



# INTEGRATED ENVIRONMENTAL SERVICES

A Division of ~~TRUSS~~ and  
Unit of The Penn Central Corporation  
44 Shelter Rock Road  
Danbury, CT 06810

Deliver to: KEN LAMBERT

Date: 6/4/93

Number of Pages (including this cover sheet) 10

Time: 0815

Fax Number: 708-790-5665

Fax Number: (203) 792-3168

From: F REBHAW

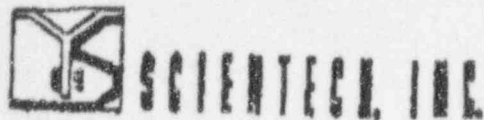
Phone: (203) 796-5221

Comments: DEAR KEN

HERE ARE 9 ADDITIONAL SAMPLE ANALYSIS  
SHEETS OF ALCOA BUILDING GS ROOF  
MATERIAL. PLEASE COMBINE THESE WITH  
THE THREE ATTACHED TO MY LETTER OF  
6/2/93. ANY QUESTIONS PCS CALL

FRANK

A/L



1104 LYNN ROAD, RTT# 290 ■ CARROLLTON, TX 75666 ■ PHONE: 214-347-1714 ■ FAX: 214-347-0268

REPORT OF ANALYSIS  
ANL JOB# 93-00557  
6/1/93

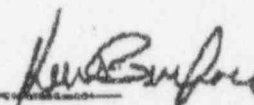
ALCQA

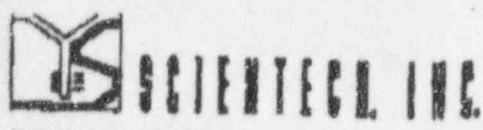
MATRIX: ROOF MAT.

LAB ID: AA22223  
SAMPLE ID: AL004

ANALYSIS *	ACTIVITY		ERROR EST.	MDA	UNITS
Tl-208 (Ac-228)	1.16 E+0	+-	1.49 E-1	1 E-1	pCi/g
U-238 (Pa-234)	1.26 E+1	+-	5.54 E+0	4 E+0	pCi/g
Ce-137	5.68 E-1	+-	9.80 E-2	8 E-2	pCi/g
K-40	6.65 E+0	+-	8.29 E-1	4 E-1	pCi/g

\* - Analyzed by Gamma Spec.

  
Joe Sikes / Kert Surface  
Radiochemistry Managers



3105 LEXA ROAD, SUITE 300 ■ CARROLLTON, TX 75006 ■ PHONE: 214-347-7714 ■ FAX: 214-347-0268

REPORT OF ANALYSIS  
ANL JOB# 93-00557  
6/1/93

ALCOA

MATRIX: ROOF MAT.

LAB ID: AA22225  
SAMPLE ID: AL005

ANALYSIS *	ACTIVITY		ERROR EST.	MDA	UNITS
Th-232 (Ac-228)	1.11 E+0	+-	1.54 E-1	8 E-2	pCi/g
U-238 (Po-234)	2.24 E+1	+-	4.28 E+0	4 E+0	pCi/g
Cs-137	8.04 E-1	+-	8.18 E-2	4 E-2	pCi/g
K-40	8.28 E+0	+-	2.08 E-1	3 E-1	pCi/g

\* - Analyzed by Gamma Spec.

*Karl Surface*  
Joe Giles / Karl Surface  
Radiochemistry Managers



**SCIENTECH, INC.**

2101 ALMA ROAD, SUITE 300 • CHARLOTTE, NC 27506 • PHONE 314-347-0744 • FAX 214-347-0368

**REPORT OF ANALYSIS**  
**ANL JOB# 83-00557**  
**6/1/83**

**ALCOA**

**MATRIX: ROOF MAT.**

**LAB ID: AA22224**  
**SAMPLE ID: ALD06**

ANALYSIS *	ACTIVITY		ERROR EST.	MDA	UNITS
Th-232 (Ac-228)	1.08 E+0	+-	1.40 E-1	8 E-2	pCi/g
U-238 (Pa-234)	8.88 E+1	+-	4.24 E+0	4 E+0	pCi/g
Ce-137	5.82 E-1	+-	8.66 E-2	8 E-2	pCi/g
K-40	3.64 E+0	+-	3.11 E-1	3 E-1	pCi/g

\* - Analyzed by Gamma Spec.

Joe Giles / Keri Surface  
 Radiochemistry Managers



SCIENTECH, INC.

2105 LEXA ROAD, SUITE 100 ■ CARROLLTON, TX 75006 ■ PHONE 214-347-1114 ■ FAX 214-347-0888

REPORT OF ANALYSIS  
ANL JOB# 93-00557  
6/1/93

ALCOA

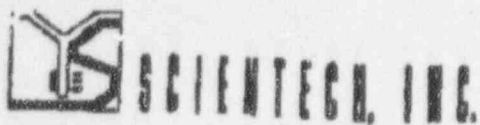
MATRIX: ROOF MAT.

LAB ID: AA22226  
SAMPLE ID: AL007

ANALYSIS *	ACTIVITY		ERROR EST.	MDA	UNITS
Th-232 (Ac-228)	9.42 E-1	+-	1.22 E-1	1 E-1	pCi/g
U-238 (Pa-234)	2.89 E+1	+-	6.20 E+1	4 E+0	pCi/g
Ce-137	1.08 E+0	+-	6.46 E-2	6 E-2	pCi/g
K-40	2.84 E+0	+-	8.28 E-1	4 E-1	pCi/g

\* - Analyzed by Gamma Spec.

Joe Sikes / Karl Surfaea  
Radiochemistry Managers



3104 LUTS ROAD, SUITE 300 • CARROLLTON, TEXAS • PHONE 214-477-1714 • FAX 214-477-0288

REPORT OF ANALYSIS  
ANL JOB# 93-00557  
6/1/93

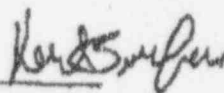
ALCOA

MATRIX: ROOF MAT.

LAB ID: AA22227  
SAMPLE ID: AL008

ANALYSIS *	ACTIVITY		ERROR EST.	MDA	UNITS
Th-232 (Ac-228)	1.40 E+0	+-	1.38 E-1	1 E -1	pCi/g
U-238 (Pb-214)	4.12 E+1	+-	7.00 E+0	4 E +0	pCi/g
Ce-137	1.18 E+0	+-	6.87 E-2	6 E -2	pCi/g
K-40	6.91 E+0	+-	3.68 E-1	4 E -1	pCi/g

\* - Analyzed by Gamma Spec.

  
Joe Sikes / Kart Surface  
Radiochemistry Managers



SCIENTECH, INC.

2105 E. SA ROAD, SUITE 100 • CLEVELAND, OH 44130 • PHONE: 214-247-1714 • FAX: 214-247-0266

REPORT OF ANALYSIS  
ANL JOB# 93-00557  
6/1/93

ALCOA

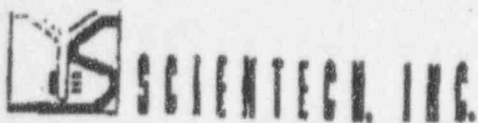
MATRIX: ROOF MAT.

LAB ID: AA22228  
SAMPLE ID: AL008

ANALYSIS *	ACTIVITY		ERROR EST.	MDA	UNITS
Th-232 (Ac-228)	1.07 E+0	+-	1.39 E-1	1 E-1	pCi/g
U-238 (Pa-234)	4.58 E+1	+-	7.79 E+0	4 E+0	pCi/g
Ce-137	1.04 E+0	+-	6.26 E-2	6 E-2	pCi/g
K-40	4.52 E+0	+-	4.07 E-1	4 E-1	pCi/g

\* - Analyzed by Gamma Spec.

  
 Joe Stebe / Kent Surface  
 Radiochemistry Managers



2197 LEXA ROAD SUITE 100 • CARROLLTON, VA 22026 • PHONE: 202-247-1714 • FAX: 202-247-0268

REPORT OF ANALYSIS  
ANL JOB# 83-00557  
6/1/93

ALCOA

MATRIX: ROOF MAT.

LAB ID: AA22229  
SAMPLE ID: AL010

ANALYSIS *	ACTIVITY		ERROR EST.	MDA	UNITS
Tl-232 (Ac-228)	1.08 E+0	+-	1.80 E-1	1 E-1	pCi/g
U-238 (Pb-214)	4.22 E+1	+-	7.17 E+0	4 E+0	pCi/g
Cs-137	1.08 E+0	+-	6.48 E-2	6 E-2	pCi/g
K-40	5.17 E+0	+-	4.86 E-1	4 E-1	pCi/g

\* - Analyzed by Gamma Spec.

Joe Biles / Karl Surface  
Radiochemistry Managers



2104 ALVA ROAD, SUITE 100 • COLUMBIA, TN 37606 • PHONE: 214-367-1714 • FAX: 214-367-0166

REPORT OF ANALYSIS  
ANL JOB# 93-00557  
6/1/93

ALCOA

MATRIX: ROOF MAT.

LAB ID: AA22230  
SAMPLE ID: AL011

ANALYSIS *	ACTIVITY		ERROR EST.	MDA	UNITS
Th-232 (Ac-228)	1.08 E+0	+-	1.97 E-1	8 E-2	pCi/g
U-238 (Pa-234)	4.79 E+1	+-	8.04 E+0	4 E+0	pCi/g
Ce-137	8.15 E-1	+-	4.88 E-2	8 E-2	pCi/g
K-40	4.50 E+0	+-	4.08 E-1	3 E-1	pCi/g

\* - Analyzed by Gamma Spec.

*Karl Burface*  
Joe Sikes / Karl Burface  
Radiochemistry Managers



SCIENTECH, INC.

3801 LOMA ROAD, SUITE 200 ■ CARROLLTON, TX 75006 ■ PHONE: 214-247-1714 ■ FAX: 214-247-8988

REPORT OF ANALYSIS  
ANL JOB# 93-00567  
6/1/93

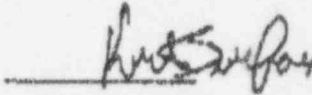
ALCOA

MATRIX: ROOF MAT.

LAB ID: AA2223  
SAMPLE ID: AL012

ANALYSIS *	ACTIVITY		ERROR EST.	MDA	UNITS
Th-232 (Ac-228)	1.08 E+0	+-	1.37 E-1	6 E-8	pCi/g
U-238 (Pa-234)	1.91 E+1	+-	8.44 E+0	3 E-8	pCi/g
Ce-137	7.17 E-1	+-	4.30 E-2	4 E-8	pCi/g
K-40	8.30 E+0	+-	2.97 E-1	3 E-1	pCi/g

\* - Analyzed by Gamma Spec.

  
Joe Bikes / Kent Burface  
Radiochemistry Manager

ORISE  
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

June 15, 1993

Mr. Ken Lambert  
Region III  
799 Roosevelt Road  
Glen Ellyn, IL 60137

Subject: ANALYSES OF CHEMETRON VICINITY SOIL SAMPLES (RFTA #93-29)  
(ALCOA)

Dear Mr. Lambert:

Per NRC request, ORISE performed isotopic uranium analyses on three soil samples from the Chemetron vicinity properties. The results are presented in the attached table along with the results from a blank analysis and the analysis of a known standard.

These measurements were performed using our standard alpha spectrometry method for isotopic uranium analysis. Sample 1 appears to be a background sample and samples 2 and 3 contain low level depleted uranium.

If you have questions, please call Mark Laudeman at 615-576-3561 or me at 615-576-5031.

Sincerely,



William L. (Jack) Beck  
Assistant Program Director  
Environmental Survey and  
Site Assessment Program

Attachment

WLB:mks

cc: T. Mo, NRC/NMSS, 6H3  
D. Tiktinsky, NRC/NMSS, 6E6  
J. Swift/Brown, NRC/NMSS, 6H3  
M. Landis, ORISE  
J. Berger, ORISE  
PMDA, 6E6  
File/221

17/7

9312080009 2pp

ANALYSES OF CHEMETRON VICINITY SOIL SAMPLES

NRC Sample Number	Radionuclide and Activity (pCi/g)	Uncertainty(2 $\delta$ ) (pCi/g)	Minimum Detectable Activity (pCi/g)
1	U-238 = 0.37	$\pm 0.09$	0.02
1	U-235 = 0.04	$\pm 0.03$	0.02
1	U-234 = 0.35	$\pm 0.10$	0.9
2	U-238 = 7.25	$\pm 0.43$	0.9
2	U-235 = 0.11	$\pm 0.08$	0.12
2	U-234 = 1.86	$\pm 0.22$	0.11
3	U-238 = 4.32	$\pm 0.33$	0.02
3	U-235 = 0.09	$\pm 0.06$	0.06
3	U-234 = 1.63	$\pm 0.20$	0.07
Blank	U-238 = 0.08	$\pm 0.07$	0.22
Blank	U-235 = 0.11	$\pm 0.11$	0.30
Blank	U-234 = 0.1	$\pm 0.12$	0.29
U Standard *	U-238 = 1.06	$\pm 0.15$	0.02
U Standard *	U-235 = 0.06	$\pm 0.05$	0.05
U Standard *	U-234 = 1.12	$\pm 0.16$	0.06

\* The known values for the Rocky Flatts uranium standards are U-238 =  $1.05 \pm 0.05$  pCi/g and U-234 =  $1.06 \pm 0.04$  pCi/g.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137-5927

JUL 26 1993

Chemetron Corporation  
ATTN: David R. Sargent  
Assistant Secretary  
1 Citizens Plaza  
Providence, RI 02903

License No. SUB-1357  
Docket No. 040-08724

Dear Mr. Sargent:

Attached are the results of the Oak Ridge Institute for Science and Education (ORISE) analysis of ALCOA, Building 65 roofing material sample. ORISE has concluded that the activity is from depleted uranium.

If you have any questions, please call Ken Lambert of my staff at 708/790-5292 or myself at 708/790-5721.

Sincerely,

John A. Grobe, Chief  
Fuel Cycle and Decommissioning Branch

Attachment: As stated

See Attached Distribution

A/E

~~92080300047~~ ZAP.

Distribution:

cc w/enclosure:

Robert E. Owen, Administrator,  
Radiological Health Program, Ohio  
Department of Health

Donald Schregardus, Director, Ohio  
Environmental Protection Agency

Mayor K. Edwards, Village of  
Newburgh Heights

Mayor Lou Bacci, Village of  
Cuyahoga Heights

Kathryn Jones, Ohio Environmental  
Protection Agency, N.E.D.O.

James Benetti, 5AT-26, U.S.  
Environmental Protection Agency

Todd Brady, Cuyahoga County Board  
of Health

The Honorable Howard K. Metzenbaum,  
U.S. Senate

The Honorable John Glenn,  
U.S. Senate

The Honorable Martin R. Hoke,  
U.S. House of Representatives

Chris Trepal, Co-Director, The  
Earth Day Coalition

Barry Koh, B. Koh & Associates,  
Inc.

Dan Ryan, Aluminum Company  
of America

R. L. Bangart, NMSS

J. H. Austin, NMSS

T. C. Johnson, NMSS

A. M. Huffert, NMSS

C. E. Norelius, RIII

J. A. Grobe, RIII

G. M. McCann, RIII

**D. J. Srenfawski, RIII**

ORISE  
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

June 30, 1993

Mr. Kerri Lambert  
Region III  
799 Roosevelt Road  
Glen Ellyn, IL 60137

**SUBJECT: ANALYSES OF CHEMETRON VICINITY ROOFING SAMPLE (RFTA #93-29)**

Dear Mr. Lambert:

Per NRC request, ORISE performed isotopic uranium analyses on a roofing sample from a Chemetron vicinity property. This sample was received in a finely-ground condition and no further sample preparation was performed. The results from 3 independent isotopic uranium analyses and one gamma spec analysis are presented in the attached table.

The isotopic uranium measurements were performed using our standard alpha spectrometry method which uses a one gram aliquot for isotopic uranium analysis. The wide variation in these results indicates that the sample is very non-homogeneous in nature and that the bulk of the radioactivity is likely in "hot particles". An independent gamma-spectrographic analysis of the entire sample gives a value of about 250 pCi/g of U-238. Consequently, we would conclude that the 3rd analysis best approximates the average value for the sample. The isotopic ratios for all analyses indicate that the contaminant is depleted uranium.

If you have questions, please call Mark Laudeman at 615-576-3561 or me at 615-576-5031.

Sincerely,



William L. (Jack) Beck  
Assistant Program Director  
Environmental Survey and  
Site Assessment Program

Attachment

WLB:mks

cc: T. Mo, NRC/NMSS, 6H3  
D. Tiktinsky, NRC/NMSS, 6E6  
J. Swift/Brown, NRC/NMSS, 6H3  
M. Landis, ORISE  
J. Berger, ORISE  
PMDA, 6E6  
File/221

JUL 9 1993

9308030057 ZPP

**ANALYSES OF CHEMETRON VICINITY ROOFING SAMPLE**

<b>NRC Roofing Sample Analysis Number</b>	<b>Radionuclide and Activity (pCi/g)</b>	<b>Uncertainty(2δ) (pCi/g)</b>	<b>Minimum Detectable Activity (pCi/g)</b>
1	U-238 = 112.00	± 3.77	0.24
1	U-235 = 2.10	± 0.59	0.31
1	U-234 = 17.56	± 1.51	0.52
2	U-238 = 22.03	± 1.76	0.55
2	U-235 = 0.37	± 0.34	0.51
2	U-234 = 6.12	± 1.05	0.95
3	U-238 = 271.27	± 2.53	0.60
3	U-235 = 4.98	± 0.39	0.60
3	U-234 = 40.39	± 0.98	0.10
4	U-238 = 268*	± 2.7	
4	U-235 = 4.6*	± 0.5	

\*Gamma Spectrometry Data

JUL 26 1993

Chemetron Corporation  
ATTN: David R. Sargent  
Assistant Secretary  
1 Citizens Plaza  
Providence, RI 02903

License No. SUB-1357  
Docket No. 040-08724

Dear Mr. Sargent:

It has come to our attention that letter, dated June 23, 1993, transmitting Inspection Report No. 040-08724/93-001, contained an error. The letter stated the enclosure was Inspection Report No. 040-08767/93-001, it should have stated the enclosure was Inspection Report No. 040-08724/93-001.

Enclosed is a corrected copy. We apologize for any inconvenience this may have caused you.

Sincerely,

Original signed by  
John A. Grobe

John A. Grobe, Chief  
Fuel Cycle and Decommissioning Branch

Enclosure: Corrected Copy  
of letter

See Attached Distribution:

<sup>yes</sup>  
RIII  
Lambert/jp  
07/09/93

RIII  
McCann  
7/22/93

RIII  
Grobe  
7/21/93

17/9

~~9308030125~~ 3 pp.

Enclosure

Chemetron Corporation

2 JUN 23 1993

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

ORIGINAL SIGNED BY W. L. AXELSON

Charles E. Norelius, Director  
Division of Radiation Safety  
and Safeguards

Enclosure: Inspection Report  
No. 040-08767/93-001(DRSS)

08724

cc w/enclosure:

Robert E. Owen, Administrator,  
Radiological Health Program, Ohio  
Department of Health

Donald Schregardus, Director, Ohio  
Environmental Protection Agency

Mayor K. Edwards, Village of  
Newburgh Heights

Kathryn Jones, Ohio Environmental  
Protection Agency, N.E.D.O.

James Benetti, 5AT-26, U.S.  
Environmental Protection Agency

Todd Brady, Cuyahoga County Board  
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The Honorable Howard K. Metzenbaum,  
U.S. Senate

The Honorable John Glenn,  
U.S. Senate

The Honorable Martin R. Hoke,  
U.S. House of Representatives

The Honorable Frank Mahnic, Jr.,  
State of Ohio

Chris Trepal, Co-Director, The  
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R. L. Bangart, NMSS

J. H. Austin, NMSS

T. C. Johnson, NMSS

(CONTINUE ON NEXT PAGE)

JUL 2 8 1993

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A. M. Huffert, NMSS

C. E. Norelius, RIII

J. A. Grobe, RIII

G. M. McCann, RIII

D. J. Sreniawski, RIII

bcc w/enclosure:

PUBLIC