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Distribution		<u>Abstract</u>		
Name	Mail Addr.	<p>This document summarizes the decontamination and survey process for the 17th Street Drainage Area at Boeing's Santa Susana Field Laboratory (SSFL).</p> <p>The Metaphase on-line procedure system contains the latest revision of this document.</p> <p>Responsible Person: Rodney E. Meyer</p>		
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1.0 INTRODUCTION and SUMMARY

This report summarizes the decontamination and survey process for the 17th Street Drainage Area at Boeing's Santa Susana Field Lab (SSFL) in Southern California. The area consisted of a natural rainwater channel where a berm was constructed in 1962 to permit the area to serve as a hold-up pond. Characterization surveys performed in 1997 and 1998 identified uranium and thorium isotopes as well as elevated levels of Cs-137 within samples collected from the area. All soil exceeding cleanup standards was excavated, packaged as radioactive waste and shipped to the Envirocare disposal site in Utah. Subsequent surveys, completed in 1999, concluded that the area was suitable for release for unrestricted use (Refs. 3&4).

2.0 LOCATION

The 17th Street Drainage Area is located within Boeing's Santa Susana Field Laboratories (SSFL) in the Simi Hills of southeastern Ventura County, California, adjacent to the Los Angeles County Line and approximately 29 miles northwest of downtown Los Angeles. Location of the SSFL relative to Los Angeles and vicinities is shown in Figure 1. An enlarged map of neighboring SSFL communities is shown in Figure 2. Figure 3 shows the area to the southeast of the intersection of 'G' Street and 17th Street in the central portion of Area IV.

3.0 FACILITY DESCRIPTION AND SITE TOPOGRAPHY

The 17th Street Drainage Area is the site of a natural rainwater channel where a berm was constructed in 1962 to permit the area to serve as a hold-up pond (Figs. 4&5). The pond was functional for many years. It cycled through periods of evaporative drying in summer seasons and refilled during rainy seasons, causing the low-lying area to be marshy. Since that time, the area filled with silt and became overgrown with shrubs and trees. The hold-up pond area measured approximately 85 m².

4.0 RECENT OPERATIONS

In 1995, during the Area IV radiological survey, the pond area was completely overgrown, marshy, and inaccessible. Complete survey of the drainage area could not be performed due to dense, inaccessible brush. However, soil samples taken upstream and downstream of the pond indicated no contamination (Ref. 1).

In 1997, during an assessment of historical aerial photos, the existence and location of the pond was identified and investigated (Fig. 6). Several soil samples were then taken in the area, and two samples indicated levels of Cs-137 exceeding the cleanup standards by approximately 50% (Ref. 2).

In August 1998, the entire area was cleared of shrubs and trees. The original bermed pond area was gridded and surveyed including all the upper drainage into the pond and the

lower drainage away from the pond (Ref. 2). One-meter high exposure measurements did not exceed 18.4 $\mu\text{R/hr}$ in a background of 15 $\mu\text{R/hr}$. Localized areas of elevated radiation at ground level were observed up to a maximum of twice background. All locations that exceeded ground level exposure rates of more than 5 $\mu\text{R/hr}$ above background were identified and marked.

These areas of elevated radiation were soil sampled at varying depths (Ref. 2). Most locations indicated only naturally occurring radionuclides. However, several areas immediately to the north and immediately to the south of the berm showed levels of radionuclides above local background. Cesium-137 was again found up to 2 pCi/g (but less than the cleanup standard of 9.2 pCi/g), uranium isotopes were found up to 4 pCi/g (but less than the cleanup standard of 30 pCi/g) and thorium-228 was found up to 6 pCi/g (at around the cleanup standard). All uranium results showed ratios of uranium isotopes that were consistent with naturally occurring uranium and not processed or enriched uranium, which was typical of nuclear fuel used at SSFL. Although thorium-228 was found at 6 pCi/g, its parent isotope, thorium-232, was found at typical background levels (e.g. 1 pCi/g), thus the origin or cause of elevated thorium-228 is uncertain since this specific thorium isotope was not processed or used at SSFL.

Even though the majority of samples did not exceed cleanup standards and did not pose a risk to anyone, any area having measured levels above background was excavated. Soil sampling performed after excavation showed that excavation had been effective in reducing even these low levels further below cleanup standards (Ref.2)

In January 1999, the main storm drainage system was re-routed by blocking and plugging the old drainage system. A new route was created along the north side of "G" Street to keep the natural rainwater channel dry all year long.

In June 1999, a final status survey was performed of the entire bermed pond area and its surroundings, comprising approximately 2,230 m². Surface radiation and soil samples were taken based on MARSSIM guidelines (Ref. 3). The measurements confirmed that the area met Department of Energy and Department of Health Services approved limits and was suitable for release for unrestricted use.

In September 1999, the Environmental Survey and Site Assessment Program (ESSAP) of Oak Ridge Institute of Science and Education (ORISE) performed a verification survey. The results indicated that soil concentrations satisfied the applicable site-specific soil clean-up guidelines. The verification findings support Rocketdyne's final status survey conclusion that the 17th Street Drainage Area radiological conditions satisfy the guidelines for release without radiological restrictions (Ref. 4).

In September 1999, the State Department of Health Services also performed a verification survey and confirmed that the area was suitable for release for unrestricted use.

5.0 SURVEY RESULTS

Please refer to References 1, 2, 3, and 4.

6.0 PERSONNEL RADIATION EXPOSURE

No significant personnel radiation exposure was anticipated or encountered from the D&D activities for the 17th Street Drainage Area.

7.0 PROJECT COST SUMMARY

The total cost associated with the decontamination and decommissioning of the 17th Street Drainage Area is given in Table 7-1.

TABLE 1

	<i>Labor & Overhead</i>	<i>Material</i>	<i>Subcontractor</i>
Cost \$	244,363	65,684	20,356

Total Cost: \$330,403

8.0 WASTE VOLUMES

The volume of soil removed was approximately 2,000 ft³ (55 m³). All the soil was transported and properly disposed of as radioactive low level waste at Envirocare in Utah, a licensed disposal facility.

9.0 REFERENCES

1. A4CM-ZR-0011, "Area IV Radiological Characterization Survey" (August 15, 1996)
2. SHEA-016799, "17th Street Drainage Area- Radiation Characterization Surveys and Excavation", John Shao (January 1999)
3. RS-00009, "17th Street Drainage Area, Final Status Survey", Rev. A (March 2000)
4. "Verification Survey of the 17th Street Drainage Area, Santa Susana Field Laboratory, The Boeing Company, Ventura County, California", John R. Morton, ORISE (April 2000)



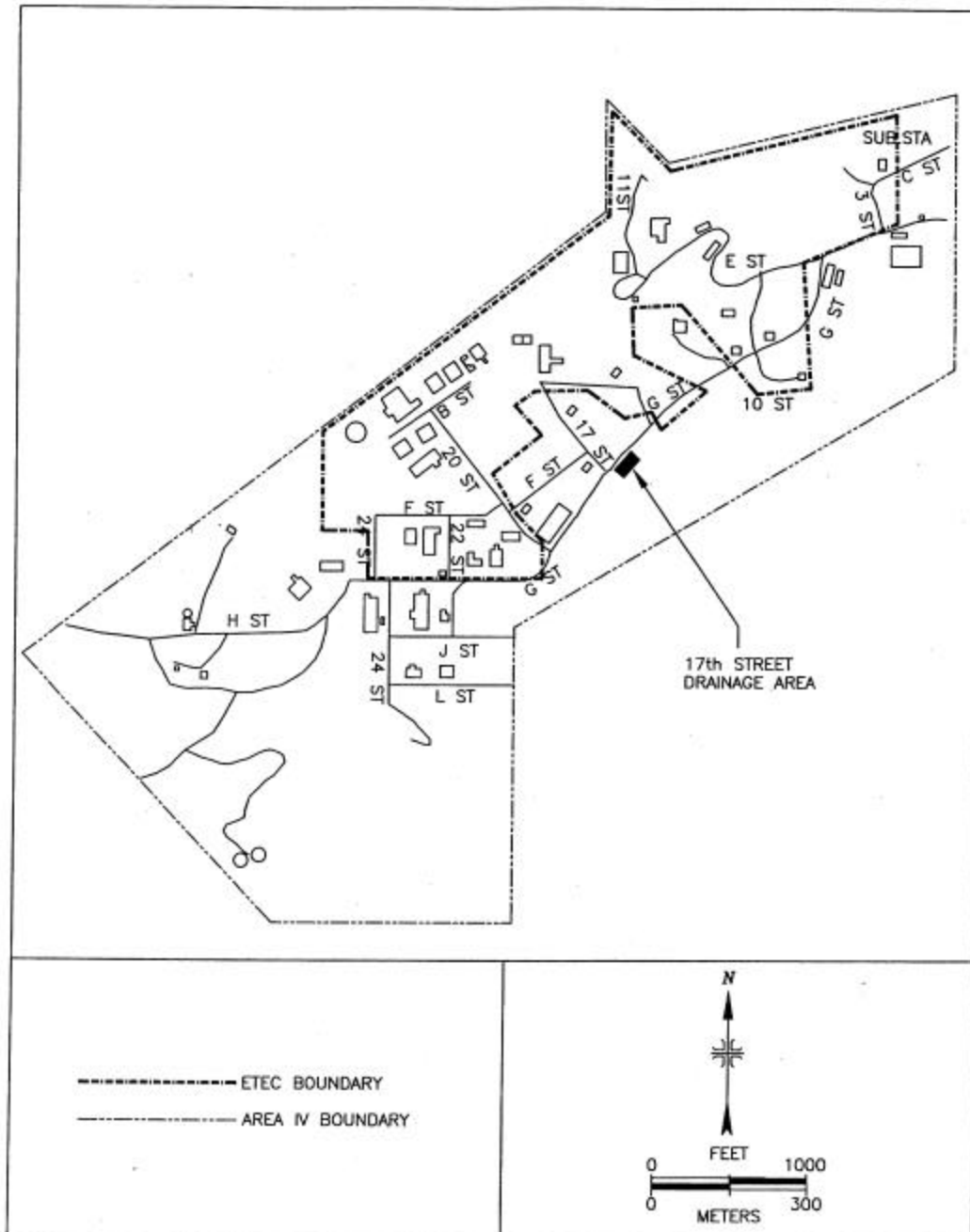
Figure 1. Map of Los Angeles Area



Map of Neighboring SSFL Communities

Figure 2. Map of Neighboring SSFL Communities

402-035 (x)



Santa Susana Field Laboratory Area IV, Plot Plan – Location of the 17th Street Drainage Area

Santa Susana Field Laboratory (402) -April 14, 2000

essap/projects/0402/17thfinal.jpg

Figure 3. Santa Susana Field Laboratory Area IV, Plot Plan – Location of the 17th Street Drainage Area



Figure 4. Berm



Figure 5. 17th Street Drainage Area

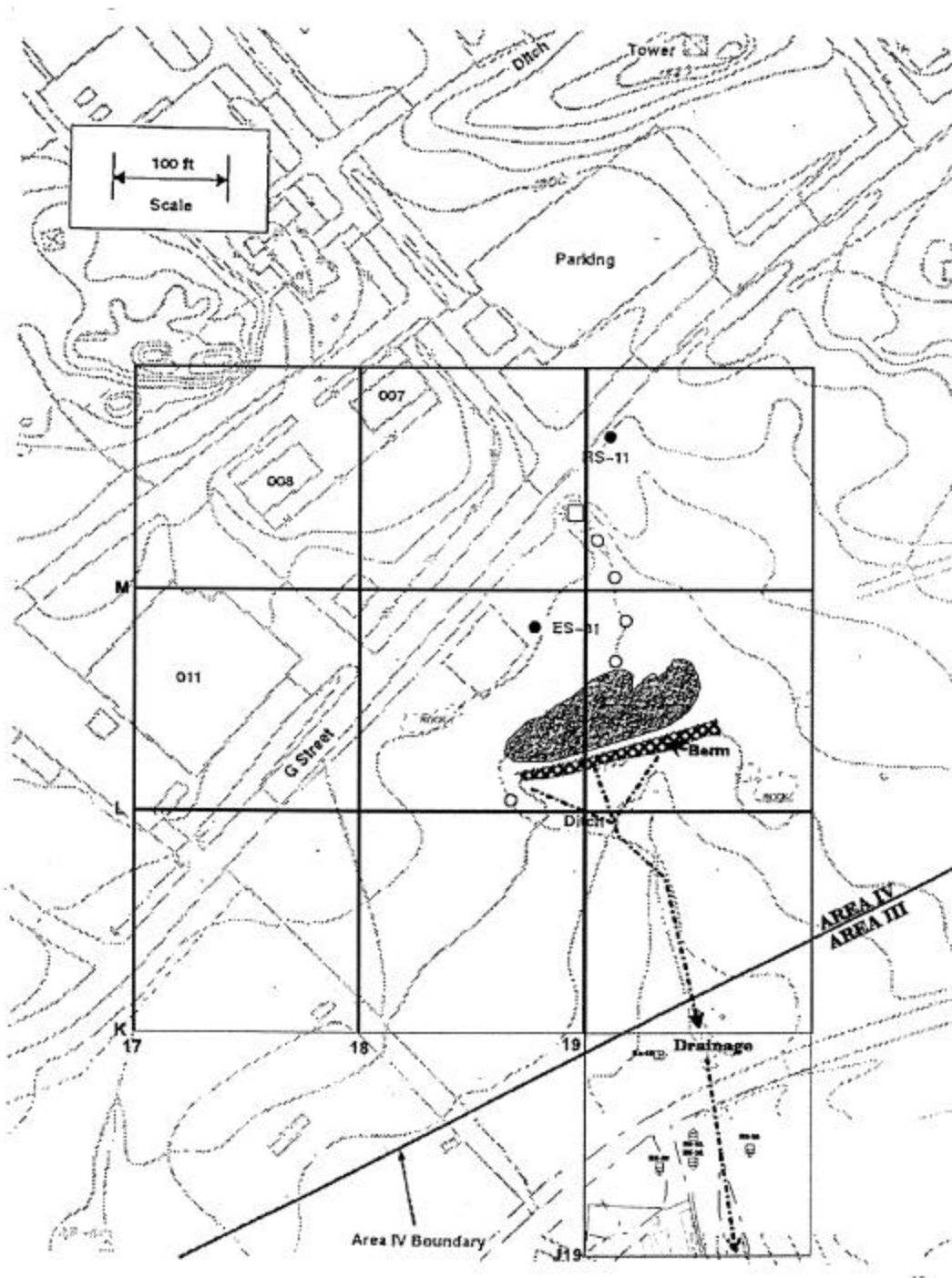


Figure 6. Topographical Map of the 17th Street Drainage Area