Umetco Minerals Corporation

PO BOX 579, 4625 ROYAL AVENUE • NIAGARA FALLS, NEW YORK 14302

July 25, 1985

Mr. Robert F. Kelly
Senior Radiologist
New York State - Department of Labor
State Office Building
65 Court Street
Buffalo, NY 14202

Subject: Radioactive Materials License 950-0139 - Niagara Cleanup

Dear Mr. Kelly:

As I told you in our phone conversation of July 15, 1985, I will be taking over some of R. J. Klotzbach's responsibilities because of his recent heart attack. On May 14, 1985 he sent you a letter which listed soil samples taken from the surface before excavation, after excavation at 3 depths, and after backfilling at 5 depths for a total of 64.

I am enclosing a copy of the analytical results completed by Alpha Nuclear Laboratories at Dallas, Texas. We have converted the units to pCi/gm and these, together with the various sample codes are shown in the accompanying table. You will also find enclosed a diagram which depicts the sample location.

The formula we used for conversion of units were:

Ra-226, Th-232: $\mu Ci/gm \times 10^6 = pCi/gm$

U-Nat: $\mu gm/gm \times 0.667 = pCi/gm$ .335 ?

After you have had a chance to examine the data you may wish to call me. I would appreciate any advice you could give on how to proceed with our delicensing.

Very truly yours,

Donald J. Hansen

Donald J. Hansen
Assistance Director-Technology

cc: Messrs: R. G. Beverly
L. G. Evans
T. J. Kagetsu
D. G. Millenbruch
R. L. Miller

/mau/259h
Enclosure

EDP

ALPHA NUCLEAR LABORATORIES INC.
A DIVISION OF ALPHA ENERGY LABORATORIES INC

REPORT OF ANALYSIS

ANL JOB# 85-180

UMETCO

*20 OF 65 SAMPLES FOR RA TH AND U * U-NAT REPORTED IN UNITS OF UG/G*

SAMPLE I. D.	ISOTOPE	CONCENTRATION (UCI/G)	LLD (UCI/G)
32774	RA-226	$(1.23 \pm 0.01) \times 10^{-5}$	1×10^{-7}
6189	TH-232	$(1.54 \pm 0.09) \times 10^{-5}$	6×10^{-9}
	* U-NAT	$(35.4 \pm 3.00) \times 10^{+0}$	$1 \times 10^{+0}$
32775	RA-226	$(2.80 \pm 0.03) \times 10^{-4}$	1×10^{-7}
6190	TH-232	$(3.50 \pm 0.71) \times 10^{-6}$	2×10^{-8}
	* U-NAT	$(300.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32776	RA-226	$(2.40 \pm 0.04) \times 10^{-5}$	2×10^{-7}
6191	TH-232	$(2.75 \pm 0.33) \times 10^{-5}$	2×10^{-8}
	* U-NAT	$(43.00 \pm 3.00) \times 10^{+0}$	$1 \times 10^{+0}$
32777	RA-226	$(1.40 \pm 0.02) \times 10^{-5}$	2×10^{-7}
6192	TH-232	$(1.71 \pm 0.59) \times 10^{-6}$	8×10^{-9}
	* U-NAT	$(280.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32778	RA-226	$(1.18 \pm 0.01) \times 10^{-4}$	2×10^{-7}
6193	TH-232	$(1.50 \pm 0.13) \times 10^{-5}$	8×10^{-9}
	* U-NAT	$(1.80 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
42779	RA-226	$(1.36 \pm 0.15) \times 10^{-6}$	2×10^{-7}
6194	TH-232	$(4.59 \pm 1.20) \times 10^{-7}$	8×10^{-9}
	* U-NAT	$(10.8 \pm 4.00) \times 10^{+0}$	$1 \times 10^{+0}$
32780	RA-226	$(5.40 \pm 0.51) \times 10^{-6}$	3×10^{-7}
6195	TH-232	$(3.48 \pm 0.30) \times 10^{-6}$	7×10^{-9}
	* U-NAT	$(0.1 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32781	RA-226	$(1.23 \pm 0.30) \times 10^{-6}$	2×10^{-7}
6196	TH-232	$(9.16 \pm 3.39) \times 10^{-7}$	2×10^{-8}
	* U-NAT	$(1.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32782	RA-226	$(4.31 \pm 0.34) \times 10^{-6}$	2×10^{-7}
6197	TH-232	$(1.94 \pm 7.06) \times 10^{-6}$	2×10^{-6}
	* U-NAT	$(2.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32783	RA-226	$(1.46 \pm 0.15) \times 10^{-6}$	2×10^{-7}
6198	TH-232	$(4.22 \pm 1.41) \times 10^{-7}$	5×10^{-9}
	* U-NAT	$(1.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$

9982 MONROE DRIVE SUITE 405 DALLAS, TEXAS 75220 (214) 351-6092

Swati Damle.

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REPORT OF ANALYSIS

ANL JOB# 85-180

UMETCO

*20 OF 65 SAMPLES FOR RA TH AND U * U-NAT REPORTED IN UNITS OF UG/G*

SAMPLE I. D.		ISOTOPE	CONCENTRATION(UCI/G)	LLD(UCI/G)
32784		RA-226	$(2.79 \pm 0.43) \times 10^{-6}$	4×10^{-7}
6199		TH-232	$(4.32 \pm 1.62) \times 10^{-7}$	7×10^{-9}
	*	U-NAT	$(1.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32785		RA-226	$(1.11 \pm 0.05) \times 10^{-5}$	2×10^{-7}
6200		TH-232	$(4.05 \pm 0.67) \times 10^{-6}$	8×10^{-9}
	*	U-NAT	$(15.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32786		RA-226	$(1.80 \pm 0.39) \times 10^{-6}$	3×10^{-7}
6201		TH-232	$(1.02 \pm 0.22) \times 10^{-6}$	9×10^{-9}
	*	U-NAT	$(1.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32787		RA-226	$(1.22 \pm 0.21) \times 10^{-6}$	3×10^{-7}
6202		TH-232	$(4.82 \pm 1.34) \times 10^{-7}$	7×10^{-9}
	*	U-NAT	$(1.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32788		RA-226	$(5.43 \pm 0.25) \times 10^{-6}$	2×10^{-7}
6203		TH-232	$(1.64 \pm 0.23) \times 10^{-6}$	5×10^{-9}
	*	U-NAT	$(49.00 \pm 5.00) \times 10^{+0}$	$1 \times 10^{+0}$
32789		RA-226	$(2.68 \pm 0.03) \times 10^{-6}$	2×10^{-7}
6204		TH-232	$(8.44 \pm 1.77) \times 10^{-7}$	6×10^{-9}
	*	U-NAT	$(5.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32790		RA-226	$(2.67 \pm 0.32) \times 10^{-6}$	2×10^{-7}
6205		TH-232	$(4.80 \pm 1.33) \times 10^{-7}$	5×10^{-9}
	*	U-NAT	$(9.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32791		RA-226	$(1.31 \pm 0.04) \times 10^{-5}$	2×10^{-7}
6206		TH-232	$(9.02 \pm 0.54) \times 10^{-6}$	7×10^{-9}
	*	U-NAT	$(17.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32792		RA-226	$(3.20 \pm 0.27) \times 10^{-6}$	2×10^{-7}
6207		TH-232	$(3.21 \pm 1.36) \times 10^{-7}$	8×10^{-9}
	*	U-NAT	$(3.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32793		RA-226	$(1.29 \pm 0.10) \times 10^{-6}$	1×10^{-7}
6208		TH-232	$(5.73 \pm 1.53) \times 10^{-7}$	6×10^{-9}
	*	U-NAT	$(1.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$

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REPORT OF ANALYSIS

ANL JOB# 85-181

UMETCO

*20 OF 65 SAMPLES FOR RA TH AND U *U-NAT REPORTED IN UNITS OF UG/G.*

SAMPLE I. D.		ISOTOPE	CONCENTRATION(UCI/G)	LLD(UCI/G)
32794		TH-232	$(3.26 \pm 1.30) \times 10^{-7}$	8×10^{-9}
6209		RA-226	$(1.35 \pm 0.23) \times 10^{-6}$	2×10^{-7}
	*	U-NAT	$(5.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32795		TH-232	$(2.52 \pm 0.92) \times 10^{-7}$	7×10^{-9}
6210		RA-226	$(1.71 \pm 0.19) \times 10^{-6}$	2×10^{-7}
	*	U-NAT	$(4.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32796		TH-232	$(2.74 \pm 0.95) \times 10^{-7}$	5×10^{-9}
6211		RA-226	$(1.29 \pm 0.08) \times 10^{-6}$	1×10^{-7}
	*	U-NAT	$(4.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32797		TH-232	$(9.66 \pm 2.09) \times 10^{-7}$	7×10^{-9}
6212		RA-226	$(1.17 \pm 0.03) \times 10^{-5}$	1×10^{-7}
	*	U-NAT	$(73.00 \pm 15.00) \times 10^{+0}$	$1 \times 10^{+0}$
32798		TH-232	$(1.98 \pm 0.25) \times 10^{-6}$	6×10^{-9}
6213		RA-226	$(3.45 \pm 0.09) \times 10^{-6}$	1×10^{-7}
	*	U-NAT	$(19.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32799		TH-232	$(8.95 \pm 1.91) \times 10^{-7}$	8×10^{-9}
6214		RA-226	$(1.86 \pm 0.17) \times 10^{-6}$	1×10^{-7}
	*	U-NAT	$(13.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32800		TH-232	$(1.28 \pm 0.24) \times 10^{-6}$	6×10^{-9}
6215		RA-226	$(5.69 \pm 0.35) \times 10^{-6}$	2×10^{-7}
	*	U-NAT	$(15.00 \pm 3.00) \times 10^{+0}$	$1 \times 10^{+0}$
32801		TH-232	$(4.98 \pm 1.94) \times 10^{-7}$	9×10^{-9}
6216		RA-226	$(3.92 \pm 0.39) \times 10^{-6}$	2×10^{-7}
	*	U-NAT	$(5.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32802		TH-232	$(5.61 \pm 1.55) \times 10^{-7}$	6×10^{-9}
6217		RA-226	$(2.71 \pm 0.26) \times 10^{-6}$	2×10^{-7}
	*	U-NAT	$(3.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32803		TH-232	$(2.60 \pm 0.22) \times 10^{-6}$	6×10^{-9}
6218		RA-226	$(6.07 \pm 0.08) \times 10^{-5}$	2×10^{-7}
	*	U-NAT	$(14.0 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$

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*20 OF 65 SAMPLES FOR RA TH AND U *U-NAT REPORTED IN UNITS OF UG/G.*

SAMPLE I. D.	ISOTOPE	CONCENTRATION(UCI/G)	LLD(UCI/G)
32804	TH-232	$(9.69 \pm 2.24) \times 10^{-7}$	8×10^{-9}
6219	RA-226	$(1.88 \pm 0.22) \times 10^{-6}$	3×10^{-7}
	* U-NAT	$(25.00 \pm 4.00) \times 10^{+0}$	$1 \times 10^{+0}$
32805	TH-232	$(1.19 \pm 0.26) \times 10^{-6}$	8×10^{-9}
6220	RA-226	$(2.69 \pm 0.20) \times 10^{-6}$	1×10^{-7}
	* U-NAT	$(8.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32806	TH-232	$(3.28 \pm 2.08) \times 10^{-7}$	1×10^{-8}
6221	RA-226	$(2.94 \pm 0.63) \times 10^{-6}$	5×10^{-7}
	* U-NAT	$(8.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32807	TH-232	$(6.79 \pm 2.59) \times 10^{-7}$	1×10^{-8}
6222	RA-226	$(2.64 \pm 0.42) \times 10^{-6}$	4×10^{-7}
	* U-NAT	$(4.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32808	TH-232	$(9.86 \pm 2.53) \times 10^{-7}$	6×10^{-9}
6223	RA-226	$(3.58 \pm 0.40) \times 10^{-6}$	3×10^{-7}
	* U-NAT	$(2.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32809	TH-232	$(4.50 \pm 1.65) \times 10^{-7}$	6×10^{-9}
6224	RA-226	$(1.97 \pm 0.21) \times 10^{-6}$	3×10^{-7}
	* U-NAT	$(3.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32810	TH-232	$(4.15 \pm 0.56) \times 10^{-7}$	8×10^{-9}
6225	RA-226	$(1.77 \pm 0.33) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(3.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32811	TH-232	$(5.50 \pm 1.64) \times 10^{-7}$	6×10^{-9}
6226	RA-226	$(2.07 \pm 0.46) \times 10^{-6}$	3×10^{-7}
	* U-NAT	$(2.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32812	TH-232	$(3.52 \pm 1.53) \times 10^{-7}$	9×10^{-9}
6227	RA-226	$(1.99 \pm 0.22) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(3.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32813	TH-232	$(4.60 \pm 1.58) \times 10^{-7}$	5×10^{-9}
6228	RA-226	$(0.00 \pm 1.76) \times 10^{-7}$	2×10^{-7}
	* U-NAT	$(3.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$

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ALPHA NUCLEAR LABORATORIES INC.
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REPORT OF ANALYSIS

ANL JOB# 85-182

UMETCO

*20 OF 65 SAMPLES FOR RA TH AND U * U-NAT REPORTED IN UNITS OF UG/G.*

SAMPLE I. D.	ISOTOPE	CONCENTRATION(UCI/G)	LLD(UCI/G)
32814	TH-232	$(4.98 \pm 1.70) \times 10^{-7}$	5×10^{-9}
6229	RA-226	$(3.75 \pm 0.34) \times 10^{-6}$	3×10^{-7}
	* U-NAT	$(2.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32815	TH-232	$(2.21 \pm 0.381) \times 10^{-6}$	5×10^{-9}
6230	RA-226	$(4.77 \pm 0.14) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(21.00 \pm 6.00) \times 10^{+0}$	$1 \times 10^{+0}$
32816	TH-232	$(1.04 \pm 0.31) \times 10^{-6}$	1×10^{-8}
6231	RA-226	$(1.04 \pm 0.23) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(8.00 \pm 3.00) \times 10^{+0}$	$1 \times 10^{+0}$
32817	TH-232	$(8.09 \pm 1.73) \times 10^{-7}$	6×10^{-9}
6232	RA-226	$(1.97 \pm 0.18) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(6.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32818	TH-232	$(6.48 \pm 0.61) \times 10^{-7}$	5×10^{-9}
6233	RA-226	$(3.23 \pm 0.31) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(11.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32819	TH-232	$(4.79 \pm 0.67) \times 10^{-7}$	8×10^{-9}
6234	RA-226	$(4.15 \pm 0.39) \times 10^{-6}$	3×10^{-7}
	* U-NAT	$(4.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32820	TH-232	$(2.50 \pm 0.388) \times 10^{-6}$	4×10^{-9}
6235	RA-226	$(8.65 \pm 0.12) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(18.00 \pm 6.00) \times 10^{+0}$	$1 \times 10^{+0}$
32821	TH-232	$(2.63 \pm 0.76) \times 10^{-7}$	6×10^{-9}
6236	RA-226	$(4.48 \pm 2.18) \times 10^{-7}$	2×10^{-7}
	* U-NAT	$(3.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32822	TH-232	$(1.30 \pm 0.57) \times 10^{-7}$	6×10^{-9}
6237	RA-226	$(5.75 \pm 0.61) \times 10^{-7}$	1×10^{-7}
	* U-NAT	$(2.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32823	TH-232	$(3.29 \pm 1.68) \times 10^{-7}$	6×10^{-9}
6238	RA-226	$(1.34 \pm 0.23) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(3.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$

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REPORT OF ANALYSIS

ANL JOB# 85-182

UMETCO

*20 OF 65 SAMPLES FOR RA TH AND U * U-NAT REPORTED IN UNITS OF UG/G.*

SAMPLE I. D.	ISOTOPE	CONCENTRATION(UCI/G)	LLD(UCI/G)
32824	TH-232	$(5.32 \pm 3.17) \times 10^{-7}$	1×10^{-8}
6239	RA-226	$(3.61 \pm 0.31) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(4.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32825	TH-232	$(5.28 \pm 1.27) \times 10^{-7}$	6×10^{-9}
6240	RA-226	$(8.04 \pm 1.72) \times 10^{-7}$	3×10^{-7}
	* U-NAT	$(3.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32826	TH-232	$(1.67 \pm 0.59) \times 10^{-7}$	4×10^{-9}
6241	RA-226	$(8.03 \pm 1.27) \times 10^{-7}$	2×10^{-7}
	* U-NAT	$(3.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32827	TH-232	$(6.31 \pm 6.37) \times 10^{-8}$	5×10^{-9}
6242	RA-226	$(6.77 \pm 2.06) \times 10^{-7}$	1×10^{-7}
	* U-NAT	$(3.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32828	TH-232	$(3.21 \pm 0.27) \times 10^{-7}$	5×10^{-9}
6243	RA-226	$(1.81 \pm 0.27) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(3.00 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32829	TH-232	$(5.37 \pm 1.12) \times 10^{-7}$	8×10^{-9}
6244	RA-226	$(1.26 \pm 0.18) \times 10^{-6}$	3×10^{-7}
	* U-NAT	$(3.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32830	TH-232	$(1.99 \pm 0.36) \times 10^{-6}$	2×10^{-8}
6245	RA-226	$(3.09 \pm 0.40) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(9.20 \pm 2.00) \times 10^{+0}$	$1 \times 10^{+0}$
32831	TH-232	$(1.98 \pm 0.48) \times 10^{-7}$	9×10^{-9}
6246	RA-226	$(0.00 \pm 1.70) \times 10^{-7}$	2×10^{-7}
	* U-NAT	$(2.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32832	TH-232	$(2.18 \pm 1.37) \times 10^{-7}$	7×10^{-9}
6247	RA-226	$(1.91 \pm 0.32) \times 10^{-6}$	3×10^{-7}
	* U-NAT	$(3.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32833	TH-232	$(3.76 \pm 1.55) \times 10^{-7}$	7×10^{-9}
6248	RA-226	$(1.29 \pm 0.17) \times 10^{-6}$	3×10^{-7}
	* U-NAT	$(4.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$

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ALPHA NUCLEAR LABORATORIES INC.
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REPORT OF ANALYSIS

ANL JOB# 85-183

UMETCO

*5 OF 65 SAMPLES FOR RA TH AND U *U-NAT REPORTED IN UNITS OF UG/G.*

SAMPLE I. D.	ISOTOPE	CONCENTRATION (UCI/G)	LLD (UCI/G)
32834	TH-232	$(3.50 \pm 1.47) \times 10^{-7}$	7×10^{-9}
6249	RA-226	$(1.80 \pm 0.28) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(3.60 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32835	TH-232	$(4.33 \pm 1.16) \times 10^{-7}$	6×10^{-9}
6250	RA-226	$(1.66 \pm 0.28) \times 10^{-6}$	3×10^{-7}
	* U-NAT	$(4.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32836	TH-232	$(1.74 \pm 1.54) \times 10^{-6}$	5×10^{-7}
6251	RA-226	$(2.33 \pm 0.18) \times 10^{-6}$	1×10^{-7}
	* U-NAT	$(18.4 \pm 3.00) \times 10^{+0}$	$1 \times 10^{+0}$
32837	TH-232	$(1.21 \pm 0.20) \times 10^{-6}$	1×10^{-8}
6252	RA-226	$(1.11 \pm 0.09) \times 10^{-6}$	1×10^{-7}
	* U-NAT	$(5.00 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$
32838	TH-232	$(3.21 \pm 1.58) \times 10^{-7}$	6×10^{-9}
6253	RA-226	$(1.92 \pm 0.33) \times 10^{-6}$	2×10^{-7}
	* U-NAT	$(7.40 \pm 1.00) \times 10^{+0}$	$1 \times 10^{+0}$

Swati Dawle
7.15.85.

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UMETCO MINERALS CORPORATION - NIAGARA FALLS, NY
SOIL ANALYSES - SOUTH OF BLDG. 166 (CONT'D)

Niagara Engineering Sample No.	Grand Junction Analytical Code No.	Alpha Nuclear Labs, Inc. Sample No.	Location		Concentrations		
			Area	Depth	Ra 226 pCi/gm	Th 232 pCi/gm	U Nat pCi/gm
3. Samples - After Backfilling							
101-A	32804	6219	West	Surface	1.88	0.97	16.7
101-B	32805	6220	West	6"	2.69	1.19	5.3
101-C	32806	6221	West	12"	2.94	0.33	5.3
101-D	32807	6222	West	18"	2.64	0.68	2.7
101-E	32808	6223	West	24"	3.58	0.99	1.3
102-A	32809	6224	West	Surface	1.97	0.45	2.0
102-B	32810	6225	West	6"	1.77	0.42	2.0
102-C	32811	6226	West	12"	2.07	0.55	1.3
102-D	32812	6227	West	18"	1.99	0.35	2.0
102-E	32813	6228	West	24"	0.0	0.46	2.0
103-A	32814	6229	West	Surface	3.75	0.50	1.3
103-B	32815	6230	West	6"	4.77	2.21	14.0
103-C	32816	6231	West	12"	1.04	1.04	5.3
103-D	32817	6232	West	18"	1.97	0.81	4.0
103-E	32818	6233	West	24"	3.23	0.05	7.3
104-A	32819	6234	East	Surface	4.15	0.48	2.7
104-B	32820	6235	East	6"	8.65	2.50	12.0
104-C	32821	6236	East	12"	0.45	0.26	2.0
104-D	32822	6237	East	18"	0.58	0.13	1.3
104-E	32823	6238	East	24"	1.34	0.33	2.0
105-A	32824	6239	East	Surface	3.61	0.53	2.7
105-B	32825	6240	East	6"	0.80	0.53	2.0
105-C	32826	6241	East	12"	0.80	0.17	2.0
105-D	32827	6242	East	18"	0.68	0.06	2.0
105-E	32828	6243	East	24"	1.81	0.32	2.0
106-A	32829	6244	East	Surface	1.26	0.54	2.0
106-B	32830	6245	East	6"	3.09	1.99	6.1
106-C	32831	6246	East	12"	0.0	0.20	1.3
106-D	32832	6247	East	18"	1.91	0.22	2.0
106-E	32833	6248	East	24"	1.29	0.38	2.7
107-A	32834	6249	East	Surface	1.80	0.35	2.4
107-B	32835	6250	East	6"	1.66	0.43	2.7
107-C	32836	6251	East	12"	2.33	1.74	12.3
107-D	32837	6252	East	18"	1.11	1.21	3.3
107-E	32838	6253	East	24"	1.92	0.32	4.9

UCCNHT0000833

UMETCO MINERALS CORPORATION - NIAGARA FALLS, NY
SOIL ANALYSES - SOUTH OF BLDG. 166

Niagara Engineering Sample No.	Grand Junction Analytical Code No.	Alpha Nuclear Labs, Inc. Sample No.	Location		Concentrations		
			Area	Depth	Ra 226 pCi/gm	Th 232 pCi/gm	U Nat pCi/gm
1. Samples - Before Excavation							
S-1	32774	6189	West	Surface	12.3	15.4	23.6
S-2	32775	6190	West	Surface	280.0	3.5	200.0
S-3	32776	6191	West	Surface	24.0	27.5	28.7
S-4	32777	6192	West	Surface	14.0	1.71	186.7
S-5	32778	6193	West	Surface	118.0	15.0	1.2
2. Samples - Before Backfilling							
WA-1-S	32779	6194	West	Surface	1.36	0.46	7.2
WA-1-6	32780	6195	West	6"	5.40	3.48	0.1
WA-1-12	32781	6196	West	12"	1.23	0.92	0.7
WA-2-S	32782	6197	West	Surface	4.31	1.94	1.3
WA-2-6	32783	6198	West	6"	1.46	0.42	0.7
WA-2-12	32784	6199	West	12"	2.79	0.43	0.7
WA-3-S	32785	6200	West	Surface	11.1	4.05	10.0
WA-3-6	32786	6201	West	6"	1.80	1.02	0.7
WA-3-12	32787	6202	West	12"	1.22	0.48	0.7
WA-4-S	32788	6203	West	Surface	5.43	1.64	32.7
WA-4-6	32789	6204	West	6"	2.68	0.84	3.3
WA-4-12	32790	6205	West	12"	2.67	0.48	6.0
EA-1-S	32791	6206	East	Surface	13.1	9.02	11.3
EA-1-6	32792	6207	East	6"	3.20	0.32	2.0
EA-1-12	32793	6208	East	12"	1.29	0.57	0.7
EA-2-S	32794	6209	East	Surface	1.35	0.33	3.3
EA-2-6	32795	6210	East	6"	1.71	0.25	2.7
EA-2-12	32796	6211	East	12"	1.29	0.27	2.7
EA-3-S	32797	6212	East	Surface	11.7	0.97	48.7
EA-3-6	32798	6213	East	6"	3.45	1.98	12.7
EA-3-12	32799	6214	East	12"	1.86	0.89	8.7
EA-4-S	32800	6215	East	Surface	5.69	1.28	10.0
EA-4-6	32801	6216	East	6"	3.92	0.50	3.3
EA-4-12	32802	6217	East	12"	2.71	0.56	2.0
WL-1	32803	6218	West	Surface	60.7	2.60	9.3

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1M 12 78
EM 174 9A

UNION CARBIDE CORPORATION METALS DIVISION

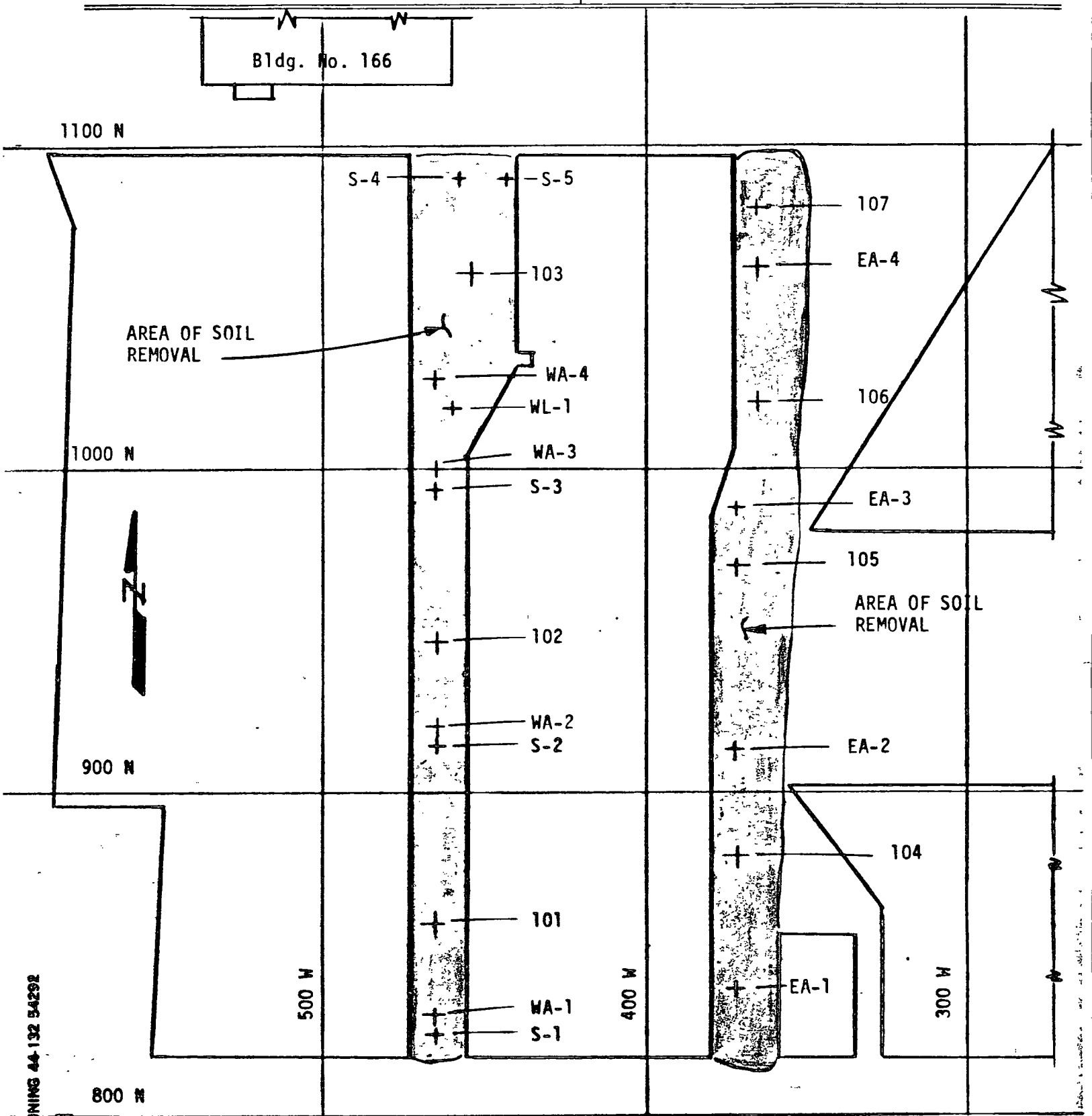
DRAWING NUMBER		
SF- 8013		
930/256	FILE NO 11309	

TITLE Soil Samples

PLANT	DEPARTMENT	BLDG NO	DRAWN BY	CHECKED BY	APPROVED	EX	ACC ENG	DATE	DRAWING SCALE
Niagara	Yard		DGF					7/22/85	1"=40'-0"

REV REV

REV REV



+ = Sample Location

BRUNING 44-132 54292

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