MOBILE GEOCHEMISTRY

H&P

Environmental Audit	Project: EAU112006-10	
1000-A Ortega Way	Project Number: 2406 / 19200 S. Reyes Ave.	Reported:
Placentia CA, 92670	Project Manager: Mr. Steve Bright	30-Nov-06

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
B1-5' (E611097-01) Vapor Sampled: 20-Nov-06 Received: 20-Nov-06									
1,1-Difluoroethane (LCC)	ND	20	ug/l	2	EK62110	21-Nov-06	21-Nov-06	EPA TO-15 Soil Gas Analysis	
Propene	ND	20	ug/m³ Air	"	"	"	"	EPA TO-15	
Dichlorodifluoromethane	ND	20	"	"	"	"	"	"	
Chloromethane	ND	10	"	"	"	"	"	"	
Dichlorotetrafluoroethane	ND	20	"	"	"	"	"	"	
Vinyl chloride	ND	10	"	"	"	"	"	"	
1,3-Butadiene	ND	10	"	"	"	"	"	"	
Bromomethane	ND	10	"	"	"	"	"	"	
Chloroethane	ND	10	"	"	"	"	"	"	
Bromoethene	ND	10	"	"	"	"	"	"	
Trichlorofluoromethane	ND	10	"	"	"	"	"	"	
Acetone	100	40	"	"	"	"	"	"	
1,1-Dichloroethene	ND	10	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane	ND	20	"	"	"	"	"	"	
Allyl chloride	ND	10	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
Carbon disulfide	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	10	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	10	"	"	"	"	"	"	
Vinyl acetate	ND	10	"	"	"	"	"	"	
1,1-Dichloroethane	ND	10	"	"	"	"	"	"	
2-Butanone	ND	10	"	"	"	"	"	"	
n-Hexane	ND	10	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	10	"	"	"	"	"	"	
Ethyl acetate	ND	10	"	"	"	"	"	"	
Chloroform	ND	10	"	"	"	"	"	"	
Tetrahydrofuran	ND	10	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	10	"	"	"	"	"	"	
1,2-Dichloroethane	ND	10	"	"	"	"	"	"	
Benzene	12	10	"	"	"	"	"	"	
Carbon tetrachloride	ND	10	"	"	"	"	"	"	
Cyclohexane	ND	10	"	"	"	"	"	"	
2,2,4-Trimethylpentane	ND	10	"	"	"	"	"	"	
n-Heptane	ND	10	"	"	"	"	"	"	
Trichloroethene	ND	10	"	"	"	"	"	"	
1,2-Dichloropropane	ND	10	"	"	"	"	"	"	
1,4-Dioxane	ND	10	"	"	"	"	"	"	

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
B1-5' (E611097-01) Vapor Sampled: 20-Nov-06 Received: 20-Nov-06									
Bromodichloromethane	ND	11	ug/m³ Air	2	EK62110	21-Nov-06	21-Nov-06	EPA TO-15	
cis-1,3-Dichloropropene	ND	10	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	10	"	"	"	"	"	"	
Toluene	240	10	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	10	"	"	"	"	"	"	
2-Hexanone	ND	10	"	"	"	"	"	"	
Dibromochloromethane	ND	10	"	"	"	"	"	"	
Tetrachloroethene	ND	10	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	10	"	"	"	"	"	"	
Chlorobenzene	ND	10	"	"	"	"	"	"	
Ethylbenzene	43	10	"	"	"	"	"	"	
m,p-Xylene	110	10	"	"	"	"	"	"	
Styrene	ND	10	"	"	"	"	"	"	
o-Xylene	68	10	"	"	"	"	"	"	
Bromoform	ND	40	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	10	"	"	"	"	"	"	
4-Ethyltoluene	20	10	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	18	10	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	89	10	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	20	"	"	"	"	"	"	
Benzyl chloride	ND	10	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	20	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	20	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	20	"	"	"	"	"	"	
Hexachlorobutadiene	ND	20	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*105 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*101 %*	*80-120*		"	"	"	"	

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Environmental Audit	Project: EAU112006-10	
1000-A Ortega Way	Project Number: 2406 / 19200 S. Reyes Ave.	Reported:
Placentia CA, 92670	Project Manager: Mr. Steve Bright	30-Nov-06

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
E1-15' (E611097-02) Vapor Sampled: 20-Nov-06 Received: 20-Nov-06									
1,1-Difluoroethane (LCC)	ND	10	ug/l	1	EK62110	21-Nov-06	21-Nov-06	EPA TO-15 Soil Gas Analysis	
Propene	ND	10	ug/m³ Air	"	"	"	"	EPA TO-15	
Dichlorodifluoromethane	ND	10	"	"	"	"	"	"	
Chloromethane	ND	5.0	"	"	"	"	"	"	
Dichlorotetrafluoroethane	ND	10	"	"	"	"	"	"	
Vinyl chloride	ND	5.0	"	"	"	"	"	"	
1,3-Butadiene	ND	5.0	"	"	"	"	"	"	
Bromomethane	ND	5.0	"	"	"	"	"	"	
Chloroethane	ND	5.0	"	"	"	"	"	"	
Bromoethene	ND	5.0	"	"	"	"	"	"	
Trichlorofluoromethane	5.0	5.0	"	"	"	"	"	"	
Acetone	ND	20	"	"	"	"	"	"	
1,1-Dichloroethene	ND	5.0	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane	140	10	"	"	"	"	"	"	
Allyl chloride	ND	5.0	"	"	"	"	"	"	
Methylene chloride	ND	5.0	"	"	"	"	"	"	
Carbon disulfide	ND	5.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
Vinyl acetate	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	5.0	"	"	"	"	"	"	
2-Butanone	110	5.0	"	"	"	"	"	"	
n-Hexane	5.1	5.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
Ethyl acetate	ND	5.0	"	"	"	"	"	"	
Chloroform	ND	5.0	"	"	"	"	"	"	
Tetrahydrofuran	ND	5.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	54	5.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	5.0	"	"	"	"	"	"	
Benzene	88	5.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"	
Cyclohexane	190	5.0	"	"	"	"	"	"	
2,2,4-Trimethylpentane	ND	5.0	"	"	"	"	"	"	
n-Heptane	ND	5.0	"	"	"	"	"	"	
Trichloroethene	ND	5.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1,4-Dioxane	ND	5.0	"	"	"	"	"	"	

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
E1-15' (E611097-02) Vapor Sampled: 20-Nov-06 Received: 20-Nov-06									
Bromodichloromethane	ND	5.5	ug/m³ Air	1	EK62110	21-Nov-06	21-Nov-06	EPA TO-15	
cis-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
Toluene	270	5.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"	"	"	
2-Hexanone	ND	5.0	"	"	"	"	"	"	
Dibromochloromethane	ND	5.0	"	"	"	"	"	"	
Tetrachloroethene	630	5.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	78	5.0	"	"	"	"	"	"	
m,p-Xylene	190	5.0	"	"	"	"	"	"	
Styrene	6.1	5.0	"	"	"	"	"	"	
o-Xylene	120	5.0	"	"	"	"	"	"	
Bromoform	ND	20	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
4-Ethyltoluene	34	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	33	5.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	150	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10	"	"	"	"	"	"	
Benzyl chloride	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*93.0 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.4 %*	*80-120*		"	"	"	"	

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (E611097-03) Vapor	**Sampled: 20-Nov-06**	**Received: 20-Nov-06**							
1,1-Difluoroethane (LCC)	ND	10	ug/l	1	EK62110	21-Nov-06	21-Nov-06	EPA TO-15 Soil Gas Analysis	
Propene	ND	10	ug/m³ Air	"	"	"	"	EPA TO-15	
Dichlorodifluoromethane	ND	10	"	"	"	"	"	"	
Chloromethane	ND	5.0	"	"	"	"	"	"	
Dichlorotetrafluoroethane	ND	10	"	"	"	"	"	"	
Vinyl chloride	ND	5.0	"	"	"	"	"	"	
1,3-Butadiene	ND	5.0	"	"	"	"	"	"	
Bromomethane	ND	5.0	"	"	"	"	"	"	
Chloroethane	ND	5.0	"	"	"	"	"	"	
Bromoethene	ND	5.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
Acetone	ND	20	"	"	"	"	"	"	
1,1-Dichloroethene	ND	5.0	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane	ND	10	"	"	"	"	"	"	
Allyl chloride	ND	5.0	"	"	"	"	"	"	
Methylene chloride	ND	5.0	"	"	"	"	"	"	
Carbon disulfide	ND	5.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
Vinyl acetate	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	5.0	"	"	"	"	"	"	
2-Butanone	ND	5.0	"	"	"	"	"	"	
n-Hexane	ND	5.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
Ethyl acetate	ND	5.0	"	"	"	"	"	"	
Chloroform	ND	5.0	"	"	"	"	"	"	
Tetrahydrofuran	ND	5.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	5.0	"	"	"	"	"	"	
Benzene	ND	5.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"	
Cyclohexane	ND	5.0	"	"	"	"	"	"	
2,2,4-Trimethylpentane	ND	5.0	"	"	"	"	"	"	
n-Heptane	ND	5.0	"	"	"	"	"	"	
Trichloroethene	ND	5.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1,4-Dioxane	ND	5.0	"	"	"	"	"	"	

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (E611097-03) Vapor	**Sampled: 20-Nov-06**	**Received: 20-Nov-06**							
Bromodichloromethane	ND	5.5	ug/m³ Air	1	EK62110	21-Nov-06	21-Nov-06	EPA TO-15	
cis-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"	"	"	
2-Hexanone	ND	5.0	"	"	"	"	"	"	
Dibromochloromethane	ND	5.0	"	"	"	"	"	"	
Tetrachloroethene	ND	5.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	5.0	"	"	"	"	"	"	
Styrene	ND	5.0	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	
Bromoform	ND	20	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
4-Ethyltoluene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10	"	"	"	"	"	"	
Benzyl chloride	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*101 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*94.0 %*	*80-120*		"	"	"	"	

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Environmental Audit	Project: EAU112006-10	
1000-A Ortega Way	Project Number: 2406 / 19200 S. Reyes Ave.	Reported:
Placentia CA, 92670	Project Manager: Mr. Steve Bright	30-Nov-06

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (E611097-03) Vapor Sampled: 20-Nov-06 Received: 20-Nov-06									
Bromodichloromethane	ND	5.5	ug/m³ Air	1	EK62110	21-Nov-06	21-Nov-06	EPA TO-15	
cis-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"	"	"	
2-Hexanone	ND	5.0	"	"	"	"	"	"	
Dibromochloromethane	ND	5.0	"	"	"	"	"	"	
Tetrachloroethene	ND	5.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	5.0	"	"	"	"	"	"	
Styrene	ND	5.0	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	
Bromoform	ND	20	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
4-Ethyltoluene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10	"	"	"	"	"	"	
Benzyl chloride	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*101 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*94.0 %*	*80-120*		"	"	"	"	

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Environmental Audit	Project: EAU112006-10	
1000-A Ortega Way	Project Number: 2406 / 19200 S. Reyes Ave.	Reported:
Placentia CA, 92670	Project Manager: Mr. Steve Bright	30-Nov-06

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EK62110 - TO-15										
Blank (EK62110-BLK1)				Prepared & Analyzed: 21-Nov-06						
Propene	ND	10	ug/m³ Air							
Dichlorodifluoromethane	ND	10	"							
Chloromethane	ND	5.0	"							
Dichlorotetrafluoroethane	ND	10	"							
Vinyl chloride	ND	5.0	"							
1,3-Butadiene	ND	5.0	"							
Bromomethane	ND	5.0	"							
Chloroethane	ND	5.0	"							
Bromoethene	ND	5.0	"							
Trichlorofluoromethane	ND	5.0	"							
Acetone	ND	20	"							
1,1-Dichloroethene	ND	5.0	"							
1,1,2-Trichlorotrifluoroethane	ND	10	"							
Allyl chloride	ND	5.0	"							
Methylene chloride	ND	5.0	"							
Carbon disulfide	ND	5.0	"							
trans-1,2-Dichloroethene	ND	5.0	"							
Methyl tert-butyl ether	ND	5.0	"							
Vinyl acetate	ND	5.0	"							
1,1-Dichloroethane	ND	5.0	"							
2-Butanone	ND	5.0	"							
n-Hexane	ND	5.0	"							
cis-1,2-Dichloroethene	ND	5.0	"							
Ethyl acetate	ND	5.0	"							
Chloroform	ND	5.0	"							
Tetrahydrofuran	ND	5.0	"							
1,1,1-Trichloroethane	ND	5.0	"							
1,2-Dichloroethane	ND	5.0	"							
Benzene	ND	5.0	"							
Carbon tetrachloride	ND	5.0	"							
Cyclohexane	ND	5.0	"							
2,2,4-Trimethylpentane	ND	5.0	"							
n-Heptane	ND	5.0	"							
Trichloroethene	ND	5.0	"							

MOBILE GEOCHEMISTRY

H&P

Environmental Audit	Project: EAU112006-10	
1000-A Ortega Way	Project Number: 2406 / 19200 S. Reyes Ave.	Reported:
Placentia CA, 92670	Project Manager: Mr. Steve Bright	30-Nov-06

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EK62110 - TO-15										
Blank (EK62110-BLK1)			Prepared & Analyzed: 21-Nov-06							
1,2-Dichloropropane	ND	5.0	ug/m³ Air							
1,4-Dioxane	ND	5.0	"							
Bromodichloromethane	ND	5.5	"							
cis-1,3-Dichloropropene	ND	5.0	"							
4-Methyl-2-pentanone	ND	5.0	"							
trans-1,3-Dichloropropene	ND	5.0	"							
Toluene	ND	5.0	"							
1,1,2-Trichloroethane	ND	5.0	"							
2-Hexanone	ND	5.0	"							
Dibromochloromethane	ND	5.0	"							
Tetrachloroethene	ND	5.0	"							
1,2-Dibromoethane (EDB)	ND	5.0	"							
Chlorobenzene	ND	5.0	"							
Ethylbenzene	ND	5.0	"							
m,p-Xylene	ND	5.0	"							
Styrene	ND	5.0	"							
o-Xylene	ND	5.0	"							
Bromoform	ND	20	"							
1,1,2,2-Tetrachloroethane	ND	5.0	"							
4-Ethyltoluene	ND	5.0	"							
1,3,5-Trimethylbenzene	ND	5.0	"							
1,2,4-Trimethylbenzene	ND	5.0	"							
1,3-Dichlorobenzene	ND	10	"							
Benzyl chloride	ND	5.0	"							
1,4-Dichlorobenzene	ND	10	"							
1,2-Dichlorobenzene	ND	10	"							
1,2,4-Trichlorobenzene	ND	10	"							
Hexachlorobutadiene	ND	10	"							
Surrogate: 1,2-Dichloroethane-d4	*107*		"	*103*		*104*	*80-120*			
Surrogate: Toluene-d8	*98.3*		"	*96.2*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*166*		"	*182*		*91.2*	*80-120*			

MOBILE GEOCHEMISTRY

H&P

Environmental Audit	Project: EAU112006-10	
1000-A Ortega Way	Project Number: 2406 / 19200 S. Reyes Ave.	Reported:
Placentia CA, 92670	Project Manager: Mr. Steve Bright	30-Nov-06

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EK62110 - TO-15										
LCS (EK62110-BS1)				Prepared & Analyzed: 21-Nov-06						
Propene	41.6	10	ug/m³ Air	35.0		119	65-135			
Dichlorodifluoromethane	138	10	"	101		137	65-135			QL-1H
Chloromethane	38.0	5.0	"	42.0		90.5	65-135			
Dichlorotetrafluoroethane	192	10	"	142		135	65-135			
Vinyl chloride	63.5	5.0	"	52.0		122	65-135			
1,3-Butadiene	54.0	5.0	"	44.8		121	65-135			
Bromomethane	98.9	5.0	"	79.2		125	65-135			
Chloroethane	68.7	5.0	"	53.6		128	65-135			
Bromoethene	106	5.0	"	89.2		119	65-135			
Trichlorofluoromethane	145	5.0	"	113		128	65-135			
Acetone	64.0	20	"	48.4		132	65-135			
1,1-Dichloroethene	95.2	5.0	"	80.8		118	65-135			
1,1,2-Trichlorotrifluoroethane	182	10	"	155		117	65-135			
Allyl chloride	72.3	5.0	"	64.0		113	65-135			
Methylene chloride	87.3	5.0	"	70.8		123	65-135			
Carbon disulfide	74.3	5.0	"	63.2		118	65-135			
trans-1,2-Dichloroethene	91.0	5.0	"	80.8		113	65-135			
Methyl tert-butyl ether	82.9	5.0	"	73.6		113	65-135			
Vinyl acetate	93.9	5.0	"	72.0		130	65-135			
1,1-Dichloroethane	97.1	5.0	"	82.4		118	65-135			
2-Butanone	68.3	5.0	"	60.0		114	65-135			
n-Hexane	86.3	5.0	"	72.0		120	65-135			
cis-1,2-Dichloroethene	93.3	5.0	"	80.0		117	65-135			
Ethyl acetate	90.6	5.0	"	73.6		123	65-135			
Chloroform	120	5.0	"	99.2		121	65-135			
Tetrahydrofuran	68.4	5.0	"	60.0		114	65-135			
1,1,1-Trichloroethane	126	5.0	"	111		114	65-135			
1,2-Dichloroethane	99.4	5.0	"	82.4		121	65-135			
Benzene	77.2	5.0	"	64.8		119	65-135			
Carbon tetrachloride	142	5.0	"	128		111	65-135			
Cyclohexane	79.9	5.0	"	70.4		113	65-135			
2,2,4-Trimethylpentane	113	5.0	"	95.2		119	65-135			
n-Heptane	97.6	5.0	"	83.6		117	65-135			
Trichloroethene	134	5.0	"	110		122	65-135			

MOBILE GEOCHEMISTRY

H&P

Environmental Audit	Project: EAU112006-10	
1000-A Ortega Way	Project Number: 2406 / 19200 S. Reyes Ave.	Reported:
Placentia CA, 92670	Project Manager: Mr. Steve Bright	30-Nov-06

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EK62110 - TO-15										
LCS (EK62110-BS1)				Prepared & Analyzed: 21-Nov-06						
1,2-Dichloropropane	112	5.0	ug/m³ Air	94.4		119	65-135			
1,4-Dioxane	81.3	5.0	"	73.6		110	65-135			
Bromodichloromethane	157	5.5	"	137		115	65-135			
cis-1,3-Dichloropropene	103	5.0	"	92.4		111	65-135			
4-Methyl-2-pentanone	101	5.0	"	83.2		121	65-135			
trans-1,3-Dichloropropene	86.2	5.0	"	92.4		93.3	65-135			
Toluene	92.1	5.0	"	76.8		120	65-135			
1,1,2-Trichloroethane	133	5.0	"	111		120	65-135			
2-Hexanone	94.8	5.0	"	83.2		114	65-135			
Dibromochloromethane	190	5.0	"	174		109	65-135			
Tetrachloroethene	158	5.0	"	138		114	65-135			
1,2-Dibromoethane (EDB)	179	5.0	"	157		114	65-135			
Chlorobenzene	117	5.0	"	93.6		125	65-135			
Ethylbenzene	111	5.0	"	88.4		126	65-135			
m,p-Xylene	112	5.0	"	88.4		127	65-135			
Styrene	96.2	5.0	"	86.8		111	65-135			
o-Xylene	113	5.0	"	88.4		128	65-135			
Bromoform	1070	20	"	840		127	65-135			
1,1,2,2-Tetrachloroethane	188	5.0	"	140		134	65-135			
4-Ethyltoluene	115	5.0	"	100		115	65-135			
1,3,5-Trimethylbenzene	119	5.0	"	100		119	65-135			
1,2,4-Trimethylbenzene	125	5.0	"	100		125	65-135			
1,3-Dichlorobenzene	164	10	"	122		134	65-135			
Benzyl chloride	115	5.0	"	105		110	65-135			
1,4-Dichlorobenzene	162	10	"	122		133	65-135			
1,2-Dichlorobenzene	163	10	"	122		134	65-135			
1,2,4-Trichlorobenzene	199	10	"	151		132	65-135			
Hexachlorobutadiene	304	10	"	218		139	65-135			QL-1H
Surrogate: 1,2-Dichloroethane-d4	*104*		"	*103*		*101*	*80-120*			
Surrogate: Toluene-d8	*93.5*		"	*96.2*		*97.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*185*		"	*182*		*102*	*80-120*			

MOBILE GEOCHEMISTRY

H&P

Environmental Audit	Project: EAU112006-10	
1000-A Ortega Way	Project Number: 2406 / 19200 S. Reyes Ave.	Reported:
Placentia CA, 92670	Project Manager: Mr. Steve Bright	30-Nov-06

Notes and Definitions

QL-1H	The LCS and/or LCSD recoveries fell above the established control specifications for this analyte. Any result for this compound is qualified and should be considered an estimate only.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

APPENDIX C

DTSC SG-Screen Model Data for 5 Feet

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

ACETONE@5'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67641	1.00E+02			Acetone

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152.4	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.4E-04

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

BENZENE@5'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_{sg} ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_{sg} (ppmv)	Chemical
71432	6.90E+01			Benzene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152.4	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.3E-07	8.9E-04

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

1,1DCA@5'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m³)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75343	5.40E+01			1,1-Dichloroethane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm²)
15	152.4	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm³)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm³/cm³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.3E-08	3.7E-05

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

1,1DCE@5'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m³)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75354	5.60E+01			1,1-Dichloroethylene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm²)
15	152.4	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm³)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm³/cm³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	3.1E-04

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

EB@5'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
100414	4.30E+01			Ethylbenzene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152.4	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.5E-05

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

PCE@5'ST

ENTER Chemical CAS No. (numbers only, no dashes)	Soil Gas Concentration Data: ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	9.80E+02			Tetrachloroethylene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152.4	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
8.3E-07	9.3E-03

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

Freon®6'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_{sg} ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_{sg} (ppmv)	Chemical
76131	3.03E+02			1,1,2-Trichloro-1,2,2-trifluoroethane

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152.4	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	3.6E-06

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
- Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

1,1,1TCA@5'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_{sg} ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_{sg} (ppmv)	Chemical
71556	1.35E+02			1,1,1-Trichloroethane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152.4	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	4.8E-05

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

TCE@5'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m³)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	1.01E+02			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm²)
15	152.4	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm³)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm³/cm³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.1E-08	6.0E-05

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0: 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

TOLUENE@5'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108883	1.52E+02			Toluene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152.4	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.9E-04

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

1,2,4TMB&4ETOS'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
95636	1.09E+02			1,2,4-Trimethylbenzene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152.4	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	5.3E-03

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

1,3,5TMB05'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m³)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108678	1.80E+01			1,3,5-Trimethylbenzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm²)
15	152.4	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm³)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm³/cm³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	8.8E-04

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

XYLENES@5'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108383	1.46E+02			m-Xylene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152.4	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^v (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	4.8E-04

MESSAGE SUMMARY BELOW:

END

APPENDIX D

DTSC SG-Screen Model Data for 15 Feet

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

BENZENE@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_{sg} ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_{sg} (ppmv)	Chemical
71432	8.80E+01			Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.6E-07	4.4E-04

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

2-BUTANONE@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m³)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
78933	1.10E+02			Methylethylketone (2-butanone)

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm²)
15	455	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm³)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm³/cm³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	3.1E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

CYCLOHEXANE@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108872	1.90E+02			Methylcyclohexane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE ↓

ENTER Vadose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	8.0E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

1,1DCA@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75343	7.60E+01			1,1-Dichloroethane

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
6.7E-09	1.9E-05

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

1,1DCE@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m³)	OR	ENTER Soil gas conc., C_{sl} (ppmv)	Chemical
75354	4.13E+02			1,1-Dichloroethylene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm²)
15	455	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm³)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm³/cm³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	9.0E-04

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

c1,2DCE@15'S1

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m³)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
156592	9.40E+01			cis-1,2-Dichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm²)
15	455	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm³)	ENTER Vadose zone soil total porosity, n^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^v (cm³/cm³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	3.4E-04

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

EB@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_a ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_a (ppmv)	Chemical
100414	7.80E+01			Ethylbenzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.0E-05

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

HEXANE@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
110543	5.10E+00			Hexane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	7.6E-06

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

STYRENE@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
100425	6.10E+00			Styrene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^v (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	8.3E-07

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

PCE@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	3.05E+04			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
9.6E-06	1.1E-01

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

FREON@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
76131	4.81E+02			1,1,2-Trichloro-1,2,2-trifluoroethane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^v (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	2.1E-06

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

TCFM@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_{sg} ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_{sg} (ppmv)	Chemical
75694	5.00E+00			Trichlorofluoromethane

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE

ENTER Vadose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.1E-06

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

1,1,1TCA@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71556	6.05E+02			1,1,1-Trichloroethane

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^v (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	8.1E-05

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

TCE@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	1.46E+03			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.7E-07	3.3E-04

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

TOLUENE@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108883	2.70E+02			Toluene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.3E-04

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0; 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

1,2,4TMB&4ETB@15'S1

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
95636	1.84E+02			1,2,4-Trimethylbenzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	455	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^v (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	3.3E-03

MESSAGE SUMMARY BELOW:

END

DATA ENTRY SHEET

SG-SCREEN
A Version 2.0: 04/

Reset to Defaults

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 1/21/05)

1,3,5TMB@15'ST

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m³)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108678	3.30E+01			1,3,5-Trimethylbenzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm²)
15	455	24	SI		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm³)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm³/cm³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SI	1.66	0.375	0.15	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	25	250

END

RESULTS SHEET

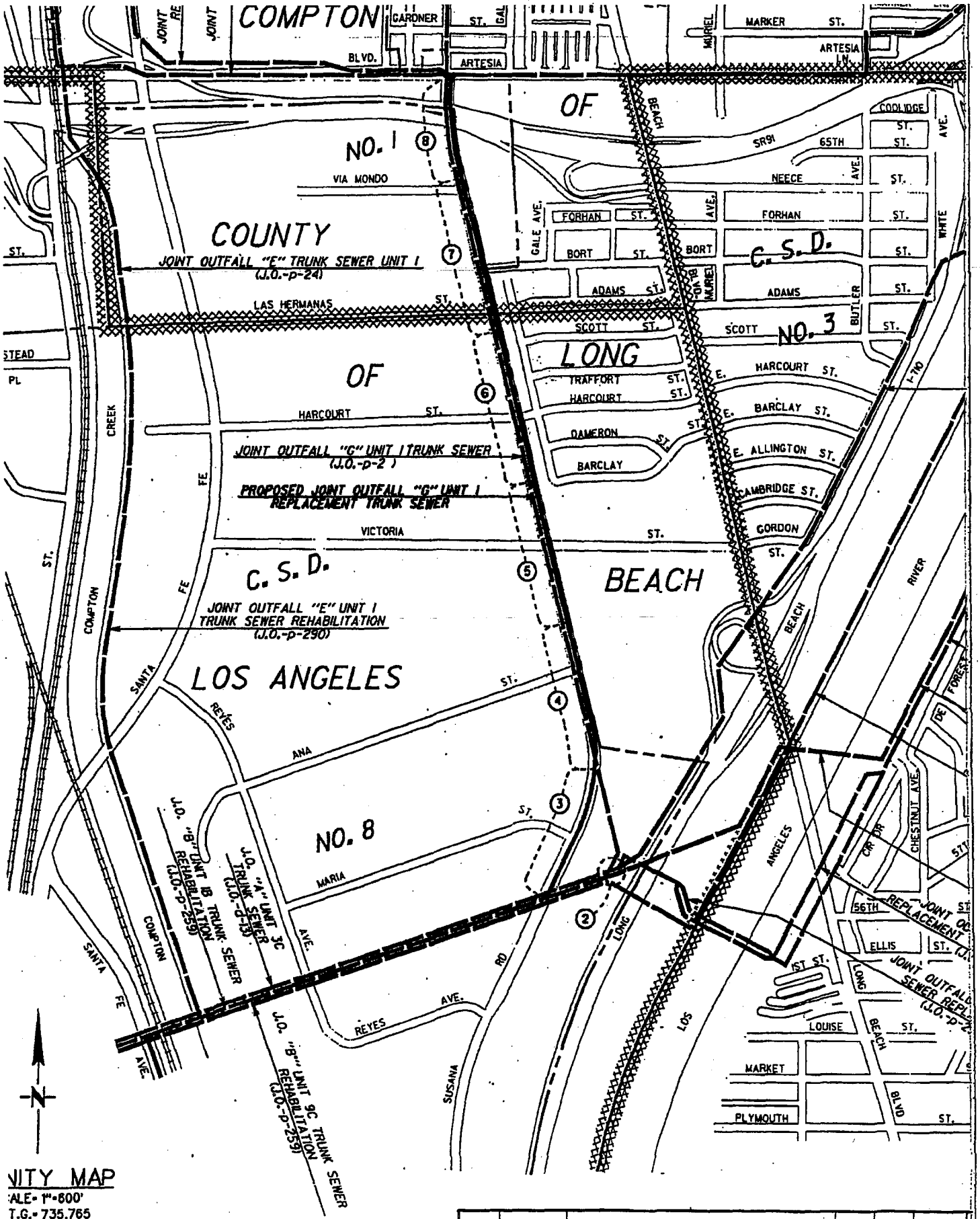
INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	5.9E-04

MESSAGE SUMMARY BELOW:

END

EXHIBIT 9



NORTH

VICINITY MAP
SCALE- 1"=600'
T.G.- 735,765

NO.	SHEET	REVISION	INITIAL	DATE
2	4,15	LOWERED ELEVATION OF JUNCTION STRUCTURE 2	JF	CG	9/18/98
1	2,3,4,6,7,9,10, 16,20,24,26	REVISION PER ADDENDUM NO.s 2&3	JF	CG	6/22/98

EXHIBIT 10

California Regional Water Quality Control Board
Los Angeles Region

Linda S. Adams
Cal/EPA Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Arnold Schwarzenegger
Governor

TO: Tracy J. Egoscue
Executive Officer

FROM: Samuel Unger, P.E.
Assistant Executive Officer/Principal Engineer

DATE: August 12, 2009

SUBJECT: DRAFT CLEANUP AND ABATEMENT ORDER (CAO) NO. R4-2009-018 - CLOPAY FACILITY AT 2930 EAST MARIA STREET, RANCHO DOMINGUEZ, CALIFORNIA (Site Cleanup Program No. 0458)

This memo provide a brief account on the subject draft CAO (attached) and recommendation to issue a CAO to address releases of volatile organic chemicals from the site.

INTRODUCTION

The subject site is located in an industrial/commercial area in Rancho Dominguez, California, and was used from 1969 to 1990 for operations at the site involving painting, degreasing with chlorinated solvents, and paint stripping with caustic solvents. JoL Enterprises was the fee title owner of the Site from 1969 to 1998. Masco (from 1969 to 1971) and Griffon (from 1971 to 1990) through its subsidiaries (after Griffon acquired Masco in 1971) leased the Site and conducted business with same operations involving the use of chlorinated solvents during their occupancy. Griffon's subsidiaries involved at the subject site (i.e. Clopay Site) include the Clopay Corporation and the Lightron Corporation. The operating companies were subsidiaries of the Griffon Corporation. As described below, soil and groundwater beneath the Clopay site are impacted by volatile organic compounds, including PCE, TCE, and other chlorinated compounds. On March 9, 2009, Regional Board staff circulated a Draft CAO to JoL Enterprises, Griffon and its subsidiaries.

There are other industrial facilities in the near vicinity of the subject site, including ERC Company (ERC) and the American Racing Equipment (ARE). ERC provides services in precision sheet metal fabrication, and ARE manufactures, markets, and distributes vehicle wheels and accessories for enthusiasts and racing industries. The potential of these sites to have contributed to the VOC plume in the area is a key subject of the comments on the draft CAO from the Griffon Corporation. ERC is adjacent to the subject site and both are located along the north side of an unnamed flood control channel that is tributary to Compton Creek. ARE is immediately south of ERC and the subject site across the flood control channel. Griffon has brought legal actions against ERC, ARE and others and commented on the Draft CAO. This memorandum addresses these comments and recommends that the draft CAO be issued to the Griffon, et. al.

SITE INVESTIGATIONS

Several subsurface investigations have been conducted at the former Clopay site, ERC site and ARE site.

Regional Board staff have reviewed and evaluated technical reports and records pertaining to the release, detection, and distribution of contaminants on the former Clopay site and its vicinity. Staff finds:

- Griffon (both Masco and Clopay) have stored, used, and/or released VOCs on the former Clopay site. Two areas of concern, referred as Area 1 and Area 2, are identified as impacted areas by VOCs in soil, soil gas, and groundwater. Area 1 is an isolated area of concern with VOCs in both soil and groundwater located in the southern portion of the Property. Area 2 is located in the southeastern portion of the Property, centered at former waste storage and disposal area (also referred as the drum storage pad) abutting the ERC property and the rail road spur.

- The principal contaminant detected in soil was PCE at both Area 1 and Area 2. The highest levels of contaminants were found directly beneath the waste disposal area with the highest PCE concentrations in soil detected at 2,800,000 ppb at 1 foot below ground surface (bgs).

- On the ERC property, investigations conducted by ERC have revealed that VOCs, mainly PCE (up to 6,000 ppb), are present at its southwest portion of the property abutting the former Clopay waste disposal area. However, no known records indicate that PCE has been stored, used, or released on the ERC facility.

- On the ARE facility, investigations conducted by both Clopay and ARE have shown that VOCs, predominantly PCE, are present in soil vapor, soils, and groundwater in the area near the flood control channel off the Area 2 of former Clopay Site. The site assessment results completed so far have not revealed significant VOCs sources on the ARE site.

- The composition of the VOCs detected beneath the former Clopay site, ERC site, rail road spur and flood control channel, and ARE site are similar, with PCE being the dominant compound, along with its daughter compounds TCE, DCE, DCA, etc.

- Generally, the highest contaminant levels were detected near ground surface and the lowest contaminant levels were detected near the groundwater table at the time of the Dames & Moore's investigation in 1990's. Contaminant concentrations generally decrease with distance from the former drum storage pad. The subsurface investigation results indicate that the origin of the PCE release in Area 2, among other contaminants, is the former Clopay waste storage and disposal area.

- The investigations also found that PCE, TCE and their associated chemical breakdown products, cis-1,2-DCE), trans-1,2- DCE, are present in the groundwater at the Site and its vicinity in concentrations in excess of applicable Water Quality Control Plan for the Los Angeles Basin (Basin Plan) water quality objectives.

In May 2009, a Phase II Site Assessment was also conducted on behalf of ZZYZX, Inc who occupies a property abutting the ARE site. Preliminary results from this investigation do not suggest an obvious connection between the detected VOCs on the ZZYZX facility and those detected on the former Clopay site.

STATUS OF LITIGATION BETWEEN GRIFFON, ERC AND ARE

In 2003, Griffon filed a lawsuit against ERC regarding the detected VOC impact at the former Clopay site and its vicinity. The litigation was amended later to include ARE after PCE impact was discovered on the ARE facility at19200 South Reyes Avenue property. The litigation alleged that contamination from ERC and ARE sites have impacted the Griffon property.

According to Mr. Perry Hughes, Griffon Corporation's counsel, Griffon entered into a settlement agreement with ERC, but has not reached agreement with ARE with regard to the responsibilities for the detected contamination beneath the ARE facility.

COMMENTS AND RESPONSES

On March 9, 2009, Regional Board staff issued a draft CAO and invited written comments and/or evidence from the Griffon Corporation, the Clopay Corporation, the Lightron Corporation, Clopay Corporation, and J.O.L. ENTERPRISES, INC., who are jointly named as the responsible parties in the subject draft CAO.

Mr. Perry Hughes of Cox, Castle & Nicholson LLP, on behalf of Griffon Corporation, submitted comments (Comments), dated April 9 and 13, 2009, to this Regional Board. Mr. Hughes raised three issues related to the draft CAO as follows:

1. The Comments claims "Griffon and Lightron Never Conducted Operations at the 2930 East Maria Street Property."
2. The Comments states that "Area 1 Has Been Remediated."
3. The Comments states that "The 2930 East Maria Street Property Is Not the Source of the PCE [*tetrachloroethylene*] in Soil and Groundwater at the American Racing Property." Specifically, The Comments state that:
   a. "American Racing Property is Upgradient from the East Maria Street Properties."
   b. "PCE is Present In Shallow Soil on American Racing Property."
   c. "Adjacent Former American Racing Property Currently Being Investigated for VOCs [*volatile organic compounds*]."

Please find below the staff responses to above issues.

I. Griffon and Lightron Never Conducted Operations at the 2930 East Maria Street Property

Response:

The Regional Board has named Griffon Corporation and Lightron Corporation, along with Clopay Corporation and JoL Enterprises, as the responsible parties because these entities either owned or operated the site which staff has determined released the VOCs that are subject to the CAO, DRAFT TECHNICAL ANALYSIS SUPPORTING CLEANUP AND ABATEMENT ORDER NO. R4-2009-018 (Pages 5 to 7).

II. Area 1 Has Been Remediated

Response:

Area 1 is an isolated area of the the subject site with VOCs in both soil and groundwater located in the southern portion of the subject site. In Area 1, the principal contaminant detected in soil was PCE with low to trace concentrations of TCE, methylene chloride, toluene, and 1,1,1-TCA also detected. PCE in soil ranged from 30 to 1,840 micrograms per kilogram (µg/kg, also referred as parts per billion by weight or ppb). In addition, total recoverable petroleum hydrocarbons (TRPH) was detected in shallow soil at a concentration up to 22,000 milligrams per kilogram (mg/kg), or 22,000,000 ppb by weight. Dissolved PCE level in the underlying groundwater (monitoring wells MW-2 and MW-11) has been steadily below or near the non-detected (ND) levels in the recent monitoring events including September 2008.

In response to the contamination profile in Area 1, the top 3-foot of VOCs-impacted soil in Area 1 was excavated in August 1998. VOCs-impacted soils between 3-foot below ground surface (bgs) and 20 feet bgs were removed in April and May 2006. Staff finds that additional soil sampling is required to verify the soil conditions between 20 feet bgs and groundwater table to determine if further soil remediation is required in Area 1.

III. The Comment states that "The 2930 East Maria Street Property Is Not the Source of the PCE in Soil and Groundwater at the American Racing Property." Specifically, the Comment states that:

a. American Racing Property is Upgradient from the East Maria Street Properties.
b. PCE is Present in Shallow Soil on American Racing Property.
c. Adjacent Former American Racing Property Currently Being Investigated for VOCs.

Response:

a. The local groundwater elevation data collected from the former Clopay site (Griffon), ERC site, and American Racing site are based on different benchmarks, due to different consultants/ surveyors who were retained for the field work. Uniformity of groundwater benchmarks is further complicated by the flood control channel between the former Clopay site and American Racing, and diurnal and seasonal fluctuations. However, based on the review of groundwater data from all three parties, it appears that groundwater beneath both ERC and former Clopay sites is generally flowing to southwesterly direction and groundwater beneath the American Racing site is generally flowing to the southerly to southeasterly direction. A local groundwater mound has been observed at the vicinity of MW-4 located on the channel easement and suggests the existence of an unidentified local recharge source. Given the state of the available

groundwater elevation data, it is premature to conclude that ARC is upgradient from the East Maria Street Properties.

b. ARE has conducted subsurface investigations including a site wide soil gas survey and targeted soil and groundwater sampling based on the soil gas survey data. No significant VOCs sources have been dtected in the vadose zone soil (unsaturated soil) at ARE, based on the following data in files and the results from completed soil gas survey, soil boring and groundwater investigation and monitoring to date:

- Areas of potential concern identified for ARE include an abandoned clarifier (January 1993), clarifier existing in 2006 (subsequently abandoned June 2007), hazardous waste/drum storage area, two former PCE parts washers, and manufacturing areas.

- Soil gas sampling was completed in November 2006 for the entire ARC site, including the potential areas of concern identified above, i.e., clarifiers, hazardous waste/drum storage area, two former PCE parts washers, and manufacturing areas. Soil gas sampling probes were installed at 30 locations to a depth of 5 feet on the American Racing site. Additionally, 15 foot deep probes were installed at 15 of the 30 soil gas probe locations. PCE was detected at low concentrations in the 5 foot samples (maximum concentration of 8.9 micrograms per liter (ug/L) and at 15 feet (maximum concentration of 150 ug/L), only at sampling locations near the groundwater well MW-7 which has elevated dissolved-phase PCE concentrations. MW-7 was installed on the easement of flood control channel by Clopay as part of their off-site delineation efforts across the flood control channel.

- Followed the soil gas survey, American Racing conducted a soil and groundwater investigation in March, August, and December 2007. During this field investigations, three onsite soil borings, SB-1, SB-2, and SB-3, were advanced and six onsite groundwater monitoring wells, MW-101 trough MW-106 were installed. The findings of the subsurface investigation indicate that primarily PCE, and its daughter compounds TCE, 1,1-DCE, and cis-1,2-DCE are present in soil and groundwater predominantly at sampling locations between the Foundry and the Flood Control Channel. Soil sampling and testing from borings (SB-1, SB-2 and SB-3) drilled near the hazardous waste/drum storage area and ground water monitoring wells (MW-5, MW-7, MW-101, MW-102, MW-103, MW-104, MW-105 and MW-106) did not encountered any significant PCE concentrations in the unsaturated zone. The highest PCE concentrations were detected in saturated soil samples collected from well MW-7, a well across the flood control channel south of the former drum storage pad on the former Clopay site, elevated PCE levels up to 7,670 µg/kg in soil was detected at 40 feet bgs, a clayey layer. Groundwater was reported at 38.6 to 38.8 feet bgs in MW-7 in 2005.

- An 863-gallon clarifier used at the site by a prior tenant, Modern Plastic Co., was abandoned pursuant to authorization issued by the County of Los Angeles Department of Public Works (CLADPW) on January 19, 1993.

- In June 2007 the 1,250-gallon three-stage clarifier was abandoned in-place pursuant to a permit issued by the CLADPW. No VOCs or SVOCs were detected in the soil

samples analyzed, and the CLADPW issued a no further action letter for this clarifier on July 11, 2007.

c. Based on the May 2009 Site Assessment completed by Fero Environmental Engineering, Inc. (Fero) on behalf of ZZYZX, Inc., a property abutting the ARE property, VOCs have been detected in both soil and groundwater beneath the former clarifier, including 1,1-DCA,1,1-DCE,1,2-DCE,1,2-DCE,TCE, and vinyl chloride. The preliminary investigation results suggest that the subsurface VOC impact is not related to the release from the former Clopay Site. Therefore, Staff recommends the investigation on the ZZYZX's property be continued separately from the investigations and cleanup requirements covered by this proposed CAO until revision deemed necessary otherwise warranted by further evidence.

Based on staff's review of the evidence, Dischargers have stored, used, and/or released VOCs, including PCE, on the former Clopay site. Elevated levels of PCE among others VOCs and petroleum hydrocarbons have been detected in both soils and groundwater beneath the former Clopay site, especially at the former hazardous waste disposal area (Area 2) abutting the ERC property and the rail road spur. Investigations conducted by both Clopay and ARE have revealed that VOCs are present in soil vapor, soils, and groundwater on the ARE facility. The detected VOCs, predominantly PCE, are located in the area near the flood control channel off the Area 2 of former Clopay site. The site assessment results completed so far have not revealed significant VOCs sources on the ARE site. The compositions of the VOCs detected beneath the former Clopay site, ERC site, rail road spur and flood control channel, and ARE site are similar, with PCE being the dominant compound, along with its daughter compounds TCE, DCE, DCA, etc. Therefore, it is concluded that the VOC impact in the groundwater beneath the ARE site in the area near the flood control channel is part of plume originated from the former Clopay site.

DELIVERABLE DUE DATES

The draft CAO will be revised to include new dues dates for submitting a Remedial Action Plan, a Work Plan for a Complete Delineation of Contamination, and a Site Conceptual Model.

Based on the above, staff has reviewed all comments regarding the subject draft CAO. The draft CAO has been revised to incorporate these comments. Therefore, staff recommends issuance of the CAO to the discharger.

cc: Mr. Bob Cashier, Trak Environmental Group, via email (Bob@trakenviro.com)
Mr. Ron Kramer, Griffon Corporation/ Clopay Corporation/ Lightron Corporation
Mr. John Godsil, Freeman, Freeman & Smiley, LLP., C/O J.O.L. ENTERPRISES, INC.
Mr. Garry Hildebrand, Los Angeles County Public Works – Flood Maintenance Division, via email (ghildeb@dpw.lacounty.gov)
Mr. Perry Hughes, Cox, Castle & Nicholson LLP, via email (PHughes@coxcastle.com)
Mr. Gary Meyer, Parker, Milliken, Clark, O'Hara & Samuelian's (GMEYER@pmcos.com)
Ms. Shahin Nourishad, Los Angeles County Fire Department - Health Hazard Division
Mr. Joel Strafelda, Union Pacific Railroad, 1400 Douglas St., Mail Stop 1030, Omaha, NE 68179-1030

Mr. Robert Swelgin, American Racing Custom Wheels
Mr. Thomas F. Vandenburg, Dongell Lawrence Finney LLP, C/O American Racing Custom Wheels, via email (tvandenburg@dlflawyers.com)
Mr. Edward S. Wactler, Blau, Kramer, Wactler & Lieberman, via email (ewactler@bkwl.com)

Attachment

DRAFT CAO SENT OUT MARCH 9, 2009

Included:

1. Cover Letter signed by Dr. Art Heath
2. Draft CAO No. R4-2009-18 and It's Technical Analysis (with Figures)