

January 14, 1997

NOTE TO: File

FROM: Timothy C. Johnson, Section Chief
Facilities Decommissioning Section
Low-Level Waste and Decommissioning
Projects Branch/DWM/NMSS

[ORIGINAL SIGNED BY:]

SUBJECT: TRANSMITTAL OF DRAFT LICENSE CONDITIONS TO CHEMETRON FOR REVIEW

On January 8, 1997, I faxed the attached draft license conditions, related to the Bert Avenue site remediation, to B. Koh and T. Adams for their review.

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

Attachment: As stated

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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15. a.

The licensee is authorized to remediate the Bert Avenue site in accordance with 10 CFR 20.2002 and the licensee's "Site Remediation Plan, Chemetron Remediation Project, Harvard Avenue and Bert Avenue Sites," dated October 1, 1993, with Supplements dated November 1, 1993, and November 11, 1993; and revised on February 28, 1995, including letters dated February 7, 1994, March 2, 1994, March 9, 1994, April 15, 1994, December 19, 1994, December 22, 1994, July 27, 1995, October 31, 1995, February 20, 1996, May 7, 1996, May 17, 1996, June 21, 1996, and September 17, 1996.

- b. The procedure for licensee-initiated and approved changes as described in Revision 1 to the "Site Remediation Plan, Chemetron Remediation Project, Harvard Avenue and Bert Avenue Sites," dated February 28, 1995 may be used provided that:

- i. Review of all proposed changes to the "Site Remediation Plan" by the Project Manager or his designee is in accordance with Administrative Procedure AP-06 "Field Changes;"
- ii. The licensee submits to NRC, for approval, any changes that would result in an unreviewed safety question, a change in a license condition, or changes that would have a significant adverse affect on the quality of the work, the remediation objectives, or health and safety;

iii. The licensee documents the changes made.

- c. Chemetron shall use the unrestricted use criteria listed in "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of License for Byproduct, Source or Special Nuclear Material" for surfaces of buildings and equipment, and the Branch Technical Position, "Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations," for soils. Specific values are given below --

Soils:	Depleted uranium on the surface:	1.3 Bq/gm (35 pCi/gm) (total uranium)
	Thorium on the surface:	0.37 Bq/gm (10 pCi/gm) (total thorium)
	Radium-226 on the surface:	0.18 Bq/gm (5 pCi/gm)
	Radium-226 subsurface:	0.56 Bq/gm (15 pCi/gm)

Equipment and building surfaces:

5,000 dpm alpha/100 cm²; average over 1 m²
 5,000 dpm beta-gamma/100 cm²; average over 1 m²
 15,000 dpm alpha/100 cm²; maximum over 100 cm²
 15,000 dpm beta-gamma/100 cm²; maximum over 100 cm²
 1,000 dpm alpha/100 cm²; removable
 1,000 dpm beta-gamma/100 cm²; removable

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Exposure rate:

Soils

2.6 pC/kg (10 μ R/hr)
average above background
at 1 m

5.2 pC/kg (20 μ R/hr)
maximum above background
at 1 m

Equipment and buildings

1.3 pC/kg (5 μ R/hr)
above background at 1 m

Chemetron shall use 5.9 Bq/gm (161 pCi/gm) as the Option 2 disposal limit for depleted uranium to be placed in the Harvard Avenue disposal cell.

- d. Wastes and the clean fill and soil cover placed into the Bert Avenue disposal cell shall be placed in no greater than 0.3-m (1-ft) loose lifts and compacted to 95 percent of the maximum dry density, as determined in accordance with ASTM-D698, "Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)), or 90 percent of the maximum dry density, as determined in accordance with ASTM-D1557, "Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³))." Density testing should be performed over the entire lift thickness. The wastes shall be covered with a clean fill and soil cover having a final cover depth of at least 5.5 m (18 ft). A vegetative cover shall be placed over the clean fill and soil cover. The bottom of the waste layer shall be greater than 3.3 m (10 ft) above the highest groundwater elevation. The east slope of the disposal cell shall be covered with riprap. The soft, alluvial soils located in the vicinity of the open sewer line shall be removed prior to construction of the disposal cell.
- e. The licensee shall conduct an air sampling program at the Bert Avenue site work areas and perimeters. If airborne concentrations exceed 1.1E-21 Bq/ml (3.0E-14 uCi/ml) at site perimeter, an investigation shall be conducted to determine if dust suppression measures should be used during the excavation of the contaminated soil to minimize airborne releases. The minimum detectable activity of the air sampler and assay method shall be less than 1.18E-21 Bq/ml (3.0E-14 uCi/ml).
- f. During the remediation operations, liquid and airborne effluents will be sampled and analyzed to ensure that releases meet the requirements of 10 CFR Part 20, Appendix B. If liquid waste radioactivity concentrations exceed the requirements in 10 CFR Part 20 and require processing, the licensee shall request NRC approval of the proposed processing system.
- g. The licensee shall conduct a final survey and sampling program in areas surrounding the disposal cell in accordance with NUREG/CR-5849, "Manual for Conducting Radiological Surveys in Support of License Termination." Radioactivity levels shall not exceed the averaging criteria in NUREG/CR-5849.

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The licensee shall conduct a final survey and sampling program to ensure that wastes placed in the disposal cell are less than 5.98 Bq/gm (161 pCi/gm) when averaged over a 100 m² (1070 ft²) area and meet the averaging criteria in NUREG/CR-5849. The final survey and sampling program shall consist of performing radiation scans over 100 percent of each 0.3 m (1 ft) lift and taking one sample for gamma spectroscopic analysis in every 10 m (33 ft) x 10 m (33 ft) area at every 0.3 m (1 ft) lift. If scans or samples indicate activity that exceeds 5.98 Bq/gm (161 pCi/gm), Chemetron will take further samples and determine compliance with the averaging criteria in NUREG/CR-5849. These criteria address averaging concentrations over any 100 m² (1070 ft²) area and using the $(100/A)^{1/2}$ elevated area criteria. Material that exceeds the averaging criteria in NUREG/CR-5849 shall be removed and shipped off-site to a licensed low-level waste disposal site.

Following excavation of contaminated materials, the licensee shall not begin construction of the disposal cell until after NRC has had the opportunity to perform confirmatory sampling of the natural materials at the base of cell, and has provided written approval to proceed with cell construction. The licensee shall not emplace non-radioactive solid wastes or cover materials until after the NRC has had the opportunity to perform confirmatory sampling of the radioactive wastes, and has provided written approval to proceed.

- h. Prior to shipping wastes offsite to a licensed low-level radioactive waste disposal site, the licensee shall submit, to NRC, for approval, the specific waste packaging and shipping methods to be used before making any offsite waste shipment.

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