

AUG 14 1970

Jack R. Roeder, Chief, Materials Inspection and Enforcement Branch,
Division of Compliance, Headquarters

COMPLIANCE INQUIRY MEMORANDUM - UNION CARBIDE CORPORATION, SOUTH CHARLESTON,
WEST VIRGINIA, LICENSE NO. 47-260-2 - TRANSPORTATION OCCURRENCE (SHIPMENT OF
SOURCE HOLDERS RECEIVED WITH OPEN SHUTTERS)

At 5:30 p.m. on August 7, 1970, Jack T. Sutherland, Region II, learned by telephone from R. V. Sealey, Union Carbide Corporation, South Charleston, West Virginia, that a total of 64 Ci of Cs-137 had been received from the Minnesota Mining and Manufacturing Company (3M) in eight Ohmart source holders. As they were being unloaded, a radiation reading of 25 mr/hr at 20 feet was found; further checks of the source holders revealed that at least seven source holders had open or partially open shutters. The source holders had been purchased from Ohmart who shipped them directly to 3M where Cs-137 strip sources were loaded into the eight holders. Sealey said it was a simple operation to close the open shutters, which resulted in an immediate reduction in the radiation levels. None of the source holders had the locking bars attached to hold the shutters in the closed positions. The locking bars were received in a separate package in one of the source holder boxes.

Sealey informed Sutherland that no excessive exposures were received by Union Carbide personnel. A radiation survey was made prior to anyone being near the sources and the highest dosimeter reading found after the source holder shutters had been closed was 30 mr. Sealey said that since the source holders were transported by truck from St. Paul, Minnesota, he was concerned about the exposures that the truck drivers may have received. In response to Sutherland's question, Sealey said he did not know the name of the truck driver and that all he knew was that a Cook's Motor Line truck delivered the shipment. Sealey stated that his records showed that the 3M shipping papers had been signed by Michael P. Carey and showed that the radiation levels on the eight source holders with the shutters in the open positions ranged from 0.51 to 0.68 r/hr at a distance of 77.5 inches. Sealey said that due to the late hour, other shipping records were locked up and would not be available until the following Monday. Sutherland stated that Region II would contact him by telephone on Monday, August 10, 1970.

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At 11:00 a.m. on August 10, 1970, Sealey was telephoned by Paul R. Guinn, Region II. Sealey confirmed the information previously supplied to Sutherland and provided the following additional information:

1. A total of twelve nailed wooden (solid) boxes were received, each of which was approximately ten-feet long and about one-foot square. Each box was reinforced with steel shipping bands; and eight of the boxes bore a red, Type III, ICC label containing a transport index of "6." Eight of the boxes contained "loaded" source holders (8 Ci of Cs-137 each), while four of the boxes contained "empty" source holders. These were Cimart Model SHRH-8 source holders which are about eight feet long and eight to ten inches in diameter. Each box weighed 870 pounds.
2. The twelve boxes were shipped from 3M on July 30, 1970. Apparently, the Admiral Merchant Motor Freight Company (AMM) of St. Paul, Minnesota, picked up the boxes at the 3M Company. However, Sealey said his information showed an address for AMM as "In Care of Hall Trucking, St. Paul, Minnesota."
3. The boxes were transported to Cleveland, Ohio, where they were picked up on August 6, 1970, by Cook's Motor Line, P. O. Box 1391, Akron, Ohio 44309. (Sealey did not know when the boxes actually arrived in Cleveland, Ohio.) Cook's Motor Line delivered the boxes to Union Carbide, South Charleston, West Virginia, on August 7, 1970. Sealey said he had no information as to the names of any of the truck drivers. He said the Cook's Motor Line truck driver left after delivery of the boxes before he (Sealey) could talk to him.
4. The waybill number for Cook's Motor Line was 331818. Another number on this waybill was 230-11, but Sealey said he did not know what it applied to. Other markings on the waybill, which Sealey said apparently pertain to AMM, were: C-L AMMS and C-L PRO. 01134394.
5. The Union Carbide purchase order number was 511-55469, while the 3M invoice number was NP-15941. The 3M salesman's identification number was V00-73-6. Sealey said Union Carbide had purchased the sources from 3M in contacts with T. N. Lahr, who is apparently a salesman and is probably the best contact for further information.
6. The shipping papers received from 3M were signed by Michael P. Carey, Quality Control Technician, and showed the following radiation levels at 77.5 inches for each of the eight source holders with the shutters in the open position:

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#1465	680 mr/hr
#1466	510 mr/hr
#1467	610 mr/hr
#1468	600 mr/hr
#1469	650 mr/hr
#1470	640 mr/hr
#1471	540 mr/hr
#1472	550 mr/hr

7. The twelve boxes were unloaded by a Union Carbide employee by means of a fork lift truck. Sealey said this man was never closer than ten feet to the boxes.
8. As the boxes were unloaded from the truck, they were brought directly into the storage area where Sealey made a radiation survey and found his survey meter "off scale" at 25 feet from the boxes. The boxes were opened by cutting the steel shipping bands and prying them open with a crow bar. One source holder was found with a closed shutter, while seven had open or partially open shutters. With the boxes in place in various locations in the storage area (the boxes had been spaced around in the storage area), Sealey said he estimated that the radiation level in the center of the storage room was 100 mr/hr.
9. None of the source holders had the locking bars in place which are used to lock the shutters in the closed position during shipment. Sealey explained that the shutter shafts are one inch in diameter and contain grooves into which the locking bars (one-inch square and four-inches long) are placed and then locked into position by means of a small pin in the locking bar and a key-type lock in the locking bar and the hasp on each source holder housing. Sealey said that without the locking bars in place on the source holders, the shutter shafts would turn readily and result in the opening of the shutters.
10. Sealey said he had no information as to the radiation levels in the trucks and that he had no information as to the locations of the boxes in the trucks during transportation.
11. Sealey said that he and two other Union Carbide employees were the only persons involved in the opening of the boxes and the closing of the shutters on the source holders. He and the other two men wore direct reading dosimeters and Nuclear-Chicago film badges. Sealey said the highest dosimeter reading was 30 mr. The film badges were scheduled to be sent in for processing on August 11, 1970. He and the other two men shared the work in opening the boxes and closing the shutters. He said they each had their hand within four inches of the source holder opening for no more than 15 seconds. At other times, Sealey believed their dosimeters and film badges were in position to record hand and whole body doses.

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12. Sealey has on hand the following radiation survey meters which had been used to survey the shipment of source holders:

- 2 Tracerlab Model Su 14 - 0 to 25 mr/hr
- 1 Nuclear-Chicago - 0 to 20 mr/hr
- 1 Eberline - 0 to 15 mr/hr

13. Sealey said the eight source holders and Cs-137 sources would be held in storage until collimators could be constructed for each source holder. These will then be shipped to the Union Carbide plant in Ponce, Puerto Rico. In response to a question, Sealey said by a collimator he means that additional lead shielding will be placed around each source holder and that no actual modification of the source holders themselves would be made. He said that he would advise Union Carbide personnel in Ponce, Puerto Rico, to be certain that they are authorized by an AEC license to possess and use the Ohmart Model SHRH-8 source holders containing 8 Ci of Cs-137. Sealey said he would obtain verification of this prior to the actual shipment of the source holders and sources.

On the basis of the information supplied by Union Carbide, Region II believes no excessive exposures were received by Union Carbide personnel. Our calculations of hand doses revealed that personnel most likely received approximately one rem to their hands.

On August 10, 1970, Sutherland informed J. M. Allan, Region III, by telephone. All information at hand was supplied. Allan said that Region III would begin an investigation of the shipment immediately.

Original Signed By
J. T. Sutherland

Jack T. Sutherland
Senior Radiation Specialist

CO:II:PRG

cc: Region III

OFFICE ▶	CO:II	CO:II			
SURNAME ▶	PRGuinn/dsc	JTSutherland			
DATE ▶	8/13/70	8/14/70			