

MAR 03 1994

Docket No. 040-08724
License No. SUB-1357

Mr. David Sutton
Agency for Toxic Substances and Disease Registry
1600 Clifton Road MS E-32
Atlanta, GA 30333

Dear Mr. Sutton:

In response to your request of March 1, 1994, I am enclosing an inspection report containing radiologic survey results of a vacant lot adjacent to Chemetron Corporation's Bert Avenue site in Newburgh Heights, Ohio. If you have any questions on this information, please contact me at 301-504-3603 or Mr. Ken Lambert, of our Region III office, at 708-829-9853.

Sincerely,

Original Signed By

Timothy C. Johnson, Section Leader
Materials Decommissioning Section
Decommissioning and Regulatory
Issues Branch
Division of Low-Level Waste Management
and Decommissioning
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20566-0001

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Sincerely,

A handwritten signature in cursive script, appearing to read "Timothy C. Johnson".

Timothy C. Johnson, Section Leader
Materials Decommissioning Section
Decommissioning and Regulatory
Issues Branch
Division of Low-Level Waste Management
and Decommissioning
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated

DEC 17 1993

Chemetron Corporation
ATTN: David R. Sargent
Assistant Secretary
1 Citizens Plaza
Providence, RI 02903

License No. SUB-1357
Docket No. 040-08724

Dear Mr. Sargent:

This refers to the special inspection and radiological survey conducted by Mr. Kenneth Lambert of this office on September 20 and 22, 1993, and the review of soil sample results on November 3, 1993, of a vacant lot on Bert Avenue, Newburgh Heights, Ohio. This inspection was conducted in response to the identification of depleted uranium contamination on the above property that appears to have originated from the former Chemetron facility.

The enclosed copy of our inspection report identifies the areas surveyed. Within these areas, one location has been identified with uranium-238 concentrations in excess of NRC unrestricted use criteria of 35 picocuries per gram (pCi/g) (1.3 Becquerels per gram (Bq/g)) in soil.

Please provide a response to us within 30 days of the receipt of this report regarding your plans to: (1) remediate the area identified with a depleted uranium concentration in excess of NRC unrestricted use criteria; and (2) conduct a detailed characterization of the vacant lot on Bert Avenue.

The response directed by this letter is not subject to the clearance procedures of the Office of Management and Budget as required by the Paper Reduction Act of 1980, PL 96-511.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,
Original Signed by
Gary L. Shear, Chief
Fuel Cycle and Decommissioning Branch

Enclosure: Inspection Report
No. 040-08763/93-003(DRSS)

See Attached Distribution

RIII ^{YS}
[Signature]
Lambert/sd
12/15/93

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McCann
12/16/93

RIII
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Shear
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Enclosure

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cc w/enclosure:

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Barry Koh, B. Koh & Associates,
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Michael Gardner, Ulmer & Berne

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U.S. NUCLEAR REGULATORY COMMISSION
REGION III

Report No. 040-08724/93-003

Docket No. 040-08724

License No. SUB-1357

Licensee: Chemetron Corporation
One Citizen Place
Providence, RI 02903

Inspection At: Bert Avenue vacant lot (Parcel No. 51106063), Newburgh Heights, Ohio

Inspection Conducted: September 20 and 22, 1993

Inspection By:

Kenneth J. Lambert
Kenneth J. Lambert
Radiation Specialist

12/15/93
Date

Approved By:

George M. McCann
George M. McCann, Chief
Fuel Facilities and
Decommissioning Section

12/16/93
Date

Inspection Summary

Inspection on September 20 and 22, 1993 (Report No. 040-08724/93003(DRSS))

Areas Inspected: This was a special announced inspection to perform a radiological survey of a vacant lot in the residential area which borders the licensee's Bert Avenue Site. The purpose of this survey was to determine if depleted uranium was present in the soil in excess of NRC unrestricted use criteria and may have posed a health and safety problem. In addition, samples previously collected by a consultant were split for gamma spectroscopy analysis in NRC Region III Laboratory.

Results: Radiological surveys of the vacant lot identified two areas with measurements in excess of background levels. Gamma spectroscopy analysis of NRC collected soil samples from the two areas indicate uranium-238 activity of 22 and 767 picocuries per gram (pCi/g) (0.8 and 28.4 Bequerels per gram (Bq/g)) in soil. The ratio of U-238 to U-235 in the soil samples indicate the presence of depleted uranium (DU). NRC unrestricted use criteria for depleted uranium in soil is 35 pCi/g (1.3 Bq). Therefore, one area was identified with DU concentrations in excess of NRC unrestricted use criteria.

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DETAIL

1. Persons Contacted

K. Edwards, Mayor, Village of Newburgh Heights
T. Brady, Cuyahoga County Board of Health
S. Bell, Ulmer and Berne
M. Gardner, Ulmer and Berne
S. Aron, Jr., Radsafety Consultants

2. Background

Chemetron Corporation holds License No. SUB-1357 originally issued on June 12, 1979 by the Nuclear Regulatory Commission (NRC) authorizing possession of depleted uranium for purposes of decommissioning. The license is continuing in effect since it's last license renewal application on October 1, 1990. The license authorizes material at the original factory site (Harvard Avenue) and at a landfill (Bert Avenue) where material was placed during decontamination efforts in the 1970's. The original license (SUB-852), issued on October 8, 1965, authorized Chemetron, through its McGean Unit of the Inorganic Chemical Division, to manufacture catalysts containing depleted uranium. No activities involving source material, other than decontamination, have been conducted at the sites since Chemetron discontinued production of the catalyst in February 1972. In addition, McGean-Rohco, Inc. is in possession of depleted uranium in the form of contamination on buildings, equipment and land at a property (the McGean Site) located immediately east of the Harvard Avenue Site. The Chemetron Corporation has gone through several reorganizations involving internal and vendor decontamination programs since 1972. Chemetron submitted their remediation plan to NRC in October 1993, which is currently being reviewed.

3. Description of Event

On September 17, 1993, NRC was notified by the law firm of Ulmer and Berne, that their consultant identified an area in a vacant lot with radioactive material. This was identified during a radiological survey of residences in the vicinity of the Chemetron Bert Avenue Site. The consultant's survey included direct measurements, wipes for removable contamination, soil samples and chimney ash samples. The vacant lot, on Bert Avenue, borders the southeast section of the Bert Avenue Site. According to the consultant, the radioactive material was identified as depleted uranium with a U-238 concentration of 1283 pCi/g (47 Bq/g) in soil. The regulatory limit for depleted uranium in soil is 35 pCi/g (1.3 Bq/g) and is found in NRC Branch Technical Position, "Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations" (46 FR 52061, October 23, 1981). The radioactive material likely came from the Bert Avenue Site, due to the close proximity of this lot to the site.

4. Radiological Survey

A radiological scoping survey of the vacant lot (Parcel No. 51106063) was conducted on September 20, 1993. The survey was conducted using a Ludlum Model 19 microroentgen survey meter, serial number 21533, last calibrated on February 9, 1993, and an Eberline Model E-520 portable survey meter, serial number 1786, last calibrated on September 22, 1992, coupled to an Eberline HP-210 Geiger-Mueller (GM) pancake detector. The survey consisted of direct surveys of the ground and covered 10-20 percent of the lot. Two soil samples were collected on September 20, 1993 and the soil and ash samples previously collected by the law firm's consultant were split on September 22, 1993 for gamma spectroscopy analysis by the Region III laboratory.

5. Findings and Results

Background radiation levels were established at a soccer field approximately a half mile away from the licensee's Bert Avenue Site during a previous survey in May 1993. The exposure rate measured at one meter above the surface of the ground ranged from 10-12 microroentgens per hour ($\mu\text{R/hr}$) [2.6 - 3.1 nanocoloumbs per kilogram per hour (nC/kg/h)]. Direct surface measurements indicated 50 counts per minute (cpm). The soil sample collected at the soccer field and analyzed in the Region III Lab indicated less than ($<$) 0.06 pCi/g (2.2 millibecquerels (mBq/g) of uranium-238 (U-238) in soil. The sample was split and sent to Oak Ridge Institute for Science and Education (ORISE) for isotopic uranium analysis which indicated 0.37 pCi/g (13.7 mBq) of U-238, 0.03 pCi/g (1.1 mBq/g) of U-235, and 0.35 pCi/g (12.9 mBq/g) of U-234. Average U.S. background for U-238 in soil is 0.6 pCi/g (22.2 mBq/g). The split of the consultants reference or background ash sample and analyzed in the Region III Lab indicated 1.6 pCi/g (59.2 mBq/g) of U-238 in ash.

Surface scans of the vacant lot using the GM pancake detector identified two locations with elevated measurements in excess of background measurements. The first location is the same as the location identified by the consultant and measured 1000 counts per minute (cpm) on contact with the soil. After removing the soil sample, the location measured 700 cpm on contact. A three to four foot diameter area surrounding the location had measurements ranging from 150 to 500 cpm. The exposure rate measurement taken at one meter above the first contaminated location was indistinguishable from background. The second location, 15 feet north of the first location, was several inches in diameter and measured 100 cpm on contact with the soil. A soil sample was also collected from this location. The remaining areas of the lot surveyed, were indistinguishable from background measurements. A walk over survey of the lot was conducted for exposure rate measurements. These measurements were taken at one meter above the surface of the ground and were indistinguishable from background.

Results of samples, collected by NRC on September 20, 1993, indicate 767 pCi/g (28 Bq/g) of U-238 in soil for the first location and 22 pCi/g (0.8 Bq/g) of U-238 in soil for the second location. Results of the soil samples split with the consultant ranged from <0.6 pCi/g to 1860 pCi/g (0.02 to 69 Bq/g) of U-238 in soil. The ratio of U-238 to U-235 in the soil samples indicate the presence of depleted uranium (DU). Results of the ash samples split with the consultant ranged from <0.9 pCi/g to 6.1 pCi/g (0.03 to 0.22) of U-238 in ash. The one ash sample distinguishable from the reference sample measured 6.1 pCi/g (0.22 Bq/g), the U-238 to U-235 ratio indicated the presence of natural uranium. The sample results are summarized in attachment A.

Attachment: As stated

ATTACHMENT A
Analytical Results

Description	Date Collected	Sample Results pCi/g	
		U-238	U-235
Bert Ave. Vacant Lot, Parcel No. 51106063, consultant identified area	Sep 20, 1993	767.0 ± 14.0	7.8 ± 0.04
Bert Ave. Vacant Lot, Parcel No. 51106063, NRC identified area, 100 cpm	Sep 20, 1993	22.3 ± 3.4	0.5 ± 0.01
X1/F1, Bert Ave. Vacant Lot	Jun 28, 1993	1860.0 ± 30.0	18.0 ± 0.19
X2/F4, Bert Ave. Vacant Lot	Jun 28, 1993	243.0 ± 18.0	3.1 ± 0.06
X3/F6-F7, Bert Ave. Vacant Lot	Jun 28, 1993	73.0 ± 12.0	1.0 ± 0.05
X4, Bert Ave. Vacant Lot	Jun 28, 1993	<0.9	-----
X5 bottom, Bert Ave. Vacant Lot	Jun 28, 1993	1830.0 ± 37.0	18.9 ± 0.14
X6, Bert Ave. Vacant Lot	Jun 28, 1993	135.0 ± 13.0	1.7 ± 0.05
X7, Bert Ave. Vacant Lot	Jun 28, 1993	<0.6	-----
X8, Bert Ave. Vacant Lot	Jun 28, 1993	194.0 ± 11.0	2.3 ± 0.04
X9, Bert Ave. Vacant Lot	Jun 28, 1993	31.0 ± 5.5	0.6 ± 0.02
X10, Bert Ave. Vacant Lot	Jun 28, 1993	<0.8	-----
A, Soil, 10" down, by fence, behind garage	Jun 22, 1993	<0.6	-----
B22, Soil, even with front of garage, Rt. side, by garden	Jun 22, 1993	<0.8	-----
C, Soil, bottom and middle of yard	Jun 22, 1993	<1.4	-----
E, Soil bottom sample by gutter drain	Jun 22, 1993	<0.7	-----
F, Soil, 30' from curb, 6" from fence	Jun 22, 1993	<1.6	-----
#3, Soil, Bert Ave Vacant Lot, 2nd sample, ≈9" down	June 22, 1993	987.0 ± 22.0	7.9 ± 0.06

Description	Date Collected	Sample Results pCi/g	
		U-238	U-235
A, Chimney Ash	Jun 22, 1993	<1.2	-----
B, Chimney Ash	Jun 22, 1993	<0.9	-----
C, Chimney Ash	Jun 22, 1993	6.1 ± 5.7	0.4 ± 0.04
D, Chimney Ash	Jun 22, 1993	<1.0	-----
Reference Chimney Ash	Jun 22, 1993	<1.6	-----