INTERNATIONAL NUTRONICS - DOVER FACILITY

MONTHLY HEALTH PHYSICS SURVEY REPORT

Aug. Month

83. Year

μ = 40 μ/wks

WATER ANALYSIS:

Sample Location New Pool direct

3 (10 minute counts) 4590 4438 4470 / 13498 Total

÷ 30 450 Counts/min – Bkg 460

÷ 8.5ml 50 C/min/ml

÷ Counter efficiency _____ d/m/ml Current Counter Efficiency 20.2%

÷ 2.2 x 10^6 $< 1.0 \cdot 10^{-10}$ uci/ml

6.7 PH

_____ Cl/ppm

James A. Welch
PERFORMED BY

ROUTINE SURVEYS:

(Area) Around Irradiator-Source Up _____

(Smear) Rear Bldg. (Floor Area) SEE MAP SHEET

(Smear) Storage Casks SEE MAP SHEET

(Smear) Front Bldg. SEE MAP SHEET

(Area) Outside of Bldg. (Rear) Perimeter _____

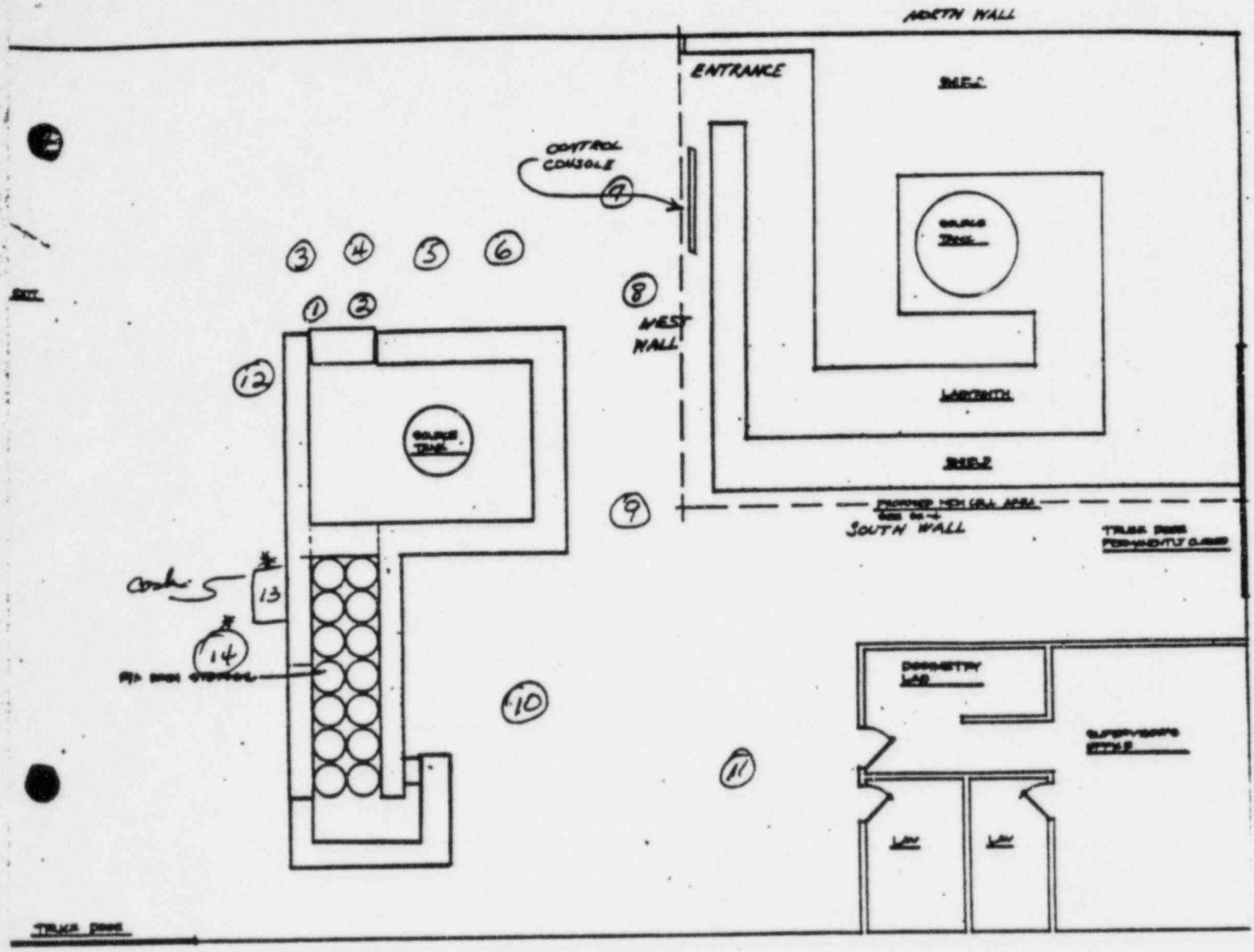
_____ DATE

_____ PERFORMED BY

FILM BADGE CHANGE OUT:

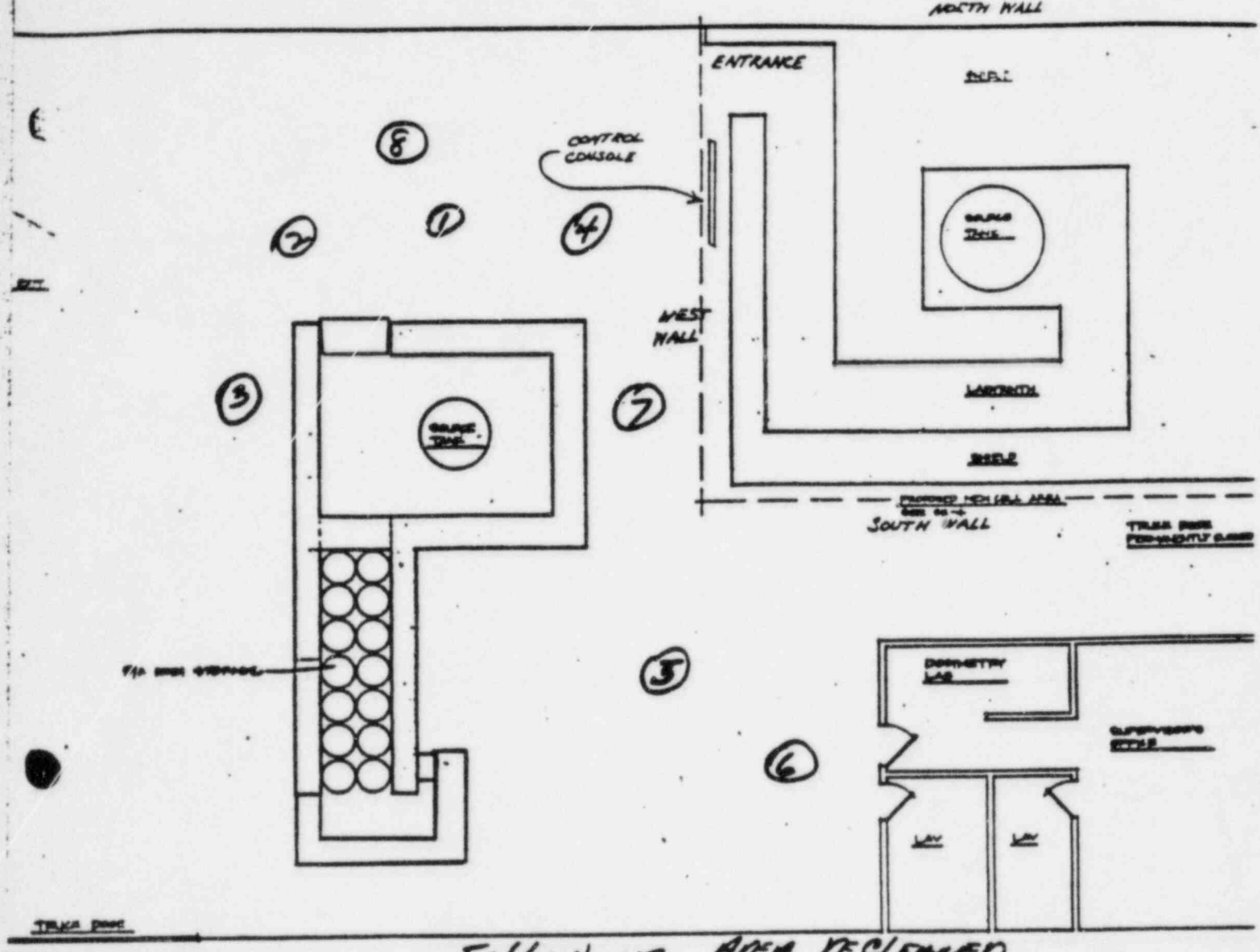
DATE 8/30.

NON-ROUTINE SURVEYS:



Actual.

DATE	SAMPLE #	time	COUNTS TOTAL	DKG	NET TOTAL	CPM	EFF	DPM	REMARKS
8-31	1	1 min	547	468	87		20.2	431	x10 = 4316
	2		1420		960			4752	x10 = 47520
	3		852.		392			1941	x10 = 19410
	4		787		327			1619	x10 = 16190
	5		925		465			2302	x10 = 23010
	6		~~876~~		439			2173	x10 = 21730
	7		598		138			683	x10 = 6830
	8		643		183			906	x10 = 9060
	9		716		256			1267	x10 = 12670
	10		690		230			1139	x10 = 11390
	11		743		283			1401	x10 = 14010
	12		876		416			2059	x10 = 20590
	13		2132		1672			8277	x10 = 82770 = 0.037 287
13	14	↓	700	↓	240.		↓	1188	x10 = 11880



Follow up. AREA RECLEANED

DATE	SAMPLE #	time	COUNTS TOTAL	DKG	NET TOTAL	CPM	EFF	DPM	REMARKS
	1	1 min	477	460	17 →	20.2%		84	STAT DKg
	2		470		10 →			50	" "
	3		481		21 →			104	" "
	4		435		—			—	
	5		475		15 →			74	" "
	6		494		34 →			168	" "
	7		520		60 →			297	RE CLEAN.
	8		487		27 →			134	STAT DKg.
	CART 1		470	460	10 →			50	STAT DKg
	2		508		48 →			238	
	3		442		—			—	287
13	4		489		29 →			144	STAT DKg.

Rad. ... Survey of floor ... monthly Survey.

Counts starting to accumulate, ... of this condition & a previous wipe decided to take large dust samples - Results as follows.

① Dust on ledge by window by Tank wall.
5.75 - 460 = 115/.202 = 569 dpm

(33) ② Dust on ledge under Exit sign
3237 - 460 = 2777/.202 = 13,748 dpm

(42) ③ Dust on Conduit
1858 - 460 = 1398/.202 = 6921 dpm

④ Dust on C.B. Panel
939 - 460 = 479/.202 = 2371 dpm

⑤ Dust on Top of Control panel.
1630 - 460 = 1170/0.202 = 5792 dpm

⑥ Dust on Conduit (Loft)
1631 - 460 = 1171/0.202 = 5797 dpm

⑦ Dust on Cabinet (Elec) Loft
8091 - 460 = 7631/0.202 = 37,777 dpm

⑧ Dust on Loft Table
[illegible]

⑨ ...where Tank next to filter
1064 - 460 = 604/0.202 = [illegible]

⑩ Office Window Ledge (Small)
838 - 460 = 378/0.202 = 1871 dpm

(12) ⑪ Office Black Board (Top View)
3560 - 460 = 3100/0.202 = 15347 dpm

(26) ⑫ Office Display Shelf 2143 - 460 = 1683/.202 = 8332 dpm

(30) ⑬ Office Shelf above PhotoSpec 2153 - 460 = 1693/.202 = 8381 dpm

⑭ B.R. moulding 994 - 460 = 534/.202 = 2644 dpm

⑮ Office Shelf (Radio) 569 - 460 = 109/.202 = 540 dpm

14 ⑯ Work Table by pump 1634 - 460 = 1174/.202 = 5812 dpm

Restricted Area

[illegible] 2% Bkg 460

9/1/8[illegible]

	[Location]	CPM	NET	D[illegible]
1	Modine heater. ~~North~~ Plenum. West	3335	2875	Top 14235
2	Modine heater. ~~East~~ Louvers. West	2568	2108	Top 10436
3	" " West Fan blade.	2662	2202	10901
4	" " " Top.	5250	4790	23713
5	" " North Plenum.	5893	5433	26896
6	" " " Louvers	3480	3020	14950
7	" " " Fan blade	1557	1097	5431
8	" " " Top.	2051	1591	7876
9	Phone by Truck Door.	496	36	178
10	Plywood Top OLD LAB (South)	752	292	1446
11	Fire ext. by Truck door.	956	496	2455
12	Truck door Moulding	697	237	1173
13	Drum Lifter on Tool Rack North wall.	1090	630	3119
14	S[illegible] VA[illegible].	628	168	[illegible]
15	Floor Area [illegible] old [illegible]	515	55	[illegible]
16	Tile shelf by Truck door	1256	796	39[illegible]
17	OLD cell outside block shelf (west)	513	53	262
18	Fire ext on N.C. Panel.	504	44	218
19	I beam above Truck. (see 4)	2129	1669	8262
20	I beam above Control Console	3347	2887	14292
21				

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14

#7'

Ran a Test test ... ...
done by Joe. on 8/...
1/2 of the regenerator filter counted ...
on top of the detector

note: ē normal geometry detector is ~20.3% eff.
we used a 10% eff because we couldn't
put filter into well.

results.

10 min count 1122.
x2 for 1/2 filter. 2244
− 460 Bkg
1784.
÷ 0.10 eff.
17840 dpm
÷ 2.2 10^6
0.008036 μci
÷ 1.2×10^6 ml ... (...)
6.7×10^-9 μc ...

limit: ... μc...
9×10^-9 μci/ml ...

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9/1/0.

Bkgd 460 Eff 20 min

	OFFICE AREA	CPM	Net	DPM
1	Phone shelf (ans)	448	—	—
2	Top of Spec 20	431	—	—
3	Chalk Board base (Block)	612	152	752 *
4	Lindberg furnace	475	15	74
5	Top of First aid Cabinet	443	—	—
6	Chair Seat	464	4	20
7	Air C. ledge	436	—	—
8	Air C filter	483	23	114
9	Window ledge (inside to plant)	794	334	1653 *
10	Phone Litton	439	—	—
11	Ceiling	468 543	8	40
12	display area (uncleaned)	640	180	891 *
	" cleaned	441	—	—
13	Base board	540	80	396
	Floor	499	39	193
	Exit exterior	464	4	20
	BATHROOM			
17	ledge	463	3	15
15	baseboard	787	327	1619 *
19	Ceiling Vent	617	157	777 *
20	Base of toilet	576	116	574
21	Shelf	485	25	123

14

9/1/[illegible]

		CPM	NET	
22	[illegible] console	522	62	[illegible]
23	[illegible] area	483	23	[illegible]
24	[illegible]	488	28	139
25	WASTE drum by old cell	3665	3205	15,866

9/1/83

Air

AIR MONITORING

MONITORED AIR IN THE IRRADIATOR BLDG USING DUPONT P-4000 SET AT 3 LPM.

① ABOVE N.C. CONSOLE STATION · (STATIC CONDITION) (3LPM)

time	GROSS cpm	BKG	NET cpm	dpm	μCi	μCi/ml
4hr.	482.	460	22	109	$4.24 \cdot 10^{-5}$	$0.59 \cdot 10^{-11}$

② OLD CELL. (2LPM)

4[illegible]	47[illegible]			9[illegible]	$4.2[illegible]$	[illegible]

9/2/83 Air monitoring (officer in irradiation bldg)

time						
2hr.45'	455	460	0			$< 1 \cdot 10^{-12}$

9/2/83 Air Monitoring (IRRADIATOR area) 3LPM

Time						
5hr.	480	460	20	99	4.45×10^{-5}	$4.94 \cdot 10^{-[illegible]}$

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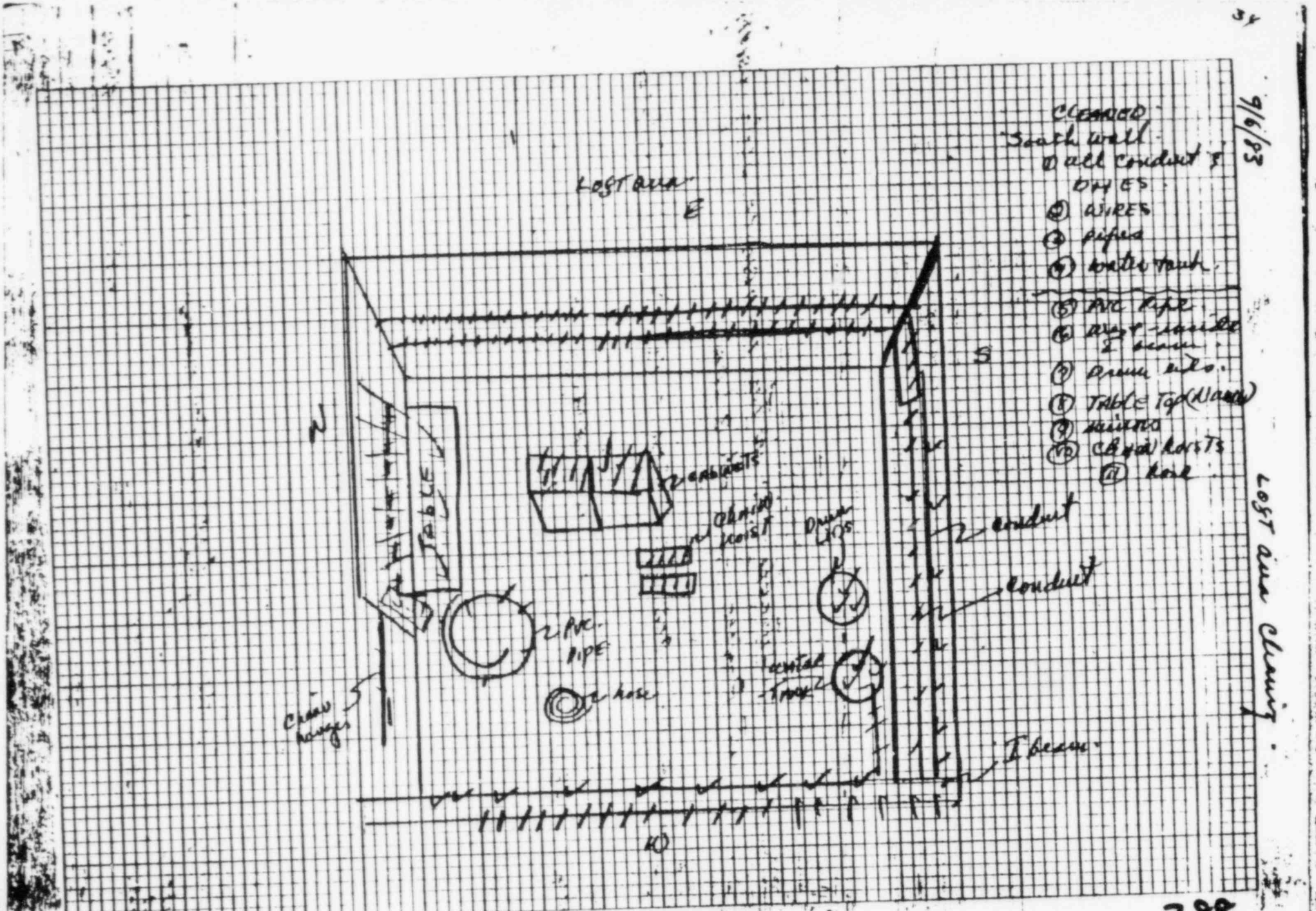
9/6/83


LOST area
E
S
N
W
Table
2 cables
chain hoist
Drum Lifts
2 conduit
conduit
2 PVC pipe
2 hose
Control Stand
Crane hangers
I beam
40'
Closed South wall
① all conduit & DH GFs
② wires
③ pipes
④ water trough
⑤ PVC pipe
⑥ air regulator & tank
⑦ drum lifts
⑧ Table Top (Wood)
⑨ railing
⑩ Chain hoists
⑪ hose
Lost area closing.

#35

Bruce 50 mR/hr
inside labyrinth

9/6/83 Decontamination

Started decontamination of Loft area.

1. all conduit on South wall.
2. all wire on S. wall -
3. all pipes " " " "
4. water tank & pipes
5. Drum lids
6. I beam (inside)
7. PVC Pipe
8. Tops of two electronic cubicles
9. Chain hanger on west side
10. Table top (both sides)
11. mirrors.

Breathing Zones Samples by J. Welsh.

Air

Dupont P400s. at 3 Lpm. for 1 hr.

cpm.	bkg.	NET	dpm	uCi	VOL (air)	uCi/mL
525 -	460	65	310	1.4×10^{-4}	4.8×10^{5}	7.8×10^{-10}

Positioned paper towel squares around mediator bldg on 8/31/83 To determine fallout.

Ran one sample (Top of old cell)

Counts 478 - 460 bkg = 18 cpm = 89 dpm

9/7/83

Continued (decon) of Loft area

1. garden hose
2. chain hoist motors.
3. conduit along. East wall.

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Dr. opportunist.

14

36

AREAS CLEANED

882

14

9/8/83

Continued D Cont of mediator bldg (all Counts)

D VACuum I beams on west side of old Cell.

② Top of C.B. Bay S wall.

③ P.V. Shop Vacuum. (Filtered exhaust).

9/9/83.

① Cell Enclosure completed

② New Dust respirators (in)

③ Started following wipe as follows

APM

BKG STAT 46 CPM.

E. Bucket Boxes.

Left area.

420

439

466.

Top of New IRR.

474

441

470

472.

478.

under EXIT sign on (W) wall.

606

435

I beam (W) side of old Cell.

440

435

conduit & pipes on (S) & (E) WALL.

458

500

471

419

438

Top of Cat. 502.

TABLE 551

FLOOR 796.

I beam 497

WATER IRR 467

Overhead Top 446

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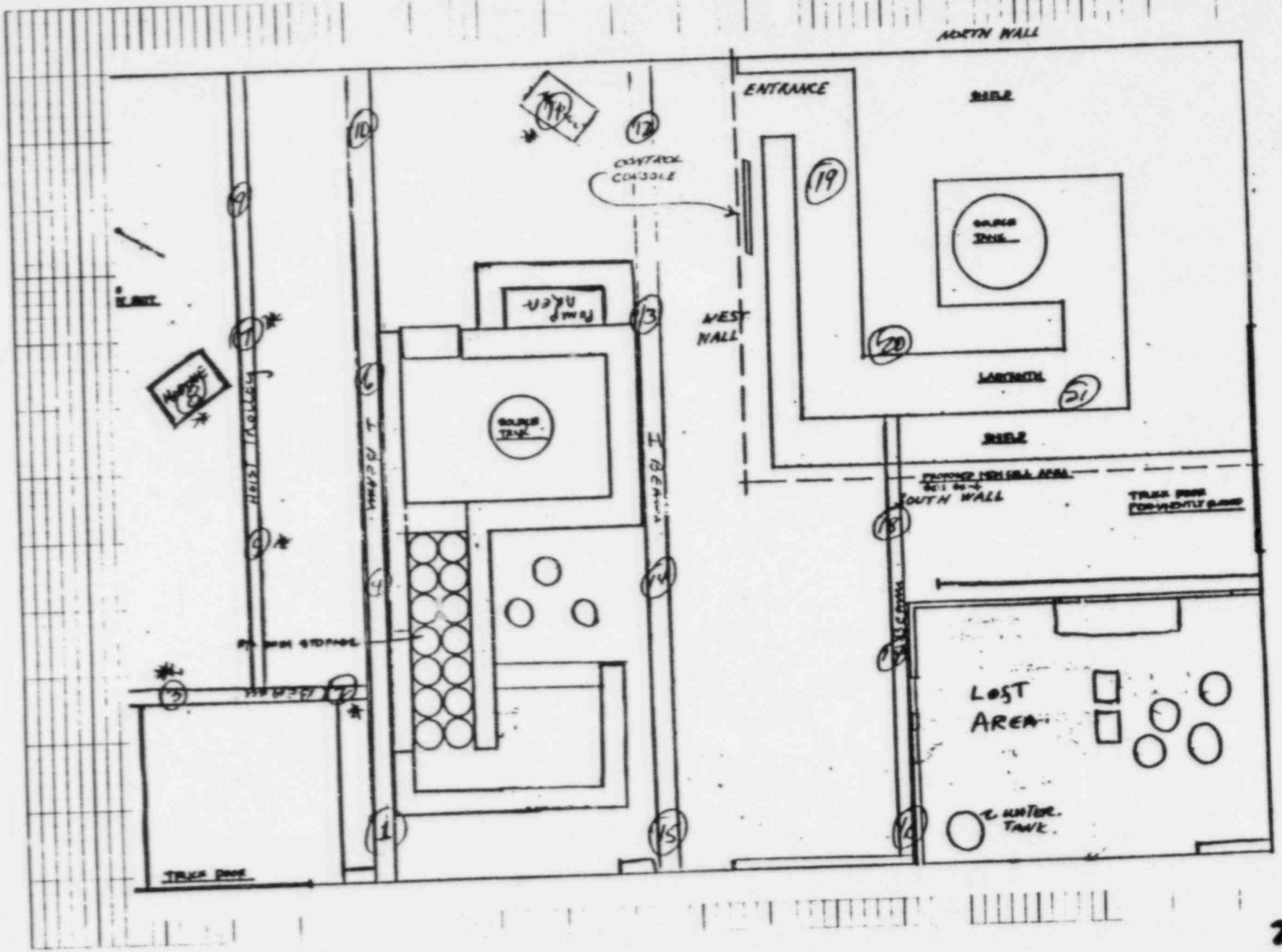
NORTH WALL
ENTRANCE
CONTROL CONSOLE
WEST WALL
SOUTH WALL
LOST AREA
TRUCK DOOR
TRUCK DOOR

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#39

9/4 Wipes after decon.

	cpm	bkg	Net	dpm	
#1	526	460	66	327	
#2	1041	460	581	2876 *	
#3	1625	460	1165	5767 *	
#4	500	460	40	198	8,262
#5	931	460	471	2332 *	
#6	518	460	58	287	
#7	1225	460	765	3787 *	
#8	679	460	219	1084 *	
#9	538	460	78	~~386~~	
#10	456	460	—	—	
#11	989	460	529	2619 *	
#12	543	460	83	411	
#13	523	460	63	312	14,292
#14	482	460	22	109	
#15	473	460	13	64	
#16	546	460	86	426	
#17	509	460	49	243	
#18	584	460	124	614	
#19	526	460	66	327	
#20	431		—	—	
#21	513	460	53	262	

Routine ___ Urgent ___

UNITED STATES NUCLEAR REGULATORY COMMISSION
REGION I LABORATORY
SAMPLE RECORD SHEET

Non Routine ✓ Date Needed 10-3-83 Serial No. 10025

Sample From: ___

Collected By L. Friedman Date Sent 10-3-83

Organization NMS

Samples Received: 10-3-83

Analysis Completed: 10-3-83

Notified: ___ Date: ___

Analyzed By: M. Taylor

Approved By: ___

Sample No.	Sample Date	Sample Hour	Sample Description	Anal. for	Inst. used	Quant. used	Date cntd.	Count time	Gross count	Bkgd. 1 min	Net count	Eff.		Results ± 1σ μCi/sw·pE
1				β	LB 4,880	1 sw pE	10/3/83	1 min.	7	0	7	0.262		(1.2 ± 0.45) E-5
2									6		6			(1.03 ± 0.42) E-5
3									7		7			(1.2 ± 0.45) E-5
4									10		10			(1.7 ± 0.54) E-5
5									6		6			(1.03 ± 0.42) E-5
6									10		10			(1.7 ± 0.54) E-5
7									11		11			(1.9 ± 0.57) E-5
8									6		6			(1.03 ± 0.42) E-5
9									4		4			(0.69 ± 0.34) E-5
10									4		4			(0.69 ± 0.34) E-5

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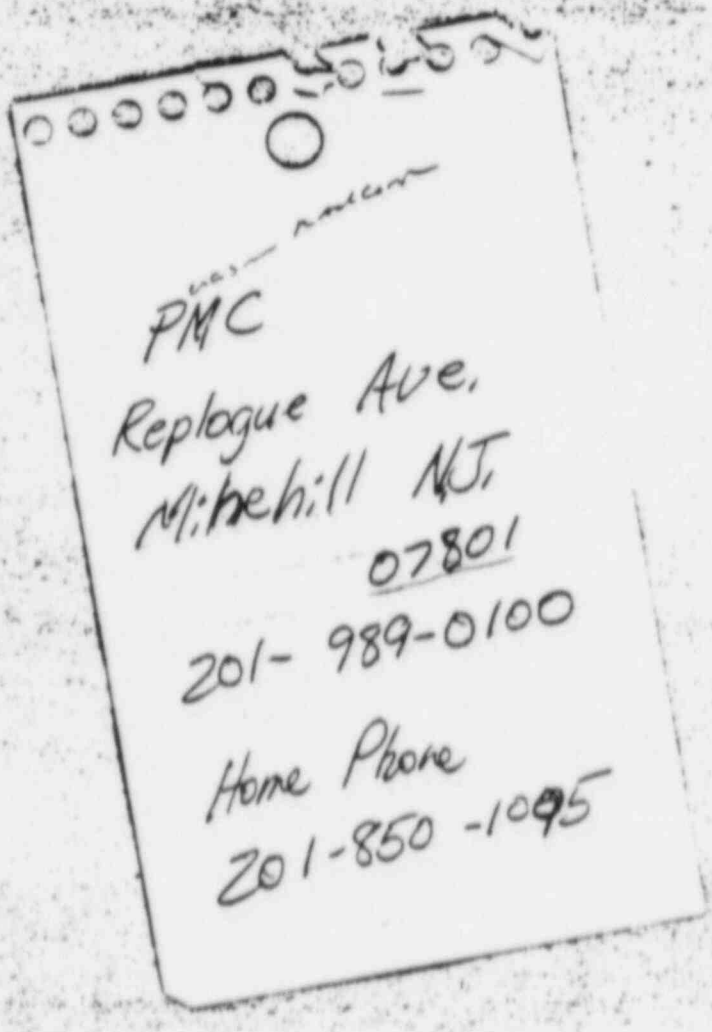
*Random uncertainties reported are 1 standard deviation, 1σ. small negative and other results ≤ 3σ are interpreted by NRC as including "zero" or as not detected. If appropriate, estimates of possible systematic errors are reported in parentheses.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