

H. L. Price, Director, Division of Licensing  
and Regulation, Washington, D. C.

August 13, 1959

S. R. Sapirio, Manager  
Oak Ridge Operations Office

COMPLIANCE INSPECTION REPORTS

SYMBOL: MI:LD

Enclosed are compliance inspection reports on the listed licensees.  
All are "clear" cases.

<u>License No.</u>	<u>Licensee</u>
24-752-1	Evangelical Deaconess Hospital St. Louis 10, Missouri
24-752-2	Evangelical-Deaconess Hospital St. Louis, Missouri
24-4584-1	Normandy Osteopathic Hospital St. Louis 21, Missouri
<u>47-250-6(061)</u>	Union Carbide Corporation South Charleston, West Virginia
47-4560-1	Hercules Powder Company Pinto, West Virginia

*for* S. R. Sapirio

Enclosures:  
Compliance Inspection Reports (5)

CC: Marvin H. Mann, Division of Inspection, Washington, w/encls.

Inspection

Dubinski:glm

8-13-59

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For State

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*A-165*

COMPLIANCE INSPECTION REPORT

1. Name and address of licensee <b>Union Carbide Corporation</b> <b>Union Carbide Chemicals Company</b> <b>Union Carbide Olefins Company</b> <b>437 MacCorkle Avenue</b> <b>South Charleston 3</b> <b>West Virginia</b>	2. Date of inspection <b>July 24, 1959</b> <hr/> 3. Type of inspection <b>Initial</b> <hr/> 4. 10 CFR Part(s) applicable <b>20 and 30</b>
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5. License number(s), issue and expiration dates, scope and conditions (including amendments)

<u>License No.</u>	<u>Date</u>	<u>Expiration</u>	<u>Scope and Conditions</u>
17-260-6(061)	3-11-59	3-31-61	Scope: Hydrogen 3, any form, 25 curies; carbon 14, any form, 250 millicuries; phosphorus 32, any form, 100 millicuries; sulfur 35, any form, 150 millicuries; chlorine 36, any form, 100 millicuries; calcium 45, any form, 100 millicuries; each used for research and development as defined in Section 30.1(k), Title 10, Code of Federal Regulations, Part 30. Conditions: #11 - Byproduct material may also be used at other laboratories of the Union Carbide Corporation within the State of West Virginia as designated by the Radioactive Materials Committee. Byproduct material may also be used in other states at laboratories of the Union Carbide Corporation designated by the Radioactive Materials Committee providing the Atomic Energy Commission is notified of the location(s) of such use not later than four (4) days after the first day of such use. #12 - The licensee shall comply with the provisions of Title 10, Part (continued on attached sheet)

6. Inspection findings (and items of noncompliance)

The use of byproduct material in the licensee's industrial research program has been limited to C 14. A Radioactive Materials Committee has been established. A record showing the C 14 procured, used, and on hand is being maintained. Radiation contamination checks are being made as a part of the routine laboratory procedure. The storage containers are labeled appropriately and the storage cabinet, the storage freezer, and the two laboratory rooms where the C 14 is stored are posted appropriately.

No items of noncompliance were observed or otherwise noted during the course of this inspection.

7. Date of last previous inspection <b>None</b>	8. Is "Company Confidential" information contained in this report? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Specify page(s) and paragraph(s))
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**DISTRIBUTION:**

Division of Inspection Washington, D. C. (1)	Jack M. Sutherland (Inspector)
Division of Licensing and Regulation Washington, D. C. (1)	Approved by: <b>Leo Dubinski</b> Oak Ridge Operations Office (Operations office)
Not Reproduced For State	August 10, 1959 (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.

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

20, Code of Federal Regulations, Chapter 1, "Standards for Protection Against Radiation."  
#13 - Byproduct material shall be used by, or under the direct supervision of, individuals approved by the local isotope committee, L. J. Rogers, Chairman. #14 - Total amount of Hydrogen 3 (tritium) acquired under this license shall not exceed 50 curies. #15 - Byproduct material shall not be used in or on human beings. #16 - Byproduct material shall not be used in products distributed to the public. #17 - Byproduct material shall not be used in field applications where such activity is released. #18 - The licensee shall possess and use byproduct material described in Items 6, 7 and 8 of this license in accordance with statements, representations, and procedures contained in his application dated January 29, 1959, and in related documents and amendments as follows: A. Administrative instructions entitled "Governing the Control and Use of Radioactive Materials" and dated January 21, 1957. B. Letter dated January 27, 1959, from L. J. Rogers. #19 - Written administrative instructions referenced in Condition 18.A. covering radiological protection, control, and security of byproduct material shall be followed and a copy of these instructions shall be supplied to each individual using or having responsibility for use of such material. Any changes in these administrative instructions shall have the prior approval of the Isotopes Branch, Division of Licensing and Regulation. #20 - Pursuant to Section 20.302 of Title 10, Code of Federal Regulations, Part 20, disposal of waste materials containing Carbon 14 by incineration, as described in letter dated November 10, 1958, from F. G. Young, is hereby authorized.

Amendment No. 1      7-6-59

License amended to add:  
Iodine 131, any form, 25 millicuries, used for research and development as defined in Section 30.4(k), Title 10, Code of Federal Regulations, Part 30.

DETAILS

I. GENERAL INFORMATION

9. On July 24, 1959, an initial compliance inspection was made of the facilities and operation of the byproduct material industrial research program being conducted by the Union Carbide Corporation, South Charleston, West Virginia. The inspection was conducted by Jack T. Sutherland, Inspection Division, OROO, accompanied by Mr. Harvey Roberts, Industrial Hygienist of the Health Department, State of West Virginia.

10. The persons interviewed and supplying information were:

Mr. W. J. Skraba, Acting Supervisor of Radiation Chemistry Group  
Mr. N. H. Ketcham, Industrial Hygienist  
Dr. M. K. Bach, Research Biochemist

Mr. L. J. Rogers, Chairman of the Radioactive Materials Committee, was participating in a series of meetings at the time of the inspection. Mr. Rogers telephoned his apology and stated that if anything came up during the course of the inspection that required his presence, he would break away from the meetings and assist in any way that he was able. It was not necessary to call on Mr. Rogers.

II. ORGANIZATION AND PROCEDURES

11. The departments that use or will use byproduct material under this program are research departments of the Technical Center of the Union Carbide Corporation. The Technical Center performs research for the entire corporation and is presently functioning in new facilities completed in 1958. These facilities are said to be among the best found in industry. The Technical Center through its Radioactive Materials Committee coordinates and controls all activities related to radioactive materials within its operations. The Committee regulates procurement, storage, safe handling and disposal of these materials as well as related needs such as emergency procedures and equipment. The Committee has issued written regulations and instructions governing the use of all byproduct materials. The Committee is made up of the following persons:

Mr. L. J. Rogers, Special Instruments Department, Chairman  
Mr. W. J. Skraba, Acting Supervisor of Radiation Chemistry Group  
Dr. J. F. Haskin, Development Department  
Dr. K. D. Williamson, Research Chemist  
Mr. P. A. Laine, Jr., Special Instruments Department  
Mr. J. R. Barnhill, Assistant to Manager of Safety and Fire Protection  
Mr. N. H. Ketcham, Industrial Hygienist  
Mr. C. E. Pownall, Assistant Works Purchasing Agent

This Committee also serves as a liaison group for all problems dealing with radioactive materials which may arise with or between:

1. User
2. Personnel Safety Division
3. Fire Department
4. Medical Department
5. Purchasing Department
6. State Board of Health
7. Atomic Energy Commission

12. The Committee has approved the following individuals for the use of byproduct material:

Mr. W. J. Scraba  
Mr. T. Steele  
Dr. J. Fellig  
Dr. M. K. Bach  
Dr. I. Davidson  
Mr. J. Brough

Mr. Scraba and Dr. Fellig are the only persons who have actually used byproduct material.

13. All orders and proposals for use of radioactive materials must be submitted to the Committee for approval. When material arrives in the Receiving Department it is set aside and the user notified. The user is required to inspect the shipment to ascertain its condition and upon acceptance notify the Safety Division that the material has been received. The notification will state the type material received, amount, location of use and name of responsible person and department. C 14 is the only byproduct material procured or used. Only two orders of C 14 have been procured. These were 5 mc as acetylchloride from Research Specialties and 6 mc as potassium cyanide from the Volk Radiochemical Company. All of the material presently on hand is in the form of acetylchloride or wastes.
14. The radiation survey instrument being used is a Tracerlab Laboratory Monitor, model SU3B, 0-20,000 c/m, with a 1.4 mg/cm<sup>2</sup> end window probe. This instrument was operable at the time of the inspection.
15. The C 14 is being used in laboratory room 236 of Building 701. The C 14 is processed into compounds to be used by other research groups of the Technical Center. The C 14 is introduced in microcurie quantities into a closed vacuum system for the synthesis of other compounds. A standard wet combustion method is used. The laboratory is well equipped with stainless steel laboratory benches and a laboratory fume hood that exhausts to a stack above the roof of the building. Solid samples are counted in the counting room numbered 234. Dr. J. Fellig is preparing some solid samples in laboratory rooms 238 and 239. Dr. Fellig plans to use some C 14 compounds in metabolism studies in animals.
16. Mr. N. H. Ketcham, Industrial Hygienist is the Radiation Protection Officer. Mr. Ketcham's radiation protection experience is as follows:
- Industrial Hygienist at K-25 Gaseous Diffusion Plant in Oak Ridge 1944-1948
  - Radiation Health studied as part of Industrial Hygiene graduate work at Harvard University 1948-1949
  - Industrial Hygienist at Union Carbide Corporation in South Charleston, West Virginia since 1949
  - One week of training with Health Physics Division of ORNL in May 1958
  - In present capacity as Radiation Protection Officer since May 1958
17. Written administrative instructions have been formulated, have been distributed to the individuals using or having the responsibility for the use of byproduct material, and are being followed.

**III. STORAGE AND WASTE DISPOSAL**

18. The C 14 is being stored in a laboratory cabinet in laboratory room 236 and in a storage freezer in laboratory room 238. These laboratories are kept locked when unattended. The only C 14 being disposed of is from contaminated glassware. Hot sulfuric acid is used to clean the glassware. The C 14 goes to CO<sub>2</sub> which is exhausted through the laboratory fume hood. Mr. Skraba stated that it is planned to dispose of solid C 14 in paper, cloth, toweling, laboratory coats, swabs and wipes by burning in an incinerator located 400 ft. southeast of Building 701. This incinerator designed by the American Incineration Corporation has a stack 40 ft. high. The effluent gas flow from the top of the stack is estimated at 135,800 cu ft/hr.

**IV. PERSONNEL MONITORING AND SURVEYS**

19. A personnel monitoring program is not in effect. Due to the fact that only C 14, a weak beta emitter, is used it is felt that the use of personnel monitoring devices would be of no benefit. Radiation contamination checks are made as a part of the routine laboratory procedure when C 14 is used.

**V. POSTING**

20. The storage containers are labeled appropriately and the storage cabinet, the storage freezer, and the two laboratory rooms where the C 14 is stored are posted appropriately.