

REPORT COMPILED SHEET

Identifying Information

Type Report (circle)
591 592

1. Licensee The Harshaw Chemical Company
2. Address 1945 East 97th Street
Cleveland, Ohio 44106
3. License No(s) 34-6558-5
4. Date of Inspection September 10, 1969
5. Inspector Edgar C. Ashley
6. Status of Compliance Noncompliance

Items of Noncompliance

7. Section of Regulation
or
License Condition

Details Paragraph

- A. Condition No 11.
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____

- A. 36
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____

Classified Information

8. This report contains classified or business confidential information.

Yes (No)

Edgar C. Ashley
Inspector

9-23-69
Date

J. M. Allan
Reviewer

9-30-69
Date

3/87

Harshaw Chemical Co.
License No. 34-6558-5
September 10, 1969

HEALTH PHYSICS ANALYSIS

Under this license the licensee possesses approximately 150 sources of various types. Most of the sources are less than one millicurie in strength. The licensee uses his radioactive materials for the development, testing, and calibration of various instruments and built-in calibration sources for these instruments. With this type of program most of the sources are normally in storage and only used on occasion.

At the time of this inspection, the licensee was in the final stages of moving his radioactive work from the East 97th Street, Cleveland, Ohio address to their new facilities at 6801 Cochran Road in Solon, Ohio. As a result of a visit to the new laboratory facility in Solon, it appears that the new facility will be quite adequate for the conduct of this program. This new facility has all the hot lab capabilities that the old laboratory facility had. Due to the extremely high sensitivity of the instruments being tested and calibrated, the licensee must and does maintain a clean facility from a radioactive standpoint.

Since the last inspection a new Radiation Safety Officer has been named for the licensee. It was obvious that this new Radiation Safety Officer was in the middle of becoming acquainted with the program and making plans to update various phases of the program. The conditions of this license and the AEC regulations in general were discussed with the new Radiation Safety Officer during this inspection. The one item of noncompliance noted, namely, the use of one of their cobalt 60 sources for instrument calibration at the Cleveland Clinic, a place not authorized by the license, appears to stem from the RSO's lack of understanding of the license conditions of this license. It should be noted that the Cleveland Clinic is located "just around the corner" from the licensee's East 97th Street address.

No significant health and safety hazards appeared to exist from the licensee's use of radioactive materials under this license.

Harshaw Chemical Co.
License No. 34-6558-5
September 10, 1969

DETAILS

GENERAL INFORMATION

9. This was an announced reinspection of this byproduct material program conducted on September 10, 1969. The licensee was notified by telephone of this forthcoming inspection on September 4, 1969.
10. Mr. James Wynd of the Ohio State Health Department was notified of this forthcoming inspection on September 4, 1969. The inspector was unaccompanied.
11. The following persons were interviewed and supplied the information contained in this report: Vincent Ravaschieri, Radiation Safety Officer; Sandra Brown, Secretary; E. C. Stewart, Vice-President and General Manager, Crystal and Electronic Products Department and Chairman, Isotope Committee.
12. All of the information contained in this report is presented in substance unless otherwise indicated.

INSPECTION HISTORY

13. Reinspection No. 3 of this byproduct material program was conducted on March 13, 1968. No items of noncompliance were noted as a result of that inspection.
14. Reinspection No. 4 of this byproduct material program was conducted on September 10, 1969, and is the subject of this report.

PROGRAM

15. Radioactive materials possessed under this license are used for source and instrument development, testing, and calibration, and distribution to authorized recipients. More specifically, the licensee uses his licensed materials to test, study, and calibrate scintillation, semiconductor, and ionization type irradiation detectors, and electron multiplier tubes.
16. In some cases the licensee includes in their scintillation crystals a small calibration source of americium 241 or plutonium 239. These materials are distributed to persons holding specific licenses for those particular materials. The licensee holds License No. GL-229 for the purpose of manufacturing and distributing to general licensees crystals with these same type sources.

17. A "permanent isotope inventory" is maintained for all radioactive materials on hand. Each receipt is assigned a Harshaw number and is logged into the inventory. Similarly, each disposal or transfer is noted in the inventory. As of September 1969, this inventory included about 150 sources of all types. These sources range in strength from less than 0.0005 microcuries up to 4.5 curies (americium-beryllium neutron source). Most of the sources are less than one millicurie each. The forms of these sources are liquid, plated discs, rods, and sealed sources. Ravaschieri advised that many of these sources are quite old and have lost their usefulness and are simply in storage. Ravaschieri stated that he is planning to go through the entire inventory and dispose of many decayed and unused sources.
18. As a result of a review of the licensee's inventory and discussions with licensee representatives, it appears that the licensee is possessing and using radioactive materials under this license in amounts and purposes authorized.

ORGANIZATION AND ADMINISTRATIVE CONTROL

19. Since the last previous reinspection of this license, two changes have taken place in the licensee's organization. The primary place of use from an organizational standpoint has been the Crystal-Solid State Department of the Harshaw Chemical Company. Since the last inspection, this department has undergone a name change and is now known as the Crystal and Electronic Products Department. The second change which has taken place regards the Radiation Safety Officer. Mr. Vincent Ravaschieri has replaced Mr. Jay Menefee in that position. Mr. Menefee is no longer with the company.
20. The entire radioactive material program at Harshaw is under the jurisdiction of the Isotope Committee. The membership of this committee is as follows:
E. C. Stewart, Chairman; Vincent Ravaschieri, RSO, Nuclear Systems Research Engineer; R. C. Anfang, General Sales Manager; R. Osborne, Purchasing Agent; and, D. E. Smith, Security Officer.
21. The Isotope Committee meets only as necessary to discuss new or different uses of radioactive materials and also to review applications of new users. Only those persons who are designated by the Isotope Committee are authorized to use or supervise the use of licensed materials at Harshaw.

22. The procurement of licensed material is controlled by the Radiation Safety Officer and the purchasing agent. All requests for licensed material must be approved by the RSO.

RADIOLOGICAL SAFETY PROCEDURES

23. Written instructions and emergency procedures are supplied to users in the form of the licensee's standard operating procedures, No. 25 entitled, "Operation of the Open Radioisotope Laboratory, Crystal-Solid State Division", which includes the "Rules and Emergency Procedures (to be posted in the Radioisotope Laboratory)", as submitted with the letter dated June 18, 1965. Licensee representatives advised that this procedure is to be updated to reflect the move to the new facilities in Solon, Ohio. (See Paragraph 24 below).

FACILITIES AND EQUIPMENT

24. Recently the licensee moved its licensed program to new facilities located at 6801 Cochran Road, Solon, Ohio. As a result, little or no work is being done now at 1945 East 97th Street in Cleveland, Ohio, and 113 John Street in Elyria, Ohio, and no work is being done at 2240 Prospect Avenue in Cleveland, Ohio.
25. All of the radioactive material work which has been done at their Laurel Laboratory on 97th Street in Cleveland is ~~now being~~ ^{to be} done in Laboratory 903 at the Solon, Ohio facility. A description and sketch of Lab. 903 was submitted to the Commission as attachments to a letter dated May 26, 1969, and is the backup for Amendment No. 8. Laboratory 903 and the equipment in the lab was noted to be essentially the same which was listed in the May 26 letter attachment, although the placement of some of the laboratory furniture was different than that shown on the sketch. At the present time, the licensee has not begun growing crystals in this laboratory as yet. The only activity going on in the room now is the canning of pulsers ^{to be used} ~~(sources)~~. The entrance door to Room 903 is locked and posted with the words, "Caution - Radiation Area and Radioactive Materials", along with the radiation caution symbol and conventional colors. A Form AEC-3 was posted on the wall inside this laboratory room. One of the reasons why crystal growing has not taken place yet in Room 903 is that the furnaces which are required are still at the 97th Street Address.

26. The licensee has on hand many different types of radiation detection instruments. The two instruments which are involved with the radiation safety aspects of the program are a 9" by 9" scintillation detector which is used for the counting of wipe test samples and a Thyac II portable survey meter Model 489.

PERSONNEL MONITORING AND EXPOSURE DETERMINATION

27. The licensee utilizes Nuclear Chicago Film Badge Service on a two-week exchange basis. For calendar year 1968 the maximum whole body exposure received by any one person ~~was~~^{was} 390 millirem with the average exposure appearing to be less than 50 millirem. For the year 1969 through July, the maximum whole body exposure received by any one person ~~was~~^{was} 130 millirem with the average exposure received by all persons appearing to be less than 10 millirem.
28. Dosimeters are available and worn by persons who may want to make a daily check of their exposures from time to time.

RADIATION SURVEYS AND EVALUATIONS

28. The licensee has 38 sealed sources which require leak testing. The sources are either wiped directly or at the nearest accessible point in their storage container. The ~~active~~^{active} filter paper wipes are placed in a thin plastic envelope and counted on the licensee's computerized 9" by 9" crystal setup. A review of the licensee's records showed that all sources have been leak tested at intervals of less than three months for alpha sources and less than six months for beta-gamma sources. *All leak test results shown < 0.001 dpm.*
30. Each time that sealed sources are wiped in the laboratory area, the laboratory itself is wiped for contamination. The results of these laboratory wipes are recorded on the same record sheet as the leak test and show no contamination problems. /
31. All dry active waste drums are surveyed prior to shipment. Results of these surveys show mr/hr at the surface and at one meter and in terms of microcuries for the smear sample. No unusual problems were noted.

WASTE DISPOSAL

32. All of the licensee's waste is shipped to Tracerlab for ultimate disposal. The licensee maintains complete records of these waste disposal transfers.

POSTING AND LABELING

33. All of the containers in which radioactive material was housed were noted to be labeled in accordance with 10 CFR 20.203(f)(1).

RECORDS

34. Receipts and transfers of licensed material are recorded on a form known as "Radioisotope Receipt and Shipment Log."
35. Both laboratory smear surveys and sealed source leak test results are recorded on a form known as "Periodical Wipe Test Record."

LICENSE CONDITIONS

36. License Condition Nos. 10 through 16 of License No. 34-6558-5 were reviewed with the Radiation Safety Officer during the inspection. A review of the licensee's permanent isotope inventory showed that a cobalt 60 sealed source, Harshaw No. HC-200W was listed as being at the location of the Cleveland Clinic Radioisotope Department. Mr. Ravaschieri advised that this source is being used by Harshaw people at the clinic. The licensee representatives were advised that the use of the cobalt 60 sealed source at the Cleveland Clinic constituted noncompliance with License Condition No. 11 in that the Cleveland Clinic is not an authorized place of use as stated by that condition. No other discrepancies were noted during a review of the license conditions.

MANAGEMENT DISCUSSION

37. The results of this inspection were discussed with Vincent Ravaschieri, the Radiation Safety Officer, and with E. C. Stewart, the Vice-President and General Manager of the Crystal and Electronic Products Department of Harshaw Chemical Company. Regarding the one item of noncompliance noted concerning the use of a small cobalt 60 sealed source at the Cleveland Clinic, the licensee representative advised that the source will be returned to the licensee's facilities at once and that amendment to the license will be requested to authorize the Cleveland Clinic as a place of use in the future. The licensee representatives were advised that they may expect to receive further communication from the Commission regarding the results of this inspection.