

ALUMINUM COMPANY OF AMERICA
100 HARVARD AVENUE
CLEVELAND, OHIO 44105



1993 May 5

Mr. Ken Lambert
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glyn, IL 60137

Ref: Building 65 Radiation Remediation Project

Dear Mr. Lambert:

The attached analytical and field measurements were taken from the roof of Building 65 and are a follow-up to the information that was faxed to you on April 28, 1993. In addition to the original survey information I have included some additional survey results taken since the last fax transmission on April 28. If you have any questions regarding the data, please feel free to contact me at (216) 641-4366 and I will try to get your questions answered.

Sincerely,

A handwritten signature in cursive script, appearing to read "M. A. Gradert".

M. A. GRADERT

MAG/ss

cc: D. Ryan

Ref: 65RRP.mag

MAY 7 1993

9402010355 940105
PDR ADOCK 04000501
C PDR

SURVEYOR Darin McEleney
 REVIEWER P. Sup

DATE 4-19-93
 TIME 1600

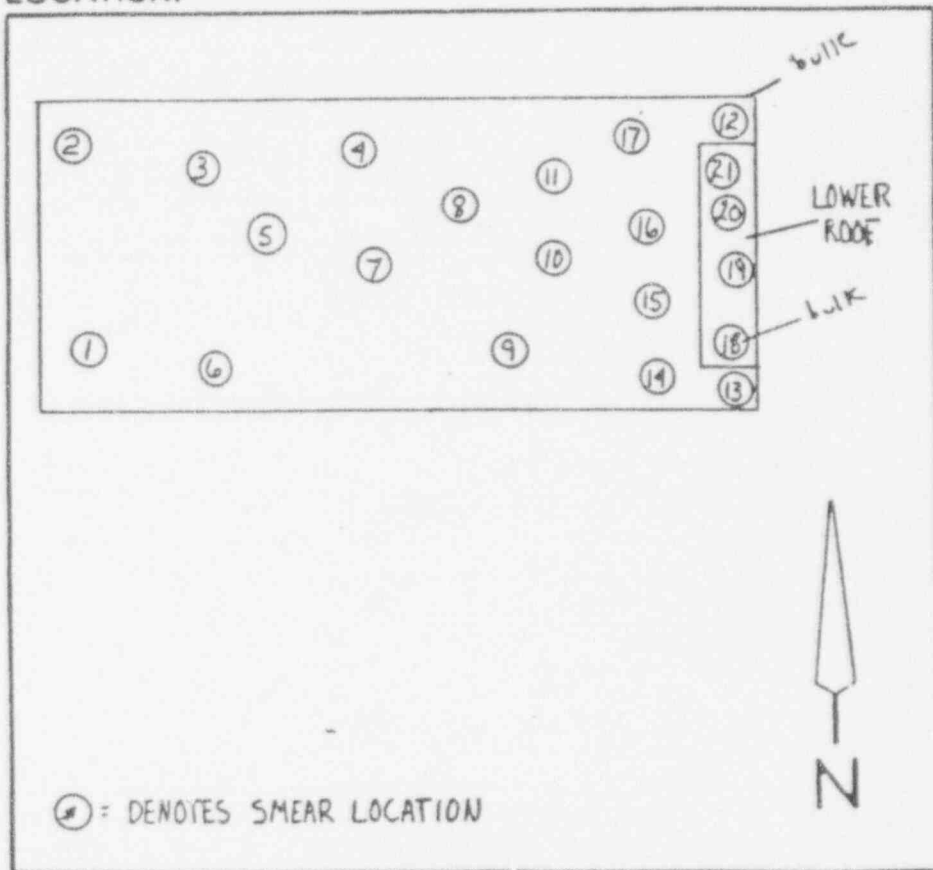
SURVEY METERS

MODEL L-2220
 SERIAL # 50062
 CAL DUE 12-8-93
 EFFICIENCY 0.21
 TYPE BK
 BKG 50 CPM
 MDA 861

MODEL L-2220
 SERIAL # 48409
 CAL DUE 9-9-93
 EFFICIENCY 0.13
 TYPE α
 BKG 0.5 CPM
 MDA 79

MODEL _____
 SERIAL # _____
 CAL DUE _____
 EFFICIENCY _____
 TYPE N A
 BKG _____
 MDA _____

LOCATION:



NOTE: Smear results in dpm/100 cm² unless otherwise noted. (1) denotes smear location. An * followed by a number in dpm (i.e., * 100 dpm) denotes direct probe readings in dpm/100 cm². # denotes dose rates in mR/hr.

PURPOSE: PRE DECON

SMEAR #	dpm/100 cm ²	
	BK	α

* SEE ATTACHED SHEET

AVERAGE CONTAMINATION SURVEY RESULTS

DATE: 4-19-93

LOCATION: BLDG. 65 ROOF

INSTRUMENT: L-2220 50062
MODEL NUMBER

PROBE: 11-9 ^{serial #} 042929 EFF: 0.21
MODEL

BX

LOCATION NUMBER	dpm/100cm ²	LOCATION NUMBER	dpm/100cm ²
1	2799	20	14603
2	4064	21	5492
3	4984		
4	4825		
5	3587		
6	5810		
7	6159		
8	3683		
9	10698		
10	8127		
11	6476	N	A
12	11873		
13	8381		
14	5841		
15	10825		
16	9492		
17	9460		
18	10667		
19	10540		

Average Background counts per minute 50
 MDA (dpm/100cm²) 861

$$\frac{\text{dpm}}{100\text{cm}^2} = \frac{(\text{gross count rate}) - (\text{background count rate})}{(\text{efficiency}) \times \frac{(\text{probe area})}{100\text{cm}^2}}$$

SURVEYOR D. M. [Signature]
 SUPERVISOR P. [Signature]

REMOVABLE CONTAMINATION

DATE: 4-19-93

LOCATION: BUILDING 65 ROOF

COUNTER: L2929 69660
Model Number

EFFICIENCY: 0.37 0.22
Alpha Beta/Gamma

LOCATION	DPM/100cm ²		LOCATION	DPM/100cm ²		LOCATION	DPM/100cm ²	
	By	α		By	α		By	α
1	<MDA	<MDA	21	<MDA	<MDA			
2			22					
3			23					
4			24	∇	∇			
5								
6								
7								
8								
9								
10								
11								NA
12					NA			
13								
14								
15								
16								
17								
18								
19								
20	∇	∇						

ALPHA BKG COUNT RATE: 0.57
 BETA/GAMMA BKG COUNT RATE: 38

α MDA (dpm/100cm²) 13
 βγ MDA (dpm/100cm²) 106

SURVEYOR J. Mojica
 SUPERVISOR P. Jua

EXPOSURE RATE SURVEY RESULTS

DATE: 4-28-93

LOCATION: BLDG. 65 ROOF

INSTRUMENT: L-19 PRO62196
MODEL NUMBER

CAL DUE: 3-17-94

LOCATION NUMBER	EXPOSURE RATE <small>μ R/h</small>		LOCATION NUMBER	EXPOSURE RATE <small>μ R/h</small>	
1	8 c	8 lm	20	13 c	13 lm
2	8 c	8	21	13 c	13
3	10 c	10	<div style="font-size: 4em; font-weight: bold; transform: rotate(-45deg); display: inline-block;">N A</div>	c	
4	10 c	10		c	
5	9 c	9		c	
6	10 c	10		c	
7	10 c	10		c	
8	10 c	10		c	
9	10 c	10		c	
10	10 c	10		c	
11	10 c	10		c	
12	10 c	10		c	
13	14 c	12		c	
14	12 c	10		c	
15	10 c	10		c	
16	9 c	9		c	
17	10 c	10		c	
18	15 c	14		c	
19	12 c	12		c	

MEASUREMENTS TAKEN AT 1m ABOVE THE FLOOR. & CONTACT

SURVEYOR P. Dwyer
 SUPERVISOR P. Dwyer



SCIENTECH, INC.

2105 LUNA ROAD, SUITE 300 ■ GARLAND, TX 75042 ■ PHONE: 214-347-1714 ■ FAX: 214-347-0364

REPORT OF ANALYSIS
ANL JOB# 93-00471
4/28/93

NES

MATRIX: ROOF MAT.

LAB ID: AA21087

SAMPLE ID: AL002 - LOCATION 12

ANALYSIS *	ACTIVITY		ERROR EST.	MDA	UNITS
Th-232	0.00 E+0	+-	0.00 E+0	3 E+1	pCi/g
U-238 (PA-234)	2.51 E+1	+-	4.52 E+0	3 E+0	pCi/g
CS-137	4.64 E-1	+-	3.11 E-2	5 E-2	pCi/g
K-40	3.16 E+0	+-	2.97 E-1	3 E-1	pCi/g

* - Analyzed by Gamma Spec.

Joe Sikes / Kent Surface
Radiochemistry Managers



SCIENTECH, INC.

2105 LITKA ROAD, SUITE 190 ■ CARROLLTON, TX 75006 ■ PHONE: 214-347-1714 ■ FAX: 214-347-4268

REPORT OF ANALYSIS
ANL JOB# 93-00471
4/28/93

NES

MATRIX: ROOF MAT.

LAB ID: AA21088

SAMPLE ID: AL003 - Location 18

ANALYSIS *	ACTIVITY		ERROR EST.	MDA	UNITS
Th-232	0.00 E+0	+ -	0.00 E+0	3 E+1	pCi/g
U-238 (Pa-234)	2.64 E+1	+ -	4.99 E+0	3 E+0	pCi/g
Cs-137	3.36 E-1	+ -	2.69 E-2	5 E-2	pCi/g
K-40	2.93 E+0	+ -	2.63 E-1	3 E-1	pCi/g

* - Analyzed by Gamma Spec.

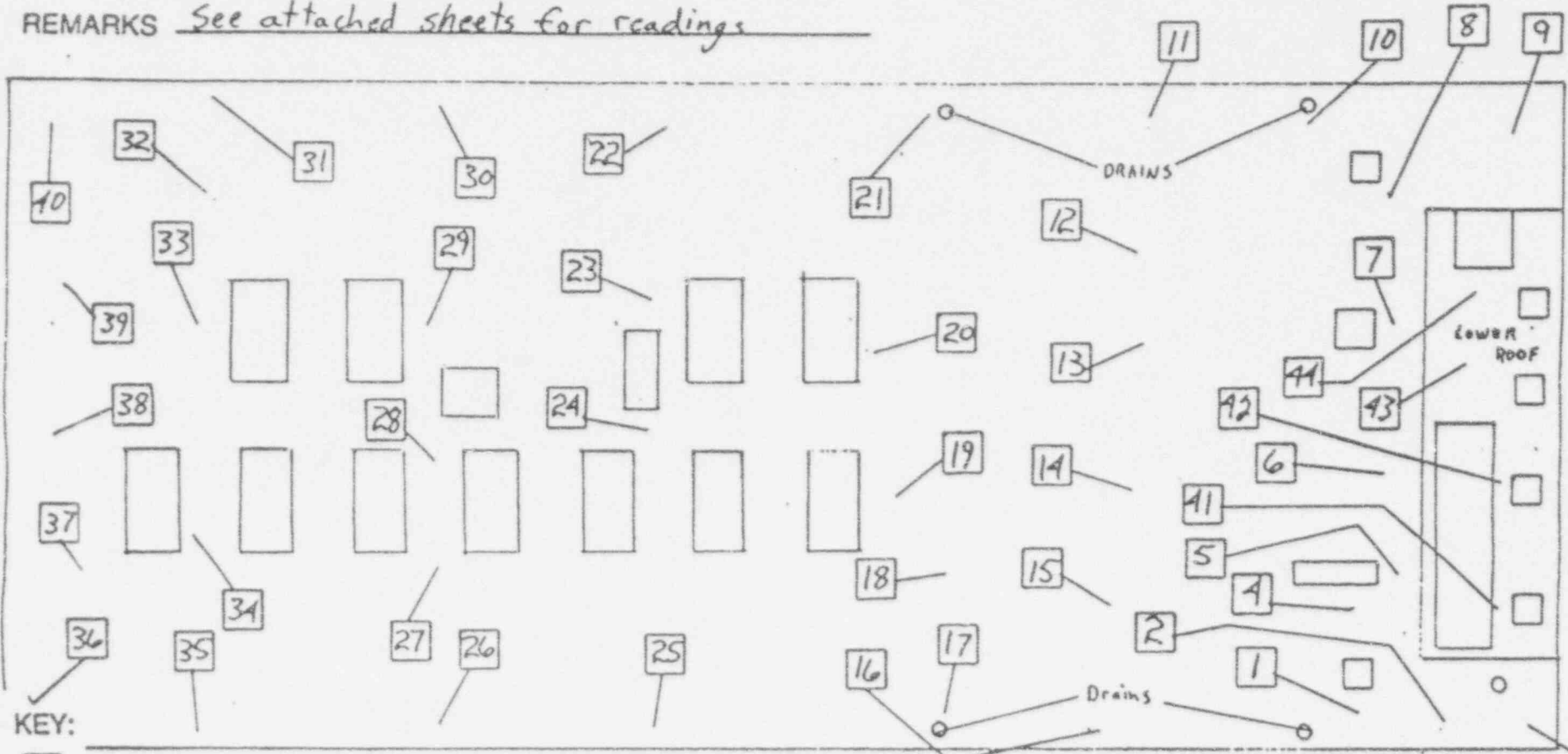
Joe Sikes / Kert Surface
Radiochemistry Managers

FIELD SURVEY MAP LOCATION BLDG. 65 / AREA ROOF

DATE 5-3-93 TIME _____ REASON FOR SURVEY _____

INSTRUMENT USED L-2220/L-2220 SERIAL NO. 50062/48409

REMARKS See attached sheets for readings



KEY:

 = DIRECT MEASUREMENT

NOTE: ALL AREAS SCANNED 100%. ELEVATED AREA USED AS DIRECT MEASUREMENT LOCATION

SURVEYED BY: *[Signature]*

REVIEWED BY: *[Signature]*

SIGNATURE

DATE 5-3-93

ELEVATED READINGS CONTAMINATION RESULTS

DATE: 5-3-93

LOCATION: BLDG 65 Roof

INSTRUMENT: L-2220 #50062

PROBE: 44-9/042929 EFF: 0.21
Model

PRE-DECONTAMINATION RESULTS

POST-DECONTAMINATION RESULTS

GRID NUMBER	CPM	dpm/100cm ²	GRID NUMBER	CPM	dpm/100cm ²
1	271	8603			
2	359	11397			
3	233	7397			
4	221	7016			
5	527	16730			
6	325	10318			
7	261	8286			
8	149	4730			
9	453	14381			
10	303	9619			
11	273	8667			
12	137	4349			
13	301	9556			
14	177	5619			
15	179	5683			
16	309	9810			
17	475	15079			
18	217	6889			

Average background counts per min. 49

NOTE: DPM/100 cm² calculated as follows:

$$\frac{\text{dpm}}{100\text{cm}^2} = \frac{(\text{gross count rate}) - (\text{background count rate})}{(\text{efficiency}) \times \frac{(\text{probe area})}{100\text{cm}^2}}$$

SURVEYOR D. M. Kelly
SUPERVISOR P. Berg

ELEVATED READINGS CONTAMINATION RESULTS

DATE: 5-3-93

LOCATION: BLDG. 65 Roof

INSTRUMENT: L-2220 #50062

PROBE: 4-9/042929 EFF: 0.21

Model

PRE-DECONTAMINATION RESULTS

POST-DECONTAMINATION RESULTS

GRID NUMBER	CPM	dpm/100cm ²	GRID NUMBER	CPM	dpm/100cm ²
19	259	8222			
20	185	5873			
21	233	7397			
22	317	10064			
23	309	9810			
24	195	6191			
25	267	8476			
26	181	5746			
27	137	4349			
28	113	3587			
29	185	5873			
30	169	5365			
31	95	3016			
32	147	4667			
33	87	2762			
34	205	6508			
35	107	3397			
36	71	2254			

Average background counts per min. 49

NOTE: DPM/100 cm² calculated as follows:

$$\frac{\text{dpm}}{100\text{cm}^2} = \frac{(\text{gross count rate}) - (\text{background count rate})}{(\text{efficiency}) \left(\frac{\text{probe area}}{100\text{cm}^2} \right)}$$

SURVEYOR Di-M-U
 SUPERVISOR P. Jones



SCIENTECH, INC.

USING TECHNOLOGY TO CREATE SOLUTIONS

SCIENTECH has been ranked by Inc. Magazine as one of America's fastest growing companies.

Our remarkable growth can be attributed to our dedication to finding the right answers.

We solve some of today's most challenging problems in risk management, environmental protection, worker protection, safety and reliability, engineering, information management, and security.

That is why we are called upon by a growing number of leaders in business, industry, and government.

CHALLENGE US!

COMMENTS: _____

TO BE COMPLETED BY SENDER:

TX # _____

TIME SENT: _____

SC-FRM-01 (X4104/93)

2105 Luna Road, Ste. 390
Carrollton, TX 75006

Phone: (214)247-1714
Fax: (214)247-0268

TELEFAX TRANSMITTAL

Date: 7/5/93 Time: _____

FROM: Kent Surfer

Charge No. _____

TO: Mark Bradert

Company: _____

City/State: _____

Fax No.: 216-641-5333

Verify No.: _____

Total Pages 2 (Including this page)



SCIENTECH, INC.

Analytical Report

07/05/93

2105 LIMA ROAD, SUITE 350 • CARROLLTON, TX 75006 • PHONE 214-247-1714 • FAX 214-247-0766

SAMPLE MATRIX: ROOF MATERIAL

RESULTS SUBMITTED TO: ATTN: Mark Gradert
ALCOA
1600 Harvard Ave.
Cleveland, OH 44103
(216)641-4366 Fax(216)641-5333

DATE COLLECTED: 05/04/93
DATE RECEIVED: 05/17/93
DATE COMPLETED: 07/05/93

Sample Identification: AL004
Laboratory Identification: 93-00557 / AA22223

ANALYSIS		ACTIVITY	UNITS	LLD (uci/g)
Uranium 234		3.29 E+0	pCi/g	6.00E-8
.....Error Est. (U-234)	+/-	2.59 E-1	pCi/g	6.00E-8
Uranium 235		2.02 E-1	pCi/g	2.00E-8
.....Error Est. (U-235)	+/-	6.50 E-2	pCi/g	2.00E-8
Uranium 238		1.27 E+1	pCi/g	9.00E-8
.....Error Est. (U-238)	+/-	5.05 E-1	pCi/g	9.00E-8

1 of 6

LLD = Lower Limit of Detection

Joe Sikes / Kert Surface
Radiochemistry Managers



SCIENTECH, INC.

2305 LIMA ROAD, SUITE 300 W CARROLLTON, TX 75006 W PHONE: 214-247-1714 W FAX: 214-247-8286

Analytical Report

07/05/93

SAMPLE MATRIX: ROOF MATERIAL

RESULTS SUBMITTED TO: ATTN: Mark Gradert
ALCOA
1600 Harvard Ave.
Cleveland, OH 44105
(216)641-4366 Fax(216)641-5333

DATE COLLECTED: 05/04/93

DATE RECEIVED: 05/17/93

DATE COMPLETED: 07/05/93

Sample Identification: AL011

Laboratory Identification: 93-00557 / AA22230

ANALYSIS		ACTIVITY	UNITS	LLD (uCi/g)
Uranium 234		8.46 E+0	pCi/g	1.00E-7
.....Error Est. (U-234)	+ -	4.40 E-1	pCi/g	1.00E-7
Uranium 235		6.93 E-1	pCi/g	3.00E-8
.....Error Est. (U-235)	+ -	1.26 E-1	pCi/g	3.00E-8
Uranium 238		2.78 E+1	pCi/g	4.00E-8
.....Error Est. (U-238)	+ -	7.89 E-1	pCi/g	4.00E-8

LLD = Lower Limit of Detection

RS
Joe Sikes / Kert Surface
Radiochemistry Managers



SCIENTECH, INC.

3185 LEINA ROAD, SUITE 750 ■ CARROLLTON, TX 75006 ■ PHONE: 214-343-4714 ■ FAX: 214-347-4266

Analytical Report

07/05/93

SAMPLE MATRIX: ROOF MATERIAL

RESULTS SUBMITTED TO: ATTN: Mark Gradert
ALCOA
1600 Harvard Ave.
Cleveland, OH 44105
(216)641-4366 Fax(216)641-5333

DATE COLLECTED: 05/04/93
DATE RECEIVED: 05/17/93
DATE COMPLETED: 07/05/93

Sample Identification: AL018

Laboratory Identification: 93-00557 / AA22237

ANALYSIS		ACTIVITY	UNITS	LLD (uCi/g)
Uranium 234		1.05 E+1	pCi/g	6.00E- 8
.....Error Est. (U-234)	+/-	4.25 E-1	pCi/g	6.00E- 8
Uranium 235		7.16 E-1	pCi/g	2.00E- 8
.....Error Est. (U-235)	+/-	1.11 E-1	pCi/g	2.00E- 8
Uranium 238		2.42 E+1	pCi/g	2.00E- 8
.....Error Est. (U-238)	+/-	6.46 E-1	pCi/g	2.00E- 8

LLD = Lower Limit of Detection

RS
Joe Bikes / Kert Surface
Radiochemistry Managers



SCIENTECH, INC.

2145 LENA ROAD, SUITE 390 • CARROLLTON, TX 75006 • PHONE 214-347-1714 • FAX 214-247-4268

Analytical Report

07/05/93

SAMPLE MATRIX: ROOF MATERIAL

RESULTS SUBMITTED TO: ATTN: Mark Gradert
A'COA
1600 Harvard Ave.
Cleveland, OH 44105
(216)641-4366 Fax(216)641-5333

DATE COLLECTED: 05/04/93

DATE RECEIVED: 05/17/93

DATE COMPLETED: 07/05/93

Sample Identification: ALO23

Laboratory Identification: 93-00557 / AA22242

ANALYSIS		ACTIVITY	UNITS	LLD (uci/g)
Uranium 234		4.12 E+0	pCi/g	8.00E-8
.....Error Est. (U-234)	+ -	2.81 E-1	pCi/g	8.00E-8
Uranium 235		3.26 E-1	pCi/g	2.00E-8
.....Error Est. (U-235)	+ -	7.87 E-2	pCi/g	2.00E-8
Uranium 238		1.75 E+1	pCi/g	4.00E-8
.....Error Est. (U-238)	+ -	5.71 E-1	pCi/g	4.00E-8

4

LLD = Lower Limit of Detection

RS
Joe Sikes / Kert Surface
Radiochemistry Managers



SCIENTECH, INC.

2105 LENA ROAD, SUITE 200 • CARROLLTON, TX 75606 • PHONE: 214-247-1714 • FAX: 214-247-0266

Analytical Report

07/05/93

SAMPLE MATRIX: ROOF MATERIAL

RESULTS SUBMITTED TO: APTN: Mark Gradert
ALCONA
1600 Harvard Ave.
Cleveland, OH 44105
(216)641-4366 Fax(216)641-5333

DATE COLLECTED: 05/06/93

DATE RECEIVED: 05/17/93

DATE COMPLETED: 07/05/93

Sample Identification: RLO25

Laboratory Identification: 93-00557 / AA22266

ANALYSIS		ACTIVITY	UNITS	LLD (uCi/g)
Uranium 234		5.86 E+0	pCi/g	2.00E-7
.....Error Est. (U-234)	+ -	5.00 E-1	pCi/g	2.00E-7
Uranium 235		2.69 E-1	pCi/g	5.00E-8
.....Error Est. (U-235)	+ -	1.07 E-1	pCi/g	5.00E-8
Uranium 238		2.48 E+1	pCi/g	1.00E-7
.....Error Est. (U-238)	+ -	9.94 E-1	pCi/g	1.00E-7

E

LLD = Lower Limit of Detection

R.S.
Joe Sikas / Kert Surface
Radiochemistry Managers



SCIENTECH, INC.

2101 LINK ROAD, SUITE 204 • CARROLLTON, TX 75606 • PHONE: 214-247-1714 • FAX: 214-247-0266

Analytical Report

07/05/93

SAMPLE MATRIX: ROOF MATERIAL

RESULTS SUBMITTED TO: ATTN: Mark Gradert
ALCOA
1600 Harvard Ave.
Cleveland, OH 44105
(216)641-4366 Fax(216)641-5333

DATE COLLECTED: 05/04/93
DATE RECEIVED: 05/17/93
DATE COMPLETED: 07/05/93

Sample Identification: AL028
Laboratory Identification: 93-00557 / AA22247

ANALYSIS		ACTIVITY	UNITS	LLD (uci/g)
Uranium 234		1.61 E+1	pCi/g	1.00E-7
.....Error Est. (U-234)	+/-	6.63 E-1	pCi/g	1.00E-7
Uranium 235		9.90 E-1	pCi/g	3.00E-8
.....Error Est. (U-235)	+/-	1.65 E-1	pCi/g	3.00E-8
Uranium 238		5.61 E+1	pCi/g	5.00E-8
.....Error Est. (U-238)	+/-	1.23 E+0	pCi/g	5.00E-8

6

LLD = Lower Limit of Detection

R.S.
Joe Sikes / Kurt Surface
Radiochemistry Managers

CLEVELAND REMEDIATION COSTS

1.	Survey Building 65	-	\$ 11,250
2.	Survey Documents - Building 25	-	\$ 15,969
3.	Ventilation Survey - Building 65	-	\$ 7,000
4.	Additional Roof Surveys (Buildings 5, 44, 52, 53)	-	\$ 16,130
5.	Building 65 Remediation - 2nd Floor Blower	-	\$ 20,000
6.	Remediation of HVAC Building 65	-	\$170,386
7.	Roof Remediation - Building 65	-	\$123,759
8.	Drain Removal - Building 65	-	\$ 26,442
9.	Sample Analysis	-	\$ 3,625
10.	Disposal - 32 boxes	-	\$155,823
11.	Transportation - 6 trucks	-	<u>\$ 29,400</u>
			\$579,784