

ALUMINUM COMPANY OF AMERICA

1800 HARVARD AVENUE
CLEVELAND, OHIO 44105



1990 July 26

United States Nuclear Regulatory
Commission-Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Attn: Donald Sreniawski

RE: Alcoa Property Assessment for Low Level Radiation

Dear Mr. Sreniawski:

As a follow up to our phone conversations on July 13 and July 24, enclosed, as per your request, are the following:

1. Proposal from Remcor Inc. to conduct a radiological site assessment at our Permanent Mold Casting Division, Cleveland Works.
2. Laboratory analyses for soil samples taken on Alcoa property by Remcor, in conjunction with the remediation work in progress at adjacent properties owned by Allegheny International (Chemetron Corporation).
3. Alcoa press release dated 1990 July 11.

If you should require any additional information, please feel free to contact me at my office at (216) 641-4190.

Sincerely,

A handwritten signature in cursive script that reads "Richard C. King, Jr.".

Richard C. King, Jr.
Environmental Engineering Supervisor

RCK/ds

cc: C. E. Benhart - Pittsburgh (w/attach.)
M. L. Bowers - Cleveland "
P. B. Atkins - Pittsburgh "

Ref: LLRAD.rck

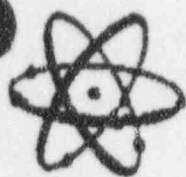
JUL 27 1990

07/16/90 15104

Z 1 817 7923434 ALPHA ENERGY LAB

02

RECEIVED JUL 18 1990



ALPHA ENERGY LABORATORIES INC.

REPORT OF ANALYSIS

ANL JOB# 90-0664

07/16/90

NUCLEAR ENERGY SERVICES 10113

3 SOIL SAMPLES, DATE RECEIVED 06/08/90

SAMPLE I. D.	ANALYSIS	CONCENTRATION	ERROR EST.	UNITS	LLD	UNITS
ALC-028	TH-228	1.09 E + 0	8.95 E - 2	pCi/g	5 E - 8	uCi/g
A.N.L. 10535	TH-230	2.53 E - 1	4.19 E - 2	pCi/g	4 E - 8	uCi/g
	TH-232	9.97 E - 1	9.20 E - 2	pCi/g	1 E - 7	uCi/g
	U-238	1.65 E + 1	6.27 E + 0	pCi/g	4 E - 7	uCi/g
ALC-048	TH-228	0.00 E + 0	4.09 E - 2	pCi/g	9 E - 8	uCi/g
A.N.L. 10536	TH-230	0.00 E + 0	2.37 E - 2	pCi/g	4 E - 8	uCi/g
	TH-232	0.00 E + 0	4.58 E - 2	pCi/g	1 E - 7	uCi/g
	U-238	6.16 E + 0	4.63 E + 0	pCi/g	4 E - 7	uCi/g
ALC-052	TH-228	0.00 E + 0	4.36 E - 2	pCi/g	9 E - 8	uCi/g
A.N.L. 10537	TH-230	4.12 E - 2	2.82 E - 2	pCi/g	4 E - 8	uCi/g
	TH-232	0.00 E + 0	4.80 E - 2	pCi/g	1 E - 7	uCi/g
	U-238	8.45 E + 0	1.81 E + 0	pCi/g	4 E - 7	uCi/g

THESE ANALYSES WERE PERFORMED USING
NBS TRACEABLE PROCEDURES AND STANDARDS.
ANALYSIS INCOMPLETE OR RE-TESTING

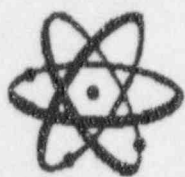
APPROVED BY:

07/16/90 15:05

2 1 817 7923434 ALPHA ENERGY LAB

04

RECEIVED 1990 7 3 1300

**ALPHA
ENERGY
LABORATORIES INC.**

REPORT OF ANALYSIS

ANL JOB# 90-0664

07/16/90

NUCLEAR ENERGY SERVICES 10113

1 SOIL SAMPLES, DATE RECEIVED 06/08/90

SAMPLE I. D.	ANALYSIS	CONCENTRATION	ERROR EST.	UNITS	LLD	UNITS
AIC-023	G-SPEC	*				
A.N.L. 10534	TH-232	2.92 E + 0	1.34 E - 1	pCi/g	1 E - 7	uCi/g
	TH-228	3.06 E + 0	1.33 E - 1	pCi/g	1 E - 7	uCi/g
	TH-230	3.96 E - 1	5.00 E - 2	pCi/g	4 E - 8	uCi/g

10 pCi = 1 uCi

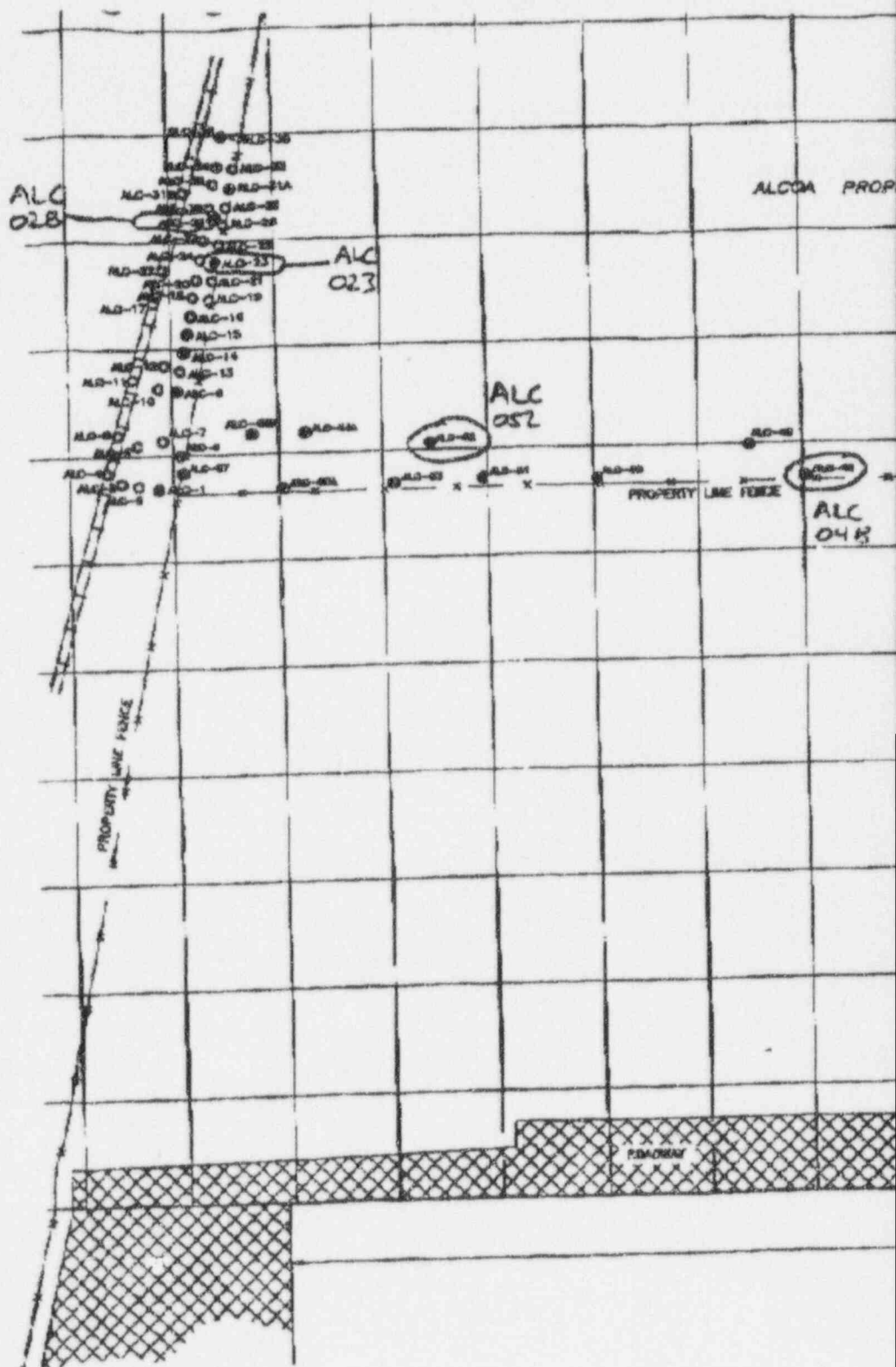
* ANALYSIS INCOMPLETE OR RE-TESTING

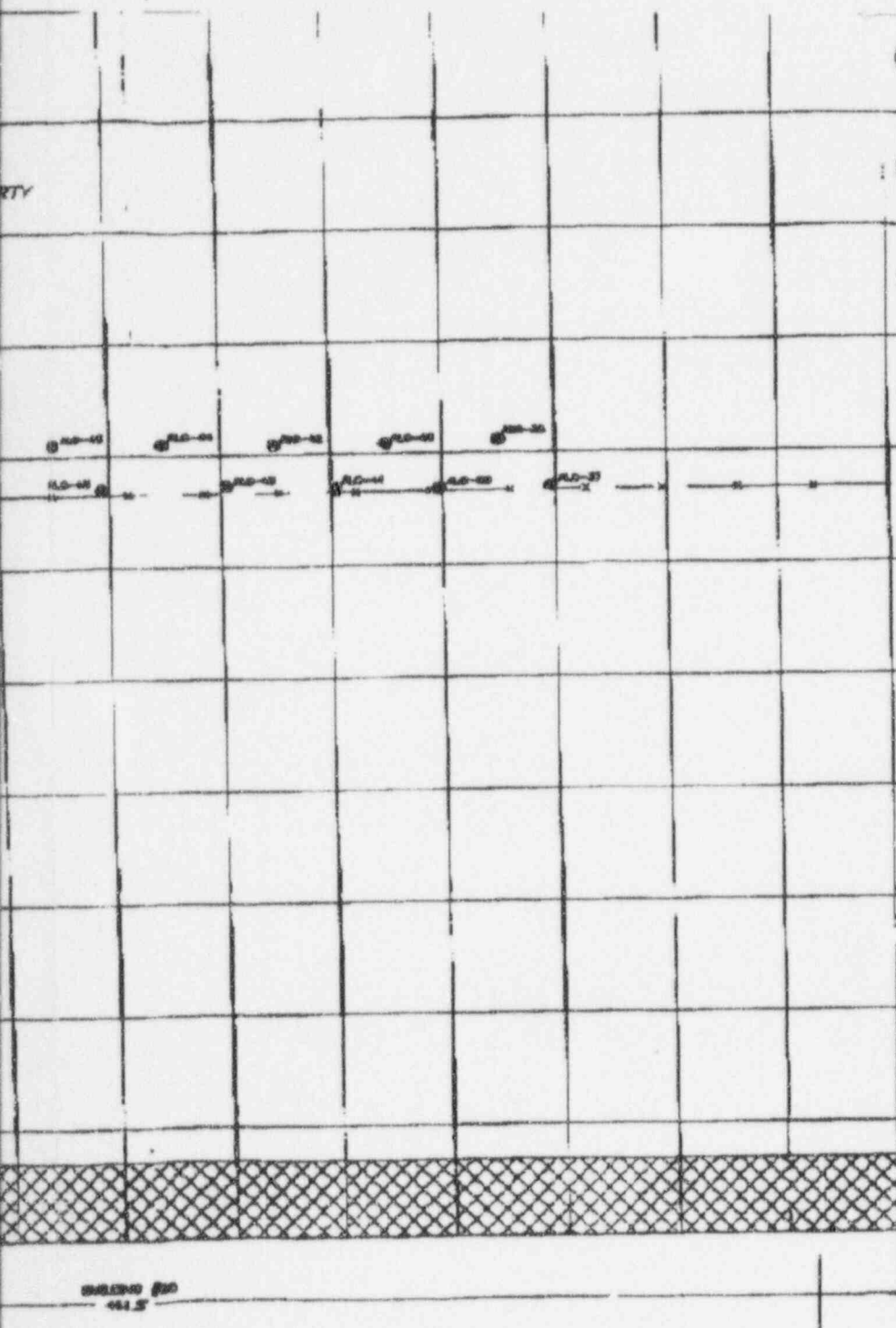
APPROVED BY

JUL-18-90 MED

8:53

P.04





- LEGEND
- 30W 70W 60W
- (K) 7
- (J)
- (I)
- (H)
- (G)
- (F)
- (E)
- (D)
- (C)
- (B)
- (A)
1. GRID SPACING IS 10 METERS BY 10 METERS (32.8 FT. BY 32.8 FT.)
2. SAMPLES A1D-01 TO A1D-36 ARE SURFACE SAMPLES COLLECTED FROM 0'-5' DEPTH.
3. SAMPLES A1D-37 TO A1D-67 ARE COMPOSITE SAMPLES COLLECTED FROM 0'-5' DEPTH.

ANSTEC APERTURE CARD

Also Available on
Aperture Card

FIGURE 1

SAMPLE LOCATIONS
ALCOA PROPERTY
BIRMINGHAM AVENUE SITE
BIRMINGHAM HEIGHTS, CHIO

PREPARED FOR
ALLEGENT INTERNATIONAL, INC.
PITTSBURGH, PENNSYLVANIA

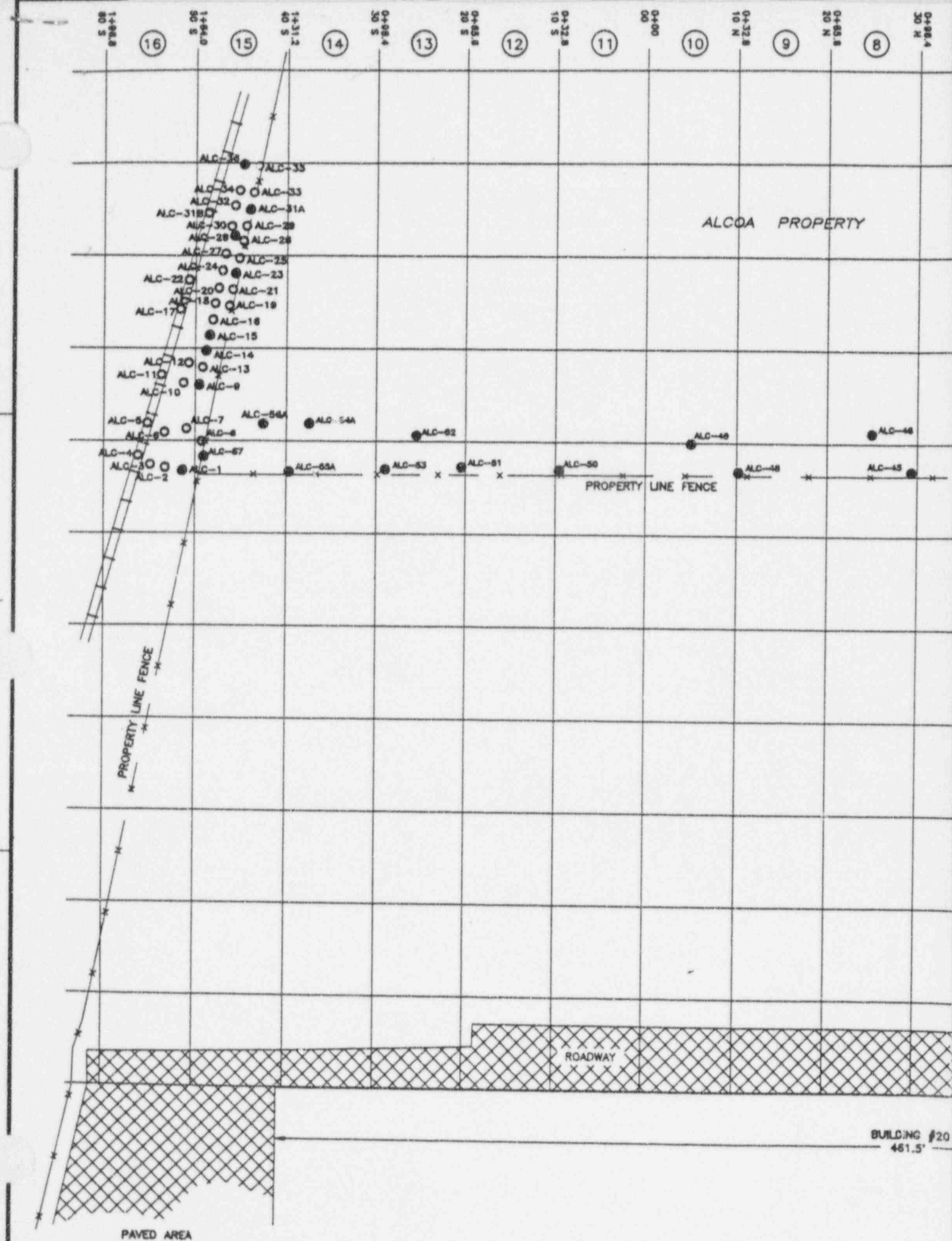
DRAWN	DATE	DRAWING NUMBER
CHECKED	BY	100-10000
APPROVED		

REMCO

ALCOA PURCHASING FAX
REMCO, INC.

PAGE 04
P. 04

9707030275-01



RECEIVED JUL 20 1990

LEGEND

- ALC-50 SAMPLE LOCATIONS
ALC-057 SAMPLES COLLECTED FOR GAMMA SPECTRAL ANALYSIS

NOTES:

- GRID SPACING IS 10 METERS BY 10 METERS (32.8 FT. BY 32.8 FT.)
- SAMPLES ALC-01 TO ALC-36 ARE SURFACE SAMPLES COLLECTED FROM 0'-6" DEPTH.
- SAMPLES ALC-37 TO ALC-57 ARE COMPOSITE SAMPLES COLLECTED FROM 0'-6" DEPTH.

SAMPLE NUMBER	FIELD COUNT (CCPM)	U-238 (PCI/GR)	THORIUM (PCI/GR)	SAMPLE NUMBER	FIELD COUNT (CCPM)	U-238 (PCI/GR)	THORIUM (PCI/GR)
ALC-1	500	292		ALC-30	60	--	
ALC-2	180	--		ALC-31A	200	< 35	
ALC-3	100	--		ALC-31B	< BKG	--	
ALC-4	< BKG	--		ALC-32	50	--	
ALC-5	< BKG	--		ALC-33	300	--	
ALC-6	< BKG	--		ALC-34	45	--	
ALC-7	120	--		ALC-35	< BKG	--	
ALC-8	< BKG	--		ALC-36	40	< 35	
ALC-9	180	167		ALC-37	< BKG	< 35	
ALC-10	50	--		ALC-38	< BKG	< 35	
ALC-11	< BKG	--		ALC-39	< BKG	< 35	
ALC-12	< BKG	--		ALC-40	< BKG	< 35	
ALC-13	120	--		ALC-41	< BKG	< 35	
ALC-14	240	154		ALC-42	< BKG	< 35	
ALC-15	740	69		ALC-43	< BKG	< 35	
ALC-16	< BKG	--		ALC-44	< BKG	< 35	
ALC-17	< BKG	--		ALC-45	< BKG	< 35	
ALC-18	26	--		ALC-46	< BKG	< 35	
ALC-19	50	--		ALC-47	< BKG	< 35	
ALC-20	30	--		ALC-48	< BKG	< 35	
ALC-21	60	--		ALC-49	< BKG	< 35	
ALC-22	< BKG	--		ALC-50	< BKG	< 35	
ALC-23	240	< 35		ALC-51	< BKG	< 35	
ALC-24	< BKG	--		ALC-52	< BKG	< 35	
ALC-25	300	--		ALC-53	< BKG	< 35	
ALC-26	600	--		ALC-54A	< BKG	< 35	
ALC-27	50	--		ALC-55A	< BKG	< 35	
ALC-28	180	< 35		ALC-56A	< BKG	< 35	
ALC-29	1,800	--		ALC-57	< BKG	< 35	

LEGEND:

CCPM - CORRECTED COUNTS PER MINUTE
< BKG - LESS THAN OR EQUAL TO BACKGROUND
PCI/GR - PICOCURRIES PER GRAM
U-238 - URANIUM 238

ANSTEC APERTURE CARD

Also Available on Aperture Card

NORTHERN BOUNDARY CONTAMINATED AREA

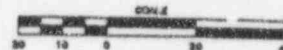


FIGURE 4

SAMPLE LOCATIONS
ALCOA PROPERTY
HARVARD AVENUE SITE
NEWBURGH HEIGHTS, OHIO

PREPARED FOR
ALLEGHENY INTERNATIONAL, INC.
PITTSBURGH, PENNSYLVANIA

DRAWN RAE 07/1990
CHECKED
APPROVED
DRAWING NUMBER 89033-81

REMCOR

9707030275-02

RECEIVED 1111 16 1990



REMCOR, Inc. • 701 Alpha Drive • P.O. Box 38310 • Pittsburgh, PA 15238-8310 • 412-963-1108

July 16, 1990

Project No. 90249PR

Mr. Russell E. Yester
Senior Staff Buyer - Construction
Aluminum Company of America
1501 ALCOA Building - Room 2070
Pittsburgh, PA 15219

Letter Proposal
Radiological Site Assessment
Permanent Mold Casting Division
Cleveland Works

Dear Mr. Yester:

Remcor, Inc. (Remcor), is pleased to submit this letter proposal to the Aluminum Company of America (ALCOA) for a radiological assessment of portions of the Permanent Mold Casting Division of the Cleveland Works. This proposal has been prepared in response to ALCOA Specifications for this project dated May 20, 1990, as revised June 27, 1990, and as further revised in telephone conversations between ALCOA and Remcor. This proposal is tendered on a time-and-materials basis with estimates of the level of effort and costs for each work item identified in this letter. Billings will be for work done during each billing period according to the attached rate schedules. The estimated level of effort for each work item will not be exceeded without approval from ALCOA; in the event of changes in project conditions or scope of work, Remcor will obtain ALCOA's direction and approval before proceeding.

PROJECT SCOPE AND METHODS

In preparing the project scope and plan, Remcor applied the following data and assumptions:

- The contract terms and amendments supplied by ALCOA will be accepted for this project.
- Work will be done on a time-and-materials basis according to Remcor's standard rate schedule and the specific rates shown in this letter.

Mr. Russell E. Yester

2

July 16, 1990

- Field work will require Level D personnel protective clothing and equipment.
- The procedures and health and safety rules in the ALCOA specification will be applied, as appropriate, to this project.
- All boring locations will be accessible to a truck-mounted geological drill rig.
- Total project duration will be five to six weeks.
- Accelerated laboratory analysis times (two to three weeks) will be required.
- Drilling site access will be arranged by ALCOA.

The proposed scope for this project consists of the following work items:

- Mobilization - Remcor will prepare a detailed project work plan and a project specific health and safety plan (HASP). The needed personnel, equipment, and instruments will be brought to the project site.
- Drilling - Remcor will make ten borings, each ten feet deep, in locations selected by ALCOA. Each boring will be made with a hollow-stem auger drilling tool with an outside diameter of three-and-one-half-inches. Split spoon sampler will be driven through the augers to obtain a continuous two-inch diameter core sample over the full depth of each boring. Additional borings and/or additional boring depth will be done as required to find the maximum extent of radioactive materials or as directed by ALCOA. The split spoon tools will be cleaned between each sample and drilling tools will be cleaned after each boring. All tools and equipment will be surveyed and cleaned as required at the end of the field work. Borings will be located and logged by a qualified Remcor geologist. Each boring will be backfilled with a grout mix of one part Bentonite and four parts Portland Cement after sampling is complete.
- Field Testing - The core materials in each split spoon will be scanned with a micro-roentgen meter and with a scaler with an alpha probe. Core materials found to be radioactive will be removed from the

Mr. Russell E. Yester

3

July 16, 1990

split spoon for laboratory testing. Each stratum of radioactive material will be prepared and labelled as a separate sample. Core portions not found to be radioactive on the basis of the field scanning will be composited into a single sample for each boring, and a representative sample of this composite will be tested in the laboratory. Radioactive strata will be identified in the boring log; sample recording and chain-of-custody procedures will be followed for all samples.

- Laboratory Testing - Each sample collected in the field, including the radioactive strata samples and the boring composite samples, will be analyzed in Remcor's field laboratory at Newburgh Heights. This laboratory will perform a gamma spectroscopy of each sample using a germanium based automated counter. This procedure will identify radioactive isotopes present in each sample by gamma energy peaks. (The energy peaks for thorium is very close to that for plutonium; a peak in this area will be treated as a thorium peak unless proven to be otherwise.) Since gamma spectroscopy, as done in the field laboratory with a limited number of samples, identifies but does not quantify isotopes present in each sample, further analysis is likely to be required. Alpha spectroscopy in an off-site laboratory will be done to quantify the specific isotopes identified in the field laboratory gamma scan of each sample. As separate alpha spectroscopic procedure is required for each isotope targeted for analysis and quantification so gamma scanning to identify target isotopes is cost-effective. It is anticipated that the alpha spectroscopy will be targeted in the isotopes of thorium and uranium. Field and laboratory reports, with sample collection logs and chain-of-custody forms, will be compiled for each sample.
- Reporting - At the conclusion of the laboratory analyses, Remcor will prepare a letter report summarizing project methods, data, and results. This report will include a tabulation of data, core boring logs, and a drawing showing boring locations and summarizing boring and laboratory data. The sample collection logs, chain-of-custody forms, field laboratory reports, and off-site laboratory reports will be attached to this letter report.

Additional work will be performed as directed by ALCOA.

Mr. Russell E. Yester

4

July 16, 1990

ESTIMATES OF EFFORT AND COST

Based on the work scope outlined above, the level of effort and cost for each work item are estimated as follows:

• Mobilization

- Preparation of a work plan and HASP including a field sampling and analysis plan:

-- Senior Project Manager	8 hours
-- Assistant Project Geologist	16 hours
-- Assistant Project Scientist	8 hours
-- Secretary	4 hours

- Travel to site for Remcor personnel, including preparation of tools, instruments, and sampling supplies:

-- Assistant Project Geologist	8 hours
-- Technician	8 hours
-- Health Physics Technician	8 hours
-- Travel Costs	\$1,150.00 (estimate)

- Mobilization to site and set-up for drilling subcontractor:

-- Driller's Cost	\$350.00 (estimate)
-------------------	---------------------

- Estimated costs including insurance

\$6,000.00

• Basic Drilling Program

- Field supervision including boring locations, logging, sample handling, field survey of split spoon samples, split spoon cleaning, living costs, instruments, and personal protection equipment:

-- Assistant Project Geologist	24 hours
-- Technician	24 hours
-- Health Physics Technician	24 hours
-- Instruments (2 instruments)	3 days
-- Living Costs (3 men)	3 days
-- Level D Protection (3 men)	3 days

Mr. Russell E. Yester

5

July 16, 1990

- Drilling costs including auger stem borings, split spoon samples, backfilling, tool and equipment decontamination, and personal protection equipment:
 - Boring 100 linear feet
 - Split spoon samples 100 linear feet
 - Backfilling 100 linear feet
 - Decontamination Equipment 2 days
 - Decontamination Service 4 hours
 - Level D Protection (2 men) 2 days
- Estimated costs including insurance for basic program of 10 borings at 10 feet each \$10,200.00
- Estimated cost of additional boring at 10 feet depth \$900.00/boring
- Estimated cost of additional boring depth beyond 10 feet \$90.00/foot
- Field Laboratory Testing
 - Preparation and gamma spectroscopic testing of 20 soil samples in the field laboratory
 - Estimated cost including insurance \$2,900.00
 - Estimated cost for additional samples \$145.00/sample
- Laboratory Testing
 - Preparation and testing of 20 soil samples for isotopic thorium and isotopic uranium in an expedited response (two to three weeks) basis
 - Estimated cost including insurance \$12,300.00
 - Estimated cost for additional samples \$615.00/sample
- Reporting
 - Preparation of a project report including boring logs, boring location plan, field documents, and laboratory reports:
 - Senior Project Manager 8 hours
 - Assistant Project Geologist 20 hours
 - Drafter 8 hours
 - Secretary 8 hours
 - Health Physics Technician 8 hours

Mr. Russell E. Yester

6

July 16, 1990

- Estimated cost including insurance \$3,000.00

Unit prices for subcontracted items anticipated to be required for this project are attached. We trust that the information provided above meets your current needs. If you have any questions, or if there is any other way we can be of assistance, please do not hesitate to contact us. We appreciate this opportunity to serve ALCOA.

Respectfully submitted,

Earl H. Rothfuss

Earl H. Rothfuss, P.E.
Senior Project Manager

EHR:vls

Attachment

ATTACHMENT NO. 1
UNIT PRICES FOR SUBCONTRACTED SERVICES

Health Physics Support

- Health Physics Technician \$46.00/hour
- Living Expenses Allowance \$65.00/day
- Instrument Rental and Service
 - Micro-roentgen meter \$50.00/day
 - Scaler with alpha probe \$50.00/day

Drilling Services

- Hollow Stem Auger \$15.00/linear foot
- Split Spoon Sampling \$15.00/each or \$7.50/linear foot
- Backfilling \$6.00/linear foot
- Steam Cleaner Rental \$120.00/day plus \$45.00/hour of use

NEWS RELEASE

ALCOA
CLEVELAND WORKS

July 11, 1990

We are aware of a low level radioactive location at the extreme southeastern boundary of our plant site. This area is outside, isolated, and not used in our day to day operations.

Our preliminary investigation indicates that the condition poses no health problems.

We are continuing to gather more information so we can make a comprehensive assessment.

Once that is done, we'll do whatever is required to take care of the problem.

The Nuclear Regulatory Commission is aware of this circumstance and we are working with them.