

40-2377

**Kaiser Aluminum**  
CORPORATE ENVIRONMENTAL

May 25, 2001

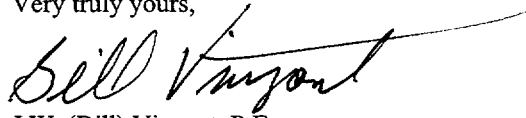
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555  
Attn: Document Control Desk

Re: May 7, 2001 Conference Call

Dear Sir or Madame:

Enclosed is a letter from Earth Sciences that addresses all the issues discussed during the subject conference call with Lewis Carson and John Buckley of NRC. Also enclosed is the March 3, 2001 audit letter that was inadvertently omitted from our April 16, 2001 response to NRC's February 15, 2001 inspection reports. If you have any questions concerning the enclosed please call me at 225/231-5116.

Very truly yours,



J.W. (Bill) Vinzant, P.E.  
Manager, Corporate Environmental Affairs

JWV/shh  
Enclosure

cc: Mr. John Buckley - United States Nuclear Regulatory Commission  
Mr. Louis Carson II - United States Nuclear Regulatory Commission  
Ms. Pamela Bishop - Oklahoma Department of Environmental Quality  
Mr. Stephen L. Jantzen - State of Oklahoma  
Dr. Max Scott - ADA Consultants  
John Donnan - Houston  
Lamar Nichols - Tulsa  
Dave Tourdot - Earth Sciences  
Al Gutterman - Morgan, Lewis & Bockius  
Turgay Ertugrul - A&M  
Paul Handa - Tulsa  
Scott Van Loo - City of Tulsa  
Mr. Harry Patterson - Union Pacific Railroad

NMSSOIPublic



## Earth Sciences Consultants, Inc.

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Akron, Ohio • Philadelphia, Pennsylvania

May 24, 2001  
Project No. 5427F-02

J. W. (Bill) Vinzant, P.E.  
Regional Environmental Manager  
Kaiser Aluminum & Chemical Corporation  
Corporate Environmental Affairs  
9141 Interline Avenue, Suite 1A  
Baton Rouge, LA 70809-1957

Nuclear Regulatory Commission Teleconference  
Dated May 7, 2001  
Kaiser Aluminum & Chemical Corporation  
Tulsa, Oklahoma

Dear Mr. Vinzant:

On May 7, 2001, a teleconference to discuss the Kaiser Aluminum & Chemical Corporation's (Kaiser) letter response to the Nuclear Regulatory Commission's (NRC) Inspection Report 040-02377/00-02 was held. Attendees included yourself; Mr. M. David Tourdot of Earth Sciences Consultants, Inc.; Messrs. John Buckley, Louis Carson, and Jean-Claude Dehmel of the NRC; and myself. Specifically, Mr. Carson commented on all five deviations (01 – 05) and Messrs. Carson and Dehmel commented on one of six inspection follow up items (011). My summation of each is as follows:

- DEV01 – An updated figure of the adjacent land area with all of the characterization grids delineated as affected or unaffected will be forwarded to the NRC. In addition, a matching table of Characterization Grids, their status (affected or unaffected), the basis of the status, and any additional comments are attached.
- DEV02 – A description of the Radiation Safety Officer (RSO) position as identified on the remediation plan organization chart will be forwarded to the NRC. A description of the RSO position is provided below.
- DEV03 – No action.
- DEV04 – Kaiser is committed to using the new procedure in the future.
- DEV05 – Mr. Buckley stated that Kaiser's obligation to perform alpha spectroscopy on soil samples has been fulfilled.
- IFI011 – Mr. Dehmel expressed concern that the gamma spectroscopy results of samples counted as received from the field versus gamma spectroscopy results of samples dried and

ground prior to counting are significantly different. A review of the Outreach Laboratory's (Outreach) gamma spectroscopy protocol and relevant guidance is provided below.

RSO - The RSO is responsible for the radiological health and safety of certain work activities involving radioactive materials. In addition, the Kaiser RSO reviews the implementation and documentation of all work activities involving radioactive materials.

Drying soil samples prior to Gamma Spectroscopy Analysis:

Kaiser does not have a commitment in the Adjacent Land Remediation Plan (approved by the NRC) or the Final Status Survey Plan to dry and grind soil samples before gamma spectroscopy analysis. Drying and grinding of soil samples before gamma spec is not prudent. Gamma rays by their physical properties (all energy, no mass) are not attenuated to a significant degree by soil (and/or moisture) in a sample container. However, the total volume of the sample can be influenced by the moisture content of the sample. Since results are reported in units of activity concentration (pCi/g), a volume correction may be necessary depending on the amount of moisture and the acceptable error for the measurement. NUREG/CR-5849 (1992) provides guidance for soil and sediment sample preparation that includes drying and grinding of samples prior to gamma spectroscopy. NUREG-1575 (2000) basically supercedes NUREG/CR-5849 and provides significant detail about sample preparation and analytical methods pertaining to soil samples. Section 7.7.1, "Photon Emitting Radionuclides" reads: There is no special sample preparation required for counting samples using a germanium detector or sodium iodine detector beyond placing the sample in a known geometry for which the detector has been calibrated. The samples can be measured as they arrive at the lab. Outreach performed gamma spectroscopy on the soil samples as they arrived. In addition, a density correction was calculated for each sample and applied to the gamma spectroscopy results. This technique has been proven to be the equivalent of drying samples prior to gamma spectroscopy. (Reference DOE EML Procedure Manual HASL 300 and NUREG-1507 for more information.)

Sincerely,



Andrew J. Lombardo, CHP  
Group Manager

AJL:klb

Enclosures

cc: D. Baker  
A. Shuckrow  
D. Tourdot

**Table**

Affected / Unaffected Area Classification  
(All grids not marked as Unaffected are Affected)

Characterization Grid Number	NUREG-5849 Status	Status Basis	Comments
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27	Unaffected	4 cores < AC	Unaffected
28			
29			
30	Unaffected	4 cores < AC	Unaffected
31	Unaffected	4 cores < AC	Unaffected
32	Unaffected	4 cores < AC	Unaffected
33			
34	Unaffected	4 cores < AC	Unaffected
35			
36	Unaffected	4 cores < AC	Unaffected
37			
38	Unaffected	4 cores < AC	Unaffected
39			
40			

Note:  
AC = Acceptance Criteria

Affected / Unaffected Area Classification  
(All grids not marked as Unaffected are Affected)

Characterization Grid Number	NUREG-5849 Status	Status Basis	Comments
41			
42			
43			
44			
45			
46	Unaffected	4 cores < AC	Unaffected
47			
48	Unaffected	4 cores < AC	Unaffected
49	Unaffected	4 cores < AC	Unaffected
50	Unaffected	4 cores < AC	Unaffected
51	Unaffected	4 cores < AC	Unaffected
52			
53			
54			
55			
56			
57			
58			
59			
60			
61			
62	Unaffected	4 cores < AC	Unaffected
62A	Unaffected	4 cores < AC	Unaffected
62B	Unaffected	4 cores < AC	Unaffected
63			
64	Unaffected	4 cores < AC	Unaffected
65	Unaffected	4 cores < AC	Unaffected
66	Unaffected	4 cores < AC	Unaffected
67	Unaffected	3 cores and a soil sample < AC	Unaffected
68			
69	Unaffected	4 cores < AC	Unaffected
70			
71	Unaffected	4 cores < AC	Unaffected
72			
73			
74			
75			
76			
77			

Note:  
AC = Acceptance Criteria

Affected / Unaffected Area Classification  
(All grids not marked as Unaffected are Affected)

Characterization Grid Number	NUREG-5849 Status	Status Basis	Comments
78			
79			
80			
81			
82			
83	Unaffected	4 cores < AC	Unaffected
84			
85			
86			
87			
88			
89			
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			
100			
101			
102			
103			
104			
105			
106			
107	Unaffected	4 cores < AC	Unaffected
108	Unaffected	4 cores < AC	Unaffected
109	Unaffected	4 cores < AC	Unaffected
110	Unaffected	4 cores < AC	Unaffected
111			
112	Unaffected	4 cores < AC	Unaffected
113	Unaffected	4 cores < AC	Unaffected
114	Unaffected	4 cores < AC	Unaffected
115	Unaffected	4 cores < AC	Unaffected
116			
117			

Note:  
AC = Acceptance Criteria

Affected / Unaffected Area Classification  
(All grids not marked as Unaffected are Affected)

Characterization Grid Number	NUREG-5849 Status	Status Basis	Comments
118			
119			
120			
121			
122			
123			
124			
125	Unaffected	4 cores < AC	Unaffected
126	Unaffected	4 cores < AC	Unaffected
127			
128	Unaffected	2 cores < AC	Grid area is 6m <sup>2</sup>
129			
130			
131			
132			
133			
134			
135			
136			
137			
138	Unaffected	4 cores < AC	Unaffected
139	Unaffected	4 cores < AC	Unaffected
140	Unaffected	4 cores < AC	Unaffected
141	Unaffected	4 cores < AC	Unaffected
142	Unaffected	4 cores < AC	Unaffected
143	Unaffected	4 cores < AC	Unaffected
144	Unaffected	4 cores < AC	Unaffected
145	Unaffected	4 cores < AC	Unaffected
146	Unaffected	4 cores < AC	Unaffected
147	Unaffected	4 cores < AC	Unaffected
148	Unaffected	4 cores < AC	Unaffected
149	Unaffected	4 cores < AC	Unaffected
150			
151	Unaffected	4 cores < AC	Unaffected
152			
153	Unaffected	4 cores < AC	Unaffected
154			
155			
156			

Note:  
AC = Acceptance Criteria



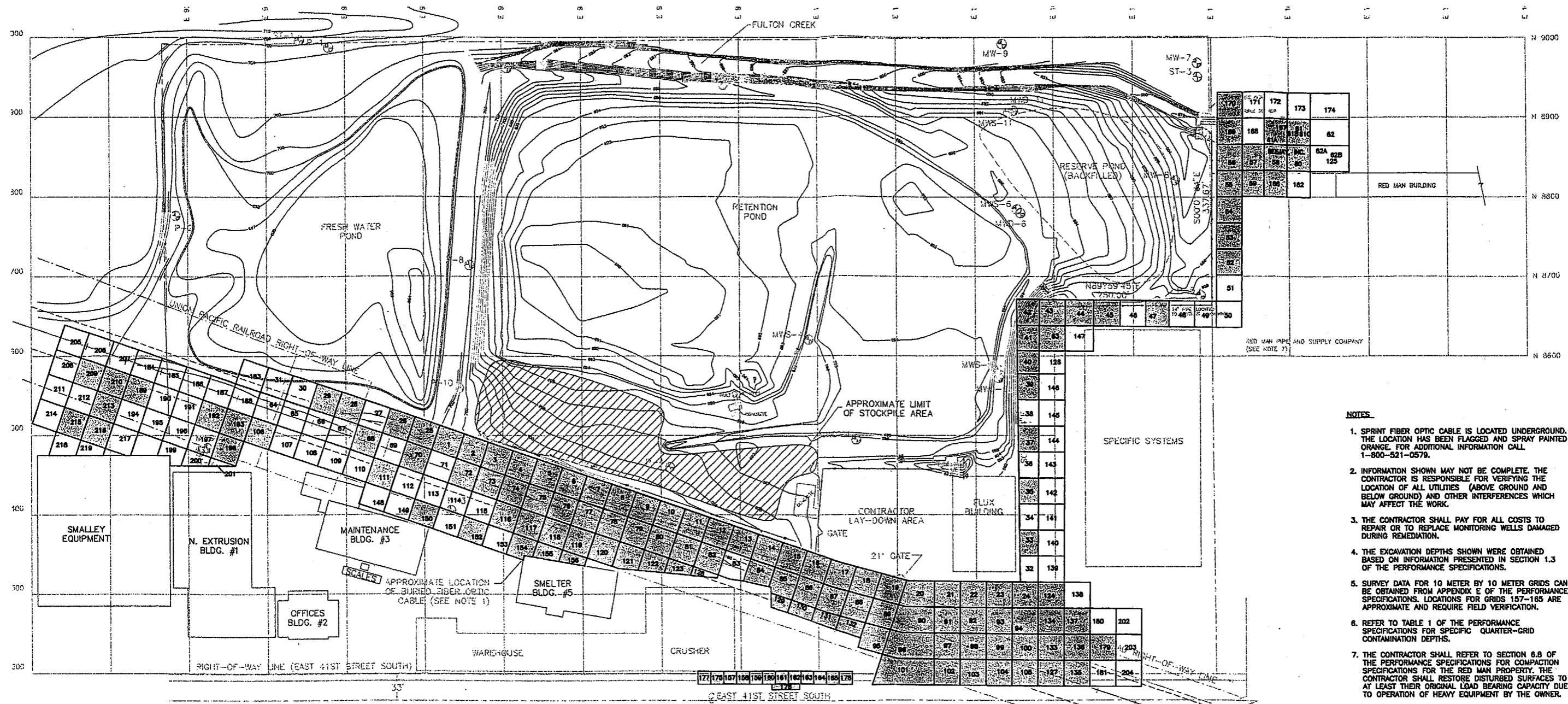
**Affected / Unaffected Area Classification**  
(All grids not marked as Unaffected are Affected)

Characterization Grid Number	NUREG-5849 Status	Status Basis	Comments
157			
158			
159	Unaffected	core < AC	Grid area is 5m <sup>2</sup>
160	Unaffected	core < AC	Grid area is 5m <sup>2</sup>
161			
162			
163			
164			
165			
166			
167			
168	Unaffected	3 cores and a soil sample < AC	Unaffected
169			
170			
171	Unaffected	4 soil samples < AC	Unaffected
172	Unaffected	4 cores < AC	Unaffected
173	Unaffected	4 cores < AC	Unaffected
174	Unaffected	4 cores < AC	Unaffected
175			
176			
177	Unaffected	core < AC	Grid area is 5m <sup>2</sup>
178	Unaffected	core < AC	Grid area is 5m <sup>2</sup>
179			
180	Unaffected	4 cores < AC	Unaffected
181	Unaffected	4 cores < AC	Unaffected
182	Unaffected	4 cores < AC	Unaffected
183	Unaffected	4 cores < AC	Unaffected
184	Unaffected	4 cores < AC	Unaffected
185	Unaffected	4 cores < AC	Unaffected
186	Unaffected	4 cores < AC	Unaffected
187	Unaffected	4 cores < AC	Unaffected
188	Unaffected	4 cores < AC	Unaffected
189			
190			
191			
192			
193			

Affected / Unaffected Area Classification  
(All grids not marked as Unaffected are Affected)

Characterization Grid Number	NUREG-5849 Status	Status Basis	Comments
194	Unaffected	3 cores and a soil sample < AC	Unaffected
195	Unaffected	4 cores < AC	Unaffected
196	Unaffected	4 cores < AC	Unaffected
197	Unaffected	4 cores < AC	Unaffected
198			
199	Unaffected	4 cores < AC	Unaffected
200	Unaffected	2 cores < AC	Grid area is 6m <sup>2</sup>
201	Unaffected	4 cores < AC	Unaffected
202	Unaffected	4 cores < AC	Unaffected
203	Unaffected	4 cores < AC	Unaffected
204	Unaffected	4 cores < AC	Unaffected
205	Unaffected	4 cores < AC	Unaffected
206	Unaffected	4 cores < AC	Unaffected
207	Unaffected	4 soil samples < AC	Unaffected
208	Unaffected	4 cores < AC	Unaffected
209			
210			
211	Unaffected	4 cores < AC	Unaffected
212	Unaffected	4 cores < AC	Unaffected
213			
214	Unaffected	4 cores < AC	Unaffected
215			
216			
217	Unaffected	4 cores < AC	Unaffected
218	Unaffected	4 soil samples < AC	Unaffected
219	Unaffected	4 soil samples < AC	Unaffected

**Figure**



- NOTES**
- SPRINT FIBER OPTIC CABLE IS LOCATED UNDERGROUND. THE LOCATION HAS BEEN FLAGGED AND SPRAY PAINTED ORANGE. FOR ADDITIONAL INFORMATION CALL 1-800-521-0579.
  - INFORMATION SHOWN MAY NOT BE COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES (ABOVE GROUND AND BELOW GROUND) AND OTHER INTERFERENCES WHICH MAY AFFECT THE WORK.
  - THE CONTRACTOR SHALL PAY FOR ALL COSTS TO REPAIR OR TO REPLACE MONITORING WELLS DAMAGED DURING REMEDIATION.
  - THE EXCAVATION DEPTHS SHOWN WERE OBTAINED BASED ON INFORMATION PRESENTED IN SECTION 1.3 OF THE PERFORMANCE SPECIFICATIONS.
  - SURVEY DATA FOR 10 METER BY 10 METER GRIDS CAN BE OBTAINED FROM APPENDIX E OF THE PERFORMANCE SPECIFICATIONS. LOCATIONS FOR GRIDS 157-185 ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION.
  - REFER TO TABLE 1 OF THE PERFORMANCE SPECIFICATIONS FOR SPECIFIC QUARTER-GRID CONTAMINATION DEPTHS.
  - THE CONTRACTOR SHALL REFER TO SECTION 6.8 OF THE PERFORMANCE SPECIFICATIONS FOR COMPACTION SPECIFICATIONS FOR THE RED MAN PROPERTY. THE CONTRACTOR SHALL RESTORE DISTURBED SURFACES TO AT LEAST THEIR ORIGINAL LOAD BEARING CAPACITY DUE TO OPERATION OF HEAVY EQUIPMENT BY THE OWNER.
  - AREA OF GRIDS 1, 2, 3, AND 4 NORTH OF SPRINT FIBER OPTIC CABLE WILL BE LEFT FOR ONSITE DECOMMISSIONING.

**REFERENCES**  
 THE RIGHT-OF-WAY AND PROPERTY LINES WERE OBTAINED FROM PLAT OF SURVEY PREPARED BY DENTON & WHITE SURVEYING COMPANY SEALED ON FEBRUARY 14, 1984.  
 TOPOGRAPHIC INFORMATION WAS OBTAINED FROM TOPOGRAPHIC SURVEY OF PART OF THE SE/4 OF SECTION 23 TOWNSHIP 19 NORTH RANGE 13 EAST, OF THE LB. & M. TULSA COUNTY, STATE OF OKLAHOMA, ACCORDING TO THE U.S. GOVERNMENT SURVEY THEREOF, AND KNOWN AS 7311 EAST 41st STREET SOUTH. (FILE: NFKS003.DWG REV. A)

- LEGEND**
- RCP REINFORCED CONCRETE PIPE
  - OVERHEAD UTILITIES
  - POWER POLE
  - MONITORING WELL
  - FENCE LINE
  - PROPERTY LINE
  - RIGHT-OF-WAY
  - 25' OFFSET OF RAILROAD CENTER LINE
  - SURVEY UNIT BOUNDARY
- 10 METER BY 10 METER GRID (SEE NOTE 5)
  - AFFECTED AREA
  - UNAFFECTED AREA
  - APPROXIMATE LIMIT OF STOCKPILE AREA

SCALE - FEET  
 0 60 120 180

REVISION	DATE	DESCRIPTION

**FIGURE 2**  
**AFFECTED AND UNAFFECTED AREAS**  
**ADJACENT LAND AREA REMEDIATION**  
**KAISER ALUMINUM**  
**TULSA, OKLAHOMA**  
 PREPARED FOR  
**KAISER ALUMINUM & CHEMICAL CORPORATION**  
**BATON ROUGE, LOUISIANA**

APPROVED  
 CHECKED  
 DRAWN  
 DATE 4/13/01  
 DRAWING NUMBER  
**5427A415** Earth Sciences Consultants, Inc

**ADA CONSULTANTS**  
**L. MAX SCOTT, PhD**  
*Certified Health Physicist*  
1348 Chippenham Drive  
Baton Rouge, Louisiana 70808  
225 578-4400



March 3, 2001

Mr. W.J. (Bill) Vinzant  
Kaiser Aluminum and Chemical Corporation  
9141 Interline Ave., Suite 1A  
Baton Rouge, LA 70809

RE: Audit Outreach Laboratories to Determine Alpha Spectroscopy Capabilities

Dear Mr. Vinzant:

In anticipation of the need to submit soil samples for isotopic thorium analysis, the alpha spectroscopy capabilities of Outreach Laboratories were assessed. In October 2000 and at previous other times I have visited the Outreach Laboratories and inspected the electronics used for alpha spectroscopy. Additionally, audits by me and others have confirmed that appropriate physical controls are in place to assure sample integrity. This audit consisted of a telephone conversation with Mr. Ron Eidson and a review of documents sent to me by Mr. Eidson. I reviewed analytical procedures, quality control records, and calibration certificates for all standards used for isotopic thorium analysis by alpha spectroscopy.

In my judgment Outreach Laboratories has the capability to perform isotopic thorium analyses by alpha spectroscopy.

Sincerely,

L. Max Scott, Ph.D. CHP

xc: Al Shuckrow  
Tulsa File