

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Report Nos. 99990001/97-007, 97-008, 97-009

Docket No. 99990001

License No. General License (10 CFR 31.5)

Licensees: Pneumo Abex
c/o Zernik, Horton, Guibord and McGovern
77 West Wacker Drive, 33rd Floor
Chicago, Illinois 60601

Selrite Millworks Corporation
581 Rahway Avenue
Union, New Jersey 08083

Carco Construction
13 Canterbury Road
Randolph, New Jersey 07869

Facility Name: former Abex/Signal-Stat Division building

Inspection At: 1200 Commerce Avenue
Union, New Jersey 08083

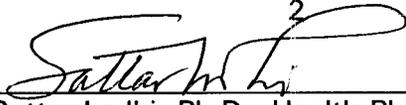
581 Rahway Avenue
Union, New Jersey 08083

Max Weinstein Scrap Company
2426 Morris Avenue
Union, New Jersey 08083

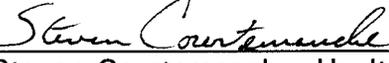
Holiday Inn
Springfield, New Jersey 07081

Inspection Conducted: May 12 through 23, 1997

Inspectors:


Sattar Lodhi, Ph.D., Health Physicist

6-16-97
date


Steven Courtemanche, Health Physicist

6/16/97
date


Elizabeth Ullrich
Senior Health Physicist

6/14/97
date

Approved By:


John D. Kinneman, Chief
Nuclear Materials Safety Branch 2
Division of Nuclear Materials Safety

6/16/97
date

Inspection Summary: Safety inspection of the circumstances that led to the removal of three generally-licensed "EXIT" signs containing tritium from the location where they were installed, the exposure of members of the public to tritium from the devices, and the contamination of a private residence. (Inspection Report Nos. 99990001/97-007, 97-008, and 97-009).

Areas Inspected: Scope of Inspection; Event Description; Generally-Licensed Devices at 1200 Commerce Avenue; Identification of "EXIT" Signs; and Disposition of "EXIT" Signs.

Results: Three apparent violations were identified: (1) Failure to provide the required information to the subsequent general licensee at a specific location, and to notify the NRC of a change in ownership at the time of transfer from one general licensee (Abex Corporation) to another (Selrite Millworks) (Section 4); (2) Failure to provide the required information to the subsequent general licensee at a specific location, and to notify the NRC of a change in ownership at the time of transfer from one general licensee (Selrite Millworks) to another (Carco Construction) (Section 4), and (3) abandonment of byproduct material by Carco Construction (Section 4).

DETAILS

1. Persons Contacted

Robert Carrigino, Carco Construction (Carco)
Peter Brillo, Worker, Carco
Dave Chervenak, Worker, Carco
David W. Reger, Legal Counsel, Carco
Daniel Winters, President, Selrite Millworks Corporation (Selrite)
Daniel Chefitz, Attorney for Pneumo Abex (by telephone)
Lee Weinstein, Owner, Max Weinstein Scrap Company (MWSC)
Individual A (person who found signs)
Individual B (friend of Individual A)
Individual C (mother of Individual A)
John Feeney, State of New Jersey (by telephone)
Jill Lipoti, State of New Jersey (by telephone)
Steve Centore, Department of Energy (by telephone)
Shoaib Ahmed, Radiation Safety Officer, Self-Powered Lighting (by telephone)

2. Scope of Inspection

This inspection was limited to a review of the events that led to three generally-licensed "EXIT" signs containing tritium gas that had been installed in a building located at 1200 Commerce Avenue, Union, New Jersey, being found by a member of the public who brought them to his home. One of the signs was damaged, causing contamination of the home and an uptake of tritium by the individual and other members of the public.

"EXIT" signs containing tritium are devices that are possessed and used pursuant to the general license described in 10 CFR 31.5. Conditions of the general license state that generally-licensed devices shall not be abandoned and shall be transferred or disposed of only to persons who have a specific license to possess the material. The general license authorizes the transfer of these devices to another general licensee only under specific conditions, one of which is that the devices remain in place at a particular location. At the time of such a transfer, specific notifications to the new general licensee and the NRC are required.

3. Event Description

On Saturday, May 10, 1997, at 3:30 p.m., the NRC was notified by the State of New Jersey that a 16-year-old male (Individual A) in Union, New Jersey, had found two tritium "EXIT" signs, and tubes containing tritium from a third "EXIT" sign that was damaged when he found it. The signs were from a building demolition site at 1200 Commerce Avenue near his home. According to Individual A, he found the signs on the ground on May 10, 1997, near noon while in the company of four friends. The damaged sign was lying on the sidewalk and the two intact signs were on the grass a short distance away. The signs were about 150 to 200 feet away from the area where the NRC

inspectors concluded the signs were installed (see below). Individual A stated that, after finding these signs, he was the only person to handle the damaged sign or the tubes and that his friends only handled the undamaged signs. He stated that he brought the signs directly into his bedroom about 12:15 pm, and at about 1:00 p.m., he started to remove the tubes from the damaged "EXIT" sign while he ate a snack. He stated that he removed the tubes from the damaged sign by hand while he was seated on the rug in his bedroom, placing the broken tubes in the trash can in his bedroom and saving the intact tubes. When he began to disassemble one of the undamaged signs, he saw the radioactive materials label on the device and subsequently contacted local emergency response personnel. Individual A stated that he did not remove the tubes from the undamaged signs because he saw the warning labels. Individual B stated that he did not handle any of the tubes but did see them. Individual C stated that she had not entered Individual A's bedroom since the signs were brought in there.

Local emergency response personnel were the first to respond at Individual A's home. Representatives of the State of New Jersey Department of Environmental Protection, Radiation Protection Program (NJDEP/RPP) and the Department of Energy Brookhaven National Laboratory (DOE/BNL) responded on Saturday and Sunday. According to the NJDEP/RPP representative who arrived late in the afternoon on Saturday, the local responders had collected the tubes and the intact signs and placed them in a plastic bag. Urine samples were collected over several days from Individuals A, B, and C, family members, friends and emergency response personnel who had entered his room. Individual A had initial tritium concentrations in urine of about 28 microcuries per liter (28 $\mu\text{Ci/L}$). Initial dose assessments performed by DOE/BNL ranged from 60 to 280 millirem for Individual A. Other individuals who lived in or visited the house had only minor uptakes that ranged from less than 0.005 $\mu\text{Ci/L}$ (the minimum detectable activity for these tritium analyses) to 0.53 $\mu\text{Ci/L}$.

NJDEP/RPP and DOE/BNL responders performed extensive surveys of the house. Contamination in Individual A's basement bedroom where he had taken the signs ranged from 10,000 to 50,000 disintegrations per minute (dpm) per wipe, except that contamination exceeding 100,000 dpm per wipe was identified on the knobs of a CD player and on a desk. Contamination levels were generally less than 10,000 dpm per wipe on the first floor.

NJDEP/RPP retained the lead in determining the actions necessary to assess the dose to the individuals involved, and in decontaminating the home. During the first week after the signs were found, representatives of the State of New Jersey, the Environmental Protection Agency (EPA), DOE, and NRC consulted regularly by telephone to discuss needed actions. DOE provided all of the laboratory analysis of samples from the individuals. DOE representatives from Brookhaven National Laboratory also provided initial assessment of the contamination in the house on May 11, and took possession of the generally-licensed signs and tubes in order to secure them from the public. The NRC identified, searched for, and contacted the general licensees involved.

4. Generally-Licensed Devices at 1200 Commerce Avenue

The inspectors visited the construction site at 1200 Commerce Avenue, Union, New Jersey and interviewed representatives from Carco Construction, the current owner of the property, on May 16, 1997. The inspectors observed a number of piles of debris at the site and two dumpsters that were being used for collection of materials for disposal. Carco representatives stated that the debris in the middle of the site was composed of wood, tile and other building materials while the outer perimeter piles of debris were composed of mainly bricks from the walls that were demolished. The inspectors confirmed the above during a walk-through of the site.

Carco representatives described the former building at this location as being built in two stages. On the outside, the building appeared to be in the shape of a "T" on its side, with the top of the "T" built earlier than the base. Their conclusion was based on the different types of construction materials that were used in the two portions of the building, and the newer electrical system found in the base of the "T." Carco workers stated that they remembered seeing only electrical "EXIT" signs in the building. However, they also stated that there were only two egress doors and some overhead doors in the older portion of the facility. Carco representatives believe that tritium signs were used in the older portion of the building because it did not have sufficient electrical wiring to support the use of electrical "EXIT" signs.

The NRC database for generally-licensed items lists three tritium "EXIT" signs as having been distributed to Abex Corporation for use at 1200 Commerce Avenue. Based on information about the building provided by representatives from Carco Construction (see above), the NRC database, and discussions with the manufacturer of the "EXIT" signs, the NRC inspectors believe that no additional tritium "EXIT" signs were possessed at this location.

The inspectors contacted the manufacturer of the "EXIT" signs, Self-Powered Lighting, a New York State licensee, and requested information concerning Abex Corporation (Abex), their customer. The Self-Powered Lighting representative confirmed that their records show that three generally-licensed "EXIT" signs were purchased from their company by Abex in 1983 for use at 1200 Commerce Avenue.

Abex purchased 1200 Commerce Avenue in 1975 from Signal-Stat, when Signal-Stat became a division of Abex.

In 1987, 1200 Commerce Avenue was sold to Daniel Winters, president of the Selrite Millworks Corporation. Mr. Winters stated that he performed minor renovations to increase the warehouse space by removing the inner offices from the building after he purchased the property. Mr. Winters stated that he was not informed by Abex that "EXIT" signs containing tritium were on the property, and that he was not otherwise aware that the tritium "EXIT" signs were in the building. The generally-licensed "EXIT" signs apparently remained

in the particular location where they had been installed. Abex apparently did not provide Selrite with a copy of 10 CFR Part 31 and did not notify the NRC as required by 10 CFR 31.5(c)(9)(i).

About February 1997, 1200 Commerce Avenue was sold by Selrite to Carco Construction (Carco). Mr. Carrigino, the Carco representative, stated that he was not informed that "EXIT" signs containing tritium were in the building. Representatives of Carco also stated that they were not otherwise aware that three of the "EXIT" signs in the building contained tritium. The generally-licensed "EXIT" signs remained in the particular location. Selrite apparently did not provide Carco with a copy of 10 CFR Part 31 and did not notify the NRC as required by 10 CFR 31.5(c)(9)(i).

Carco purchased the property in order to build residential housing, and demolished the building at 1200 Commerce Avenue over a period of two months. Carco employees stated that, during the week of May 5, all removable fixtures were taken from the walls and ceilings of the older portion of the building prior to demolition. The three walls of the old portion of the building were taken down on Friday, May 9, 1997, and Saturday, May 10, 1997. Carco representatives stated that they used a backhoe to knock down the walls and sorted through the rubble by hand to locate metal scraps and other unusable materials that were placed in a dumpster for disposal at a later time. Carco representatives did not recall finding the tritium "EXIT" signs among the rubble; however, they claimed to have a photograph of the dumpster that shows one of the tritium "EXIT" signs among its contents. They agreed to provide the NRC with a copy of the photograph in order to verify if the "EXIT" sign was one of the three that contained tritium. However, as of June 11, 1997, the NRC had not received a copy of this photograph. The Carco representative stated that the dumpsters were emptied by Max Weinstein Scrap Company on Monday, May 12, 1997.

The owner and some workers of Max Weinstein Scrap Company were interviewed to determine if they had found any additional signs or parts of signs among the material that was brought from 1200 Commerce Avenue. They stated that they routinely go through all scrap in order to separate non-metallic material from the scrap, and they did not find any "EXIT" signs or parts or plastic materials among the metal scrap that was brought from Carco. The workers stated that any plastic materials would have been considered a "contaminant" and laid aside since they were in the business of recycling metal.

Based on the information provided by Individual A and Carco representatives, the NRC inspectors concluded that the location where the "EXIT" signs were installed and the location where the "EXIT" signs were found by Individual A, were more than 150 feet apart, and that unidentified individual(s) may have removed the "EXIT" signs from the construction site and may have left them at the location where Individual A found them on May 10, 1997.

The finding that Abex Corporation did not provide Selrite with a copy of 10 CFR Part 31 and did not notify the NRC of the transfer to Selrite of three "EXIT" signs containing tritium gas, that are generally-licensed devices, is an apparent violation of 10 CFR 31.5(c)(9)(i).

The finding that Selrite did not provide Carco Construction with a copy of 10 CFR Part 31 and did not notify the NRC of the transfer to Carco of three "EXIT" signs containing tritium gas, that are generally-licensed devices, is an apparent violation of 10 CFR 31.5(c)(9)(i).

The finding that Carco Construction abandoned three "EXIT" signs containing tritium gas, that are generally-licensed devices, is an apparent violation of 10 CFR 31.5(c)(6).

5. Identification of the "EXIT" Signs

Individual A stated that a New Jersey representative took the signs and the tubes from his home. According to the NJDEP/RPP representative, the two intact signs and the tubes removed from the damaged sign had been collected into a bag by the local emergency responders. Local responders also found part of a broken sign in the rubble at 1200 Commerce Avenue, and placed this into a second bag. Both bags were transferred to the DOE/BNL responders on Sunday, May 11, 1997. Initial responders noted that a label on the intact signs stated "Tritium, 20 curies, Omniglow, Self-Powered Lighting, Elmsford, New York".

DOE/BNL representatives examined the contents of the bags in a temporary glove box. The first bag contained two intact signs and a tackle box containing broken tubes. The contents of this bag were contaminated with tritium. The second bag contained only a face plate with the word "EXIT" from a sign.

Initial reports on May 10, 1997, indicated that 3 broken tubes and 8 intact tubes were collected in Individual A's bedroom. On May 16, 1997, Individual A described the tubes in the damaged sign as arranged in the shape of the word "EXIT". He stated that only 4 or 5 of the tubes along the bottom of the sign appeared to be damaged. He believed that 7 to 9 tubes were intact. According to DOE/BNL, they found 9 pieces of broken tubes in the tackle box for a total length of about 22 inches of tubing. According to NJDEP/RPP representative, no additional tubes or pieces were found in Individual A's home by the contractor during the decontamination activities.

The Omniglow 700C Safety Sign, Registry No. NY 594 D 103 G, is manufactured by Self-Powered Lighting currently located in West Nyack, New York. The sign may contain 10 to 25 curies of tritium gas at the time of manufacture, depending on customer requirements. The tritium gas is contained in sealed glass tubes that are held in a styrene tray with epoxy. A sufficient number of tubes of varying lengths are used to form the word "EXIT" in 6-inch high letters, and two direction-indication arrows. The tray is further

encased in a total sign assembly that is 12 inches long, 7 inches high, and 1 inch thick. The face plate clearly spells the word "EXIT". According to the manufacturer, the Omniglow 700C sign contains 12 tubes, with a total length of 41 inches. The whereabouts of the remaining tubes from the damaged third sign are unknown.

6. Disposition of "EXIT" Signs

Self-Powered Lighting is authorized by the State of New York to accept the return of their "EXIT" signs. Self-Powered Lighting agreed to accept the two intact signs if they are not contaminated. They can also accept the tubes if no contamination is present. DOE/BNL representatives will determine if the materials can be returned to Self-Powered Lighting. If not, the signs and tubes will require disposal as radioactive waste.

7. Exit Meetings

The apparent violation described in Section 4 of the report was discussed by Frank Costello of the NRC Region I Office with Mr. Winters and Mr. Carrigino by telephone on May 13, 1997, and copies of 10 CFR Part 31 were sent to them the same day by facsimile.

The apparent violation described in Section 4 of the report was discussed by Betsy Ullrich of the NRC Region I Office with Mr. Chefitz on May 14, 1997, and a copy of 10 CFR Part 31 was sent to him the same day by facsimile. Mr. Chefitz is a lawyer from the firm representing Pneumo Abex, the successor of Abex Corporation. Pneumo Abex is no longer in business, and the law firm represents the entity that assumed the liabilities of the former Pneumo Abex.

Inspectors met with Carco representatives on Friday, May 16, 1997, and reviewed with them the preliminary findings. Carco representatives stated that had they been aware of the presence of these devices on the property, they would have contacted appropriate authorities prior to demolition of the building.

Inspectors also met with the previous owner of the building, Mr. Daniel Winters, on Friday, May 16, 1997. He stated that he was not informed by the seller of the property that these devices were on site, and that compliance with the regulatory requirement would have been very simple for him if he had known about the presence of these devices.