

November 27, 1996

Barry Ballen, President
Gilbert Displays, Inc.
140 Cantiague Rock Road
Hicksville, New York 11801

SUBJECT: INSPECTION NO. 070-00097/96-001

Dear Mr. Ballen:

On August 20, 1996, Mark Roberts of this office conducted a safety inspection at the former Sylvania Electric Products, Inc. (Sylvania) facility on Cantiague Rock Road in Hicksville, New York. The land occupied by the former Sylvania facility has been subdivided and is now occupied by Gilbert Displays, Inc. (140 Cantiague Rock Road); Magazine Distributors, Inc. (100 Cantiague Rock Road); and Air Techniques (70 Cantiague Rock Road). The inspection was limited to observations by the inspector, interviews with personnel, and radiological measurements in selected areas of the site. In addition, our inspection activities included the analysis of soil samples collected at the site. In our inspection report, we have also included the results of the analysis of soil and groundwater samples that were collected and analyzed by representatives of the State of New York. The findings of the inspection were discussed with Allen Serper and you, at the conclusion of the inspection. A copy of the NRC inspection report is enclosed.

The results of the gamma exposure rate measurements and soil and groundwater analyses indicate that there is residual radioactive contamination in excess of the current NRC criteria for release for unrestricted use. This residual radioactivity is apparently due to past authorized activities conducted at the site by Sylvania. To our knowledge, there have been no other authorized activities with radioactive materials conducted at this site. Based on these screening measurements, additional measurements are needed to further characterize the extent of the radioactivity on the site and the adjacent county park.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the Public Document Room. No reply to this letter is required.

B. Ballen, Gilbert Displays, Inc.

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Should you have any further questions, please contact Mr. Roberts at (610) 337-5094 or me at (610) 337-5200. Your cooperation with us is appreciated.

Sincerely,

Ronald R. Bellamy, Ph. D., Chief
Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety

Docket No.: 070-00097

License No.: SNM-82 (Terminated)

Enclosure:

Inspection Report No. 070-00097/96-001

cc w/enclosure:

B. Youngberg, State of New York

W. Alexander Williams Ph. D.

Designation & Certification Manager, FUSRAP

U. S. Department of Energy (EM-421)

Washington, DC 20585

Robert Becherer, Engineer

New York State Department of Environmental Conservation

Building 40, SUNY

Stony Brook, New York 11790

Robert Stewart, Engineer

New York State Department of Environmental Conservation

Building 40, SUNY

Stony Brook, New York 11790

Kevin Ocker, Deputy Commissioner

Nassau County, Department of Recreation and Parks

Eisenhower Park

East Meadow, New York 11554

Daniel S. York, Counsel

GTE Operations Support Incorporated

One Stamford Forum

Stamford, Connecticut 06904

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B. Ballen, Gilbert Displays, Inc. -3-

A. E. Ludwig
GTE Operations Support Incorporated
One Stamford Forum
Stamford, Connecticut 06904

Joseph Elm, Executive Vice President
Magazine Distributors, Inc.
P.O. Box 9058
Hicksville, New York 11802-9058

B. Ballen, Gilbert Displays, Inc.

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U. S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Report No. 070-00097/96-001
Docket No. 070-00097
License No. SNM-82 (Terminated)
Licensee: Sylvania Electric Products, Inc.
70 - 140 Cantiaque Rock Road
Hicksville, New York
Inspection At: Gilbert Displays, Inc.
140 Cantiaque Rock Road
Hicksville, New York
Magazine Distributors, Inc.
100 Cantiaque Rock Road
Hicksville, New York
Inspection Conducted: August 20, 1996

Inspector:

Mark C. Roberts

Mark C. Roberts
Senior Health Physicist

11-28-96

date

Approved By:

Ronald R. Bellamy

Ronald R. Bellamy, Chief
Decommissioning and Laboratory Branch

November 22, 1996

date

Inspection Summary: Announced radiological survey of a formerly licensed site (Inspection No. 070-00097/96-001).

Areas Inspected: Radiological survey of exterior areas, soil and water sampling.

Results: Radiological exposure rates in excess of the NRC criteria for release for unrestricted use were identified on the eastern edge of the former Sylvania property. Soil samples collected in this area indicated total uranium concentrations in excess of the NRC release criteria. A soil sample collected by representatives from the State of New York in this same general area also identified elevated uranium concentrations. A sample of groundwater, collected by the New York State representatives from a monitoring well on the site, indicated a gross alpha activity in excess of the criteria used by the NRC for release for unrestricted use.

DETAILS

1.0 Persons Contacted

- * Barry Ballen, President, Gilbert Displays, Inc.
- * Allen Serper, Vice President, EEA Inc., (Consultant to Gilbert Displays, Inc.)
- * Robert Stewart, Engineer, New York State Department of Environmental Conservation (also via telephone on November 15, 1996).
- Joseph Elm, Executive Vice President, Magazine Distributors, Inc.
- Al Ruddy, Comptroller, Magazine Distributors, Inc.
- * Robert Becherer, Engineer, New York State Department of Environmental Conservation (via telephone on August 22, 1996).

* Denotes those present at exit meeting.

2.0 Background

The NRC initiated a program to ensure that licenses for facilities, where activities authorized by the Atomic Energy Commission (AEC) and/or the NRC were conducted, have been terminated in accordance with the NRC's current criteria for release for unrestricted use. As part of this program, the NRC's contractor, Oak Ridge National Laboratory (ORNL), identified License No. SNM-82 as a file describing a site that required additional review. NRC Region I staff reviewed the file, and determined that further information on this site was necessary to conclude that the facility meets the current criteria for release for unrestricted use.

The AEC issued License No. SNM-82 to Sylvania Electric Products, Inc. (Sylvania) on April 1, 1957 for unlimited quantities of enriched uranium (uranium enriched in the isotope uranium-235 (U-235)) for fuel fabrication at the Hicksville site. The license also authorized certain activities at sites in Bayside, New York and Towanda, Pennsylvania; however, these sites were not included in this current inspection. Records of AEC confirmatory surveys for Buildings 2, 4, and 10 are in the files of the license. The AEC removed the Hicksville site from the license as an authorized location of use in 1967.

The former Sylvania property is currently divided into three separate properties: Gilbert Displays, Inc. at 140 Cantiague Rock Road, Magazine Distributors, Inc. at 100 Cantiague Rock Road, and Air Techniques at 70 Cantiague Rock Road. Each property is separated from the neighboring property by chain-link fences. The common rear (east) boundary of the three properties is bordered by a Nassau County park (Cantiague Park). Asphalt paving covers most of the eastern edge of the properties, except for narrow strips of unpaved ground adjacent to the fences. The common fence bordering the park separates a golf driving range from the three facilities. The original Sylvania buildings on the Gilbert Displays and Magazine Distributors properties have been demolished and replaced with the current structures. The front (west) portion of the Air Techniques facility is the former Sylvania Building 4. The rear portion of the Air Techniques facility was not part of the original Sylvania property, but was obtained from the county. In 1988, buried drums of non-radioactive, hazardous wastes were discovered behind the former

Building 4 area. The waste from these areas was excavated and disposed prior to completing additions to the Air Techniques facility.

3.0 Radiological Survey of Exterior Areas

The inspector used a Ludlum Model 19 Micro-R meter (NRC # 19634, calibrated March 14, 1996) to measure exterior exposure rates and to make background radiation exposure rate measurements. The background exposure rate measured on the western edge of the property was 9 to 11 $\mu\text{R}/\text{hour}$ at one meter above the ground surface.

The inspector made measurements at various locations on the exterior portions of the properties, primarily concentrating on the eastern boundary of the site, adjacent to the golf driving range. Historical soil samples in the vicinity of an old sump, apparently near the northeast corner of the Sylvania property, had shown elevated concentrations of uranium.

Exposure rate measurements along the eastern border of the Gilbert Displays area showed elevated levels. The values measured at approximately one meter from the ground surface ranged from 15 to 110 $\mu\text{R}/\text{hour}$. The highest value was measured at a distance of approximately one meter from the fence bordering the golf driving range and approximately six meters from the border of the Magazine Distributors fence. The maximum direct measurement on the ground surface was 500 $\mu\text{R}/\text{hour}$.

The measured exposure rate on the Magazine Distributors' property ranged from 5 to 13 $\mu\text{R}/\text{hour}$. The highest readings were obtained in the northeast corner of the property, next to the common fence with Gilbert Displays. Measurements on the Air Techniques property were within the range of the measured background.

4.0 Soil and Water Sampling

The inspector collected two soil samples in the area where elevated exposure rates on the Gilbert Displays property were found. The two samples were returned to the NRC Region I analytical laboratory for gamma spectrometry analysis. Sample #2 was obtained at the point of the highest measured exposure rate. Sample #1 was obtained approximately one meter south of Sample #2. The analytical results for the two samples are tabulated below. The results are reported in units of picocuries/gram (pCi/g) \pm one standard deviation.

	<u>Uranium-238</u>	<u>Uranium-235</u>	<u>Thorium-232</u>
Sample #1	641 \pm 11	27.7 \pm 0.5	46.6 \pm 0.4
Sample #2	2613 \pm 16	118.6 \pm 0.6	17.4 \pm 0.1

Note: Uranium-238 (U-238) concentrations are inferred from the Protactinium-234m daughter product, which is in radiological equilibrium with the U-238. Thorium-232 (Th-232) concentrations are inferred from the Actinium-228 daughter product, which is in radiological equilibrium with the Th-232. Radium-226 (Ra-226), also a daughter product of U-238, was not detected in either sample.

The ratios of the U-238 to Uranium-235 (U-235) concentrations in the samples can be used to discern further information concerning the samples. The U-238/U-235 ratio for the two samples were 23.1 and 22 for Samples 1 and 2, respectively. These results are consistent with the expected ratio of 21.5 for natural uranium. A ratio significantly less than the natural ratio indicates uranium enriched in the U-235 isotope. Also, because Ra-226 was not detected in either sample, the uranium appears to be processed uranium that has been separated from uranium ore. Uranium ore should contain approximately the same concentrations of U-238 and Ra-226 since the radiological daughter products (which includes Ra-226) should be in radiological equilibrium with the U-238 parent. The measured concentrations are significantly greater than the typical natural background concentration of approximately 1 pCi/g for U-238. The measured values for Th-232 are also greater than the typical natural background concentration in soil for Th-232 of just under 1 pCi/g. The measured concentrations of uranium and thorium exceed the NRC criteria for release for unrestricted use. For processed uranium, the NRC release criteria is a total uranium concentration of 35 pCi/g. The total uranium concentration is the sum of the concentrations of the U-238, U-235, and U-234 (uranium-234) isotopes. The U-234 concentration cannot be measured in a gamma spectrometry analysis, but can be readily estimated. For processed uranium, the concentration of U-238 will be approximately equal to the U-234 concentration. The total uranium concentrations for the two samples are 1310 pCi/g for Sample 1 and 5340 pCi/g for Sample 2.

On August 27, 1996, representatives from the New York State Department of Environmental Conservation collected an additional soil sample in the area of the elevated gamma exposure rates. The results from the analysis of the sample indicate a U-238 concentration of 230 ± 17 pCi/g. This result confirms the presence of elevated concentrations of uranium in the soil at this site. This measured concentration also exceeds the NRC criteria for release for unrestricted use.

On September 5, 1996, a representative from the New York State Department of Environmental Conservation collected a groundwater sample from a monitoring well on the Air Techniques site near the boundary with the Magazine Distributors property. The gross alpha activity for this sample was 115 ± 12 pCi/liter and the gross beta activity was 22 ± 3 pCi/liter. The gross alpha result exceeds the criteria used by the NRC for release for unrestricted use (15 pCi/liter). In this area, the groundwater flows generally north to south; i.e. through the Gilbert Displays and Magazine Distributors sites, to the monitoring well.

0 Exit Meeting

The results of the inspection were discussed with the individuals listed in Section 1.0.