WALL STORAGE TANK SLEEVES

I. HISTORY (USE IN OPERATION)

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Wall Storage Tank Sleeves

I. History

The thick, concrete walls around the Plutonium Plant vault had sixty, mild steel, six inch diameter, thirty foot long sleeves embedded in them - forty in the East wall (Rm. 128/BO-2 side) and twenty in the North wall (Rm. 127/BO-1 side). Each sleeve contained a five inch diameter, schedule 80 stainless steel tank used for storage and processing in the main wet processing line, and in the scrap recovery process.

The tanks were removed and disposed, leaving the open sleeves. Some of the sleeves were contaminated during the operating years, due to overflow pipe and valve leakages.

II. Initial Contamination Levels

Initial direct contamination surveys inside the full length of the sleeves were not made because of the possibility of contaminating the special detector developed for the final release survey of the sleeves. Direct surveys were made just inside the ends of the sleeves and indicated contamination levels that ranged from 200 up to 90,000 dpm per 60 cm^2 probe area.

Swabs pulled through the sleeves as means of a smear survey indicated contamination levels that ranged from 200 up to 32,000 dpm per total inside surface area.

III. Methods of Cleaning

Complete removal of the sleeves was not practical, so a decontamination effort was intitiated.

Decontamination was first attempted using a flex-hone on an extendable shaft which was rotated with a drill motor. This was moderately successful. A Steam Jenny, with a Turco cleaning solution, was then used with a wand that was passed through the sleeves, followed up with a brush. This also was moderately successful. The sleeves were then grit blasted with a "hollow -blaster" attachment on a Vac-U-Blast unit. After going over some areas a second time, this was successful except for the bottom approximately 2" to 4" of four or five sleeves.

A tool was designed and built to cut off and pull out about 4" of the bottom end of those sleeves. Upon pulling these pieces, it was discovered that contamination had migrated up between the sleeve and the concrete, but not above the 4" mark. The bottom 4" of the remaining sleeves was then cut off to assure this condition did not exit around them.

IV. Method Of Survey And Equipment Used

The probe built to survey the wall storage tank sleeves is an alpha scintilation (ZnS) detector with a plastic light pipe and 4 1/2" photomultiplier tube.

It has a 600 cm^2 active area, and is housed in an aluminum shell, with spring mounted rollers attached in a three point configuration on both ends. Connectors for signal and high voltage cables, and a fitting for a conduit to support the probe are on the top end of the probe. The probe was lowered, in six inch increments, through a transition piece, into the sleeves, and a one minute count made at each six inch interval.

The purpose of the transition piece was to obtain proper spacing to count the top six inch interval, and to provide a more convenient means of stabilizing the probe for each count. The spacing for the six inch interval was achieved by using 3/4" conduit sections which were machined to maintain holes at six inch spaces when screwed together to lower the probe into the sleeve. See figure 1.

A Ludlum model 2500 scaler was used with the probe. This proved to be a stable combination. Calibration was accomplished by making a mock-up of a sleeve and placing Plutonium disc standards, contoured to the inside wall, in a sinusoidal pattern in a band corresponding to the active area of the probe. Using this pattern allowed the probe to be calibrated in any position it may be randomly placed into the sleeve mock-up. The calibration yielded a multiplier to convert counts per minute to disintergrations per minute per 100 cm^2.

Proper operation day to day was assured by making a series of check source counts before and after counting, and before each sleeve was counted.

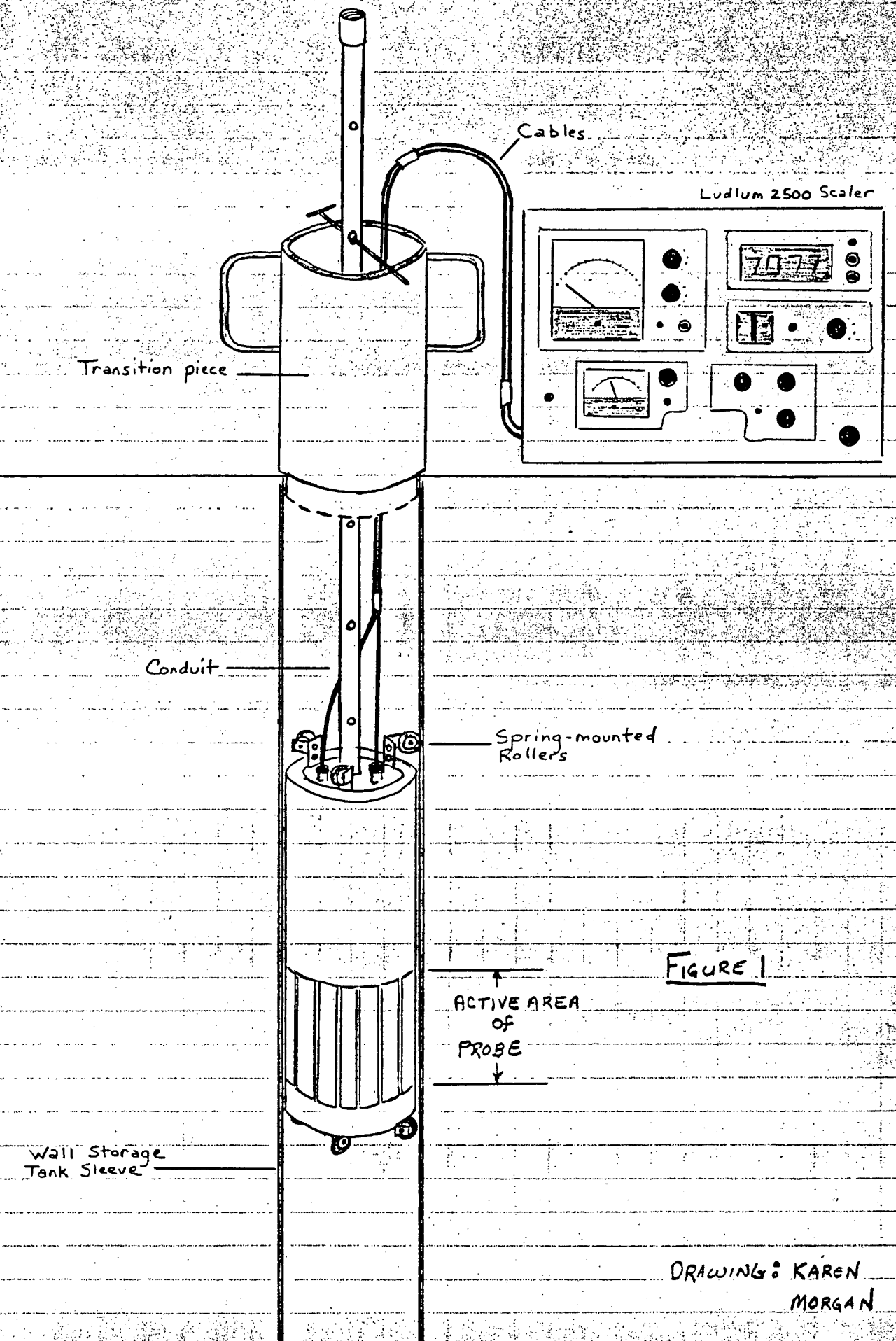


FIGURE 1

DRAWING: KAREN MORGAN

The typical calculated minimum detectable activity (MDA) was:

$$MDA = C.F. \times 1.96 \sqrt{\frac{2 \times BKG}{T}}$$

$$= 2 \frac{dpm/100cm^2}{cpm} \times 1.96 \sqrt{\frac{2 \times 3}{1}}$$

$$= 2 \times 4.8$$

$$= 9.6 \text{ dpm}/100 \text{ cm}^2$$

In some cases, the background was higher, and the calculated MDA was 13.6 dpm/100cm^2.

The MDA was shown on the survey sheet for each tank.

After the direct survey with the probe was completed, smears were taken in some selected areas having higher direct readings. An apparatus was built that could be loaded with "sticky-back" smear papers on pads that retracted into a housing that was lowered to the desired position in the sleeve, where upon a rope was pulled to extend the pads out against the wall. The unit was then pulled or pushed the distance necessary for the smear paper to cover 100cm^2. These smears were then counted in a low background gas flow proportional counter.

After smears taken in selected areas showed levels below Pu release limits, full sleeve length smears were taken from all the sleeves. Three smears can be taken at the same time with the apparatus described above, and three smears cover 26% of the surace area in question.

A full length swab smear was taken at a later date, to assure decontamination activites had not desposited contamination in the form of dust in the sleeves.

V. Results of Final Survey

A. Direct survey with special probe

1. After the areas identified as above release limits were re-cleaned, the following data was generated from a final survey, to demonstrate the sleeves meet release limits for Pu. This data could be biased slightly high, because the bottom 4 inches of the sleeves was removed after the survey was completed, and some of the higher levels were detected in the bottom 6 inch zone. One of the sleeves was recounted after the bottom 4 inches was removed.

   a. Room 127/BO-1 (20 sleeves)

   A total of 1,199 measurements made:

	dpm/100cm^2
Maximum	282
Average	20
Minimum	4

The maximum, 282 dpm/100cm^2, did happen to be on the bottom 6 inches of sleeve number 18, 4 inches of which was removed. The next highest reading, 206 dpm/100cm^2, was on the bottom 6 inches of sleeve number 20, from which 4 inches was also removed. Both of these measurements met release criteria, but for reasons mentioned earlier in this report the bottom 4 inches was removed; so the maximum measurement is 198 dpm/100cm^2 at the bottom of sleeve number 18.

b. Room 128/BO-2 (40 sleeves)

A total of 2,400 measurements made:

	dpm/100cm^2
Maximum	210
Average	20
Minimum	4

Once again, the data could be biased high, due to the removal of the bottoms of the sleeves after completion of this survey. The highest remaining measurements are probably at the bottoms of sleeves number 17, 19, 23, 25, and 28, and at the 36 inch depth of number 13. The levels ranged from 60 to 210 dpm/100cm^2 before removal of the bottoms.

B. Smear survey made with special apparatus

1. Selected locations. All smears taken in room 128/BO-2 sleeves.

A total of 75 measurements made:

	dpm/100cm^2
Maximum	15
Average	3
Minimum	0

Location of the maximum smear was at the 108" level, east side, of sleeve number 15.

2. Full length of sleeve smears

a. Room 127/BO-1

A total of 60 measurements made:

	dpm/full length (3,886.2 cm^2)
Maximum	12
Average	3
Minimum	0

Maximum was form the east side of sleeve number 3.

b. Room 128/BO-2

A total of 120 smears taken:

	dpm/full length (3,886.2 cm^2)
Maximum	30
Average	5
Minimum	0

Maximum was the northwest side of sleeve number 17. Individual smears at the 6 inch, 24 inch, and 96 inch depth of sleeve number 17 (some of the areas of higher direct levels) showed a maximum of 12 dpm/100cm^2.

The full length smears did not collect enough rust or corrosion to present an alpha self-absorption problem.

C. Full length swab smear survey (entire inside surface area of all sleeves)

1. Room 127/BO-1

A total of 20 swabs made:

	dpm/total (44,690cm2)
Maximum	5
Average	3
Minimum	2

2. Room 128/BO-2

A total of 40 swabs made:

	dpm/total area (44,690cm2)
Maximum	5
Average	3
Minimum	1

The data presented above is a summary of the data generated from the final release survey of the wall storage tank sleeves, and demonstrates that the sleeves meet release limits for Plutonium.

Ronald L. Fine
Supervisor - H.P. & Ind. Safety

Table I-1. Acceptable surface contamination levels

Nuclides[a]	Average[b,c,f]	Maximum[b,d,f]	Removable[b,e,f]
U-nat, U-235, U-238, and associated decay products	5,000 dpm α/100 cm²	15,000 dpm α/100 cm²	1,000 dpm α/100 cm²
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm²	300 dpm/100 cm²	20 dpm/100 cm²
Th-nat, Th-232, Sr-90 Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000 dpm/100 cm²	3,000 dpm/100 cm²	200 dpm/100 cm²
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and other noted above.	5,000 dpm βγ/100 cm²	15,000 dpm βγ/100 cm²	1,000 dpm βγ/100 cm²

[a] Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.

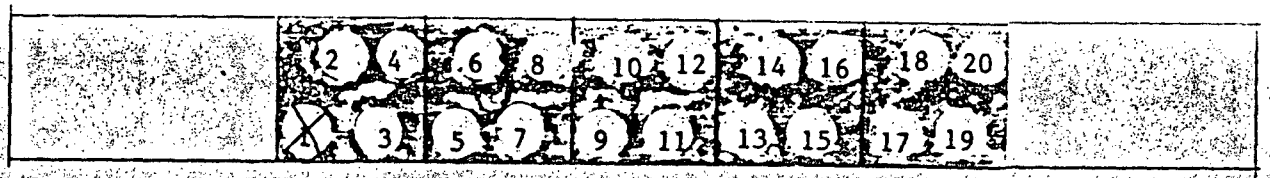
[b] As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[c] Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

[d] The maximum contamination level applies to an area of not more than 100 cm².

[e] The amount of removable radioactive material per 100 cm² of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

[f] The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 1 (see diagram above)

Completion Date 10-19-88

H. P. Signature Norma Parnell

Pipe Probe Source Response #1854

Side 1 154 cpm Side 2 137 cpm

Acceptable Range

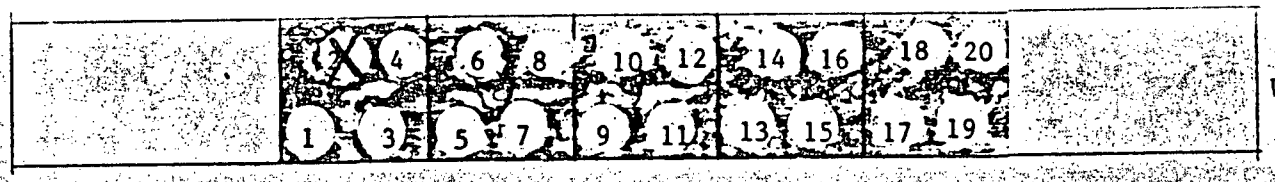
Side 1 115-161 cpm Side 2 119-165 cpm

Background 6 cpm MDA = C.F. x 1.96 √2x6c

Acceptable Range 0+6 cpm = 13 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	12		126	18		246	10	
12	12		132	14		252	14	
18	12		138	8		258	6	
24	10		144	12		264	14	
30	14		150	16		270	6	
36	14		156	4		276	16	
42	26		162	20		282	16	
48	30		168	10		288	6	
54	8		174	8		294	16	
60	16		180	6		300	12	
66	20		186	16		306	12	
72	30		192	14		312	6	
78	18		198	12		318	14	
84	4		204	16		324	10	
90	20		210	6		330	14	
96	6		216	6		336	18	
102	18		222	14		342	18	
108	18		228	10		348	12	
114	18		234	12		354	10	
120	18		240	8		360	30	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 2 (see diagram above)

Completion Date 10-19-88

H. P. Signature Irving Powell

Pipe Probe Source Response #1854

Side 1 133 cpm Side 2 146 cpm

Acceptable Range

Side 1 126 to 174 cpm Side 2 135 to 165 cpm

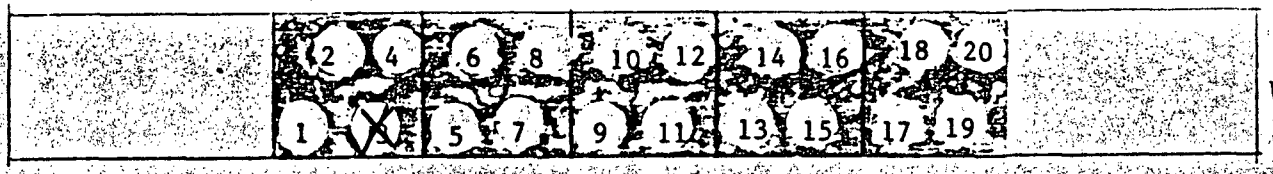
Background 2 cpm MDA [redacted]

Acceptable Range 0 to 6 cpm = 10 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	66	N/A	126	86	44	246	24	
12	34		132	54	32	252	158	
18	24		138	74	68	258	48	
24	34		144	54	38	264	30	
30	34		150	48	26	270	70	
36	78		156	38	46	276	52	
42	30		162	68	24	282	34	
48	80		168	60	20	288	22	
54	88		174	38	30	294	58	
60	76		180	52	36	300	44	
66	48		186	80	26	306	40	
72	12		(192)	120	62	312	44	
78	24		198	72	28	318	78	
84	16	RECOUNT	204	48	22	324	92	
90	64		210	64		330	98	
96	58	52	216	30		336	68	
102	88	42	222	28		342	86	
(108)	200	90	228	42		348	44	
(114)	128	60	234	42		354	70	
120	54	38	240	58		360	64	

SEE RECOUNT AFTER REGLASED



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 3 (see diagram above)

Completion Date 10-19-88

H. P. Signature Irma Powell

Pipe Probe Source Response #1654

Side 1 161 cpm Side 2 131 cpm

Acceptable Range

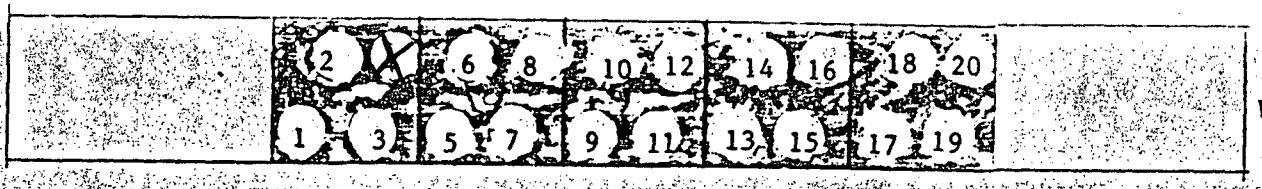
Side 1 126 to 174 cpm Side 2 85 to 135 cpm

Background 3 cpm MDA = [redacted] = 10 dpm/100cm^2

Acceptable Range 0 to 6 cpm

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	18	N/A	126	4		246	4	
12	12		132	16		252	4	
18	10		138	12		258	8	
24	10		144	4		264	4	
30	12		150	12		270	10	
36	16		156	16		276	14	
42	12		162	4		282	10	
48	28		168	16		288	8	
54	12		174	8		294	4	
60	10		180	14		300	4	
66	12		186	16		306	10	
72	8		192	14		312	8	
78	16		198	16		318	12	
84	14		204	10		324	4	
90	6		210	8		330	8	
96	4		216	4		336	10	
102	4		222	12		342	16	
108	6		228	6		348	16	
114	8		234	12		354	14	
120	4		240	4		360	16	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 4 (see diagram above)

Completion Date 10-19-88

H. P. Signature Frank Mursch

Pipe Probe Source Response #1854

Side 1 94 cpm Side 2 112 cpm

Acceptable Range

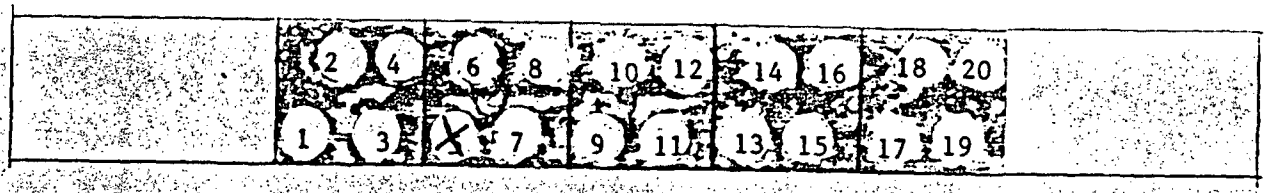
Side 1 83 to 173 cpm Side 2 88 to 178 cpm

Background 5 cpm MDA [redacted]

Acceptable Range 1 to 9 cpm = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	30	N/A	126	14		246	30	
12	24		132	12		252	10	
18	30		138	14		258	12	
24	18		144	10		264	14	
30	18		150	16		270	18	
36	10		156	8		276	16	
42	10		162	16		282	18	
48	18		168	10		288	10	
54	20		174	14		294	12	
60	16		180	14		300	18	
66	8		186	18		306	16	
72	12		192	10		312	12	
78	6		198	8		318	16	
84	14		204	12		324	12	
90	8		210	10		330	8	
96	10		216	18		336	22	
102	18		222	12		342	10	
108	12		228	12		348	22	
114	6		234	14		354	10	
120	14		240	18		360	40	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 5 (see diagram above)

Completion Date 10-19-88

H. P. Signature T. Musel

Pipe Probe Source Response #654

Side 1 100 cpm Side 2 105 cpm

Acceptable Range

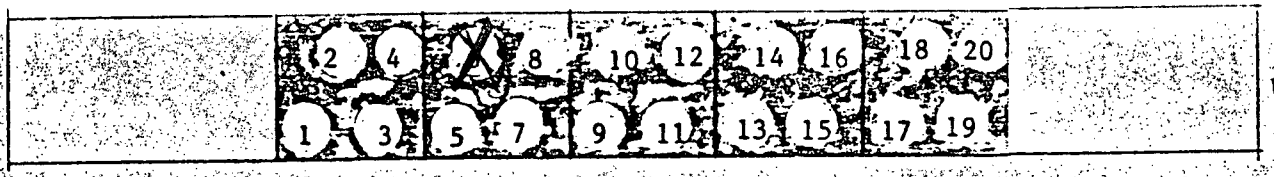
Side 1 83 to 123 cpm Side 2 88 to 128 cpm

Background 4 cpm MDA = [redacted] = 12 dpm/100cm^2

Acceptable Range 1 to 9 cpm

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	44	N/A	126	14		246	12	
12	10		132	22		252	6	
18	20		138	16		258	14	
24	18		144	14		264	8	
30	14		150	8		270	10	
36	8		156	16		276	14	
42	18		162	12		282	6	
48	22		168	10		288	16	
54	14		174	10		294	6	
60	16		180	9		300	14	
66	12		186	6		306	18	
72	20		192	6		312	12	
78	20		198	16		318	12	
84	18		204	10		324	8	
90	22		210	10		330	8	
96	16		216	18		336	10	
102	28		222	4		342	18	
108	16		228	18		348	26	
114	22		234	8		354	34	
120	12		240	6		360	80	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N.

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 6 (see diagram above)

Completion Date 10-20-88

H. P. Signature J. Murch

Pipe Probe Source Response #1854

Side 1 98 cpm Side 2 110 cpm

Acceptable Range

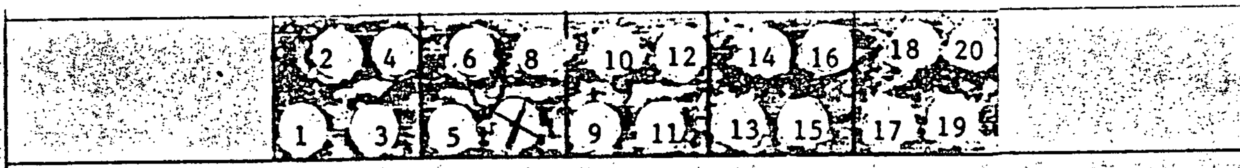
Side 1 83 to 123 cpm Side 2 88 to 128 cpm

Background 3 cpm MDA = (1.96 [illegible] 1.72

Acceptable Range 1 to 9 cpm = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	32	N/A	126	20		246	14	
12	24		132	12		252	14	
18	22		138	16		258	16	
24	8		144	10		264	20	
30	6		150	16		270	10	
36	14		156	8		276	16	
42	4		162	22		282	16	
48	12		168	18		288	10	
54	16		174	14		294	20	
60	18		180	18		300	12	
66	18		186	12		306	4	
72	20		192	16		312	14	
78	14		198	12		318	16	
84	22		204	8		324	24	
90	4		210	12		330	12	
96	18		216	12		336	24	
102	12		222	10		342	14	
108	10		228	12		348	20	
114	16		234	16		354	20	
120	10		240	10		360	48	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 7 (see diagram above)

Completion Date 10-20-88

H. P. Signature Dorring Powell

Pipe Probe Source Response

Side 1 151 cpm Side 2 156 cpm

Acceptable Range

Side 1 126 to 174 cpm Side 2 135 to 185 cpm

Background 4 cpm

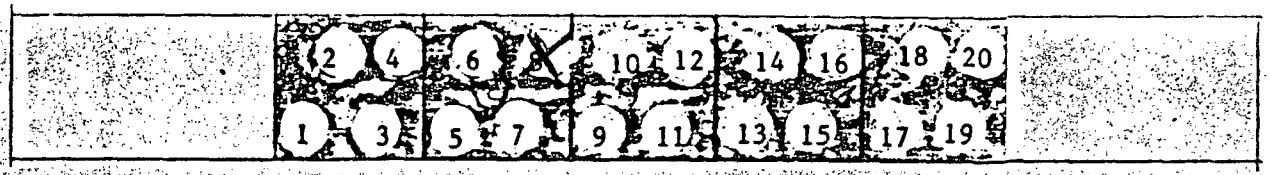
Acceptable Range 0 to 6 cpm

MDA ~~[illegible]~~ 2 = 10 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	12		126	46	32	246	34.	
12	20		132	48	20	252	30	
18	30		138	58	30	258	50	
24	38		144	36	18	264	40	
30	48		150	52	18	270	34	
36	32		156	52	18	276	38	
42	50	RECOUNT	162	76	22	282	34	
48	50	34	(168)	102	20	288	38	
54	92	56	(174)	156	16	294	42	
(60)	104	32	(180)	140	24	300	38	
(66)	130	52	(186)	144	32	306	34	
72	86	40	192	72	14	312	48	
78	60	22	198	52		318	30	
84	64	32	204	64		324	32	
90	76	32	210	56		330	52	
96	72	22	216	64		336	38	
102	68	24	222	44		342	16	
108	96	24	228	46		348	24	
114	50	18	234	52		354	40	
120	42	22	240	52		360	18	

SEE RECOUNT
AFTER REBLASTED



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 8 (see diagram above)

Completion Date 10-20-88

H. P. Signature Irving Powell

Pipe Probe Source Response ± 1854

Side 1 154 cpm Side 2 154 cpm

Acceptable Range

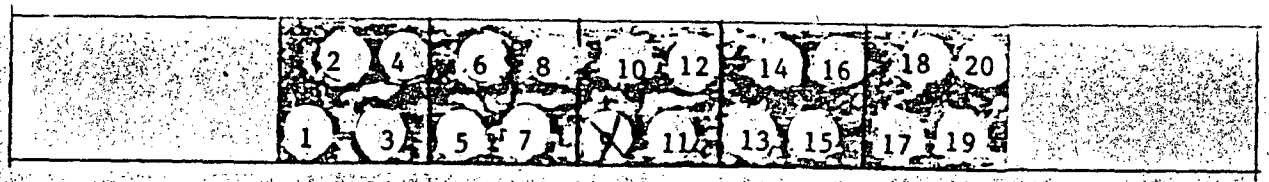
Side 1 126 to 174 cpm Side 2 135 to 165 cpm

Background 2 cpm MDA = $(1.96\sqrt{2 \times Bkg./T})2$

Acceptable Range 0 to 6 cpm = 10 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	6	N/A	126	10		246	14	
12	12		132	10		252	8	
18	14		138	10		258	18	
24	10		144	18		264	10	
30	12		150	14		270	14	
36	12		156	14		276	6	
42	16		162	10		282	8	
48	8		168	18		288	12	
54	10		174	6		294	14	
60	6		180	4		300	4	
66	14		186	20		306	24	
72	18		192	14		312	24	
78	14		198	14		318	12	
84	4		204	14		324	18	
90	14		210	4		330	22	
96	6		216	4		336	24	
102	10		222	26		342	16	
108	14		228	4		348	14	
114	8		234	8		354	30	
120	6		240	10		360	30	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 9 (see diagram above)

Completion Date 10-20-88

H. P. Signature Dianna Powell

Pipe Probe Source Response #1854

Side 1 163 cpm Side 2 164 cpm

Acceptable Range

Side 1 126 to 177 cpm Side 2 135 to 185 cpm

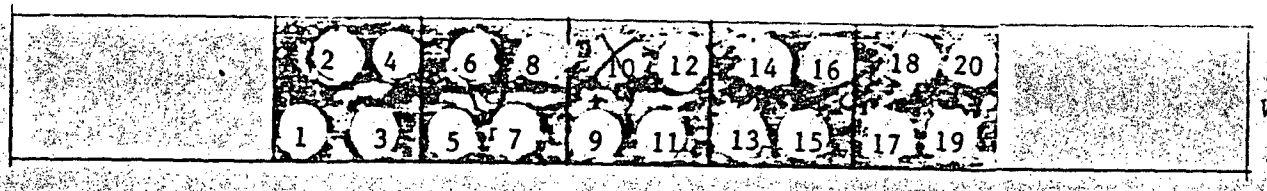
Background 4 cpm MDA ~~[illegible] Bkg. + 2~~

Acceptable Range 0 to 6 cpm = 10 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	14	N/A	126	24		246	36	
12	12		132	36		252	52	
18	18		138	14		258	74	
24	14		144	28		264	32	
30	20		150	24		270	58	
36	22		156	28		276	38	
42	14		162	18		282	70	
48	30		168	16		288	80	
54	18		174	30		294	72	
60	24		180	310		300	74	
66	28		186	40		306	72	
72	8		192	28		312	88	
78	30		198	24		318	62	Recount
84	24		204	20		↓ 324	76	48
90	18		210	44		330	86	44
96	20		216	36		(336)	106	28
102	20		222	42		(342)	120	12
108	26		228	46		(348)	120	14
114	32		234	40		(354)	238	32
120	26		240	62		(360)	180	14 Below sleeve

SEE RECOUNT AFTER RE-BLASTED



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 10 (see diagram above)

Completion Date 10-20-88

H. P. Signature Norma Powell

Pipe Probe Source Response #1854

Side 1 144 cpm Side 2 158 cpm

Acceptable Range

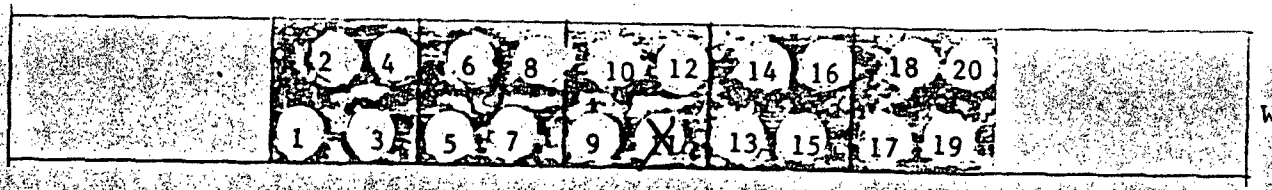
Side 1 126 to 174 cpm Side 2 135 to 181 cpm

Background 2 cpm MDA = $(1.96\sqrt{2 \times Bkg./T})2$

Acceptable Range 0 to 6 cpm = _____ dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth	Result			Result			Result	
inches	direct	smear	inches	direct	smear	inches	direct	smear
6	16	N/A	126	10		246	18	
12	12		132	8		252	20	
18	10		138	16		258	14	
24	8		144	14		264	16	
30	10		150	20		270	36	
36	10		156	28		276	32	
42	10		162	12		282	18	
48	12		168	10		288	50	
54	18		174	24		294	20	
60	12		180	16		300	28	
66	16		186	14		306	32	
72	10		192	10		312	32	
78	6		198	10		318	24	
84	20		204	18		324	26	
90	18		210	14		330	24	
96	22		216	22		336	28	
102	22		222	14		342	16	
108	10		228	18		348	32	
114	14		234	16		354	62	
120	34		240	28		360	98	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N.

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 11 (see diagram above)

Completion Date 10-20-88

H. P. Signature J. Mussel

Pipe Probe Source Response ± 1854

Side 1 109 cpm Side 2 98 cpm

Acceptable Range

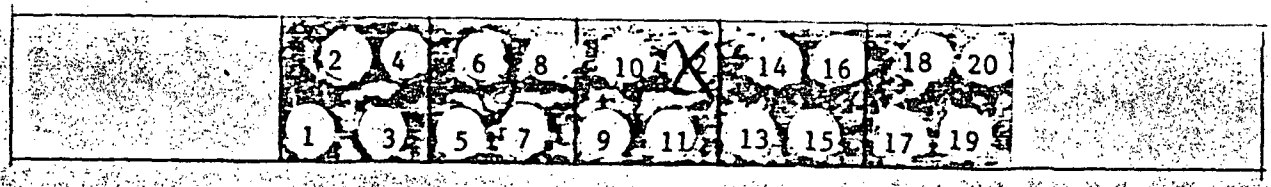
Side 1 83 to 123 cpm Side 2 88 to 128 cpm

Background 2 cpm MDA [redacted]

Acceptable Range 1 to 9 cpm = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	36	N/A	126	20		246	6	
12	22		132	16		252	40	
18	10		138	14		258	24	
24	4		144	20		264	18	
30	10		150	22		270	20	
36	16		156	12		276	30	
42	18		162	22		282	30	
48	14		168	22		288	22	
54	18		174	18		294	28	
60	16		180	14		300	24	
66	18		186	8		306	24	
72	24		192	20		312	20	
78	30		198	28		318	14	
84	24		204	16		324	28	
90	24		210	10		330	44	
96	16		216	18		336	28	
102	20		222	32		342	24	
108	24		228	28		348	26	
114	18		234	24		354	102	
120	22		240	22		360	78	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 12 (see diagram above)

Completion Date 10-20-88

H. P. Signature J. Murah

Pipe Probe Source Response #1854

Side 1 121 cpm Side 2 114 cpm

Acceptable Range

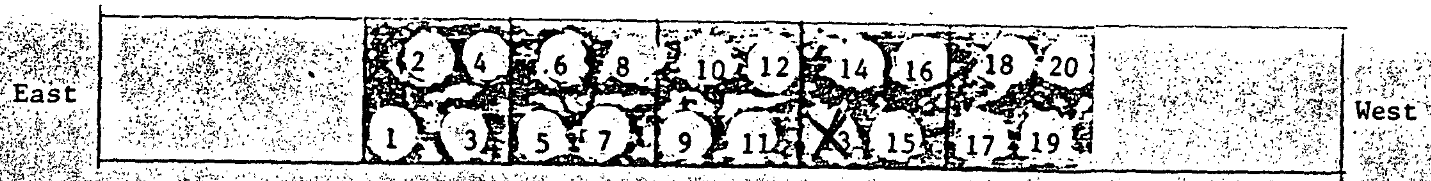
Side 1 93±123 cpm Side 2 88±120 cpm

Background 2 cpm MDA = [redacted]

Acceptable Range 1 to 9 cpm = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	46		126	16		246	16	
12	18		132	24		252	22	
18	12		138	10		258	16	
24	8		144	14		264	10	
30	4		150	16		270	20	
36	10		156	18		276	16	
42	10		162	18		282	16	
48	18		168	16		288	10	
54	12		174	22		294	18	
60	14		180	16		300	22	
66	20		186	20		306	16	
72	16		192	14		312	10	
78	18		198	16		318	16	
84	18		204	18		324	18	
90	22		210	14		330	22	
96	18		216	14		336	22	
102	14		222	12		342	40	
108	16		228	20		348	42	
114	24		234	10		354	56	
120	8		240	22		360	68	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 13 (see diagram above)

Completion Date 10-20-88

H. P. Signature J. Murch

Pipe Probe Source Response #1854

Side 1 111 cpm Side 2 103 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

Background 3 cpm

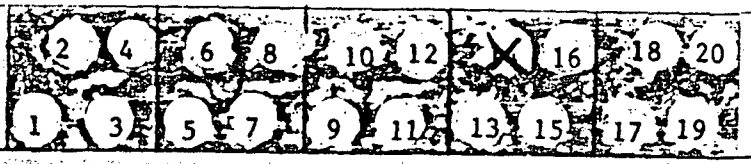
Acceptable Range 1 to 9 cpm

MDA [illegible] Bkg.)1/2 = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	38	N/A	126	12		246	10	
12	14		132	22		252	18	
18	26		138	10		258	14	
24	16		144	12		264	18	
30	10		150	8		270	16	
36	6		156	12		276	16	
42	18		162	22		282	6	
48	18		168	8		288	14	
54	12		174	16		294	10	
60	22		180	12		300	20	
66	20		186	18		306	16	
72	18		192	12		312	16	
78	14		198	12		318	24	
84	16		204	20		324	10	
90	18		210	20		330	12	
96	16		216	8		336	8	
102	10		222	14		342	14	
108	18		228	14		348	22	
114	14		234	18		354	42	
120	8		240	20		360	90	

East



West

WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 14 (see diagram above)

Completion Date 10-20-88

H. P. Signature J. Mursch

Pipe Probe Source Response #1854

Side 1 96 cpm Side 2 115 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

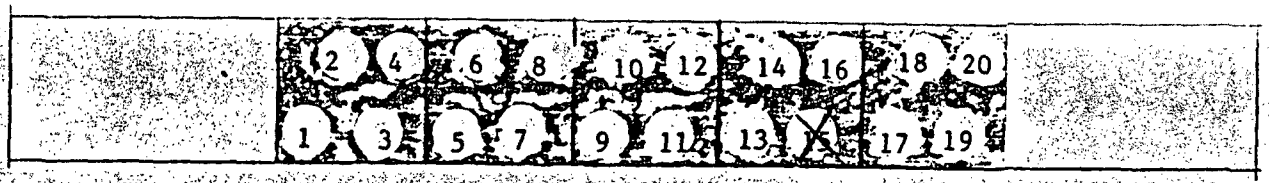
Background 2 cpm

Acceptable Range 1 to 9 cpm

MDA [illegible] = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth	Result		Depth	Result		Depth	Result	
inches	direct	smear	inches	direct	smear	inches	direct	smear
6	50	N/A	126	16		246	12	
12	14		132	16		252	10	
18	24		138	12		258	8	
24	20		144	10		264	16	
30	20		150	10		270	20	
36	16		156	14		276	20	
42	18		162	18		282	12	
48	6		168	8		288	4	
54	24		174	6		294	12	
60	14		180	12		300	16	
66	20		186	8		306	12	
72	14		192	10		312	22	
78	12		198	12		318	8	
84	10		204	6		324	12	
90	14		210	14		330	16	
96	22		216	8		336	20	
102	6		222	18		342	28	
108	8		228	10		348	20	
114	8		234	18		354	20	
120	12		240	4		360	34	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-I

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 15 (see diagram above)

Completion Date 10-21-88

H. P. Signature Irving Powell

Pipe Probe Source Response #1854

Side 1 159 cpm Side 2 166 cpm

Acceptable Range

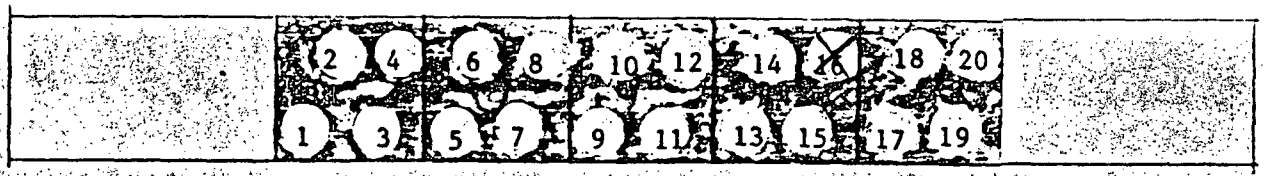
Side 1 126 to 174 cpm Side 2 135 to 185 cpm

Background 5 cpm MDA = [redacted]

Acceptable Range 0 to 6 cpm = 15 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth	Result		Depth	Result		Depth	Result	
inches	direct	smear	inches	direct	smear	inches	direct	smear
6	22	N/A	126	26		246	14	
12	22		132	12		252	6	
18	14		138	4		258	12	
24	20		144	14		264	10	
30	16		150	10		270	16	
36	14		156	4		276	10	
42	6		162	10		282	12	
48	14		168	18		288	4	
54	20		174	10		294	6	
60	14		180	8		300	10	
66	4		186	14		306	8	
72	18		192	10		312	8	
78	18		198	22		318	8	
84	12		204	8		324	4	
90	16		210	14		330	14	
96	20		216	14		336	8	
102	20		222	20		342	8	
108	14		228	18		348	10	
114	14		234	20		354	34	
120	14		240	8		360	104	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 16 (see diagram above)

Completion Date 10-21-88

H. P. Signature Irving Powell

Pipe Probe Source Response #1854

Side 1 154 cpm Side 2 153 cpm

Acceptable Range

Side 1 126 to 174 cpm Side 2 135 to 185 cpm

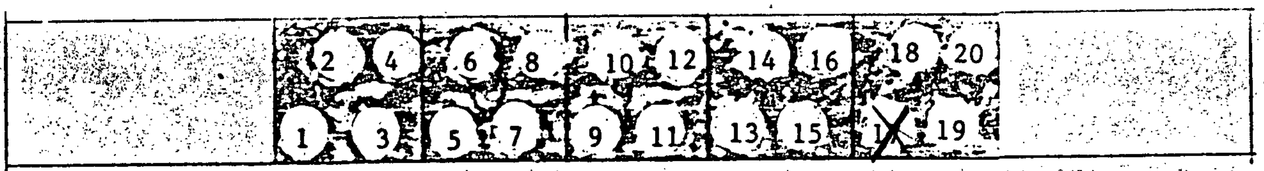
Background 4 cpm MDA [illegible] = 10 dpm/100cm^2

Acceptable Range 0 to 6 cpm

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	121	N/A	126	4		246	14	
12	12		132	8		252	8	
18	24		138	8		258	4	
24	12		144	8		264	14	
30	10		150	6		270	4	
36	24		156	10		276	12	
42	26		162	20		282	6	
48	24		168	8		288	6	
54	20		174	8		294	4	
60	28		180	10		300	10	
66	20		186	16		306	8	
72	10		192	8		312	10	
78	12		198	4		318	10	
84	8		204	10		324	12	
90	16		210	12		330	26	
96	14		216	14		336	32	
102	22		222	14		342	26	
108	24		228	10		348	28	
114	8		234	6		354	120	
120	16		240	4		360	162	

East



West

WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 17 (see diagram above)

Completion Date 10-21-88

H. P. Signature Irving Powell

Pipe Probe Source Response #1854

Side 1 139 cpm Side 2 158 cpm

Acceptable Range

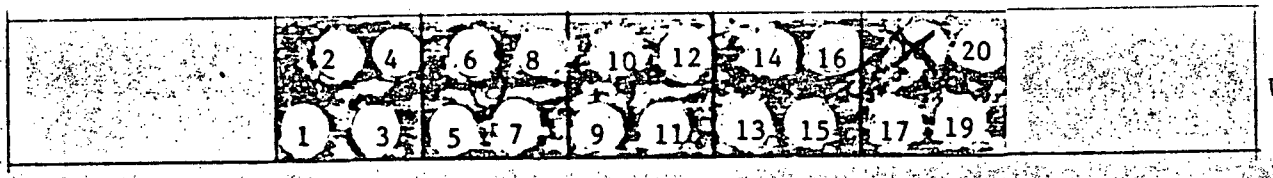
Side 1 126 to 174 cpm Side 2 135 to 185 cpm

Background 4 cpm MDA ~~(1.96√2xBkg.+3)~~

Acceptable Range 0 to 6 cpm = 10 dpm/100cm²

Measurements Units - dpm/100cm²

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
(6)	81	N/A	126	10		246	4	
12	16		132	14		252	6	
18	10		138	6		258	12	
(24)	18		144	6		264	16	
30	16		150	8		270	8	
36	14		156	12		276	8	
42	6		162	8		282	12	
48	12		168	12		288	4	
54	4		174	8		294	4	
60	10		180	8		300	4	
66	8		186	8		306	18	
72	10		192	10		312	10	
78	10		198	4		318	20	
84	4		204	4		324	10	
90	8		210	8		330	18	
(96)	6		216	12		336	14	
102	6		222	6		342	14	
108	4		228	10		348	24	
114	14		234	6		354	42	
120	12		240	10		(360)	124	



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 #1

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 18 (see diagram above)

Completion Date 10-21-88

H. P. Signature J. Murch

Pipe Probe Source Response #1654

Side 1 101 cpm Side 2 107 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 126 cpm

Background 4 cpm MDA ~~[illegible]~~

Acceptable Range 1 to 9 cpm = 12 dpm/100cm^2

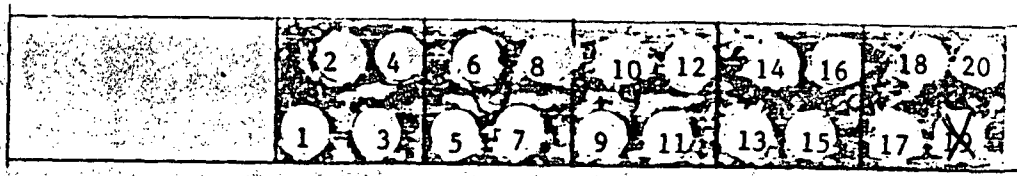
Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	40	N/A	126	12		246	8	
12	18		132	10		252	8	
18	20		138	22		258	12	
24	14		144	12		264	14	
30	8		150	12		270	8	
36	18		156	12		276	8	
42	12		162	16		282	18	
48	8		168	16		288	12	
54	26		174	24		294	14	
60	12		180	10		300	12	
66	14		186	6		306	14	
72	10		192	8		312	16	
78	20		198	14		318	16	
84	16		204	14		324	14	
90	12		210	10		330	16	
96	10		216	14		336	18	
102	12		222	16		342	24	
108	14		228	14		348	44	
114	10		234	30		(354)	198	
120	6		240	16		(360)	282	

1.96 $\sqrt{282}$ + 33 = 282+33 = 315

4 inches of this Removed

East



West

WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N.

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 19 (see diagram above)

Completion Date 10-21-88

H. P. Signature J. Murch

Pipe Probe Source Response = 1854

Side 1 103 cpm Side 2 111 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 89 to 133 cpm

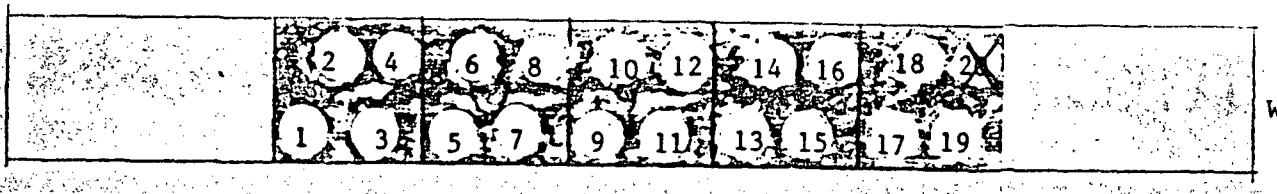
Background 8 cpm MDA [redacted] = 12 dpm/100cm^2

Acceptable Range 1 to 9 cpm

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	46	N/A	126	8		246	8	
12	12		132	20		252	8	
18	18		138	16		258	22	
24	12		144	10		264	10	
30	18		150	18		270	24	
36	14		156	14		276	10	
42	18		162	12		282	6	
48	20		168	18		288	16	
54	10		174	20		294	14	
60	22		180	6		300	18	
66	16		186	16		306	28	
72	18		192	20		312	22	
78	8		198	8		318	16	RECOUNT
84	24		204	26		324	32	32
90	12		210	4		330	28	12
96	14		216	18		336	52	30
102	22		222	18		342	32	24
108	14		228	24		(348)	122	34
114	22		234	12		(354)	164	24
120	16		240	12		(360)	224	Sleeve cut off

SEE RECOUNT AFTER RECASTING



WALL TANK SLEEVE SURVEY--ROOM 127/BO-1

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N.

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 20 (see diagram above)

Completion Date 10-21-88

H. P. Signature J. Murch

Pipe Probe Source Response #1854

Side 1 98 cpm Side 2 100 cpm

Acceptable Range

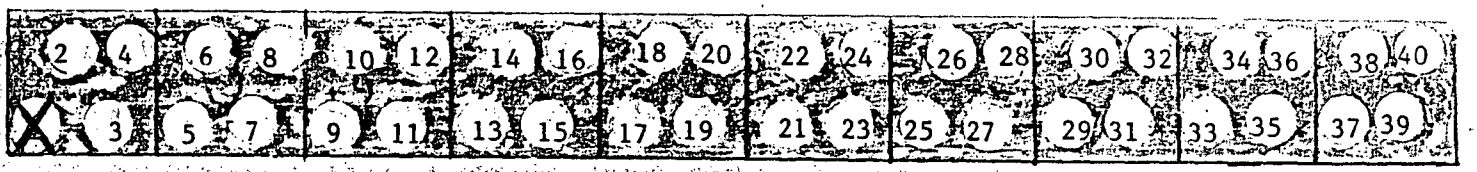
Side 1 83 to 123 cpm Side 2 88 to 128 cpm

Background 8 cpm MDA ~~[illegible]~~

Acceptable Range 1 to 9 cpm = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	40	N/A	126	18		246	10	
12	24		132	14		252	20	
18	20		138	28		258	16	
24	24		144	18		264	24	
30	16		150	16		270	16	
36	20		156	20		276	12	
42	16		162	12		282	18	
48	26		168	14		288	20	
54	12		174	14		294	18	
60	26		180	20		300	24	
66	14		186	14		306	32	
72	18		192	14		312	22	
78	26		198	18		318	24	
84	24		204	30		324	22	
90	12		210	16		330	34	
96	22		216	26		336	28	
102	28		222	10		342	44	
108	20		228	22		348	54	
114	26		234	12		354	120	
120	16		240	16		360	206	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N.

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 1 (see diagram above)

Completion Date 9-30-88

H. P. Signature J. Musick

Pipe Probe Source Response # 1854

Side 1 106 cpm Side 2 85 cpm

Acceptable Range

Side 1 80 to 120 cpm Side 2 81 to 121 cpm

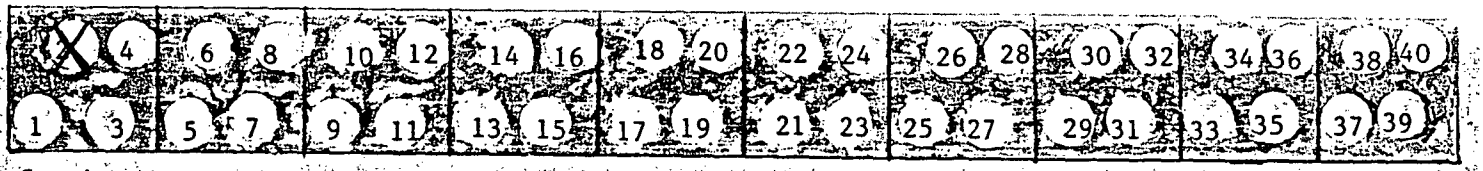
Background 3 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth	Result			Result			Result	
inches	direct	smear	inches	direct	smear	inches	direct	smear
6	54	N/A	126	8	N/A	246	6	N/A
12	14	↓	132	2	↓	252	4	↓
18	8		138	4		258	10	
24	8		144	8		264	2	
30	12		150	8		270	6	
36	6		156	10		276	8	
42	6		162	12		282	10	
48	6		168	12		288	12	
54	14		174	14		294	16	
60	6		180	6		300	10	
66	18		186	8		306	10	
72	6		192	16		312	14	
78	4		198	4		318	16	
84	8		204	10		324	6	
90	12		210	8		330	2	
96	12		216	16		336	12	
102	10		222	10		342	8	
108	14		228	4		348	14	
114	12		234	8		354	22	
120	6		240	10		360	22	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N.

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 2 (see diagram above)

Completion Date 9-30-88

H. P. Signature J. Musch

Pipe Probe Source Response #1854

Side 1 106 cpm Side 2 85 cpm

Acceptable Range

Side 1 80 to 120 cpm Side 2 81 to 121 cpm

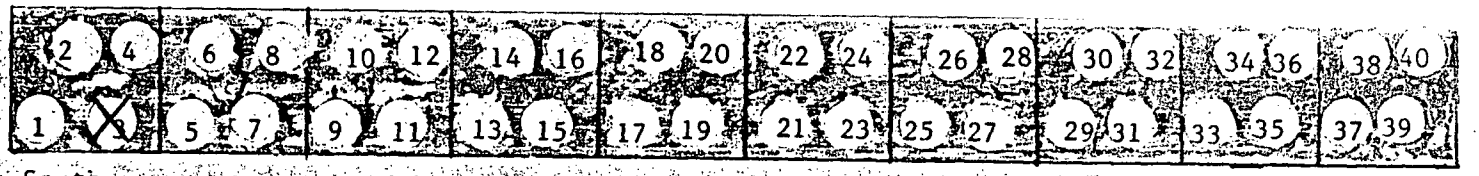
Background 3 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	48	N/A	126	10		246	14	N/A
12	14	"	132	10		252	10	"
18	12		138	20		258	8	
24	8		144	12		264	6	
30	8		150	2		270	8	
36	12		156	10		276	18	
42	12		162	8		282	6	
48	4		168	12		288	14	
54	4		174	12		294	6	
60	10		180	12		300	6	
66	6		186	8		306	8	
72	10		192	6		312	14	
78	14		198	8		318	10	
84	16		204	6		324	18	
90	12		210	10		330	4	
96	2		216	6		336	14	
102	16		222	10		342	8	
108	6		228	4		348	12	
114	12		234	12		354	14	
120	8		240	10		360	12	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 3 (see diagram above)

Completion Date 9-30-88

H. P. Signature J. Murch

Pipe Probe Source Response #1854

Side 1 106 cpm Side 2 85 cpm

Acceptable Range

Side 1 80 to 120 cpm Side 2 81 to 121 cpm

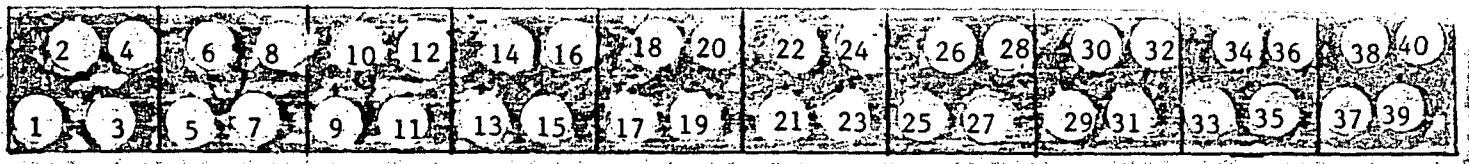
Background 3 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	44	N/A	126	4	N/A	246	4	N/A
12	6	"	132	10	"	252	6	"
18	12		138	8		258	8	
24	10		144	4		264	12	
30	10		150	10		270	10	
36	8		156	10		276	6	
42	8		162	10		282	4	
48	10		168	14		288	10	
54	8		174	6		294	8	
60	10		180	12		300	8	
66	6		186	6		306	12	
72	12		192	14		312	8	
78	8		198	14		318	6	
84	6		204	10		324	8	
90	10		210	6		330	14	
96	8		216	8		336	10	
102	12		222	16		342	10	
108	10		228	8		348	14	
114	4		234	10		354	14	
120	4		240	12		360	24	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N.

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 4 (see diagram above)

Completion Date 10-2-88

H. P. Signature J. Murch

Pipe Probe Source Response #1854

Side 1 104 cpm Side 2 94 cpm

Acceptable Range

Side 1 80 to 120 cpm Side 2 81 to 121 cpm

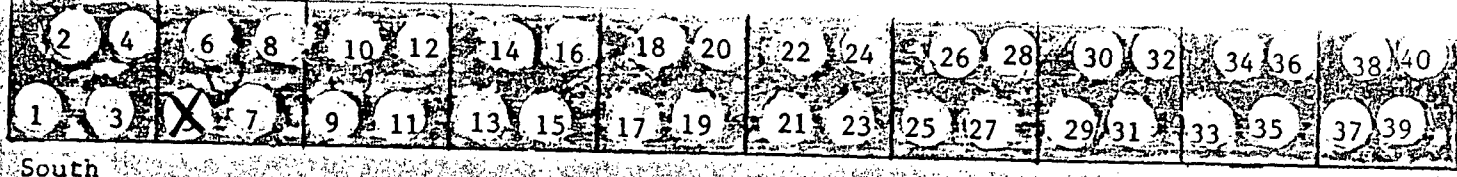
Background 8 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	52	N/A	126	20	N/A	246	20	N/A
12	18	↓	132	28	↓	252	12	↓
18	22		138	12		258	10	
24	36		144	22		264	14	
30	24		150	18		270	16	
36	18		156	20		276	22	
42	24		162	26		282	18	
48	26		168	14		288	12	
54	20		174	16		294	12	
60	14		180	18		300	26	
66	20		186	14		306	12	
72	14		192	16		312	16	
78	16		198	10		318	14	
84	20		204	12		324	4	
90	22		210	8		330	20	
96	14		216	16		336	16	
102	18		222	12		342	16	
108	22		228	16		348	28	
114	16		234	16		354	54	
120	20		240	16		360	26	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N.

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 5 (see diagram above)

Completion Date 10-2-88

H. P. Signature J. Murch

Pipe Probe Source Response # 1854

Side 1 96 cpm Side 2 94 cpm

Acceptable Range

Side 1 80 to 120 cpm Side 2 81 to 121 cpm

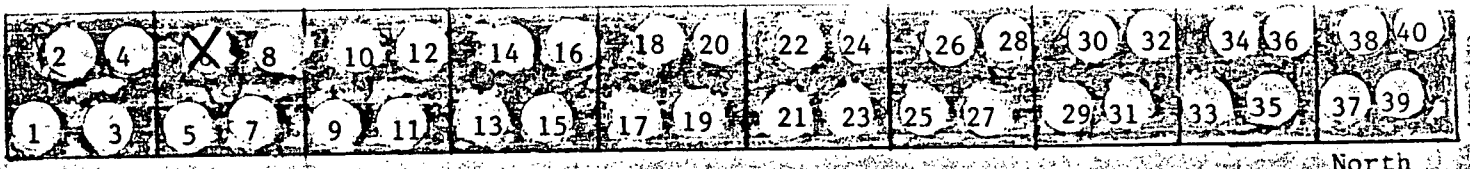
Background 5 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	24	N/A	126	26	N/A	246	28	N/A
12	16	*	132	16	*	252	20	*
18	10		138	24		258	20	
24	12		144	10		264	18	
30	14		150	8		270	16	
36	16		156	18		276	18	
42	26		162	14		282	10	
48	14		168	16		288	10	
54	22		174	16		294	6	
60	26		180	18		300	10	
66	10		186	16		306	20	
72	16		192	20		312	20	
78	16		198	18		318	14	
84	10		204	14		324	26	
90	24		210	18		330	20	
96	18		216	12		336	22	
102	6		222	12		342	12	
108	14		228	20		348	18	
114	14		234	14		354	16	
120	24		240	16		360	24	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N.

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N NA

Tank Number 6 (see diagram above)

Completion Date 10-2-88

H. P. Signature J. Murch

Pipe Probe Source Response #1854

Side 1 90 cpm Side 2 105 cpm

Acceptable Range

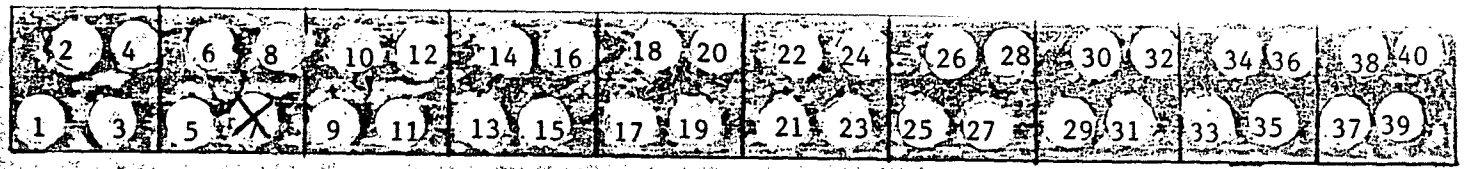
Side 1 80 to 120 cpm Side 2 81 to 121 cpm

Background 3 cpm

Acceptable Range 1 to 9 cpm MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	smear	inches	Result direct	smear	inches	Result direct	smear
6	46		126	10		246	10	
12	14		132	10		252	16	
18	14		138	6		258	14	
24	16		144	16		264	12	
30	20		150	12		270	4	
36	8		156	20		276	12	
42	16		162	10		282	10	
48	10		168	8		288	4	
54	10		174	18		294	10	
60	12		180	10		300	14	
66	16		186	16		306	10	
72	6		192	10		312	10	
78	12		198	10		318	10	
84	10		204	18		324	14	
90	8		210	4		330	16	
96	10		216	16		336	18	
102	14		222	4		342	16	
108	10		228	14		348	58	
114	4		234	12		354	76	
120	8		240	6		360	60	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N.

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 7 (see diagram above)

Completion Date 10-4-88

H. P. Signature J. Murch

Pipe Probe Source Response #1854

Side 1 110 cpm Side 2 96 cpm

Acceptable Range

Side 1 80 to 120 cpm Side 2 81 to 121 cpm

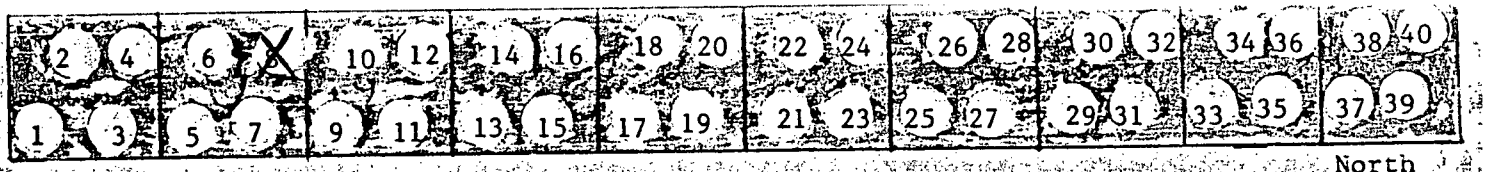
Background 6 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	38	N/A	126	10	N/A	246	26	N/A
12	16	↓	132	16	↓	252	18	↓
18	12		138	24		258	24	
24	18		144	22		264	20	
30	24		150	32		270	28	
36	14		156	20		276	22	
42	24		162	32		282	24	
48	18		168	14		288	32	
54	18		174	32		294	28	
60	14		180	16		300	18	
66	16		186	22		306	26	
72	26		192	24		312	14	
78	26		198	14		318	24	
84	20		204	26		324	26	
90	24		210	12		330	32	
96	22		216	18		336	16	
102	22		222	16		342	24	
108	30		228	14		348	28	
114	12		234	18		354	22	
120	22		240	26		360	32	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 N

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A #1854

Tank Number 8 (see diagram above)

Completion Date 10-4-88

H. P. Signature J. Musick

Pipe Probe Source Response

Side 1 105 cpm Side 2 100 cpm

Acceptable Range

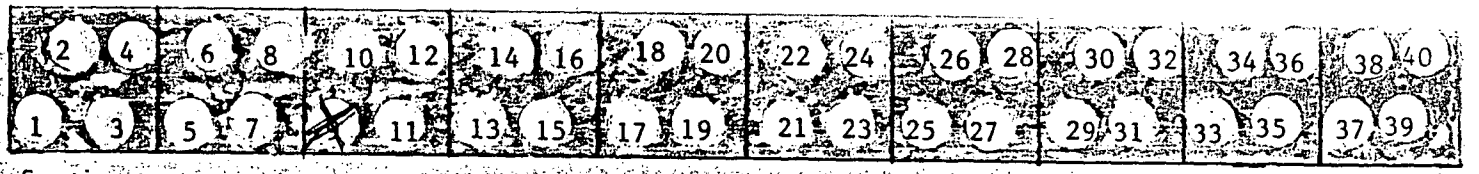
Side 1 80 to 120 cpm Side 2 81 to 121 cpm

Background 6 cpm

Acceptable Range 1 to 9 cpm MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	52	N/A	126	22	N/A	246	22	N/A
12	18	↓	132	22	↓	252	28	↓
18	20		138	20		258	24	
24	20		144	24		264	22	
30	22		150	18		270	38	
36	24		156	26		276	20	
42	22		162	14		282	22	
48	16		168	18		288	16	
54	22		174	28		294	18	
60	18		180	24		300	26	
66	18		186	24		306	24	
72	22		192	22		312	30	
78	20		198	16		318	20	
84	24		204	20		324	28	
90	16		210	24		330	24	
96	26		216	12		336	22	
102	24		222	24		342	24	
108	28		228	32		348	28	
114	16		234	22		354	32	
120	14		240	20		360	48	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 9 (see diagram above)

Completion Date 10-5-88

H. P. Signature [signature]

Pipe Probe Source Response #1854

Side 1 103 cpm Side 2 108 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

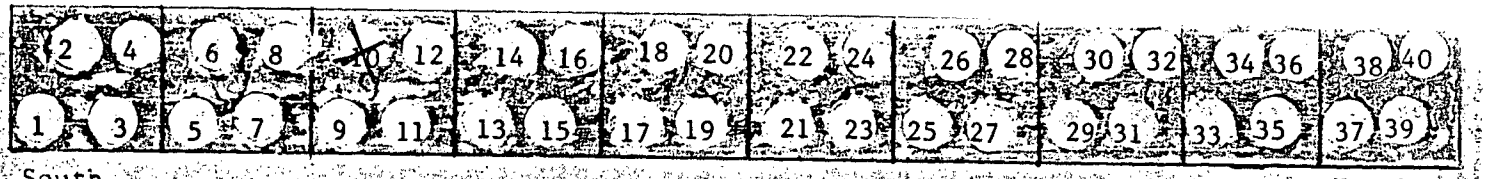
Background 4 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	46	N/A	126	16	N/A	246	20	N/A
12	22		132	16	↓	252	8	↓
18	12		138	18		258	6	
24	12		144	14		264	12	
30	20		150	14		270	18	
36	14		156	14		276	18	
42	14		162	6		282	16	
48	12		168	18		288	10	
54	12		174	18		294	10	
60	8		180	6		300	18	
66	12		186	10		306	18	
72	12		192	18		312	12	
78	14		198	14		318	18	
84	6		204	10		324	10	
90	14		210	8		330	12	
96	14		216	10		336	12	
102	12		222	14		342	14	
108	14		228	18		348	10	
114	12		234	12		354	12	
120	10		240	16		360	10	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 10 (see diagram above)

Completion Date 10-5-88

H. P. Signature H Rusch

Pipe Probe Source Response #1854

Side 1 104 cpm Side 2 103 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

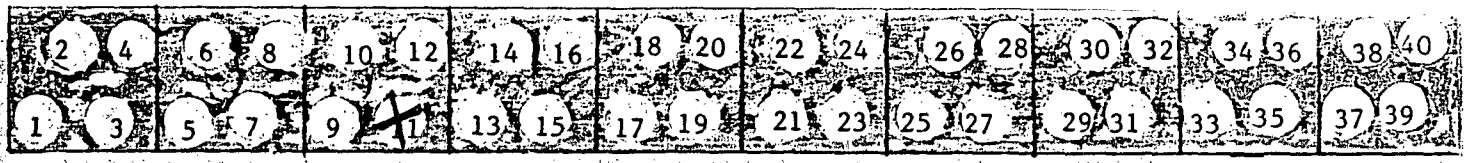
Background 2 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth	Result			Result			Result	
inches	direct	smear	inches	direct	smear	inches	direct	smear
6	30	N/A	126	8		246	10	
12	12		132	4		252	18	
18	4		138	18		258	12	
24	6		144	10		264	14	
30	12		150	16		270	8	
36	12		156	6		276	14	
42	16		162	10		282	6	
48	10		168	10		288	16	
54	16		174	4		294	8	
60	14		180	10		300	12	
66	14		186	10		306	10	
72	10		192	12		312	6	
78	4		198	14		318	14	
84	10		204	12		324	16	
90	10		210	4		330	10	
96	14		216	10		336	6	
102	8		222	10		342	22	
108	4		228	10		348	20	
114	12		234	4		354	22	
120	12		240	4		360	24	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 11 (see diagram above)

Completion Date 10-7-88

H. P. Signature J Musch

Pipe Probe Source Response #1854

Side 1 102 cpm Side 2 119 cpm

Acceptable Range

Side 1 83±123 cpm Side 2 88±128 cpm

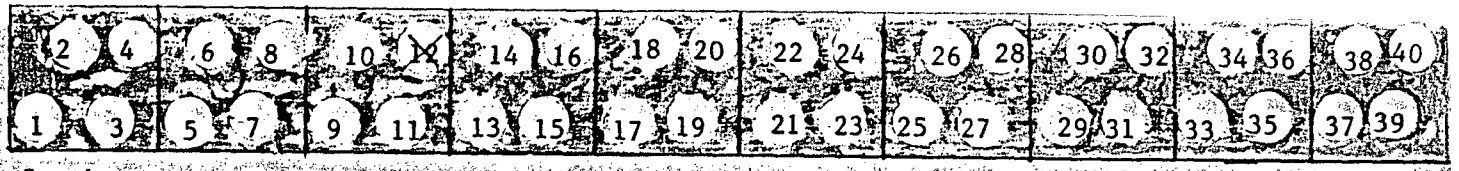
Background 2 cpm

Acceptable Range 1±9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	smear	inches	Result direct	smear	inches	Result direct	smear
6	92	N/A	126	18		246	4	
12	10		132	12		252	10	
18	16		138	8		258	10	
24	10		144	10		264	10	
30	14		150	12		270	12	
36	12		156	16		276	4	
42	14		162	16		282	12	
48	10		168	10		288	6	
54	8		174	14		294	16	
60	8		180	10		300	14	
66	12		186	18		306	18	
72	10		192	10		312	14	
78	10		198	12		318	18	
84	12		204	10		324	14	
90	14		210	18		330	24	
96	8		216	6		336	18	
102	8		222	6		342	26	
108	14		228	18		348	16	
114	18		234	16		354	22	
120	6		240	4		360	56	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 12 (see diagram above)

Completion Date 10-7-88

H. P. Signature Donna Powell

Pipe Probe Source Response #1854

Side 1 104 cpm Side 2 117 cpm

Acceptable Range

Side 1 83 to 125 cpm Side 2 88 to 128 cpm

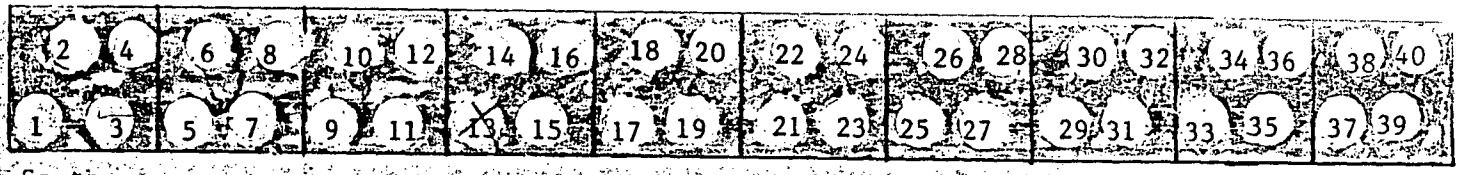
Background 7 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	56	N/A	126	22		246	36	
12	26		132	20		252	32	
18	18		138	22		258	24	
24	20		144	26		264	26	
30	18		150	24		270	34	
36	14		156	26		276	24	
42	22		162	24		282	32	
48	26		168	22		288	18	
54	28		174	18		294	26	
60	20		180	36		300	22	
66	18		186	16		306	22	
72	24		192	24		312	20	
78	24		198	28		318	34	
84	24		204	28		324	34	
90	30		210	24		330	32	
96	24		216	30		336	30	
102	22		222	26		342	24	
108	36		228	32		348	38	
114	26		234	22		354	22	
120	26		240	30		360	32	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 13 (see diagram above)

Completion Date 10-7-88

H. P. Signature Ammon Powell

Pipe Probe Source Response #1854

Side 1 92 cpm Side 2 114 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 138 cpm

Note: Source Check within range. Reading well below limit. O.K. to use this BKG

Background 12 cpm

Acceptable Range 1 to 9 cpm

MDA = 19 dpm/100cm^2

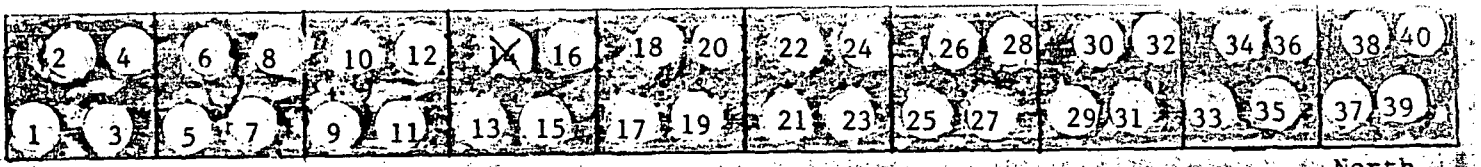
note Background = 12

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	46	N/A	126	32		246	26	
12	26		132	36		252	22	
18	24		138	44		258	28	
24	34		144	36		264	28	
30	38		150	32		270	26	
* (36)	114		156	46		276	32	
42	28		162	34		282	34	
48	22		168	22		288	26	
54	20		174	26		294	26	
60	24		180	24		300	32	
66	18		186	28		306	26	
72	18		192	22		312	26	
78	26		198	32		318	20	
84	34		204	34		324	24	
90	24		210	30		330	22	
96	30		216	28		336	34	
102	28		222	26		342	30	
108	26		228	24		348	38	
114	32		234	26		354	36	
120	34		240	38		360	34	

* 12 BKG,

MDA = C.F. x 1.96 $\sqrt{\frac{2BKG}{T}}$ = 2 x 1.96 $\sqrt{\frac{2 \times 12}{1}}$ = 19 dpm/100cm^2



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 14 (see diagram above)

Completion Date 10-10-88

H. P. Signature Duane Powell

Pipe Probe Source Response #1864

Side 1 117 cpm Side 2 148 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 148 cpm

Use this bkg. Source check is within range for 2nd

Background 13 cpm

Acceptable Range 5 ± 4 cpm

MDA = 20 dpm/100cm^2

Note based on bkg = 13

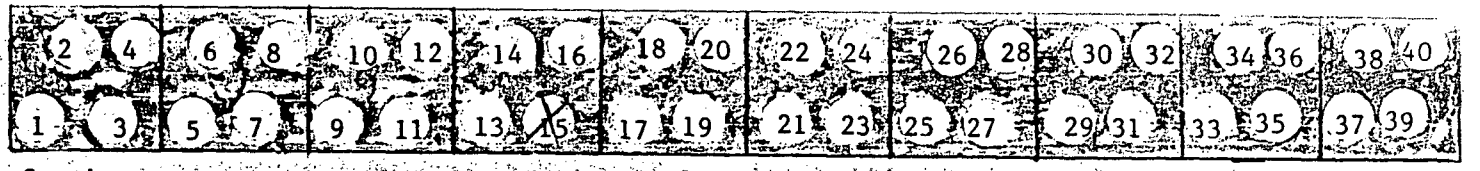
Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	60	N/A	126	18		246	20	
12	48		132	18		252	14	
18	36		138	16		258	22	
24	26		144	22		264	12	
30	32		150	18		270	28	
36	34		156	24		276	26	
42	16		162	14		282	24	
48	24		168	16		288	22	
54	14		174	14		294	26	
60	24		180	24		300	16	
66	16		186	22		306	26	
72	24		192	18		312	14	
78	12		198	22		318	10	
84	10		204	18		324	26	
90	16		210	24		330	30	
96	24		216	18		336	26	
102	40		222	28		342	30	
108	86		228	28		348	34	
114	62		234	22		354	52	
120	52		240	20		360	36	

BKG - 13

BKG - 6

MDA = $C_1 F \times 1.96 \sqrt{\frac{2 \times B \times t}{t^2}}$ = $2 \times 1.96 \sqrt{\frac{2 \times 13}{1}}$ = 19.9 or 20



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 15 (see diagram above)

Completion Date 10-10-88

H. P. Signature Donna Powell

Pipe Probe Source Response 21854

Side 1 94 cpm Side 2 113 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

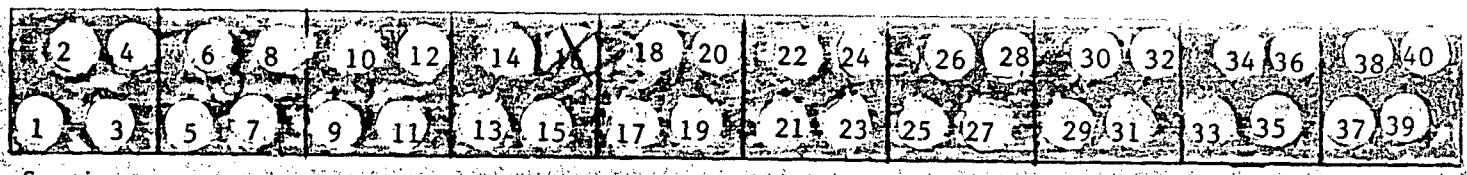
Background 10 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	36	N/A	126	24		246	18	
12	28		132	36		252	20	
18	28		138	42		258	22	
24	42		144	44		264	10	
30	38		150	28		270	18	
36	48		156	42		276	16	
42	54		162	26		282	8	
48	78		168	20		288	18	
54	40		174	30		294	22	
60	40		180	34		300	22	
66	40		186	22		306	18	
72	44		192	10		312	18	
78	44		198	10		318	16	
84	30		204	22		324	22	
90	48		210	16		330	12	
96	36		216	14		336	18	
102	32		222	16		342	26	
108	50		228	12		348	16	
114	38		234	12		354	42	
120	46		240	16		360	18	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 16 (see diagram above)

Completion Date 10-10-88

H. P. Signature Norman Powell

Pipe Probe Source Response #1 1654

Side 1 101 cpm Side 2 96 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 86 to 128 cpm

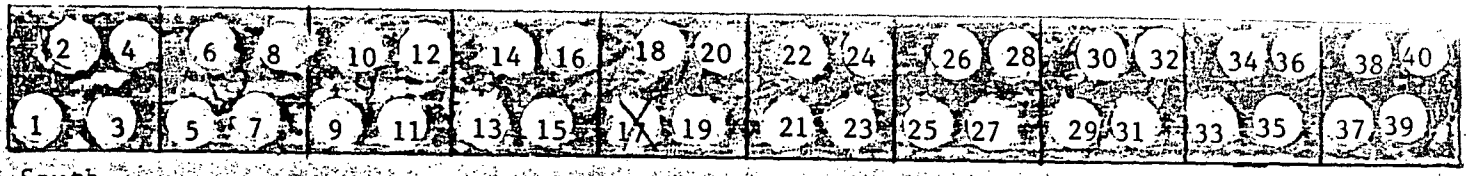
Background 7 cpm

Acceptable Range 5 ± 4 cpm

MDA = _____ dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	44	N/A	126	26		246	20	
12	40		132	38		252	10	
18	40		138	28		258	28	
24	26		144	20		264	24	
30	38		150	24		270	16	
36	34		156	32		276	34	
42	34		162	24		282	32	
48	30		168	20		288	24	
54	36		174	24		294	24	
60	18		180	20		300	22	
66	22		186	20		306	20	
72	38		192	22		312	26	
78	26		198	16		318	14	
84	26		204	20		324	22	
90	34		210	20		330	38	
96	38		216	28		336	42	
102	26		222	24		342	64	
108	32		228	20		348	60	
114	20		234	20		354	64	
120	20		240	26		360	68	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 72468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 17 (see diagram above)

Completion Date 10-11-88

H. P. Signature Irma Powell

Pipe Probe Source Response #1854

Side 1 101 cpm Side 2 109 cpm

Acceptable Range

Side 1 81 to 123 cpm Side 2 88 to 128 cpm

Background 4 cpm

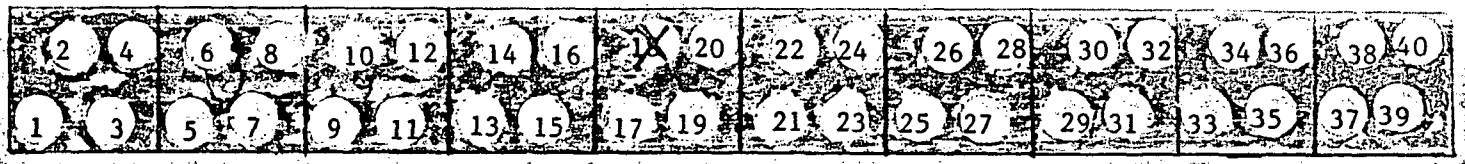
Acceptable Range 5±4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
(6)	70	N/A	126	210		246	160	
12	54		132	42		252	10	
18	74		138	60		258	20	
(24)	80		144	80		264	12	
30	70		150	84		270	20	
36	60		156	44		276	26	
42	510		162	42		282	210	
48	58		168	38		288	46	
54	46		174	38		294	40	
60	48		180	32		300	30	
66	36		186	34		306	40	
72	68		192	28		312	46	
78	66		198	22		318	68	RECOUNT
84	68		204	26		324	52	40
90	62		210	14		330	62	36
(96)	74		216	8		336	94	44
102	80		222	14		(342)	114	56
108	54		228	28		(348)	160	68
114	48		234	30		(354)	192	84
120	40		240	32		(360)	380	180

SEE RECOUNT AFTER REBLAST



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 18 (see diagram above)

Completion Date 10-11-88

H. P. Signature Irvina Powell

Pipe Probe Source Response #1854

Side 1 101 cpm Side 2 103 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

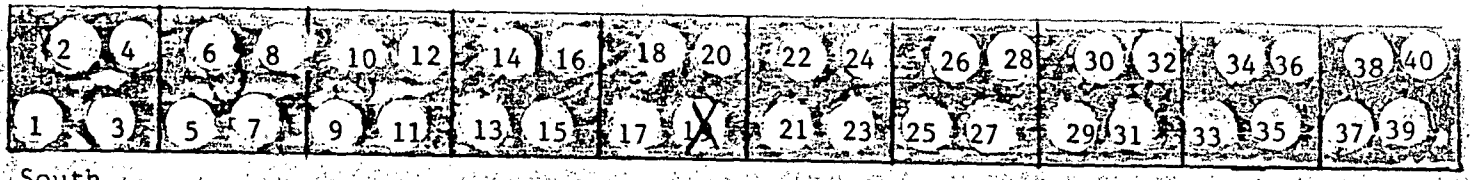
Background 4 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	44		126	36		246	28	
12	24		132	40		252	18	
18	22		138	26		258	24	
24	26		144	62		264	14	
30	34		150	18		270	18	
36	28		156	26		276	12	
42	28		162	32		282	18	
48	30		168	20		288	18	
54	28		174	42		294	24	
60	22		180	10		300	14	
66	16		186	28		306	20	
72	20		192	30		312	14	
78	26		198	20		318	32	
84	20		204	20		324	46	
90	16		210	18		330	32	
96	28		216	16		336	30	
102	32		222	18		342	50	RECOUNTS
108	34		228	18		(348)	188	14 x
114	30		234	24		(354)	1052	38 x
120	30		240	28		(360)	1080	16 y



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 19 (see diagram above)

Completion Date 10-11-88

H. P. Signature Irving Powell

Pipe Probe Source Response #1854

Side 1 96 cpm Side 2 97 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

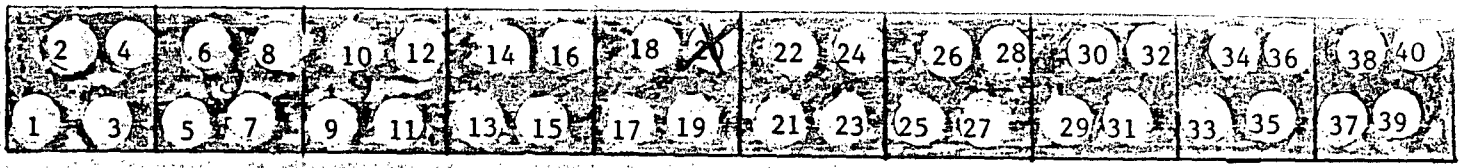
Background 2 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	30	N/A	126	30		246	10	
12	26		132	22		252	4	
18	30		138	42		258	10	
24	22		144	36		264	18	
30	26		150	42		270	22	
36	14		156	40		276	20	
42	12		162	46		282	14	
48	18		168	34		288	12	
54	14		174	36		294	28	
60	20		180	50		300	14	
66	36		186	20		306	12	
72	44		192	26		312	18	
78	38		198	22		318	16	
84	36		204	20		324	26	
90	30		210	20		330	36	
96	46		216	12		336	18	
102	36		222	26		342	60	
108	34		228	6		348	50	
114	50		234	22		354	54	
120	20		240	10		360	210	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 20 (see diagram above)

Completion Date 10-12-88

H. P. Signature Donna Powell

Pipe Probe Source Response #1854

Side 1 96 cpm Side 2 97 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

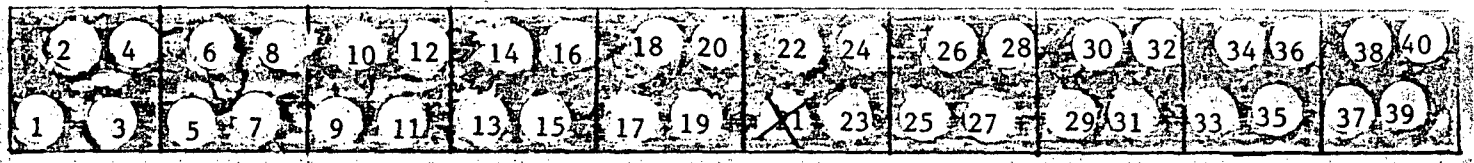
Background 3 cpm

Acceptable Range 5 ± 4 cpm

MDA = 17 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	52	N/A	126	46		246	20	
12	20		132	52		252	18	
18	20		138	34		258	16	
24	20		144	48		264	18	
30	10		150	30		270	40	
36	12		156	22		276	18	
42	18		162	24		282	14	
48	30		168	24		288	12	
54	36		174	12		294	24	
60	22		180	24		300	20	
66	30		186	22		306	18	
72	24		192	12		312	12	
78	26		198	18		318	22	
84	14		204	34		324	18	
90	34		210	10		330	26	
96	32		216	18		336	26	
102	36		222	14		342	46	
108	32		228	12		348	44	
114	50		234	24		354	62	
120	32		240	18		360	50	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 21 (see diagram above)

Completion Date 10-12-88

H. P. Signature Norma Powell

Pipe Probe Source Response #1854

Side 1 97 cpm Side 2 104 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

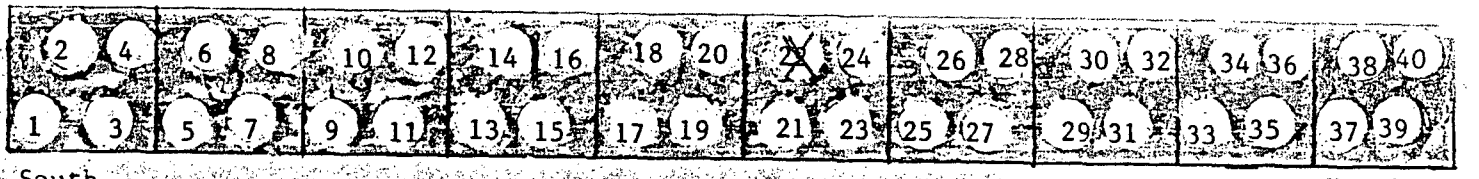
Background 3 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	36	N/A	126	12		246	12	
12	14		132	12		252	6	
18	14		138	8		258	8	
24	14		144	6		264	14	
30	18		150	14		270	10	
36	6		156	22		276	18	
42	8		162	22		282	6	
48	16		168	8		288	14	
54	4		174	22		294	12	
60	14		180	10		300	14	
66	20		186	16		306	4	
72	14		192	10		312	8	
78	20		198	12		318	16	
84	26		204	12		324	24	
90	26		210	20		330	4	
96	4		216	14		336	14	
102	16		222	14		342	14	
108	24		228	12		348	18	
114	14		234	18		354	24	
120	16		240	16		360	20	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 22 (see diagram above)

Completion Date 10-12-88

H. P. Signature Irving Powell

Pipe Probe Source Response #1854

Side 1 97 cpm Side 2 104 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

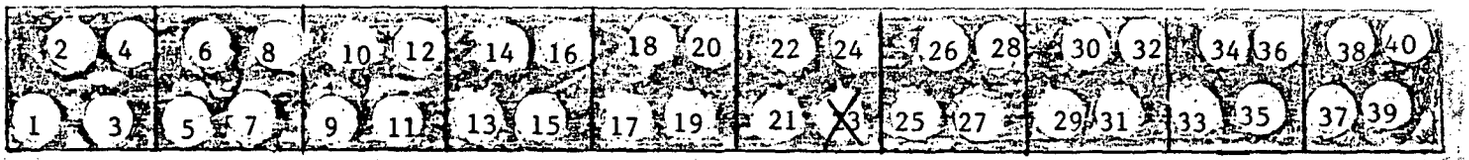
Background 3 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	34	N/A	126	12		246	12	
12	8		132	4		252	16	
18	16		138	18		258	8	
24	28		144	22		264	4	
30	20		150	12		270	16	
36	10		156	14		276	10	
42	16		162	8		282	8	
48	26		168	12		288	10	
54	20		174	12		294	12	
60	14		180	22		300	14	
66	8		186	10		306	16	
72	4		192	12		312	12	
78	20		198	12		318	10	
84	8		204	18		324	16	
90	14		210	14		330	12	
96	4		216	16		336	10	
102	10		222	18		342	18	
108	12		228	8		348	10	
114	22		234	8		354	12	
120	16		240	16		360	28	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 23 (see diagram above)

Completion Date 10-12-88

H. P. Signature Irving Powell

Pipe Probe Source Response #1854

Side 1 96 cpm Side 2 101 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

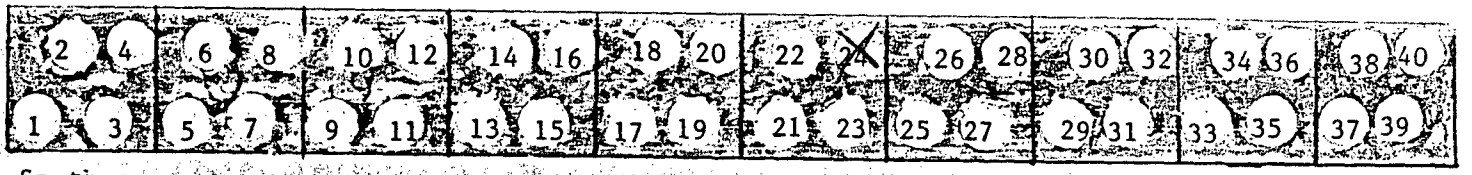
Background 4 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	46	N/A	126	24		246	4	
12	116		132	12		252	8	
18	22		138	16		258	16	
24	116		144	12		264	10	
30	8		150	14		270	18	
36	14		156	12		276	14	
42	12		162	14		282	8	
48	16		168	12		288	8	
54	8		174	10		294	12	
60	12		180	16		300	10	
66	14		186	12		306	26	
72	14		192	16		312	14	
78	30		198	8		318	14	
84	20		204	10		324	12	
90	116		210	12		330	18	
96	16		216	12		336	10	
102	12		222	8		342	24	
108	4		228	16		348	18	
114	20		234	8		354	316	
120	20		240	14		(360)	134	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 24 (see diagram above)

Completion Date 10-13-88

H. P. Signature Norma Powell

Pipe Probe Source Response #1854

Side 1 99 cpm Side 2 104 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

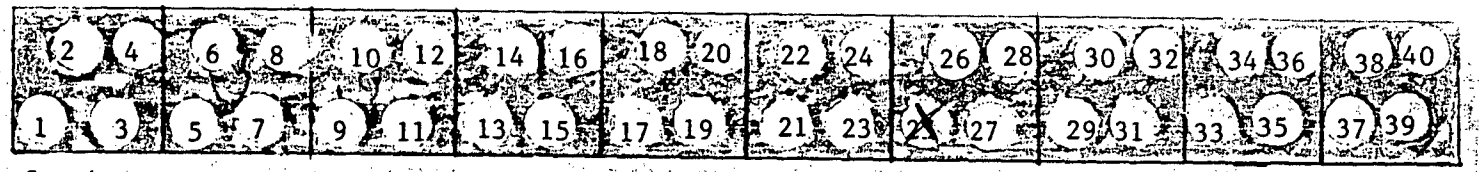
Background 3 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	32	N/A	126	34		246	16	
12	24		132	56		252	20	
18	16		138	40		258	14	
24	24		144	50		264	20	
30	34		150	40		270	12	
36	30		156	36		276	44	
42	26		162	42		282	30	
48	28		168	38		288	26	
54	26		174	62		294	14	
60	24		180	38		300	14	
66	46		186	40		306	26	
72	24		192	36		312	14	
78	26		198	44		318	26	
84	32		204	26		324	24	
90	30		210	44		330	26	
96	64		216	30		336	28	
102	46		222	20		342	42	
108	56		228	16		348	28	
114	40		234	14		354	38	
120	48		240	18		360	20	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 25 (see diagram above)

Completion Date 10-13-88

H. P. Signature Emma Powell

Pipe Probe Source Response

Side 1 99 cpm Side 2 104 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

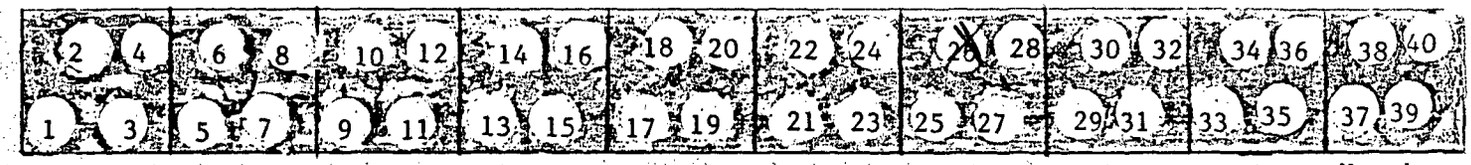
Background 3 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	38	N/A	126	16		246	8	
12	14		132	8		252	14	
18	8		138	8		258	12	
24	10		144	6		264	6	
30	14		150	6		270	8	
36	14		156	10		276	8	
42	10		162	4		282	8	
48	14		168	14		288	16	
54	12		174	20		294	26	
60	8		180	20		300	4	
66	10		186	8		306	16	
72	14		192	16		312	18	
78	18		198	12		318	10	
84	12		204	8		324	14	
90	8		210	8		330	18	
96	12		216	16		336	22	
102	18		222	16		(342)	98	
108	4		228	30		348	54	
114	4		234	14		354	60	
120	12		240	22		(360)	120	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 26 (see diagram above)

Completion Date 10-13-88

H. P. Signature Irving Powell

Pipe Probe Source Response ±1854

Side 1 98 cpm Side 2 101 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

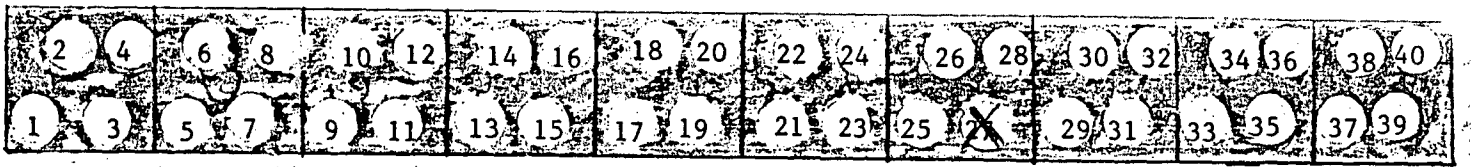
Background 3 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	16	N/A	126	16		246	12	
12	6		132	14		252	12	
18	12		138	18		258	12	
24	20		144	4		264	4	
30	16		150	10		270	8	
36	18		156	20		276	6	
42	8		162	8		282	14	
48	10		168	12		288	8	
54	30		174	10		294	12	
60	16		180	22		300	8	
66	8		186	14		306	12	
72	20		192	10		312	10	
78	8		198	12		318	20	
84	18		204	10		324	16	
90	10		210	12		330	16	
96	14		216	18		336	10	
102	22		222	14		342	10	
108	14		228	6		348	26	
114	22		234	10		354	22	
120	10		240	14		360	22	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 27 (see diagram above)

Completion Date 10-14-88

H. P. Signature Donna Powell

Pipe Probe Source Response #1854

Side 1 98 cpm Side 2 101 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

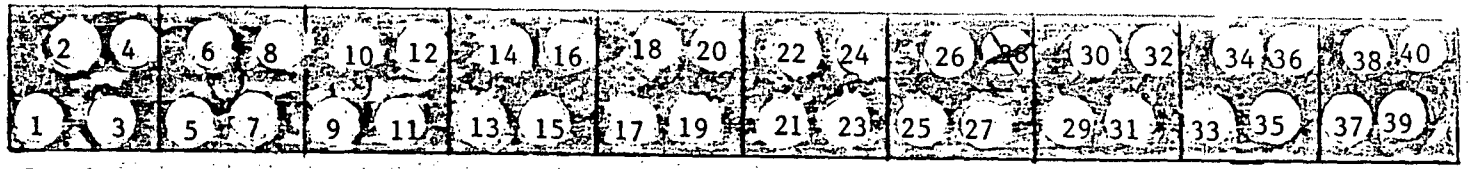
Background 3 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	40	N/A	126	34		246	18	
12	22		132	22		252	14	
18	22		138	36		258	20	
24	32		144	38		264	16	
30	14		150	40		270	8	
36	20		156	26		276	6	
42	24		162	26		282	16	
48	6		168	56		288	4	
54	30		174	30		294	12	
60	14		180	34		300	28	
66	24		186	38		306	10	
72	36		192	28		312	22	
78	30		198	32		318	22	
84	46		204	20		324	20	
90	60		210	16		330	18	
96	64		216	32		336	86	
102	46		222	24		342	54	
108	34		228	12		348	46	
114	42		234	22		354	42	
120	34		240	18		360	10	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 28 (see diagram above)

Completion Date 10-14-88

H. P. Signature Ronny Powell

Pipe Probe Source Response #1854

Side 1 92 cpm Side 2 102 cpm

Acceptable Range

Side 1 83±0123 cpm Side 2 88±0128 cpm

Background 3 cpm

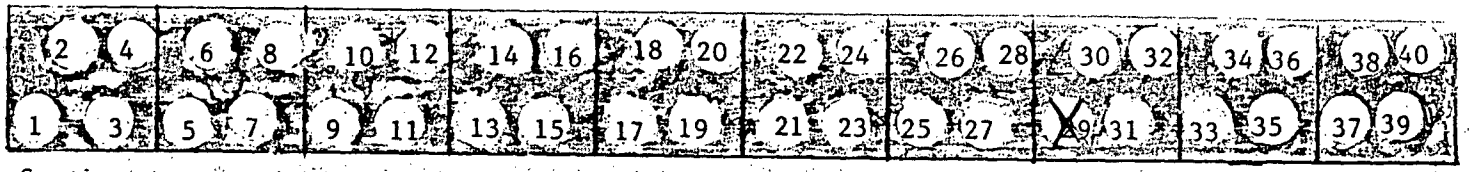
Acceptable Range 5±4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	20	N/A	126	12		246	10	
12	10		132	16		252	16	
18	18		138	14		258	24	
24	22		144	16		264	8	
30	14		150	26		270	8	
36	20		156	12		276	28	
42	8		162	12		282	20	
48	10		168	20		288	16	
54	42		174	8		294	22	
60	10		180	16		300	26	
66	14		186	14		306	22	
72	8		192	14		312	26	26
78	8		198	12		318	62	38
84	22		204	10		(324)	138	22
90	18		210	12		(330)	110	46
96	26		216	12		(336)	122	36
102	20		222	16		(342)	224	74
108	18		228	12		(348)	160	44
114	16		234	4		(354)	158	78
120	10		240	22		(360)	274	112

SEE RECOUNT AFTER RECASTED



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 29 (see diagram above)

Completion Date 10-14-88

H. P. Signature Irving Powell

Pipe Probe Source Response #1854

Side 1 92 cpm Side 2 102 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

Background 3 cpm

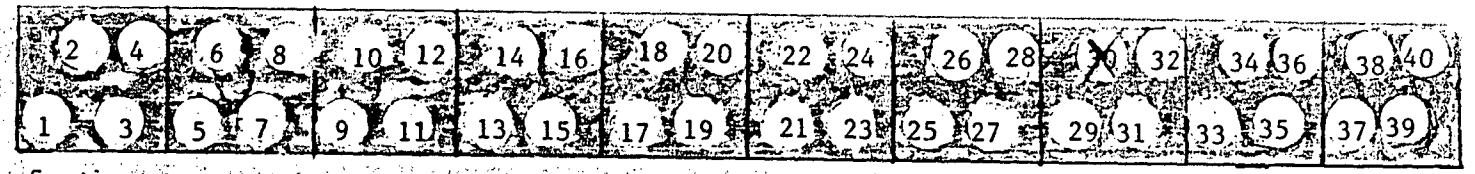
Acceptable Range 5 - 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	42	N/A	126	28		246	34	
12	16		132	38		252	32	
18	34		138	18		258	28	
24	26		144	16		264	30	
30	24		150	16		270	40	
36	26		156	24		276	28	
42	24		162	44		282	40	
48	24		168	24		288	36	
54	24		174	38		294	26	
60	40		180	26		300	32	
66	20		186	26		306	52	
72	40		192	14		312	38	
78	34		198	22		318	48	
84	32		204	38		324	80	38
90	52		210	18		330	92	48
96	44		216	40		(336)	150	26
102	46		222	18		(342)	128	46
108	18		228	40		(348)	258	16
114	30		234	34		(354)	176	44
120	24		240	24		(360)	166	58

SEE RECOUNT AFTER REBLASTING



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 30 (see diagram above)

Completion Date 10-14-88

H. P. Signature Irving Powell

Pipe Probe Source Response

Side 1 103 cpm Side 2 112 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

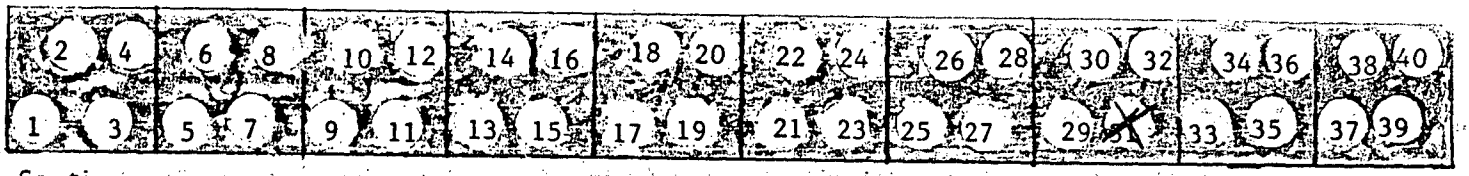
Background 4 cpm

Acceptable Range 5 ± 4 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth	Result		Depth	Result		Depth	Result	
inches	direct	smear	inches	direct	smear	inches	direct	smear
6	32	N/A	126	16		246	18	
12	26		132	20		252	18	
18	12		138	18		258	10	
24	24		144	14		264	14	
30	22		150	24		270	26	
36	14		156	12		276	16	
42	18		162	10		282	12	
48	18		168	18		288	10	
54	12		174	12		294	18	
60	14		180	20		300	18	
66	8		186	16		306	14	
72	18		192	18		312	30	
78	16		198	16		318	32	
84	22		204	26		324	20	
90	10		210	24		330	26	
96	22		216	24		336	30	
102	20		222	14		342	38	
108	26		228	20		348	10	
114	22		234	18		354	36	
120	6		240	16		360	54	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 31 (see diagram above)

Completion Date 10-17-88

H. P. Signature J. Mesch

Pipe Probe Source Response #1854

Side 1 97 cpm Side 2 108 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

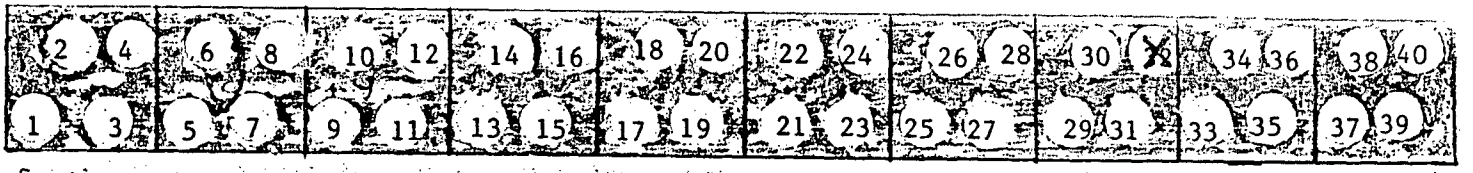
Background 5 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	38	N/A	126	34		246	26	
12	34		132	48		252	18	
18	36		138	24		258	12	
24	28		144	30		264	20	
30	20		150	36		270	26	
36	18		156	32		276	10	
42	30		162	30		282	22	
48	20		168	26		288	26	
54	24		174	24		294	18	
60	26		180	22		300	16	
66	32		186	32		306	28	
72	26		192	34		312	20	
78	30		198	34		318	20	
84	28		204	38		324	24	
90	60		210	34		330	16	
96	20		216	24		336	22	
102	24		222	24		342	30	
108	28		228	18		348	30	
114	34		234	30		354	40	
120	56		240	24		360	52	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 32 (see diagram above)

Completion Date 10-17-88

H. P. Signature J. Musick

Pipe Probe Source Response #1854

Side 1 95 cpm Side 2 127 cpm

Acceptable Range

Side 1 83to123 cpm Side 2 89to128 cpm

Background 4 cpm

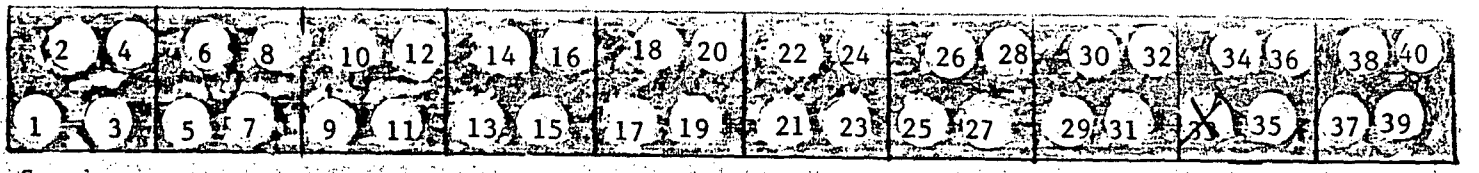
Acceptable Range 1to9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth	Result		Depth	Result		Depth	Result	
inches	direct	smear	inches	direct	smear	inches	direct	smear
6	48	N/A	126	26		246	20	
12	8		132	16		252	16	
18	6		138	20		258	4	
24	10		144	14		264	22	
30	20		150	16		270	22	
36	12		156	12		276	14	
42	16		162	22		282	22	
48	10		168	10		288	20	
54	12		174	10		294	24	
60	20		180	18		300	30	
66	16		186	12		306	38	
72	12		192	16		312	40	
78	6		198	16		318	38	
84	14		204	18		324	56	38
90	20		210	12		330	70	32
96	18		216	16		(336)	154	76
102	18		222	16		(342)	148	66
108	18		228	8		(348)	144	42
114	16		234	16		(354)	136	44
120	18		240	4		(360)	170	66

SEE RECOUNT AFTER REBLASTING



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 33 (see diagram above)

Completion Date 10-17-88

H. P. Signature J. Murch

Pipe Probe Source Response #1854

Side 1 93 cpm Side 2 101 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 86 to 128 cpm

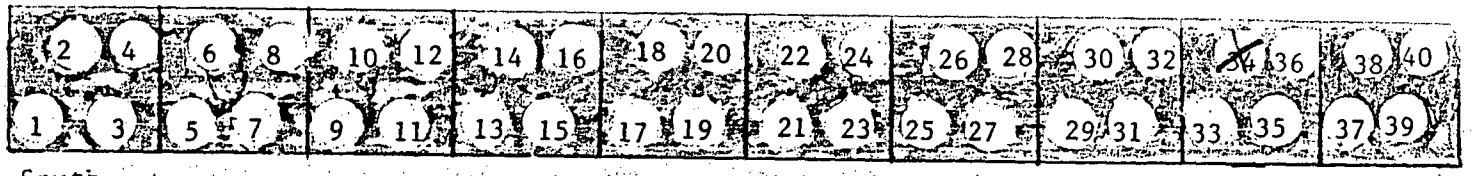
Background 4 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	52	N/A	126	12		246	8	
12	20		132	10		252	8	
18	14		138	10		258	8	
24	6		144	12		264	8	
30	18		150	16		270	16	
36	26		156	8		276	12	
42	18		162	10		282	10	
48	8		168	6		288	10	
54	4		174	8		294	10	
60	8		180	4		300	16	
66	4		186	12		306	14	
72	8		192	10		312	18	
78	8		198	18		318	10	
84	10		204	8		324	18	
90	12		210	10		330	16	
96	14		216	14		336	26	
102	14		222	6		342	12	
108	18		228	14		348	22	
114	14		234	10		354	26	
120	16		240	10		360	14	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 34 (see diagram above)

Completion Date 10 18 88

H. P. Signature J. Munch

Pipe Probe Source Response #1854

Side 1 98 cpm Side 2 122 cpm

Acceptable Range

Side 1 93 to 123 cpm Side 2 88 to 128 cpm

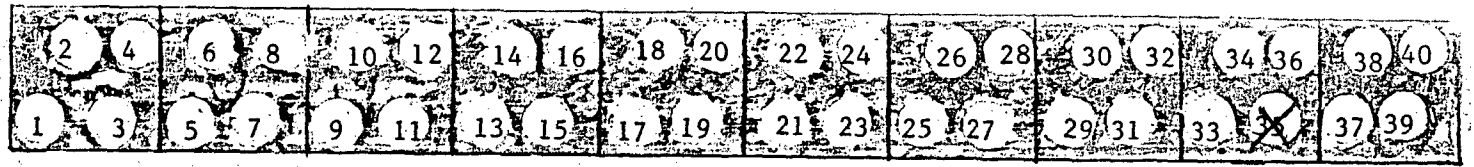
Background 4 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	40	N/A	126	28		246	14	
12	14		132	16		252	18	
18	18		138	20		258	18	
24	18		144	26		264	26	
30	16		150	20		270	16	
36	10		156	16		276	10	
42	18		162	16		282	18	
48	20		168	8		288	10	
54	16		174	16		294	20	
60	14		180	10		300	20	
66	24		186	4		306	22	
72	14		192	12		312	12	
78	24		198	14		318	16	
84	28		204	16		324	14	
90	22		210	14		330	18	
96	20		216	20		336	8	
102	18		222	12		342	18	
108	30		228	22		348	20	
114	26		234	10		354	32	
120	32		240	16		360	34	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468 NCW

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 35 (see diagram above)

Completion Date 10-18-88

H. P. Signature J. Musch

Pipe Probe Source Response #1854

Side 1 101 cpm Side 2 98 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

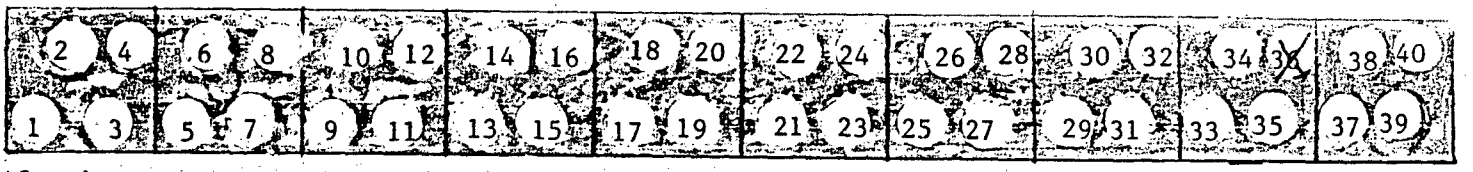
Background 5 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	40	N/A	126	4		246	12	
12	20		132	22		252	12	
18	30		138	28		258	12	
24	10		144	16		264	18	
30	18		150	18		270	14	
36	18		156	12		276	12	
42	22		162	8		282	8	
48	12		168	10		288	4	
54	22		174	14		294	4	
60	30		180	20		300	10	
66	22		186	10		306	8	
72	12		192	16		312	12	
78	12		198	8		318	12	
84	14		204	14		324	6	
90	14		210	18		330	6	
96	10		216	16		336	10	
102	10		222	16		342	12	
108	18		228	8		348	16	
114	20		234	14		354	26	
120	24		240	18		360	8	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 36 (see diagram above)

Completion Date 10-18-88

H. P. Signature J. Murel

Pipe Probe Source Response #1854

Side 1 115 cpm Side 2 111 cpm

Acceptable Range

Side 1 83-123 cpm Side 2 88 to 128 cpm

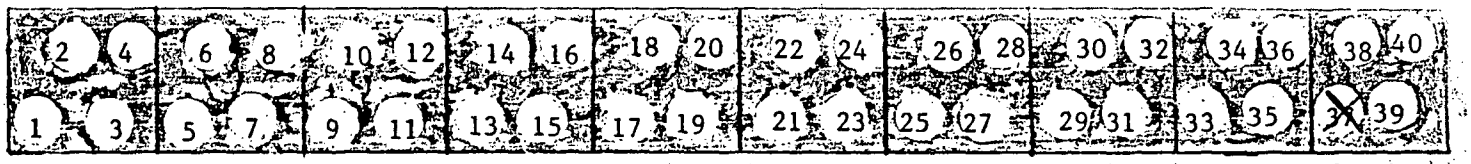
Background 2 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth	Result			Result			Result	
inches	direct	smear	inches	direct	smear	inches	direct	smear
6	40	N/A	126	34		246	22	
12	32		132	18		252	20	
18	24		138	26		258	12	
24	14		144	18		264	18	
30	26		150	18		270	12	
36	20		156	22		276	24	
42	26		162	16		282	8	
48	14		168	22		288	24	
54	20		174	20		294	12	
60	18		180	10		300	24	
66	24		186	24		306	20	
72	28		192	12		312	40	
78	30		198	20		318	22	
84	20		204	18		324	28	
90	16		210	10		330	26	
96	18		216	16		336	22	
102	30		222	14		342	32	
108	22		228	18		348	32	
114	30		234	12		354	22	
120	18		240	24		360	24	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 37 (see diagram above)

Completion Date 10-18-88

H. P. Signature Irving Powell

Pipe Probe Source Response #1854

Side 1 135 cpm Side 2 153 cpm

Acceptable Range

Side 1 126 to 174 cpm Side 2 135 to 185 cpm

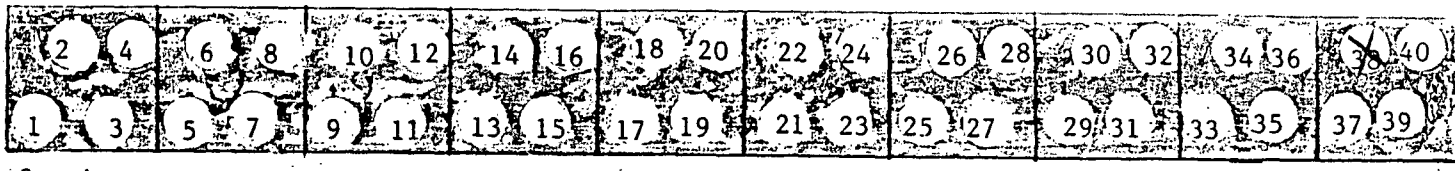
Background 4 cpm

Acceptable Range 0 to 6 cpm

MDA = 10 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth	Result			Result			Result	
inches	direct	smear	inches	direct	smear	inches	direct	smear
6	10	N/A	126	14		246	6	
12	20		132	12		252	6	
18	20		138	14		258	10	
24	14		144	12		264	6	
30	18		150	6		270	12	
36	6		156	10		276	8	
42	18		162	16		282	10	
48	12		168	4		288	10	
54	6		174	8		294	6	
60	10		180	8		300	8	
66	14		186	16		306	22	
72	16		192	12		312	8	
78	16		198	4		318	10	
84	16		204	8		324	12	
90	10		210	10		330	4	
96	10		216	10		336	20	
102	12		222	16		342	16	
108	16		228	8		348	34	
114	18		234	16		354	54	
120	22		240	4		360	28	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 38 (see diagram above)

Completion Date 10-18-88

H. P. Signature Emma Powell

Pipe Probe Source Response

Side 1 153 cpm Side 2 156 cpm

Acceptable Range

Side 1 126 to 174 cpm Side 2 135 to 185 cpm

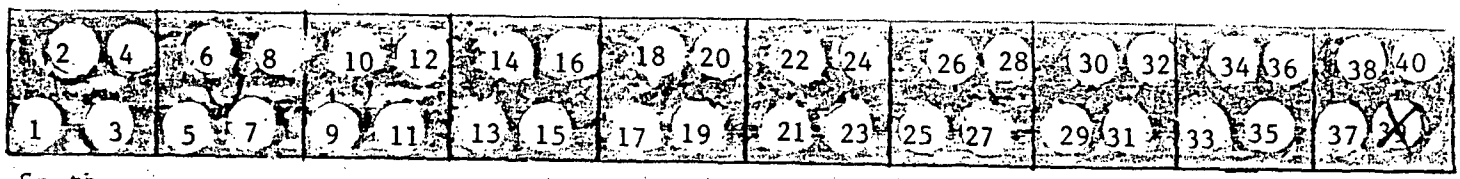
Background 1 cpm

Acceptable Range 0 to 6 cpm

MDA = 10 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	14	N/A	126	10		246	10	
12	18		132	14		252	4	
18	14		138	20		258	4	
24	16		144	4		264	10	
30	18		150	14		270	6	
36	8		156	10		276	4	
42	8		162	12		282	14	
48	8		168	8		288	8	
54	10		174	14		294	10	
60	8		180	16		300	12	
66	12		186	12		306	8	
72	12		192	12		312	10	
78	8		198	10		318	8	
84	8		204	6		324	12	
90	8		210	8		330	12	
96	14		216	12		336	14	
102	12		222	12		342	14	
108	12		228	4		348	20	
114	8		234	14		354	34	
120	16		240	4		360	28	



WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 2131

KM Pipe Probe # 2

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 39 (see diagram above)

Completion Date 10-18-88

H. P. Signature Darrin Powell

Pipe Probe Source Response #1854

Side 1 138 cpm Side 2 149 cpm

Acceptable Range

Side 1 126 to 174 cpm Side 2 135 to 185 cpm

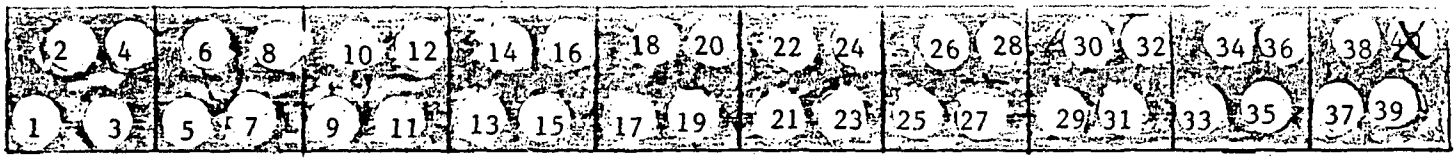
Background 3 cpm

Acceptable Range 0 to 6 cpm

MDA = 10 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	6	N/A	126	4		246	30	
12	8		132	14		252	8	
18	14		138	4		258	10	
24	14		144	6		264	6	
30	22		150	16		270	6	
36	8		156	12		276	10	
42	10		162	12		282	12	
48	4		168	4		288	8	
54	10		174	10		294	20	
60	10		180	6		300	12	
66	14		186	16		306	16	
72	22		192	10		312	12	
78	16		198	14		318	12	
84	12		204	4		324	8	
90	6		210	10		330	12	
96	12		216	8		336	16	
102	10		222	14		342	26	
108	14		228	16		348	26	
114	18		234	12		354	32	
120	8		240	14		360	32	



South North

WALL TANK SLEEVE SURVEY--ROOM 128/BO-2

Direct and Smear Survey for Alpha Contamination

Instrumentation-Direct Survey-Ludlum 2500 Scaler S/N 26468

KM Pipe Probe # 1

Smear Survey- Hewlett Packard 5560A Automatic

Sample Changer S/N N/A

Tank Number 40 (see diagram above)

Completion Date 10-19-88

H. P. Signature L. Musel

Pipe Probe Source Response #1854

Side 1 102 cpm Side 2 117 cpm

Acceptable Range

Side 1 83 to 123 cpm Side 2 88 to 128 cpm

Background 6 cpm

Acceptable Range 1 to 9 cpm

MDA = 12 dpm/100cm^2

Measurements Units - dpm/100cm^2

Depth inches	Result direct	Result smear	inches	Result direct	Result smear	inches	Result direct	Result smear
6	38	N/A	126	20		246	12	
12	26		132	18		252	14	
18	30		138	16		258	12	
24	34		144	18		264	12	
30	22		150	12		270	10	
36	18		156	32		276	6	
42	22		162	12		282	8	
48	22		168	26		288	16	
54	16		174	16		294	14	
60	14		180	22		300	10	
66	20		186	24		306	10	
72	24		192	18		312	10	
78	30		198	14		318	8	
84	26		204	24		324	10	
90	32		210	8		330	16	
96	20		216	22		336	12	
102	18		222	14		342	18	
108	22		228	16		348	22	
114	10		234	18		354	14	
120	8		240	12		360	28	