A-55

Robert Lowenstein, Acting Director
Division of Licensing & Regulation, HQ.

Robert W. Kirkman, Director
New York Compliance Area

TRANSMITTAL OF LICENSE COMPLIANCE INSPECTION REPORT-10 CFR 40

CO-NY:PBK

Transmitted herewith is the following clear follow-up inspection report:

W. R. GRACE & COMPANY
Davison Chemical Division
Pompton Plains, New Jersey

License No.: R-196

It should be noted that on July 19, 1961, a clear inspection report form was mailed to the licensee. On August 8, 1961, Leo Dubinski, Assistant Director for Materials, Division of Compliance, HQ., requested a complete inspection report in order to assist L&R in processing W. R. Grace & Company's pending license application. This complete clear inspection report is now being transmitted.

Enclosure:
1 cy Rpt.

cc: Div of Cmp, HQ.
w/3 cys of Rpt.

COMPLIANCE

KLEVIN:eg ~~SEARS~~ KIRKMAN

8/16/61

Form AEC-417 (4-48)

UNITED STATES ATOMIC ENERGY COMMISSION

COMPLIANCE INSPECTION REPORT

1. Name and address of licensee

W. R. GRACE & COMPANY
Davison Chemical Division
Pompton Plains, New Jersey

2. Date of inspection: June 29, 1961

3. Type of inspection: Follow-up

4. 10 CFR Part(s) applicable: 20 - 40

5. License number(s), issue and expiration dates, scope and conditions (including amendments)

License No.	Docket No.	Date	Exp. Date
R-196	40-86	3/27/59	3/31/60

SCOPE: Thorium-containing material from producers and distributors licensed by the AEC and through importation for processing at Pompton Plains, New Jersey and Curtis Bay, Maryland plants.

CONDITIONS: Maintenance of records of inventories, receipts and transfers of refined source material. Compliance with Part 20. Non-exceptional.

6. Inspection findings (and items of noncompliance)

This follow-up inspection was conducted to determine if the licensee had corrected all the items of noncompliance noted during the initial inspection of November 25, 1959. The inspection revealed that W. R. Grace & Company, Davison Chemical Division, Pompton Plains, New Jersey, had corrected the previous items of noncompliance and was in compliance with the Federal Regulations. No additional items of noncompliance were noted during the course of this follow-up inspection.

7. Date of last previous inspection: November 25, 1959

8. Is "Company Confidential" information contained in this report? Yes ☐ No ☒
(Specify page(s) and paragraph(s))

DISTRIBUTION:
1 cy - DL&R
3 cys - CO-HQ
2 cys - CO-NY

Paul B. Klevin
(Inspector)

Approved by: Robert W. Kirkman, Director
New York Compliance Area
(Operations office)

August 17, 1961
(Date report prepared)

If additional space is required for any numbered item above, the continuation may be extended to the reverse of this form using foot to head format, leaving sufficient margin at top for binding, identifying each item by number and noting "Continued" on the face of form under appropriate item.

16—73814-3 U. S. GOVERNMENT PRINTING OFFICE

RECOMMENDATIONS SHOULD BE SET FORTH IN A SEPARATE COVERING MEMORANDUM

Dupe of 8208250200

PART 40 INSPECTION

W. R. GRACE & COMPANY
Davison Chemical Division
Pompton Plains, New Jersey

Date of Inspection: June 29, 1961 (Announced)

Persons Accompanying Inspector:

Mr. John Russo, New Jersey State Department of Health

Persons Contacted:

Richard Mandle, Plant Manager
Richard Stone, Sales Manager
Peter J. Garino, Health Physicist

DETAILS

9. Background Information

On November 25, 1959, an inspection of the activities conducted under License R-196 was made at the facilities of Rare Earths, Inc., Pompton Plains, New Jersey. The report was transmitted to M. M. Mann, Assistant Director, Division of Inspection, HQ. on January 26, 1960. The licensee was found to be in noncompliance with the following sections: 20.102(b)(1)(2), "Permissible levels of radiation in unrestricted areas"; 20.201(b), "Surveys"; 20.207, "Storage of licensed material"; 20.203(b), "Caution signs, labels and signals - Radiation areas"; 20.203(e)(2), "Additional requirements"; 20.305, "Treatment or disposal by incineration"; 20.301, "General Requirement"; and 20.401(c), "Records of surveys, radiation monitoring and disposal". It was found that a hazard existed, and a follow-up inspection was recommended.

On March 14, 1960, DL&R (Lyall Johnson) in a letter to D. P. Barrett, Sales Manager, Davison Chemical Company, Division of W. R. Grace & Company, 101 N. Charles Street, Baltimore 1, Maryland, informed the licensee of the above-mentioned items of noncompliance. In addition, the DL&R letter requested additional information from the licensee in order to continue their review of the licensee's renewal application.

On April 11, 1960, T. O. Tongue, Acting Production Manager, Davison Chemical Company, Division of W. R. Grace & Company, informed DL&R (Johnson) of the corrective action taken in order to comply with 10 CFR 20, and also outlined additional corrective measures which will be completed as soon as possible in order to assure complete compliance.

On June 6, 1960, DL&R (Johnson) answered the April 11 letter and also noted that in item 6 of the 4/11 letter, the licensee stated that he would make application by separate letter for approval to release source material waste to a storm sewer in accordance with Section 20.302. The letter also stated that DL&R has no record of having received such application, and that their review of the licensee's renewal application of 2/11/60 was pending receipt of further information concerning mill operations as requested in DL&R's letter of March 14, 1960.

On June 20, 1960, the licensee (T.O. Tongue) acknowledged the DL&R letter of June 6 requesting the status of application for approval to release source material to unrestricted areas and information concerning plant operations. Tongue stated that Davison people met with Rogers, Page and others to review this problem and took DL&R's suggestions that they "core drill" the plant area to appraise the significance of leaching from their tailings pile. The letter also stated that following the meeting with DL&R people, they placed orders for equipment to measure low-level activity involved, and that for the past several months, their health physicist has taken a limited number of dust samples. The samples were analyzed by Controls for Radiation, and for the most part indicated a low level of contamination.

In a memo dated January 13, 1961 from D. E. Warner, Acting Assistant Director for Materials, Division of Compliance, to Lyall Johnson, Assistant Director for Facilities and Materials Licensing, DL&R, Warner made reference to a memo from Compliance Headquarters dated November 9, 1960, requesting information as to whether enforcement action had been completed on the inspection of Davison Chemical Company, Division of W. R. Grace & Company, License R-196. The memo also noted that information that enforcement action had been completed was needed by NY before a follow-up inspection of this licensee could be scheduled.

On May 15, 1961, D. E. Warner, in a memo to Lester Rogers, Assistant Director for Nuclear Materials Safety, referred to the memo of May 5, 1960 and said that NY would continue to defer rescheduling of this licensee pending receipt of information that enforcement action had been completed or that none was contemplated.

On May 29, 1961, in a memo route slip from D. E. Warner to R. W. Kirkman, Warner informed this office that enforcement action had been completed by letter dated 6/6/60.

10. Action Taken on Items of Noncompliance

As noted prior, in a letter dated March 14, 1960, DL&R informed the licensee (Barrett, Sales Manager) of the items of noncompliance found during the course of the inspection conducted by New York on November 25, 1959. The citations, action taken by the licensee as per their letter dated 4/11/60 and current status as per inspection of June 29 are noted below:

A. Citation (DL&R's)

"Surveys to determine the concentrations of airborne radioactivity were not made as required by Section 20.201(b), 'Surveys'."

Reported Action Taken (Licensee's letter dated 4/11/60)

"Biweekly surveys to determine the concentrations of airborne radioactivity are being made throughout the facility."

Current Status

The licensee was found to conduct biweekly air samples using a Staplex air sampler. Radiation surveys are made on a monthly basis.

The licensee has conducted air samples in all the areas and has also conducted a job analysis of each operation for all the operators working in the plant. Results of the radioactive exposure to airborne thorium aerosols indicate that none of the employees is exposed to the daily rate of concentrations exceeding the levels specified in Part 20 for a 40 hour work week. A copy of a typical job analysis sheet is included as Exhibit "A".

Two air samples were taken by the inspectors at the feederhopper and ball mill areas. Samples were taken using a Hudson pump having a flow rate of approximately 30 to 35 linear feet per minute, respectively, for periods of 1/2 hour each. The collection time of the samples was 30 minutes for the air sample taken at the feederhopper and 35 minutes at the ball mill area. The samples, collected on Whatman 41 filter paper, were analyzed by HASL. Results indicated that the general air concentrations at the feederhopper were 10^{-10} uc/ml, and the ball mill area was 1.89×10^{-11} uc/ml.

Records of air sample results maintained by the licensee were reviewed. These records were noted to be recorded in uc/ml.

B. Citation (DL&R's)

"Surveys to determine the concentration of radioactivity in the plant liquid effluent were not made as required by Section 20.201(b), 'Surveys'."

Reported Action Taken (Licensee's letter of 4/11/60)

"Surveys to determine the concentration of radioactivity in the plant liquid effluent were started in December, 1959. Daily aliquots are being taken and combined into representative weekly sample for radiometric analysis. Analysis of the levels of radioactivity involved indicate only 10% of the M.P.C. for natural thorium as stated in Appendix B, Table II, Part 20, and outlined in Section 20.103."

Current Status

Daily samples are taken from the river and stream to measure effluent concentrations to the river. Daily samples are counted on a gas flow proportional counter which has been purchased by the licensee. The licensee is using a limit of thorium concentration of 10^{-7} uc/ml. A review of the records maintained by the licensee showed that the effluent concentration to the river was recorded in some decimal fraction times 10^{-7} uc/ml. The maximum amount discharged to the river was 0.2×10^{-7} uc/ml.

Two water samples were taken by the inspectors. The first was taken at the weir in the pump house, and the second was taken approximately 500' from the plant at Sheffield Brook. The samples, analyzed by HASL, were found to be 10^{-9} and 2.91×10^{-8} uc/ml, respectively.

In a letter dated July 6, 1961, received after the inspection, the licensee requested permission to continue the operations of the present system of controls and records until they could tie into a sanitary sewer system. They noted in their letter that since 1943, they were tied up to a sewer system by Sheffield Farms. This letter is included as Exhibit "B".

C. Citation

"Surveys to determine the external radiation levels in and around the plant were not complete as required by Section 20.201(b), 'Surveys'. Although surveys had been made, they did not include all areas where source material is stored and used."

Reported Action Taken

"Surveys to determine the external radiation levels in and around the plant have been set up on a monthly basis and now include all areas where source material is stored and used."

Current Status

Monthly radiation surveys have been made by the licensee of all areas of storage and use, and records are maintained. The records indicated that in unrestricted areas, the maximum direct radiation measurement around the newly installed chain-link fence surrounding the plant confines was 0.25 mr/hr, with an average radiation level of .15 mr/hr. In the restricted areas, thorium vault, a maximum of 10 mr/hr was recorded, with an average of 3 to 4 mr/hr.

The following independent measurements were made by the inspectors using a Juno and a GM-2 survey meter, calibrated June 5, 1961:

(1) Ball mill area - general radiation level, 2 mr/hr;
at contact with the drum containing ytrrium sludge, 7.5 mr/hr;
at one foot from the drum, 4 mr/hr;
at contact with the drum containing ground monazite, 10 mr/hr;
at one foot from this drum, 5 mr/hr

(2) Monazite storage area - general radiation level, 5 mr/hr at 3' from the floor; at one foot from a bag containing monazite, 12 mr/hr

(3) Locker room area - .04 mr/hr at 3' above floor; at contact with the floor, 7000 alpha dpm/100 cm^2

(4) Thorium vault - 10 mr/hr maximum; 3 - 4 mr/hr average

D. Citation

"Records of external radiation survey results were not maintained in the units required by Section 20.401(c), 'Records of surveys, radiation monitoring, and disposal'."

Reported Action Taken

"Records of external radiation surveys are now maintained in the units required by Section 20.401(c)."

Current Status

The records of monthly radiation surveys maintained by the licensee were reviewed. The records were recorded in the units required by 10 CFR 20.

E. Citation

"Source material waste was disposed by incineration without prior approval by the Commission. This is in violation of Section 20.305, 'Treatment or disposal by incineration'."

Reported Action Taken

"No source material waste will be disposed of by incineration without prior approval by the Commission."

Current Status

Carino, Mandle and Stone stated that no material has been disposed of by incineration since the last inspection. At present, Stone stated that they are presently storing empty monazite bags, and that this pile is growing daily. He stated that he intends to write to the Commission for approval to incinerate these bags, but that he would not incinerate unless he had prior approval. In a letter received by this office dated July 3, 1961 from Peter J. Carino, Health Physicist, to DL&R (Lyall Johnson), the licensee requested approval to incinerate. This letter is included as Exhibit "C".

F. Citation

"Source material waste was disposed by release to a storm sewer. This is in violation of Section 20.301, 'Waste disposal'."

Reported Action Taken

"Permission will be requested by separate letter for approval to release source material waste to a storm sewer in accordance with Section 20.302."

Current Status

As a precautionary measure to prevent any material run-off to enter the storm sewers, an additional culvert was built around the entire facility. As noted prior in the report, the records of effluent release show no release to their sewer system in excess of the limits specified in Part 20.

G. Citation

"Areas in which source material was stored and used were not posted as required by Section 20.203(e)(2), 'Caution signs, labels and signals'."

Reported Action Taken

"Areas in which source material are stored and used have been properly posted since the inspection on November 23, 1959, in accordance with Section 20.203(e)(2)'."

Current Status

An inspection of the facilities show that areas in which source material has been stored and used have been properly posted with a radiation caution sign and symbol. In addition, it was found that a form AEC-3 was posted at the entrance to the restricted areas.

H. Citation

"Areas in which source material was stored and used were not posted as required by Section 20.203(b), 'Caution signs, labels and signals'."

Reported Action Taken

"Areas in which source material are stored and used have been properly posted since the inspection on November 23, 1959, in accordance with Section 20.203(b)."

Current Status

An inspection of the ball mill area, thorium storage area, vault, and piles of sludge at which radiation levels in excess of 5 mr/hr at one foot existed revealed the areas to be posted with a proper radiation area sign and symbol.

I. Citation

"Radiation levels in and around the storage and dump areas were such that an individual could receive an exposure in excess of 2 mrem in any one hour or an exposure in excess of 100 mrem in any seven consecutive days. This is in violation of Section 20.102(b)(1)(2), 'Permissible levels of radiation in unrestricted areas'."

Reported Action Taken

"A restricted area will be established by erection of a fence which will include the facility and all storage and dump areas, and access to the restricted area will be controlled. Estimates for the fence have been requested from several contractors and are currently being reviewed."

Current Status

Stone stated that a fence was erected at a cost of $6000. The fence is locked when not attended. He further added that when personnel are at the plant site, the two fence gates are closed, but not locked. An inspection of the restricted areas showed that an approximately 8' high fence has been erected around the plant confines and grounds. The entire area within the fence area is designated by Mandle and Stone as the plant's restricted area.

J. Citation

"Source material in the storage area was not secured against unauthorized removal as required by Section 20.207, 'Storage of licensed material'."

Reported Action Taken

"The restricted area mentioned in paragraph 9 above" (paragraph I above) "will include storage areas for licensed source material to prevent unauthorized removal from the plant of storage."

Current Status

See paragraph I above.

JOB ANALYSIS SHEET

OPERATOR JAMES LINDSLEAF / MEN/SHIFT / SHIFTS/DAY

BALL MILL OPERATOR

Operation or operating area	time per oper	oper per shift	time per shift (min)	No. of sips.	CONCENTRATION d/m/M³ LOW	MED	HIGH	AVGE CONC X TOTAL TIME
1. BALL MILL AREA			170	3	3	124	63	10710
2. FURNACE ROOM			170	3	3	5	4	600
3. FURNACE. REAR OF			60	3	3	9	6	360
4 TRACK & S' AREA			60	3	4	1	6	360
5 LUNCH ROOM			50	2	2	12	7	200
		ET	510			TXC		12390

(TXC)/(T) = 12390/510 = 24.3% d/m/M³ _____ times max. per. conc.

C. L. A. [illegible] d/m/m³

U. . Atomic Energy Commissio
Attn: Mr. Paul Klevin

PATERSON CHEMICAL COMPANY

July 6, 1960

PATERSON CHEMICAL COMPANY
[illegible] CO.
PATERSON, NEW JERSEY

Mr. Lyall Johnson, Chief
Licensing Branch
Division of Licensing and Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.

Dear Mr. Johnson:

Reference: 40-36

This letter supplements our letters to you dated June 28, 1960 and July 11, 1960, regarding plant operations and disposal of plant effluents.

When we started operations at this location in 1946, we tied into the sewage system established in 1924 by Caldfield Farms. Subsequently, we set up and are operating our own industrial waste treatment plant on a continual basis. All plant effluents are treated prior to release into the existing system and our records indicate we are complying with applicable regulations.

We have also checked contamination of a secondary solvent to insure that any surface run-off which might overflow the primary solvent, due to cloudbursts or similar extraordinary conditions, would automatically be caught and passed into our waste treatments plant.

Wayne Township has set up and is operating a sewage disposal plant which discharges into the Pompton River approximately 400 yards upstream of the point where our treated plant effluents enter the river.

The town system is expanding and we expect within the next two years that we shall be able to put our plant effluents directly into the town plant by means of a secondary sewer system.

The results of "core drilling" the plant area, referred to in paragraph 2 of our letter of June 28, 1960, were negative. No significant radioactivity was detected and a record of the core drill locations and radioactivity readings was noted in our files.

We therefore request permission to continue operations with the present

- continued -

Dupl of ~~8208250244~~

Mr. Lyall Johnson, Chief
Licensing Branch
U. S. Atomic Energy Commission

system of controls and records until we can tie into the sanitary sewer system referred to above.

Very truly yours,

P. J. Carino
Health Physicist

PCJ:MCS

U. S. Atomic Energy Commission
New York, New York

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

Klevin

July 3, 1961

United States Atomic Energy Commission
Washington 25, D.C.

Attention: Mr. Lyall Johnson
Chief, Licensing Division

Gentlemen:

We are possessors of source material (monazite sand) operating under License R-[illegible] of the Atomic Energy Commission. We have an accumulation of burlap bags which contained monazite sand and which have been emptied as thoroughly as possible; also filter cloths used in process equipment and similar combustible materials.

Permission is requested to burn not more than 150 pounds of such materials under favorable meteorological conditions (no high winds, etc.).

At intervals during the burning of this material, radiation readings will be taken and air samples will also be collected in accordance with Title 10, Part 20.106 (A) and 20.203 of Regulation 10 CFR 20. These will be taken downwind of the incinerator and will include readings inside and outside the restricted area. Ash will be collected and stored in 55 gallon steel drums marked in accordance with applicable regulations. Records will also be maintained as required by regulations and all disposal will be under my supervision.

If you require additional information, please let me know.

Very truly yours,

Peter J. C[illegible]
Health Physicist

PJC:MCB