BROWN AND
CALDWELL

February 12, 1999 *Via Facsimile & U.S. Mail*

Ms. Shyamala Sundaram
63D Regional Support Command
AFRC-CCA-EN, Building 7
P.O. Box 3001
Los Alamitos, CA 90720-1301 44/17223/3

Subject: **Monthly Progress Report, January 1999**
USARC Long Beach, Site 07;
Contract DACW05-97-D-0035/0006

Dear Ms. Sundaram:

Attached to this letter is the progress report for the PA/SI project at the USARC Long Beach site. If you have any questions, or would like to discuss the project schedule, please do not hesitate to call Judy Shiple or me at (619) 528-9090.

Very truly yours,

BROWN AND CALDWELL

Judy Shiple

For Michael P. Higman
Project Manager

MH:ae

cc: Judy Shiple, Brown and Caldwell, San Diego
David Jones, Brown and Caldwell, Sacramento
Vijay Bedi, Brown and Caldwell, San Diego
Jon Dutton, Brown and Caldwell, Irvine

P:\ARMY_COE\USARC\CLIENT CORRESP\03644.DOC

Environmental Engineering And Consulting • Analytical Services

9040 Friars Road, Suite 220, San Diego, CA 92108
(619) 528-9090 Fax (619) 528-9199

Progress Report
January 1999
Contract DACW05-97-D-0035/0006
PRELIMINARY SITE ASSESSMENT
U.S. Army Reserve Center (USARC), Long Beach, Site 07

This progress report discusses the activities that have been conducted during the month of January 1999 for the Preliminary Site Assessment at the USARC, Site 07 located at 3800 E. Willow Street, Long Beach, California.

PSA ACTIVITIES

a. Completed Draft PSA and delivered on January 18, 1999 instead of January 13 at the request of 63D RSC.

b. Final PSA is pending review comments.

SAMPLING ANALYSIS PLAN (SAP)

a. Internal Draft is complete. A Final Draft is pending the results of the PSA.

WORKER HEALTH AND SAFETY PLAN (HSP)

a. Internal Draft is complete. A Final Draft is pending the results of the PSA.

ACTION ITEMS

a. Pending receipt of comments, Brown and Caldwell will revise the draft PSA to make corrections to the work and will include a written response to comments with submittal of the final document.

b. Brown and Caldwell will incorporate results of PSA in the Draft SAP and HSP pending direction from the 63D RSC. These documents currently are in internal draft form.

PO Box 3001, Bldg 7
Los Alamitos, CA 90720
Phone: (562) 795-2052
FAX: (562) 795-1499

63d RSC Engineers

Fax.

To:	Mr. Rick Haavisto	**From:**	Shyamala Sundaram
Fax:	(916) 557-7865	**Pages:**	9
Phone:	(916) 557-7440	**Date:**	Feb. 12, 1999
Re:		**CC:**	

☒ **Urgent** ☒ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

Dear Rick:

For your records, attached are copies of the initial kick-off meeting and the progress report prepared for December 1998 — for the Long Beach Site Project. The Draft Report shall be mailed to you directly by Brown & Caldwell. You should be getting it next week. If you have any questions, call me.

Shyamala

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	2561
CONNECTION TEL	919165577865
SUBADDRESS	
CONNECTION ID	
ST. TIME	02/16 18:21
USAGE T	04'05
PGS.	9
RESULT	OK

PO Box 3001, Bldg 7
Los Alamitos, CA 90720
Phone: (562) 795-2052
FAX: (562) 795-1499

63d RSC Engineers

Fax.

To:	Mr. Rich Haavisto	**From:**	SRyamala Sundaram
Fax:	(916) 557-7865	**Pages:**	9
Phone:	(916) 557-7440	**Date:**	Feb. 12, 1999
Re:		**CC:**	

☒ **Urgent** ☒ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

Dear Rich:

For your records, attached are copies of the initial kick-off meeting and the progress report prepared for December 1998 — for the Long Beach Site Project. The Draft Report shall be mailed to you directly by Brown & Caldwell. You should be getting it next [illegible] meetings. call me.

BROWN AND
CALDWELL

October 30, 1998

Ms. Shyamala Sundaram
63D Regional Support Command
AFRC-CCA-EN, Building 7
P.O. Box 3001
Los Alamitos, CA 90720-1301

44/17223/3

Subject: **Meeting Minutes, Kickoff Meeting for PA/SI**
USARC Long Beach, Site 07;
Contract DACW05-97-D-0035/0006

Dear Ms. Sundaram:

Attached to this letter are meeting minutes for the October 22, 1998 Kickoff Meeting held at the Armed Forces Reserve Center in Los Alamitos. These minutes are submitted in compliance with Delivery Order No. 0006, Task 3. Included in the attached minutes is our proposed schedule for the submittal of draft deliverables. We trust this schedule meets your approval. A final detailed schedule will be submitted following your review.

It was a pleasure meeting with you and we look forward to successfully completing your objectives on this project. Please do not hesitate to contact me at (619) 528-9090 if you have any questions.

Very truly yours,

BROWN AND CALDWELL

Michael P. Higman
Project Manager

MH:ae

cc/encl: Mr. Richard Haavisto, Technical Manager, USACE, Sacramento District
Ms. Diane Clark, USARC, 63D RSC, AFRC-CCA-ENS, Los Alamitos
Mr. Gerald Muir, USARC, 63D RSC, AFRC-CCA-ENS, Los Alamitos
Vijay K. Bedi, Brown and Caldwell, PIC
David Jones, Brown and Caldwell, Sacramento, CSM

e:\army_coe\usarc\mtng_min.doc

Environmental Engineering And Consulting • Analytical Services

9040 Friars Road, Suite 220, San Diego, CA 92108
(619) 528-9090 Fax (619) 528-9199

Kickoff Meeting Minutes
22 October, 1998

PRELIMINARY ASSESSMENT/SITE INVESTIGATION
at
U.S. Army Reserve Center (USARC), Long Beach, Site 07, RI/FS

Contract No. DACW05-97-D-0035, D.O. 0006
Brown and Caldwell Project No 17223-000

Attendees: Shyamala Sundaram, USARC, 63D RSC, Project Manager/POC
Diane Clark, USARC, 63D RSC, Environmental Engineer
Gerald Muir, USARC, 63D RSC, Project Manager
Vijay Bedi, Brown and Caldwell, Principal-in-Charge
Michael Higman, Brown and Caldwell, Project Manager

The meeting was held at the Armed Forces Reserve Center, Building 7, 11200 Lexington Drive, Los Alamitos, California on October 22, 1998. Telephone, facsimile numbers, and eMail addresses for USARC 63D Regional Support Command (RSC) and Brown and Caldwell personnel present at this meeting are provided in the following table:

Name/Organization	Phone	Fax	Email
Shyamala Sundaram USARC 63D RSC [1], Project Manager/POC	(562) 795-1442	(562) 795-1499	SundaramS@usarc-emh2.army.mil
Diane A. Clark USARC 63D RSC; Environmental Engineer	(562) 795-1445	(562) 795-1499	Clarkd2@usarc-emh2.army.mil
Gerald N. Muir USARC 63D RSC, Project Manager	(562) 795-1446	(562) 795-1499	Muirg@usarc-emh2.army.mil
Michael Higman R.G. Brown and Caldwell (San Diego), Project Manager	(619) 528-9090	(619) 528-9199	Mhigman@brwncald.com
Vijay K. Bedi, CEG Brown and Caldwell (San Diego), Principal-in-Charge	(619) 528-9090	(619) 528-9199	vbedi@brwncald.com

[1] U.S. Army Reserve Center, 63rd Regional Support Command

- **Background and Purpose of Meeting**

The Installation Action Plan for U.S. Army 63D Regional Support Command (RSC), has listed the Long Beach U.S. Army Reserve Center (USARC) in the Installation Restoration Program. Further characterization of the site is required to identify the evidence of possible environmental impact from historical site use. The purpose of the kickoff meeting was to introduce essential personnel and discuss the scope of work (SOW) and planned approach for the Preliminary Site Assessment at the USARC, Site 07 located at 3800 E. Willow Street, Long Beach, California.

- **Issues Discussed/Actions**

a. Shyamala presented a summary of previous investigations conducted at the Site. The environmental assessment history of the site is included in the following documents. These documents were provided to Brown and Caldwell by Shyamala at the meeting.

- *Soil Analysis at Long Beach USAR Center*, Truesdail Laboratories, Inc., February 19, 1997
- *Preliminary Assessment/Site Investigation for USARC Long Beach*, Woodward-Clyde, June 1998.
- *Review Letter,* Cal-EPA Department of Toxic Substance Control (DTSC), July 20, 1998.

b. The current scope of work will address the DTSC's comments in their letter dated June 20, 1998. Based on the findings of the PSA, a meeting may be arranged with the DTSC to discuss the findings and our proposed investigation approach prior to implementing a Site Investigation (SI), if necessary.

c. The PSA portion of the work will be conducted per EPA Guidance for Performing Preliminary Assessments Under CERCLA (EPA/540/G-91/013), September 1991.

d. The site is located in a commercial/residential area of Long Beach and is unsecured. However, site visits shall be coordinated with Shyamala and the Mr. Frank Williams (Facility Manager). Mr. Williams may be contacted at (562) 988-8800. Site visits will be scheduled at least one week in advance.

e. Deliverables on this project will be provided as directed in the SOW. In addition, two compact disks (CDs) will be provided containing all major deliverables in Microsoft Office '97 format, figures in AutoCad version 13 or 14 format, and photos in JPEG format.

- **Action Items**

a. Brown and Caldwell will forward a copy of Brown and Caldwell's Standard Operating Practices and Phase I Environmental Site Assessment checklists to Shyamala.

b. Shyamala will check further with the USARC Real Estate Division regarding historical site ownership/occupancy.

- **Schedule**

A tentative schedule of important project milestones is provided in the table below. This table will be updated and incorporated into monthly summaries or provided more frequently if necessary. It is anticipated that comments on all draft deliverables will be received from the USARC within 21 days and deliverables will be finalized by BC within 14 days after receipt of comments.

TASK / MILESTONE	% COMPLETE	DUE DATE
PRELIMINARY SITE ASSESSMENT		
Database Records Search/Review	30%	*Thurs 11/05/98*
Historical Aerial Photo/topographic Map Review	0%	*Thurs 11/05/98*
Site Reconnaissance	0%	**Tues 11/10/98**
Regulatory Review	0%	*Fri 11/13/98*
DRAFT Report Submittal	0%	**Fri. 12/11/98**
SAMPLING ANALYSIS PLAN		
Field Sampling Plan (FSP)	10%	*Mon 12/21/98*
Quality Assurance Project Plan (QAPP)	10%	*Mon 12/21/98*
DRAFT Workplan Submittal	0%	**Mon 12/21/98**
WORKER HEALTH AND SAFETY PLAN		
DRAFT Workplan Submittal	0%	**Mon 12/21/98**

BROWN AND CALDWELL

December 23, 1998 *Via Facsimile & U.S. Mail*

Ms. Shyamala Sundaram
63D Regional Support Command
AFRC-CCA-EN, Building 7
P.O. Box 3001
Los Alamitos, CA 90720-1301

44/17223/3

Subject: **Monthly Progress Report, December 1998**
USARC Long Beach, Site 07;
Contract DACW05-97-D-0035/0006

Dear Ms. Sundaram:

Attached to this letter is the progress report for the Preliminary Site Assessment currently underway at the USARC Long Beach site. The report addresses the delays we've encountered regarding review of agency files for surrounding properties and discusses the schedule resulting from these delays.

If you have any questions, or would like to discuss the project schedule, please do not hesitate to call Judy Shiple or me at (619) 528-9090.

Very truly yours,

BROWN AND CALDWELL

Michael P. Higman
Project Manager

MH:ae

cc: Judy Shiple, Brown and Caldwell, San Diego
David Jones, Brown and Caldwell, Sacramento
Vijay Bedi, Brown and Caldwell, San Diego
Jon Dutton, Brown and Caldwell, Irvine

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Environmental Engineering And Consulting • Analytical Services

9040 FRIARS ROAD, SUITE 220, SAN DIEGO, CA 92108
(619) 528-9090 FAX (619) 528-9199

This progress report discusses the activities that have been conducted to date for the Preliminary Site Assessment at the USARC, Site 07 located at 3800 E. Willow Street, Long Beach, California. Action items remaining are discussed, and the anticipated schedule for draft document submittal is presented.

PSA ACTIVITIES

Site History and Facility Operations Data Collection

a. *Site reconnaissance* was conducted on November 18, 1998. Shyamala Sundaram, 63D Regional Support Command, and Mr. Frank Williams, USARC Long Beach Facility Manager, accompanied Brown and Caldwell's Mike Higman, Judy Shiple and Jon Dutton during the facility inspection.

b. *Personnel interviews* were also conducted on November 18, 1998 with Ms. Sundaram and Mr. Williams.

c. *Aerial photographs* of the site vicinity were reviewed on November 4 at Continental Aerial Photo, INC., in Los Angeles, California. Several aerial photographs were also provided to Brown and Caldwell by Environmental Data Resources (EDR) on November 9, 1998.

d. *Additional site data* has been obtained from research conducted at the Los Angeles area National Archives on December 8 and through discussions with Mr. Mark Cutler, 63D RSC Real Estate Specialist, on December 10 and with Mr. Randy Smith, DRMO, on December 11. Mr. Smith provided a waste disposal summary for site wastes handled through his office. The period spanning 1988 through March 1998 was summarized. Brown and Caldwell received the summary on December 17, 1998.

Brown and Caldwell contacted the Cal-EPA Department of Toxic Substances Control (DTSC) on December 1 in order to obtain copies of waste manifests for the site. These manifests were received by Brown and Caldwell on December 17, and reflect disposal activity under Cal-EPA Number CA7210490374 during the years 1991, 1994 and 1995.

Other entities contacted by Brown and Caldwell for site data include the National Archives in College Park (Maryland), the Alabama Department of Environmental Management, and the Long Beach Historical Society; it is unknown at this time whether these entities will provide additional site data.

Site construction drawings were obtained from the 63D RSC on December 22. In addition, Ms. Sundaram has provided copies of the following documents to Brown and Caldwell:

- *Soil Analysis at Long Beach USAR Center*, Truesdail Laboratories, Inc., February 19, 1997.

- *Preliminary Assessment/Site Investigation for USARC Long Beach*, Woodward-Clyde, June 1998.
- *Review Letter*, Cal-EPA Department of Toxic Substance Control (DTSC), July 20, 1998.
- *1989 USATHAMA Property Report* (sections regarding site).
- *Installation Action Plan* (sections regarding site).
- *Work Plan, Preliminary Assessment/Site Investigation for USARC Long Beach*, Woodward-Clyde, March 1998.
- *Site Survey Activities HTRW Investigations – 63rd ARCOM Southern California Reserve Center Sites, U.S. Armed Forces Reserve Center Long Beach, California,* Harding Lawson Associates, April 19, 1996.

Target Research

a. Sensitive populations such as those associated with day care facilities, nursing homes, schools and hospitals were identified within a ¼-mile radius of the site during off-site reconnaissance conducted on November 17. The Thomas Guide was also used to identify these facilities.

b. Environmental receptors associated with surface water bodies were surveyed during the off-site reconnaissance; no surface water bodies were identified within the search area (¼-mile radius of the site). Geologic and topographic maps were also used in the survey.

c. Groundwater production wells within a one-mile radius of the site were identified through agency contact. Brown and Caldwell contacted several departments within the City of Long Beach (including the Utilities, Engineering, and Water Departments), Signal Hill City Water Department, Los Angeles County Department of Public Works, and the Water Replenishment District (WRD) of Southern California. On December 9, WRD provided a well survey for production wells located within a one-mile radius of the subject site.

Literature and Map Studies

a. Geological/hydrogeologic information for the region has been obtained primarily from the State of California Department of Water Resources, Bulletin 104. Geologic and topographic maps of the area have also been used in the study. Limited near-site geologic and hydrologic conditions have been documented in environmental reports prepared for hazardous waste release sites in the near vicinity of USARC Long Beach. Brown and Caldwell reviewed available reports at the DTSC office on December 7, and at the RWQCB - Los Angeles Region on December 22 as discussed in more detail below.

b. Hydrologic information has been obtained through study of topographic maps and site construction drawings.

c. *Soil classification* information for the site was included in construction documents reviewed by Brown and Caldwell at the Los Angeles National Archives on November 8, 1998.

Regulatory Agency Records Review

a. *Database search* of regulatory agency records was performed by EDR; Brown and Caldwell received the EDR report on November 4. The report identifies sites within a one-mile radius of the USARC Long Beach that have the potential to environmentally impact the subject site.

b. *File review* for the sites identified in the EDR report is currently in progress. Brown and Caldwell has encountered delays in scheduling the file reviews due to poor agency response and to confusion regarding lead agency, case assignment, and file location. The agencies contacted for the file reviews include the City of Long Beach Health Department (LBHD), City of Long Beach Fire Department (LBFD), Los Angeles County Department of Public Works (LADPW), RWQCB – Los Angeles Region, and the DTSC. As of this date, files have been reviewed at the DTSC offices (December 14) and at the RWQCB and the LBFD offices (December 22). However, files located at the LBHD have not yet been reviewed. It should be noted that several RWQCB files requiring review have not yet been located by that agency. Evidently, the LADPW does not have files relevant to this study.

ACTION ITEMS

a. Brown and Caldwell will review files with the LBHD on December 29, 1998. No further attempt to review agency files will be made after December 29 for data to be incorporated into the *Draft* PSA Report.

b. Brown and Caldwell will contact Mr. Frank Williams regarding former facility employees who may be available for telephone interview.

c. Ms. Sundaram will review 63D RSC files for recent construction information regarding grease pit in the former Maintenance Shop.

d. Ms. Sundaram will check further with the PAO for information regarding the Units formerly associated with the USARC Long Beach facility.

DOCUMENT DELIVERY SCHEDULE

Delivery of the Draft PSA Report is tentatively scheduled for January 13, 1999, two weeks after the final scheduled file review on December 29, 1998.

BROWN AND CALDWELL

Environmental Engineering & Consulting

TRANSMITTAL MEMORANDUM

To: Ms. Shyamala Sundaram
63D Regional Support Command
11200 Lexington Drive, Building 7
Los Alamitos, CA 90720-5002

Date: 1/18/99	**Job No:** 17223
Subject: Draft PSA Report	
Contract No:	
Equipment No:	
Spec. Ref:	
Submittal No:	

WE ARE SENDING TO YOU: ☒ Attached or ☐ Under separate cover via Make a selection the following items:

☐ Shop Drawings	☐ Prints	☐ Plans	☐ Samples
☐ Copy of letter	☐ Change Order	☐ Other:	☐ Specifications

THESE ARE TRANSMITTED AS CHECKED BELOW:
- ☐ For approval
- ☐ For your use
- ☐ As requested
- ☒ For review and comment
- ☐ With submittal review action noted

SUBMITTAL REVIEW ACTIONS:
- ☐ No exceptions taken
- ☐ Make revisions
- ☐ Amend and resubmit
- ☐ Rejected--see Remarks
- ☐ None

Copies	Date	No.	Description
2	1/1/99		Draft Preliminary Site Assessment Report

REMARKS:

Hi Shyamala,

Please find enclosedtwo copies of the Draft PSA Report for your review.

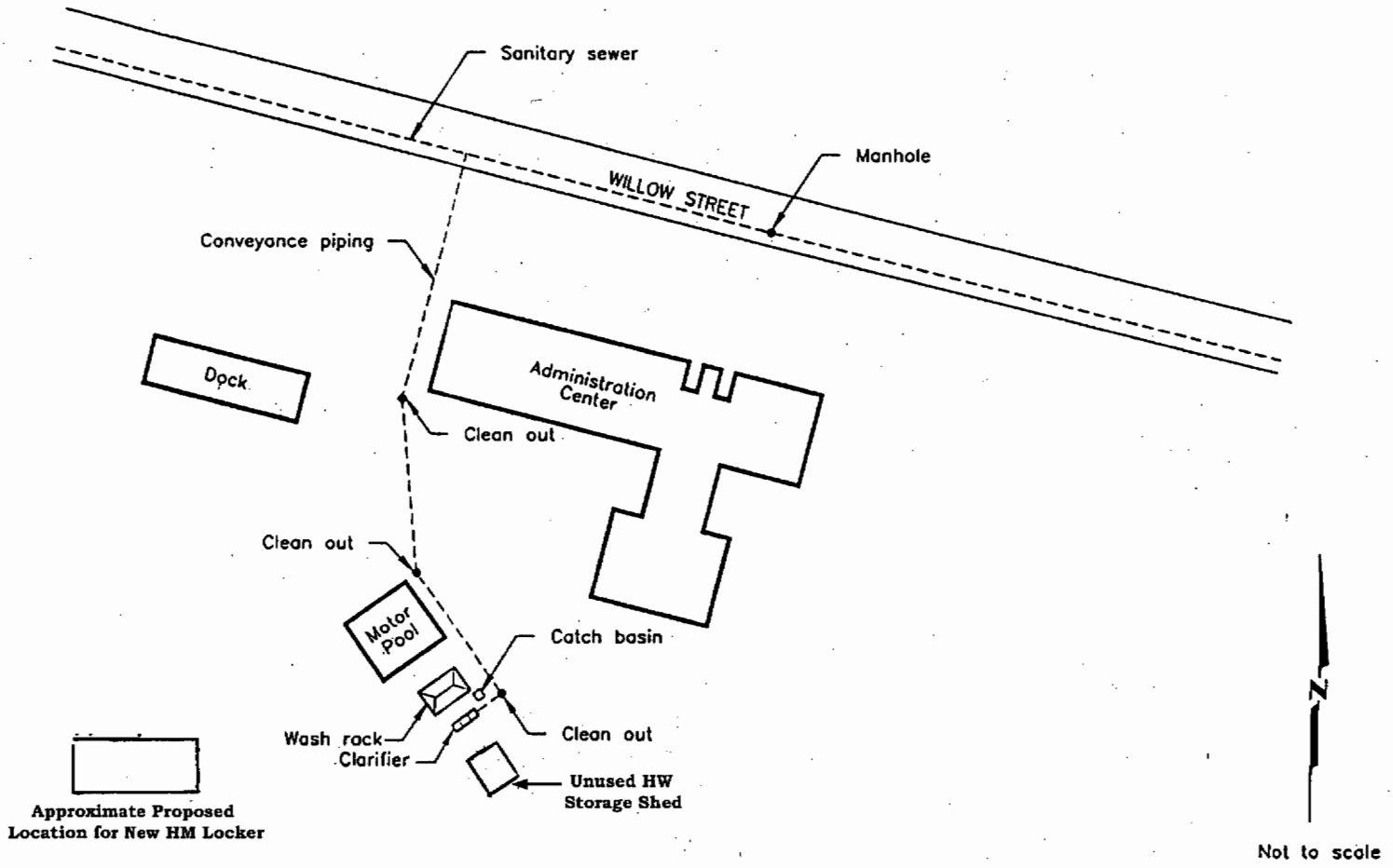
cc: Mike Higman, Brown and Caldwell

Judy Shiple

Judy Shiple for Brown and Caldwell

If enclosures are not as noted, kindly notify us at once

STAT-040-05/13/91

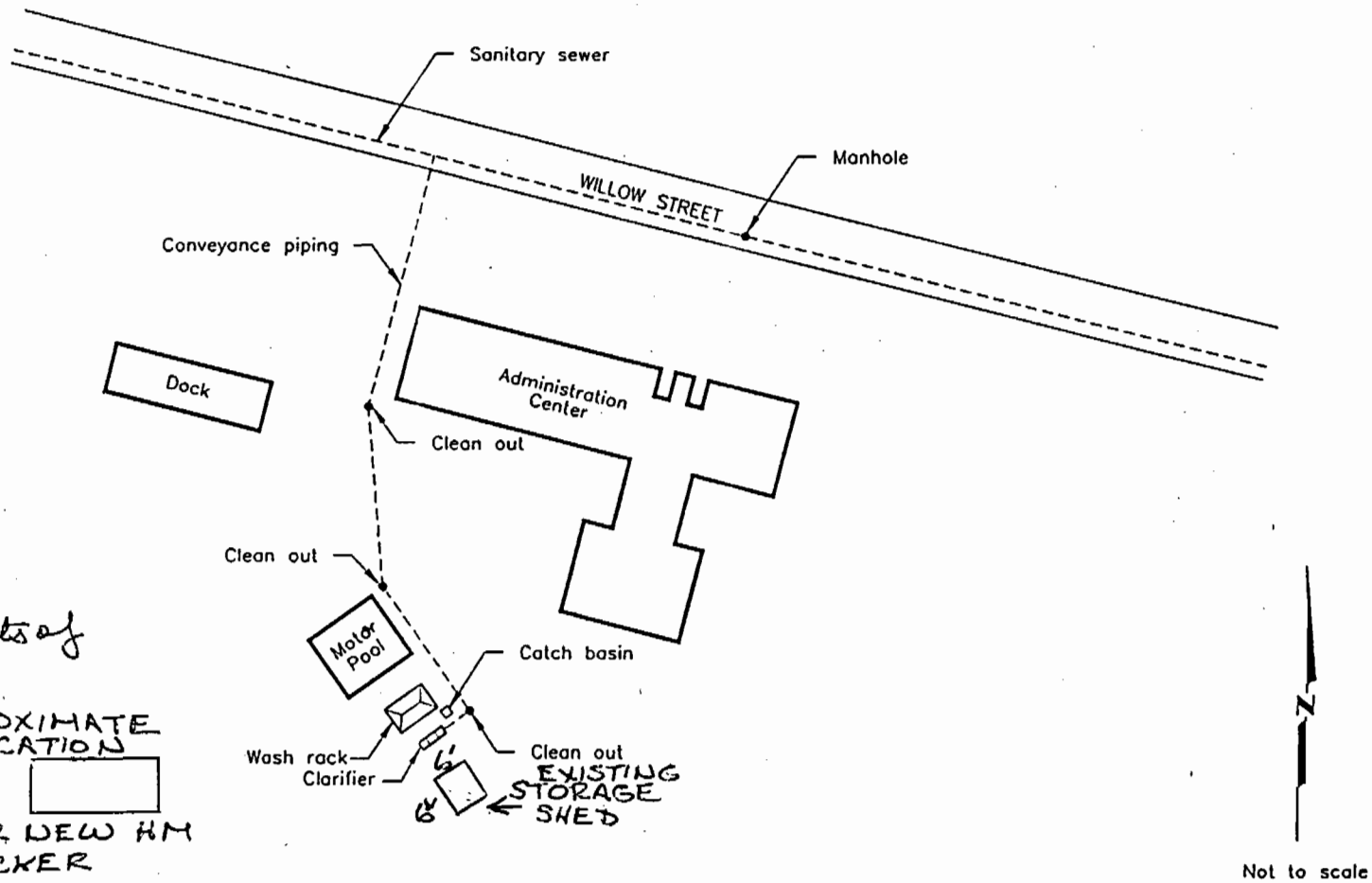


SITE MAP
Schroeder Hall Armed Forces Reserve Center
Long Beach, California

UPDATED 4/98

HDT\CAD\ .00273\196-LB

Based on Site Visit
4/16/98
Bob Zimmermann



Surface consists of grass & gravel.

APPROXIMATE LOCATION FOR NEW HM LOCKER

Take (1) core sample at this approximate location

Harding Lawson Associates
Engineering and Environmental Services

SITE MAP
Schroeder Hall Armed Forces Reserve Center
Long Beach, California

PLATE **1**

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	30261-00273		3/96	

QST ENVIRONMENTAL

FACSIMILE

DATE: 1/14/1999 **TIME:** 11:18

TO: SHARON FAR **FROM:** ERCAN CANDAN

3545 HOWARD WAY, 2nd FLOOR
COSTA MESA, CA 92626-1418

FAX #: (562) 795-1499 **JOB #:**

SUBJECT: SITE MAP FOR LONG BEACH

Number of Pages

(Including this Cover Sheet)

2

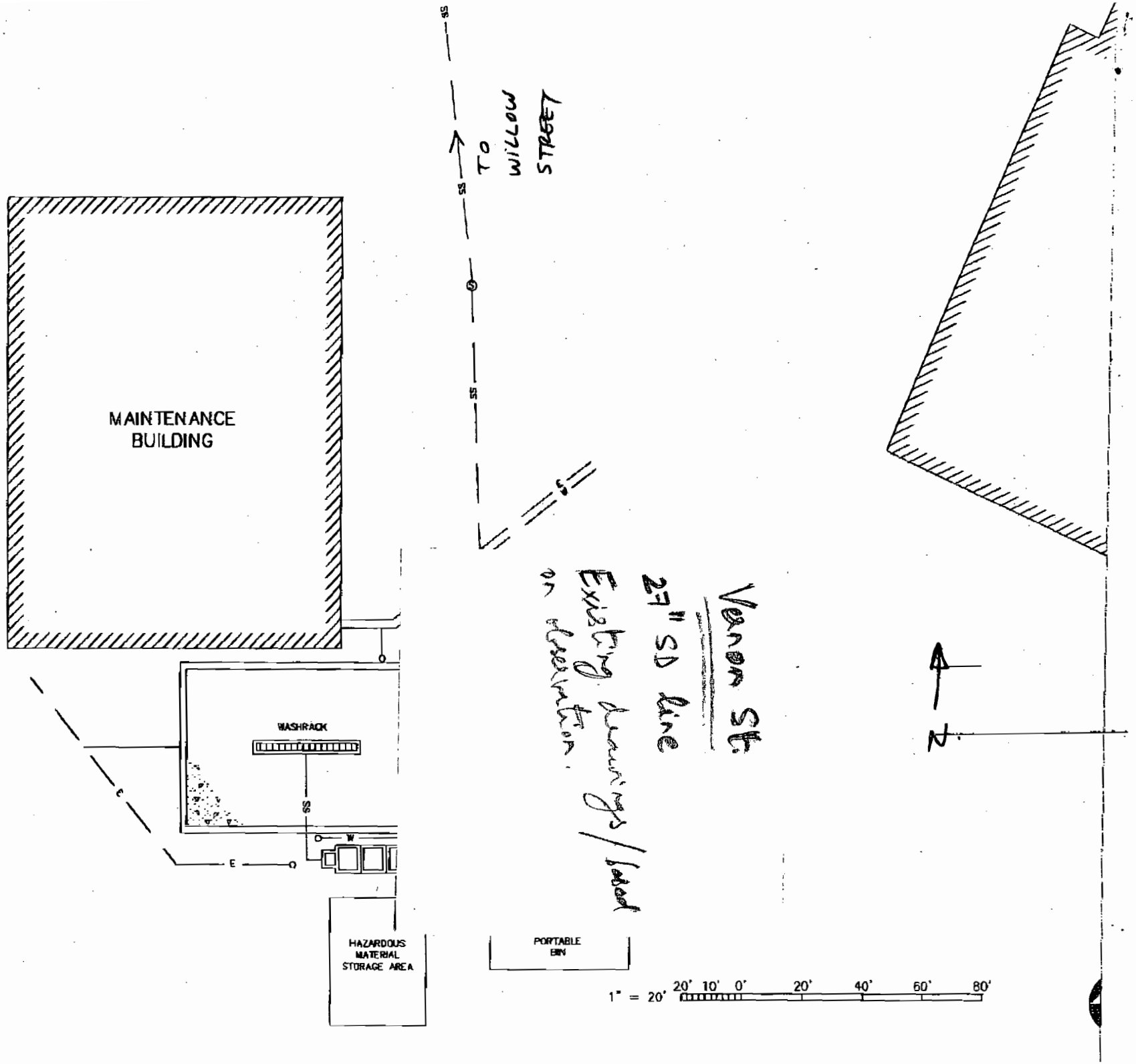
ADDITIONAL MESSAGE:

PLEASE CALL ME IF YOU HAVE ANY QUESTIONS

W = Storm Drain

If you have any questions, please call us immediately at (714)426-9000

3545 Howard Way, Second Floor, Costa Mesa, CA 92626-1418, Phone (714)426-9000, FAX (714)426-9027
A CILCORP COMPANY
Formerly Environmental Science & Engineering


MAINTENANCE BUILDING
WASHRACK
HAZARDOUS MATERIAL STORAGE AREA
PORTABLE BIN
TO WILLOW STREET
SS
W
E
Vernon St.
27" SD line
Existing drainage / based on observation.
N
1" = 20'
20' 10' 0' 20' 40' 60' 80'

Environmental Division

63D Regional Support Command

US Army Reserve
AFRC-CCA-ENS
11200 Lexington Drive, Bldg 7
Los Alamitos, CA 90720-5002

FAX/LTR

Date: 15 January, 1999

Number of pages including cover sheet: 2

To:

Ms. Judy Shiple

Brown & Caldwell

San Diego, CA

Phone: (619) 528-9090

Fax phone: (619) 528-9199

CC:

From:

Shyamala Sundaram

Environmental Contractor

Phone: (562) 795-1442

Fax phone: (562) 795-1499

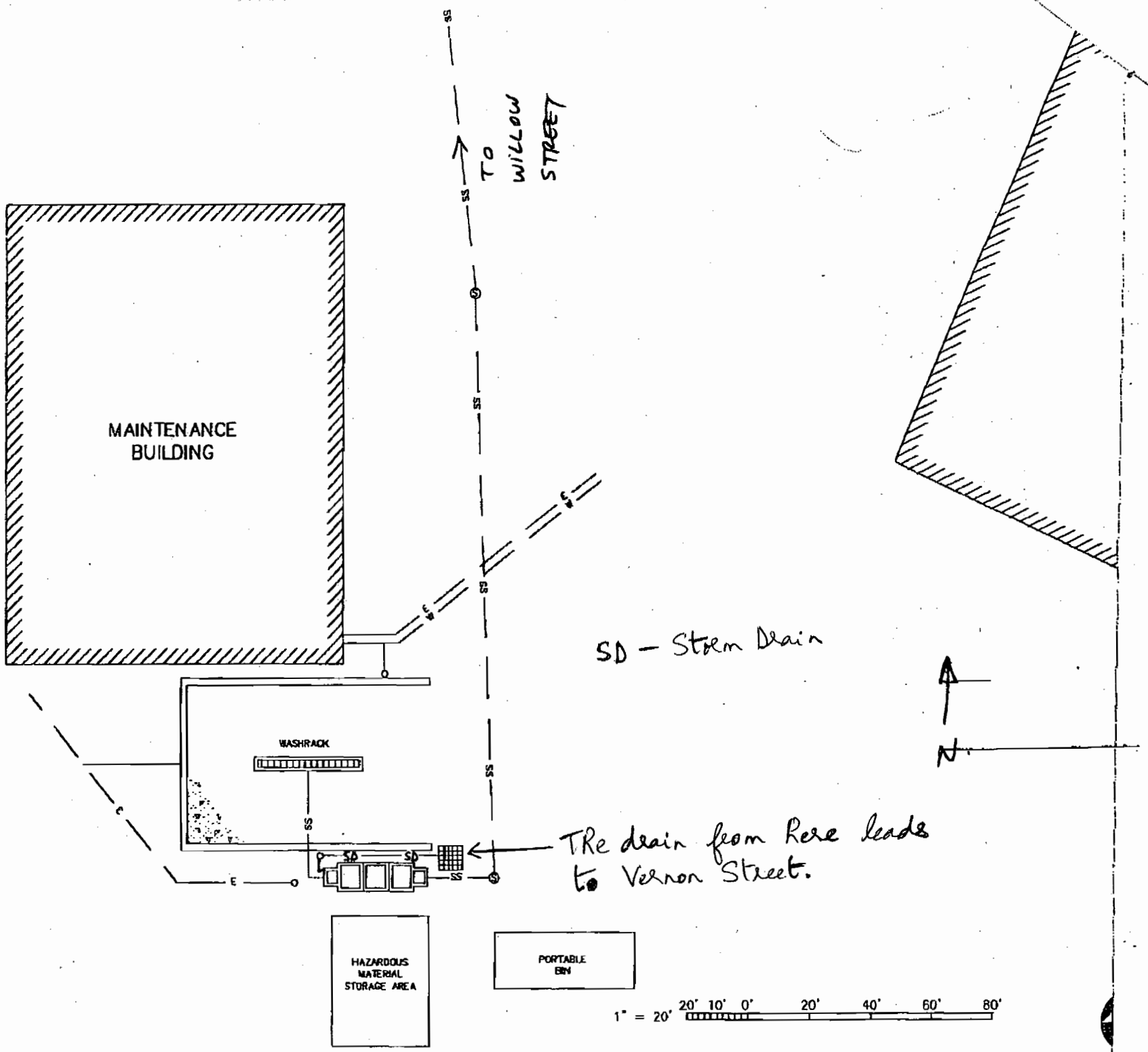
REMARKS: ☒ Urgent ☒ For your review ☐ Reply ASAP ☐ Please comment

Hello Judy!

Hope you received the e-mail I sent you yesterday. Enclosed is a rough sketch showing the connection of the storm drain from the oil/water separator. I am told that based on the existing drawings and observation, there is a 27" storm drain line leading from the existing open drain near the O/WS to Vernon Street.

If you have any other questions, let me know.

Shyamala.


MAINTENANCE BUILDING
WASHRACK
HAZARDOUS MATERIAL STORAGE AREA
PORTABLE BIN
SS
SD
E
TO WILLOW STREET
SD – Storm Drain
The drain from here leads to Vernon Street.
N
1" = 20'
20' 10' 0' 20' 40' 60' 80'

Sundaram, Shyamala Ms (63D RSC)

From: Bartimus, Ted Mr (63D RSC)
Sent: Monday, December 28, 1998 10:42 AM
To: Sundaram, Shyamala Ms (63D RSC)
Subject: RE: Request for Information

ms sundaram,

1. sorry about the late response. i've scanned the issues of our magazine the flaming blade for the past 12 years (magazinee was started 12 years ago), and i do not see anything on the long beach center.

2. operations is the proponent for annual historical summaries -- there might be something in the army archives for units stationed at that center -- check with ops for the location of the archives.

3. mr williams, the facility manager, might also assist.

ted bartimus
pao
6-2356

From: Sundaram, Shyamala Ms (63D RSC)
Sent: Tuesday, December 22, 1998 2:42 PM
To: Bartimus, Ted Mr (63D RSC)
Subject: Request for Information

Hello Mr. Ted Bartimus:

I am Shyamala from the 63D RSC Environmental Division. I have spoken to you before on other issues. The reason I am sending you this e-mail is to get some help from your office with regards to obtaining information on Long Beach USAR Center's past activities in the 1970s and early 1980s. I need this information for an env. project that our office is working. I would like to know what type of units and what activities were performed at Long Beach Reserve Center during the last two decades, as we have no such information available at the Engineers Office or with the Facility Manager of Long Beach USAR Center.

If you have any questions, call me back. Hope to hear from you soon. Thanks.

Shyamala.

BROWN AND CALDWELL

December 23, 1998 *Via Facsimile & U.S. Mail*

Ms. Shyamala Sundaram
63D Regional Support Command
AFRC-CCA-EN, Building 7
P.O. Box 3001
Los Alamitos, CA 90720-1301

44/17223/3

Subject: **Monthly Progress Report, December 1998**
USARC Long Beach, Site 07;
Contract DACW05-97-D-0035/0006

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Very truly yours,

BROWN AND CALDWELL

Michael P. Higman
Project Manager

MH:ae

cc: Judy Shiple, Brown and Caldwell, San Diego
David Jones, Brown and Caldwell, Sacramento
Vijay Bedi, Brown and Caldwell, San Diego
Jon Dutton, Brown and Caldwell, Irvine

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Environmental Engineering And Consulting • Analytical Services

9040 Friars Road, Suite 220, San Diego, CA 92108
(619) 528-9090 Fax (619) 528-9199

Progress Report
December 1998
Contract DACW05-97-D-0035/0006
PRELIMINARY SITE ASSESSMENT
U.S. Army Reserve Center (USARC), Long Beach, Site 07

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d. *Additional site data* has been obtained from research conducted at the Los Angeles area National Archives on December 8 and through discussions with Mr. Mark Cutler, 63D RSC Real Estate Specialist, on December 10 and with Mr. Randy Smith, DRMO, on December 11. Mr. Smith provided a waste disposal summary for site wastes handled through his office. The period spanning 1988 through March 1998 was summarized. Brown and Caldwell received the summary on December 17, 1998.

Brown and Caldwell contacted the Cal-EPA Department of Toxic Substances Control (DTSC) on December 1 in order to obtain copies of waste manifests for the site. These manifests were received by Brown and Caldwell on December 17, and reflect disposal activity under Cal-EPA Number CA7210490374 during the years 1991, 1994 and 1995.

Other entities contacted by Brown and Caldwell for site data include the National Archives in College Park (Maryland), the Alabama Department of Environmental Management, and the Long Beach Historical Society; it is unknown at this time whether these entities will provide additional site data.

Site construction drawings were obtained from the 63D RSC on December 22. In addition, Ms. Sundaram has provided copies of the following documents to Brown and Caldwell:

- *Soil Analysis at Long Beach USAR Center*, Truesdail Laboratories, Inc., February 19, 1997.

- *Preliminary Assessment/Site Investigation for USARC Long Beach*, Woodward-Clyde, June 1998.
- *Review Letter*, Cal-EPA Department of Toxic Substance Control (DTSC), July 20, 1998.
- *1989 USATHAMA Property Report* (sections regarding site).
- *Installation Action Plan* (sections regarding site).
- *Work Plan, Preliminary Assessment/Site Investigation for USARC Long Beach*, Woodward-Clyde, March 1998.
- *Site Survey Activities HTRW Investigations – 63rd ARCOM Southern California Reserve Center Sites, U.S. Armed Forces Reserve Center Long Beach, California*, Harding Lawson Associates, April 19, 1996.

Target Research

a. Sensitive populations such as those associated with day care facilities, nursing homes, schools and hospitals were identified within a ¼-mile radius of the site during off-site reconnaissance conducted on November 17. The Thomas Guide was also used to identify these facilities.

b. Environmental receptors associated with surface water bodies were surveyed during the off-site reconnaissance; no surface water bodies were identified within the search area (¼-mile radius of the site). Geologic and topographic maps were also used in the survey.

c. Groundwater production wells within a one-mile radius of the site were identified through agency contact. Brown and Caldwell contacted several departments within the City of Long Beach (including the Utilities, Engineering, and Water Departments), Signal Hill City Water Department, Los Angeles County Department of Public Works, and the Water Replenishment District (WRD) of Southern California. On December 9, WRD provided a well survey for production wells located within a one-mile radius of the subject site.

Literature and Map Studies

a. Geological/hydrogeologic information for the region has been obtained primarily from the State of California Department of Water Resources, Bulletin 104. Geologic and topographic maps of the area have also been used in the study. Limited near-site geologic and hydrologic conditions have been documented in environmental reports prepared for hazardous waste release sites in the near vicinity of USARC Long Beach. Brown and Caldwell reviewed available reports at the DTSC office on December 7, and at the RWQCB - Los Angeles Region on December 22 as discussed in more detail below.

b. Hydrologic information has been obtained through study of topographic maps and site construction drawings.

c. *Soil classification* information for the site was included in construction documents reviewed by Brown and Caldwell at the Los Angeles National Archives on November 8, 1998.

Regulatory Agency Records Review

a. *Database search* of regulatory agency records was performed by EDR; Brown and Caldwell received the EDR report on November 4. The report identifies sites within a one-mile radius of the USARC Long Beach that have the potential to environmentally impact the subject site.

b. *File review* for the sites identified in the EDR report is currently in progress. Brown and Caldwell has encountered delays in scheduling the file reviews due to poor agency response and to confusion regarding lead agency, case assignment, and file location. The agencies contacted for the file reviews include the City of Long Beach Health Department (LBHD), City of Long Beach Fire Department (LBFD), Los Angeles County Department of Public Works (LADPW), RWQCB – Los Angeles Region, and the DTSC. As of this date, files have been reviewed at the DTSC offices (December 14) and at the RWQCB and the LBFD offices (December 22). However, files located at the LBHD have not yet been reviewed. It should be noted that several RWQCB files requiring review have not yet been located by that agency. Evidently, the LADPW does not have files relevant to this study.

ACTION ITEMS

a. Brown and Caldwell will review files with the LBHD on December 29, 1998. No further attempt to review agency files will be made after December 29 for data to be incorporated into the *Draft* PSA Report.

b. Brown and Caldwell will contact Mr. Frank Williams regarding former facility employees who may be available for telephone interview.

c. Ms. Sundaram will review 63D RSC files for recent construction information regarding grease pit in the former Maintenance Shop.

d. Ms. Sundaram will check further with the PAO for information regarding the Units formerly associated with the USARC Long Beach facility.

DOCUMENT DELIVERY SCHEDULE

Delivery of the Draft PSA Report is tentatively scheduled for January 13, 1999, two weeks after the final scheduled file review on December 29, 1998.

BROWN AND CALDWELL

December 23, 1998

Via Facsimile & U.S. Mail

Ms. Shyamala Sundaram
63D Regional Support Command
AFRC-CCA-EN, Building 7
P.O. Box 3001
Los Alamitos, CA 90720-1301

44/17223/3

Subject: **Monthly Progress Report, December 1998**
USARC Long Beach, Site 07;
Contract DACW05-97-D-0035/0006

Dear Ms. Sundaram:

Attached to this letter is the progress report for the Preliminary Site Assessment currently underway at the USARC Long Beach site. The report addresses the delays we've encountered regarding review of agency files for surrounding properties and discusses the schedule resulting from these delays.

If you have any questions, or would like to discuss the project schedule, please do not hesitate to call Judy Shiple or me at (619) 528-9090.

Very truly yours,

BROWN AND CALDWELL

Michael P. Higman
Project Manager

MH:ae

cc: Judy Shiple, Brown and Caldwell, San Diego
David Jones, Brown and Caldwell, Sacramento
Vijay Bedi, Brown and Caldwell, San Diego
Jon Dutton, Brown and Caldwell, Irvine

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Environmental Engineering And Consulting • Analytical Services

9040 Friars Road, Suite 220, San Diego, CA 92108
(619) 528-9090 Fax (619) 528-9199

Progress Report
December 1998
Contract DACW05-97-D-0035/0006
PRELIMINARY SITE ASSESSMENT
U.S. Army Reserve Center (USARC), Long Beach, Site 07

This progress report discusses the activities that have been conducted to date for the Preliminary Site Assessment at the USARC, Site 07 located at 3800 E. Willow Street, Long Beach, California. Action items remaining are discussed, and the anticipated schedule for draft document submittal is presented.

PSA ACTIVITIES

Site History and Facility Operations Data Collection

a. *Site reconnaissance* was conducted on November 18, 1998. Shyamala Sundaram, 63D Regional Support Command, and Mr. Frank Williams, USARC Long Beach Facility Manager, accompanied Brown and Caldwell's Mike Higman, Judy Shiple and Jon Dutton during the facility inspection.

b. *Personnel interviews* were also conducted on November 18, 1998 with Ms. Sundaram and Mr. Williams.

c. *Aerial photographs* of the site vicinity were reviewed on November 4 at Continental Aerial Photo, INC., in Los Angeles, California. Several aerial photographs were also provided to Brown and Caldwell by Environmental Data Resources (EDR) on November 9, 1998.

d. *Additional site data* has been obtained from research conducted at the Los Angeles area National Archives on December 8 and through discussions with Mr. Mark Cutler, 63D RSC Real Estate Specialist, on December 10 and with Mr. Randy Smith, DRMO, on December 11. Mr. Smith provided a waste disposal summary for site wastes handled through his office. The period spanning 1988 through March 1998 was summarized. Brown and Caldwell received the summary on December 17, 1998.

   Brown and Caldwell contacted the Cal-EPA Department of Toxic Substances Control (DTSC) on December 1 in order to obtain copies of waste manifests for the site. These manifests were received by Brown and Caldwell on December 17, and reflect disposal activity under Cal-EPA Number CA7210490374 during the years 1991, 1994 and 1995.

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DOCUMENT DELIVERY SCHEDULE

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Long Beach USAR Center

As per researching the records at the office, the following is the information found:

O/WS: Drawing plans available at the office as improvements to O/WS dated Sept. 17th, 1975 prepared by ACOE-Sacramento. The plans were drawn by ArrowHead Engineering Corporation. (File No. 242-25-17).
But, Real Estate Records indicate O/WS date of installation as 1977.

Bermed HW Storage Area: Drawing plans available at the office dated May 1989, prepared by ACOE-Sacramento. The plans were drawn by Gutierrez-Palmenberg Inc., Phoenix, AZ.

Vehicle Dock Area: Real Estate Records indicate construction date as 4 Sept. 1987.

Material Storage Area: Real Estate records indicate this area was found at the time of acquisition.

Storage Shed - General Purpose: Real Estate records indicat this was constructed in 1974.

Environmental Division

63D Regional Support Command

US Army Reserve
AFRC-CCA-ENS
11200 Lexington Drive, Bldg 7
Los Alamitos, CA 90720-5002

FAX/LTR

Date: 3 December, 1998

Number of pages including cover sheet: 7

To:

Ms. Judith Shiple

Brown & Caldwell

Phone: (619) 528-9090

Fax phone: (619) 528-9199

CC:

From:

Shyamala Sundaram

Environmental Contractor

(REMSA, INC.)

Phone: (562) 795-1442

Fax phone: (562) 795-1499

REMARKS: ☒ Urgent ☒ For your review ☐ Reply ASAP ☐ Please comment

Dear Judy:
Enclosed are portions of relevant information from the IAP that may be useful to you. Our Headquarters, USARC and the Army Env. Center prepare the IAP Report. It is a working document and is amended every year based on new information available. The information I am faxing to you is from the IAP dated 1998. The IAP report for 1999 is in the process of being revised. I have also enclosed the information that is going to be changed/included for the Long Beach site in the IAP dated 1999. If you have any questions, please call me. Thank you.

Shyamala.

****
*** TX REPORT ***
****

TRANSMISSION OK

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CONNECTION TEL	916195289199
SUBADDRESS	
CONNECTION ID	
ST. TIME	12/04 16:01
USAGE T	03'13
PGS.	7
RESULT	OK

Environmental Division

63D Regional Support Command

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AFRC-CCA-ENS
11200 Lexington Drive, Bldg 7
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Environmental Contractor
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Phone: (562) 795-1442
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PURPOSE

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year restoration program for an installation. The plan will define all Installation Restoration Program (IRP) requirements and propose a comprehensive approach and associated costs to conduct future investigations and remedial actions at each IRP site at the installation.

In an effort to coordinate planning information between the IRP manager, major army commands (MACOMs), installations, executing agencies, regulatory agencies, and the public, an IAP has been completed for the 63D Regional Support Command. The IAP is used to track requirements, schedules, and tentative budgets for all major Army installation restoration programs. All site specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change.

INSTALLATION INFORMATION

LOCALE

The 63D RSC consists of 96 reserve centers/properties located on 375 acres of land within three states (AZ, CA, NV).

COMMAND ORGANIZATION

MAJOR COMMAND: United States Army Reserve Command (USARC)

INSTALLATION: United States Army 63D Regional Support Command's Environmental Division

INSTALLATION RESTORATION PROGRAM (IRP) EXECUTING AGENCY

- U.S. Army Corps of Engineers, Sacramento District
- U.S. Army Corps of Engineers, Los Angeles District

REGULATOR PARTICIPATION

FEDERAL: U.S. Environmental Protection Agency, Region IX

STATE: California EPA, Department of Toxic Substances Control (DTSC)
California Regional Water Quality Control Board (CRWQCB)
California Department of Fish and Game (CDFG)
Arizona Department of Environmental Quality
Nevada Department of Environmental Quality

REGULATORY STATUS

- No NPL sites have been identified in the 63D RSC.
- A RCRA Corrective Action has been issued against SITE 04 at Bell USARC AMSA 15. This CA was rescinded on November 4, 1996.

MAJOR CHANGES TO ACTION PLAN FROM PREVIOUS YEAR (FY 97)

- This IAP presents the programmed funding requirements for the 63D RSC individual IRP sites for the first time.

CONTAMINATION ASSESSMENT

The Installation Restoration Program (IRP) at the 63D RSC began in 1990, but was not funded until FY98. The IRP was established at the 63D RSC due to the possibility of contaminated sites within the 63D RSC. The IRP is now very active in locating sites at facilities under the control of the 63D RSC that had not been previously identified and addressed.

There are currently 19 sites that are under investigation for contamination. These sites primarily consist of wash racks and grease racks. Investigations are still being conducted at 16 different facilities for 19 IRP sites. No off post contamination has been identified to date.

PREVIOUS STUDIES

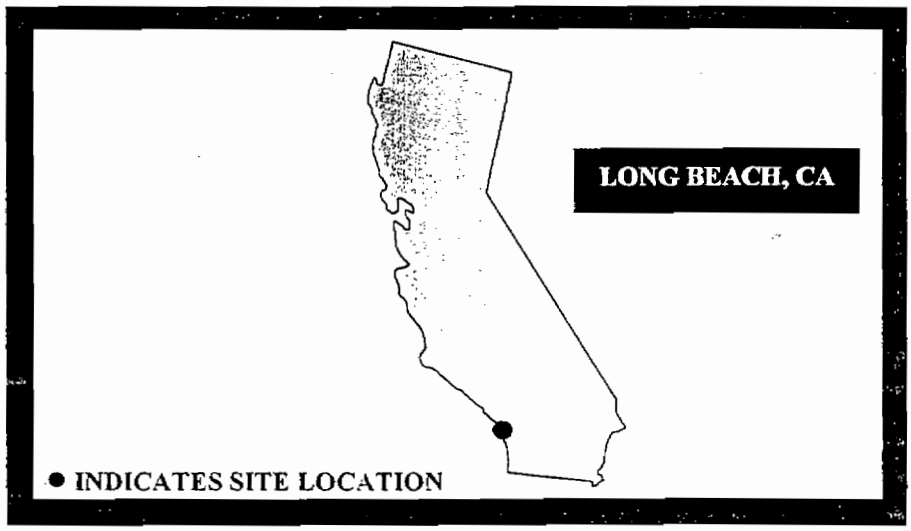
Title	Author	Date
Workplan, PA/SI, U.S. Army Reserve Centers (USARC), 63D RSC	Woodward-Clyde Federal Services	15 Dec 97
RRSE Reports, U.S. Army Reserve Centers (USARC), 63D RSC	Woodward-Clyde Federal Services	15 Dec 97
Waste Site Characterization Study, prepared for Cdr, USATHMA	Roy F. Weston, Inc.	Mar 89

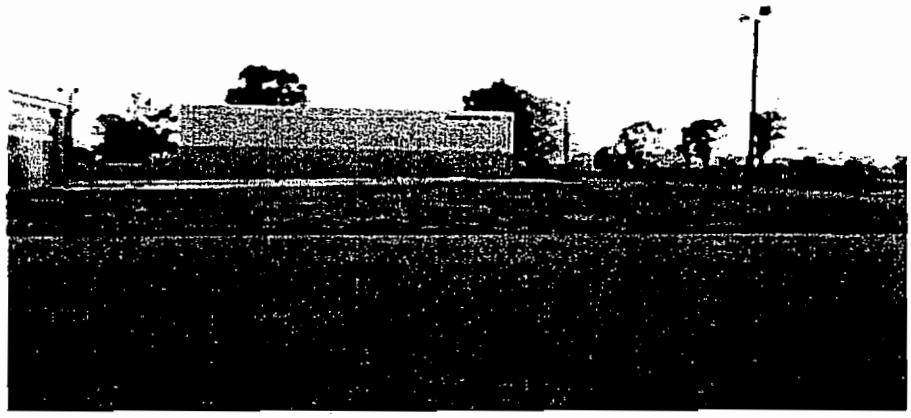
SITE 07
USARC LONG BEACH
FIELD WITH NO GROWTH

SITE DESCRIPTION

This site is a field approximately 0.6 acres in size and a strip of land near the administrative building where no vegetation has been observed since 1994. The facility that this site is located at is a former Operational Maintenance Site (OMS). The maintenance activities at this facility stopped in 1990.

This field is located in the southwest corner of the facility. This field is adjacent to two sides of the facilities boundaries.





PROPOSED PLAN

Further characterization of this site is required. A remedial alternative will be developed when the RI is completed.

IRP STATUS

RRSE RATING: Low Risk

CONTAMINANTS OF CONCERN:
POL, Solvents, Metals, Pesticides/ Herbicides

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RD, RA, LTM

SITE 07
USARC LONG BEACH
FIELD WITH NO GROWTH

SITE DESCRIPTION

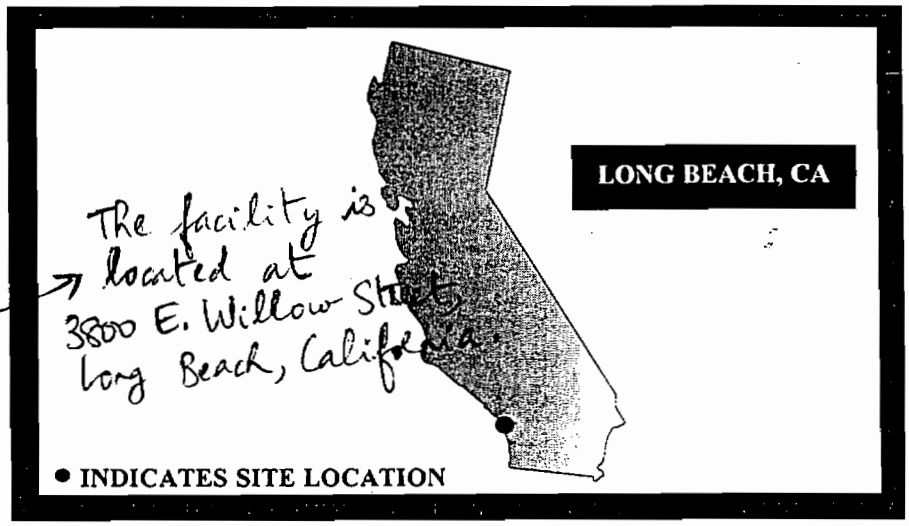
This site is a field approximately 0.6 acres in size and a strip of land near the administrative building where no vegetation has been observed since 1994. ~~The facility that this site is located at is a former Operational Maintenance Site (OMS).~~ The maintenance activities at this facility stopped in 1990.

The facility is located at 3800 E. Willow Street, Long Beach, California.

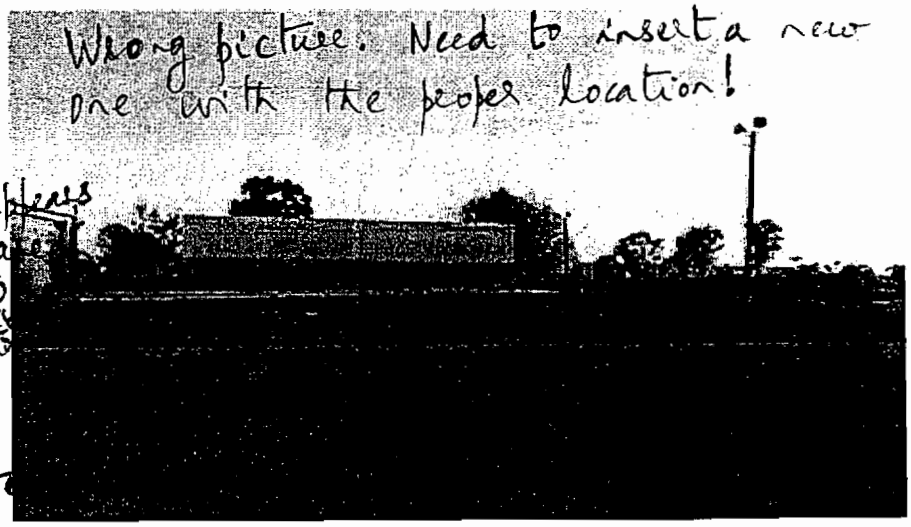
This field is located in the ~~southwest~~ northeast corner of the facility. ~~This field is adjacent to two sides of the facilities boundaries.~~

Limited soil sampling ~~has~~ had been performed. ~~Historical background has been determined and a workplan has been developed for further characterization.~~

This field is adjacent to a residential area and the facility entrance. It appears that gravel had been placed in the area to prevent vegetation.



Wrong picture. Need to insert a new one with the proper location!



PROPOSED PLAN

Implementation of the workplan will begin in FY99.

Historical background research and a workplan is in the process of being developed for further characterization of the site, if necessary.

IRP STATUS

RRSE RATING: Low Risk

CONTAMINANTS OF CONCERN:
POL, Solvents, Metals, Pesticides

MEDIA OF CONCERN:
Soil, ~~Groundwater~~

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI

FUTURE IRP PHASE:
FS, RD, RA, LTM

*

Note:
To be revised in IAP report dated 1999.

USATHAMA Property Report

Property Number: 6860
FFIS Number : CA-210522263

Name : USARC LONG BEACH
Address: 3800 E. WILLOW STRRET

LONG BEACH
CA 90822

Date of Printing: 05/18/89
Last Update: 05/18/89

Coord.: 33DEG 37MIN N 118DEG 13MIN W

Nearest Town : LONG BEACH
Population : 600,000

Base Population : 200
Command : 6TH ARMY

EPA Region : 9

Support Facility: FORT ORD

Environmental Coordinator Name : ROBERT DECKER
Environmental Coordinator Address: ATTN: AFZW-DE-P
BLDG. 4899

FORT ORD
CA 93941-5777

Environmental Coordinator Phone : (408)242-2864

Date of Form Response : 12/07/88

Name of Respondee : RAYMOND SANDZONE
Title : FACILITY MANAGER
Time Associated : 1 YEAR

Surface Water Uses: DRAINAGE

Ground Water Uses : DRINKING: MUNI. WELL 2500 FEET

Comments : OFFICIAL NAME: SCHROEDER HALL USARC.
BOILER ROOM ASBESTOS REMOVAL PLANNED.

Number of Waste Sites: 5

Maximum Score : 3.6

Confidence Factor : B

USATHAMA Waste Site Report

Date of Printing: 05/18/89
Last Update: 05/18/89

Property Number: 6860 Property Name: USARC LONG BEACH

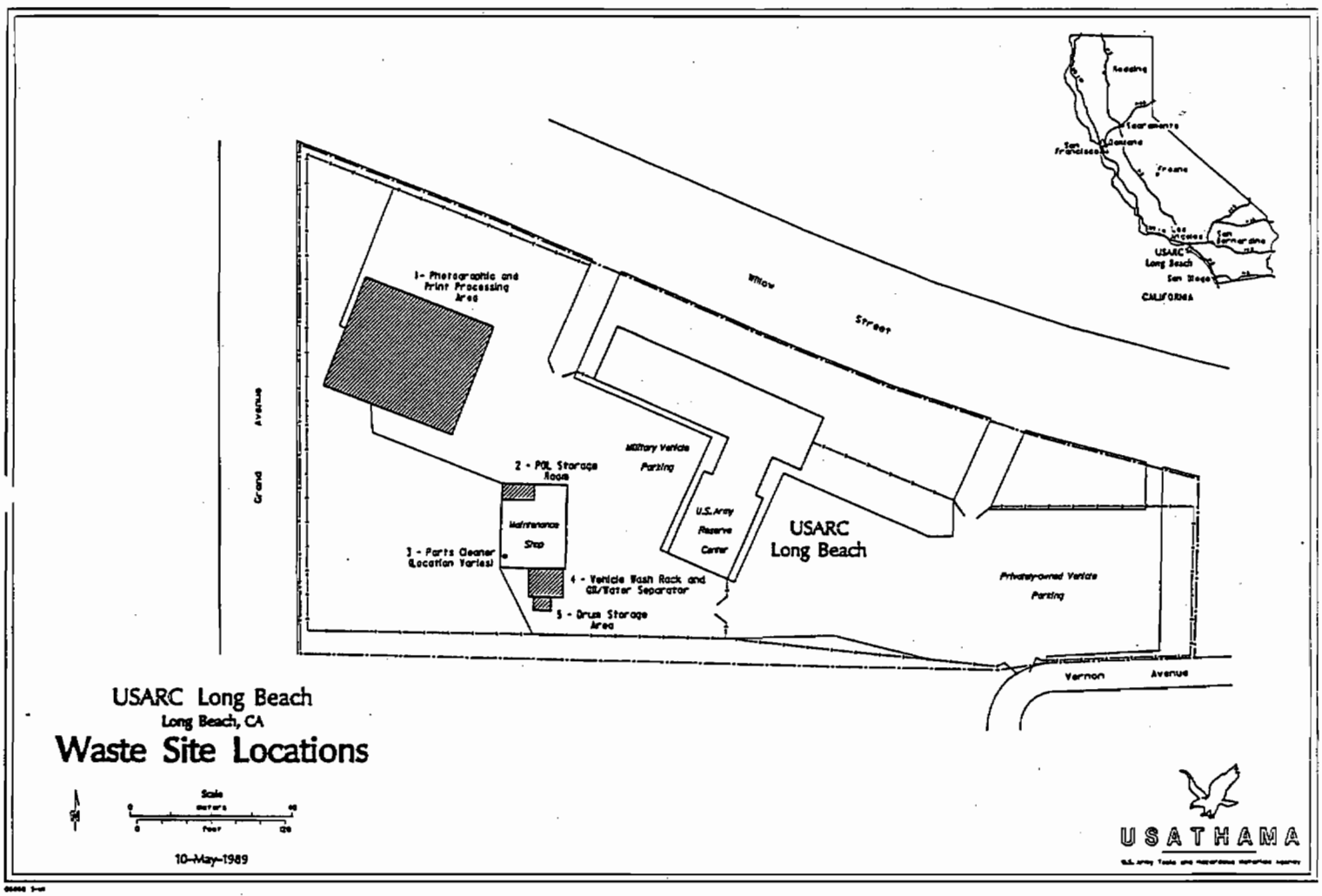
Site Number	Site Name	Waste Site Characterization	ISM Scores	Comments	IRP Status
1	PHOTO & PRINTING PROCESS AREA	Type: PRINTING IN, PHOTOGRAPHIC CHEMICALS, WASTE SOLVENT Qty: (2) 55-GALLON DRUMS Permit: NONE	Ground Water : 6.1 Surface Water: 0.4 Air Quality : 0.0 Total Score : 3.6	PHOTOGRAPHIC LAB AND PRINTING EQUIP. ARE HOUSED IN 4 SEMI-TRAILERS (18-WHEEL SZ). CHEMICAL & INK STORAGE IN SMALL CONTAINER INSIDE TRAILERS. PROCESS WASTES ARE STORED IN DRUMS ON ASPHALT WITH NO SECONDARY CONTAINMENT. ONE PRINTING VAN HAS A CLEANING HOSE RUNNING OUTSIDE TO WASTE DRUM . DISPOSAL IS CONTRACTOR.	PA : I SI : N RI : N FS : N RD : N
2	POL STORAGE ROOM	Type: OIL, PAINT, THINNER, METHANOL, AROMATIC NAPTHA Qty: 150 GALLONS Permit: NONE	Ground Water : 5.0 Surface Water: 4.0 Air Quality : 0.0 Total Score : 2.9	POL ROOM INSIDE THE MAINTENANCE SHOP HAS A CONCRETE FLOOR, NO FLOOR DRAINS, AND CONTAINMENT CURB. THE LARGEST CONTAINER IS A 55-GALLON DRUM.	PA : I SI : N RI : N FS : N RD : N
3	PARTS CLEANING	Type: WASTE SOLVENT Qty: 1 GALLON Permit: NONE	Ground Water : 0.0 Surface Water: 0.0 Air Quality : 0.0 Total Score : 0.0	NO SPECIFIC EQUIPMENT IS USED FOR PARTS CLEANING. WASTE SOLVENT IS ACCUMULATED IN THE WASTE STORAGE AREA (SITE #5). SITE SCORED AS ZERO BASED ON SECONDARY CONTAINMENT OF THIS SMALL QUANTITY BY THE CONCRETE FLOOR.	PA : I SI : N RI : N FS : N RD : N

USATHAMA Waste Site Report

Date of Printing: 05/18/89
Last Update: 05/18/89

Property Number: 6860 Property Name: USARC LONG BEACH

4	VEHICLE WASH RACK & O/W SEP.	Type: OIL AND GREASE FROM VEHICLE WASHWATER Qty: 5 VEHICLES/MONTH Permit: NONE	Ground Water : 0.0 Surface Water: 0.4 Air Quality : 0.0 Total Score : 0.2	WASHWATER DRAINS THROUGH OIL/WATER SEPARATOR CONNECTED TO MUNICIPAL STORM WATER SEWER. NO SEPARATOR RAIN GATE REPORTED. DISPOSAL OF SEPARATOR OIL IS ARRANGED AS NEEDED THROUGH FORT ORD WITH A CIVILIAN CONTRACTOR.	PA : I SI : N RI : N FS : N RD : N
5	DRUM STORAGE AREA	Type: WASTE OIL, WASTE SOLVENT, WASTE BRAKE FLUID, WASTE HYDRAULIC OIL Qty: (6) 55-GALLON DRUMS Permit: EPA ID# CA-7210490374	Ground Water : 5.0 Surface Water: 0.4 Air Quality : 0.0 Total Score : 2.9	DRUMS ARE STORED ON PALLETS ABOVE ASPHALT WITH NO SECONDARY CONTAINMENT. DISPOSAL IS COORDINATED THROUGH DRMO.	PA : I SI : N RI : N FS : N RD : N



USARC Long Beach
Long Beach, CA
Waste Site Locations

Sundaram, Shyamala Ms (63D RSC)

From: Sundaram, Shyamala Ms (63D RSC)
Sent: Friday, December 04, 1998 3:40 PM
To: Michael Higman (E-mail)
Cc: 'JShiple@BrwnCald.com'
Subject: Long Beach PSA

Hello Mike:

How are you? I got your message. I was off last week and in and out of the office early this week. I did not get a chance to get all the information together until yesterday. Regarding the information that was requested, I had faxed Judy the IAP report (relevant portions) and the 1989 study report.

The following is the utility information for the site:

1. Electricity: Billed by Southern California Edison every month
   Rosemead, CA
   Phone: 800-990-7788

2. Gas, Water, Sewer, & Refuse: Billed by City of Long Beach every month
   Phone: (562) 570-5700

3. Sewerage System: Billed by County Sanitation Districts of Los Angeles County, Whittier, CA (billed annually)
   Phone: (310) 699-7411

Mr. Mark Cutler, 63D RSC Real Estate Specialist should be able to provide you with any information on real estate and the POC for real estate section at ACOE-Los Angeles. His phone number is (562) 795-1438. If you have any problems, let me know.

How is the project coming? Do you need any other additional information? Did anything new develop since we met the last time at the site?

Shyamala.

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

1955 Workman Mill Road, P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (310) 699-7411 Fax: (310) 695-1874

Department of the Army
Directorate of Contracting
Contract Administration
Building 9504
Fort Lewis, WA 98433-5000

April 21, 1997

INVOICE FOR WASTEWATER SERVICE

PROPERTY INFORMATION	
APN: 7218-002-914	**District No.:** 3
Situs Address: Contract #DAKF03-85-H-0002 3800 West Willow,	**Facilities:** 13,710 sq. ft. Army Reserve Center

CA022
PJOSEW2
S0018
(0001)
A

ACCOUNT INFORMATION		
	Previous Balance:	$ 477.19
MAY - 7 1997	Payments Recieved:	0.00
	Accrued Interest:	60.36
	New Charges:	148.32
	PAY THIS AMOUNT:	**$ 685.87**

Pursuant to the State of California Health and Safety Code, Section 5471, the Sanitation Districts are authorized to charge and collect from all users of the sewerage system the annual cost of providing service. This invoice is hereby submitted in accordance with those provisions. To avoid interest charges, payment must be made within 45 days of receipt of this invoice. If you have any questions regarding this invoice or dispute any portion of it, you must contact the Districts within the same 45 day period. Direct all communication to the attention of Marie Henderson at the above referenced address or telephone number, extension 2715.

Please include the Assessors's Parcel Number (APN) with any corespondence and on any checks. Make all checks payable to the *County Sanitation Districts of Los Angeles County.*

Customer Copy

Sundaram, Shyamala Ms (63D RSC)

From: Judith Shiple [JShiple@BrwnCald.com]
Sent: Friday, November 20, 1998 10:15 AM
To: Sundaram, Shyamala Ms (63D RSC)
Cc: Mike Higman
Subject: FW: photos

MVC-002F.JPG MVC-019F.JPG MVC-017F.JPG

-----Original Message-----
From: Judith Shiple
Sent: Thursday, November 19, 1998 3:53 PM
To: 'sundaram@usarc-emh2.army.mil'
Cc: Mike Higman
Subject: FW: photos

-----Original Message-----
From: Judith Shiple
Sent: Thursday, November 19, 1998 1:18 PM
To: 'sundaram2@usarc-emh2.army.mil'
Cc: Mike Higman
Subject: photos

Hi Shyamala,

the attached files are photographs of the northeast corner of the Long Beach USARC. MVC-002 is view looking north from parking lot. MVC-017 and -019 are views looking west from along Willow Street, with the facility in the background.

We'd talked yesterday about serveral items needed for additional information including:

1. Installation Action Plan, dated March 1998 (relevant portions);
2. More legiable version of the 1989 property report;
3. Phone numbers of DRMO and LA real estate personnel;
4. Utility information for the site.

I am making a copies of the final workplan for the site and will return your document by Fed Ex for next Monday delivery.
Thanks for your help. Talk to you soon.

Judy Shiple

BROWN AND CALDWELL

November 10, 1998

Ms. Shyamala Sundaram
63D Regional Support Command
AFRC-CCA-EN, Building 7
P.O. Box 3001
Los Alamitos, CA 90720-1301

44/17223/3

Subject: **Revised Meeting Minutes; Kickoff Meeting for PA/SI**
USARC Long Beach, Site 07;
Contract DACW05-97-D-0035/0006

Dear Ms. Sundaram:

Please find enclosed the revised meeting minutes of our October 22, 1998 Kickoff Meeting held at the Armed Forces Reserve Center in Los Alamitos. Revisions consist of corrected email addresses for you and Mr. Muir on page 1 of the minutes.

Again, it was a pleasure meeting with you and we look forward to successfully completing this project. Please do not hesitate to contact me at (619) 528-9090 if you have any questions.

Very truly yours,

BROWN AND CALDWELL

Michael P. Higman
Project Manager

MH:ae

cc/encl: Mr. Richard Haavisto, Technical Manager, USACE, Sacramento District
Ms. Diane Clark, USARC, 63D RSC, AFRC-CCA-ENS, Los Alamitos
Mr. Gerald Muir, USARC, 63D RSC, AFRC-CCA-ENS, Los Alamitos
Vijay K. Bedi, Brown and Caldwell, PIC
David Jones, Brown and Caldwell, Sacramento, CSM

p:\army_coe\usarc\client corresp\mtng_min.doc

Environmental Engineering And Consulting • Analytical Services

9040 Friars Road, Suite 220, San Diego, CA 92108
(619) 528-9090 Fax (619) 528-9199

Kickoff Meeting Minutes
22 October, 1998

PRELIMINARY ASSESSMENT/SITE INVESTIGATION
at
U.S. Army Reserve Center (USARC), Long Beach, Site 07, RI/FS

Contract No. DACW05-97-D-0035, D.O. 0006
Brown and Caldwell Project No 17223-000

Attendees: Shyamala Sundaram, USARC, 63D RSC, Project Manager/POC
Diane Clark, USARC, 63D RSC, Environmental Engineer
Gerald Muir, USARC, 63D RSC, Project Manager
Vijay Bedi, Brown and Caldwell, Principal-in-Charge
Michael Higman, Brown and Caldwell, Project Manager

The meeting was held at the Armed Forces Reserve Center, Building 7, 11200 Lexington Drive, Los Alamitos, California on October 22, 1998. Telephone, facsimile numbers, and eMail addresses for USARC 63D Regional Support Command (RSC) and Brown and Caldwell personnel present at this meeting are provided in the following table:

Name/Organization	Phone	Fax	Email
Shyamala Sundaram USARC 63D RSC [1], Project Manager/POC	(562) 795-1442	(562) 795-1499	SundaramS@usarc-emh2.army.mil
Diane A. Clark USARC 63D RSC; Environmental Engineer	(562) 795-1445	(562) 795-1499	Clarkd2@usarc-emh2.army.mil
Gerald N. Muir USARC 63D RSC, Project Manager	(562) 795-1446	(562) 795-1499	Muirg@usarc-emh2.army.mil
Michael Higman R.G. Brown and Caldwell (San Diego), Project Manager	(619) 528-9090	(619) 528-9199	Mhigman@brwncald.com
Vijay K. Bedi, CEG Brown and Caldwell (San Diego), Principal-in-Charge	(619) 528-9090	(619) 528-9199	vbedi@brwncald.com

[1] U.S. Army Reserve Center, 63rd Regional Support Command

- **Background and Purpose of Meeting**

The Installation Action Plan for U.S. Army 63D Regional Support Command (RSC), has listed the Long Beach U.S. Army Reserve Center (USARC) in the Installation Restoration Program. Further characterization of the site is required to identify the evidence of possible environmental impact from historical site use. The purpose of the kickoff meeting was to introduce essential personnel and discuss the scope of work (SOW) and planned approach for the Preliminary Site Assessment at the USARC, Site 07 located at 3800 E. Willow Street, Long Beach, California.

- **Issues Discussed/Actions**

a. Shyamala presented a summary of previous investigations conducted at the Site. The environmental assessment history of the site is included in the following documents. These documents were provided to Brown and Caldwell by Shyamala at the meeting.

- *Soil Analysis at Long Beach USAR Center*, Truesdail Laboratories, Inc., February 19, 1997

- *Preliminary Assessment/Site Investigation for USARC Long Beach*, Woodward-Clyde, June 1998.

- *Review Letter*, Cal-EPA Department of Toxic Substance Control (DTSC), July 20, 1998.

b. The current scope of work will address the DTSC's comments in their letter dated June 20, 1998. Based on the findings of the PSA, a meeting may be arranged with the DTSC to discuss the findings and our proposed investigation approach prior to implementing a Site Investigation (SI), if necessary.

c. The PSA portion of the work will be conducted per EPA Guidance for Performing Preliminary Assessments Under CERCLA (EPA/540/G-91/013), September 1991.

d. The site is located in a commercial/residential area of Long Beach and is unsecured. However, site visits shall be coordinated with Shyamala and the Mr. Frank Williams (Facility Manager). Mr. Williams may be contacted at (562) 988-8800. Site visits will be scheduled at least one week in advance.

e. Deliverables on this project will be provided as directed in the SOW. In addition, two compact disks (CDs) will be provided containing all major deliverables in Microsoft Office '97 format, figures in AutoCad version 13 or 14 format, and photos in JPEG format.

- **Action Items**

a. Brown and Caldwell will forward a copy of Brown and Caldwell's Standard Operating Practices and Phase I Environmental Site Assessment checklists to Shyamala.

b. Shyamala will check further with the USARC Real Estate Division regarding historical site ownership/occupancy.

- **Schedule**

A tentative schedule of important project milestones is provided in the table below. This table will be updated and incorporated into monthly summaries or provided more frequently if necessary. It is anticipated that comments on all draft deliverables will be received from the USARC within 21 days and deliverables will be finalized by BC within 14 days after receipt of comments.

TASK / MILESTONE	% COMPLETE	DUE DATE
PRELIMINARY SITE ASSESSMENT		
Database Records Search/Review	30%	*Thurs 11/05/98*
Historical Aerial Photo/topographic Map Review	0%	*Thurs 11/05/98*
Site Reconnaissance	0%	**Tues 11/10/98**
Regulatory Review	0%	*Fri 11/13/98*
DRAFT Report Submittal	0%	**Fri. 12/11/98**
SAMPLING ANALYSIS PLAN		
Field Sampling Plan (FSP)	10%	*Mon 12/21/98*
Quality Assurance Project Plan (QAPP)	10%	*Mon 12/21/98*
DRAFT Workplan Submittal	0%	**Mon 12/21/98**
WORKER HEALTH AND SAFETY PLAN		
DRAFT Workplan Submittal	0%	**Mon 12/21/98**

Kickoff Meeting Minutes
22 October, 1998

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at
U.S. Army Reserve Center (USARC), Long Beach, Site 07, RI/FS

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1. INTRODUCTION

The Army property waste site summary reports included in this document were developed by Roy F. Weston, Inc. (WESTON) under contract DAAA15-88-D-007 Task Order 2 for the United States Army Toxic and Hazardous Materials Agency (USATHAMA). The primary objective was to establish baseline data reflecting potential waste sites at Army properties. Waste sites for the purposes of this survey were defined broadly to include any location at a facility from which hazardous constituents might be released into the environmental, regardless of whether the material in that location is defined as a solid or hazardous waste.

A brief report for each property was compiled with data collected between August 1990 and November 1990. Data was collected through questionnaires distributed to Army personnel familiar with the properties. WESTON conducted a brief (1-day or less) site visit and/or telephone follow-up with the Army personnel completing the questionnaires (and some local water and electric companies) to supplement information obtained in the questionnaires. WESTON did not collect additional independent data, but relied entirely on information from those sources.

These reports will be used as references for all future Installation Restoration Program (IRP) communication. Additionally, they will be the basis for the allocation of funding and resources in support of the IRP. As remediation activities are completed and/or additional information becomes available, updates will be performed.

2. USER GUIDE

2.1 Sample Report

The first page of each property report (see Figure 1) provides general information about the property and its environmental coordinator. Base population estimates contained in general information use the higher of weekday or weekend populations present on base. A summary listing of the total number of waste sites, maximum Installation Scoring Model (ISM) score, and the confidence factor associated with the report is provided at the bottom of the page. Where the Army leases parts of a property to another entity (such as the US Navy) waste sites generated by that entity (e.g. Navy activities) were not evaluated. The letters "NPL" appear in the summary listing if the property (or a site on the property) is listed on the National Priority List (NPL). The symbol "*NPL" in the summary listing indicates that the property is part of a site listed on the NPL. The symbol "*" next to a Maximum Score indicates that a waste site with a higher score may exist on the property, but information to accurately assess that site is currently unavailable. That possible waste site is either listed as an unscored waste site in the property's waste site reports, or referenced in the comment section of the property report, depending on the amount of information available.

The subsequent page(s) of each property report (see Figure 2) are used to list and to provide details of each waste site on the property. The site numbers and names are matched, when possible, to site numbers and names as listed in available published reports. The Waste Site Characterization section is used to list specific types of wastes (or a description of the process generating the waste), amount of waste, analytical data, and applicable permits. Underground storage tank registration information is included under permits. Where no permits or registrations are either reported or required, "None" is entered under "Permit".

For properties with multiple sites, a minimum of two waste sites per property were scored, unless scores were not justified by the Installation Scoring Model used (see Section 2.2). The sites with the highest potential scores were scored first, and scoring continued for other sites until significant decreases were noted in the totals. The initial decision as to potential scoring was based both on observations made during inspections of the installations and on documentation supplied to WESTON by the facility or the environmental coordinator, and focused on obvious factors such as degree of containment or constituents of concern.

The comments section is used as needed to further explain processes, to detail releases of contaminants, to list additional analytical data, or to note any special facts. The final section denotes the IRP status by phase as related to each waste site. The phases are: PA = preliminary assessment, SI = site investigation, RI = remedial investigation, FS = feasibility study, and RD = remedial design. Codes used to reflect status include: N = no/none, I = initiated, U = unknown, and C = complete. These phases are filled in as complete only if the formal (CERCLA) PA/SI or RI/FS documentation has been generated. Accordingly informal or internal remediation strategies may be ongoing even if these codes are all "N". Such activities are noted in the comment section.

The following information can be assumed in reading waste site reports. For facilities located on a larger installation, the population of the entire installation is listed. Underground storage tanks are of steel construction without any corrosion protection unless otherwise noted in the comment. Transformers are only listed as a waste site if they contain PCBs (or are likely to contain PCBs due to their age and lack of additional information). Asbestos areas are only listed as a waste site if particularly high hazards are present (such as quarantined areas of buildings, or areas with ripped or shredding asbestos material). Otherwise, any information obtained as to asbestos removal activities is noted in the property report under the comments section. Radon contamination has not been assessed.

2.2 Installation Scoring Model (ISM) and Confidence Factors

The Installation Scoring Model (ISM) used for the study is based on the Environmental Protection Agency (EPA) Hazard Ranking System (HRS). ISM scores are intended to reflect the level of

environmental concern posed by a particular waste site and are not to be considered equivalent to an HRS score. Only waste sites determined to be a potential environmental concern were scored.

Each waste site scored was evaluated with respect to containment of the hazardous substance(s), route by which substance(s) could be released, characteristics and amount of harmful substances, and the likely targets. Four scores are reported per waste site: surface water score, groundwater score, air quality score, and total score. The ISM does not at this time include an evaluation for exposure in the work place. Localized contact with potentially hazardous materials is thus not assigned a score. Air quality scores may only be assigned if a specific release of contaminants significantly above background has been documented. Accordingly, no scores for potential air releases are given. No scores are given for any containment releases that are occurring under existing regulatory permits. The ISM scores reflect a minimum waste quantity of approximately 2000 gallons. Many of the sites ranked contain less than that amount of wastes, however.

Reliable scores require considerable information about the property, its surroundings, the hazardous substances present, and the geological character of the area down to the aquifers that may be at risk. As an indicator of reliability, a confidence factor scoring system was developed to provide the user of this document with a measure of the applicable and available information used to characterize and compute the ISM scores for each waste site. The criteria used for development of these confidence factors are displayed in Table 1. It should be noted that Table 1 does not list all possible combinations of information sources, but it does cover the range of available information. As such, it is used as a guideline.

TABLE 1

CONFIDENCE FACTOR DEFINITIONS

Confidence Factor	Site Visit	RI Report Available	Installation Assess. or Equivalent Information*	Questionnaire Completed
A	1	1	1	1
B	1	1+	1	—
C	--	0	1	1
D	—	0	0	1
E	0	0	0	0

* Equivalent information refers to small properties where a site visit or telephone contact may yield as much data as an installation assessment.

\+ If an RI is not applicable to circumstances at the property, a B Confidence Factor score may still be assigned.

1 Information available.

0 Information not available or not submitted.

-- This component not a critical value for this specific Confidence Factor Score.

WHATHAMA Property Report

Property Number: 6860
FFIS Number : CA-210522163

Name : USARC LONG BEACH
Address: 3800 E. WILLOW STREET

LONG BEACH
CA 90822

Date of Printing: 03/18/89
Last Update: 05/18/89

Coord.: 33DEG 37MIN N 118DEG 13MIN W

Nearest Town : LONG BEACH
Population : 600,000

Base Population : 200
Command : 6TH ARMY

EPA Region : 9

Support Facility: FORT ORD

Environmental Coordinator Name : ROBERT DECKER
Environmental Coordinator Address: ATTN: AFEN-DE-P
BLDG. 4899

FORT ORD
CA 93941-5777

Environmental Coordinator Phone : (408)242-2864

Date of Form Response : 12/07/88

Name of Respondee : RAYMOND SANDZONE
Title : FACILITY MANAGER
Time Associated : 1 YEAR

Surface Water Uses: DRAINAGE

Ground Water Uses : DRINKING: MUNI. WELL 2500 FEET

Comments : OFFICIAL NAME: SCHROEDER HALL USARC.
BOILER ROOM ASBESTOS REMOVAL PLANNED.

Number of Waste Sites: 5

Maximum Score : 3.6

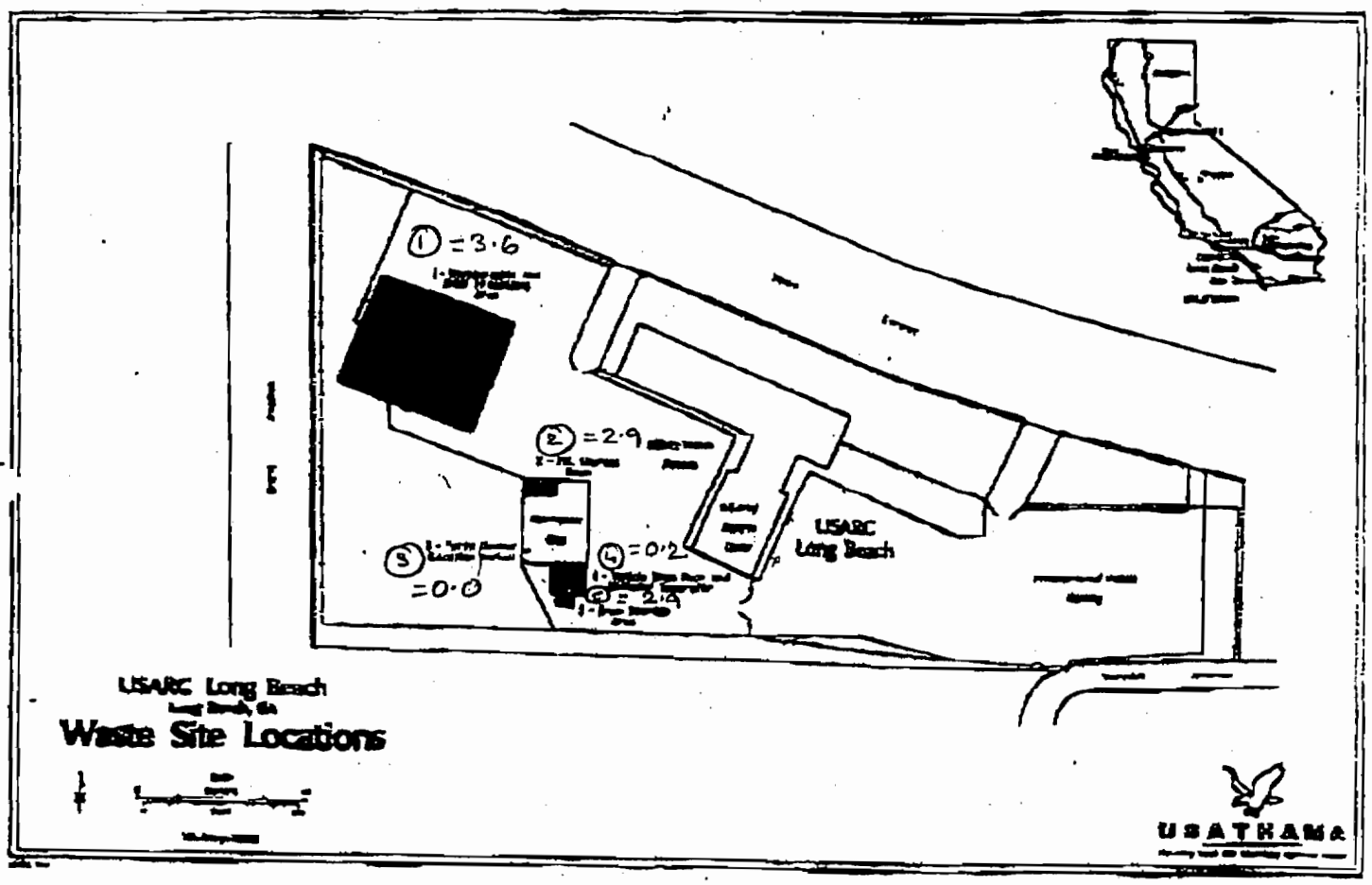
Confidence Factor : B

USATHAMA Waste Site Report

Property Number: 6880 Property Name: USMC LONG BEACH

Date of Printing: 05/18/8[illegible]
Last Update: 05/18/8[illegible]

Site Number	Site Name	Waste Site Characterization	IRM Scores	Comments	IRP Status
1 1	PHOTO & PRINTING PROCESS AREA PHOTO + PRINTING PROCESS AREA	Type: PRINTING IN, PHOTOGRAPHIC CHEMICALS, WASTE SOLVENTS Qty: (2) 55-GALLON DRUMS Permit: NONE	Ground Water : 6.1 Surface Water: 0.4 Air Quality : 0.0 Total Score : 3.6	PHOTOGRAPHIC LAB AND PRINTING EQUIP. ARE HOUSED IN 4 SEMI-TRAILERS (18-WHEEL 62). CHEMICAL & INK STORAGE IN SMALL CONTAINER INSIDE TRAILERS. PROCESS WASTES ARE STORED IN DRUMS ON ASPHALT WITH NO SECONDARY CONTAINMENT. ONE PRINTING VAN HAS A CLEANING HOSE RUNNING OUTSIDE TO WASTE DRUM. DISPOSAL IS CONTRACTOR.	PA : I SI : N SI : N PA : N SD : N
1 2	POL STORAGE ROOM POL STORAGE	Type: OIL, PAINT, THINNER, METHANOL, AROMATIC NAPTHA Qty: 150 GALLONS Permit: NONE	Ground Water : 5.0 Surface Water: 4.0 Air Quality : 0.0 Total Score : 2.9	POL ROOM INSIDE THE MAINTENANCE SHOP HAS A CONCRETE FLOOR, NO FLOOR DRAINS, AND CONTAINMENT CURB. THE LARGEST CONTAINER IS A 55-GALLON DRUM.	PA : I SI : N SI : N PA : N SD : N
1 3	PARTS CLEANING PARTS CLEANING	Type: WASTE SOLVENT Qty: 1 GALLON Permit: NONE	Ground Water : 0.0 Surface Water: 0.0 Air Quality : 0.0 Total Score : 0.0	NO SPECIFIC EQUIPMENT IS USED FOR PARTS CLEANING. WASTE SOLVENT IS ACCUMULATED IN THE WASTE STORAGE AREA (SITE 25). SITE SCORED AS ZERO BASED ON SECONDARY CONTAINMENT OF THIS SMALL QUANTITY BY THE CONCRETE FLOOR.	PA : I SI : N SI : N PA : N SD : N


1 =3.6
2 =2.9
3 =0.0
4 =0.2
5 =2.9
USARC Long Beach
USARC Long Beach
Waste Site Locations
USATHAMA

(COPY)

DEPARTMENT OF THE NAVY
BUREAU OF YARDS AND DOCKS
WASHINGTON 25, D. C.

In Reply Refer to
R-320B/WHC/bo

OCT 16 1958

From: Chief of Civil Engineers
To: Office of Chief of Engineers, Real Estate Division, Department of the Army, ENGLP, Washington 25, D. C.

Subj: Lexington Housing Development, Long Beach (Lakewood), California; Transfer of a 4.5 acre portion

Ref: (a) Dept. of Army ltr 601.4 USARC Site, Long Beach (Lakewood, Calif.) ENGLP of 5 Sept 1958 to OCE

1. Reference (a) advised that all approvals had been obtained for transfer of the subject property, as requested by that Department. Accordingly, pursuant to the authority of Section 202(c) of the Act of Congress of June 30, 1949, as amended, (40 U.S.C. 471 et seq.), and Department of Defense Directive 4165.6 dated September 15, 1955, jurisdiction, administration, custody and control of the following described land is hereby transferred to the Department of the Army:

Being portions of Lots 5 and 6 of Tract No. 10548, as recorded in Map Book 174 on pages 15 to 23, Records of Los Angeles County, State of California, on file in the Office of the Recorder of said County and particularly described as follows:

For point of reference commence at the intersection of the centerlines of Lakewood Boulevard and Twenty-third Street; thence N. 89° 47' 45" W., 1669.09 feet to the southwesterly corner of those lands acquired by the United States in Civil Action 4495-H; thence N.0° 11' 15" E., along the westerly line of said lands of the United States, to a point 420 feet southerly of the southerly line of Willow Street, the true POINT OF BEGINNING of this description; thence continuing N. 0° 11' 15" E. 420 feet to the southerly line of Willow Street; thence continuing N. 0° 11' 15" E. to a point in the center line of Willow Street, thence following the centerline of Willow Street in a general southeasterly direction, 783.23 feet, more or less, to a point of intersection with the easterly line of those lands acquired by the United States in Civil Action 4495-H; thence S. 0° 11' 15" W. to the northerly line of Vernon Street; thence in a general westerly and southwesterly direction along the northerly line of Vernon Street to a point of intersection with a line extended at right angles in an easterly direction from the point of beginning of this description, thence in a westerly direction along said extended line to the point of beginning, containing 4.5 acres, more or less.

(COPY)

(COPY)

R-320B/WHC/bo

The foregoing metes and bounds description was prepared from data available to the Bureau of Yards and Docks. If this description is found to be inadequate, it is suggested that a field survey be conducted for the purpose of compiling a more suitable description.

2. The Commandant, Eleventh Naval District, by a copy of this letter, is requested to surrender possession of the subject property upon receipt of a request therefor from the Department of the Army.

3. It is requested that receipt of this letter be acknowledged by the return of the attached copy after signature.

/s/ M. E. SCANLAN
By Direction

Copy to:
ASTSECDEF (P&I)
ASTSECNAV (MAT)
COMPTNAV
CNM
CNO
COM 11ND
DPWO 11ND

The receipt of this letter is acknowledged.

/s/ W. D. Freeman
For the Department of the Army

W.D. FREEMAN 6-4057-E 10/28/58
Accountable Property Officer

(COPY)

UNITED STATES ARMY RESERVE CENTER,
LONG BEACH, CALIFORNIA

5 May 1959

The area of the land described in Transfer Letter dated 16 October 1958 from Department of the Navy is 5.49 acres instead of 4.5 acres as stated in Transfer Letter.

Joseph C. Phipps

JOSEPH C. PHIPPS
Chief, Cadastral Section

Incl 1 to Incl 1

 No Internal Revenue Stamps Required

GRANT OF EASEMENT

WHEREAS, the authority granted the Secretary of the Army by the Act of Congress approved July 24, 1946 (C. 596, Sec. 7, 60 Stat. 643, as amended; 43 U. S. C. 931b) was made applicable to the Secretary of the Navy by the Act of Congress approved October 25, 1951 (C. 563, Title I, S. 101, 65 Stat. 641; 50 U. S. C. 771-1); and,

WHEREAS, the above-cited Acts of Congress authorize and empower the Secretary of the Navy to grant easements to municipalities for rights-of-way across acquired lands under his jurisdiction for road purposes; and,

WHEREAS, the CITY OF LONG BEACH, a municipal corporation located in the County of Los Angeles, State of California, in order to alleviate traffic congestion, has an immediate and urgent need for the use of a parcel of land forming a portion of the Government-owned Lexington Housing Project, Long Beach, California, the land forming the said Housing Project being under the jurisdiction of the Department of the Navy, for the purpose of widening Willow Street along the northern boundary of the Housing Project; and,

WHEREAS, the Secretary of the Navy has determined that the grant of an easement to the CITY OF LONG BEACH for the purposes hereinabove set out is not incompatible with the public interest;

NOW THEREFORE, in consideration of the premises, the UNITED STATES OF AMERICA, acting by and through the Secretary of the Navy, hereby grants unto the CITY OF LONG BEACH, a

RECEIVED JAN 24 1980 Real Estate Division MSB Branch

Document # 2319
L. A. County Records

municipal corporation organized and existing under the laws of the State of California, located in the County of Los Angeles, State of California, its successors and assigns, a permanent easement for highway purposes over a parcel of land forming a portion of those lands acquired by the UNITED STATES OF AMERICA in Civil Action No. 4495-PH, for the establishment of the Lexington Housing Project, Long Beach, California, and more particularly described as follows:

> A parcel of land approximately 783.23 feet in length by 50.00 feet in width, being the northerly 50.00 feet of those lands lying southerly of the center line of Willow Street in Lots 5 and 6, Tract No. 10548, known as the Lexington Housing Project, Long Beach, California, as shown on City of Long Beach, California, Department of Engineering Drawing No. A-834, approved August 1, 1949, a copy of which is attached hereto and made a part hereof, marked Exhibit "A".

TO HAVE AND TO HOLD, the above-described interest in lands unto the CITY OF LONG BEACH, its successors and assigns, so long as said interest in lands shall be used exclusively for the above-described highway purposes, provided that, on the failure of the CITY OF LONG BEACH to comply with the terms and conditions of this easement, or when this easement shall no longer be used for the above-described highway purposes for a period of two consecutive years, or when this easement shall be abandoned by the CITY OF LONG BEACH, the interest in lands herein granted to the CITY OF LONG BEACH, its successors and assigns, shall cease, and automatically shall revert to, and be revested in, the UNITED STATES OF AMERICA, without any necessity for re-entry by the UNITED STATES OF AMERICA, or the filing of any action at law or in equity by the UNITED

STATES OF AMERICA to regain possession.

IN WITNESS WHEREOF, the UNITED STATES OF AMERICA has caused this instrument to be executed by the Secretary of the Navy for and in its behalf and the Seal of the Department of the Navy affixed hereto, this 3rd day of September, 1952.

THE UNITED STATES OF AMERICA

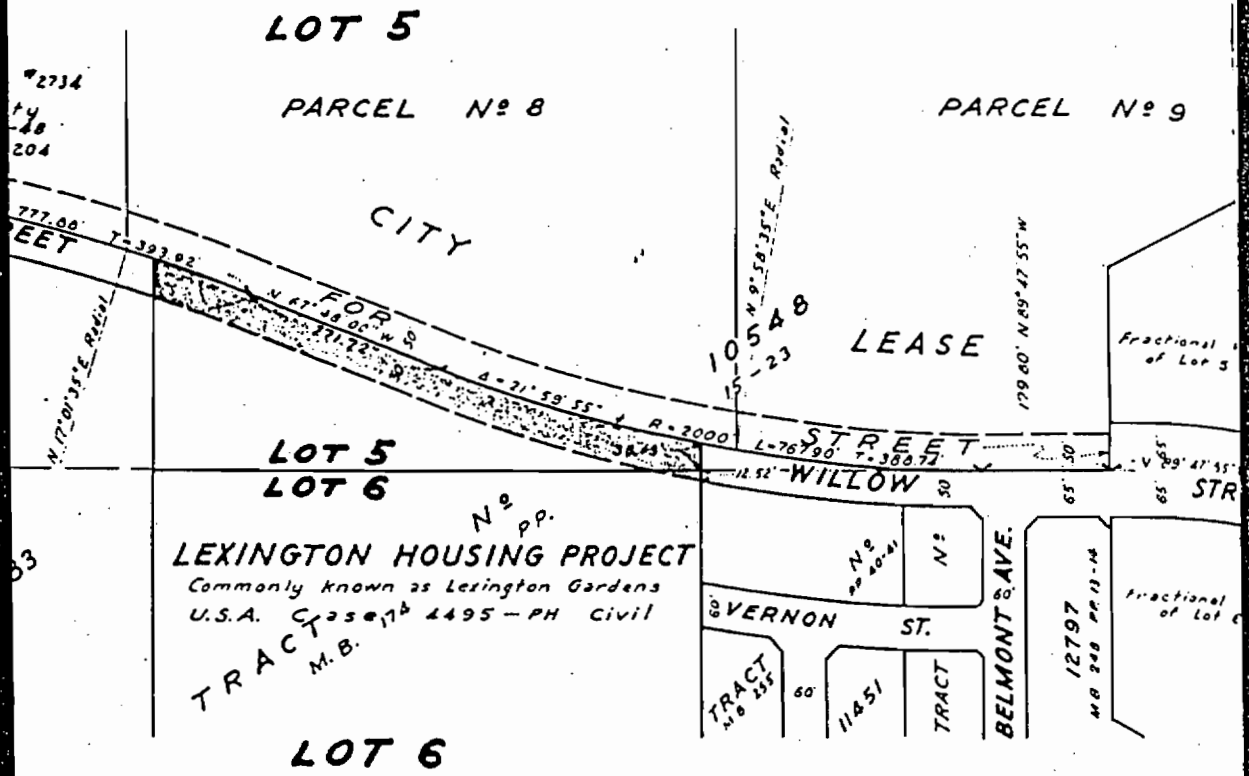
By Dan A. Kimball
Secretary of the Navy

DISTRICT OF COLUMBIA: to wit,

I, H. E. Sweney, a Notary Public in and for the said District, do hereby certify that Dan A. Kimball, party to that certain Grant of Easement bearing date of the 3rd day of September, 1952, and hereunto annexed, personally appeared before me in the said District the said Dan A. Kimball, being personally well known to me as the person who executed the said Grant of Easement, and acknowledged the same to be his act and deed. Given under my hand and seal this 3rd day of September, 1952.

H. E. Sweney
Notary Public
Commission Expires: 12/14/52

APPROVED AS TO FORM
October 10, 1952
IRVING M. SMITH, CITY ATTORNEY
BY John R. Nimocks
DEPUTY CITY ATTORNEY



JOB No 28.1

FIELD BOOK

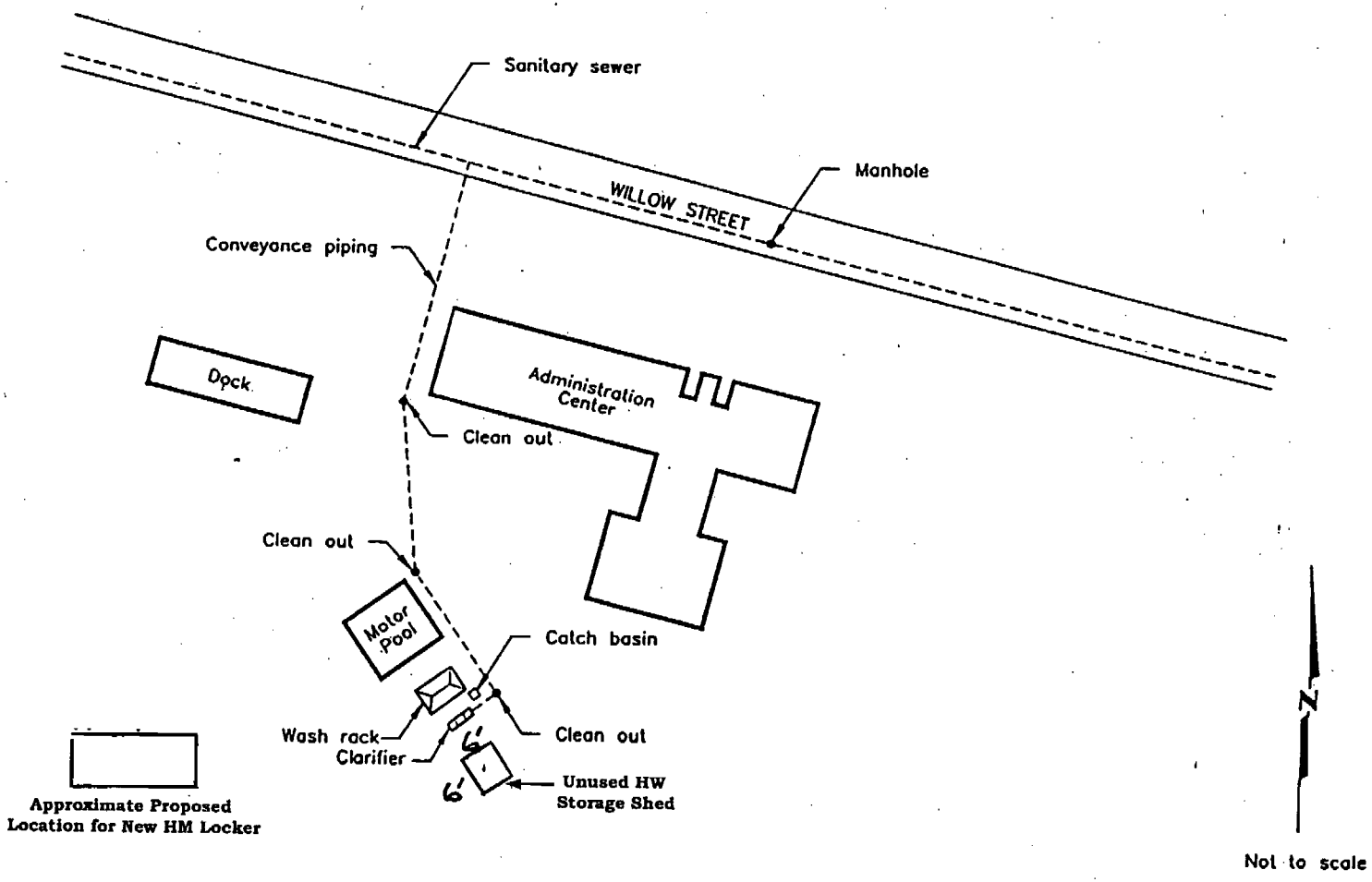
DESIGNED BY

DRAWN BY Coulter

CHECKED BY M.H. Houghton

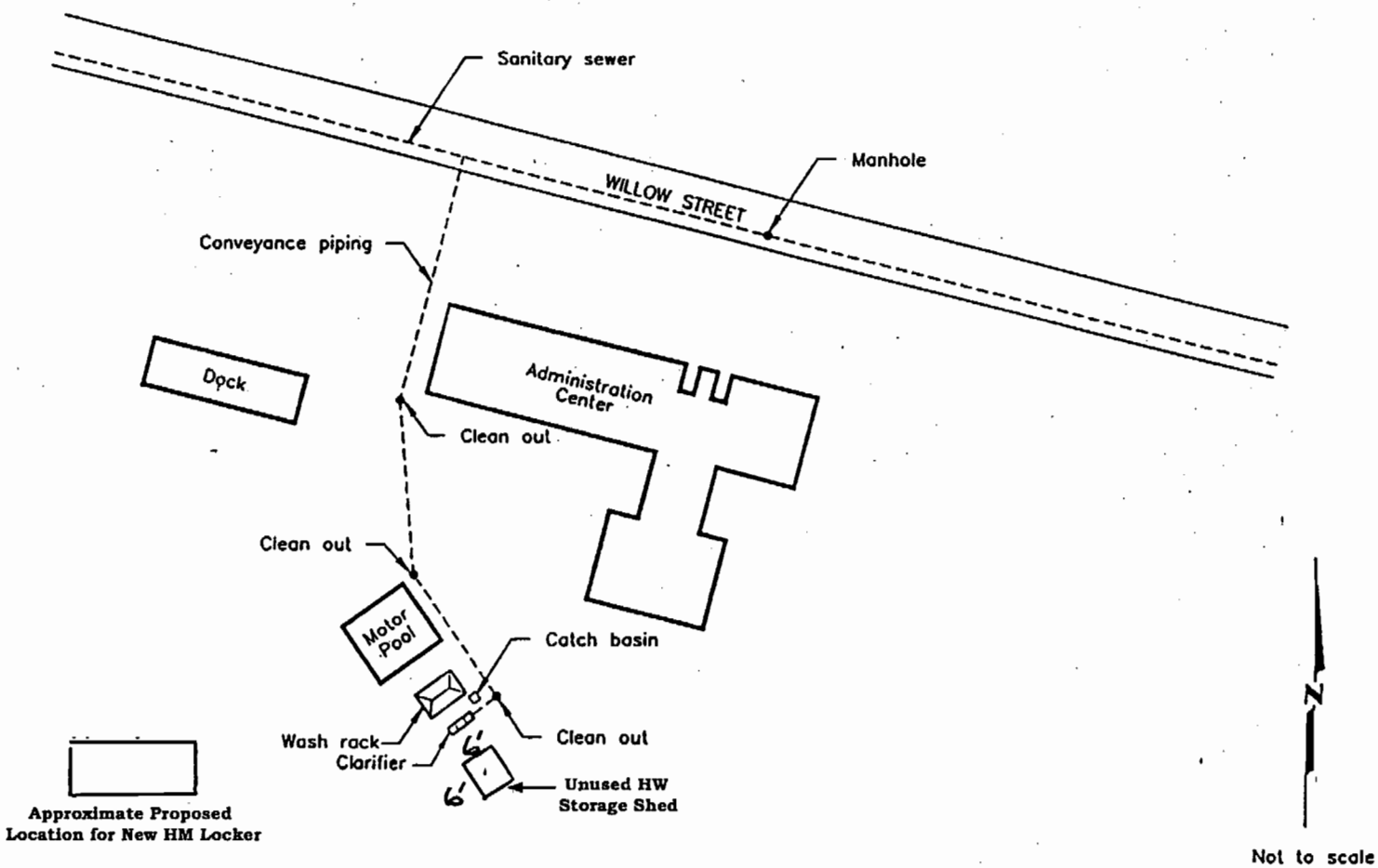
RECOMMENDED BY Chalmers Brown
DIVISION ENGINEER

Based on Site Visit
4/16/98
Bob Zimmermann



SITE MAP
Schroeder Hall Armed Forces Reserve Center
Long Beach, California

Based on site visit
4/16/98
Bob Zimmermann



SITE MAP
Schroeder Hall Armed Forces Reserve Center
Long Beach, California

SCOPE OF WORK

PROJECT: PRELIMINARY ASSESSMENT / SITE INVESTIGATION, USARC, Long Beach, CA

CONTRACT NO. DACW05-97-D-0035

CONTRACTOR: Brown & Caldwell, Sacramento, CA
A-E POC: David R. Jones (916) 444-0123

1. AUTHORITY: MIPR from AFRC-ENB, 10 Sep 98, Subject: USARC, Long Beach, Site 07, RI/FS. Prepare and Implement Workplan

2. PROJECT BACKGROUND: The Installation Action Plan for U.S. Army 63D Regional Support (RSC) Command, dated March 1998 has listed the Long Beach U.S. Army Reserve (USAR) Center site in the Restoration Program. Further characterization of the site is required to identify the presence or evidence of a release of possible environmental contamination.

3. SITE LOCATION AND DESCRIPTION: The project site is located at 3800 E. Willow Street in Long Beach, California. The site to be investigated is a field approximately 0.6 acres in size and a strip of land adjacent to the main administrative building where no vegetation has been observed since 1994. The maintenance activities at this Reserve Center were ceased in 1990. The field with the lack of vegetation is located southwest corner of the facility and is adjacent to two sides of the facility boundaries. The site has been rated as a low risk under the Relative Risk Site Evaluation and the results are summarized below:

4. PREVIOUS INVESTIGATIONS:

4.1 Preliminary Sampling dated January 1997: A soil sampling was conducted at the USAR Center in January 1997. Soil samples were collected near the parking lot, administrative buildings, and in the fields. A total of fourteen (14) samples were collected at a depth of approximately 1 feet below the ground surface. Samples were analyzed for total petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes. The data indicated the presence of total petroleum hydrocarbons at all locations with concentrations ranging from 5.8 ppm to 73.4 ppm.

4.2 Preliminary Assessment/Site Investigation Report dated June 1998: A total of 8 subsurface soil samples were collected from depths of approximately 3 to 5 feet bgs. Two background samples and one field duplicate were also collected from the subject site. The soil samples were analyzed for volatile and semi-volatile organic compounds, petroleum hydrocarbons, PCBs, and metals. Based on the analytical reports, fourteen metals were detected in the background and field soil samples. Total Extractable Petroleum Hydrocarbons was detected in one soil sample. The report recommended further evaluation of the site for presence of potential contamination. Results of these two sampling events are available from the 63D RSC POC.

5.0 DESCRIPTION OF WORK AND SERVICES: The Contractor shall provide all professional services required for preparation, coordination, and completion of the work as described below. All work must be conducted in compliance with applicable federal, state, or local regulations. The report shall consist of a PSA followed by the SI as a separate report if required.

1) Preliminary Site Assessment
2) Site Investigation (Optional Item)
   A) Engineering Evaluation/Cost Analysis
   B) Site Investigation Work Plan

C) Sampling Analysis Plan to include Field Sampling Plan and Quality Assurance Project Plan
D) Worker Health and Safety Plan
E) Site Sampling
F) Site Investigation Report
G) Hazard Ranking Scoring Package (if applicable)

5.1 Prepare Preliminary Site Assessment: A Preliminary Site Assessment (PSA) shall be conducted by the Contractor to evaluate the potential for contamination at the site. The PSA will consist of regulatory agency records search, interviews, reconnaissance (on and off installation), literature search, photo interpretation, and map studies. In addition, the report shall contain the following: facility description, evidence of releases, site description and characterization, potential targets, hazardous waste generation, storage, and disposal, hydrology, and hydrogeology, soil, regulatory actions, and history of land use/ownership. As a minimum the following will be included in the report:

a. Research the files at the 63D RSC Engineers Office, Long Beach USAR Center, and ACOE-Real Estate Section for relevant information.
b. A research of the historical land usage and records of the site so as to determine the types of chemicals that may need to be tested for in SI work. Assess any known past and present operations on-site and describe what effects these conditions would have on remediation.
c. A review of historical aerial photographs for the site.
d. Interview past and present employees of the subject site to determine the type of activity that was conducted at the facility.
e. Research the files at the appropriate regulatory agencies that may have relevant information. Review of adjacent land use and impacts on the subject site for at least one-mile. Show location of any nearby wells.
f. Soil classification, groundwater depth, flow direction, geological information, etc. should be provided.
g. Conduct a site inspection of the site and list observations made at the site. Coordinate and inspect with the Project Manager of the 63D RSC Engineers Office - Environmental Division who has been assigned to work on the project.
h. A site map showing location of all areas of concern including storm/sanitary sewer lines, buildings etc. must be provided. Also identify and describe the location of any sensitive populations (schools, hospitals, etc.) within one quarter mile of the site.

Provide the PSA report in accordance with U.S. Environmental Protection Agency (EPA) guidance. The Contractor shall include recommendations for further actions that are necessary before the next phase (site investigation) can be accomplished.

5.2 Site Investigation (Option): The Contractor shall prepare and perform all work necessary to accomplish the Site Investigation (SI) phase of the Department of Defense (DoD) Installation Restoration Program. Based on knowledge obtained from the PSA, the Contractor shall prepare a Work Plan covering the actions described in the PSA. The following reports shall be submitted as part of the SI: SI work plan, Sampling Analysis Plan (including a Field Sampling Plan and Quality Assurance Project Plan, Worker Health and Safety Plan, site sampling, and the SI Report. Also, the contractor shall provide conclusions whether a No Further Action (NFA) or a Remedial Investigation/Feasibility Study (RI/FS) is warranted.

5.2.1 Engineering Evaluation/Cost Analysis (Option): The Contractor shall complete an Engineering Evaluation/Cost Analysis (EE/CA) for the above SI pursuant to U.S. EPA guidance. The EE/CA shall consist of site description; source, nature and extent of contamination; Site Investigation objectives scope and schedule; and analysis of effectiveness, implementation and cost.

5.2.2 Site Investigation Work Plan (Option): The contractor shall prepare a SI work plan describing the proposed site investigation work in detail. The work plan shall include the proposed work items, scaled drawings of the site, and incorporate the Sampling Analysis Plan to document chain of custody, proposed data quality objectives, sampling methods, confirmatory samples, quality assurance and quality control (QA/QC),

equipment decontamination. Other methods to protect the environment during the work such as surface waters, site restoration, and waste disposal also shall be documented.

5.2.3 Sampling Analysis Plan ~~(Option)~~ The Sampling Analysis Plan (SAP) will contain the following information: site background, sampling objectives (location and purpose), location, designation and frequency of samples, sampling equipment and procedures, and sampling handling and analysis.

The Field Sampling Plan (FSP) should describe the number, type, and location of samples, types of analyses, and decontamination procedures. It should also identify the personnel performing each task. The plan should be based on the types of hazardous materials expected and their potential off-site migration routes.

The Quality Assurance Project Plan (QAPP) presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities to ensure the validity of analytical data generated during project execution.

5.2.4 Health and Safety Plan ~~(Option)~~ The Contractor shall complete a Health and Safety Plan (HSP) that complies with state and Federal OSHA regulations. The plan must contain information about known or suspected hazards; routine and special safety procedures that will need to be followed; and other instructions for safeguarding the health and safety of site personnel, visitors, and emergency responders.

5.2.5 Soil Sampling/Analysis (Option):

The Contractor shall use a hollow stem auger drill rig or direct push rig to drill borings for collection of subsurface soil samples for laboratory analysis. Boring locations shall be proposed in the FSP, logged for stratigraphy, and recorded on bore log sheets. QC samples shall be an additional 10% of primary samples. An additional 10% of primary samples shall be collected and shipped to the QA laboratory.

Soil samples shall be collected, packaged, shipped and analyzed in accordance with appropriate regulations. Before drilling, the Contractor shall locate utilities with magnetometer/pipe locator and identify on pavement or ground surface with paint. In addition, drilling locations shall be cleared through Underground Service Alert, and necessary permits shall be obtained from the County. The Contractor shall locate all soil borings and surface soil samples on a scaled map showing existing structures. The Contractor shall complete field notes pertaining to sampling and site assessment work for this scope of work. The Contractor shall provide a summary of the sampling laboratory results in tables and on scaled maps for distribution in a letter report.

Drill four (4) borings up to 25 feet deep for the site. Collect subsurface soil samples from the borings at 5-foot intervals, starting at 1-foot bgs. Changes in stratigraphy or changes in soil color/discoloring are noted. Screen soil samples for contamination with PID/FID and select a total of 24 soil samples for laboratory analysis. After sampling, borings shall be filled with a cement-bentonite slurry.

SOIL SAMPLES

SAMPLE DEPTHS	EPA LAB METHODS	QUANTITY
1' – 25'	CAM 17 Metals 8015M - TPH G/D Chlorinated Herbicides EPA 8080 Nitrates as Nitrogen EPA 300.0	24

5.5 Site Investigation Report (Option):

The SI report should describe the site investigation in detail in accordance with U.S. EPA guidance and DoD requirements. The SI is to augment the data collected in the RRSE to generate sampling and other field data to determine if further action or investigation is appropriate and identify whether the USAR Center Long Beach site qualify for the Restoration Program. The SI should contain enough data to characterize the site and its environment and provide physical environmental samples for analysis.

The preparation of the SI report requires that sufficient information be collected to define present and past waste operations and site conditions resulting from waste operations. The results documented in the report should at a minimum: define the source and nature of the release; and provide conclusions whether a NFA or a RI/FS is warranted.

6.0 MEETINGS: The Contractor shall attend a total of 2 meetings at the 63D RSC Office at Los Alamitos, California to discuss the PSA and SI phase, document submittals, comment reviews and the scope of work in general. The Contractor shall summarize the minutes of each meeting and provide copies to the 63D RSC Project Manager.

7.0 DOCUMENT SUBMITTAL, REVIEW, AND FORMAT:

Document submittal shall consist of a Draft PSA, followed by a SI (Optional Item) as a separate report, if required. Final submittal for the reports is required under this scope of work. After the review periods, the Contractor shall revise the draft documents to make corrections to the work and shall include a written response to comments. There will be a two-week review period allowed for each document submittal. For each document submittal, the Contractor shall have time as stated below to address review comments and produce a final document. Final documents shall incorporate all authorized revisions.

The Contractor shall provide all professional services required for and related to the preparation, coordination and completion of the work as described herein. All documents, including reports and work plans, shall be submitted on 8 1/2 inch by 11 inch white bond paper and neatly bound. Two copies of Draft Report for each individual site are to be provided. It is preferred to have the Draft Reports double-sided. It is preferred that all final documents be bound in a three-ring binder. Three copies of Final Report are to be provided. Drawings should be sized to clearly show the information being presented. Whenever possible, drawings should be folded to fit the 8 1/2 inch by 11 inch format. Larger drawings should fit in a pocket bound into each document. Electronic copies of the report shall be provided in Microsoft Office 97 software programs to the 63D RSC.

The 63D RSC point of contact (POC) will be provided a brief and concise monthly progress report until the project is complete. The report shall address the schedule of the project and any delays/problems that may be encountered with the work. The purpose of the report is to keep the POC fully apprised of all factors affecting the performance of the work.

8.0 DOCUMENT REPRODUCTION AND DISTRIBUTION: The Contractor shall furnish copies of the documents required by this scope of work, including reports and work plans, as well as technical submittals, to the address listed below and in the quantities shown in the Document Submittal Distribution/Schedule.

<u>63D RSC</u> - Commander, 63D RSC
AFRC-CCA-EN, Bldg. 7
Attn.: Ms. Shyamala Sundaram
P.O. Box 3001
Los Alamitos, CA 90720-1301
Phone: (562) 795-1442, Fax: (562) 795-1499

SEP 28 '98 10:45AM CESPK-ED P.5/10

9.0 GENERAL REQUIREMENTS.: The Contractor is cautioned to take no guidance from any source other than the Contracting Officer during the course of this work which deviates from the requirements stated in this scope of work. The Contractor shall immediately notify the Sacramento District Technical Manager or Contracting Officer of any such request. The A-E shall not deviate from the requirements stated in this scope of work without first notifying the Sacramento District Technical Manager.

10.0 PERIOD OF SERVICE: All work and services included in this scope of work shall be performed and submitted in accordance with the schedule specified in Section: Document Submittal, Review, and Format. The PSA shall be completed within 90 days after receipt of Notice of Proceed. The Optional Item (SI) may be awarded by the government any time within 120 days after award of the basic contract, and shall be completed within 120 days after notification of the option award. All work under this scope of work shall be completed within 270 days after receipt of NTP.

Richard Haavisto

Richard Haavisto
Technical Manager
Envr Engr Br

Department of Toxic Substances Control

Jesse R. Huff, Director
5796 Corporate Avenue
Cypress, California 90630

Pete Wilson
Governor

Peter M. Rooney
Secretary for
Environmental
Protection

July 20, 1998

Mr. Jeffery B. Armentrout
Technical Manager
Installation Support Section
Department of The Army
Los Angeles District
Corps of Engineers
911 Wilshire Boulevard
Los Angeles, California 90017-3401

Dear Mr. Armentrout:

PRELIMINARY ASSESSMENT/SITE INVESTIGATION (PA/SI) FOR UNITED STATES ARMY RESERVE CENTER, LONG BEACH, CALIFORNIA

The Department of Toxic Substances Control (DTSC) reviewed the above-referenced document, dated June 1998 and received on July 14, 1998. DTSC was unable to adequately evaluate the PA/SI results without the following qualitative and quantitative data gaps:

1. The qualitative data lacking is the background information on the facility historical usage and past operational activities. This qualitative information is important in identifying the potential sampling locations and in performing a reality-check during the analytical data evaluation and interpretation of the targeted potential chemical of concerns.

2. The quantitative information lacking is the surface soil samples, subsurface soil sample, from five to ten feet depth, and groundwater parameters. Additionally, the sample quantitation reporting limit greater than the preliminary remediation goals screening numbers is unacceptable.

DTSC disagrees with the report's conclusion that it appears that no additional sampling may be necessary. Additional soil sampling is required to delineate the vertical and lateral soil contamination and to evaluate the soil contamination potential on groundwater. However, we concur with the recommendation to further evaluate the presence of potential contamination based on additional surface soil and deeper subsurface soil sampling, historical use and past practices, site geology and depth to groundwater.

If the PA/SI workplan contained the information on the historical usage and past operational activities, please submit a copy of the workplan within two weeks of receipt of this letter. This will enable DTSC to reevaluate the PA/SI report and to provide a focused comment on the PA/SI results.

If you have any questions regarding this letter, please feel free to contact me at (714) 484-5452.

Sincerely,

Omoruyi Patrick
Remedial Project Manager
Federal Facilities Unit A
Southern California Operations
Office of Military Facilities

REPORT

TRUESDAIL LABORATORIES, INC.

CHEMISTS · MICROBIOLOGISTS · ENGINEERS
RESEARCH · DEVELOPMENT · TESTING
ESTABLISHED 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780
(714) 730-6239
FAX (714) 730-6462

February 19, 1997

U.S. Army Engineer District, Sacramento
1325 J Street
Sacramento, Calif. 95814-2922

Attention: Rich Haavisto

RE: Soil analysis at the Long Beach USAR Center

Truesdail Laboratories has completed the soil sampling investigation at your facility located in Long Beach, CA. Please find enclosed the analytical report and a site map indicating soil sample locations. All samples were collected at a depth around 12 inches below the surface. All sampling equipment was cleaned and decontaminated between sample locations to prevent cross contamination.

The data indicates the presence of petroleum hydrocarbons at all sites in a range from 5.8 to 73.4 ppm. These petroleum hydrocarbons are higher molecular weight components, probably oil or oil related compounds. Gasoline and diesel were not detected at concentrations above the detection limit of 0.5 ppm. Toluene was detected by EPA 8020.in the dirt area defined by soil sample #2 & 3 in the east parking lot and soil sample #4, 5, 6, and 7 adjacent to the Administration building.

If you have any questions please call at your convenience.

Sincerely
TRUESDAIL LABORATORIES, INC.

Stephen C. Roesch
Chief Scientist, Manager
Environmental Services

REGISTERED ENVIRONMENTAL ASSESSOR
STEPHEN C. ROESCH
No. 00245
STATE OF CALIFORNIA

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising of publicity matter without prior written authorization from these Laboratories.

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CLIENT: US Army Engineer District, Sacramento
1325 J. Street
Sacramento, CA 95814-2922
Attention: Rich Haavisto

DATE: Feb. 19, 1997

RECEIVED: Jan. 31, 1997

LABORATORY NO.: 400493

SAMPLE: Soil samples collected at Long Beach USAR Center
Date Sampled: 1/31/97

INVESTIGATION: TOTAL PETROLEUM HYDROCARBONS, BENZENE, TOLUENE, ETHYLBENZENE AND XYLENES

RESULTS

Milligrams per Kilogram

SAMPLE I.D.	*TPHC EPA 8015M	*TPHC EPA 418.1	BENZENE EPA 8020	ETHYLBENZENE EPA 8020	TOLUENE EPA 8020	XYLENES EPA 8020
1.	ND	5.8	ND	ND	ND	ND
2.	ND	9.0	ND	ND	0.059	ND
3.	ND	9.3	ND	ND	0.037	ND
4.	ND	15.7	ND	ND	0.053	ND
5.	ND	16.6	ND	ND	0.044	ND
6.	ND	14.6	ND	ND	0.063	ND
7.	ND	9.5	ND	ND	0.058	ND
8.	ND	15.2	ND	ND	ND	ND
9.	ND	6.7	ND	ND	ND	ND
10.	ND	5.9	ND	ND	ND	ND
11.	ND	73.4	ND	ND	ND	ND
12.	ND	12.3	ND	ND	ND	ND
13.	ND	7.4	ND	ND	ND	ND
14.	ND	9.2	ND	ND	ND	ND
DET. LIMIT:	0.5	2.0	0.01	0.01	0.01	0.01

ND = Not detected, below detection limit.
*Total Petroleum Hydrocarbons

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Divina B. Pascual, Project Manager
Water and Waste Laboratory

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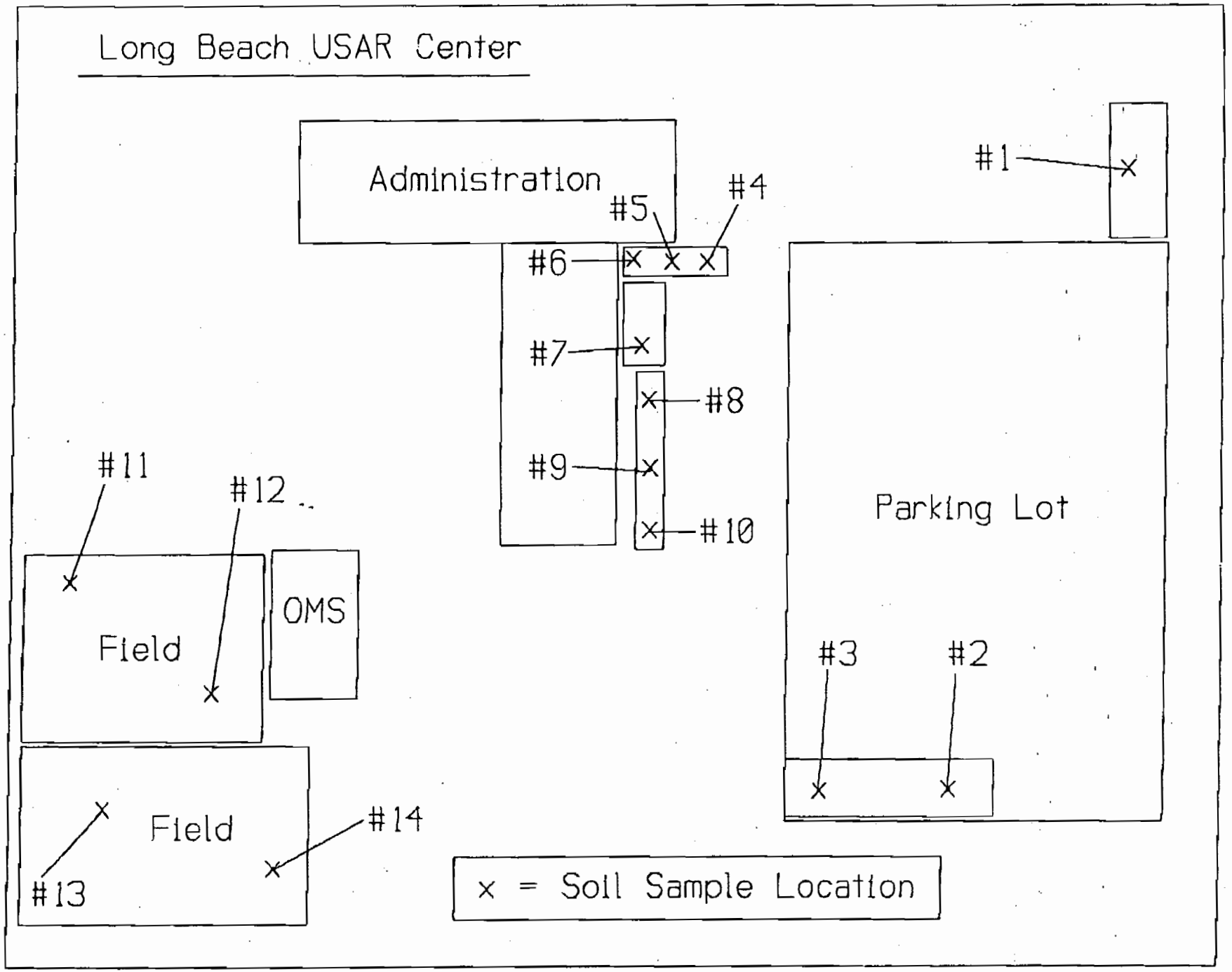
Long Beach USAR Center
Administration
#1
#2
#3
#4
#5
#6
#7
#8
#9
#10
#11
#12
#13
#14
Parking Lot
Field
Field
OMS
x = Soil Sample Location

REPORT

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REGISTERED ENVIRONMENTAL ASSESSOR
STEPHEN C. ROESCH
No. 00265
STATE OF CALIFORNIA

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Attention: Rich Haavisto

DATE: Feb. 19, 1997

RECEIVED: Jan. 31, 1997

LABORATORY NO.: 400493

SAMPLE: Soil samples collected at Long Beach USAR Center
Date Sampled: 1/31/97

INVESTIGATION: TOTAL PETROLEUM HYDROCARBONS, BENZENE, TOLUENE, ETHYLBENZENE AND XYLENES

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4.	ND	15.7	ND	ND	0.053	ND
5.	ND	16.6	ND	ND	0.044	ND
6.	ND	14.6	ND	ND	0.063	ND
7.	ND	9.5	ND	ND	0.058	ND
8.	ND	15.2	ND	ND	ND	ND
9.	ND	6.7	ND	ND	ND	ND
10.	ND	5.9	ND	ND	ND	ND
11.	ND	73.4	ND	ND	ND	ND
12.	ND	12.3	ND	ND	ND	ND
13.	ND	7.4	ND	ND	ND	ND
14.	ND	9.2	ND	ND	ND	ND
DET. LIMIT:	0.5	2.0	0.01	0.01	0.01	0.01

ND = Not detected, below detection limit.
*Total Petroleum Hydrocarbons

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Divina B. Pascual, Project Manager
Water and Waste Laboratory

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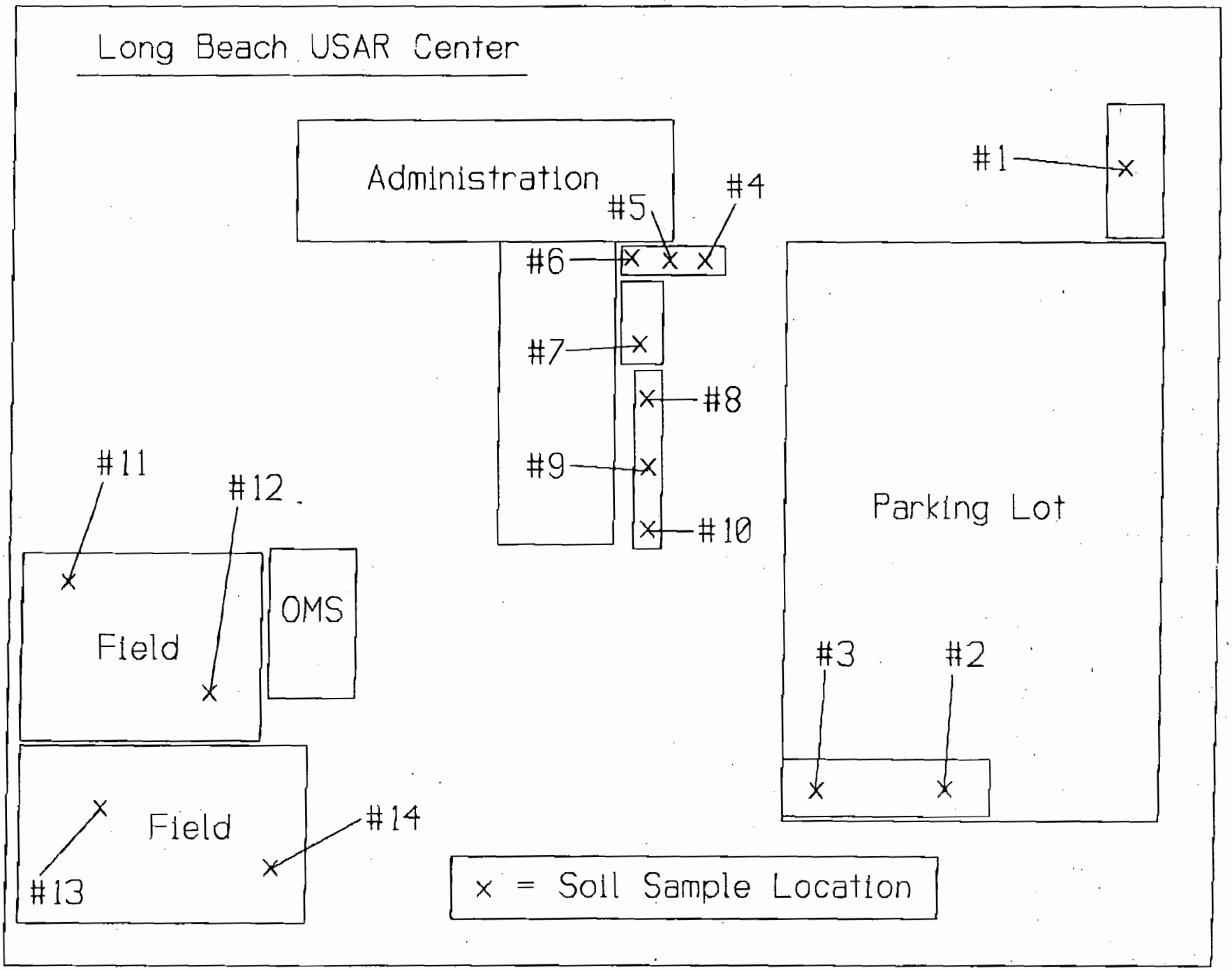
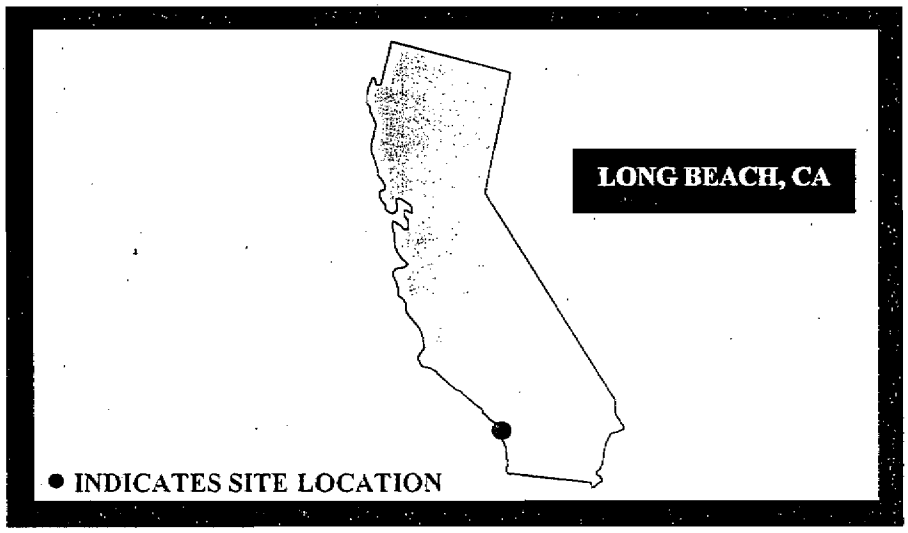

Long Beach USAR Center
Administration
#1
#2
#3
#4
#5
#6
#7
#8
#9
#10
#11
#12
#13
#14
Parking Lot
Field
OMS
Field
x = Soil Sample Location

SITE 07
USARC LONG BEACH
FIELD WITH NO GROWTH

SITE DESCRIPTION

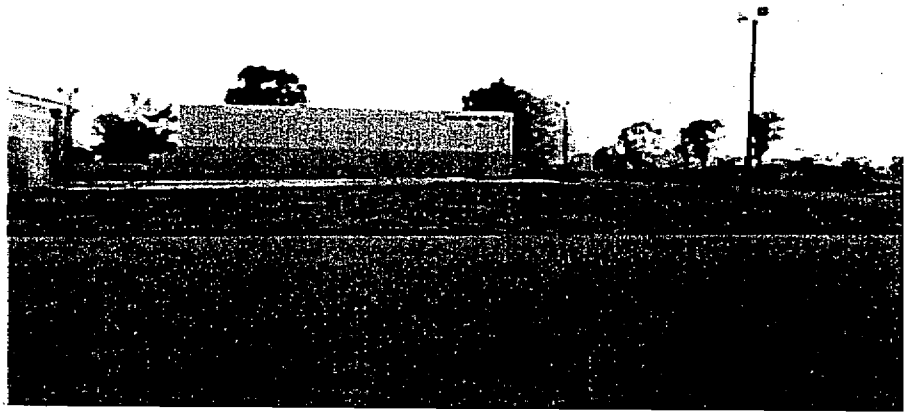
This site is a field approximately 0.6 acres in size and a strip of land near the administrative building where no vegetation has been observed since 1994. The facility that this site is located at is a former Operational Maintenance Site (OMS). The maintenance activities at this facility stopped in 1990.

This field is located in the southwest corner of the facility. This field is adjacent to two sides of the facilities boundaries.



PROPOSED PLAN

Further characterization of this site is required. A remedial alternative will be developed when the RI is completed.

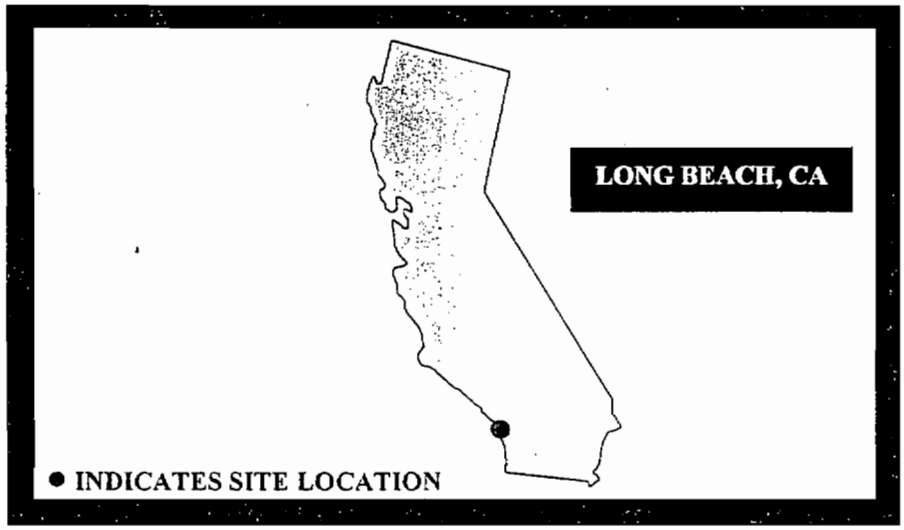


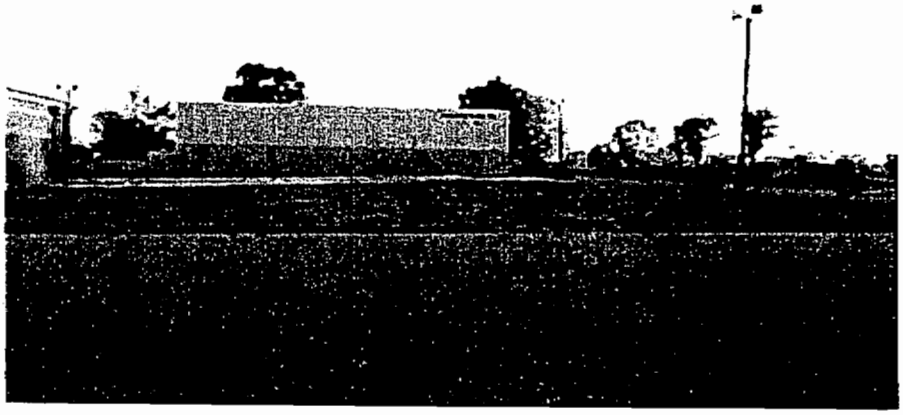
SITE 07
USARC LONG BEACH
FIELD WITH NO GROWTH

SITE DESCRIPTION

This site is a field approximately 0.6 acres in size and a strip of land near the administrative building where no vegetation has been observed since 1994. The facility that this site is located at is a former Operational Maintenance Site (OMS). The maintenance activities at this facility stopped in 1990.

This field is located in the southwest corner of the facility. This field is adjacent to two sides of the facilities boundaries.





PROPOSED PLAN

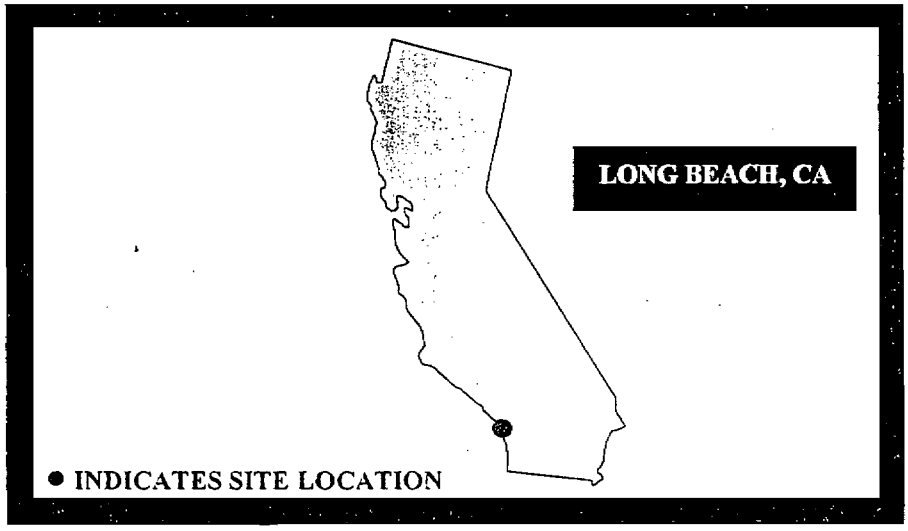
Further characterization of this site is required. A remedial alternative will be developed when the RI is completed.

SITE 07
USARC LONG BEACH
FIELD WITH NO GROWTH

SITE DESCRIPTION

This site is a field approximately 0.6 acres in size and a strip of land near the administrative building where no vegetation has been observed since 1994. The facility that this site is located at is a former Operational Maintenance Site (OMS). The maintenance activities at this facility stopped in 1990.

This field is located in the southwest corner of the facility. This field is adjacent to two sides of the facilities boundaries.



PROPOSED PLAN

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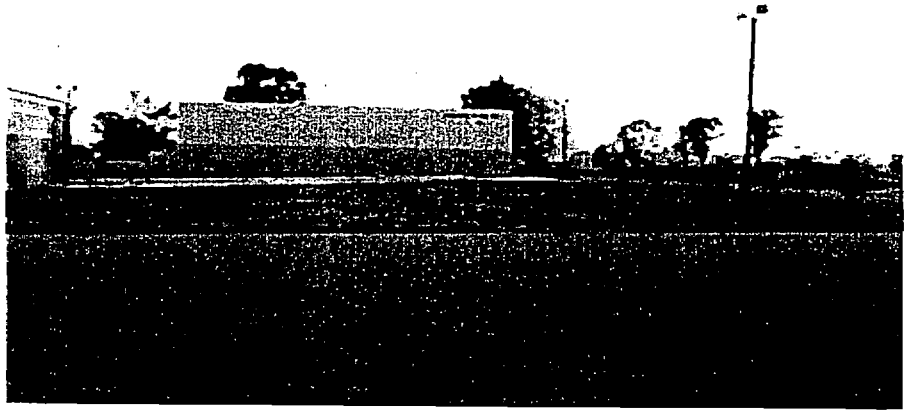

SCOPE OF WORK

PROJECT: PRELIMINARY ASSESSMENT / SITE INVESTIGATION, USARC, Long Beach, CA

CONTRACT NO. DACW05-97-D-0035

CONTRACTOR: Brown & Caldwell, Sacramento, CA
A-E POC: David R. Jones (916) 444-0123

1. AUTHORITY: MIPR from AFRC-ENB, 10 Sep 98, Subject: USARC, Long Beach, Site 07, RI/FS. Prepare and Implement Workplan

2. PROJECT BACKGROUND: The Installation Action Plan for U.S. Army 63D Regional Support (RSC) Command, dated March 1998 has listed the Long Beach U.S. Army Reserve (USAR) Center site in the Restoration Program. Further characterization of the site is required to identify the presence or evidence of a release of possible environmental contamination.

3. SITE LOCATION AND DESCRIPTION: The project site is located at 3800 E. Willow Street in Long Beach, California. The site to be investigated is a field approximately 0.6 acres in size and a strip of land adjacent to the main administrative building where no vegetation has been observed since 1994. The maintenance activities at this Reserve Center were ceased in 1990. The field with the lack of vegetation is located southwest corner of the facility and is adjacent to two sides of the facility boundaries. The site has been rated as a low risk under the Relative Risk Site Evaluation and the results are summarized below:

4. PREVIOUS INVESTIGATIONS:

4.1 Preliminary Sampling dated January 1997: A soil sampling was conducted at the USAR Center in January 1997. Soil samples were collected near the parking lot, administrative buildings, and in the fields. A total of fourteen (14) samples were collected at a depth of approximately 1 feet below the ground surface. Samples were analyzed for total petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes. The data indicated the presence of total petroleum hydrocarbons at all locations with concentrations ranging from 5.8 ppm to 73.4 ppm.

4.2 Preliminary Assessment/Site Investigation Report dated June 1998: A total of 8 subsurface soil samples were collected from depths of approximately 3 to 5 feet bgs. Two background samples and one field duplicate were also collected from the subject site. The soil samples were analyzed for volatile and semi-volatile organic compounds, petroleum hydrocarbons, PCBs, and metals. Based on the analytical reports, fourteen metals were detected in the background and field soil samples. Total Extractable Petroleum Hydrocarbons was detected in one soil sample. The report recommended further evaluation of the site for presence of potential contamination. Results of these two sampling events are available from the 63D RSC POC.

5.0 DESCRIPTION OF WORK AND SERVICES: The Contractor shall provide all professional services required for preparation, coordination, and completion of the work as described below. All work must be conducted in compliance with applicable federal, state, or local regulations. The report shall consist of a PSA followed by the SI as a separate report if required.

1) Preliminary Site Assessment
2) Site Investigation (Optional Item)
   A) Engineering Evaluation/Cost Analysis
   B) Site Investigation Work Plan

C) Sampling Analysis Plan to include Field Sampling Plan and Quality Assurance Project Plan
D) Worker Health and Safety Plan
E) Site Sampling
F) Site Investigation Report
G) Hazard Ranking Scoring Package (if applicable)

5.1 Prepare Preliminary Site Assessment: A Preliminary Site Assessment (PSA) shall be conducted by the Contractor to evaluate the potential for contamination at the site. The PSA will consist of regulatory agency records search, interviews, reconnaissance (on and off installation), literature search, photo interpretation, and map studies. In addition, the report shall contain the following: facility description, evidence of releases, site description and characterization, potential targets, hazardous waste generation, storage, and disposal, hydrology, and hydrogeology, soil, regulatory actions, and history of land use/ownership. As a minimum the following will be included in the report:

a. Research the files at the 63D RSC Engineers Office, Long Beach USAR Center, and ACOE-Real Estate Section for relevant information.
b. A research of the historical land usage and records of the site so as to determine the types of chemicals that may need to be tested for in SI work. Assess any known past and present operations on-site and describe what effects these conditions would have on remediation.
c. A review of historical aerial photographs for the site.
d. Interview past and present employees of the subject site to determine the type of activity that was conducted at the facility.
e. Research the files at the appropriate regulatory agencies that may have relevant information. Review of adjacent land use and impacts on the subject site for at least one-mile. Show location of any nearby wells.
f. Soil classification, groundwater depth, flow direction, geological information, etc. should be provided.
g. Conduct a site inspection of the site and list observations made at the site. Coordinate and inspect with the Project Manager of the 63D RSC Engineers Office - Environmental Division who has been assigned to work on the project.
h. A site map showing location of all areas of concern including storm/sanitary sewer lines, buildings etc. must be provided. Also identify and describe the location of any sensitive populations (schools, hospitals, etc.) within one quarter mile of the site.

Provide the PSA report in accordance with U.S. Environmental Protection Agency (EPA) guidance. The Contractor shall include recommendations for further actions that are necessary before the next phase (site investigation) can be accomplished.

5.2 Site Investigation (Option): The Contractor shall prepare and perform all work necessary to accomplish the Site Investigation (SI) phase of the Department of Defense (DoD) Installation Restoration Program. Based on knowledge obtained from the PSA, the Contractor shall prepare a Work Plan covering the actions described in the PSA. The following reports shall be submitted as part of the SI: SI work plan, Sampling Analysis Plan (including a Field Sampling Plan and Quality Assurance Project Plan, Worker Health and Safety Plan, site sampling, and the SI Report. Also, the contractor shall provide conclusions whether a No Further Action (NFA) or a Remedial Investigation/Feasibility Study (RI/FS) is warranted.

5.2.1 Engineering Evaluation/Cost Analysis (Option): The Contractor shall complete an Engineering Evaluation/Cost Analysis (EE/CA) for the above SI pursuant to U.S. EPA guidance. The EE/CA shall consist of site description; source, nature and extent of contamination; Site Investigation objectives scope and schedule; and analysis of effectiveness, implementation and cost.

5.2.2 Site Investigation Work Plan (Option): The contractor shall prepare a SI work plan describing the proposed site investigation work in detail. The work plan shall include the proposed work items, scaled drawings of the site, and incorporate the Sampling Analysis Plan to document chain of custody, proposed data quality objectives, sampling methods, confirmatory samples, quality assurance and quality control (QA/QC),

equipment decontamination. Other methods to protect the environment during the work such as surface waters, site restoration, and waste disposal also shall be documented.

5.2.3 Sampling Analysis Plan ~~(Option)~~: The Sampling Analysis Plan (SAP) will contain the following information: site background, sampling objectives (location and purpose), location, designation and frequency of samples, sampling equipment and procedures, and sampling handling and analysis.

The Field Sampling Plan (FSP) should describe the number, type, and location of samples, types of analyses, and decontamination procedures. It should also identify the personnel performing each task. The plan should be based on the types of hazardous materials expected and their potential off-site migration routes.

The Quality Assurance Project Plan (QAPP) presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities to ensure the validity of analytical data generated during project execution.

5.2.4 Health and Safety Plan ~~(Option)~~: The Contractor shall complete a Health and Safety Plan (HSP) that complies with state and Federal OSHA regulations. The plan must contain information about known or suspected hazards; routine and special safety procedures that will need to be followed; and other instructions for safeguarding the health and safety of site personnel, visitors, and emergency responders.

5.2.5 Soil Sampling/Analysis (Option):

The Contractor shall use a hollow stem auger drill rig or direct push rig to drill borings for collection of subsurface soil samples for laboratory analysis. Boring locations shall be proposed in the FSP, logged for stratigraphy, and recorded on bore log sheets. QC samples shall be an additional 10% of primary samples. An additional 10% of primary samples shall be collected and shipped to the QA laboratory.

Soil samples shall be collected, packaged, shipped and analyzed in accordance with appropriate regulations. Before drilling, the Contractor shall locate utilities with magnetometer/pipe locator and identify on pavement or ground surface with paint. In addition, drilling locations shall be cleared through Underground Service Alert, and necessary permits shall be obtained from the County. The Contractor shall locate all soil borings and surface soil samples on a scaled map showing existing structures. The Contractor shall complete field notes pertaining to sampling and site assessment work for this scope of work. The Contractor shall provide a summary of the sampling laboratory results in tables and on scaled maps for distribution in a letter report.

Drill four (4) borings up to 25 feet deep for the site. Collect subsurface soil samples from the borings at 5-foot intervals, starting at 1-foot bgs. Changes in stratigraphy or changes in soil color/discoloring are noted. Screen soil samples for contamination with PID/FID and select a total of 24 soil samples for laboratory analysis. After sampling, borings shall be filled with a cement-bentonite slurry.

SOIL SAMPLES

SAMPLE DEPTHS	EPA LAB METHODS	QUANTITY
1' – 25'	CAM 17 Metals 8015M - TPH G/D Chlorinated Herbicides EPA 8080 Nitrates as Nitrogen EPA 300.0	24

5.5 Site Investigation Report (Option):

The SI report should describe the site investigation in detail in accordance with U.S. EPA guidance and DoD requirements. The SI is to augment the data collected in the RRSE to generate sampling and other field data to determine if further action or investigation is appropriate and identify whether the USAR Center Long Beach site qualify for the Restoration Program. The SI should contain enough data to characterize the site and its environment and provide physical environmental samples for analysis.

The preparation of the SI report requires that sufficient information be collected to define present and past waste operations and site conditions resulting from waste operations. The results documented in the report should at a minimum: define the source and nature of the release; and provide conclusions whether a NFA or a RI/FS is warranted.

6.0 MEETINGS: The Contractor shall attend a total of 2 meetings at the 63D RSC Office at Los Alamitos, California to discuss the PSA and SI phase, document submittals, comment reviews and the scope of work in general. The Contractor shall summarize the minutes of each meeting and provide copies to the 63D RSC Project Manager.

7.0 DOCUMENT SUBMITTAL, REVIEW, AND FORMAT:

Document submittal shall consist of a Draft PSA, followed by a SI (Optional Item) as a separate report, if required. Final submittal for the reports is required under this scope of work. After the review periods, the Contractor shall revise the draft documents to make corrections to the work and shall include a written response to comments. There will be a two-week review period allowed for each document submittal. For each document submittal, the Contractor shall have time as stated below to address review comments and produce a final document. Final documents shall incorporate all authorized revisions.

The Contractor shall provide all professional services required for and related to the preparation, coordination and completion of the work as described herein. All documents, including reports and work plans, shall be submitted on 8 1/2 inch by 11 inch white bond paper and neatly bound. Two copies of Draft Report for each individual site are to be provided. It is preferred to have the Draft Reports double-sided. It is preferred that all final documents be bound in a three-ring binder. Three copies of Final Report are to be provided. Drawings should be sized to clearly show the information being presented. Whenever possible, drawings should be folded to fit the 8 1/2 inch by 11 inch format. Larger drawings should fit in a pocket bound into each document. Electronic copies of the report shall be provided in Microsoft Office 97 software programs to the 63D RSC. CAD - Drawing
2 CDs - Final

The 63D RSC point of contact (POC) will be provided a brief and concise monthly progress report until the project is complete. The report shall address the schedule of the project and any delays/problems that may be encountered with the work. The purpose of the report is to keep the POC fully apprised of all factors affecting the performance of the work.

8.0 DOCUMENT REPRODUCTION AND DISTRIBUTION: The Contractor shall furnish copies of the documents required by this scope of work, including reports and work plans, as well as technical submittals, to the address listed below and in the quantities shown in the Document Submittal Distribution/Schedule.

<u>63D RSC</u> - Commander, 63D RSC
AFRC-CCA-EN, Bldg. 7
Attn.: Ms. Shyamala Sundaram
P.O. Box 3001
Los Alamitos, CA 90720-1301
Phone: (562) 795-1442, Fax: (562) 795-1499

SEP 28 '98 10:45AM CESPK-ED P.5/10

9.0 GENERAL REQUIREMENTS.: The Contractor is cautioned to take no guidance from any source other than the Contracting Officer during the course of this work which deviates from the requirements stated in this scope of work. The Contractor shall immediately notify the Sacramento District Technical Manager or Contracting Officer of any such request. The A-E shall not deviate from the requirements stated in this scope of work without first notifying the Sacramento District Technical Manager.

10.0 PERIOD OF SERVICE: All work and services included in this scope of work shall be performed and submitted in accordance with the schedule specified in Section: Document Submittal, Review, and Format. The PSA shall be completed within 90 days after receipt of Notice of Proceed. The Optional Item (SI) may be awarded by the government any time within 120 days after award of the basic contract, and shall be completed within 120 days after notification of the option award. All work under this scope of work shall be completed within 270 days after receipt of NTP.

Richard Haavisto

Richard Haavisto
Technical Manager
Envr Engr Br

BROWN AND
CALDWELL

October 30, 1998

Ms. Shyamala Sundaram
63D Regional Support Command
AFRC-CCA-EN, Building 7
P.O. Box 3001
Los Alamitos, CA 90720-1301

44/17223/3

Subject: **Meeting Minutes, Kickoff Meeting for PA/SI**
USARC Long Beach, Site 07;
Contract DACW05-97-D-0035/0006

Dear Ms. Sundaram:

Attached to this letter are meeting minutes for the October 22, 1998 Kickoff Meeting held at the Armed Forces Reserve Center in Los Alamitos. These minutes are submitted in compliance with Delivery Order No. 0006, Task 3. Included in the attached minutes is our proposed schedule for the submittal of draft deliverables. We trust this schedule meets your approval. A final detailed schedule will be submitted following your review.

It was a pleasure meeting with you and we look forward to successfully completing your objectives on this project. Please do not hesitate to contact me at (619) 528-9090 if you have any questions.

Very truly yours,

BROWN AND CALDWELL

Michael P. Higman
Project Manager

MH:ae

cc/encl: Mr. Richard Haavisto, Technical Manager, USACE, Sacramento District
Ms. Diane Clark, USARC, 63D RSC, AFRC-CCA-ENS, Los Alamitos
Mr. Gerald Muir, USARC, 63D RSC, AFRC-CCA-ENS, Los Alamitos
Vijay K. Bedi, Brown and Caldwell, PIC
David Jones, Brown and Caldwell, Sacramento, CSM

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Environmental Engineering And Consulting • Analytical Services

9040 Friars Road, Suite 220, San Diego, CA 92108
(619) 528-9090 Fax (619) 528-9199

Kickoff Meeting Minutes
22 October, 1998

PRELIMINARY ASSESSMENT/SITE INVESTIGATION
at
U.S. Army Reserve Center (USARC), Long Beach, Site 07, RI/FS

Contract No. DACW05-97-D-0035, D.O. 0006
Brown and Caldwell Project No 17223-000

Attendees: Shyamala Sundaram, USARC, 63D RSC, Project Manager/POC
Diane Clark, USARC, 63D RSC, Environmental Engineer
Gerald Muir, USARC, 63D RSC, Project Manager
Vijay Bedi, Brown and Caldwell, Principal-in-Charge
Michael Higman, Brown and Caldwell, Project Manager

The meeting was held at the Armed Forces Reserve Center, Building 7, 11200 Lexington Drive, Los Alamitos, California on October 22, 1998. Telephone, facsimile numbers, and eMail addresses for USARC 63D Regional Support Command (RSC) and Brown and Caldwell personnel present at this meeting are provided in the following table:

Name/Organization	Phone	Fax	Email
Shyamala Sundaram USARC 63D RSC [1], Project Manager/POC	(562) 795-1442	(562) 795-1499	SundaramS@usarc-emh2.army.mil
Diane A. Clark USARC 63D RSC; Environmental Engineer	(562) 795-1445	(562) 795-1499	Clarkd2@usarc-emh2.army.mil
Gerald N. Muir USARC 63D RSC, Project Manager	(562) 795-1446	(562) 795-1499	Muirg@usarc-emh2.army.mil
Michael Higman R.G. Brown and Caldwell (San Diego), Project Manager	(619) 528-9090	(619) 528-9199	Mhigman@brwncald.com
Vijay K. Bedi, CEG Brown and Caldwell (San Diego), Principal-in-Charge	(619) 528-9090	(619) 528-9199	vbedi@brwncald.com

[1] U.S. Army Reserve Center, 63rd Regional Support Command

- **Background and Purpose of Meeting**

The Installation Action Plan for U.S. Army 63D Regional Support Command (RSC), has listed the Long Beach U.S. Army Reserve Center (USARC) in the Installation Restoration Program. Further characterization of the site is required to identify the evidence of possible environmental impact from historical site use. The purpose of the kickoff meeting was to introduce essential personnel and discuss the scope of work (SOW) and planned approach for the Preliminary Site Assessment at the USARC, Site 07 located at 3800 E. Willow Street, Long Beach, California.

- **Issues Discussed/Actions**

a. Shyamala presented a summary of previous investigations conducted at the Site. The environmental assessment history of the site is included in the following documents. These documents were provided to Brown and Caldwell by Shyamala at the meeting.

- *Soil Analysis at Long Beach USAR Center*, Truesdail Laboratories, Inc., February 19, 1997
- *Preliminary Assessment/Site Investigation for USARC Long Beach*, Woodward-Clyde, June 1998.
- *Review Letter,* Cal-EPA Department of Toxic Substance Control (DTSC), July 20, 1998.

b. The current scope of work will address the DTSC's comments in their letter dated June 20, 1998. Based on the findings of the PSA, a meeting may be arranged with the DTSC to discuss the findings and our proposed investigation approach prior to implementing a Site Investigation (SI), if necessary.

c. The PSA portion of the work will be conducted per EPA Guidance for Performing Preliminary Assessments Under CERCLA (EPA/540/G-91/013), September 1991.

d. The site is located in a commercial/residential area of Long Beach and is unsecured. However, site visits shall be coordinated with Shyamala and the Mr. Frank Williams (Facility Manager). Mr. Williams may be contacted at (562) 988-8800. Site visits will be scheduled at least one week in advance.

e. Deliverables on this project will be provided as directed in the SOW. In addition, two compact disks (CDs) will be provided containing all major deliverables in Microsoft Office '97 format, figures in AutoCad version 13 or 14 format, and photos in JPEG format.

- **Action Items**

a. Brown and Caldwell will forward a copy of Brown and Caldwell's Standard Operating Practices and Phase I Environmental Site Assessment checklists to Shyamala.

b. Shyamala will check further with the USARC Real Estate Division regarding historical site ownership/occupancy.

- **Schedule**

A tentative schedule of important project milestones is provided in the table below. This table will be updated and incorporated into monthly summaries or provided more frequently if necessary. It is anticipated that comments on all draft deliverables will be received from the USARC within 21 days and deliverables will be finalized by BC within 14 days after receipt of comments.

TASK / MILESTONE	% COMPLETE	DUE DATE
PRELIMINARY SITE ASSESSMENT		
Database Records Search/Review	30%	*Thurs 11/05/98*
Historical Aerial Photo/topographic Map Review	0%	*Thurs 11/05/98*
Site Reconnaissance	0%	**Tues 11/10/98**
Regulatory Review	0%	*Fri 11/13/98*
DRAFT Report Submittal	0%	**Fri. 12/11/98**
SAMPLING ANALYSIS PLAN		
Field Sampling Plan (FSP)	10%	*Mon 12/21/98*
Quality Assurance Project Plan (QAPP)	10%	*Mon 12/21/98*
DRAFT Workplan Submittal	0%	**Mon 12/21/98**
WORKER HEALTH AND SAFETY PLAN		
DRAFT Workplan Submittal	0%	**Mon 12/21/98**

Environmental Division

63D Regional Support Command

US Army Reserve
AFRC-CCA-ENS
11200 Lexington Drive, Bldg 7
Los Alamitos, CA 90720-5002

FAX/LTR

Date: 30 October, 1998

Number of pages including cover sheet: 7

To:

Ms. Milasol Gaslan
DTSC, S. CA Region
Cypress, CA

Phone: (714) 484-5431
Fax phone: (714) 484-5437
CC:

From:

Shyamala Sundaram
Environmental Contractor
(REMSA, INC.)

Phone: (562) 795-1442
Fax phone: (562) 795-1499

REMARKS: ☒ Urgent ☒ For your review ☐ Reply ASAP ☒ Please comment

Dear Ms. Gaslan:
It was nice talking to you over the phone yesterday. As we discussed enclosed is a copy of the scope of work for the Long Beach USAR Center, California, for your review. If you have any questions or comments, please call me.
Thank you for your assistance.

Shyamala.

****
*** TX REPORT ***
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TRANSMISSION OK

TX/RX NO	1327
CONNECTION TEL	917144845437
SUBADDRESS	
CONNECTION ID	
ST. TIME	10/30 15:32
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PGS.	7
RESULT	OK

Environmental Division

63D Regional Support Command

US Army Reserve
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11200 Lexington Drive, Bldg 7
Los Alamitos, CA 90720-5002

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From:

Shyamala Sundaram
Environmental Contractor
(REMSA, INC.)

Phone: (562) 795-1442
Fax phone: (562) 795-1499

October 30, 1998

Dear Ms. Gaslan:

It was nice talking to you yesterday. As we discussed, enclosed is a copy of the scope of work for performing a Preliminary Site Assessment at Long Beach U.S. Army Reserve Center, California. This facility has been listed on the Installation Action Plan as "Field with no Growth".

The attached scope of work includes a Preliminary Assessment (PA) and Site Investigation (SI) work for the subject site. However, only the PA is being done initially to gather sufficient background information regarding historical usage and past operational activities conducted at the site. In the attached scope of work, Section 5.2 through 5.5 will not be done at this time. The scope for SI has been denoted as a "price option" which will be changed at a later stage, if necessary. The extent of SI will be based on the results and recommendations of the PA report.

The project has been awarded to an environmental consulting firm through Army Corps of Engineers (ACOE)-Sacramento District. The Technical Manager point of contact at the ACOE is Mr. Rich Haavisto, phone: (916) 557-7440. I will be overseeing this project at the 63D RSC.

If you have any questions, comments, or require any additional information, please do not hesitate to call me at (562) 795-1442.

Thank you.

Sincerely,

K. Shyamala

Shyamala K. Sundaram
Environmental Engineer (REMSA, Inc.)
63D RSC Engineers Office

encl.

CESPK-ED-E

SCOPE OF WORK

PROJECT: PRELIMINARY ASSESSMENT / SITE INVESTIGATION, USARC, Long Beach, CA

CONTRACT NO. DACW05-97-D-0035

CONTRACTOR: Brown & Caldwell, Sacramento, CA
A-E POC: David R. Jones (916) 444-0123

1. AUTHORITY: MIPR from AFRC-ENB, 10 Sep 98, Subject: USARC, Long Beach, Site 07, RI/FS. Prepare and Implement Workplan

2. PROJECT BACKGROUND: The Installation Action Plan for U.S. Army 63D Regional Support (RSC) Command, dated March 1998 has listed the Long Beach U.S. Army Reserve (USAR) Center site in the Restoration Program. Further characterization of the site is required to identify the presence or evidence of a release of possible environmental contamination.

3. SITE LOCATION AND DESCRIPTION: The project site is located at 3800 E. Willow Street in Long Beach, California. The site to be investigated is a field approximately 0.6 acres in size and a strip of land adjacent to the main administrative building where no vegetation has been observed since 1994. The maintenance activities at this Reserve Center were ceased in 1990. The field with the lack of vegetation is located southwest corner of the facility and is adjacent to two sides of the facility boundaries. The site has been rated as a low risk under the Relative Risk Site Evaluation and the results are summarized below:

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4.1 Preliminary Sampling dated January 1997: A soil sampling was conducted at the USAR Center in January 1997. Soil samples were collected near the parking lot, administrative buildings, and in the fields. A total of fourteen (14) samples were collected at a depth of approximately 1 feet below the ground surface. Samples were analyzed for total petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes. The data indicated the presence of total petroleum hydrocarbons at all locations with concentrations ranging from 5.8 ppm to 73.4 ppm.

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5.0 DESCRIPTION OF WORK AND SERVICES: The Contractor shall provide all professional services required for preparation, coordination, and completion of the work as described below. All work must be conducted in compliance with applicable federal, state, or local regulations. The report shall consist of a PSA followed by the SI as a separate report if required.

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F) Site Investigation Report
G) Hazard Ranking Scoring Package (if applicable)

5.1 Prepare Preliminary Site Assessment: A Preliminary Site Assessment (PSA) shall be conducted by the Contractor to evaluate the potential for contamination at the site. The PSA will consist of regulatory agency records search, interviews, reconnaissance (on and off installation), literature search, photo interpretation, and map studies. In addition, the report shall contain the following: facility description, evidence of releases, site description and characterization, potential targets, hazardous waste generation, storage, and disposal, hydrology, and hydrogeology, soil, regulatory actions, and history of land use/ownership. As a minimum the following will be included in the report:

a. Research the files at the 63D RSC Engineers Office, Long Beach USAR Center, and ACOE-Real Estate Section for relevant information.
b. A research of the historical land usage and records of the site so as to determine the types of chemicals that may need to be tested for in SI work. Assess any known past and present operations on-site and describe what effects these conditions would have on remediation.
c. A review of historical aerial photographs for the site.
d. Interview past and present employees of the subject site to determine the type of activity that was conducted at the facility.
e. Research the files at the appropriate regulatory agencies that may have relevant information. Review of adjacent land use and impacts on the subject site for at least one-mile. Show location of any nearby wells.
f. Soil classification, groundwater depth, flow direction, geological information, etc. should be provided.
g. Conduct a site inspection of the site and list observations made at the site. Coordinate and inspect with the Project Manager of the 63D RSC Engineers Office - Environmental Division who has been assigned to work on the project.
h. A site map showing location of all areas of concern including storm/sanitary sewer lines, buildings etc. must be provided. Also identify and describe the location of any sensitive populations (schools, hospitals, etc.) within one quarter mile of the site.

Provide the PSA report in accordance with U.S. Environmental Protection Agency (EPA) guidance. The Contractor shall include recommendations for further actions that are necessary before the next phase (site investigation) can be accomplished.

X **5.2 Site Investigation (Option):** The Contractor shall prepare and perform all work necessary to accomplish the Site Investigation (SI) phase of the Department of Defense (DoD) Installation Restoration Program. Based on knowledge obtained from the PSA, the Contractor shall prepare a Work Plan covering the actions described in the PSA. The following reports shall be submitted as part of the SI: SI work plan, Sampling Analysis Plan (including a Field Sampling Plan and Quality Assurance Project Plan, Worker Health and Safety Plan, site sampling, and the SI Report. Also, the contractor shall provide conclusions whether a No Further Action (NFA) or a Remedial Investigation/Feasibility Study (RI/FS) is warranted.

X **5.2.1 Engineering Evaluation/Cost Analysis (Option):** The Contractor shall complete an Engineering Evaluation/Cost Analysis (EE/CA) for the above SI pursuant to U.S. EPA guidance. The EE/CA shall consist of site description; source, nature and extent of contamination; Site Investigation objectives scope and schedule; and analysis of effectiveness, implementation and cost.

X **5.2.2 Site Investigation Work Plan (Option):** The contractor shall prepare a SI work plan describing the proposed site investigation work in detail. The work plan shall include the proposed work items, scaled drawings of the site, and incorporate the Sampling Analysis Plan to document chain of custody, proposed data quality objectives, sampling methods, confirmatory samples, quality assurance and quality control (QA/QC),

equipment decontamination. Other methods to protect the environment during the work such as surface waters, site restoration, and waste disposal also shall be documented.

X **5.2.3 Sampling Analysis Plan ~~(Option)~~** The Sampling Analysis Plan (SAP) will contain the following information: site background, sampling objectives (location and purpose), location, designation and frequency of samples, sampling equipment and procedures, and sampling handling and analysis.

The Field Sampling Plan (FSP) should describe the number, type, and location of samples, types of analyses, and decontamination procedures. It should also identify the personnel performing each task. The plan should be based on the types of hazardous materials expected and their potential off-site migration routes.

The Quality Assurance Project Plan (QAPP) presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities to ensure the validity of analytical data generated during project execution.

5.2.4 Health and Safety Plan ~~(Option)~~ The Contractor shall complete a Health and Safety Plan (HSP) that complies with state and Federal OSHA regulations. The plan must contain information about known or suspected hazards; routine and special safety procedures that will need to be followed; and other instructions for safeguarding the health and safety of site personnel, visitors, and emergency responders.

X **5.2.5 Soil Sampling/Analysis (Option):**

The Contractor shall use a hollow stem auger drill rig or direct push rig to drill borings for collection of subsurface soil samples for laboratory analysis. Boring locations shall be proposed in the FSP, logged for stratigraphy, and recorded on bore log sheets. QC samples shall be an additional 10% of primary samples. An additional 10% of primary samples shall be collected and shipped to the QA laboratory.

Soil samples shall be collected, packaged, shipped and analyzed in accordance with appropriate regulations. Before drilling, the Contractor shall locate utilities with magnetometer/pipe locator and identify on pavement or ground surface with paint. In addition, drilling locations shall be cleared through Underground Service Alert, and necessary permits shall be obtained from the County. The Contractor shall locate all soil borings and surface soil samples on a scaled map showing existing structures. The Contractor shall complete field notes pertaining to sampling and site assessment work for this scope of work. The Contractor shall provide a summary of the sampling laboratory results in tables and on scaled maps for distribution in a letter report.

Drill four (4) borings up to 25 feet deep for the site. Collect subsurface soil samples from the borings at 5-foot intervals, starting at 1-foot bgs. Changes in stratigraphy or changes in soil color/discoloring are noted. Screen soil samples for contamination with PID/FID and select a total of 24 soil samples for laboratory analysis. After sampling, borings shall be filled with a cement-bentonite slurry.

SOIL SAMPLES

SAMPLE DEPTHS	EPA LAB METHODS	QUANTITY
1' – 25'	CAM 17 Metals 8015M - TPH G/D Chlorinated Herbicides EPA 8080 Nitrates as Nitrogen EPA 300.0	24

5.5 Site Investigation Report (Option):

The SI report should describe the site investigation in detail in accordance with U.S. EPA guidance and DoD requirements. The SI is to augment the data collected in the RRSE to generate sampling and other field data to determine if further action or investigation is appropriate and identify whether the USAR Center Long Beach site qualify for the Restoration Program. The SI should contain enough data to characterize the site and its environment and provide physical environmental samples for analysis.

The preparation of the SI report requires that sufficient information be collected to define present and past waste operations and site conditions resulting from waste operations. The results documented in the report should at a minimum: define the source and nature of the release; and provide conclusions whether a NFA or a RI/FS is warranted.

6.0 MEETINGS: The Contractor shall attend a total of 2 meetings at the 63D RSC Office at Los Alamitos, California to discuss the PSA and SI phase, document submittals, comment reviews and the scope of work in general. The Contractor shall summarize the minutes of each meeting and provide copies to the 63D RSC Project Manager.

7.0 DOCUMENT SUBMITTAL, REVIEW, AND FORMAT:

Document submittal shall consist of a Draft PSA, followed by a SI (Optional Item) as a separate report, if required. Final submittal for the reports is required under this scope of work. After the review periods, the Contractor shall revise the draft documents to make corrections to the work and shall include a written response to comments. There will be a two-week review period allowed for each document submittal. For each document submittal, the Contractor shall have time as stated below to address review comments and produce a final document. Final documents shall incorporate all authorized revisions.

The Contractor shall provide all professional services required for and related to the preparation, coordination and completion of the work as described herein. All documents, including reports and work plans, shall be submitted on 8 1/2 inch by 11 inch white bond paper and neatly bound. Two copies of Draft Report for each individual site are to be provided. It is preferred to have the Draft Reports double-sided. It is preferred that all final documents be bound in a three-ring binder. Three copies of Final Report are to be provided. Drawings should be sized to clearly show the information being presented. Whenever possible, drawings should be folded to fit the 8 1/2 inch by 11 inch format. Larger drawings should fit in a pocket bound into each document. Electronic copies of the report shall be provided in Microsoft Office 97 software programs to the 63D RSC.

The 63D RSC point of contact (POC) will be provided a brief and concise monthly progress report until the project is complete. The report shall address the schedule of the project and any delays/problems that may be encountered with the work. The purpose of the report is to keep the POC fully apprised of all factors affecting the performance of the work.

8.0 DOCUMENT REPRODUCTION AND DISTRIBUTION: The Contractor shall furnish copies of the documents required by this scope of work, including reports and work plans, as well as technical submittals, to the address listed below and in the quantities shown in the Document Submittal Distribution/Schedule.

<u>63D RSC</u> - Commander, 63D RSC
AFRC-CCA-EN, Bldg. 7
[redacted]
P.O. Box 3001
Los Alamitos, CA 90720-1301
Phone: (562) 795-1442, Fax: (562) 795-1499

9.0 GENERAL REQUIREMENTS.: The Contractor is cautioned to take no guidance from any source other than the Contracting Officer during the course of this work which deviates from the requirements stated in this scope of work. The Contractor shall immediately notify the Sacramento District Technical Manager or Contracting Officer of any such request. The A-E shall not deviate from the requirements stated in this scope of work without first notifying the Sacramento District Technical Manager.

10.0 PERIOD OF SERVICE: All work and services included in this scope of work shall be performed and submitted in accordance with the schedule specified in Section: Document Submittal, Review, and Format. The PSA shall be completed within 90 days after receipt of Notice of Proceed. The Optional Item (SI) may be awarded by the government any time within 120 days after award of the basic contract, and shall be completed within 120 days after notification of the option award. All work under this scope of work shall be completed within 270 days after receipt of NTP.

Richard Haavisto

Richard Haavisto
Technical Manager
Envr Engr Br

Sundaram, Shyamala Ms (63D RSC)

From: Sundaram, Shyamala Ms (63D RSC)
Sent: Monday, October 26, 1998 12:15 PM
To: Kim YiHwa Ms (63D RSC)
Cc: Muir, Gerald LTC (63D RSC); Sundaram, Shyamala Ms (63D RSC)
Subject: Long Beach USAR Center - PA/SI

FYI.....

I had the initial kick-off meeting with Brown & Caldwell as scheduled on Thursday, Oct. 22nd at 1000 hours. The list of attendees were as follows:

Shyamala Sundaram (REMSA, Inc.)
LTC Muir (63D RSC)
Diane Clark (63D RSC)
Mike Higman (Brown & Caldwell)
Vijay Bedi (Brown & Caldwell)

We discussed about the scope of the project and in specific about the first phase of the project which is to conduct the PSA (historical research) for the site. I gave them a little background about the site and the purpose of doing the project. They will be following the EPA guidance manual as specified in the scope of work. I provided them copies of all relevant information about the site including copies of the past projects that I was able to find at our office. Diane requested them to provide copies of the final report in CD with drawings compatible with our software.

Brown & Caldwell will prepare the minutes of the meeeting and provide us a timeline for completion of the project this week. I will keep you posted about it.

Schroeder Hall USAR Center
3800 E. Willow Street
Long Beach, CA 90822
FAC ID # CA022
Facility Manager: Mr. Frank Williams
Phone: (562) 988-8800
Fax: (562) 988-8825

Cal. EPA ID # CA7210490374
Acct. # HAHR36049196 (Open)

The Cal. EPA ID was established on July 3, 1984.

Site History: The land ≃ 5.49 acres was transferred to the Dept. of Army from the Dept. of Navy in 1958.

Environmental Division

63D Regional Support Command

US Army Reserve
AFRC-CCA-ENS
11200 Lexington Drive, Bldg 7
Los Alamitos, CA 90720-5002

FAX/LTR

Date: 21 October, 1998

Number of pages including cover sheet: 3

To:

Mr. Mike Higman

Brown & Caldwell

Phone: (619) 528-9090

Fax phone: (619) 528-9199

CC:

From:

Shyamala Sundaram

Environmental Contractor

(REMSA, INC.)

Phone: (562) 795-1442

Fax phone: (562) 795-1499

REMARKS: ☒ Urgent ☒ For your review ☐ Reply ASAP ☐ Please comment

Dear

Enclosed is a copy of the map and directions to get to our installation (Armed Forces Reserve Center). The 63D RSC Engineers Office is located at Building #7. If you have any questions, please call me.

Shyamala.

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	1220
CONNECTION TEL	916195289199
SUBADDRESS	
CONNECTION ID	
ST. TIME	10/21 14:04
USAGE T	01'02
PGS.	3
RESULT	OK

Environmental Division

63D Regional Support Command

US Army Reserve
AFRC-CCA-ENS
11200 Lexington Drive, Bldg 7
Los Alamitos, CA 90720-5002

FAX/LTR

Date: 21 October, 1998

Number of pages including cover sheet: 3

To:

Mr. Mike Higman

Brown & Caldwell

Phone: (619) 528-9090

Fax phone: (619) 528-9199

CC:

From:

Shyamala Sundaram

Environmental Contractor

(REMSA, INC.)

Phone: (562) 795-1442

Fax phone: (562) 795-1499

Copy
Rich HAAC Research
12/6/96

63RD REGIONAL SUPPORT COMMAND — ENGINEER WORK REQUEST

UPPER SECTION TO BE FILLED IN BY REQUESTOR

WORK ORDER # PJ0035 5-6J FAC ID: CA022 BLDG. NO'S

SHORT JOB DESCRIPTION Contaminated Soil Analysis

INSTALLATION: Schroeder Hall USAR Center, Long Beach, CA 90822-1092 REQUEST DATE: 96 (Yr) 11 (Mo) 08 (Da)

DESCRIPTION OF WORK: Conduct analysis for potentially contaminated soil

JUSTIFICATION: Environmental, Health and Safety factors

REQUESTOR: Frank D. Williams III (Print Name) SIGNATURE: Frank D. Williams III

TELEPHONE: (310) 988 - 8800

SF 44 or Credit Card Approval No: _____ Approval Date: __ __ (Yr Mo Da)

TO BE FILLED IN BY REC ENGINEER OFFICE

CWE: K $_____ Funded ___
L $_____ Unfunded ___
___ $_____

Approval Authority: _____ Approval Date __ __ (Yr Mo Da)
Approval ___ Disapproval ___ Cancel ___

WORK TO BE PERFORMED:
___ Self Help ___ Contract
___ SF44 ___ Credit Card

Design Approval: _____ Date __ __ (Yr Mo Da)

SF 44 ___ Credit Card ___
Approval Date: 9__/__/__
Completion Date: 9__/__/__
Authorization # _____
Purchase Amount $_____

Remarks: _____

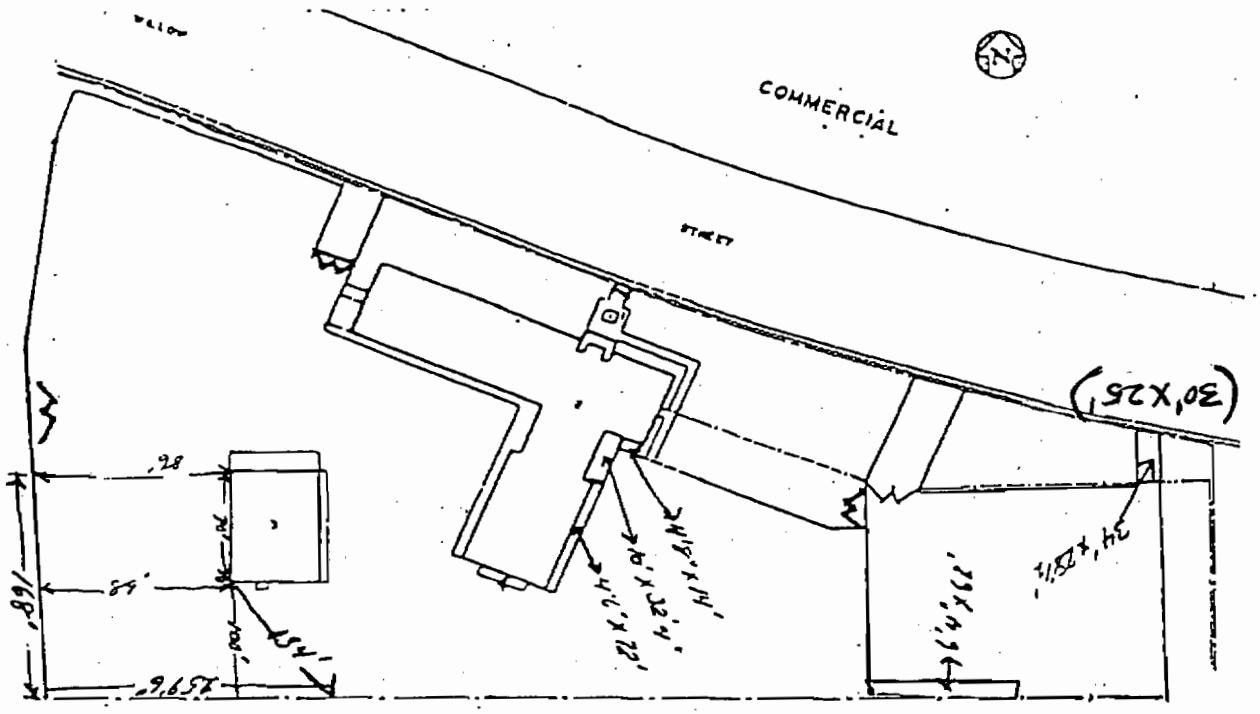
ENGINEER OFFICE: (310) 795-2058 FAX (310) 795-2061

REC Form 001-R, 1 Oct 95 (TEST)

Completed 2/19/97

POSTED

LONG BEACH USAR CENTER



USAR FACILITIES SUPPORT REQUEST

PART A (To be completed by requestor)

REQUESTOR ID CODE	REQUEST SERIAL NUMBER	FY	TYPE	SHORT DESCRIPTION OF REQUIREMENT (PRINT)	DATE INITIATED YR	MO	DA
PJ0	0355-	6	J	CONTAMINATED SOIL ANALYSIS	96	11	08

FACILITY ID CODE	BUILDING/FACILITY NUMBERS 1	2	3	4	5	6	7	8	9	10
CA022										

FACILITY NAME	POC NAME	POC PHONE NUMBER
SCHROEDER HALL USARC	FRANK WILLIAMS	5629888800

DESCRIPTION OF REQUIREMENT:
CONDUCT ANALYSIS FOR POTENTIALLY CONTAMINATED SOIL.

JUSTIFICATION FOR REQUIREMENT:
ENVIRONMENTAL, H EALTH AND SAFETY FACTORS.

FRANK WILLIAMS — AUTHORIZED REQUESTOR: (Type or Print)
5629888800 — Phone
SIGNATURE

PART B (To be completed by Regional Engineer Approving Official Only)

APPROVAL ACTION CODE: A
REQUIREMENT TYPE: OTR
APPROPRIATION: OMAR
PROGRAM INDICATOR CODE: I
SPECIAL INTEREST CODE: ENVI
DATE OF APPROVAL: YR 96 MO 11 DA 15

REMARKS:

ENVIRONMENTAL IMPACT YES	NO	
☐	☐	ENVIRONMENTAL CONSIDERATION
☐	☐	EIS/EIA INITIATED
☐	☐	EIS/EIA COMPLETED

WORK TO BE PERFORMED
☐ DPW
☐ SELF HELP
☐ CONTRACT
☐ TROOP
☐ OTHER
COMMENTS:

WORK CLASS (AMSCO)	ESTIMATED COSTS Funded	Unfunded
	$	$
	$	$
	$	$
	$	$
Total:	$	$

SOURCE OF FUNDS
☐ DIRECT
☐ AUTOMATIC REIMBURSEMENT
☐ FUNDED REIMBURSEMENT

OTHER FUND CITATION

APPROVAL FOR DESIGN	DATE YR	MO	DA	PROJECT APPROVAL AUTHORITY	APPROVAL ACTION	DATE YR	MO	DA
(Please type or print name)				(Please type or print name)	☐ APPROVED			
(Signature)				(Signature)	☐ DISAPPROVED			

FORM 4283

Date of Printing : 1998/09/14

USAR FACILITIES SUPPORT REQUEST

PART A (To be completed by requestor)	REQUESTOR ID CODE	REQUEST SERIAL NUMBER	FY	TYPE	SHORT DESCRIPTION OF REQUIREMENT (PRINT)	DATE INITIATED YR	MO	DA
	PJ0	0902-	8	J	PA/SI S&A COSTS	97	10	30

FACILITY ID CODE	BUILDING/FACILITY NUMBERS 1	2	3	4	5	6	7	8	9	10
CA022										

FACILITY NAME	POC NAME	POC PHONE NUMBER
SCHROEDER HALL USARC	FRANK WILLIAMS	5629888800

DESCRIPTION OF REQUIREMENT:
S&A FUNDS TO ACOE FOR PRELIMINARY ASSESSMENT / SITE INVESTIGATION

JUSTIFICATION FOR REQUIREMENT:
AR 200-1

AUTHORIZED REQUESTOR: (Type or Print)	Phone	SIGNATURE
FRANK WILLIAMS	5629888800	

PART B (To be completed by Regional Engineer Approving Official Only)

APPROVAL ACTION CODE: A
REQUIREMENT TYPE: OTR
APPROPRIATION: OMAR
PROGRAM INDICATOR CODE: I
SPECIAL INTEREST CODE: ENVR
DATE OF APPROVAL: YR 97 MO 11 DA 20

REMARKS:

ENVIRONMENTAL IMPACT YES	NO	
☐	☐	ENVIRONMENTAL CONSIDERATION
☐	☐	EIS/EIA INITIATED
☐	☐	EIS/EIA COMPLETED

WORK TO BE PERFORMED
☐ DPW
☐ SELF HELP
☐ CONTRACT
☐ TROOP
☐ OTHER
COMMENTS:

WORK CLASS (AMSCO)	ESTIMATED COSTS Funded	Unfunded
	$	$
	$	$
	$	$
	$	$
Total:	$	$

SOURCE OF FUNDS
☐ DIRECT
☐ AUTOMATIC REIMBURSEMENT
☐ FUNDED REIMBURSEMENT

OTHER FUND CITATION

APPROVAL FOR DESIGN	DATE YR	MO	DA	PROJECT APPROVAL AUTHORITY	APPROVAL ACTION	DATE YR	MO	DA
(Please type or print name)				(Please type or print name)	☐ APPROVED			
(Signature)				(Signature)	☐ DISAPPROVED			

FORM 4283

Date of Printing : 1998/09/14

USAR FACILITIES SUPPORT REQUEST

PART A (To be completed by requestor)

REQUESTOR ID CODE	REQUEST SERIAL NUMBER	FY	TYPE	SHORT DESCRIPTION OF REQUIREMENT (PRINT)	DATE INITIATED YR	MO	DA
PJE	NV72-	7	J	PA SI FIELD WITH NO VEGETATION	97	03	19

FACILITY ID CODE	BUILDING/FACILITY NUMBERS 1	2	3	4	5	6	7	8	9	10
CA022										

FACILITY NAME	POC NAME	POC PHONE NUMBER
SCHROEDER HALL USARC	FRANK WILLIAMS	5629888800

DESCRIPTION OF REQUIREMENT:
PA/SI FIELD WITH NO VEGETATION.

JUSTIFICATION FOR REQUIREMENT:

FRANK WILLIAMS — AUTHORIZED REQUESTOR: (Type or Print)
5629888800 — Phone
SIGNATURE

PART B (To be completed by Regional Engineer Approving Official Only)

APPROVAL ACTION CODE: A
REQUIREMENT TYPE: OTR
APPROPRIATION: OMAR

PROGRAM INDICATOR CODE:
SPECIAL INTEREST CODE:
DATE OF APPROVAL: YR MO DA

REMARKS:

ENVIRONMENTAL IMPACT YES	NO	
☐	☐	ENVIRONMENTAL CONSIDERATION
☐	☐	EIS/EIA INITIATED
☐	☐	EIS/EIA COMPLETED

WORK TO BE PERFORMED
☐ DPW
☐ SELF HELP
☐ CONTRACT
☐ TROOP
☐ OTHER
COMMENTS:

WORK CLASS (AMSCO)	ESTIMATED COSTS Funded	Unfunded
	$	$
	$	$
	$	$
	$	$
Total:	$	$

SOURCE OF FUNDS
☐ DIRECT
☐ AUTOMATIC REIMBURSEMENT
☐ FUNDED REIMBURSEMENT

OTHER FUND CITATION

APPROVAL FOR DESIGN	DATE YR	MO	DA	PROJECT APPROVAL AUTHORITY	APPROVAL ACTION	DATE YR	MO	DA
(Please type or print name)				(Please type or print name)	☐ APPROVED			
(Signature)				(Signature)	☐ DISAPPROVED			

FORM 4283

Date of Printing : 1998/09/14

Department of Toxic Substances Control

Jesse R. Huff, Director
5796 Corporate Avenue
Cypress, California 90630

Pete Wilson
Governor

Peter M. Rooney
Secretary for
Environmental
Protection

July 20, 1998

Mr. Jeffery B. Armentrout
Technical Manager
Installation Support Section
Department of The Army
Los Angeles District
Corps of Engineers
911 Wilshire Boulevard
Los Angeles, California 90017-3401

Dear Mr. Armentrout:

PRELIMINARY ASSESSMENT/SITE INVESTIGATION (PA/SI) FOR UNITED STATES ARMY RESERVE CENTER, LONG BEACH, CALIFORNIA

The Department of Toxic Substances Control (DTSC) reviewed the above-referenced document, dated June 1998 and received on July 14, 1998. DTSC was unable to adequately evaluate the PA/SI results without the following qualitative and quantitative data gaps:

1. The qualitative data lacking is the background information on the facility historical usage and past operational activities. This qualitative information is important in identifying the potential sampling locations and in performing a reality-check during the analytical data evaluation and interpretation of the targeted potential chemical of concerns.

2. The quantitative information lacking is the surface soil samples, subsurface soil sample, from five to ten feet depth, and groundwater parameters. Additionally, the sample quantitation reporting limit greater than the preliminary remediation goals screening numbers is unacceptable.

DTSC disagrees with the report's conclusion that it appears that no additional sampling may be necessary. Additional soil sampling is required to delineate the vertical and lateral soil contamination and to evaluate the soil contamination potential on groundwater. However, we concur with the recommendation to further evaluate the presence of potential contamination based on additional surface soil and deeper subsurface soil sampling, historical use and past practices, site geology and depth to groundwater.

If the PA/SI workplan contained the information on the historical usage and past operational activities, please submit a copy of the workplan within two weeks of receipt of this letter. This will enable DTSC to reevaluate the PA/SI report and to provide a focused comment on the PA/SI results.

If you have any questions regarding this letter, please feel free to contact me at (714) 484-5452.

Sincerely,

Omoruyi Patrick
Remedial Project Manager
Federal Facilities Unit A
Southern California Operations
Office of Military Facilities

Environmental Division

Customer Support Team
PFC Bacciglieri AFRC
3225 Willow Pass Rd.
Concord, CA 94519

63D Regional Support Command

FAX

Date: **28 July, 1998**
Number of pages including cover sheet: **3**

To: Shyamla Sundaram
Subject: DTSC response for Long Beach PA/SI

Phone: **562 - 795 - 1442**
Fax phone: **562 - 795 - 1499**
CC:

From:
J. Stephen Volk
Environmental Manager
J. M. Waller & Assoc. Inc.

Phone: **925 - 688 - 1943**
Fax phone: **925 - 688 - 1936**
Pager: **510 - 884 - 8526**

REMARKS: ☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

Shyamala,

Here is the response from DTSC on the Long Beach PA/SI. Jeff and I were seeking assistance on the best way to proceed with the IR Program for long beach. Let me know if we should do the response back to DTSC or if Jeff should do it.

Thank you,
Stephen

Woodward-Clyde

FAX TRANSMITTAL

DATE: 7/29/98

TO: / Shyamala Sundaram

COMPANY: 63rd RSC

FAX #: 562-795-1499

FROM: Pontta Bora

WOODWARD-CLYDE INTERNATIONAL-AMERICAS
2020 EAST FIRST STREET, SUITE 400
SANTA ANA, CALIFORNIA 92705

TELECOPY NUMBER (714) 667-7147
TELEPHONE NUMBER (714) 835-6886 x 440
(213) 581-7164

PROJECT/SUBJECT:

MESSAGE:

Shyamala

Attn is a copy of "Weotm" report for USARC Long Beach.

If you need any other info please let me know.

Thanks

Pontta /

IF YOU HAVE ANY QUESTIONS OR PROBLEMS WITH THIS TRANSMITTAL, PLEASE CONTACT

TOTAL NUMBER OF PAGES: 9

1. INTRODUCTION

The Army property waste site summary reports included in this document were developed by Roy F. Weston, Inc. (WESTON) under contract DAAA15-88-D-007 Task Order 2 for the United States Army Toxic and Hazardous Materials Agency (USATHAMA). The primary objective was to establish baseline data reflecting potential waste sites at Army properties. Waste sites for the purposes of this survey were defined broadly to include any location at a facility from which hazardous constituents might be released into the environmental, regardless of whether the material in that location is defined as a solid or hazardous waste.

A brief report for each property was compiled with data collected between August 1990 and November 1990. Data was collected through questionnaires distributed to Army personnel familiar with the properties. WESTON conducted a brief (1-day or less) site visit and/or telephone follow-up with the Army personnel completing the questionnaires (and some local water and electric companies) to supplement information obtained in the questionnaires. WESTON did not collect additional independent data, but relied entirely on information from those sources.

These reports will be used as references for all future Installation Restoration Program (IRP) communication. Additionally, they will be the basis for the allocation of funding and resources in support of the IRP. As remediation activities are completed and/or additional information becomes available, updates will be performed.

2. USER GUIDE

2.1 Sample Report

The first page of each property report (see Figure 1) provides general information about the property and its environmental coordinator. Base population estimates contained in general information use the higher of weekday or weekend populations present on base. A summary listing of the total number of waste sites, maximum Installation Scoring Model (ISM) score, and the confidence factor associated with the report is provided at the bottom of the page. Where the Army leases parts of a property to another entity (such as the US Navy) waste sites generated by that entity (e.g. Navy activities) were not evaluated. The letters "NPL" appear in the summary listing if the property (or a site on the property) is listed on the National Priority List (NPL). The symbol "*NPL" in the summary listing indicates that the property is part of a site listed on the NPL. The symbol "*" next to a Maximum Score indicates that a waste site with a higher score may exist on the property, but information to accurately assess that site is currently unavailable. That possible waste site is either listed as an unscored waste site in the property's waste site reports, or referenced in the comment section of the property report, depending on the amount of information available.

The subsequent page(s) of each property report (see Figure 2) are used to list and to provide details of each waste site on the property. The site numbers and names are matched, when possible, to site numbers and names as listed in available published reports. The Waste Site Characterization section is used to list specific types of wastes (or a description of the process generating the waste), amount of waste, analytical data, and applicable permits. Underground storage tank registration information is included under permits. Where no permits or registrations are either reported or required, "None" is entered under "Permit".

For properties with multiple sites, a minimum of two waste sites per property were scored, unless scores were not justified by the Installation Scoring Model used (see Section 2.2). The sites with the highest potential scores were scored first, and scoring continued for other sites until significant decreases were noted in the totals. The initial decision as to potential scoring was based both on observations made during inspections of the installations and on documentation supplied to WESTON by the facility or the environmental coordinator, and focused on obvious factors such as degree of containment or constituents of concern.

The comments section is used as needed to further explain processes, to detail releases of contaminants, to list additional analytical data, or to note any special facts. The final section denotes the IRP status by phase as related to each waste site. The phases are: PA = preliminary assessment, SI = site investigation, RI = remedial investigation, FS = feasibility study, and RD = remedial design. Codes used to reflect status include: N = no/none, I = initiated, U = unknown, and C = complete. These phases are filled in as complete only if the formal (CERCLA) PA/SI or RI/FS documentation has been generated. Accordingly informal or internal remediation strategies may be ongoing even if these codes are all "N". Such activities are noted in the comment section.

The following information can be assumed in reading waste site reports. For facilities located on a larger installation, the population of the entire installation is listed. Underground storage tanks are of steel construction without any corrosion protection unless otherwise noted in the comment. Transformers are only listed as a waste site if they contain PCBs (or are likely to contain PCBs due to their age and lack of additional information). Asbestos areas are only listed as a waste site if particularly high hazards are present (such as quarantined areas of buildings, or areas with ripped or shredding asbestos material). Otherwise, any information obtained as to asbestos removal activities is noted in the property report under the comments section. Radon contamination has not been assessed.

2.2 Installation Scoring Model (ISM) and Confidence Factors

The Installation Scoring Model (ISM) used for the study is based on the Environmental Protection Agency (EPA) Hazard Ranking System (HRS). ISM scores are intended to reflect the level of

environmental concern posed by a particular waste site and are not to be considered equivalent to an HRS score. Only waste sites determined to be a potential environmental concern were scored.

Each waste site scored was evaluated with respect to containment of the hazardous substance(s), route by which substance(s) could be released, characteristics and amount of harmful substances, and the likely targets. Four scores are reported per waste site: surface water score, groundwater score, air quality score, and total score. The ISM does not at this time include an evaluation for exposure in the work place. Localized contact with potentially hazardous materials is thus not assigned a score. Air quality scores may only be assigned if a specific release of contaminants significantly above background has been documented. Accordingly, no scores for potential air releases are given. No scores are given for any containment releases that are occurring under existing regulatory permits. The ISM scores reflect a minimum waste quantity of approximately 2000 gallons. Many of the sites ranked contain less than that amount of wastes, however.

Reliable scores require considerable information about the property, its surroundings, the hazardous substances present, and the geological character of the area down to the aquifers that may be at risk. As an indicator of reliability, a confidence factor scoring system was developed to provide the user of this document with a measure of the applicable and available information used to characterize and compute the ISM scores for each waste site. The criteria used for development of these confidence factors are displayed in Table 1. It should be noted that Table 1 does not list all possible combinations of information sources, but it does cover the range of available information. As such, it is used as a guideline.

TABLE 1

CONFIDENCE FACTOR DEFINITIONS

Confidence Factor	Site Visit	RI Report Available	Installation Assess. or Equivalent Information*	Questionnaire Completed
A	1	1	1	1
B	1	1+	1	—
C	--	0	1	1
D	—	0	0	1
E	0	0	0	0

* Equivalent information refers to small properties where a site visit or telephone contact may yield as much data as an installation assessment.

\+ If an RI is not applicable to circumstances at the property, a B Confidence Factor score may still be assigned.

1 Information available.

0 Information not available or not submitted.

-- This component not a critical value for this specific Confidence Factor Score.

USATHAMA Property Report

Property Number: 6860
FFIS Number : CA-210522263

Name : USARC LONG BEACH
Address: 3800 E. WILLOW STREET

Date of Printing: 05/18/89
Last Update: 05/18/89

LONG BEACH
CA 90822

Coord.: 33DEG 37MIN N 118DEG 13MIN W

Nearest Town : LONG BEACH
Population : 600,000

Base Population : 200
Command : 6TH ARMY

EPA Region : 9

Support Facility: FORT ORD

Environmental Coordinator Name : ROBERT DECKER
Environmental Coordinator Address: ATTN: AFZW-DE-P
BLDG. 4899

FORT ORD
CA 93941-5777

Environmental Coordinator Phone : (408)242-2864

Date of Form Response : 12/07/88

Name of Respondee : RAYMOND SANDZONE
Title : FACILITY MANAGER
Time Associated : 1 YEAR

Surface Water Uses: DRAINAGE

Ground Water Uses : DRINKING: MUNI. WELL 2500 FEET

Comments : OFFICIAL NAME: SCHROEDER HALL USARC.
BOILER ROOM ASBESTOS REMOVAL PLANNED.

Number of Waste Sites: 5

Maximum Score : 3.6

Confidence Factor : B

USATHAMA Waste Site Report

Property Number: 6800 Property Name: USMC LONG BEACH

Date of Printing: 05/98/98
Last Update: 05/98/98

Site Number	Site Name	Waste Site Characterization	IRM Scores	Comments	IRP Status
1 1	PHOTO & PRINTING PROCESS AREA PHOTO + PRINTING PROCESS AREA	Type: PRINTING IN, PHOTOGRAPHIC CHEMICALS, WASTE SOLVENTS Qty: (2) 55-GALLON DRUMS Permit: NONE	Ground Water : 6.1 Surface Water: 0.4 Air Quality : 0.0 Total Score : 3.6	PHOTOGRAPHIC LAB AND PRINTING EQUIP. ARE HOUSED IN 4 SEMI-TRAILERS (18-WHEEL 62). CHEMICAL & INK STORAGE IN SMALL CONTAINER INSIDE TRAILERS. PROCESS WASTES ARE STORED IN DRUMS ON ASPHALT WITH NO SECONDARY CONTAINMENT. THE PRINTING VAN HAS A CLEANING HOSE RUNNING OUTSIDE TO WASTE DRUM. DISPOSAL IS CONTRACTOR.	PA : I SI : N SI : N PA : N RD : N
1 2	POL STORAGE ROOM POL STORAGE	Type: OIL, PAINT, THINNER, METHANOL, AROMATIC NAPTHA Qty: 150 GALLONS Permit: NONE	Ground Water : 5.0 Surface Water: 4.0 Air Quality : 0.0 Total Score : 2.9	POL ROOM INSIDE THE MAINTENANCE SHOP HAS A CONCRETE FLOOR, NO FLOOR DRAINS, AND CONTAINMENT CURB. THE LARGEST CONTAINER IS A 55-GALLON DRUM.	PA : I SI : N SI : N PA : N RD : N
1 3	PARTS CLEANING PARTS CLEANING	Type: WASTE SOLVENT Qty: 1 GALLON Permit: NONE	Ground Water : 0.0 Surface Water: 0.0 Air Quality : 0.0 Total Score : 0.0	NO SPECIFIC EQUIPMENT IS USED FOR PARTS CLEANING. WASTE SOLVENT IS ACCUMULATED IN THE WASTE STORAGE AREA (SITE 85). SITE SCORED AS ZERO BASED ON SECONDARY CONTAINMENT OF THIS SMALL QUANTITY BY THE CONCRETE FLOOR.	PA : I SI : N SI : N PA : N RD : N

Jul-24-98 09:33 63D RSC 510-688-1936 P.08

USATHAMA Waste Site Report

Date of Printing: 05/16/8
Last Update: 05/16/8

Property Number: 6640 Property Name: USAIC LONG BEACH

(4) 4 VEHICLE WASH RACK & O/W SEP.

Type: OIL AND GREASE FROM VEHICLE WASHWATER

Ground Water : 0.0
Surface Water: 0.4
Air Quality : 0.0
Total Score : 0.2

WASHWATER DRAINS THROUGH OIL/WATER SEPARATOR CONNECTED TO MUNICIPAL STORM WATER SEWER. NO SEPARATOR HAND GATE REPORTED. DISPOSAL OF SEPARATOR OIL IS ARRANGED AS NEEDED THROUGH FORT ORD WITH A CIVILIAN CONTRACTOR.

FA : I
SI : N
RI : N
FS : N
RD : N

Qty: 5 VEHICLES/MONTH

Permit: NONE

5 (5) DRUM STORAGE AREA

Type: WASTE OIL, WASTE SOLVENT, WASTE BRAKE FLUID, WASTE HYDRAULIC OIL

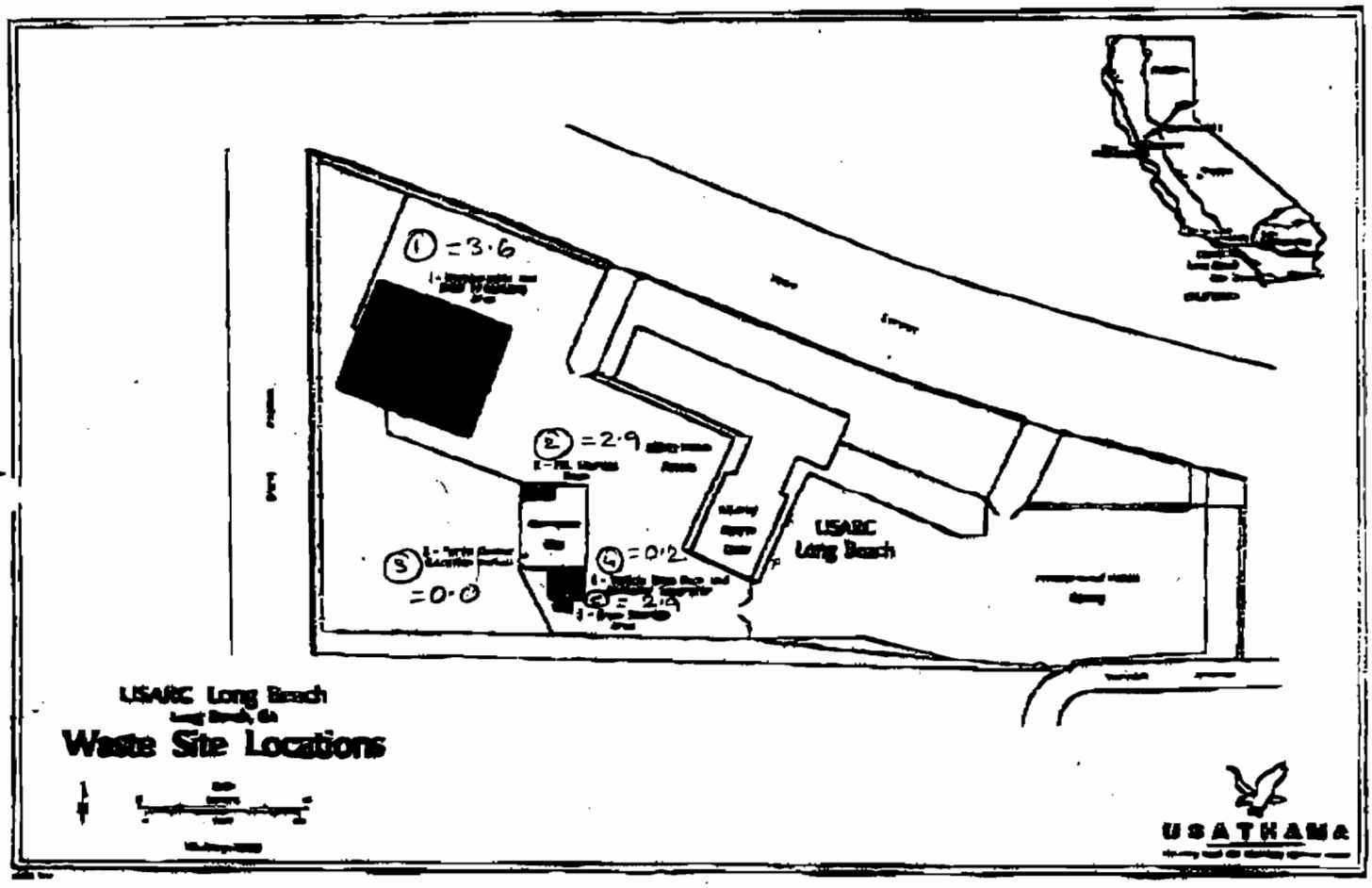
Ground Water : 5.0
Surface Water: 0.4
Air Quality : 0.0
Total Score : 2.9

DRUMS ARE STORED ON PALLETS ABOVE ASPHALT WITH NO SECONDARY CONTAINMENT. DISPOSAL IS COORDINATED THROUGH DRMO.

FA : I
SI : N
RI : N
FS : N
RD : N

Qty: (6) 55-GALLON DRUMS

Permit: EPA ID# CA-7210470374


① = 3.6
② = 2.9
③ = 0.0
④ = 0.2
USARC
Long Beach
USARC Long Beach
Waste Site Locations
USATHAMA

(COPY)

DEPARTMENT OF THE NAVY
BUREAU OF YARDS AND DOCKS
WASHINGTON 25, D. C.

In Reply Refer to
R-320B/WHC/bo

OCT 16 1958

From: Chief of Civil Engineers
To: Office of Chief of Engineers, Real Estate Division, Department of the Army, ENGLP, Washington 25, D. C.

Subj: Lexington Housing Development, Long Beach (Lakewood), California; Transfer of a 4.5 acre portion

Ref: (a) Dept. of Army ltr 601.4 USARC Site, Long Beach (Lakewood, Calif.) ENGLP of 5 Sept 1958 to OCE

1. Reference (a) advised that all approvals had been obtained for transfer of the subject property, as requested by that Department. Accordingly, pursuant to the authority of Section 202(c) of the Act of Congress of June 30, 1949, as amended, (40 U.S.C. 471 et seq.), and Department of Defense Directive 4165.6 dated September 15, 1955, jurisdiction, administration, custody and control of the following described land is hereby transferred to the Department of the Army:

Being portions of Lots 5 and 6 of Tract No. 10548, as recorded in Map Book 174 on pages 15 to 23, Records of Los Angeles County, State of California, on file in the Office of the Recorder of said County and particularly described as follows:

For point of reference commence at the intersection of the centerlines of Lakewood Boulevard and Twenty-third Street; thence N. 89° 47' 45" W., 1669.09 feet to the southwesterly corner of those lands acquired by the United States in Civil Action 4495-H; thence N.0° 11' 15" E., along the westerly line of said lands of the United States, to a point 420 feet southerly of the southerly line of Willow Street, the true POINT OF BEGINNING of this description; thence continuing N. 0° 11' 15" E. 420 feet to the southerly line of Willow Street; thence continuing N. 0° 11' 15" E. to a point in the center line of Willow Street, thence following the centerline of Willow Street in a general southeasterly direction, 783.23 feet, more or less, to a point of intersection with the easterly line of those lands acquired by the United States in Civil Action 4495-H; thence S. 0° 11' 15" W. to the northerly line of Vernon Street; thence in a general westerly and southwesterly direction along the northerly line of Vernon Street to a point of intersection with a line extended at right angles in an easterly direction from the point of beginning of this description, thence in a westerly direction along said extended line to the point of beginning, containing 4.5 acres, more or less.

(COPY)

(COPY)

R-320B/WHC/bo

The foregoing metes and bounds description was prepared from data available to the Bureau of Yards and Docks. If this description is found to be inadequate, it is suggested that a field survey be conducted for the purpose of compiling a more suitable description.

2. The Commandant, Eleventh Naval District, by a copy of this letter, is requested to surrender possession of the subject property upon receipt of a request therefor from the Department of the Army.

3. It is requested that receipt of this letter be acknowledged by the return of the attached copy after signature.

/s/ M. E. SCANLAN
By Direction

Copy to:
ASTSECDEF (P&I)
ASTSECNAV (MAT)
COMPTNAV
CNM
CNO
COM 11ND
DPWO 11ND

The receipt of this letter is acknowledged.

/s/ W. D. Freeman
For the Department of the Army

W.D. FREEMAN 6-4057-E 10/28/58
Accountable Property Officer

(COPY)

BOOK 40057 PAGE 242 No Internal Revenue Stamps Required

GRANT OF EASEMENT

WHEREAS, the authority granted the Secretary of the Army by the Act of Congress approved July 24, 1946 (C. 596, Sec. 7, 60 Stat. 643, as amended; 43 U. S. C. 931b) was made applicable to the Secretary of the Navy by the Act of Congress approved October 25, 1951 (C. 563, Title I, S. 101, 65 Stat. 641; 50 U. S. C. 771-1); and,

WHEREAS, the above-cited Acts of Congress authorize and empower the Secretary of the Navy to grant easements to municipalities for rights-of-way across acquired lands under his jurisdiction for road purposes; and,

WHEREAS, the CITY OF LONG BEACH, a municipal corporation located in the County of Los Angeles, State of California, in order to alleviate traffic congestion, has an immediate and urgent need for the use of a parcel of land forming a portion of the Government-owned Lexington Housing Project, Long Beach, California, the land forming the said Housing Project being under the jurisdiction of the Department of the Navy, for the purpose of widening Willow Street along the northern boundary of the Housing Project; and,

WHEREAS, the Secretary of the Navy has determined that the grant of an easement to the CITY OF LONG BEACH for the purposes hereinabove set out is not incompatible with the public interest;

NOW THEREFORE, in consideration of the premises, the UNITED STATES OF AMERICA, acting by and through the Secretary of the Navy, hereby grants unto the CITY OF LONG BEACH, a

RECEIVED JAN 24 1980 Real Estate Division MSB Branch

Document # 2319
L. A. County Records

municipal corporation organized and existing under the laws of the State of California, located in the County of Los Angeles, State of California, its successors and assigns, a permanent easement for highway purposes over a parcel of land forming a portion of those lands acquired by the UNITED STATES OF AMERICA in Civil Action No. 4495-PH, for the establishment of the Lexington Housing Project, Long Beach, California, and more particularly described as follows:

> A parcel of land approximately 783.23 feet in length by 50.00 feet in width, being the northerly 50.00 feet of those lands lying southerly of the center line of Willow Street in Lots 5 and 6, Tract No. 10548, known as the Lexington Housing Project, Long Beach, California, as shown on City of Long Beach, California, Department of Engineering Drawing No. A-834, approved August 1, 1949, a copy of which is attached hereto and made a part hereof, marked Exhibit "A".

TO HAVE AND TO HOLD, the above-described interest in lands unto the CITY OF LONG BEACH, its successors and assigns, so long as said interest in lands shall be used exclusively for the above-described highway purposes, provided that, on the failure of the CITY OF LONG BEACH to comply with the terms and conditions of this easement, or when this easement shall no longer be used for the above-described highway purposes for a period of two consecutive years, or when this easement shall be abandoned by the CITY OF LONG BEACH, the interest in lands herein granted to the CITY OF LONG BEACH, its successors and assigns, shall cease, and automatically shall revert to, and be revested in, the UNITED STATES OF AMERICA, without any necessity for re-entry by the UNITED STATES OF AMERICA, or the filing of any action at law or in equity by the UNITED

STATES OF AMERICA to regain possession.

IN WITNESS WHEREOF, the UNITED STATES OF AMERICA has caused this instrument to be executed by the Secretary of the Navy for and in its behalf and the Seal of the Department of the Navy affixed hereto, this 3rd day of September, 1952.

THE UNITED STATES OF AMERICA

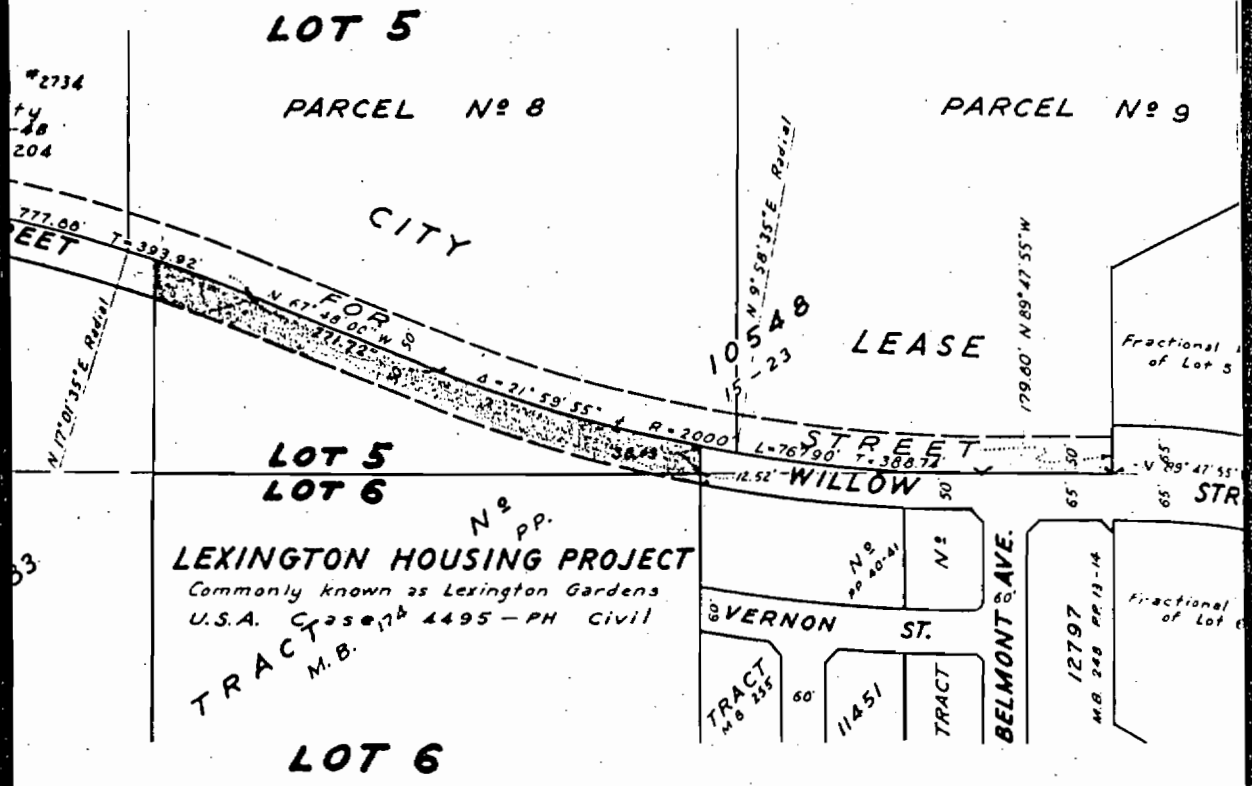
By Dan A. Kimball
Secretary of the Navy

DISTRICT OF COLUMBIA: to wit,

I, H. E. Sweeney, a Notary Public in and for the said District, do hereby certify that Dan A. Kimball, party to that certain Grant of Easement bearing date of the 3rd day of September, 1952, and hereunto annexed, personally appeared before me in the said District the said Dan A. Kimball, being personally well known to me as the person who executed the said Grant of Easement, and acknowledged the same to be his act and deed. Given under my hand and seal this 3rd day of September, 1952.

H. E. Sweeney
Notary Public
Commission Expires: 12/14/52

APPROVED AS TO FORM
October 10, 1952
IRVING M. SMITH, CITY ATTORNEY
BY John R. Himocks
DEPUTY CITY ATTORNEY



JOB No	28.1
FIELD BOOK	
DESIGNED BY	
DRAWN BY	COULTER
CHECKED BY	M.H. Houghton
RECOMMENDED BY	Chalmers Brown, DIVISION ENGINEER

UNITED STATES ARMY RESERVE CENTER,
LONG BEACH, CALIFORNIA

5 May 1959

The area of the land described in Transfer Letter dated 16 October 1956 from Department of the Navy is 5.49 acres instead of 4.5 acres as stated in Transfer Letter.

JOSEPH C. PHIPPS
Chief, Cadastral Section

Incl 1 to Incl 1

FACSIMILE HEADER SHEET

US Army Corps of Engineers
Sacramento District

US Army Engineer District, Sacramento
1325 J Street
Sacramento, California 95814-2922

9-28-98
(Date)

TO: Shyamala	Fax Phone: (562) 795-1499 Voice Phone: (562) 795-1442
FROM: RICH HAAVISTO	Fax Phone: (916) 557-7865 Voice Phone: (916) 557-7440

Number of pages to follow: 9

(Releaser's Signature)

COMMENTS:

SOW for Long Beach, along with Record of negotiation.
("Proposed" is from the A-E; "Objective" is what we shoot for in negotiations - and "Negotiated" is the negotiated amount).

Rich

CESPK FORM 63
1 JAN 92

(Edition of 1 Jan 91 may be used)

SCOPE OF WORK

PROJECT: PRELIMINARY ASSESSMENT / SITE INVESTIGATION, USARC, Long Beach, CA

CONTRACT NO. DACW05-97-D-0035

CONTRACTOR: Brown & Caldwell, Sacramento, CA
A-E POC: David R. Jones (916) 444-0123

1. AUTHORITY: MIPR from AFRC-ENB, 10 Sep 98, Subject: USARC, Long Beach, Site 07, RI/FS. Prepare and Implement Workplan

2. PROJECT BACKGROUND: The Installation Action Plan for U.S. Army 63D Regional Support (RSC) Command, dated March 1998 has listed the Long Beach U.S. Army Reserve (USAR) Center site in the Restoration Program. Further characterization of the site is required to identify the presence or evidence of a release of possible environmental contamination.

3. SITE LOCATION AND DESCRIPTION: The project site is located at 3800 E. Willow Street in Long Beach, California. The site to be investigated is a field approximately 0.6 acres in size and a strip of land adjacent to the main administrative building where no vegetation has been observed since 1994. The maintenance activities at this Reserve Center were ceased in 1990. The field with the lack of vegetation is located southwest corner of the facility and is adjacent to two sides of the facility boundaries. The site has been rated as a low risk under the Relative Risk Site Evaluation and the results are summarized below:

4. PREVIOUS INVESTIGATIONS:

4.1 Preliminary Sampling dated January 1997: A soil sampling was conducted at the USAR Center in January 1997. Soil samples were collected near the parking lot, administrative buildings, and in the fields. A total of fourteen (14) samples were collected at a depth of approximately 1 feet below the ground surface. Samples were analyzed for total petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes. The data indicated the presence of total petroleum hydrocarbons at all locations with concentrations ranging from 5.8 ppm to 73.4 ppm.

4.2 Preliminary Assessment/Site Investigation Report dated June 1998: A total of 8 subsurface soil samples were collected from depths of approximately 3 to 5 feet bgs. Two background samples and one field duplicate were also collected from the subject site. The soil samples were analyzed for volatile and semi-volatile organic compounds, petroleum hydrocarbons, PCBs, and metals. Based on the analytical reports, fourteen metals were detected in the background and field soil samples. Total Extractable Petroleum Hydrocarbons was detected in one soil sample. The report recommended further evaluation of the site for presence of potential contamination. Results of these two sampling events are available from the 63D RSC POC.

5.0 DESCRIPTION OF WORK AND SERVICES: The Contractor shall provide all professional services required for preparation, coordination, and completion of the work as described below. All work must be conducted in compliance with applicable federal, state, or local regulations. The report shall consist of a PSA followed by the SI as a separate report if required.

1) Preliminary Site Assessment
2) Site Investigation (Optional Item)
   A) Engineering Evaluation/Cost Analysis
   B) Site Investigation Work Plan

C) Sampling Analysis Plan to include Field Sampling Plan and Quality Assurance Project Plan
D) Worker Health and Safety Plan
E) Site Sampling
F) Site Investigation Report
G) Hazard Ranking Scoring Package (if applicable)

5.1 Prepare Preliminary Site Assessment: A Preliminary Site Assessment (PSA) shall be conducted by the Contractor to evaluate the potential for contamination at the site. The PSA will consist of regulatory agency records search, interviews, reconnaissance (on and off installation), literature search, photo interpretation, and map studies. In addition, the report shall contain the following: facility description, evidence of releases, site description and characterization, potential targets, hazardous waste generation, storage, and disposal, hydrology, and hydrogeology, soil, regulatory actions, and history of land use/ownership. As a minimum the following will be included in the report:

a. Research the files at the 63D RSC Engineers Office, Long Beach USAR Center, and ACOE-Real Estate Section for relevant information.
b. A research of the historical land usage and records of the site so as to determine the types of chemicals that may need to be tested for in SI work. Assess any known past and present operations on-site and describe what effects these conditions would have on remediation.
c. A review of historical aerial photographs for the site.
d. Interview past and present employees of the subject site to determine the type of activity that was conducted at the facility.
e. Research the files at the appropriate regulatory agencies that may have relevant information. Review of adjacent land use and impacts on the subject site for at least one-mile. Show location of any nearby wells.
f. Soil classification, groundwater depth, flow direction, geological information, etc. should be provided.
g. Conduct a site inspection of the site and list observations made at the site. Coordinate and inspect with the Project Manager of the 63D RSC Engineers Office - Environmental Division who has been assigned to work on the project.
h. A site map showing location of all areas of concern including storm/sanitary sewer lines, buildings etc. must be provided. Also identify and describe the location of any sensitive populations (schools, hospitals, etc.) within one quarter mile of the site.

Provide the PSA report in accordance with U.S. Environmental Protection Agency (EPA) guidance. The Contractor shall include recommendations for further actions that are necessary before the next phase (site investigation) can be accomplished.

5.2 Site Investigation (Option): The Contractor shall prepare and perform all work necessary to accomplish the Site Investigation (SI) phase of the Department of Defense (DoD) Installation Restoration Program. Based on knowledge obtained from the PSA, the Contractor shall prepare a Work Plan covering the actions described in the PSA. The following reports shall be submitted as part of the SI: SI work plan, Sampling Analysis Plan (including a Field Sampling Plan and Quality Assurance Project Plan, Worker Health and Safety Plan, site sampling, and the SI Report. Also, the contractor shall provide conclusions whether a No Further Action (NFA) or a Remedial Investigation/Feasibility Study (RI/FS) is warranted.

5.2.1 Engineering Evaluation/Cost Analysis (Option): The Contractor shall complete an Engineering Evaluation/Cost Analysis (EE/CA) for the above SI pursuant to U.S. EPA guidance. The EE/CA shall consist of site description; source, nature and extent of contamination; Site Investigation objectives scope and schedule; and analysis of effectiveness, implementation and cost.

5.2.2 Site Investigation Work Plan (Option): The contractor shall prepare a SI work plan describing the proposed site investigation work in detail. The work plan shall include the proposed work items, scaled drawings of the site, and incorporate the Sampling Analysis Plan to document chain of custody, proposed data quality objectives, sampling methods, confirmatory samples, quality assurance and quality control (QA/QC),

equipment decontamination. Other methods to protect the environment during the work such as surface waters, site restoration, and waste disposal also shall be documented.

5.2.3 Sampling Analysis Plan ~~(Option)~~: The Sampling Analysis Plan (SAP) will contain the following information: site background, sampling objectives (location and purpose), location, designation and frequency of samples, sampling equipment and procedures, and sampling handling and analysis.

The Field Sampling Plan (FSP) should describe the number, type, and location of samples, types of analyses, and decontamination procedures. It should also identify the personnel performing each task. The plan should be based on the types of hazardous materials expected and their potential off-site migration routes.

The Quality Assurance Project Plan (QAPP) presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities to ensure the validity of analytical data generated during project execution.

5.2.4 Health and Safety Plan ~~(Option)~~: The Contractor shall complete a Health and Safety Plan (HSP) that complies with state and Federal OSHA regulations. The plan must contain information about known or suspected hazards; routine and special safety procedures that will need to be followed; and other instructions for safeguarding the health and safety of site personnel, visitors, and emergency responders.

5.2.5 Soil Sampling/Analysis (Option):

The Contractor shall use a hollow stem auger drill rig or direct push rig to drill borings for collection of subsurface soil samples for laboratory analysis. Boring locations shall be proposed in the FSP, logged for stratigraphy, and recorded on bore log sheets. QC samples shall be an additional 10% of primary samples. An additional 10% of primary samples shall be collected and shipped to the QA laboratory.

Soil samples shall be collected, packaged, shipped and analyzed in accordance with appropriate regulations. Before drilling, the Contractor shall locate utilities with magnetometer/pipe locator and identify on pavement or ground surface with paint. In addition, drilling locations shall be cleared through Underground Service Alert, and necessary permits shall be obtained from the County. The Contractor shall locate all soil borings and surface soil samples on a scaled map showing existing structures. The Contractor shall complete field notes pertaining to sampling and site assessment work for this scope of work. The Contractor shall provide a summary of the sampling laboratory results in tables and on scaled maps for distribution in a letter report.

Drill four (4) borings up to 25 feet deep for the site. Collect subsurface soil samples from the borings at 5-foot intervals, starting at 1-foot bgs. Changes in stratigraphy or changes in soil color/discoloring are noted. Screen soil samples for contamination with PID/FID and select a total of 24 soil samples for laboratory analysis. After sampling, borings shall be filled with a cement-bentonite slurry.

SOIL SAMPLES

SAMPLE DEPTHS	EPA LAB METHODS	QUANTITY
1' – 25'	CAM 17 Metals 8015M - TPH G/D Chlorinated Herbicides EPA 8080 Nitrates as Nitrogen EPA 300.0	24

5.5 Site Investigation Report (Option):

The SI report should describe the site investigation in detail in accordance with U.S. EPA guidance and DoD requirements. The SI is to augment the data collected in the RRSE to generate sampling and other field data to determine if further action or investigation is appropriate and identify whether the USAR Center Long Beach site qualify for the Restoration Program. The SI should contain enough data to characterize the site and its environment and provide physical environmental samples for analysis.

The preparation of the SI report requires that sufficient information be collected to define present and past waste operations and site conditions resulting from waste operations. The results documented in the report should at a minimum: define the source and nature of the release; and provide conclusions whether a NFA or a RI/FS is warranted.

6.0 MEETINGS: The Contractor shall attend a total of 2 meetings at the 63D RSC Office at Los Alamitos, California to discuss the PSA and SI phase, document submittals, comment reviews and the scope of work in general. The Contractor shall summarize the minutes of each meeting and provide copies to the 63D RSC Project Manager.

7.0 DOCUMENT SUBMITTAL, REVIEW, AND FORMAT:

Document submittal shall consist of a Draft PSA, followed by a SI (Optional Item) as a separate report, if required. Final submittal for the reports is required under this scope of work. After the review periods, the Contractor shall revise the draft documents to make corrections to the work and shall include a written response to comments. There will be a two-week review period allowed for each document submittal. For each document submittal, the Contractor shall have time as stated below to address review comments and produce a final document. Final documents shall incorporate all authorized revisions.

The Contractor shall provide all professional services required for and related to the preparation, coordination and completion of the work as described herein. All documents, including reports and work plans, shall be submitted on 8 1/2 inch by 11 inch white bond paper and neatly bound. Two copies of Draft Report for each individual site are to be provided. It is preferred to have the Draft Reports double-sided. It is preferred that all final documents be bound in a three-ring binder. Three copies of Final Report are to be provided. Drawings should be sized to clearly show the information being presented. Whenever possible, drawings should be folded to fit the 8 1/2 inch by 11 inch format. Larger drawings should fit in a pocket bound into each document. Electronic copies of the report shall be provided in Microsoft Office 97 software programs to the 63D RSC.

The 63D RSC point of contact (POC) will be provided a brief and concise monthly progress report until the project is complete. The report shall address the schedule of the project and any delays/problems that may be encountered with the work. The purpose of the report is to keep the POC fully apprised of all factors affecting the performance of the work.

8.0 DOCUMENT REPRODUCTION AND DISTRIBUTION: The Contractor shall furnish copies of the documents required by this scope of work, including reports and work plans, as well as technical submittals, to the address listed below and in the quantities shown in the Document Submittal Distribution/Schedule.

63D RSC - Commander, 63D RSC
AFRC-CCA-EN, Bldg. 7
Attn.: Ms. Shyamala Sundaram
P.O. Box 3001
Los Alamitos, CA 90720-1301
Phone: (562) 795-1442, Fax: (562) 795-1499

9.0 GENERAL REQUIREMENTS.: The Contractor is cautioned to take no guidance from any source other than the Contracting Officer during the course of this work which deviates from the requirements stated in this scope of work. The Contractor shall immediately notify the Sacramento District Technical Manager or Contracting Officer of any such request. The A-E shall not deviate from the requirements stated in this scope of work without first notifying the Sacramento District Technical Manager.

10.0 PERIOD OF SERVICE: All work and services included in this scope of work shall be performed and submitted in accordance with the schedule specified in Section: Document Submittal, Review, and Format. The PSA shall be completed within 90 days after receipt of Notice of Proceed. The Optional Item (SI) may be awarded by the government any time within 120 days after award of the basic contract, and shall be completed within 120 days after notification of the option award. All work under this scope of work shall be completed within 270 days after receipt of NTP.

Richard Haavisto

Richard Haavisto
Technical Manager
Envr Engr Br

SEP 28 '98 10:46AM CESPK-ED P.6/10

CESPK-ED-C
DACW05-97-D-0035

25 September 1998

PRICE NEGOTIATION MEMORANDUM

1. Negotiations were held on 25 September 1998 by telephone with the firm of Brown & Caldwell for services as described in CESPK-ED-E Scope of Work dated 16 September 1998, Subject: Preliminary Assessment/Site Investigation, USARC, Long Beach, CA. The A-E submitted a proposal dated 23 September 1998 in the amount of $117,238. In accordance with FAR 15.405 (a)(b), the purpose of the negotiation was to establish a fair and reasonable price for the work under a firm-fixed-price contract.

2. Participants in Negotiations:
   a. A-E Representative:
      Mr. Dave Jones
   b. Government Representative:
      Ken Parkinson, Senior Negotiator

3. Current Status of A-E's Purchasing System: N/A.

4. Certified Cost or Pricing Data: N/A.

5. The following is the summary comparison of A-E's proposal, prenegotiation objectives and negotiated amounts:

Task	Proposed	Objective	Negotiated
Task 1- Preliminary Site Assessment			
1. Direct Labor	$ 5,179	$ 5,179	$ 5,179
2. Overhead	9,478	9,478	9,478
3. Other Direct Costs	1,275	1,275	1,275
4. Profit	1,620	1,620	1,620
5. Travel	171	171	171
6. Subcontractors	140	140	140
Total	$ 17,863	$ 17,863	$ 17,863
Task 2.1 - Engineering Evaluation/Cost Analysis Option			
1. Direct Labor	$ 2,655	$ 2,209	$ 2,209
2. Overhead	4,859	4,043	4,043
3. Other Direct Costs	572	572	572
4. Profit	827	688	688
5. Travel	0	0	0
6. Subcontractors	0	0	0
Total	$ 8,913	$ 7,511	$ 7,511

Task	Proposed	Objective	Negotiated
Task 2.2 - Site Investigation Work Plan (Option)			
1. Direct Labor	$ 1,310	$ 1,310	$ 1,310
2. Overhead	2,397	2,397	2,397
3. Other Direct Costs	1,068	1,068	1,068
4. Profit	408	408	408
5. Travel	0	0	0
6. Subcontractors	0	0	0
Total	$ 5,193	$ 5,193	$ 5,193
Task 2.3 - Sampling Analysis Plan			
1. Direct Labor	$ 5,691	$ 4,964	$ 4,964
2. Overhead	10,415	9,085	9,085
3. Other Direct Costs	1,331	1,179	1,179
4. Profit	1,772	1,545	1,545
5. Travel	31	0	0
6. Subcontractors	0	0	0
Total	$ 19,240	$ 16,773	$ 16,773
Task 2.4 - Health & Safety Plan			
1. Direct Labor	$ 1,713	$ 1,185	$ 1,447
2. Overhead	3,135	2,168	2,168
3. Other Direct Costs	850	418	607
4. Profit	533	369	450
5. Travel	0	0	0
6. Subcontractors	0	0	0
Total	$ 6,231	$ 4,140	$ 5,152
Task 2.5 - Soil Sampling/Analysis (Option)			
1. Direct Labor	$ 1,057	$ 1,057	$ 1,057
2. Overhead	1,934	1,934	1,934
3. Other Direct Costs	1,999	1,999	1,999
4. Profit	1,561	1,561	1,561
5. Travel	31	31	31
6. Subcontractors	20,540	20,540	20,540
Total	$ 27,122	$ 27,122	$ 27,122

Task	Proposed	Objective	Negotiated
Task 5.5 - Site Investigation Report (Option)			
1. Direct Labor	$ 8,337	$ 6,232	$ 6,756
2. Overhead	15,257	11,405	12,364
3. Other Direct Costs	2,555	1,903	2,555
4. Profit	2,595	1,940	1,940
5. Travel	0	0	0
6. Subcontractors	0	0	0
Total	$ 28,744	$ 21,480	$ 23,778
Task 6 - Meetings			
1. Direct Labor	$ 1,242	$ 1,242	$ 1,242
2. Overhead	2,273	2,273	2,273
3. Other Direct Costs	0	0	
4. Profit	387	387	387
5. Travel	31	31	31
6. Subcontractors	0	0	0
Total	$ 3,933	$ 3,933	$ 3,933
Basic Total $43,681			
Options $63,604			
Grand Total	$117,238	$103,975	$107,285

6. Describe the discussions by cost element leading to each negotiated amount, including the principal factors related to the disposition of findings and recommendations contained in the audit report and pricing report, if any. [FAR 15.406-3(a)(7)]

(1) Task 1 - Accepted as proposed.

(2) Task 2.1 - The proposed effort for Preparing Final EECA appeared high. It was suggested by the Negotiator that minimal effort should be required to finalize the draft after 2 days of resolving review comments.

(3) Task 2.2 - Proposed cost accepted.

(4) Task 2.3 - Similar to Task 2.1, the proposed effort to resolve comments and prepare final plan appeared high.

(5) Task 2.4 - The proposed effort for Industrial Hygienist and Word Processing appeared high for a plan with some 'off the shelf' adaptation from other Health & Safety plans.

(6) Task 2.5 - Accepted as proposed.

Task	Proposed	Objective	Negotiated
Task 5.5 - Site Investigation Report (Option)			
1. Direct Labor	$ 8,337	$ 6,232	$ 6,756
2. Overhead	15,257	11,405	12,364
3. Other Direct Costs	2,555	1,903	2,555
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3. Other Direct Costs	0	0	
4. Profit	387	387	387
5. Travel	31	31	31
6. Subcontractors	0	0	0
Total	$ 3,933	$ 3,933	$ 3,933
Basic Total $43,681			
Options $63,604			
Grand Total	$117,238	$103,975	$107,285

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(1) Task 1 - Accepted as proposed.

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(3) Task 2.2 - Proposed cost accepted.

(4) Task 2.3 - Similar to Task 2.1, the proposed effort to resolve comments and prepare final plan appeared high.

(5) Task 2.4 - The proposed effort for Industrial Hygienist and Word Processing appeared high for a plan with some 'off the shelf' adaptation from other Health & Safety plans.

(6) Task 2.5 - Accepted as proposed.

(7) Task 5.5 - Since the draft report is not submitted to regulators (only to Corps) the comment resolution should be of less effort than proposed.

(8) Task 6 - Accepted as proposed.

7. Describe/explain the most significant facts or considerations controlling the establishment of the prenegotiation objective and the negotiated price including an explanation of any significant differences between the two positions. [EFARS 15.406-3(a)(8)]

-- See paragraph 6 above.

8. The basis for determining the profit or fee prenegotiation objective was the alternate structured approach to the Weighted Guidelines Method in accordance with EFARS 15.973-101. The profit/fee negotiated was 11% for the A-E's work and 6% on subcontractor costs. This represented $8,762.

9. The negotiated price did not exceed the original Government estimate of $165,121.

10. The A-E was informed at the close of negotiations that any understandings reached regarding price would be recommended to the Contracting Officer for approval.

11. The negotiated price is considered fair and reasonable and was accepted by all parties.

Ken Parkinson

Ken Parkinson
Senior Negotiator
A-E Negotiations Unit

SCOPE OF WORK
FOR
PRELIMINARY ASSESSMENT / SITE INVESTIGATION

---

1. GENERAL INFORMATION:

Project: Comprehensive Preliminary Assessment/Site Investigation
U.S. Army Reserve Center, Long Beach, California

2. PROJECT BACKGROUND:

The Installation Action Plan for U.S. Army 63D Regional Support Command (RSC), dated March 1998 has listed the Long Beach U.S. Army Reserve (USAR) Center site in the Restoration Program. Further characterization of the site is required to identify the presence or evidence of a release of possible environmental contamination.

3. SITE LOCATION AND DESCRIPTION:

The project site is located at 3800 E. Willow Street in Long Beach, California. The site to be investigated is a field approximately 0.6 acres in size and a strip of land adjacent to the main administrative building where no vegetation has been observed since 1994. The maintenance activities at this Reserve Center were ceased in 1990. The field with the lack of vegetation is located southwest corner of the facility and is adjacent to two sides of the facility boundaries. The site has been rated as a low risk under the Relative Risk Site Evaluation (RRSE) and the results are summarized below:

4. PREVIOUS INVESTIGATIONS:

4.1 Preliminary Sampling dated January 1997:

A soil sampling was conducted at the USAR Center in January 1997. Soil samples were collected near the parking lot, administrative buildings, and in the fields. A total of fourteen (14) samples were collected at a depth of approximately 1 feet below ground surface (bgs). Samples were analyzed for total petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes. The data indicated the presence of total petroleum hydrocarbons at all locations with concentrations ranging from 5.8 ppm to 73.4 ppm.

4.2 Preliminary Assessment/Site Investigation Report dated June 1998:

A total of 8 subsurface soil samples were collected from depths of approximately 3 to 5 bgs. Two background samples and one field duplicate were also collected from the subject site. The soil samples were analyzed for volatile and semi-volatile organic compounds, petroleum hydrocarbons, PCBs, and metals. Based on the analytical report, fourteen metals were detected in the background and field soil samples. The metal concentrations found in the soil samples varied from below background concentrations to greater than

background concentrations. All of the metal concentrations except for arsenic, beryllium, and thallium were below the EPA Region 9 residential soil Preliminary Remediation Goals. Total Extractable Petroleum Hydrocarbons was detected in one soil sample at 2.9 mg/kg. However, the report recommended further evaluation of the site for presence of potential contamination.

5.0 DESCRIPTION OF WORK AND SERVICES:

The Contractor shall provide all professional services required for preparation, coordination, and completion of the work as described below. All work must be conducted in compliance with applicable federal, state, or local regulations. The report shall consist of Preliminary Site Assessment followed by Site Investigation as a separate report, only if required.

1) Preliminary Site Assessment
2) Site Investigation (Option)
    A) Engineering Evaluation/Cost Analysis
    B) Site Investigation Work Plan
    C) Sampling Analysis Plan to include Field Sampling Plan and Quality Assurance Project Plan
    D) Worker Health and Safety Plan
    E) Site Sampling
    F) Site Investigation Report
    G) Hazard Ranking Scoring Package (if applicable)

5.1 Prepare Preliminary Site Assessment:

A Preliminary Site Assessment (PSA) shall be conducted by the Contractor to evaluate the potential for contamination at the site. The PSA will consist of regulatory agency records search, interviews, reconnaissance (on and off installation), literature search, photo interpretation, and map studies. In addition, the report shall contain the following: facility description, evidence of releases, site description and characterization, potential targets, hazardous waste generation, storage, and disposal, hydrology, and hydrogeology, soil, regulatory actions, and history of land use/ownership. As a minimum the following will be included in the report:

a. Research the files at the 63D RSC Engineers Office, Long Beach USAR Center, and ACOE-Real Estate Section for relevant information.
b. A research of the historical land usage and records of the site so as to determine the types of chemicals that may need to be tested for in SI work. Assess any known past and present operations on-site and describe what effects these conditions would have on remediation.
c. A review of historical aerial photographs for the site.
d. Interview past and present employees of the subject site to determine the type of activity that was conducted at the facility.
e. Research the files at the appropriate regulatory agencies that may have relevant information. Review of adjacent land use and impacts on the subject site for at least one-mile. Show location of any nearby wells.

f. Soil classification, groundwater depth, flow direction, geological information, etc. should be provided.
g. Conduct a site inspection of the site and list observations made at the site. Coordinate and inspect with the Project Manager of the 63D RSC Engineers Office - Environmental Division who has been assigned to work on the project.
h. A site map showing location of all areas of concern including storm/sanitary sewer lines, buildings etc. must be provided. Also identify and describe the location of any sensitive populations (schools, hospitals, etc.) within one quarter of the site.

Provide the PSA report in accordance with U.S. Environmental Protection Agency (EPA) guidance. The Contractor shall include recommendations for further actions that are necessary before the next phase (site investigation) can be accomplished.

5.2 Site Investigation:
The Contractor shall prepare and perform all work necessary to accomplish the Site Investigation (SI) phase of the Department of Defense (DoD) Installation Restoration Program. Based on knowledge obtained from the PSA, the Contractor shall prepare a Work Plan covering the actions described in the PSA. The following reports shall be submitted as part of the SI: SI work plan, Sampling Analysis Plan (including a Field Sampling Plan and Quality Assurance Project Plan), Worker Health and Safety Plan, Site Sampling, and the SI Report. Also, the contractor shall provide conclusions whether a No Further Action (NFA) or a Remedial Investigation/Feasibility Study (RI/FS) is warranted.

5.2.1 Engineering Evaluation/Cost Analysis
The Contractor shall complete an Engineering Evaluation/Cost Analysis (EE/CA) for the above SI pursuant to U.S. EPA guidance. The EE/CA shall consist of site description; source, nature and extent of contamination; Site Investigation objectives, scope, and schedule; analysis of effectiveness; implementation and cost.

5.2.2 Site Investigation Work Plan
The contractor shall prepare a SI work plan describing the proposed site investigation work in detail. The work plan shall include the proposed work items, scaled drawings of the site, and incorporate the Sampling Analysis Plan to document chain of custody, proposed data quality objectives, sampling methods, confirmatory samples, quality assurance and quality control (QA/QC), equipment decontamination. Other methods to protect the environment during the work such as surface waters, site restoration, and waste disposal also shall be documented.

5.2.3 Sampling Analysis Plan
The Sampling Analysis Plan (SAP) will contain the following information: site background, sampling objectives (location and purpose), designation and frequency of samples, sampling equipment and procedures, and sampling handling and analysis.

The Field Sampling Plan (FSP) should describe the number, type, and location of samples,

types of analyses, and decontamination procedures. It should also identify the personnel performing each task. The plan should be based on the types of hazardous materials expected and their potential off-site migration routes.

The Quality Assurance Project Plan (QAPP) presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities to ensure the validity of analytical data generated during project execution.

5.2.4 Health and Safety Plan

The Contractor shall complete a Health and Safety Plan (HSP) that complies with state and Federal OSHA regulations. The plan must contain information about known or suspected hazards; routine and special safety procedures that will need to be followed; and other instructions for safeguarding the health and safety of site personnel, visitors, and emergency responders.

5.2.5 Soil Sampling/Analysis

The Contractor shall use a hollow stem auger drill rig or direct push rig to drill borings for collection of subsurface soil samples for laboratory analysis. Boring locations shall be proposed in the FSP, logged for stratigraphy, and recorded on bore log sheets. QC samples shall be an additional 10% of primary samples. An additional 10% of primary samples shall be collected and shipped to the QA laboratory.

Soil samples shall be collected, packaged, shipped and analyzed in accordance with appropriate regulations. Before drilling, the Contractor shall locate utilities with magnetometer/pipe locator and identify on pavement or ground surface with paint. In addition, drilling locations shall be cleared through Underground Service Alert, and necessary permits shall be obtained from the County. The Contractor shall locate all soil borings and surface soil samples on a scaled map showing existing structures. The Contractor shall complete field notes pertaining to sampling and site assessment work for this scope of work. The Contractor shall provide a summary of the sampling laboratory results in tables in the SI report.

Drill four (4) borings up to 30 feet deep for the site. Collect subsurface soil samples from the borings at 5-foot intervals, starting at 5 feet bgs. Changes in stratigraphy or changes in soil color/discoloring are noted. Screen soil samples for contamination with PID/FID and select a total of 24 soil samples for laboratory analysis. After sampling, borings shall be filled with a cement-bentonite slurry.

SOIL SAMPLES

SAMPLE DEPTHS	EPA LAB METHODS	QUANTITY
0' - 30'	CAM 17 Metals 8015M - TPH G/D 8260 - VOCs	24

5.5 Site Investigation Report:
The SI report should describe the site investigation in detail in accordance with U.S. EPA guidance and DoD requirements. The SI is to augment the data collected in the RRSE to generate sampling and other field data to determine if further action or investigation is appropriate and identify whether the USAR Center Long Beach site qualify for the Restoration Program. The SI should contain enough data to characterize the site and its environment and provide physical environmental samples for analysis.

The preparation of the SI report requires that sufficient information be collected to define present and past waste operations and site conditions resulting from waste operations. The results documented in the report should at a minimum: define the source and nature of the release; and provide conclusions whether a NFA or a RI/FS is warranted.

6.0 MEETINGS:

The Contractor shall attend a total of 2 meetings at the 63D RSC Office at Los Alamitos, California to discuss the PSA and SI phase, document submittals, comment reviews and the scope of work in general. The Contractor shall summarize the minutes of each meeting and provide copies to the Project Manager.

7.0 DOCUMENT SUBMITTAL, REVIEW, AND FORMAT:

Document submittal shall consist of a Draft PSA, followed by a SI as a separate report, if required. Final submittal for the reports is required under this scope of work. After the review periods, the Contractor shall revise the draft documents to make corrections to the work and shall include a written response to comments. There will be a two-week review period allowed for each document submittal. For each document submittal, the Contractor shall have time as stated below to address review comments and produce a final document. Final documents shall incorporate all authorized revisions.

The Contractor shall provide all professional services required for and related to the preparation, coordination and completion of the work as described herein. All documents, including reports and work plans, shall be submitted on 8 1/2 inch by 11 inch white bond paper and neatly bound. Two copies of Draft Report for each individual site are to be provided. It is preferred to have the Draft Reports double-sided. It is preferred that all final documents be bound in a three-ring binder. Three copies of Final Report are to be provided. Drawings should be sized to clearly show the information being presented. Whenever possible, drawings should be folded to fit the 8 1/2 inch by 11 inch format. Larger drawings should fit in a pocket bound into each document. Electronic copies of the report shall be provided in Microsoft Office 97 software programs to the 63D RSC.

The 63D RSC point of contact (POC) would like to be provided a brief and concise monthly progress report until the project is complete. The report shall address the schedule of the project and any delays/problems that may be encountered with the work. The purpose of the report is to keep the POC fully apprised of all factors affecting the performance of the

work.

8.0 DOCUMENT REPRODUCTION AND DISTRIBUTION:

The Contractor shall furnish copies of the documents required by this scope of work, including reports and work plans, as well as technical submittals, to the address listed below and in the quantities shown above in the Document Submittal/Review/Format above.

63D RSC - Commander, 63D RSC
AFRC-CCA-EN, Bldg. 7
Attn.: Ms. Shyamala Sundaram
P.O. Box 3001
Los Alamitos, CA 90720-1301
Phone: (562) 795-1442, Fax: (562) 795-1499

FACSIMILE HEADER SHEET

1630 hrs.
9-25-98
(Date)

US Army Corps of Engineers
Sacramento District

US Army Engineer District, Sacramento
1325 J Street
Sacramento, California 95814-2922

TO: SHYAMALA	Fax Phone: (562) 795-1499 Voice Phone:
FROM: RICH HAAVISTO	Fax Phone: (916) 557-7865 Voice Phone: (916) 557-7440

Number of pages to follow: 0

(Releaser's Signature)

COMMENTS:

We negotiated a fee of $43,681 for Long Beach today. It covers the PSA, meeting attendance, & preparation of the SAP and HSP.

We have $4,219 available for return to HQ USARC on Monday or Tuesday.

Rich

CESPK FORM 63
1 JAN 92

(Edition of 1 Jan 91 may be used)

FACSIMILE HEADER SHEET

US Army Corps of Engineers
Sacramento District

US Army Engineer District, Sacramento
1325 J Street
Sacramento, California 95814-2922

9-14-98
(Date)

TO:	Fax Phone:
Shyamala	(562) 795-1499
	Voice Phone: 1442

FROM:	Fax Phone:
RICH HAAVISTO	(916) 557-7865
	Voice Phone: (916) 557-7440

Number of pages to follow: 2

(Releaser's Signature)

COMMENTS:

MIPR(s) for Long Beach USARC.
Please send soon tomorrow, OK?

Rich

CESPK FORM 63
1 JAN 92

(Edition of 1 Jan 91 may be used)

MILITARY INTERDEPARTMENTAL PURCHASE REQUEST

1. PAGE 1 OF 1 PAGES

2. FSC	3. CONTROL SYMBOL NO.	4. DATE PREPARED	5. MIPR NUMBER	6. AMEND NO.
		10 Sep 98	MIPR98DERASA29	1

7. TO:
U.S. Army Corps of Engineers, Sacramento District
ATTN: CESPK-ED-E (Mr. Richard M. Haavisto)
1325 J Street, Sacramento California 95814-2922
Phone: 916-557-7440, Fax: 916-557-7866 or 7848

8. FROM: (Agency, name, telephone number of originator)
U.S. Army Reserve Command
ATTN: AFRC-ENB
1401 Deshler Street SW
Fort McPherson, GA 30330-2000

9. ITEMS ☐ ARE ☐ ARE NOT INCLUDED IN THE INTERSERVICE SUPPLY SUPPORT PROGRAM AND REQUIRED INTERSERVICE SCREENING ☐ HAS ☐ HAS NOT BEEN ACCOMPLISHED.

ITEM NO.	DESCRIPTION (Federal stock number, nomenclature, specification and/or drawing No., etc.)	QTY c	UNIT d	ESTIMATED UNIT PRICE e	ESTIMATED TOTAL PRICE f
1	USAR Long Beach DSERTS Site: Site 07 Field with no growth, RI/FS Funds are provided to prepare and implement the site investigation Work Plan for Long Beach USAR Center, CA. AMS 493008.12 APR 5AP3 Budget POC: Mr. Jim Mueller Installation POC: Steven Volk 510-688-1943 Functional POC (USARC): Sam Pierre 404-464-8760 Functional POC (USACE): Mr. Richard M. Haavisto				

10. SEE ATTACHED PAGES FOR DELIVERY SCHEDULES, PRESERVATION AND PACKAGING INSTRUCTIONS, SHIPPING INSTRUCTIONS AND INSTRUCTIONS FOR DISTRIBUTION OF CONTRACTS AND RELATED DOCUMENTS.

11. GRAND TOTAL $50,000.00

12. TRANSPORTATION ALLOTMENT (Used if FOB Contractor's plant)

13. MAIL INVOICES TO (Payment will be made by)
DNO-Indianapolis, dept 3250
8899 E. 56th Street
Indianapolis, IN 32469-3250
PAY OFFICE DODAAD

14. FUNDS FOR PROCUREMENT ARE PROPERLY CHARGEABLE TO THE ALLOTMENTS SET FORTH BELOW. THE AVAILABLE BALANCES OF WHICH ARE SUFFICIENT TO COVER THE ESTIMATED TOTAL PRICE.

ACCN	APPROPRIATION	LIMIT/SUBHEAD	SUPPLEMENTAL ACCOUNTING CLASSIFICATION	ACCTG STA DODAAD	AMOUNT
	2182020	242400	493008.12 25GZ SAP3 028013		$50,000.00

15. AUTHORIZING OFFICER (Type name and title)	16. SIGNATURE	17. DATE
Jim Mueller, Chief, Budget Analyst	[signature]	14 Sep 98

DD FORM 448, JUN 72 PREVIOUS EDITION IS OBSOLETE.

SEP 14 '98 01:48PM CESPK-ED P.3/3

MILITARY INTERDEPARTMENTAL PURCHASE REQUEST

1. PAGE 1 OF 1 PAGES

2. FSC	3. CONTROL SYMBOL NO.	4. DATE PREPARED	5. MIPR NUMBER	6. AMEND NO.
		10 Sep 98	MIPR98DERASA29	

7. TO:
U.S. Army Corps of Engineers, Sacramento District
ATTN: CESPK-ED-E (Mr. Richard M. Haavisto)
1325 J Street, Sacramento California 95814-2922
Phone: 916-557-7440, Fax: 916-557-7866 or 7848

8. FROM: (Agency, name, telephone number of originator)
U.S. Army Reserve Command
ATTN: AFRC-ENB
1401 Deshler Street SW
Fort McPherson, GA 30330-2000

9. ITEMS ☐ ARE ☐ ARE NOT INCLUDED IN THE INTERSERVICE SUPPLY SUPPORT PROGRAM AND REQUIRED INTERSERVICE SCREENING ☐ HAS ☐ HAS NOT BEEN ACCOMPLISHED.

ITEM NO.	DESCRIPTION (Federal stock number, nomenclature, specification and/or drawing No., etc.)	QTY c	UNIT d	ESTIMATED UNIT PRICE e	ESTIMATED TOTAL PRICE f
1	USAR Long Beach DSERTS Site: Site 07 Field with no growth, RI/FS Prepare and implement Workplan, $50,000 AMS 493008.12 APR SAP3 I _____ certify that this order represents a bona fide need of the current fiscal year in accordance with 31 USC 1502(a). Request "PROJECT ORDER" be established. Work will produce an inventory/documentation/report from services using Corps "in-house" resources. Contracts/other procurement can only be incidental to the producton. Project will be initiated promptly, within 90 days after acceptance of this order with completion by end of September 1999. Budget POC: Mr. Jim Mueller Installation POC: Steven Volk 510-688-1943 Functional POC (USARC): Sam Pierre 404-464-8760 Functional POC (USACE): Mr. Richard M. Haavisto				$0000

10. SEE ATTACHED PAGES FOR DELIVERY SCHEDULES, PRESERVATION AND PACKAGING INSTRUCTIONS, SHIPPING INSTRUCTIONS AND INSTRUCTIONS FOR DISTRIBUTION OF CONTRACTS AND RELATED DOCUMENTS.

11. GRAND TOTAL $50,000.00

12. TRANSPORTATION ALLOTMENT (Usual if FOB Contractor's plant)

13. MAIL INVOICES TO (Payment will be made by)
DNO-Indianapolic, dept 3250
8899 E. 56th Street
Indianapolis, IN 32469-3250
PAY OFFICE DODAAC

14. FUNDS FOR PROCUREMENT ARE PROPERLY CHARGEABLE TO THE ALLOTMENTS SET FORTH BELOW. THE AVAILABLE BALANCES OF WHICH ARE SUFFICIENT TO COVER THE ESTIMATED TOTAL PRICE.

ACRN	APPROPRIATION	LIMIT/SUBHEAD	SUPPLEMENTAL ACCOUNTING CLASSIFICATION	ACCTG STA DODAAD	AMOUNT
	2182020	242400	493008.12 25GZ SAP3 028013		$50,000.00

15. AUTHORIZING OFFICER (Type name and title)	16. SIGNATURE	17. DATE
Jim Mueller, Chief, Budget Analyst		10 Sep 98

DD FORM 448, JUN 72 PREVIOUS EDITION IS OBSOLETE. USAPPC V4.10

Environmental Division

63D Regional Support Command

US Army Reserve
AFRC-CCA-ENS
11200 Lexington Drive, Bldg 7
Los Alamitos, CA 90720-5002

FAX/LTR

Date: 17 September, 1998

Number of pages including cover sheet: 6

To:

Mr. Rich Haavisto

ACOE-Sacramento

Phone: (916) 557-7440

Fax phone: (916) 557-7865

CC:

From:

Shyamala Sundaram

Environmental Contractor

(REMSA, INC.)

Phone: (562) 795-1442

Fax phone: (562) 795-1499

REMARKS: ☒ Urgent ☒ For your review ☐ Reply ASAP ☒ Please comment

Dear Rich:

Based on my review, enclosed are the corrections to the SOW you faxed me for Long Beach USAR Center. If you have any questions, please call me back.

Thank you.

Shyamala.

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	0822
CONNECTION TEL	919165577865
SUBADDRESS	
CONNECTION ID	
ST. TIME	09/17 16:35
USAGE T	03'12
PGS.	6
RESULT	OK

Environmental Division

63D Regional Support Command

US Army Reserve
AFRC-CCA-ENS
11200 Lexington Drive, Bldg 7
Los Alamitos, CA 90720-5002

FAX/LTR

Date: 17 September, 1998

Number of pages including cover sheet: 6

To:

Mr. Rich Haavisto
ACOE-Sacramento

Phone: (916) 557-7440
Fax phone: (916) 557-7865
CC:

From:

Shyamala Sundaram
Environmental Contractor
(REMSA, INC.)

Phone: (562) 795-1442
Fax phone: (562) 795-1499

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	0824
CONNECTION TEL	919165577865
SUBADDRESS	
CONNECTION ID	
ST. TIME	09/17 17:43
USAGE T	03'11
PGS.	6
RESULT	OK

Environmental Division

63D Regional Support Command

US Army Reserve
AFRC-CCA-ENS
11200 Lexington Drive, Bldg 7
Los Alamitos, CA 90720-5002

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(REMSA, INC.)

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FACSIMILE HEADER SHEET

US Army Corps of Engineers
Sacramento District

US Army Engineer District, Sacramento
1325 J Street
Sacramento, California 95814-2922

9-17-98
(Date)

TO:	Fax Phone:
SHYAMALA	(562) 795-1499
	Voice Phone: 1442

FROM:	Fax Phone:
RICH HAAVISTO	(916) 557-7865
	Voice Phone: (916) 557-7440

Number of pages to follow: 5

(Releaser's Signature)

COMMENTS:

Revised SOW for Long Beach

Rich

CESPK FORM 63
1 JAN 92

(Edition of 1 Jan 91 may be used)

CESPK-ED-E 16 September 1998

SCOPE OF WORK

PROJECT: PRELIMINARY ASSESSMENT / SITE INVESTIGATION, USARC, Long Beach, CA

CONTRACT NO. DACW05-97-D-0035

CONTRACTOR: Brown & Caldwell, Sacramento, CA
A-E POC: David R. Jones (916) 444-0123

1. **AUTHORITY:** MIPR from AFRC-ENB, 10 Sep 98, Subject: USARC, Long Beach, Site 07, RI/FS. Prepare and Implement Workplan

2. **PROJECT BACKGROUND:** The Installation Action Plan for U.S. Army 63D Regional Support (~~RSC~~ RSC) Command, dated March 1998 has listed the Long Beach U.S. Army Reserve (USAR) Center site in the Restoration Program. Further characterization of the site is required to identify the presence or evidence of a release of possible environmental contamination.

3. **SITE LOCATION AND DESCRIPTION:** The project site is located at 3800 E. Willow Street in Long Beach, California. The site to be investigated is a field approximately 0.6 acres in size and a strip of land adjacent to the main administrative building where no vegetation has been observed since 1994. The maintenance activities at this Reserve Center were ceased in 1990. The field with the lack of vegetation is located southwest corner of the facility and is adjacent to two sides of the facility boundaries. The site has been rated as a low risk under the Relative Risk Site Evaluation (RRSE) and the results are summarized below:

4. **PREVIOUS INVESTIGATIONS:**

4.1 Preliminary Sampling dated January 1997: A soil sampling was conducted at the USAR Center in January 1997. Soil samples were collected near the parking lot, administrative buildings, and in the fields. A total of fourteen (14) samples were collected at a depth of approximately 1 feet below the ground surface (bgs). Samples were analyzed for total petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes. The data indicated the presence of total petroleum hydrocarbons at all locations with concentrations ranging from 5.8 ppm to 73.4 ppm.

4.2 Preliminary Assessment/Site Investigation Report dated June 1998: A total of 8 subsurface soil samples were collected from depths of approximately 3 to 5 feet bgs. Two background samples and one field duplicate were also collected from the subject site. The soil samples were analyzed for volatile and semi-volatile organic compounds, petroleum hydrocarbons, PCBs, and metals. Based on the analytical reports, fourteen metals were detected in the background and field soil samples. Total Extractable Petroleum Hydrocarbons was detected in one soil sample. However, the report recommended further evaluation of the site for presence of potential contamination. Results of these two sampling events are available from the 63D RSC ~~POC~~. Engineers Office.

5.0 DESCRIPTION OF WORK AND SERVICES: The Contractor shall provide all professional services required for preparation, coordination, and completion of the work as described below. All work must be conducted in compliance with applicable federal, state, or local regulations. The report shall consist of a PSA Preliminary Site Assessment followed by the SI Site Investigation as a separate report if required.

1) Preliminary Site Assessment
2) Site Investigation (Optional Item)
   A) Engineering Evaluation/Cost Analysis
   B) Site Investigation Work Plan

I added a sentence here in my earlier fax. Please include it here.

C) Sampling Analysis Plan to include Field Sampling Plan and Quality Assurance Project Plan
D) Worker Health and Safety Plan
E) Site Sampling
F) Site Investigation Report
G) Hazard Ranking Scoring Package (if applicable)

5.1 Prepare Preliminary Site Assessment: A Preliminary Site Assessment (PSA) shall be conducted by the Contractor to evaluate the potential for contamination at the site. The PSA will consist of regulatory agency records search, interviews, reconnaissance (on and off installation), literature search, photo interpretation, and map studies. In addition, the report shall contain the following: facility description, evidence of releases, site description and characterization, potential targets, hazardous waste generation, storage, and disposal, hydrology, and hydrogeology, soil, regulatory actions, and history of land use/ownership. As a minimum the following will be included in the report:

a. Research the files at the 63D RSC Engineers Office, Long Beach USAR Center, and ~~ACOE~~ Corps of Engineers (ACOE) Los Angeles District-Real Estate Section for relevant information.
b. A research of the historical land usage and records of the site so as to determine the types of chemicals that may need to be tested for in SI work. Assess any known past and present operations on-site and describe what effects these conditions would have on remediation.
c. A review of historical aerial photographs for the site.
d. Interview past and present employees of the subject site to determine the type of activity that was conducted at the facility.
e. Research the files at the appropriate regulatory agencies that may have relevant information. Review of adjacent land use and impacts on the subject site for at least one-mile. Show location of any nearby wells.
f. Soil classification, groundwater depth, flow direction, geological information, etc. should be provided.
g. Conduct a site inspection of the site and list observations made at the site. Coordinate and inspect with the Project Manager of the 63D RSC Engineers Office - Environmental Division who has been assigned to work on the project.
h. A site map showing location of all areas of concern including storm/sanitary sewer lines, buildings etc. must be provided. Also identify and describe the location of any sensitive populations (schools, hospitals, etc.) within one quarter mile of the site.

Provide the PSA report in accordance with U.S. Environmental Protection Agency (EPA) guidance. The Contractor shall include recommendations for further actions that are necessary before the next phase (site investigation) can be accomplished.

5.2 Site Investigation (Option): The Contractor shall prepare and perform all work necessary to accomplish the Site Investigation (SI) phase of the Department of Defense (DoD) Installation Restoration Program. Based on knowledge obtained from the PSA, the Contractor shall prepare a Work Plan covering the actions described in the PSA. The following reports shall be submitted as part of the SI: SI work plan, Sampling Analysis Plan (including a Field Sampling Plan and Quality Assurance Project Plan, Worker Health and Safety Plan, site sampling, and the SI Report. Also, the contractor shall provide conclusions whether a No Further Action (NFA) or a Remedial Investigation/Feasibility Study (RI/FS) is warranted.

5.2.1 Engineering Evaluation/Cost Analysis (Option): The Contractor shall complete an Engineering Evaluation/Cost Analysis (EE/CA) for the above SI pursuant to U.S. EPA guidance. The EE/CA shall consist of site description; source, nature and extent of contamination; Site Investigation objectives scope and schedule; and analysis of effectiveness, implementation and cost.

5.2.2 Site Investigation Work Plan (Option): The contractor shall prepare a SI work plan describing the proposed site investigation work in detail. The work plan shall include the proposed work items, scaled drawings of the site, and incorporate the Sampling Analysis Plan to document chain of custody, proposed data quality objectives, sampling methods, confirmatory samples, quality assurance and quality control (QA/QC),

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equipment decontamination. Other methods to protect the environment during the work such as surface waters, site restoration, and waste disposal also shall be documented.

5.2.3 Sampling Analysis Plan (Option): The Sampling Analysis Plan (SAP) will contain the following information: site background, sampling objectives (location and purpose), ~~location~~, designation and frequency of samples, sampling equipment and procedures, and sampling handling and analysis.

The Field Sampling Plan (FSP) should describe the number, type, and location of samples, types of analyses, and decontamination procedures. It should also identify the personnel performing each task. The plan should be based on the types of hazardous materials expected and their potential off-site migration routes.

The Quality Assurance Project Plan (QAPP) presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities to ensure the validity of analytical data generated during project execution.

5.2.4 Health and Safety Plan (Option): The Contractor shall complete a Health and Safety Plan (HSP) that complies with state and Federal OSHA regulations. The plan must contain information about known or suspected hazards; routine and special safety procedures that will need to be followed; and other instructions for safeguarding the health and safety of site personnel, visitors, and emergency responders.

5.2.5 Soil Sampling/Analysis (Option):

The Contractor shall use a hollow stem auger drill rig or direct push rig to drill borings for collection of subsurface soil samples for laboratory analysis. Boring locations shall be proposed in the FSP, logged for stratigraphy, and recorded on bore log sheets. QC samples shall be an additional 10% of primary samples. An additional 10% of primary samples shall be collected and shipped to the QA laboratory.

Soil samples shall be collected, packaged, shipped and analyzed in accordance with appropriate regulations. Before drilling, the Contractor shall locate utilities with magnetometer/pipe locator and identify on pavement or ground surface with paint. In addition, drilling locations shall be cleared through Underground Service Alert, and necessary permits shall be obtained from the County. The Contractor shall locate all soil borings and surface soil samples on a scaled map showing existing structures. The Contractor shall complete field notes pertaining to sampling and site assessment work for this scope of work. The Contractor shall provide a summary of the sampling laboratory results in tables ~~and on scaled maps for distribution in a letter~~ in the SI report.

Drill four (4) borings up to 25 feet deep for the site. Collect subsurface soil samples from the borings at 5-foot intervals, starting at 1-foot bgs. Changes in stratigraphy or changes in soil color/discoloring are noted. Screen soil samples for contamination with PID/FID and select a total of 24 soil samples for laboratory analysis. After sampling, borings shall be filled with a cement-bentonite slurry.

SOIL SAMPLES

SAMPLE DEPTHS	EPA LAB METHODS	QUANTITY
1' – 25'	CAM 17 Metals 8015M - TPH G/D Chlorinated Herbicides EPA 8080 or 8150 ? — Verify! Nitrates as Nitrogen EPA 300.0	24

SEP 17 '98 04:11PM CESPK-ED P.4/6

5.5 Site Investigation Report (Option):

The SI report should describe the site investigation in detail in accordance with U.S. EPA guidance and DoD requirements. The SI is to augment the data collected in the RRSE to generate sampling and other field data to determine if further action or investigation is appropriate and identify whether the USAR Center Long Beach site qualify for the Restoration Program. The SI should contain enough data to characterize the site and its environment and provide physical environmental samples for analysis.

The preparation of the SI report requires that sufficient information be collected to define present and past waste operations and site conditions resulting from waste operations. The results documented in the report should at a minimum: define the source and nature of the release; and provide conclusions whether a NFA or a RI/FS is warranted.

6.0 MEETINGS: The Contractor shall attend a total of 2 meetings at the 63D RSC Office at Los Alamitos, California to discuss the PSA and SI phase, document submittals, comment reviews and the scope of work in general. The Contractor shall summarize the minutes of each meeting and provide copies to the 63D RSC Project Manager.

7.0 DOCUMENT SUBMITTAL, REVIEW, AND FORMAT:

Document submittal shall consist of a Draft PSA, followed by a SI (Optional Item) as a separate report, if required. Final submittal for the reports is required under this scope of work. After the review periods, the Contractor shall revise the draft documents to make corrections to the work and shall include a written response to comments. There will be a two-week review period allowed for each document submittal. For each document submittal, the Contractor shall have time as stated below to address review comments and produce a final document. Final documents shall incorporate all authorized revisions.

The Contractor shall provide all professional services required for and related to the preparation, coordination and completion of the work as described herein. All documents, including reports and work plans, shall be submitted on 8 1/2 inch by 11 inch white bond paper and neatly bound. Two copies of Draft Report for each individual site are to be provided. It is preferred to have the Draft Reports double-sided. It is preferred that all final documents be bound in a three-ring binder. Three copies of Final Report are to be provided. Drawings should be sized to clearly show the information being presented. Whenever possible, drawings should be folded to fit the 8 1/2 inch by 11 inch format. Larger drawings should fit in a pocket bound into each document. Electronic copies of the report shall be provided in Microsoft Office 97 software programs to the 63D RSC.

The 63D RSC point of contact (POC) will be provided a brief and concise monthly progress report until the project is complete. The report shall address the schedule of the project and any delays/problems that may be encountered with the work. The purpose of the report is to keep the POC fully apprised of all factors affecting the performance of the work.

8.0 DOCUMENT REPRODUCTION AND DISTRIBUTION: The Contractor shall furnish copies of the documents required by this scope of work, including reports and work plans, as well as technical submittals, to the address listed below and in the quantities shown in the Document Submittal/ ~~Distribution/Schedule:~~ Review/Format.

63D RSC - Commander, 63D RSC
AFRC-CCA-EN, Bldg. 7
Attn.: Ms. Shyamala Sundaram
P.O. Box 3001
Los Alamitos, CA 90720-1301
Phone: (562) 795-1442, Fax: (562) 795-1499

SEP 17 '98 04:11PM CESPK-ED P.5/6

9.0 GENERAL REQUIREMENTS.: The Contractor is cautioned to take no guidance from any source other than the Contracting Officer during the course of this work which deviates from the requirements stated in this scope of work. The Contractor shall immediately notify the ACOE-Sacramento District Technical Manager or Contracting Officer of any such request. The A-E shall not deviate from the requirements stated in this scope of work without first notifying the Sacramento District Technical Manager.

10.0 PERIOD OF SERVICE: All work and services included in this scope of work shall be performed and submitted in accordance with the schedule specified in Section: Document Submittal, Review, and Format. The PSA shall be completed within 90 days after receipt of Notice to Proceed (NTP). The Optional Item (SI) may be awarded by the government any time within 120 days after award of the basic contract, and shall be completed within 120 days after notification of the option award. All work under this scope of work shall be completed within 270 days after receipt of NTP.

Richard Haavisto

Richard Haavisto
Technical Manager
Envr Engr Br

SEP 17 '98 04:11PM CESPK-ED P.6/6

FACSIMILE HEADER SHEET

US Army Corps of Engineers
Sacramento District

US Army Engineer District, Sacramento
1325 J Street
Sacramento, California 95814-2922

9-17-98
(Date)

TO: SHYAMALA	Fax Phone: (562) 795-1499 Voice Phone: -1442
FROM: RICH HAAVISTO	Fax Phone: (916) 557-7865 Voice Phone: (916) 557-7440

Number of pages to follow: 5

(Releaser's Signature)

COMMENTS:

SOW for Long Beach USARC.

Rich

CESPK FORM 63
1 JAN 92

(Edition of 1 Jan 91 may be used)

CESPK-ED-E 16 September 1998

SCOPE OF WORK

PROJECT: PRELIMINARY ASSESSMENT / SITE INVESTIGATION, USARC, Long Beach, CA

CONTRACT NO. DACW05-97-D-0035

CONTRACTOR: *Brown & Caldwell, Sacramento, CA*
A-E POC: David R. Jones (916) 444-0123

1. AUTHORITY: MIPR from AFRC-ENB, 10 Sep 98, Subject: USARC, Long Beach, Site 07, RI/FS. Prepare and Implement Workplan

2. PROJECT BACKGROUND: The Installation Action Plan for U.S. Army 63D Regional Support ~~(RSC)~~ Command (RSC), dated March 1998 has listed the Long Beach U.S. Army Reserve (USAR) Center site in the Restoration Program. Further characterization of the site is required to identify the presence or evidence of a release of possible environmental contamination.

3. SITE LOCATION AND DESCRIPTION: The project site is located at 3800 E. Willow Street in Long Beach, California. The site to be investigated is a field approximately 0.6 acres in size and a strip of land adjacent to the main administrative building where no vegetation has been observed since 1994. The maintenance activities at this Reserve Center were ceased in 1990. The field with the lack of vegetation is located southwest corner of the facility and is adjacent to two sides of the facility boundaries. The site has been rated as a low risk under the Relative Risk Site Evaluation and the results are summarized below:

4. PREVIOUS INVESTIGATIONS:

4.1 Preliminary Sampling dated January 1997: A soil sampling was conducted at the USAR Center in January 1997. Soil samples were collected near the parking lot, administrative buildings, and in the fields. A total of fourteen (14) samples were collected at a depth of approximately 1 feet below the ground surface. Samples were analyzed for total petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes. The data indicated the presence of total petroleum hydrocarbons at all locations with concentrations ranging from 5.8 ppm to 73.4 ppm.

4.2 Preliminary Assessment/Site Investigation Report dated June 1998: A total of 8 subsurface soil samples were collected from depths of approximately 3 to 5 feet below ground surface (bgs). Two background samples and one field duplicate were also collected from the subject site. The soil samples were analyzed for volatile and semi-volatile organic compounds, petroleum hydrocarbons, PCBs, and metals. Based on the analytical reports, fourteen metals were detected in the soil samples.* Total Extractable Petroleum Hydrocarbons was detected in one soil sample. The report recommended further evaluation of the site for presence of potential contamination. (Results of these two sampling events are available from the 63D RSC ~~POC~~) Engineers Office.

5.0 DESCRIPTION OF WORK AND SERVICES: The Contractor shall provide all professional services required for preparation, coordination, and completion of the work as described below. All work must be conducted in compliance with applicable federal, state, or local regulations. The report shall consist of Preliminary Site Assessment followed by Site Investigation as a separate report, if required.

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2) Site Investigation (Optional Item)
   - A) Engineering Evaluation/Cost Analysis
   - B) Site Investigation Work Plan
   - C) Sampling Analysis Plan to include Field Sampling Plan and Quality Assurance Project Plan
   - D) Worker Health and Safety Plan

* The metal concentrations found in the soil samples varied from below background concentrations to greater than background concentrations. All of the metal concentrations except for arsenic, beryllium, & thallium were below the EPA Region residential soil PRGs.

E) Site Sampling
F) Site Investigation Report
G) Hazard Ranking Scoring Package (if applicable)

5.1 Prepare Preliminary Site Assessment: A Preliminary Site Assessment (PSA) shall be conducted by the Contractor to evaluate the potential for contamination at the site. The PSA will consist of regulatory agency records search, interviews, reconnaissance (on and off installation), literature search, photo interpretation, and map studies. In addition, the report shall contain the following: facility description, evidence of releases, site description and characterization, potential targets, hazardous waste generation, storage, and disposal, hydrology, and hydrogeology, soil, regulatory actions, and history of land use/ownership. As a minimum the following will be included in the report:

a. Research the files at the 63D RSC Engineers Office, Long Beach USAR Center, and ACOE-Real Estate Section for relevant information.
b. A research of the historical land usage and records of the site so as to determine the types of chemicals that may need to be tested for in SI work. Assess any known past and present operations on-site and describe what effects these conditions would have on remediation.
c. A review of historical aerial photographs for the site.
d. Interview past and present employees of the subject site to determine the type of activity that was conducted at the facility.
e. Research the files at the appropriate regulatory agencies that may have relevant information. Review of adjacent land use and impacts on the subject site for at least one-mile. Show location of any nearby wells.
f. Soil classification, groundwater depth, flow direction, geological information, etc. should be provided.
g. Conduct a site inspection of the site and list observations made at the site. Coordinate and inspect with the Project Manager of the 63D RSC Engineers Office - Environmental Division who has been assigned to work on the project.
h. A site map showing location of all areas of concern including storm/sanitary sewer lines, buildings etc. must be provided. Also identify and describe the location of any sensitive populations (schools, hospitals, etc.) within one quarter mile of the site.

Provide the PSA report in accordance with U.S. Environmental Protection Agency (EPA) guidance. The Contractor shall include recommendations for further actions that are necessary before the next phase of the site investigation can be accomplished.

5.2 Site Investigation (Option): The Contractor shall prepare and perform all work necessary to accomplish the Site Investigation (SI) phase of the Department of Defense (DoD) Installation Restoration Program. Based on knowledge obtained from the PSA, the Contractor shall prepare a Work Plan covering the actions described in the PSA. The following reports shall be submitted as part of the SI: SI work plan, Sampling Analysis Plan (including a Field Sampling Plan and Quality Assurance Project Plan, Worker Health and Safety Plan, site sampling, and the SI Report. Also, the contractor shall provide conclusions whether a No Further Action (NFA) or a Remedial Investigation/Feasibility Study (RI/FS) is warranted.

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5.2.2 Site Investigation Work Plan (Option): The contractor shall prepare a SI work plan describing the proposed site investigation work in detail. The work plan shall include the proposed work items, scaled drawings of the site, and incorporate the Sampling Analysis Plan to document chain of custody, proposed data quality objectives, sampling methods, confirmatory samples, quality assurance and quality control (QA/QC), equipment decontamination. Other methods to protect the environment during the work such as surface waters, site restoration, and waste disposal also shall be documented.

SEP 17 '98 11:27AM CESPK-ED P.3/6

5.2.3 Sampling Analysis Plan (Option): The Sampling Analysis Plan (SAP) will contain the following information: site background, sampling objectives (location and purpose), location, designation and frequency of samples, sampling equipment and procedures, and sampling handling and analysis.

The Field Sampling Plan (FSP) should describe the number, type, and location of samples, types of analyses, and decontamination procedures. It should also identify the personnel performing each task. The plan should be based on the types of hazardous materials expected and their potential off-site migration routes.

The Quality Assurance Project Plan (QAPP) presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities to ensure the validity of analytical data generated during project execution.

5.2.4 Health and Safety Plan (Option): The Contractor shall complete a Health and Safety Plan (HSP) that complies with state and Federal OSHA regulations. The plan must contain information about known or suspected hazards; routine and special safety procedures that will need to be followed; and other instructions for safeguarding the health and safety of site personnel, visitors, and emergency responders.

5.2.5 Soil Sampling/Analysis (Option):

The Contractor shall use a hollow stem auger drill rig or direct push rig to drill borings for collection of subsurface soil samples for laboratory analysis. Boring locations shall be proposed in the FSP, logged for stratigraphy, and recorded on bore log sheets. QC samples shall be an additional 10% of primary samples. An additional 10% of primary samples shall be collected and shipped to the QA laboratory.

Soil samples shall be collected, packaged, shipped and analyzed in accordance with appropriate regulations. Before drilling, the Contractor shall locate utilities with magnetometer/pipe locator and identify on pavement or ground surface with paint. In addition, drilling locations shall be cleared through Underground Service Alert, and necessary permits shall be obtained from the County. The Contractor shall locate all soil borings and surface soil samples on a scaled map showing existing structures. The Contractor shall complete field notes pertaining to sampling and site assessment work for this scope of work. The Contractor shall provide a summary of the sampling laboratory results in tables and on scaled maps for distribution in a letter report.

Drill four (4) borings up to ~~30~~ 25 feet deep for the site. Collect subsurface soil samples from the borings at 5-foot intervals, starting at ~~5 feet~~ 1'. Changes in stratigraphy or changes in soil color/discoloring are noted. Screen soil samples for contamination with PID/FID and select a total of 24 soil samples for laboratory analysis. After sampling, borings shall be filled with a cement-bentonite slurry.

SOIL SAMPLES

SAMPLE DEPTHS	EPA LAB METHODS	QUANTITY
~~10'~~ - ~~30'~~ 1' – 25'	CAM 17 Metals 8015M - TPH G/D 8260 - Volatile Organic Compounds Herbicides – EPA Method – ? Nitrates – EPA Method – ?	24

SEP 17 '98 11:27AM CESPK-ED P.4/6

5.5 Site Investigation Report (Option):

The SI report should describe the site investigation in detail in accordance with U.S. EPA guidance and DoD requirements. The SI is to augment the data collected in the RRSE to generate sampling and other field data to determine if further action or investigation is appropriate and identify whether the USAR Center Long Beach site qualify for the Restoration Program. The SI should contain enough data to characterize the site and its environment and provide physical environmental samples for analysis.

The preparation of the SI report requires that sufficient information be collected to define present and past waste operations and site conditions resulting from waste operations. The results documented in the report should at a minimum: define the source and nature of the release; and provide conclusions whether a NFA or a RI/FS is warranted.

6.0 MEETINGS: The Contractor shall attend a total of 2 meetings at the 63D RSC Office at Los Alamitos, California to discuss the PA/SI phase, document submittals, comment reviews and the scope of work in general. The Contractor shall summarize the minutes of each meeting and provide copies to the 63D RSC Project Manager.

7.0 DOCUMENT SUBMITTAL, REVIEW, AND FORMAT:

Document submittal shall consist of a Draft PSA, followed by a SI (Optional Item) as a separate report, if required. Final submittal for the reports is required under this scope of work. After the review periods, the Contractor shall revise the draft documents to make corrections to the work and shall include a written response to comments. There will be a two-week review period allowed for each document submittal. For each document submittal, the Contractor shall have time as stated below to address review comments and produce a final document. Final documents shall incorporate all authorized revisions.

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The 63D RSC point of contact (POC) will be provided a brief and concise monthly progress report until the project is complete. The report shall address the schedule of the project and any delays/problems that may be encountered with the work. The purpose of the report is to keep the POC fully apprised of all factors affecting the performance of the work.

8.0 DOCUMENT REPRODUCTION AND DISTRIBUTION: The Contractor shall furnish copies of the documents required by this scope of work, including reports and work plans, as well as technical submittals, to the address listed below and in the quantities shown in the Document Submittal Distribution/Schedule.

<u>**63D RSC**</u> - Commander, 63D RSC
AFRC-CCA-EN, Bldg. 7
Attn.: Ms. Shyamala Sundaram
P.O. Box 3001
Los Alamitos, CA 90720-1301
Phone: (562) 795-1442, Fax: (562) 795-1499

9.0 GENERAL REQUIREMENTS.: The Contractor is cautioned to take no guidance from any source other than the Contracting Officer during the course of this work which deviates from the requirements stated in this scope of work. The Contractor shall immediately notify the Sacramento District Technical Manager or Contracting Officer of any such request. The A-E shall not deviate from the requirements stated in this scope of work without first notifying the Sacramento District Technical Manager.

10.0 PERIOD OF SERVICE: All work and services included in this scope of work shall be performed and submitted in accordance with the schedule specified in Section: Document Submittal, Review, and Format. The PSA shall be completed within 90 days after receipt of Notice of Proceed. The Optional Item (SI) can be awarded by the government any time within 120 days after award of the basic contract, and shall be completed within 120 days after notification of the option award. All work under this scope of work shall be completed within 270 days after receipt of NTP.

Richard Haavisto

Richard Haavisto
Technical Manager
Envr Engr Br

SEP 17 '98 11:28AM CESPK-ED P.6/6

SCOPE OF WORK
FOR
PRELIMINARY ASSESSMENT / SITE INVESTIGATION

---

1. GENERAL INFORMATION:

Project: Comprehensive Preliminary Assessment/Site Investigation
U.S. Army Reserve Center, Long Beach, California

2. PROJECT BACKGROUND:

The Installation Action Plan for U.S. Army 63D Regional Support (RSC) Command, dated March 1998 has listed the Long Beach U.S. Army Reserve (USAR) Center site in the Restoration Program. Further characterization of the site is required to identify the presence or evidence of a release of possible environmental contamination.

3. SITE LOCATION AND DESCRIPTION:

The project site is located at 3800 E. Willow Street in Long Beach, California. The site to be investigated is a field approximately 0.6 acres in size and a strip of land adjacent to the main administrative building where no vegetation has been observed since 1994. The maintenance activities at this Reserve Center were ceased in 1990. The field with the lack of vegetation is located southwest corner of the facility and is adjacent to two sides of the facility boundaries. The site has been rated as a low risk under the Relative Risk Site Evaluation and the results are summarized below:

4. PREVIOUS INVESTIGATIONS:

4.1 Preliminary Sampling dated January 1997:

A soil sampling was conducted at the USAR Center in January 1997. Soil samples were collected near the parking lot, administrative buildings, and in the fields. A total of fourteen (14) samples were collected at a depth of approximately 1 feet below the ground surface. Samples were analyzed for total petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes. The data indicated the presence of total petroleum hydrocarbons at all locations with concentrations ranging from 5.8 ppm to 73.4 ppm.

4.2 Preliminary Assessment/Site Investigation Report dated June 1998:

? A total of 8 subsurface soil samples were collected from depths of approximately 3 to 5 bgs. Two background samples and one field duplicate were also collected from the subject site. The soil samples were analyzed for volatile and semi-volatile organic compounds, petroleum hydrocarbons, PCBs, and metals. Based on the analytical reports, fourteen metals were detected in the soil samples. Total Extractable Petroleum Hydrocarbons was detected in one soil sample. The report recommended further evaluation of the site for

BAD OR OK RANGE?

presence of potential contamination.

5.0 DESCRIPTION OF WORK AND SERVICES:

The Contractor shall provide all professional services required for preparation, coordination, and completion of the work as described below. All work must be conducted in compliance with applicable federal, state, or local regulations.

1) Preliminary Site Assessment (PSA)
2) Site Investigation
   - A) Engineering Evaluation/Cost Analysis
   - B) Site Investigation Work Plan
   - C) Sampling Analysis Plan to include Field Sampling Plan and Quality Assurance Project Plan
   - D) Worker Health and Safety Plan
   - E) Site Sampling
   - F) Site Investigation Report
   - G) Hazard Ranking Scoring Package (if applicable)

5.1 Prepare Preliminary Site Assessment:

A Preliminary Site Assessment (PSA) shall be conducted by the Contractor to evaluate the potential for contamination at the site. The PSA will consist of regulatory agency records search, interviews, reconnaissance (on and off installation), literature search, photo interpretation, and map studies. In addition, the report shall contain the following: facility description, evidence of releases, site description and characterization, potential targets, hazardous waste generation, storage, and disposal, hydrology, and hydrogeology, soil, regulatory actions, and history of land use/ownership. As a minimum the following will be included in the report:

a. Research the files at the 63D RSC Engineers Office, Long Beach USAR Center, and ACOE-Real Estate Section for relevant information.
b. A research of the historical land usage and records of the site so as to determine the types of chemicals that may need to be tested for in SI work. Assess any known past and present operations on-site and describe what effects these conditions would have on remediation.
c. A review of historical aerial photographs for the site.
d. Interview past and present employees of the subject site to determine the type of activity that was conducted at the facility.
e. Research the files at the appropriate regulatory agencies that may have relevant information. Review of adjacent land use and impacts on the subject site for at least one-mile. Show location of any nearby wells.
f. Soil classification, groundwater depth, flow direction, geological information, etc. should be provided.
g. Conduct a site inspection of the site and list observations made at the site. Coordinate and inspect with the Project Manager of the 63D RSC Engineers Office - Environmental Division who has been assigned to work on the project.
h. A site map showing location of all areas of concern including storm/sanitary

sewer lines, buildings etc. must be provided. Also identify and describe the location of any sensitive populations (schools, hospitals, etc.) within one quarter of the site.

Provide the PSA report in accordance with U.S. Environmental Protection Agency (EPA) guidance. The Contractor shall include recommendations for further actions that are necessary before the next phase of the site investigation can be accomplished.

5.2 Site Investigation:
The Contractor shall prepare and perform all work necessary to accomplish the Site Investigation (SI) phase of the Department of Defense (DoD) Installation Restoration Program. Based on knowledge obtained from the PSA, the Contractor shall prepare a Work Plan covering the actions described in the PSA. The following reports shall be submitted as part of the SI: SI work plan, Sampling Analysis Plan (including a Field Sampling Plan and Quality Assurance Project Plan, Worker Health and Safety Plan, site sampling, and the SI Report. Also, the contractor shall provide conclusions whether a No Further Action (NFA) or a Remedial Investigation/Feasibility Study (RI/FS) is warranted.

5.2.1 Engineering Evaluation/Cost Analysis
The Contractor shall complete an Engineering Evaluation/Cost Analysis (EE/CA) for the above SI pursuant to U.S. EPA guidance. The EE/CA shall consist of site description; source, nature and extent of contamination; Site Investigation objectives scope and schedule; and analysis of effectiveness, implementation and cost.

HOW EXTENSIVE IS THIS WORK? IS IT REQUIRED -

5.2.2 Site Investigation Work Plan
The contractor shall prepare a SI work plan describing the proposed site investigation work in detail. The work plan shall include the proposed work items, scaled drawings of the site, and incorporate the Sampling Analysis Plan to document chain of custody, proposed data quality objectives, sampling methods, confirmatory samples, quality assurance and quality control (QA/QC), equipment decontamination. Other methods to protect the environment during the work such as surface waters, site restoration, and waste disposal also shall be documented.

COST ?

5.2.3 Sampling Analysis Plan
The Sampling Analysis Plan (SAP) will contain the following information: site background, sampling objectives (location and purpose), location, designation and frequency of samples, sampling equipment and procedures, and sampling handling and analysis.

The Field Sampling Plan (FSP) should describe the number, type, and location of samples, types of analyses, and decontamination procedures. It should also identify the personnel performing each task. The plan should be based on the types of hazardous materials expected and their potential off-site migration routes.

The Quality Assurance Project Plan (QAPP) presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities

to ensure the validity of analytical data generated during project execution.

5.2.4 Health and Safety Plan

The Contractor shall complete a Health and Safety Plan (HSP) that complies with state and Federal OSHA regulations. The plan must contain information about known or suspected hazards; routine and special safety procedures that will need to be followed; and other instructions for safeguarding the health and safety of site personnel, visitors, and emergency responders.

5.2.5 Soil Sampling/Analysis

The Contractor shall use a hollow stem auger drill rig or direct push rig to drill borings for collection of subsurface soil samples for laboratory analysis. Boring locations shall be proposed in the FSP, logged for stratigraphy, and recorded on bore log sheets. QC samples shall be an additional 10% of primary samples. An additional 10% of primary samples shall be collected and shipped to the QA laboratory.

Soil samples shall be collected, packaged, shipped and analyzed in accordance with appropriate regulations. Before drilling, the Contractor shall locate utilities with magnetometer/pipe locator and identify on pavement or ground surface with paint. In addition, drilling locations shall be cleared through Underground Service Alert, and necessary permits shall be obtained from the County. The Contractor shall locate all soil borings and surface soil samples on a scaled map showing existing structures. The Contractor shall complete field notes pertaining to sampling and site assessment work for this scope of work. The Contractor shall provide a summary of the sampling laboratory results in tables and on scaled maps for distribution in a letter report.

Drill four (4) borings up to 30 feet deep for the site. Collect subsurface soil samples from the borings at 5-foot intervals, starting at 5 feet. Changes in stratigraphy or changes in soil color/discoloring are noted. Screen soil samples for contamination with PID/FID and select a total of 24 soil samples for laboratory analysis. After sampling, borings shall be filled with a cement-bentonite slurry.

AT ALL SITES — ON BASED UPON RESULTS OF PA/SI

SOIL SAMPLES

SAMPLE DEPTHS	EPA LAB METHODS	QUANTITY
0' - 30'	CAM 17 Metals 8015M - TPH G/D 8260 - Volatile Organic Compounds	24

5.5 Site Investigation Report:
The SI report should describe the site investigation in detail in accordance with U.S. EPA guidance and DoD requirements. The SI is to augment the data collected in the RRSE to generate sampling and other field data to determine if further action or investigation is appropriate and identify whether the USAR Center Long Beach site qualify for the Restoration Program. The SI should contain enough data to characterize the site and its environment and provide physical environmental samples for analysis.

The preparation of the SI report requires that sufficient information be collected to define present and past waste operations and site conditions resulting from waste operations. The results documented in the report should at a minimum: define the source and nature of the release; and provide conclusions whether a NFA or a RI/FS is warranted.

6.0 MEETINGS:

The Contractor shall attend a total of 2 meetings at the 63D RSC Office at Los Alamitos, California to discuss the PA/SI phase, document submittals, comment reviews and the scope of work in general. The Contractor shall summarize the minutes of each meeting and provide copies to the Project Manager.

7.0 DOCUMENT SUBMITTAL, REVIEW, AND FORMAT:

Document submittal shall consist of a Draft PSA, followed by a SI as a separate report, if required. Final submittal for the reports is required under this scope of work. After the review periods, the Contractor shall revise the draft documents to make corrections to the work and shall include a written response to comments. There will be a two-week review period allowed for each document submittal. For each document submittal, the Contractor shall have time as stated below to address review comments and produce a final document. Final documents shall incorporate all authorized revisions.

The Contractor shall provide all professional services required for and related to the preparation, coordination and completion of the work as described herein. All documents, including reports and work plans, shall be submitted on 8 1/2 inch by 11 inch white bond paper and neatly bound. Two copies of Draft Report for each individual site are to be provided. It is preferred to have the Draft Reports double-sided. It is preferred that all final documents be bound in a three-ring binder. Three copies of Final Report are to be provided. Drawings should be sized to clearly show the information being presented. Whenever possible, drawings should be folded to fit the 8 1/2 inch by 11 inch format. Larger drawings should fit in a pocket bound into each document. Electronic copies of the report shall be provided in Microsoft Office 97 software programs to the 63D RSC.

The 63D RSC point of contact (POC) would like to be provided a brief and concise monthly progress report until the project is complete. The report shall address the schedule of the project and any delays/problems that may be encountered with the work. The purpose of the report is to keep the POC fully apprised of all factors affecting the performance of the

work.

8.0 DOCUMENT REPRODUCTION AND DISTRIBUTION:

The Contractor shall furnish copies of the documents required by this scope of work, including reports and work plans, as well as technical submittals, to the address listed below and in the quantities shown in the Document Submittal Distribution/Schedule above.

63D RSC - Commander, 63D RSC
AFRC-CCA-EN, Bldg. 7
Attn.: Ms. Shyamala Sundaram
P.O. Box 3001
Los Alamitos, CA 90720-1301
Phone: (562) 795-1442, Fax: (562) 795-1499

AFRC-CCA-EN (200-1a) 7 July 1998

MEMORANDUM FOR LTC Gerald Muir, Environmental Division Chief

SUBJECT: Installation Restoration Document Review - Rebuttal

1. There have been many questions brought to my attention about the validity of the restoration program for the 63D RSC. Recently MAJ Doughty reviewed a number of documents and provided comments on those documents. Some of these documents were for the restoration program and some were baseline surveys being conducted on AZ facilities for information purposes only. I believe that the good MAJ has confused some of these documents. I would like to take some time to clarify his questions and comments and try to explain one last time to everyone how the 63D RSC has been operating the restoration program past, current, and future.

2. To start the IAP is a tool established and required by AEC to provide funding requirements to Congress. This document can also be used to provide general information to the CG and to the regulators. The IAP is supposed to be a living document that is updated once a year after the IAP Workshop. You will notice that the POM budget is attached to this document. This information allows the 63D RSC, State Regulators, HQ USARC, and AEC to program DERA money for the POM years. AEC uses this information to establish a baseline with Congress for funding in the E, RA Program. This is very useful tool when all that understand it know how it is to be used. The IAP does not justify work plans and field investigation reports, it helps to summarize this information.

3. To understand why the 63D RSC seems to be doing additional sampling to justify these IRP sites we need to begin at the beginning. In 1989, USATHAMA hired a contractor, Weston Inc., to establish a baseline reflecting potential waste sites at Army properties. Waste sites for the purpose of this study were defined broadly to include any location at a facility from which hazardous constituents might be released. Brief reports for each property was compiled with data collected from a questionnaire and telephone follow-up with Army personnel familiar with the property. This report is now referred to as the Weston Study, and was conducted at the early stages of the IRP and was intended to be used for future IRP communication and as an initial basis for allocation of resources.

4. Subsequently, the site enumeration of the Weston Study was entered into a database for tracking Army IRP status. Significantly, this data entry was stopped before all volumes of the Weston Study were in the database because of the realization that the information gathered on all the sites, entered and not entered, had no release or suspected release of hazardous substances to the environment. The approximately 4800 U.S. Army Reserve sites already entered were allowed to remain, and were carried into the Defense

Site Environmental Restoration Tracking System (DSERTS) databases with the fielding of DSERTS software.

5. With knowledge that most of these sites were in the DSERTS database without meeting the criteria for inclusion in the IRP, approximately 4000 were given Response Complete dates of 177607 and 199002 as markers to indicate the belief that the sites were not likely to be valid IRP sites. As a result, HQUSARC and AEC asked each of the RSC's to review all of the Weston Study and determine those sites that can be listed as Response Complete. The review would help to eliminate the majority of the sites that were determined eligible through a seven-point procedure. This procedure was completed earlier this FY.

6. When I was handed this program in 1996, I jumped the gun on HQUSARC and AEC and started eliminating those sites on the DSERTS database that I knew could not be considered for E, RA eligible. If the site was not a permanent structure or was still in use, it was not eligible for E, RA funding. Subsequently, I proceeded with trying to receive funding for the remaining sites that needed additional information for the regulators to close the site. Last year when I started receiving funding for these sites AEC required the IAP to begin to meet Congress goals for having the E, RA Funding programmed for the POM years.

7. The 63D has not been able to finish all of the sampling for these sites but we have just funded the remaining 6 sites that need sampling. From this point the regulators will be provided the information gathered and we can determine what if any, work needs to be done to close these sites.

8. I know that MAJ Doughty has serious concerns about a number of observations I will try to address those.

a. Site 03 Grease Rack – I am not sure which grease rack is being mentioned. I am not aware of any IRP site that is being deeded to the Navy.
b. The draft IAP is dated Aug – Sept 97, The FIR is for sites that USARC funded at the end of FY 97 that needed scored for DSERTS. The WP was funded at the end of FY 97 by the 63D RSC to score sites that were not listed in DSERTS.
c. As explained above, The FIR were sites that were listed in DSERTS so needed to be scored. The WP identified sites that were not in DSERTS, so a PA/SI was done.
d. The FIR does have a final draft as of May 1998.
e. The WP does not address RWQCB regulatory drivers because they felt that this would not impact ground water so they did not want to be involved for the time being. The DTSC agreed they would take the lead and would bring other agencies on board as needed.
f. At this time we have conducted PA/SI's for Concord, Lathrop, AMSA 98, Oakland USARC, AMSA 85G, Long Beach, and AMSA 17. Additionally, we will conduct another PA/SI at Pasadena, Santa Ana, Van Nuys, San Jose, and Tucson USARC's.

g. We have determined that these sites are CERCLA sites from past contamination and are no longer being used. We would like to have the state make the determination of NFA after all of the initial sampling has been completed.
h. The FIR was funded by USARC to get a grab sample at these sites to provide RRSE in the DSERTS database. Of these sites Pasadena, Santa Ana, Van Nuys, San Jose, and Tucson could not be sampled due to the asphalt covering the areas needed for sampling. These will now be done under a PA/SI sampling with a geo-probe.
i. At this time we did not look at site geology/lithology and depth to groundwater because the majority of the funding comes from the 63D RSC VENC account. In addition, we are trying to meet HQUSARC requirements to have these sites scored in DSERTS. Once the sites are scored we will be able to use E, RA Funding to due additional work.
j. The scope and magnitude of the QC problem is unidentified.
k. The type of analytical were based on standard EPA methods to meet HQUSARC requirements of Relative Risk Scoring for DSERTS Sites.
l. Both of these documents do have different delivery orders because they are trying to accomplish similar tasks to meet different requirements.

9. I believe that MAJ Doughty was not apprised of the entire situation. I believe that for the future if he has questions regarding the 63D RSC IR Program that they should be addressed to the IRP Manager Stephen Volk. The 63D RSC IR Program is following guidelines that both AEC and HQUSARC has established and is trying to meet those requirements to the best of our abilities. To date the State Regulators in California and Arizona have not complained about the procedures followed to have these sites scored so that E, RA Funding will be made available to further Characterize these sites if needed. As it stands the 63D RSC has progressed further in the IRP then most of the other RSC's.

10. If there are any additional comments, questions, or concerns regarding this matter please contact J. Stephen Volk at (925) 688-1943.

J. Stephen Volk
Environmental Scientist (JMWA)
63D RSC Customer Support Team

13-SEPT-98

To: LTC. MUIR

Subject: IR RECOMMENDATIONS

Listed are RECOMMENDATIONS / OPTIONS to address the CONCERNS on the 638 RSC Installation Restoration PROGRAM:

1) I am willing to ASSIST on orders from 21 & 22 Sept 98 including the weekend prior.

2) Conduct a meet to INVESTIGATE the history of the PROGRAM with the following individuals:
Steve Volk, Dave Clark, Shamala Sundaram
Eva Kim, LTC. MUIR
The following documents should be at this meeting:
- Western Area Study
- Statement of work
- MIPER / Funding Documents
- Work Plan
- U.S. Army Installation Restoration Guide

- CERCLA Guide for Conducting PA/SI
- All other Reports relating to The I/R Program to date

a) Listed are sample questions:
- Why were these site Choosen (Northern and Southern)
- What criteria was used
- Who approved these sites and can they be removed.
- Are we in accordance with CERCLA and Guidelines & Army I/R policies.
- What regulatory agencies are aware of these sites and who (Name & Agency)

b) Additional effort should be "can these sites be removed?" Review CERCLA guidelines for PA/SI phase!

If funds are available, recommend a formal PA/SI completed as per CERCLA. The following document should be prepared
- SOW
- Independent Government Estimate
- Letter work Plan (Contractor)

NOTE: You may be able to fund PA Effort only which is acceptable

The SOW should contain (Recommendations)

- Letter Work Plan
- Minimum two (2) meetings with contractor
- Pre-price options for Site Screening and Site Inspections if Req'd
- Draft + Final PA/SI Report

NOTE: Pre-price option will provide you with estimated cost/expense if you have to do screening and site inspection.

If you go with the Sacramento Army Corps find out the following -

- What contractor would be used and previous performance
- The history of the contractor completing CERCLA actions and if they have completed a PA/SI phase effort.
- Attempt to use a "firm fix fee contract"
- Request information on Profit % and Overhead %
- Request copy of SOW + IGE when completed
- Experience of RPM with CERCLA

638 RSC

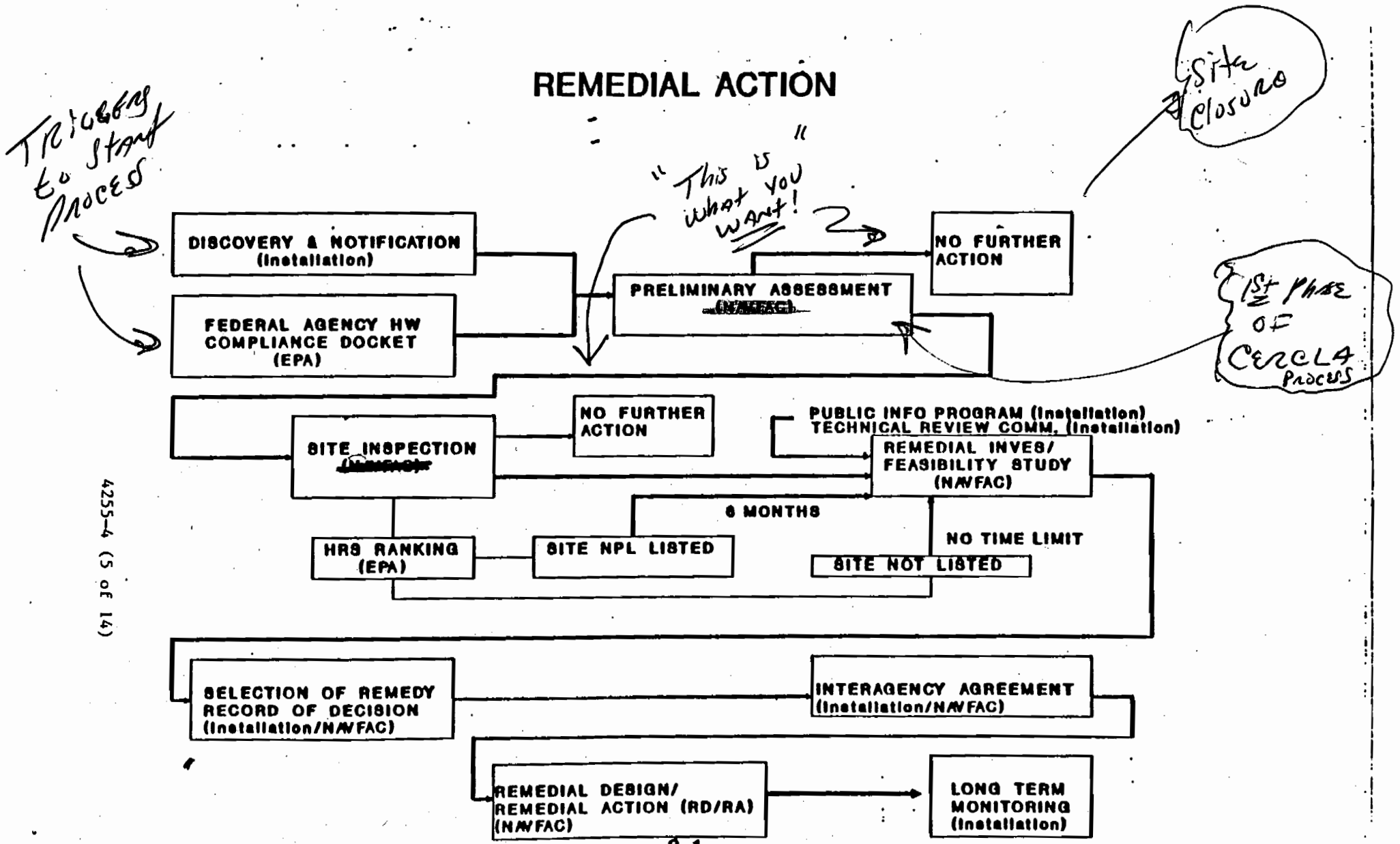
I also recommend who ever is the lead may want to fly up to Sacramento Corp if chosen and work directly with the Remedial Project Manager (RPM).

You will need the advice and options from the RPM & because of year end activities occuring.

It you can gain clarity of effort up front. This effort can be pitched to the command group as validation of "Key Mission Essential Resources"

MAJ. Doughty

REMEDIAL ACTION



4255-4 (5 of 14)

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT
MILITARY/SFO BRANCH

P.O. BOX 2711
LOS ANGELES, CA 90053-2325

TRUST

QUALITY TEAMWORK

TO: Shamyala

FROM: Duncan Clyborne

PHONE NO: (562) 795-1442

PHONE NO: (213) 452-3988

FAX NO: (562) 795-1499

FAX NO: (213) 452-4213

OFFICE : 63d RSC

OFFICE : CESPL-PM-M

DATE: 16 Sep 98

REMARKS:

PAGES TO FOLLOW

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	1335
CONNECTION TEL	914044648177
SUBADDRESS	
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ST. TIME	09/10 10:47
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PGS.	4
RESULT	OK

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT
MILITARY/SFO BRANCH

P.O. BOX 2711
LOS ANGELES, CA 90053-2325

TRUST
QUALITY TEAMWORK

TO: Bonnie Dukes ~~Sam~~ ~~Pierre~~ Ann Worrell FROM: Duncan Clyborne

PHONE NO: (404) 464-8771 PHONE NO: (213) 452-~~3988~~ 3988

FAX NO: (404) 464-8177 FAX NO: (213) 452-4213

OFFICE : AFRC-ENB OFFICE : CESPL-PM-M

DATE: 10 Sep 98

ACCEPTANCE OF CUSTOMER ORDER

1. TO (Requiring Activity Address) (Include ZIP Code) US ARMY RESERVE COMMAND 1401 DESHLER STREET SW ATTN: AFRC-ENB FORT MCPHERSON GA 30330-2000	2. CUSTOMER ORDER NUMBER MIPR98DERALA16	3. AMENDMENT NO. 1
	4. DATE (Signature Date) 10-SEP-1998	5. AMOUNT 50,000.00-

6. The CUSTOMER ORDER identified above is accepted and the items requested will be provided as follows: (Check as Applicable)

a. [X] ALL ITEMS WILL BE PROVIDED THROUGH REIMBURSEMENT (Category I)

- [X] AUTOMATIC REIMBURSEMENT TFO
- [ ] AUTOMATIC REIMBURSEMENT NON-TFO
- [ ] FUNDED REIMBURSEMENT TFO
- [ ] FUNDED REIMBURSEMENT NON-TFO

ACCEPTED AS ECONOMY ACT ORDER

b. [ ] ALL ITEMS WILL BE PROCURED BY THE DIRECT CITATION OF FUNDS (CATEGORY II)

- [ ] DIRECT FUND CITE TFO
- [ ] DIRECT FUND CITE NON-TFO

c. [ ] ITEMS WILL BE PROVIDED BY BOTH CATEGORY I AND CATEGORY II AS INDICATED BELOW

d. [ ] THIS ACCEPTANCE, FOR CATEGORY I ITEMS, IS QUALIFIED BECAUSE OF ANTICIPATED CONTINGENCIES AS TO FINAL PRICE. CHANGES IN THIS ACCEPTANCE FIGURE WILL BE FURNISHED PERIODICALLY UPON DETERMINATION OF DEFINITIZED PRICES, BUT PRIOR TO SUBMISSION OF BILLINGS.

7. [ ] CUSTOMER ORDER NUMBERS(S) IDENTIFIED IN BLOCK 13, (REMARKS) IS NOT ACCEPTED (IS REJECTED) FOR THE REASONS INDICATED.

8. TO BE PROVIDED THROUGH REIMBURSEMENT CATEGORY I			9. TO BE PROCURED BY DIRECT CITATION OF FUNDS CATEGORY II		
ITEM NO. a.	QUANTITY b.	ESTIMATED PRICE c.	ITEM NO. a.	QUANTITY b.	ESTIMATED PRICE c.
1		50,000.00-			
d. TOTAL ESTIMATED PRICE		50,000.00-	d. TOTAL ESTIMATED PRICE		

10. ANTICIPATED DATE OF OBLIGATION FOR CATEGORY II ITEMS	11. GRAND TOTAL ESTIMATED PRICE OF ALL ITEMS

12. FUNDS DATA (Check if Applicable)

a. [X] ADDITIONAL FUNDS IN THE AMOUNT OF 50,000.00 ARE REQUIRED (See Justification in block 13)

b. [ ] FUNDS IN THE AMOUNT OF ARE NOT REQUIRED AND MAY BE WITHDRAWN

13. REMARKS

TECHNICAL POC: DUNCAN CLYBORNE
213-452-3996

FINANCIAL POC: RICHARD CADENA
213-452-3989

14. ACCEPTING ACTIVITY (Complete Address) BUDGET BRANCH U.S.ARMY CORPS OF ENG PO BOX 532711 LOSANGELES, CA 90053-2325	15. TYPED NAME AND TITLE OF AUTHORIZED OFFICIAL KELLI JOHNSON BUDGET ANALYST	
	16. SIGNATURE /S/ KELLI JOHNSON	17. DATE 10-SEP-1998

DD FORM 448-2

ACCEPTANCE OF CUSTOMER ORDER

1. TO (Requiring Activity Address) (Include ZIP Code)
US ARMY RESERVE COMMAND
1401 DESHLER STREET SW ATTN: AFRC-ENB

FORT MCPHERSON GA 30330-2000

2. CUSTOMER ORDER NUMBER: MIPR98DERALA16

3. AMENDMENT NO.: 0

4. DATE (Signature Date): 27-JUN-1998

5. AMOUNT: 50,000.00

6. The CUSTOMER ORDER identified above is accepted and the items requested will be provided as follows: (Check as Applicable)

a. [X] ALL ITEMS WILL BE PROVIDED THROUGH REIMBURSEMENT (Category I)

- [X] AUTOMATIC REIMBURSEMENT TFO
- [ ] AUTOMATIC REIMBURSEMENT NON-TFO
- [ ] FUNDED REIMBURSEMENT TFO
- [ ] FUNDED REIMBURSEMENT NON-TFO

ACCEPTED AS
ECONOMY ACT ORDER

b. [ ] ALL ITEMS WILL BE PROCURED BY THE DIRECT CITATION OF FUNDS (CATEGORY II)

- [ ] DIRECT FUND CITE TFO
- [ ] DIRECT FUND CITE NON-TFO

c. [ ] ITEMS WILL BE PROVIDED BY BOTH CATEGORY I AND CATEGORY II AS INDICATED BELOW

d. [ ] THIS ACCEPTANCE, FOR CATEGORY I ITEMS, IS QUALIFIED BECAUSE OF ANTICIPATED CONTINGENCIES AS TO FINAL PRICE. CHANGES IN THIS ACCEPTANCE FIGURE WILL BE FURNISHED PERIODICALLY UPON DETERMINATION OF DEFINITIZED PRICES, BUT PRIOR TO SUBMISSION OF BILLINGS.

7. [ ] CUSTOMER ORDER NUMBERS(S) IDENTIFIED IN BLOCK 13, (REMARKS) IS NOT ACCEPTED (IS REJECTED) FOR THE REASONS INDICATED.

8. TO BE PROVIDED THROUGH REIMBURSEMENT CATEGORY I			9. TO BE PROCURED BY DIRECT CITATION OF FUNDS CATEGORY II		
ITEM NO. a.	QUANTITY b.	ESTIMATED PRICE c.	ITEM NO. a.	QUANTITY b.	ESTIMATED PRICE c.
1		50,000.00			
d. TOTAL ESTIMATED PRICE		50,000.00	d. TOTAL ESTIMATED PRICE		

10. ANTICIPATED DATE OF OBLIGATION FOR CATEGORY II ITEMS

11. GRAND TOTAL ESTIMATED PRICE OF ALL ITEMS: 50,000.00

12. FUNDS DATA (Check if Applicable)

a. [X] ADDITIONAL FUNDS IN THE AMOUNT OF 50,000.00 ARE REQUIRED (See Justification in block 13)

b. [ ] FUNDS IN THE AMOUNT OF ARE NOT REQUIRED AND MAY BE WITHDRAWN

13. REMARKS

TECHNICAL POC: DUNCAN CLYBORNE
213-452-3996

FINANCIAL POC: RICHARD CADENA
213-452-3989

14. ACCEPTING ACTIVITY (Complete Address)
BUDGET BRANCH
U.S.ARMY CORPS OF ENG
PO BOX 532711

LOSANGELES, CA 90053-2325

15. TYPED NAME AND TITLE OF AUTHORIZED OFFICIAL
KELLI JOHNSON
BUDGET ANALYST

16. SIGNATURE
/S/ KELLI JOHNSON

17. DATE
27-JUN-1998

DD FORM 448-2

H-6/15
T-6/17

MILITARY INTERDEPARTMENTAL PURCHASE REQUEST

1. PAGE 1 OF PAGES

2. FSC	3. CONTROL SYMBOL NO.	4. DATE PREPARED	5. MIPR NUMBER	6. AMEND NO.
		3 JUN 98	MIPR98DERALA16	0

7. TO:
U.S. Army Corps of Engineers, Los Angeles District
ATTN: CEFPL-RM-B (Earl Allen)
911 Wilshire Boulevard
Los Angeles, CA 90017-3401
(213) 452-3275 FAX: 4213

8. FROM: (Agency, name, telephone number of originator)
U.S. Army Reserve Command
ATTN: AFRC-ENB
1401 Deshler Street SW
Fort McPherson, GA 30330-2000

9. ITEMS ☐ ARE ☐ ARE NOT INCLUDED IN THE INTERSERVICE SUPPLY SUPPORT PROGRAM AND REQUIRED INTERSERVICE SCREENING ☐ HAS ☐ HAS NOT BEEN ACCOMPLISHED.

ITEM NO. a	DESCRIPTION (Federal stock number, nomenclature, specification and/or drawing No., etc.) b	QTY c	UNIT d	ESTIMATED UNIT PRICE e	ESTIMATED TOTAL PRICE f
1	Environmental Restoration, Army (ER,A) funding for the following projects: 63d Regional Support Command USARC Long Beach DSERTS Site: Site 07, Field with No Growth, RI/FS, $50,000 AMS: 493008.12 APC: 5AP3				$50,000.00
2	Request acceptance faxed to (404) 464-8177.				
3	Mail SF1080 billings to address in Block 13.				
4	Budget POC: Bonnie Dukes (404) 46408771 Installation POC: Steven Volk (510) 688-1943 Functional POC: Steve Barton (404) ~~464-8760~~ Ann Worrell (404) 464-8824 Sam Pierre (404) 464-8760				

10. SEE ATTACHED PAGES FOR DELIVERY SCHEDULES, PRESERVATION AND PACKAGING INSTRUCTIONS, SHIPPING INSTRUCTIONS AND INSTRUCTIONS FOR DISTRIBUTION OF CONTRACTS AND RELATED DOCUMENTS.

11. GRAND TOTAL $50,000.00

12. TRANSPORTATION ALLOTMENT (Used if FOB Contractor's plant)

13. MAIL INVOICES TO (Payment will be made by)
DNO-Indianapolis, Dept 3250
8899 E. 56th Street
Indianapolis, IN 32469-3250
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FINAL REPORT

PRELIMINARY ASSESSMENT/ SITE INVESTIGATION FOR USARC LONG BEACH U.S. ARMY RESERVE CENTERS (USARC), 63D REGIONAL SUPPORT COMMAND

CONTRACT NO. DACA09-95-D-0019
DELIVERY ORDER NO. 0016

Prepared for
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Los Angeles, CA 90017-3401

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Woodward-Clyde

Woodward-Clyde Federal Services
4582 S. Ulster St. Parkway, Suite 1000
Denver, CO 80237

Project No. S95518

TABLE OF CONTENTS

Section 1 Introduction 1-1

1.1 Purpose and Scope 1-1
1.2 Report Organization 1-1

Section 2 Site Description and Background 2-1

2.1 Site Location 2-1
2.2 Site Description 2-1
2.3 Previous Investigation 2-1

Section 3 Field Investigation 3-1

3.1 Work Approach 3-1
3.1.1 Pre-Investigation Activities 3-1
3.1.2 Soil Sampling 3-1
3.1.3 Deviations From the Work Plan 3-2

Section 4 Results 4-1

4.1 Laboratory Analysis and Data Validation 4-1
4.1.1 Analytical Methods and QA/QC 4-1
4.1.2 Data Validation 4-1
4.1.3 Data Quality and Usability 4-2
4.2 Results 4-3

Section 5 Conclusions and Recommendations 5-1

Section 6 References 6-1

TABLE OF CONTENTS

Tables

Tale 2-1 Soil Sample Results for Previous Investigation at USARC Long Beach

Table 4-1 Soil Sample Summary

Table 4-2 USARC Long Beach, Analytical Results for Soil Samples

Table 4-3 USARC Long Beach, Summary of Detected Analytes

Figures

Figure 2-1 Vicinity Map

Figure 2-2 Soil Sampling Locations for Previous Investigation at USARC Long Beach, CA

Figure 3-1 Soil Sampling Locations for USARC Long Beach, CA

Appendices

Appendix A Daily Reports for Field Activities

Appendix B Site Photographs

Appendix C Data Validation Report

Appendix D Analytical Data and Chain-of-Custody Forms

%	Percent
±	Plus or Minus
B	Bulk Sample
BG	Background
bgs	below ground surface
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
°C	degrees Celsius
COC	Chain of Custody
CSV	Comma Separated Value
DOT	Department of Transportation
EDD	Electronic Data Deliverable
FD	Field Duplicate
FSP	Field Sampling Plan
G	Glass
HCl	Hydrochloric Acid
HD	Hardcopy Deliverable
HDPE	High Density Polyethylene
HNO_3	Nitric Acid
HSP	Health and Safety Plan
ID	Identification
LD	Laboratory (or Matrix) Duplicate
ml	milliliter
MS	Matrix Spike
NA	Not Applicable
OWS	Oil Water Separator
oz	ounce
P	Plastic
PA	Preliminary Assessment
PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
PPE	Personal Protective Equipment
PRG	Preliminary Remediation Goal
QA	Quality Assurance
QAP	Quality Assurance Plan
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
RB	Rinsate Blank
S	Soil Sample or Surface Soil Sample
SA	Field Sample
SAP	Sampling and Analysis Plan
SD	Matrix Spike Duplicate
SI	Site Investigation

SMPro	SiteManager Pro
SOP	Standard Operating Procedure
SVOC	Semivolatile Organic Compound
TD	Total Depth
TVPH/TEPH	Total Volatile Petroleum Hydrocarbons/Total Extractable Petroleum Hydrocarbons
USACE	U.S. Army Corps of Engineers
USARC	U.S. Army Reserve Center
VOC	Volatile Organic Compound
W	Water Sample
WP	Work Plan

1.1 PURPOSE AND SCOPE

Woodward-Clyde Federal Services (hereafter referred to as Woodward-Clyde) was contracted by the U.S. Department of the Army Los Angeles District, Corps of Engineers (USACE), under Contract No. DACA09-95-D-0019, Delivery Order No. 0016 to conduct a preliminary assessment/site investigation (PA/SI) for the U.S. Army Reserve Center (USARC) Long Beach, California facility (CA022). A previous investigation at the Long Beach facility focused on collecting soil samples for petroleum hydrocarbon and benzene, toluene, ethylbenzene and xylene (BTEX) analyses. This investigation was performed to collect supplemental data for analytes such as volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphyenyls (PCBs), and metals. The data were to be entered by USARC into the Defense Site Environmental Restoration Tracking System (DSERTS) database. Soil sampling was conducted in an open field east of the main building and an area west of the vehicle wash pad and oil water separator (OWS).

1.2 REPORT ORGANIZATION

The PA/SI Report is organized into the following six sections and appendices:

Section One - Introduction, describes the report organization and presents the purpose and scope of the investigation.

Section Two - Site Description and Background, provides a description of the facility being investigated.

Section Three - Field Investigation, provides a description of the PA/SI. This section describes field activities performed, sampling procedures and documents the deviations from the work plan.

Section Four - Results, presents the data collected, laboratory analysis performed, the analytical results, and a summary of the data review. The analytical results are presented along with a comparison to the Region 9 Preliminary Remediation Goals (PRGs).

Section Five - Conclusions and Recommendations, presents a brief summary of the findings of the PA/SI and recommends additional work, if necessary.

Section Six - References, contains references for documents cited in the text.

Appendices

Appendix A contains the daily reports for the field activities.

Appendix B contains the photographs of the site at the time of the investigation.

Appendix C provides the detailed data validation report.

Appendix D provides the laboratory analytical data and chain-of-custody forms.

2.1 SITE LOCATION

The project site is located at 3800 E. Willow Street in Long Beach, California. The facility identification number is CA022 as shown on Figure 2-1.

2.2 SITE DESCRIPTION

The areas investigated at USARC Long Beach are an open field east of the main building and an area west of the vehicle wash pad and OWS.

2.3 PREVIOUS INVESTIGATION

A soil sampling investigation was conducted at USARC Long Beach in January 1997. Soil samples were collected near: the parking lot, administration buildings, and in the open field west of the main building. Fourteen samples were collected at a depth approximately 12 inches below ground surface (bgs) and analyzed for total petroleum hydrocarbons (TPH) (EPA Methods 8015M and 418.1) and BTEX (EPA Method 8020). Figure 2-2 shows the sampling locations and Table 2-1 presents the results. The data indicate the presence of petroleum hydrocarbons at all locations with concentrations ranging from 5.8 to 73.4 milligram per kilogram (mg/kg). In additional, toluene was also detected at concentrations ranging from 0.037 to 0.059 mg/kg.

Table 2-1
SOIL SAMPLE RESULTS FOR PREVIOUS INVESTIGATION AT USARC LONG BEACH

Sample I.D.	TPHC (EPA 8015M)	TPHC (EPA 418.1)	Benzene (EPA 8020)	Ethylbenzene (EPA 8020)	Toluene (EPA 8020)	Xylenes (EPA 8020)
1	ND	5.8	ND	ND	ND	ND
2	ND	9.0	ND	ND	0.059	ND
3	ND	9.3	ND	ND	0.037	ND
4	ND	15.7	ND	ND	0.053	ND
5	ND	16.6	ND	ND	0.044	ND
6	ND	14.6	ND	ND	0.063	ND
7	ND	9.5	ND	ND	0.058	ND
8	ND	15.2	ND	ND	ND	ND
9	ND	6.7	ND	ND	ND	ND
10	ND	5.9	ND	ND	ND	ND
11	ND	73.4	ND	ND	ND	ND
12	ND	12.3	ND	ND	ND	ND
13	ND	7.4	ND	ND	ND	ND
14	ND	9.2	ND	ND	ND	ND
Blank	ND	12.8	ND	ND	ND	ND
Detection Limits for Samples 1-14	0.5	2.0	0.01	0.01	0.01	0.01
Detection Limits for Blank	0.5	2.0	0.005	0.005	0.005	0.005

Notes:

Results in milligrams per kilogram
ND = Not Detected
TPH = Total Petroleum Hydrocarbons

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VICINITY MAP

FIG. 2-1

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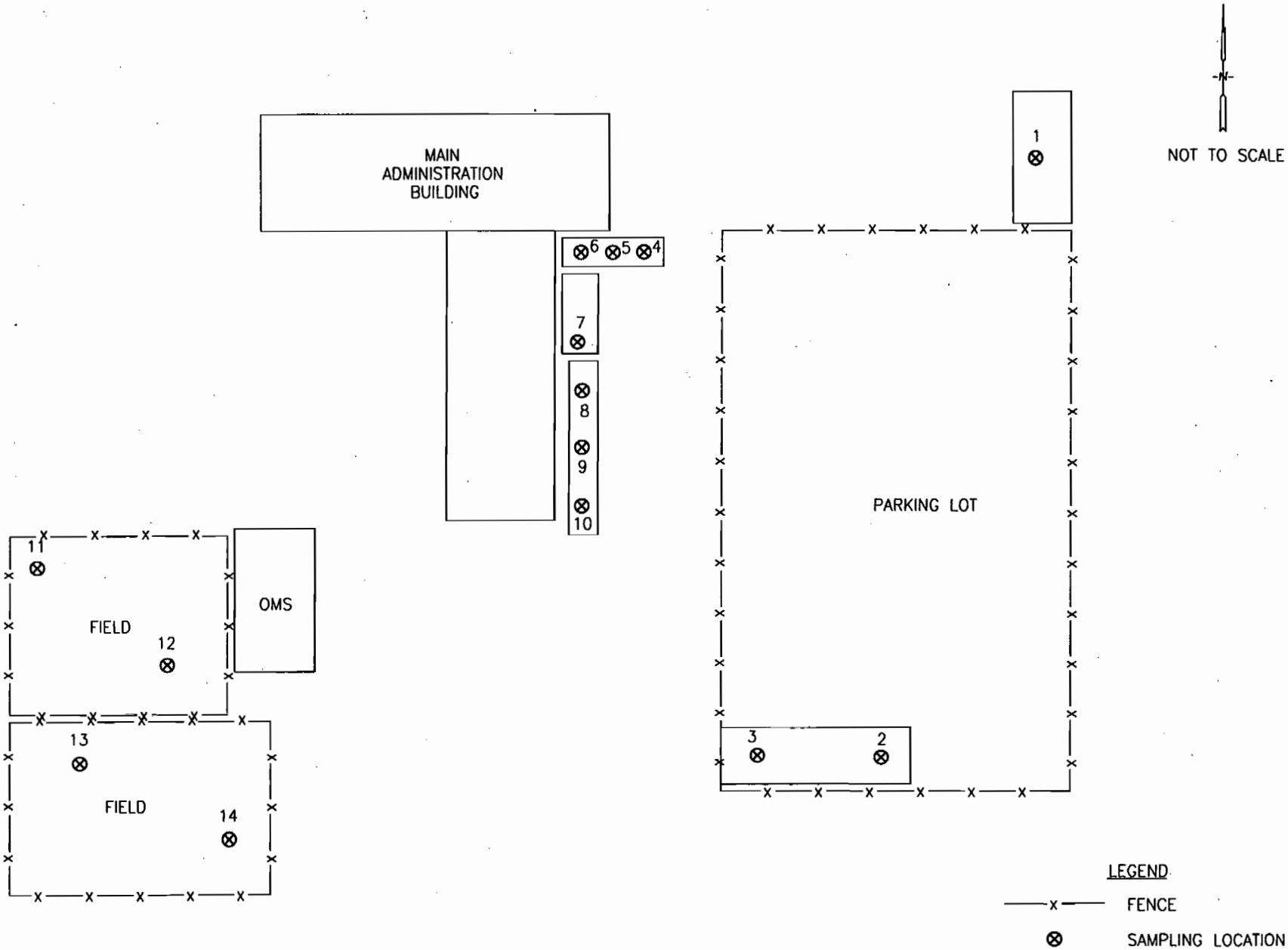

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SOIL SAMPLING LOCATIONS FOR PREVIOUS INVESTIGATION AT USARC LONG BEACH, CA

FIG. 2-2

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3.1 WORK APPROACH

The field investigation for the PA/SI was conducted by Woodward-Clyde on April 28, 1998. Subsurface soil samples were collected for chemical analyses to evaluate the presence of contamination at USARC Long Beach. The field investigation was conducted in accordance with the PA/SI Work Plan. Eight soil samples, two background soil samples, and two quality control soil samples were collected from 12 locations.

3.1.1 Pre-Investigation Activities

The first activity of the field investigation involved a site visit. The site visit was conducted in November 1997 and the information regarding the Long Beach facility is described in Section 2.3. The purpose of this activity was to gather site specific information such as plans or drawings, utility locations, and drawings, if available, and visually inspect the facility to identify potential sampling locations.

Prior to the beginning of the soil sampling activities, a review of site utility drawings and a utility survey were conducted. The survey was performed to locate utilities such as gas lines, electrical lines, and water or sewer lines that were in the area where intrusive activities were planned. Dig Alert identified utilities up to the property boundary. The geoprobe drilling subcontractor surveyed the area within the property boundary prior to drilling.

A site health and safety briefing for all field personnel was conducted before the start of the field activities.

3.1.2 Soil Sampling

Subsurface soil samples were collected in the open field to identify the presence of potential contamination at the site. Two general types of sampling activities were performed:

- Collection and analysis of discrete background subsurface soil samples
- Collection and analysis of discrete subsurface soil samples

The soil samples were analyzed for:

- CAM(17) metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc) - Method 6010A/7000
- TPH (both total volatile petroleum hydrocarbons [TVPH] and total extractable petroleum hydrocarbons [TEPH]) - Method 8015M
- Volatile Organic Compounds (VOCs) including BTEX - Method 8260B
- Semivolatile Organic Compounds (SVOCs) - Method 8270
- Polychlorinated Biphenyls (PCBs) - Method 8082

Soil borings were advanced during the field investigation by the geoprobe drilling subcontractor FAST-TEK of Pt. Richmond, CA using a truck mounted Geoprobe Model 5400 probing rig. The

sampling device consisted of two foot long stainless steel continuous core samplers fitted with an interior stainless steel liner. Subsurface soil sampling was performed in accordance with SOP Number 1 and SOP Number 2 of the PA/SI Work Plan.

Subsurface soil samples were collected from depths of approximately 3 to 5 feet bgs. Upon retrieval of the sampler, the stainless steel liners were extruded, capped and packaged for shipment to the laboratory. A Mini Rae Photo Ionization Detector (PID) was used to frequently monitor for organic vapors in the samples. PID readings were recorded on the daily report sheets. Following the completion of sampling, each soil boring was abandoned and backfilled with a cement and water mixture.

The eight soil sampling locations and two background locations are shown on Figure 3-1.

Two background soil samples were collected in areas that did not appear to have been impacted by historical site practices, or were not located in areas of surface water runoff. Samples were collected at approximately 3 to 5 feet bgs.

In accordance with the PA/SI Work Plan, sample identification numbers for soil were designated using a seven digit unique identification number. Soil samples and associated field duplicates were identified by the first digit with the designation "S". The next two digits corresponded to the site investigated (i.e., LB = USARC Long Beach). The next two digits correspond to the soil sampling location. The last two digits correspond to the sample type (i.e., SA = field sample, FD = Field Duplicate).

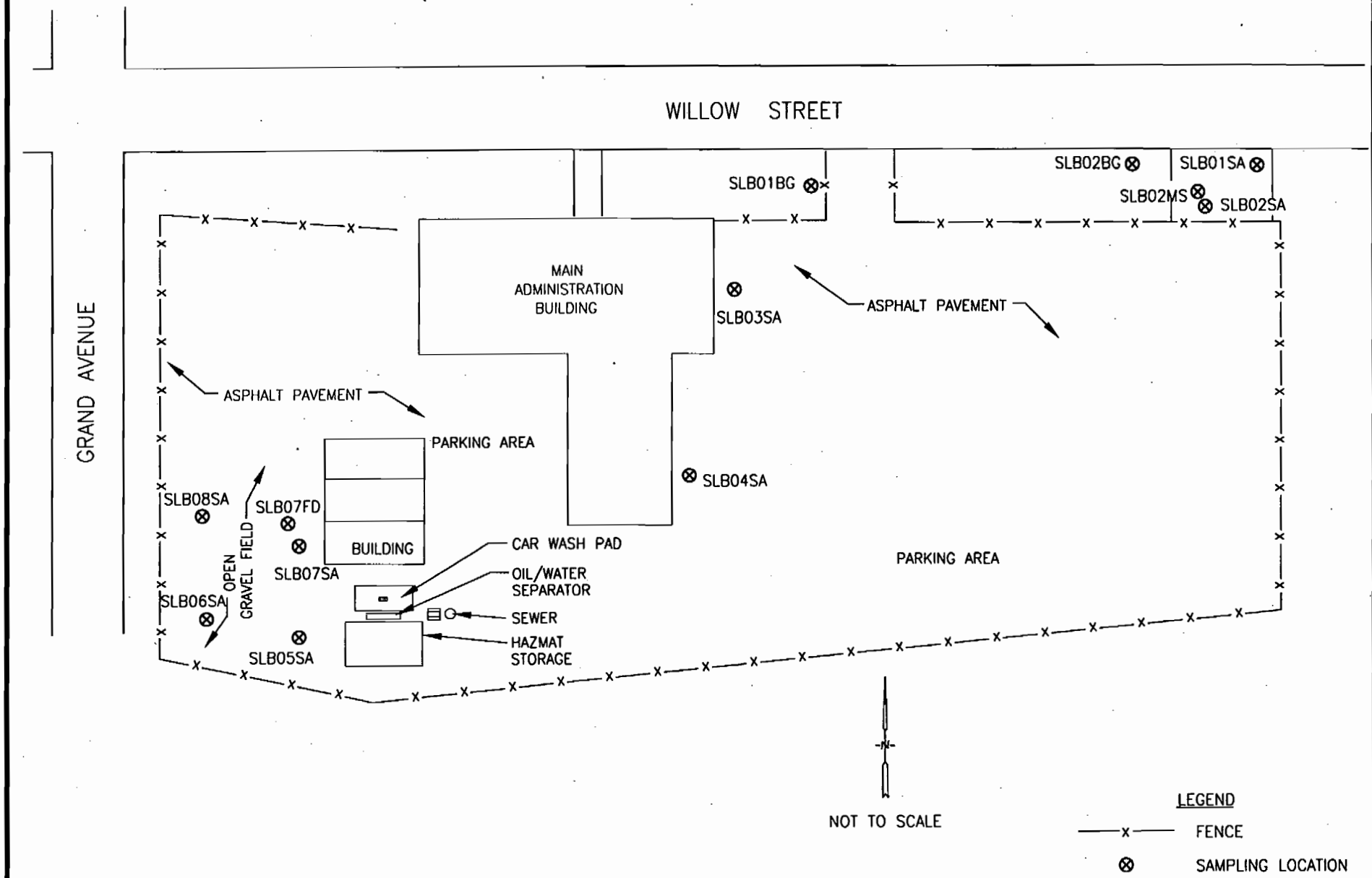
QA/QC samples collected during the field investigation included field duplicates (FD), matrix spike/matrix spike duplicate (MS/SD). The work plan specified that a field duplicate and MS/SD would be collected from each site and analyzed for the same parameters as the field sample. QA/QC soil samples were collected in accordance with the Work Plan. Field duplicates were collected in accordance with the procedures used for the collection of the soil samples.

Rinsate blanks were to be collected following decontamination of the equipment used to collect soil samples. No rinsate samples were collected when sampling was conducted using new liners at each of the sampling locations.

Documentation of the field activities was recorded on field report forms and are provided in Appendix A. Photographs of soil sampling activities were taken and are provided in Appendix B.

3.1.3 Deviations from the Work Plan

Subsurface soil sampling was conducted in accordance with the PA/SI Work Plan. No deviations were noted except that rinsate blanks were not collected.



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Date : 6/22/98	

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FIG. 3-1

This section presents the analytical results for the USARC Long Beach facility and the associated background data for samples collected at the site. A summary of the analytical methods used and the data validation process is discussed prior to presentation of the results. The results for soil samples collected from the open field are compared to the results for background soil samples and to the EPA Region 9 Preliminary Remediation Goals (PRGs) for residential and industrial soil. The comparison to PRGs is used as a conservative approach to evaluate the need for additional investigation or remediation.

4.1 LABORATORY ANALYSIS AND DATA VALIDATION

Samples collected from the USARC Long Beach facility were submitted to Curtis and Thompkins Ltd. in Berkeley, California for analyses. The analytical methods are discussed below. All data generated received a data review independent of the analytical laboratory. The data validation process is summarized in Section 4.1.2 and detailed QC review narratives are provided in the Data Validation Report contained in Appendix C.

4.1.1 Analytical Methods and QA/QC

The analytical methods listed in Table 4-1 were used for analysis of the samples collected at the facility. There were no modifications to the analytical methods specified in the Quality Assurance Plan (QAP) (WC 1998). Reporting limits as specified in the QAP were met for all of the analytes with the exception of several SVOCs.

QAP-specified field and laboratory QA/QC sample analyses were conducted at the required frequencies. The field QA/QC samples included field duplicates and a rinsate blank. The laboratory QA/QC analyses for which results were reported and evaluated include method blanks and laboratory control samples for all analyses, matrix spike/matrix spike duplicates for organic analyses, matrix spikes and laboratory duplicates for inorganic analyses, and utilization of surrogate spikes for organic analyses. Additional QA/QC analyses such as routine initial and continuing calibration analyses, tuning, use of internal standards, interelement corrections, and analysis of interference check samples were also conducted by the laboratory as required by the various methods.

4.1.2 Data Validation

The analytical data were generated and reviewed in accordance with the protocols specified in the QAP. The data validation effort was performed to evaluate the usability of the sample data for meeting the project objectives.

The data validation consisted of evaluating the results for the following quality control (QC) parameters as applicable to the method: case narrative comments, holding times, blank contamination, laboratory control sample results, matrix spike sample analysis, duplicate sample analysis, matrix spike/matrix spike duplicate sample analysis, serial dilution results, field duplicate result agreement, and completeness of the data package. Data qualifiers were issued to indicate any limitations on the data usability. Data qualification was issued using guidance from the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) National

Functional Guidelines for Inorganic/Organic Data Review (February 1994a and 1994b). Following the evaluation of each data package for the parameters listed above, an overall assessment with respect to the quantitative (sensitivity [i.e., reporting limits]), accuracy, precision, and completeness) and qualitative (representativeness and comparability) data quality assurance parameters was formulated.

The data validation narrative includes an overall assessment for the data in the laboratory package associated with a particular site as well as a discussion of any quality assurance/quality control (QA/QC) results outside of evaluation criteria, an explanation of all data qualification assigned and any professional judgment used by the reviewer. The data validation process did not include result recalculation or transcription error checking from the raw data.

4.1.3 Data Quality and Usability

The analytical data are considered to be usable for the project as qualified during the data validation process. An overall assessment of the data is presented below. The detailed Data Validation Report is presented in Appendix C. The laboratory analytical data and chain-of-custody forms are presented in Appendix D.

4.1.3.1 USARC Long Beach Overall Assessment

Some analytes were reported as nondetect at reporting limits achieved by the laboratory which were greater than the QAP-specified reporting limits. In all cases, the instances in which the reporting limits obtained were greater than those in the QAP were due to adjustments for percent solids. Some SVOCs were reported as nondetect with reporting (quantitation) limits that were greater than the residential PRGs. With the exception of some SVOC results for some samples (see table, Section 3.1.5), neither data quality nor data usability was considered affected based on elevated reporting limits. With respect to those SVOCs which were reported as nondetect at reporting limits exceeding residential PRGs, it is important for data users to note that nondetect results in which the reporting limit is greater than the corresponding residential PRG are not suitable for use in evaluating whether the concentration of that constituent in that sample is below a residential PRG.

With eleven exceptions, the data are considered usable as qualified for meeting objectives. Antimony results for all samples collected were rejected as unusable due to matrix spike recoveries of less than 30%. Matrix spike and matrix spike duplicate percent recoveries for antimony were less than 30%. The laboratory confirmed the likelihood of matrix interference through redigestion and reanalysis of the matrix spike sample. Recoveries ≤30% were obtained upon redigestion and reanalysis. The post-digestion matrix spike yielded a percent recovery of 102%, confirming the likelihood of matrix interference and indicating acceptable method performance. Based on matrix spike percent recoveries, the matrix interferences suggests a potential low bias in the associated sample results. U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) National Functional Guidelines (February 1994) guidance requires that nondetect results associated with a matrix spike recovery <30% be qualified as unusable ("R").

Although the results for some of the other QC parameters did not satisfy the limits for accuracy and precision, no other data were considered to be unusable based on the levels of accuracy and precision demonstrated by the QC analyses. Data associated with QC analyses that were outside the evaluation criteria have been qualified to reflect limitations of the data. All analytical results in this set except the eleven antimony results are considered to be usable (as qualified) and the analytical completeness for this data set is 99.2 percent.

The samples were considered representative of the medium sampled based on field duplicate agreement for volatile organics, semivolatile organics, PCBs, TVPH, and TEPH. For metals analyses, field duplicate pair criteria were met for all analytes except cobalt, lead, molybdenum, nickel, and thallium. These results suggest that the samples may not be adequately representative of the metals concentrations present in the medium sampled. Results for these analytes have been qualified as estimated for all samples collected at this site. All samples in this data set were collected and analyzed under similar prescribed conditions and the data within this set are considered to be comparable.

4.2 RESULTS

The analytical results for soil samples collected at USARC Long Beach are provided in Tables 4-2 and 4-3 and summarized in the following section. The results are compared to the results for the background soil samples and to the EPA Region 9 Residential Soil Preliminary Remediation Goals (PRGs) (EPA 1998).

EPA Region 9 has developed PRGs that have been used as a qualitative tool to screen contamination levels at sites. Based on potential future use as a residential setting the PRGs used for this evaluation are based on risk values for residential settings. However, in cases where a concentration exceeded a residential soil PRG, a comparison of the concentration to the industrial soil PRG was made. Comparison to industrial PRGs may be more appropriate if the future use of the facility is to be industrial.

The PRG concentrations can be used to screen contaminants in environmental media, trigger further investigation, or provide an initial cleanup goal, if applicable.

In addition to PRGs, background contaminant concentrations are considered in the evaluation. According to the May 1998 document containing the Region 9 PRGs, "Generally EPA does not clean up below natural background. If natural background concentrations are higher than PRGs, the generic PRGs may not be the best tool for site decision making or an adjustment of the PRG may be needed. For example, naturally occurring arsenic frequently is higher than the soil PRG set equal to a one-in-one million cancer risk (the point of departure); thus an alternative PRG of 21 mg/kg for arsenic is sometimes provided based on non-cancer endpoints. The alternative PRG of 21 mg/kg for arsenic is still protective of cancer risks as well (EPA 1998).

Data with a "J" qualifier indicates that the associated value or reporting limit was qualified as estimated during data validation on the basis of minor QC problems.

Eight soil samples (SLB01SA through SLB08SA) and a field duplicate were collected from the open field and area adjacent to the vehicle wash rack. One soil sample was collected approximately 3 to 5 feet bgs at each sample location. Two background soil samples were

collected. One background soil sample was collected from a grassy location southwest of the main building. The second background soil sample was collected from a grassy location west of the first background sample location. Background soil samples were collected from depths of approximately 3 to 5 feet bgs.

The soil samples were analyzed for TEPH, TVPH, VOCs, SVOCs, PCBs, and metals. Table 4-2 presents the analytical results. Table 4-3 presents the results for analytes reported as detected in the soil samples.

TEPH was detected in one soil sample at a concentration of 2.9 mg/kg. Fourteen metals were detected in the background and open field soil samples. The concentrations found in the open field soil samples were similar to the metals concentrations in the background soil samples. Arsenic concentrations found in the open field samples were below the background soil sample concentrations.

Arsenic and thallium were detected at concentrations above the residential soil PRGs in both the background and open field soil samples.

Table 4-1
SOIL SAMPLE SUMMARY

Facility	No. Of Samples			Analyses Required	Method
	Field	QC[1]	BG[2]		
USARC Long Beach	8	2	2	TEPH	8015M
				TVPH	8015M
				VOCs including BTEX	8260B
				SVOCs	8270
				PCBs	8082
				CAM (17) Metals	6010A/7000

Note:
1 QC = Quality Control samples that include field duplicates and matrix spike/spike duplicate.
2 BG = background samples.

Table 4-2
USARC Long Beach
Analytical Results for Soil Samples

	EPA Region 9 Residential Soil PRGs		Background Samples				Investigative Samples																	
FieldID			SLB01BG		SLB02BG		SLB01SA		SLB02SA		SLB03SA		SLB04SA		SLB05SA		SLB06SA		SLB07FD		SLB07SA		SLB08SA	
DateSampled			4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98	
Analyte	PRGs	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Metals																								
Antimony	30	mg/kg		R		R		R		R		R		R		R		R		R		R		R
Arsenic	0.38	mg/kg	6.2		6.3		3.1		2.3		3.4		4		2.8		2.1		1.8		2.9		3.9	
Barium	5200	mg/kg	230		210		170		170		190		190		200		210		170		150		190	
Beryllium	150	mg/kg	0.25		1		0.63		0.54		0.52		0.77		0.74		0.36		0.59		0.8		0.52	
Cadmium	37 (9)[1]	mg/kg	0.4		1.4		0.92		1.1		0.85		1.1		1		0.7		1.2		0.96		0.8	
Chromium	210[2]	mg/kg	15		38		26		27		22		31		30		15		25		31		19	
Cobalt	3300	mg/kg	3.8	J	17	J	12	J	11	J	10	J	16	J	11	J	6.5	J	7.9	J	17	J	9.8	J
Copper	2800	mg/kg	17	J	34	J	21	J	33	J	21	J	26	J	21	J	14	J	19	J	18	J	20	J
Lead	400 (130)[1]	mg/kg	1.5	J	9.2	J	6.4	J	5.8	J	6.1	J	8.1	J	6.6	J	2.9	J	4.9	J	8.7	J	5	J
Mercury	22	mg/kg	0.13	U	0.15	U	0.11	U	0.11	U	0.09	U	0.092	U	0.11	U	0.13	U	0.089	U	0.11	U	0.11	U
Molybdenum	370	mg/kg	1.6	UJ	1.5	UJ	1.2	UJ	1.2	UJ	1.1	UJ	1.3	UJ	1.4	UJ	1.3	UJ	1.2	UJ	4.6	J	1.2	UJ
Nickel	1500 (150)[1]	mg/kg	7.9	J	37	J	21	J	21	J	19	J	27	J	23	J	13	J	18	J	33	J	17	J
Selenium	370	mg/kg	0.39	U	0.94		0.29	U	0.31	U	0.28	U	0.32	U	0.36	U	0.33	U	0.29	U	0.32	U	0.3	U
Silver	370	mg/kg	0.78	U	0.73	U	0.58	U	0.62	U	0.57	U	0.63	U	0.71	U	0.65	U	0.59	U	0.63	U	0.6	U
Thallium	5.2	mg/kg	2.5	J	19	J	15	J	14	J	12	J	20	J	17	J	7.8	J	4.3	J	11	J	7.7	J
Vanadium	520	mg/kg	11		43		32		34		33		39		35		18		27		40		32	
Zinc	22000	mg/kg	17		84		58		63		46		69		61		30		48		58		46	
PCBs																								
Aroclor-1016	3400[3]	µg/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
Aroclor-1221	200	µg/kg	39	U	36	U	29	U	30	U	28	U	31	U	35	U	32	U	29	U	31	U	29	U
Aroclor-1232	200	µg/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
Aroclor-1242	200	µg/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
Aroclor-1248	200	µg/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
Aroclor-1254	970[3]	µg/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
Aroclor-1260	200	µg/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
SVOCs																								
1,2,4-Trichlorobenzene	480000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2,4,5-Trichlorophenol	5500000	µg/kg	2700	U	2500	U	2000	U	410	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
2,4,6-Trichlorophenol	40000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2,4-Dichlorophenol	160000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2,4-Dimethylphenol	1100000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2,4-Dinitrophenol	110000	µg/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
2,4-Dinitrotoluene	110000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2,6-Dinitrotoluene	55000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2-Chloronaphthalene	3.7×10^6	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2-Chlorophenol	59000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2-Methylnaphthalene		µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U

Table 4-2
USARC Long Beach
Analytical Results for Soil Samples

FieldID / DateSampled / Analyte	EPA Region 9 Residential Soil PRGs	Units	Background Samples				Investigative Samples																	
			SLB01BG		SLB02BG		SLB01SA		SLB02SA		SLB03SA		SLB04SA		SLB05SA		SLB06SA		SLB07FD		SLB07SA		SLB08SA	
			4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
2-Methylphenol	$2.7x10^6$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2-Nitroaniline	3300	µg/kg	2700	U	2500	U	2000	U	4100	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
2-Nitrophenol	--	µg/kg	2700	U	2500	U	2000	U	410	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
3,3'-Dichlorobenzidine	990	µg/kg	2700	UJ	2500	UJ	2000	UJ	410	UJ	2000	UJ	2100	UJ	2400	UJ	2200	UJ	2000	UJ	2100	UJ	2000	UJ
3,4-Methylphenol	$2.7x10^6/2.7x10^5$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
3-Nitroaniline	--	µg/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
4,6-Dinitro-2-methylphenol		µg/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
4-Bromophenyl-phenylether	--	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
4-Chloro-3-methylphenol		µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
4-Chloroaniline	$2.2x10^5$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
4-Chlorophenyl-phenylether		µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
4-Nitroaniline	--	µg/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
4-Nitrophenol	$3.4x10^6$	µg/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
Acenaphthene	$2.6x10^6$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Acenaphthylene	$2.6x10^6$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Aniline	78000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Anthracene	$1.4x10^7$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Azobenzene	4000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Benzo(a)anthracene	560	µg/kg	550	UJ	500	UJ	410	UJ	410	UJ	390	UJ	430	UJ	480	UJ	440	UJ	400	UJ	430	UJ	410	UJ
Benzo(a)pyrene	56	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Benzo(b,k)fluoranthene	560/5600	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Benzo(g,h,i)perylene		µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Benzoic acid	$1x10^8$	µg/kg	2700	U	2500	U	2000	U	2100	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
Benzyl alcohol	$1.6x10^7$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Butylbenzylphthalate	$9.3x10^5$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Chrysene	56000 (6100)[1]	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Di-n-butylphthalate	$5.5x10^6$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Di-n-octylphthalate	$1.1x10^6$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Dibenz(a,h)anthracene	56	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Dibenzofuran	$2.1x10^5$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Diethylphthalate	$4.4x10^8$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Dimethylphthalate	$1x10^8$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Fluoranthene	$2x10^6$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Fluorene	$1.8x10^6$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Hexachlorobenzene	280	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Hexachlorobutadiene	5700	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Hexachlorocyclopentadiene	$3.8x10^5$	µg/kg	2700	U	2500	U	2000	U	410	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
Hexachloroethane	32000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U

Table 4-2
USARC Long Beach
Analytical Results for Soil Samples

Analyte	EPA Region 9 Residential Soil PRGs	Units	Background Samples				Investigative Samples																	
FieldID			SLB01BG		SLB02BG		SLB01SA		SLB02SA		SLB03SA		SLB04SA		SLB05SA		SLB06SA		SLB07FD		SLB07SA		SLB08SA	
DateSampled			4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Indeno(1,2,3-cd)pyrene	560	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Isophorone	$4.7x10^5$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
N-Nitroso-di-n-propylamine	63	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
N-Nitrosodimethylamine	8.7	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
N-Nitrosodiphenylamine	91000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Naphthalene	$5.5x10^4$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Nitrobenzene	16000	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Pentachlorophenol	2500	µg/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
Phenanthrene		µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Phenol	$3.3x10^7$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Pyrene	$1.5x10^6$	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
bis(2-Chloroethoxy)methane		µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
bis(2-Chloroethyl)ether	180	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
bis(2-Chloroisopropyl) ether	2500	µg/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
bis(2-Ethylhexyl)phthalate	32000	µg/kg	550	UJ	500	UJ	410	UJ	410	UJ	390	UJ	430	UJ	480	UJ	440	UJ	400	UJ	430	UJ	410	UJ
TEPH																								
Diesel C12-C22	NA	mg/kg	1.6	U	1.5	U	1.2	U	1.2	U	2.9		1.3	U	1.4	U	1.3	U	1.2	U	1.3	U	1.2	U
TVPH																								
Gasoline C7-C12	NA	mg/kg	1.6	U	1.5	U	1.2	U	1.2	U	1.2	U	1.3	U	1.4	U	1.3	U	1.2	U	1.3	U	1.2	U
VOCs																								
1,1,1-Trichloroethane	$6.8x10^5$	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,1,2-Trichloroethane	820	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,1-Dichloroethane	$5.7x10^5$	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,1-Dichloroethene	52	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,2-Dichlorobenzene	$3.7x10^5$	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,2-Dichloroethane	340	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,2-Dichloropropane	34	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,3-Dichlorobenzene	41000	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,4-Dichlorobenzene	3000	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
2-Butanone		µg/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
2-Chloroethylvinylether		µg/kg	82	U	75	U	61	U	62	U	59	U	64	U	72	U	67	U	60	U	64	U	61	U
2-Hexanone		µg/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
4-Methyl-2-Pentanone		µg/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
Acetone	$1.4x10^6$	µg/kg	33	U	30	U	24	U	25	U	24	U	26	U	29	U	27	U	24	U	26	U	24	U
Benzene	620	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Bromodichloromethane	980	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Bromoform	56000	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Bromomethane	3800	µg/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U

Table 4-2
USARC Long Beach
Analytical Results for Soil Samples

FieldID / DateSampled / Analyte	EPA Region 9 Residential Soil PRGs	Units	Background Samples				Investigative Samples																	
			SLB01BG		SLB02BG		SLB01SA		SLB02SA		SLB03SA		SLB04SA		SLB05SA		SLB06SA		SLB07FD		SLB07SA		SLB08SA	
			4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Carbon Disulfide	$3.5x10^5$	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Carbon Tetrachloride	230	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Chlorobenzene	54000	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Chloroethane	$1.6x10^6$	µg/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
Chloroform	240	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Chloromethane	1200	µg/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
Dibromochloromethane	5300	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Ethylbenzene	$2.3x10^5$	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Methylene Chloride	8500	µg/kg	33	U	30	U	24	U	25	U	24	U	26	U	29	U	27	U	24	U	26	U	24	U
Styrene	$1.7x10^6$	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Tetrachloroethene	4700	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Toluene	$5.2x10^5$	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Trichloroethene	2700	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Trichlorofluoromethane	$3.8x10^5$	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Vinyl Acetate	$4.2x10^5$	µg/kg	82	U	75	U	61	U	62	U	59	U	64	U	72	U	67	U	60	U	64	U	61	U
Vinyl Chloride	21	µg/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
cis-1,2-Dichloroethene	42000	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
cis-1,3-Dichloropropene	81	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
m,p-Xylenes	$2.1x10^5$/ $3.2x10^5$	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
o-Xylene	$2.8x10^5$	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
trans-1,2-Dichloroethene	62000	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
trans-1,3-Dichloropropene	81	µg/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U

J = Estimated value
mg/kg = milligrams per kilogram
Qual = Qualifier
R = Rejected
SVOCs = Semivolatile Organic Compounds
TEPH = Total Extractable Petroleum Hydrocarbons
TVPH = Total Volatile Petroleum Hydrocarbons
U = Analyte was not detected above reporting limit.
µg/kg = micrograms per kilogram
UJ = Reporting limit is estimated. Analyte was not detected above reporting limit.
VOCs = Volatile Organic Compounds
[1] CAL-Modified PRG
[2] PRG for total chromium, not hexavalent chromium
[3] non-cancer endpoint

Table 4-3
USARC Long Beach
Summary of Detected Analytes

FieldID	EPA Region 9 Residential Soil		Background Samples				Investigative Samples															
			SLB01BG		SLB02BG		SLB01SA		SLB02SA		SLB03SA		SLB04SA		SLB05SA		SLB06SA		SLB07FD		SLB07SA		SLB08SA	
DateSampled			4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98	
Analyte	PRGs	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Metals																								
Arsenic	0.38 (21)[4]	mg/kg	6.2		6.3		3.1		2.3		3.4		4		2.8		2.1		1.8		2.9		3.9	
Barium	5200	mg/kg	230		210		170		170		190		190		200		210		170		150		190	
Beryllium	150	mg/kg	**0.25**		**1**		**0.63**		**0.54**		**0.52**		**0.77**		**0.74**		**0.36**		**0.59**		**0.8**		**0.52**	
Cadmium	37 (9)[3]	mg/kg	0.4		1.4		0.92		1.1		0.85		1.1		1		0.7		1.2		0.96		0.8	
Chromium[1]	210	mg/kg	15		38		26		27		22		31		30		15		25		31		19	
Cobalt	3300	mg/kg	3.8	J	17	J	12	J	11	J	10	J	16	J	11	J	6.5	J	7.9	J	17	J	9.8	J
Copper	2800	mg/kg	17	J	34	J	21	J	33	J	21	J	26	J	21	J	14	J	19	J	18	J	20	J
Lead	400 (130)[3]	mg/kg	1.5	J	9.2	J	6.4	J	5.8	J	6.1	J	8.1	J	6.6	J	2.9	J	4.9	J	8.7	J	5	J
Molybdenum	370	mg/kg																			4.6	J		
Nickel	150[3]	mg/kg	7.9	J	37	J	21	J	21	J	19	J	27	J	23	J	13	J	18	J	33	J	17	J
Selenium	370	mg/kg			0.94																			
Thallium[2]	5.2	mg/kg	2.5	J	19	J	15	J	14	J	12	J	20	J	17	J	7.8	J	4.3	J	11	J	7.7	J
Vanadium	520	mg/kg	11		43		32		34		33		39		35		18		27		40		32	
Zinc	22000	mg/kg	17		84		58		63		46		69		61		30		48		58		46	
TEPH																								
Diesel C12-C22	NA	mg/kg									2.9													

[1]PRG for total chromium, not hexavalent chromium.

[2]Thallic oxide PRG as PRG for elemental thallium has not been developed.

[3]CAL-Modified PRG

[4] non-cancer endpoint value

PRGs dated May 1998

J = Estimated value

mg/kg = milligrams per kilogram

NA = Not applicable

Qual = Qualifier

TEPH = Total Extractable Petroleum Hydrocarbons

= Value exceeds Residential Soil PRG.

Eight subsurface soil samples, a field duplicate and associated QA/QC samples were collected from the open fields at USARC Long Beach. Two background soil samples were also collected.

Fourteen metals were detected in the soil samples. Metals concentrations ranged from below background concentrations to greater than background concentration. However, all of the metals concentrations except for arsenic and thallium were below the residential soil PRGs.

Naturally occurring arsenic in soils is frequently higher than the risk based PRG for residential soils. After considering background in the local area, EPA Region 9 uses the non-cancer PRG of 21 mg/kg to evaluate sites. Arsenic concentrations at this facility are below the alternative PRG of 21 mg/kg which is based on non-cancer endpoints but is still protective of cancer risks.

Arsenic concentrations fall within the range of concentrations found naturally occurring in the western U.S. soils (USGS 1984). The observed range of concentrations for arsenic is <0.10 to 97 mg/kg. Arsenic concentrations are within the range of concentrations found in California soils, 0.59-11 mg/kg, as reported in a March 1996 special report prepared for University of California (UC) Riverside and CAL-EPA DTSC (UC Riverside and CAL-EPA DTSC 1996).

Although most of the thallium concentrations are above the residential soil PRG, all of the concentrations are below the industrial PRG of 130 mg/kg.

TEPH was detected in one soil sample at a concentration of 2.9 mg/kg. Concentrations of petroleum hydrocarbons in soil are below the California Leaking Underground Fuel Tank (LUFT) Field Manual maximum allowable TPH levels of 10 mg/kg for soils that could be left in place without threatening groundwater (California 1989).

Based on the results of the shallow subsurface soils investigation at USARC Long Beach, it appears that there is no potential environmental impact. However, to fully investigate the facility for environmental impacts from past activities, a detailed review of historical records should be conducted. In addition, deeper subsurface soil investigations should be conducted and information on groundwater should be collected to evaluate the presence of potential contamination.

California Code of Regulations. Title 22, Division 4.5, Chapter 11, Section 66261.24.

Code of Federal Regulations. Title 40, Part 140.

EPA. 1998. Region 9 Preliminary Remediation Goals. May 1.

State of California. 1989. Leaking Underground Fuel Tank (LUFT) Field Manual: Guidelines for Site Assessment, Cleanup and Underground Storage Tank Closure, October.

UC Riverside and CAL-EPA DTSC. 1996. Bradford et al., "Background Concentrations of Trace and Major Elements in California Soils, Kearney Foundation Special Report, March.

U.S. Geological Survey. 1984. Shacklette, Hansford T., and Josephine G. Boerngen, Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States.

Woodward-Clyde. 1998. Final Work Plan, Preliminary Assessment/Site Investigation, U.S. Army Reserve Centers (USARC) 63D Regional Support Command, March.

DAILY REPORT

REPORT NO. S95518-01

PROJECT PA/SI LONG BEACH

LOCATION USARC LONG BEACH

PERSONNEL PARTITA – WCFS
Shymala – 63D RSC
Yiwha – 63 D RSC

DATE	4/28/98			
DAY	SUN	MON	(TUE)	WED
DAY	THU	FRI	SAT	
WEATHER	Clear	P.Cloud	Cloudy	Fog
TEMP.	0-32°F	32-50°F	50-75°F	75-100°F
WIND	Calm	Breeze	Moderat	High
WIND DIR.	North	South	East	West
PRECIP.	Rain	Light	Moderat	Heavy
PRECIP.	Snow	Light	Moderat	Heavy

SUBCONTRACTORS ON SITE AND EQUIPMENT

FAST-TEK
Paul

DOWNTIME/PROBLEMS ENCOUNTERED

-NONE-

SUMMARY OF ACTIVITIES/DISCUSSIONS/DECISIONS

6:40 ARRIVE @ the office to pick up supplies. No truck or HAZWOPER kit available. Wait for equipment from personnel to arrive.
7:15 Pick up truck and HAZWOPER kit.
7:20 Leave office for USARC LONG BEACH
8:00 Arrive at the site. Paul from FAST-TEK already @ site. Personnel from 630 RSC yet to show up.
8:30 STILL waiting for 63D RSC. Conduct H&S Tail gate meeting. After that conduct PID calibration. Calibration done with 100 ppm Isobutylene gas.
Model # PGM-75
SERIAL # 000065
8:35 Setting up for sampling. Ten soil samples and 2 background samples will be collected at this site. Sampling will start at the open field adjacent to the motor pool area.

Completed By: Partha P. Bu (Signature) 4/28/98 (Date)

Checked By: Ed Reilly (Signature) 6/19/98 (Date)

DAILY REPORT (CONTINUATION PAGE)

REPORT NO. S95518-01	DATE 4/28/98

SUMMARY OF ACTIVITIES/DISCUSSIONS/DECISIONS (CONTINUED)

8:45 Still waiting for 63D RSC. Plan is to start @ 9:00 am even if no personnel from 63D RSC arrives at the site.

8:55 Setting up @ SLB07. A duplicate sample will also be collected at this location. Samples will be collected from 3'-5' bgs.

9:00 Start sampling @ SLA07
9:02 Sample collected from 3'-5' bgs
SLA07SA (3'-5')
9:05 Duplicate sample also collected
SLA07FD
9:10 Shymala and Yitawe from 63D RSC arrives at the site.

9:20 Setting up @ SLA05.
9:25 Soil sample collected
SLA05SA (3'-5')
9:30 Setting up @ SLA06
9:35 Soil sample collected @ SLA06
SLA06SA
9:40 Moving to SLA08
9:45 Soil sample collected @ SLA08
SLA08SA (3'-5')
9:56 Setting up @ SLA04
10:02 Soil sample collected @ SLA04
SLA04SA
10:08 Setting up @ SLA03
10:15 Soil sample collected
SLA03SA
10:25 PID readings taken from headspace samples. All readings for # 03, 04, 05, 06, 07, 08 were non-detect (0.0ppm)

DAILY REPORT (CONTINUATION PAGE)

REPORT NO. S95518-01	DATE 4/28/98

SUMMARY OF ACTIVITIES/DISCUSSIONS/DECISIONS (CONTINUED)

10:30 Soil sampling completed within the facility. Starting borehole abandonment. Boreholes will be addendied with portland cement and water mixture.

10:50 Borehole abandonment complete. Setting up for background sampling and two field samples outside the facility (SLA01, 02).

11:00 Setting up @ SLA01 background location #1

11:05 Soil sample collected
SLA01BG

11:15 Setting up @ SLA01

11:20 Soil sample collected
SLA01SA (3'-5')

11:20 Setting up @ SLA02. A MS sample will also be collected from this location.

11:31 Soil sample collected @ SLA02SA (3'-5')

11:35 MS Sample collected
@ SLA02MS (3'-5')

11:45 Setting up @ second background location.

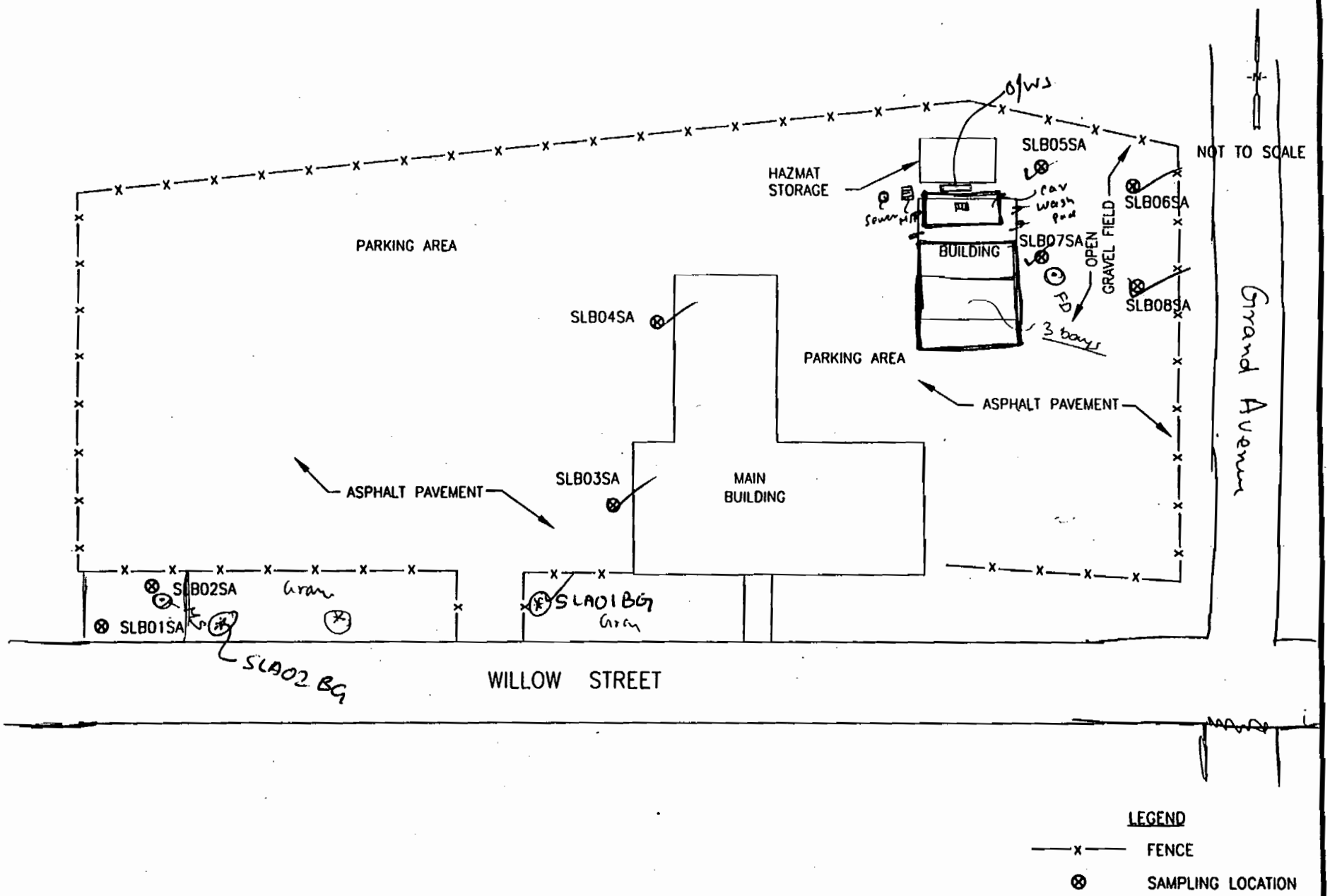
11:48 Soil sample collected from BG2
SLA02BG

12:00 Soil sampling completed. Samples ~~packaged~~ prepared for shipment.

12:20 Leave site for FEDEX office and HARCO for equipment return.

SOIL SAMPLE SUMMARY

SLA01SA		SLA08SA
SLA02SA	SLA02MS	SLA01BG
SLA03SA		SLA02BG.
SLA04SA		
SLA05SA		
SLA06SA		
SLA07SA	SLA07FD	



Job No. : S95513	SOIL SAMPLING LOCATIONS FOR USARC LONG BEACH, CA
Prepared by : E.P.R.	
Date : 3/12/98	

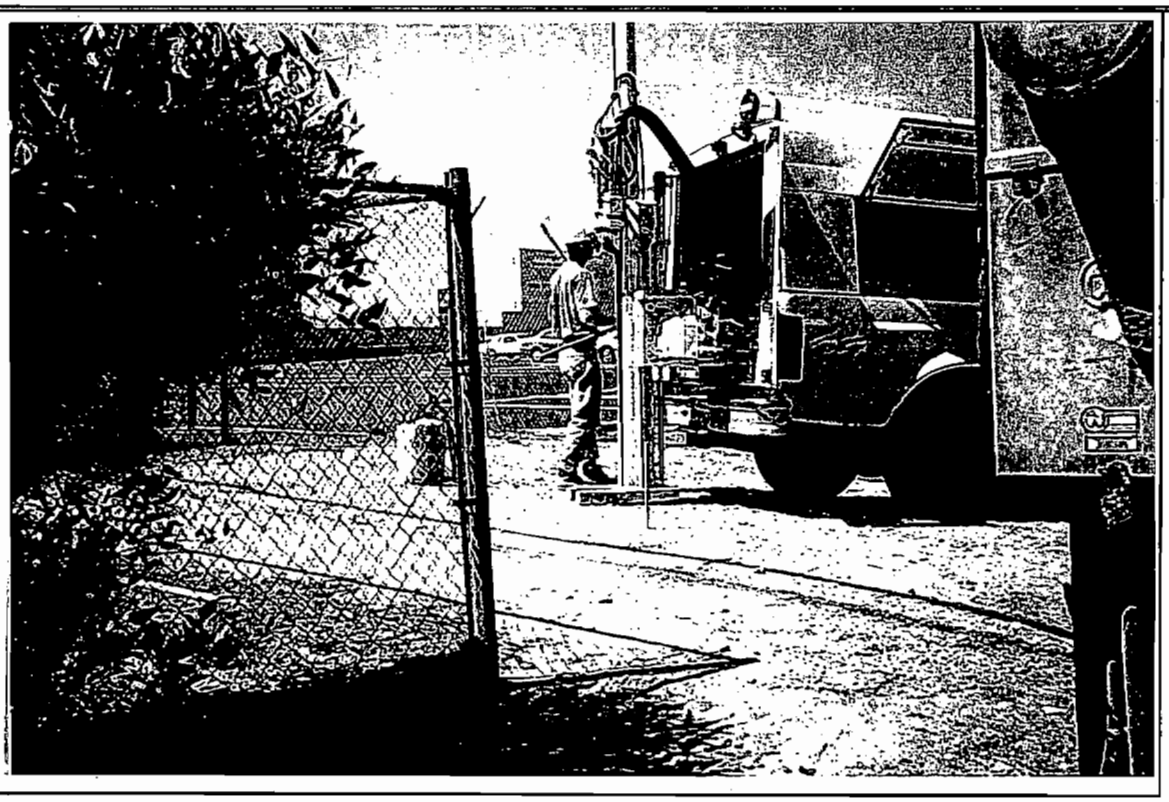
S9551307

FIG. 4-6

USARC LONG BEACH

Site Photographs

USARC Long Beach



Date:
March 1998

Photograph: 1

Comments:
SOIL SAMPLING @ SLA01

Date:
March 1998

Photograph:

Comments:
SOIL SAMPLING @ SLA02 (A MS sample was taken @ this location)

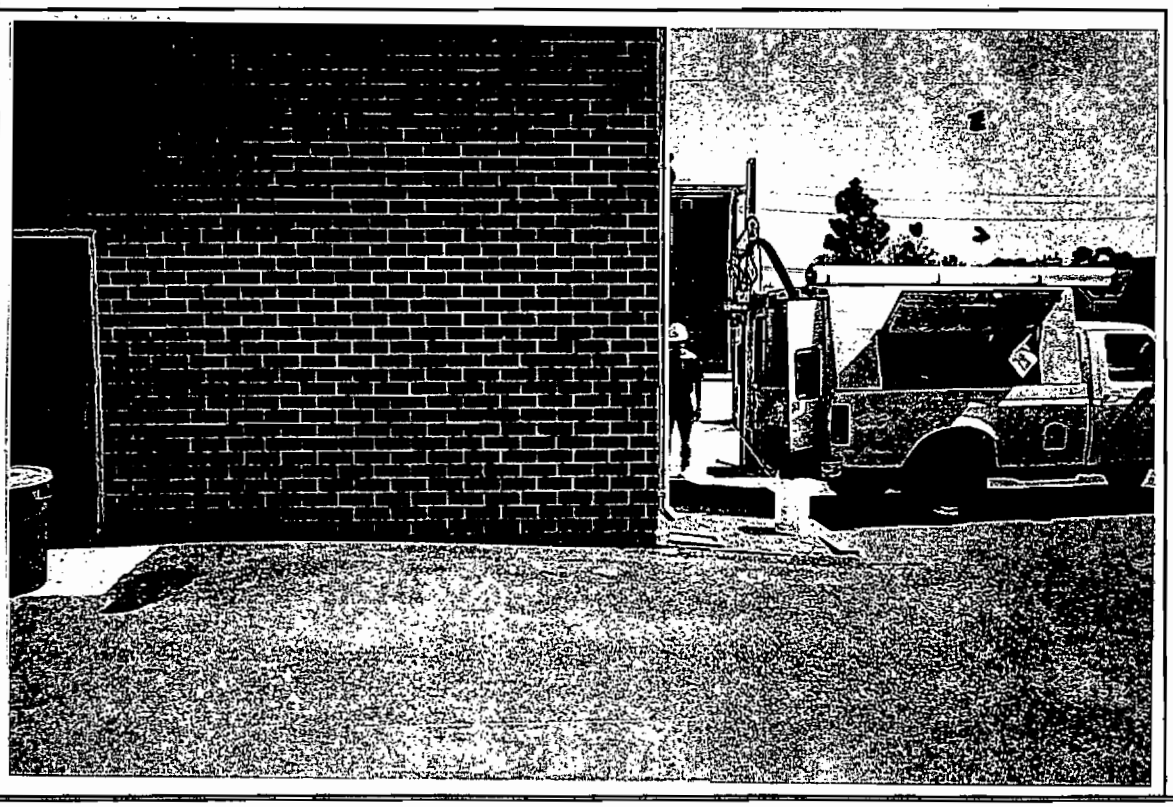
Site Photographs

USARC Long Beach

Date:
March 1998

Photograph

Comments:
SOIL SAMPLING
@ SLA03



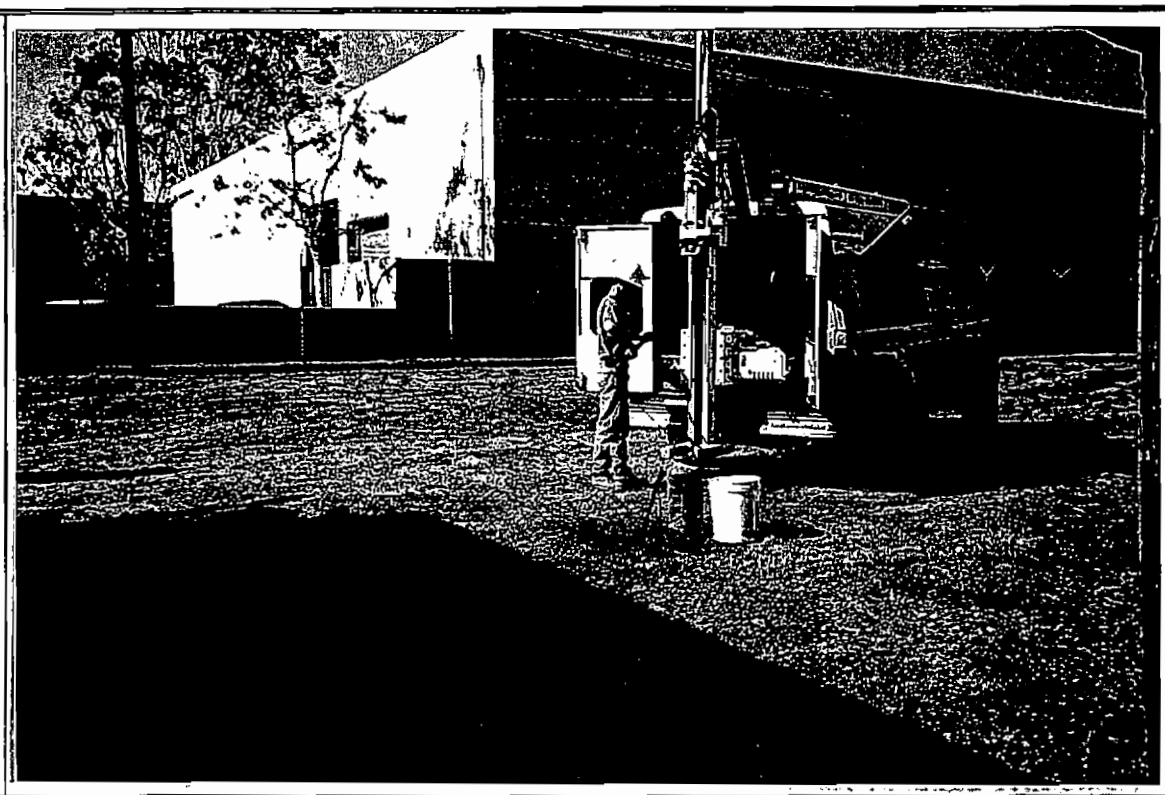
Date:
March 1998

Photograph:

Comments:
SOIL SAMPLING
@ SLA04

Site Photographs

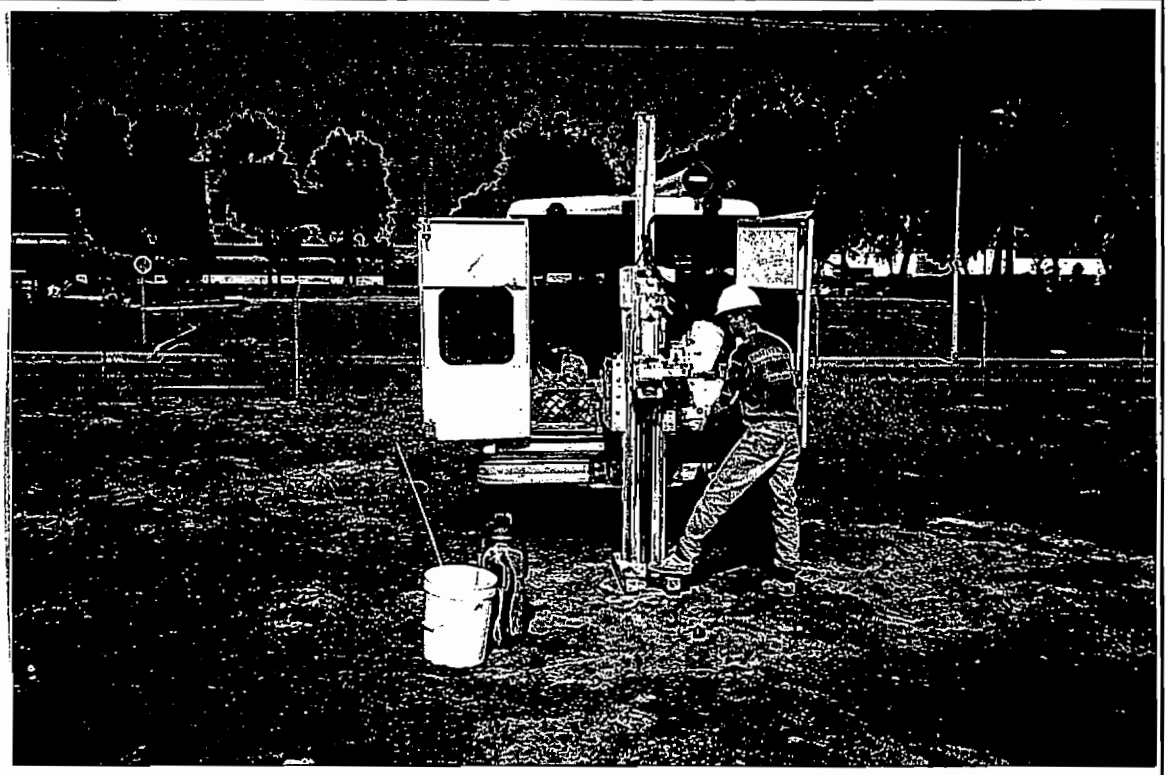
USARC Long Beach



Date:
March 1998

Photograph

Comments:
Soil Sampling
@ SLA05



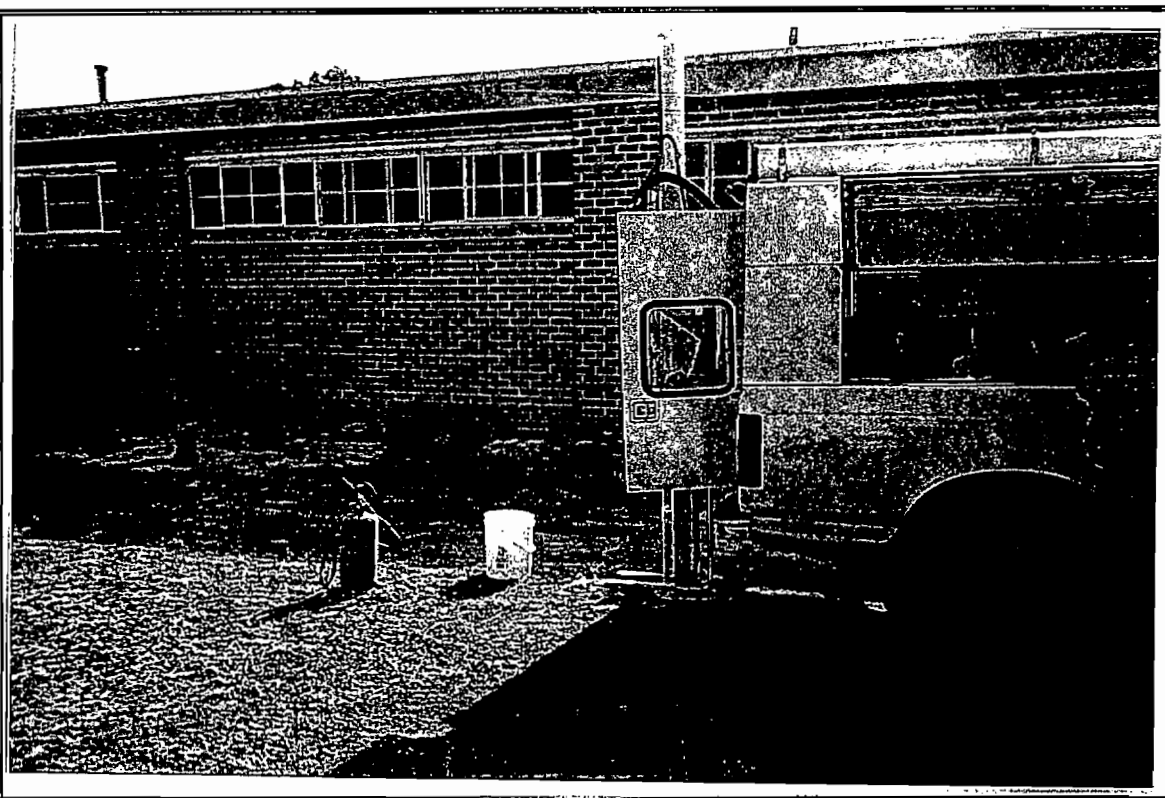
Date:
March 1998

Photograph:

Comments:
Soil Sampling
@ SLA06

Site Photographs

USARC Long Beach



Date:
March 1998

Photograph:

Comments:
Soil Sampling @ SLA07 (A duplicate sample was collected at this location)

Date:
March 1998

Photograph:

Comments:
Soil sampling @ SLA08

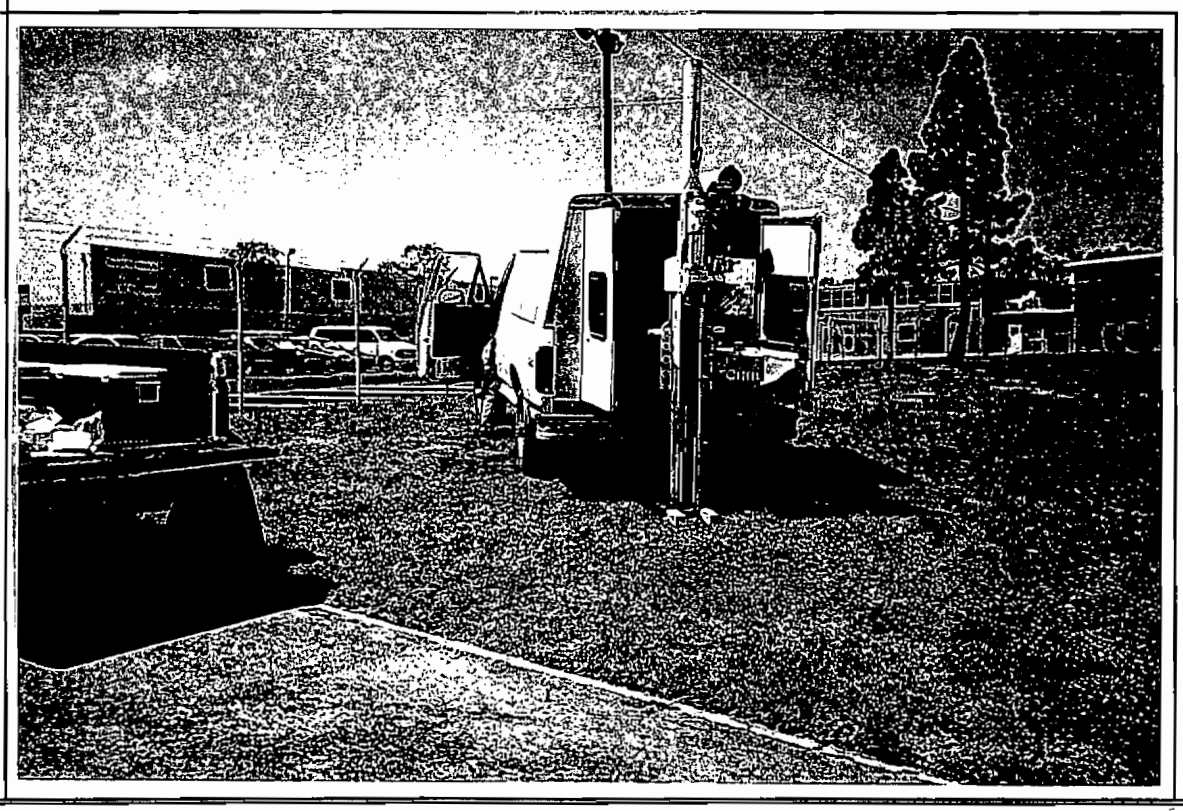
Site Photographs

USARC Long Beach

Date:
March 1998

Photograph

Comments:
Soil Sampling at #1 Back-ground location



Date:
March 1998

Photograph:

Comments:
— Same as above —

Site Photographs

USARC Long Beach

Date:
March 1998

Photograph

Comments:
Soil sampling @ #2 Back-ground location

Date:
March 1998

Photograph:

Comments:
— same as above —

APPENDIX C
TABLE OF CONTENTS

1.0 INTRODUCTION C-1

2.0 DATA VALIDATION PROCESS C-1

2.1 Case Narrative Comments, Chain of Custody and Sample Receipt C-2
2.2 Reporting Limits C-2
2.3 Holding Times C-2
2.4 Blanks C-2
2.5 Laboratory Control Sample Analysis C-2
2.6 Surrogate Recoveries (applicable to organic analyses only) C-3
2.7 Matrix Spike Analysis C-3
2.8 Duplicate Sample Analysis C-4
2.9 Matrix Spike/Matrix Spike Duplicate Sample Analysis C-4
2.10 Serial Dilution Results (applicable to inorganic analyses only) C-4
2.11 Field Duplicate Results C-5
2.12 Completeness of the Data Package C-5
2.13 Overall Assessment C-5

3.0 DATA VALIDATION REPORTS C-6

3.1 Data Validation Report for USARC Long Beach Samples C-6
3.1.1 Volatile Organic Compounds C-6
3.1.2 Total Volatile Petroleum Hydrocarbons (TVPH) C-7
3.1.3 Total Extractable Petroleum Hydrocarbons (TEPH) C-7
3.1.4 Semivolatile Organic Compounds (SVOCs) C-7
3.1.5 Polychlorinated Biphenyls (PCBs) C-9
3.1.6 Metals C-9

1.0 INTRODUCTION

A sampling event was conducted for soil at the USARC facility in Long Beach, California, in order to collect data sufficient in quality and quantity to characterize the site and support PA/SI activities. Investigative and background soil samples were collected at the site. The details of the field data collection effort are presented in the Preliminary Assessment/Site Investigation, U.S. Army Reserve Centers (USARC), 63D Regional Support Command Work Plan. Sampling and chemical analyses were conducted in accordance with the procedures and methods outlined in the associated Sampling and Analysis Plan (SAP) and Quality Assurance Plan (QAP) (Volumes I and II, respectively of the work plan). This quality assurance/quality control report presents the results of the data validation conducted on the laboratory analytical data package received.

The data validation process performed is detailed in Section 2.0. The resultant data validation narrative for the site sampled is presented in Section 3.0.

2.0 DATA VALIDATION PROCESS

The analytical data were generated and reviewed in accordance with the protocols specified in the QAP and summarized in the following subsections. The data validation effort was performed to evaluate the usability of the sample data for meeting the project objectives.

The data validation consisted of evaluating the results for the following quality control (QC) parameters as applicable to the method: case narrative comments, holding times, blank contamination, laboratory control sample results, matrix spike sample analysis, duplicate sample analysis, matrix spike/matrix spike duplicate sample analysis, serial dilution results, field duplicate result agreement, and completeness of the data package. Data qualifiers were issued to indicate any limitations on the data usability. Data qualification was issued using guidance from the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) National Functional Guidelines for Inorganic/Organic Data Review (February 1994a and 1994b). Following the evaluation of each data package for the parameters listed above, an overall assessment with respect to the quantitative (sensitivity [i.e., reporting limits]), accuracy, precision, and completeness) and qualitative (representativeness and comparability) data quality assurance parameters was formulated.

The data validation narrative includes an overall assessment for the data in the laboratory package(s) associated with a particular site as well as a discussion of any quality assurance/quality control (QA/QC) results outside of evaluation criteria, an explanation of all data qualification assigned and any professional judgment used by the reviewer. The data validation process did not include result recalculation or transcription error checking from the raw data.

The subsections below describe how each QA/QC parameter was evaluated and what data qualification was assigned for the various conditions in which results did not meet evaluation criteria.

2.1 Case Narrative Comments, Chain of Custody and Sample Receipt

The data validation process begins with an examination of the case narrative, COC documentation, and cooler receipt checklist information. Any analytical problems noted in the case narrative are noted in the data validation narrative along with a summary of the effect on the data and its usability. The analytical results received were compared against those requested on the COC form. Any COC problems or discrepancies were noted in the data validation report. Any problems noted by the laboratory with regard to sample condition upon receipt were also noted.

2.2 Reporting Limits

The laboratory reporting limits were compared to those listed in the QAP. Laboratory reporting limits were also compared to PRGs. Instances where laboratory reporting limits exceed QAP-specified limits and/or PRGs are discussed.

2.3 Holding Times

Collection to analysis holding times were calculated by computing the difference between the sample collection date and the sample analysis date. Collection to extraction holding times were calculated by computing the difference between the sample collection date and the sample preparation date. Extraction to analysis holding times were calculated by computing the difference between the sample preparation date and the sample analysis date. Collection, extraction, and analysis dates were reported on the sample results sheets. The holding times were compared to the evaluation criteria contained in the respective analytical methods. Results for analyses not performed within holding time limits were qualified as estimated ("J/UJ").

2.4 Blanks

The results for preparation (method) blanks and calibration blanks (for metal analyses) were reviewed. Sample results for analytes detected in an associated blank at concentrations less than five times the blank concentration were qualified as non-detect ("U") (less than 10 times the blank amount for the common laboratory contaminants acetone, methylene chloride, 2-butanone, and phthalates). In these instances, the reported value then becomes the "effective" reporting limit. In the case of negative blank results, associated sample results were qualified as estimated ("J/UJ") if the amount of potential low bias suggested by the blank results accounted for greater than 25% of the reported sample result or quantitation limit. The results obtained for preparation and calibration blanks and are discussed in the data review narrative for the laboratory data package.

2.5 Laboratory Control Sample Analysis

Laboratory control samples (LCSs) are "clean" well-characterized samples used to monitor the laboratory's day-to-day performance of routine analytical methods. LCSs are prepared by spiking samples of a "clean" matrix with known amounts of target analytes and then processing the sample in the same fashion as all other samples. LCSs are used to monitor the accuracy and

precision of the analytical process independent of matrix effects. The accuracy of the analytical process is evaluated using the calculated percent recoveries (%Rs) of the spiked analytes. When LCSs are prepared in duplicate, the duplicate results are compared to each other by means of a relative percent difference (RPD) and are used to evaluate the precision of the analytical process.

The LCS percent recoveries (and RPDs when LCSs were prepared in duplicate) were compared to the evaluation criteria listed in the QAP for accuracy (and precision when LCSs were prepared in duplicate). If the recovery of a spiked analyte in an LCS exceeded the upper limit of the acceptance range, suggesting a potential high bias in sample results, positive results for that analyte in associated samples were qualified as estimated ("J"); whereas, non-detect results for that analyte were considered to be acceptable for use without qualification. If the recovery of a spiked analyte in an LCS was below the lower limit of the acceptance range, suggesting a potential low bias in sample results, both positive and non-detect results for that analyte in all associated samples were qualified as estimated ("J/UJ").

2.6 Surrogate Recoveries (applicable to organic analyses only)

Surrogate compounds are compounds that are not expected to be present in field samples. They are spiked into every field and laboratory QC sample at known levels prior to sample preparation. The calculated surrogate recoveries are used to evaluate the accuracy of the analysis on the individual samples and to monitor the laboratory's day-to-day performance of routine analytical methods.

Sample surrogate recoveries were compared to the evaluation criteria listed in the QAP for accuracy. If the recovery of a surrogate compound exceeded the upper limit of the acceptance range, suggesting a potential high bias in sample results, positive results for target analytes in that sample were qualified as estimated ("J"); whereas, nondetect results for that analyte were considered to be acceptable for use without qualification. If the recovery of a spiked analyte in an LCS was below the lower limit of the acceptance range, suggesting a potential low bias in sample results, both positive and nondetect results in that sample were qualified as estimated ("J/UJ").

2.7 Matrix Spike Analysis

A matrix spike is an analysis of an extra portion of a field sample into which known amounts of target analytes are spiked prior to sample preparation. The matrix spike results, expressed as percent recovery of the spiked analytes, are used to assess affects of the general sample matrix on the accuracy of the analysis. Matrix spike results were only considered to be an appropriate indicator parameter of accuracy when the sample concentration is less than four times the spike concentration.

The matrix spike recoveries were compared to the laboratory determined evaluation criteria. If the recovery of a matrix spike analyte exceeded the upper limit of the acceptance range, suggesting a potential high bias in sample results, positive results for that target analyte in all associated samples were qualified as estimated ("J"); whereas, nondetect results for that analyte were considered to be acceptable for use without qualification. If the recovery of a matrix spike analyte was below the lower limit of the acceptance range, suggesting a potential low bias in

sample results, both positive and nondetect results for that analyte in all associated samples were qualified as estimated ("J/UJ").

2.8 Duplicate Sample Analysis

A laboratory duplicate sample is a split of a homogenized environmental sample that is prepared and analyzed in a manner identical to that of the original sample. The duplicate results are compared to each other by means of either a Relative Percent Difference (RPD) between analytical results for the duplicate and the original sample or the number of reporting limits the two results differ by. The duplicate sample analysis results are used to evaluate the precision of the laboratory analyses.

Results for the laboratory duplicate sample analyses were compared to the Functional Guidelines evaluation criteria. The RPD criterion of ≤35 percent for solid samples was applied for cases in which both the sample and duplicate results were greater than 5 times the reporting limit. Otherwise, the absolute difference between the sample results was compared to 2 times the greater method reporting limit for solid samples. If the duplicate results for an analyte did not satisfy the applicable evaluation criterion, results for that analyte in all associated samples were qualified as estimated ("J/UJ").

2.9 Matrix Spike/Matrix Spike Duplicate Sample Analysis

A matrix spike/matrix spike duplicate pair is the duplicate preparation of matrix spike samples. As described in Section 2.7, the results of the matrix spike sample analysis, and the matrix spike duplicate sample analysis, are used to evaluate the accuracy of the analysis on the site-specific sample matrix. The relative percent differences (RPDs) between the matrix spike and the matrix spike duplicate results are used to assess the effect of the sample matrix on the precision of the analysis.

Data qualification was assigned in a similar fashion to that described in Sections 2.7 and 2.8 with the following additional consideration. If the matrix spike recovery for an analyte was slightly outside evaluation criteria, but the matrix spike duplicate was either within or slightly outside evaluation criteria, such that the average recovery was within the acceptance range and no clear direction of bias was indicated, data qualification may have been considered unnecessary if the RPD between the two results met evaluation criteria.

2.10 Serial Dilution Results (applicable to inorganic analyses only)

When analyte concentrations are sufficiently high, results obtained for a diluted sample analysis can be compared to the original sample analysis, by means of a percent difference (%D), to evaluate whether chemical or physical interferences exist due to the sample matrix. Serial dilution analyses were conducted at a frequency of 1/20 sample (one analysis per metals data package). For analytes with sufficiently high concentrations (minimally 50x greater than the instrument detection limit), the %D between the original results and results for a 5x diluted sample analysis were compared to the evaluation criterion of ≤10%. If the %D for an analyte

exceeded 10%, results for that analyte for all samples in the data package were qualified as estimated ("J/UJ").

2.11 Field Duplicate Results

Field duplicate samples were collected in order to assess the representativeness of the samples to the medium sampled and to assess the overall precision of the analyses (analytical and sampling precision). The analytical results obtained for field duplicate sample pairs were compared to each other using the criteria described below.

Results for field duplicate sample analyses were compared to the following evaluation criteria listed in the QAP. Field duplicate results were evaluated by comparing the results for the sample and its duplicate. For field duplicate results where both reported values were greater than 5 times the greater method reporting limit (MRL), the RPD between the sample and its duplicate was compared against a criterion of ≤50%. For field duplicate results where either value reported was less than 5 times the greater MRL, the absolute difference between the results was compared to a criterion of agreeing within ±2 times the greater MRL.

2.12 Completeness of the Data Package

The analytical data package was evaluated for completeness of deliverables against the following criteria:

- Presence of tabulated results of all specified compounds identified and quantified and reporting limits for all analytes. Presence of results for all methods requested on the Chain of Custody (COC) forms for each sample
- Presence of: COC forms; QC summary forms for MS results with calculated percent recoveries; QC summary forms for laboratory duplicates results and calculated RPDs; blank results; and QC summary forms for LCS sample results with calculated spike recoveries (and RPDs if applicable)

Data package deliverables that did not meet the above criteria were documented, and the missing deliverables were obtained from the contract laboratory. Any documents not obtainable from the laboratory are noted in the data validation reports.

2.13 Overall Assessment

The data validation report is concluded with an overall assessment of the data with respect to the data quality assurance objectives specified in Section 2.0. The usability of the data for meeting project objectives is also discussed. The overall assessment is formulated considering the accuracy and precision levels demonstrated by the results of quality control sample analyses, the reporting limits attained for the individual samples, and the percentage of valid data generated. Additionally, in general, data generated under similar prescribed procedures (both sampling and analysis) are considered to be comparable.

3.0 DATA VALIDATION REPORT

The following data validation report covers the reporting of the chemical analytical data from the April 1998 sampling conducted to assist in the PA/SI activities for the USARC facility in Long Beach, California. The data validation report covers the analytical results for samples collected at the USARC Long Beach site. ***During the data validation process, each of the parameters listed in Section 2 above was evaluated; however, a QC parameter is only discussed in the data validation report if the results for that parameter did not satisfy the evaluation criteria.*** At the conclusion of the data validation report is an overall assessment.

3.1 Data Validation Report for USARC Long Beach Samples

The following data validation report covers the reporting of the chemical analytical data from the April 28, 1998, sampling conducted at the USARC Long Beach facility. Eight investigative soil samples, one field duplicate sample, and two background soil samples were collected in accordance with the SAP. The field IDs and sample collection dates are listed in the following table.

Field ID	Collection Date
SLB01SA	4/28/98
SLB02SA	4/28/98
SLB03SA	4/28/98
SLB04SA	4/28/98
SLB05SA	4/28/98
SLB06SA	4/28/98
SLB07SA	4/28/98
SLB07FD	4/28/98
SLB08SA	4/28/98
SLB01BG	4/28/98
SLB02BG	4/28/98

The samples arrived at the laboratory in one cooler. The samples were analyzed for volatile organic compounds (VOCs by Method 8260), total volatile petroleum hydrocarbon and total extractable petroleum hydrocarbon (TVPH and TEPH by Method 8015 M), semivolatile organic compounds (SVOCs by Method 8270), polychlorinated biphenyls (PCBs by Method 8082), and metals (by Methods 6010A and 7471). The results were reported in laboratory data package 133369. Only results for QC analyses using field samples (matrix spike, matrix spike duplicate, sample duplicate) collected at the USARC Long Beach facility were considered applicable in evaluating the data for this facility.

3.1.1 Volatile Organic Compounds

Reporting Limits

Reporting limits for all blanks matched the QAP-specified reporting limits. However, some samples were reported as nondetect at slightly elevated reporting limits. Reporting limits were

elevated slightly due to the adjustment for percent moisture in the samples. While these reporting limits exceeded the QAP-specified limits, they were not greater than the residential PRGs. The reporting limits obtained are not considered to affect the quality or usability of the data.

3.1.2 Total Volatile Petroleum Hydrocarbons (TVPH)

Reporting Limits

Reporting limits for all blanks matched the QAP-specified reporting limits. However, some samples were reported as nondetect at slightly elevated reporting limits. The TVPH reporting limits obtained, ranging from 1.2 mg/kg to 1.6 mg/kg, slightly exceeded the QAP-specified reporting limit of 1 mg/kg. The difference was due to adjusting the reporting limit for the percent moisture of the sample. As there is no EPA Region 9 residential PRG for TVPH, the reporting limits obtained are not considered to affect the quality or usability of the data.

3.1.3 Total Extractable Petroleum Hydrocarbons (TEPH)

TEPH was reported as detected for sample SLB03SA. The laboratory noted that this samples exhibited fuel a pattern that does not resemble the standard. The hydrocarbons detected in the sample were heavier than the standard.

Reporting Limits

Reporting limits for all blanks matched the QAP-specified reporting limits. However, some samples were reported as nondetect at slightly elevated reporting limits. The TEPH reporting limits obtained, ranging from 1.2 mg/kg to 1.6 mg/kg, slightly exceeded the QAP-specified reporting limit of 1 mg/kg. The difference was due to adjusting the reporting limit for the percent moisture of the sample. As there is no EPA Region 9 residential PRG for TEPH, the reporting limits obtained are not considered to affect the quality or usability of the data.

3.1.4 Semivolatile Organic Compounds (SVOCs)

Case Narrative

The case narrative for the semivolatile organic analyses indicated that bis(2-ethylhexyl)phthalate, 3,3'-dichlorobenzidine, and benz(a)anthracene did not meet the %RSD requirements for the initial calibration. The %RSDs for bis(2-ethylhexyl)phthalate (40.3%), 3,3'-dichlorobenzidine (24.0%), and benz(a)anthracene (28.4%) exceeded the method acceptance limit of ≤20%. Consequently, results for these analytes for all samples in this data package were qualified as estimated ("UJ") based on initial calibration evaluation criteria.

Reporting Limits

Reporting limits for all blanks matched the QAP-specified reporting limits. However, some sample results were reported as nondetect at slightly elevated reporting limits. Additionally, results for several analytes were reported as nondetect at reporting levels achieved by the laboratory that were greater than the residential PRGs. The following table lists samples for which analytes were reported as nondetect at concentrations greater than residential PRGs (QAP-specified reporting limits for the three analytes listed above).

Analyte	PRGs (µg/kg)	Reporting Limits Which Exceed Residential PRGs for Analytes Reported As Nondetect[1]										
		SLB01BG	SLB01SA	SLB02BG	SLB02SA	SLB03SA	SLB04SA	SLB05SA	SLB06SA	SLB07FD	SLB07SA	SLB08SA
3,3'-Dichlorobenzidine	990	**2700**	**2000**	**2500**	2000	**2000**	**2100**	**2400**	**2200**	**2000**	**2100**	**2000**
Hexachlorobenzene	28	**550**	**410**	**500**	**410**	**390**	**430**	**480**	**440**	**400**	**430**	**410**
N-Nitroso-di-n-propylamine	63	**550**	**410**	**500**	**410**	**390**	**430**	**480**	**440**	**400**	**430**	**410**
N-Nitrosodimethylamine	9	**550**	**410**	**500**	**410**	**390**	**430**	**480**	**440**	**400**	**430**	**410**
Pentachlorophenol	2500	**2700**	2000	2500	2000	2000	2100	2400	2200	2000	2100	2000
bis(2-Chloroethyl)ether	43	**550**	**410**	**500**	**410**	**390**	**430**	**480**	**440**	**400**	**430**	**410**

[1]Bold values are those which exceed PRGs. All samples analyzed at a 1X dilution

Analyte	Comparison of Residential PRGs and Reporting Limits		
	PRGs (µg/kg)	QAP Reporting Limit[1] (µg/kg)	Method Estimated[2] Quantitation Limits (µg/kg)
3,3'-Dichlorobenzidine	990	1700	1300
Hexachlorobenzene	28	330	660
N-Nitroso-di-n-propylamine	63	330	660
N-Nitrosodimethylamine	9	330	(not determined)
Pentachlorophenol	2500	1700	3300
bis(2-Chloroethyl)ether	43	330	660

[1] Specified in QAP based on performance of selected laboratory.
[2] Criteria specified in the analytical method.
Note: With the exception of 3,3-dichlorobenzidine, QAP-specified reporting limits satisfy those specified in the analytical method.

In all cases, the instances in which the reporting limits obtained were greater than those in the QAP were due to adjustment for percent solids. The QAP-specified reporting limits are based on reporting limits the selected laboratory can achieve on a "clean" dry sample matrix. In the cases of bis (2-chloroethyl)ether, hexachlorobenzene, N-nitroso-di-n-propylamine, N-nitrosodimethylamine, and 3,3'-dichlorobenzene, the reporting limits obtained were greater than PRGs because the analytical laboratory cannot measure these analytes using the specified method at concentrations below their respective PRGs. With regard to hexachlorobenzene, and bis(2-chloroethyl)ether, the reporting limits specified in the QAP (based on laboratory performance) are below the Estimated Quantitation Limits presented in the method, even though the reporting limits obtained are greater than PRGs. For 3,3-dichlorobenzidine, the QAP-specified reporting limit (based on laboratory performance) was slightly greater than that specified in the analytical method. It is important for data users to note that nondetect results in which the reporting limit is greater than the corresponding PRG are not suitable for use in evaluating whether the concentration of that constituent in that sample is below a PRG.

3.1.5 Polychlorinated Biphenyls (PCBs)

Case Narrative and Surrogate Recovery

The case narrative noted that, due to evaporation of solvent in the surrogate standard vial, all field and QC samples had surrogate (TCMX and decachlorobiphenyl) recoveries greater than the upper limit of the acceptance range. TCMX percent recoveries ranged from 121% to 163% compared with an acceptance range of 29% to 108%. Decachlorobiphenyl percent recoveries ranged from 144% to 181% compared with an acceptance range of 30% to 125%. The high percent recoveries are likely due to concentration of surrogate standards. However, the Aroclor-1260 percent recoveries for the laboratory control, matrix spike, and matrix spike duplicate samples were within the limits of the acceptance range. Additionally, all PCBs were reported as nondetect in the field samples. Consequently, data qualification based on high surrogate recoveries was considered not necessary.

3.1.6 Metals

Case Narrative

The case narrative stated that the matrix spike recoveries for antimony and copper were outside the acceptance range. The matrix spike was reanalyzed and the matrix spike percent recovery for antimony and copper were still outside the acceptance range confirming matrix interference.

Reporting Limits

Reporting limits for all blanks matched the QAP-specified reporting limits. However, some samples were reported as nondetect at slightly elevated reporting limits. The difference was due to adjusting the reporting limit for the percent moisture of the sample. The reporting limits for arsenic (0.39 mg/kg for sample SLB01BG) and beryllium (0.16 mg/kg for sample SLB01BG and 0.15 mg/kg for sample SLB02BG) were greater than their respective residential PRGs; however,

results for these analytes were reported as detected in these instances. The reporting limits obtained are not considered to affect the quality or usability of the data.

Matrix Spike

The matrix spike and matrix spike duplicate analyses conducted on sample SLB02SA resulted in percent recoveries for antimony of 26% and 18%, below the lower limit of the acceptance range of 75-125%. The RPD between the matrix spike and matrix spike duplicate results was 37%, exceeding the acceptance criterion of ≤35%. The laboratory redigested and reanalyzed this sample and reported percent recoveries for antimony of 29% and 30%. The RPD between the matrix spike and matrix spike duplicate results for the reanalysis was 5%. This confirms the likelihood of matrix interference and suggests a potential low bias in the associated sample results. In accordance with the Functional Guidelines, because the matrix spike percent recoveries (3 of 4) were less than 30% and all results were reported as nondetect, antimony results for samples in this data package were rejected ("R").

The matrix spike analysis conducted on sample SLB02SA resulted in a percent recovery for copper of 142%, greater than the upper limit of the acceptance range of 75-125%, suggesting a potential high bias in the associated samples results. The matrix spike duplicate recovery for sample SLB02SA was 100%, within the acceptance range. The RPD between the matrix spike and matrix spike duplicate results was 13%, within the acceptance limit of ≤35%. The laboratory reanalyzed this sample and reported percent recoveries for copper of 139% and 139%, again suggesting a potential high bias in associated sample results. As three of four matrix spike/matrix spike duplicate recoveries were greater than the upper limit of the acceptance range and all copper results in this data package were reported as detected, copper results for qualified as estimated ("J") based on matrix spike and matrix spike duplicate recoveries.

Field Duplicate Agreement

Samples SLB07SA and SLB07FD were the field duplicate pair associated with the samples at this site. The RPDs between the sample and field duplicate results for cobalt (73.1%), lead (55.9%), nickel (58.8%), and thallium (87.6%) exceeded the evaluation criterion of a RPD of ≤50% where both results are more than five times the greater reporting limit. Consequently, all cobalt, lead, nickel, and thallium results for soil samples collected at this site were qualified as estimated ("J/UJ") based on field duplicate agreement.

For molybdenum, the applicable evaluation criterion of agreement between sample and field duplicate results of within two times the greater reporting limit was not met. Consequently, molybdenum results for soil samples collected at this site were qualified as estimated ("J/UJ").

Overall Assessment

Some analytes were reported as nondetect at reporting limits achieved by the laboratory which were greater than the QAP-specified reporting limits. In all cases, the instances in which the reporting limits obtained were greater than those specified in the QAP were due to adjustment for percent solids. Some SVOCs were reported as nondetect with reporting (quantitation) limits that

exceed PRGs. With the exception of some SVOC results for some samples (see table, Section 3.1.5), neither data quality nor data usability was considered affected based on elevated reporting limits. With respect to those SVOCs which were reported as nondetect at reporting limits which were greater than the residential PRGs, it is important for data users to note that nondetect results in which the reporting limit is greater than the corresponding residential PRG are not suitable for use in evaluating whether the concentration of that constituent in that sample is below a residential PRG.

With eleven exceptions, the data are considered usable as qualified for meeting objectives. Antimony results for all samples collected were rejected as unusable due to matrix spike recoveries of less than 30%.

Although the results for some of the other QC parameters did not satisfy the limits for accuracy and precision, no other data were considered to be unusable based on the levels of accuracy and precision demonstrated by the QC analyses. Data associated with QC analyses that were outside the evaluation criteria have been qualified to reflect limitations of the data. All analytical results in this set except the eleven antimony results are considered to be usable (as qualified) and the analytical completeness for this data set is 99.2 percent.

The samples were considered representative of the medium sampled based on field duplicate agreement for volatile organics, semivolatile organics, PCBs, TVPH, and TEPH. For metals analyses, field duplicate pair criteria were met for all analytes except cobalt, lead, molybdenum, nickel, and thallium. These results suggest that the samples may not be adequately representative of the metals concentrations present in the medium sampled. Results for these analytes have been qualified as estimated for all samples collected at this site. All samples in this data set were collected and analyzed under similar prescribed conditions and the data within this set are considered to be comparable.

Table C-1
USARC Long Beach
Analytical Results for Soil Samples

		Background Samples				Investigative Samples																	
	FieldID	SLB01BG		SLB02BG		SLB01SA		SLB02SA		SLB03SA		SLB04SA		SLB05SA		SLB06SA		SLB07FD		SLB07SA		SLB08SA	
	DateSampled	4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Metals																							
Antimony	mg/kg		R		R		R		R		R		R		R		R		R		R		R
Arsenic	mg/kg	6.2		6.3		3.1		2.3		3.4		4		2.8		2.1		1.8		2.9		3.9	
Barium	mg/kg	230		210		170		170		190		190		200		210		170		150		190	
Beryllium	mg/kg	0.25		1		0.63		0.54		0.52		0.77		0.74		0.36		0.59		0.8		0.52	
Cadmium	mg/kg	0.4		1.4		0.92		1.1		0.85		1.1		1		0.7		1.2		0.96		0.8	
Chromium	mg/kg	15		38		26		27		22		31		30		15		25		31		19	
Cobalt	mg/kg	3.8	J	17	J	12	J	11	J	10	J	16	J	11	J	6.5	J	7.9	J	17	J	9.8	J
Copper	mg/kg	17	J	34	J	21	J	33	J	21	J	26	J	21	J	14	J	19	J	18	J	20	J
Lead	mg/kg	1.5	J	9.2	J	6.4	J	5.8	J	6.1	J	8.1	J	6.6	J	2.9	J	4.9	J	8.7	J	5	J
Mercury	mg/kg	0.13	U	0.15	U	0.11	U	0.11	U	0.09	U	0.092	U	0.11	U	0.13	U	0.089	U	0.11	U	0.11	U
Molybdenum	mg/kg	1.6	UJ	1.5	UJ	1.2	UJ	1.2	UJ	1.1	UJ	1.3	UJ	1.4	UJ	1.3	UJ	1.2	UJ	4.6	J	1.2	UJ
Nickel	mg/kg	7.9	J	37	J	21	J	21	J	19	J	27	J	23	J	13	J	18	J	33	J	17	J
Selenium	mg/kg	0.39	U	0.94		0.29	U	0.31	U	0.28	U	0.32	U	0.36	U	0.33	U	0.29	U	0.32	U	0.3	U
Silver	mg/kg	0.78	U	0.73	U	0.58	U	0.62	U	0.57	U	0.63	U	0.71	U	0.65	U	0.59	U	0.63	U	0.6	U
Thallium	mg/kg	2.5	J	19	J	15	J	14	J	12	J	20	J	17	J	7.8	J	4.3	J	11	J	7.7	J
Vanadium	mg/kg	11		43		32		34		33		39		35		18		27		40		32	
Zinc	mg/kg	17		84		58		63		46		69		61		30		48		58		46	
PCBs																							
Aroclor-1016	ug/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
Aroclor-1221	ug/kg	39	U	36	U	29	U	30	U	28	U	31	U	35	U	32	U	29	U	31	U	29	U
Aroclor-1232	ug/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
Aroclor-1242	ug/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
Aroclor-1248	ug/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
Aroclor-1254	ug/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
Aroclor-1260	ug/kg	20	U	18	U	15	U	15	U	14	U	15	U	17	U	16	U	14	U	15	U	15	U
SVOCs																							
1,2,4-Trichlorobenzene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2,4,5-Trichlorophenol	ug/kg	2700	U	2500	U	2000	U	410	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
2,4,6-Trichlorophenol	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2,4-Dichlorophenol	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U

Table C-1
USARC Long Beach
Analytical Results for Soil Samples

		Background Samples				Investigative Samples																	
FieldID		SLB01BG		SLB02BG		SLB01SA		SLB02SA		SLB03SA		SLB04SA		SLB05SA		SLB06SA		SLB07FD		SLB07SA		SLB08SA	
DateSampled		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
2,4-Dimethylphenol	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2,4-Dinitrophenol	ug/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
2,4-Dinitrotoluene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2,6-Dinitrotoluene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2-Chloronaphthalene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2-Chlorophenol	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2-Methylnaphthalene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2-Methylphenol	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
2-Nitroaniline	ug/kg	2700	U	2500	U	2000	U	4100	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
2-Nitrophenol	ug/kg	2700	U	2500	U	2000	U	410	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
3,3'-Dichlorobenzidine	ug/kg	2700	UJ	2500	UJ	2000	UJ	410	UJ	2000	UJ	2100	UJ	2400	UJ	2200	UJ	2000	UJ	2100	UJ	2000	UJ
3,4-Methylphenol	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
3-Nitroaniline	ug/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
4,6-Dinitro-2-methylphenol	ug/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
4-Bromophenyl-phenylether	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
4-Chloro-3-methylphenol	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
4-Chloroaniline	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
4-Chlorophenyl-phenylether	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
4-Nitroaniline	ug/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
4-Nitrophenol	ug/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
Acenaphthene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Acenaphthylene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Aniline	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Anthracene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Azobenzene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Benzo(a)anthracene	ug/kg	550	UJ	500	UJ	410	UJ	410	UJ	390	UJ	430	UJ	480	UJ	440	UJ	400	UJ	430	UJ	410	UJ
Benzo(a)pyrene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Benzo(b,k)fluoranthene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Benzo(g,h,i)perylene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Benzoic acid	ug/kg	2700	U	2500	U	2000	U	2100	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
Benzyl alcohol	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U

Table C-1
USARC Long Beach
Analytical Results for Soil Samples

		Background Samples				Investigative Samples																	
	FieldID	SLB01BG		SLB02BG		SLB01SA		SLB02SA		SLB03SA		SLB04SA		SLB05SA		SLB06SA		SLB07FD		SLB07SA		SLB08SA	
	DateSampled	4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Butylbenzylphthalate	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Chrysene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Di-n-butylphthalate	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Di-n-octylphthalate	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Dibenz(a,h)anthracene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Dibenzofuran	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Diethylphthalate	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Dimethylphthalate	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Fluoranthene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Fluorene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Hexachlorobenzene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Hexachlorobutadiene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Hexachlorocyclopentadiene	ug/kg	2700	U	2500	U	2000	U	410	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
Hexachloroethane	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Indeno(1,2,3-cd)pyrene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Isophorone	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
N-Nitroso-di-n-propylamine	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
N-Nitrosodimethylamine	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
N-Nitrosodiphenylamine	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Naphthalene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Nitrobenzene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Pentachlorophenol	ug/kg	2700	U	2500	U	2000	U	2000	U	2000	U	2100	U	2400	U	2200	U	2000	U	2100	U	2000	U
Phenanthrene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Phenol	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
Pyrene	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
bis(2-Chloroethoxy)methane	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
bis(2-Chloroethyl)ether	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
bis(2-Chloroisopropyl) ether	ug/kg	550	U	500	U	410	U	410	U	390	U	430	U	480	U	440	U	400	U	430	U	410	U
bis(2-Ethylhexyl)phthalate	ug/kg	550	UJ	500	UJ	410	UJ	410	UJ	390	UJ	430	UJ	480	UJ	440	UJ	400	UJ	430	UJ	410	UJ
TEPH																							
Diesel C12-C22	mg/kg	1.6	U	1.5	U	1.2	U	1.2	U	2.9		1.3	U	1.4	U	1.3	U	1.2	U	1.3	U	1.2	U

Table C-1
USARC Long Beach
Analytical Results for Soil Samples

		Background Samples				Investigative Samples																	
	FieldID	SLB01BG		SLB02BG		SLB01SA		SLB02SA		SLB03SA		SLB04SA		SLB05SA		SLB06SA		SLB07FD		SLB07SA		SLB08SA	
	DateSampled	4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
TVPH																							
Gasoline C7-C12	mg/kg	1.6	U	1.5	U	1.2	U	1.2	U	1.2	U	1.3	U	1.4	U	1.3	U	1.2	U	1.3	U	1.2	U
VOCs																							
1,1,1-Trichloroethane	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,1,2-Trichloroethane	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,1-Dichloroethane	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,1-Dichloroethene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,2-Dichlorobenzene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,2-Dichloroethane	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,2-Dichloropropane	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,3-Dichlorobenzene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
1,4-Dichlorobenzene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
2-Butanone	ug/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
2-Chloroethylvinylether	ug/kg	82	U	75	U	61	U	62	U	59	U	64	U	72	U	67	U	60	U	64	U	61	U
2-Hexanone	ug/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
4-Methyl-2-Pentanone	ug/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
Acetone	ug/kg	33	U	30	U	24	U	25	U	24	U	26	U	29	U	27	U	24	U	26	U	24	U
Benzene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Bromodichloromethane	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Bromoform	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Bromomethane	ug/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
Carbon Disulfide	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Carbon Tetrachloride	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Chlorobenzene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Chloroethane	ug/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
Chloroform	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Chloromethane	ug/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
Dibromochloromethane	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Ethylbenzene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Methylene Chloride	ug/kg	33	U	30	U	24	U	25	U	24	U	26	U	29	U	27	U	24	U	26	U	24	U
Styrene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U

Table C-1
USARC Long Beach
Analytical Results for Soil Samples

		Background Samples				Investigative Samples																	
FieldID		SLB01BG		SLB02BG		SLB01SA		SLB02SA		SLB03SA		SLB04SA		SLB05SA		SLB06SA		SLB07FD		SLB07SA		SLB08SA	
DateSampled		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98		4/28/98	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Tetrachloroethene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Toluene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Trichloroethene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Trichlorofluoromethane	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
Vinyl Acetate	ug/kg	82	U	75	U	61	U	62	U	59	U	64	U	72	U	67	U	60	U	64	U	61	U
Vinyl Chloride	ug/kg	16	U	15	U	12	U	12	U	12	U	13	U	14	U	13	U	12	U	13	U	12	U
cis-1,2-Dichloroethene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
cis-1,3-Dichloropropene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
m,p-Xylenes	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
o-Xylene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
trans-1,2-Dichloroethene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U
trans-1,3-Dichloropropene	ug/kg	8.2	U	7.5	U	6.1	U	6.2	U	5.9	U	6.4	U	7.2	U	6.7	U	6	U	6.4	U	6.1	U

J = Estimated value
mg/kg = milligrams per kilogram
Qual = Qualifier
R = Rejected
SVOCs = Semivolatile Organic Compounds
TEPH = Total Extractable Petroleum Hydrocarbons
TVPH = Total Volatile Petroleum Hydrocarbons
U = Analyte was not detected above reportng limit.
ug/kg = micrograms per kilogram
UJ = Reporting limit is estimated. Analyte was not detected above reporting limit.
VOCs = Volatile Organic Compounds

Volatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: SLB01SA
Lab ID: 133396-001
Matrix: Soil
Batch#: 40555
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 04/29/98
Analyzed: 04/29/98
Moisture: 18%

Analyte	Result	Reporting Limit
Chloromethane	ND	12
Vinyl Chloride	ND	12
Bromomethane	ND	12
Chloroethane	ND	12
Trichlorofluoromethane	ND	6.1
Acetone	ND	24
1,1-Dichloroethene	ND	6.1
Methylene Chloride	ND	24
Carbon Disulfide	ND	6.1
trans-1,2-Dichloroethene	ND	6.1
Vinyl Acetate	ND	61
1,1-Dichloroethane	ND	6.1
2-Butanone	ND	12
cis-1,2-Dichloroethene	ND	6.1
Chloroform	ND	6.1
1,1,1-Trichloroethane	ND	6.1
Carbon Tetrachloride	ND	6.1
1,2-Dichloroethane	ND	6.1
Benzene	ND	6.1
Trichloroethene	ND	6.1
1,2-Dichloropropane	ND	6.1
Bromodichloromethane	ND	6.1
2-Chloroethylvinylether	ND	61
4-Methyl-2-Pentanone	ND	12
cis-1,3-Dichloropropene	ND	6.1
Toluene	ND	6.1
trans-1,3-Dichloropropene	ND	6.1
1,1,2-Trichloroethane	ND	6.1
2-Hexanone	ND	12
Tetrachloroethene	ND	6.1
Dibromochloromethane	ND	6.1
Chlorobenzene	ND	6.1
Ethylbenzene	ND	6.1
m,p-Xylenes	ND	6.1
o-Xylene	ND	6.1
Styrene	ND	6.1
Bromoform	ND	6.1
1,3-Dichlorobenzene	ND	6.1
1,4-Dichlorobenzene	ND	6.1
1,2-Dichlorobenzene	ND	6.1

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	95	71-128
1,2-Dichloroethane-d4	103	68-126
Toluene-d8	98	87-125
Bromofluorobenzene	86	79-122

6/12/98

Volatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: SLB02SA
Lab ID: 133396-002
Matrix: Soil
Batch#: 40555
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 04/29/98
Analyzed: 04/29/98
Moisture: 19%

Analyte	Result	Reporting Limit
Chloromethane	ND	12
Vinyl Chloride	ND	12
Bromomethane	ND	12
Chloroethane	ND	12
Trichlorofluoromethane	ND	6.2
Acetone	ND	25
1,1-Dichloroethene	ND	6.2
Methylene Chloride	ND	25
Carbon Disulfide	ND	6.2
trans-1,2-Dichloroethene	ND	6.2
Vinyl Acetate	ND	62
1,1-Dichloroethane	ND	6.2
2-Butanone	ND	12
cis-1,2-Dichloroethene	ND	6.2
Chloroform	ND	6.2
1,1,1-Trichloroethane	ND	6.2
Carbon Tetrachloride	ND	6.2
1,2-Dichloroethane	ND	6.2
Benzene	ND	6.2
Trichloroethene	ND	6.2
1,2-Dichloropropane	ND	6.2
Bromodichloromethane	ND	6.2
2-Chloroethylvinylether	ND	62
4-Methyl-2-Pentanone	ND	12
cis-1,3-Dichloropropene	ND	6.2
Toluene	ND	6.2
trans-1,3-Dichloropropene	ND	6.2
1,1,2-Trichloroethane	ND	6.2
2-Hexanone	ND	12
Tetrachloroethene	ND	6.2
Dibromochloromethane	ND	6.2
Chlorobenzene	ND	6.2
Ethylbenzene	ND	6.2
m,p-Xylenes	ND	6.2
o-Xylene	ND	6.2
Styrene	ND	6.2
Bromoform	ND	6.2
1,3-Dichlorobenzene	ND	6.2
1,4-Dichlorobenzene	ND	6.2
1,2-Dichlorobenzene	ND	6.2

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	101	71-128
1,2-Dichloroethane-d4	104	68-126
Toluene-d8	99	87-125
Bromofluorobenzene	85	79-122

6/12/98

Volatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: SLB03SA
Lab ID: 133396-004
Matrix: Soil
Batch#: 40555
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 04/29/98
Analyzed: 04/29/98
Moisture: 15%

Analyte	Result	Reporting Limit
Chloromethane	ND	12
Vinyl Chloride	ND	12
Bromomethane	ND	12
Chloroethane	ND	12
Trichlorofluoromethane	ND	5.9
Acetone	ND	24
1,1-Dichloroethene	ND	5.9
Methylene Chloride	ND	24
Carbon Disulfide	ND	5.9
trans-1,2-Dichloroethene	ND	5.9
Vinyl Acetate	ND	59
1,1-Dichloroethane	ND	5.9
2-Butanone	ND	12
cis-1,2-Dichloroethene	ND	5.9
Chloroform	ND	5.9
1,1,1-Trichloroethane	ND	5.9
Carbon Tetrachloride	ND	5.9
1,2-Dichloroethane	ND	5.9
Benzene	ND	5.9
Trichloroethene	ND	5.9
1,2-Dichloropropane	ND	5.9
Bromodichloromethane	ND	5.9
2-Chloroethylvinylether	ND	59
4-Methyl-2-Pentanone	ND	12
cis-1,3-Dichloropropene	ND	5.9
Toluene	ND	5.9
trans-1,3-Dichloropropene	ND	5.9
1,1,2-Trichloroethane	ND	5.9
2-Hexanone	ND	12
Tetrachloroethene	ND	5.9
Dibromochloromethane	ND	5.9
Chlorobenzene	ND	5.9
Ethylbenzene	ND	5.9
m,p-Xylenes	ND	5.9
o-Xylene	ND	5.9
Styrene	ND	5.9
Bromoform	ND	5.9
1,3-Dichlorobenzene	ND	5.9
1,4-Dichlorobenzene	ND	5.9
1,2-Dichlorobenzene	ND	5.9

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	98	71-128
1,2-Dichloroethane-d4	101	68-126
Toluene-d8	99	87-125
Bromofluorobenzene	86	79-122

6/12/98

Volatile Organics by GC/MS

Client:	Woodward-Clyde Consultants	Analysis Method:	EPA 8260
Project#:	S95513	Prep Method:	EPA 5030
Location:	PA/SI		

Field ID:	SLB04SA	Sampled:	04/28/98
Lab ID:	133396-005	Received:	04/29/98
Matrix:	Soil	Extracted:	04/29/98
Batch#:	40555	Analyzed:	04/29/98
Units:	ug/Kg dry weight	Moisture:	22%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Chloromethane	ND	13
Vinyl Chloride	ND	13
Bromomethane	ND	13
Chloroethane	ND	13
Trichlorofluoromethane	ND	6.4
Acetone	ND	26
1,1-Dichloroethene	ND	6.4
Methylene Chloride	ND	26
Carbon Disulfide	ND	6.4
trans-1,2-Dichloroethene	ND	6.4
Vinyl Acetate	ND	64
1,1-Dichloroethane	ND	6.4
2-Butanone	ND	13
cis-1,2-Dichloroethene	ND	6.4
Chloroform	ND	6.4
1,1,1-Trichloroethane	ND	6.4
Carbon Tetrachloride	ND	6.4
1,2-Dichloroethane	ND	6.4
Benzene	ND	6.4
Trichloroethene	ND	6.4
1,2-Dichloropropane	ND	6.4
Bromodichloromethane	ND	6.4
2-Chloroethylvinylether	ND	64
4-Methyl-2-Pentanone	ND	13
cis-1,3-Dichloropropene	ND	6.4
Toluene	ND	6.4
trans-1,3-Dichloropropene	ND	6.4
1,1,2-Trichloroethane	ND	6.4
2-Hexanone	ND	13
Tetrachloroethene	ND	6.4
Dibromochloromethane	ND	6.4
Chlorobenzene	ND	6.4
Ethylbenzene	ND	6.4
m,p-Xylenes	ND	6.4
o-Xylene	ND	6.4
Styrene	ND	6.4
Bromoform	ND	6.4
1,3-Dichlorobenzene	ND	6.4
1,4-Dichlorobenzene	ND	6.4
1,2-Dichlorobenzene	ND	6.4

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	100	71-128
1,2-Dichloroethane-d4	105	68-126
Toluene-d8	98	87-125
Bromofluorobenzene	88	79-122

K 6/12/98

Volatile Organics by GC/MS

Client:	Woodward-Clyde Consultants	Analysis Method:	EPA 8260
Project#:	S95513	Prep Method:	EPA 5030
Location:	PA/SI		

Field ID:	SLB05SA	Sampled:	04/28/98
Lab ID:	133396-006	Received:	04/29/98
Matrix:	Soil	Extracted:	04/29/98
Batch#:	40555	Analyzed:	04/29/98
Units:	ug/Kg dry weight	Moisture:	31%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Chloromethane	ND	14
Vinyl Chloride	ND	14
Bromomethane	ND	14
Chloroethane	ND	14
Trichlorofluoromethane	ND	7.2
Acetone	ND	29
1,1-Dichloroethene	ND	7.2
Methylene Chloride	ND	29
Carbon Disulfide	ND	7.2
trans-1,2-Dichloroethene	ND	7.2
Vinyl Acetate	ND	72
1,1-Dichloroethane	ND	7.2
2-Butanone	ND	14
cis-1,2-Dichloroethene	ND	7.2
Chloroform	ND	7.2
1,1,1-Trichloroethane	ND	7.2
Carbon Tetrachloride	ND	7.2
1,2-Dichloroethane	ND	7.2
Benzene	ND	7.2
Trichloroethene	ND	7.2
1,2-Dichloropropane	ND	7.2
Bromodichloromethane	ND	7.2
2-Chloroethylvinylether	ND	72
4-Methyl-2-Pentanone	ND	14
cis-1,3-Dichloropropene	ND	7.2
Toluene	ND	7.2
trans-1,3-Dichloropropene	ND	7.2
1,1,2-Trichloroethane	ND	7.2
2-Hexanone	ND	14
Tetrachloroethene	ND	7.2
Dibromochloromethane	ND	7.2
Chlorobenzene	ND	7.2
Ethylbenzene	ND	7.2
m,p-Xylenes	ND	7.2
o-Xylene	ND	7.2
Styrene	ND	7.2
Bromoform	ND	7.2
1,3-Dichlorobenzene	ND	7.2
1,4-Dichlorobenzene	ND	7.2
1,2-Dichlorobenzene	ND	7.2

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	99	71-128
1,2-Dichloroethane-d4	103	68-126
Toluene-d8	100	87-125
Bromofluorobenzene	85	79-122

6/12/98

Volatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: SLB06SA
Lab ID: 133396-007
Matrix: Soil
Batch#: 40555
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 04/29/98
Analyzed: 04/29/98
Moisture: 25%

Analyte	Result	Reporting Limit
Chloromethane	ND	13
Vinyl Chloride	ND	13
Bromomethane	ND	13
Chloroethane	ND	13
Trichlorofluoromethane	ND	6.7
Acetone	ND	27
1,1-Dichloroethene	ND	6.7
Methylene Chloride	ND	27
Carbon Disulfide	ND	6.7
trans-1,2-Dichloroethene	ND	6.7
Vinyl Acetate	ND	67
1,1-Dichloroethane	ND	6.7
2-Butanone	ND	13
cis-1,2-Dichloroethene	ND	6.7
Chloroform	ND	6.7
1,1,1-Trichloroethane	ND	6.7
Carbon Tetrachloride	ND	6.7
1,2-Dichloroethane	ND	6.7
Benzene	ND	6.7
Trichloroethene	ND	6.7
1,2-Dichloropropane	ND	6.7
Bromodichloromethane	ND	6.7
2-Chloroethylvinylether	ND	67
4-Methyl-2-Pentanone	ND	13
cis-1,3-Dichloropropene	ND	6.7
Toluene	ND	6.7
trans-1,3-Dichloropropene	ND	6.7
1,1,2-Trichloroethane	ND	6.7
2-Hexanone	ND	13
Tetrachloroethene	ND	6.7
Dibromochloromethane	ND	6.7
Chlorobenzene	ND	6.7
Ethylbenzene	ND	6.7
m,p-Xylenes	ND	6.7
o-Xylene	ND	6.7
Styrene	ND	6.7
Bromoform	ND	6.7
1,3-Dichlorobenzene	ND	6.7
1,4-Dichlorobenzene	ND	6.7
1,2-Dichlorobenzene	ND	6.7

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	98	71-128
1,2-Dichloroethane-d4	103	68-126
Toluene-d8	98	87-125
Bromofluorobenzene	87	79-122

6/12/98

Volatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: SLB07SA
Lab ID: 133396-008
Matrix: Soil
Batch#: 40555
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 04/29/98
Analyzed: 04/29/98
Moisture: 22%

Analyte	Result	Reporting Limit
Chloromethane	ND	13
Vinyl Chloride	ND	13
Bromomethane	ND	13
Chloroethane	ND	13
Trichlorofluoromethane	ND	6.4
Acetone	ND	26
1,1-Dichloroethene	ND	6.4
Methylene Chloride	ND	26
Carbon Disulfide	ND	6.4
trans-1,2-Dichloroethene	ND	6.4
Vinyl Acetate	ND	64
1,1-Dichloroethane	ND	6.4
2-Butanone	ND	13
cis-1,2-Dichloroethene	ND	6.4
Chloroform	ND	6.4
1,1,1-Trichloroethane	ND	6.4
Carbon Tetrachloride	ND	6.4
1,2-Dichloroethane	ND	6.4
Benzene	ND	6.4
Trichloroethene	ND	6.4
1,2-Dichloropropane	ND	6.4
Bromodichloromethane	ND	6.4
2-Chloroethylvinylether	ND	64
4-Methyl-2-Pentanone	ND	13
cis-1,3-Dichloropropene	ND	6.4
Toluene	ND	6.4
trans-1,3-Dichloropropene	ND	6.4
1,1,2-Trichloroethane	ND	6.4
2-Hexanone	ND	13
Tetrachloroethene	ND	6.4
Dibromochloromethane	ND	6.4
Chlorobenzene	ND	6.4
Ethylbenzene	ND	6.4
m,p-Xylenes	ND	6.4
o-Xylene	ND	6.4
Styrene	ND	6.4
Bromoform	ND	6.4
1,3-Dichlorobenzene	ND	6.4
1,4-Dichlorobenzene	ND	6.4
1,2-Dichlorobenzene	ND	6.4

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	102	71-128
1,2-Dichloroethane-d4	106	68-126
Toluene-d8	99	87-125
Bromofluorobenzene	86	79-122

6/12/98

Volatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: SLB07FD
Lab ID: 133396-009
Matrix: Soil
Batch#: 40555
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 04/29/98
Analyzed: 04/29/98
Moisture: 17%

Analyte	Result	Reporting Limit
Chloromethane	ND	12
Vinyl Chloride	ND	12
Bromomethane	ND	12
Chloroethane	ND	12
Trichlorofluoromethane	ND	6.0
Acetone	ND	24
1,1-Dichloroethene	ND	6.0
Methylene Chloride	ND	24
Carbon Disulfide	ND	6.0
trans-1,2-Dichloroethene	ND	6.0
Vinyl Acetate	ND	60
1,1-Dichloroethane	ND	6.0
2-Butanone	ND	12
cis-1,2-Dichloroethene	ND	6.0
Chloroform	ND	6.0
1,1,1-Trichloroethane	ND	6.0
Carbon Tetrachloride	ND	6.0
1,2-Dichloroethane	ND	6.0
Benzene	ND	6.0
Trichloroethene	ND	6.0
1,2-Dichloropropane	ND	6.0
Bromodichloromethane	ND	6.0
2-Chloroethylvinylether	ND	60
4-Methyl-2-Pentanone	ND	12
cis-1,3-Dichloropropene	ND	6.0
Toluene	ND	6.0
trans-1,3-Dichloropropene	ND	6.0
1,1,2-Trichloroethane	ND	6.0
2-Hexanone	ND	12
Tetrachloroethene	ND	6.0
Dibromochloromethane	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	6.0
m,p-Xylenes	ND	6.0
o-Xylene	ND	6.0
Styrene	ND	6.0
Bromoform	ND	6.0
1,3-Dichlorobenzene	ND	6.0
1,4-Dichlorobenzene	ND	6.0
1,2-Dichlorobenzene	ND	6.0

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	102	71-128
1,2-Dichloroethane-d4	107	68-126
Toluene-d8	98	87-125
Bromofluorobenzene	85	79-122

Volatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: SLB08SA
Lab ID: 133396-010
Matrix: Soil
Batch#: 40555
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 04/29/98
Analyzed: 04/29/98
Moisture: 18%

Analyte	Result	Reporting Limit
Chloromethane	ND	12
Vinyl Chloride	ND	12
Bromomethane	ND	12
Chloroethane	ND	12
Trichlorofluoromethane	ND	6.1
Acetone	ND	24
1,1-Dichloroethene	ND	6.1
Methylene Chloride	ND	24
Carbon Disulfide	ND	6.1
trans-1,2-Dichloroethene	ND	6.1
Vinyl Acetate	ND	61
1,1-Dichloroethane	ND	6.1
2-Butanone	ND	12
cis-1,2-Dichloroethene	ND	6.1
Chloroform	ND	6.1
1,1,1-Trichloroethane	ND	6.1
Carbon Tetrachloride	ND	6.1
1,2-Dichloroethane	ND	6.1
Benzene	ND	6.1
Trichloroethene	ND	6.1
1,2-Dichloropropane	ND	6.1
Bromodichloromethane	ND	6.1
2-Chloroethylvinylether	ND	61
4-Methyl-2-Pentanone	ND	12
cis-1,3-Dichloropropene	ND	6.1
Toluene	ND	6.1
trans-1,3-Dichloropropene	ND	6.1
1,1,2-Trichloroethane	ND	6.1
2-Hexanone	ND	12
Tetrachloroethene	ND	6.1
Dibromochloromethane	ND	6.1
Chlorobenzene	ND	6.1
Ethylbenzene	ND	6.1
m,p-Xylenes	ND	6.1
o-Xylene	ND	6.1
Styrene	ND	6.1
Bromoform	ND	6.1
1,3-Dichlorobenzene	ND	6.1
1,4-Dichlorobenzene	ND	6.1
1,2-Dichlorobenzene	ND	6.1

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	101	71-128
1,2-Dichloroethane-d4	105	68-126
Toluene-d8	99	87-125
Bromofluorobenzene	85	79-122

K 6/12/98

Volatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: SLB01BG
Lab ID: 133396-011
Matrix: Soil
Batch#: 40555
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 04/29/98
Analyzed: 04/29/98
Moisture: 39%

Analyte	Result	Reporting Limit
Chloromethane	ND	16
Vinyl Chloride	ND	16
Bromomethane	ND	16
Chloroethane	ND	16
Trichlorofluoromethane	ND	8.2
Acetone	ND	33
1,1-Dichloroethene	ND	8.2
Methylene Chloride	ND	33
Carbon Disulfide	ND	8.2
trans-1,2-Dichloroethene	ND	8.2
Vinyl Acetate	ND	82
1,1-Dichloroethane	ND	8.2
2-Butanone	ND	16
cis-1,2-Dichloroethene	ND	8.2
Chloroform	ND	8.2
1,1,1-Trichloroethane	ND	8.2
Carbon Tetrachloride	ND	8.2
1,2-Dichloroethane	ND	8.2
Benzene	ND	8.2
Trichloroethene	ND	8.2
1,2-Dichloropropane	ND	8.2
Bromodichloromethane	ND	8.2
2-Chloroethylvinylether	ND	82
4-Methyl-2-Pentanone	ND	16
cis-1,3-Dichloropropene	ND	8.2
Toluene	ND	8.2
trans-1,3-Dichloropropene	ND	8.2
1,1,2-Trichloroethane	ND	8.2
2-Hexanone	ND	16
Tetrachloroethene	ND	8.2
Dibromochloromethane	ND	8.2
Chlorobenzene	ND	8.2
Ethylbenzene	ND	8.2
m,p-Xylenes	ND	8.2
o-Xylene	ND	8.2
Styrene	ND	8.2
Bromoform	ND	8.2
1,3-Dichlorobenzene	ND	8.2
1,4-Dichlorobenzene	ND	8.2
1,2-Dichlorobenzene	ND	8.2

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	102	71-128
1,2-Dichloroethane-d4	103	68-126
Toluene-d8	101	87-125
Bromofluorobenzene	87	79-122

K 6/12/98

Volatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: SLB02BG
Lab ID: 133396-012
Matrix: Soil
Batch#: 40555
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 04/29/98
Analyzed: 04/29/98
Moisture: 33%

Analyte	Result	Reporting Limit
Chloromethane	ND	15
Vinyl Chloride	ND	15
Bromomethane	ND	15
Chloroethane	ND	15
Trichlorofluoromethane	ND	7.5
Acetone	ND	30
1,1-Dichloroethene	ND	7.5
Methylene Chloride	ND	30
Carbon Disulfide	ND	7.5
trans-1,2-Dichloroethene	ND	7.5
Vinyl Acetate	ND	75
1,1-Dichloroethane	ND	7.5
2-Butanone	ND	15
cis-1,2-Dichloroethene	ND	7.5
Chloroform	ND	7.5
1,1,1-Trichloroethane	ND	7.5
Carbon Tetrachloride	ND	7.5
1,2-Dichloroethane	ND	7.5
Benzene	ND	7.5
Trichloroethene	ND	7.5
1,2-Dichloropropane	ND	7.5
Bromodichloromethane	ND	7.5
2-Chloroethylvinylether	ND	75
4-Methyl-2-Pentanone	ND	15
cis-1,3-Dichloropropene	ND	7.5
Toluene	ND	7.5
trans-1,3-Dichloropropene	ND	7.5
1,1,2-Trichloroethane	ND	7.5
2-Hexanone	ND	15
Tetrachloroethene	ND	7.5
Dibromochloromethane	ND	7.5
Chlorobenzene	ND	7.5
Ethylbenzene	ND	7.5
m,p-Xylenes	ND	7.5
o-Xylene	ND	7.5
Styrene	ND	7.5
Bromoform	ND	7.5
1,3-Dichlorobenzene	ND	7.5
1,4-Dichlorobenzene	ND	7.5
1,2-Dichlorobenzene	ND	7.5

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	101	71-128
1,2-Dichloroethane-d4	104	68-126
Toluene-d8	100	87-125
Bromofluorobenzene	99	79-122

6/12/98

TVH-Total Volatile Hydrocarbons

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133396-001	SLB01SA	40767	04/28/98	05/12/98	05/12/98	18%
133396-002	SLB02SA	40767	04/28/98	05/12/98	05/12/98	19%
133396-004	SLB03SA	40767	04/28/98	05/12/98	05/12/98	15%
133396-005	SLB04SA	40767	04/28/98	05/12/98	05/12/98	22%

Matrix: Soil

Analyte Diln Fac:	Units	133396-001 1	133396-002 1	133396-004 1	133396-005 1
Gasoline C7-C12	mg/Kg	<1.2	<1.2	<1.2	<1.3
Surrogate					
Bromofluorobenzene	%REC	97	113	118	84

K 6/12/98

TVH-Total Volatile Hydrocarbons

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133396-006	SLB05SA	40767	04/28/98	05/12/98	05/12/98	31%
133396-007	SLB06SA	40767	04/28/98	05/12/98	05/12/98	25%
133396-008	SLB07SA	40767	04/28/98	05/12/98	05/12/98	22%
133396-009	SLB07FD	40767	04/28/98	05/12/98	05/12/98	17%

Matrix: Soil

Analyte	Units	133396-006	133396-007	133396-008	133396-009
Diln Fac:		1	1	1	1
Gasoline C7-C12	mg/Kg	<1.4	<1.3	<1.3	<1.2
Surrogate					
Bromofluorobenzene	%REC	113	111	112	111

6/12/98

TVH-Total Volatile Hydrocarbons

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133396-010	SLB08SA	40767	04/28/98	05/12/98	05/12/98	18%
133396-011	SLB01BG	40767	04/28/98	05/12/98	05/12/98	39%
133396-012	SLB02BG	40767	04/28/98	05/12/98	05/12/98	33%

Matrix: Soil

Analyte	Units	133396-010	133396-011	133396-012
Diln Fac:		1	1	1
Gasoline C7-C12	mg/Kg	<1.2	<1.6	<1.5
Surrogate				
Bromofluorobenzene	%REC	108	110	108

K 6/12/98

TEH-Tot Ext Hydrocarbons

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8015M
Prep Method: CA LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133396-001	SLB01SA	40741	04/28/98	05/08/98	05/16/98	18%
133396-002	SLB02SA	40741	04/28/98	05/08/98	05/15/98	19%
133396-004	SLB03SA	40741	04/28/98	05/08/98	05/15/98	15%
133396-005	SLB04SA	40741	04/28/98	05/08/98	05/15/98	22%

Matrix: Soil

Analyte	Units	133396-001	133396-002	133396-004	133396-005
Diln Fac:		1	1	1	1
Diesel C12-C22	mg/Kg	<1.2	<1.2	2.9~~YH~~	<1.3
Surrogate					
Hexacosane	%REC	116	98	108	107

Y: Sample exhibits fuel pattern which does not resemble standard
H: Heavier hydrocarbons than indicated standard

6/12/98

TEH-Tot Ext Hydrocarbons

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8015M
Prep Method: CA LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133396-006	SLB05SA	40741	04/28/98	05/08/98	05/15/98	31%
133396-007	SLB06SA	40741	04/28/98	05/08/98	05/15/98	25%
133396-008	SLB07SA	40741	04/28/98	05/08/98	05/15/98	22%
133396-009	SLB07FD	40741	04/28/98	05/08/98	05/15/98	17%

Matrix: Soil

Analyte	Units	133396-006	133396-007	133396-008	133396-009
Diln Fac:		1	1	1	1
Diesel C12-C22	mg/Kg	<1.4	<1.3	<1.3	<1.2
Surrogate					
Hexacosane	%REC	102	101	100	91

K 6/12/98

TEH-Tot Ext Hydrocarbons

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8015M
Prep Method: CA LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133396-010	SLB08SA	40741	04/28/98	05/08/98	05/15/98	18%
133396-011	SLB01BG	40741	04/28/98	05/08/98	05/15/98	39%
133396-012	SLB02BG	40741	04/28/98	05/08/98	05/15/98	33%

Matrix: Soil

Analyte	Units	133396-010	133396-011	133396-012
Diln Fac:		1	1	1
Diesel C12-C22	mg/Kg	<1.2	<1.6	<1.5
Surrogate				
Hexacosane	%REC	95	104	100

6/12/99

Semivolatile Organics by GC/MS

Client:	Woodward-Clyde Consultants	Analysis Method:	EPA 8270B
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI		

Field ID:	SLB01SA	Sampled:	04/28/98
Lab ID:	133396-001	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	18%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Phenol	ND	410
2-Chlorophenol	ND	410
Benzyl alcohol	ND	410
2-Methylphenol	ND	410
3,4-Methylphenol	ND	410
2-Nitrophenol	ND	2000
2,4-Dimethylphenol	ND	410
Benzoic acid	ND	2000
2,4-Dichlorophenol	ND	410
4-Chloro-3-methylphenol	ND	410
2,4,6-Trichlorophenol	ND	410
2,4,5-Trichlorophenol	ND	2000
2,4-Dinitrophenol	ND	2000
4-Nitrophenol	ND	2000
4,6-Dinitro-2-methylphenol	ND	2000
Pentachlorophenol	ND	2000
N-Nitrosodimethylamine	ND	410
Aniline	ND	410
bis(2-Chloroethyl)ether	ND	410
1,3-Dichlorobenzene	ND	410
1,4-Dichlorobenzene	ND	410
1,2-Dichlorobenzene	ND	410
bis(2-Chloroisopropyl) ether	ND	410
N-Nitroso-di-n-propylamine	ND	410
Hexachloroethane	ND	410
Nitrobenzene	ND	410
Isophorone	ND	410
bis(2-Chloroethoxy)methane	ND	410
1,2,4-Trichlorobenzene	ND	410
Naphthalene	ND	410
4-Chloroaniline	ND	410
Hexachlorobutadiene	ND	410
2-Methylnaphthalene	ND	410
Hexachlorocyclopentadiene	ND	2000
2-Chloronaphthalene	ND	410
2-Nitroaniline	ND	2000
Dimethylphthalate	ND	410
Acenaphthylene	ND	410

6/12/98

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Field ID:	SLB01SA	Sampled:	04/28/98
Lab ID:	133396-001	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	18%
Diln Fac:	1		

Analyte	Result	Reporting Limit	
2,6-Dinitrotoluene	ND	410	
3-Nitroaniline	ND	2000	
Acenaphthene	ND	410	
Dibenzofuran	ND	410	
2,4-Dinitrotoluene	ND	410	
Diethylphthalate	ND	410	
4-Chlorophenyl-phenylether	ND	410	
Fluorene	ND	410	
4-Nitroaniline	ND	2000	
N-Nitrosodiphenylamine	ND	410	
Azobenzene	ND	410	
4-Bromophenyl-phenylether	ND	410	
Hexachlorobenzene	ND	410	
Phenanthrene	ND	410	
Anthracene	ND	410	
Di-n-butylphthalate	ND	410	
Fluoranthene	ND	410	
Pyrene	ND	410	
Butylbenzylphthalate	ND	410	
3,3'-Dichlorobenzidine	~~ND~~ UJ	2000	VCAL
Benzo(a)anthracene	~~ND~~ UJ	410	VCAL
Chrysene	ND	410	
bis(2-Ethylhexyl)phthalate	~~ND~~ UJ	410	VCAL
Di-n-octylphthalate	ND	410	
Benzo(b,k)fluoranthene	ND	410	
Benzo(a)pyrene	ND	410	
Indeno(1,2,3-cd)pyrene	ND	410	
Dibenz(a,h)anthracene	ND	410	
Benzo(g,h,i)perylene	ND	410	

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	95	25-121
Phenol-d5	95	24-113
2,4,6-Tribromophenol	78	19-122
Nitrobenzene-d5	71	23-120
2-Fluorobiphenyl	90	30-115
Terphenyl-d14	81	18-137

6/12/98

Semivolatile Organics by GC/MS

Client:	Woodward-Clyde Consultants	Analysis Method:	EPA 8270B
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI		

Field ID:	SLB02SA	Sampled:	04/28/98
Lab ID:	133396-002	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	19%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Phenol	ND	410
2-Chlorophenol	ND	410
Benzyl alcohol	ND	410
2-Methylphenol	ND	410
3,4-Methylphenol	ND	410
2-Nitrophenol	ND	2100
2,4-Dimethylphenol	ND	410
Benzoic acid	ND	2100
2,4-Dichlorophenol	ND	410
4-Chloro-3-methylphenol	ND	410
2,4,6-Trichlorophenol	ND	410
2,4,5-Trichlorophenol	ND	2100
2,4-Dinitrophenol	ND	2100
4-Nitrophenol	ND	2100
4,6-Dinitro-2-methylphenol	ND	2100
Pentachlorophenol	ND	2100
N-Nitrosodimethylamine	ND	410
Aniline	ND	410
bis(2-Chloroethyl)ether	ND	410
1,3-Dichlorobenzene	ND	410
1,4-Dichlorobenzene	ND	410
1,2-Dichlorobenzene	ND	410
bis(2-Chloroisopropyl) ether	ND	410
N-Nitroso-di-n-propylamine	ND	410
Hexachloroethane	ND	410
Nitrobenzene	ND	410
Isophorone	ND	410
bis(2-Chloroethoxy)methane	ND	410
1,2,4-Trichlorobenzene	ND	410
Naphthalene	ND	410
4-Chloroaniline	ND	410
Hexachlorobutadiene	ND	410
2-Methylnaphthalene	ND	410
Hexachlorocyclopentadiene	ND	2100
2-Chloronaphthalene	ND	410
2-Nitroaniline	ND	2100
Dimethylphthalate	ND	410
Acenaphthylene	ND	410

K 6/23/98

Rev 1 6/17/98

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Field ID:	SLB02SA	Sampled:	04/28/98
Lab ID:	133396-002	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	19%
Diln Fac:	1		

Analyte	Result	Reporting Limit	
2,6-Dinitrotoluene	ND	410	
3-Nitroaniline	ND	2100	
Acenaphthene	ND	410	
Dibenzofuran	ND	410	
2,4-Dinitrotoluene	ND	410	
Diethylphthalate	ND	410	
4-Chlorophenyl-phenylether	ND	410	
Fluorene	ND	410	
4-Nitroaniline	ND	2100	
N-Nitrosodiphenylamine	ND	410	
Azobenzene	ND	410	
4-Bromophenyl-phenylether	ND	410	
Hexachlorobenzene	ND	410	
Phenanthrene	ND	410	
Anthracene	ND	410	
Di-n-butylphthalate	ND	410	
Fluoranthene	ND	410	
Pyrene	ND	410	
Butylbenzylphthalate	ND	410	
3,3'-Dichlorobenzidine	~~ND~~ UJ	2100	1CAL
Benzo(a)anthracene	~~ND~~ UJ	410	1CAL
Chrysene	ND	410	1CAL
bis(2-Ethylhexyl)phthalate	~~ND~~ UJ	410	
Di-n-octylphthalate	ND	410	
Benzo(b,k)fluoranthene	ND	410	
Benzo(a)pyrene	ND	410	
Indeno(1,2,3-cd)pyrene	ND	410	
Dibenz(a,h)anthracene	ND	410	
Benzo(g,h,i)perylene	ND	410	

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	94	25-121
Phenol-d5	92	24-113
2,4,6-Tribromophenol	74	19-122
Nitrobenzene-d5	65	23-120
2-Fluorobiphenyl	87	30-115
Terphenyl-d14	77	18-137

K 6/25/98

Rev. 6/17/99

84

Semivolatile Organics by GC/MS

Client:	Woodward-Clyde Consultants	Analysis Method:	EPA 8270B
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI		

Field ID:	SLB03SA	Sampled:	04/28/98
Lab ID:	133396-004	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	15%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Phenol	ND	390
2-Chlorophenol	ND	390
Benzyl alcohol	ND	390
2-Methylphenol	ND	390
3,4-Methylphenol	ND	390
2-Nitrophenol	ND	2000
2,4-Dimethylphenol	ND	390
Benzoic acid	ND	2000
2,4-Dichlorophenol	ND	390
4-Chloro-3-methylphenol	ND	390
2,4,6-Trichlorophenol	ND	390
2,4,5-Trichlorophenol	ND	2000
2,4-Dinitrophenol	ND	2000
4-Nitrophenol	ND	2000
4,6-Dinitro-2-methylphenol	ND	2000
Pentachlorophenol	ND	2000
N-Nitrosodimethylamine	ND	390
Aniline	ND	390
bis(2-Chloroethyl)ether	ND	390
1,3-Dichlorobenzene	ND	390
1,4-Dichlorobenzene	ND	390
1,2-Dichlorobenzene	ND	390
bis(2-Chloroisopropyl) ether	ND	390
N-Nitroso-di-n-propylamine	ND	390
Hexachloroethane	ND	390
Nitrobenzene	ND	390
Isophorone	ND	390
bis(2-Chloroethoxy)methane	ND	390
1,2,4-Trichlorobenzene	ND	390
Naphthalene	ND	390
4-Chloroaniline	ND	390
Hexachlorobutadiene	ND	390
2-Methylnaphthalene	ND	390
Hexachlorocyclopentadiene	ND	2000
2-Chloronaphthalene	ND	390
2-Nitroaniline	ND	2000
Dimethylphthalate	ND	390
Acenaphthylene	ND	390

6/17/98

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Field ID:	SLB03SA	Sampled:	04/28/98
Lab ID:	133396-004	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	15%
Diln Fac:	1		

Analyte	Result	Reporting Limit	
2,6-Dinitrotoluene	ND	390	
3-Nitroaniline	ND	2000	
Acenaphthene	ND	390	
Dibenzofuran	ND	390	
2,4-Dinitrotoluene	ND	390	
Diethylphthalate	ND	390	
4-Chlorophenyl-phenylether	ND	390	
Fluorene	ND	390	
4-Nitroaniline	ND	2000	
N-Nitrosodiphenylamine	ND	390	
Azobenzene	ND	390	
4-Bromophenyl-phenylether	ND	390	
Hexachlorobenzene	ND	390	
Phenanthrene	ND	390	
Anthracene	ND	390	
Di-n-butylphthalate	ND	390	
Fluoranthene	ND	390	
Pyrene	ND	390	
Butylbenzylphthalate	ND	390	
3,3'-Dichlorobenzidine	~~ND~~ UJ	2000	/CA
Benzo(a)anthracene	~~ND~~ UJ	390	/CA
Chrysene	ND	390	
bis(2-Ethylhexyl)phthalate	~~ND~~ UJ	390	/CA
Di-n-octylphthalate	ND	390	
Benzo(b,k)fluoranthene	ND	390	
Benzo(a)pyrene	ND	390	
Indeno(1,2,3-cd)pyrene	ND	390	
Dibenz(a,h)anthracene	ND	390	
Benzo(g,h,i)perylene	ND	390	

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	95	25-121
Phenol-d5	94	24-113
2,4,6-Tribromophenol	70	19-122
Nitrobenzene-d5	67	23-120
2-Fluorobiphenyl	89	30-115
Terphenyl-d14	78	18-137

6/12/98

Semivolatile Organics by GC/MS

Client:	Woodward-Clyde Consultants	Analysis Method:	EPA 8270B
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI		

Field ID:	SLB04SA	Sampled:	04/28/98
Lab ID:	133396-005	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	22%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Phenol	ND	430
2-Chlorophenol	ND	430
Benzyl alcohol	ND	430
2-Methylphenol	ND	430
3,4-Methylphenol	ND	430
2-Nitrophenol	ND	2100
2,4-Dimethylphenol	ND	430
Benzoic acid	ND	2100
2,4-Dichlorophenol	ND	430
4-Chloro-3-methylphenol	ND	430
2,4,6-Trichlorophenol	ND	430
2,4,5-Trichlorophenol	ND	2100
2,4-Dinitrophenol	ND	2100
4-Nitrophenol	ND	2100
4,6-Dinitro-2-methylphenol	ND	2100
Pentachlorophenol	ND	2100
N-Nitrosodimethylamine	ND	430
Aniline	ND	430
bis(2-Chloroethyl)ether	ND	430
1,3-Dichlorobenzene	ND	430
1,4-Dichlorobenzene	ND	430
1,2-Dichlorobenzene	ND	430
bis(2-Chloroisopropyl) ether	ND	430
N-Nitroso-di-n-propylamine	ND	430
Hexachloroethane	ND	430
Nitrobenzene	ND	430
Isophorone	ND	430
bis(2-Chloroethoxy)methane	ND	430
1,2,4-Trichlorobenzene	ND	430
Naphthalene	ND	430
4-Chloroaniline	ND	430
Hexachlorobutadiene	ND	430
2-Methylnaphthalene	ND	430
Hexachlorocyclopentadiene	ND	2100
2-Chloronaphthalene	ND	430
2-Nitroaniline	ND	2100
Dimethylphthalate	ND	430
Acenaphthylene	ND	430

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Semivolatile Organics by GC/MS

Field ID:	SLB04SA	Sampled:	04/28/98
Lab ID:	133396-005	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	22%
Diln Fac:	1		

Analyte	Result	Reporting Limit	
2,6-Dinitrotoluene	ND	430	
3-Nitroaniline	ND	2100	
Acenaphthene	ND	430	
Dibenzofuran	ND	430	
2,4-Dinitrotoluene	ND	430	
Diethylphthalate	ND	430	
4-Chlorophenyl-phenylether	ND	430	
Fluorene	ND	430	
4-Nitroaniline	ND	2100	
N-Nitrosodiphenylamine	ND	430	
Azobenzene	ND	430	
4-Bromophenyl-phenylether	ND	430	
Hexachlorobenzene	ND	430	
Phenanthrene	ND	430	
Anthracene	ND	430	
Di-n-butylphthalate	ND	430	
Fluoranthene	ND	430	
Pyrene	ND	430	
Butylbenzylphthalate	ND	430	
3,3'-Dichlorobenzidine	~~ND~~ UJ	2100	ICAL
Benzo(a)anthracene	~~ND~~ UJ	430	ICA
Chrysene	ND	430	
bis(2-Ethylhexyl)phthalate	~~ND~~ UJ	430	ICA
Di-n-octylphthalate	ND	430	
Benzo(b,k)fluoranthene	ND	430	
Benzo(a)pyrene	ND	430	
Indeno(1,2,3-cd)pyrene	ND	430	
Dibenz(a,h)anthracene	ND	430	
Benzo(g,h,i)perylene	ND	430	

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	95	25-121
Phenol-d5	96	24-113
2,4,6-Tribromophenol	68	19-122
Nitrobenzene-d5	77	23-120
2-Fluorobiphenyl	85	30-115
Terphenyl-d14	80	18-137

6/12/98

087a

Semivolatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8270B
Prep Method: EPA 3550

Field ID: SLB05SA
Lab ID: 133396-006
Matrix: Soil
Batch#: 40728
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 05/07/98
Analyzed: 05/11/98
Moisture: 31%

Analyte	Result	Reporting Limit
Phenol	ND	480
2-Chlorophenol	ND	480
Benzyl alcohol	ND	480
2-Methylphenol	ND	480
3,4-Methylphenol	ND	480
2-Nitrophenol	ND	2400
2,4-Dimethylphenol	ND	480
Benzoic acid	ND	2400
2,4-Dichlorophenol	ND	480
4-Chloro-3-methylphenol	ND	480
2,4,6-Trichlorophenol	ND	480
2,4,5-Trichlorophenol	ND	2400
2,4-Dinitrophenol	ND	2400
4-Nitrophenol	ND	2400
4,6-Dinitro-2-methylphenol	ND	2400
Pentachlorophenol	ND	2400
N-Nitrosodimethylamine	ND	480
Aniline	ND	480
bis(2-Chloroethyl)ether	ND	480
1,3-Dichlorobenzene	ND	480
1,4-Dichlorobenzene	ND	480
1,2-Dichlorobenzene	ND	480
bis(2-Chloroisopropyl) ether	ND	480
N-Nitroso-di-n-propylamine	ND	480
Hexachloroethane	ND	480
Nitrobenzene	ND	480
Isophorone	ND	480
bis(2-Chloroethoxy)methane	ND	480
1,2,4-Trichlorobenzene	ND	480
Naphthalene	ND	480
4-Chloroaniline	ND	480
Hexachlorobutadiene	ND	480
2-Methylnaphthalene	ND	480
Hexachlorocyclopentadiene	ND	2400
2-Chloronaphthalene	ND	480
2-Nitroaniline	ND	2400
Dimethylphthalate	ND	480
Acenaphthylene	ND	480

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Field ID:	SLB05SA	Sampled:	04/28/98
Lab ID:	133396-006	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	31%
Diln Fac:	1		

Analyte	Result	Reporting Limit	
2,6-Dinitrotoluene	ND	480	
3-Nitroaniline	ND	2400	
Acenaphthene	ND	480	
Dibenzofuran	ND	480	
2,4-Dinitrotoluene	ND	480	
Diethylphthalate	ND	480	
4-Chlorophenyl-phenylether	ND	480	
Fluorene	ND	480	
4-Nitroaniline	ND	2400	
N-Nitrosodiphenylamine	ND	480	
Azobenzene	ND	480	
4-Bromophenyl-phenylether	ND	480	
Hexachlorobenzene	ND	480	
Phenanthrene	ND	480	
Anthracene	ND	480	
Di-n-butylphthalate	ND	480	
Fluoranthene	ND	480	
Pyrene	ND	480	
Butylbenzylphthalate	ND	480	
3,3'-Dichlorobenzidine	~~ND~~ UJ	2400	VCAL
Benzo(a)anthracene	~~ND~~ UJ	480	VCA
Chrysene	ND	480	
bis(2-Ethylhexyl)phthalate	~~ND~~ UJ	480	VCA
Di-n-octylphthalate	ND	480	
Benzo(b,k)fluoranthene	ND	480	
Benzo(a)pyrene	ND	480	
Indeno(1,2,3-cd)pyrene	ND	480	
Dibenz(a,h)anthracene	ND	480	
Benzo(g,h,i)perylene	ND	480	

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	101	25-121
Phenol-d5	101	24-113
2,4,6-Tribromophenol	77	19-122
Nitrobenzene-d5	74	23-120
2-Fluorobiphenyl	91	30-115
Terphenyl-d14	80	18-137

6/12/98

Semivolatile Organics by GC/MS

Client:	Woodward-Clyde Consultants	Analysis Method:	EPA 8270B
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI		

Field ID:	SLB06SA	Sampled:	04/28/98
Lab ID:	133396-007	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	25%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Phenol	ND	440
2-Chlorophenol	ND	440
Benzyl alcohol	ND	440
2-Methylphenol	ND	440
3,4-Methylphenol	ND	440
2-Nitrophenol	ND	2200
2,4-Dimethylphenol	ND	440
Benzoic acid	ND	2200
2,4-Dichlorophenol	ND	440
4-Chloro-3-methylphenol	ND	440
2,4,6-Trichlorophenol	ND	440
2,4,5-Trichlorophenol	ND	2200
2,4-Dinitrophenol	ND	2200
4-Nitrophenol	ND	2200
4,6-Dinitro-2-methylphenol	ND	2200
Pentachlorophenol	ND	2200
N-Nitrosodimethylamine	ND	440
Aniline	ND	440
bis(2-Chloroethyl)ether	ND	440
1,3-Dichlorobenzene	ND	440
1,4-Dichlorobenzene	ND	440
1,2-Dichlorobenzene	ND	440
bis(2-Chloroisopropyl) ether	ND	440
N-Nitroso-di-n-propylamine	ND	440
Hexachloroethane	ND	440
Nitrobenzene	ND	440
Isophorone	ND	440
bis(2-Chloroethoxy)methane	ND	440
1,2,4-Trichlorobenzene	ND	440
Naphthalene	ND	440
4-Chloroaniline	ND	440
Hexachlorobutadiene	ND	440
2-Methylnaphthalene	ND	440
Hexachlorocyclopentadiene	ND	2200
2-Chloronaphthalene	ND	440
2-Nitroaniline	ND	2200
Dimethylphthalate	ND	440
Acenaphthylene	ND	440

K 6/12/98

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Field ID:	SLB06SA	Sampled:	04/28/98
Lab ID:	133396-007	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	25%
Diln Fac:	1		

Analyte	Result	Reporting Limit	
2,6-Dinitrotoluene	ND	440	
3-Nitroaniline	ND	2200	
Acenaphthene	ND	440	
Dibenzofuran	ND	440	
2,4-Dinitrotoluene	ND	440	
Diethylphthalate	ND	440	
4-Chlorophenyl-phenylether	ND	440	
Fluorene	ND	440	
4-Nitroaniline	ND	2200	
N-Nitrosodiphenylamine	ND	440	
Azobenzene	ND	440	
4-Bromophenyl-phenylether	ND	440	
Hexachlorobenzene	ND	440	
Phenanthrene	ND	440	
Anthracene	ND	440	
Di-n-butylphthalate	ND	440	
Fluoranthene	ND	440	
Pyrene	ND	440	
Butylbenzylphthalate	ND	440	
3,3'-Dichlorobenzidine	~~ND~~ UJ	2200	VCA
Benzo(a)anthracene	~~ND~~ UJ	440	VCA
Chrysene	ND	440	
bis(2-Ethylhexyl)phthalate	~~ND~~ UJ	440	VCA
Di-n-octylphthalate	ND	440	
Benzo(b,k)fluoranthene	ND	440	
Benzo(a)pyrene	ND	440	
Indeno(1,2,3-cd)pyrene	ND	440	
Dibenz(a,h)anthracene	ND	440	
Benzo(g,h,i)perylene	ND	440	

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	85	25-121
Phenol-d5	86	24-113
2,4,6-Tribromophenol	67	19-122
Nitrobenzene-d5	61	23-120
2-Fluorobiphenyl	79	30-115
Terphenyl-d14	71	18-137

6/12/98

090a

Semivolatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8270B
Prep Method: EPA 3550

Field ID: SLB07SA
Lab ID: 133396-008
Matrix: Soil
Batch#: 40728
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 05/07/98
Analyzed: 05/11/98
Moisture: 22%

Analyte	Result	Reporting Limit
Phenol	ND	430
2-Chlorophenol	ND	430
Benzyl alcohol	ND	430
2-Methylphenol	ND	430
3,4-Methylphenol	ND	430
2-Nitrophenol	ND	2100
2,4-Dimethylphenol	ND	430
Benzoic acid	ND	2100
2,4-Dichlorophenol	ND	430
4-Chloro-3-methylphenol	ND	430
2,4,6-Trichlorophenol	ND	430
2,4,5-Trichlorophenol	ND	2100
2,4-Dinitrophenol	ND	2100
4-Nitrophenol	ND	2100
4,6-Dinitro-2-methylphenol	ND	2100
Pentachlorophenol	ND	2100
N-Nitrosodimethylamine	ND	430
Aniline	ND	430
bis(2-Chloroethyl)ether	ND	430
1,3-Dichlorobenzene	ND	430
1,4-Dichlorobenzene	ND	430
1,2-Dichlorobenzene	ND	430
bis(2-Chloroisopropyl) ether	ND	430
N-Nitroso-di-n-propylamine	ND	430
Hexachloroethane	ND	430
Nitrobenzene	ND	430
Isophorone	ND	430
bis(2-Chloroethoxy)methane	ND	430
1,2,4-Trichlorobenzene	ND	430
Naphthalene	ND	430
4-Chloroaniline	ND	430
Hexachlorobutadiene	ND	430
2-Methylnaphthalene	ND	430
Hexachlorocyclopentadiene	ND	2100
2-Chloronaphthalene	ND	430
2-Nitroaniline	ND	2100
Dimethylphthalate	ND	430
Acenaphthylene	ND	430

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Field ID:	SLB07SA	Sampled:	04/28/98
Lab ID:	133396-008	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	22%
Diln Fac:	1		

Analyte	Result	Reporting Limit	
2,6-Dinitrotoluene	ND	430	
3-Nitroaniline	ND	2100	
Acenaphthene	ND	430	
Dibenzofuran	ND	430	
2,4-Dinitrotoluene	ND	430	
Diethylphthalate	ND	430	
4-Chlorophenyl-phenylether	ND	430	
Fluorene	ND	430	
4-Nitroaniline	ND	2100	
N-Nitrosodiphenylamine	ND	430	
Azobenzene	ND	430	
4-Bromophenyl-phenylether	ND	430	
Hexachlorobenzene	ND	430	
Phenanthrene	ND	430	
Anthracene	ND	430	
Di-n-butylphthalate	ND	430	
Fluoranthene	ND	430	
Pyrene	ND	430	
Butylbenzylphthalate	ND	430	
3,3'-Dichlorobenzidine	~~ND~~ UJ	2100	ICA
Benzo(a)anthracene	~~ND~~ UJ	430	ICA
Chrysene	ND	430	
bis(2-Ethylhexyl)phthalate	~~ND~~ UJ	430	ICA
Di-n-octylphthalate	ND	430	
Benzo(b,k)fluoranthene	ND	430	
Benzo(a)pyrene	ND	430	
Indeno(1,2,3-cd)pyrene	ND	430	
Dibenz(a,h)anthracene	ND	430	
Benzo(g,h,i)perylene	ND	430	

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	96	25-121
Phenol-d5	96	24-113
2,4,6-Tribromophenol	75	19-122
Nitrobenzene-d5	71	23-120
2-Fluorobiphenyl	89	30-115
Terphenyl-d14	80	18-137

6/12/99

Semivolatile Organics by GC/MS

Client:	Woodward-Clyde Consultants	Analysis Method:	EPA 8270B
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI		

Field ID:	SLB07FD	Sampled:	04/28/98
Lab ID:	133396-009	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	17%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Phenol	ND	400
2-Chlorophenol	ND	400
Benzyl alcohol	ND	400
2-Methylphenol	ND	400
3,4-Methylphenol	ND	400
2-Nitrophenol	ND	2000
2,4-Dimethylphenol	ND	400
Benzoic acid	ND	2000
2,4-Dichlorophenol	ND	400
4-Chloro-3-methylphenol	ND	400
2,4,6-Trichlorophenol	ND	400
2,4,5-Trichlorophenol	ND	2000
2,4-Dinitrophenol	ND	2000
4-Nitrophenol	ND	2000
4,6-Dinitro-2-methylphenol	ND	2000
Pentachlorophenol	ND	2000
N-Nitrosodimethylamine	ND	400
Aniline	ND	400
bis(2-Chloroethyl)ether	ND	400
1,3-Dichlorobenzene	ND	400
1,4-Dichlorobenzene	ND	400
1,2-Dichlorobenzene	ND	400
bis(2-Chloroisopropyl) ether	ND	400
N-Nitroso-di-n-propylamine	ND	400
Hexachloroethane	ND	400
Nitrobenzene	ND	400
Isophorone	ND	400
bis(2-Chloroethoxy)methane	ND	400
1,2,4-Trichlorobenzene	ND	400
Naphthalene	ND	400
4-Chloroaniline	ND	400
Hexachlorobutadiene	ND	400
2-Methylnaphthalene	ND	400
Hexachlorocyclopentadiene	ND	2000
2-Chloronaphthalene	ND	400
2-Nitroaniline	ND	2000
Dimethylphthalate	ND	400
Acenaphthylene	ND	400

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Field ID:	SLB07FD	Sampled:	04/28/98
Lab ID:	133396-009	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/11/98
Units:	ug/Kg dry weight	Moisture:	17%
Diln Fac:	1		

Analyte	Result	Reporting Limit	
2,6-Dinitrotoluene	ND	400	
3-Nitroaniline	ND	2000	
Acenaphthene	ND	400	
Dibenzofuran	ND	400	
2,4-Dinitrotoluene	ND	400	
Diethylphthalate	ND	400	
4-Chlorophenyl-phenylether	ND	400	
Fluorene	ND	400	
4-Nitroaniline	ND	2000	
N-Nitrosodiphenylamine	ND	400	
Azobenzene	ND	400	
4-Bromophenyl-phenylether	ND	400	
Hexachlorobenzene	ND	400	
Phenanthrene	ND	400	
Anthracene	ND	400	
Di-n-butylphthalate	ND	400	
Fluoranthene	ND	400	
Pyrene	ND	400	
Butylbenzylphthalate	ND	400	
3,3'-Dichlorobenzidine	~~ND~~ UJ	2000	ICA
Benzo(a)anthracene	~~ND~~ UJ	400	ICA
Chrysene	ND	400	ICA
bis(2-Ethylhexyl)phthalate	~~ND~~ UJ	400	
Di-n-octylphthalate	ND	400	
Benzo(b,k)fluoranthene	ND	400	
Benzo(a)pyrene	ND	400	
Indeno(1,2,3-cd)pyrene	ND	400	
Dibenz(a,h)anthracene	ND	400	
Benzo(g,h,i)perylene	ND	400	

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	91	25-121
Phenol-d5	90	24-113
2,4,6-Tribromophenol	57	19-122
Nitrobenzene-d5	65	23-120
2-Fluorobiphenyl	84	30-115
Terphenyl-d14	73	18-137

6/12/98

Semivolatile Organics by GC/MS

Client:	Woodward-Clyde Consultants	Analysis Method:	EPA 8270B
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI		

Field ID:	SLB08SA	Sampled:	04/28/98
Lab ID:	133396-010	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/13/98
Units:	ug/Kg dry weight	Moisture:	18%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Phenol	ND	410
2-Chlorophenol	ND	410
Benzyl alcohol	ND	410
2-Methylphenol	ND	410
3,4-Methylphenol	ND	410
2-Nitrophenol	ND	2000
2,4-Dimethylphenol	ND	410
Benzoic acid	ND	2000
2,4-Dichlorophenol	ND	410
4-Chloro-3-methylphenol	ND	410
2,4,6-Trichlorophenol	ND	410
2,4,5-Trichlorophenol	ND	2000
2,4-Dinitrophenol	ND	2000
4-Nitrophenol	ND	2000
4,6-Dinitro-2-methylphenol	ND	2000
Pentachlorophenol	ND	2000
N-Nitrosodimethylamine	ND	410
Aniline	ND	410
bis(2-Chloroethyl)ether	ND	410
1,3-Dichlorobenzene	ND	410
1,4-Dichlorobenzene	ND	410
1,2-Dichlorobenzene	ND	410
bis(2-Chloroisopropyl) ether	ND	410
N-Nitroso-di-n-propylamine	ND	410
Hexachloroethane	ND	410
Nitrobenzene	ND	410
Isophorone	ND	410
bis(2-Chloroethoxy)methane	ND	410
1,2,4-Trichlorobenzene	ND	410
Naphthalene	ND	410
4-Chloroaniline	ND	410
Hexachlorobutadiene	ND	410
2-Methylnaphthalene	ND	410
Hexachlorocyclopentadiene	ND	2000
2-Chloronaphthalene	ND	410
2-Nitroaniline	ND	2000
Dimethylphthalate	ND	410
Acenaphthylene	ND	410

6/12/98

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Field ID:	SLB08SA	Sampled:	04/28/98
Lab ID:	133396-010	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/13/98
Units:	ug/Kg dry weight	Moisture:	18%
Diln Fac:	1		

Analyte	Result	Reporting Limit	
2,6-Dinitrotoluene	ND	410	
3-Nitroaniline	ND	2000	
Acenaphthene	ND	410	
Dibenzofuran	ND	410	
2,4-Dinitrotoluene	ND	410	
Diethylphthalate	ND	410	
4-Chlorophenyl-phenylether	ND	410	
Fluorene	ND	410	
4-Nitroaniline	ND	2000	
N-Nitrosodiphenylamine	ND	410	
Azobenzene	ND	410	
4-Bromophenyl-phenylether	ND	410	
Hexachlorobenzene	ND	410	
Phenanthrene	ND	410	
Anthracene	ND	410	
Di-n-butylphthalate	ND	410	
Fluoranthene	ND	410	
Pyrene	ND	410	
Butylbenzylphthalate	ND	410	
3,3'-Dichlorobenzidine	~~ND~~ UJ	2000	ICAL
Benzo(a)anthracene	~~ND~~ UJ	410	ICAL
Chrysene	ND	410	
bis(2-Ethylhexyl)phthalate	~~ND~~ UJ	410	ICAL
Di-n-octylphthalate	ND	410	
Benzo(b,k)fluoranthene	ND	410	
Benzo(a)pyrene	ND	410	
Indeno(1,2,3-cd)pyrene	ND	410	
Dibenz(a,h)anthracene	ND	410	
Benzo(g,h,i)perylene	ND	410	

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	87	25-121
Phenol-d5	89	24-113
2,4,6-Tribromophenol	67	19-122
Nitrobenzene-d5	73	23-120
2-Fluorobiphenyl	81	30-115
Terphenyl-d14	75	18-137

6/12/98

Semivolatile Organics by GC/MS

Client:	Woodward-Clyde Consultants	Analysis Method:	EPA 8270B
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI		

Field ID:	SLB01BG	Sampled:	04/28/98
Lab ID:	133396-011	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/13/98
Units:	ug/Kg dry weight	Moisture:	39%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Phenol	ND	550
2-Chlorophenol	ND	550
Benzyl alcohol	ND	550
2-Methylphenol	ND	550
3,4-Methylphenol	ND	550
2-Nitrophenol	ND	2700
2,4-Dimethylphenol	ND	550
Benzoic acid	ND	2700
2,4-Dichlorophenol	ND	550
4-Chloro-3-methylphenol	ND	550
2,4,6-Trichlorophenol	ND	550
2,4,5-Trichlorophenol	ND	2700
2,4-Dinitrophenol	ND	2700
4-Nitrophenol	ND	2700
4,6-Dinitro-2-methylphenol	ND	2700
Pentachlorophenol	ND	2700
N-Nitrosodimethylamine	ND	550
Aniline	ND	550
bis(2-Chloroethyl)ether	ND	550
1,3-Dichlorobenzene	ND	550
1,4-Dichlorobenzene	ND	550
1,2-Dichlorobenzene	ND	550
bis(2-Chloroisopropyl) ether	ND	550
N-Nitroso-di-n-propylamine	ND	550
Hexachloroethane	ND	550
Nitrobenzene	ND	550
Isophorone	ND	550
bis(2-Chloroethoxy)methane	ND	550
1,2,4-Trichlorobenzene	ND	550
Naphthalene	ND	550
4-Chloroaniline	ND	550
Hexachlorobutadiene	ND	550
2-Methylnaphthalene	ND	550
Hexachlorocyclopentadiene	ND	2700
2-Chloronaphthalene	ND	550
2-Nitroaniline	ND	2700
Dimethylphthalate	ND	550
Acenaphthylene	ND	550

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Field ID:	SLB01BG	Sampled:	04/28/98
Lab ID:	133396-011	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/13/98
Units:	ug/Kg dry weight	Moisture:	39%
Diln Fac:	1		

Analyte	Result	Reporting Limit	
2,6-Dinitrotoluene	ND	550	
3-Nitroaniline	ND	2700	
Acenaphthene	ND	550	
Dibenzofuran	ND	550	
2,4-Dinitrotoluene	ND	550	
Diethylphthalate	ND	550	
4-Chlorophenyl-phenylether	ND	550	
Fluorene	ND	550	
4-Nitroaniline	ND	2700	
N-Nitrosodiphenylamine	ND	550	
Azobenzene	ND	550	
4-Bromophenyl-phenylether	ND	550	
Hexachlorobenzene	ND	550	
Phenanthrene	ND	550	
Anthracene	ND	550	
Di-n-butylphthalate	ND	550	
Fluoranthene	ND	550	
Pyrene	ND	550	
Butylbenzylphthalate	ND	550	
3,3'-Dichlorobenzidine	~~ND~~ UJ	2700	/CA
Benzo(a)anthracene	~~ND~~ UJ	550	/CA
Chrysene	ND	550	
bis(2-Ethylhexyl)phthalate	~~ND~~ UJ	550	/CA
Di-n-octylphthalate	ND	550	
Benzo(b,k)fluoranthene	ND	550	
Benzo(a)pyrene	ND	550	
Indeno(1,2,3-cd)pyrene	ND	550	
Dibenz(a,h)anthracene	ND	550	
Benzo(g,h,i)perylene	ND	550	

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	93	25-121
Phenol-d5	93	24-113
2,4,6-Tribromophenol	72	19-122
Nitrobenzene-d5	80	23-120
2-Fluorobiphenyl	96	30-115
Terphenyl-d14	93	18-137

6/12/98

Semivolatile Organics by GC/MS

Client: Woodward-Clyde Consultants
Project#: S95513
Location: PA/SI

Analysis Method: EPA 8270B
Prep Method: EPA 3550

Field ID: SLB02BG
Lab ID: 133396-012
Matrix: Soil
Batch#: 40728
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 04/28/98
Received: 04/29/98
Extracted: 05/07/98
Analyzed: 05/13/98
Moisture: 33%

Analyte	Result	Reporting Limit
Phenol	ND	500
2-Chlorophenol	ND	500
Benzyl alcohol	ND	500
2-Methylphenol	ND	500
3,4-Methylphenol	ND	500
2-Nitrophenol	ND	2500
2,4-Dimethylphenol	ND	500
Benzoic acid	ND	2500
2,4-Dichlorophenol	ND	500
4-Chloro-3-methylphenol	ND	500
2,4,6-Trichlorophenol	ND	500
2,4,5-Trichlorophenol	ND	2500
2,4-Dinitrophenol	ND	2500
4-Nitrophenol	ND	2500
4,6-Dinitro-2-methylphenol	ND	2500
Pentachlorophenol	ND	2500
N-Nitrosodimethylamine	ND	500
Aniline	ND	500
bis(2-Chloroethyl)ether	ND	500
1,3-Dichlorobenzene	ND	500
1,4-Dichlorobenzene	ND	500
1,2-Dichlorobenzene	ND	500
bis(2-Chloroisopropyl) ether	ND	500
N-Nitroso-di-n-propylamine	ND	500
Hexachloroethane	ND	500
Nitrobenzene	ND	500
Isophorone	ND	500
bis(2-Chloroethoxy)methane	ND	500
1,2,4-Trichlorobenzene	ND	500
Naphthalene	ND	500
4-Chloroaniline	ND	500
Hexachlorobutadiene	ND	500
2-Methylnaphthalene	ND	500
Hexachlorocyclopentadiene	ND	2500
2-Chloronaphthalene	ND	500
2-Nitroaniline	ND	2500
Dimethylphthalate	ND	500
Acenaphthylene	ND	500

K 6/17/98

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Field ID:	SLB02BG	Sampled:	04/28/98
Lab ID:	133396-012	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40728	Analyzed:	05/13/98
Units:	ug/Kg dry weight	Moisture:	33%
Diln Fac:	1		

Analyte	Result	Reporting Limit	
2,6-Dinitrotoluene	ND	500	
3-Nitroaniline	ND	2500	
Acenaphthene	ND	500	
Dibenzofuran	ND	500	
2,4-Dinitrotoluene	ND	500	
Diethylphthalate	ND	500	
4-Chlorophenyl-phenylether	ND	500	
Fluorene	ND	500	
4-Nitroaniline	ND	2500	
N-Nitrosodiphenylamine	ND	500	
Azobenzene	ND	500	
4-Bromophenyl-phenylether	ND	500	
Hexachlorobenzene	ND	500	
Phenanthrene	ND	500	
Anthracene	ND	500	
Di-n-butylphthalate	ND	500	
Fluoranthene	ND	500	
Pyrene	ND	500	
Butylbenzylphthalate	ND	500	
3,3'-Dichlorobenzidine	~~ND~~ UJ	2500	/CA
Benzo(a)anthracene	~~ND~~ UJ	500	/CA
Chrysene	ND	500	
bis(2-Ethylhexyl)phthalate	~~ND~~ UJ	500	/CA
Di-n-octylphthalate	ND	500	
Benzo(b,k)fluoranthene	ND	500	
Benzo(a)pyrene	ND	500	
Indeno(1,2,3-cd)pyrene	ND	500	
Dibenz(a,h)anthracene	ND	500	
Benzo(g,h,i)perylene	ND	500	

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	91	25-121
Phenol-d5	92	24-113
2,4,6-Tribromophenol	75	19-122
Nitrobenzene-d5	78	23-120
2-Fluorobiphenyl	92	30-115
Terphenyl-d14	92	18-137

6/12/98

PCBs

Client:	Woodward-Clyde Consultants	Analysis Method:	PCB
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI	Cleanup Method:	EPA acid

Field ID:	SLB01SA	Sampled:	04/28/98
Lab ID:	133396-001	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40710	Analyzed:	05/09/98
Units:	ug/Kg dry weight	Moisture:	18%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	15
Aroclor-1221	ND	29
Aroclor-1232	ND	15
Aroclor-1242	ND	15
Aroclor-1248	ND	15
Aroclor-1254	ND	15
Aroclor-1260	ND	15

Surrogate	%Recovery	Recovery Limits
TCMX	163*	29-108
Decachlorobiphenyl	180*	30-125

* Values outside of QC limits

6/12/98

PCBs

Client:	Woodward-Clyde Consultants	Analysis Method:	PCB
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI	Cleanup Method:	EPA acid

Field ID:	SLB02SA	Sampled:	04/28/98
Lab ID:	133396-002	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40710	Analyzed:	05/09/98
Units:	ug/Kg dry weight	Moisture:	19%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	15
Aroclor-1221	ND	30
Aroclor-1232	ND	15
Aroclor-1242	ND	15
Aroclor-1248	ND	15
Aroclor-1254	ND	15
Aroclor-1260	ND	15

Surrogate	%Recovery	Recovery Limits
TCMX	153*	29-108
Decachlorobiphenyl	174*	30-125

* Values outside of QC limits

6/12/98

PCBs

Client:	Woodward-Clyde Consultants	Analysis Method:	PCB
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI	Cleanup Method:	EPA acid

Field ID:	SLB03SA	Sampled:	04/28/98
Lab ID:	133396-004	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40710	Analyzed:	05/09/98
Units:	ug/Kg dry weight	Moisture:	15%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	14
Aroclor-1221	ND	28
Aroclor-1232	ND	14
Aroclor-1242	ND	14
Aroclor-1248	ND	14
Aroclor-1254	ND	14
Aroclor-1260	ND	14

Surrogate	%Recovery	Recovery Limits
TCMX	140*	29-108
Decachlorobiphenyl	158*	30-125

* Values outside of QC limits

K 6/12/98

PCBs

Client:	Woodward-Clyde Consultants	Analysis Method:	PCB
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI	Cleanup Method:	EPA acid

Field ID:	SLB04SA	Sampled:	04/28/98
Lab ID:	133396-005	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40710	Analyzed:	05/09/98
Units:	ug/Kg dry weight	Moisture:	22%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	15
Aroclor-1221	ND	31
Aroclor-1232	ND	15
Aroclor-1242	ND	15
Aroclor-1248	ND	15
Aroclor-1254	ND	15
Aroclor-1260	ND	15

Surrogate	%Recovery	Recovery Limits
TCMX	132*	29-108
Decachlorobiphenyl	150*	30-125

* Values outside of QC limits

6/12/98

PCBs

Client:	Woodward-Clyde Consultants	Analysis Method:	PCB
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI	Cleanup Method:	EPA acid

Field ID:	SLB05SA	Sampled:	04/28/98
Lab ID:	133396-006	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40710	Analyzed:	05/09/98
Units:	ug/Kg dry weight	Moisture:	31%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	17
Aroclor-1221	ND	35
Aroclor-1232	ND	17
Aroclor-1242	ND	17
Aroclor-1248	ND	17
Aroclor-1254	ND	17
Aroclor-1260	ND	17

Surrogate	%Recovery	Recovery Limits
TCMX	133*	29-108
Decachlorobiphenyl	153*	30-125

* Values outside of QC limits

6/12/98

PCBs

Client:	Woodward-Clyde Consultants	Analysis Method:	PCB
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI	Cleanup Method:	EPA acid

Field ID:	SLB06SA	Sampled:	04/28/98
Lab ID:	133396-007	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40710	Analyzed:	05/09/98
Units:	ug/Kg dry weight	Moisture:	25%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	16
Aroclor-1221	ND	32
Aroclor-1232	ND	16
Aroclor-1242	ND	16
Aroclor-1248	ND	16
Aroclor-1254	ND	16
Aroclor-1260	ND	16

Surrogate	%Recovery	Recovery Limits
TCMX	134*	29-108
Decachlorobiphenyl	151*	30-125

* Values outside of QC limits

6/12/98

PCBs

Client:	Woodward-Clyde Consultants	Analysis Method:	PCB
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI	Cleanup Method:	EPA acid

Field ID:	SLB07SA	Sampled:	04/28/98
Lab ID:	133396-008	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40710	Analyzed:	05/09/98
Units:	ug/Kg dry weight	Moisture:	22%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	15
Aroclor-1221	ND	31
Aroclor-1232	ND	15
Aroclor-1242	ND	15
Aroclor-1248	ND	15
Aroclor-1254	ND	15
Aroclor-1260	ND	15

Surrogate	%Recovery	Recovery Limits
TCMX	127*	29-108
Decachlorobiphenyl	146*	30-125

* Values outside of QC limits

6/12/98

PCBs

Client:	Woodward-Clyde Consultants	Analysis Method:	PCB
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI	Cleanup Method:	EPA acid

Field ID:	SLB07FD	Sampled:	04/28/98
Lab ID:	133396-009	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40710	Analyzed:	05/09/98
Units:	ug/Kg dry weight	Moisture:	17%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	14
Aroclor-1221	ND	29
Aroclor-1232	ND	14
Aroclor-1242	ND	14
Aroclor-1248	ND	14
Aroclor-1254	ND	14
Aroclor-1260	ND	14

Surrogate	%Recovery	Recovery Limits
TCMX	123*	29-108
Decachlorobiphenyl	144*	30-125

* Values outside of QC limits

6/12/98

PCBs

Client:	Woodward-Clyde Consultants	Analysis Method:	PCB
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI	Cleanup Method:	EPA acid

Field ID:	SLB08SA	Sampled:	04/28/98
Lab ID:	133396-010	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40710	Analyzed:	05/09/98
Units:	ug/Kg dry weight	Moisture:	18%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	15
Aroclor-1221	ND	29
Aroclor-1232	ND	15
Aroclor-1242	ND	15
Aroclor-1248	ND	15
Aroclor-1254	ND	15
Aroclor-1260	ND	15

Surrogate	%Recovery	Recovery Limits
TCMX	121*	29-108
Decachlorobiphenyl	146*	30-125

* Values outside of QC limits

6/12/98

PCBs

Client:	Woodward-Clyde Consultants	Analysis Method:	PCB
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI	Cleanup Method:	EPA acid

Field ID:	SLB01BG	Sampled:	04/28/98
Lab ID:	133396-011	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40710	Analyzed:	05/09/98
Units:	ug/Kg dry weight	Moisture:	39%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	20
Aroclor-1221	ND	39
Aroclor-1232	ND	20
Aroclor-1242	ND	20
Aroclor-1248	ND	20
Aroclor-1254	ND	20
Aroclor-1260	ND	20

Surrogate	%Recovery	Recovery Limits
TCMX	127*	29-108
Decachlorobiphenyl	144*	30-125

* Values outside of QC limits

6/12/98

PCBs

Client:	Woodward-Clyde Consultants	Analysis Method:	PCB
Project#:	S95513	Prep Method:	EPA 3550
Location:	PA/SI	Cleanup Method:	EPA acid

Field ID:	SLB02BG	Sampled:	04/28/98
Lab ID:	133396-012	Received:	04/29/98
Matrix:	Soil	Extracted:	05/07/98
Batch#:	40710	Analyzed:	05/09/98
Units:	ug/Kg dry weight	Moisture:	33%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	18
Aroclor-1221	ND	36
Aroclor-1232	ND	18
Aroclor-1242	ND	18
Aroclor-1248	ND	18
Aroclor-1254	ND	18
Aroclor-1260	ND	18

Surrogate	%Recovery	Recovery Limits
TCMX	141*	29-108
Decachlorobiphenyl	181*	30-125

* Values outside of QC limits

6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB01SA
LAB ID: 133396-001
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 18%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/12/98

California TITLE 26 Metals

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date	
Antimony	~~ND~~ R	~~3.5~~	1	40705	EPA 6010A	05/11/98	M
Arsenic	3.1	0.29	1	40705	EPA 6010A	05/08/98	
Barium	170	0.58	1	40705	EPA 6010A	05/08/98	
Beryllium	0.63	0.12	1	40705	EPA 6010A	05/08/98	
Cadmium	0.92	0.12	1	40705	EPA 6010A	05/08/98	
Chromium (total)	26	0.58	1	40705	EPA 6010A	05/08/98	
Cobalt	12 J	1.2	1	40705	EPA 6010A	05/08/98	A
Copper	21 J	0.58	1	40705	EPA 6010A	05/08/98	M
Lead	6.4 J	0.17	1	40705	EPA 6010A	05/08/98	A
Mercury	ND	0.11	1	40590	EPA 7471	04/30/98	
Molybdenum	~~ND~~ UJ	1.2	1	40705	EPA 6010A	05/08/98	A
Nickel	21 J	1.2	1	40705	EPA 6010A	05/08/98	A
Selenium	ND	0.29	1	40705	EPA 6010A	05/08/98	
Silver	ND	0.58	1	40705	EPA 6010A	05/08/98	
Thallium	15 J	0.29	1	40705	EPA 6010A	05/08/98	A
Vanadium	32	0.58	1	40705	EPA 6010A	05/08/98	
Zinc	58	1.2	1	40705	EPA 6010A	05/08/98	

ND = Not detected at or above reporting limit
* = Dry weight basis

K 6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB02SA
LAB ID: 133396-002
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 19%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/12/98

California TITLE 26 Metals

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date
Antimony	~~ND~~ R	~~3.7~~	1	40705	EPA 6010A	05/11/98
Arsenic	2.3	0.31	1	40705	EPA 6010A	05/11/98
Barium	170	0.62	1	40705	EPA 6010A	05/08/98
Beryllium	0.54	0.12	1	40705	EPA 6010A	05/08/98
Cadmium	1.1	0.12	1	40705	EPA 6010A	05/08/98
Chromium (total)	27	0.62	1	40705	EPA 6010A	05/08/98
Cobalt	11 J	1.2	1	40705	EPA 6010A	05/08/98
Copper	33 J	0.62	1	40705	EPA 6010A	05/08/98
Lead	5.8 J	0.19	1	40705	EPA 6010A	05/08/98
Mercury	ND	0.11	1	40590	EPA 7471	04/30/98
Molybdenum	~~ND~~ UJ	1.2	1	40705	EPA 6010A	05/08/98
Nickel	21 J	1.2	1	40705	EPA 6010A	05/08/98
Selenium	ND	0.31	1	40705	EPA 6010A	05/08/98
Silver	ND	0.62	1	40705	EPA 6010A	05/08/98
Thallium	14 J	0.31	1	40705	EPA 6010A	05/08/98
Vanadium	34	0.62	1	40705	EPA 6010A	05/08/98
Zinc	63	1.2	1	40705	EPA 6010A	05/08/98

ND = Not detected at or above reporting limit
* = Dry weight basis

6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB03SA
LAB ID: 133396-004
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 15%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/12/98

California TITLE 26 Metals

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date	
Antimony	~~ND~~ R	~~3.4~~	1	40705	EPA 6010A	05/11/98	M
Arsenic	3.4	0.28	1	40705	EPA 6010A	05/08/98	
Barium	190	0.57	1	40705	EPA 6010A	05/08/98	
Beryllium	0.52	0.11	1	40705	EPA 6010A	05/08/98	
Cadmium	0.85	0.11	1	40705	EPA 6010A	05/08/98	
Chromium (total)	22	0.57	1	40705	EPA 6010A	05/08/98	
Cobalt	10 J	1.1	1	40705	EPA 6010A	05/08/98	A
Copper	21 J	0.57	1	40705	EPA 6010A	05/08/98	M
Lead	6.1 J	0.17	1	40705	EPA 6010A	05/08/98	A
Mercury	ND	0.090	1	40590	EPA 7471	04/30/98	
Molybdenum	~~ND~~ UJ	1.1	1	40705	EPA 6010A	05/08/98	A
Nickel	19 J	1.1	1	40705	EPA 6010A	05/08/98	A
Selenium	ND	0.28	1	40705	EPA 6010A	05/08/98	
Silver	ND	0.57	1	40705	EPA 6010A	05/08/98	
Thallium	12 J	0.28	1	40705	EPA 6010A	05/08/98	A
Vanadium	33	0.57	1	40705	EPA 6010A	05/08/98	
Zinc	46	1.1	1	40705	EPA 6010A	05/08/98	

ND = Not detected at or above reporting limit
* = Dry weight basis

6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB04SA
LAB ID: 133396-005
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 22%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/12/98

California TITLE 26 Metals

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date
Antimony	~~ND~~ R	~~3.8~~	1	40705	EPA 6010A	05/11/98
Arsenic	4.0	0.32	1	40705	EPA 6010A	05/08/98
Barium	190	0.63	1	40705	EPA 6010A	05/08/98
Beryllium	0.77	0.13	1	40705	EPA 6010A	05/08/98
Cadmium	1.1	0.13	1	40705	EPA 6010A	05/08/98
Chromium (total)	31	0.63	1	40705	EPA 6010A	05/08/98
Cobalt	16 J	1.3	1	40705	EPA 6010A	05/08/98
Copper	26 J	0.63	1	40705	EPA 6010A	05/08/98
Lead	8.1 J	0.19	1	40705	EPA 6010A	05/08/98
Mercury	ND	0.092	1	40590	EPA 7471	04/30/98
Molybdenum	~~ND~~ UJ	1.3	1	40705	EPA 6010A	05/08/98
Nickel	27 J	1.3	1	40705	EPA 6010A	05/08/98
Selenium	ND	0.32	1	40705	EPA 6010A	05/08/98
Silver	ND	0.63	1	40705	EPA 6010A	05/08/98
Thallium	20 J	0.32	1	40705	EPA 6010A	05/08/98
Vanadium	39	0.63	1	40705	EPA 6010A	05/08/98
Zinc	69	1.3	1	40705	EPA 6010A	05/08/98

ND = Not detected at or above reporting limit
* = Dry weight basis

6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB05SA
LAB ID: 133396-006
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 31%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/12/98

California TITLE 26 Metals

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date	
Antimony	~~ND~~ R	~~4.3~~	1	40705	EPA 6010A	05/11/98	M
Arsenic	2.8	0.36	1	40705	EPA 6010A	05/08/98	
Barium	200	0.71	1	40705	EPA 6010A	05/08/98	
Beryllium	0.74	0.14	1	40705	EPA 6010A	05/08/98	
Cadmium	1.0	0.14	1	40705	EPA 6010A	05/08/98	
Chromium (total)	30	0.71	1	40705	EPA 6010A	05/08/98	
Cobalt	11 J	1.4	1	40705	EPA 6010A	05/08/98	F
Copper	21 J	0.71	1	40705	EPA 6010A	05/08/98	M
Lead	6.6 J	0.21	1	40705	EPA 6010A	05/08/98	F
Mercury	ND	0.11	1	40590	EPA 7471	04/30/98	
Molybdenum	~~ND~~ UJ	1.4	1	40705	EPA 6010A	05/08/98	F
Nickel	23 J	1.4	1	40705	EPA 6010A	05/08/98	F
Selenium	ND	0.36	1	40705	EPA 6010A	05/08/98	
Silver	ND	0.71	1	40705	EPA 6010A	05/08/98	
Thallium	17 J	0.36	1	40705	EPA 6010A	05/08/98	F
Vanadium	35	0.71	1	40705	EPA 6010A	05/08/98	
Zinc	61	1.4	1	40705	EPA 6010A	05/08/98	

ND = Not detected at or above reporting limit
* = Dry weight basis

6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB06SA
LAB ID: 133396-007
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 25%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/12/98

California TITLE 26 Metals

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date
Antimony	~~ND~~ R	~~3.9~~	1	40705	EPA 6010A	05/11/98
Arsenic	2.1	0.33	1	40705	EPA 6010A	05/08/98
Barium	210	0.65	1	40705	EPA 6010A	05/08/98
Beryllium	0.36	0.13	1	40705	EPA 6010A	05/08/98
Cadmium	0.70	0.13	1	40705	EPA 6010A	05/08/98
Chromium (total)	15	0.65	1	40705	EPA 6010A	05/08/98
Cobalt	6.5 J	1.3	1	40705	EPA 6010A	05/08/98
Copper	14 J	0.65	1	40705	EPA 6010A	05/08/98
Lead	2.9 J	0.20	1	40705	EPA 6010A	05/08/98
Mercury	ND	0.13	1	40590	EPA 7471	04/30/98
Molybdenum	~~ND~~ UJ	1.3	1	40705	EPA 6010A	05/08/98
Nickel	13 J	1.3	1	40705	EPA 6010A	05/08/98
Selenium	ND	0.33	1	40705	EPA 6010A	05/08/98
Silver	ND	0.65	1	40705	EPA 6010A	05/08/98
Thallium	7.8 J	0.33	1	40705	EPA 6010A	05/08/98
Vanadium	18	0.65	1	40705	EPA 6010A	05/08/98
Zinc	30	1.3	1	40705	EPA 6010A	05/08/98

ND = Not detected at or above reporting limit
* = Dry weight basis

6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB07SA
LAB ID: 133396-008
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 22%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/12/98

California TITLE 26 Metals

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date	
Antimony	~~ND~~ R	~~3.8~~	1	40705	EPA 6010A	05/11/98	M
Arsenic	2.9	0.32	1	40705	EPA 6010A	05/08/98	
Barium	150	0.63	1	40705	EPA 6010A	05/08/98	
Beryllium	0.80	0.13	1	40705	EPA 6010A	05/08/98	
Cadmium	0.96	0.13	1	40705	EPA 6010A	05/08/98	
Chromium (total)	31	0.63	1	40705	EPA 6010A	05/08/98	
Cobalt	17 J	1.3	1	40705	EPA 6010A	05/08/98	A
Copper	18 J	0.63	1	40705	EPA 6010A	05/08/98	M
Lead	8.7 J	0.19	1	40705	EPA 6010A	05/08/98	F
Mercury	ND	0.11	1	40590	EPA 7471	04/30/98	
Molybdenum	4.6 J	1.3	1	40705	EPA 6010A	05/08/98	A
Nickel	33 J	1.3	1	40705	EPA 6010A	05/08/98	A
Selenium	ND	0.32	1	40705	EPA 6010A	05/08/98	
Silver	ND	0.63	1	40705	EPA 6010A	05/08/98	
Thallium	11 J	0.32	1	40705	EPA 6010A	05/11/98	A
Vanadium	40	0.63	1	40705	EPA 6010A	05/08/98	
Zinc	58	1.3	1	40705	EPA 6010A	05/08/98	

ND = Not detected at or above reporting limit
* = Dry weight basis

6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB07FD
LAB ID: 133396-009
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 17%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/12/98

California TITLE 26 Metals

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date
Antimony	~~ND~~ R	~~3.5~~	1	40705	EPA 6010A	05/11/98
Arsenic	1.8	0.29	1	40705	EPA 6010A	05/08/98
Barium	170	0.59	1	40705	EPA 6010A	05/08/98
Beryllium	0.59	0.12	1	40705	EPA 6010A	05/08/98
Cadmium	1.2	0.12	1	40705	EPA 6010A	05/08/98
Chromium (total)	25	0.59	1	40705	EPA 6010A	05/08/98
Cobalt	7.9 J	1.2	1	40705	EPA 6010A	05/08/98
Copper	19 J	0.59	1	40705	EPA 6010A	05/08/98
Lead	4.9 J	0.18	1	40705	EPA 6010A	05/08/98
Mercury	ND	0.089	1	40590	EPA 7471	04/30/98
Molybdenum	~~ND~~ UJ	1.2	1	40705	EPA 6010A	05/08/98
Nickel	18 J	1.2	1	40705	EPA 6010A	05/08/98
Selenium	ND	0.29	1	40705	EPA 6010A	05/08/98
Silver	ND	0.59	1	40705	EPA 6010A	05/08/98
Thallium	4.3 J	0.29	1	40705	EPA 6010A	05/11/98
Vanadium	27	0.59	1	40705	EPA 6010A	05/08/98
Zinc	48	1.2	1	40705	EPA 6010A	05/08/98

ND = Not detected at or above reporting limit
* = Dry weight basis

6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB08SA
LAB ID: 133396-010
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 18%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/12/98

California TITLE 26 Metals

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date	
Antimony	~~ND~~ R	~~3.6~~	1	40705	EPA 6010A	05/11/98	M
Arsenic	3.9	0.30	1	40705	EPA 6010A	05/08/98	
Barium	190	0.60	1	40705	EPA 6010A	05/08/98	
Beryllium	0.52	0.12	1	40705	EPA 6010A	05/08/98	
Cadmium	0.80	0.12	1	40705	EPA 6010A	05/08/98	
Chromium (total)	19	0.60	1	40705	EPA 6010A	05/08/98	
Cobalt	9.8 J	1.2	1	40705	EPA 6010A	05/08/98	F
Copper	20 J	0.60	1	40705	EPA 6010A	05/08/98	M
Lead	5.0 J	0.18	1	40705	EPA 6010A	05/08/98	F
Mercury	ND	0.11	1	40590	EPA 7471	04/30/98	
Molybdenum	~~ND~~ UJ	1.2	1	40705	EPA 6010A	05/08/98	A
Nickel	17 J	1.2	1	40705	EPA 6010A	05/08/98	A
Selenium	ND	0.30	1	40705	EPA 6010A	05/08/98	
Silver	ND	0.60	1	40705	EPA 6010A	05/08/98	
Thallium	7.7 J	0.30	1	40705	EPA 6010A	05/11/98	A
Vanadium	32	0.60	1	40705	EPA 6010A	05/08/98	
Zinc	46	1.2	1	40705	EPA 6010A	05/08/98	

ND = Not detected at or above reporting limit
* = Dry weight basis

6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB01BG
LAB ID: 133396-011
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 39%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/12/98

California TITLE 26 Metals

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date
Antimony	~~ND~~ R	~~4.7~~	1	40705	EPA 6010A	05/11/98
Arsenic	6.2	0.39	1	40705	EPA 6010A	05/08/98
Barium	230	0.78	1	40705	EPA 6010A	05/08/98
Beryllium	0.25	0.16	1	40705	EPA 6010A	05/08/98
Cadmium	0.40	0.16	1	40705	EPA 6010A	05/08/98
Chromium (total)	15	0.78	1	40705	EPA 6010A	05/08/98
Cobalt	3.8 J	1.6	1	40705	EPA 6010A	05/08/98
Copper	17 J	0.78	1	40705	EPA 6010A	05/08/98
Lead	1.5 J	0.23	1	40705	EPA 6010A	05/08/98
Mercury	ND	0.13	1	40590	EPA 7471	04/30/98
Molybdenum	~~ND~~ UJ	1.6	1	40705	EPA 6010A	05/08/98
Nickel	7.9 J	1.6	1	40705	EPA 6010A	05/08/98
Selenium	ND	0.39	1	40705	EPA 6010A	05/08/98
Silver	ND	0.78	1	40705	EPA 6010A	05/08/98
Thallium	2.5 J	0.39	1	40705	EPA 6010A	05/11/98
Vanadium	11	0.78	1	40705	EPA 6010A	05/08/98
Zinc	17	1.6	1	40705	EPA 6010A	05/08/98

ND = Not detected at or above reporting limit
* = Dry weight basis

6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB02BG
LAB ID: 133396-012
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 33%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/12/98

California TITLE 26 Metals

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date	
Antimony	~~ND~~ R	~~4.4~~	1	40705	EPA 6010A	05/11/98	m
Arsenic	6.3	0.36	1	40705	EPA 6010A	05/08/98	
Barium	210	0.73	1	40705	EPA 6010A	05/08/98	
Beryllium	1.0	0.15	1	40705	EPA 6010A	05/08/98	
Cadmium	1.4	0.15	1	40705	EPA 6010A	05/08/98	
Chromium (total)	38	0.73	1	40705	EPA 6010A	05/08/98	
Cobalt	17 J	1.5	1	40705	EPA 6010A	05/08/98	F
Copper	34 J	0.73	1	40705	EPA 6010A	05/08/98	m
Lead	9.2J	0.22	1	40705	EPA 6010A	05/08/98	A
Mercury	ND	0.15	1	40590	EPA 7471	04/30/98	
Molybdenum	~~ND~~ UJ	1.5	1	40705	EPA 6010A	05/08/98	A
Nickel	37 J	1.5	1	40705	EPA 6010A	05/08/98	A
Selenium	0.94	0.36	1	40705	EPA 6010A	05/08/98	
Silver	ND	0.73	1	40705	EPA 6010A	05/08/98	
Thallium	19 J	0.36	1	40705	EPA 6010A	05/11/98	A
Vanadium	43	0.73	1	40705	EPA 6010A	05/08/98	
Zinc	84	1.5	1	40705	EPA 6010A	05/08/98	

ND = Not detected at or above reporting limit
* = Dry weight basis

6/12/98

Curtis & Tompkins, Ltd.

SAMPLE ID: SLB02SA RE
LAB ID: 133396-013
CLIENT: Woodward-Clyde Consultants
PROJECT ID: S95513
LOCATION: PA/SI
MATRIX: Soil
MOISTURE: 19%

DATE SAMPLED: 04/28/98
DATE RECEIVED: 04/29/98
DATE REPORTED: 05/27/98

Metals Analytical Report

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date
Antimony	ND	3.7	1	40774	EPA 6010A	05/11/98
Copper	31	0.62	1	40774	EPA 6010A	05/11/98

ND = Not detected at or above reporting limit
* = Dry weight basis

REANALYSIS, NOT SELECTED FOR REPORTING. LAB
PLEASE SEE SLB02SA FOR VALUES SELECTED FOR REPORTING

6/12/98

CHAIN OF CUSTODY FORM

005

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

C&T LOGIN # 133396

Sampler: PARTHA

Project No: S95518

Report To: PARTHA BORA

Project Name: PA/SI LONG BEACH

Company: Woodward-Clyde, Santa Ana

Project P.O.: S95518

Telephone: (714) 835-6886

Turnaround Time: 21 DAY TAT

Fax: (714) 667-7147

Analyses

	Lab Number	Sample ID.	Sampling Date Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCl	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Preservative: NONE	Field Notes	TEPH – M8015	TVPH – M8015	VOCs – (Incld BTEX) – 8260B	SVOCs – 8270	PCBs – 8082	17 CAM Metals – 6010A, 7470A 7471A					
1	For Laboratory Use	SLB01SA	4/28	X			2 SS LINERS					X		X	X	X	X	X	X					
2		SLB02SA	4/28	X								X		X	X	X	X	X	X					
3		SLB02MS	4/28	X								X	MS/MSD Sample	X	X	X	X	X	X					
4		SLB03SA	4/28	X								X		X	X	X	X	X	X					
5		SLB04SA	4/28	X								X		X	X	X	X	X	X					
6		SLB05SA	4/28	X								X		X	X	X	X	X	X					
7		SLB06SA	4/28	X								X		X	X	X	X	X	X					
8		SLB07SA	4/28	X								X		X	X	X	X	X	X					
9		SLB07FD	4/28	X								X	Duplicate	X	X	X	X	X	X					
10		SLB08SA	4/28	X								X		X	X	X	X	X	X					
11		SLB01BG	4/28	X								X	Background	X	X	X	X	X	X					
12		SLB02BG	4/28	X								X	Background	X	X	X	X	X	X					

Notes:

RELINQUISHED BY:	RECEIVED BY:
Partha P. Bora 4/28/98 4:00pm DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME 4/29/98

Signature on this form constitutes a firm Purchase Order for the services requested above.