U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 80-01

Docket No. 50-147 License No. CX17 Safeguards Group

Licensee: Rockwell International - Energy Systems Group
8900 De Soto Avenue
Canoga Park, California 91304

Facility Name: FCEL Facility, Building 100

Inspection at: Canoga Park/Santa Susana

Inspection conducted: June 3, 4 & 11, 1980

Inspectors: J. R. Curtis — July 7, 1980
J. R. Curtis, Radiation Specialist — Date Signed

Date Signed

Approved by: F. Wenslawski — 7/11/80
F. Wenslawski, Chief, Reactor Radiation Safety Section — Date Signed

Approved By: H. E. Book — 7/11/80
H. E. Book, Chief, Fuel Facility and Materials Safety Branch — Date Signed

Summary:

A special close-out inspection was conducted to observe the condition of the facility and verify that the licensee conducted surveys and documented results as they were described in the Report of Radiation Surveys of the FCEL Reactor Facility submitted to DOR, USNRC, Attn: Wm Gammell, (ltr M. E. Remley to Wm. Gammell, April 30, 1980; reference #80 ESG-3900).

The inspector toured the facility, conducted meter and smear surveys of the facility and its immediate surroundings, examined licensee records, and interviewed persons who were involved in the prior use, dismantling and preparation of the facility for release for unrestricted use.

The inspection involved eleven hours onsite by one inspector.

Results: Based on the findings of this inspection including results of surveys performed on June 4, 1980, the inspector confirmed that the facility has been decontaminated and the condition is as described in the report of radiation survey cited above.

RV Form 219 (2)

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DETAILS

1. Persons Contacted

*M. E. Remley, Director, Health Safety and Radiation Services
*R. Eggleston, Staff Member, Health Safety and Radiation Services
*J. Walter, Manager, Santa Susana Site
F. Badger, Health Physicist
R. Mc Curnin, Manager, Radioactive Materials Disposal Facility
J. Harris, Staff Member, Radioactive Materials Disposal Facility

*Indicates presence at the exit interview.

2. The Facility (Building 100, Santa Susana Site)

The building that housed the FCEL is a composite structure approximately 75' X 100', consisting of some rooms of standard industrial building construction and a vault and high bay area with overhead crane which are of thick-walled reinforced concrete construction.

The split table critical assembly machine and its supporting hardware was located in the high bay area, the fuel and other forms of Special Nuclear Material (SNM) were stored in the vault. The other rooms were used for shops, offices, laboratory, health physics support operations and the control room for the critical assembly machine.

A special ventilation system with filtered exhaust was provided for the high bay area, the vault and laboratory areas where airborne radioactivity might be generated. A "hot" drain system, with holdup tanks in a pit adjacent to the facility, was provided for selected support rooms.

3. Current Status of the Facility

Operations in which the fueled critical assembly machine was used were terminated in 1974. The fuel was removed and a dismantling plan for the machine was generated by the licensee and submitted to NRC for approval in July 1974. A dismantling order was transmitted to the licensee in November 1974. In the period between November 1974 and the present, decontamination and dismantling operations proceeded in stages. The facility was carried in a long term shutdown status while the licensee was involved in negotiations to sell or otherwise dispose of the critical assembly machine and support hardware. During this period some of the areas within the facility, principally the office and control room areas and including a portion of the high bay, were used for storage and electronic instrument maintenance and calibration projects.

In the recent past the licensee elected to completely dismantle and remove the remaining portions of the critical assembly machine and supporting hardware, including possibly contaminated hoods, ductwork and the holdup tanks, valving, and pumps in the "hot" drain system. This equipment was properly packaged and transported to the licensee's Radioactive Materials Disposal Facility. The inspector visited this facility, observed the present location and status of the equipment and discussed proposed disposition plans with licensee representatives. Selected items will be decontaminated and released to the corporate salvage yard for ultimate disposal; the remaining equipment including the split table and the hold-up tanks will be properly packaged for solid radioactive waste disposal thru the licensee's normal radioactive waste disposal channels. All portions of the FCEL facility, other than rooms 103 thru 109, which were used for offices, and the control room were cleared, cleaned and the facility was surveyed for contamination as described in sections 2.0 and 3.0 of the licensees' report (ltr Remley to Gammell April 30, 1980, #80 ESG-3900).

4. Radiation Surveys

The inspector toured the site with the licensee health physics representative who performed the licensees radiation survey, discussed techniques and examined survey records, and then conducted a radiation level and contamination survey. The instruments used for the radiation survey made by the licensee are listed in Attachment #1, the NRC instruments used in the June 4th survey were:

NMC P-55 Gas Proportional Counter I.D. Number 00393
Determination of alpha and beta counting efficiency performed 6/11/80
Background 6/11/80 ..... 30 CPM

Eberline E520 Geiger Counter I.D. Number 1939
with HP260 Probe (10% efficient for beta particles of Co-60 energy)
Calibrated 5/14/80
Ambient Background 6/4/80.....10-20 CPM

Eberline PRM-7 MICRO R/hr METER I.D. Number 247
with Na I crystal detector
Calibrated 2/4/80 with NBS traceable Cs 137 gamma source
Ambient Background level 6/4/80.....5-15 uR/hr

The records of the licensee surveys were examined and the results recorded were consistent with those reported in sections 3.0 and 4.0 of the licensees report. Survey instruments and techniques used were consistent with currently accepted standards and, based on discussion with the person who conducted the survey, were thorough and comprehensive.

Radiation and contamination level surveys were conducted during this inspection. The surveys consisted of portable survey instrument (E520 and PRM-7) measurements performed throughout the facility and a series of surface and near surface measurements at selected locations in the vault, high bay, and support facility. Radiation levels measured at or within three inches of the floor and wall surfaces of the high bay, vault and adjacent work rooms were in the range of 5 to 50 uR/hr (.005 to .050 mR/hr), with the maximum reading detected in a localized area in the pit below the location of the split table when it was in place. Levels measured at three feet from the floor and wall surfaces did not exceed the ambient background range of 5 to 15 uR/hr. Surface contamination measurements made using a thin window "pancake" type GM detector were in the range of 10 to 30 counts per minute (CPM). No levels exceeding two times the ambient background range of 10 to 20 CPM were observed. No removable surface contamination was detected in seventeen swipes taken at selected locations in the high bay, vault and adjacent work rooms. (See Attachment #2 for locations)

A soil sample was taken from a natural drainage path located approximately sixty feet north west of the facility. A liquid sample of water that had been run through pipes in the "hot" drain system was taken from the sump in the pit that previously housed the hold-up tanks from that system. No significant radioactivity was detected in a laboratory analysis of these samples using a gamma spectroscopy system with a Lithium drifted Germainium detector.

The review of records of radiation surveys performed by the licensee and the results of surveys performed by the inspector confirm the status of the facility as described in the licensees report.

5. Exit Interview

An exit interview with licensee representatives was held at the close of the inspection. The inspector discussed the findings of the inspection and indicated that based on the surveys performed and on the conditions observed, his report would confirm that the licensee had cleaned and otherwise prepared the FCEL facility (Building 100) as described in its report and the conditions found met the guidlines of Regulatory Guide 1.86, Termination of Operating Licenses for Nuclear Reactors.

ATTACHMENTS:
As Stated

ATTACHMENT #1

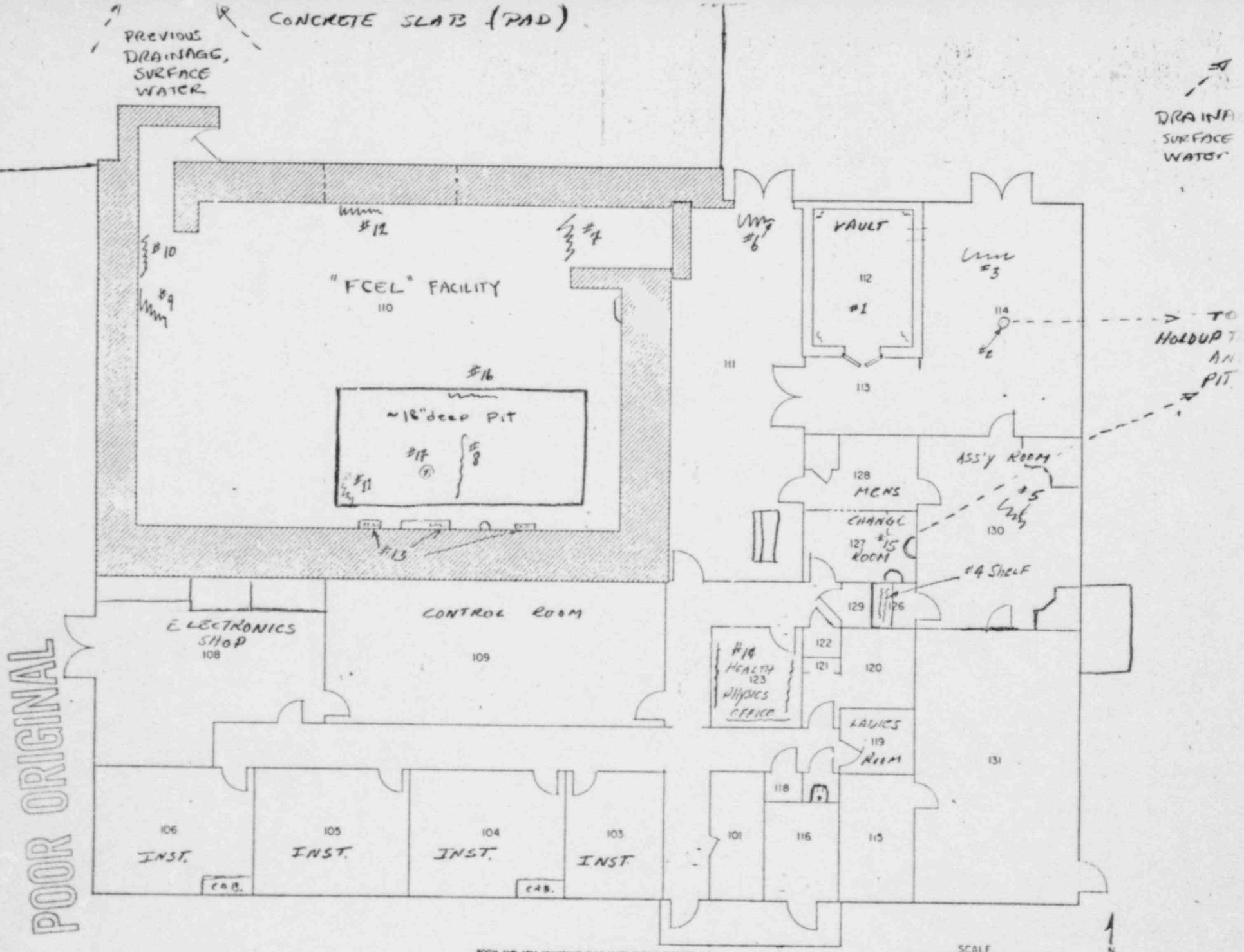
LICENSEE
INSTRUMENTATION USED IN
RADIATION SURVEY OF BUILDING 100

Date of Survey: May 2, 1980

Instruments used to survey Bldg. 100:

N.M.C. Autocounting System Background 25 Efficiency factor: 2.3 Beta/Gamma 3.8 Alpha	Property No. 341531 Calibrated February 8, 1980
PUG 1AB Thin Window Probe	Property No. 341850 Calibrated March 10, 1980
Ludlum Model 12 Alpha Meter with Model 43-5 Scintillation Probe	Property No. 327793 Calibrated April 7, 1980
Ludlum Micro "R" Meter	Property No. 341865 Calibrated March 2, 1980

Attachment 2



ROOM AND AREA NUMBERING PLAN SANTA SUSANA BUILDING 100

SMEAR LOCATIONS 6/6/80 SURVEY

J. R. CURTIS