20.203(f) (1) or (f) (2) <input type="checkbox"/> F. A current copy of 10 CFR 20, a copy of the license, or a copy of the operating procedures was not properly posted or made available. 10 CFR 20.206(b) <input type="checkbox"/> G. Form AEC-3 was not properly posted. 10 CFR 20.206(c) <input type="checkbox"/> H. Records of the radiation exposure of individuals were not properly maintained. 10 CFR 20.401(a) or 34.33(b) <input type="checkbox"/> I. Records of surveys or disposals were not properly maintained. 10 CFR 20.401(b) or 34.43(d) <input type="checkbox"/> J. Records of receipt, transfer, disposal, export or inventory of licensed material were not properly maintained. 10 CFR 30.51, 40.61 or 70.51 <input type="checkbox"/> K. Records of leak tests were not maintained as prescribed in your license, or 10 CFR 34.25(c) <input type="checkbox"/> L. Records of inventories were not maintained. 10 CFR 34.26 <input type="checkbox"/> M. Utilization logs were not maintained. 10 CFR 34.27 <input type="checkbox"/> N. Records of radiation survey instrument calibration were not maintained. 10 CFR 34.24 <input type="checkbox"/> O. Records of teletherapy electrical interlock tests were not maintained as prescribed in your license. <input checked="" type="checkbox"/> P. Other _____  <div style="text-align: right;">(AEC Compliance Inspector)</div>			
7. The AEC Compliance Inspector has explained and I understand the items of noncompliance listed above. The items of noncompliance will be corrected within the next 30 days. <div style="display: flex; justify-content: space-between;"><div>8511200066 851022 PDR FOIA CONDIT85-A-34 PDR</div><div>(Date)</div><div>(Licensee Representative - Title or Position)</div></div>			

DRAFT INSPECTION REPORT FORM

1. Name and address of licensee

the Dow Chemical Company  
Midland Michigan 48640

2. Date of Inspection

8/21-22/74

3. Type of Inspection

unannounced  
reinspection

4. License number(s), docket number(s), number and date of last amendment for each license. Category and Priority of each licensee.

STB-527 40-17 amendment No 5 dated 3/9/73 E III

5. Date of previous inspection

May 19-20, 1970

6. Proprietary information

none

7. Scope of inspection if other than routine

complete routine inspection

8. Participants (Licensee representatives and titles, State representatives, etc.)

LG Silverstein RSO

Otis Heath, Business Statistician

Eric Roach MDPH accompanied

9. Management Interview (Information required for N/C cases)

The results of the inspection were discussed with Messrs Heath and Silverstein following the inspection. The Part 19 reporting requirement was explained and a AEC-591 noting that violation was issued to the licensee. Silverstein acknowledged that corrective action would be done before 30 days.

10. Action and Date: Letter to Licensee

AEC-591 Clear ~~8/22/74~~

AEC-591 N/C 8/22/74

11. Recommend reinspection date

12.

William B. Grant

Inspector

9/3/74

Date of Report

G. E. Nowell

Reviewer

7/14/74

Date of Review

13. Inspection Summary (Including violations and safety items, and status of previously reported violations and safety items, etc.)

The previous inspection found no violations. The licensee has copies of Part 19 + 20 and the licensee and referenced documents available but they are not posted nor is any notice stating where they can be found contrary to 10 CFR 19.11

14. Summary of Licensed Program (Kind of program, number of people, rate of use or quantities on hand, places and frequency of use, type, quantity and use as authorized, etc.)

No material is currently being used by the licensee. All material is either in storage as compound or as process waste sludge. Licensee has about 100,000 pounds of thorium contained in about 4.6 million pounds of process sludge in a tank at Bay City, Mich. There is also approximately 167 lbs. of thorium in various compounds in storage at Midland. Physical inventories are made each year and updated with each transfer. The last inventory was made 12/21/73

15. Organization and Administration (Management organization, RSO, authorities and responsibilities, authorized users, qualifications, supervision, etc.)

Otto Heath keeps all records of thorium and the annual inventory is made by his group

16. Facilities (Use facilities, storage facilities, control of access, control devices and alarms, etc.)

no change facilities in Bay City, Michigan  
ad. medium, Illinois

17. Equipment (Devices utilizing licensed material, monitoring instrumentation, special equipment as glove boxes, hoods, handling tools, respirators, etc.)

none

18. Radiological Safety Procedures (Written operating and emergency procedures, availability of procedures, license and regs, training, Form AEC-3, etc.)

Copies of Parts 19 & 20 the license and documents referenced by the license are available from Mr. Heath but they were not posted nor was any notice posted telling when they could be found.

AEC-3 is posted as appropriate

19. Personnel Monitoring and Exposure to External Radiation (Type of monitoring, range of exposures, supplier, period worn, exposure history, etc.)

*Same as rest of program when required. Not  
used now*

20. Exposure of Employees to Airborne Radioactive Materials (Method of evaluation, type of samples, radioisotopes, records, bioassay, etc.)

*not*

21. Effluents to Unrestricted Areas (Types, source, measurements, flow rates, applicable MPC, analytical procedures, environmental samples, etc.)

*not*



22. Disposals (Methods, typical quantities, etc.)

*me*

23. Miscellaneous Surveys, Evaluations and Records (External radiation levels, contamination levels, leak tests, etc.)

*me*

24. Special License Conditions

*According to Heath and Silverstein all are  
being completed with*

25. Posting and Labelling

*in accordance with 10 CFR 20.203*

26. Independent Measurements (Type, results, comparison to licensee results, etc.)

*mm*

27. Operations Observed

*mm*



28. Incidents, Overexposures, Theft or Loss, Equipment Malfunction (Those not described elsewhere should be reported here.)

*none reported*

29. Other Information or Continuation from Previous Paragraphs

**VIOLATION CODING DATA WORK SHEET**  
(See PI 1200/13, Attachment E for coding instructions)

the Dow Chemical Co

Licensee

Sulland mi

Facility

STB-527/40-17

License No./Docket No.

8/21-22/74

Inspection Date

W.B. Grant

Inspector

7401

Report No.

The coding data for violations identified during the above inspection are as follows:

(NOTE: Code each violation, listing in the same order as shown on the enclosure to the letter to the licensee.)

	<u>Requirements Code</u>			<u>Cause Code</u>	<u>Procedures Code</u>
1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Instructions: For each inspection which identifies violations, forward this Work Sheet to the Administrative Officer when the inspection documentation is submitted for typing.

DRAFT INSPECTION REPORT FORM

1. Name and address of license

Dow CHEMICAL company  
MIDLAND, MICHIGAN  
48640

2. Date of Inspection

8/21-22/74

3. Type of Inspection

unannounced  
reinspection

4. License number(s), docket number(s), number and date of last amendment for each license. Category and Priority of each licensee.

21-265-2 amendment No. 18 dated 12/22/71 E III

21-265-6 amendment No. 24 dated 5/16/74 E(IA) II

21-265-7 amendment No. 2 dated 8/24/72 E III

5. Date of previous inspection

2/12/73  
-2  
-6 4/25/72  
-7 initial

6. Proprietary information

none

7. Scope of inspection if other than routine

complete routine inspections

8. Participants (Licensee representatives and titles, State representatives, etc.)

L. B. Silverstein RSO Health Physicist

Borden Engdahl Health Physicist

O. Anders Special Analyst

Dave Harner - Hot cell supervisor

Eric Roach MDPH accompanied the inspector

9. Management Interview (Information required for N/C cases)

The results of the inspection was discussed with H. R. Hayle, Chairman, Radiation Hazards committee, Silverstein and Engdahl. The requirements of Part 19 were discussed and Mr. Hayle acknowledged that corrective action would be taken within 30 days by preparing AEC forms 591. The completed forms were then issued to him.

10. Action and Date: Letter to Licensee \_\_\_\_\_

AEC-591 Clear \_\_\_\_\_

AEC-591 N/C \_\_\_\_\_

8/22/74

11. Recommend reinspection date \_\_\_\_\_

2/76

- 12.

William B. Grant

Inspector

8/30/74

Date of Report

E. E. Novak

Reviewer

9/11/74

Date of Review

13. Inspection Summary (Including violations and safety items, and status of previously reported violations and safety items, etc.)

No violations or safety items were noted during the previous inspection

Copies of Parts 19 + 20, the license and documents referenced in the license were not posted nor was any notice posted which described the document and where they could be found therefore the license is in violation of 10 CFR 19.11

14. Summary of Licensed Program (Kind of program, number of people, rate of use or quantities on hand, places and frequency of use, type, quantity and use as authorized, etc.)

-2 Current inventory - nominal 4900 Ci Co-60 in storage in hot cell @ Bldg 1602; nominal 101,387 Ci Cs<sup>137</sup> in storage in water well in Hot Cell Bldg 1602

-6 - Broad R+D license, most material in use consists of sealed sources used throughout the licensee's various plants. Other uses include sealed sources in toxic + R+D studies. A complete inventory of all radioactive material on hand was made during June and July 1974. There has been no significant change IP29

15. Organization and Administration (Management organization, RSO, authorities and responsibilities, authorized users, qualifications, supervision, etc.)

all radioactive material used at Dow Chemical Company is under the supervision of the Radiation Hazard Committee. Current membership of the Committee is H.R. Hoyle, Chairman, J. L. Ducommun MD, L.G. Johnson Sec; Oswald Anders, Special analysis; R.R. Langer Industrial Hygiene; E.H. Blain, Health + Environment; D.D. T. DeLeon, Organic Chemicals; Bob Kolact, actinide analysis; IP29



16. Facilities (Use facilities, storage facilities, control of access, control devices and alarms, etc.)

There have been no significant changes in the license facilities since the last inspection. A shift of the hourly personnel has been effected since March 18, 1974 but has caused no safety problems regarding byproduct material. The large sealed source are being stored for the duration.

17. Equipment (Devices utilizing licensed material, monitoring instrumentation, special equipment as glove boxes, hoods, handling tools, respirators, etc.)

No significant change

18. Radiological Safety Procedures (Written operating and emergency procedures, availability of procedures, license and regs, training, Form AEC-3, etc.)

New written regulations for receiving and opening packages were distributed to all users on August 9, 1974. All other procedures are written and unchanged. Copies of Parts 19 and 20 the license and documents referenced in the license are available from Silverstein but they are not posted nor is a notice posted which says where they may be seen. Form AEC-3 was posted in the proper place.

P 29

19. Personnel Monitoring and Exposure to External Radiation (Type of monitoring, range of exposures, supplier, period worn, exposure history, etc.)

Landauer - monthly whole body film badge. Records were reviewed for the years 1972, 1973 and 1974 to date. The maximum quarterly exposure was 50 mrem with most of the 75 people monitored showing 0 for the quarter. Schuster reviews all reports and investigates as required.

20. Exposure of Employees to Airborne Radioactive Materials (Method of evaluation, type of samples, radioisotopes, records, bioassay, etc.)

Sampling and evaluation are made of each new operation by Schuster. Air sample and bioassays are made as deemed necessary. Since most work other than with sealed source is of the lower variety bioassays are not done routinely.

21. Effluents to Unrestricted Areas (Types, source, measurements, flow rates, applicable MPC, analytical procedures, environmental samples, etc.)

No radioactive waste is allowed to be discharged to the environment. Work is done in closed systems or in hoods forcing absolute filtration. The flow and efficiency of these filters is checked monthly by Industrial Hygiene.



22. Disposals (Methods, typical quantities, etc.)

Nuclear Engineering picks up everything. The last  
perhaps was 3/2/74 of 38 drum containing mostly  
C-14 and H-3 waste

23. Miscellaneous Surveys, Evaluations and Records (External radiation levels, contamination levels, leak tests, etc.)

A survey of all lab using isotopes is made quarterly by  
Health Physics. A report and clean up request is made to lab  
occupant if contamination is found. A survey is made after clean up.  
No survey has been made by HP since March 1974 due to the  
strike. Lab occupant still make routine surveys.  
Leak tests are made on the ~ 25% sealed source at 6 month  
intervals. The last leak test was done during June and July 1974. Results OK

24. Special License Conditions

During the inspection all license conditions were discussed with  
Mr. Libenstein. Based on his statements, licensee records, interviews  
with personnel and observations made by the inspector all conditions were  
being complied with.

25. Posting and Labelling

all posting and labeling was in accordance with applicable parts of 10 CFR 20.203

26. Independent Measurements (Type, results, comparison to licensee results, etc.)

Radiation reading was taken over the top of the water storage well -  $< 1 \text{ mR/hr}$  using an Eberline E530 S/N 174756

27. Operations Observed

Visits were made to the Radiochemistry Lab, Agriculture Lab, Activation analysis Lab, Hot cells Inorganic chemicals, the Ascent building, the sewer was shut and the styrofoam port. All operation appeared normal.

28. Incidents, Overexposures, Theft or Loss, Equipment Malfunction (Those not described elsewhere should be reported here.)

none reported

29. Other Information or Continuation from Previous Paragraphs

P 14 in this program since the last inspection. the inventory showed that the license is complying with possession limits, forms, and uses authorized by the licensee.

-7 this license has had a few contaminated samples procured for analysis and decontamination studies. materials have been procured from Palisades Reactor consisting of coupons which are tested for with various decontamination techniques.

P 15 Ron Kugel, administrative supervisor Rad Chemistry. the procurement, qualification, certification and approval for users has not changed since the last inspection on 6/28/72.

P 16 Inspection responded to DRO Bulletin 94-7 dated 2/3/74 as follows on 2/10/74. It was noted that the vehicle was a hit cell. the function properly. Cell license was returned in proper operation of car. Operator was a state they will be returned when they return. dog + zero posted on car door. Interlock are checked every four months normally.

**VIOLATION CODING DATA WORK SHEET**  
(See PI 1200/13, Attachment E for coding instructions)

H. Dow Chemical Co  
Licensee

Milbent Inc  
Facility

21-265-2  
License No./Docket No.

8/21-22/74  
Inspection Date

WBS Grant  
Inspector

7401  
Report No.

The coding data for violations identified during the above inspection are as follows:

(NOTE: Code each violation, listing in the same order as shown on the enclosure to the letter to the licensee.)

	Requirements Code	Cause Code	Procedures Code
1.	<input checked="" type="checkbox"/> H <input checked="" type="checkbox"/> A <input checked="" type="checkbox"/> E	<input checked="" type="checkbox"/> H	<input type="checkbox"/>
2.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Instructions: For each inspection which identifies violations, forward this Work Sheet to the Administrative Officer when the inspection documentation is submitted for typing.



**VIOLATION CODING DATA WORK SHEET**  
(See PI 1200/13, Attachment E for coding instructions)

the Dow Chemical Co  
Licensee

Midland Shi  
Facility

21-265-6  
License No./Docket No.

8/21-22/74  
Inspection Date

W.B. Smith  
Inspector

7401  
Report No.

The coding data for violations identified during the above inspection are as follows:

(NOTE: Code each violation, listing in the same order as shown on the enclosure to the letter to the licensee.)

	Requirements Code		Cause Code		Procedures Code
1.	<input checked="" type="checkbox"/> H <input checked="" type="checkbox"/> A <input checked="" type="checkbox"/> E		<input checked="" type="checkbox"/> H		<input type="checkbox"/>
2.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
3.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
4.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
5.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
6.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
7.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
8.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
9.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
10.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Instructions: For each inspection which identifies violations, forward this Work Sheet to the Administrative Officer when the inspection documentation is submitted for typing.

**VIOLATION CODING DATA WORK SHEET**  
(See PI 1200/13, Attachment E for coding instructions)

St. John Chemical Co.      Midland 71 mi.      21-265-7  
Licensee                                      Facility                                      License No./Docket No.

8/21-22/74      WBS Grant      7401  
Inspection Date                                      Inspector                                      Report No.

The coding data for violations identified during the above inspection are as follows:

(NOTE: Code each violation, listing in the same order as shown on the enclosure to the letter to the licensee.)

	Requirements Code		Cause Code		Procedures Code
1.	<input checked="" type="checkbox"/> H <input checked="" type="checkbox"/> A <input checked="" type="checkbox"/> E		<input checked="" type="checkbox"/> H		<input type="checkbox"/>
2.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
3.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
4.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
5.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
6.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
7.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
8.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
9.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
10.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Instructions: For each inspection which identifies violations, forward this Work Sheet to the Administrative Officer when the inspection documentation is submitted for typing.

RADIOGRAPHY  
INSPECTION REPORT

1. Name and address of licensee  
THE DOW CHEMICAL COMPANY  
MIDLAND MICHIGAN  
48640
2. Date of Inspection 8/21-22/74  
unannounced
3. Type of Inspection reinspection
4. License Number(s) 21-265-4
5. Docket Number(s) —
6. Number and Date of Last Amendment (for each license)  
amendment No. 5 dated May 19, 1972
7. Category (of each license) C (1)
8. Priority (of each license) II
9. Date of Previous Inspection 6/28/72
10. Scope of Inspection complete routine inspection
11. Participants (Licensee representatives and titles, State representatives, etc.)  
Joan Engdall Health Physicist  
Lawrence Silverstein RSO - Health Physicist  
Eric Roach MDPH accompanied the inspector



12. Action and Date: Letter to Licensee \_\_\_\_\_  
AEC-591 Clear 8/22/74  
AEC-591 N/C 8/22/74

13. Recommend reinspection date 2/76

14. William B Grant 8/30/74  
Inspector Date of Report

L. E. Noeline 9/11/74  
Reviewer Date of Review

A. MANAGEMENT CONTROL SYSTEMS

1. Organizational Structure As Described In Application or Letter

Dated May 5, 1972 + May 18, 1972, or

2. Other \_\_\_\_\_

3. Radiation Safety Officer

L. G. Silverstein

4. Radiographers and Radiographer's Assistants

Robert Graves

Radiographer

L. Woolfer

Radiographer

5. Qualification Of Radiography Personnel

a. Radiographer's and radiographer's assistants named in  
license Yes \_\_\_\_\_ No X

b. Approved training program Yes X No \_\_\_\_\_

c. Tests Yes X No \_\_\_\_\_

d. Training provided by L. G. Silverstein + Sarah Engvall

e. Retraining Yes X No \_\_\_\_\_

(1) frequency annually

(2) by whom L. Silverstein

(3) scope

Orally in discussion and during the course  
of monthly safety meetings

6. Internal Inspection

- a. By whom Silverstein
- b. Frequency Monthly contact and semi annual review
- c. Scope Radiation Safety - Industrial Safety and its regulations

7. Inspection And Maintenance (34.28)

- a. Included in Operating and Emergency Procedures (34.32(j))

Yes X No       

- b. Daily Check Yes X No

- c. Record of results Yes X No

- d. 3 month check Yes X No

- e. Record of results Yes X No

8. AEC Regulations And Licensee's Operating And Emergency Procedures

- a. Parts 19, 20 and 34, and Operating and Emergency furnished to all radiographers and radiographer's assistants (34.31(a)(2))

Yes X No       

- b. Licensee maintains a utilization log Yes X No

- c. Utilization log contains all required information (34.27)

Yes X No       

- d. Licensee makes quarterly physical inventories

Yes X No       

- e. Quarterly inventories contain all required information (34.26)

Yes X No

## B. USES OF MATERIALS, FACILITIES AND EQUIPMENT

### 1. Scope of Program - Byproduct Materials On Hand

<u>Quantity</u>	<u>Isotope</u>	<u>Source S/N</u>	<u>Date Revd.</u>	<u>Camera Model</u>	<u>S/N</u>
<u>1</u>	<u>CO-60</u>	<u>1041</u>	<u>3/71</u>	<u>T.O. 525</u>	<u>28</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

2. Rate of Use *presently in storage because of strike beginning 3/74*  
*used 12 times in 1972*  
*used 5 times in 1973*  
*last used 8/29/73*

### 3. Fixed Facility

a. As described in application dated \_\_\_\_\_ or

b. Description of facility \_\_\_\_\_

c. Controlled in accordance with 20.203(c)(2)

Yes \_\_\_\_\_ No \_\_\_\_\_

d. Exit in accordance with 20.203(c)(3)

Yes \_\_\_\_\_ No \_\_\_\_\_

e. Alarm devices and interlocks \_\_\_\_\_

4. Storage Area

a. Sources locked in device Yes X No       

b. Devices secured to prevent unauthorized removal  
from an unrestricted area (20.207) Yes X No       

c. Keys controlled by Radiographer & Silverstein

5. Field Location

a. Exposure site at various sites within the Low Complex

b. Use of signs and ropes according to procedure or  
Regulations Yes X No       

6. Survey Meters

a. Calibrated and operable instruments available and used (34.43(a))  
Yes X No       

b. Type and number Q. Eberline E1206

c. Calibrated by Silverstein

d. Calibrated at 3 month intervals Yes X No       

e. 2 mR/hr through 1 R/hr can be measured Yes X No       

f. Date of last calibration for each instrument

Instrument No.

Last Calibration Date

1727

3/74

7. Special Equipment (shields, collimators, etc.)

none  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

C. PERSONNEL MONITORING CONTROL (34.33)

1. Film Badge Supplier Landauer
2. Badge Exchange Frequency monthly
3. Reports Reviewed By Silverstein
4. Records Reviewed For Period 73 to 74 to date
5. Licensee Limit 1.25 R/Quarter X 3 R/Quarter
6. AEC Forms On Equivalent
  - a. AEC-4 (20.102(b)) Yes        No X
  - b. AEC-5 (20.401(a)) Yes X No
7. Maximum Quarterly Exposure 70 mrem Average On M
8. Each Individual Is Assigned Film Badge And Dosimeter (34.33(a))  
Yes X No
9. Dosimeter Type Dosimeter. Range 0-200 mR/hr  
corp of america 0-1 r/hr
10. Dosimeter Recharged Daily X Or
11. Dosimeter Dose Recorded Each Day Of Use (34.33(b))  
Yes X No
12. Unusual Exposures Or Incidents Woodfin - film recorded  
1580 mrem for 11/73 did not use the source during  
that period. Licensee could not account for exposure  
from X ray either



13. Exposure Reports Available For Review By Employees

Yes X No       

14. Annual Report To Commission (20.407) Yes X No       

15. Termination Reports To Commission (20.408) Yes X No       

D. LEAK TESTS

1. Leak Test Kit Approved Yes X No       

2. Model Of Leak Test Kit Don't

3. Test At 6 Month Intervals Yes X No       

4. Results Of Tests <0.005 uCi removable

5. Records Reviewed For Period 1973 to date

E. SURVEYS

1. Area Or Facility Survey Conducted (20.201) Yes X No       

2. Area Or Facility Survey Recorded (20.401(b))

Yes X No       

3. Survey Records Reviewed For Period 1972 to to date

4. Maximum Radiation Levels In Unrestricted Areas (20.105)       

2 m/hr

5. Survey After Each Exposure (34.43(b)) Yes X No       

6. Record Of Final Survey Before Securing Exposure Device (34.43(d))

Yes X No



7. Vehicle Survey (20.201(b)) Yes X No       

8. Records Of Vehicle Surveys (20.401(b)) Yes X No       

**F. POSTING AND LABELING**

1. CHRA Posted Yes X No       

2. CRA Posted Yes        No       

3. CRM Posted Yes X No       

4. Where In welding shops where source is normally  
located, around restricted area during radiography, and on  
radiography device

5. Containers Or Devices Properly Labelled Yes X No       

6. Storage Room Or Area Properly Posted Yes X No       

7. Vehicle Posting Per DOT Regs. Yes        No X not required

**G. LICENSE CONDITIONS**

1. All License Conditions Reviewed Yes X No       

2. Deficiencies Noted Yes        No X

3. If Yes, Explain

**H. INDEPENDENT MEASUREMENTS**

1. Instrument none - radiograph was on still
2. Calibration Date \_\_\_\_\_
3. Describe Measurements And Results \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**I. RECEIVING AND SHIPPING OF RADIOACTIVE MATERIALS**

1. Procedures For Picking Up, Receiving, And Opening Of Packages

(20.205) Yes X No \_\_\_\_\_

2. Written Procedures Yes X No \_\_\_\_\_

3. Shipment Of Radiographic Sources

Yes No

- a. Only shipping containers authorized by the license have been used. X \_\_\_\_\_

- b. The manufacturer's instructions are followed in detail and in the sequence presented. X \_\_\_\_\_

- c. The source is securely locked in the fully secured position as confirmed by a carefully performed survey. X \_\_\_\_\_

A record of this survey is maintained

X \_\_\_\_\_

- d. Packages released for shipment have external radiation levels of 200 mr/hr or less at the surface and 10 mr/hr or less at three feet. X \_\_\_\_\_

e. Shipping papers and package labeling are properly completed.

Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>

J. ITEMS OF NONCOMPLIANCE

Part 19 documents were not properly posted  
so was any other posted, what located them  
and where they could be found.

K. MANAGEMENT INTERVIEW AND DISCUSSION OF INSPECTION FINDINGS

the results of the inspection were discussed with  
H.R. Haysle Radiation Hazards Committee, Chairman  
L.G. Schenker RSO Health Physicist  
D. Engdahl Health Physicist the Part 19  
requirements were discussed as were the correction measures  
the license was complemented on the file records and  
overall excellent manner in which the program was run.

License Number 21-00265-06

Amendment No. 23

The Dow Chemical Company  
Midland, Michigan 48640

In accordance with telegram received September 6, 1973, License Number 21-00265-06  
is amended as follows:

Subitem 8.B. is amended to read:

8.B. 100 curies

Date SEP 26 1973

For the U. S. Atomic Energy Commission  
Original Signed by  
Robert E. Brinkman

by Materials Branch

Directorate of Licensing  
Washington, D. C. 20545

SEP  
PRB  
~~8210180109~~  
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