

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE N/A	PAGE OF PAGES 1 143
---	--	----------------------------	--------------------------

2. AMENDMENT/MODIFICATION NO. 0003	3. EFFECTIVE DATE JAN. 14, 2004	4. REQUISITION/PURCHASE REQ. NO. N/A	5. PROJECT NO. (If applicable) SPEC. NO. 1331
---------------------------------------	------------------------------------	---	--

6. ISSUED BY CODE	7. ADMINISTERED BY (If other than Item 6) CODE
DEPARTMENT OF THE ARMY U.S. ARMY ENGINEER DISTRICT, SACRAMENTO SACRAMENTO, CALIFORNIA 95814-2922	DEPARTMENT OF THE ARMY U.S. ARMY ENGINEER DISTRICT, SACRAMENTO SACRAMENTO, CALIFORNIA 95814-2922

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)	(√)	9A. AMENDMENT OF SOLICITATION NO. W91238-04-R-0004
	×	9B. DATED (SEE ITEM 11) DEC. 22, 2003
		10A. MODIFICATION OF CONTRACTS/ORDER NO. N/A
		10B. DATED (SEE ITEM 13) N/A
CODE	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
 (a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
N/A NOTE: ITEM 13 BELOW IS N/A.

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(√)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A. N/A
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority) N/A

E. IMPORTANT: Contractor is not, is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Global Hawk Upgrade Dock 3
Beale AFB, CA

2 Encl

1. Revised Pages: Page 5, 5A, 6, Attachment Nol 7, Section 01110, Section 01351, Section 02111, Section 02120, 02300-4, 02300-5, 02316-3, 02316-6, 02316-8, 02316-9
 2. Revised Drawings: C1-03,C1-05,C1-13,A6-00,M0-02,M1-04,M1-05,M1-06,E0-02,E1-03,E1-04,E1-05

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
_____ (Signature of person authorized to sign)		BY _____ (Signature of Contracting Officer)	

INSTRUCTIONS

Instructions for items other than those that are self-explanatory, are as follows:

- (a) Item 1 (Contract ID Code). Insert the contract type identification code that appears in the title block of the contract being modified.
- (b) Item 3 (Effective date).
- (1) For a solicitation amendment, change order, or administrative change, the effective date shall be the issue date of the amendment, change order, or administrative change.
 - (2) For a supplemental agreement, the effective date shall be the date agreed to by the contracting parties.
 - (3) For a modification issued as an initial or confirming notice of termination for the convenience of the Government, the effective date and the modification number of the confirming notice shall be the same as the effective date and modification number of the initial notice.
 - (4) For a modification converting a termination for default to a termination for the convenience of the Government, the effective date shall be the same as the effective date of the termination for default.
 - (5) For a modification confirming the contracting officer's determination of the amount due in settlement of a contract termination, the effective date shall be the same as the effective date of the initial decision.
- (c) Item 6 (Issued By). Insert the name and address of the issuing office. If applicable, insert the appropriate issuing office code in the code block.
- (d) Item 8 (Name and Address of Contractor). For modifications to a contract or order, enter the contractor's name, address, and code as shown in the original contract or order, unless changed by this or a previous modification.
- (e) Items 9, (Amendment of Solicitation No.-Dated), and 10, (Modification of Contract/Order No.-Dated). Check the appropriate box and in the corresponding blanks insert the number and date of the original solicitation, contract, or order.
- (f) Item 12 (Accounting and Appropriation Data). When appropriate, indicate the impact of the modification on each affected accounting classification by inserting one of the following entries:
- (1) Accounting classification
Net increase \$
 - (2) Accounting classification
Net decrease \$
- NOTE: If there are changes to multiple accounting classifications that cannot be placed in block 12, insert an asterisk and the words "See continuation sheet".
- (g) Item 13. Check the appropriate box to indicate the type of modification. Insert in the corresponding blank the authority under which the modification is issued. Check whether or not contractor must sign this document. (See FAR 43.103.)
- (h) Item 14 (Description of Amendment/Modification).
- (1) Organize amendments or modifications under the appropriate Uniform Contract Format (UCF) section headings from the applicable solicitation or contract. The UCF table of contents, however, shall not be set forth in this document.
 - (2) Indicate the impact of the modification on the overall total contract price by inserting one of the following entries:
 - (i) Total contract price increased by \$
 - (ii) Total contract price decreased by \$
 - (iii) Total contract price unchanged.
 - (3) State reason for modification.
 - (4) When removing, reinstating, or adding funds, identify the contract items and accounting classifications.
 - (5) When the SF 30 is used to reflect a determination by the contracting officer of the amount due in settlement of a contract terminated for the convenience of the Government, the entry in Item 14 of the modification may be limited to -
 - (i) A reference to the letter determination; and
 - (ii) A statement of the net amount determined to be due in settlement of the contract.
 - (6) Include subject matter or short title of solicitation/contract where feasible.
- (i) Item 16B. The contracting officer's signature is not required on solicitation amendments. The contracting officer's signature is normally affixed last on supplemental agreements.

PRICING SCHEDULE

CONTRACTOR SHALL FURNISH ALL PLANT, LABOR, MATERIAL, EQUIPMENT, ETC. NECESSARY TO PERFORM ALL WORK IN STRICT ACCORDANCE WITH THE TERMS AND CONDITIONS SET FORTH IN THE CONTRACT TO INCLUDE ALL ATTACHMENTS THERETO.

LINE ITEM NO.	DESCRIPTION	QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE
0001	Upgrade Dock 3, to the 5 Ft. Building Line, Complete (except option items)	1	JOB	LUMP SUM	\$ _____
0002	Site Work and Utilities Outside the 5 Ft. Building line, complete (except option items)	1	JOB	LUMP SUM	\$ _____
0003	ACM Floor Tile	650*	SF	\$ _____	\$ _____
0004	ACM Pipe Insulation	1,400*	LF	\$ _____	\$ _____
0005	Lead-Containing Paint Removal	460*	SF	\$ _____	\$ _____
0006	Structural Steel Paint Coatings Removal	25*	SF	\$ _____	\$ _____
				BASE PRICE	\$ _____
				(TOTAL OF LINE	
				ITEMS 0001 THRU 0006)	
<u>OPTION ITEMS</u>					
0007	(OPTION #1) Roadway and Bike/Pedestrian Path Adjacent to the Dining Facility.	1	JOB	LUMP SUM	\$ _____
0008	(OPTION #2) Roadway and Bike/Pedestrian Path from Creasman Avenue to the Dining Facility.	1	JOB	LUMP SUM	\$ _____

0009	(Option #3) Transportation, profiling and disposal of excavated soil from utility trench at a permitted municipal (Class III) disposal facility.	350	CY	\$ _____	\$ _____
0010	(Option #4) Transportation, profiling and disposal of excavated soil from utility trench at a permitted (Class II) disposal facility	300	CY	\$ _____	\$ _____
0011	(Option #5) Transportation, profiling and disposal of excavated soil from utility trench at a permitted (Class I) disposal facility.	50	CY	\$ _____	\$ _____
0012	(Option #6) Additional cost of transportation and disposal of excavated soil from areas other than utility trench at a permitted (Class II) disposal facility.	500	CY	\$ _____	\$ _____
0013	(Option #7) Additional cost of transportation and disposal of excavated soil from areas other than utility trench at a permitted (Class I) disposal facility.	50	CY	\$ _____	\$ _____

SUBTOTAL PRICE \$ _____
(TOTAL OF LINE
ITEMS 0007 THRU 0008)

TOTAL PRICE \$ _____
(TOTAL OF LINE
ITEMS 0001 THRU 0013)

* QUANTITY IS AN ESTIMATED AMOUNT. SEE SECTION 00700, FAR 52.211-18, FOR VARIATION IN ESTIMATED QUANTITY CONTRACT CLAUSE.

1. Prices must be submitted on all individual items of this Pricing Schedule. Failure to do so may cause the proposal to be determined "unacceptable".
2. If a modification to a price is submitted which provides for a lump sum adjustment to the total price, the application of the lump sum adjustment to each item in the Pricing Schedule must be stated. If it is not stated, the bidder/offeror agrees that the lump sum adjustment shall be applied on a pro rata basis to every item in the Pricing Schedule.
3. The bidder/offeror shall distribute his indirect costs (overhead, profit, bond, etc.) over all the items in the Pricing Schedule. The Government will review all submitted Pricing Schedules for any unbalancing of the items. Any submitted Pricing Schedule determined to be unbalanced may cause the proposal to be determined "unacceptable".
4. The lump sum, "LS", line items above are not "estimated quantity" line items and therefore are not subject to the Variation in Quantity contract clause.
5. The successful bidder/offeror grants the options listed in the Pricing Schedule to the Government. This option may be exercised any time up to **180** ~~120~~ days after receipt of Notice to Proceed. Exercise of the option occurs upon mailing of written notice to the Contractor. Exercise will be made by the Contracting Officer. The price for exercise of the option includes all work and effort associated with the scope of that item. No additional time for contract completion will be allowed when an option is exercised. The given contract completion time was formulated to include time necessary to perform all option work.
6. The target ceiling for contract award for construction is \$8,100,000.00 based on the funds made available for this project. The Government cannot guarantee that additional funds can be made available for award. Offerors are under no obligation to approach this ceiling.

ATTACHMENT NO. 7

FIELD SUMMARY REPORT
(This report is provided For Information Only)

18600152.99117

**FIELD SUMMARY REPORT
SOIL GAS SCREENING INVESTIGATION OF DOCK #3 AREA SOIL
(FIRE SUPPRESSION WATER LINE TRENCH AND CREASEMAN
AVENUE ROAD REALIGNMENT)**

BEALE AIR FORCE BASE

Draft Final

Prepared for:

U.S. Army Corps of Engineers
Sacramento District Office
1325 J Street, 12th Floor
Sacramento, CA 95814-2822

Prepared by:

URS Group, Inc.
2870 Gateway Oaks, Suite 300
Sacramento, CA 95833

December 2003

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE 19 December 2003	3. REPORT TYPE AND DATES COVERED Draft Final	
1. TITLE AND SUBTITLE Field Summary Report for Soil Gas Screening Investigation of Dock #3 Area Soil			5. FUNDING NUMBERS	
3. AUTHOR(S) URS Group, Inc.				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) URS Group, Inc. 2870 Gateway Oaks Drive, Suite 300 Sacramento, CA 95833			8. PERFORMING ORGANIZATION REPORT NUMBER 18600152.99117	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT Unclassified/Unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) This document summarizes the soil gas field activities that were performed at Beale AFB in the area of Dock #3.				
4. SUBJECT TERMS Draft Final Field Summary Report for Soil Gas Screening Investigation at Dock #3, at Beale AFB			15. NUMBER OF PAGES	
			16. PRICE CODE	
7. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	

TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION.....	1
2.0 BACKGROUND.....	1
2.1 Site Description and History	1
2.2 Sampling Locations and Subsurface Conditions.....	3
3.0 FIELD INVESTIGATION OVERVIEW	3
4.0 INVESTIGATION RESULTS.....	3
5.0 DATA QUALITY SUMMARY	8
6.0 CONCLUSIONS AND RECOMMENDATIONS	9
6.1 Conclusions	9
6.2 Recommendations	10
7.0 REFERENCES.....	10

APPENDIX A: Analytical Results
APPENDIX B: Analytical Standard Operating Procedures
APPENDIX C: Landfill Information

LIST OF TABLES

	<u>Page</u>
1 Summary of Boring and Sample Collection Depths, Dock #3 Soil Gas Investigation, Beale AFB	4
2 Summary of Qualified Data at the Dock #3 Area	8
3 Sample Quality and Completeness – Soil Gas	9

LIST OF FIGURES

	<u>Page</u>
1 Location of Global Hawk Upgrade, Beale AFB	2
2 Status of Borings B-1 Through B-13 and B-38 Through B-41	5
3 Status of Borings B-14 Through B-26	6
4 Status of Borings B-27 Through B-37	7

LIST OF ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
bgs	below ground surface
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
IG	investigation guidelines
IWL	industrial wastewater line
ppmv	parts per million by volume
QAPP	quality assurance project plan
QC	quality control
SOP	standard operating procedure
VOC	volatile organic compound

1.0 INTRODUCTION

This project involved conducting a soil gas screening investigation as part of the Global Hawk Upgrade at Dock #3 at Beale Air Force Base (AFB). The Dock #3 upgrade project included installing a new fire suppression water line and realigning Creaseman Avenue. These two tasks associated with the Dock #3 upgrade involved trenching and grading through subsurface soil that was potentially contaminated with volatile organic compounds (VOCs). The purpose of this soil gas screening investigation was to define the areas where excavated soil should be handled and segregated as potentially contaminated material.

The field work involved collecting subsurface soil gas samples to determine if the vadose soils have been impacted from exfiltration caused by breaks and/or leaks from the former industrial wastewater line (IWL) and several oil/water separators located in the Dock #3 area. The primary contaminants of concern were solvents previously used at Beale AFB. It is suspected that industrial process waste, spills, or other releases may have historically impacted the subsurface soil within the industrial area by the flightline. The Dock #3 project area lies entirely within the Environmental Restoration Program (ERP) Site 32 investigation boundary, a site with known widespread VOC contamination in the soil.

The work performed included collecting and analyzing soil gas samples from the subsurface in areas where the fire suppression water line was to be installed and where Creaseman Avenue is scheduled to be realigned. The location of the area of the field effort is shown on Figure 1.

2.0 BACKGROUND

The primary contaminants of concern are VOCs derived from solvents and fuels that have historically been used at Beale AFB. Based on the results of other soil gas investigations performed at Beale AFB, it was suspected that spills or other releases of solvents and fuels may have impacted the soil from exfiltration from the IWL located in the Dock #3 area.

2.1 Site Description and History

Beale AFB covers approximately 23,000 acres of land in the Sacramento Valley and the lower foothills of the Sierra Nevada mountains. The towns of Marysville and Yuba City are approximately 10 miles west of the base. Most of the operations occur within the central and western portions of the base. These areas house vehicle maintenance support facilities, administrative offices, landfills, an active aircraft runway, fuel storage facilities, a railroad yard, and other facilities, including Dock #3 which is being upgraded. Approximately 4,800 people are employed at the base.

Prior to construction of the Dock #3 operations facilities, the area was located within the boundaries of two former ranges at Beale AFB: the Primary Toss Bomb and the Target 1955 Ranges. In addition, the southeast corner of the Target No. 5 range is located approximately 1,000 feet northwest of the northwestern extent of the fire suppression water line trench.

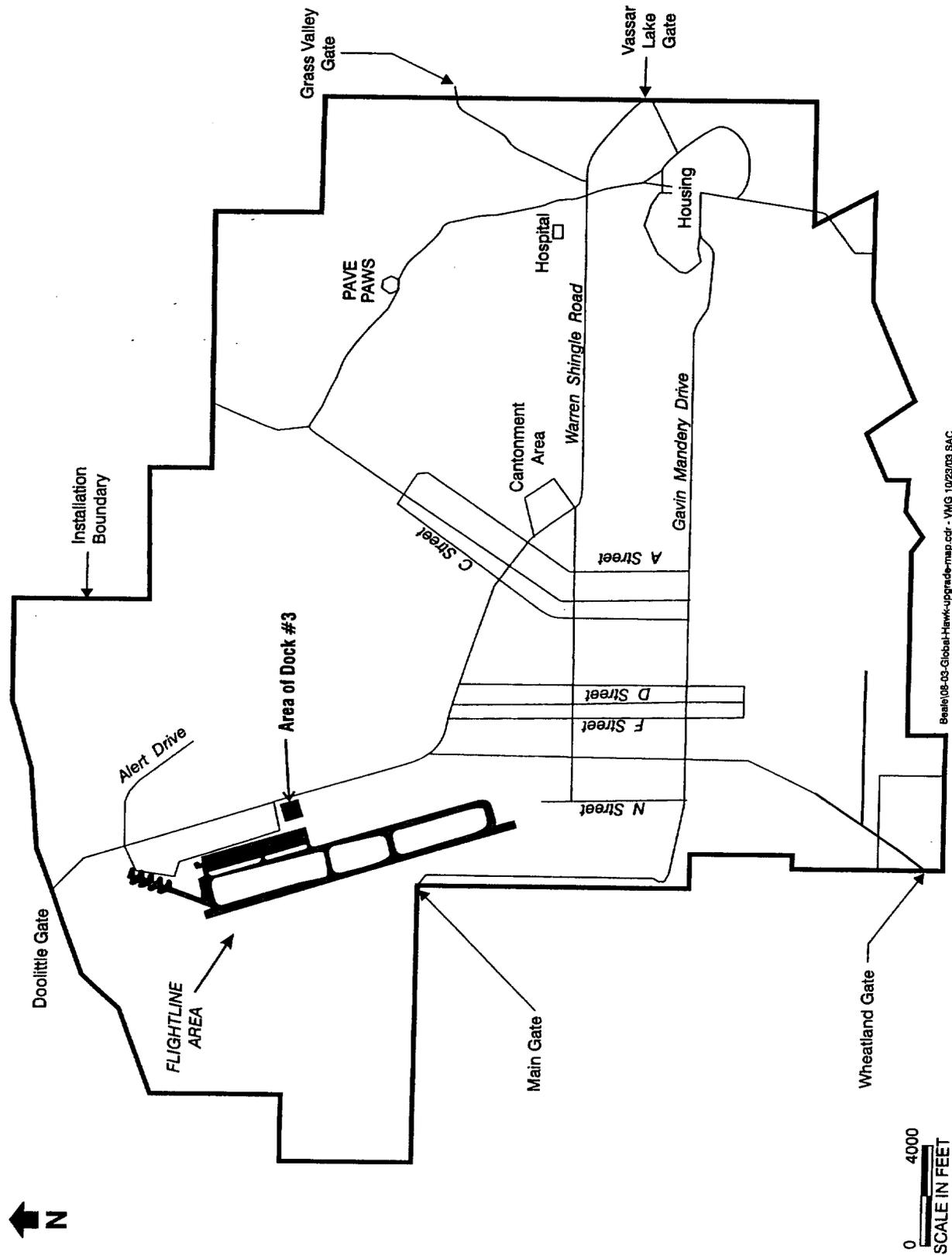


Figure 1. Location of Global Hawk Upgrade, Beale AFB

2.2 Sampling Locations and Subsurface Conditions

Subsurface soil gas sampling was performed using a direct push drilling rig at 50-foot intervals along the proposed fire suppression water line trench, and at 100-foot intervals along the Creaseman Avenue road realignment. The soil gas samples were collected at approximately 5 to 10 feet below ground surface (bgs), where conditions permitted. At the maximum depth encountered or 10 feet bgs, soil gas samples were collected after the tubing volume was purged. The samples were collected in Tedlar® bags and provided to an off-site laboratory to be analyzed for VOCs using field gas chromatography/mass spectrometry by modified Method TO-14.

Of the 41 proposed borings, 7 of the borings were not sampled. For six of the borings (1, 2, 3, 9, 12, and 41), the rig met refusal at less than 4 feet bgs. B-37 was not drilled or sampled because subsequent to the location being marked and cleared of underground utilities, the adjacent construction area boundary was expanded to the north, overtaking the B-37 area. Lithology was not collected during this field effort. However, it was noted that in the areas where the rig could not reach beyond 4 feet bgs, the subsurface consisted mainly of cobbles.

The total depth of each boring and each sample interval is listed in Table 1.

3.0 FIELD INVESTIGATION OVERVIEW

The field investigation was performed on 1 and 2 October 2003 using a Geoprobe® drilling rig to collect the samples. The field sampling procedures followed guidance provided in the *Beale AFB Environmental Sampling Plan* (URS, 2003a). The soil gas samples were collected in dedicated Tedlar® bags using a lung chamber device after purging of the tubing was performed. The samples were hand delivered to personnel employed by Field Portable Analytical in Cameron Park, California, for analysis. The samples were analyzed following modified Method TO-14 (using direct inject method) and the guidance provided in the *Beale AFB Quality Assurance Project Plan* (QAPP) (URS, 2003b). The reporting limits for the VOCs are approximately 0.2 parts per million by volume (ppmv).

4.0 INVESTIGATION RESULTS

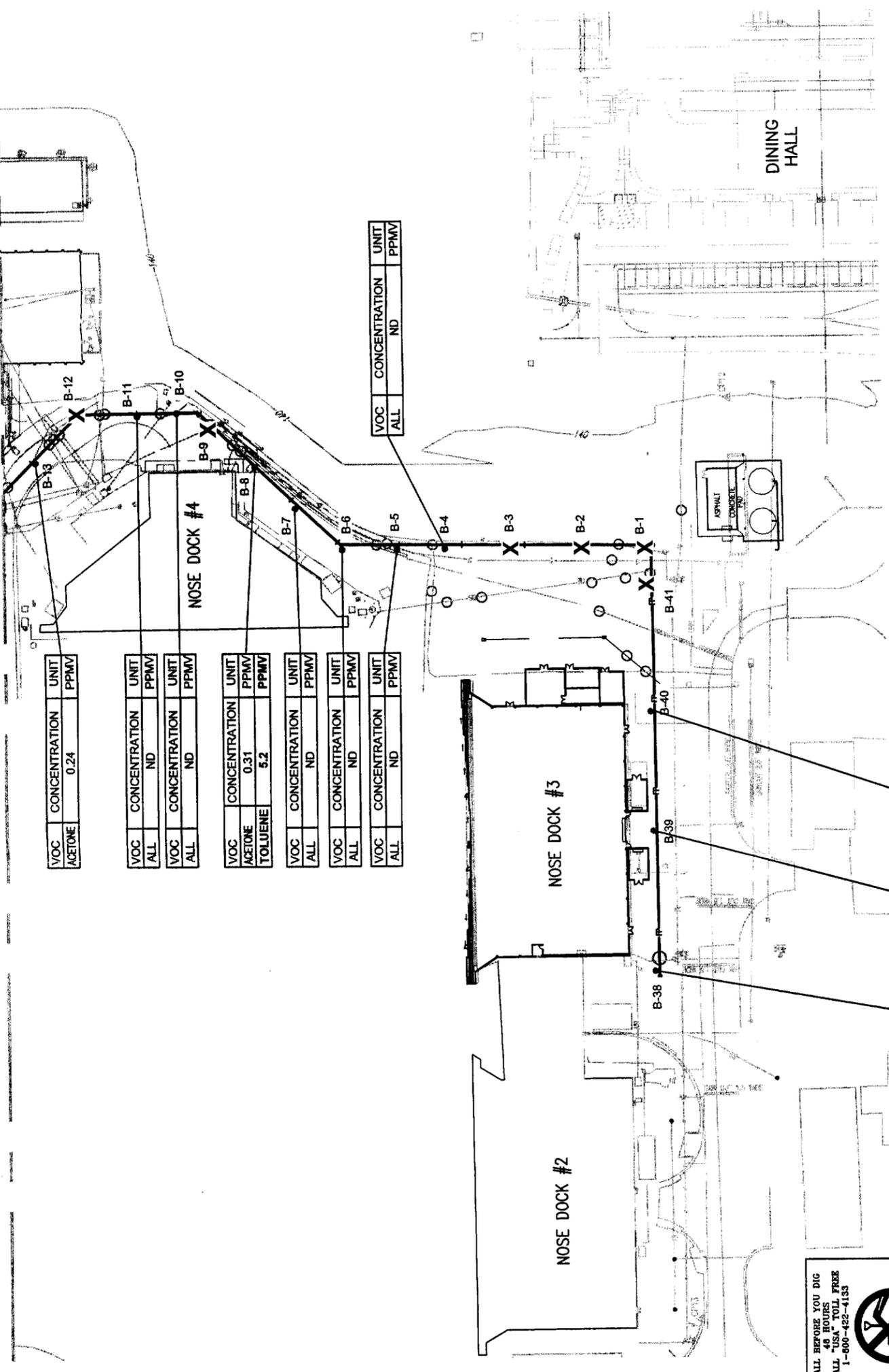
Acetone and toluene were both detected in soil gas samples collected from 5 of 34 locations. Acetone concentrations detected at five locations (Borings B-8, B-13, B-27, B-39 field duplicate, and B-40) ranged from 0.24 ppmv to 0.46 ppmv. Toluene was the only other VOC detected during this investigation. Toluene was detected in B-8 at 5.2 ppmv, which is above the investigation guideline (IG) level of 3.037 ppmv for toluene. Acetone, detected at 0.46 ppmv in B-40, is slightly above the IG level of 0.408 ppmv. All other detected acetone results are less than the IG level. The IG concentrations were developed as site investigation guideline concentrations used by the ERP at Beale AFB for compounds detected in soil and groundwater contaminant plumes.

Figures 2, 3, and 4 show the status of the proposed borings (locations proposed, sampled, and any detected results). Analytical results are provided in Appendix A.

**Table 1. Summary of Boring and Sample Collection Depths
 Dock #3 Soil Gas Investigation, Beale AFB**

Boring Number	Depth Drilled (ft bgs)	Sample Depth (ft bgs)	Comments
B-1	2.5	NA	Refusal due to cobbles.
B-2	3.5	NA	Refusal due to cobbles.
B-3	3.0	NA	Refusal due to cobbles.
B-4	6.0	5.5 – 6.0	
B-5	7.0	6.5 – 7.0	Field duplicate collected.
B-6	6.0	5.5 – 6.0	
B-7	4.5	4.0 – 4.5	
B-8	8.0	7.5 – 8.0	
B-9	4.0	NA	Refusal due to cobbles.
B-10	7.25	6.75 – 7.25	
B-11	6.5	6.5	
B-12	<5.0	NA	Refusal due to cobbles.
B-13	10	9.5 – 10.0	
B-14	7.5	7.0 – 7.5	Field duplicate collected.
B-15	9.25	8.75 – 9.25	
B-16	8.75	8.25 – 8.75	
B-17	8.5	8.0 – 8.5	
B-18	10.0	9.5 – 10.0	
B-19	8.0	7.5 – 8.0	
B-20	10.0	9.5 – 10.0	
B-21	10.0	9.5 – 10.0	
B-22	10.0	9.5 – 10.0	Field duplicate collected.
B-23	10.0	9.5 – 10.0	
B-24	10.0	9.5 – 10.0	
B-25	8.5	8.0 – 8.5	
B-26	10.0	9.5 – 10.0	
B-27	10.0	9.5 – 10.0	
B-28	10.0	9.5 – 10.0	
B-29	10.0	9.5 – 10.0	
B-30	10.0	9.5 – 10.0	
B-31	10.0	9.5 – 10.0	
B-32	10.0	9.5 – 10.0	Field duplicate collected.
B-33	10.0	9.5 – 10.0	
B-34	10.0	9.5 – 10.0	
B-35	10.0	9.5 – 10.0	
B-36	10.0	9.5 – 10.0	
B-37	NA	NA	No access due to change in construction area boundary.
B-38	6.5	6.0 – 6.5	
B-39	9.25	8.75 – 9.25	
B-40	6.0	6.0 – 6.5	Field duplicate collected.
B-41	3.0	NA	Refusal.

ft bgs = feet below ground surface
 NA = not applicable



VOC	CONCENTRATION	UNIT
ACETONE	0.24	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ACETONE	0.31	PPMV
TOLUENE	5.2	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
FD/ACETONE	0.25	PPMV

VOC	CONCENTRATION	UNIT
ACETONE	0.46	PPMV

CALL BEFORE YOU DIG
 8 HOURS
 CALL "USA" TOLL FREE
 1-800-422-4133

UNDERGROUND SERVICE ALERT

LEGEND

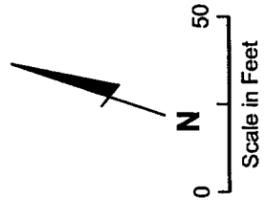
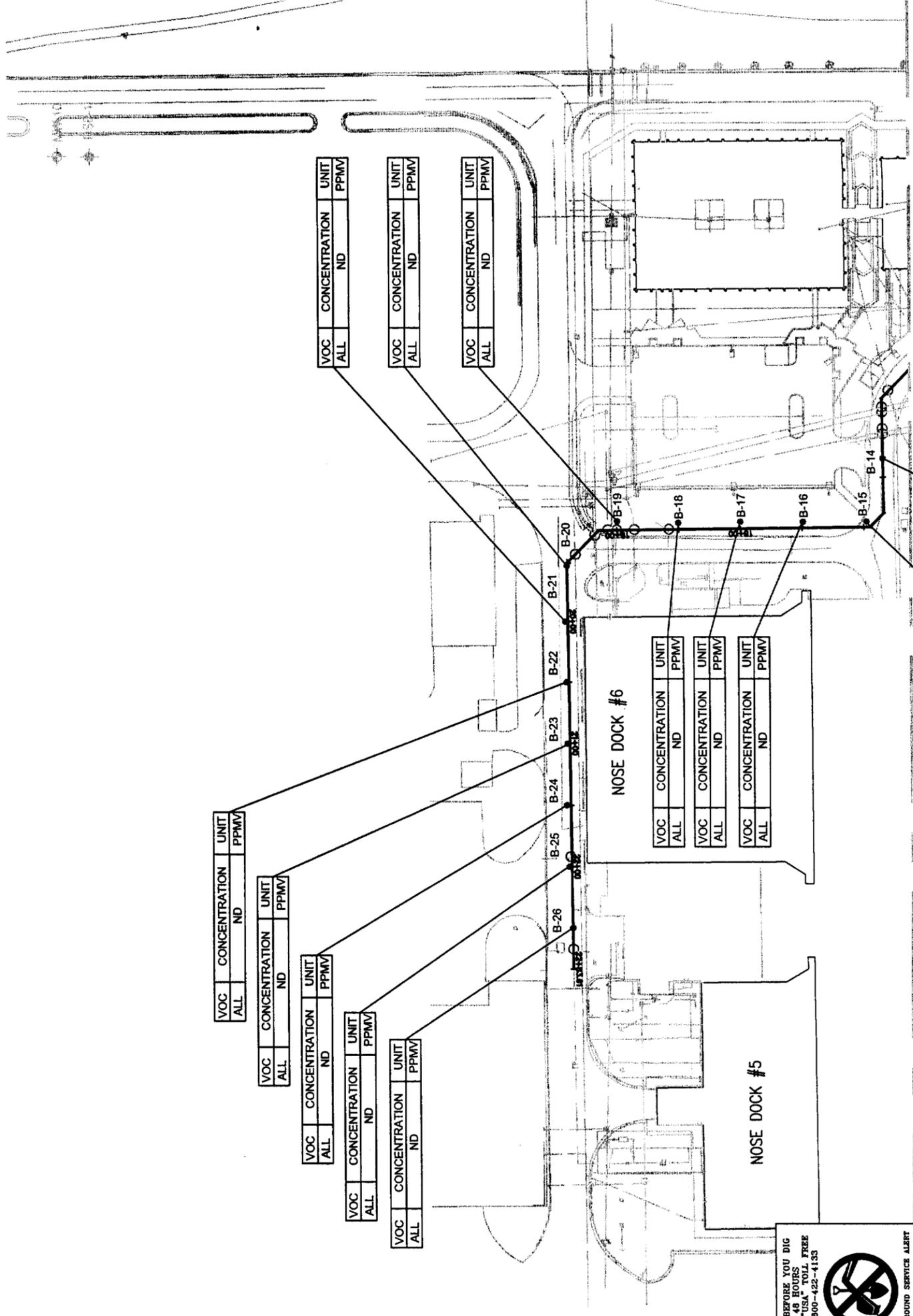
- B-14 BORING LOCATIONS
- X** NOT SAMPLED (MET REFUSAL)
- 0.24** BOLD INDICATES THE CONCENTRATION EXCEEDS THE INVESTIGATION GUIDANCE LEVEL.
- VOC VOLATILE ORGANIC COMPOUND
- PPMV PARTS PER MILLION BY VOLUME
- ND NOT DETECTED
- FD FIELD DUPLICATE

STATUS OF BORINGS B-1 THROUGH B-13 AND B-38 THROUGH B-41

GLOBAL HAWK
 UPGRADE DOCK # 3

URS
 1550 Humboldt Road, Ste. 2
 Chico, CA 95928
 TEL: (530) 893-9675
 FAX: (530) 893-9682

FIGURE
2



VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

VOC	CONCENTRATION	UNIT
ALL	ND	PPMV

CALL BEFORE YOU DIG
48 HOURS
CALL "USA" TOLL FREE
1-800-422-4133

UNDERGROUND SERVICE ALERT

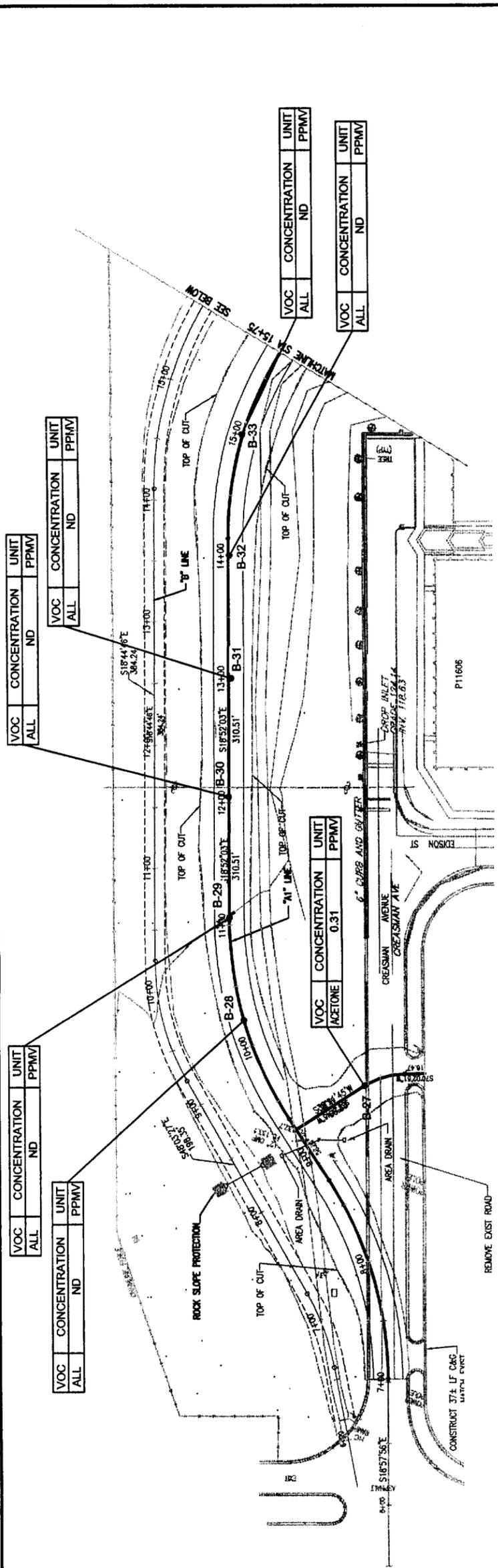
- LEGEND**
- B-14 BORING LOCATIONS
 - X NOT SAMPLED (MET REFUSAL)
 - 0.24 BOLD INDICATES THE CONCENTRATION EXCEEDS THE INVESTIGATION GUIDANCE LEVEL
 - VOC VOLATILE ORGANIC COMPOUND
 - PPMV PARTS PER MILLION BY VOLUME
 - ND NOT DETECTED
 - FD FIELD DUPLICATE

1550 Humboldt Road, Ste. 2
Chico, CA 95928
TEL: (530) 893-9875
FAX: (530) 893-9882

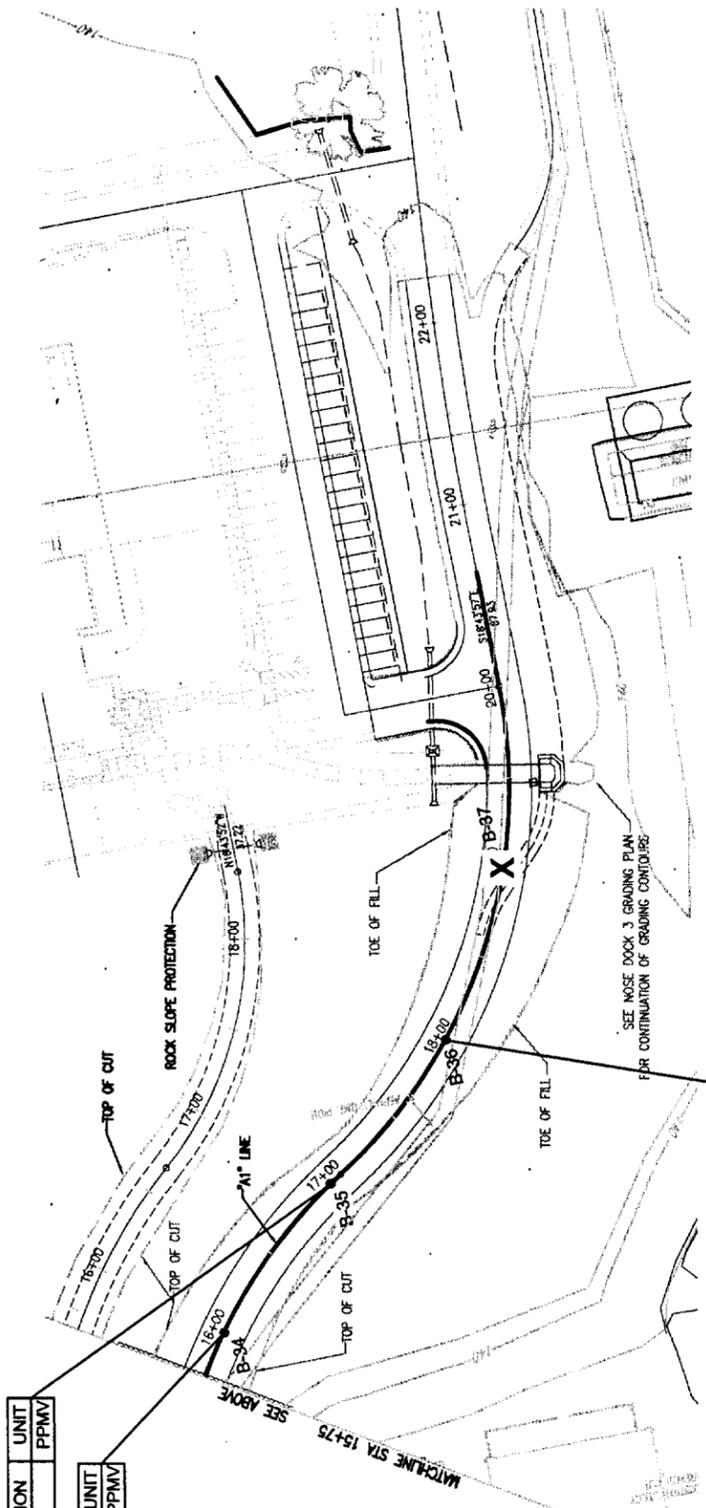
STATUS OF BORINGS B-14 THROUGH B-26

GLOBAL HAWK
UPGRADE DOCK #3

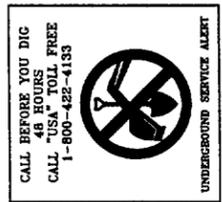
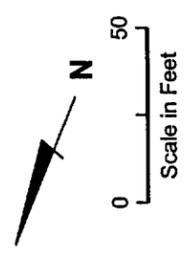
FIGURE
3



PLAN VIEW



PLAN VIEW



- LEGEND**
- B-14 BORING LOCATIONS
 - X NOT SAMPLED (MET REFUSAL)
 - 0.24 BOLD INDICATES THE CONCENTRATION EXCEEDS THE INVESTIGATION GUIDANCE LEVEL.
 - VOC VOLATILE ORGANIC COMPOUND
 - PPMV PARTS PER MILLION BY VOLUME
 - ND NOT DETECTED
 - FD FIELD DUPLICATE

URS
 1550 Humboldt Road, Ste. 2
 Chico, CA 95928
 TEL: (530) 893-9675
 FAX: (530) 893-9682

STATUS OF BORINGS B-27 THROUGH B-37

GLOBAL HAWK
 UPGRADE DOCK # 3

SOIL GAS INVESTIGATION

FIGURE **4**

5.0 DATA QUALITY SUMMARY

Overall, the analytical results of samples collected at the Dock #3 construction area are valid and usable. The quality control (QC) sample results indicate good accuracy and precision for the sampling and analysis procedures.

All samples collected and analyzed for the Dock #3 area were assessed and validated according to the guidance set forth in the QAPP (URS, 2003b). Thirty-four soil gas samples and five field duplicate samples were collected from 34 borings and analyzed for VOCs in October 2003. The soil gas samples were analyzed by Field Portable Analytical of Cameron Park, California. The standard operating procedures (SOPs) followed by Field Portable Analytical, including a summary of the equipment used for this project, are included in Appendix B.

There were no rejected results; data can be used for characterization with the limitations of four qualified results. Data results qualified with a "J" should be interpreted as estimated concentrations. The qualified results are listed in Table 2 and summarized below:

- **VOCs by Modified TO-14:** Seven soil gas results (four from normal field samples, two from laboratory duplicate samples, and one from a field duplicate sample) are qualified as estimated concentrations because the detected concentrations were below the laboratory reporting limit.

Table 2. Summary of Qualified Data at the Dock #3 Area

Sample Number	Sample Date	Analyte	Result	Reporting Limit	Units
DOCK3B13GS01NS	1 October 2003	Acetone	0.24	0.5	ppmv
DOCK3B08GS01NS	1 October 2003	Acetone	0.31	0.5	ppmv
DOCK3B08GS01NS - LD	1 October 2003	Acetone	0.25	0.5	ppmv
DOCK3B27GS01NS	2 October 2003	Acetone	0.31	0.5	ppmv
DOCK3B40GS01NS	2 October 2003	Acetone	0.46	0.5	ppmv
DOCK3B40GS01FD	2 October 2003	Acetone	0.35	0.5	ppmv
DOCK3B39GS01NS - LD	2 October 2003	Acetone	0.25	0.5	ppmv

LD = laboratory duplicate
ppmv = parts per million by volume

Data qualified as estimated can be used for interpretation (modeling or risk assessment) as long as the associated data qualifier flags are considered. No data were rejected. The number of qualified results and percent completeness is presented in Table 3.

Table 3. Sample Quality and Completeness – Soil Gas

Method	Number of Samples	Number of Analytes	Total Number of Results	Number of Estimated Results	Number of Rejected Results	Percent Completeness ^a
Modified TO-14	34	30	1,020	4	0	100

^a Percent of normal sample (not including field or lab QC samples) results that are not qualified as unusable (rejected).

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The soil gas analytical results indicated that only one detection each of acetone and toluene exceeded IG concentrations used to screen data during environmental investigations. Therefore, no specific areas of contamination were identified that would require additional investigation or segregation of soil during construction. However, these data do not indicate that the soil in the construction area is free of contaminants, and the results are not acceptable for use as waste characterization data (i.e., acceptable for landfill disposal). Additional waste characterization soil sampling will be required by the off-base landfill to accept the waste soil because it is derived from an area within the boundaries of an active ERP Site (Site 32) at Beale AFB.

The soil type encountered along some portions of the fire suppression water line trench indicate that excavated soil from the trench is unsuitable for backfill due to large cobbles in the subsurface. Cobbles were encountered at many locations along the fire suppression water line trench, and were impenetrable in the area near Borings B-1 through B-3.

Based on the design calculations, approximately 3,550 cubic yards of waste soil will be generated during the construction project. On-base disposal of the waste soil is not an option due to the potential contamination and potential unsuitable soil characteristics of the excavated soil generated. Therefore, off-base disposal of all excess soil is a construction requirement. Appropriate landfills that typically accept soil from Beale AFB include the Ostrom Road Landfill, located immediately south of Beale AFB, and Forward Landfill, located in Manteca, California.

The exact sampling and analytical requirements for disposal of the stockpile will need to be based on the volume of soil generated and will need to be arranged with the landfill at that time. However, typical waste characterization sampling requirements include collection of one composite sample per 100 cubic yards of soil, which in this case may total approximately 36 samples. The quantity of samples may be decreased when disposing of large quantities of soil, so project-specific requirements will need to be developed once the exact quantity of stockpiled soil is known.

The soil sampling will need to be performed by environmental sampling technicians trained in U.S. Environmental Protection Agency (EPA) sample collection and chain-of-custody protocols.

The waste soil will need to be transported by a waste hauler registered with the California Department of Toxic Substance Control and the EPA.

The analytical requirements will also need to be obtained from the landfill prior to sampling. Typical analytical requirements for soil generated from a site with potential fuel and solvent contamination includes:

- VOCs by EPA Method SW8260B;
- Semivolatile organic compounds by EPA Method SW8270C;
- Total petroleum hydrocarbons as gasoline, diesel, jet fuel, and motor oil by EPA Method SW8015M; and
- CAM-17 Metals by EPA Method SW6010B and SW7471.

The soil samples will need to be analyzed by a California Department of Health Services-certified laboratory.

6.2 Recommendations

URS recommends that, where possible, the excavated soil from the Creaseman Avenue road realignment be used for backfill if the excavated soil is deemed suitable per geotechnical requirements. Stockpiling of all excess trench soil and Creaseman Avenue road realignment cut soil should be combined and placed on visqueen as a precaution within the construction area. Once the stockpile quantity is known, it is recommended that the contractor notify the selected landfill and identify the analytical sample matrix from the landfill prior to sampling to ensure that the samples that are collected for waste disposal are acceptable with the landfill.

7.0 REFERENCES

URS, 2003a. *Beale Air Force Base Environmental Sampling Plan*. Draft. June.

URS, 2003b. *Beale Air Force Base Quality Assurance Project Plan*. Draft. June.

URS, 2003c *Field Sampling Plan, Soil Gas Screening Investigation of Dock #3 Area Soil (Fire Suppression Water Line Trench and Creaseman Avenue Road Realignment)*, Beale Air Force Base Final. August.

APPENDIX A
Analytical Results



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B06GS01NS Date Collected: 1-Oct-03
Data File Name: D3100210 Time Collected: 14:15
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 15:35
Dilution Factor: 1.0

Table with 5 columns: Compound Name, MDL (ppmv), PQL (ppmv), Concentration (ppmv), Q. Lists various compounds like Freon 12, Vinyl Chloride, Acetone, etc., all with 'Not Detected' concentrations.

1,3,5-tris(Trifluoromethyl)Benzene
Surrogate Recovery: 102%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

Four horizontal lines for notes.



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name:	DOCK3B26GS01NS	Date Collected:	1-Oct-03
Data File Name:	D3100211	Time Collected:	8:33
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	15:43
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B23GS01NS Date Collected: 1-Oct-03
Data File Name: D3100212 Time Collected: 9:40
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 15:51
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name:	DOCK3B24GS01NS	Date Collected:	1-Oct-03
Data File Name:	D3100213	Time Collected:	9:10
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	16:00
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 104%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B25GS01NS Date Collected: 1-Oct-03
Data File Name: D3100214 Time Collected: 9:55
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 16:08
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B22GS01NS Date Collected: 1-Oct-03
Data File Name: D3100215 Time Collected: 10:02
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 16:16
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name:	DOCK3B22GS01FD	Date Collected:	1-Oct-03
Data File Name:	D3100216	Time Collected:	10:02
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	16:24
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B21GS01NS Date Collected: 1-Oct-03
Data File Name: D3100217 Time Collected: 10:17
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 16:32
Dilution Factor: 1.0

Table with 5 columns: Compound Name, MDL (ppmv), PQL (ppmv), Concentration (ppmv), Q. Lists various compounds like Freon 12, Vinyl Chloride, Acetone, etc., with their respective MDL and PQL values and a 'Not Detected' concentration.

1,3,5-tris(Trifluoromethyl)Benzene
Surrogate Recovery: 102%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

Four horizontal lines for entering unknown compounds or notes.



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B20GS01NS Date Collected: 1-Oct-03
Data File Name: D3100218 Time Collected: 10:30
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 16:40
Dilution Factor: 1.0

Table with 5 columns: Compound Name, MDL (ppmv), PQL (ppmv), Concentration (ppmv), Q. Lists various compounds like Freon 12, Vinyl Chloride, Acetone, etc., with their respective MDL and PQL values and detection status.

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 104%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

Four horizontal lines for entering unknown compounds or notes.

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name:	DOCK3B19GS01NS	Date Collected:	1-Oct-03
Data File Name:	D3100219	Time Collected:	10:47
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	16:48
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 105%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B18GS01NS Date Collected: 1-Oct-03
Data File Name: D3100220 Time Collected: 11:00
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 16:56
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B17GS01NS Date Collected: 1-Oct-03
Data File Name: D3100221 Time Collected: 11:14
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 17:04
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene
Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B16GS01NS Date Collected: 1-Oct-03
Data File Name: D3100222 Time Collected: 11:27
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 17:12
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name:	DOCK3B15GS01NS	Date Collected:	1-Oct-03
Data File Name:	D3100223	Time Collected:	11:43
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	17:20
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 98.6%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B14GS01NS Date Collected: 1-Oct-03
Data File Name: D3100224 Time Collected: 11:54
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 17:28
Dilution Factor: 1.0

Table with 5 columns: Compound Name, MDL (ppmv), PQL (ppmv), Concentration (ppmv), Q. Lists various compounds like Freon 12, Vinyl Chloride, Acetone, etc., with their respective MDL and PQL values and detection status.

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 104%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

Horizontal lines for entering unknown compounds or notes.

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B14GS01FD Date Collected: 1-Oct-03
Data File Name: D3100225 Time Collected: 11:54
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 17:36
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B13GS01NS Date Collected: 1-Oct-03
Data File Name: D3100226 Time Collected: 12:13
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 17:44
Dilution Factor: 1.0

Table with 5 columns: Compound Name, MDL (ppmv), PQL (ppmv), Concentration (ppmv), Q. Lists various compounds like Freon 12, Vinyl Chloride, Acetone, etc., with their respective MDL, PQL, and concentration values.

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 104%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

J = Estimated Value (Between MDL & PQL)

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B11GS01NS Date Collected: 1-Oct-03
Data File Name: D3100227 Time Collected: 12:43
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 17:52
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B11GS01NS DUPLICATE	Date Collected: 1-Oct-03
Data File Name: D3100228	Time Collected: 12:43
Analyst: DRS	Date Analyzed: 2-Oct-03
Instrument ID: Daffy	Time Analyzed: 18:00
Dilution Factor: 1.0	

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 103%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B10GS01NS Date Collected: 1-Oct-03
Data File Name: D3100229 Time Collected: 13:13
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 18:07
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B08GS01NS Date Collected: 1-Oct-03
Data File Name: D3100230 Time Collected: 13:50
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 18:16
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	0.31	J
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	5.2	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

J = Estimated Value (Between MDL & PQL)



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name:	DOCK3B08GS01NS DUPLICATE	Date Collected:	1-Oct-03
Data File Name:	D3100231	Time Collected:	13:50
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	18:23
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	0.25	J
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	5.5	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

J = Estimated Value (Between MDL & PQL)

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B07GS01NS Date Collected: 1-Oct-03
Data File Name: D3100232 Time Collected: 14:04
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 18:31
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B05GS01NS Date Collected: 1-Oct-03
Data File Name: D3100233 Time Collected: 14:36
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 18:39
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 107%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name:	DOCK3B05GS01FD	Date Collected:	1-Oct-03
Data File Name:	D3100235	Time Collected:	14:36
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	18:57
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B04GS01NS Date Collected: 1-Oct-03
Data File Name: D3100236 Time Collected: 14:51
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 19:05
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name:	DOCK3B36GS01NS	Date Collected:	2-Oct-03
Data File Name:	D3100237	Time Collected:	7:44
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	19:14
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 104%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B35GS01NS Date Collected: 2-Oct-03
Data File Name: D3100238 Time Collected: 8:00
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 19:22
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B34GS01NS Date Collected: 2-Oct-03
Data File Name: D3100239 Time Collected: 8:22
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 19:30
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B33GS01NS Date Collected: 2-Oct-03
Data File Name: D3100240 Time Collected: 8:38
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 19:38
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B32GS01NS Date Collected: 2-Oct-03
Data File Name: D3100241 Time Collected: 8:54
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 19:46
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 105%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B32GS01FD Date Collected: 2-Oct-03
Data File Name: D3100242 Time Collected: 8:54
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 19:54
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B31GS01NS Date Collected: 2-Oct-03
Data File Name: D3100243 Time Collected: 9:13
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 20:02
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 103%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name:	DOCK3B30GS01NS	Date Collected:	2-Oct-03
Data File Name:	D3100244	Time Collected:	9:27
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	20:09
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 106%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B29GS01NS Date Collected: 2-Oct-03
Data File Name: D3100245 Time Collected: 9:44
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 20:17
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B28GS01NS Date Collected: 2-Oct-03
Data File Name: D3100246 Time Collected: 10:16
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 20:25
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chlorofom	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery: 105%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B28GS01NS DUPLICATE **Date Collected:** 2-Oct-03
Data File Name: D3100247 **Time Collected:** 10:16
Analyst: DRS **Date Analyzed:** 2-Oct-03
Instrument ID: Daffy **Time Analyzed:** 20:33
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene
Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name:	DOCK3B27GS01NS	Date Collected:	2-Oct-03
Data File Name:	D3100248	Time Collected:	10:36
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	20:41
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	0.31	J
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

J = Estimated Value (Between MDL & PQL)

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name:	DOCK3B40GS01NS	Date Collected:	2-Oct-03
Data File Name:	D3100249	Time Collected:	11:04
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	20:49
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	0.46	J
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

J = Estimated Value (Between MDL & PQL)



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name:	DOCK3B40GS01FD	Date Collected:	2-Oct-03
Data File Name:	D3100250	Time Collected:	11:04
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	20:57
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	0.35	J
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

J = Estimated Value (Between MDL & PQL)



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name:	DOCK3B39GS01NS	Date Collected:	2-Oct-03
Data File Name:	D3100251	Time Collected:	11:35
Analyst:	DRS	Date Analyzed:	2-Oct-03
Instrument ID:	Daffy	Time Analyzed:	21:05
Dilution Factor:	1.0		

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DOCK3B38GS01NS Date Collected: 2-Oct-03
Data File Name: D3100252 Time Collected: 11:55
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 21:12
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	Not Detected	
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DOCK3B39GS01NS DUPLICATE Date Collected: 2-Oct-03
Data File Name: D3100253 Time Collected: 11:35
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 21:20
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	0.20	0.50	Not Detected	
Vinyl Chloride	0.20	0.50	Not Detected	
Acetone	0.20	0.50	0.25	J
Freon 11	0.20	0.50	Not Detected	
1,1-Dichloroethene	0.20	0.50	Not Detected	
Methylene Chloride	0.20	0.50	Not Detected	
Freon 113	0.20	0.50	Not Detected	
trans-1,2-Dichloroethene	0.20	0.50	Not Detected	
1,1-Dichloroethane	0.20	0.50	Not Detected	
Methyl tert-butyl Ether	0.20	0.50	Not Detected	
Methyl Ethyl Ketone	0.20	0.50	Not Detected	
cis-1,2-Dichloroethene	0.20	0.50	Not Detected	
n-Hexane	0.20	0.50	Not Detected	
Chloroform	0.20	0.50	Not Detected	
1,2-Dichloroethane	0.20	0.50	Not Detected	
1,1,1-Trichloroethane	0.20	0.50	Not Detected	
Benzene	0.20	0.50	Not Detected	
Carbon Tetrachloride	0.20	0.50	Not Detected	
Cyclohexane	0.20	0.50	Not Detected	
Trichloroethene	0.20	0.50	Not Detected	
2,2,4-Trimethylpentane	0.20	0.50	Not Detected	
1,1,2-Trichloroethane	0.20	0.50	Not Detected	
Toluene	0.20	0.50	Not Detected	
1,2-Dibromoethane	0.20	0.50	Not Detected	
Tetrachloroethene	0.20	0.50	Not Detected	
Chlorobenzene	0.20	0.50	Not Detected	
Ethyl Benzene	0.20	0.50	Not Detected	
m,p-Xylene	0.20	0.50	Not Detected	
o-Xylene	0.20	0.50	Not Detected	
1,1,2,2-Tetrachloroethane	0.20	0.50	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

J = Estimated Value (Between MDL & PQL)

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: DLCS100203 Date Collected: 2-Oct-03
Data File Name: D3100205 Time Collected: NA
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 13:00
Dilution Factor: 1.0

Compound Name	Conc. (ppmv)	Amt. Spiked (ppmv)	Percent Recovery	Q
Freon 12	11.8	10	118%	
Vinyl Chloride	9.96	10	99.6%	
Acetone	9.18	10	91.8%	
Freon 11	10.5	10	105%	
1,1-Dichloroethene	9.75	10	97.5%	
Methylene Chloride	10.0	10	100%	
Freon 113	10.7	10	107%	
trans-1,2-Dichloroethene	9.93	10	99.3%	
1,1-Dichloroethane	10.1	10	101%	
Methyl tert-butyl Ether	10.4	10	104%	
Methyl Ethyl Ketone	8.94	10	89.4%	
cis-1,2-Dichloroethene	9.85	10	98.5%	
n-Hexane	9.90	10	99.0%	
Chlorofom	9.94	10	99.4%	
1,2-Dichloroethane	9.47	10	94.7%	
1,1,1-Trichloroethane	9.92	10	99.2%	
Benzene	10.2	10	102%	
Carbon Tetrachloride	9.96	10	99.6%	
Cyclohexane	10.2	10	102%	
Trichloroethene	10.3	10	103%	
2,2,4-Trimethylpentane	10.3	10	103%	
1,1,2-Trichloroethane	10.0	10	100%	
Toluene	10.4	10	104%	
1,2-Dibromoethane	9.79	10	97.9%	
Tetrachloroethene	10.0	10	100%	
Chlorobenzene	10.5	10	104%	
Ethyl Benzene	10.6	10	106%	
m,p-Xylene	10.7	10	107%	
o-Xylene	10.2	10	102%	
1,1,2,2-Tetrachloroethane	9.96	10	99.6%	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:



Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB
Soil Gas Investigation
Soil Gas Results
2-Oct-03

Sample Name: DMBLK100203 Date Collected: 2-Oct-03
Data File Name: D3100209 Time Collected: NA
Analyst: DRS Date Analyzed: 2-Oct-03
Instrument ID: Daffy Time Analyzed: 15:17
Dilution Factor: 1.0

Compound Name	MDL (ppmv)	PQL (ppmv)	Concentration (ppmv)	Q
Freon 12	5.0	10	Not Detected	
Vinyl Chloride	5.0	10	Not Detected	
Acetone	10	20	Not Detected	
Freon 11	5.0	10	Not Detected	
1,1-Dichloroethene	5.0	10	Not Detected	
Methylene Chloride	5.0	10	Not Detected	
Freon 113	5.0	10	Not Detected	
trans-1,2-Dichloroethene	5.0	10	Not Detected	
1,1-Dichloroethane	5.0	10	Not Detected	
Methyl tert-butyl Ether	5.0	10	Not Detected	
Methyl Ethyl Ketone	10	20	Not Detected	
cis-1,2-Dichloroethene	5.0	10	Not Detected	
n-Hexane	5.0	10	Not Detected	
Chloroform	5.0	10	Not Detected	
1,2-Dichloroethane	5.0	10	Not Detected	
1,1,1-Trichloroethane	5.0	10	Not Detected	
Benzene	5.0	10	Not Detected	
Carbon Tetrachloride	5.0	10	Not Detected	
Cyclohexane	5.0	10	Not Detected	
Trichloroethene	5.0	10	Not Detected	
2,2,4-Trimethylpentane	5.0	10	Not Detected	
1,1,2-Trichloroethane	5.0	10	Not Detected	
Toluene	5.0	10	Not Detected	
1,2-Dibromoethane	5.0	10	Not Detected	
Tetrachloroethene	5.0	10	Not Detected	
Chlorobenzene	5.0	10	Not Detected	
Ethyl Benzene	5.0	10	Not Detected	
m,p-Xylene	5.0	10	Not Detected	
o-Xylene	5.0	10	Not Detected	
1,1,2,2-Tetrachloroethane	5.0	10	Not Detected	

1,3,5-tris(Trifluoromethyl)Benzene

Surrogate Recovery:

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

FPA

Field-Portable Analytical, Inc.

3330 Cameron Park Drive, Suite 850, Cameron Park, CA 95682

(530) 676-6620

URS / Beale AFB Soil Gas Investigation Soil Gas Results 2-Oct-03

Sample Name: <u>DLCS100203</u>	Date Collected: <u>2-Oct-03</u>
Data File Name: <u>D3100254</u>	Time Collected: <u>NA</u>
Analyst: <u>DRS</u>	Date Analyzed: <u>2-Oct-03</u>
Instrument ID: <u>Daffy</u>	Time Analyzed: <u>21:30</u>
Dilution Factor: <u>1.0</u>	

Compound Name	Conc. (ppmv)	Amt. Spiked (ppmv)	Percent Recovery	Q
Freon 12	11.4	10	114%	
Vinyl Chloride	9.15	10	91.5%	
Acetone	8.11	10	81.1%	
Freon 11	10.1	10	101%	
1,1-Dichloroethene	8.99	10	89.9%	
Methylene Chloride	9.11	10	91.1%	
Freon 113	10.5	10	105%	
trans-1,2-Dichloroethene	9.03	10	90.3%	
1,1-Dichloroethane	9.51	10	95.1%	
Methyl tert-butyl Ether	8.45	10	84.5%	
Methyl Ethyl Ketone	7.04	10	70.4%	
cis-1,2-Dichloroethene	8.77	10	87.7%	
n-Hexane	9.54	10	95.4%	
Chloroform	9.35	10	93.5%	
1,2-Dichloroethane	8.31	10	83.1%	
1,1,1-Trichloroethane	9.36	10	93.6%	
Benzene	9.25	10	92.5%	
Carbon Tetrachloride	9.52	10	95.2%	
Cyclohexane	9.45	10	94.5%	
Trichloroethene	9.37	10	93.7%	
2,2,4-Trimethylpentane	9.58	10	95.8%	
1,1,2-Trichloroethane	8.90	10	89.0%	
Toluene	8.83	10	88.3%	
1,2-Dibromoethane	7.78	10	77.8%	
Tetrachloroethene	8.57	10	85.7%	
Chlorobenzene	7.80	10	78.0%	
Ethyl Benzene	8.63	10	86.3%	
m,p-Xylene	7.97	10	79.7%	
o-Xylene	8.14	10	81.4%	
1,1,2,2-Tetrachloroethane	8.24	10	82.4%	

1,3,5-tris(Trifluoromethyl)Benzene
 Surrogate Recovery: 101%

Surr. Limits = 70% - 130% Recovery

Unknown Compounds/Notes:

APPENDIX B
Analytical Standard Operating Procedures



Field-Portable Analytical, Inc.

6054 Garden Towne Way, Suite G, Orangevale, CA 95662

(916) 989-6200

VOC Analysis
by
Field-Portable GC/MS
Standard Operating Procedures

SOP #1
Rev. # 3

Effective Date: September 29, 1999

Written By: _____ Technical Review By: _____

1.0 Introduction

This SOP is a project specific SOP for the analysis of VOC's by field-portable Gas Chromatograph coupled with a Mass Spectrometer (GC/MS). The compounds listed in Table 1 have been evaluated and are suitable for analysis with this method.

2.0 Summary of the Method

Critical decisions are being made from the field analytical results. It is critical these results be definitive. Therefore GC/MS is the only way the analysis can be performed. This data will be provided within 30 minutes of receipt. If multiple samples are delivered at the same time, the highest priority sample will be delivered within 30 minutes. All other samples within 30 minutes consecutively in order of priority.

Table 1: Compounds Currently Verified

Compound	CAS Number	PQL ppmv	Quant Mass
Benzene	71-43-2	0.2	78
Carbon Tetrachloride	56-23-5	0.2	117
Chlorobenzene	108-90-7	0.2	112
Chloroform	67-66-3	0.2	83
1,2-Dibromoethane	106-93-4	0.2	107
Dichlorodifluoromethane (Fr12)	75-71-8	0.2	85
1,1-Dichloroethane	75-35-3	0.2	63
1,2-Dichloroethane	107-06-2	0.2	62
1,1-Dichloroethene	75-35-4	0.2	61
cis-1,2-Dichloroethene	156-59-2	0.2	61
trans-1,2-Dichloroethene	156-60-5	0.2	61
Ethyl Benzene	100-41-4	0.2	91
Methylene Chloride	75-09-2	0.2	49
Styrene	100-42-5	0.2	104
1,1,2,2-Tetrachloroethane	79-34-5	0.2	83
Tetrachloroethene	127-18-4	0.2	166
Toluene	108-88-3	0.2	91
1,1,1-Trichloroethane	71-55-6	0.2	97
1,1,2-Trichloroethane	79-00-5	0.2	97
Trichloroethene	79-01-6	0.2	95
Trichlorofluoromethane (Fr11)	75-69-4	0.2	101
Vinyl Chloride	75-01-4	0.2	62
o-Xylene	95-47-6	0.2	91
m-Xylene	108-38-3	0.2	91
n-Xylene	106-42-3	0.2	91
Acetone	67-64-1	0.5	58
Freon 113	76-13-1	0.2	135
n-Hexane	110-54-3	0.2	57
1,3,5-Trimethylbenzene	108-67-8	0.2	105
1,2,4-Trimethylbenzene	95-63-6	0.2	105
1,3-Butadiene	106-99-0	0.5	54
Cyclohexane	110-82-7	0.5	84
2,2,4-Trimethylpentane	540-84-1	0.5	57
Methyl tert-Butyl Ether	1634-04-4	0.2	73

2.0 Interference

Compounds which are not baseline-resolved (co-elute) with the other target analytes or internal standards/surrogates listed in Table 1 may be interferences. Generally, these co-eluting compounds can be separated by their mass fragmentation patterns. However, some compounds may have fragment ions in their mass spectra, which are identical to the quantitation ion of a target analyte. This may produce a false positive or error in the reported concentration.

The software provides both a fit and purity measurement in full scan, GC/MS mode to indicate possible co-elution. If compounds co-elute and cannot be separated by their mass spectra, two remedies are possible: (1) the compounds are so similar that they may be reported as a total number. This is the case for m&p-Xylene (i.e. m&p-Xylene co-elute and have identical spectra). (2) A modification to the GC temperature may be sufficient to resolve the individual peaks. Co-elution has not been determined to be a problem with the halogenated compounds listed in the method. Compounds that would present a problem are the aliphatic and olefin compounds found in petroleum products.

3.0 Safety

Safety is of utmost importance during all projects. On-site safety procedures established by the client will be adhered to at all times. It is the responsibility of *FPA* personnel to ensure they are aware of all safety procedures and hazards they may encounter on-site.

Proper personal protective equipment (PPE) including safety glasses, hard hats and steel-toed shoes will be worn when working directly at the drilling rig.

In addition to site specific and general field safety procedures, *FPA* personnel must adhere to standard safe laboratory practices. This includes:

- Maintenance and availability of Material Safety Data Sheets (MSDS)
- Use of appropriate PPE during the handling and preparation of standards
- Safe high pressure cylinder handling practices

Note: All hazardous, neat materials stored on-site must have a copy of the MSDS maintained on-site as well. This does not include working standards and standard mixtures.

4.0 Equipment and Supplies

4.1 Instrumentation

Inficon Hapsite GC/MS
Supelco SPB 1, 30m x .32mmid x 1.0 μ film column
Peripherals (Computer, Printer, Consumables, etc.)

4.2 Materials

1 Liter Tedlar Bags
Neat Liquid Standards
Nitrogen Regulator
1/8" Stainless Tubing
DI Water
Syringes: - 1ml, 5ml, 10ml, 50ml Teflon Luer Lock gastight

4.3 Gases

Carrier: Nitrogen 99.999% purity (for portable mode Inficon # 930-430)
Mass Calibration: Internal Standard 1 Inficon # 930-431 (50ppmv)
Bromopentafluorobenzene, 100ppmv 1,3,5 tris (trifluoromethyl) benzene

Instrument Parameters

4.4 GC Conditions

Column Temp.	60° C
Head Pressure	104 pa
Inlet Temp.	60° C
Probe Temp.	40° C
Valve Temp.	60° C
Run Time	10 Min.

4.5 MS Conditions

Scans/Sec.	1.04 scans/sec.
Getter Pump Temp.	400 - 480° C
Scan Range	45 - 250 amu

5.0 QA/QC Procedures

Table 2: Quality Control

Quality Control Check	Minimum Frequency	Acceptance Criteria	Corrective Action
BFB	Every 12 Hours	Ion Abundance Criteria as Described in TO-14	1) Reanalyze BFB 2) Adjust Tune Until BFB Meets Criteria
5 – Point (Minimum) Calibration	Prior to start of project or as required for acceptance criteria	%RSD \leq 25%	Re-run Levels Which Do Not Meet Criteria
Continuing Calibration Check	Beginning of Each Day	\pm 30% Difference of the Initial Calibration 10% of total compounds outside limits	1) Repeat Analysis 2) Prepare and Run New Standard from Stock 3) Recalibrate
End Calibration Checks	End of Each Day	\pm 30%D of the Initial Calibration 10% of total compounds outside limits	1) Repeat Analysis 2) If End Check is Out, Flag Data for That Day
Duplicates	10% of the Samples	Relative Percent Difference \leq 30%	1) Analyze a third Aliquot 2) Flag Reported Data
Method Blanks	After Beginning of Day CCC	Concentrations for All Calibrated Compounds < PQL	Re-run Blanks until Criteria are Met

7.1 Initial Calibration

The initial calibration will contain a minimum of 5 levels. The low level must be no more than 5 times the reporting limit. The highest level should encompass the linear range of the instrument or the highest concentration of the samples expected. Acceptance criteria for the initial calibration are 25% relative standard deviation (%RSD).

Corrective action for the initial calibration is to investigate the outlying level and reanalyze that level. If the problem is not corrected, it may be necessary to remake the standard or correct the problem with the instrument and reanalyze all levels.

7.2 Second Source Verification

The initial calibration will be confirmed by analyzing an independent certified solution containing several of the targets of interest. Acceptance criteria are 30%D compared to the initial calibration.

Corrective action for the Second Source is to reanalyze the standard. If it still does not meet the criteria, remake the Second Source standard from the stock and reanalyze. If criteria are still not met, repeat the initial calibration.

7.3 Continuing Calibration Verification

The continuing calibration standard is analyzed after the BFB Tune Check and before the analysis of any samples.

All compounds have a $\pm 30\%$ Difference from the Initial Calibration. Only 10% of the total number of compounds can exceed these limits. All compounds must be within 50 to 150% Recovery.

Corrective action for the Continuing Calibration is to reanalyze the standard. If it continues not meet criteria, remake the standard from the stock and reanalyze. If criteria are still not met, repeat the Initial Calibration.

7.4 End Check

The end check is an end of the day calibration verification to demonstrate that the response of the instrument did not drift over the course of the day. It is the last analysis of the day. Criteria are 30%D compared to the Initial Calibration. Only 10% of the total number of compounds can exceed these limits. All compounds must be within 50 to 150% Recovery. The end check brackets all analyses for the day to demonstrate that the system was in control for those analyses.

Corrective action for the end check is to reanalyze the standard. If the criteria are still not met, flag the samples analyzed since the last valid standard.

7.5 Method Blank

The method blank should be analyzed after the continuing calibration and before any samples. A blank should also be analyzed after any sample with concentrations exceeding the calibration range by 10%. The blank acceptance criteria are that no compounds are detected above the reporting limit.

Corrective action for the method blank is to reanalyze the blank. If the system is still not clean, take actions to remove the contaminants and reanalyze the blank. The blank must be clean before proceeding unless agreed upon with the client.

7.6 Duplicates

Duplicate analyses should be performed on a frequency of 10% of the total samples. The sample chosen to duplicate should contain concentrations of targets if possible. The acceptance criteria are 30% relative percent difference (% RPD).

Corrective action for the duplicate is to reanalyze the sample. If criteria are still not met, results must be flagged.

7.7 GC/MS Tune Verification

The GC/MS tune must be verified at the beginning of each day by analyzing a standard containing Bromofluorobenzene (BFB). The acceptance criteria are listed in Table 3.

Table 3

Mass Fragment	Ion Abundance Criteria
50	15-40%
75	30-60%
95	Base Peak
96	5-9%
173	<2% (of mass 174)
174	50-100%
175	5-9% (of mass 174)
176	95-101% (of mass 174)
177	5-9% (of mass 176)

Corrective action for the tune verification is to reanalyze the BFB standard. If criteria are still not met, make adjustments to the tune until criteria are met. Analyses may not proceed until criteria are met.

7.8 Internal Standards

The internal standards are injected through the septum into each sample. Acceptance criteria for internal standards are -50 to +100% Recovery from the daily continuing calibration check.

Corrective action for internal standards is to rerun the sample unless matrix effects have been previously established. If criteria are not met, the data must be flagged.

7.9 Surrogates

The surrogates are injected through the septum into each sample. Acceptance criteria for the surrogates are 70 to 130% Recovery.

Corrective action for surrogate is to reanalyze the sample unless matrix effects have been previously established. If criteria are not met, the data must be flagged.

8.0 Detection Limits

To determine the method detection limits a 40 CFR 136, 1984 method detection limit (MDL) study will be performed. Seven replicates of the low standard are analyzed in succession. The standard deviation of these replicates is multiplied by the student's t at the 99% confidence level of 3.14. The final value is considered to be the method detection limit. See Section 4.0 for the calculation of this value. An initial MDL study will be performed during the set-up of the project or yearly in the case of routine compounds.

9.0 Procedure

- 9.1 Samples will be received in 1.0 liter Tedlar bags and will be accompanied with a chain of custody.
- 9.2 For analysis, the Tedlar bag is attached to the GC/MS sampling wand using a short piece of Teflon tubing and the sample information is logged into the computer. When the start button on the sampling wand is pressed, the internal pump pulls the sample through the sample loop for 30 seconds. During this time, internal standard and surrogate is also drawn into the instrument at a 1:10 ratio to the sample.

After 30 seconds, the valve is automatically switched to the inject position which sweeps the sample, surrogate and internal standard onto the pre-column. After 100 seconds any heavier (diesel range) compounds are back-flushed off of the system canister.

10.0 Data Analysis and Calculations

- 10.1 Quantitative analysis is performed by integrating the area of the identified quantitation ion. The quantitation ion for each target analyte, internal standard, and surrogate has been selected to provide interference free quantitation in the presence of the analytes listed in Table 1, except as noted above.
- 10.2 The concentration of the analytes is calculated using internal standards and the following equation.

$$ppmv = \frac{(Ax)(Is)}{(Ais)(RF)}$$

where:

Ax = Area of the quant ion for the target compound

Is = Concentration of the internal standard injected

Ais = Area of the quant ion for the internal standard

RF = Average Response factor from Initial Calibration for compound being measured.

11.0 Equations

11.1 Relative Response Factor

$$RRF = \frac{Std_{Area} \times IS_{Conc.}}{IS_{Area} \times Std_{Conc.}}$$

11.2 Relative % Difference

$$\%RPD = \frac{Samp_1 - Samp_2}{\frac{(Samp_1 + Samp_2)}{2}} \times 100$$

11.3 Relative Standard Deviation

$$\%RSD = \frac{STDev}{Avg} \times 100$$

11.4 Percent Difference

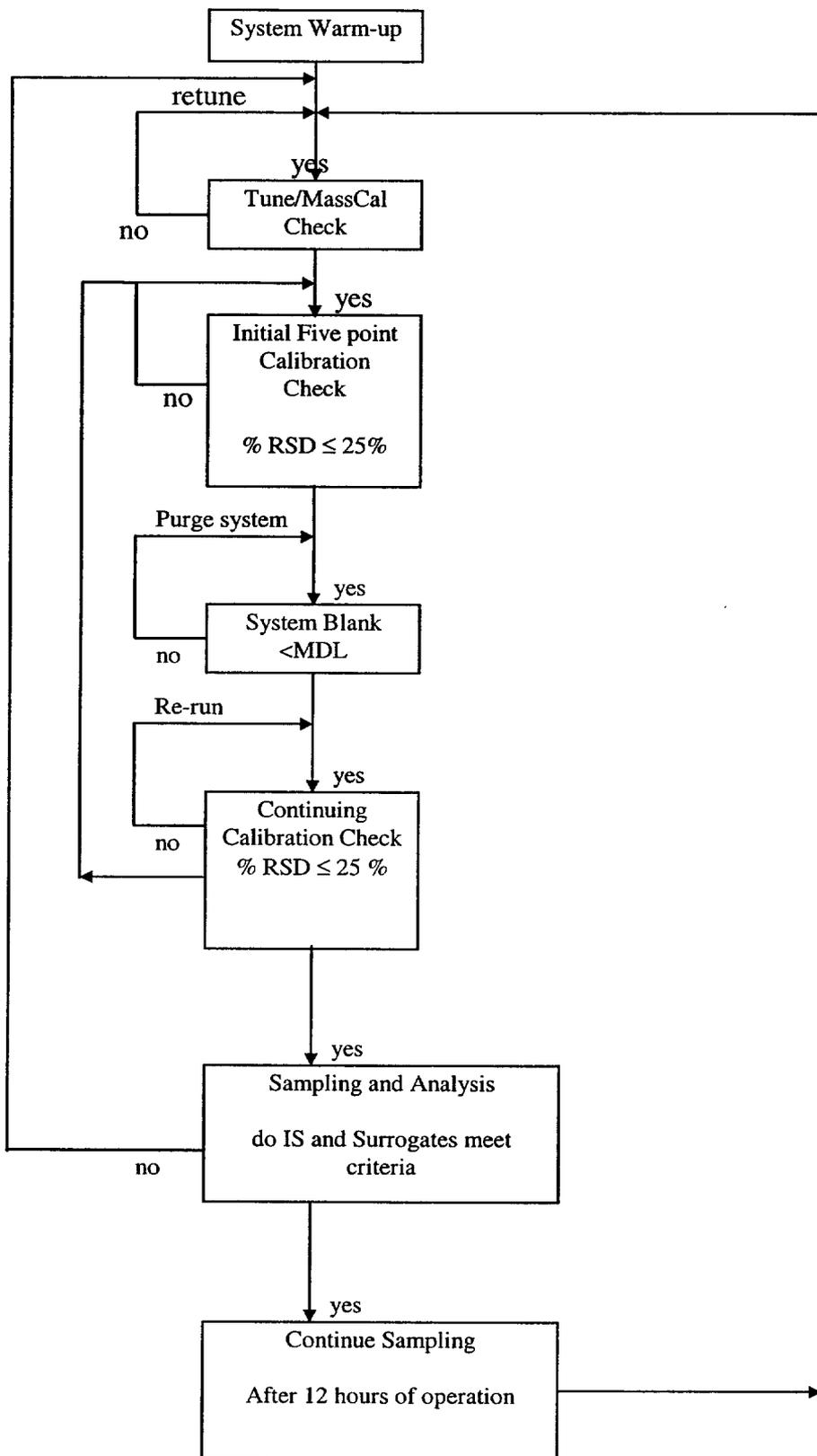
$$\%D = \frac{AvgRRF - DailyRRF}{AvgRRF} \times 100$$

11.5 Method Detection Limit

$$MDL = STDev \times 3.14$$

12.0 References

1. U.S. EPA Method 3810 Headspace
2. U.S. EPA Method 5021 Volatile Organic Compounds in Soil and other solid Matrices Using Equilibrium Headspace Analysis
3. U. S. EPA Method 8260B
4. Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry - May 28, 1997 Laura L. Kiner Ph.D. & James W. Peeler, Emission Monitoring Inc.
5. Quantitative Trace Analysis of VOC's in Air, Water and Soil by Equilibrium Headspace Gas Chromatography, Bruno Kolb, Perkin-Elmer Corp.



Method Operational Procedure

APPENDIX C
Landfill Information



People • Service • Environment

NORCAL WASTE SYSTEMS, INC.

[Home] [Above] [Artist in Residence] [Company List] [Employment] [Newsletters]
[Pay Your Bill] [Press Room] [Profile]

Above
ORLI Contact

Norcal Waste Systems Ostrom Road Landfill, Inc.

Norcal Waste Systems Ostrom Road Landfill, Inc. in Wheatland is a state-of-the-art landfill facility providing disposal services for both municipal and commercial customers. In addition to accepting municipal solid waste, Ostrom Road Landfill accepts a variety of commercial and industrial waste streams.

Norcal Waste Systems Ostrom Road Landfill, Inc. was the first municipal solid waste landfill in California to receive approval to operate after California received authority from the federal EPA to implement the new Subtitle D requirements of the Resource Conservation and Recovery Act. Subtitle D imposed liner systems, groundwater monitoring requirements, leachate collection systems, and other environmental protection measures.

Business and commercial haulers wishing to use Ostrom Road Landfill must make arrangements by calling Customer Service at (530) 743-6321. Ostrom Road Landfill is not open to residential customers. Residential customers wishing to self-haul their waste should utilize the transfer station at Yuba-Sutter Disposal, Inc. at 3001 North Levee Road, Marysville, CA 95901, (530) 743-6933.



The transfer station is open seven days a week from 7:30 a.m. to 4:30 p.m. Closed on major holidays.

Contact Us!

◀ Previous ■ Home ▲ Above Next ▶



NORCAL's web site is best viewed with version 5.0 or later of Microsoft Internet Explorer.
Email Webmaster with questions or comments about this web site.
Copyright © 1998 Norcal Waste Systems, Inc.
Last modified: November 06, 2003



NORTHERN CALIFORNIA SALES OFFICE • SPECIAL WASTE

Forward • Keller Canyon • Newby Island • Ox Mountain



ALLIED WASTE COMPANIES



Ox Mountain Landfill, Newby Island Landfill Keller Canyon Landfill, Forward Landfill

Waste Acceptance Guidelines January 2003

This document outlines the procedures to be followed when profiling non-hazardous waste for disposal or reuse at the Ox Mountain Sanitary Landfill, Newby Island Sanitary Landfill, Keller Canyon Landfill and Forward Landfill

OX MOUNTAIN SANITARY LANDFILL
12310 San Mateo Road
Half Moon Bay, CA 94019
650-726-1819
650-726-9183 (fax)

FORWARD LANDFILL
9999 South Austin Road
Manteca, CA 95336
209-982-4298
209-982-1009 (fax)

NEWBY ISLAND SANITARY LANDFILL
1601 Dixon Landing Road
Milpitas, CA 95035
408-262-1401
408-262-2871 (fax)

KELLER CANYON LANDFILL
901 Bailey Road
Pittsburg, CA 94565
925-458-9800
925-452-9891 (fax)

WASTE APPROVAL AND SALES OFFICE
1145 W. Charter Way
Stockton, CA 95206
800-204-4242
209-466-1067 (fax)

SECTION TABLE OF CONTENTS
DIVISION 01 - GENERAL REQUIREMENTS
SECTION 01110N
SUMMARY OF WORK AND OPTIONS

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- 1.1.1 Project Description
- 1.1.2 Location
- 1.1.3 Bid Option Description
- 1.1.4 Construction Sequence

1.2 EXISTING WORK

- 1.2.1 Existing Work to Remain
- 1.2.2 Repair and Replacement

1.3 LOCATION OF UNDERGROUND FACILITIES

- 1.3.1 Notification Prior to Excavation

PART 2 PRODUCTS

PART 3 EXECUTION

-- End of Section Table of Contents --

SECTION 01110N

SUMMARY OF WORK AND OPTIONS

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

1.1.1 Project Description

The work includes renovation and repair of an existing maintenance hangar, commonly referred to as DOCK 3, new construction of a pump station, addition of mechanical and electrical equipment rooms, **chemical profiling of excess site soil for off-site disposal at a permitted Class III municipal disposal facility**, and all related work. This work includes, but is not limited to, the following special items:

- a. Hangar Doors: The work includes major renovation and repair of the existing hangar doors, as specified in Section 08342 STEEL SLIDING HANGAR DOORS.
- b. Hangar Floor Finish: The work includes special finishing on the existing hangar floor, as specified in Section 09611N THIN FILM FLOORING SYSTEM FOR AIRCRAFT MAINTENANCE FACILITIES, including special inspection requirements.
- c. Hangar Structural Steel Paint Finish: The work includes refinishing of the existing hangar structural steel.
- d. Hangar Metal Siding and Roofing: The work includes removing all existing siding and roofing panels and preparing superstructure for installation of new panel system. Work required to prepare superstructure for paneling installation includes removal of all bolts inhibiting paneling installation clearance, installing purlins and other supports required for paneling system compatibility. The siding and roofing are specified in Section_07410N METAL SIDING.
- e. Electrical Distribution and Components: Work includes replacement of all existing electrical distribution system and components including lighting fixtures, explosion proof outlets, illuminated exit signs.
- f. Dock 3 Electrical Power Supply: Work includes replacement of all existing power supply components servicing Dock 3 with new below grade feeds and mount transformers.
- g. Fire Suppression and Fire Alarm: Work includes installation of two 50,000 gallon above-ground water storage tanks, pumps and controls, piping and distribution to ceiling supported foam generators and sprinkler heads.
- h. HVAC: Work inside Dock 3 includes complete removal of all existing HVAC equipment, ducts and controls and compressed air system prior to installation of a full HVAC system and controls. Also included is relocation of an existing air compressor and reservoir tank from

the southwest corner (outside) of the Dock into a new enclosed mechanical yard.

Work inside the new Pump Station includes installation of two new gas operated unit heaters, an exhaust fan and an intake louver.

- i. Plumbing: Work includes installing new water service to two existing eyewash showers - that will remain - as well as installation of two new eyewash showers and a new scrub sink.
- j. New Pump Station and Equipment Rooms: Work includes construction of a new Pump Station that is detached from the Dock off Fairchild Street. New HIEX Fire Suppression, Electrical, Mechanical/Electrical Yard, and two new Mechanical/HVAC rooms are to be constructed as attachments to the Dock 3 structure.
- k. Water Piping: Work includes installation of underground water piping extending from the new Pump Station to Docks 3 and 6, plus blind flange valves leading to Docks 1, 2, 4 and 5 for new and future connection of HIEX Foam and fire suppression systems inside each of the docks.
- l. Civil Improvements: Work includes installation of a new roadway extending from Edison Avenue, south to the Dining Facility roadway that is scheduled for construction. Concurrent to this roadwork is demolition, realignment and installation of an asphalt bike path. Other hardscape work includes construction of a fire lane and picnic area on the east side of the dock and curb and gutter work and a new sidewalk and drive on the south side of the dock, along Fairchild Street, plus a new driveway to the new Pump Station.
- m. Landscaping and Irrigation: Includes installation of a complete new irrigation system to service the new picnic area east of Dock 3, new landscaping directly adjacent to Dock 3 on the east and south elevations and new landscaping directly adjacent to the new Pump Station. Hydroseeding will also be included adjacent to the new roadway indicated above.
- n. Dock 6 Work: Includes installation of the new HIEX Foam and Fire Sprinkler systems inside Dock 6 **and bird netting**. Note: a HIEX Equipment Room and all required pumps and operating systems are included within the work of another construction contract. This Dock 3 element is a completion of that work in order to activate the fire suppression systems now that water will be available from the Dock 3 Pump Station installation.
- o. Architectural and Other: The Dock 3 scope includes complete refurbishment of the architectural elements of the building - including the hangar doors, wall siding and roof indicated above - plus new hollow metal doors and frames, a new electrically operated roll-up door, replacement of the two overhead cranes, two new roof caps and CMU block base at both sides of the aircraft hangar doors, new signage and other incidental features (i.e., flashing and seals) as indicated on the drawings. The Pump Station scope includes ground-up construction of new concrete slab, split-face CMU bearing walls, metal standing seam roof and fascia, a 6' x 7' hollow metal door and frame, an 8' x 8' manual operated overhead

coiling door and frame, steel pipe bollards and other incidental features.

- p. **Removal of Bird Nests:** Several mud nests of the Cliff Swallow, a state and federally protected species, are currently attached to the eaves of the Dock 3 roof and possibly inside the hangar. All swallows are classified under the Migratory Bird Treaty Act of 1918. Per federal law the nests may not be disturbed during the nesting period that spans approximately over the period of March 1st through October 31st of each year. However, the dates vary because of the weather conditions of each given year.

The contractor is responsible for contacting the U.S. Fish and Wildlife Service to determine if a depredation permit is required prior to disturbing and removing the nests. Contact information is as follows:

USDA-APHIS Wildlife Services
P.O. Box 255348
Sacramento, CA 95865-5348
916.979.2675

The contractor is responsible for the cost of the permit and all costs associated with removal of the nests in a manner prescribed by Wildlife Services.

- q. **Handling, Profiling, Transportation, and Disposal of Excess Site Soils:** *The project site is located within an Environmental Restoration Program (ERP) site at Beale AFB. Along with site safety and health requirements included in the base bid, all soils that are generated by work (excluding utility line installation) included in the base bid and that become excess to the project, must first be characterized (profiled) by the Contractor prior to offsite disposal. The base bid includes all labor, equipment, materials, and services necessary to chemically profile the soils to verify disposal of the soils in a Class III permitted landfill or disposal facility. The handling, transportation, and disposal of the excess soil are also included.*
- r. **Handling and Profiling of Excavated Soils from Trenching Activities:** *Includes special chemical/visual screening, segregation, stockpiling, loading, and sampling and analysis of soil excavated from the installation of the waterline trenches as required in Specification Section 02111. Once the soil has been characterized for disposal, costs for the transportation, disposal, and any additional profiling required by the disposal facility shall be included in the bid options described below.*

1.1.2 Location

The work shall be located at the Beale Air Force Base aircraft maintenance area, as indicated on the drawings.

1.1.3 Bid Option Description

The contractor shall provide separate firm fixed lump sum **and unit cost bids as required for the line items on the Pricing Schedule** ~~bids for the base bid~~

~~and options 1 and 2~~ as described below. The intent of the government is to award all options under this contract. Execution of the base bid and all options shall result in a complete construction project as presented on the design drawings and specification. The contractor is responsible for identifying areas of uncertainty in the project scope prior to submitting a bid. Any uncertainties shall be submitted to the Contracting Officer in writing for clarification.

Base Bid

Base bid work is generally described above. Refer to the drawings for further details.

Option 1: Roadway and Bike/Pedestrian Path Adjacent to the Dining Facility

Construct the L-shaped roadway and bike path extension in front of the new Dining Facility. Note: the Dining Facility contract was awarded in February and a Notice To Proceed was issued to the Contractor on March 17, 2003. Therefore, construction may still be underway after the Dock 3 contract is awarded.

Approximate construction limits for Option 1 are shown on the contract drawings. The construction requirements for this option shall include all the necessary materials, labor, and incidental for constructing the proposed segment of the roadway and the adjacent bike and pedestrian path. The construction shall conform to the requirements of the plans and specifications.

Furnish and install new roadway finish grading and paving as indicated on the civil drawings. The work includes the vehicle roadway and the extension of an asphalt bike path.

Furnish and install irrigation and landscaping improvements between the new roadway and the existing parking lot of the Dining Facility as indicated on the Landscaping and Irrigation drawings.

In addition, this option includes the labor, materials, equipment, and services for sampling and analysis of the excess soil generated at the site as a result of the work contained in this option to verify disposal at a Class III municipal landfill or disposal facility. The handling, stockpiling, transportation, and disposal of the excess soil generated under this bid option are also included.

The new work included in this option begins at the back face of the curb that forms the Dining Facility parking stalls and landscape islands for the existing parking lot. The new paving surfaces must blend into the existing roadway and parking lot in order to provide a smooth and level transition from existing to new finishes.

Option 2: Roadway and Bike/Pedestrian Path from Douglas Street to the Dining Facility

Option No. 2 consists of constructing the remaining portion of the proposed roadway and Bike/Pedestrian path connecting the roadway

described in Option 1 to Douglas Street. Approximate construction limits for this option are shown on the contract drawings. This option also includes access to existing parking lot along Douglas Street. The construction requirements for this option shall include all the necessary materials, labor, and incidentals for constructing the proposed segment of the roadway and the adjacent bike and pedestrian path. The work includes other appurtenant features such as pavement striping, partial curbs and gutters, rock slope outfalls and drain piping and a vault box for a monitoring well, stop signs and removable bollards - all as identified on the drawings. *In addition, this option includes the labor, materials, equipment, and services for sampling and analysis of the excess soil generated at the site as a result of the work contained in this option to verify disposal at a Class III municipal landfill or disposal facility. The handling, transportation, and disposal of the excess soil generated under this bid option are also included.* The construction shall conform to the requirements of the plans and specifications.

Option 3: Transportation, profiling, and disposal of excavated soil from utility trench at a permitted municipal (Class III) disposal facility.

Includes all labor, materials, services, and equipment necessary for the transportation, any additional profiling (if required by disposal facility) and disposal of excavated soil from the utility trenches at a Class III landfill or disposal facility.

Option 4: Transportation, profiling, and disposal of excavated soil from utility trench at a permitted (Class II) disposal facility.

Includes all labor, materials, services, and equipment necessary for the transportation, any additional profiling (if required by disposal facility) and disposal of excavated soil from the utility trenches at a Class II landfill or treatment/disposal facility. Included under this bid option is soil that is considered unsuitable for disposal at a Class III municipal landfill, but not classified as a California or RCRA Hazardous Waste.

Option 5: Transportation, profiling, and disposal of excavated soil from utility trench at a permitted (Class I) disposal facility.

Includes all labor, materials, services, and equipment necessary for the transportation, any additional profiling (if required by disposal facility) and disposal of excavated soil from the utility trenches at a Class I landfill or treatment/disposal facility. Included under this bid option is soil that is considered unsuitable for disposal at a Class II or III landfill or disposal facility.

Option 6: Additional cost of transportation and disposal of excavated soil from areas other than utility trench at a permitted (Class II) disposal facility.

Includes all labor, materials, services, and equipment necessary for the transportation and disposal of the excess soil generated in the base bid, Option 1, and Option 2 from areas other than the

utility trenches at a Class II landfill or treatment/disposal facility. Included under this bid option is soil that is considered unsuitable for disposal at a Class II municipal landfill or treatment/disposal facility, but not classified as a California or RCRA Hazardous Waste. Costs for characterization of the soil are included in the base bid or Options 1 or 2 depending under which portion of the contract the excess soil was generated.

Option 7: Additional cost of transportation and disposal of excavated soil from areas other than utility trench at a permitted (Class I) disposal facility.

Includes all labor, materials, services, and equipment necessary for the transportation and disposal of excess soil generated in the base bid, Option 1, and Option 2 from areas other than the utility trenches at a Class I landfill or treatment/disposal facility. Included under this bid option is soil that is considered unsuitable for disposal at a Class II or III municipal landfill or treatment/disposal facility. Costs for characterization of the soil are included in the base bid or Options 1 or 2 depending under which portion of the contract the excess soil was generated.

1.1.4 Construction Sequence

Installation of the fire suppression systems inside Dock 6 is a prerequisite to the maintenance of Global Hawk aircraft inside the facility making this and all predecessor installations, such as the new Pump Station and underground water service to Dock 6, the highest priority. ***Prior to work inside Dock 3, the contractor shall complete all new high expansion foam system piping and associated hardware in Dock 6, including installation of the new bird netting in Dock 6 (see detail 3/A-508 for attachment detail).*** The Contractor shall take this into account in preparing its bid and project schedule. All other work included in the documents is of secondary priority but shall be performed on a concurrent logic path as necessary to meet the overall contract duration.

1.2 EXISTING WORK

1.2.1 Existing Work to Remain

Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which is indicated to remain.

1.2.2 Repair and Replacement

Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as approved by the Contracting Officer. At the completion of operations, existing work shall be in a condition equal to or better than that which existed before new work started.

1.3 LOCATION OF UNDERGROUND FACILITIES

Verify the elevations of existing piping, utilities, and any type of underground obstruction not indicated or specified to be removed but indicated in locations to be traversed by piping, ducts, and other work to be installed.

1.3.1 Notification Prior to Excavation

Notify the Contracting Officer at least 14 days prior to starting excavation work. Additionally, the Contractor must apply for a Beale AFB digging permit prior to starting excavation work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

DIVISION 01 – GENERAL REQUIREMENTS
SECTION 01351A
SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST)

Table of Contents

1.0	Part 1 GENERAL.....	2
1.1	References.....	2
1.2	Description of Work	3
1.3	Submittals	3
1.4	Regulatory Requirements.....	4
1.5	Preconstruction Safety Conference.....	4
1.6	Safety and Health Program	4
1.7	Site Safety and Health Plan.....	5
1.8	Activity Hazard Analyses	6
1.9	Hazard/Risk Analysis.....	6
1.10	Task Specific Hazards.....	7
1.11	Staff Organization, Qualification and Responsibilities	8
1.12	Training.....	10
1.13	Personal Protective Equipment.....	11
1.14	Medical Surveillance Program.....	12
1.15	Exposure Monitoring/Air Sampling Program.....	13
1.16	Heat/Cold Stress Management.....	14
1.17	Spill and Discharge Control.....	14
1.18	Confined Space Entry Procedures	14
1.19	Excavation and Trench Safety	14
1.20	Site Control Measures.....	14
1.21	Personal Hygiene and Decontamination.....	15
1.22	Emergency Equipment and First Aid Requirements	15
1.23	Emergency Response and Contingency Procedures.....	16
1.24	Title to Waste materials	17
1.25	Certificate of Worker/Visitor Acknowledgment	17
1.26	Inspections	17
1.27	Safety and Health Phase-Out Report	17
2.0	Part 2 PRODUCTS	18
3.0	Part 3 EXECUTION	18

1.0 PART 1 GENERAL

1.1 References

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)

ACGIH® Limit Values (2003) Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z358.1 (1998) Emergency Eyewash and Shower Equipment

CALIFORNIA CODE OF REGULATIONS (CCR)

8 CCR, Chapter 4, Subchapter 4 Construction Safety Orders
8 CCR Chapter 4, Subchapter 7 General Industry Safety Orders
8 CCR § 5192 Hazardous Waste Operations and Emergency Response
8 CCR § 1539 – 1543 Excavations
8 CCR § 5144 Respiratory Protection
8 CCR § 3203 and 1509 Injury and Illness Prevention Program
8 CCR § 5194 Hazard Communication
8 CCR § 341 Permit Requirements

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

10 CFR 20 Standards for Protection Against Radiation
29 CFR 1904 Recording and Reporting Occupational Injuries and Illnesses
29 CFR 1910 Occupational Safety and Health Standards
29 CFR 1926 Safety and Health Regulations for Construction
49 CFR 171 General Information, Regulations, and Definitions
49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2003) U.S. Army Corps of Engineers Safety and Health Requirements Manual

ER 385-1-92 (2003) Safety and Occupational Document Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Activities

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH Pub No. 85-115 (1985) Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities

OTHER (URS Group, Inc.)

Field Summary Report (2003) Draft Final Soil Gas Screening Investigation of Dock #3 Area Soil (Fire Suppression Water Line Trench and Creaseman Avenue Road Realignment)

1.2 Description of Work

This section requires contractors to implement practices and procedures for working safely and in compliance with OSHA and USACE regulation while performing trenching, grading, waste characterization, and off-base disposal of contaminated (petroleum hydrocarbons) subsurface soil when installing a new fire suppression water line and realigning Creaseman Avenue as part of the Global Hawk Upgrade at Dock #3. The soil may be contaminated from breaks and/or leaks from the former industrial wastewater line (IWL) and several oil/water separators located in the area. The project area lies entirely within the Environmental Restoration Program (ERP) Site 32, a site with known widespread volatile organic compounds (VOCs) contamination in the soil. This section describes procedures required to protect workers and the environment from exposure to petroleum hydrocarbons and airborne dust.

1.3 Submittals

Government approval is required for submittals with a "G" designation; The USACE Resident Engineer (RE) will review the submittals for the Government. Submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-02 Shop Drawings

- a. Work Zones; G, RE
Drawings including initial work zone boundaries: Exclusion Zone (EZ), including restricted and regulated areas; Contamination Reduction Zone (CRZ); and Support Zone (SZ).
- b. Decontamination Facilities; G, RE
Drawings showing the layout of the personnel and equipment decontamination areas.

SD-03 Product Data

- a. Exposure Monitoring/Air Sampling Program; G, RE
Personnel exposure monitoring/sampling results.
- b. Site Control Log;
Record of each entry and exit into the site, as specified.
- c. HAZWOPER Qualifications Certificates; G, RE
A certificate for each worker performing Hazardous waste operations with potential or unacceptable occupational exposure signed by the safety and health manager and the occupational physician indicating the workers meet the training and medical surveillance requirements of this contract.
- d. Contractors State License Board Certificate; G, RE
Contractors State License Board (California) for Hazardous Substance Removal.
- e. Excavation permit; G, RE

1.4 Regulatory Requirements

Work performed under this contract shall comply with EM 385-1-1, Cal-OSHA requirements in 8 CCR, Chapter 4, Subchapter 4, "Construction Safety Orders", 8 CCR Chapter 4, Subchapter 7, "General Industry Safety Orders", especially 8 CCR § 5192, "Hazardous Waste Operations and Emergency Response", and any specific Cal-OSHA requirements where applicable. Matters of interpretation of standards shall be submitted to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

1.5 Preconstruction Safety Conference

The Contractor, project supervisor, and safety and health manager (SHM) shall meet with the Contracting Officer (CO) prior to beginning work at a safety pre-construction conference to discuss the details of the contractor's submitted Site Safety and Health Plan (SSHP) to include the Activity Hazard Analyses (AHAs). The SSHP shall be an appendix to the Accident Prevention Plan (APP).

1.6 Safety and Health Program

The Contractor shall develop and implement a Safety and Health Program (SHP) / Injury and Illness Prevention Program (IIPP) which incorporates requirements in Cal-OSHA safety order 8 CCR § 5192(b) and 8 CCR § 3203 & 1509 respectively, and the APP requirements in Appendix A of EM 385-1-1. The SHP shall address the items in 8 CCR § 5192(b), 8 CCR § 3203 & 1509 and Appendix A of EM 385-1-1 in corporate specific detail. The elements are:

- a. Signature sheet.
- b. Background information.
- c. Statement of safety and health policy.
- d. Responsibilities and lines of authorities.
- e. Subcontractors and suppliers.
- f. Training.
- g. Safety and health inspections.

- h. Safety and health expectations, incentive programs and compliance.
- i. Accident reporting.
- j. Medical support.
- k. Personal protective equipment
- l. Plans (programs, procedures) required by EM 385-1-1 as applicable.
- m. Contractor information
- n. Site-specific hazards and controls.

1.7 Site Safety and Health Plan

The Contractor shall develop and implement a Site Safety and Health Plan (SSHP) meeting the requirements of 8 CCR § 5192(b)(4). At a minimum, the SSHP shall address each element in Appendix C of ER 385-1-92 and shall incorporate AHAs meeting the requirements of 01.A.11 and Figure 1-2 of EM 385-1-1.

- a. The SSHP shall be considered a living document and shall be updated as occupational safety and health conditions change during project execution and improved as occupational safety and health lessons are learned during the course of the project.
- b. SSHP elements in Appendix C of ER 385-1-92 are:
 - 1. Site description and contamination characterization.
 - 2. Hazard/Risk Analysis.
 - 3. Occupational exposure action levels.
 - 4. Staff organization, qualifications, and responsibilities.
 - 5. Training.
 - 6. Personal Protective Equipment.
 - 7. Medical Surveillance.
 - 8. Radiation Dosimetry.
 - 9. Exposure monitoring/air sampling program.
 - 10. Heat/cold stress monitoring and management.
 - 11. Standard operating safety procedures, engineering controls, and work practices.
 - 12. Site control measures.
 - 13. Personal hygiene and decontamination.
 - 14. Equipment decontamination.
 - 15. Emergency equipment and first aid requirements.
 - 16. Emergency response and contingency procedures (on-site and off-site).
 - 17. Accident prevention.
 - 18. Logs, reports, and recordkeeping.

1.7.1 Acceptance and Modifications

Prior to submittal, the SSHP shall be signed and dated by the SHM and the site superintendent. The SSHP shall be submitted for review 15 days prior to the preconstruction safety conference. Deficiencies in the SSHP will be discussed at the preconstruction safety conference, and the SSHP shall be revised to correct the deficiencies and resubmitted for acceptance. Onsite work shall not begin until the plan has been accepted. A copy of the written SSHP shall be maintained onsite. Changes and modifications to the accepted SSHP shall be made with the knowledge and concurrence

of the SHM, the site superintendent, and the CO. Should any unforeseen hazard become evident during the performance of the work, the Site Safety and Health Officer (SSHO) shall bring such hazard to the attention of the SHM, the site superintendent, and the CO, both verbally and in writing, for resolution as soon as possible. In the interim, necessary action shall be taken to re-establish and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public, and the environment. Disregard for the provisions of this specification or the accepted SSHP shall be cause for stopping of work until the matter has been rectified.

1.7.2 Availability

The SSHP shall be made available in accordance with 8 CCR § 5192(b)(1)(E).

1.8 Activity Hazard Analyses

AHAs, for each major phase of work, shall be submitted and updated during the project. The AHA format shall be in accordance with Figure 1-2 of EM 385-1-1. The analyses shall define the activities to be performed for a major phase of work, identify the sequence of work, the specific hazards anticipated, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level. Work shall not proceed on that phase until the AHA has been accepted and a preparatory meeting has been conducted by the contractor to discuss its contents with everyone engaged in the activities, including the onsite Government representatives. The AHAs shall be continuously reviewed and, when appropriate, modified to address changing site conditions or operations.

1.9 Hazard/Risk Analysis

1.9.1 Chemical Hazards

The Contractor shall refer to the Field Summary Report, Soil Gas Screening Investigation of Dock #3 Area Soil (Fire Suppression Water Line Trench and Creaseman Avenue Road Realignment).

1.9.1.1. Material Safety Data Sheets

The Contractor shall include a Material Safety Data Sheet (MSDS) for each known or anticipated chemical brought to the site in support of the construction activities.

1.9.1.2. Hazard Communication Program

Because of the various hazards, the Contractor shall include a hazard communication program in the SSHP.

1.9.1.3. Proposition 65

The Contractor shall provide a warning to the employees in compliance with 22 CCR § 12000, Chemicals known to the State of California to Cause Cancer or Reproductive Toxicity (Safe Drinking Water and Toxic Enforcement Act, Proposition 65).

1.9.1.4. Protection of Existing Area

All trenching and handling of contaminated soil shall be performed without damaging or contaminating adjacent work and areas. Where such work or areas are damaged or contaminated, the Contractor shall restore work and areas to the original condition at no additional cost to the Government.

1.9.1.5. Coordination with Other Work

The Contractor shall coordinate hazardous waste activities with work being performed in adjacent areas. Coordination procedures shall be explained in the SSHP and shall describe how the Contractor will prevent exposures to other contractors and/or Government personnel performing work unrelated to activities associated with the contaminated soil.

1.9.2 Safety Hazards

Safety hazards associated with the trenching and grading tasks include exposure to open excavations, heavy equipment operations, struck-by and caught between hazards with moving equipment and machinery, buried and overhead utilities, confined space entry, heavy lifting, and slip/trip/falls on same surface, and motor vehicles moving about the site.

1.9.3 Physical Hazards

Physical hazards that can be anticipated for this project include noise from operating heavy equipment, fire from flammable materials, excavation hazards, sun exposure, and heat/cold stress.

1.9.4 Radiological Hazards

None of the site background indicates that ionizing radiation is a threat to site personnel. If the Contractor plans to utilize nuclear sourced equipment (i.e., soil compaction nuclear density gauge) then the radiological hazards associated with this equipment shall be addressed in the SSHP.

1.9.5 Ordnance and Explosives (OE)

The Dock #3 operations facilities is located within the boundaries of two former ranges at Beale AFB; the Primary Toss Bomb and the Target 1955 Ranges. In addition, the southeast corner of the Target No. 5 range is located approximately 1,000 feet northwest of the northwestern extent of the fire suppression water line trench. The Contractor shall stop work and contact the CO if ordnance and explosives are discovered during construction activities.

1.10 Task Specific Hazards

It is the Contractor's responsibility to reevaluate occupational safety and health hazards as the work progresses and to adjust the PPE and onsite operations, if necessary, so that the work is performed safely.

1.11 Staff Organization, Qualification and Responsibilities

1.11.1 Contractor

The Contractor shall be qualified for hazardous waste operations. The Contractor shall be certified by the Contractors State License Board (California) for Hazardous Substance Removal Work and Remedial Actions. The Contractor shall provide documentation by name of company as listed on the certificate.

1.11.2 Project Supervisor

The Contractor shall provide evidence that the project supervisor is qualified as a certified supervisor in accordance with 8 CCR § 5192. The Project Supervisor shall have 2-years of on-the-job hazardous waste operations experience.

1.11.3 Safety and Health Manager

The SHM shall be an Industrial Hygienist certified by the American Board of Industrial Hygiene (ABIH). The Safety and Health Manager shall have the following additional qualifications:

- a. A minimum of 3-years experience in developing and implementing safety and health programs at hazardous waste sites.
- b. Documented experience in supervising professional and technician level personnel.
- c. Documented experience in developing worker exposure assessment programs and air monitoring programs and techniques.
- d. Documented experience in the development of personal protective equipment programs, including programs for working in and around potentially toxic, flammable and combustible atmospheres and confined spaces.
- e. Working knowledge of state and Federal occupational safety and health regulations.

1.11.3.1. Responsibilities

The SHM shall:

- a. Be responsible for the development, implementation, oversight, and enforcement of the SSHP.
- b. Sign and date the SSHP prior to submittal.
- c. Conduct initial site-specific training.
- d. Be present onsite during the first days of trenching contaminated soil.
- e. Visit the site as needed.
- f. Be available for emergencies.
- g. Provide onsite consultation as needed to ensure the SSHP is fully implemented.
- h. Coordinate any modifications to the SSHP with the site superintendent, the SSHO, and the CO.
- i. Provide continued support for upgrading/downgrading of the level of personal protection.
- j. Be responsible for evaluating air monitoring data and recommending changes to engineering controls, work practices, and PPE.
- k. Review accident reports and results of daily inspections.
- l. Serve as a member of the Contractor's quality control staff.

1.11.4 Site Safety and Health Officer

An individual shall be designated as the SSHO. The name, qualifications (education and training summary) and work experience of the SSHO shall be included in the SSHP. The SSHO shall have the following qualifications:

- a. A minimum of 2-years experience in implementing safety and health programs at hazardous waste sites where Level C personal protective equipment was required.
- b. Documented experience in construction techniques and construction safety procedures.
- c. Working knowledge of Federal and state occupational safety and health regulations.
- d. Specific training in personal and respiratory protective equipment program implementation, confined space program oversight, and in the proper use of air monitoring instruments, and air sampling methods including monitoring for ionizing radiation.

1.11.4.1. Responsibilities

The SSHO shall:

- a. Assist and represent the SHM in onsite training and the day-to-day onsite implementation and enforcement of the accepted SSHP.
- b. Be assigned to the site for the duration of field activities.
- c. Have authority to ensure site compliance with specified safety and health requirements, Federal, state and OSHA regulations and all aspects of the SSHP including, but not limited to, activity hazard analyses, air monitoring, use of PPE, decontamination, site control, standard operating procedures used to minimize hazards, safe use of engineering controls, the emergency response plan, confined space entry procedures, spill containment program, and preparation of records by performing a daily safety and health inspection and documenting results on the Daily Safety Inspection Log.
- d. Have authority to stop work if unacceptable health or safety conditions exist, and take necessary action to re-establish and maintain safe working conditions.
- e. Consult with and coordinate any modifications to the SSHP with the SHM, the site superintendent, and the CO.
- f. Serve as a member of the Contractor's quality control staff on matters relating to safety and health.
- g. Conduct accident investigations and prepare accident reports.
- h. Review results of daily quality control inspections and document safety and health findings into the Daily Safety Inspection Log.
- i. In coordination with site management and the SHM, recommend corrective actions for identified deficiencies and oversee the corrective actions.

1.11.5 Occupational Physician

The services of a licensed physician, who is certified in occupational medicine by the American Board of Preventative Medicine, or who, by necessary training and experience is Board eligible, shall be utilized. The physician shall be familiar with this site's hazards and the scope of this project. The medical consultant's name, qualifications, and knowledge of the site's conditions and proposed activities shall be included in the SSHP.

The physician shall be responsible for the determination of medical surveillance protocols and for review of examination/test results performed in compliance with 8 CCR § 5192(f).[p

1.11.6 Persons Certified in First Aid and CPR

At least two persons who are currently certified in first aid and CPR by the American Red Cross or other approved agency shall be onsite at all times during site operations. They shall be trained in universal precautions and the use of PPE as described in the Bloodborne Pathogens Standard of 8 CCR § 5193. These persons may perform other duties but shall be immediately available to render first aid when needed.

1.11.7 Disposal Facility and Transporters

The Contractor shall provide written evidence that the landfill to be used is approved for hazardous waste disposal by the USEPA and California regulatory agencies. Copies of signed agreements between the Contractor (including subcontractors and transporters) and the waste disposal facility to accept and dispose of all regulated/hazardous waste shall be provided. The Contractor and transporters shall meet the DOT as well as Federal and California registration requirements.

1.12 Training

The Contractor's training program for workers performing trenching, grading and handling of contaminated soil and who will be exposed to contaminants shall meet the following requirements.

1.12.1 General Hazardous Waste Operations Training

All Personnel performing duties with potential for exposure to on-site contaminants shall meet and maintain the following 8 CCR § 5192(e) training requirements:

- a. 40-hours of off site hazardous waste instruction.
- b. 3-days actual field experience under the direct supervision of a trained experienced supervisor.
- c. 8-hours refresher training annually.

Onsite supervisors shall have an additional 8-hours management and supervisor training specified in 8 CCR § 5192(e)(4).

1.12.2 Initial Session (Pre-entry Briefing)

Prior to commencement of onsite field activities, all site employees, including those assigned only to the Support Zone, shall attend a site-specific safety and health training session. This session shall be conducted by the SHM and/or the SSHO to ensure that all personnel are familiar with requirements and responsibilities for maintaining a safe and healthful work environment. Procedures and contents of the accepted SSHP and Sections 01.B and 28.A.02(4) of EM 385-1-1 shall be thoroughly discussed. The CO shall be notified at least 5-days prior to the initial site-specific training session so government personnel involved in the project may attend.

1.12.3 Daily Tailgate Safety Meeting

Daily onsite training shall be conducted by the SSHO. The training shall address safety and health procedures, work practices, any changes in the SSHP, activity hazard analyses, work tasks, or schedule; results of previous week's air monitoring, review of safety discrepancies and accidents. Should an operational change affecting onsite fieldwork be made, a meeting prior to implementation of the change shall be convened to explain safety and health procedures. Site-specific training sessions for new personnel, visitors, and suppliers shall be conducted by the SSHO using the training curriculum outlines developed by the SHM.

1.12.4 Other Training

The SHM shall provide training as specified by 8 CCR § 5156-5158 for employees who are required to supervise, standby, or enter permit-required confined spaces; and Hazard Communication training as specified by 8 CCR § 5194. Persons involved in any aspect of the transportation of hazardous materials shall be trained in accordance with 49 CFR 172 Subpart H.

1.13 Personal Protective Equipment

1.13.1 Site Specific PPE Program

Onsite personnel exposed to contaminants shall be provided with appropriate personal protective equipment. Components of levels of protection (C, D) must be relevant to site-specific conditions, including heat and cold stress potential and safety hazards. Only respirators approved by NIOSH shall be used. Protective equipment and clothing shall be kept clean and well maintained. The PPE section of the SSHP shall include site-specific procedures to determine PPE program effectiveness and for onsite fit testing of respirators, cleaning, maintenance, inspection, and storage of PPE. It is anticipated that Level D PPE is the initial level of protection during trenching, grading and handling contaminated soil tasks. However, the Contractor must verify this assessment and allow for upgrading/downgrading PPE based on actual site conditions.

1.13.2 Levels of Protection

The SHM shall establish and evaluate as the work progresses the levels of protection for each work activity. The SHM shall also establish action levels for upgrade or downgrade in levels of PPE. Protocols and the communication network for changing the level of protection shall be described in the SSHP. The PPE evaluation protocol shall address air monitoring results, potential for exposure, changes in site conditions, work phases, job tasks, weather, temperature extremes, individual medical considerations, etc.

1.13.2.1. Initial PPE Components

The following items constitute minimum protective clothing and equipment ensembles to be utilized during this project:

1.13.2.2. Level D

- Standard work clothing, long pants and sleeved and collared shirts.
- Safety shoes or boots.

- Impervious gloves during site activities that could result in direct contact with contaminated soil.
- Safety glasses.
- Hardhat.
- Hearing protection as necessary depending on measured decibel readings in the field. The protective device must have a noise reduction rating capable of providing the wearer with enough protection so as to reduce the received noise level to below 85 dBA.
- Reflective traffic vests.

1.13.2.3. Level C

Level C PPE includes the above ensemble with the addition of:

- Tyvek® coveralls.
- Half-faced air purifying respirator (APR) with a combination Organic Vapor/P100 cartridges.

1.13.2.4. Level B and Level A

Levels B and A PPE are not anticipated.

1.14 Medical Surveillance Program

The Contractor's medical surveillance program for workers performing contaminated soil operations and who will be exposed to contaminants shall meet 8 CCR § 5192(f) and the following requirements. The Contractor shall assure the Occupational Physician performs the physical examinations and reviews examination results. Participation in the medical surveillance program shall be without cost to the employee, without loss of pay and at a reasonable time and place.

1.14.1 Frequency of Examinations

Medical surveillance program participants shall receive medical examinations and consultations on the following schedule:

- a. Bi-annual (more frequent on physicians recommendation).
- b. If and when the participant develops signs and symptoms indicating a possible overexposure.
- c. Upon termination or reassignment to a job where medical surveillance program participation is not required, unless his/her previous annual examination/consultation was less than 6 months prior to reassignment or termination.
- d. On a schedule specified by the occupational physician.

1.14.2 Content of Examinations

The physical examination/consultation shall verify the following information about medical surveillance program participants:

- a. Baseline health conditions and exposure history.
- b. Allergies/sensitivity/susceptibility to hazardous substances exposure.
- c. Ability to wear personal protective equipment inclusive of NIOSH certified respirators under extreme temperature conditions.

- d. Fitness to perform assigned duties.

The Contractor shall provide the occupational physician with the following information for each medical surveillance program participant:

- a. Information on the employee's anticipated or measured exposure.
- b. A description of any PPE used or to be used.
- c. A description of the employee's duties as they relate to the employee's exposures (including physical demands on the employee and heat/cold stress).
- d. A copy of 8 CCR § 5192.
- e. Information from previous examinations not readily available to the examining physician.
- f. A copy of Section 5.0 of NIOSH Pub No. 85-115.
- g. Information required by 8 CCR § 5144.

1.14.3 Physician's Written Opinion

Before work begins a copy of the physician's written opinion for each employee shall be obtained and furnished to the SHM, and the employee. The opinion shall address the employee's ability to perform hazardous waste site work and shall contain the following:

- a. The physician's recommended limitations upon the employee's assigned work and/or PPE usage.
- b. The physician's opinion about increased risk to the employee's health resulting from work.
- c. A statement that the employee has been informed and advised about the results of the examination.

1.14.4 Medical Records

Documentation of medical exams shall be provided as part of the Certificate of Worker or Visitor Acknowledgment. Medical records shall be maintained in accordance with 8 CCR § 5192.

1.15 Exposure Monitoring/Air Sampling Program

The SHM shall prepare and implement an exposure monitoring/air sampling program to identify and quantify safety and health hazards and airborne levels of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment for affected site personnel.

1.15.1 Air Sampling and Screening Program

The Contractor shall include in the SSHP an air sampling and screening program (personal and area) for contaminated soil operations. The program shall establish reporting requirements and notification procedures. Air monitoring may be performed to assess the degree of exposure during the invasive soil operations.

1.15.2 Dust Control

The Contractor shall implement dust controls to keep dust generation to a level not visible.

1.16 Heat/Cold Stress Management

The Contractor shall establish a heat/cold stress management program.

1.17 Spill and Discharge Control

Written spill and discharge containment/control procedures shall be developed and implemented. These procedures shall address material handling equipment, drum and container handling, and sampling, shipping and transport.

1.18 Confined Space Entry Procedures

Trenches/excavation may be classified as confined spaces; the Contractor shall develop work procedures for any permit-required confined space entry as required by 8 CCR § 5156 – 5158 prior to such activities.

1.19 Excavation and Trench Safety

The Contractor shall develop work procedures for excavations/trenches as required by 8 CCR § 1539 – 1543. The Contractor shall obtain a permit from Cal-OSHA for trenches or excavations which are 5 feet or deeper and into which a person is required to enter.

1.20 Site Control Measures

1.20.1 Work Zones

The Contractor shall establish work zone boundaries (exclusion zone, including restricted and regulated areas; contamination reduction zone; and support zone) and access points. Delineation of work zone boundaries shall be based on the contamination characterization data and the hazard/risk analysis to be performed by the SHM. As work progresses and field conditions are monitored, work zone boundaries may be modified with approval of the CO. Work zones shall be clearly identified and marked in the field (using fences, tape, signs, etc.). Work zones shall consist of the following:

- a. Exclusion Zone (EZ): The EZ is the area where hazardous contamination is either known or expected to occur and the greatest potential for exposure exists. Entry into this area shall be controlled and exit may only be made through the CRZ.
- b. Contamination Reduction Zone (CRZ): The CRZ is the transition area between the EZ and the Support Zone. The personnel and equipment decontamination areas shall be separate and unique areas located in the CRZ.
- c. Support Zone (SZ): The SZ defined as areas of the site, other than EZ and CRZ, where workers do not have the potential to be exposed to hazardous substances or dangerous conditions resulting from hazardous waste operations. The SZ shall be secured against active or passive contamination. Site offices, parking areas, and other support facilities shall be located in the SZ.

1.20.2 Site Control Log

A log of personnel visiting, entering, or working on the site shall be maintained. The log shall include the following: date, name, agency or company, time entering and exiting site, time entering and exiting the exclusion zone (if applicable), and personal protective equipment utilized. Before visitors are allowed to enter the CRZ or EZ, they shall show proof of current training; medical surveillance and respirator fit testing (if respirators are

required for the tasks to be performed) and shall fill out the Certificate of Worker or Visitor Acknowledgment. This visitor information, including date, shall be recorded in the log.

1.20.3 Communication

An employee alarm system that has adequate means of on and off site communication shall be provided. The means of communication shall be able to be perceived above ambient noise in the affected portions of the workplace. The signals shall be distinctive and recognizable as messages to evacuate or to perform critical operations.

1.20.4 Site Security

Signs shall be printed in bold large letters on contrasting backgrounds in English and where appropriate, in the predominant language of workers unable to read English. Signs shall be visible from all points where entry might occur and at such distances from the restricted area that employees may read the signs and take necessary protective steps before entering.

1.21 Personal Hygiene and Decontamination

Personnel entering the EZ or CRZ or otherwise exposed or subject to exposure to hazardous chemical vapors, liquids, or contaminated solids shall adhere to the following personal hygiene and decontamination provisions. Decontamination shall be performed in the CRZ prior to entering the Support Zone from the Exclusion Zone. Chapter 10.0 of NIOSH Pub No. 85-115 shall be consulted when preparing decontamination procedures. A detailed discussion of personal hygiene and decontamination facilities and procedures to be followed by site workers shall be submitted as part of the SSHP. Employees shall be trained in the procedures and the procedures shall be enforced throughout site operations.

1.21.1 Decontamination Facilities

The Contractor shall initially set up a hand and face washing decontamination in the CRZ. It is the SSHO's responsibility to recommend techniques to improve personnel decontamination techniques and procedures, if necessary.

1.21.2 Equipment Decontamination

Vehicles and equipment used in the EZ shall be decontaminated in the CRZ prior to leaving the site. Tires and equipment that comes in contact with the contaminated soil shall be broom cleaned. Construction material shall be handled in such a way as to minimize the potential for contaminants being spread and/or carried offsite. Prior to exiting the site, vehicles and equipment shall be monitored to ensure the adequacy of decontamination.

1.22 Emergency Equipment and First Aid Requirements

The following items, as a minimum, shall be maintained onsite and available for immediate use:

- a. First aid equipment and supplies approved by the consulting physician.
- b. Emergency eyewashes and showers, which comply with ANSI Z358.1.

- c. Fire extinguishers with a minimum rating of 20-A:120-B:C shall be provided at site facilities and in all vehicles and at any other site locations where flammable or combustible materials present a fire risk.

1.23 Emergency Response and Contingency Procedures

An Emergency Response Plan, that meets the requirements of 8 CCR § 5192(l), shall be developed and implemented as a section of the SSHP. In the event of any emergency associated with excavation action, the Contractor shall, without delay, alert all onsite employees that there is an emergency situation; take action to remove or otherwise minimize the cause of the emergency; alert the CO; and institute measures necessary to prevent repetition of the conditions or actions leading to, or resulting in, the emergency. Employees that are required to respond to hazardous emergency situations shall be trained in how to respond to such expected emergencies. The plan shall be rehearsed regularly as part of the overall training program for site operations. The plan shall be reviewed periodically and revised as necessary to reflect new or changing site conditions or information. The following elements, as a minimum, shall be addressed in the plan:

- a. Pre-emergency planning. Contact the local emergency response planner during preparation of the Emergency Response Plan. The contractor shall arrange to have fire, rescue, medical and police security services provided by local emergency responders. The Contractor shall ensure the Emergency Response Plan for the site is compatible and integrated with the local fire, rescue, medical and police security services available from local emergency response planning agencies.
- b. Personnel roles, lines of authority, communications for emergencies.
- c. Emergency recognition and prevention.
- d. Site topography, layout, and prevailing weather conditions.
- e. Criteria and procedures for site evacuation (emergency alerting procedures, employee alarm system, emergency PPE and equipment, safe distances, places of refuge, evacuation routes, site security and control).
- f. Specific procedures for decontamination and medical treatment of injured personnel.
- g. Route maps to nearest prenotified medical facility. Site-support vehicles shall be equipped with maps. At the beginning of project operations, drivers of the support vehicles shall become familiar with the emergency route and the travel time required.
- h. Emergency alerting and response procedures including posted instructions and a list of names and telephone numbers of emergency contacts (physician, nearby medical facility, fire and police departments, ambulance service, Federal, state, and local environmental agencies; as well as Safety and Health Manager, the Site Superintendent, the Contracting Officer and/or their alternates).
- i. Criteria for initiating community alert program, contacts, and responsibilities.
- j. Procedures for reporting incidents to appropriate government agencies. In the event that an incident such as an explosion or fire, or a spill or release of toxic materials occurs during the course of the project, the appropriate government agencies shall be immediately notified. In addition, the CO shall be verbally notified immediately and receive a written notification within 24 hours. The report shall include the following items: (1) Name, organization, telephone number, and location of the

Contractor. (2) Name and title of the person(s) reporting. (3) Date and time of the incident. (4) Location of the incident, i.e., site location, facility name. (5) Brief summary of the incident giving pertinent details including type of operation ongoing at the time of the incident. (6) Cause of the incident, if known. (7) Casualties (fatalities, disabling injuries). (8) Details of any existing chemical hazard or contamination. (9) Estimated property damage, if applicable. (10) Nature of damage, effect on contract schedule. (11) Action taken to ensure safety and security. (12) Other damage or injuries sustained, public or private.

- k. Procedures for critique of emergency responses and follow-up.

1.24 Title to Waste materials

Waste materials resulting from site activities, except as specified otherwise, shall become the property of the Contractor and shall be disposed of in accordance with applicable Federal and California regulations. The Contractor shall complete manifests and deliver to the CO for signature. The Contractor shall complete and provide the CO final completed copies of the Waste Shipment Records for shipments of waste material as specified in 40 CFR 61, Subpart M and other required California waste manifest shipment records, within 3-days of delivery to the landfill. Each waste shipment record shall be signed and dated by the Contractor, the waste transporter and disposal facility operator.

1.25 Certificate of Worker/Visitor Acknowledgment

A copy of a Contractor-generated certificate of worker/visitor acknowledgement shall be completed and submitted for each visitor allowed to enter CRZ or EZ, and for each employee.

1.26 Inspections

The SSHO's Daily Inspection Logs shall be attached to and submitted with the Daily Quality Control reports. Each entry shall include the following: date, work area checked, employees present in work area, PPE and work equipment being used in each area, special safety and health issues and notes, and signature. In the event of an accident, the CO shall be notified according to EM 385-1-1. Within 2-working days of any reportable accident, an Accident Report shall be completed on ENG Form 3394 and submitted.

1.27 Safety and Health Phase-Out Report

A Safety and Health Phase-Out Report shall be submitted within 10-working days following completion of the work, prior to final acceptance of the work. The following minimum information shall be included:

- a. Summary of the overall performance of safety and health (accidents or incidents including near misses, unusual events, lessons learned, etc.).
- b. Final decontamination documentation including procedures and techniques used to decontaminate equipment, vehicles, and on site facilities.
- c. Summary of exposure monitoring and air sampling accomplished during the project.
- d. Safety Performance. A summary of hours worked (total of contractor and subcontractor), including incidents and injuries.

- e. Signatures of SHM and SSHO.

2.0 PART 2 PRODUCTS

Not Applicable

3.0 PART 3 EXECUTION

Not Applicable

-- End of Section --

SECTION 02111

EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 Background Information
 - 1.2.1 Excavated Soil from Installation of the Utility (Fire Suppression Water) Line
 - 1.2.2 Excess Soil (Spoils) from Other Areas of the Project
- 1.3 SUBMITTALS
- 1.4 NOT USED
- 1.5 REGULATORY REQUIREMENTS
 - 1.5.1 Permits and Licenses
 - 1.5.2 Air Emissions
- 1.6 DESCRIPTION OF WORK
 - 1.6.1 Utility Trench Soil
 - 1.6.2 Excess Soil from Other areas of the Project
- 1.7 CHEMICAL TESTING
- 1.8 SCHEDULING

PART 2 PRODUCTS

- 2.1 BACKFILL
- 2.2 SPILL RESPONSE MATERIALS

PART 3 EXECUTION

- 3.1 EXISTING STRUCTURES AND UTILITIES
- 3.2 CLEARING
- 3.3 CONTAMINATED MATERIAL REMOVAL
 - 3.3.1 Excavation
 - 3.3.2 Shoring
 - 3.3.3 Dewatering
- 3.4 NOT USED
- 3.5 CONTAMINATED MATERIAL STORAGE
 - 3.5.1 Stockpiles
 - 3.5.2 Roll-Off Units
 - 3.5.3 Liquid Storage
- 3.6 SAMPLING
 - 3.6.1 Sampling of Utility Trench Soil
 - 3.6.2 Sampling of Excess Soil from Areas outside of the Utility Trench
 - 3.6.3 Sampling Liquid
- 3.7 CHEMISTRY REQUIREMENTS
 - 3.7.1 Data Quality Objectives (DQO)
 - 3.7.3 Quality Assurance Elements
 - 3.7.3.1 Laboratory Validation Requirements / State Certification
 - 3.7.4 General Requirements
 - 3.7.4.1 ANALYTICAL TESTING LABORATORIES
 - 3.7.4.1.1 Laboratory Analytical Requirements
 - 3.7.5 Documentation
- 3.8 SPILLS
- 3.9 BACKFILLING

- 3.10 DISPOSAL REQUIREMENTS
- 3.11 EQUIPMENT DECONTAMINATION
- 3.12 FIELD REPORT

- End of Section Table of Contents -

SECTION 02111

EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 5434 (1997) Standard Guide for Field Logging of Subsurface Explorations of Soil and Rock

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 302 Designation, Reportable Quantities, and Notification
 40 CFR 261 Identification and Listing of Hazardous Waste
 40 CFR 262 Standards Applicable to Generators of Hazardous Waste
 40 CFR 268 Land Disposal Restrictions
 49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
 49 CFR 178 Specifications for Packagings

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 200-1-1 (1994) Validation of Analytical Chemistry Laboratories
 EM 200-1-6 (1997) Chemical Quality Assurance
 ER 1110-1-263 (1998) Data Quality Management for Hazardous, Toxic, Radioactive Waste Remedial Activities

1.2 BACKGROUND INFORMATION

The project site falls entirely within the Beale AFB Environmental Restoration Program (ERP) Site 32. As a result, special procedures and protocols for segregating, handling, stockpiling, characterizing and disposing of excess soil from this site shall be required of the Contractor. There are two areas in this project that will require these special procedures; excavated soil from the installation of the utility line (fire suppression water line) and all other soil that is excess to the project as a result of site activities.

1.2.1 Excavated Soil from Installation of the Utility (Fire Suppression Water) Line.

Soil gas samples were collected and analyzed for volatile organic compounds (VOC) during design of this project. The relevant sections of the field summary report for this investigation are included as part of the specification. Sample sites with detectable VOCs are indicated in the report. These locations are also indicated on the contract drawings (Sheet C-103 of these Plans and Specifications). In general, sporadic detections of acetone and toluene were detected. As only soil gas samples were taken, other non-volatile compounds would not have been detected. As some of this soil is potentially contaminated, the Contractor shall follow the procedures outlined in the sections below for handling, segregating, stockpiling, sampling/analyzing, transporting and disposing of these soils.

1.2.2 Excess Soil (Spoils) from Other Areas of the Project.

The project as designed indicates an overall excess of soil (i.e. cuts are greater than fills) that will need to be disposed of off-site. The amounts excess to the site are generated in the base bid work, Options 1 and Options 2. As the project site is within a Beale AFB ERP site, the soil will need to be chemically characterized by the Contractor prior to off-site disposal. Procedures for handling, segregating, stockpiling, sampling/analyzing, transporting and disposing of these soils are noted below.

1.3 SUBMITTALS Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Excavation and Handling Work Plan; G, [RE]

Work Plan within 30 calendar days after notice to proceed. No excavation of contaminated or potentially contaminated material at the site shall be performed until the Work Plan is approved. The Contractor shall allow 15 calendar days in the schedule for the Government's review. No adjustment for time or money will be made if resubmittals of the Work Plan are required due to deficiencies in the plan. At a minimum, the Work Plan shall include:

- a. Schedule of activities.
- b. Method of excavation and equipment to be used.
- c. Method of segregating potentially contaminated soil from non-contaminated soil.
- d. Dewatering plan.
- e. Soil stockpiling methods, construction and locations.

f. Equipment decontamination procedures.

g. Spill contingency plan.

Field Report; G, [RE]

SD-06 Test Reports

Sampling of Stored Material; G, [RE]

Sampling Liquid; G, [RE]

Two copies of all laboratory and field test reports shall be submitted within 24 hours of the completion of the test.

1.4 NOT USED

1.5 REGULATORY REQUIREMENTS

1.5.1 Permits and Licenses

The Contractor shall obtain required federal, state, and local permits for excavation and storage of contaminated material. Permits shall be obtained at no additional cost to the Government.

1.5.2 Air Emissions

Air emissions shall be monitored and controlled in accordance with Section 01355.

1.6 DESCRIPTION OF WORK

There are two categories of soil that require special procedures and protocols as noted below.

1.6.1 Utility Trench Soil.

For this area, work shall consist of excavation, segregation, temporary storage, characterization, of approximately 650 cubic yards of excavated material. All trench excavated material is assumed to be potentially contaminated soil, and shall be considered unsatisfactory for backfilling. Sample sites with detectable volatile Organic Compounds (VOCs) are indicated in the attached field summary report. These locations are also indicated on the contract drawings (Sheet C-103 of these Plans and Specifications). Soil to be excavated within 15 linear feet of these locations is assumed to be contaminated and shall be segregated and stockpiled as potentially contaminated soil.

Excavation in the utility trench shall be continually monitored for VOC contamination [e.g., through use of a photo ionization detector (PID) or flame ionization detector (FID)]. All excavation shall be continually monitored for other indicators of possible contamination, including, but not limited to, soil discoloration, unusual odor, and debris. Excavated

material not indicating contamination shall be separately stockpiled from the suspected contaminated soil. The Contracting Officer shall be notified within 24 hours if contaminated material is discovered or if other discrepancies between data provided and actual field conditions are discovered.

Once excavation activities are complete for the utility line work, the stockpiles (suspected contaminated and non-contaminated) shall be sampled and analyzed as per paragraph 3.7. Upon receiving the data, the Contractor shall present a report to the Contracting officer that includes all chemical data as well as the Contractor's recommendation for disposal of the contaminated and uncontaminated soil. Depending on the disposal recommendations, the costs for transportation, any additional sampling required by the treatment or disposal facility and disposal costs will be covered in Bid Option 3, Bid Option 4 or Bid Option 5.

1.6.2 Excess Soil from Other Areas of the Project.

Although still within the Beale AFB ERP Site 32, there are currently no data indicating the presence of soil contamination. During soil excavation and trenching activities, the Contractor shall visually screen soil for potential contamination. Should areas of suspect contamination (e.g. staining, chemical odors, discoloration, etc.) be found, the Contractor shall immediately notify the Contracting Officer.

The excess soil that is generated at the end of the site work as a result of work performed in the base bid, Options 1 or Option 2 shall be disposed of at an off-site disposal facility. Prior to disposal, the Contractor shall sample and analyze all excess soil in accordance with the requirements of the Contractor selected Class III disposal facility. For the purposes of bidding, the Contractor shall assume that all excess soil generated by work associated with the base bid and any option items that the Government chooses to execute is suitable for disposal at a Class III municipal landfill. For excess soil generated in the base contract the Contractor shall include the costs for coordination, waste profiling, loading, transportation and disposal in the base bid. For excess soil generated in Option 1 the Contractor shall include the costs for coordination, waste profiling, loading, transportation and disposal in the lump sum cost for Option 1. For excess soil generated in Option 2 the Contractor shall include the costs for coordination, waste profiling, loading, transportation and disposal in the lump sum cost for Option 2.

1.7 CHEMICAL TESTING

Required sampling and chemical analysis shall be conducted in accordance with Subsection 3.7 Chemistry Requirements.

1.8 SCHEDULING

The Contractor shall notify the Contracting Officer 1 working day prior to the start of excavation. The Contractor shall be responsible for contacting regulatory agencies in accordance with applicable reporting requirements.

PART 2 PRODUCTS

2.1 BACKFILL

Trench backfill shall be in accordance with the applicable provisions of Section 02316A EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS, except as modified herein. Material from the trench excavation shall be considered unsatisfactory for backfilling and shall not be used as backfill.

2.2 SPILL RESPONSE MATERIALS

The Contractor shall provide appropriate spill response materials including, but not limited to the following: containers, adsorbents, shovels, and personal protective equipment. Spill response materials shall be available at all times when contaminated materials/wastes are being handled or transported. Spill response materials shall be compatible with the type of materials and contaminants being handled.

PART 3 EXECUTION

3.1 EXISTING STRUCTURES AND UTILITIES

No excavation shall be performed until site utilities have been field located. The Contractor shall take necessary precautions to ensure no damage occurs to existing structures and utilities. Damage to existing structures and utilities resulting from the Contractor's operations shall be repaired at no additional cost to the Government. Utilities encountered that were not previously shown or otherwise located shall not be disturbed without approval from the Contracting Officer.

3.2 CLEARING

Clearing shall be performed to the limits shown on the drawings in accordance with Section 02231 CLEARING AND GRUBBING.

3.3 CONTAMINATED MATERIAL REMOVAL

3.3.1 Excavation

Excavation shall be in accordance with the applicable provisions of Section 02316A EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS and Section 2300A Earthwork, except as modified herein.

Excavation shall be performed in a manner that will limit spills and the potential for contaminated material to be mixed with uncontaminated material. An excavation log describing visible signs of contamination encountered shall be maintained for each area of contaminated, or presumably contaminated, material. Excavation logs shall be prepared in accordance with ASTM D 5434.

3.3.2 Shoring

Shoring shall be in accordance with the applicable provisions of Section 02316A EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS.

3.3.3 Dewatering

No dewatering shall be performed without prior approval of the Contracting Officer.

3.4 NOT USED

3.5 CONTAMINATED MATERIAL STORAGE

Material shall be placed in properly constructed stockpiles immediately after excavation. The following paragraphs describe acceptable methods of material storage. Containerized storage units shall be in good condition and constructed of materials that are compatible with the material or liquid to be stored. If multiple storage units or stockpiles are required, each unit or stockpile shall be clearly labeled with an identification number and a written log shall be kept to track the source of contaminated material in each one.

3.5.1 Stockpiles

Stockpiles of utility trench material originating from within 15 linear feet of locations indicated on Sheet C-103 and soil screened out as suspect contaminated shall be segregated and considered to be potentially contaminated soil. Excess soil from the other portions of the project shall be stockpiled for waste profiling. The maximum stockpile size shall be 200 cubic yards. Stockpiles of contaminated or potentially contaminated material shall be constructed to include:

- a. A chemically resistant geomembrane liner free of holes and other damage. Non-reinforced geomembrane liners shall have a minimum thickness of 80 mil. Scrim reinforced geomembrane liners shall have a minimum weight of 20 kg/100 square meters. The ground surface on which the geomembrane is to be placed shall be free of rocks greater than 12 mm in diameter and any other object which could damage the membrane.
- b. A geomembrane cover free of holes or other damage to prevent precipitation from entering the stockpile. Non-reinforced geomembrane covers shall have a minimum thickness of 40 mil. Scrim reinforced geomembrane covers shall have a minimum weight of 13 kg/100 square meters. The cover material shall be extended over the berms and anchored or ballasted to prevent it from being removed or damaged by wind.
- c. Berms surrounding the stockpile, a minimum of 1 foot in height. Vehicle access points shall also be bermed.
- d. The liner system shall be sloped to allow collection of leachate. Storage and removal of liquid which collects in the stockpile, in accordance with Part 3.5.3 Liquid Storage.

3.5.2 Roll-Off Units

Roll-off units used to temporarily store contaminated material shall be water tight. A cover shall be placed over the units to prevent precipitation from contacting the stored material. The units shall be located on site as directed by the Contracting Officer. Liquid which

collects inside the units shall be removed and stored in accordance with Part 3.5.3 Liquid Storage.

3.5.3 Liquid Storage

Any liquid collected from excavations, stockpiles and decontamination shall be temporarily stored in 55 gallon barrels. Liquid storage containers shall be water-tight and shall be located on-site as directed by the Contracting Officer.

3.6 SAMPLING

3.6.1 Sampling of Utility Trench Soil

Samples of soil excavated from the utility trench shall be collected at a frequency of one 4-point composite sample per 200 cubic yards or one 4-point composite per soil stockpile if either stockpile (potentially contaminated and non-contaminated) is less than 200 cubic yards. Samples shall be collected and analyzed for the following:

<u>Analyte</u>	<u>EPA SW-846 Method</u>
Gasoline	8015 M
Diesel	8015 M
Motor Oil	8015 M
PCBs	8082
VOCs	8260 B
RCRA 8 Metals	6010 C

Analyses for soil to be taken to an offsite disposal facility shall conform to local, state, and federal criteria as well as to the requirements of the facility. Documentation of all analyses performed shall be furnished to the Contracting Officer. The Contractor shall note that the analytical suite described above is for the use of the Government and may not constitute an acceptable waste profile as required by a disposal facility. The costs for additional sampling and analyses to the extent required by the approved offsite treatment, storage or disposal (TSD) facility shall be the responsibility of the Contractor and shall be included in the unit prices for Option 3, Option 4 and Option 5.

3.6.2 Sampling of Excess Soil from Areas Outside of the Utility Trench

The Contractor shall be responsible for fully characterizing all soil which is excess to the project for off-site disposal. For bidding purposes, the Contractor is to assume the soil is suitable for disposal at a Class III municipal landfill or disposal facility and shall collect the appropriate number of soil samples for analysis to verify this type of disposal option. Coordination with the selected disposal facility to determine sampling rates and analytical requirements is the responsibility of the Contractor. The Contractor shall immediately notify the Contracting Officer if any portion of the soil is unsuitable for disposal at a Class III facility. If waste profiling indicates a portion of the soil is unsuitable for disposal at a Class III facility, the incremental costs for transportation and disposal at a Class II or Class I facility will be included in the unit prices for Option 6 and Option 7.

3.6.3 Sampling Liquid

Any liquid collected from excavations, storage areas or decontamination facilities shall be sampled at a rate determined by the Contractor.

Liquid with contaminant levels that exceed Beale AFB industrial waste acceptance levels shall be treated offsite. Analyses for contaminated liquid to be taken to an offsite treatment facility shall conform to local, state, and federal criteria as well as to the requirements of the treatment facility. Documentation of all analyses performed shall be furnished to the Contracting Officer. Additional sampling and analysis to the extent required by the approved offsite treatment, storage or disposal (TSD) facility receiving the material shall be the responsibility of the Contractor and shall be performed at no additional cost to the Government.

3.7 CHEMISTRY REQUIREMENTS

Chemical Data Quality Control (CDQC) shall be as defined in ER 1110-1-263; this ER, which integrates USACE guidance on the subject, shall be supplemented by EM 200-1-6 for detail technical guidance on CDQC.

3.7.1 Data Quality Objectives (DQO)

Sample acquisition, chemical analysis and chemical parameter measurements shall be performed so that the resulting data meet and support data use requirements. The chemical data shall be acquired, documented, verified and reported to ensure that the specified precision, accuracy, representativeness, comparability, completeness and sensitivity requirements are achieved.

3.7.3 Quality Assurance Elements

The Contractor shall be responsible for the following QA elements necessary to monitor and ensure the quality of chemical data produced.

3.7.3.1 Laboratory Validation Requirements / State Certification

The Contractor shall propose a laboratory that has attained U.S. Army Corps of Engineers (USACE) validation in accordance with EM 200-1-1 and consistent with contract required chemical data quality. The contractor shall select a currently validated USACE laboratory. The laboratory must hold current certification in the state of California under California ELAP or NELAP accrediting authority for California.

3.7.4 General Requirements

The Contractor shall be responsible for chemical sample acquisition, sample analysis, instrumental measurements of chemical parameters and for chemical data quality control. An effective chemical data quality control system shall be established that meets the requirements for the chemical measurement DQO applicable to the project. The system shall cover chemical measurements pertaining to and required for Contractor and subcontractor produced chemical data. The Contractor shall control field screening, sampling, and testing in conjunction with project activities to meet all

DQO; minimize the amount of excavated material requiring temporary storage; prevent dilution of contaminated soils with clean soils; and ensure completion of work within the required time.

The Contractor shall assure that subcontracted laboratory's reporting limits (RLs) are below the disposal criteria for manifesting the waste per the disposal facilities requirements, and that the method QC is within the laboratory's statistical control limits. Method blanks shall be controlled by the lab to less than ½ practical quantitation limit (PQL).

3.7.4.1 Analytical Testing Laboratories

The Contractor shall propose the analytical laboratory to be used for the sample analyses. Laboratory validation requirements shall be in accordance with paragraph 3.7.3.1 LABORATORY VALIDATION REQUIREMENTS / STATE CERTIFICATION.

3.7.4.1.1 Laboratory Analytical Requirements

The Contractor shall provide the specified chemical analyses by the Contractor's laboratory. The Contractor shall provide chemical analyses to achieve the project DQO for all parameters listed in paragraph 3.6.1 SAMPLING OF STORED MATERIAL.

3.7.5 Documentation

Documentation records shall be provided as factual evidence that required chemical data has been produced and chemical data quality has been achieved. The documentation shall comply with the requirements specified in paragraph FIELD REPORT.

3.8 SPILLS

In the event of a spill or release of a hazardous substance (as designated in 40 CFR 302), pollutant, contaminant, or oil (as governed by the Oil Pollution Act (OPA), 33 U.S.C. 2701 et seq.), the Contractor shall notify the Contracting Officer immediately. If the spill exceeds the reporting threshold, the Contractor shall follow the pre-established procedures as described in the RCRA Contingency Plan for immediate reporting and containment. Immediate containment actions shall be taken to minimize the effect of any spill or leak. Cleanup shall be in accordance with applicable federal, state, and local regulations. As directed by the Contracting Officer, additional sampling and testing shall be performed to verify spills have been cleaned up. Spill cleanup and testing shall be done at no additional cost to the Government.

3.9 BACKFILLING

Backfill shall be in accordance with the applicable provisions of Section 02300A EARTHWORK and Section 02316A EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS.

3.10 DISPOSAL REQUIREMENTS

Offsite disposal of contaminated material shall be in accordance with Section 02120 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS.

3.11 EQUIPMENT DECONTAMINATION

Contractor shall decontaminate all equipment coming into contact with any contaminated material. Decontamination procedures shall be included in the Excavation and Handling Work Plan. Rinsate shall be contained and stored in accordance with Paragraph 3.5.3 LIQUID STORAGE and sampled per Part 3.6.2 SAMPLING LIQUID.

3.12 FIELD REPORT

Two copies of a Field Report shall be prepared and submitted within 14 calendar days of completing work at the site. The report shall be labeled with the contract number, project name, location, date, name of general contractor, and the Corps of Engineers District contracting for the work. The Field Report shall include the following information as a minimum:

- a. A cover letter signed by a responsible company official certifying that all services involved have been performed in accordance with the terms and conditions of the contract documents and regulatory requirements.
- b. A narrative report including, but not limited to, the following:
 - (1) site conditions and ground water elevation;
 - (2) excavation logs;
 - (3) quantity of materials removed from each area of contamination;
 - (4) quantity of water/product removed during dewatering;
 - (5) sampling locations and sampling methods;
 - (6) sample collection data such as time of collection and method of preservation; and
 - (7) sample chain-of-custody forms.
- c. Copies of all chemical and physical test results.
- d. Copies of all manifests, bills of lading and land disposal restriction notifications.
- e. Copies of all certifications of final disposal signed by the responsible disposal facility official.
- f. Waste profile sheets.
- g. Scale drawings showing limits of each excavation, known underground utilities within 50 feet of excavation, sample

locations, and sample identification numbers. On-site stockpile, storage, treatment, loading, and disposal areas shall also be shown on the drawings.

h. Progress Photographs. Digital color photographs shall be used to document progress of the work. A minimum of four views of the site showing the location of the area of contamination, entrance/exit road, and any other notable site conditions shall be taken before work begins. After work has been started, activities at each work location shall be photographically recorded daily. Photographs shall be a minimum of 76 mm x 127 mm and shall include:

- (1) Soil removal and sampling.
- (2) Dewatering operations.
- (3) Unanticipated events such as spills and the discovery of additional contaminated material.
- (4) Contaminated material/water storage, handling, treatment, and transport.
- (5) Site or task-specific employee respiratory and personal protection.
- (6) Fill placement and grading.
- (7) Post-construction photographs. After completion of work at each site, the Contractor shall take a minimum of four views of each excavation site.

Photos shall be labeled as follows:

Project Name:	Direction of View:
Location:	Date/Time:
Photograph No.:	Description of View:

-- End of Section --

SECTION 02120A

TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 SUBMITTALS
- 1.3 QUALIFICATIONS
 - 1.3.1 Transportation and Disposal Coordinator
 - 1.3.2 Training
 - 1.3.3 Certification
- 1.4 LAWS AND REGULATIONS REQUIREMENTS
- 1.5 DEFINITIONS

PART 2 PRODUCTS

- 2.1 MATERIALS
 - 2.1.1 Packaging
 - 2.1.2 Markings
 - 2.1.3 Labeling
 - 2.1.4 Placards
 - 2.1.5 Spill Response Materials
- 2.2 EQUIPMENT AND TOOLS

PART 3 EXECUTION

- 3.1 ON-SITE HAZARDOUS WASTE AND CONTAMINATED SOIL MANAGEMENT
 - 3.1.1 Waste Classification
 - 3.1.2 Management Plan
- 3.2 OFF-SITE HAZARDOUS WASTE AND CONTAMINATED SOIL MANAGEMENT
 - 3.2.1 Description of TSD Facility and Transporter
 - 3.2.2 Status of the Facility
 - 3.2.3 Shipping Documents and Packaging Certification
 - 3.2.4 Transportation
 - 3.2.5 Treatment and Disposal of Hazardous Wastes
- 3.3 HAZARDOUS MATERIALS MANAGEMENT
 - 3.3.1 Identification of Proper Shipping Names
 - 3.3.2 Packaging, Labeling, and Marking
 - 3.3.3 Shipping Documents
 - 3.3.3.1 NOT USED
 - 3.3.3.2 NOT USED
 - 3.3.3.3 Other Hazardous Material Shipment Documents
- 3.4 OBTAINING EPA ID NUMBERS
- 3.5 NOT USED
- 3.6 WASTE MINIMIZATION
- 3.7 RECORDKEEPING
- 3.8 SPILL RESPONSE
- 3.9 EMERGENCY CONTACTS

-- End of Section Table of Contents --

SECTION 02120A

TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 61	National Emission Standards for Hazardous Air Pollutants
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 270	EPA Administered Permit Programs: The Hazardous Waste Permit Program
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 302	Designation, Reportable Quantities, and Notification
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 107	Hazardous Materials Program Procedures

49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings
CCR Title 27	Environmental Protection

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

On-site Hazardous Waste Management; G, [RE]

Prior to start of work, a plan shall be submitted to the Contracting Officer detailing the manner in which hazardous wastes and contaminated soils shall be managed.

Notices of Non-Compliance and Notices of Violation, [RE]

Notices of non-compliance or notices of violation by a Federal, state, or local regulatory agency issued to the Contractor in relation to any work performed under this contract. The Contractor shall immediately provide copies of such notices to the Contracting Officer. The Contractor shall also furnish all relevant documents regarding the incident and any information requested by the Contracting Officer, and shall coordinate its response to the notice with the Contracting Officer or his designated representative prior to submission to the notifying authority. The Contractor shall also furnish a copy to the Contracting Officer of all documents submitted to the regulatory authority, including the final reply to the notice, and all other materials, until the matter is resolved.

SD-06 Test Reports

Recordkeeping; G, [RE]

Information necessary to file state annual or EPA biennial reports for all hazardous waste transported, treated, stored, or disposed of under this contract. The Contractor shall not forward these data directly to the regulatory agency but to the Contracting Officer at the specified time. The submittal shall contain all the information necessary for filing of the formal reports in the form and format required by the governing Federal or state regulatory

agency. A cover letter shall accompany the data to include the contract number, Contractor name, and project location.

Spill Response; [RE]

In the event of a spill or release of a hazardous substance (as designated in 40 CFR 302), or pollutant or contaminant, or oil (as governed by the Oil Pollution Act (OPA), 33 U.S.C. 2701 et seq.), the Contractor shall notify the Contracting Officer immediately. If the spill exceeds a reporting threshold, the Contractor shall follow the pre-established procedures for immediate reporting to the Contracting Officer.

Exception Reports; G, [RE]

In the event that a manifest copy documenting receipt of hazardous waste at the treatment, storage, and disposal facility is not received within 35 days of shipment initiation, the Contractor shall prepare and submit an exception report to the Contracting Officer within 37 days of shipment initiation.

SD-07 Certificates

Qualifications; [RE]

Copies of the current certificates of registration issued to the Contractor and/or subcontractors or written statements certifying exemption from these requirements.

EPA Off-Site Policy; [RE]

A letter certifying that EPA considers the facilities to be used for all off-site disposal to be acceptable in accordance with the Off-Site policy in 40 CFR 300, Section .440. This certification shall be provided for wastes from Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901 et seq., sites as well as from Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 42 U.S.C. 9601 et seq., responses. See Attachment A, sample certification, at the end of this section.

Management Plan; [RE]

Certificates documenting the ultimate disposal of hazardous wastes and contaminated soils within 180 days of initial shipment. Receipt of these certificates will be required for final payment.

Shipping Documents and Packaging Certification; G, [RE]

All transportation related shipping documents (draft and final) to the Contracting Officer, including hazardous waste manifests, bills of lading for non-hazardous waste soils, land disposal restriction notifications, bills of lading for hazardous materials, lists of corresponding proposed labels, packages, marks, and placards to be used for shipment, waste profiles, and supporting waste analysis documents. Drafts shall be submitted for a minimum of 14 days prior to anticipated pickup. Packaging assurances shall be furnished prior to transporting hazardous

wastes and contaminated soils. Final copies shall be furnished when shipments are originated. Records at the designated disposal facility shall be furnished not later than 35 days after acceptance of the shipment.

1.3 QUALIFICATIONS

1.3.1 Transportation and Disposal Coordinator

The Contractor shall designate, by position and title, one person to act as the Transportation and Disposal Coordinator (TDC) for this contract. The TDC shall serve as the single point of contact for all environmental regulatory matters and shall have overall responsibility for total environmental compliance at the site including, but not limited to, accurate identification and classification of hazardous waste, hazardous materials and contaminated soils; determination of proper shipping names; identification of marking, labeling, packaging and placarding requirements; completion of waste profiles, hazardous waste manifests, bill of lading, exception and discrepancy reports; and all other environmental documentation. The TDC shall have, at a minimum, one year of specialized experience in the management, transportation and disposal of hazardous waste and contaminated soils in the State of California.

1.3.2 Training

The Contractor's hazardous materials employees shall be trained, tested, and certified to safely and effectively carry out their assigned duties in accordance with Section 01351A SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST)]. The Contractor's employees transporting hazardous materials or preparing hazardous materials for transportation shall be trained, tested, and certified in accordance with 49 CFR 172.

1.3.3 Certification

The Contractor and/or subcontractors transporting hazardous materials and hazardous waste shall possess a current certificate of registration issued by the Research and Special Programs Administration (RSPA), U.S. Department of Transportation, when required by 49 CFR 107, Subpart G.

1.4 LAWS AND REGULATIONS REQUIREMENTS

Work shall meet or exceed the minimum requirements established by Federal, state, and local laws and regulations which are applicable. These requirements are amended frequently and the Contractor shall be responsible for complying with amendments as they become effective. In the event that compliance exceeds the scope of work or conflicts with specific requirements of the contract, the Contractor shall notify the Contracting Officer immediately.

1.5 DEFINITIONS

- a. Hazardous Material. A substance or material which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated pursuant to the Hazardous Materials Transportation Act, 49 U.S.C. Appendix Section 1801 et seq. The term includes materials designated as

hazardous materials under the provisions of 49 CFR 172, Sections .101 and .102 and materials which meet the defining criteria for hazard classes and divisions in 49 CFR 173. EPA designated hazardous wastes are also hazardous materials.

- b. Hazardous Waste. A waste which meets criteria established in RCRA or specified by the EPA in 40 CFR 261 or which has been designated as hazardous by a RCRA authorized state program.
- c. California Hazardous Waste. A waste which meets the criteria established in CCR Title 26 or which has been designated as a hazardous waste by the Contracting Officer.
- e. Contaminated Soil. Soil which contains petroleum hydrocarbons or other compounds at concentrations below those outlined in b. or c. above. Contaminated soil shall be disposed of at a treatment, storage and disposal facility (TSDF) permitted to accept such soil.

PART 2 PRODUCTS

2.1 MATERIALS

The Contractor shall provide all of the materials required for the packaging, labeling, marking, placarding and transportation of hazardous wastes and hazardous materials in conformance with Department of Transportation standards. Details in this specification shall not be construed as establishing the limits of the Contractor's responsibility.

2.1.1 Packaging

The Contractor shall provide bulk and non-bulk containers for packaging hazardous materials/wastes consistent with the authorizations referenced in the Hazardous Materials Table in 49 CFR 172, Section .101, Column 8. Bulk and non-bulk packaging shall meet the corresponding specifications in 49 CFR 173 referenced in the Hazardous Materials Table, 49 CFR 172, Section .101. Each packaging shall conform to the general packaging requirements of Subpart B of 49 CFR 173, to the requirements of 49 CFR 178 at the specified packing group performance level, to the requirements of special provisions of column 7 of the Hazardous Materials Table in 49 CFR 172, Section.101, and shall be compatible with the material to be packaged as required by 40 CFR 262. The Contractor shall also provide other packaging related materials such as materials used to cushion or fill voids in overpacked containers, etc. Sorbent materials shall not be capable of reacting dangerously with, being decomposed by, or being ignited by the hazardous materials being packaged. Additionally, sorbents used to treat free liquids to be disposed of in landfills shall be non-biodegradable as specified in 40 CFR 264, Section .314.

2.1.2 Markings

The Contractor shall provide markings for each hazardous material/waste package, freight container, and transport vehicle consistent with the requirements of 49 CFR 172, Subpart D and [40 CFR 262, Section .32 (for hazardous waste)] [40 CFR 761, Section .45 (for PCBs)] [40 CFR 61, Section .149(d) (for asbestos)]. Markings shall be capable of withstanding, without deterioration or substantial color change, a 180 day exposure to conditions

reasonably expected to be encountered during container storage and transportation.

2.1.3 Labeling

The Contractor shall provide primary and subsidiary labels for hazardous materials/wastes consistent with the requirements in the Hazardous Materials Table in 49 CFR 172, Section .101, Column 6. Labels shall meet design specifications required by 49 CFR 172, Subpart E including size, shape, color, printing, and symbol requirements. Labels shall be durable and weather resistant and capable of withstanding, without deterioration or substantial color change, a 180 day exposure to conditions reasonably expected to be encountered during container storage and transportation.

2.1.4 Placards

For each off-site shipment of hazardous material/waste, the Contractor shall provide primary and subsidiary placards consistent with the requirements of 49 CFR 172, Subpart F. Placards shall be provided for each side and each end of bulk packaging, freight containers, transport vehicles, and rail cars requiring such placarding. Placards may be plastic, metal, or other material capable of withstanding, without deterioration, a 30 day exposure to open weather conditions and shall meet design requirements specified in 49 CFR 172, Subpart F.

2.1.5 Spill Response Materials

The Contractor shall provide spill response materials including, but not limited to, containers, adsorbent, shovels, and personal protective equipment. Spill response materials shall be available at all times in which hazardous materials/wastes are being handled or transported. Spill response materials shall be compatible with the type of material being handled.

2.2 EQUIPMENT AND TOOLS

The Contractor shall provide miscellaneous equipment and tools necessary to handle hazardous materials and hazardous wastes in a safe and environmentally sound manner.

PART 3 EXECUTION

3.1 ON-SITE HAZARDOUS WASTE AND CONTAMINATED SOIL MANAGEMENT

These paragraphs apply to Government owned waste only. Contractors are prohibited by 10 U.S.C. 2692 from storing contractor owned waste on site for any length of time. The Contractor shall be responsible for ensuring compliance with all Federal, state, and local hazardous waste laws and regulations and shall verify those requirements when preparing reports, waste shipment records, hazardous waste manifests, or other documents. The Contractor shall identify hazardous wastes using criteria set forth in 40 CFR 261 or all applicable state and local laws, regulations, and ordinances. When accumulating hazardous waste on-site, the Contractor shall comply with generator requirements in 40 CFR 262 and applicable state or local law or regulations. On-site accumulation times shall be restricted to applicable time frames referenced in 40 CFR 262, Section .34 and applicable state or local law or regulation. Accumulation start dates shall commence when waste is first generated (i.e. containerized or otherwise collected for discard).

The Contractor shall only use containers in good condition and compatible with the waste to be stored. The Contractor shall be responsible for ensuring containers are closed except when adding or removing waste. The Contractor shall be responsible for immediately marking all hazardous waste containers with the words "hazardous waste" and other information required by 40 CFR 262, Section .32 and applicable state or local laws or regulations as soon as the waste is containerized. An additional marking shall be placed on containers of "unknowns" designating the date sampled, and the suspected hazard. The Contractor shall be responsible for inspecting containers for signs of deterioration and shall be responsible for responding to any spills or leaks. The Contractor shall inspect all hazardous waste areas weekly and shall provide written documentation of the inspection. Inspection logs shall contain date and time of inspection, name of individual conducting the inspection, problems noted, and corrective actions taken.

3.1.1 Waste Classification

The Contractor, in consultation with the Contracting Officer, shall identify all waste codes applicable to each hazardous waste or contaminated soil stream based on requirements in 40 CFR 261 and applicable state or local law or regulation. The Contractor shall also identify all applicable treatment standards in 40 CFR 268 and state land disposal restrictions and shall make a determination as to whether or not the waste meets or exceeds the standards. Waste profiles, analyses, classification and treatment standards information shall be submitted to Contracting Officer for review and approval and shall be conducted in accordance with Section 02111 EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL.

3.1.2 Management Plan

The Contractor shall prepare a plan detailing the manner in which hazardous wastes and contaminated soil will be managed and describing the types and volumes of hazardous wastes and contaminated soil anticipated to be managed as well as the management practices to be utilized. The plan shall identify the method to be used to ensure accurate piece counts and/or weights of shipments; shall identify methods used for screening and segregating potentially contaminated soil from potentially uncontaminated soil; shall identify waste minimization methods; shall propose facilities to be utilized for treatment, storage, and/or disposal; shall identify areas on-site where hazardous wastes and contaminated soil are to be handled; shall identify whether transfer facilities are to be utilized; and if so, how the wastes will be tracked to ultimate disposal.

3.2 OFF-SITE HAZARDOUS WASTE AND CONTAMINATED SOIL MANAGEMENT

The Contractor shall use RCRA Subtitle C permitted facilities which meet the requirements of 40 CFR 264 or facilities operating under interim status which meet the requirements of 40 CFR 265 for all hazardous wastes. Off-site treatment, storage, and/or disposal facilities with significant RCRA violations or compliance problems (such as facilities known to be releasing hazardous constituents into ground water, surface water, soil, or air) shall not be used. In addition, the Contractor shall use State of California permitted facilities which meet all applicable state requirements for treatment and disposal of contaminated soil.

3.2.1 Description of TSD Facility and Transporter

The Contractor shall provide the Contracting Officer with EPA ID numbers, names, locations, and telephone numbers of TSD facilities and transporters. This information shall be contained in the Hazardous Waste Management Plan for approval prior to waste disposal.

3.2.2 Status of the Facility

Facilities receiving hazardous waste must be permitted in accordance with 40 CFR 270 or operating under interim status in accordance with 40 CFR 265 requirements, or must be permitted by an authorized state program. Additionally, prior to using a TSD Facility, the Contractor shall contact the EPA Regional Off-site Coordinator specified in 40 CFR 300, Section .440, to determine the facility's status, and document all information necessary to satisfy the requirements of the EPA Off-Site policy and furnish this information to the Contracting Officer. Additionally, facilities receiving contaminated soil must be permitted in accordance with State of California requirements. Permits for these facilities shall be furnished to the Contracting Officer.

3.2.3 Shipping Documents and Packaging Certification

Prior to shipment of any hazardous waste and contaminated soil off-site, the Contractor's TDC shall provide written certification to the Contracting Officer that hazardous waste and contaminated soil have been properly packaged, labeled, and marked in accordance with Department of Transportation and EPA requirements.

3.2.4 Transportation

Processing of all manifests, bills of lading, or other shipping documents shall be coordinated with the Beale AFB base engineer. The Contractor shall use manifests for transporting hazardous wastes as required by 40 CFR 263 or any applicable state or local law or regulation. Transportation shall comply with all requirements in the Department of Transportation referenced regulations in the 49 CFR series. The Contractor shall acquire manifests in accordance with the hierarchy established in 40 CFR 262, Section .21. The Contractor shall prepare hazardous waste manifests for each shipment of hazardous waste shipped off-site. Manifests shall be completed using instructions in 40 CFR 262, Subpart B and any applicable state or local law or regulation. Manifests and waste profiles shall be submitted to Contracting Officer for review and approval. The Contractor shall prepare land disposal restriction notifications as required by 40 CFR 268 or any applicable state or local law or regulation for each shipment of hazardous waste. Notifications shall be submitted with the manifest to the Contracting Officer for review and approval. For the transportation of non-hazardous contaminated soil, the Contractor shall use bills of lading or other applicable documentation acceptable to the TSDF.

3.2.5 Treatment and Disposal of Hazardous Wastes

The hazardous waste shall be transported to an approved hazardous waste treatment, storage, or disposal facility within 90 days of the accumulation start date on each container. The Contractor shall ship hazardous wastes only to facilities which are properly permitted to accept the hazardous waste or operating under interim status. The Contractor shall ensure wastes are treated to meet land disposal treatment standards in 40 CFR 268 prior to land disposal. The Contractor shall propose TSD facilities via submission

of the Hazardous Waste Management Plan, subject to the approval of the Contracting Officer. Non-hazardous contaminated soil shall be transported to a permitted TSDF within 90 days of generation.

3.3 HAZARDOUS MATERIALS MANAGEMENT

The Contractor, in consultation with the Contracting Officer, shall evaluate, prior to shipment of any material off-site, whether the material is regulated as a hazardous waste in addition to being regulated as a hazardous material or contaminated or uncontaminated soil; this shall be done for the purpose of determining proper shipping descriptions, marking requirements, etc., as described below.

3.3.1 Identification of Proper Shipping Names

The Contractor shall use 49 CFR 172, Section .101 to identify proper shipping names for each hazardous material (including hazardous wastes) to be shipped off-site. Proper shipping names shall be submitted to the Contracting Officer in the form of draft shipping documents for review and approval.

3.3.2 Packaging, Labeling, and Marking

The Contractor shall package, label, and mark hazardous materials/wastes and contaminated soil using the specified materials and in accordance with the referenced authorizations.

3.3.3 Shipping Documents

The Contractor shall ensure that each shipment of hazardous waste and contaminated soil sent off-site is accompanied by properly completed shipping documents. Bills of lading for contaminated soil and uniform hazardous waste manifests shall be signed by an authorized representative from Beale AFB. The Contractor shall complete all forms for signature and submit them to the Contracting Officer 5 calendar days prior to off-site shipment.

3.3.3.1 NOT USED

3.3.3.2 NOT USED

3.3.3.3 Other Hazardous Material Shipment Documents

The Contractor shall prepare a bill of lading for each shipment of hazardous material or contaminated soil which is not accompanied by a hazardous waste manifest which fulfills the shipping paper requirements. The bill of lading shall satisfy the requirements of 49 CFR 172, Subpart C, and any applicable state or local law or regulation, and shall be submitted to the Contracting Officer for review and approval. For laboratory samples and treatability study samples, the Contractor shall prepare bills of lading and other documentation as necessary to satisfy conditions of the sample exclusions in 40 CFR 261, Section .4(d) and (e) and any applicable state or local law or regulation. Bill of ladings requiring shipper's certifications will be signed by the Contractor.

3.4 OBTAINING EPA ID NUMBERS

The Contractor shall complete EPA Form 8700-12, Notification of Hazardous Waste Activity, and submit to the Contracting Officer for review and approval. The Contractor shall allow a minimum of 30 days for processing the application and assigning the EPA ID number. Shipment shall be made not earlier than one week after receipt of the EPA ID number.

3.5 NOT USED

3.6 WASTE MINIMIZATION

The Contractor shall minimize the generation of hazardous waste and contaminated soil to the maximum extent practicable. The Contractor shall take all necessary precautions to avoid mixing clean and contaminated wastes. The Contractor shall identify and evaluate recycling and reclamation options as alternatives to land disposal. Requirements of 40 CFR 266 shall apply to: hazardous wastes recycled in a manner constituting disposal; hazardous waste burned for energy recovery; lead-acid battery recycling; and hazardous wastes with economically recoverable precious metals.

3.7 RECORDKEEPING

The Contractor shall be responsible for maintaining adequate records to support information provided to the Contracting Officer regarding exception reports, annual reports, and biennial reports. The Contractor shall be responsible for maintaining asbestos waste shipment records for a minimum of 3 years from the date of shipment or any longer period required by any applicable law or regulation or any other provision of this contract.

3.8 SPILL RESPONSE

The Contractor shall respond to any spill of hazardous material hazardous waste or contaminated soil which is in the custody or care of the Contractor, pursuant to this contract. Any direction from the Contracting Officer concerning a spill or release shall not be considered a change under the contract. The Contractor shall comply with all applicable requirements of Federal, state, or local laws or regulations regarding any spill incident.

3.9 EMERGENCY CONTACTS

The Contractor shall be responsible for complying with the emergency contact provisions in 49 CFR 172, Section.604. Whenever the Contractor ships hazardous materials, the Contractor shall provide a 24 hr emergency response contact and phone number of a person knowledgeable about the hazardous materials being shipped and who has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information. The phone must be monitored on a 24 hour basis at all times when the hazardous materials are in transportation, including during storage incidental to transportation. The Contractor shall ensure that information regarding this emergency contact and phone number is placed on all hazardous material shipping documents. The Contractor shall designate an emergency coordinator and post the following information at areas in which hazardous wastes are managed:

- a. The name of the emergency coordinator.

- b. Phone number through which the emergency coordinator can be contacted on a 24 hour basis.
- c. The telephone number of the local fire department.
- d. The location of fire extinguishers and spill control materials.

Attachment A
 SAMPLE OFF-SITE POLICY CERTIFICATION MEMO

Project/Contract #: _____
 Waste Stream: _____
 Primary TSD Facility, EPA ID # and Location: _____
 Alter. TSD Facility, EPA ID # and Location: _____

EPA Region -----	Primary Contact -----	Secondary Contact -----
I	(617) 565-9446	(617) 573-1754
II	(212) 637-4139	(212) 264-2638
III	(814) 566-3450	(215) 597-8338
IV	(404) 562-8589	(404) 347-7603
V	(312) 886-3587	(312) 886-4445
VI	(214) 665-2282	(214) 655-2281
VII	(913) 551-7883	(913) 551-7667
VIII	(303) 312-6419	(303) 293-1506
IX	(415) 744-2091	(415) 744-2114
X	(206) 553-1061	(206) 553-1061

EPA representative contacted: _____
 EPA representative phone number: _____
 Date contacted: _____

Comment: _____
 The above EPA representative was contacted on _____. As of that date the above sites were considered acceptable in accordance with the Off-Site Policy in 40 CFR 300.440.

Signature: _____ Date: _____
 Phone number: _____

-- End of Section --

SD-03 Product Data

Earthwork;

Procedure and location for disposal of unused satisfactory material.
Proposed source of borrow material & top soil.

Advance notice on the opening of excavation or borrow areas. Advance notice on shoulder construction for rigid pavements.

SD-06 Test Reports

Testing; .

Within 24 hours of conclusion of physical tests, 10 copies of test results, including calibration curves and results of calibration tests.

SD-07 Certificates

Testing; .

Qualifications of the commercial testing laboratory or Contractor's testing facilities.

1.4 SUBSURFACE DATA

Subsurface soil boring logs are shown on the drawings. The subsoil investigation report may be examined. These data represent the best subsurface information available; however, variations may exist in the subsurface between boring locations.

1.5 CLASSIFICATION OF EXCAVATION

No consideration will be given to the nature of the materials, and all excavation will be designated as unclassified excavation.

1.6 UTILIZATION OF EXCAVATED MATERIALS

Unsatisfactory materials removed from excavations shall be disposed of in designated waste disposal or spoil areas. Satisfactory material removed from excavations shall be used, insofar as practicable, in the construction of fills, embankments, subgrades, shoulders, bedding (as backfill), and for similar purposes. No satisfactory excavated material shall be wasted without specific written authorization. ~~Satisfactory material authorized to be wasted shall be disposed of in designated areas approved for surplus material storage or designated waste areas as directed.~~ **Excess satisfactory material authorized to be wasted shall be chemically characterized and handled in accordance with Section 02111 EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL. Upon chemical characterization, wasted material shall be transported off site to an appropriate disposal facility in accordance with Section 02120A TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS.** Newly designated waste areas on Government-controlled land shall be cleared and grubbed before disposal of waste material thereon. Coarse rock from excavations shall be stockpiled and used for constructing slopes or embankments adjacent to streams, or sides and bottoms of channels and for protecting against erosion. No excavated material shall be disposed of to obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 STRIPPING OF TOPSOIL

Where indicated or directed, topsoil shall be stripped to a depth of 6 inches or until organics in excess of 3 percent by volume are removed. Topsoil shall be spread on areas already graded and prepared for topsoil, or transported and deposited in stockpiles convenient to areas that are to receive application of the topsoil later, or at locations indicated or specified. Topsoil shall be kept separate from other excavated materials, brush, litter, objectionable weeds, roots, stones larger than 2 inches in diameter, and other materials that would interfere with planting and maintenance operations. Any surplus of topsoil from excavations and grading shall be removed from the site.

3.2 GENERAL EXCAVATION

The Contractor shall perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. Grading shall be in conformity with the typical sections shown and the tolerances specified in paragraph FINISHING. Satisfactory excavated materials shall be transported to and placed in fill within the limits of the work. Unsatisfactory materials encountered within the limits of the work shall be excavated below grade and replaced with satisfactory materials as directed. Such excavated material and the satisfactory material ordered as replacement shall be included in excavation. ~~Surplus satisfactory excavated material not required for fill shall be disposed of by the Contractor at an area located off base.~~ **Surplus satisfactory excavated material not required for fill shall be handled and disposed of by the Contractor in accordance with Section 02111 EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL and Section 02120A TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS.** Unsatisfactory excavated material shall be disposed of by the Contractor at an area located off base. During construction, excavation and fill shall be performed in a manner and sequence that will provide proper drainage at all times. Material required for fill or embankment in excess of that produced by excavation within the grading limits shall be excavated from the borrow areas indicated or from other approved areas selected by the Contractor as specified.

3.3 BACKFILL

Backfill adjacent to any and all types of structures shall be placed and compacted to at least 90 percent laboratory maximum dry density for cohesive materials or 95 percent laboratory maximum density for cohesionless materials to prevent wedging action or eccentric loading upon or against the structure. Ground surface on which backfill is to be placed shall be prepared as specified in paragraph PREPARATION OF GROUND SURFACE FOR EMBANKMENTS. Compaction requirements for backfill materials shall also conform to the applicable portions of paragraphs PREPARATION OF GROUND SURFACE FOR EMBANKMENTS, EMBANKMENTS, and SUBGRADE PREPARATION, and Section 02630A STORM-DRAINAGE SYSTEM; and Section 02316A EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS. Compaction shall be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment.

3.4 PREPARATION OF GROUND SURFACE FOR EMBANKMENTS

3.4.1 General Requirements

Ground surface on which fill is to be placed shall be stripped of live, dead, or decayed vegetation, rubbish, debris, and other unsatisfactory material; plowed, disked, or otherwise broken up to a depth of 12 inches; pulverized; moistened or aerated as necessary; thoroughly mixed; and compacted to at least 90 percent laboratory maximum density for cohesive

SECTION 02316A

EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1556	(1990; R 1996) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(1998) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft. (2,700 kN-m/cu. m.))
ASTM D 2487	(1998) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(1988; R1996el) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

CALIFORNIA DEPARTMENT OF TRANSPORTATION

**California Standard
Specification**

**(2002) Standard Specifications for
Construction of Local Streets and Roads**

1.2 DEGREE OF COMPACTION

Degree of compaction shall be expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557 Procedure C.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Field Density Tests;
Testing of Backfill Materials;

Copies of all laboratory and field test reports within 24 hours of the completion of the test.

approval. Fabrication drawings shall include all information from the utility verification and drawing revisions.

3.1.4 Approved Pipe Manufacturer's Fabrication Drawing

Do not proceed with pipeline fabrication, pipeline excavation, or installation without approved pipe manufacturer's fabrication drawings.

3.1.5 Special Inspections

If special inspections are required by a utility, notify utility representatives at least seven (7) calendar days prior to the requested date of inspection.

3.2 POTHOLE UTILITIES PRIOR TO EXCAVATION

Pothole, protect, locate, and survey all existing utilities.

3.2.1 Utility Markings

Obtain utility markings from Underground Service Alert (USA).

3.2.2 Verification

Expose all existing buried utilities, and verify all utility locations and depths prior to beginning all other work on the pipeline.

3.2.3 Existing Utilities

Existing utilities may be fragile. The Contractor shall be responsible for any damage to utilities or any disruption of utility service during construction.

3.2.4 Grade Sheets

Provide grade sheets prepared by a land surveyor licensed in the state of California. Grade sheets shall indicate existing utility sizes, material types, elevations, and locations (pipeline stations).

3.2.5 Discrepancies

Notify the Construction Manager immediately when any discrepancies are discovered, such as any deviation in the line and grade that may result in a potential interference to the pipeline.

3.3 EXCAVATION

Excavation shall be performed to the lines and grades indicated. Rock excavation shall include removal and disposition of material defined as rock in paragraph MATERIALS. Earth excavation shall include removal and disposal of material not classified as rock excavation. During excavation, material satisfactory for backfilling shall be stockpiled in an orderly manner at a distance from the banks of the trench equal to 1/2 the depth of the excavation, but in no instance closer than 2 feet. ~~Excavated material not required or not satisfactory for backfill shall be removed from the site.~~ Removal of Excavated material shall be done in accordance with SECTION 02111 EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL. Grading shall be done as may be necessary to prevent surface water from flowing into the excavation, and any water accumulating shall be removed to maintain the stability of the bottom and sides of the excavation. Unauthorized overexcavation shall be backfilled in accordance

area, special care shall be taken not to disturb the bottom of the excavation. Excavation to the final grade level shall not be made until just before the concrete or masonry is to be placed.

3.3.1.5 Jacking, Boring, and Tunneling

Unless otherwise indicated, excavation shall be by open cut except that sections of a trench may be jacked, bored, or tunneled if, in the opinion of the Contracting Officer, the pipe, cable, or duct can be safely and properly installed and backfill can be properly compacted in such sections.

3.3.2 Stockpiles

~~Stockpiles of satisfactory and unsatisfactory shall be placed and graded as specified. Stockpiles shall be kept in a neat and well drained condition, giving due consideration to drainage at all times. The ground surface at stockpile locations shall be cleared, grubbed, and sealed by rubber-tired equipment, excavated satisfactory and unsatisfactory materials shall be separately stockpiled. Stockpiles of satisfactory materials shall be protected from contamination which may destroy the quality and fitness of the stockpiled material. If the Contractor fails to protect the stockpiles, and any material becomes unsatisfactory, such material shall be removed and replaced with satisfactory material from approved sources at no additional cost to the Government. Locations of stockpiles of satisfactory materials shall be subject to prior approval of the Contracting Officer.~~
Excavated trench material shall not be used as backfill. Stockpiles shall be in accordance with SECTION 02111 EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL.

3.4 BACKFILLING AND COMPACTION

Excavated trench material shall not be used as backfill.

Backfill material shall consist of satisfactory material, select granular material, or initial backfill material as required. Backfill shall be placed in layers not exceeding 6 inches loose thickness for compaction by hand operated machine compactors, and 8 inches loose thickness for other than hand operated machines, unless otherwise specified. Each layer shall be compacted to at least 95 percent maximum density for cohesionless soils and 90 percent maximum density for cohesive soils, unless otherwise specified.

3.4.1 Trench Backfill

Trenches shall be backfilled to the grade shown. The trench shall not be backfilled until all specified tests are performed.

3.4.1.1 Replacement of Unyielding Material

Unyielding material removed from the bottom of the trench shall be replaced with select granular material or initial backfill material.

3.4.1.2 Replacement of Unstable Material

Unstable material removed from the bottom of the trench or excavation shall be replaced with select granular material placed in layers not exceeding 6 inches loose thickness.

3.4.1.3 Initial Backfill

Initial backfill material shall be placed and compacted with approved tampers to a height of at least one foot above the utility pipe or conduit. The backfill shall be brought up evenly on both sides of the pipe for the full length of the pipe. Care shall be taken to ensure thorough compaction

of the fill under the haunches of the pipe.

3.4.1.4 Final Backfill

The remainder of the trench, except for special materials for roadways, railroads and airfields, shall be filled with satisfactory material. Backfill material shall be placed and compacted as follows:

- a. Under Buildings and Paved Areas: Backfill shall be placed and compacted to a minimum of 95 percent of the maximum laboratory dry density, full depth. Water flooding or jetting methods of compaction will not be permitted.
- b. Sidewalks, Turfed or Seeded Areas and Miscellaneous Areas: Backfill shall be deposited in layers of a maximum of 12 inch loose thickness, and compacted to 90 percent maximum density. Compaction by water flooding or jetting will not be permitted. This requirement shall also apply to all other areas not specifically designated above.
- c. *Where called out on plans, slurry cement backfill shall be placed per Caltrans Standard Specifications*

3.4.2 Backfill for Appurtenances

After the manhole, catchbasin, inlet, or similar structure has been constructed and the concrete has been allowed to cure for 7 days, backfill shall be placed in such a manner that the structure will not be damaged by the shock of falling earth. The backfill material shall be deposited and compacted as specified for final backfill, and shall be brought up evenly on all sides of the structure to prevent eccentric loading and excessive stress.

3.5 SPECIAL REQUIREMENTS

Special requirements for both excavation and backfill relating to the specific utilities are as follows:

3.5.1 Water Lines

Trenches shall be of a depth to provide a minimum cover of 3 feet from the existing ground surface, or from the indicated finished grade, whichever is lower, to the top of the pipe.

3.5.2 Heat Distribution System

Initial backfill material shall be free of stones larger than 1/4 inch in any dimension.

3.5.3 Electrical Distribution System

Direct burial cable and conduit or duct line shall have a minimum cover of 24 inches from the finished grade, unless otherwise indicated.

3.5.4 Plastic Marking Tape

Warning tapes shall be installed directly above the pipe, at a depth of 18 inches below finished grade unless otherwise shown.

3.6 REPLACE EXISTING IMPROVEMENTS THAT ARE DAMAGED

Replace existing improvements that are damaged by the work in accordance