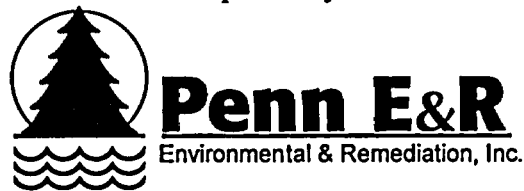


Environmental Health and Safety Plan

**Kaiser Aluminum & Chemical Corporation
Thorium Remediation Project
Tulsa, Oklahoma**

**4000:PA4072
REVISION 1
May 2004**

Prepared By:



**Penn Environmental & Remediation, Inc.
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Environmental Health and Safety Plan


**Kaiser Aluminum & Chemical Corporation
Thorium Remediation Project
Tulsa, Oklahoma**

**Kaiser Aluminum & Chemical Corporation
Baton Rouge, Louisiana**

**4000:PA4072
Revision 1
May 2004**

Approval

The plan has been approved by:



M. David Tourdot
Vice President of Radiological Services

5-10-04
Date

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**Environmental Health and Safety Plan
Penn Environmental & Remediation, Inc.
Thorium Remediation Project
Tulsa, Oklahoma**

1.0 Introduction

This Penn E&R Environmental Health and Safety Plan (EHASP) provide the basic policies, objectives, organizational structure, and guidelines of the Penn Environmental & Remediation, Inc. (Penn E & R) and governs all nonradiological aspects of the Thorium Remediation Project at the Kaiser Tulsa, Oklahoma facility. This EHASP was written in accordance with Occupational Safety and Health Administration (OSHA) standards codified in 29 Code of Federal Regulations (CFR) 1910.120.

1.1 Purpose

The Penn E&R EHASP identifies potential hazards and specifies an appropriate level of response to protect the health and safety of workers and the general public. Safety guidelines concerning radiological aspects are provided in the Radiation Health and Safety Plan (RHASP), under separate cover.

1.2 Quality Assurance

1.2.1 Records and Documentation

- Records required by regulations, permits, plans, and procedures implementing the health and safety program shall be maintained on site, and preserved.
- Records may be the original document, a reproduced copy or microform, if such reproduced copy or microform is duly authenticated by authorized personnel and capable of producing a clear and legible copy after storage

1.2.2 Record Retention and Ownership

Records shall be maintained, as a minimum, for the period of time specified in the applicable regulations, unless disposition is otherwise directed by the Nuclear Regulatory Commission (NRC)/OSHA/U.S. Environmental Protection Agency (USEPA)/Department of Transportation, or other regulatory agency which maintains jurisdiction over those records.

1.2.3 Variances

If conditions develop requiring a deviation from the EHASP, a written request for variance shall be made to one or more persons in a position authorized to approve the Plan.

1.2.4 Safety Work Permit

The purpose of the Safety Work Permit (SWP) is to identify special instructions or precautions pertinent to performing work in a safe manner not covered or detailed by the EHASP or a standard operation procedure or instruction. SWPs are prepared at the discretion of the Site Administrator, (or designee).

2.0 Policy and Standards

2.1 Policy

It is the policy of Penn E & R to conduct its operations in a manner that minimizes health and safety risks to its employees, contractors, and the general public. This EHASP applies to Penn E & R employees, contractors, and subcontractors. Remedial Construction Services, Inc. (RECON) will be responsible for the health and safety of all visitors to the site including local, state, and federal government employees.

2.2 Visitors

Remedial Construction Services, Inc. (RECON) is responsible for overall site security and access. Penn E&R personnel will comply with the site access and control requirements established by RECON's EHASP, RHASP, and Work Plan. Penn E&R is the Engineer and is responsible for the Final Status Survey (FSS) for the Phase II Decommissioning. This EHASP, along with Penn E&R's RHASP, applies to activities necessary for implementing duties as Engineer and the FSS.

3.0 General Site Information

The former Kaiser Aluminum Specialty Products facility is located at 7311 East 41st Street in Tulsa, Oklahoma (Figure 3-1). It is situated in Tulsa County, Oklahoma, about 5 miles southeast of the downtown center of the City of Tulsa. The site initially occupied approximately 23 acres of land on both sides of 41st Street. Currently, a 3-acre parcel south of 41st Street contains an active aluminum extrusion and fabrication facility. North of East 41st Street are several parcels of land previously devoted to refining, processing, and waste disposal functions. This acreage is split by the Union Pacific Railroad right-of-way. An approximate 3.5-acre parcel south of the railroad (known as the former operational area) houses an active office building and several inactive industrial structures. An approximate 14.0-acre land area (known as the pond parcel) located north of the railroad contains a freshwater pond, a retention pond, a former reserve pond area, and the Flux Building area. The Thorium Remediation Project involves the former operational area and the pond parcel.

The Retention Pond currently occupies 8 acres of the 14-acre land parcel north of the railroad. The water level in the Retention Pond varies, based on seasonal precipitation. The Retention Pond is surrounded by a well-maintained berm and there are no surface water discharges from the pond. The Retention Pond is permitted by the Oklahoma Water Resources Board. Occupying approximately 4 acres on the western portion of this parcel is the area of the former Freshwater Pond. The Freshwater Pond was backfilled in October and November 2002. Northeast of the Retention Pond is the area of the former Reserve Pond (approximately 1.5 acres). The Reserve Pond was backfilled in the late 1960s and is currently covered with grass.

Extensive site characterization activities have been conducted since 1994 within the 14.0-acre land area of the facility known as the pond parcel. These characterization activities have indicated the presence of residual radioactive material within a 10-acre portion of the pond parcel. The radioactive material identified within this portion of land is a thorium-bearing dross containing the isotopes Th-232, thorium-230 (Th-230), and thorium-228 (Th-228). The affected portion of the parcel contains the Retention Pond and former Reserve Pond area. The unaffected portion of the pond parcel contains a former Freshwater Pond area.

The pond parcel area considered for remediation is bounded by the south fence line, the former Fresh Water Pond embankment on the west, Fulton Creek ditch on the north, the east fence line, and the

northern and eastern edges of the Flux Building and paved area. A central feature of this area is the Retention Pond and associated embankments. Thorium-bearing dross was present on land adjacent to current Kaiser Property along the east and south fence lines and represented the margins of the material. Kaiser has remediated this land by excavation and storing affected soil within the pond parcel. Affected soil generated during remediation of the adjacent land is considered as part of the on-site decommissioning.

4.0 Responsibilities

4.1 Key Personnel

The following personnel and organizations will be responsible for all health and safety aspects during QA activities at the Kaiser remediation site.

NAME/TITLE/ORGANIZATION

Paul Handa Site Administrator Kaiser	(918) 384-3169 7311 41st Street Tulsa, OK 74147
Charles Beatty QA Coordinator/Project Manager Penn E&R	(724) 934-3530 359 North Gate Drive Warrendale, PA 15086
Dave Weyant Data Manager/Health Physics (HP) Supervisor Penn E&R (field office)	(918) 384-0566 7311 41st Street Tulsa, OK 74147

4.2 Responsibilities

Responsibilities of the QA Coordinator/Project Manager (QAC) include overseeing that appropriate quality management, policy, training, and verification controls are present. Supplementary QAC responsibilities include conducting QA audits, surveillance of contractor activities, and correcting conditions which could adversely affect quality. In addition, the QAC is responsible for the preparation, approval, and implementation of general quality assurance operations, including this EHASP.

The Data Manager/HP Supervisor has responsibility for implementing and maintaining the Penn Health and Safety Program and is responsible for on-site direction and oversight of QA activities in compliance with the Penn project EHASP.

The Data Manager/HP Supervisor or his designee shall be present at all times during site activities. Respective functions will primarily include the following duties:

- advising on-site personnel, the QAC/Project Manager, and the Kaiser SA of potential health and safety hazards during field investigations

- ensuring potential hazards are monitored as stipulated in this plan
- terminating field work by Penn E&R employees or subcontractors if unsafe conditions develop or an imminent hazard is perceived
- preparing procedure deviation, variances, and interim-change notices from this plan, if needed
- maintaining health and safety oversight of field activities with subcontractor personnel or visitors

4.3 Site Personnel

Site personnel report to the Data Manager/HP Supervisor on matters of safety. Subcontractor personnel shall be classified as site personnel. Specific responsibilities include:

- performing tasks in compliance with the project EHASP as well as posted, verbal, and other written safety instructions
- stopping his/her work upon discovering, and reporting to the SA and/or Data Manager, any condition which jeopardizes industrial safety
- stopping his/her work and reporting to the Data Manager/HP Supervisor anytime he or she is unsure that their action or work environment is safe
- promptly obeying "Stop Work" orders
- reporting to the Data Manager/HP Supervisor noncompliance with the project EHASP
- assisting the Data Manager/HP Supervisor with investigations as necessary
- not eating, drinking, smoking, chewing, or applying cosmetics in any controlled area
- wearing protective clothing properly and wherever required by the RECON EHASP and RHASP
- removing protective clothing properly
- reporting the presence of treated or open wounds to the Data Manager/HP Supervisor prior to working in a controlled area, and immediately exiting if a wound occurs while in such an area

5.0 Hazard Identification and Risk Assessment

5.1 Chemical Hazards

No potential chemical hazards have been identified at the site which have the potential to be present in the subsurface soils being remediated or sampled.

5.2 Indigenous Biological Hazards

Insects including ticks, mosquitoes, ants, and spiders at the site are common to the general area as well as both poisonous and nonpoisonous snakes. However, these indigenous biological hazards are not considered likely.

In the unlikely event that an employee comes into contact with a poisonous plant or is bitten by a snake or rodent, the Data Manager/HP Supervisor shall immediately be notified. The employee will be transported to a medical facility for medical attention, if warranted.

5.3 Adverse Weather Procedures

Adverse weather conditions can severely affect field operations. The Data Manager /HP Supervisor will make the determination to "stop Penn E&R work" if inclement weather jeopardizes employee safety or field operations.

6.0 Personal Protective Equipment

Penn E&R personnel and subcontractors will comply with personal protective equipment requirements specified in RECON's approved RHASP and EHASP.

7.0 Accident/Incident Reports

Accidents or incidents that occur during activities at the site shall be reported in writing to the Kaiser SA and the Data Manager/HP Supervisor, and investigated where appropriate to prevent reoccurrence.

Examples of incident reports include:

- a recordable occupational injury, i.e., a cut, fracture or sprain which results from a work accident or from an exposure involving a single incident
- animal bites and one-time exposure to chemicals
- a recordable occupational illness caused by exposure to environmental factors associated with employment including acute and chronic illnesses that may be caused by inhalation, absorption, ingestion, or direct contact
- in the event of an accident, a medical accident/incident form shall be completed and sent to the Director of Human Resources

7.1 Employee Information

The standards concerning employee's right-to-know OSHA requirements of 29 CFR 1910.120 will be available at the work site.

8.0 Chemical Monitoring

No chemical hazards have been identified to date by Kaiser. However, since the site has not been completely characterized for potential chemical hazard, limited organic monitoring with a photoionization detector may be performed if suspected organic contamination is discovered.

9.0 Standard Safety Procedures

9.1 Buddy System

The potential hazards associated with field activities at the site do not warrant utilizing the buddy system concept. However, as an additional safety precaution, and as a means of expediting field activities, a team of at least two people will be used when the Data Manager/HP Supervisor specifies so.

9.2 Communications

Due to the nature of planned field activities, the use of communication devices such as radios, megaphones, and air horns will not be necessary. However, all personnel shall be familiar with the following hand signals.

SIGNAL	DEFINITION
Hands clutching throat	Out of air/cannot breath
Hands on top of head	Need assistance
Thumbs up	OK/I am alright/I understand
Thumbs down	No/negative
Arms waving upright	Send back support
Grip partner's wrist	Exit area immediately

9.3 Safe Work Practices

The following safe work practices shall be followed:

- RECON designated personal protective and safety equipment shall be worn while working within control zone and decontamination areas.
- Eating, drinking, chewing gum or tobacco, smoking, or applying cosmetics is prohibited in the contaminated or potentially contaminated areas.
- Contact with potentially contaminated substances shall be avoided to the extent practicable; placing monitoring equipment on potentially contaminated surfaces should be avoided.
- Field staff will be alert for potentially dangerous situations (e.g., presence of strong, irritating or nauseating odors), and immediately take appropriate measures.

- Good housekeeping shall be practiced; equipment and materials shall be kept orderly and out of potentially harmful situations.
- Field staff shall be familiar with the physical characteristics of the site including the following:
 - the nearest emergency assistance
 - prevailing wind direction
 - access to associates, equipment, and vehicles
 - communication facilities at and near the site
 - areas of known or suspected contamination
 - site access and egress
- The number of personnel and amount of equipment in the contaminated area shall be minimized to the extent consistent with safety requirements.
- Waste generated during activities at the site shall be contained appropriately.
- Injuries shall be reported, regardless of how minor.
- Periodic health and safety meetings shall be conducted by the Data Manager/HP Supervisor or his designee for personnel involved in field activities; and prior to commencing a new task, these meetings shall address health and safety concerns related to the planned activities and shall review emergency response plans.

9.4 Site Map

It is understood that Kaiser will provide a site map to Penn E&R personnel that details important features, such as the location of medical facilities and evacuation routes.

10.0 Routine and Special Training

10.1 Site Orientation

Site orientation concerning site-specific health and safety shall be administered to all personnel. Health and Safety Plan acceptance forms shall be completed by site personnel to document their understanding of the health and safety requirements.

10.2 Training

If on-site personnel engage in hazardous waste activities, they shall receive classroom training and supervised field experience as required by 29 CFR 1910.120.

11.0 Emergency Response and Notification

The purpose of this section is to provide guidance for responses to emergency situations.

11.1 Contingency Plans and Emergency Contacts

Emergency response contingency plans in this section shall be followed during field investigations. A copy of this plan will be available at the work site, and personnel working on the site shall be familiar with the plan. Evacuation plans and routes shall be discussed with field personnel before field activities begin.

Persons and services to contact in case of emergencies are identified in Figure 11-1. This emergency contact form will be posted at the work site.

11.1.1 Fire/Explosion

A fire emergency will be handled by evacuating the work area and immediately notifying the Tulsa Fire Department (911). Field personnel should attempt to put out the fire only if it appears to be small and easily extinguishable. The Fire Department shall be notified of such an occurrence. In the event of an explosion, personnel will be evacuated and no one shall enter the work area until clearance is given by the appropriate Tulsa authorities.

11.1.2 Personnel Injuries

In case of minor injuries to personnel, first aid treatment shall be initiated in the field. In case of serious injuries, the victim shall be transported to a hospital as soon as possible.

11.1.3 Severe Weather

In the event that severe weather threatens the safety of employees, contractors, and visitors, it is important that each person minimize the chance for injury and proceed to the nearest designated shelter.

11.2 Notification Requirements

Should any doubt be encountered as to who or what authority should be contacted, a conservative approach shall be used so as to contact all appropriate authorities. The SA shall also be informed of any emergency situation.

Any reporting and notification of emergency situations shall be documented. The HP Supervisor has the major responsibility for overseeing the response to emergency situations and shall ensure that the appropriate actions are taken.

11.3 Emergency Route to Hospital

A map of the emergency route will be provided to each field staff member (see Figures 11-2 and 11-3).

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FIGURES

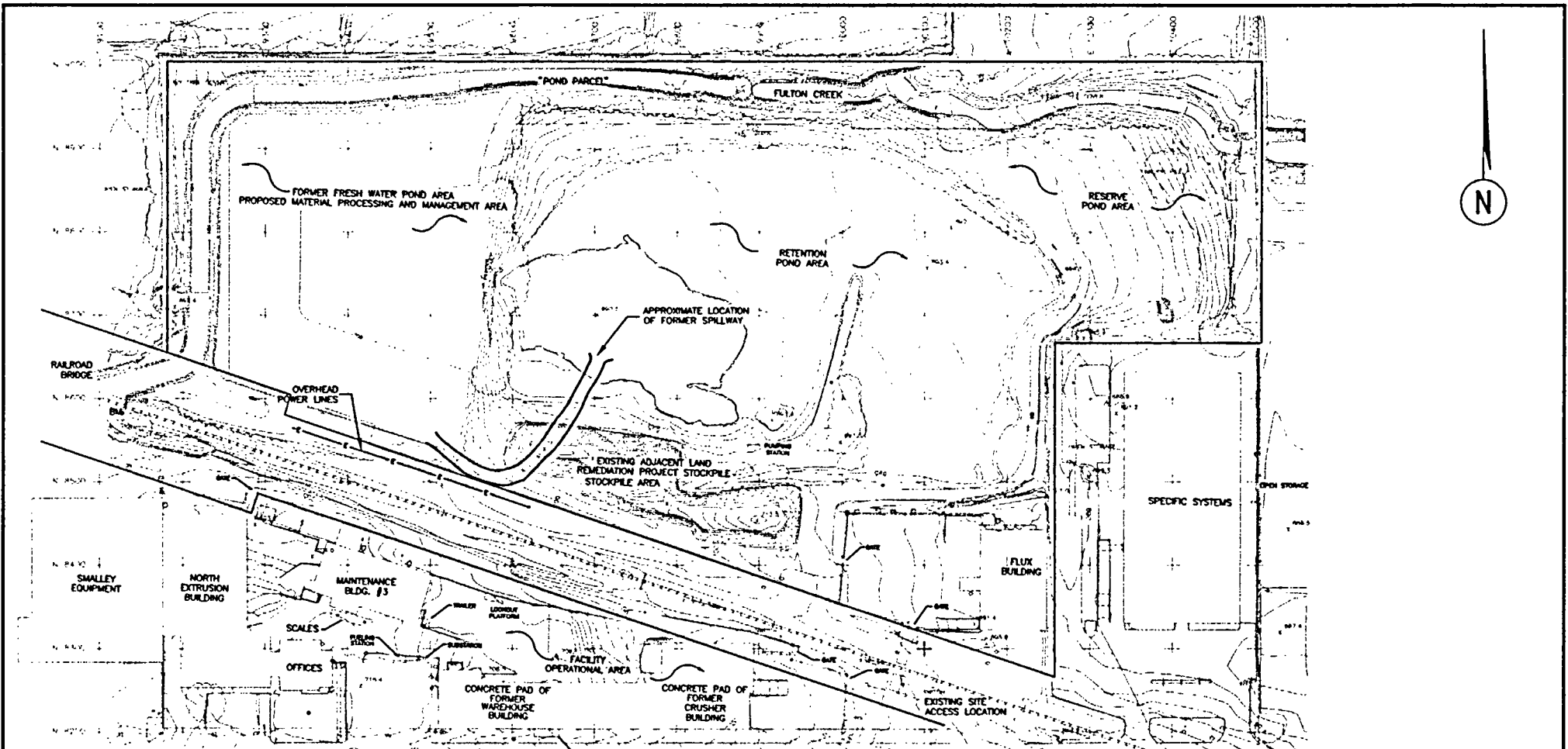


FIGURE 3-1
SITE MAP
EHASP
THORIUM REMEDIATION PROJECT
TULSA, OKLAHOMA

PREPARED FOR
KAISER ALUMINUM & CHEMICAL CORPORATION
BATON ROUGE, LOUISIANA

APPROVED	<i>CAB 3/7/04</i>
CHECKED	<i>CAB 3/7/04</i>
DRAWN	DEB 3/31/04
DRAWING NUMBER	
PA4072001	

Penn E&R

Environmental & Remediation, Inc.

FIGURE 11-1
EMERGENCY CONTACTS

PENN E & R HEALTH AND SAFETY OFFICER

Dave Tourdot (412) 855-2776

KAISER ALUMINUM (Paul Handa)

Call: (918) 384-3169

FIRE ! Call: 911

AMBULANCE ! Call: 911

POISON CENTERS

National Poison Control Center, 404-588-4400

Regional Poison Control Center, 1-800-672-1697

Medical Center Poison Control Center, 716-5900

POLICE ! Call: 911

YOU ARE LOCATED AT:

7311 East 41st Street, Tulsa, Oklahoma

THE NEAREST EMERGENCY MEDICAL SERVICES ARE LOCATED AT:

St. Francis Hospital

6161 South Yale Avenue

Phone Number: 918-494-1225

THE NEAREST NONEMERGENCY MEDICAL SERVICES ARE LOCATED AT:

Med Center

2929 South Garnett Street

Phone Number: 918-665-1520

E. 41st STREET S.

S. YALE AVE.

INTERSTATE 44

KAISER SITE

N

E. 61st STREET S.

ST. FRANCIS HOSPITAL
6161 S. YALE AVE.
TULSA, OK 74136
(918)-494-2200

FIGURE 11-2
ROUTE TO ST. FRANCIS HOSPITAL
EHASP
THORIUM REMEDIATION PROJECT
TULSA, OKLAHOMA

PREPARED FOR
KAISER ALUMINUM & CHEMICAL CORPORATION
BATON ROUGE, LOUISIANA

APPROVED *CHP 5/7/04*
CHECKED *CHP 5/7/04*
DRAWN *CHP 5/7/04*

DRAWING NUMBER
PA4072002



Penn E&R
Environmental & Remediation, Inc.



HIGHWAY 161

MEDICAL CENTER
2929 S. GARNETT ROAD
TULSA, OK 74129
(918)-665-1520

E. 31st STREET S.

S. GARNETT RD.

E. 41st STREET S.

KAISER
SITE

FIGURE 11-3
ROUTE TO MEDICAL CENTER
EHASP
THORIUM REMEDIATION PROJECT
TULSA, OKLAHOMA

PREPARED FOR
KAISER ALUMINUM & CHEMICAL CORPORATION
BATON ROUGE, LOUISIANA

APPROVED *CRB 5/7/04*
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Penn E&R
Environmental & Remediation, Inc.

ATTACHMENTS

ATTACHMENT 1

Safety Work Permit **Copy To Be Posted In The Work Area**		
Project Name:	Issue Date:	Expiration Date:
Emergency Contact(s):	Phone No.:	
Specific Job Location and Task to be Performed:		
Personnel Monitoring	Protective Equipment and Clothing	
Bioassay:	Respiratory Protection:	
Radiation Dosimeter		
Area Airborne Monitoring	Protection Clothing:	
Near Representative Workers		
Other	Other:	
Non-Radiological Hazards	Radiological Conditions and Hazards	
	Exposure Rate:	
	Contamination:	
	Air Sample Results:	
Access Control Instructions	Survey Requirements	
Special Use or Restraints:		
Review and Approvals		
Review:	Date:	
Approval:	Date:	

ATTACHMENT 3
KAISER ALUMINUM & CHEMICAL CORPORATION
THORIUM REMEDIATION PROJECT

HEALTH AND SAFETY PLAN
ACCEPTANCE FORM

Instructions: This form is to be completed by each person prior to working on the subject project work site and returned to the Radiation Safety Officer or Health and Safety Supervisor.

Project: _____
Date of _____
Project: _____

I understand my health and safety responsibilities and agree to perform my work in accordance with those responsibilities.

Signed _____

Print Name _____

Company Name _____

Date _____