

BOX 10172 LAMBERT FIELD • ST. LOUIS, MISSOURI 63146 • 314 AX 1-0540

January 7, 1972

Mr. Boyce H. Grier
Regional Director
U. S. Atomic Energy Commission
Division of Compliance
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Grier:

Thank you very much for your letter of December 23, 1971 referring to an inspection of our facility by Mr. E. C. Ashley, during December 6-9, 1971. After Mr. Ashley's inspection both Mr. Don Soldan, our Chief Radiological Protection Officer and I had a critique with Mr. Ashley and discussed the points as raised in your letter.

In answer to the points mentioned in your letter, I have the following comments:

1. "Contrary to 10 CFR 20.103, "Exposure of individuals to concentrations of radioactive material in restricted areas": An individual was exposed to airborne concentrations of iodine 131 in excess of the limits during the seven consecutive days July 2-8, 1971, as evidenced by your measurement of more than an average of 0.14 microcurie of iodine 131 in the employee's thyroid during that period."

Airborne radioactivity concentrations of iodine 131 measured during the period June 30 to July 8 were less than 2.2×10^{-9} uCi/ml at all thirteen stations within the main production department laboratory. The average iodine 131 concentration in the principal area in which the individual worked was 1.3×10^{-9} uCi/ml. All of our records indicate that concentrations were well within the permissible limits of 9×10^{-9} uCi/ml during the period in question.

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MALLINCKRODT CHEMICAL WORKS

2. "Contrary to 10 CFR 20.405(a), "Reports of over-exposures and excessive levels and concentration": As of the date of the inspection, a report had not been submitted to the Commission of the exposure of an individual during the period July 2-8, 1971, noted above in Item 1."

A copy of the exposure report to the Director of the Division of Compliance is attached for your information.

3. "Contrary to 10 CFR 20.405 (c), "Reports of over-exposures and excessive levels and concentrations": The exposed individual was not notified in writing of the nature and extent of the exposure referred to in Item 1 above."

A letter has been prepared to inform the individual of the nature and extent of his exposure.

4. "Contrary to 10 CFR 20.401(b), "Records of surveys, radiation monitoring, and disposal": No records were maintained of the surveys or evaluations which were performed to determine the extent of personnel exposures to concentrations of iodine 131 in the Quality Control Department during the period July 29 through August 5, 1971. Your records of the results of air samples taken in this area show concentrations of approximately 12×10^{-9} microcuries/milliliter and 15×10^{-9} microcuries/milliliter iodine 131 during this period. Your records do not show employee occupancy times in this area to support your evaluation that personnel were not exposed in excess of the AEC limit of 9×10^{-9} microcuries/milliliter averaged over 40 hours."

It was noted during the inspection that occupancy times had been penned in where required on air concentration reports but had been omitted in this one instance. Mr. Ashley suggested that such air concentrations should be reported to the Radiological Protection Committee to assure that proper evaluations are documented. We concur and have held a Committee meeting at which this suggestion was proposed and adopted.

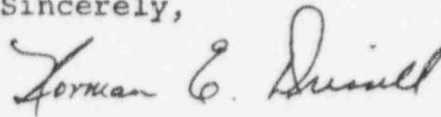
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5. "Contrary to 10 CFR 20.408, "Reports of personnel exposure on termination of employment or work": Numerous persons have terminated employment or work assignment in your facilities and reports of personnel exposure have not been submitted to the individuals nor to the Director of Regulations."

All individuals who terminated employment and who requested their exposure reports were promptly sent their radiation histories. Those individuals who did not request a report did not automatically receive a report from us. Reports to all individuals and a report to the Director of Regulation were sent on December 17, 1971, to correct this situation.

Thank you again for the courtesies extended us by Mr. Ashley and if there is any further clarification needed on any of the above mentioned areas of noncompliance, please let us know.

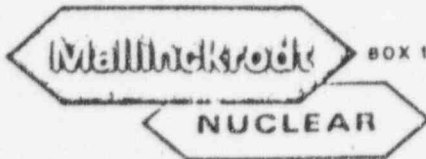
Sincerely,



Norman E. Drissell
Director of Operations

NED:cm

Attach.



BOX 10172 LAMBERT FIELD • ST. LOUIS, MISSOURI 63146 • 314 AX 1-0540

January 7, 1972

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

Gentlemen:

A production technician incurred an elevated thyroid burden of iodine 131 on July 2, 1971, apparently from water splashed on his face and hair from a contaminated hotsink. His average thyroid burden for that calendar week was 0.05 microcuries. The average of measurements made during the following calendar week was 0.13 microcuries.

We did not believe this exposure to be reportable since all previous reports to the Commission had been based upon measurements made which averaged greater than 0.14 microcuries during a 7 day calendar week.

We were advised during a recent inspection that any 7 consecutive days which yield the highest possible average burden should be chosen as the basis for reporting thyroid exposures to the Commission.

It is on this basis that we are now reporting this particular exposure. Application of this ruling yields an average burden of 0.158 microcuries for the period July 2-8 which is 13% above the permissible burden of 0.14 microcuries.

The calculated exposure to his thyroid for the quarter ending July 2, 1971, the day of the incident, was 1.04 rems. The exposure for the following quarter ending October 1, was 1.76 rems. These exposures compare favorably with the 8 rems permissible exposure recommended by the ICRP.

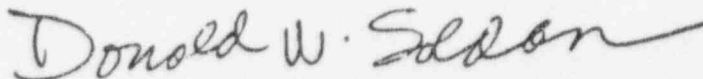
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Air concentrations of iodine 131 at station P3, nearby the hotsink, averaged 1.3×10^{-9} microcuries/milliliter for the period June 30 to July 8, 1971. Concentrations at other production department stations were comparable or lower for the same period.

The corrective step taken last July was to have supervisory personnel reinstruct their technicians that, when disposing of small amounts of radioactive materials in a hotsink, liquids should be carefully poured directly down the drain and flushed with water to minimize contamination of the sink.

Sincerely yours,

MALLINCKRODT CHEMICAL WORKS
MALLINCKRODT NUCLEAR



Donald W. Soldan, Chief
Radiological Protection Officer

DWS:cm

cc: Boyce H. Grier
Director of USAEC
Region III

The individual referred to in this report is:

[REDACTED]
Social Security # [REDACTED]

Date of Birth [REDACTED]

Exemption 6



UNITED STATES
ATOMIC ENERGY COMMISSION
DIVISION OF COMPLIANCE
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

TELEPHONE
(312) 858-2660

December 23, 1971

Mallinckrodt Chemical Works
Mallinckrodt/Necluar
ATTN: Mr. E. E. Driscoll
Director of Operations
Box 10172 Lambert Field
St. Louis, Missouri 63145

Gentlemen:

This refers to the inspection conducted by Mr. Ashley of this office on December 6-9, 1971, of activities authorized by AEC License No. 24-04206-01 and to the discussions of our findings held with Messrs. E. E. Driscoll and D. V. Selden of your staff at the conclusion of the inspection.

Areas examined during this inspection included air and water effluents, inplant and product shipment surveys, unrestricted area surveys, and employee personnel exposures during the second and third calendar quarters of 1971. Within these areas the inspection consisted of a selective examination of procedures and representative records, interviews with plant personnel, observations and independent measurements made by the inspector.

In addition to the above, the inspector examined actions described in your letter dated August 13, 1971, to the Director, Division of Compliance with respect to items of apparent noncompliance noted during our inspection of May 1971. We have no further questions regarding these items.

During this inspection it was found that certain of your activities appear to be in noncompliance with AEC requirements. The items and references to the pertinent requirements are listed in the

Mallinckrodt Chemical
Works

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enclosure to this letter. Please provide us in writing, within 10 days, with your comments concerning these items, any steps which have been or will be taken to correct them, any steps that have been or will be taken to prevent recurrence, and the date that all corrective actions or preventive measures were or will be completed.

Should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

Boyce H. Grier
Regional Director

Enclosure:
Description of Noncompliance Items

ENCLOSURE
LICENSEE NO. 24-04206-01

Certain activities under your license appear to be in noncompliance with AEC regulations as indicated below:

1. 10 CFR 20.103, "Exposure of individuals to concentrations of radioactive material in restricted areas," states in part that "The licensee shall possess, use, or transfer licensed material in such a manner as to cause any individual in a restricted area to be exposed to airborne radioactive material possessed by the licensee in an average concentration in excess of the limits specified in Appendix B, Table I, of this part." Further, "The limits given in Appendix B, Table I, of this part are based upon exposure to the concentrations specified for 40 hours in any period of seven consecutive days."

Contrary to the above, an individual was exposed to airborne concentrations of iodine 131 in excess of the limits described in 10 CFR 20.103 during the seven consecutive days July 2-8, 1971, as evidenced by your measurement of more than an average of 0.14 microcurie of iodine 131 in the employee's thyroid during that period.

2. 10 CFR 20.405(a), "Reports of overexposures and excessive levels and concentrations," states in part that a "licensee shall make a report in writing within 30 days to the Director, Division of Compliance, U. S. Atomic Energy Commission, Washington, D.C., with a copy to the Director of the appropriate Atomic Energy Commission Regional Compliance Office of each exposure of an individual to radiation or concentrations of radioactive material in excess of any applicable limit. Each report shall describe the extent of exposure of persons to radiation or to radioactive material; levels of radiation and concentrations of radioactive materials involved; the cause of the exposure; levels or concentrations; and corrective steps taken or planned to assure against a recurrence."

Contrary to the above, as of the date of the inspection, a report had not been submitted to the Commission of the exposure of an individual during the period July 2-8, 1971, noted above in Item 1.

3. 10 CFR 20.405(e), "Reports of overexposures and excessive levels and concentrations," states in part that in any case where a licensee is required to report to the Commission any exposure of an individual to radiation or to concentrations of radioactive material under the provisions of 10 CFR 20.405(a), the licensee shall also notify the exposed individual of the nature and extent of the exposure in writing.

Contrary to the above, the exposed individual was not notified in writing of the nature and extent of the exposure referred to in Item 1 above.

4. 10 CFR 20.401(b), "Records of surveys, radiation monitoring, and disposal," states in part that each licensee shall maintain records showing the results of surveys required by 10 CFR 20.201(b).

Contrary to the above, no records were maintained of the surveys or evaluations which were performed to determine the extent of personnel exposures to concentrations of iodine 131 in the Quality Control Department during the period July 29 through August 5, 1971. Your records of the results of air samples taken in this area show concentrations of approximately 12×10^{-9} microcuries/milliliter and 15×10^{-9} microcuries/milliliter iodine 131 during this period. Your records do not show employee occupancy times in this area to support your evaluation that personnel were not exposed in excess of the AEC limit of 9×10^{-9} microcuries/milliliter averaged over 40 hours.

5. 10 CFR 20.406, "Reports of personnel exposure on termination of employment or work," states that when an individual terminates employment with a licensee subject to 10 CFR 20.407, or an individual assigned to work in such a licensee's facility, but not employed by the licensee, completes his work assignment in the licensee's facility, the licensee shall furnish to such individual and to the Director of Regulation, U. S. Atomic Energy Commission, Washington, D.C., 20545, a report of the individual's exposure to radiation and radioactive material, incurred during the period of employment or work assignment in the licensee's

facility, containing information recorded by the licensee pursuant to 10 CFR 20.401(a) and 10 CFR 20.106. Such report shall be furnished within 30 days after the exposure of the individual has been determined by the licensee or 90 days after the date of termination of employment or work assignment, whichever is earlier.

Contrary to the above, numerous persons have terminated employment or work assignment in your facilities and reports of personnel exposure have not been submitted to the individuals nor to the Director of Regulation.