



GO NO. 07704	S/A NO. 44650	PAGE 1 OF 9	TOTAL PAGES 9	REV LTR/CHG NO SEE SUMMARY OF CHG NC	NUMBER N704TI990033
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PROGRAM TITLE
Decontamination and Disposition of Facilities

DOCUMENT TITLE
Radiological Survey Results - Release to Unrestricted Use, SRE Region VII

DOCUMENT TYPE Technical Information	KEY NOUNS Decontamination
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ORIGINAL ISSUE DATE	REL. DATE 5-13-72 <i>RE</i>	APPROVALS	DATE
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ABSTRACT

The results of the radiological survey for Region VII of the SRE facility are described. All survey results are below the applicable limits, indicating that this area may be released for unrestricted use.

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1.0 INTRODUCTION

This document covers Region VII of the SRE facility (Figure 1). The area contains the retention pond, the old leach field, the sanitary sewer pumping system, and the SRE drainage back to the fence line. It includes the retention pond overflow channel downstream for a distance of about 200 feet.

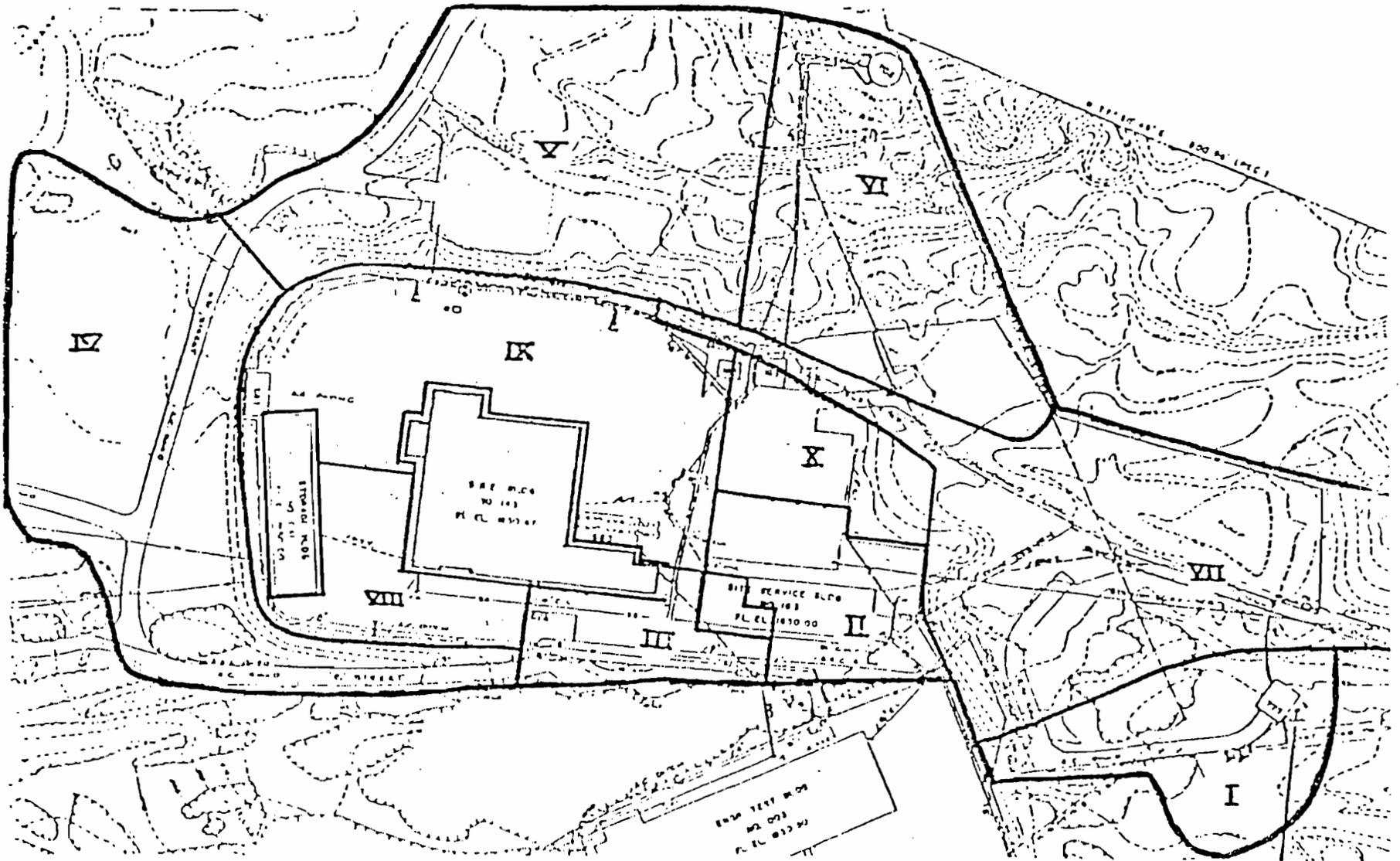


FIGURE 1
SRE FACILITY



The contamination/radiation limits for unrestricted use that were applied in decontaminating this area are shown in Table 1 and the requirements for survey measurements in each region are shown in Table 2.

TABLE 1
RESIDUAL RADIOACTIVITY LIMITS
FOR RELEASE FOR UNRESTRICTED USE

	Total	Removal
<u>Surfaces</u>		
Alpha	100 dpm/100 cm ²	20 dpm/100 cm ²
Beta	0.1 mrad/hr at 1 cm through 7 mg/cm ² absorber	100 dpm/100 cm ²
<u>Soil</u>	100 pCi/g gross detectable beta	
<u>Water</u>	3 x 10 ⁷ μ Ci/ml gross detectable beta	



TABLE 2
SURVEY MEASUREMENT REQUIREMENTS

Region	Removal Contamination	Surface Radiation	Soil Samples	Concrete Samples	Water Samples
I	X	X	X	X	X
II	X	X	X		
III		X			
IV	X	X	X		
V		X	X	X	
VI		X	X		
VII		X	X		X
VIII		X			
IX	X	X	X		
X	X	X	X		
041	X	X			
063	X	X			
143 Offices	X	X			
143 High Bay	X	X	X	X	X

Measurements of removable contamination are omitted from those areas that consist solely of soil or asphalt-paved surfaces



2.0 SURVEYS AND RESULTS

The pond was drained in 1979 and allowed to dry out. All areas of the pond bottom that read more than about 100 cpm above background with a pancake G-M probe, or that exceeded 100 pCi/g gross detectable beta activity, were removed and disposed of as radioactive waste. After this decontamination, soil samples were taken and the pond was returned to service.

The results of the pond soil sample analyses are shown in Figure 2, plotted as a log-normal distribution. This distribution is essentially that of natural soil, with a slight amount of residual contamination. No values are above the limit of 100 pCi/g. The mean is 29 pCi/g. The 90% point (indicated by the vertical line) at 1.28 standard deviation above the mean is below the limit, at about 50 pCi/g.

Surveys were performed as specified in N704TP990008, "Radiological Survey Plan, Support of D/D Program Operations at T143, SRE," R. K. Owens. Copies of the survey results and data sheets are retained by Radiation and Nuclear Safety.

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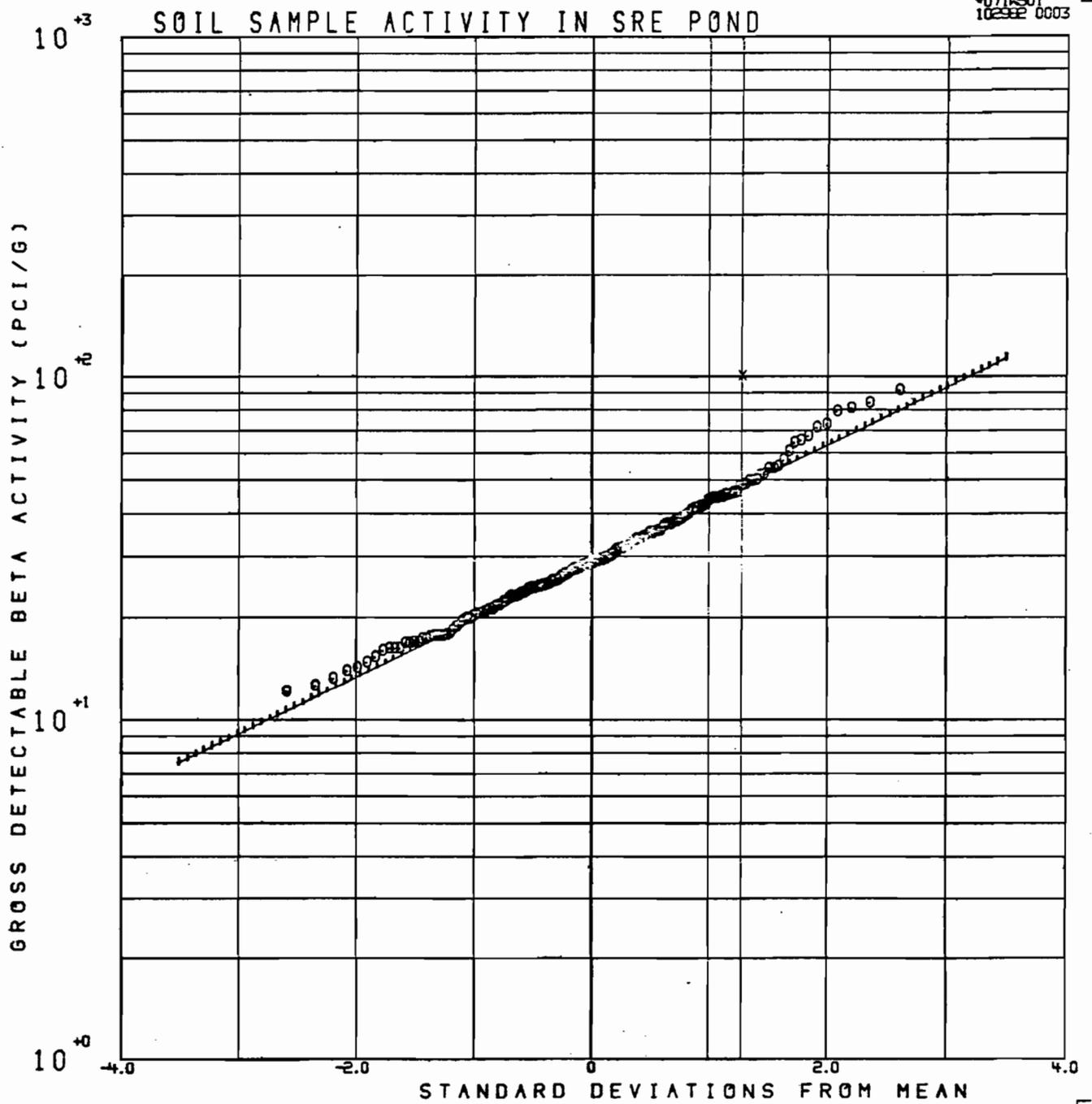


Figure 2. Log-normal distribution of gross detectable beta activity in sediment after cleanup of SRE pond.



3.0 CONCLUSIONS

In each type of test performed, all samples indicated levels less than those limits prescribed by the Decontamination and Disposition of Facilities Program for release for unrestricted use.

All appropriate surveys indicate that current existing radioactivity in the area is below the applicable limits for release for unrestricted use.