

ENERGY TECHNOLOGY ENGINEERING CENTER

OPERATED FOR THE U.S. DEPARTMENT OF ENERGY
ROCKETDYNE DIVISION, Boeing North American, Inc.

No. 030-AR-0002 Rev.
Page 1 of 17
Orig. Date Nov. 13, 1997
Rev. Date

FINAL REPORT

DRR 26084

TITLE: DECONTAMINATION & DECOMMISSIONING OF BUILDING T030

- APPROVALS -

Originator A. L. Pascolia *A. L. Pascolia*

P. H. Horton *P. H. Horton*

M. E. Lee *M. E. Lee*

R. Rutherford *R. Rutherford*

J. Erman *J. Erman*

S. Reeder *S. Reeder*

REV.
LTR.

REVISION

APPROVAL/DATE

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1. INTRODUCTION

Boeing North American's Rocketdyne Division operates the Santa Susana Field Laboratory (SSFL). The Energy Technology Engineering Center (ETEC), is that portion of the SSFL operated for the Department of Energy (DOE), which performed testing of equipment, materials, and components for nuclear and energy related programs. Contract work for the Atomic Energy Commission (AEC) and the Energy Research and Development Administration (ERDA), predecessor agencies to the DOE, began in the early 1950's. Specific programs conducted for AEC/ERDA/DOE involved the engineering, development, testing, and manufacturing operations of nuclear reactor systems and components. Other SSFL activities have also been conducted for the National Aeronautics and Space Administration, the Department of Defense, and other government related or affiliated organizations and agencies. Some activities were under license by the Nuclear Regulatory Commission (NRC) and the State of California Radiological Health Branch of the Department of Health Services.

Several buildings and land areas, became radiologically contaminated as a result of the various operations which included ten developmental reactors, seven criticality test facilities, fuel fabrication, reactor and fuel disassembly, laboratory work, and on-site storage of nuclear material. Potential radioactive contaminants identified at the site are, uranium (in normal, depleted, and enriched isotopic abundance's), plutonium, Am-241, fission products (primarily Cs-137, and Sr-90 present as a mixed fission product that has not been separated), activation products (tritium [H-3], Co-60, Eu-152, Eu-154, Ni-63, Pm-147, and Ta-182).

Decontamination and decommissioning (D&D) of contaminated facilities began in the late 1960's and continue as the remaining DOE nuclear program operations have been terminated. As part of this D&D program, Rocketdyne performed decommissioning and final status surveys of a number of facilities that supported the various nuclear-related operations during the latter part of the 1950's and have continued through to the present. Environmental management of DOE contaminated properties continues under the termination clause of the existing Management and Operation (M&O) contract.

2. BACKGROUND

2.1 LOCATION

Building T030 is located within Rocketdyne's Santa Susana Field Laboratory (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. The SSFL location relative to the Los Angeles area and surrounding vicinity is shown in Figure 1. An enlarged map of the neighboring SSFL communities is presented in Figure 2. The Santa Susana Field Laboratory which includes Area IV, shown in Figure 3. The layout of Building T030, Figure 4. Photograph of Building T030 looking west at the east wall, Figure 5. Photograph of Building T030 northern concrete shielding wall is shown in Figure 6.

2.2 BUILDING CHARACTERISTICS AND SITE TOPOGRAPHY

Building T030 was constructed in 1958 as a "Particle Accelerator Facility". The building has a total enclosed area of 2,311 ft². The facility consists of two connecting sections, both with steel framing, siding, and roofs. The rear open (west) section was constructed at a right angle to the front office (east) section. The rear section was configured to accommodate a low-voltage particle accelerator used as a proton on tritium (P-T) neutron source. An outside concrete wall, north of the west section, provided shielding for the accelerator beam. Men's and women's restrooms were built into the facility so that the facility provided a complete self-contained accelerator test installation. A fenced-in (asphalt area) between Building T030 and Building T641 was previously used as a palletized material holding area. To the north of Building T030, south of Building T641, and west of both buildings are outcroppings of Chatsworth sandstone formation. This formation is only about 50 ft from the north and west sides of Building T030.

2.3 OPERATING HISTORY

After construction in 1958, a Van de Graaf accelerator was moved into the facility in 1960. The accelerator could provide a proton beam of up to tens of microamperes in current, with continuously adjustable energies from a few hundred KeV up to a maximum of about 1 MeV. The particle beam was well focused, with a diameter of a few millimeters. Neutrons were generated using a tritium target via the ${}^3\text{H}(p,n){}^3\text{He}$ reaction. Five -gallon cans of borated water were used for neutron shielding around the machine.

2.3 OPERATING HISTORY (cont.)

The accelerator was operated from 1960 through 1964, at which time the facility was decommissioned. Even though the facility was not in use, the accelerator remained in the facility after 1964. In 1966, a smear survey of the accelerator (Ref. 4) showed significant tritium contamination. It was believed that the tritium contamination had not spread to surrounding areas. Following removal of the accelerator in 1966, the building was surveyed and no residual contamination was found. The building was released for other uses, and had subsequently been used as an office building for purchasing and on-site traffic. In 1988 a second radiological survey was performed (Ref 1) confirming the 1966 survey results. The Building was utilized as an office area until 1995.

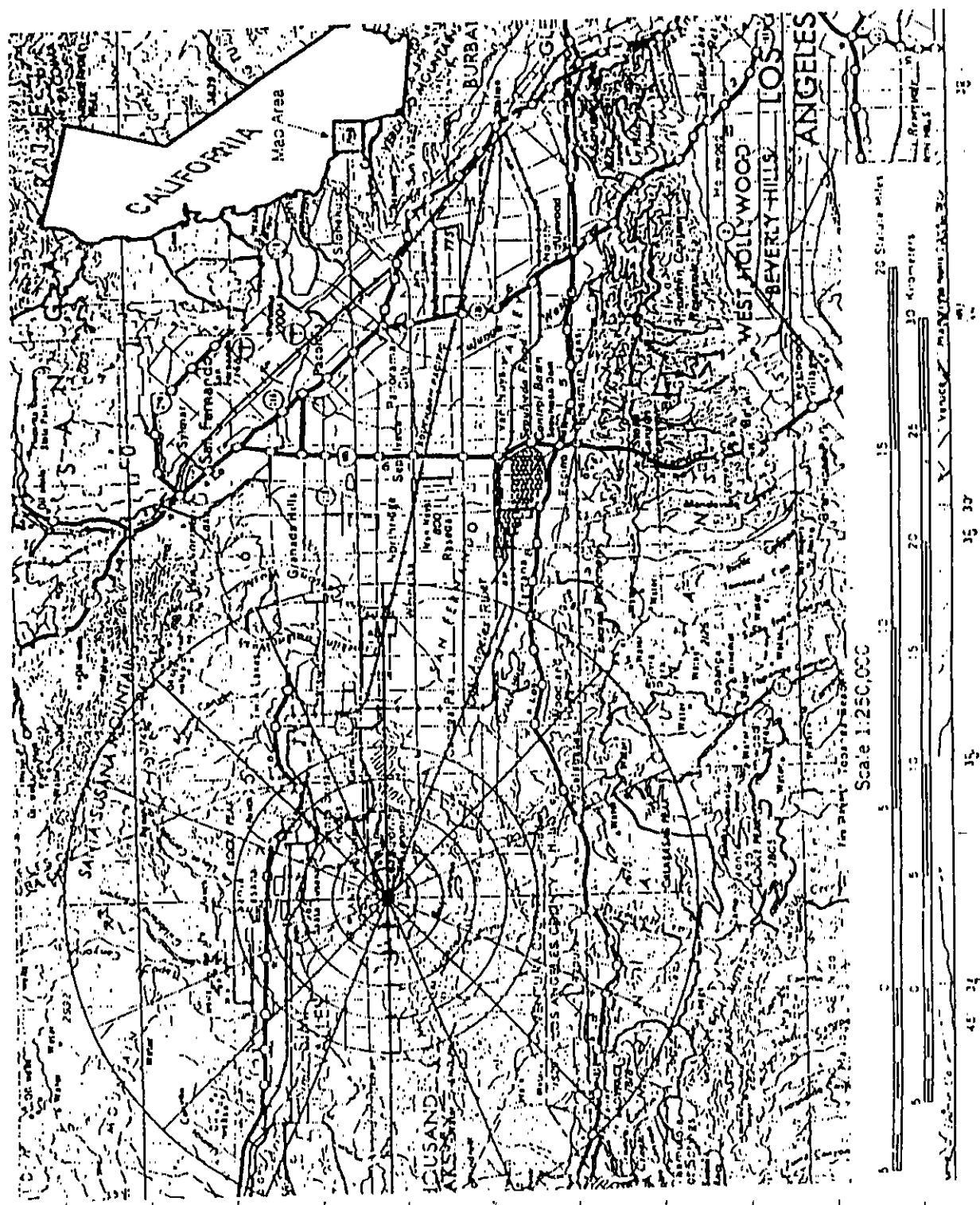


Figure 1 Location of SSFL Relative to Los Angeles Area



Figure 2 Neighboring SSFL Communities

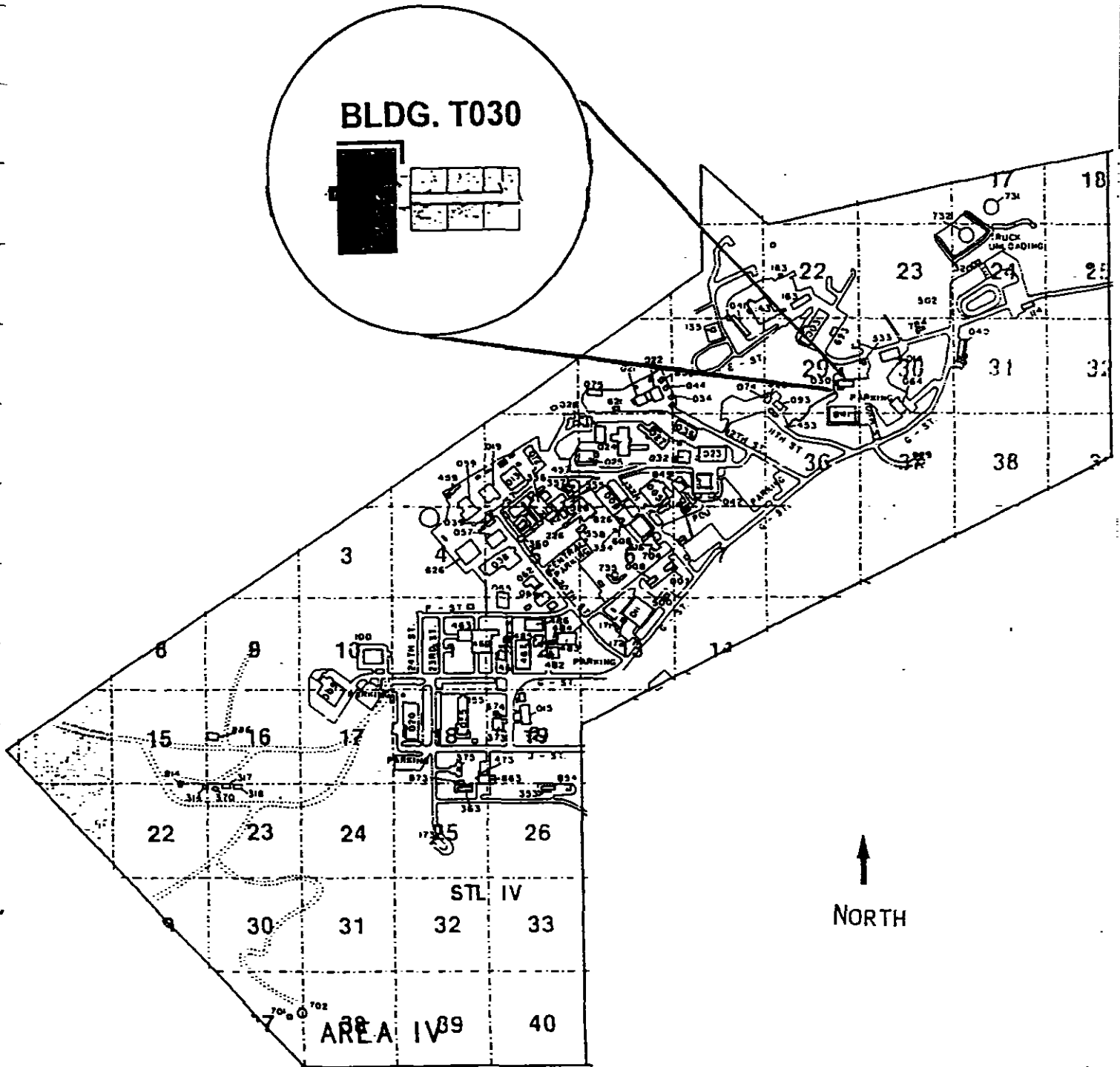


Figure 3 Santa Susana Field Laboratory (Area IV)

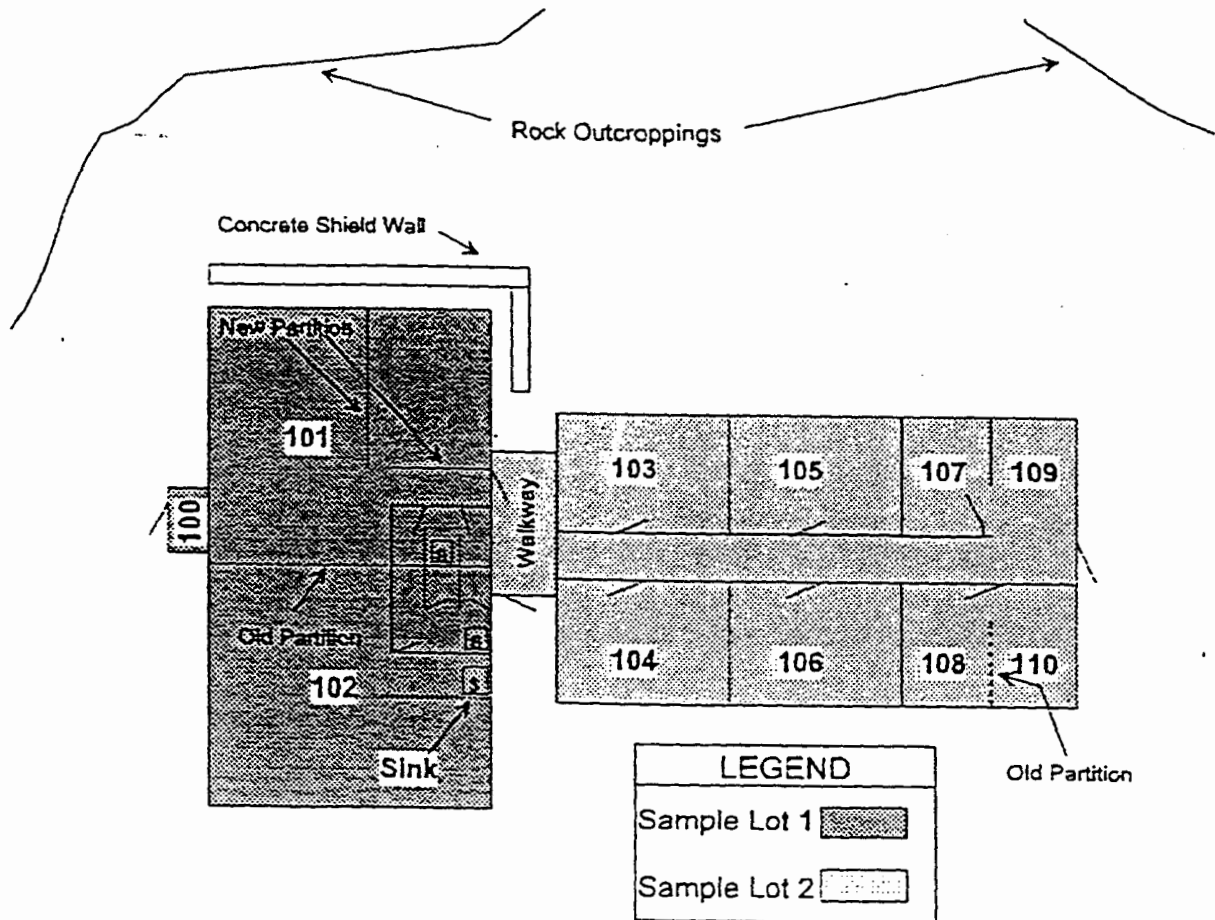


Figure 4 Layout of Building T030

