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Atomic Energy Division
Idaho Falls, Idaho

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TAN-SPERT Health Physics
Progress Report for April 1966
Cord-30-66A

J. W. McCaslin
O F F I C E

The monthly report of the TAN-SPERT Health Physics Section for April 1966 is as follows:

TSF

The major activities requiring HP coverage in the TSF area during April were

1. Routine coverage of RML
2. Work on SPERT fuel in the HCA area
3. ML-1 Hot Shop coverage
4. Coverage during X-ray work on SPERT fuel
5. Monitoring of jobs in the RPSSA area.

Major jobs in the Hot Shop continue to require almost constant HP coverage. These jobs consist of monitoring the PM-2A experiment, coverage for ML-1 work, incoming and outgoing shipments, shop cleanup, and door cable repairs. Due to the amount of traffic in and out of the Hot Shop, careful controls are necessary to avoid overexposure to participating personnel.

Decontamination Facility

The major items decontaminated, chemically cleaned, or sandblasted during April include

1. 10 casks
2. ML-1 equipment
3. PM-2A equipment
4. Hot Shop tools and manipulator parts
5. 4 dempster dumpsters
6. SNAPTRAN-2 dolly
7. Boiler house equipment, pumps, and preheaters
8. Westinghouse canal bulkhead
9. Window filtering unit
10. Welding machine
11. GE micro hardness tester.

REPOSITORY INEL
COLLECTION SNAPTRAN
BOX No. P-24724 RSR# P-2133
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SPERT

The SPERT II Building was used during the month as an area for dye checking SPERT IV CDC fuel rods to determine the integrity of the welded end plugs. Radiation controls were necessary as these rods were reading ~1.0 R/hr at contact.

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The SPERT III reactor was prepared for nuclear operation at elevated temperatures. Twenty-four-hour Health Physics coverage will be necessary during this period.

Three fuel rods were ruptured during a 4.0 msec test at SPERT IV. Uranium oxide fuel and associated fission product inventory was dispersed throughout the water in the pool.

The pool was cleaned by flushing the debris from the core structure to the bottom of the pool. The sediment on the bottom of the pool was then collected by the use of a suction cleaner. This cleaning mechanism discharged the contaminated water through a bank of 5-micron filters into a storage tank. The water was then sampled and analyzed before being discharged to the leach pond.

The core was reloaded and a 6 msec and 5.6 msec period were run without cladding failures. In a subsequent 4.6 msec period there was no apparent rod rupture.

Some airborne contamination follows each of the transients. Due to the effect of direct radiation on the CAMs, a half-hour delay time is allowed before the building air is sampled. When there is no cladding rupture, remote recorders indicate airborne contamination in the order of 100 to 200 aau.* After the 4.0 msec period that caused fuel rod rupture, airborne contamination of 1800 aau was observed. Re-entries were not made until the morning following the test, at which time only trace quantities of contamination remained.

SNAPTRAN

Extensive calculations were made in an attempt to estimate the release fraction of fission products to the atmosphere from the SNAPTRAN-2 destructive test. Air filter data (microsorban and carbon cartridges) were correlated with atmospheric diffusion parameters and used as input into a Pasquill-type diffusion equation. The fractionation of the released fission products was then determined by the simultaneous solution of several equations. By this method, the release of fission products from the SNAPTRAN-2 destructive test was determined to be:

Noble Gas	75%
Iodine	70%
Tellurium	45%
Solids	$<5\%$
Total Inventory	20%

STEP

The SNAPTRAN-2 Reactor Dolly was dismantled and the reactor structure and components were removed to the burial ground. The flat car was transported to the warm shop for final decontamination.

Cleanup and decontamination of the IET area was completed. This includes the test cell, test cell pad, drain trenches and sump, hot waste tank, outside area and all buildings inside the IET security fence. Forty-seven truck loads of contaminated soil were removed from around the IET area to the CFA burial ground.

*One aau = 3×10^{-9} μci/cc.

A final Health Physics survey of the buildings and surrounding area show the following contamination levels:

Test cell	200 d/m/100 cm^2
All other buildings	200 d/m/100 cm^2
Outside area	0.4 mr/hr (ground surface)

The IET area is now classified as a clean area. Security guard coverage and film badge service has been discontinued. Health Physics coverage for personnel entering the area is no longer required.

Summary of Routine Work

Smears	1900
Direct reading dosimeters	128
Liquid Samples - waste water	18
Radioactive Shipments	
Off-site	36
On-site	76
Burial Ground	49
Laundry	11
Safe Work Permits	125
Beryllium analysis	2
Safety Meetings	2
Excess exposure request	3
Whole body analysis	6
Green tags	378

MAN HOUR TABULATION

Exempt	Non-Exempt	Total		Exempt	Non-Exempt	Total
	Scheduled Hours				Actual Hours Worked	
1344	1848	3192		1240	1947	3187
	Overtime				Absences	
0	191	191	S -	2	20	22
			SF -	0	16	16
			H -	0	0	0
			V -	8	56	64
			DF -	46	0	46
			O -	48	0	48
	Total	3383				3383

OLCordes:dcm/JRF

O L Cordes

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