

ANALYTICAL REPORT

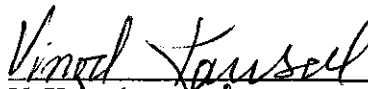
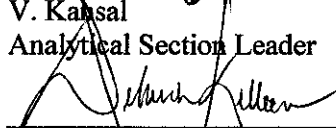

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Vapor Intrusion Pathway Assessment - Former Kelly Air Force Base  
San Antonio, Texas

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Appendix A will be furnished on request

## Introduction

REAC personnel, in response to WA# 0-323, provided analytical support for environmental samples collected from the Vapor Intrusion Pathway Assessment - Former Kelly Air Force Base Site located in San Antonio, Texas, as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

COC #	Number of Samples	Sampling Date	Date Received	Matrix	Analysis/ Method	Laboratory	Data Package
0-323-02/05/09-016	2	02/04/09	02/09/09	Soil Gas	VOC/ TO-15 SIM	CAS <sup>1</sup>	U 069
	2			Air			
0-323-02/05/09-017	4	02/05/09					
0-323-02/05/09-018	4						
0-323-02/05/09-019	4						
0-323-02/05/09-020	4						
0-323-02/05/09-021	4						
0-323-02/05/09-022	4						
0-323-02/05/09-023	4						

<sup>1</sup> Columbia Analytical Services is NELAC certified for VOC in air by TO-15

## Case Narrative

The laboratory reported the data to two significant figures. Any other representation of the data is the responsibility of the user. All data validation flags have been inserted into the results tables. The laboratory did not report results less than the RL. At the request of the Work Assignment Manager, six chlorinated compounds were analyzed for and validated.

### VOCs in Air Package U 069

The data package was examined and found to be acceptable.

## Summary of Abbreviations

BFB	Bromofluorobenzene
C	Centigrade
CLP	Contract Laboratory Program
COC	Chain of Custody
conc	concentration
cont	continued
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
D	(Surrogate Table) value is from a diluted sample and was not calculated
Dioxin	Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzofurans (PCDF)
DFTPP	Decafluorotriphenylphosphine
EMPC	Estimated maximum possible concentration
GC/MS	Gas Chromatography/ Mass Spectrometry
IS	Internal Standard
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MDA	Minimum Detectable Activity
MS (BS)	Matrix Spike (Blank Spike)
MSD (BSD)	Matrix Spike Duplicate (Blank Spike Duplicate)
MW	Molecular Weight
NA	Not Applicable or Not Available
NAD	Normalized Absolute Difference
NC	Not Calculated
NR	Not Requested/Not Reported
NS	Not Spiked
% D	Percent Difference
% REC	Percent Recovery
SOP	Standard Operating Procedure
ppbv	parts per billion by volume
ppm	parts per million
pptv	parts per trillion by volume
PQL	Practical Quantitation Limit
PAL	Performance Acceptance Limit
QA/QC	Quality Assurance/Quality Control
QL	Quantitation Limit
REAC	Response Engineering and Analytical Contract
RL	Reporting Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SIM	Selected Ion Monitoring
Sur	Surrogate
TIC	Tentatively Identified Compound
TCLP	Toxicity Characteristic Leaching Procedure
VOC	Volatile Organic Compound
*	Value exceeds the acceptable QC limits.

m <sup>3</sup>	cubic meter	g	gram	kg	kilogram	L	liter
µg	microgram	µL	microliter	mg	milligram	mL	milliliter
ng	nanogram	pg	picogram	pCi	picocurie	s	sigma

### Data Validation Flags

J	Value is estimated	R	Value is unusable
J+	Value is estimated high (metals only)	U	Not detected
J-	Value is estimated low (metals only)	UJ	Not detected and RL is estimated
N	Presumptively present (Aroclors only)		

Rev. 1/14/09

Table 1.1a Results of the Analysis for VOC (ppbv) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

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Sample Number Sample Location	2/11/2009 Method Blank		323-300 SS-SC-017		323-301 ID-SC-017AMB		323-302 ID-SC-017LR	
	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Analyte								
Vinyl Chloride	U	0.039	U	0.063	U	0.058	U	0.069
1,1-Dichloroethene	U	0.025	U	0.040	U	0.037	U	0.044
trans-1,2-Dichloroethene	U	0.025	U	0.040	U	0.037	U	0.044
cis-1,2-Dichloroethene	U	0.025	U	0.040	U	0.037	U	0.044
Trichloroethene	U	0.019	U	0.030	U	0.027	U	0.033
Tetrachloroethene	U	0.015	42	0.24	0.025	0.022	0.19	0.026

Table 1.1a (cont) Results of the Analysis for VOC (ppbv) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

Sample Number Sample Location	323-303 SS-SC-006		323-304 ID-SC-006LR		323-305 ID-SC-021AMB		323-306 ID-SC-021LR		323-307 ID-SC-021CS	
	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Analyte										
Vinyl Chloride	U	0.063	U	0.058	U	0.058	U	0.068	U	0.062
1,1-Dichloroethene	U	0.041	U	0.038	U	0.038	U	0.044	U	0.040
trans-1,2-Dichloroethene	U	0.041	U	0.038	U	0.038	U	0.044	U	0.040
cis-1,2-Dichloroethene	U	0.041	U	0.038	U	0.038	U	0.044	U	0.040
Trichloroethene	U	0.030	U	0.028	U	0.028	U	0.032	U	0.029
Tetrachloroethene	18	0.024	0.029	0.022	0.034	0.022	0.035	0.026	0.035	0.023

Table 1.1a (cont) Results of the Analysis for VOC (ppbv) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

Sample Number Sample Location	323-308 ID-SC-022CS		323-309 ID-SC-022AMB		323-310 ID-SC-022LR		323-311 ID-SC-030AMB		323-312 ID-SC-030LR	
	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Analyte										
Vinyl Chloride	U	0.061	U	0.055	U	0.060	U	0.061	U	0.068
1,1-Dichloroethene	U	0.040	U	0.036	U	0.039	U	0.039	U	0.044
trans-1,2-Dichloroethene	U	0.040	U	0.036	U	0.039	U	0.039	U	0.044
cis-1,2-Dichloroethene	U	0.040	U	0.036	U	0.039	U	0.039	U	0.044
Trichloroethene	U	0.029	U	0.026	U	0.028	U	0.029	U	0.032
Tetrachloroethene	U	0.023	U	0.021	U	0.023	U	0.023	U	0.026

Table 1.1a (cont) Results of the Analysis for VOC (ppbv) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

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Sample Number Sample Location	2/12/2009 Method Blank		323-313 ID-SC-030CS		323-314 ID-SC-025AMB		323-315 ID-SC-025CS		323-316 ID-SC-025LR	
	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Analyte										
Vinyl Chloride	U	0.039	U	0.052	U	0.063	U	0.060	U	0.061
1,1-Dichloroethene	U	0.025	U	0.034	U	0.041	U	0.039	U	0.039
trans-1,2-Dichloroethene	U	0.025	U	0.034	U	0.041	U	0.039	U	0.039
cis-1,2-Dichloroethene	U	0.025	U	0.034	U	0.041	U	0.039	U	0.039
Trichloroethene	U	0.019	U	0.025	U	0.030	0.040	0.028	U	0.029
Tetrachloroethene	U	0.015	U	0.020	U	0.024	U	0.023	U	0.023

Table 1.1a (cont) Results of the Analysis for VOC (ppbv) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

Sample Number Sample Location	2/17/2009 Method Blank		323-317 ID-SC-024CS		323-318 ID-SC-024LR		323-319 ID-SC-026CS		323-320 ID-SC-026LR	
	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Analyte										
Vinyl Chloride	U	0.039	U	0.052	U	0.068	U	0.069	U	0.13
1,1-Dichloroethene	U	0.025	U	0.034	U	0.044	U	0.044	U	0.086
trans-1,2-Dichloroethene	U	0.025	U	0.034	U	0.044	U	0.044	U	0.086
cis-1,2-Dichloroethene	U	0.025	U	0.034	U	0.044	U	0.044	U	0.086
Trichloroethene	U	0.019	U	0.025	U	0.032	U	0.033	U	0.063
Tetrachloroethene	U	0.015	U	0.020	U	0.026	U	0.026	U	0.050

Table 1.1a (cont) Results of the Analysis for VOC (ppbv) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

Sample Number Sample Location	323-321 ID-SC-027LR		323-322 ID-SC-027LR-DUP		323-324 ID-SC-023LR		323-325 ID-SC-023AMB		323-331 Trip Blank	
	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Analyte										
Vinyl Chloride	U	0.38	U	0.30	U	0.18	U	0.058	U	0.039
1,1-Dichloroethene	U	0.24	U	0.19	U	0.12	U	0.037	U	0.025
trans-1,2-Dichloroethene	U	0.24	U	0.19	U	0.12	U	0.037	U	0.025
cis-1,2-Dichloroethene	U	0.24	U	0.19	U	0.12	U	0.037	U	0.025
Trichloroethene	U	0.18	U	0.14	U	0.088	U	0.028	U	0.019
Tetrachloroethene	U	0.14	U	0.11	U	0.070	U	0.022	U	0.015

Table 1.1a (cont) Results of the Analysis for VOC (ppbv) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

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Sample Number Sample Location	2/18/2009		323-323		323-326	
	Method Blank		ID-SC-027CS		ID-SC-023CS	
Analyte	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Vinyl Chloride	U	0.039	U	0.058	U	0.062
1,1-Dichloroethene	U	0.025	U	0.038	U	0.040
trans-1,2-Dichloroethene	U	0.025	U	0.038	U	0.040
cis-1,2-Dichloroethene	U	0.025	U	0.038	U	0.040
Trichloroethene	U	0.019	U	0.028	0.031	0.030
Tetrachloroethene	U	0.015	U	0.022	U	0.023

Table 1.1a (cont) Results of the Analysis for VOC (ppbv) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

Sample Number Sample Location	323-327		323-328		323-329		323-330	
	ID-SC-028CS		ID-SC-028AMB		ID-SC-028DR-DUP		ID-SC-028DR	
Analyte	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Vinyl Chloride	U	0.063	U	0.067	U	0.063	U	0.065
1,1-Dichloroethene	U	0.041	U	0.043	U	0.041	U	0.042
trans-1,2-Dichloroethene	U	0.041	U	0.043	U	0.041	U	0.042
cis-1,2-Dichloroethene	U	0.041	U	0.043	U	0.041	U	0.042
Trichloroethene	U	0.030	U	0.032	U	0.030	U	0.031
Tetrachloroethene	U	0.024	U	0.025	U	0.024	U	0.024

Table 1.1b Results of the Analysis for VOC ( $\mu\text{g}/\text{m}^3$ ) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

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Sample Number Sample Location	2/11/2009 Method Blank		323-300 SS-SC-017		323-301 ID-SC-017AMB		323-302 ID-SC-017LR	
	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$
Analyte								
Vinyl Chloride	U	0.10	U	0.16	U	0.15	U	0.18
1,1-Dichloroethene	U	0.10	U	0.16	U	0.15	U	0.18
trans-1,2-Dichloroethene	U	0.10	U	0.16	U	0.15	U	0.18
cis-1,2-Dichloroethene	U	0.10	U	0.16	U	0.15	U	0.18
Trichloroethene	U	0.10	U	0.16	U	0.15	U	0.18
Tetrachloroethene	U	0.10	280	1.6	0.17	0.15	1.3	0.18

Table 1.1b (cont.) Results of the Analysis for VOC ( $\mu\text{g}/\text{m}^3$ ) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

Sample Number Sample Location	323-303 SS-SC-006		323-304 ID-SC-006LR		323-305 ID-SC-021AMB		323-306 ID-SC-021LR		323-307 ID-SC-021CS	
	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$
Analyte										
Vinyl Chloride	U	0.16	U	0.15	U	0.15	U	0.17	U	0.16
1,1-Dichloroethene	U	0.16	U	0.15	U	0.15	U	0.17	U	0.16
trans-1,2-Dichloroethene	U	0.16	U	0.15	U	0.15	U	0.17	U	0.16
cis-1,2-Dichloroethene	U	0.16	U	0.15	U	0.15	U	0.17	U	0.16
Trichloroethene	U	0.16	U	0.15	U	0.15	U	0.17	U	0.16
Tetrachloroethene	120	0.16	0.20	0.15	0.23	0.15	0.24	0.17	0.24	0.16

Table 1.1b (cont.) Results of the Analysis for VOC ( $\mu\text{g}/\text{m}^3$ ) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

Sample Number Sample Location	323-308 ID-SC-022CS		323-309 ID-SC-022AMB		323-310 ID-SC-022LR		323-311 ID-SC-030AMB		323-312 ID-SC-030LR	
	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$
Analyte										
Vinyl Chloride	U	0.16	U	0.14	U	0.15	U	0.16	U	0.17
1,1-Dichloroethene	U	0.16	U	0.14	U	0.15	U	0.16	U	0.17
trans-1,2-Dichloroethene	U	0.16	U	0.14	U	0.15	U	0.16	U	0.17
cis-1,2-Dichloroethene	U	0.16	U	0.14	U	0.15	U	0.16	U	0.17
Trichloroethene	U	0.16	U	0.14	U	0.15	U	0.16	U	0.17
Tetrachloroethene	U	0.16	U	0.14	U	0.15	U	0.16	U	0.17

Table 1.1b (cont.) Results of the Analysis for VOC ( $\mu\text{g}/\text{m}^3$ ) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

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Sample Number Sample Location	2/12/2009		323-313		323-314		323-315		323-316	
	Method Blank		ID-SC-030CS		ID-SC-025AMB		ID-SC-025CS		ID-SC-025LR	
	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$
Analyte										
Vinyl Chloride	U	0.10	U	0.13	U	0.16	U	0.15	U	0.16
1,1-Dichloroethene	U	0.10	U	0.13	U	0.16	U	0.15	U	0.16
trans-1,2-Dichloroethene	U	0.10	U	0.13	U	0.16	U	0.15	U	0.16
cis-1,2-Dichloroethene	U	0.10	U	0.13	U	0.16	U	0.15	U	0.16
Trichloroethene	U	0.10	U	0.13	U	0.16	0.21	0.15	U	0.16
Tetrachloroethene	U	0.10	U	0.13	U	0.16	U	0.15	U	0.16

Table 1.1b (cont.) Results of the Analysis for VOC ( $\mu\text{g}/\text{m}^3$ ) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

Sample Number Sample Location	2/17/2009		323-317		323-318		323-319		323-320	
	Method Blank		ID-SC-024CS		ID-SC-024LR		ID-SC-026CS		ID-SC-026LR	
	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$
Analyte										
Vinyl Chloride	U	0.10	U	0.13	U	0.17	U	0.18	U	0.34
1,1-Dichloroethene	U	0.10	U	0.13	U	0.17	U	0.18	U	0.34
trans-1,2-Dichloroethene	U	0.10	U	0.13	U	0.17	U	0.18	U	0.34
cis-1,2-Dichloroethene	U	0.10	U	0.13	U	0.17	U	0.18	U	0.34
Trichloroethene	U	0.10	U	0.13	U	0.17	U	0.18	U	0.34
Tetrachloroethene	U	0.10	U	0.13	U	0.17	U	0.18	U	0.34

Table 1.1b (cont.) Results of the Analysis for VOC ( $\mu\text{g}/\text{m}^3$ ) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

Sample Number Sample Location	323-321		323-322		323-324		323-325		323-331	
	ID-SC-027LR		ID-SC-027LR-DUP		ID-SC-023LR		ID-SC-023AMB		Trip Blank	
	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$
Analyte										
Vinyl Chloride	U	0.96	U	0.77	U	0.47	U	0.15	U	0.10
1,1-Dichloroethene	U	0.96	U	0.77	U	0.47	U	0.15	U	0.10
trans-1,2-Dichloroethene	U	0.96	U	0.77	U	0.47	U	0.15	U	0.10
cis-1,2-Dichloroethene	U	0.96	U	0.77	U	0.47	U	0.15	U	0.10
Trichloroethene	U	0.96	U	0.77	U	0.47	U	0.15	U	0.10
Tetrachloroethene	U	0.96	U	0.77	U	0.47	U	0.15	U	0.10

Table 1.1b (cont.) Results of the Analysis for VOC ( $\mu\text{g}/\text{m}^3$ ) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

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Sample Number Sample Location	2/18/2009 Method Blank		323-323 ID-SC-027CS		323-326 ID-SC-023CS	
	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$
Analyte						
Vinyl Chloride	U	0.10	U	0.15	U	0.16
1,1-Dichloroethene	U	0.10	U	0.15	U	0.16
trans-1,2-Dichloroethene	U	0.10	U	0.15	U	0.16
cis-1,2-Dichloroethene	U	0.10	U	0.15	U	0.16
Trichloroethene	U	0.10	U	0.15	0.17	0.16
Tetrachloroethene	U	0.10	U	0.15	U	0.16

Table 1.1b (cont.) Results of the Analysis for VOC ( $\mu\text{g}/\text{m}^3$ ) in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Method : TO-15 (SIM)

Sample Number Sample Location	323-327 ID-SC-028CS		323-328 ID-SC-028AMB		323-329 ID-SC-028DR-DUP		323-330 ID-SC-028DR	
	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	RL $\mu\text{g}/\text{m}^3$
Analyte								
Vinyl Chloride	U	0.16	U	0.17	U	0.16	U	0.17
1,1-Dichloroethene	U	0.16	U	0.17	U	0.16	U	0.17
trans-1,2-Dichloroethene	U	0.16	U	0.17	U	0.16	U	0.17
cis-1,2-Dichloroethene	U	0.16	U	0.17	U	0.16	U	0.17
Trichloroethene	U	0.16	U	0.17	U	0.16	U	0.17
Tetrachloroethene	U	0.16	U	0.17	U	0.16	U	0.17

Table 2.1 Results of the LCS Analysis for VOC in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Date Analyzed 02/11/09

Analyte	LCS Spike Added ng	LCS Recovered ng	LCS % Recovery	QC Limits % Recovery
Vinyl Chloride	25.5	22.0	86	57-132
1,1-Dichloroethene	27.5	23.6	86	70-123
trans-1,2-Dichloroethene	26.8	24.4	91	69-125
cis-1,2-Dichloroethene	27.5	23.5	85	69-124
Trichloroethene	26.5	19.7	74	72-122
Tetrachloroethene	25.8	21.9	85	72-125

Date Analyzed 02/12/09

Analyte	LCS Spike Added ng	LCS Recovered ng	LCS % Recovery	QC Limits % Recovery
Vinyl Chloride	25.5	24.6	96	57-132
1,1-Dichloroethene	27.5	26.3	96	70-123
trans-1,2-Dichloroethene	26.8	27.3	102	69-125
cis-1,2-Dichloroethene	27.5	27.5	100	69-124
Trichloroethene	26.5	24.3	92	72-122
Tetrachloroethene	25.8	23.7	92	72-125

Date Analyzed 02/17/09

Analyte	LCS Spike Added pg	LCS Recovered pg	LCS % Recovery	QC Limits % Recovery
Vinyl Chloride	510	494	97	57-132
1,1-Dichloroethene	550	443	81	70-123
trans-1,2-Dichloroethene	535	422	79	69-125
cis-1,2-Dichloroethene	550	483	88	69-124
Trichloroethene	530	455	86	72-122
Tetrachloroethene	515	461	90	72-125

Date Analyzed 02/18/09

Analyte	LCS Spike Added pg	LCS Recovered pg	LCS % Recovery	QC Limits % Recovery
Vinyl Chloride	510	398	78	57-132
1,1-Dichloroethene	550	468	85	70-123
trans-1,2-Dichloroethene	535	440	82	69-125
cis-1,2-Dichloroethene	550	490	89	69-124
Trichloroethene	530	440	83	72-122
Tetrachloroethene	515	447	87	72-125

Table 2.2 Results of the Duplicate Analysis for VOC in Air  
 WA # 0-323 Vapor Intrusion Pathway Assessment-Former Kelly Air Force Base

Sample Number 323-301

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limits RPD ≤
Vinyl Chloride	U	U	NC	25
1,1-Dichloroethene	U	U	NC	25
trans-1,2-Dichloroethene	U	U	NC	25
cis-1,2-Dichloroethene	U	U	NC	25
Trichloroethene	U	U	NC	25
Tetrachloroethene	0.0245	0.0284	15	25

Sample Number 323-316

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limits RPD ≤
Vinyl Chloride	U	U	NC	25
1,1-Dichloroethene	U	U	NC	25
trans-1,2-Dichloroethene	U	U	NC	25
cis-1,2-Dichloroethene	U	U	NC	25
Trichloroethene	U	U	NC	25
Tetrachloroethene	U	U	NC	25

Sample Number 323-322

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limits RPD ≤
Vinyl Chloride	U	U	NC	25
1,1-Dichloroethene	U	U	NC	25
trans-1,2-Dichloroethene	U	U	NC	25
cis-1,2-Dichloroethene	U	U	NC	25
Trichloroethene	U	U	NC	25
Tetrachloroethene	U	U	NC	25

Lockheed Martin  
Response Engineering Analytical Contract  
2890 Woodbridge Avenue Building 209 Annex  
Edison, NJ 08837-3679  
Telephone 732-321-4200 Facsimile 732-494-4021

LOCKHEED MARTIN 

Columbia Analytical Inc:  
2655 Park Center Drive Suite A  
Simi Valley, CA 93065

Attn: Kate Aguilera

January 9, 2009

As per Lockheed Martin / REAC Value Contract 46032343 for Project 0-323, please analyze samples according to the following parameters:

Analysis/Method	Matrix	# of samples
VOATO-15 SIM See attached compound list	Summa	50

Samples are expected to arrive at your laboratory the on February 7, 2009. Preliminary sample and QC result tables plus a signed copy of our Chain of Custody must be sent to REAC 10 business days after receipt of the samples. The complete data package is due 15 business days after receipt of the samples. The complete data package must include all items on the deliverables checklist. **The laboratory must provide documentation for individual summa canister and flow controller certification.**

All sample and QC results must be summarized in a tab delimited file diskette deliverable. Units must be in ppbv and ug/m3 in the electronic deliverable. See checklist for EDD field needed.

**All summa canisters and 24hr preset orifices must arrive at REAC by January 27, 2009. The flow controllers should have 1/4 inch fittings.**

Please submit all reports concerning this project to John Johnson at (732) 321-4248 or fax to (732) 494-4020 or john.m.johnson@lmco.com. Any contractual question, please call Joe Rosenberger (732) 321-4215.

Sincerely,



Vinod Kansal  
Analytical Section Leader  
Lockheed Martin / REAC Project

VK:jj Attachments

cc. R. Singhvi  
D. Mickunas  
0323\non\mem\0901\sub\0323Con2

V. Kansal  
Subcontracting File  
J. Soroka

J. Rosenberger  
J. Wood

**VOC Compound List for Project 0323**

	Requested Reporting Limit ppbv
Vinyl Chloride	0.070
cis 1,2-Dichloroethene	0.070
Trichloroethene (TCE)	0.070
Tetrachloroethene (PCE)	0.070
1,1-Dichloroethene (1,1-DCE)	0.070
trans-1,2-Dichloroethene	0.070

Reporting limit should be after normal dilution between  
1-2x



PO000462  
 No: 0-323-02/05/09-017

CHAIN OF CUSTODY RECORD

REAC, Edison, NJ  
 EPA Contract Number: EP-C-04-032

Site #: 0-323  
 Contact Name: John Johnson  
 Contact Phone: 732-321-4200

Lab: Columbia Analytical  
 Lab Phone: 805-526-7161

Lab #	Sample #	Location	Analyses	Matrix	Container	Summa #	OfficalID	Start Pressure	Stop Pressure	Volume	Vol Units	Stop Date	Stop Time
5	323-304	ID-SC-006LR	TO-15	Air	Summa Canister	AC00824	FC00821	-30	-5.5	5.65	Liters	2/4/2009	2:43:00 PM
6	323-305	ID-SC-021AMB	TO-15	Air	Summa Canister	AC01216	FC00625	-30	-8	5.04	Liters	2/4/2009	3:00:00 PM
7	323-306	ID-SC-021LR	TO-15	Air	Summa Canister	AC00112	FC00690	-30	-9.5	4.91	Liters	2/4/2009	3:04:00 PM
8	323-307	ID-SC-021CS	TO-15	Air	Summa Canister	AC00939	FC00330	-30	-7.5	4.9	Liters	2/4/2009	3:05:00 PM

5.1  
 5.0  
 -8.6  
 4.6

Special Instructions: Please Analyze using TO-15 Low Level as per contract with Lockheed  
 DC log: Scott J. Thompson 02/05/09

SAMPLES TRANSFERRED FROM  
 CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
TO-15 Analysis	Scott J. Thompson	02/05/09	W. J. ...	2/4/09	3:15						









0900462

CHAIN OF CUSTODY RECORD

No: 0-323-02/05/09-022

REAC, Edison, NJ  
EPA Contract Number: EP-C-04-032

Site #: 0-323  
Contact Name: John Johnson  
Contact Phone: 732-321-4200

Lab: Columbia Analytical  
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Analyses	Matrix	Container	Summa #	OrificeID	Start Pressure	Stop Pressure	Volume	Vol Units	Stop Date	Stop Time
15	323-324	ID-SC-023LR	TO-15	Air	Summa Canister	AC00536	FC00152	-30	-7.5	4.73	Liters	2/5/2009	6:34:00 PM
16	323-325	ID-SC-023AMB	TO-15	Air	Summa Canister	AC01155	FC00606	-30	-6	4.88	Liters	2/5/2009	6:38:00 PM
17	323-326	ID-SC-023CS	TO-15	Air	Summa Canister	AC00814	FC00516	-30	-7.5	4.72	Liters	2/5/2009	6:39:00 PM
18	323-327	ID-SC-028CS	TO-15	Air	Summa Canister	AC00540	FC00518	-30	-8	5.15	Liters	2/5/2009	6:10:00 PM
-7.6 -4.9 -6.5 -6.7													

Special Instructions: Please Analyze using TO-15 Low Level as per contract with Lockheed  
ac by: Scott L. Thompson 02/05/09

SAMPLES TRANSFERRED FROM  
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
TO-15 ANALYSIS	Scott L. Thompson	2/5/09	William Valera	2/5/09	09:05						

PO900462

CHAIN OF CUSTODY RECORD

No: 0-323-02/05/09-023

REAC, Edison, NJ  
EPA Contract Number: EP-C-04-032

Site #: 0-323  
Contact Name: John Johnson  
Contact Phone: 732-321-4200

Lab: Columbia Analytical  
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Analyses	Matrix	Container	Summa #	OrificeID	Start Pressure	Stop Pressure	Volume	Vol Units	Stop Date	Stop Time
24	323-328	ID-SC-028AMB	TO-15	Air	Summa Canister	AC01497	FC00356	-30	-6.5	4.57	Liters	2/5/2009	6:05:00 PM
25	323-329	ID-SC-028DR-DUP	TO-15	Air	Summa Canister	AC01132	FC00231	-30	-8.5	4.73	Liters	2/5/2009	6:20:00 PM
31	323-330	ID-SC-028DR	TO-15	Air	Summa Canister	AC01397	FC00576	-30	-9	4.88	Liters	2/5/2009	6:22:00 PM
32	323-331	Trip Blank	TO-15	Air	Summa Canister	AC01453	FC00496	-30	X	X	Liters	2/5/2009	X
<del>Empty rows</del>													

58.4  
-7.0  
-7.5  
-25.1  
-25/09  
-24.4  
-24.3  
-24.3  
-24.5  
-24.2  
-24.1  
-24.7  
-24.4  
-24.5  
-24.4  
-24.4  
-24.2  
-24.2  
-24.3  
-24.7  
-24.8  
-24.8  
-24.4

Special Instructions: Please Analyze using TO-15 Low Level as per contract with Lockhead  
QC By: *Scott F. Thompson* 02/05/09

SAMPLES TRANSFERRED FROM  
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
TO-15 Analysis	<i>Scott F. Thompson</i>	2/5/09	<i>William 4/2/09</i>	4/2/09	0925						