

NOV 30 1967

CO:RH
24-4206-1

Mallinckrodt Chemical Works
Mallinckrodt Nuclear Division
3600 North Second Street
St. Louis, Missouri 63160

Attention: Mr. Harold E. Thayer
President

Gentlemen:

This refers to the inspection conducted during September and October, 1967, of your activities authorized under AEC Byproduct Material License No. 24-4206-1. In addition, we wish to acknowledge receipt of your letters dated September 26, October 5, October 20 and October 27, 1967, to the Isotopes Branch, Division of Materials Licensing reporting the exposure of personnel to radioactive material. On July 15, 1967, Paragraph 20.405(a) of 10 CFR 20 was amended by deleting "Director, Division of State and Licensee Relations" and substituting "Director, Division of Compliance." Accordingly, any subsequent reports of this kind should be sent to this office.

As a result of the inspection, it appears that certain of your activities were not conducted in full compliance with the requirements of the AEC's "Standards for Protection Against Radiation," Part 20, and "Rules of General Applicability to Licensing of By-product Material," Part 30, Title 10, Code of Federal Regulations, in that:

1. During May, June and July, 1967, several of your employees were exposed to average weekly airborne concentrations of iodine 131 in excess of the limits specified in Table I, Column 1, Appendix B of 10 CFR 20, contrary to 10 CFR 20.103(a), "Exposure of individuals to concentrations of radioactive material in restricted areas."
2. The exposures referred to in Item 1 above were not reported to the Commission as required by 10 CFR 20.405(a),

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Form AEC-318 (Rev. 9-65)

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Act, exemptions 6
FOIA- 96-343

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"Reports of exposures and excessive levels and concentrations." Also, the exposed individuals were not informed in writing of the nature and extent of their exposures as required by 10 CFR 20.405(b).

3. Contrary to 10 CFR 20.201(b), "Surveys," from August 18 to September 14, 1967, no surveys were made to determine compliance with 10 CFR 20.103 with respect to the airborne concentrations of radioactive material to which employees were exposed in restricted areas in the plant.
4. Contrary to 10 CFR 20.201(b), "Surveys," surveys made of laboratory uniforms potentially contaminated with radioactive material were inadequate to detect the presence of radioactive material prior to their release to a commercial laundry. The instrument used in conducting the laundry surveys was noted to be set on a scale not sufficiently sensitive to detect significant quantities of radioactive material. It was noted also that the instrument in question was located in close proximity to a refrigerator containing radioisotopes such that the background radiation coming from the refrigerator could conceivably preclude an adequate assessment of the radioactive material present on laboratory uniforms.
5. Surveys were not conducted of all articles contained in wastebaskets to establish whether they were contaminated with measurable amounts of radioactive material prior to their disposal through normal refuse channels, contrary to 10 CFR 20.201(b), "Surveys".
6. Surveys were inadequate to determine the quantities of radiation existing outside the "Blockhouse" located near the north side of the main building, contrary to 10 CFR 20.201(b), "Surveys."
7. The high radiation area existing outside the "Blockhouse" described in Item 6 above was not posted as required by 10 CFR 20.203(c)(1), "Caution signs, labels and signals."
8. The airborne radioactivity area existing in the production area was not posted as required by 10 CFR 20.203(d)(2), "Caution signs, labels and signals."

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9. Contrary to 10 CFR 30.3, "Activities requiring license," on or about March 23, 1967, a 100 millicurie strontium 90 source was transferred to the Good Samaritan Hospital, Vincennes, Indiana, when the Hospital was not licensed to receive such material.

This notice is sent to you pursuant to the provisions of Section 1.201 of the AEC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. You are hereby required to submit to this office within twenty (20) days of your receipt of this notice, a written statement or explanation in reply including (1) corrective steps which have been taken by you, and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved.

We note that items of noncompliance similar to the ones described in Items 2, 3, 4 and 5 above were found during the previous inspection and brought to your attention in our notice dated July 25, 1967. In your reply to the aforementioned notice, you informed us that appropriate corrective action has been or would be taken. The repetitive items of noncompliance appear to demonstrate that the corrective measures instituted by the company were either ineffective or were not carried out. In any event, the recurrent nature of the violations and the results of this inspection are, we believe, indicative of inadequate management control over the safety aspects of the company's licensed operations. With your reply to this letter, please inform us of the steps which you have taken or plan to take to strengthen the management of the company's radiation safety program.

Very truly yours,

cc: Dr. W. R. Konneker
Vice President and General Manager
Mallinckrodt Nuclear Division

Original signed by
L. D. Low

Lawrence D. Low, Director
Division of Compliance

bcc: CO:HQ)
DML:IB) w/cyps of the following ltrs:
Incident File) 9/26/67, 10/5/67, 10-20-67,
Public Document Room) and 10/27/67, with encl.
CO:III
REC Reading File

OFFICE	CO	CO	CO	CO		
SURNAME	RHandler:jtl	JRFoeder	RHEngelken	ELow		
DATE	10-21-67	10/24/67	11/3/67	11/29		