

April 16, 2001

Mr. Dwight D. Chamberlain, Director
Division of Nuclear Materials Safety
Nuclear Regulatory Commission Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Re: NRC INSPECTION REPORT 040-02377/00-02

Dear Mr. Chamberlain:

Kaiser received the referenced inspection report February 20, 2001 and subsequently requested a 30 day extension to the original 30 days from the date of the report (February 15, 2001) to respond. The following response is provided.

Guidance provided in NRC Information Notice 96-28 was not used to prepare this response. The document addresses corrective actions. Kaiser believes that none of the deviations listed warrant root cause analyses or extensive follow up actions to prevent reoccurrence. However, Kaiser did use NRC IN 96-28 in the development of the site procedure for correcting nonconformances and audit findings.

The response is separated into three sections as follows: 1) response to the five identified deviations in the inspection report (DEV 40-2377/0002-01 through 05), 2) response to the six inspection follow up items identified in the report (IFI 40-2377/0002-06 through 11) and 3) response to specific statements in the text of the inspection report identified by Kaiser.

Kaiser thanks you in advance for your attention to this response. If you have any questions concerning this response, call me at 225/231-5116.

Very truly yours,



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

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
U.S.N.R.C., Document Control Desk
Scott Van Loo – City of Tulsa
Mr. Harry Patterson – Union Pacific Railroad

DEVIATIONS

DEV: 40-2377/0002-01 - Failure to conduct final status surveys on affected areas as identified and defined in Sections 1.4.1 and 4.3.5.2 of the Remediation Plan.

All areas identified as affected areas in aforementioned sections of the Remediation plan have been remediated and surveyed in accordance with NUREG/CR-5849 and the Remediation Plan. Based on the text of the inspection report (pages 4, 5 and 6) Kaiser believes there is a difference in how the NRC and Kaiser viewed the identification of the areas as affected or unaffected. During meetings between Kaiser and the NRC on January 16 and 17, 2001, a plan for delineation of affected and unaffected areas was agreed upon. The agreed upon plan was described in a NRC memorandum to Robert A. Nelson, from John T. Buckley, dated January 29, 2001. Since that time all of the characterization grids have been delineated as affected or unaffected in accordance with the agreed plan. Final delineation of affected and unaffected areas and the final status surveys performed accordingly will be documented in the final status survey report. A copy of the memorandum is attached.

DEV: 40-2377/0002-02 - Failure to have an organization structure that is consistent with Section 2.2.2 of the Remediation Plan.

During the October 2, 2000 NRC site visit, after discussion of the site organization the NRC and Kaiser agreed on the site organization and the organizational chart was revised based on this meeting. Kaiser believes that the revised organizational chart is consistent with the Adjacent Land Remediation Plan. The organizational chart is attached. The positions of ESC Excavation QA/QC Coordinator, Kaiser Site Administrator, Kaiser RSO and ESC Health Physics Technician are included in the chart. The chart is consistent with Section 2.2.2 of the Remediation Plan:

- Section 2.2.2.1 Project Manager, Kaiser corresponds to "Kaiser Project Manager" on the chart.
- Sections 2.2.2.2 Site Manager, Kaiser, 2.2.2.3 Quality Assurance Coordinator, Kaiser and 2.2.2.4 Health and Safety Officer, Kaiser and have been deleted from the Remediation Plan and do not appear on the chart.
- Section 2.2.2.5 Project Manager, contractor corresponds to "A&M Project Manager" on the chart.
- Section 2.2.2.6 Quality Assurance Supervisor, contractor corresponds to "A&M QA Supervisor" on the chart.
- Section 2.2.2.7 Site or Field Supervisor, contractor corresponds to "A&M Site Supervisor" on the chart.
- Section 2.2.2.8 Health and Safety Supervisor, contractor corresponds to "A&M Health and Safety Supervisor" on the chart.

DEV: 40-2377/0002-03 - Failure to demonstrate that the contract laboratory was capable of conducting alpha spectrometry on soil samples consistent with Section 4.2.5 of the Remediation Plan.

The Kaiser RSO performed an audit of Outreach Laboratory's ability to perform alpha spectrometry on March 3, 2001. A copy of the audit report is attached.

DEV: 40-2377/0002-04 - Failure to have a process for investigating nonconformances and audit findings consistent with Section 4.6.9 of the Remediation Plan.

Kaiser has performed audits and investigated nonconformances and audit findings consistent with the plan. The proper protocol for investigating nonconformances and responding to audit findings has been in place. The Kaiser RSO has prepared a procedure for correcting nonconformances and audit findings. The procedure was developed using the guidance provided in NRC Information Notice 96-28. The procedure is attached. Note that all audit findings were investigated and the investigations documented.

DEV: 40-2377/0002-05 - Failure to perform alpha spectrometry on soil samples in accordance with procedure 6.1 consistent with Section 2.1.3 of the Remediation Plan.

Section 2.1.3 of the plan commits to following written and approved procedures. However, the procedure in question contained an incorrect reference to performing alpha spectrometry inconsistent with the Remediation Plan and the Final Survey Plan. The commitment in the procedure was an artifact from a previous remediation that was erroneously left in the procedure. The procedure has been revised and no longer contains a commitment to perform alpha spectrometry on every fifth soil sample and is consistent with the Final Survey Plan the procedure implements. The Final Survey Plan is consistent with the NRC approved Remediation Plan, neither of which contains a commitment to perform alpha spectrometry on soil samples.

Alpha spectrometry has been performed on an appropriate number of samples as agreed to between Kaiser and the NRC during the January 16 - 17, 2001 meeting.

INVESTIGATION FOLLOW UP ITEMS

IFI: 40-2377/0002-06 – Clarify the appropriate number of soil samples that require alpha spectrometry and identify the correct number of samples used for determining the 3.5 ratio (Th-230 to Th-232).

The number of samples requiring alpha spectroscopy is addressed in the response to **DEV: 40-2377/0002-05**. The number of soil samples requiring alpha spectrometry was agreed to during meetings with Kaiser and the NRC on January 16 and 17, 2001. The numbers required are documented in NRC memorandum to Robert A. Nelson, from John T. Buckley, dated January 29, 2001 (Attachment 2). The samples have been taken and analyzed and the results will be part of the final status survey report.

There were a total of 24 sample results used in the calculation of the ratio. Twenty of the samples were dross samples and four of the samples were A series samples. The titles of Tables A1 and A2 state 20 dross samples plus A series samples. The tabulated data in both tables shows 24 samples, 20 dross and 4 A series samples (used to establish the ratio of 3.5). The histogram also contains 24 samples. Figure A-1 shows only 22 sample locations and has been revised to show all 24 sample locations. The figure is attached.

IFI: 40-2377/0002-07 – Review the technical adequacy of procedures after Kaiser has evaluated the NRC's findings.

All of the identified procedures have been reviewed for technical adequacy and for consistency. Note that the procedures as written are third tier documents, used for guidance in implementing the second tier Final Status Survey Plan and first tier Adjacent Land Remediation Plan. None of the procedure comments provided in the inspection report affected the safe or timely implementation of activities related to the adjacent land remediation. The procedures were revised where prudent.

IFI: 40-2377/0002-08 – More detailed information is needed on survey results and data presentation in order to demonstrate compliance with site cleanup criteria.

Compliance with site cleanup criteria will be demonstrated by the presentation of survey and analytical data in the Final Status Survey Report. Data reviewed by the NRC were interim reports prepared to aid in backfill decisions. The reports were not intended to be final status survey reports, consequently they do not meet protocol required by NUREG/CR-5849 for final status survey reports.

An extensive review of all background measurements has been performed and will constitute part of the Final Status Survey Report. Likewise, all of the survey data and soil sample analytical data will be presented in the proper format as part of the Final Status Survey Report.

IFI: 40-2377/0002-09 – Review reasons for inconsistencies in soil vs. radiation scan data.

Table 1 of the NRC inspection report, page 14, contains data from characterization grids 39, 40 and 41, part of Final Survey Unit 2F. These grids are proximate to the fence line of the dross retention pond on Kaiser property. Most of the contact and 1-meter survey meter readings are influenced by the proximity to the dross source and therefore are not proportional to the soil sampled beneath the survey points. The dross source is centered on the west wall of Characterization Grid 41. Survey data correlates very well with the dross source. As readings are taken further and further away from the dross source (in all directions) they continue to decline. Sample density in this area was increased to compensate for high survey meter background readings in this area.

IFI: 40-2377/0002-10 - Review calibration and instrument check records for errors.

The calibration record noted in section 3.2 (d) of the inspection report is for a 2-inch by 2-inch NaI detector contained in a thin lead shield. The effect of the lead shield around the detector results in a change in geometry, i.e., the response to gamma radiation impacting the detector from the sides is greatly reduced and the response of gamma radiation impacting the face (bottom) of the detector remains the same. This accounts for the reduced response factor of 95 cpm/ μ R/hr (compared to a range of 760 - 900 cpm/ μ R/hr expected of un-shielded 2-inch by 2-inch NaI detectors).

A review of the Model 19 micro-R-meter calibration report in question has been completed. The calibration record is appropriate and correct. The calibration point at 200 μ r/hr is not characterized as background. The word "background" appears in the source column as an indication that background was measured prior to measuring the response to the 200 μ r/hr source. Also, the recording of "46 μ r/hr" as battery check provides more information than "OK" which would only indicate that the needle deflected in the acceptance range. The actual reading indicates that the battery check is at the upper range of acceptance, e.g., the battery is relatively new.

Corrections to HPM 1-2-1 have been made.

IFI: 40-2377/0002-11 – Reviews of Outreach Laboratory results revealed several technical concerns with the quality of data and Kaiser's reviews of QA/QC analyses.

The Outreach reports reviewed by NRC inspectors were not final reports. Final reports and gamma spectroscopy reports are received for each gamma spectrometry analyses of soil samples. The other naturally occurring radionuclides, e.g., K-40 and uranium progeny are reported in the full gamma spectrometry reports. These radionuclide concentrations have been reviewed for backfill samples No.'s CF-001, CF-002 and CF-1-1.

All final reports are reviewed for completeness and for consistency with preliminary reports. Results are not reported as "pCi/g-dry" because the soil samples are not dried prior to gamma spectrometry analysis. The Adjacent Land Remediation Plan does not

require soil samples to be dried prior to gamma spectroscopy analysis. This is consistent with the guidance given in NUREGs 1507 and 1575.

A review of the Outreach QA/QC samples as reported will be included as part of the QA/QC section of the Final Status Survey Report. Data entry has been reviewed and errors corrected as appropriate.

The QC duplicate cited as high (44%) was counted on a different detector than what was used for the counting of the samples that were submitted. While the relative difference in the detectors appears high, the value is below the warning level of 45 and the acceptance limit of 61.

In regard to the laboratory not providing QC data for Ac-228 in report No. 20000878, the error has been corrected and an amended report issued to Kaiser.

Current reviews of the Outreach output have not revealed "technical concerns" but have resulted in the correction of interim results.

SPECIFIC STATEMENTS (contained in text of report)

Page 4, Section 1.3, paragraph 1 “Additionally, the inspectors asked about soil sampling and survey procedures for the vertical walls of the deep excavated grids that were used during remediation to determine that all contaminated soils had been removed. Kaiser representatives stated that sampling and surveying on the vertical walls was not required because adjacent grids were unaffected areas. Also on page 5, Section 1.3, paragraph 5 “Additionally, the inspectors identified the need for vertical walls of the excavated grids to be surveyed and sampled to aid in demonstrating that the adjacent grids did not need to be remediated. Kaiser staff disagreed with the inspector’ position in this regard.”

Kaiser believes that the NRC inspector misunderstood Kaiser’s position on sampling vertical walls. As detailed in the Final Status Survey Plan, after remediation final survey grids are established that include excavation bottom and vertical walls at approximately 10-meter by 10-meter per final survey grid. Four equidistant samples then are located and taken based on the establishment of the final survey grid. When the walls of excavations are at significant depth they constitute a large part of the 10-meter by 10-meter area resulting in some of the 4 equidistant samples falling on the vertical walls. Surface area of the vertical walls are considered the same as the area of the bottom of the excavation. An exception to this that may have confused the issue is when one of the vertical walls is on Kaiser property that will be addressed during Phase-II of the site decommissioning. This wall would not be considered part of the final survey grid and therefore would not be sampled. Otherwise all vertical walls are considered in the calculation of area of a final survey grid and are therefore surveyed and sampled the same as excavation bottoms.

Page 9, Section 2.2.d (2), paragraph 2 “However, the inspectors noted that the following Kaiser documents supported that soil samples will be submitted for alpha spectroscopy: (1) Section 4.2.5 of the Remediation Plan; (2) Sections 2.6 and 3.5.2 of the Final Status Survey Plan, and (3) Section 5.5.8 of Procedure ESC/HPM-6-1.”

Kaiser does not believe that the referenced sections support the submitting of soil samples for alpha spectroscopy. Specifically:

- Section 4.2.5 of the Remediation Plan reads “Analytical services for measuring gross radioactivity in samples (if required) and for alpha or gamma spectrometry analysis will be performed in-situ or by a laboratory with demonstrated capability to perform the required analysis.” This statement speaks of various analytical analyses but does not indicate samples “will be submitted for alpha spectroscopy”.
- Section 2.6 of the Final Status Survey Plan reads “Samples of soil and other special samples requiring isotopic analyses, gamma spectrometry or chemical analyses will be sent to a contract laboratory under strict chain of custody procedures.” This statement speaks of various analytical analyses and the requirement for chain of custody but does not indicate samples “will be submitted for alpha spectroscopy”.

- Section 3.5.2 of the Final Status Survey Plan is the Structural Surface Scan section. Kaiser believes the NRC means Section 3.5.3, Soil Sampling which reads "Soil samples will be collected and transported to a commercial laboratory for isotopic analysis for Th-232." This statement speaks of soil samples and isotopic analyses but does not indicate samples "will be submitted for alpha spectroscopy".
- Section 5.5.8 of Procedure ESC/HPM-6-1 contained the reference "one of five samples will also get alpha spectrometry analysis" but has been revised to be consistent with the Final Status Survey Plan and the Remediation Plan.

Page 12, Section 3.2.a, paragraph 1 "In October 2000, Kaiser wrote a "Correlation Data Study for the Kaiser Chemical Corporation." Kaiser performed background exposure rate and NaI scan measurements at 20 locations near Bishop Kelley High School in Tulsa, Oklahoma. Additionally, 10 soil samples were collected for background analyses. The inspectors noted that Kaiser was using an average site background of 10 μ R/hr instead of the 7 μ R/hr measured by NRC inspectors at the same area. The inspectors suggested that if Kaiser was going to use the Bishop Kelley location as the official background location, that PIC correlation data may have to be obtained. A Kaiser representative stated that they were still developing their correlation study."

Kaiser offers the following clarification:

- The correlation study was performed to relate the gross gamma survey meter indications in the field to Th-232 content (pCi/g) of soil. This study was performed to aid in interim remediation surveys performed in real time while excavation was performed and as such did not contain measurements of background in support of the establishment of the site background, and is not part of the final status survey.
- The Bishop Kelley exercise was used to confirm the site background measurements performed in front of the Kaiser administration building were consistent with areas of Tulsa further removed from the site. The results indicate no differences between the two locations.
- The difference between the average site background of 10 μ R/hr measured by Kaiser and the 7 μ R/hr measured by NRC inspectors is a function of the difference in the two detectors. The combination of systematic and random errors for measurements at this extremely low exposure rate exceed the difference in the measured averages by a factor of two or more. From a statistical point of view there is no difference between the two numbers. The only factor of importance is that the background established with a specific detector is used to subtract from measurements made with that detector so that the standard error associated with that detector will be negated.
- The PIC correlation data is a function of the detector response (correlating the response of an ion chamber to that of a NaI detector) and has nothing to do with the area used to establish background. Once a NaI detector's response has been verified to be consistent with that of an ion chamber, the NaI detector can then be used to measure exposure rate where ever. If the two detectors are consistent when exposed to the same source (in this case six predetermined locations on site) the relationship established between the two can be applied to measurements taken where ever.

Attachments:

- 1 USNRC Memorandum dated January 29, 2001
- 2 Organizational Chart
- 3 Audit of Outreach Alpha Spectrometry
- 4 Procedure for correcting nonconformances
- 5 Figure A1, Dross Remediation Site Locations from which Dross Samples
Analysis for Thorium Isotopes

ATTACHMENT 1



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 29, 2001



MEMORANDUM TO: Robert A. Nelson, Section Chief
Facilities Decommissioning Section
Decommissioning Branch, DWM

FROM: John T. Buckley *JTB* 1/29/01
Facilities Decommissioning Section
Decommissioning Branch, DWM

SUBJECT: MEETING REPORT FOR THE JANUARY 16 - 17, 2001, MEETING
WITH KAISER ALUMINUM

On January 16 - 17, 2001, U.S. Nuclear Regulatory Commission (NRC) staff members met with representatives of Kaiser Aluminum (Kaiser) to discuss various issues related to implementation of Kaiser's Phase 1 decommissioning plan and to discuss development of the Phase 2 decommissioning Plan. Attached is the meeting report documenting this meeting.

Attachment: Meeting Report

Docket: 040-02377
License: STB-472

MEETING REPORT

Date: January 16 -17, 2001

Time: 8:30 am to 4:30 pm

Place: U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD

Purpose: To Discuss Various Issues Related to implementation of Kaiser Aluminum's Phase 1 Decommissioning Plan and to discuss development of the Phase 2 Decommissioning Plan

Attendees:

NRC

John Buckley 301-415-6607
Jean Claude Dehmel 301-414-6619
Mark Thaggard 301-415-6718
Matt Blevins 301-415-7684
Robert Nelson 301-415-7298
Louis Carson (via teleconference)
Blair Spitzberg (via teleconference)
Judith Walker (via teleconference)

Kaiser

Bill Vinzant 225-231-5116
Max Scott 225-578-4400

Earth Sciences

Dave Erb 724-733-3000
Elizabeth Ubinger 724-733-3000
Alan Shuckrow 724-733-3000
M.D. Tourdot 724-733-3000

Background:

On April 4, 2000, the U.S. Nuclear Regulatory Commission (NRC) approved the Phase 1 decommissioning Plan (DP) for the Kaiser Aluminum (Kaiser) facility located at 7311 East 41st Street, Tulsa, Oklahoma. In Phase 1, Kaiser has been remediating land areas adjacent to the Kaiser property. Kaiser is expected to submit the Phase 2 DP in June 2001.

Discussion:

On January 16, 2001, Kaiser presented several options being considered for Phase 2 decommissioning (see Attachment 1). Following Kaiser's presentation, NRC and Kaiser discussed the Acceptance Review Checklist (Appendix A) from the NMSS Decommissioning Standard Review Plan. Participants discussed each item of the checklist and came to agreement on what information Kaiser should provide to NRC in the Phase 2 DP. A copy of the agreed upon checklist is provided as Attachment 2.

On January 17, 2001, participants discussed: (1) Kaiser's delineation of Phase 1 affected and unaffected areas; and (2) the use of alpha spectrometry to analyze samples during remediation. Both of these issues were identified during an NRC inspection of the Kaiser facility on December 13, 2000.

During the discussion on the delineation of Phase 1 affected and unaffected areas, meeting participants agreed on the following points:

1. The freshwater pond and Fulton Creek are physical barriers which bound the affected areas on the West and North, respectively.
2. Kaiser can use physical barriers or historical information to re-evaluate grids and/or areas designated as affected or unaffected. Kaiser should notify NRC, and receive approval, before revising the designation of any grid and/or area.
3. Some survey grids may not have been cored and may require further evaluation.
4. It is acceptable for Kaiser to analyze archived core samples for further site characterization and final status survey.
5. Kaiser will scan 100% of each core sample in one foot increments. Kaiser will remove the one foot of core showing the highest count reading and analyze as a grab sample.

With regard to the use of alpha spectrometry to analyze samples during remediation, participants agreed on the following points:

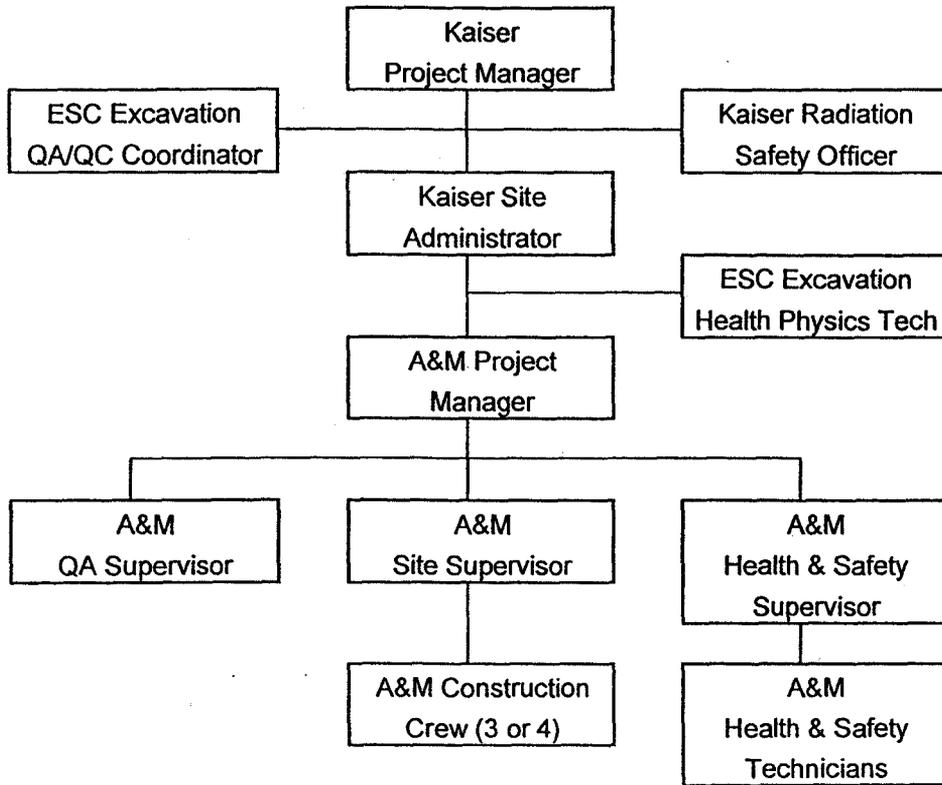
1. Kaiser will perform alpha spectrometry analysis on two types of samples; core samples and final status survey samples. Kaiser proposes to analyze 7 core samples and 7 final status survey samples. If sample analysis results indicate that additional analyses are warranted, NRC and Kaiser will meet to discuss the issue.
2. For each survey unit, Kaiser will randomly select 20% of the samples for analysis. These samples will be composited and analyzed by gamma spectrometry, and alpha spectrometry for isotopic thorium.

Actions:

1. NRC agreed to send Kaiser a copy of a dose assessment received by NRC in the past to support shipment of unimportant quantities of material to WCS (see Attachment 3, ADAMS Accession Number ML003706454).

ATTACHMENT 2

Kaiser Tulsa Adjacent Land Remediation Project Organization



ATTACHMENT 3

Tulsa
3.12.14

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



March 9, 2001

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

RE: Audit Tulsa Adjacent Land Remediation

Dear Mr. Vinzant:

In accordance with the Kaiser Audit Procedure (KAI-09) on March 5, 2001, I conducted audits of A&M Engineering and Environmental Services, Inc., and Earth Sciences Consultants, Inc. No other contractors are involved with the adjacent land remediation activities. The findings of the audits are outlined below.

A&M Engineering and Environmental Services, Inc.

Procedures, Programs, and Activities Audited

- Daily Instrument Checks
- Log of instruments checks
- Training Records
- Safety Work Permit
- Site Sign-in Procedure
- Chain-of-Custody
- Radiation Badging
- Contamination Surveys
- QA/QC procedures
- Instrument records reviewed by Irfan Taner
- Warning Signs and Area Security
- Instrument Calibrations

Findings and Recommendations

All records appeared to be complete and up to date. Activities appear to be accordance with written procedures.

Conclusions

All activities audited are consistent with procedures and accepted radiation protection practices.

Earth Sciences Consultants, Inc.

Procedures, Programs, and Activities Audited

Daily Instrument Checks

Training Records

Safety Work Permits

Daily Log of Field Activities

Soil Sampling

Gamma Scanning

Radiation Badging

Instrument Calibration

QA/QC Activities (including an audit if Outreach Laboratories)

Sample Submission

Collection of geo-probe samples

Scanning of cores to select segment for laboratory analysis

“Walk through” of the compositing of samples for isotopic thorium analysis

Findings and Recommendations

The calibration certificate for the Ludlum model 19 is not clear that the calibration of the 25 and 50 micro-R/hr scales was accomplished using an electronic pulser. If in fact such is the case the calibration certificate should be revised to reflect such, if not, the instrument should be recalibrated.

Conclusions

With the exception of the instrument calibration, all activities audited are consistent with procedures and accepted radiation protection practices. It is noted that all instrument check data and survey results are transmitted electronically to the Pittsburgh office and reviewed by a Certified Health Physicist.

In addition to the audit of the contractors, on site activities of Kaiser were audited.

Procedures, Programs, and Activities Audited

Training Records

Safety Work Permits

Data Review

Instrument calibration

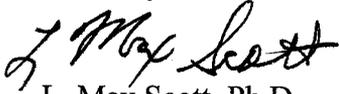
Findings and Recommendations

Two air sampling pumps are due for calibration. Send the pumps for calibration.

Conclusions

With the exception of the air sampling pumps, all audited activities are consistent with procedures. Data are evaluated in accordance with the Adjacent Land Remediation Plan.

Sincerely,

A handwritten signature in black ink, appearing to read "L. Max Scott". The signature is written in a cursive style with a large initial "L" and "S".

L. Max Scott, Ph.D.

xc: Al Shuckrow
Tulsa file

ATTACHMENT 4

KAI-11

**PROCEDURE TO INVESTIGATE AND RECTIFY ITEMS
OF NONCONFORMANCE
ADJACENT LAND REMEDIATION PROJECT**

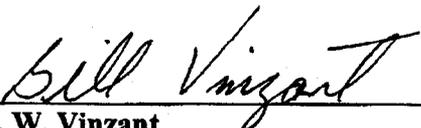
KAISER ALUMINUM AND CHEMICAL CORPORATION

TULSA, OKLAHOMA

April, 2001

Approval

The plan has been approved by:



J. W. Vinzant
Safety, Health & Environmental Manager

4-9-01
Date



L. Max Scott
Radiation Safety Officer

4/9/01
Date

KAI-11

Procedure to Investigate and Rectify Items of Nonconformance Adjacent Land Remediation Project

Purpose:

To establish a formal procedure to investigate and rectify items of nonconformance

Definitions:

Minor nonconformance item - any deviation from established policies, remediation plans, safety work permits or established health physics practices which do not have a serious impact on health and safety or the completion of remediation activity.

Major nonconformance issue - any deviation from established policies, remediation plans, safety work permits or established health physics practices which could have an serious and immediate impact on health and safety or the completion of remediation activity.

Notification of Items of Nonconformance:

Any person that discovers an item of nonconformance shall report such to the Kaiser Site Administrator or Kaiser Project Manager.

Investigation of Items of Nonconformance:

Minor

- The Kaiser Site Administrator or designee will review the item of nonconformance with the person who brings it to his attention. If the Kaiser Site Administrator determine the item of nonconformance could be major he shall follow the steps listed below.
- The Kaiser Site Administrator will establish the fact that the item is in fact an item of nonconformance. If it is determined that there was not an item of nonconformance the Kaiser Site Administrator shall document such by recording in a daily log or other suitable fashion.

Major

- The Kaiser Site Administrator shall immediately notify the Kaiser Project Manager and advise him that a potential major item of nonconformance has been identified.
- The Kaiser Project Manger will review the item with the Kaiser Site Administrator and if he agrees the following steps will be taken. If the Kaiser Project Mangers determines that the item of nonconformance is not major it will be treated as a minor item of nonconformance.
- The Kaiser Project Manger or his designee will undertake corrective actions as listed below.

KAI-11

Corrective Actions

Minor:

The Kaiser Site Administrator will undertake corrective actions as follows.

- Conduct a review of the circumstances that led to the item of nonconformance.
- Identify the root cause of the item of nonconformance.
- Take actions to correct the item of nonconformance.
- Document Actions.

Major:

1. Conduct a complete review of the circumstances that led to the item of noncompliance.

In conducting a review of the circumstances consider the following:

- Interviews with individuals who are either directly or indirectly involved in the item of nonconformance, including management personnel and those responsible for training or procedure development/guidance.
 - Tours and observations of the area where the violation occurred. During the tour, individuals should look for items that may have contributed to the item of noncompliance as well as those items that may result in future items of noncompliance.
 - Review of programs, procedures, audits, and records that relate directly or indirectly to the item of noncompliance. The program should be reviewed to ensure that its overall objectives and requirements are clearly stated and implemented. Procedures should be reviewed to determine whether they are complete, logical, understandable, and meet their objectives. Records should be reviewed to determine whether there is sufficient documentation of necessary tasks to provide an auditable record and to determine whether similar items of noncompliance have occurred previously. Particular attention should be paid to training and qualification records of individuals involved with the item of noncompliance.
2. Identify the root cause of the item of nonconformance.
 3. Take prompt and comprehensive corrective action that will address the immediate concerns and prevent recurrence of the item of noncompliance.
 4. Document findings
Concentrations of radiological and chemical constituents of interest in pore waters in dross and in ground waters in hydrogeologic units downgradient from source materials in dross
Field measurements of pH, conductivity and dissolved oxygen in dross pore waters and ground waters.

ATTACHMENT 5

