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HW--7405

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W. K. MacCreedy

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300 AREA
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#138 - H.I. REPORT ON THE 200 AREAS AND ASSOCIATED

LABORATORIES FOR THE WEEK ENDING AUGUST 27, 1947

General Statistics

	<u>T</u>	<u>B</u>	<u>Total</u>
Special Work Permits	79	58	137
Routine and special surveys	83	102	185
Air monitoring samples	73	108	181
Thyroid checks	37	41	78

Air Samples

<u>T Plant</u>	<u>Total</u>	<u>Product</u>		<u>Fission Product</u>	
		<u>>10⁻¹¹ ug Pu/cc</u>	<u>Maximum</u>	<u>>10⁻⁶ uc/liter</u>	<u>Maximum</u>
221	20	0	--	0	--
224	44	0	--	0	--
<u>B Plant</u>					
221	61	2	1.5x10 ⁻¹¹	6	6.5x10 ⁻⁶ *
222	18	0	--	0	--
224	28	0	--	0	--
271	1	0	--	0	--

* Section 5, 6-2 open

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MASTER

AUG 05 1992

8/28/47

W7-7405

THE T PLANTCanyon Building

Constant monitoring was required on five occasions during sampling at the 13-4 port. Trombones, when withdrawn from the sampling port, showed dosage-rates of from 400 mrep/hr to 2 rep per hour at 4 inches. However, the maximum readings on a loor-stop was only 100 mr/hr at 2 inches.

A survey of accumulated sampling equipment for decontamination revealed dosage-rates of from 50 mrep/hr to 2.5 rep per hour. A trombone returned from the East Area for decontamination showed a dosage rate of 10 r/hr through the "Suitcase". The trombone was handled by remote-control at a distance of 2 feet where an exposure rate of 40 mrep/hr was recorded.

About 0.4 μ g of product contamination was reported on the deck near Section 17.

Concentration Building

Approximately 0.1 μ g Pu was found on the step-off mat in E cell. The item was buried.

Protective clothing contamination occurred during work on the E-4 sampler dip tube. About 0.2 μ g Pu was reported on a glove and about 0.04 μ g on the coveralls, but no evidence of personnel contamination was found.

Waste Disposal

Low level ground contamination was reported immediately west of 101-T Divercion box. The maximum in any spot showed 5000 c/m. A spot on the box itself showed a dosage-rate of 250 mrep/hr at the surface.

One instance of skin contamination occurred while taking supernatant liquid samples from the 101-T, 102-T, and 103-T tanks. Most likely the contamination was transferred from gloves; it was readily reduced below the four-fold warning level by means of Lan-o-Kleen soap and water. The maximum surface dosage-rate on any sample was 3 rep per hour on the one from 101-T. When placed in sample carriers, a maximum exposure-rate of 35 mr/hr was recorded on the 101-T sample.

Ground contamination was found in several locations adjacent to the T building. A maximum of about 2000 c/m was reported from a spot located east of the stack. Contamination was also found on the steps, platform, and ground beneath the No. 7 guard tower. A survey of perimeter guard houses showed no evidence of contamination.

THE B PLANTCanyon Building

Contamination was reported in the operating gallery at Sections 4, 6, and 13. A survey of the crane catway recorded contamination at Sections 6, 7, 8, 12 and 13. The maximum dosage-rate reported was 3.5 mrep/hr at Section 6. The crane cab showed no detectable contamination.

During maintenance work on an impact wrench, protective clothing contamination up to a surface dosage-rate of 175 mrep/hr occurred. No skin contamination was found.

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Sampling equipment with surface dosage-rates up to 17 rep per hour was decontaminated in a maximum exposure-rate of 550 mrep/hr at one foot.

A survey of the 8-2 centrifuge, which was removed and stored in Cell 20-L about one year ago, showed Beckman readings of from 100 to 375 mrep/hr with the instrument suspended from a crane hook.

Cell 6-R was opened and a manhole cover was removed from the 6-3 tank for installation of an agitator. A reading taken three feet from the open cell edge and ten feet above the deck level showed 10 roentgens per hour, and a deck level reading 25 feet from the open cell was 185 mr/hr. Significant air contamination occurred along with the opening of this cell and air sample results are summarized as follows:

Sampler	Location	Time of sample	Pu $\mu\text{R/cc}$	F.P. $\mu\text{c/liter}$
Motoair	Sec. 5	5:38 - 10:45 p.m.	less than 1×10^{-11}	6.5×10^{-6}
Motoair	Sec. 13	5:40 - 10:35 p.m.	" " "	7.4×10^{-7}
Motoair	Sec. 16	6:40P- 12:50 a.m.	" " "	1×10^{-7}
Queenie	Sec. 6	10:38 - 11:01 p.m.	" " "	4.3×10^{-6}
CI Unit	Cab	9:32 - 10:15 p.m.*	" " "	3.0×10^{-6}
Motoair	Sec. 5	10:45P- 6:25 a.m.	1.5×10^{-11}	3.1×10^{-6}
Motoair	Sec. 19	10:55P-6:42 a.m.	less than 1×10^{-11}	3.3×10^{-7}
Queenie	Sec. 6	5:05 - 5:35 a.m.	" " "	5.1×10^{-7}

*The C.I. unit result is based on the time period which showed the maximum rate of increase. As assault mask was worn until the increase indicated air contamination above $2 \times 10^{-6} \mu\text{c/liter}$ at which time the cabway was evacuated. The cell blocks were later replaced at which time the crane operator wore a Chemox mask. The air sample results clearly indicated that contaminated air is not uniformly diffused throughout the canyon. If it is assumed that air contamination was low until the cell was uncovered, and that the C.I. unit indication resulted mainly from the removal of the manhole cover, the first motoair sample listed might indicate that concentration during the last part of its sampling period was as high as $10^{-4} \mu\text{c/liter}$. The manhole cover was removed from the tank about two hours after a charge had been agitated and jettied. When the cell was uncovered again on the following day to complete the agitator installation, the highest result on an air sample taken at the deck was $9 \times 10^{-7} \mu\text{c/liter}$.

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Central Laboratory

A total of 76 non-regulated items was found contaminated; 35 by Technical and 41 by H.I. Approximately 2.7 μg Pu was involved, and included 12 floor spots. Contamination was also reported on the walkway to the burial pit, janitor's equipment, and in the decontamination sinks.

Concentration Building

About 1.2 μg Pu was reported on the tank and valves in the F-10 enclosure. A survey of the E-cell balcony showed general contamination of the tank top and piping. A maximum surface dosage-rate of 40 mrep/hr was reported on the cup of the A-4 sample riser.

Stack Area

Considerable maintenance work in redesign and installation of equipment was monitored. In general, readings have been less than 6 mrep/hr, but dosage-rates as high as 650 mrep/hr were obtained on open flanges. Handles were installed on the valves of lines leading from the stack pit to the stack analysis building, with an exposure-rate of 80 mr/hr recorded. The dry well was completed with no indication of contaminated dirt or equipment.

Waste Disposal

A survey of the ten perimeter guard towers was made, and contamination was found at two towers within the B Plant fence, and on the tower at the railroad tunnel.

THE ISOLATION BUILDINGAir Monitoring

	Total	Maximum Concentration μg Pu/cc
Little Sucker samples; laboratories	7	below 4×10^{-12}
Little Sucker samples; process areas	6	" 4×10^{-12}
Filtered Hood air by Big Suckers	65	2×10^{-8} before E-4 filter
Spot samples; laboratories	20	below 1×10^{-11}
Spot samples; process areas	38	1×10^{-11} Cell 4

Surface Contamination

A total of 78 non-regulated items was found contaminated; 43 by Technical, 26 by H.I., and 9 by S Department personnel. One item above 20,000 d/m but below 80,000 d/m was reported. Approximately 0.14 μg Pu was found on the floors of Rooms 6, 34, 35 and the D corridor. There was no significant instance of skin contamination.

CMP-WTM

8/28/47

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Gamma Radiation

P.R. Containers	6.5 mr/hr
Process Hood	1.5 mr/hr
S.C.	4 mr/hr

THE 300 AREA

General Statistics

Special Work Permits	12
Routine and Special Surveys	20
Smears counted	19
Air monitoring samples	11

Technical Building

Uranium contamination was reported in rooms 4B, 6, 55, 57, 59 and 64. Thirty one pairs of shoes were checked, and none found contaminated. No high air sample was found.

GEN. RAL

One badge was processed on account of high pencil reading, but did not confirm the pencil reading. One badge reading in the North Area and one badge reading in the E-Area were lost when the badges were dropped in water. Investigation of the employee's work locations showed no possibility of overexposure.

All thyroid checks were below the conservative warning level.

CMP:pf-svc

C.M. Patterson

END

**DATE
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9/22/92