Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-11-0088

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Geosyntec Consultants

Client Project Name: Brookfield / SB0674

Attention: Geoff Frieman
924 Anacapa Street
Suite 4A
Santa Barbara, CA 93101-2177

Approved for release on 11/12/2013 by:
Stephen Nowak
Project Manager

ResultLink

Email your PM

Accredited in accordance with nelac

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Work Order Number: 13-11-0088

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Work Order Narrative

Work Order: 13-11-0088

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 11/01/13. They were assigned to Work Order 13-11-0088.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Sample Summary

Client:	Geosyntec Consultants 924 Anacapa Street, Suite 4A Santa Barbara, CA 93101-2177	Work Order:	13-11-0088
		Project Name:	Brookfield / SB0674
		PO Number:	
		Date/Time Received:	11/01/13 17:00
		Number of Containers:	28
Attn:	Geoff Frieman		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
VP13-0.5	13-11-0088-1	11/01/13 09:20	5	Solid
VP13-5	13-11-0088-2	11/01/13 09:25	5	Solid
VP13-10	13-11-0088-3	11/01/13 09:30	5	Solid
VP11A-5	13-11-0088-4	11/01/13 11:40	5	Solid
QCEB-110113	13-11-0088-5	11/01/13 13:00	6	Aqueous
QCTB-110113	13-11-0088-6	11/01/13 00:00	2	Aqueous

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Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0088
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/01/13
Attn:	Geoff Frieman		

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
VP13-0.5 (13-11-0088-1)						
Arsenic	18.6		0.750	mg/kg	EPA 6010B	EPA 3050B
Barium	184		0.500	mg/kg	EPA 6010B	EPA 3050B
Beryllium	0.373		0.250	mg/kg	EPA 6010B	EPA 3050B
Cadmium	1.49		0.500	mg/kg	EPA 6010B	EPA 3050B
Chromium	39.2		0.250	mg/kg	EPA 6010B	EPA 3050B
Cobalt	9.40		0.250	mg/kg	EPA 6010B	EPA 3050B
Copper	29.3		0.500	mg/kg	EPA 6010B	EPA 3050B
Lead	81.2		0.500	mg/kg	EPA 6010B	EPA 3050B
Molybdenum	1.77		0.250	mg/kg	EPA 6010B	EPA 3050B
Nickel	25.2		0.250	mg/kg	EPA 6010B	EPA 3050B
Vanadium	40.6		0.250	mg/kg	EPA 6010B	EPA 3050B
Zinc	156		1.00	mg/kg	EPA 6010B	EPA 3050B
Mercury	0.0881		0.0835	mg/kg	EPA 7471A	EPA 7471A Total
C29-C32	9.9		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
C33-C36	15		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
C37-C40	6.6		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
C6-C44 Total	34		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
Acetone	97		60	ug/kg	EPA 8260B	EPA 5035
Fluoranthene	0.044		0.020	mg/kg	EPA 8270C SIM PAHs	EPA 3545
Pyrene	0.043		0.020	mg/kg	EPA 8270C SIM PAHs	EPA 3545
Benzo (a) Anthracene	0.025		0.020	mg/kg	EPA 8270C SIM PAHs	EPA 3545
Chrysene	0.030		0.020	mg/kg	EPA 8270C SIM PAHs	EPA 3545
Benzo (k) Fluoranthene	0.027		0.020	mg/kg	EPA 8270C SIM PAHs	EPA 3545
Benzo (b) Fluoranthene	0.025		0.020	mg/kg	EPA 8270C SIM PAHs	EPA 3545
Benzo (a) Pyrene	0.031		0.020	mg/kg	EPA 8270C SIM PAHs	EPA 3545
Indeno (1,2,3-c,d) Pyrene	0.028		0.020	mg/kg	EPA 8270C SIM PAHs	EPA 3545
Benzo (g,h,i) Perylene	0.027		0.020	mg/kg	EPA 8270C SIM PAHs	EPA 3545

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* MDL is shown

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Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0088
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/01/13
Attn:	Geoff Frieman		

Client SampleID / Analyte	Result	Qualifiers	RL	Units	Method	Extraction
VP13-5 (13-11-0088-2)						
Arsenic	1.36		0.750	mg/kg	EPA 6010B	EPA 3050B
Barium	168		0.500	mg/kg	EPA 6010B	EPA 3050B
Beryllium	0.420		0.250	mg/kg	EPA 6010B	EPA 3050B
Cadmium	1.20		0.500	mg/kg	EPA 6010B	EPA 3050B
Chromium	18.6		0.250	mg/kg	EPA 6010B	EPA 3050B
Cobalt	9.50		0.250	mg/kg	EPA 6010B	EPA 3050B
Copper	23.0		0.500	mg/kg	EPA 6010B	EPA 3050B
Lead	4.51		0.500	mg/kg	EPA 6010B	EPA 3050B
Molybdenum	2.07		0.250	mg/kg	EPA 6010B	EPA 3050B
Nickel	24.7		0.250	mg/kg	EPA 6010B	EPA 3050B
Vanadium	39.9		0.250	mg/kg	EPA 6010B	EPA 3050B
Zinc	54.8		1.00	mg/kg	EPA 6010B	EPA 3050B
VP13-10 (13-11-0088-3)						
Arsenic	2.32		0.750	mg/kg	EPA 6010B	EPA 3050B
Barium	118		0.500	mg/kg	EPA 6010B	EPA 3050B
Beryllium	0.382		0.250	mg/kg	EPA 6010B	EPA 3050B
Cadmium	1.10		0.500	mg/kg	EPA 6010B	EPA 3050B
Chromium	16.3		0.250	mg/kg	EPA 6010B	EPA 3050B
Cobalt	8.55		0.250	mg/kg	EPA 6010B	EPA 3050B
Copper	20.3		0.500	mg/kg	EPA 6010B	EPA 3050B
Lead	3.62		0.500	mg/kg	EPA 6010B	EPA 3050B
Molybdenum	2.27		0.250	mg/kg	EPA 6010B	EPA 3050B
Nickel	21.7		0.250	mg/kg	EPA 6010B	EPA 3050B
Vanadium	35.0		0.250	mg/kg	EPA 6010B	EPA 3050B
Zinc	48.8		1.00	mg/kg	EPA 6010B	EPA 3050B

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Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0088
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/01/13
Attn:	Geoff Frieman		

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
VP11A-5 (13-11-0088-4)						
Antimony	1.61		0.750	mg/kg	EPA 6010B	EPA 3050B
Arsenic	3.48		0.750	mg/kg	EPA 6010B	EPA 3050B
Barium	702		0.500	mg/kg	EPA 6010B	EPA 3050B
Cadmium	1.20		0.500	mg/kg	EPA 6010B	EPA 3050B
Chromium	19.9		0.250	mg/kg	EPA 6010B	EPA 3050B
Cobalt	3.86		0.250	mg/kg	EPA 6010B	EPA 3050B
Copper	39.1		0.500	mg/kg	EPA 6010B	EPA 3050B
Lead	2740		0.500	mg/kg	EPA 6010B	EPA 3050B
Molybdenum	1.55		0.250	mg/kg	EPA 6010B	EPA 3050B
Nickel	12.6		0.250	mg/kg	EPA 6010B	EPA 3050B
Vanadium	19.3		0.250	mg/kg	EPA 6010B	EPA 3050B
Zinc	297		1.00	mg/kg	EPA 6010B	EPA 3050B
Mercury	0.526		0.0835	mg/kg	EPA 7471A	EPA 7471A Total
C29-C32	44		25	mg/kg	EPA 8015B (M)	EPA 3550B
C33-C36	45		25	mg/kg	EPA 8015B (M)	EPA 3550B
C37-C40	51		25	mg/kg	EPA 8015B (M)	EPA 3550B
C41-C44	38		25	mg/kg	EPA 8015B (M)	EPA 3550B
C6-C44 Total	210		25	mg/kg	EPA 8015B (M)	EPA 3550B
Naphthalene	0.080		0.040	mg/kg	EPA 8270C SIM PAHs	EPA 3545
Phenanthrene	0.046		0.040	mg/kg	EPA 8270C SIM PAHs	EPA 3545

Subcontracted analyses, if any, are not included in this summary.

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Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Brookfield / SB0674			Page 1 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-0.5	**13-11-0088-1-A**	**11/01/13 09:20**	**Solid**	**GC 50**	**11/04/13**	**11/04/13 17:14**	**131104B01A**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1	
C7	ND	5.0	1	
C8	ND	5.0	1	
C9-C10	ND	5.0	1	
C11-C12	ND	5.0	1	
C13-C14	ND	5.0	1	
C15-C16	ND	5.0	1	
C17-C18	ND	5.0	1	
C19-C20	ND	5.0	1	
C21-C22	ND	5.0	1	
C23-C24	ND	5.0	1	
C25-C28	ND	5.0	1	
C29-C32	9.9	5.0	1	
C33-C36	15	5.0	1	
C37-C40	6.6	5.0	1	
C41-C44	ND	5.0	1	
C6-C44 Total	34	5.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	68	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Brookfield / SB0674			Page 2 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-5	**13-11-0088-2-A**	**11/01/13 09:25**	**Solid**	**GC 50**	**11/04/13**	**11/04/13 17:32**	**131104B01A**

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1	
C7	ND	5.0	1	
C8	ND	5.0	1	
C9-C10	ND	5.0	1	
C11-C12	ND	5.0	1	
C13-C14	ND	5.0	1	
C15-C16	ND	5.0	1	
C17-C18	ND	5.0	1	
C19-C20	ND	5.0	1	
C21-C22	ND	5.0	1	
C23-C24	ND	5.0	1	
C25-C28	ND	5.0	1	
C29-C32	ND	5.0	1	
C33-C36	ND	5.0	1	
C37-C40	ND	5.0	1	
C41-C44	ND	5.0	1	
C6-C44 Total	ND	5.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	102	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Brookfield / SB0674			Page 3 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-10	**13-11-0088-3-A**	**11/01/13 09:30**	**Solid**	**GC 50**	**11/04/13**	**11/04/13 17:50**	**131104B01A**

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1	
C7	ND	5.0	1	
C8	ND	5.0	1	
C9-C10	ND	5.0	1	
C11-C12	ND	5.0	1	
C13-C14	ND	5.0	1	
C15-C16	ND	5.0	1	
C17-C18	ND	5.0	1	
C19-C20	ND	5.0	1	
C21-C22	ND	5.0	1	
C23-C24	ND	5.0	1	
C25-C28	ND	5.0	1	
C29-C32	ND	5.0	1	
C33-C36	ND	5.0	1	
C37-C40	ND	5.0	1	
C41-C44	ND	5.0	1	
C6-C44 Total	ND	5.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	97	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Brookfield / SB0674			Page 4 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP11A-5	**13-11-0088-4-A**	**11/01/13 11:40**	**Solid**	**GC 50**	**11/04/13**	**11/04/13 18:08**	**131104B01A**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C6	ND	25	5	
C7	ND	25	5	
C8	ND	25	5	
C9-C10	ND	25	5	
C11-C12	ND	25	5	
C13-C14	ND	25	5	
C15-C16	ND	25	5	
C17-C18	ND	25	5	
C19-C20	ND	25	5	
C21-C22	ND	25	5	
C23-C24	ND	25	5	
C25-C28	ND	25	5	
C29-C32	44	25	5	
C33-C36	45	25	5	
C37-C40	51	25	5	
C41-C44	38	25	5	
C6-C44 Total	210	25	5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	61	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Brookfield / SB0674			Page 5 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-490-610**	**N/A**	**Solid**	**GC 50**	**11/04/13**	**11/04/13 12:23**	**131104B01A**

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1	
C7	ND	5.0	1	
C8	ND	5.0	1	
C9-C10	ND	5.0	1	
C11-C12	ND	5.0	1	
C13-C14	ND	5.0	1	
C15-C16	ND	5.0	1	
C17-C18	ND	5.0	1	
C19-C20	ND	5.0	1	
C21-C22	ND	5.0	1	
C23-C24	ND	5.0	1	
C25-C28	ND	5.0	1	
C29-C32	ND	5.0	1	
C33-C36	ND	5.0	1	
C37-C40	ND	5.0	1	
C41-C44	ND	5.0	1	
C6-C44 Total	ND	5.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	82	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8015B (M)
		Units:	ug/L
Project: Brookfield / SB0674			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QCEB-110113	**13-11-0088-5-E**	**11/01/13 13:00**	**Aqueous**	**GC 46**	**11/04/13**	**11/06/13 06:35**	**131104B11A**

Parameter	Result	RL	DF	Qualifiers
C6	ND	100	1	
C7	ND	100	1	
C8	ND	100	1	
C9-C10	ND	100	1	
C11-C12	ND	100	1	
C13-C14	ND	100	1	
C15-C16	ND	100	1	
C17-C18	ND	100	1	
C19-C20	ND	100	1	
C21-C22	ND	100	1	
C23-C24	ND	100	1	
C25-C28	ND	100	1	
C29-C32	ND	100	1	
C33-C36	ND	100	1	
C37-C40	ND	100	1	
C41-C44	ND	100	1	
C6-C44 Total	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	78	68-140	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8015B (M)
		Units:	ug/L
Project: Brookfield / SB0674			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-498-115**	**N/A**	**Aqueous**	**GC 46**	**11/04/13**	**11/06/13 04:08**	**131104B11A**

Parameter	Result	RL	DF	Qualifiers
C6	ND	100	1	
C7	ND	100	1	
C8	ND	100	1	
C9-C10	ND	100	1	
C11-C12	ND	100	1	
C13-C14	ND	100	1	
C15-C16	ND	100	1	
C17-C18	ND	100	1	
C19-C20	ND	100	1	
C21-C22	ND	100	1	
C23-C24	ND	100	1	
C25-C28	ND	100	1	
C29-C32	ND	100	1	
C33-C36	ND	100	1	
C37-C40	ND	100	1	
C41-C44	ND	100	1	
C6-C44 Total	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	86	68-140	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 1 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-0.5	**13-11-0088-1-A**	**11/01/13 09:20**	**Solid**	**ICP 7300**	**11/04/13**	**11/06/13 20:43**	**131104L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1	
Arsenic	18.6	0.750	1	
Barium	184	0.500	1	
Beryllium	0.373	0.250	1	
Cadmium	1.49	0.500	1	
Chromium	39.2	0.250	1	
Cobalt	9.40	0.250	1	
Copper	29.3	0.500	1	
Lead	81.2	0.500	1	
Molybdenum	1.77	0.250	1	
Nickel	25.2	0.250	1	
Selenium	ND	0.750	1	
Silver	ND	0.250	1	
Thallium	ND	0.750	1	
Vanadium	40.6	0.250	1	
Zinc	156	1.00	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 2 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-5	**13-11-0088-2-A**	**11/01/13 09:25**	**Solid**	**ICP 7300**	**11/04/13**	**11/06/13 20:44**	**131104L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1	
Arsenic	1.36	0.750	1	
Barium	168	0.500	1	
Beryllium	0.420	0.250	1	
Cadmium	1.20	0.500	1	
Chromium	18.6	0.250	1	
Cobalt	9.50	0.250	1	
Copper	23.0	0.500	1	
Lead	4.51	0.500	1	
Molybdenum	2.07	0.250	1	
Nickel	24.7	0.250	1	
Selenium	ND	0.750	1	
Silver	ND	0.250	1	
Thallium	ND	0.750	1	
Vanadium	39.9	0.250	1	
Zinc	54.8	1.00	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 3 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-10	**13-11-0088-3-A**	**11/01/13 09:30**	**Solid**	**ICP 7300**	**11/04/13**	**11/06/13 20:46**	**131104L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1	
Arsenic	2.32	0.750	1	
Barium	118	0.500	1	
Beryllium	0.382	0.250	1	
Cadmium	1.10	0.500	1	
Chromium	16.3	0.250	1	
Cobalt	8.55	0.250	1	
Copper	20.3	0.500	1	
Lead	3.62	0.500	1	
Molybdenum	2.27	0.250	1	
Nickel	21.7	0.250	1	
Selenium	ND	0.750	1	
Silver	ND	0.250	1	
Thallium	ND	0.750	1	
Vanadium	35.0	0.250	1	
Zinc	48.8	1.00	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 4 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP11A-5	**13-11-0088-4-A**	**11/01/13 11:40**	**Solid**	**ICP 7300**	**11/04/13**	**11/06/13 20:47**	**131104L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.61	0.750	1	
Arsenic	3.48	0.750	1	
Barium	702	0.500	1	
Beryllium	ND	0.250	1	
Cadmium	1.20	0.500	1	
Chromium	19.9	0.250	1	
Cobalt	3.86	0.250	1	
Copper	39.1	0.500	1	
Lead	2740	0.500	1	
Molybdenum	1.55	0.250	1	
Nickel	12.6	0.250	1	
Selenium	ND	0.750	1	
Silver	ND	0.250	1	
Thallium	ND	0.750	1	
Vanadium	19.3	0.250	1	
Zinc	297	1.00	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 5 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-17581**	**N/A**	**Solid**	**ICP 7300**	**11/04/13**	**11/05/13 12:15**	**131104L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1	
Arsenic	ND	0.750	1	
Barium	ND	0.500	1	
Beryllium	ND	0.250	1	
Cadmium	ND	0.500	1	
Chromium	ND	0.250	1	
Cobalt	ND	0.250	1	
Copper	ND	0.500	1	
Lead	ND	0.500	1	
Molybdenum	ND	0.250	1	
Nickel	ND	0.250	1	
Selenium	ND	0.750	1	
Silver	ND	0.250	1	
Thallium	ND	0.750	1	
Vanadium	ND	0.250	1	
Zinc	ND	1.00	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3010A Total
		Method:	EPA 6010B
		Units:	mg/L
Project: Brookfield / SB0674			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QCEB-110113	**13-11-0088-5-D**	**11/01/13 13:00**	**Aqueous**	**ICP 7300**	**11/05/13**	**11/06/13 18:21**	**131105LA2**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.0150	1	
Arsenic	ND	0.0100	1	
Barium	ND	0.0100	1	
Beryllium	ND	0.0100	1	
Cadmium	ND	0.0100	1	
Chromium	ND	0.0100	1	
Cobalt	ND	0.0100	1	
Copper	ND	0.0100	1	
Lead	ND	0.0100	1	
Molybdenum	ND	0.0100	1	
Nickel	ND	0.0100	1	
Selenium	ND	0.0150	1	
Silver	ND	0.00500	1	
Thallium	ND	0.0150	1	
Vanadium	ND	0.0100	1	
Zinc	ND	0.0100	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3010A Total
		Method:	EPA 6010B
		Units:	mg/L
Project: Brookfield / SB0674			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-003-13788**	**N/A**	**Aqueous**	**ICP 7300**	**11/05/13**	**11/05/13 14:36**	**131105LA2**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.0150	1	
Arsenic	ND	0.0100	1	
Barium	ND	0.0100	1	
Beryllium	ND	0.0100	1	
Cadmium	ND	0.0100	1	
Chromium	ND	0.0100	1	
Cobalt	ND	0.0100	1	
Copper	ND	0.0100	1	
Lead	ND	0.0100	1	
Molybdenum	ND	0.0100	1	
Nickel	ND	0.0100	1	
Selenium	ND	0.0150	1	
Silver	ND	0.00500	1	
Thallium	ND	0.0150	1	
Vanadium	ND	0.0100	1	
Zinc	ND	0.0100	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 7470A Total
		Method:	EPA 7470A
		Units:	mg/L
Project: Brookfield / SB0674			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QCEB-110113	**13-11-0088-5-D**	**11/01/13 13:00**	**Aqueous**	**Mercury**	**11/04/13**	**11/04/13 16:28**	**131104L02**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.000500	1	

Method Blank	**099-04-008-6706**	**N/A**	**Aqueous**	**Mercury**	**11/04/13**	**11/04/13 16:08**	**131104L02**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.000500	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
		Units:	mg/kg
Project: Brookfield / SB0674			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-0.5	**13-11-0088-1-A**	**11/01/13 09:20**	**Solid**	**Mercury**	**11/04/13**	**11/04/13 17:20**	**131104L03**

Parameter	Result	RL	DF	Qualifiers
Mercury	0.0881	0.0835	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-5	**13-11-0088-2-A**	**11/01/13 09:25**	**Solid**	**Mercury**	**11/04/13**	**11/04/13 17:22**	**131104L03**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0835	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-10	**13-11-0088-3-A**	**11/01/13 09:30**	**Solid**	**Mercury**	**11/04/13**	**11/04/13 17:29**	**131104L03**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0835	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP11A-5	**13-11-0088-4-A**	**11/01/13 11:40**	**Solid**	**Mercury**	**11/04/13**	**11/04/13 17:31**	**131104L03**

Parameter	Result	RL	DF	Qualifiers
Mercury	0.526	0.0835	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-04-007-9800**	**N/A**	**Solid**	**Mercury**	**11/04/13**	**11/04/13 17:02**	**131104L03**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0835	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	mg/kg
Project: Brookfield / SB0674			Page 1 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-0.5	**13-11-0088-1-A**	**11/01/13 09:20**	**Solid**	**GC/MS AAA**	**11/04/13**	**11/07/13 16:06**	**131104L15**

Parameter	Result	RL	DF	Qualifiers
Naphthalene	ND	0.020	1	
2-Methylnaphthalene	ND	0.020	1	
1-Methylnaphthalene	ND	0.020	1	
Acenaphthylene	ND	0.020	1	
Acenaphthene	ND	0.020	1	
Fluorene	ND	0.020	1	
Phenanthrene	ND	0.020	1	
Anthracene	ND	0.020	1	
Fluoranthene	0.044	0.020	1	
Pyrene	0.043	0.020	1	
Benzo (a) Anthracene	0.025	0.020	1	
Chrysene	0.030	0.020	1	
Benzo (k) Fluoranthene	0.027	0.020	1	
Benzo (b) Fluoranthene	0.025	0.020	1	
Benzo (a) Pyrene	0.031	0.020	1	
Indeno (1,2,3-c,d) Pyrene	0.028	0.020	1	
Dibenz (a,h) Anthracene	ND	0.020	1	
Benzo (g,h,i) Perylene	0.027	0.020	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	76	14-146	
Nitrobenzene-d5	65	18-162	
p-Terphenyl-d14	80	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	mg/kg
Project: Brookfield / SB0674			Page 2 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-5	**13-11-0088-2-A**	**11/01/13 09:25**	**Solid**	**GC/MS AAA**	**11/04/13**	**11/07/13 18:02**	**131104L15**

Parameter	Result	RL	DF	Qualifiers
Naphthalene	ND	0.020	1	
2-Methylnaphthalene	ND	0.020	1	
1-Methylnaphthalene	ND	0.020	1	
Acenaphthylene	ND	0.020	1	
Acenaphthene	ND	0.020	1	
Fluorene	ND	0.020	1	
Phenanthrene	ND	0.020	1	
Anthracene	ND	0.020	1	
Fluoranthene	ND	0.020	1	
Pyrene	ND	0.020	1	
Benzo (a) Anthracene	ND	0.020	1	
Chrysene	ND	0.020	1	
Benzo (k) Fluoranthene	ND	0.020	1	
Benzo (b) Fluoranthene	ND	0.020	1	
Benzo (a) Pyrene	ND	0.020	1	
Indeno (1,2,3-c,d) Pyrene	ND	0.020	1	
Dibenz (a,h) Anthracene	ND	0.020	1	
Benzo (g,h,i) Perylene	ND	0.020	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	122	14-146	
Nitrobenzene-d5	110	18-162	
p-Terphenyl-d14	78	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	mg/kg
Project: Brookfield / SB0674			Page 3 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-10	**13-11-0088-3-A**	**11/01/13 09:30**	**Solid**	**GC/MS AAA**	**11/04/13**	**11/07/13 18:26**	**131104L15**

Parameter	Result	RL	DF	Qualifiers
Naphthalene	ND	0.020	1	
2-Methylnaphthalene	ND	0.020	1	
1-Methylnaphthalene	ND	0.020	1	
Acenaphthylene	ND	0.020	1	
Acenaphthene	ND	0.020	1	
Fluorene	ND	0.020	1	
Phenanthrene	ND	0.020	1	
Anthracene	ND	0.020	1	
Fluoranthene	ND	0.020	1	
Pyrene	ND	0.020	1	
Benzo (a) Anthracene	ND	0.020	1	
Chrysene	ND	0.020	1	
Benzo (k) Fluoranthene	ND	0.020	1	
Benzo (b) Fluoranthene	ND	0.020	1	
Benzo (a) Pyrene	ND	0.020	1	
Indeno (1,2,3-c,d) Pyrene	ND	0.020	1	
Dibenz (a,h) Anthracene	ND	0.020	1	
Benzo (g,h,i) Perylene	ND	0.020	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	62	14-146	
Nitrobenzene-d5	78	18-162	
p-Terphenyl-d14	75	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	mg/kg
Project: Brookfield / SB0674			Page 4 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP11A-5	**13-11-0088-4-A**	**11/01/13 11:40**	**Solid**	**GC/MS AAA**	**11/04/13**	**11/07/13 17:39**	**131104L15**

Parameter	Result	RL	DF	Qualifiers
Naphthalene	0.080	0.040	2	
2-Methylnaphthalene	ND	0.040	2	
1-Methylnaphthalene	ND	0.040	2	
Acenaphthylene	ND	0.040	2	
Acenaphthene	ND	0.040	2	
Fluorene	ND	0.040	2	
Phenanthrene	0.046	0.040	2	
Anthracene	ND	0.040	2	
Fluoranthene	ND	0.040	2	
Pyrene	ND	0.040	2	
Benzo (a) Anthracene	ND	0.040	2	
Chrysene	ND	0.040	2	
Benzo (k) Fluoranthene	ND	0.040	2	
Benzo (b) Fluoranthene	ND	0.040	2	
Benzo (a) Pyrene	ND	0.040	2	
Indeno (1,2,3-c,d) Pyrene	ND	0.040	2	
Dibenz (a,h) Anthracene	ND	0.040	2	
Benzo (g,h,i) Perylene	ND	0.040	2	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	74	14-146	
Nitrobenzene-d5	62	18-162	
p-Terphenyl-d14	90	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	mg/kg
Project: Brookfield / SB0674			Page 5 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-06-010-1894**	**N/A**	**Solid**	**GC/MS AAA**	**11/04/13**	**11/06/13 12:23**	**131104L15**

Parameter	Result	RL	DF	Qualifiers
Naphthalene	ND	0.020	1	
2-Methylnaphthalene	ND	0.020	1	
1-Methylnaphthalene	ND	0.020	1	
Acenaphthylene	ND	0.020	1	
Acenaphthene	ND	0.020	1	
Fluorene	ND	0.020	1	
Phenanthrene	ND	0.020	1	
Anthracene	ND	0.020	1	
Fluoranthene	ND	0.020	1	
Pyrene	ND	0.020	1	
Benzo (a) Anthracene	ND	0.020	1	
Chrysene	ND	0.020	1	
Benzo (k) Fluoranthene	ND	0.020	1	
Benzo (b) Fluoranthene	ND	0.020	1	
Benzo (a) Pyrene	ND	0.020	1	
Indeno (1,2,3-c,d) Pyrene	ND	0.020	1	
Dibenz (a,h) Anthracene	ND	0.020	1	
Benzo (g,h,i) Perylene	ND	0.020	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	70	14-146	
Nitrobenzene-d5	67	18-162	
p-Terphenyl-d14	87	34-148	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PAHs
		Units:	ug/L
Project: Brookfield / SB0674			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QCEB-110113	**13-11-0088-5-F**	**11/01/13 13:00**	**Aqueous**	**GC/MS AAA**	**11/06/13**	**11/07/13 18:49**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Naphthalene	ND	0.20	1	
2-Methylnaphthalene	ND	0.20	1	
1-Methylnaphthalene	ND	0.20	1	
Acenaphthylene	ND	0.20	1	
Acenaphthene	ND	0.20	1	
Fluorene	ND	0.20	1	
Phenanthrene	ND	0.20	1	
Anthracene	ND	0.20	1	
Fluoranthene	ND	0.20	1	
Pyrene	ND	0.20	1	
Benzo (a) Anthracene	ND	0.20	1	
Chrysene	ND	0.20	1	
Benzo (k) Fluoranthene	ND	0.20	1	
Benzo (b) Fluoranthene	ND	0.20	1	
Benzo (a) Pyrene	ND	0.20	1	
Indeno (1,2,3-c,d) Pyrene	ND	0.20	1	
Dibenz (a,h) Anthracene	ND	0.20	1	
Benzo (g,h,i) Perylene	ND	0.20	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Nitrobenzene-d5	68	28-139	
2-Fluorobiphenyl	74	33-144	
p-Terphenyl-d14	94	23-160	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PAHs
		Units:	ug/L
Project: Brookfield / SB0674			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-06-008-643**	**N/A**	**Aqueous**	**GC/MS AAA**	**11/06/13**	**11/07/13 11:50**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Naphthalene	ND	0.20	1	
2-Methylnaphthalene	ND	0.20	1	
1-Methylnaphthalene	ND	0.20	1	
Acenaphthylene	ND	0.20	1	
Acenaphthene	ND	0.20	1	
Fluorene	ND	0.20	1	
Phenanthrene	ND	0.20	1	
Anthracene	ND	0.20	1	
Fluoranthene	ND	0.20	1	
Pyrene	ND	0.20	1	
Benzo (a) Anthracene	ND	0.20	1	
Chrysene	ND	0.20	1	
Benzo (k) Fluoranthene	ND	0.20	1	
Benzo (b) Fluoranthene	ND	0.20	1	
Benzo (a) Pyrene	ND	0.20	1	
Indeno (1,2,3-c,d) Pyrene	ND	0.20	1	
Dibenz (a,h) Anthracene	ND	0.20	1	
Benzo (g,h,i) Perylene	ND	0.20	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Nitrobenzene-d5	85	28-139	
2-Fluorobiphenyl	72	33-144	
p-Terphenyl-d14	93	23-160	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 1 of 15

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-0.5	**13-11-0088-1-D**	**11/01/13 09:20**	**Solid**	**GC/MS Z**	**11/01/13**	**11/04/13 22:00**	**131104L02**

Parameter	Result	RL	DF	Qualifiers
Acetone	97	60	1.19	
Benzene	ND	1.2	1.19	
Bromobenzene	ND	1.2	1.19	
Bromochloromethane	ND	2.4	1.19	
Bromodichloromethane	ND	1.2	1.19	
Bromoform	ND	6.0	1.19	
Bromomethane	ND	24	1.19	
2-Butanone	ND	24	1.19	
n-Butylbenzene	ND	1.2	1.19	
sec-Butylbenzene	ND	1.2	1.19	
tert-Butylbenzene	ND	1.2	1.19	
Carbon Disulfide	ND	12	1.19	
Carbon Tetrachloride	ND	1.2	1.19	
Chlorobenzene	ND	1.2	1.19	
Chloroethane	ND	2.4	1.19	
Chloroform	ND	1.2	1.19	
Chloromethane	ND	24	1.19	
2-Chlorotoluene	ND	1.2	1.19	
4-Chlorotoluene	ND	1.2	1.19	
Dibromochloromethane	ND	2.4	1.19	
1,2-Dibromo-3-Chloropropane	ND	6.0	1.19	
1,2-Dibromoethane	ND	1.2	1.19	
Dibromomethane	ND	1.2	1.19	
1,2-Dichlorobenzene	ND	1.2	1.19	
1,3-Dichlorobenzene	ND	1.2	1.19	
1,4-Dichlorobenzene	ND	1.2	1.19	
Dichlorodifluoromethane	ND	2.4	1.19	
1,1-Dichloroethane	ND	1.2	1.19	
1,2-Dichloroethane	ND	1.2	1.19	
1,1-Dichloroethene	ND	1.2	1.19	
c-1,2-Dichloroethene	ND	1.2	1.19	
t-1,2-Dichloroethene	ND	1.2	1.19	
1,2-Dichloropropane	ND	1.2	1.19	
1,3-Dichloropropane	ND	1.2	1.19	
2,2-Dichloropropane	ND	6.0	1.19	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 2 of 15

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	2.4	1.19	
c-1,3-Dichloropropene	ND	1.2	1.19	
t-1,3-Dichloropropene	ND	2.4	1.19	
Ethylbenzene	ND	1.2	1.19	
2-Hexanone	ND	24	1.19	
Isopropylbenzene	ND	1.2	1.19	
p-Isopropyltoluene	ND	1.2	1.19	
Methylene Chloride	ND	12	1.19	
4-Methyl-2-Pentanone	ND	24	1.19	
Naphthalene	ND	12	1.19	
n-Propylbenzene	ND	2.4	1.19	
Styrene	ND	1.2	1.19	
1,1,1,2-Tetrachloroethane	ND	1.2	1.19	
1,1,2,2-Tetrachloroethane	ND	2.4	1.19	
Tetrachloroethene	ND	1.2	1.19	
Toluene	ND	1.2	1.19	
1,2,3-Trichlorobenzene	ND	2.4	1.19	
1,2,4-Trichlorobenzene	ND	2.4	1.19	
1,1,1-Trichloroethane	ND	1.2	1.19	
1,1,2-Trichloroethane	ND	1.2	1.19	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	12	1.19	
Trichloroethene	ND	2.4	1.19	
Trichlorofluoromethane	ND	12	1.19	
1,2,3-Trichloropropane	ND	2.4	1.19	
1,2,4-Trimethylbenzene	ND	2.4	1.19	
1,3,5-Trimethylbenzene	ND	2.4	1.19	
Vinyl Acetate	ND	12	1.19	
Vinyl Chloride	ND	1.2	1.19	
p/m-Xylene	ND	2.4	1.19	
o-Xylene	ND	1.2	1.19	
Methyl-t-Butyl Ether (MTBE)	ND	2.4	1.19	
Tert-Butyl Alcohol (TBA)	ND	24	1.19	
Diisopropyl Ether (DIPE)	ND	1.2	1.19	
Ethyl-t-Butyl Ether (ETBE)	ND	1.2	1.19	
Tert-Amyl-Methyl Ether (TAME)	ND	1.2	1.19	
Ethanol	ND	600	1.19	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 3 of 15

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	101	79-133	
1,2-Dichloroethane-d4	108	71-155	
Toluene-d8	98	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 4 of 15

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-5	**13-11-0088-2-D**	**11/01/13 09:25**	**Solid**	**GC/MS Z**	**11/01/13**	**11/04/13 22:27**	**131104L02**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	61	1.22	
Benzene	ND	1.2	1.22	
Bromobenzene	ND	1.2	1.22	
Bromochloromethane	ND	2.4	1.22	
Bromodichloromethane	ND	1.2	1.22	
Bromoform	ND	6.1	1.22	
Bromomethane	ND	24	1.22	
2-Butanone	ND	24	1.22	
n-Butylbenzene	ND	1.2	1.22	
sec-Butylbenzene	ND	1.2	1.22	
tert-Butylbenzene	ND	1.2	1.22	
Carbon Disulfide	ND	12	1.22	
Carbon Tetrachloride	ND	1.2	1.22	
Chlorobenzene	ND	1.2	1.22	
Chloroethane	ND	2.4	1.22	
Chloroform	ND	1.2	1.22	
Chloromethane	ND	24	1.22	
2-Chlorotoluene	ND	1.2	1.22	
4-Chlorotoluene	ND	1.2	1.22	
Dibromochloromethane	ND	2.4	1.22	
1,2-Dibromo-3-Chloropropane	ND	6.1	1.22	
1,2-Dibromoethane	ND	1.2	1.22	
Dibromomethane	ND	1.2	1.22	
1,2-Dichlorobenzene	ND	1.2	1.22	
1,3-Dichlorobenzene	ND	1.2	1.22	
1,4-Dichlorobenzene	ND	1.2	1.22	
Dichlorodifluoromethane	ND	2.4	1.22	
1,1-Dichloroethane	ND	1.2	1.22	
1,2-Dichloroethane	ND	1.2	1.22	
1,1-Dichloroethene	ND	1.2	1.22	
c-1,2-Dichloroethene	ND	1.2	1.22	
t-1,2-Dichloroethene	ND	1.2	1.22	
1,2-Dichloropropane	ND	1.2	1.22	
1,3-Dichloropropane	ND	1.2	1.22	
2,2-Dichloropropane	ND	6.1	1.22	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 5 of 15

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	2.4	1.22	
c-1,3-Dichloropropene	ND	1.2	1.22	
t-1,3-Dichloropropene	ND	2.4	1.22	
Ethylbenzene	ND	1.2	1.22	
2-Hexanone	ND	24	1.22	
Isopropylbenzene	ND	1.2	1.22	
p-Isopropyltoluene	ND	1.2	1.22	
Methylene Chloride	ND	12	1.22	
4-Methyl-2-Pentanone	ND	24	1.22	
Naphthalene	ND	12	1.22	
n-Propylbenzene	ND	2.4	1.22	
Styrene	ND	1.2	1.22	
1,1,1,2-Tetrachloroethane	ND	1.2	1.22	
1,1,2,2-Tetrachloroethane	ND	2.4	1.22	
Tetrachloroethene	ND	1.2	1.22	
Toluene	ND	1.2	1.22	
1,2,3-Trichlorobenzene	ND	2.4	1.22	
1,2,4-Trichlorobenzene	ND	2.4	1.22	
1,1,1-Trichloroethane	ND	1.2	1.22	
1,1,2-Trichloroethane	ND	1.2	1.22	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	12	1.22	
Trichloroethene	ND	2.4	1.22	
Trichlorofluoromethane	ND	12	1.22	
1,2,3-Trichloropropane	ND	2.4	1.22	
1,2,4-Trimethylbenzene	ND	2.4	1.22	
1,3,5-Trimethylbenzene	ND	2.4	1.22	
Vinyl Acetate	ND	12	1.22	
Vinyl Chloride	ND	1.2	1.22	
p/m-Xylene	ND	2.4	1.22	
o-Xylene	ND	1.2	1.22	
Methyl-t-Butyl Ether (MTBE)	ND	2.4	1.22	
Tert-Butyl Alcohol (TBA)	ND	24	1.22	
Diisopropyl Ether (DIPE)	ND	1.2	1.22	
Ethyl-t-Butyl Ether (ETBE)	ND	1.2	1.22	
Tert-Amyl-Methyl Ether (TAME)	ND	1.2	1.22	
Ethanol	ND	610	1.22	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	94	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 6 of 15

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	104	79-133	
1,2-Dichloroethane-d4	108	71-155	
Toluene-d8	97	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 7 of 15

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP13-10	**13-11-0088-3-D**	**11/01/13 09:30**	**Solid**	**GC/MS Z**	**11/01/13**	**11/04/13 22:54**	**131104L02**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	60	1.19	
Benzene	ND	1.2	1.19	
Bromobenzene	ND	1.2	1.19	
Bromochloromethane	ND	2.4	1.19	
Bromodichloromethane	ND	1.2	1.19	
Bromoform	ND	6.0	1.19	
Bromomethane	ND	24	1.19	
2-Butanone	ND	24	1.19	
n-Butylbenzene	ND	1.2	1.19	
sec-Butylbenzene	ND	1.2	1.19	
tert-Butylbenzene	ND	1.2	1.19	
Carbon Disulfide	ND	12	1.19	
Carbon Tetrachloride	ND	1.2	1.19	
Chlorobenzene	ND	1.2	1.19	
Chloroethane	ND	2.4	1.19	
Chloroform	ND	1.2	1.19	
Chloromethane	ND	24	1.19	
2-Chlorotoluene	ND	1.2	1.19	
4-Chlorotoluene	ND	1.2	1.19	
Dibromochloromethane	ND	2.4	1.19	
1,2-Dibromo-3-Chloropropane	ND	6.0	1.19	
1,2-Dibromoethane	ND	1.2	1.19	
Dibromomethane	ND	1.2	1.19	
1,2-Dichlorobenzene	ND	1.2	1.19	
1,3-Dichlorobenzene	ND	1.2	1.19	
1,4-Dichlorobenzene	ND	1.2	1.19	
Dichlorodifluoromethane	ND	2.4	1.19	
1,1-Dichloroethane	ND	1.2	1.19	
1,2-Dichloroethane	ND	1.2	1.19	
1,1-Dichloroethene	ND	1.2	1.19	
c-1,2-Dichloroethene	ND	1.2	1.19	
t-1,2-Dichloroethene	ND	1.2	1.19	
1,2-Dichloropropane	ND	1.2	1.19	
1,3-Dichloropropane	ND	1.2	1.19	
2,2-Dichloropropane	ND	6.0	1.19	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 8 of 15

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	2.4	1.19	
c-1,3-Dichloropropene	ND	1.2	1.19	
t-1,3-Dichloropropene	ND	2.4	1.19	
Ethylbenzene	ND	1.2	1.19	
2-Hexanone	ND	24	1.19	
Isopropylbenzene	ND	1.2	1.19	
p-Isopropyltoluene	ND	1.2	1.19	
Methylene Chloride	ND	12	1.19	
4-Methyl-2-Pentanone	ND	24	1.19	
Naphthalene	ND	12	1.19	
n-Propylbenzene	ND	2.4	1.19	
Styrene	ND	1.2	1.19	
1,1,1,2-Tetrachloroethane	ND	1.2	1.19	
1,1,2,2-Tetrachloroethane	ND	2.4	1.19	
Tetrachloroethene	ND	1.2	1.19	
Toluene	ND	1.2	1.19	
1,2,3-Trichlorobenzene	ND	2.4	1.19	
1,2,4-Trichlorobenzene	ND	2.4	1.19	
1,1,1-Trichloroethane	ND	1.2	1.19	
1,1,2-Trichloroethane	ND	1.2	1.19	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	12	1.19	
Trichloroethene	ND	2.4	1.19	
Trichlorofluoromethane	ND	12	1.19	
1,2,3-Trichloropropane	ND	2.4	1.19	
1,2,4-Trimethylbenzene	ND	2.4	1.19	
1,3,5-Trimethylbenzene	ND	2.4	1.19	
Vinyl Acetate	ND	12	1.19	
Vinyl Chloride	ND	1.2	1.19	
p/m-Xylene	ND	2.4	1.19	
o-Xylene	ND	1.2	1.19	
Methyl-t-Butyl Ether (MTBE)	ND	2.4	1.19	
Tert-Butyl Alcohol (TBA)	ND	24	1.19	
Diisopropyl Ether (DIPE)	ND	1.2	1.19	
Ethyl-t-Butyl Ether (ETBE)	ND	1.2	1.19	
Tert-Amyl-Methyl Ether (TAME)	ND	1.2	1.19	
Ethanol	ND	600	1.19	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	94	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 9 of 15

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	104	79-133	
1,2-Dichloroethane-d4	109	71-155	
Toluene-d8	98	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 10 of 15

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP11A-5	**13-11-0088-4-D**	**11/01/13 11:40**	**Solid**	**GC/MS Z**	**11/01/13**	**11/04/13 23:21**	**131104L02**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	54	1.08	
Benzene	ND	1.1	1.08	
Bromobenzene	ND	1.1	1.08	
Bromochloromethane	ND	2.2	1.08	
Bromodichloromethane	ND	1.1	1.08	
Bromoform	ND	5.4	1.08	
Bromomethane	ND	22	1.08	
2-Butanone	ND	22	1.08	
n-Butylbenzene	ND	1.1	1.08	
sec-Butylbenzene	ND	1.1	1.08	
tert-Butylbenzene	ND	1.1	1.08	
Carbon Disulfide	ND	11	1.08	
Carbon Tetrachloride	ND	1.1	1.08	
Chlorobenzene	ND	1.1	1.08	
Chloroethane	ND	2.2	1.08	
Chloroform	ND	1.1	1.08	
Chloromethane	ND	22	1.08	
2-Chlorotoluene	ND	1.1	1.08	
4-Chlorotoluene	ND	1.1	1.08	
Dibromochloromethane	ND	2.2	1.08	
1,2-Dibromo-3-Chloropropane	ND	5.4	1.08	
1,2-Dibromoethane	ND	1.1	1.08	
Dibromomethane	ND	1.1	1.08	
1,2-Dichlorobenzene	ND	1.1	1.08	
1,3-Dichlorobenzene	ND	1.1	1.08	
1,4-Dichlorobenzene	ND	1.1	1.08	
Dichlorodifluoromethane	ND	2.2	1.08	
1,1-Dichloroethane	ND	1.1	1.08	
1,2-Dichloroethane	ND	1.1	1.08	
1,1-Dichloroethene	ND	1.1	1.08	
c-1,2-Dichloroethene	ND	1.1	1.08	
t-1,2-Dichloroethene	ND	1.1	1.08	
1,2-Dichloropropane	ND	1.1	1.08	
1,3-Dichloropropane	ND	1.1	1.08	
2,2-Dichloropropane	ND	5.4	1.08	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 11 of 15

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	2.2	1.08	
c-1,3-Dichloropropene	ND	1.1	1.08	
t-1,3-Dichloropropene	ND	2.2	1.08	
Ethylbenzene	ND	1.1	1.08	
2-Hexanone	ND	22	1.08	
Isopropylbenzene	ND	1.1	1.08	
p-Isopropyltoluene	ND	1.1	1.08	
Methylene Chloride	ND	11	1.08	
4-Methyl-2-Pentanone	ND	22	1.08	
Naphthalene	ND	11	1.08	
n-Propylbenzene	ND	2.2	1.08	
Styrene	ND	1.1	1.08	
1,1,1,2-Tetrachloroethane	ND	1.1	1.08	
1,1,2,2-Tetrachloroethane	ND	2.2	1.08	
Tetrachloroethene	ND	1.1	1.08	
Toluene	ND	1.1	1.08	
1,2,3-Trichlorobenzene	ND	2.2	1.08	
1,2,4-Trichlorobenzene	ND	2.2	1.08	
1,1,1-Trichloroethane	ND	1.1	1.08	
1,1,2-Trichloroethane	ND	1.1	1.08	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	11	1.08	
Trichloroethene	ND	2.2	1.08	
Trichlorofluoromethane	ND	11	1.08	
1,2,3-Trichloropropane	ND	2.2	1.08	
1,2,4-Trimethylbenzene	ND	2.2	1.08	
1,3,5-Trimethylbenzene	ND	2.2	1.08	
Vinyl Acetate	ND	11	1.08	
Vinyl Chloride	ND	1.1	1.08	
p/m-Xylene	ND	2.2	1.08	
o-Xylene	ND	1.1	1.08	
Methyl-t-Butyl Ether (MTBE)	ND	2.2	1.08	
Tert-Butyl Alcohol (TBA)	ND	22	1.08	
Diisopropyl Ether (DIPE)	ND	1.1	1.08	
Ethyl-t-Butyl Ether (ETBE)	ND	1.1	1.08	
Tert-Amyl-Methyl Ether (TAME)	ND	1.1	1.08	
Ethanol	ND	540	1.08	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	94	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 12 of 15

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	103	79-133	
1,2-Dichloroethane-d4	109	71-155	
Toluene-d8	97	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 13 of 15

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-312-309**	**N/A**	**Solid**	**GC/MS Z**	**11/04/13**	**11/04/13 15:12**	**131104L02**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	50	1	
Benzene	ND	1.0	1	
Bromobenzene	ND	1.0	1	
Bromochloromethane	ND	2.0	1	
Bromodichloromethane	ND	1.0	1	
Bromoform	ND	5.0	1	
Bromomethane	ND	20	1	
2-Butanone	ND	20	1	
n-Butylbenzene	ND	1.0	1	
sec-Butylbenzene	ND	1.0	1	
tert-Butylbenzene	ND	1.0	1	
Carbon Disulfide	ND	10	1	
Carbon Tetrachloride	ND	1.0	1	
Chlorobenzene	ND	1.0	1	
Chloroethane	ND	2.0	1	
Chloroform	ND	1.0	1	
Chloromethane	ND	20	1	
2-Chlorotoluene	ND	1.0	1	
4-Chlorotoluene	ND	1.0	1	
Dibromochloromethane	ND	2.0	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1	
1,2-Dibromoethane	ND	1.0	1	
Dibromomethane	ND	1.0	1	
1,2-Dichlorobenzene	ND	1.0	1	
1,3-Dichlorobenzene	ND	1.0	1	
1,4-Dichlorobenzene	ND	1.0	1	
Dichlorodifluoromethane	ND	2.0	1	
1,1-Dichloroethane	ND	1.0	1	
1,2-Dichloroethane	ND	1.0	1	
1,1-Dichloroethene	ND	1.0	1	
c-1,2-Dichloroethene	ND	1.0	1	
t-1,2-Dichloroethene	ND	1.0	1	
1,2-Dichloropropane	ND	1.0	1	
1,3-Dichloropropane	ND	1.0	1	
2,2-Dichloropropane	ND	5.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 14 of 15

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	2.0	1	
c-1,3-Dichloropropene	ND	1.0	1	
t-1,3-Dichloropropene	ND	2.0	1	
Ethylbenzene	ND	1.0	1	
2-Hexanone	ND	20	1	
Isopropylbenzene	ND	1.0	1	
p-Isopropyltoluene	ND	1.0	1	
Methylene Chloride	ND	10	1	
4-Methyl-2-Pentanone	ND	20	1	
Naphthalene	ND	10	1	
n-Propylbenzene	ND	2.0	1	
Styrene	ND	1.0	1	
1,1,1,2-Tetrachloroethane	ND	1.0	1	
1,1,2,2-Tetrachloroethane	ND	2.0	1	
Tetrachloroethene	ND	1.0	1	
Toluene	ND	1.0	1	
1,2,3-Trichlorobenzene	ND	2.0	1	
1,2,4-Trichlorobenzene	ND	2.0	1	
1,1,1-Trichloroethane	ND	1.0	1	
1,1,2-Trichloroethane	ND	1.0	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1	
Trichloroethene	ND	2.0	1	
Trichlorofluoromethane	ND	10	1	
1,2,3-Trichloropropane	ND	2.0	1	
1,2,4-Trimethylbenzene	ND	2.0	1	
1,3,5-Trimethylbenzene	ND	2.0	1	
Vinyl Acetate	ND	10	1	
Vinyl Chloride	ND	1.0	1	
p/m-Xylene	ND	2.0	1	
o-Xylene	ND	1.0	1	
Methyl-t-Butyl Ether (MTBE)	ND	2.0	1	
Tert-Butyl Alcohol (TBA)	ND	20	1	
Diisopropyl Ether (DIPE)	ND	1.0	1	
Ethyl-t-Butyl Ether (ETBE)	ND	1.0	1	
Tert-Amyl-Methyl Ether (TAME)	ND	1.0	1	
Ethanol	ND	500	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	94	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 15 of 15

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	95	79-133	
1,2-Dichloroethane-d4	92	71-155	
Toluene-d8	97	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 1 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QCEB-110113	**13-11-0088-5-A**	**11/01/13 13:00**	**Aqueous**	**GC/MS WW**	**11/06/13**	**11/06/13 21:35**	**131106L02**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	20	1	
Benzene	ND	0.50	1	
Bromobenzene	ND	1.0	1	
Bromochloromethane	ND	1.0	1	
Bromodichloromethane	ND	1.0	1	
Bromoform	ND	1.0	1	
Bromomethane	ND	10	1	
2-Butanone	ND	10	1	
n-Butylbenzene	ND	1.0	1	
sec-Butylbenzene	ND	1.0	1	
tert-Butylbenzene	ND	1.0	1	
Carbon Disulfide	ND	10	1	
Carbon Tetrachloride	ND	0.50	1	
Chlorobenzene	ND	1.0	1	
Chloroethane	ND	5.0	1	
Chloroform	ND	1.0	1	
Chloromethane	ND	10	1	
2-Chlorotoluene	ND	1.0	1	
4-Chlorotoluene	ND	1.0	1	
Dibromochloromethane	ND	1.0	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1	
1,2-Dibromoethane	ND	1.0	1	
Dibromomethane	ND	1.0	1	
1,2-Dichlorobenzene	ND	1.0	1	
1,3-Dichlorobenzene	ND	1.0	1	
1,4-Dichlorobenzene	ND	1.0	1	
Dichlorodifluoromethane	ND	1.0	1	
1,1-Dichloroethane	ND	1.0	1	
1,2-Dichloroethane	ND	0.50	1	
1,1-Dichloroethene	ND	1.0	1	
c-1,2-Dichloroethene	ND	1.0	1	
t-1,2-Dichloroethene	ND	1.0	1	
1,2-Dichloropropane	ND	1.0	1	
1,3-Dichloropropane	ND	1.0	1	
2,2-Dichloropropane	ND	1.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 2 of 9

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	1.0	1	
c-1,3-Dichloropropene	ND	0.50	1	
t-1,3-Dichloropropene	ND	0.50	1	
Ethylbenzene	ND	1.0	1	
2-Hexanone	ND	10	1	
Isopropylbenzene	ND	1.0	1	
p-Isopropyltoluene	ND	1.0	1	
Methylene Chloride	ND	10	1	
4-Methyl-2-Pentanone	ND	10	1	
Naphthalene	ND	10	1	
n-Propylbenzene	ND	1.0	1	
Styrene	ND	1.0	1	
1,1,1,2-Tetrachloroethane	ND	1.0	1	
1,1,2,2-Tetrachloroethane	ND	1.0	1	
Tetrachloroethene	ND	1.0	1	
Toluene	ND	1.0	1	
1,2,3-Trichlorobenzene	ND	1.0	1	
1,2,4-Trichlorobenzene	ND	1.0	1	
1,1,1-Trichloroethane	ND	1.0	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1	
1,1,2-Trichloroethane	ND	1.0	1	
Trichloroethene	ND	1.0	1	
Trichlorofluoromethane	ND	10	1	
1,2,3-Trichloropropane	ND	5.0	1	
1,2,4-Trimethylbenzene	ND	1.0	1	
1,3,5-Trimethylbenzene	ND	1.0	1	
Vinyl Acetate	ND	10	1	
Vinyl Chloride	ND	0.50	1	
p/m-Xylene	ND	1.0	1	
o-Xylene	ND	1.0	1	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1	
Tert-Butyl Alcohol (TBA)	ND	10	1	
Diisopropyl Ether (DIPE)	ND	2.0	1	
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	
Ethanol	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	95	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 3 of 9

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	114	80-126	
1,2-Dichloroethane-d4	114	80-134	
Toluene-d8	100	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 4 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QCTB-110113	**13-11-0088-6-A**	**11/01/13 00:00**	**Aqueous**	**GC/MS WW**	**11/06/13**	**11/06/13 22:09**	**131106L02**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	20	1	
Benzene	ND	0.50	1	
Bromobenzene	ND	1.0	1	
Bromochloromethane	ND	1.0	1	
Bromodichloromethane	ND	1.0	1	
Bromoform	ND	1.0	1	
Bromomethane	ND	10	1	
2-Butanone	ND	10	1	
n-Butylbenzene	ND	1.0	1	
sec-Butylbenzene	ND	1.0	1	
tert-Butylbenzene	ND	1.0	1	
Carbon Disulfide	ND	10	1	
Carbon Tetrachloride	ND	0.50	1	
Chlorobenzene	ND	1.0	1	
Chloroethane	ND	5.0	1	
Chloroform	ND	1.0	1	
Chloromethane	ND	10	1	
2-Chlorotoluene	ND	1.0	1	
4-Chlorotoluene	ND	1.0	1	
Dibromochloromethane	ND	1.0	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1	
1,2-Dibromoethane	ND	1.0	1	
Dibromomethane	ND	1.0	1	
1,2-Dichlorobenzene	ND	1.0	1	
1,3-Dichlorobenzene	ND	1.0	1	
1,4-Dichlorobenzene	ND	1.0	1	
Dichlorodifluoromethane	ND	1.0	1	
1,1-Dichloroethane	ND	1.0	1	
1,2-Dichloroethane	ND	0.50	1	
1,1-Dichloroethene	ND	1.0	1	
c-1,2-Dichloroethene	ND	1.0	1	
t-1,2-Dichloroethene	ND	1.0	1	
1,2-Dichloropropane	ND	1.0	1	
1,3-Dichloropropane	ND	1.0	1	
2,2-Dichloropropane	ND	1.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 5 of 9

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	1.0	1	
c-1,3-Dichloropropene	ND	0.50	1	
t-1,3-Dichloropropene	ND	0.50	1	
Ethylbenzene	ND	1.0	1	
2-Hexanone	ND	10	1	
Isopropylbenzene	ND	1.0	1	
p-Isopropyltoluene	ND	1.0	1	
Methylene Chloride	ND	10	1	
4-Methyl-2-Pentanone	ND	10	1	
Naphthalene	ND	10	1	
n-Propylbenzene	ND	1.0	1	
Styrene	ND	1.0	1	
1,1,1,2-Tetrachloroethane	ND	1.0	1	
1,1,2,2-Tetrachloroethane	ND	1.0	1	
Tetrachloroethene	ND	1.0	1	
Toluene	ND	1.0	1	
1,2,3-Trichlorobenzene	ND	1.0	1	
1,2,4-Trichlorobenzene	ND	1.0	1	
1,1,1-Trichloroethane	ND	1.0	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1	
1,1,2-Trichloroethane	ND	1.0	1	
Trichloroethene	ND	1.0	1	
Trichlorofluoromethane	ND	10	1	
1,2,3-Trichloropropane	ND	5.0	1	
1,2,4-Trimethylbenzene	ND	1.0	1	
1,3,5-Trimethylbenzene	ND	1.0	1	
Vinyl Acetate	ND	10	1	
Vinyl Chloride	ND	0.50	1	
p/m-Xylene	ND	1.0	1	
o-Xylene	ND	1.0	1	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1	
Tert-Butyl Alcohol (TBA)	ND	10	1	
Diisopropyl Ether (DIPE)	ND	2.0	1	
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	
Ethanol	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	96	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants	Date Received:	11/01/13
924 Anacapa Street, Suite 4A	Work Order:	13-11-0088
Santa Barbara, CA 93101-2177	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/L
Project: Brookfield / SB0674		Page 6 of 9

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	97	80-126	
1,2-Dichloroethane-d4	97	80-134	
Toluene-d8	104	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 7 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-316-1192**	**N/A**	**Aqueous**	**GC/MS WW**	**11/06/13**	**11/06/13 14:10**	**131106L02**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	20	1	
Benzene	ND	0.50	1	
Bromobenzene	ND	1.0	1	
Bromochloromethane	ND	1.0	1	
Bromodichloromethane	ND	1.0	1	
Bromoform	ND	1.0	1	
Bromomethane	ND	10	1	
2-Butanone	ND	10	1	
n-Butylbenzene	ND	1.0	1	
sec-Butylbenzene	ND	1.0	1	
tert-Butylbenzene	ND	1.0	1	
Carbon Disulfide	ND	10	1	
Carbon Tetrachloride	ND	0.50	1	
Chlorobenzene	ND	1.0	1	
Chloroethane	ND	5.0	1	
Chloroform	ND	1.0	1	
Chloromethane	ND	10	1	
2-Chlorotoluene	ND	1.0	1	
4-Chlorotoluene	ND	1.0	1	
Dibromochloromethane	ND	1.0	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1	
1,2-Dibromoethane	ND	1.0	1	
Dibromomethane	ND	1.0	1	
1,2-Dichlorobenzene	ND	1.0	1	
1,3-Dichlorobenzene	ND	1.0	1	
1,4-Dichlorobenzene	ND	1.0	1	
Dichlorodifluoromethane	ND	1.0	1	
1,1-Dichloroethane	ND	1.0	1	
1,2-Dichloroethane	ND	0.50	1	
1,1-Dichloroethene	ND	1.0	1	
c-1,2-Dichloroethene	ND	1.0	1	
t-1,2-Dichloroethene	ND	1.0	1	
1,2-Dichloropropane	ND	1.0	1	
1,3-Dichloropropane	ND	1.0	1	
2,2-Dichloropropane	ND	1.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 8 of 9

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	1.0	1	
c-1,3-Dichloropropene	ND	0.50	1	
t-1,3-Dichloropropene	ND	0.50	1	
Ethylbenzene	ND	1.0	1	
2-Hexanone	ND	10	1	
Isopropylbenzene	ND	1.0	1	
p-Isopropyltoluene	ND	1.0	1	
Methylene Chloride	ND	10	1	
4-Methyl-2-Pentanone	ND	10	1	
Naphthalene	ND	10	1	
n-Propylbenzene	ND	1.0	1	
Styrene	ND	1.0	1	
1,1,1,2-Tetrachloroethane	ND	1.0	1	
1,1,2,2-Tetrachloroethane	ND	1.0	1	
Tetrachloroethene	ND	1.0	1	
Toluene	ND	1.0	1	
1,2,3-Trichlorobenzene	ND	1.0	1	
1,2,4-Trichlorobenzene	ND	1.0	1	
1,1,1-Trichloroethane	ND	1.0	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1	
1,1,2-Trichloroethane	ND	1.0	1	
Trichloroethene	ND	1.0	1	
Trichlorofluoromethane	ND	10	1	
1,2,3-Trichloropropane	ND	5.0	1	
1,2,4-Trimethylbenzene	ND	1.0	1	
1,3,5-Trimethylbenzene	ND	1.0	1	
Vinyl Acetate	ND	10	1	
Vinyl Chloride	ND	0.50	1	
p/m-Xylene	ND	1.0	1	
o-Xylene	ND	1.0	1	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1	
Tert-Butyl Alcohol (TBA)	ND	10	1	
Diisopropyl Ether (DIPE)	ND	2.0	1	
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	
Ethanol	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	93	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 9 of 9

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	108	80-126	
1,2-Dichloroethane-d4	108	80-134	
Toluene-d8	99	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
Project: Brookfield / SB0674			Page 1 of 7

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0140-2	**Solid**	**GC 50**	**11/04/13**	**11/04/13 15:36**	**131104S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	11280	400.0	11450	42	11570	73	64-130	1	0-15	3

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 2 of 7

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0128-1	**Solid**	**ICP 7300**	**11/04/13**	**11/05/13 12:19**	**131104S05**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Antimony	ND	25.00	4.684	19	4.300	17	50-115	9	0-20	3
Arsenic	1.061	25.00	22.40	85	22.89	87	75-125	2	0-20	
Barium	132.4	25.00	175.5	4X	218.0	4X	75-125	4X	0-20	Q
Beryllium	0.4439	25.00	24.89	98	25.36	100	75-125	2	0-20	
Cadmium	ND	25.00	24.61	98	25.02	100	75-125	2	0-20	
Chromium	46.10	25.00	69.86	95	76.29	121	75-125	9	0-20	
Cobalt	22.78	25.00	50.71	112	56.63	135	75-125	11	0-20	3
Copper	19.17	25.00	48.61	118	50.96	127	75-125	5	0-20	3
Lead	5.537	25.00	31.23	103	33.71	113	75-125	8	0-20	
Molybdenum	ND	25.00	20.16	81	20.82	83	75-125	3	0-20	
Nickel	41.74	25.00	71.62	119	70.64	116	75-125	1	0-20	
Selenium	ND	25.00	21.37	85	22.35	89	75-125	4	0-20	
Silver	ND	12.50	11.75	94	11.87	95	75-125	1	0-20	
Thallium	ND	25.00	21.60	86	21.66	87	75-125	0	0-20	
Vanadium	56.63	25.00	77.78	85	84.81	113	75-125	9	0-20	
Zinc	26.26	25.00	51.45	101	53.50	109	75-125	4	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3005A Filt.
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 3 of 7

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0204-1	**Aqueous**	**ICP 7300**	**11/05/13**	**11/05/13 14:44**	**131105SA2**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Antimony	ND	0.5000	0.5625	113	0.5636	113	72-132	0	0-10	
Arsenic	0.01917	0.5000	0.5489	106	0.5505	106	80-140	0	0-11	
Barium	0.08137	0.5000	0.5888	101	0.5809	100	87-123	1	0-6	
Beryllium	ND	0.5000	0.4984	100	0.4926	99	89-119	1	0-8	
Cadmium	ND	0.5000	0.4969	99	0.4924	98	82-124	1	0-7	
Chromium	ND	0.5000	0.5510	110	0.5424	108	86-122	2	0-8	
Cobalt	ND	0.5000	0.5547	111	0.5559	111	83-125	0	0-7	
Copper	0.1030	0.5000	0.7061	121	0.6970	119	78-126	1	0-7	
Lead	ND	0.5000	0.5139	103	0.5185	104	84-120	1	0-7	
Molybdenum	0.1510	0.5000	0.6728	104	0.6702	104	78-126	0	0-7	
Nickel	0.01542	0.5000	0.5674	110	0.5642	110	84-120	1	0-7	
Selenium	ND	0.5000	0.5181	104	0.5224	104	79-127	1	0-9	
Silver	0.005019	0.2500	0.2801	110	0.2758	108	86-128	2	0-7	
Thallium	ND	0.5000	0.5038	101	0.5078	102	79-121	1	0-8	
Vanadium	ND	0.5000	0.5374	107	0.5306	106	88-118	1	0-7	
Zinc	0.1088	0.5000	0.6692	112	0.6582	110	89-131	2	0-8	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 7470A Total
		Method:	EPA 7470A
Project: Brookfield / SB0674			Page 4 of 7

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0122-1	**Aqueous**	**Mercury**	**11/04/13**	**11/04/13 16:14**	**131104S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.01000	0.009446	94	0.009654	97	57-141	2	0-10	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Brookfield / SB0674			Page 5 of 7

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0128-1	**Solid**	**Mercury**	**11/04/13**	**11/04/13 17:09**	**131104S03**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.8350	0.7277	87	0.7140	86	71-137	2	0-14	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
Project: Brookfield / SB0674			Page 6 of 7

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
VP13-0.5	**Solid**	**GC/MS AAA**	**11/04/13**	**11/07/13 16:29**	**131104S15**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Naphthalene	ND	0.2000	0.1594	80	0.1585	79	15-171	1	0-44	
2-Methylnaphthalene	ND	0.2000	0.1794	90	0.1758	88	28-160	2	0-39	
1-Methylnaphthalene	ND	0.2000	0.1666	83	0.1626	81	28-154	2	0-40	
Acenaphthylene	ND	0.2000	0.1417	71	0.1391	70	27-153	2	0-41	
Acenaphthene	ND	0.2000	0.1406	70	0.1367	68	33-147	3	0-38	
Fluorene	ND	0.2000	0.1492	75	0.1455	73	12-180	3	0-33	
Phenanthrene	ND	0.2000	0.1613	81	0.1504	75	26-152	7	0-29	
Anthracene	ND	0.2000	0.1303	65	0.1269	63	10-145	3	0-25	
Fluoranthene	0.04438	0.2000	0.2061	81	0.1828	69	20-158	12	0-31	
Pyrene	0.04324	0.2000	0.1827	70	0.1665	62	11-191	9	0-31	
Benzo (a) Anthracene	0.02496	0.2000	0.1670	71	0.1608	68	36-150	4	0-32	
Chrysene	0.03048	0.2000	0.1579	64	0.1494	59	21-189	6	0-29	
Benzo (k) Fluoranthene	0.02728	0.2000	0.1581	65	0.1531	63	40-148	3	0-32	
Benzo (b) Fluoranthene	0.02516	0.2000	0.1655	70	0.1661	70	39-147	0	0-28	
Benzo (a) Pyrene	0.03088	0.2000	0.1760	73	0.1740	72	36-168	1	0-26	
Indeno (1,2,3-c,d) Pyrene	0.02784	0.2000	0.1804	76	0.1780	75	22-160	1	0-26	
Dibenz (a,h) Anthracene	ND	0.2000	0.1249	62	0.1303	65	27-147	4	0-30	
Benzo (g,h,i) Perylene	0.02714	0.2000	0.1275	50	0.1257	49	10-152	1	0-28	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: Brookfield / SB0674			Page 7 of 7

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-10-2203-3	**Aqueous**	**GC/MS WW**	**11/06/13**	**11/06/13 16:27**	**131106S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	49.05	98	46.04	92	78-120	6	0-9	
Chloroform	ND	50.00	55.30	111	51.74	103	80-120	7	0-10	
1,1-Dichloroethane	ND	50.00	48.10	96	44.92	90	80-120	7	0-10	
1,2-Dichloroethane	ND	50.00	56.18	112	54.16	108	76-130	4	0-11	
1,1-Dichloroethene	ND	50.00	43.30	87	40.50	81	70-130	7	0-15	
Tetrachloroethene	ND	50.00	45.27	91	41.67	83	80-120	8	0-9	
Toluene	ND	50.00	48.36	97	45.52	91	72-126	6	0-10	
Trichloroethene	ND	50.00	52.21	104	49.06	98	74-122	6	0-10	
p/m-Xylene	ND	100.0	96.17	96	91.21	91	70-130	5	0-30	
o-Xylene	ND	50.00	46.60	93	44.52	89	70-130	5	0-30	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	52.78	106	50.96	102	69-123	4	0-17	
Ethanol	ND	500.0	506.7	101	452.1	90	41-155	11	0-40	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3005A Filt.
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 1 of 1

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
13-11-0204-1	**Aqueous**	**ICP 7300**	**11/05/13 00:00**	**11/05/13 14:47**	**131105SA2**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	PDSD Conc.	PDSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Antimony	ND	0.5000	0.4669	93	0.4753	95	75-125	2	0-20	
Arsenic	0.01917	0.5000	0.4954	95	0.4783	92	75-125	4	0-20	
Barium	0.08137	0.5000	0.5796	100	0.5578	95	75-125	4	0-20	
Beryllium	ND	0.5000	0.4847	97	0.4761	95	75-125	2	0-20	
Cadmium	ND	0.5000	0.4841	97	0.4748	95	75-125	2	0-20	
Chromium	ND	0.5000	0.5272	105	0.5187	104	75-125	2	0-20	
Cobalt	ND	0.5000	0.5415	108	0.5324	106	75-125	2	0-20	
Copper	0.1030	0.5000	0.6862	117	0.6749	114	75-125	2	0-20	
Lead	ND	0.5000	0.5052	101	0.4931	99	75-125	2	0-20	
Molybdenum	0.1510	0.5000	0.6601	102	0.6455	99	75-125	2	0-20	
Nickel	0.01542	0.5000	0.5520	107	0.5407	105	75-125	2	0-20	
Selenium	ND	0.5000	0.5148	103	0.4974	99	75-125	3	0-20	
Silver	0.005019	0.2500	0.2668	105	0.2563	101	75-125	4	0-20	
Thallium	ND	0.5000	0.5052	101	0.4879	98	75-125	3	0-20	
Vanadium	ND	0.5000	0.5201	104	0.5119	102	75-125	2	0-20	
Zinc	0.1088	0.5000	0.6500	108	0.6366	106	75-125	2	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
Project: Brookfield / SB0674			Page 1 of 13

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-15-490-610	**Solid**	**GC 50**	**11/04/13 12:43**	**131104B01A**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Diesel	400.0	394.4	99	75-123	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8015B (M)
Project: Brookfield / SB0674			Page 2 of 13

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-498-115	**Aqueous**	**GC 46**	**11/04/13**	**11/06/13 04:24**	**131104B11A**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	4000	3769	94	3709	93	75-117	2	0-13	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 3 of 13

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
097-01-002-17581	**Solid**	**ICP 7300**	**11/05/13 12:17**	**131104L05**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Antimony	25.00	24.87	99	80-120	73-127	
Arsenic	25.00	22.65	91	80-120	73-127	
Barium	25.00	23.48	94	80-120	73-127	
Beryllium	25.00	23.77	95	80-120	73-127	
Cadmium	25.00	25.37	101	80-120	73-127	
Chromium	25.00	25.35	101	80-120	73-127	
Cobalt	25.00	27.28	109	80-120	73-127	
Copper	25.00	27.59	110	80-120	73-127	
Lead	25.00	25.59	102	80-120	73-127	
Molybdenum	25.00	24.83	99	80-120	73-127	
Nickel	25.00	26.62	106	80-120	73-127	
Selenium	25.00	23.57	94	80-120	73-127	
Silver	12.50	11.61	93	80-120	73-127	
Thallium	25.00	24.64	99	80-120	73-127	
Vanadium	25.00	23.40	94	80-120	73-127	
Zinc	25.00	27.87	111	80-120	73-127	

Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3010A Total
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 4 of 13

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-003-13788	**Aqueous**	**ICP 7300**	**11/05/13**	**11/05/13 14:39**	**131105LA2**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Antimony	0.5000	0.4909	98	0.4851	97	80-120	73-127	1	0-20	
Arsenic	0.5000	0.4913	98	0.4905	98	80-120	73-127	0	0-20	
Barium	0.5000	0.4952	99	0.4959	99	80-120	73-127	0	0-20	
Beryllium	0.5000	0.4851	97	0.4879	98	80-120	73-127	1	0-20	
Cadmium	0.5000	0.5054	101	0.5065	101	80-120	73-127	0	0-20	
Chromium	0.5000	0.5430	109	0.5491	110	80-120	73-127	1	0-20	
Cobalt	0.5000	0.5512	110	0.5519	110	80-120	73-127	0	0-20	
Copper	0.5000	0.5162	103	0.5169	103	80-120	73-127	0	0-20	
Lead	0.5000	0.5075	102	0.5030	101	80-120	73-127	1	0-20	
Molybdenum	0.5000	0.4909	98	0.4873	97	80-120	73-127	1	0-20	
Nickel	0.5000	0.5479	110	0.5533	111	80-120	73-127	1	0-20	
Selenium	0.5000	0.4748	95	0.4680	94	80-120	73-127	1	0-20	
Silver	0.2500	0.2468	99	0.2473	99	80-120	73-127	0	0-20	
Thallium	0.5000	0.4975	100	0.4949	99	80-120	73-127	1	0-20	
Vanadium	0.5000	0.4870	97	0.4916	98	80-120	73-127	1	0-20	
Zinc	0.5000	0.5225	104	0.5224	104	80-120	73-127	0	0-20	

Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 7470A Total
		Method:	EPA 7470A
Project: Brookfield / SB0674			Page 5 of 13

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-04-008-6706	**Aqueous**	**Mercury**	**11/04/13 16:10**	**131104L02**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.01000	0.009367	94	85-121	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Brookfield / SB0674			Page 6 of 13

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-04-007-9800	**Solid**	**Mercury**	**11/04/13 17:04**	**131104L03**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.8350	0.7756	93	85-121	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
Project: Brookfield / SB0674			Page 7 of 13

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-06-010-1894	**Solid**	**GC/MS AAA**	**11/06/13 12:46**	**131104L15**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Naphthalene	0.2000	0.1826	91	64-118	55-127	
2-Methylnaphthalene	0.2000	0.1899	95	55-127	43-139	
1-Methylnaphthalene	0.2000	0.1928	96	57-129	45-141	
Acenaphthylene	0.2000	0.1601	80	36-132	20-148	
Acenaphthene	0.2000	0.1610	81	61-121	51-131	
Fluorene	0.2000	0.1670	83	56-128	44-140	
Phenanthrene	0.2000	0.1603	80	56-122	45-133	
Anthracene	0.2000	0.1596	80	11-119	0-137	
Fluoranthene	0.2000	0.1804	90	56-122	45-133	
Pyrene	0.2000	0.1556	78	57-129	45-141	
Benzo (a) Anthracene	0.2000	0.1630	82	49-127	36-140	
Chrysene	0.2000	0.1513	76	60-126	49-137	
Benzo (k) Fluoranthene	0.2000	0.1669	83	54-138	40-152	
Benzo (b) Fluoranthene	0.2000	0.1661	83	46-136	31-151	
Benzo (a) Pyrene	0.2000	0.1816	91	40-148	22-166	
Indeno (1,2,3-c,d) Pyrene	0.2000	0.1734	87	43-163	23-183	
Dibenz (a,h) Anthracene	0.2000	0.1516	76	45-153	27-171	
Benzo (g,h,i) Perylene	0.2000	0.1286	64	38-140	21-157	

Total number of LCS compounds: 18
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PAHs
Project: Brookfield / SB0674			Page 8 of 13

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-06-008-643	**Aqueous**	**GC/MS AAA**	**11/06/13**	**11/07/13 12:13**	**131106L07**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Naphthalene	2.000	1.296	65	1.110	56	21-133	2-152	15	0-25	
2-Methylnaphthalene	2.000	1.260	63	1.056	53	21-140	1-160	18	0-25	
1-Methylnaphthalene	2.000	1.339	67	1.128	56	20-140	0-160	17	0-25	
Acenaphthylene	2.000	1.280	64	1.154	58	33-145	14-164	10	0-25	
Acenaphthene	2.000	1.239	62	1.102	55	55-121	44-132	12	0-25	
Fluorene	2.000	1.362	68	1.248	62	59-121	49-131	9	0-25	
Phenanthrene	2.000	1.363	68	1.317	66	54-120	43-131	3	0-25	
Anthracene	2.000	1.368	68	1.354	68	27-133	9-151	1	0-25	
Fluoranthene	2.000	1.534	77	1.551	78	26-137	8-156	1	0-25	
Pyrene	2.000	1.389	69	1.379	69	45-129	31-143	1	0-25	
Benzo (a) Anthracene	2.000	1.435	72	1.429	71	33-143	15-161	0	0-25	
Chrysene	2.000	1.356	68	1.368	68	17-168	0-193	1	0-25	
Benzo (k) Fluoranthene	2.000	1.508	75	1.534	77	24-159	2-182	2	0-25	
Benzo (b) Fluoranthene	2.000	1.414	71	1.431	72	24-159	2-182	1	0-25	
Benzo (a) Pyrene	2.000	1.563	78	1.550	78	17-163	0-187	1	0-25	
Indeno (1,2,3-c,d) Pyrene	2.000	1.471	74	1.463	73	25-175	0-200	1	0-25	
Dibenz (a,h) Anthracene	2.000	1.285	64	1.283	64	25-175	0-200	0	0-25	
Benzo (g,h,i) Perylene	2.000	1.107	55	1.117	56	25-157	3-179	1	0-25	

Total number of LCS compounds: 18
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
Project: Brookfield / SB0674			Page 9 of 13

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-312-309	**Solid**	**GC/MS Z**	**11/04/13**	**11/04/13 13:23**	**131104L02**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acetone	50.00	57.02	114	51.93	104	80-120	73-127	9	0-20	
Benzene	50.00	44.18	88	44.32	89	80-120	73-127	0	0-20	
Bromobenzene	50.00	48.59	97	49.64	99	80-120	73-127	2	0-20	
Bromochloromethane	50.00	43.23	86	43.07	86	80-120	73-127	0	0-20	
Bromodichloromethane	50.00	44.17	88	44.77	90	80-120	73-127	1	0-20	
Bromoform	50.00	54.86	110	56.33	113	80-120	73-127	3	0-20	
Bromomethane	50.00	57.26	115	54.60	109	80-120	73-127	5	0-20	
2-Butanone	50.00	51.60	103	53.11	106	80-120	73-127	3	0-20	
n-Butylbenzene	50.00	54.42	109	54.53	109	77-123	69-131	0	0-25	
sec-Butylbenzene	50.00	50.07	100	50.78	102	80-120	73-127	1	0-20	
tert-Butylbenzene	50.00	50.50	101	51.71	103	80-120	73-127	2	0-20	
Carbon Disulfide	50.00	35.51	71	36.05	72	80-120	73-127	2	0-20	X
Carbon Tetrachloride	50.00	39.73	79	40.80	82	65-137	53-149	3	0-20	
Chlorobenzene	50.00	45.34	91	45.78	92	80-120	73-127	1	0-20	
Chloroethane	50.00	42.72	85	44.74	89	80-120	73-127	5	0-20	
Chloroform	50.00	42.76	86	43.71	87	80-120	73-127	2	0-20	
Chloromethane	50.00	42.06	84	43.48	87	80-120	73-127	3	0-20	
2-Chlorotoluene	50.00	46.62	93	47.00	94	80-120	73-127	1	0-20	
4-Chlorotoluene	50.00	48.19	96	47.85	96	80-120	73-127	1	0-20	
Dibromochloromethane	50.00	48.23	96	49.89	100	80-120	73-127	3	0-20	
1,2-Dibromo-3-Chloropropane	50.00	48.71	97	51.09	102	80-120	73-127	5	0-20	
1,2-Dibromoethane	50.00	49.58	99	50.66	101	80-120	73-127	2	0-20	
Dibromomethane	50.00	44.72	89	45.32	91	80-120	73-127	1	0-20	
1,2-Dichlorobenzene	50.00	48.95	98	48.39	97	80-120	73-127	1	0-20	
1,3-Dichlorobenzene	50.00	49.20	98	48.95	98	80-120	73-127	0	0-20	
1,4-Dichlorobenzene	50.00	50.89	102	50.45	101	80-120	73-127	1	0-20	
Dichlorodifluoromethane	50.00	57.78	116	59.45	119	80-120	73-127	3	0-20	
1,1-Dichloroethane	50.00	41.39	83	42.47	85	80-120	73-127	3	0-20	
1,2-Dichloroethane	50.00	42.82	86	42.93	86	80-120	73-127	0	0-20	
1,1-Dichloroethene	50.00	37.98	76	39.00	78	68-128	58-138	3	0-20	
c-1,2-Dichloroethene	50.00	43.71	87	44.87	90	80-120	73-127	3	0-20	
t-1,2-Dichloroethene	50.00	43.44	87	44.61	89	80-120	73-127	3	0-20	
1,2-Dichloropropane	50.00	47.56	95	48.06	96	79-115	73-121	1	0-25	
1,3-Dichloropropane	50.00	48.01	96	49.45	99	80-120	73-127	3	0-20	
2,2-Dichloropropane	50.00	46.31	93	48.21	96	80-120	73-127	4	0-20	
1,1-Dichloropropene	50.00	43.30	87	44.30	89	80-120	73-127	2	0-20	
c-1,3-Dichloropropene	50.00	53.21	106	53.17	106	80-120	73-127	0	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
Project: Brookfield / SB0674			Page 10 of 13

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
t-1,3-Dichloropropene	50.00	50.33	101	50.22	100	80-120	73-127	0	0-20	
Ethylbenzene	50.00	49.18	98	49.81	100	80-120	73-127	1	0-20	
2-Hexanone	50.00	55.14	110	57.04	114	80-120	73-127	3	0-20	
Isopropylbenzene	50.00	47.71	95	48.06	96	80-120	73-127	1	0-20	
p-Isopropyltoluene	50.00	50.05	100	50.48	101	80-120	73-127	1	0-20	
Methylene Chloride	50.00	45.02	90	45.05	90	80-120	73-127	0	0-20	
4-Methyl-2-Pentanone	50.00	50.14	100	51.47	103	80-120	73-127	3	0-20	
Naphthalene	50.00	54.29	109	54.74	109	80-120	73-127	1	0-20	
n-Propylbenzene	50.00	45.15	90	45.85	92	80-120	73-127	2	0-20	
Styrene	50.00	51.50	103	51.51	103	80-120	73-127	0	0-20	
1,1,1,2-Tetrachloroethane	50.00	49.02	98	50.24	100	80-120	73-127	2	0-20	
1,1,2,2-Tetrachloroethane	50.00	53.06	106	55.22	110	80-120	73-127	4	0-20	
Tetrachloroethene	50.00	47.29	95	47.93	96	80-120	73-127	1	0-20	
Toluene	50.00	45.16	90	44.97	90	80-120	73-127	0	0-20	
1,2,3-Trichlorobenzene	50.00	53.75	107	52.82	106	80-120	73-127	2	0-20	
1,2,4-Trichlorobenzene	50.00	55.01	110	54.38	109	80-120	73-127	1	0-20	
1,1,1-Trichloroethane	50.00	42.85	86	44.20	88	80-120	73-127	3	0-20	
1,1,2-Trichloroethane	50.00	50.06	100	51.48	103	80-120	73-127	3	0-20	
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.00	38.47	77	40.26	81	80-120	73-127	5	0-20	ME
Trichloroethene	50.00	44.11	88	44.58	89	80-120	73-127	1	0-20	
Trichlorofluoromethane	50.00	42.70	85	44.13	88	80-120	73-127	3	0-20	
1,2,3-Trichloropropane	50.00	52.50	105	53.93	108	80-120	73-127	3	0-20	
1,2,4-Trimethylbenzene	50.00	54.86	110	54.84	110	80-120	73-127	0	0-20	
1,3,5-Trimethylbenzene	50.00	52.32	105	52.46	105	80-120	73-127	0	0-20	
Vinyl Acetate	50.00	50.89	102	52.84	106	80-120	73-127	4	0-20	
Vinyl Chloride	50.00	43.10	86	44.58	89	67-127	57-137	3	0-20	
p/m-Xylene	100.0	94.69	95	95.69	96	80-120	73-127	1	0-20	
o-Xylene	50.00	48.46	97	48.72	97	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	50.00	46.02	92	47.11	94	70-124	61-133	2	0-20	
Tert-Butyl Alcohol (TBA)	250.0	263.0	105	264.0	106	73-121	65-129	0	0-20	
Diisopropyl Ether (DIPE)	50.00	46.35	93	46.92	94	69-129	59-139	1	0-20	
Ethyl-t-Butyl Ether (ETBE)	50.00	48.36	97	49.45	99	70-124	61-133	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	50.00	50.23	100	50.87	102	74-122	66-130	1	0-20	
Ethanol	500.0	468.8	94	476.9	95	51-135	37-149	2	0-27	

Total number of LCS compounds: 71
Total number of ME compounds: 1
Total number of ME compounds allowed: 4

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants	Date Received:	11/01/13
924 Anacapa Street, Suite 4A	Work Order:	13-11-0088
Santa Barbara, CA 93101-2177	Preparation:	EPA 5035
	Method:	EPA 8260B
Project: Brookfield / SB0674		Page 11 of 13

LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: Brookfield / SB0674			Page 12 of 13

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-14-316-1192	**Aqueous**	**GC/MS WW**	**11/06/13 11:41**	**131106L02**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Acetone	50.00	51.44	103	70-130	60-140	
Benzene	50.00	50.38	101	70-130	60-140	
Bromobenzene	50.00	49.79	100	70-130	60-140	
Bromochloromethane	50.00	45.87	92	70-130	60-140	
Bromodichloromethane	50.00	50.66	101	70-130	60-140	
Bromoform	50.00	45.19	90	70-130	60-140	
Bromomethane	50.00	49.90	100	70-130	60-140	
2-Butanone	50.00	56.98	114	70-130	60-140	
n-Butylbenzene	50.00	61.87	124	77-123	69-131	ME
sec-Butylbenzene	50.00	59.34	119	70-130	60-140	
tert-Butylbenzene	50.00	57.85	116	70-130	60-140	
Carbon Disulfide	50.00	51.91	104	70-130	60-140	
Carbon Tetrachloride	50.00	42.24	84	66-138	54-150	
Chlorobenzene	50.00	53.50	107	70-130	60-140	
Chloroethane	50.00	51.41	103	70-130	60-140	
Chloroform	50.00	52.91	106	70-130	60-140	
Chloromethane	50.00	56.30	113	70-130	60-140	
2-Chlorotoluene	50.00	53.38	107	70-130	60-140	
4-Chlorotoluene	50.00	57.81	116	70-130	60-140	
Dibromochloromethane	50.00	50.02	100	70-130	60-140	
1,2-Dibromo-3-Chloropropane	50.00	47.53	95	70-130	60-140	
1,2-Dibromoethane	50.00	54.83	110	70-130	60-140	
Dibromomethane	50.00	55.03	110	70-130	60-140	
1,2-Dichlorobenzene	50.00	55.25	110	70-130	60-140	
1,3-Dichlorobenzene	50.00	56.47	113	70-130	60-140	
1,4-Dichlorobenzene	50.00	52.83	106	70-130	60-140	
Dichlorodifluoromethane	50.00	72.56	145	70-130	60-140	X
1,1-Dichloroethane	50.00	48.48	97	70-130	60-140	
1,2-Dichloroethane	50.00	53.78	108	80-129	72-137	
1,1-Dichloroethene	50.00	51.09	102	71-131	61-141	
c-1,2-Dichloroethene	50.00	51.37	103	70-130	60-140	
t-1,2-Dichloroethene	50.00	51.92	104	70-130	60-140	
1,2-Dichloropropane	50.00	49.20	98	79-115	73-121	
1,3-Dichloropropane	50.00	55.54	111	70-130	60-140	
2,2-Dichloropropane	50.00	55.87	112	70-130	60-140	
1,1-Dichloropropene	50.00	51.85	104	70-130	60-140	
c-1,3-Dichloropropene	50.00	52.97	106	70-130	60-140	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/01/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0088
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: Brookfield / SB0674			Page 13 of 13

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
t-1,3-Dichloropropene	50.00	52.04	104	70-130	60-140	
Ethylbenzene	50.00	53.37	107	80-123	73-130	
2-Hexanone	50.00	52.84	106	70-130	60-140	
Isopropylbenzene	50.00	52.98	106	70-130	60-140	
p-Isopropyltoluene	50.00	56.49	113	70-130	60-140	
Methylene Chloride	50.00	50.60	101	70-130	60-140	
4-Methyl-2-Pentanone	50.00	42.22	84	70-130	60-140	
Naphthalene	50.00	50.17	100	70-130	60-140	
n-Propylbenzene	50.00	56.54	113	70-130	60-140	
Styrene	50.00	52.37	105	70-130	60-140	
1,1,1,2-Tetrachloroethane	50.00	47.62	95	70-130	60-140	
1,1,2,2-Tetrachloroethane	50.00	58.82	118	70-130	60-140	
Tetrachloroethene	50.00	47.44	95	70-130	60-140	
Toluene	50.00	50.51	101	79-121	72-128	
1,2,3-Trichlorobenzene	50.00	48.72	97	70-130	60-140	
1,2,4-Trichlorobenzene	50.00	50.82	102	70-130	60-140	
1,1,1-Trichloroethane	50.00	49.84	100	70-130	60-140	
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.00	69.83	140	70-130	60-140	ME
1,1,2-Trichloroethane	50.00	54.75	110	70-130	60-140	
Trichloroethene	50.00	53.83	108	70-130	60-140	
Trichlorofluoromethane	50.00	60.88	122	70-130	60-140	
1,2,3-Trichloropropane	50.00	52.90	106	70-130	60-140	
1,2,4-Trimethylbenzene	50.00	56.87	114	70-130	60-140	
1,3,5-Trimethylbenzene	50.00	53.93	108	70-130	60-140	
Vinyl Acetate	50.00	46.85	94	70-130	60-140	
Vinyl Chloride	50.00	56.88	114	70-136	59-147	
p/m-Xylene	100.0	106.9	107	70-130	60-140	
o-Xylene	50.00	52.96	106	70-130	60-140	
Methyl-t-Butyl Ether (MTBE)	50.00	49.74	99	72-126	63-135	
Tert-Butyl Alcohol (TBA)	250.0	217.7	87	71-125	62-134	
Diisopropyl Ether (DIPE)	50.00	49.69	99	69-129	59-139	
Ethyl-t-Butyl Ether (ETBE)	50.00	46.82	94	69-129	59-139	
Tert-Amyl-Methyl Ether (TAME)	50.00	48.66	97	67-133	56-144	
Ethanol	500.0	599.4	120	47-155	29-173	

Total number of LCS compounds: 71
Total number of ME compounds: 2
Total number of ME compounds allowed: 4
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 13-11-0088

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 6010B	EPA 3010A Total	469	ICP 7300	1
EPA 6010B	EPA 3050B	469	ICP 7300	1
EPA 7470A	EPA 7470A Total	769	Mercury	1
EPA 7471A	EPA 7471A Total	769	Mercury	1
EPA 8015B (M)	EPA 3510C	847	GC 46	1
EPA 8015B (M)	EPA 3550B	847	GC 50	1
EPA 8260B	EPA 5035	796	GC/MS Z	2
EPA 8260B	EPA 5030C	626	GC/MS WW	2
EPA 8270C SIM PAHs	EPA 3545	773	GC/MS AAA	1
EPA 8270C SIM PAHs	EPA 3510C	773	GC/MS AAA	1

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-11-0088

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.

☐ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY **13-11-0088**

Date 11-1-13

Page 1 of 1

LABORATORY CLIENT: Geosyntec Consultants

ADDRESS: 924 Anacapa St., Suite 4A

CITY Santa Barbara STATE CA ZIP 93101

TEL: (805) 897-3800 E-MAIL: gfrieman@geosyntec.com

CLIENT PROJECT NAME / NUMBER: Brookfield SB0674

P.O. NO.: SB0674

PROJECT CONTACT: Geoff Frieman

SAMPLER(S): (PRINT) Derek Fish

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	PAHs				
1	VP13-0.5	11/1	920	S	5	2	3			X			X							X		X				
2	VP13-5		925	S	5	2	3			X			X							X		X				
3	VP13-10		930	S	5	2	3			X			X							X		X				
4	VP11A-5		1140	S	5	2	3			X			X							X		X				
5	QCEB-110113		1300	W	6	2	4			X			X							X		X				
6	QCTB-110113		—	W	2		X						X													

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	Robert Lomas	11/1/2013	1400
Robert Lomas	[signature] CEL	11/1/2013	1400
[signature] CEL	[signature]	11/1/13	1700

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

09/01/13 Revision

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-0068

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Geosyntec

DATE: 11/01/13

TEMPERATURE: Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 2.8 °C - 0.2 °C (CF) = 2.6 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Checked by: 803

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Checked by: 803

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Checked by: 802

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☐	☑	☐
☑ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑ 802	☑	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☑Sleeve (P) ☐EnCores® ☑TerraCores® (3) ☑2ozPB

Aqueous: ☐VOA ☑VOAh (3) ☐VOA**na**$_2$ ☐125AGB ☐125AGB**h** ☐125AGB**p** ☑1AGB ☐1AGB**na**$_2$ ☐1AGB**s**

☐500AGB ☑500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☑250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na**$_2$ ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister ~~Other~~ Solid: ☑ Z* **Trip Blank Lot#:** 131017B **Labeled/Checked by:** 802

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 778

Preservative: **h:** HCL **n:** HNO_3 **na**$_2$:$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** 778

* sample #1 ~~Fx~~ Collection date per label is 11/01/13

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Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-11-0216

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Geosyntec Consultants

Client Project Name: Brookfield / SB0674

Attention: Geoff Frieman
924 Anacapa Street
Suite 4A
Santa Barbara, CA 93101-2177

Approved for release on 11/13/2013 by:
Stephen Nowak
Project Manager

ResultLink

Email your PM

Accredited in accordance with nelac

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

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Work Order Number: 13-11-0216

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-11-0216 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 11/04/13. They were assigned to Work Order 13-11-0216.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	Geosyntec Consultants 924 Anacapa Street, Suite 4A Santa Barbara, CA 93101-2177	Work Order:	13-11-0216
		Project Name:	Brookfield / SB0674
		PO Number:	
		Date/Time Received:	11/04/13 17:55
		Number of Containers:	29
Attn:	Geoff Frieman		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
AG-01-0.5	13-11-0216-1	11/04/13 09:27	1	Solid
AG-02-0.5	13-11-0216-2	11/04/13 10:00	1	Solid
AG-03-0.5	13-11-0216-3	11/04/13 10:16	1	Solid
AG-04-0.5	13-11-0216-4	11/04/13 10:30	1	Solid
AG-05-0.5	13-11-0216-5	11/04/13 10:58	1	Solid
AG-06-0.5	13-11-0216-6	11/04/13 11:21	1	Solid
AG-07-0.5	13-11-0216-7	11/04/13 11:48	1	Solid
AG-08-0.5	13-11-0216-8	11/04/13 12:06	1	Solid
AG-09-0.5	13-11-0216-9	11/04/13 13:08	1	Solid
AG-10-0.5	13-11-0216-10	11/04/13 13:31	1	Solid
AG-11-0.5	13-11-0216-11	11/04/13 13:47	1	Solid
AG-SB3-0.5	13-11-0216-12	11/04/13 09:10	1	Solid
AG-SB7-0.5	13-11-0216-13	11/04/13 09:45	1	Solid
AG-SB9-0.5	13-11-0216-14	11/04/13 10:05	1	Solid
AG-SB15-0.5	13-11-0216-15	11/04/13 10:23	1	Solid
AG-SB24-0.5	13-11-0216-16	11/04/13 10:42	1	Solid
AG-SB35-0.5	13-11-0216-17	11/04/13 11:10	1	Solid
AG-SB42-0.5	13-11-0216-18	11/04/13 11:37	1	Solid
AG-SB40-0.5	13-11-0216-19	11/04/13 11:53	1	Solid
AG-SB33-0.5	13-11-0216-20	11/04/13 12:57	1	Solid
AG-SB23-0.5	13-11-0216-21	11/04/13 13:19	1	Solid
AG-SB26-0.5	13-11-0216-22	11/04/13 13:38	1	Solid
RR-01-0.5	13-11-0216-23	11/04/13 14:55	1	Solid
RR-02-0.5	13-11-0216-24	11/04/13 14:03	1	Solid
RR-03-0.5	13-11-0216-25	11/04/13 14:15	1	Solid
RR-04-0.5	13-11-0216-26	11/04/13 14:21	1	Solid
RR-05-0.5	13-11-0216-27	11/04/13 14:27	1	Solid
QC-EB-11-04-13	13-11-0216-28	11/04/13 14:39	2	Aqueous

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Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0216
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/04/13
Attn:	Geoff Frieman		

Client SampleID / Analyte	Result	Qualifiers	RL	Units	Method	Extraction
AG-01-0.5 (13-11-0216-1)						
4,4'-DDE	30		5.0	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	38		10	ug/kg	EPA 8081A	EPA 3545
AG-03-0.5 (13-11-0216-3)						
4,4'-DDT	5.4		5.0	ug/kg	EPA 8081A	EPA 3545
AG-04-0.5 (13-11-0216-4)						
4,4'-DDE	26		5.0	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	10		5.0	ug/kg	EPA 8081A	EPA 3545
AG-07-0.5 (13-11-0216-7)						
4,4'-DDE	19		5.0	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	8.4		5.0	ug/kg	EPA 8081A	EPA 3545
AG-SB3-0.5 (13-11-0216-12)						
Arsenic	22.9		0.750	mg/kg	EPA 6010B	EPA 3050B
AG-SB7-0.5 (13-11-0216-13)						
Arsenic	21.7		0.750	mg/kg	EPA 6010B	EPA 3050B
AG-SB9-0.5 (13-11-0216-14)						
Arsenic	32.3		0.750	mg/kg	EPA 6010B	EPA 3050B
AG-SB15-0.5 (13-11-0216-15)						
Arsenic	22.4		0.750	mg/kg	EPA 6010B	EPA 3050B
AG-SB24-0.5 (13-11-0216-16)						
Arsenic	9.37		0.750	mg/kg	EPA 6010B	EPA 3050B
AG-SB35-0.5 (13-11-0216-17)						
Arsenic	11.3		0.750	mg/kg	EPA 6010B	EPA 3050B
AG-SB42-0.5 (13-11-0216-18)						
Arsenic	35.6		0.750	mg/kg	EPA 6010B	EPA 3050B
AG-SB40-0.5 (13-11-0216-19)						
Arsenic	14.8		0.750	mg/kg	EPA 6010B	EPA 3050B
AG-SB33-0.5 (13-11-0216-20)						
Arsenic	18.0		0.750	mg/kg	EPA 6010B	EPA 3050B
AG-SB23-0.5 (13-11-0216-21)						
Arsenic	11.7		0.750	mg/kg	EPA 6010B	EPA 3050B
AG-SB26-0.5 (13-11-0216-22)						
Arsenic	8.96		0.750	mg/kg	EPA 6010B	EPA 3050B
RR-01-0.5 (13-11-0216-23)						
Arsenic	19.8		0.750	mg/kg	EPA 6010B	EPA 3050B
RR-02-0.5 (13-11-0216-24)						
Arsenic	10.1		0.750	mg/kg	EPA 6010B	EPA 3050B
RR-03-0.5 (13-11-0216-25)						
Arsenic	16.5		0.750	mg/kg	EPA 6010B	EPA 3050B

* MDL is shown

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Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0216
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/04/13
Attn:	Geoff Frieman		

Client SampleID / Analyte	Result	Qualifiers	RL	Units	Method	Extraction
RR-04-0.5 (13-11-0216-26)						
Arsenic	3.87		0.750	mg/kg	EPA 6010B	EPA 3050B
RR-05-0.5 (13-11-0216-27)						
Arsenic	7.15		0.750	mg/kg	EPA 6010B	EPA 3050B

Subcontracted analyses, if any, are not included in this summary.

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* MDL is shown

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-SB3-0.5	**13-11-0216-12-A**	**11/04/13 09:10**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:38**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	22.9	0.750	1	

AG-SB7-0.5	**13-11-0216-13-A**	**11/04/13 09:45**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:40**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	21.7	0.750	1	

AG-SB9-0.5	**13-11-0216-14-A**	**11/04/13 10:05**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:41**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	32.3	0.750	1	

AG-SB15-0.5	**13-11-0216-15-A**	**11/04/13 10:23**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:42**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	22.4	0.750	1	

AG-SB24-0.5	**13-11-0216-16-A**	**11/04/13 10:42**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:43**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	9.37	0.750	1	

AG-SB35-0.5	**13-11-0216-17-A**	**11/04/13 11:10**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:44**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	11.3	0.750	1	

AG-SB42-0.5	**13-11-0216-18-A**	**11/04/13 11:37**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:44**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	35.6	0.750	1	

AG-SB40-0.5	**13-11-0216-19-A**	**11/04/13 11:53**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:45**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	14.8	0.750	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-SB33-0.5	**13-11-0216-20-A**	**11/04/13 12:57**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:46**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	18.0	0.750	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-SB23-0.5	**13-11-0216-21-A**	**11/04/13 13:19**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:47**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	11.7	0.750	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-SB26-0.5	**13-11-0216-22-A**	**11/04/13 13:38**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:48**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	8.96	0.750	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RR-01-0.5	**13-11-0216-23-A**	**11/04/13 14:55**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:50**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	19.8	0.750	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RR-02-0.5	**13-11-0216-24-A**	**11/04/13 14:03**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:51**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	10.1	0.750	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RR-03-0.5	**13-11-0216-25-A**	**11/04/13 14:15**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:52**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	16.5	0.750	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RR-04-0.5	**13-11-0216-26-A**	**11/04/13 14:21**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:53**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	3.87	0.750	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RR-05-0.5	**13-11-0216-27-A**	**11/04/13 14:27**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 22:54**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	7.15	0.750	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-17591**	**N/A**	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 15:40**	**131105L09**

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.750	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3010A Total
		Method:	EPA 6010B
		Units:	mg/L
Project: Brookfield / SB0674			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QC-EB-11-04-13	**13-11-0216-28-B**	**11/04/13 14:39**	**Aqueous**	**ICP 7300**	**11/05/13**	**11/06/13 18:59**	**131105LA2**

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.0100	1	

Method Blank	**097-01-003-13788**	**N/A**	**Aqueous**	**ICP 7300**	**11/05/13**	**11/05/13 14:36**	**131105LA2**

Parameter	Result	RL	DF	Qualifiers
Arsenic	ND	0.0100	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 1 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-01-0.5	**13-11-0216-1-A**	**11/04/13 09:27**	**Solid**	**GC 44**	**11/05/13**	**11/07/13 17:05**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	30	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	101	50-135	
2,4,5,6-Tetrachloro-m-Xylene	76	50-135	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-01-0.5	**13-11-0216-1-A**	**11/04/13 09:27**	**Solid**	**GC 44**	**11/05/13**	**11/07/13 18:31**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDT	38	10	2	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	103	50-135	
2,4,5,6-Tetrachloro-m-Xylene	78	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 2 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-02-0.5	**13-11-0216-2-A**	**11/04/13 10:00**	**Solid**	**GC 44**	**11/05/13**	**11/07/13 17:19**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	59	50-135	
2,4,5,6-Tetrachloro-m-Xylene	62	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 3 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-03-0.5	**13-11-0216-3-A**	**11/04/13 10:16**	**Solid**	**GC 44**	**11/05/13**	**11/07/13 17:33**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	5.4	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	79	50-135	
2,4,5,6-Tetrachloro-m-Xylene	74	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 4 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-04-0.5	**13-11-0216-4-A**	**11/04/13 10:30**	**Solid**	**GC 44**	**11/05/13**	**11/07/13 17:48**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	26	5.0	1	
4,4'-DDT	10	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	82	50-135	
2,4,5,6-Tetrachloro-m-Xylene	76	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 5 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-05-0.5	**13-11-0216-5-A**	**11/04/13 10:58**	**Solid**	**GC 44**	**11/05/13**	**11/07/13 18:02**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	70	50-135	
2,4,5,6-Tetrachloro-m-Xylene	73	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 6 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-06-0.5	**13-11-0216-6-A**	**11/04/13 11:21**	**Solid**	**GC 44**	**11/05/13**	**11/08/13 14:10**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	67	50-135	
2,4,5,6-Tetrachloro-m-Xylene	67	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 7 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-07-0.5	**13-11-0216-7-A**	**11/04/13 11:48**	**Solid**	**GC 44**	**11/05/13**	**11/07/13 18:45**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	19	5.0	1	
4,4'-DDT	8.4	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	79	50-135	
2,4,5,6-Tetrachloro-m-Xylene	76	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 8 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-08-0.5	**13-11-0216-8-A**	**11/04/13 12:06**	**Solid**	**GC 44**	**11/05/13**	**11/08/13 14:24**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	83	50-135	
2,4,5,6-Tetrachloro-m-Xylene	76	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 9 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-09-0.5	**13-11-0216-9-A**	**11/04/13 13:08**	**Solid**	**GC 44**	**11/05/13**	**11/09/13 15:42**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	89	50-135	
2,4,5,6-Tetrachloro-m-Xylene	80	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 10 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-10-0.5	**13-11-0216-10-A**	**11/04/13 13:31**	**Solid**	**GC 44**	**11/05/13**	**11/08/13 13:12**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	81	50-135	
2,4,5,6-Tetrachloro-m-Xylene	74	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 11 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
AG-11-0.5	**13-11-0216-11-A**	**11/04/13 13:47**	**Solid**	**GC 44**	**11/05/13**	**11/08/13 13:27**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	77	50-135	
2,4,5,6-Tetrachloro-m-Xylene	67	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 12 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-537-1525**	**N/A**	**Solid**	**GC 44**	**11/05/13**	**11/07/13 16:36**	**131105L18**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	81	50-135	
2,4,5,6-Tetrachloro-m-Xylene	70	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8081A
		Units:	ug/L
Project: Brookfield / SB0674			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QC-EB-11-04-13	**13-11-0216-28-A**	**11/04/13 14:39**	**Aqueous**	**GC 51**	**11/05/13**	**11/07/13 17:43**	**131105L08**

Parameter	Result	RL	DF	Qualifiers
Alpha-BHC	ND	0.44	4.35	
Gamma-BHC	ND	0.44	4.35	
Beta-BHC	ND	0.44	4.35	
Heptachlor	ND	0.44	4.35	
Delta-BHC	ND	0.44	4.35	
Aldrin	ND	0.44	4.35	
Heptachlor Epoxide	ND	0.44	4.35	
Endosulfan I	ND	0.44	4.35	
Dieldrin	ND	0.44	4.35	
4,4'-DDE	ND	0.44	4.35	
Endrin	ND	0.44	4.35	
Endrin Aldehyde	ND	0.44	4.35	
4,4'-DDD	ND	0.44	4.35	
Endosulfan II	ND	0.44	4.35	
4,4'-DDT	ND	0.44	4.35	
Endosulfan Sulfate	ND	0.44	4.35	
Methoxychlor	ND	0.44	4.35	
Chlordane	ND	4.4	4.35	
Toxaphene	ND	8.7	4.35	
Endrin Ketone	ND	0.44	4.35	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	79	50-135	
2,4,5,6-Tetrachloro-m-Xylene	71	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8081A
		Units:	ug/L
Project: Brookfield / SB0674			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-529-658**	**N/A**	**Aqueous**	**GC 51**	**11/05/13**	**11/07/13 16:03**	**131105L08**

Parameter	Result	RL	DF	Qualifiers
Alpha-BHC	ND	0.10	1	
Gamma-BHC	ND	0.10	1	
Beta-BHC	ND	0.10	1	
Heptachlor	ND	0.10	1	
Delta-BHC	ND	0.10	1	
Aldrin	ND	0.10	1	
Heptachlor Epoxide	ND	0.10	1	
Endosulfan I	ND	0.10	1	
Dieldrin	ND	0.10	1	
4,4'-DDE	ND	0.10	1	
Endrin	ND	0.10	1	
Endrin Aldehyde	ND	0.10	1	
4,4'-DDD	ND	0.10	1	
Endosulfan II	ND	0.10	1	
4,4'-DDT	ND	0.10	1	
Endosulfan Sulfate	ND	0.10	1	
Methoxychlor	ND	0.10	1	
Chlordane	ND	1.0	1	
Toxaphene	ND	2.0	1	
Endrin Ketone	ND	0.10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	83	50-135	
2,4,5,6-Tetrachloro-m-Xylene	91	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 1 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0250-1	**Solid**	**ICP 7300**	**11/05/13**	**11/06/13 16:05**	**131105S09**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.071	25.00	27.65	98	27.75	99	80-120	0	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3005A Filt.
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 2 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0204-1	**Aqueous**	**ICP 7300**	**11/05/13**	**11/05/13 14:44**	**131105SA2**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	0.01917	0.5000	0.5489	106	0.5505	106	80-140	0	0-11	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
Project: Brookfield / SB0674			Page 3 of 3

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
AG-09-0.5	**Solid**	**GC 44**	**11/05/13**	**11/08/13 13:41**	**131105S18**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	25.00	20.60	82	20.42	82	50-135	1	0-25	
Alpha-BHC	ND	25.00	20.73	83	20.02	80	50-135	3	0-25	
Beta-BHC	ND	25.00	21.89	88	21.14	85	50-135	4	0-25	
4,4'-DDD	ND	25.00	23.38	94	24.97	100	50-135	7	0-25	
4,4'-DDE	ND	25.00	20.70	83	20.73	83	50-135	0	0-25	
4,4'-DDT	ND	25.00	17.26	69	15.85	63	50-135	9	0-25	
Delta-BHC	ND	25.00	20.72	83	19.50	78	50-135	6	0-25	
Dieldrin	ND	25.00	20.18	81	19.46	78	50-135	4	0-25	
Endosulfan I	ND	25.00	19.85	79	19.04	76	50-135	4	0-25	
Endosulfan II	ND	25.00	19.87	79	19.08	76	50-135	4	0-25	
Endosulfan Sulfate	ND	25.00	19.67	79	18.50	74	50-135	6	0-25	
Endrin	ND	25.00	21.28	85	20.30	81	50-135	5	0-25	
Endrin Aldehyde	ND	25.00	19.51	78	17.36	69	50-135	12	0-25	
Gamma-BHC	ND	25.00	21.72	87	20.27	81	50-135	7	0-25	
Heptachlor	ND	25.00	19.26	77	18.52	74	50-135	4	0-25	
Heptachlor Epoxide	ND	25.00	19.72	79	18.47	74	50-135	7	0-25	
Methoxychlor	ND	25.00	15.52	62	13.68	55	50-135	13	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 1 of 2

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
13-11-0250-1	**Solid**	**ICP 7300**	**11/05/13 00:00**	**11/06/13 16:13**	**131105S09**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	PDSD Conc.	PDSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.071	25.00	27.35	97	27.37	97	75-125	0	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3005A Filt.
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 2 of 2

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
13-11-0204-1	**Aqueous**	**ICP 7300**	**11/05/13 00:00**	**11/05/13 14:47**	**131105SA2**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	PDSD Conc.	PDSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	0.01917	0.5000	0.4954	95	0.4783	92	75-125	4	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 1 of 4

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
097-01-002-17591	**Solid**	**ICP 7300**	**11/06/13 15:45**	**131105L09**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Arsenic	25.00	24.57	98	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3010A Total
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 2 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-003-13788	**Aqueous**	**ICP 7300**	**11/05/13**	**11/05/13 14:39**	**131105LA2**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	0.5000	0.4913	98	0.4905	98	80-120	0	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
Project: Brookfield / SB0674			Page 3 of 4

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-537-1525	**Solid**	**GC 44**	**11/07/13 16:50**	**131105L18**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Aldrin	25.00	23.69	95	50-135	36-149	
Alpha-BHC	25.00	21.28	85	50-135	36-149	
Beta-BHC	25.00	20.77	83	50-135	36-149	
4,4'-DDD	25.00	23.43	94	50-135	36-149	
4,4'-DDE	25.00	22.70	91	50-135	36-149	
4,4'-DDT	25.00	21.07	84	50-135	36-149	
Delta-BHC	25.00	22.37	89	50-135	36-149	
Dieldrin	25.00	23.65	95	50-135	36-149	
Endosulfan I	25.00	23.43	94	50-135	36-149	
Endosulfan II	25.00	23.88	96	50-135	36-149	
Endosulfan Sulfate	25.00	22.51	90	50-135	36-149	
Endrin	25.00	19.01	76	50-135	36-149	
Endrin Aldehyde	25.00	25.95	104	50-135	36-149	
Gamma-BHC	25.00	21.15	85	50-135	36-149	
Heptachlor	25.00	22.77	91	50-135	36-149	
Heptachlor Epoxide	25.00	22.72	91	50-135	36-149	
Methoxychlor	25.00	21.88	88	50-135	36-149	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/04/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0216
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8081A
Project: Brookfield / SB0674			Page 4 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-529-658	**Aqueous**	**GC 51**	**11/05/13**	**11/07/13 17:00**	**131105L08**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Alpha-BHC	0.5000	0.4427	89	0.4170	83	50-135	36-149	6	0-25	
Gamma-BHC	0.5000	0.4550	91	0.4175	84	50-135	36-149	9	0-25	
Beta-BHC	0.5000	0.3793	76	0.4565	91	50-135	36-149	18	0-25	
Heptachlor	0.5000	0.4045	81	0.4002	80	50-135	36-149	1	0-25	
Delta-BHC	0.5000	0.4189	84	0.4229	85	50-135	36-149	1	0-25	
Aldrin	0.5000	0.3648	73	0.3775	75	50-135	36-149	3	0-25	
Heptachlor Epoxide	0.5000	0.4273	85	0.4375	88	50-135	36-149	2	0-25	
Endosulfan I	0.5000	0.4377	88	0.4438	89	50-135	36-149	1	0-25	
Dieldrin	0.5000	0.4453	89	0.4449	89	50-135	36-149	0	0-25	
4,4'-DDE	0.5000	0.4362	87	0.4589	92	50-135	36-149	5	0-25	
Endrin	0.5000	0.4230	85	0.4208	84	50-135	36-149	1	0-25	
Endrin Aldehyde	0.5000	0.4574	91	0.3797	76	50-135	36-149	19	0-25	
4,4'-DDD	0.5000	0.4329	87	0.4582	92	50-135	36-149	6	0-25	
Endosulfan II	0.5000	0.4441	89	0.4516	90	50-135	36-149	2	0-25	
4,4'-DDT	0.5000	0.4413	88	0.4420	88	50-135	36-149	0	0-25	
Endosulfan Sulfate	0.5000	0.4189	84	0.4171	83	50-135	36-149	0	0-25	
Methoxychlor	0.5000	0.4497	90	0.4510	90	50-135	36-149	0	0-25	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 13-11-0216

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 6010B	EPA 3010A Total	469	ICP 7300	1
EPA 6010B	EPA 3050B	469	ICP 7300	1
EPA 8081A	EPA 3545	842	GC 44	1
EPA 8081A	EPA 3510C	500	GC 51	1

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-11-0216

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.

☒ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY: 13-11-0216

Date: 11/4/2013

Page 1 of 3

LABORATORY CLIENT: Geosyntec Consultants

ADDRESS: 924 Anacapa St., Suite 4A

CITY: Santa Barbara STATE: CA ZIP: 93101

TEL: (805) 897-3800 E-MAIL: gfrieman@geosyntec.com

CLIENT PROJECT NAME / NUMBER: Brookfield

P.O. NO.: SB0674

PROJECT CONTACT: Geoff Frieman

SAMPLER(S): (PRINT) Brian Cozzens, Robert Kovacs

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS: Please mix composite samples before analyzing.

REQUESTED ANALYSES

	LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH (_____)	BTEX / MTBE (8260) or (_____)	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]					
1	11	AG-01-0.5	11/4/13	09:27	S	1	X											X									
2	12	AG-02-0.5		10:00																							
3	13	AG-03-0.5		10:16																							
4	14	AG-04-0.5		10:30																							
5	15	AG-05-0.5		10:58																							
6	16	AG-06-0.5		11:21																							
7	17	AG-07-0.5		11:48																							
8	18	AG-08-0.5		12:06																							
9	19	AG-09-0.5		13:08																							
10	20	AG-10-0.5		13:31																							

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Brian Cozzens	CGC	11/04/13	1700
	Danny Le CGC	11/4/13	1758

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

09/01/13 Revision

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Calscience Environmental Laboratories, Inc.

☐ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY: 1 1 - 0 2 1 6

Date: 11/4/2013

Page 2 of 3

LABORATORY CLIENT: Geosyntec Consultants

ADDRESS: See pg. 1

CITY | STATE | ZIP

TEL: | E-MAIL:

CLIENT PROJECT NAME / NUMBER: See pg. 1

P.O. NO.: SB0674

PROJECT CONTACT:

SAMPLER(S): (PRINT)

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF | GLOBAL ID | LOG CODE

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	Arsenic				
11	AG-11-0.5	11/4/13	13:47	S	1	X											X									
12	AG-SB3-0.5		09:10																			X				
13	AG-SB7-0.5		09:45																							
14	AG-SB9-0.5		10:05																							
15	AG-SB15-0.5		10:23																							
16	AG-SB24-0.5		10:42																							
17	AG-SB35-0.5		11:10																							
18	AG-SB42-0.5		11:37																							
19	AG-SB40-0.5		11:53																							
20	AG-SB33-0.5		12:57																							

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Brian Gozzens	CEL - CEL	11/4/13	1800
	Dannyle CEL	11/04/13	1755

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

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Calscience Environmental Laboratories, Inc.

☐ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

Date 11/04/2013

Page 3 of 3

WO # / LAB USE ONLY: 1 1 - 0 2 1 6

LABORATORY CLIENT: Geosyntec Consultants

ADDRESS: See pg. 1

CITY | STATE | ZIP

TEL: | E-MAIL:

CLIENT PROJECT NAME / NUMBER: See pg. 1

P.O. NO.: SB0674

PROJECT CONTACT:

SAMPLER(S): (PRINT)

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☑ 72 HR ☒ STANDARD

☐ COELT EDF | GLOBAL ID | LOG CODE

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	Arsenic				
21	AG-SB23-0.5	11/4/13	13:19	S	1	X																X				
22	AG-SB26-0.5		13:38																							
23	RR-01-0.5		14:55																			X				
24	RR-02-0.5		14:03																							
25	RR-03-0.5		14:15																							
26	RR-04-0.5		14:21																							
27	RR-05-0.5		14:27																							
28	QC-EB-11-04-13		14:39	W	2	X	X										X									

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Brian Cozzens	CEL	11/04/13	1800
	Dannyle CEL	11/4/13	1755

DISTRIBUTION: White with final report, Green and Yellow to Client.
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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-0216

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: GEOSYNTEC CONSULTANTS

DATE: 11/04/13

TEMPERATURE: Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 1.6 °C - 0.2 °C (CF) = 1.4 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter **Checked by:** 803

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Checked by:** 803

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Checked by:** 739

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑ 739 11/4/13	☑	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☑ 681 11/4/13
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☑250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☑16ozCGJ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** 739

Container: C: Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 681

Preservative: h: HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** 681

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-0216

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments:

- ☐ **Sample(s) NOT RECEIVED but listed on COC**
- ☐ **Sample(s) received but NOT LISTED on COC**
- ☐ **Holding time expired** – list sample ID(s) and test
- ☑ **Insufficient quantities for analysis** – list test
- ☐ **Improper container(s) used** – list test
- ☐ **Improper preservative used** – list test
- ☐ **No preservative noted on COC or label** – list test & notify lab
- ☐ **Sample labels illegible** – note test/container type
- ☐ **Sample label(s) do not match COC** – Note in comments
  - ☐ **Sample ID**
  - ☐ **Date and/or Time Collected**
  - ☐ **Project Information**
  - ☐ **# of Container(s)**
  - ☐ **Analysis**
- ☐ **Sample container(s) compromised** – Note in comments
  - ☐ **Water present in sample container**
  - ☐ **Broken**
- ☐ **Sample container(s) not labeled**
- ☐ **Air sample container(s) compromised** – Note in comments
  - ☐ **Flat**
  - ☐ **Very low in volume**
  - ☐ **Leaking (Not transferred - duplicate bag submitted)**
  - ☐ **Leaking (transferred into Calscience Tedlar® Bag*)**
  - ☐ **Leaking (transferred into Client's Tedlar® Bag*)**
- ☐ **Other:** _____

(-22) Received approximately 480 mL for 8081

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: 739 11/4/13

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Stephen Nowak

From: Geoffrey Frieman [GFrieman@Geosyntec.com]
Sent: Wednesday, November 06, 2013 11:30 AM
To: Stephen Nowak
Subject: RE: ***COC!!!***

Steve, please proceed with the pesticide analysis for the EB sample collected in the 8-oz jar. Thanks.

From: Stephen Nowak [mailto:snowak@calscience.com]
Sent: Wednesday, November 06, 2013 9:08 AM
To: Geoffrey Frieman
Subject: FW: ***COC!!!***

Geoff-
Please see the attached COC and sample anomaly form.

The EB for Pesticides was collected in a 8oz jar- we can do the test but the reporting limits will be raised.

Continue?

Stephen Nowak
Project Manager
(714) 895-5494

The difference is service

From: noreply@calscience.com [mailto:noreply@calscience.com]
Sent: Tuesday, November 05, 2013 8:31 PM
To: Stephen Nowak; Noel Cruise
Subject: ***COC!!!***

PLEASE SEE ATTACHMENT...

Stephen Nowak

From: Geoffrey Frieman [GFrieman@Geosyntec.com]
Sent: Tuesday, November 05, 2013 10:05 AM
To: Stephen Nowak
Cc: Robert Kovacs
Subject: RE: ***COC!!!***

Steve, please disregard the special instruction. Samples were homogenized in the field. Thanks.

Geoff

From: Stephen Nowak [mailto:snowak@calscience.com]
Sent: Tuesday, November 05, 2013 9:29 AM
To: Geoffrey Frieman
Subject: FW: ***COC!!!***

Geoff-

Please take a look at the COC and special instruction.

What samples need to be homogenized before analysis?
No samples are labeled as composite.

Thanks!

Stephen Nowak
Project Manager
(714) 895-5494

The difference is service

From: noreply@calscience.com [mailto:noreply@calscience.com]
Sent: Monday, November 04, 2013 8:08 PM
To: Stephen Nowak; Noel Cruise
Subject: ***COC!!!***

PLEASE SEE ATTACHMENT...

Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-11-0333

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Geosyntec Consultants

Client Project Name: Brookfield / SB0674

Attention: Geoff Frieman
924 Anacapa Street
Suite 4A
Santa Barbara, CA 93101-2177

Approved for release on 11/15/2013 by:
Stephen Nowak
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

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Work Order Number: 13-11-0333

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-11-0333

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 11/05/13. They were assigned to Work Order 13-11-0333.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	Geosyntec Consultants 924 Anacapa Street, Suite 4A Santa Barbara, CA 93101-2177	Work Order:	13-11-0333
		Project Name:	Brookfield / SB0674
		PO Number:	
		Date/Time Received:	11/05/13 18:14
		Number of Containers:	64
Attn:	Geoff Frieman		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
OCP-59-01-0.5	13-11-0333-1	11/05/13 08:18	1	Solid
OCP-59-01-2	13-11-0333-2	11/05/13 08:18	1	Solid
OCP-59-02-0.5	13-11-0333-3	11/05/13 07:55	1	Solid
OCP-59-02-2	13-11-0333-4	11/05/13 07:55	1	Solid
Pb-59-01-0.5	13-11-0333-5	11/05/13 07:50	1	Solid
Pb-59-02-0.5	13-11-0333-6	11/05/13 07:45	1	Solid
Pb-59-03-0.5	13-11-0333-7	11/05/13 07:55	1	Solid
Pb-59-04-0.5	13-11-0333-8	11/05/13 08:00	1	Solid
Pb-59-05-0.5	13-11-0333-9	11/05/13 08:08	1	Solid
Pb-59-06-0.5	13-11-0333-10	11/05/13 08:18	1	Solid
OCP-50-01-0.5	13-11-0333-11	11/05/13 08:45	1	Solid
OCP-50-01-2	13-11-0333-12	11/05/13 08:45	1	Solid
OCP-50-02-0.5	13-11-0333-13	11/05/13 09:05	1	Solid
OCP-50-02-2	13-11-0333-14	11/05/13 09:05	1	Solid
Pb-50-01-0.5	13-11-0333-15	11/05/13 08:35	1	Solid
Pb-50-02-0.5	13-11-0333-16	11/05/13 08:40	1	Solid
Pb-50-03-0.5	13-11-0333-17	11/05/13 08:45	1	Solid
Pb-50-04-0.5	13-11-0333-18	11/05/13 08:55	1	Solid
Pb-50-05-0.5	13-11-0333-19	11/05/13 09:00	1	Solid
Pb-50-06-0.5	13-11-0333-20	11/05/13 09:05	1	Solid
OCP-38-01-0.5	13-11-0333-21	11/05/13 09:40	1	Solid
OCP-38-01-2	13-11-0333-22	11/05/13 09:50	1	Solid
OCP-38-02-0.5	13-11-0333-23	11/05/13 10:20	1	Solid
OCP-38-02-2	13-11-0333-24	11/05/13 10:20	1	Solid
Pb-38-01-0.5	13-11-0333-25	11/05/13 09:25	1	Solid
Pb-38-02-0.5	13-11-0333-26	11/05/13 09:35	1	Solid
Pb-38-03-0.5	13-11-0333-27	11/05/13 09:40	1	Solid
Pb-38-04-0.5	13-11-0333-28	11/05/13 10:15	1	Solid
Pb-38-05-0.5	13-11-0333-29	11/05/13 10:05	1	Solid
Pb-38-06-0.5	13-11-0333-30	11/05/13 10:20	1	Solid
OCP-8-01-0.5	13-11-0333-31	11/05/13 10:50	1	Solid
OCP-8-01-2	13-11-0333-32	11/05/13 10:50	1	Solid
OCP-8-02-0.5	13-11-0333-33	11/05/13 11:10	1	Solid
OCP-8-02-2	13-11-0333-34	11/05/13 11:10	1	Solid
Pb-8-01-0.5	13-11-0333-35	11/05/13 10:40	1	Solid
Pb-8-02-0.5	13-11-0333-36	11/05/13 10:45	1	Solid
Pb-8-03-0.5	13-11-0333-37	11/05/13 10:50	1	Solid
Pb-8-04-0.5	13-11-0333-38	11/05/13 11:00	1	Solid
Pb-8-05-0.5	13-11-0333-39	11/05/13 11:05	1	Solid
Pb-8-06-0.5	13-11-0333-40	11/05/13 11:10	1	Solid
OCP-5-01-0.5	13-11-0333-41	11/05/13 11:40	1	Solid
OCP-5-01-2	13-11-0333-42	11/05/13 11:50	1	Solid

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	Geosyntec Consultants 924 Anacapa Street, Suite 4A Santa Barbara, CA 93101-2177	Work Order:	13-11-0333
		Project Name:	Brookfield / SB0674
		PO Number:	
		Date/Time Received:	11/05/13 18:14
		Number of Containers:	64
Attn:	Geoff Frieman		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
OCP-5-02-0.5	13-11-0333-43	11/05/13 12:10	1	Solid
OCP-5-02-2	13-11-0333-44	11/05/13 12:15	1	Solid
Pb-5-01-0.5	13-11-0333-45	11/05/13 11:20	1	Solid
Pb-5-02-0.5	13-11-0333-46	11/05/13 11:32	1	Solid
Pb-5-03-0.5	13-11-0333-47	11/05/13 11:40	1	Solid
Pb-5-04-0.5	13-11-0333-48	11/05/13 11:56	1	Solid
Pb-5-05-0.5	13-11-0333-49	11/05/13 12:05	1	Solid
Pb-5-06-0.5	13-11-0333-50	11/05/13 12:10	1	Solid
OCP-29-01-0.5	13-11-0333-51	11/05/13 13:35	1	Solid
OCP-29-01-2	13-11-0333-52	11/05/13 13:35	1	Solid
OCP-29-02-0.5	13-11-0333-53	11/05/13 14:18	1	Solid
OCP-29-02-2	13-11-0333-54	11/05/13 14:18	1	Solid
Pb-29-01-0.5	13-11-0333-55	11/05/13 13:20	1	Solid
Pb-29-02-0.5	13-11-0333-56	11/05/13 13:30	1	Solid
Pb-29-03-0.5	13-11-0333-57	11/05/13 13:42	1	Solid
Pb-29-04-0.5	13-11-0333-58	11/05/13 13:52	1	Solid
Pb-29-05-0.5	13-11-0333-59	11/05/13 14:18	1	Solid
Pb-29-06-0.5	13-11-0333-60	11/05/13 13:35	1	Solid
QC-EB-11-05-13	13-11-0333-61	11/05/13 14:05	2	Aqueous
TB-11-05-13	13-11-0333-62	11/05/13 00:00	2	Aqueous

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Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0333
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/05/13
Attn:	Geoff Frieman		

Client SampleID / Analyte	Result	Qualifiers	RL	Units	Method	Extraction
OCP-59-01-0.5 (13-11-0333-1)						
Chlordane	860		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	5.6		5.0	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	9.5		5.0	ug/kg	EPA 8081A	EPA 3545
OCP-59-02-0.5 (13-11-0333-3)						
Chlordane	22000		1200	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	60		25	ug/kg	EPA 8081A	EPA 3545
OCP-59-02-2 (13-11-0333-4)						
Chlordane	580		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	5.2		5.0	ug/kg	EPA 8081A	EPA 3545
Endosulfan I	6.6		5.0	ug/kg	EPA 8081A	EPA 3545
Pb-59-01-0.5 (13-11-0333-5)						
Lead	49.5		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-59-02-0.5 (13-11-0333-6)						
Lead	70.7		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-59-03-0.5 (13-11-0333-7)						
Lead	75.1		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-59-04-0.5 (13-11-0333-8)						
Lead	19.6		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-59-05-0.5 (13-11-0333-9)						
Lead	3.04		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-59-06-0.5 (13-11-0333-10)						
Lead	51.7		0.500	mg/kg	EPA 6010B	EPA 3050B
OCP-50-01-0.5 (13-11-0333-11)						
Chlordane	2700		250	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	6.4		5.0	ug/kg	EPA 8081A	EPA 3545
Endosulfan I	16		5.0	ug/kg	EPA 8081A	EPA 3545
Heptachlor Epoxide	47		25	ug/kg	EPA 8081A	EPA 3545
OCP-50-01-2 (13-11-0333-12)						
Chlordane	130		50	ug/kg	EPA 8081A	EPA 3545
OCP-50-02-0.5 (13-11-0333-13)						
Chlordane	2100		250	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	5.7		5.0	ug/kg	EPA 8081A	EPA 3545
Endrin Aldehyde	8.0		5.0	ug/kg	EPA 8081A	EPA 3545
OCP-50-02-2 (13-11-0333-14)						
Chlordane	600		50	ug/kg	EPA 8081A	EPA 3545
Heptachlor Epoxide	9.9		5.0	ug/kg	EPA 8081A	EPA 3545
Pb-50-01-0.5 (13-11-0333-15)						
Lead	335		0.500	mg/kg	EPA 6010B	EPA 3050B

* MDL is shown

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Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0333
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/05/13
Attn:	Geoff Frieman		

Client SampleID / Analyte	Result	Qualifiers	RL	Units	Method	Extraction
Pb-50-02-0.5 (13-11-0333-16)						
Lead	86.7		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-50-03-0.5 (13-11-0333-17)						
Lead	48.6		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-50-04-0.5 (13-11-0333-18)						
Lead	59.9		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-50-05-0.5 (13-11-0333-19)						
Lead	101		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-50-06-0.5 (13-11-0333-20)						
Lead	81.0		0.500	mg/kg	EPA 6010B	EPA 3050B
OCP-38-01-0.5 (13-11-0333-21)						
Chlordane	98		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDD	27		5.0	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	73		25	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	44		25	ug/kg	EPA 8081A	EPA 3545
Dieldrin	24		5.0	ug/kg	EPA 8081A	EPA 3545
OCP-38-02-0.5 (13-11-0333-23)						
Chlordane	350		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDD	110		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	260		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	150		50	ug/kg	EPA 8081A	EPA 3545
Dieldrin	14		5.0	ug/kg	EPA 8081A	EPA 3545
Heptachlor Epoxide	7.3		5.0	ug/kg	EPA 8081A	EPA 3545
Pb-38-01-0.5 (13-11-0333-25)						
Lead	182		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-38-02-0.5 (13-11-0333-26)						
Lead	167		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-38-03-0.5 (13-11-0333-27)						
Lead	83.6		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-38-04-0.5 (13-11-0333-28)						
Lead	335		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-38-05-0.5 (13-11-0333-29)						
Lead	99.0		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-38-06-0.5 (13-11-0333-30)						
Lead	175		0.500	mg/kg	EPA 6010B	EPA 3050B
OCP-8-01-0.5 (13-11-0333-31)						
Chlordane	68		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	24		5.0	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	58		25	ug/kg	EPA 8081A	EPA 3545

* MDL is shown

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Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0333
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/05/13
Attn:	Geoff Frieman		

Client SampleID / Analyte	Result	Qualifiers	RL	Units	Method	Extraction
OCP-8-01-2 (13-11-0333-32)						
4,4'-DDT	7.0		5.0	ug/kg	EPA 8081A	EPA 3545
OCP-8-02-0.5 (13-11-0333-33)						
Chlordane	60		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	5.4		5.0	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	7.3		5.0	ug/kg	EPA 8081A	EPA 3545
Pb-8-01-0.5 (13-11-0333-35)						
Lead	90.3		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-8-02-0.5 (13-11-0333-36)						
Lead	25.9		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-8-03-0.5 (13-11-0333-37)						
Lead	394		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-8-04-0.5 (13-11-0333-38)						
Lead	142		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-8-05-0.5 (13-11-0333-39)						
Lead	108		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-8-06-0.5 (13-11-0333-40)						
Lead	113		0.500	mg/kg	EPA 6010B	EPA 3050B
OCP-5-01-0.5 (13-11-0333-41)						
4,4'-DDE	10		5.0	ug/kg	EPA 8081A	EPA 3545
Delta-BHC	5.6		5.0	ug/kg	EPA 8081A	EPA 3545
Dieldrin	93		25	ug/kg	EPA 8081A	EPA 3545
OCP-5-01-2 (13-11-0333-42)						
Dieldrin	16		5.0	ug/kg	EPA 8081A	EPA 3545
OCP-5-02-0.5 (13-11-0333-43)						
4,4'-DDE	16		5.0	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	18		5.0	ug/kg	EPA 8081A	EPA 3545
Dieldrin	46		10	ug/kg	EPA 8081A	EPA 3545
OCP-5-02-2 (13-11-0333-44)						
4,4'-DDT	8.7		5.0	ug/kg	EPA 8081A	EPA 3545
Dieldrin	9.5		5.0	ug/kg	EPA 8081A	EPA 3545
Pb-5-01-0.5 (13-11-0333-45)						
Lead	86.9		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-5-02-0.5 (13-11-0333-46)						
Lead	98.8		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-5-03-0.5 (13-11-0333-47)						
Lead	151		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-5-04-0.5 (13-11-0333-48)						
Lead	60.6		0.500	mg/kg	EPA 6010B	EPA 3050B

* MDL is shown

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Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0333
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/05/13
Attn:	Geoff Frieman		

Client SampleID / Analyte	Result	Qualifiers	RL	Units	Method	Extraction
Pb-5-05-0.5 (13-11-0333-49)						
Lead	99.6		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-5-06-0.5 (13-11-0333-50)						
Lead	194		0.500	mg/kg	EPA 6010B	EPA 3050B
OCP-29-01-0.5 (13-11-0333-51)						
Chlordane	920		250	ug/kg	EPA 8081A	EPA 3545
4,4'-DDD	190		25	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	240		120	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	260		120	ug/kg	EPA 8081A	EPA 3545
Dieldrin	560		120	ug/kg	EPA 8081A	EPA 3545
Endrin Aldehyde	76		25	ug/kg	EPA 8081A	EPA 3545
Heptachlor Epoxide	98		25	ug/kg	EPA 8081A	EPA 3545
OCP-29-01-2 (13-11-0333-52)						
Chlordane	370		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDD	67		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	97		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	59		50	ug/kg	EPA 8081A	EPA 3545
Dieldrin	190		50	ug/kg	EPA 8081A	EPA 3545
Endosulfan Sulfate	5.4		5.0	ug/kg	EPA 8081A	EPA 3545
Endrin Aldehyde	16		5.0	ug/kg	EPA 8081A	EPA 3545
OCP-29-02-0.5 (13-11-0333-53)						
Chlordane	1400		500	ug/kg	EPA 8081A	EPA 3545
4,4'-DDD	140		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	100		50	ug/kg	EPA 8081A	EPA 3545
4,4'-DDT	69		50	ug/kg	EPA 8081A	EPA 3545
Dieldrin	140		50	ug/kg	EPA 8081A	EPA 3545
Pb-29-01-0.5 (13-11-0333-55)						
Lead	87.5		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-29-02-0.5 (13-11-0333-56)						
Lead	279		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-29-03-0.5 (13-11-0333-57)						
Lead	191		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-29-04-0.5 (13-11-0333-58)						
Lead	224		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-29-05-0.5 (13-11-0333-59)						
Lead	257		0.500	mg/kg	EPA 6010B	EPA 3050B
Pb-29-06-0.5 (13-11-0333-60)						
Lead	97.1		0.500	mg/kg	EPA 6010B	EPA 3050B

* MDL is shown

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Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0333
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/05/13
Attn:	Geoff Frieman		

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction

Subcontracted analyses, if any, are not included in this summary.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 1 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-59-01-0.5	**13-11-0333-5-A**	**11/05/13 07:50**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:12**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	49.5	0.500	1	

Pb-59-02-0.5	**13-11-0333-6-A**	**11/05/13 07:45**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:13**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	70.7	0.500	1	

Pb-59-03-0.5	**13-11-0333-7-A**	**11/05/13 07:55**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:16**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	75.1	0.500	1	

Pb-59-04-0.5	**13-11-0333-8-A**	**11/05/13 08:00**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:17**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	19.6	0.500	1	

Pb-59-05-0.5	**13-11-0333-9-A**	**11/05/13 08:08**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:17**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	3.04	0.500	1	

Pb-59-06-0.5	**13-11-0333-10-A**	**11/05/13 08:18**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:18**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	51.7	0.500	1	

Pb-50-01-0.5	**13-11-0333-15-A**	**11/05/13 08:35**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:19**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	335	0.500	1	

Pb-50-02-0.5	**13-11-0333-16-A**	**11/05/13 08:40**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:20**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	86.7	0.500	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 2 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-50-03-0.5	**13-11-0333-17-A**	**11/05/13 08:45**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:21**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	48.6	0.500	1	

Pb-50-04-0.5	**13-11-0333-18-A**	**11/05/13 08:55**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:21**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	59.9	0.500	1	

Pb-50-05-0.5	**13-11-0333-19-A**	**11/05/13 09:00**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:22**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	101	0.500	1	

Pb-50-06-0.5	**13-11-0333-20-A**	**11/05/13 09:05**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:23**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	81.0	0.500	1	

Pb-38-01-0.5	**13-11-0333-25-A**	**11/05/13 09:25**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:26**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	182	0.500	1	

Pb-38-02-0.5	**13-11-0333-26-A**	**11/05/13 09:35**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:27**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	167	0.500	1	

Pb-38-03-0.5	**13-11-0333-27-A**	**11/05/13 09:40**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:27**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	83.6	0.500	1	

Pb-38-04-0.5	**13-11-0333-28-A**	**11/05/13 10:15**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:28**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	335	0.500	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 3 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-38-05-0.5	**13-11-0333-29-A**	**11/05/13 10:05**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:29**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	99.0	0.500	1	

Pb-38-06-0.5	**13-11-0333-30-A**	**11/05/13 10:20**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:30**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	175	0.500	1	

Pb-8-01-0.5	**13-11-0333-35-A**	**11/05/13 10:40**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:31**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	90.3	0.500	1	

Pb-8-02-0.5	**13-11-0333-36-A**	**11/05/13 10:45**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:31**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	25.9	0.500	1	

Pb-8-03-0.5	**13-11-0333-37-A**	**11/05/13 10:50**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:32**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	394	0.500	1	

Pb-8-04-0.5	**13-11-0333-38-A**	**11/05/13 11:00**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:33**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	142	0.500	1	

Pb-8-05-0.5	**13-11-0333-39-A**	**11/05/13 11:05**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:36**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	108	0.500	1	

Pb-8-06-0.5	**13-11-0333-40-A**	**11/05/13 11:10**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:37**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	113	0.500	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 4 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-5-01-0.5	**13-11-0333-45-A**	**11/05/13 11:20**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:37**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	86.9	0.500	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-5-02-0.5	**13-11-0333-46-A**	**11/05/13 11:32**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:38**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	98.8	0.500	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-5-03-0.5	**13-11-0333-47-A**	**11/05/13 11:40**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:39**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	151	0.500	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-5-04-0.5	**13-11-0333-48-A**	**11/05/13 11:56**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:40**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	60.6	0.500	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-5-05-0.5	**13-11-0333-49-A**	**11/05/13 12:05**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:41**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	99.6	0.500	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-5-06-0.5	**13-11-0333-50-A**	**11/05/13 12:10**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:42**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	194	0.500	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-29-01-0.5	**13-11-0333-55-A**	**11/05/13 13:20**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:42**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	87.5	0.500	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-29-02-0.5	**13-11-0333-56-A**	**11/05/13 13:30**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:43**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	279	0.500	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 5 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Pb-29-03-0.5	**13-11-0333-57-A**	**11/05/13 13:42**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:46**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	191	0.500	1	

Pb-29-04-0.5	**13-11-0333-58-A**	**11/05/13 13:52**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:47**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	224	0.500	1	

Pb-29-05-0.5	**13-11-0333-59-A**	**11/05/13 14:18**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:48**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	257	0.500	1	

Pb-29-06-0.5	**13-11-0333-60-A**	**11/05/13 13:35**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:48**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	97.1	0.500	1	

Method Blank	**097-01-002-17600**	**N/A**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:05**	**131106L06**

Parameter	Result	RL	DF	Qualifiers
Lead	ND	0.500	1	

Method Blank	**097-01-002-17601**	**N/A**	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:07**	**131106L07**

Parameter	Result	RL	DF	Qualifiers
Lead	ND	0.500	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3010A Total
		Method:	EPA 6010B
		Units:	mg/L
Project: Brookfield / SB0674			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QC-EB-11-05-13	**13-11-0333-61-B**	**11/05/13 14:05**	**Aqueous**	**ICP 7300**	**11/06/13**	**11/07/13 13:35**	**131106LA1**

Parameter	Result	RL	DF	Qualifiers
Lead	ND	0.0100	1	

Method Blank	**097-01-003-13789**	**N/A**	**Aqueous**	**ICP 7300**	**11/06/13**	**11/06/13 12:02**	**131106LA1**

Parameter	Result	RL	DF	Qualifiers
Lead	ND	0.0100	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 1 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-59-01-0.5	**13-11-0333-1-A**	**11/05/13 08:18**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 10:27**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	860	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	5.6	5.0	1	
4,4'-DDT	9.5	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	95	50-135	
2,4,5,6-Tetrachloro-m-Xylene	91	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 2 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-59-01-2	**13-11-0333-2-A**	**11/05/13 08:18**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 10:41**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	63	50-135	
2,4,5,6-Tetrachloro-m-Xylene	69	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 3 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-59-02-0.5	**13-11-0333-3-A**	**11/05/13 07:55**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 11:46**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	25	5	
Alpha-BHC	ND	25	5	
Beta-BHC	ND	25	5	
Chlordane	22000	1200	25	
4,4'-DDD	ND	25	5	
4,4'-DDE	ND	25	5	
4,4'-DDT	60	25	5	
Delta-BHC	ND	25	5	
Dieldrin	ND	25	5	
Endosulfan I	ND	25	5	
Endosulfan II	ND	25	5	
Endosulfan Sulfate	ND	25	5	
Endrin	ND	25	5	
Endrin Aldehyde	ND	25	5	
Endrin Ketone	ND	25	5	
Gamma-BHC	ND	25	5	
Heptachlor	ND	25	5	
Heptachlor Epoxide	ND	25	5	
Methoxychlor	ND	25	5	
Toxaphene	ND	500	5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	114	50-135	
2,4,5,6-Tetrachloro-m-Xylene	101	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 4 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-59-02-2	**13-11-0333-4-A**	**11/05/13 07:55**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 11:10**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	580	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	5.2	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	6.6	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	76	50-135	
2,4,5,6-Tetrachloro-m-Xylene	80	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 5 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-50-01-0.5	**13-11-0333-11-A**	**11/05/13 08:45**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 11:24**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	6.4	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	16	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	90	50-135	
2,4,5,6-Tetrachloro-m-Xylene	105	50-135	

OCP-50-01-0.5	**13-11-0333-11-A**	**11/05/13 08:45**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 12:15**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Chlordane	2700	250	5	
Heptachlor Epoxide	47	25	5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	93	50-135	
2,4,5,6-Tetrachloro-m-Xylene	87	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 6 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-50-01-2	**13-11-0333-12-A**	**11/05/13 08:45**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 11:38**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	130	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	70	50-135	
2,4,5,6-Tetrachloro-m-Xylene	77	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 7 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-50-02-0.5	**13-11-0333-13-A**	**11/05/13 09:05**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 11:53**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	2100	250	5	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	5.7	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	8.0	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	111	50-135	
2,4,5,6-Tetrachloro-m-Xylene	79	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 8 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-50-02-2	**13-11-0333-14-A**	**11/05/13 09:05**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 12:07**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	600	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	9.9	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	71	50-135	
2,4,5,6-Tetrachloro-m-Xylene	71	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 9 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-38-01-0.5	**13-11-0333-21-A**	**11/05/13 09:40**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 12:21**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	98	50	1	
4,4'-DDD	27	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	24	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	101	50-135	
2,4,5,6-Tetrachloro-m-Xylene	98	50-135	

OCP-38-01-0.5	**13-11-0333-21-A**	**11/05/13 09:40**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 12:43**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	73	25	5	
4,4'-DDT	44	25	5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	96	50-135	
2,4,5,6-Tetrachloro-m-Xylene	93	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 10 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-38-01-2	**13-11-0333-22-A**	**11/05/13 09:50**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 12:35**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	79	50-135	
2,4,5,6-Tetrachloro-m-Xylene	83	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 11 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-38-02-0.5	**13-11-0333-23-A**	**11/05/13 10:20**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 12:50**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	350	50	1	
Delta-BHC	ND	5.0	1	
Dieldrin	14	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	7.3	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	75	50-135	
2,4,5,6-Tetrachloro-m-Xylene	80	50-135	

OCP-38-02-0.5	**13-11-0333-23-A**	**11/05/13 10:20**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 12:58**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDD	110	50	10	
4,4'-DDE	260	50	10	
4,4'-DDT	150	50	10	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	80	50-135	
2,4,5,6-Tetrachloro-m-Xylene	76	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 12 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-38-02-2	**13-11-0333-24-A**	**11/05/13 10:20**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 13:04**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	74	50-135	
2,4,5,6-Tetrachloro-m-Xylene	84	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 13 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-8-01-0.5	**13-11-0333-31-A**	**11/05/13 10:50**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 13:18**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	68	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	24	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	168	50-135	2,7
2,4,5,6-Tetrachloro-m-Xylene	85	50-135	

OCP-8-01-0.5	**13-11-0333-31-A**	**11/05/13 10:50**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 13:12**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDT	58	25	5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	138	50-135	1,2,7
2,4,5,6-Tetrachloro-m-Xylene	76	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 14 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-8-01-2	**13-11-0333-32-A**	**11/05/13 10:50**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 13:33**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	7.0	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	73	50-135	
2,4,5,6-Tetrachloro-m-Xylene	77	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 15 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-8-02-0.5	**13-11-0333-33-A**	**11/05/13 11:10**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 13:47**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	60	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	5.4	5.0	1	
4,4'-DDT	7.3	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	75	50-135	
2,4,5,6-Tetrachloro-m-Xylene	87	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 16 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-8-02-2	**13-11-0333-34-A**	**11/05/13 11:10**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 14:01**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	75	50-135	
2,4,5,6-Tetrachloro-m-Xylene	82	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 17 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-5-01-0.5	**13-11-0333-41-A**	**11/05/13 11:40**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 14:16**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	10	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	5.6	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	70	50-135	
2,4,5,6-Tetrachloro-m-Xylene	80	50-135	

OCP-5-01-0.5	**13-11-0333-41-A**	**11/05/13 11:40**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 13:26**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Dieldrin	93	25	5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	78	50-135	
2,4,5,6-Tetrachloro-m-Xylene	75	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 18 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-5-01-2	**13-11-0333-42-A**	**11/05/13 11:50**	**Solid**	**GC 51**	**11/07/13**	**11/13/13 18:30**	**131112L26**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	16	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	84	50-135	
2,4,5,6-Tetrachloro-m-Xylene	79	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 19 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-5-02-0.5	**13-11-0333-43-A**	**11/05/13 12:10**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 14:44**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	16	5.0	1	
4,4'-DDT	18	5.0	1	
Delta-BHC	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	72	50-135	
2,4,5,6-Tetrachloro-m-Xylene	84	50-135	

OCP-5-02-0.5	**13-11-0333-43-A**	**11/05/13 12:10**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 13:40**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Dieldrin	46	10	2	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	89	50-135	
2,4,5,6-Tetrachloro-m-Xylene	84	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 20 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-5-02-2	**13-11-0333-44-A**	**11/05/13 12:15**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 17:41**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	8.7	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	9.5	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	91	50-135	
2,4,5,6-Tetrachloro-m-Xylene	90	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 21 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-29-01-0.5	**13-11-0333-51-A**	**11/05/13 13:35**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 13:55**	**131107L27**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	25	5	
Alpha-BHC	ND	25	5	
Beta-BHC	ND	25	5	
Chlordane	920	250	5	
4,4'-DDD	190	25	5	
Delta-BHC	ND	25	5	
Endosulfan I	ND	25	5	
Endosulfan II	ND	25	5	
Endosulfan Sulfate	ND	25	5	
Endrin	ND	25	5	
Endrin Aldehyde	76	25	5	
Endrin Ketone	ND	25	5	
Gamma-BHC	ND	25	5	
Heptachlor	ND	25	5	
Heptachlor Epoxide	98	25	5	
Methoxychlor	ND	25	5	
Toxaphene	ND	500	5	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	62	50-135	
2,4,5,6-Tetrachloro-m-Xylene	80	50-135	

OCP-29-01-0.5	**13-11-0333-51-A**	**11/05/13 13:35**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 14:09**	**131107L27**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDE	240	120	25	
4,4'-DDT	260	120	25	
Dieldrin	560	120	25	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	71	50-135	
2,4,5,6-Tetrachloro-m-Xylene	72	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 22 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-29-01-2	**13-11-0333-52-A**	**11/05/13 13:35**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 10:49**	**131107L27**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	370	50	1	
Delta-BHC	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	5.4	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	16	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	82	50-135	
2,4,5,6-Tetrachloro-m-Xylene	78	50-135	

OCP-29-01-2	**13-11-0333-52-A**	**11/05/13 13:35**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 14:23**	**131107L27**

Parameter	Result	RL	DF	Qualifiers
4,4'-DDD	67	50	10	
4,4'-DDE	97	50	10	
4,4'-DDT	59	50	10	
Dieldrin	190	50	10	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	77	50-135	
2,4,5,6-Tetrachloro-m-Xylene	68	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 23 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-29-02-0.5	**13-11-0333-53-A**	**11/05/13 14:18**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 11:03**	**131107L27**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	89	50-135	
2,4,5,6-Tetrachloro-m-Xylene	74	50-135	

OCP-29-02-0.5	**13-11-0333-53-A**	**11/05/13 14:18**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 14:38**	**131107L27**

Parameter	Result	RL	DF	Qualifiers
Chlordane	1400	500	10	
4,4'-DDD	140	50	10	
4,4'-DDE	100	50	10	
4,4'-DDT	69	50	10	
Dieldrin	140	50	10	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	79	50-135	
2,4,5,6-Tetrachloro-m-Xylene	68	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 24 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OCP-29-02-2	**13-11-0333-54-A**	**11/05/13 14:18**	**Solid**	**GC 51**	**11/07/13**	**11/12/13 11:18**	**131107L27**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	75	50-135	
2,4,5,6-Tetrachloro-m-Xylene	74	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 25 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-537-1528**	**N/A**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 10:13**	**131107L22**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	98	50-135	
2,4,5,6-Tetrachloro-m-Xylene	101	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 26 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-537-1529**	**N/A**	**Solid**	**GC 51**	**11/07/13**	**11/11/13 18:38**	**131107L27**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	92	50-135	
2,4,5,6-Tetrachloro-m-Xylene	95	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: Brookfield / SB0674			Page 27 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-537-1532**	**N/A**	**Solid**	**GC 51**	**11/12/13**	**11/13/13 16:48**	**131112L26**

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1	
Alpha-BHC	ND	5.0	1	
Beta-BHC	ND	5.0	1	
Chlordane	ND	50	1	
4,4'-DDD	ND	5.0	1	
4,4'-DDE	ND	5.0	1	
4,4'-DDT	ND	5.0	1	
Delta-BHC	ND	5.0	1	
Dieldrin	ND	5.0	1	
Endosulfan I	ND	5.0	1	
Endosulfan II	ND	5.0	1	
Endosulfan Sulfate	ND	5.0	1	
Endrin	ND	5.0	1	
Endrin Aldehyde	ND	5.0	1	
Endrin Ketone	ND	5.0	1	
Gamma-BHC	ND	5.0	1	
Heptachlor	ND	5.0	1	
Heptachlor Epoxide	ND	5.0	1	
Methoxychlor	ND	5.0	1	
Toxaphene	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	85	50-135	
2,4,5,6-Tetrachloro-m-Xylene	96	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8081A
		Units:	ug/L
Project: Brookfield / SB0674			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QC-EB-11-05-13	**13-11-0333-61-A**	**11/05/13 14:05**	**Aqueous**	**GC 51**	**11/06/13**	**11/08/13 19:07**	**131106L15**

Parameter	Result	RL	DF	Qualifiers
Alpha-BHC	ND	0.40	4	
Gamma-BHC	ND	0.40	4	
Beta-BHC	ND	0.40	4	
Heptachlor	ND	0.40	4	
Delta-BHC	ND	0.40	4	
Aldrin	ND	0.40	4	
Heptachlor Epoxide	ND	0.40	4	
Endosulfan I	ND	0.40	4	
Dieldrin	ND	0.40	4	
4,4'-DDE	ND	0.40	4	
Endrin	ND	0.40	4	
Endrin Aldehyde	ND	0.40	4	
4,4'-DDD	ND	0.40	4	
Endosulfan II	ND	0.40	4	
4,4'-DDT	ND	0.40	4	
Endosulfan Sulfate	ND	0.40	4	
Methoxychlor	ND	0.40	4	
Chlordane	ND	4.0	4	
Toxaphene	ND	8.0	4	
Endrin Ketone	ND	0.40	4	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	74	50-135	
2,4,5,6-Tetrachloro-m-Xylene	61	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8081A
		Units:	ug/L
Project: Brookfield / SB0674			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-529-659**	**N/A**	**Aqueous**	**GC 51**	**11/06/13**	**11/08/13 14:02**	**131106L15**

Parameter	Result	RL	DF	Qualifiers
Alpha-BHC	ND	0.10	1	
Gamma-BHC	ND	0.10	1	
Beta-BHC	ND	0.10	1	
Heptachlor	ND	0.10	1	
Delta-BHC	ND	0.10	1	
Aldrin	ND	0.10	1	
Heptachlor Epoxide	ND	0.10	1	
Endosulfan I	ND	0.10	1	
Dieldrin	ND	0.10	1	
4,4'-DDE	ND	0.10	1	
Endrin	ND	0.10	1	
Endrin Aldehyde	ND	0.10	1	
4,4'-DDD	ND	0.10	1	
Endosulfan II	ND	0.10	1	
4,4'-DDT	ND	0.10	1	
Endosulfan Sulfate	ND	0.10	1	
Methoxychlor	ND	0.10	1	
Chlordane	ND	1.0	1	
Toxaphene	ND	2.0	1	
Endrin Ketone	ND	0.10	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	77	50-135	
2,4,5,6-Tetrachloro-m-Xylene	74	50-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 1 of 6

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Pb-59-02-0.5	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:09**	**131106S06**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Lead	70.65	25.00	94.09	94	97.27	106	75-125	3	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 2 of 6

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Pb-5-05-0.5	**Solid**	**ICP 7300**	**11/06/13**	**11/07/13 17:11**	**131106S07**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Lead	99.57	25.00	126.8	109	134.1	138	75-125	6	0-20	3

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3010A Total
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 3 of 6

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0118-1	**Aqueous**	**ICP 7300**	**11/06/13**	**11/06/13 15:16**	**131106SA1**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Lead	ND	0.5000	0.3783	76	0.3633	73	80-120	4	0-20	3

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
Project: Brookfield / SB0674			Page 4 of 6

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
OCP-59-01-2	**Solid**	**GC 51**	**11/07/13**	**11/11/13 17:13**	**131107S22**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	25.00	24.91	100	22.91	92	50-135	8	0-25	
Alpha-BHC	ND	25.00	25.84	103	23.26	93	50-135	11	0-25	
Beta-BHC	ND	25.00	21.64	87	21.42	86	50-135	1	0-25	
4,4'-DDD	ND	25.00	29.54	118	28.28	113	50-135	4	0-25	
4,4'-DDE	ND	25.00	38.99	156	38.10	152	50-135	2	0-25	3
4,4'-DDT	ND	25.00	36.71	147	34.12	136	50-135	7	0-25	3
Delta-BHC	ND	25.00	25.76	103	23.65	95	50-135	9	0-25	
Dieldrin	ND	25.00	25.63	103	24.10	96	50-135	6	0-25	
Endosulfan I	ND	25.00	23.86	95	22.60	90	50-135	5	0-25	
Endosulfan II	ND	25.00	24.36	97	22.93	92	50-135	6	0-25	
Endosulfan Sulfate	ND	25.00	23.86	95	22.48	90	50-135	6	0-25	
Endrin	ND	25.00	26.83	107	25.49	102	50-135	5	0-25	
Endrin Aldehyde	ND	25.00	22.89	92	21.49	86	50-135	6	0-25	
Gamma-BHC	ND	25.00	25.41	102	22.55	90	50-135	12	0-25	
Heptachlor	ND	25.00	27.32	109	25.50	102	50-135	7	0-25	
Heptachlor Epoxide	ND	25.00	24.30	97	23.42	94	50-135	4	0-25	
Methoxychlor	ND	25.00	27.69	111	25.96	104	50-135	6	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
Project: Brookfield / SB0674			Page 5 of 6

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0327-9	**Solid**	**GC 51**	**11/07/13**	**11/12/13 16:18**	**131107S27**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	25.00	25.23	101	23.04	92	50-135	9	0-25	
Alpha-BHC	ND	25.00	20.72	83	18.83	75	50-135	10	0-25	
Beta-BHC	ND	25.00	19.60	78	19.05	76	50-135	3	0-25	
4,4'-DDD	ND	25.00	23.07	92	21.21	85	50-135	8	0-25	
4,4'-DDE	29.06	25.00	55.70	107	51.05	88	50-135	9	0-25	
4,4'-DDT	ND	25.00	25.24	101	22.99	92	50-135	9	0-25	
Delta-BHC	ND	25.00	32.44	130	30.75	123	50-135	5	0-25	
Dieldrin	ND	25.00	22.08	88	20.28	81	50-135	9	0-25	
Endosulfan I	ND	25.00	21.55	86	19.99	80	50-135	8	0-25	
Endosulfan II	ND	25.00	20.81	83	19.52	78	50-135	6	0-25	
Endosulfan Sulfate	ND	25.00	19.71	79	18.63	75	50-135	6	0-25	
Endrin	ND	25.00	21.68	87	20.38	82	50-135	6	0-25	
Endrin Aldehyde	ND	25.00	17.55	70	17.77	71	50-135	1	0-25	
Gamma-BHC	ND	25.00	22.41	90	20.91	84	50-135	7	0-25	
Heptachlor	ND	25.00	24.42	98	22.19	89	50-135	10	0-25	
Heptachlor Epoxide	ND	25.00	24.69	99	25.97	104	50-135	5	0-25	
Methoxychlor	ND	25.00	22.30	89	21.03	84	50-135	6	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
Project: Brookfield / SB0674			Page 6 of 6

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0697-8	**Solid**	**GC 51**	**11/12/13**	**11/13/13 17:32**	**131112S26**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	25.00	16.43	66	16.50	66	50-135	0	0-25	
Alpha-BHC	ND	25.00	17.19	69	18.74	75	50-135	9	0-25	
Beta-BHC	ND	25.00	18.14	73	20.17	81	50-135	11	0-25	
4,4'-DDD	ND	25.00	17.63	71	18.58	74	50-135	5	0-25	
4,4'-DDE	ND	25.00	18.61	74	18.65	75	50-135	0	0-25	
4,4'-DDT	ND	25.00	17.13	69	17.32	69	50-135	1	0-25	
Delta-BHC	ND	25.00	18.30	73	19.25	77	50-135	5	0-25	
Dieldrin	ND	25.00	17.66	71	18.60	74	50-135	5	0-25	
Endosulfan I	ND	25.00	17.36	69	18.22	73	50-135	5	0-25	
Endosulfan II	ND	25.00	17.90	72	19.41	78	50-135	8	0-25	
Endosulfan Sulfate	ND	25.00	16.92	68	18.08	72	50-135	7	0-25	
Endrin	ND	25.00	15.53	62	15.99	64	50-135	3	0-25	
Endrin Aldehyde	ND	25.00	16.94	68	17.43	70	50-135	3	0-25	
Gamma-BHC	ND	25.00	17.76	71	18.96	76	50-135	7	0-25	
Heptachlor	ND	25.00	17.52	70	17.57	70	50-135	0	0-25	
Heptachlor Epoxide	ND	25.00	16.43	66	17.67	71	50-135	7	0-25	
Methoxychlor	ND	25.00	17.81	71	18.66	75	50-135	5	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - PDS/PDSD

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3010A Total
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 1 of 1

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
13-11-0118-1	**Aqueous**	**ICP 7300**	**11/06/13 00:00**	**11/06/13 15:19**	**131106SA1**

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	PDSD Conc.	PDSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Lead	ND	0.5000	0.4977	100	0.4698	94	75-125	6	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 1 of 7

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
097-01-002-17600	**Solid**	**ICP 7300**	**11/07/13 17:08**	**131106L06**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Lead	25.00	24.28	97	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 2 of 7

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
097-01-002-17601	**Solid**	**ICP 7300**	**11/07/13 17:08**	**131106L07**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Lead	25.00	23.74	95	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3010A Total
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 3 of 7

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
097-01-003-13789	**Aqueous**	**ICP 7300**	**11/06/13 12:04**	**131106LA1**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Lead	0.5000	0.5001	100	80-120	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
Project: Brookfield / SB0674			Page 4 of 7

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-537-1528	**Solid**	**GC 51**	**11/11/13 18:24**	**131107L22**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Aldrin	25.00	29.76	119	50-135	36-149	
Alpha-BHC	25.00	30.61	122	50-135	36-149	
Beta-BHC	25.00	32.26	129	50-135	36-149	
4,4'-DDD	25.00	31.78	127	50-135	36-149	
4,4'-DDE	25.00	33.81	135	50-135	36-149	
4,4'-DDT	25.00	31.11	124	50-135	36-149	
Delta-BHC	25.00	30.60	122	50-135	36-149	
Dieldrin	25.00	30.87	123	50-135	36-149	
Endosulfan I	25.00	29.49	118	50-135	36-149	
Endosulfan II	25.00	30.02	120	50-135	36-149	
Endosulfan Sulfate	25.00	29.05	116	50-135	36-149	
Endrin	25.00	29.30	117	50-135	36-149	
Endrin Aldehyde	25.00	30.90	124	50-135	36-149	
Gamma-BHC	25.00	30.75	123	50-135	36-149	
Heptachlor	25.00	31.48	126	50-135	36-149	
Heptachlor Epoxide	25.00	28.95	116	50-135	36-149	
Methoxychlor	25.00	31.91	128	50-135	36-149	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
Project: Brookfield / SB0674			Page 5 of 7

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-537-1529	**Solid**	**GC 51**	**11/11/13 18:52**	**131107L27**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Aldrin	25.00	17.04	68	50-135	36-149	
Alpha-BHC	25.00	15.87	63	50-135	36-149	
Beta-BHC	25.00	17.91	72	50-135	36-149	
4,4'-DDD	25.00	17.10	68	50-135	36-149	
4,4'-DDE	25.00	17.70	71	50-135	36-149	
4,4'-DDT	25.00	16.88	68	50-135	36-149	
Delta-BHC	25.00	16.16	65	50-135	36-149	
Dieldrin	25.00	17.84	71	50-135	36-149	
Endosulfan I	25.00	17.32	69	50-135	36-149	
Endosulfan II	25.00	17.44	70	50-135	36-149	
Endosulfan Sulfate	25.00	16.51	66	50-135	36-149	
Endrin	25.00	15.37	61	50-135	36-149	
Endrin Aldehyde	25.00	17.63	71	50-135	36-149	
Gamma-BHC	25.00	16.19	65	50-135	36-149	
Heptachlor	25.00	17.47	70	50-135	36-149	
Heptachlor Epoxide	25.00	16.57	66	50-135	36-149	
Methoxychlor	25.00	17.36	69	50-135	36-149	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8081A
Project: Brookfield / SB0674			Page 6 of 7

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-537-1532	**Solid**	**GC 51**	**11/13/13 17:18**	**131112L26**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Aldrin	25.00	20.92	84	50-135	36-149	
Alpha-BHC	25.00	19.94	80	50-135	36-149	
Beta-BHC	25.00	21.71	87	50-135	36-149	
4,4'-DDD	25.00	23.02	92	50-135	36-149	
4,4'-DDE	25.00	24.19	97	50-135	36-149	
4,4'-DDT	25.00	21.57	86	50-135	36-149	
Delta-BHC	25.00	21.28	85	50-135	36-149	
Dieldrin	25.00	22.11	88	50-135	36-149	
Endosulfan I	25.00	20.50	82	50-135	36-149	
Endosulfan II	25.00	22.07	88	50-135	36-149	
Endosulfan Sulfate	25.00	20.59	82	50-135	36-149	
Endrin	25.00	17.28	69	50-135	36-149	
Endrin Aldehyde	25.00	23.40	94	50-135	36-149	
Gamma-BHC	25.00	20.37	81	50-135	36-149	
Heptachlor	25.00	21.69	87	50-135	36-149	
Heptachlor Epoxide	25.00	20.71	83	50-135	36-149	
Methoxychlor	25.00	22.15	89	50-135	36-149	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/05/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0333
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8081A
Project: Brookfield / SB0674			Page 7 of 7

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-529-659	**Aqueous**	**GC 51**	**11/06/13**	**11/08/13 16:24**	**131106L15**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Alpha-BHC	0.5000	0.4144	83	0.5017	100	50-135	36-149	19	0-25	
Gamma-BHC	0.5000	0.4178	84	0.5027	101	50-135	36-149	18	0-25	
Beta-BHC	0.5000	0.3472	69	0.4217	84	50-135	36-149	19	0-25	
Heptachlor	0.5000	0.4021	80	0.4774	95	50-135	36-149	17	0-25	
Delta-BHC	0.5000	0.4031	81	0.4699	94	50-135	36-149	15	0-25	
Aldrin	0.5000	0.3740	75	0.4410	88	50-135	36-149	16	0-25	
Heptachlor Epoxide	0.5000	0.3929	79	0.4653	93	50-135	36-149	17	0-25	
Endosulfan I	0.5000	0.3980	80	0.4727	95	50-135	36-149	17	0-25	
Dieldrin	0.5000	0.3969	79	0.4820	96	50-135	36-149	19	0-25	
4,4'-DDE	0.5000	0.4149	83	0.5016	100	50-135	36-149	19	0-25	
Endrin	0.5000	0.3983	80	0.4777	96	50-135	36-149	18	0-25	
Endrin Aldehyde	0.5000	0.3200	64	0.4104	82	50-135	36-149	25	0-25	
4,4'-DDD	0.5000	0.4048	81	0.4846	97	50-135	36-149	18	0-25	
Endosulfan II	0.5000	0.4022	80	0.4862	97	50-135	36-149	19	0-25	
4,4'-DDT	0.5000	0.4075	81	0.4939	99	50-135	36-149	19	0-25	
Endosulfan Sulfate	0.5000	0.3742	75	0.4518	90	50-135	36-149	19	0-25	
Methoxychlor	0.5000	0.4034	81	0.4881	98	50-135	36-149	19	0-25	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 13-11-0333

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 6010B	EPA 3010A Total	469	ICP 7300	1
EPA 6010B	EPA 3050B	469	ICP 7300	1
EPA 8081A	EPA 3545	500	GC 51	1
EPA 8081A	EPA 3510C	500	GC 51	1

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-11-0333

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY: 13-11-0333

Date: 11/05/2013

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LABORATORY CLIENT: Geosyntec Consultants

ADDRESS: 924 Anacapa St., Suite 4A

CITY: Santa Barbara STATE: CA ZIP: 93101

TEL: (805) 897-3800 E-MAIL: gfrieman@geosyntec.com

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

CLIENT PROJECT NAME / NUMBER: Brookfield

P.O. NO.: SB0674

PROJECT CONTACT: Geoff Frieman (BC) ~~SB0674~~

SAMPLER(S): (PRINT) R. Kovacs, B. Cozzens

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	Pb				
1	OCP-59-01-0.5	11/5/13	08:18	S	1	X											X									
2	OCP-59-01-2		08:18																							
3	OCP-59-02-0.5		07:55																							
4	OCP-59-02-2		07:55																							
5	Pb-59-01-0.5		07:50																			X				
6	Pb-59-02-0.5		07:45																							
7	Pb-59-03-0.5		07:55																							
8	Pb-59-04-0.5		08:00																							
9	Pb-59-05-0.5		08:08																							
10	Pb-59-06-0.5		08:18																							

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Brian Cozzens	CGL	11/5/2013	1455
	CGL	11/5/13	1814

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TEL: E-MAIL:

CLIENT PROJECT NAME / NUMBER:

P.O. NO.:

PROJECT CONTACT:

SAMPLER(S): (PRINT)

TURNAROUND TIME:
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	Pb				
11	OCP-50-01-0.5	11/5/13	08:45	S	1	X											X					X				
12	OCP-50-01-2		08:45																							
13	OCP-50-02-0.5		09:05																							
14	OCP-50-02-2		09:05																							
15	Pb-50-01-0.5		08:35																			X				
16	Pb-50-02-0.5		08:40																							
17	Pb-50-03-0.5		08:45																							
18	Pb-50-04-0.5		08:55																							
19	Pb-50-05-0.5		09:00																							
20	Pb-50-06-0.5		09:05																							

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		11/5/13	1455
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CLIENT PROJECT NAME / NUMBER:

P.O. NO.:

PROJECT CONTACT:

SAMPLER(S): (PRINT)

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☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	Pb				
21	OCP-38-01-0.5	11/5/13	09:40	S	1	X											X									
22	OCP-38-01-2		09:50																							
23	OCP-38-02-0.5		10:20																							
24	OCP-38-02-2		10:20																							
25	Pb-38-01-0.5		09:25																			X				
26	Pb-38-02-0.5		09:32																							
27	Pb-38-03-0.5		09:40																							
28	Pb-38-04-0.5		10:15																							
29	Pb-38-05-0.5		10:05																							
30	Pb-38-06-0.5		10:20																							

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	CSE	11/5/13	1455
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LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	Pb				
31	OCP-8-01-0.5	11/5/13	10:50	S	1	X											X									
32	OCP-8-01-2		10:50																							
33	OCP-8-02-0.5		11:10																							
34	OCP-8-02-2		11:10																							
35	Pb-8-01-0.5		10:40																			X				
36	Pb-8-02-0.5		10:45																							
37	Pb-8-03-0.5		10:50																							
38	Pb-8-04-0.5		11:00																							
39	Pb-8-05-0.5		11:05																							
40	Pb-8-06-0.5		11:10																							

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	CCL	11/5/13	1455
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
	CCL	11/5/13	1814
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TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ STANDARD

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SPECIAL INSTRUCTIONS:

CLIENT PROJECT NAME / NUMBER: P.O. NO.:

PROJECT CONTACT: SAMPLER(S): (PRINT)

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	Pb				
41	OCP-5-01-0.5	11/5/13	11:40	S	1	X											X									
42	OCP-5-01-2		11:50																							
43	OCP-5-02-0.5		12:10																							
44	OCP-5-02-2		12:15																							
45	Pb-5-01-0.5		11:20																			X				
46	Pb-5-02-0.5		11:32																							
47	Pb-5-03-0.5		11:40																							
48	Pb-5-04-0.5		11:56																							
49	Pb-5-05-0.5		12:05																							
50	Pb-5-06-0.5		12:10																							

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	[signature] CEL	11/5/13	1455
[signature]	[signature] CEL	11/5/13	1814

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Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY: 1 1 - 0 3 3 3

Date 11/05/2013

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LABORATORY CLIENT: See pg. 1

ADDRESS:

CITY STATE ZIP

TEL: E-MAIL:

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

CLIENT PROJECT NAME / NUMBER:

P.O. NO.:

PROJECT CONTACT:

SAMPLER(S): (PRINT)

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	Pb				
51	OCP-29-01-0.5	11/5/13	13:35	S	1	X											X									
52	OCP-29-01-2		13:35																							
53	OCP-29-02-0.5		14:18																							
54	OCP-29-02-2		14:18																							
55	Pb-29-01-0.5		13:20																			X				
56	Pb-29-02-0.5		13:30																							
57	Pb-29-03-0.5		13:42																							
58	Pb-29-04-0.5		13:52																							
59	Pb-29-05-0.5		14:18																							
60	Pb-29-06-0.5		13:35																							

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	[signature] CEL	11/5/13	1815
Relinquished by: (Signature) [signature]	Received by: (Signature/Affiliation) [signature] CEL	Date: 11/5/13	Time: 1814
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

09/01/13 Revision

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Calscience Environmental Laboratories, Inc.

☐ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY: 1 1 - 0 3 3 3

Date 11/05/2013

Page 7 of 7

LABORATORY CLIENT: See pg. 1

ADDRESS:

CITY STATE ZIP

TEL: E-MAIL:

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

CLIENT PROJECT NAME / NUMBER:

P.O. NO.:

PROJECT CONTACT:

SAMPLER(S): (PRINT)

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	Pb	Hold			
61	QCEB-11-05-13	11/5/13	14:05	W	2	X	X										X					X				
62	TB-11-05-13	↓	—	↓	↓		X																X			

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	[signature] CEL	11/5/13	1455
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	[signature] CEL	11/5/13	1814
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-0333

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: GEOSYNTEC CONSULTANTS DATE: 11/05/13

TEMPERATURE: Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 1.8 °C - 0.2 °C (CF) = 0.8 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter **Checked by:** 803

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Checked by:** 803

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Checked by:** 895

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☐	☑	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☑VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☑250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☑8ozCGJ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:** 131017 B **Labeled/Checked by:** 895

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 739

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** 739

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-0 3 3 3

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments:

- ☐ Sample(s) NOT RECEIVED but listed on COC
- ☐ Sample(s) received but NOT LISTED on COC
- ☐ Holding time expired – list sample ID(s) and test
- ☑ Insufficient quantities for analysis – list test
- ☐ Improper container(s) used – list test
- ☐ Improper preservative used – list test
- ☐ No preservative noted on COC or label – list test & notify lab
- ☐ Sample labels illegible – note test/container type
- ☐ Sample label(s) do not match COC – Note in comments
  - ☐ Sample ID
  - ☐ Date and/or Time Collected
  - ☐ Project Information
  - ☐ # of Container(s)
  - ☐ Analysis
- ☐ Sample container(s) compromised – Note in comments
  - ☐ Water present in sample container
  - ☐ Broken
- ☐ Sample container(s) not labeled
- ☐ Air sample container(s) compromised – Note in comments
  - ☐ Flat
  - ☐ Very low in volume
  - ☐ Leaking (Not transferred - duplicate bag submitted)
  - ☐ Leaking (transferred into Calscience Tedlar® Bag*)
  - ☐ Leaking (transferred into Client's Tedlar® Bag*)
- ☐ Other: _____

(-61) pesticides received in 8oz clear glass jar

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: 89 11/5/13

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Calscience Environmental Laboratories, Inc.

Supplemental Report 1

The original report has been revised/corrected.

CALSCIENCE

WORK ORDER NUMBER: 13-11-0813

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Geosyntec Consultants

Client Project Name: Brookfield / SB0674

Attention: Geoff Frieman
924 Anacapa Street
Suite 4A
Santa Barbara, CA 93101-2177

Approved for release on 11/26/2013 by:
Stephen Nowak
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: Brookfield / SB0674
Work Order Number: 13-11-0813

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4 Client Sample Data. 6
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9 Chain of Custody/Sample Receipt Form. 15

Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-11-0813

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 11/11/13. They were assigned to Work Order 13-11-0813.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	Geosyntec Consultants 924 Anacapa Street, Suite 4A Santa Barbara, CA 93101-2177	Work Order:	13-11-0813
		Project Name:	Brookfield / SB0674
		PO Number:	
		Date/Time Received:	11/11/13 17:30
		Number of Containers:	1
Attn:	Geoff Frieman		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
VP-6-15-111113S	13-11-0813-1	11/11/13 14:09	1	Air

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Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0813
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/11/13
Attn:	Geoff Frieman		

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
VP-6-15-111113S (13-11-0813-1)						
Acetone	0.075		0.011	ug/L	EPA TO-15	N/A
Benzene	0.045		0.0036	ug/L	EPA TO-15	N/A
2-Butanone	0.11		0.010	ug/L	EPA TO-15	N/A
Carbon Disulfide	0.040		0.014	ug/L	EPA TO-15	N/A
Chloroform	0.0096		0.0055	ug/L	EPA TO-15	N/A
1,1-Dichloroethene	0.031		0.0045	ug/L	EPA TO-15	N/A
Ethylbenzene	0.032		0.0049	ug/L	EPA TO-15	N/A
4-Ethyltoluene	0.012		0.0055	ug/L	EPA TO-15	N/A
Tetrachloroethene	0.061		0.0076	ug/L	EPA TO-15	N/A
Toluene	0.24		0.0042	ug/L	EPA TO-15	N/A
Trichloroethene	0.24		0.0060	ug/L	EPA TO-15	N/A
1,2,4-Trimethylbenzene	0.043		0.017	ug/L	EPA TO-15	N/A
1,3,5-Trimethylbenzene	0.016		0.0055	ug/L	EPA TO-15	N/A
o-Xylene	0.039		0.0049	ug/L	EPA TO-15	N/A
p/m-Xylene	0.11		0.020	ug/L	EPA TO-15	N/A

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Subcontracted analyses, if any, are not included in this summary.

* MDL is shown

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0813
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 1 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP-6-15-111113S	**13-11-0813-1-A**	**11/11/13 14:09**	**Air**	**GC/MS LLL**	**N/A**	**11/18/13 12:57**	**131118L01**

Parameter	Result	RL	DF	Qualifiers
Acetone	0.075	0.011	2.25	
Benzene	0.045	0.0036	2.25	
Benzyl Chloride	ND	0.017	2.25	
Bromodichloromethane	ND	0.0075	2.25	
Bromoform	ND	0.012	2.25	
Bromomethane	ND	0.0044	2.25	
2-Butanone	0.11	0.010	2.25	
Carbon Disulfide	0.040	0.014	2.25	
Carbon Tetrachloride	ND	0.0071	2.25	
Chlorobenzene	ND	0.0052	2.25	
Chloroethane	ND	0.0030	2.25	
Chloroform	0.0096	0.0055	2.25	
Chloromethane	ND	0.0023	2.25	
Dibromochloromethane	ND	0.0096	2.25	
1,2-Dibromoethane	ND	0.0086	2.25	
1,2-Dichlorobenzene	ND	0.0068	2.25	
1,3-Dichlorobenzene	ND	0.0068	2.25	
1,4-Dichlorobenzene	ND	0.0068	2.25	
Dichlorodifluoromethane	ND	0.0056	2.25	
1,1-Dichloroethane	ND	0.0046	2.25	
1,2-Dichloroethane	ND	0.0046	2.25	
1,1-Dichloroethene	0.031	0.0045	2.25	
c-1,2-Dichloroethene	ND	0.0045	2.25	
t-1,2-Dichloroethene	ND	0.0045	2.25	
1,2-Dichloropropane	ND	0.0052	2.25	
c-1,3-Dichloropropene	ND	0.0051	2.25	
t-1,3-Dichloropropene	ND	0.010	2.25	
Dichlorotetrafluoroethane	ND	0.031	2.25	
Ethylbenzene	0.032	0.0049	2.25	
4-Ethyltoluene	0.012	0.0055	2.25	
Hexachloro-1,3-Butadiene	ND	0.036	2.25	
2-Hexanone	ND	0.014	2.25	
Methyl-t-Butyl Ether (MTBE)	ND	0.016	2.25	
Methylene Chloride	ND	0.039	2.25	
4-Methyl-2-Pentanone	ND	0.014	2.25	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0813
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 2 of 4

Parameter	Result	RL	DF	Qualifiers
Styrene	ND	0.014	2.25	
1,1,2,2-Tetrachloroethane	ND	0.015	2.25	
Tetrachloroethene	0.061	0.0076	2.25	
Toluene	0.24	0.0042	2.25	
1,2,4-Trichlorobenzene	ND	0.033	2.25	
1,1,1-Trichloroethane	ND	0.0061	2.25	
1,1,2-Trichloroethane	ND	0.0061	2.25	
Trichloroethene	0.24	0.0060	2.25	
Trichlorofluoromethane	ND	0.013	2.25	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.026	2.25	
1,2,4-Trimethylbenzene	0.043	0.017	2.25	
1,3,5-Trimethylbenzene	0.016	0.0055	2.25	
Vinyl Acetate	ND	0.016	2.25	
Vinyl Chloride	ND	0.0029	2.25	
o-Xylene	0.039	0.0049	2.25	
p/m-Xylene	0.11	0.020	2.25	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	102	68-134	
1,2-Dichloroethane-d4	107	67-133	
Toluene-d8	109	70-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0813
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 3 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-021-12384**	**N/A**	**Air**	**GC/MS LLL**	**N/A**	**11/18/13 12:09**	**131118L01**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	0.0048	1	
Benzene	ND	0.0016	1	
Benzyl Chloride	ND	0.0078	1	
Bromodichloromethane	ND	0.0034	1	
Bromoform	ND	0.0052	1	
Bromomethane	ND	0.0019	1	
2-Butanone	ND	0.0044	1	
Carbon Disulfide	ND	0.0062	1	
Carbon Tetrachloride	ND	0.0031	1	
Chlorobenzene	ND	0.0023	1	
Chloroethane	ND	0.0013	1	
Chloroform	ND	0.0024	1	
Chloromethane	ND	0.0010	1	
Dibromochloromethane	ND	0.0043	1	
1,2-Dibromoethane	ND	0.0038	1	
1,2-Dichlorobenzene	ND	0.0030	1	
1,3-Dichlorobenzene	ND	0.0030	1	
1,4-Dichlorobenzene	ND	0.0030	1	
Dichlorodifluoromethane	ND	0.0025	1	
1,1-Dichloroethane	ND	0.0020	1	
1,2-Dichloroethane	ND	0.0020	1	
1,1-Dichloroethene	ND	0.0020	1	
c-1,2-Dichloroethene	ND	0.0020	1	
t-1,2-Dichloroethene	ND	0.0020	1	
1,2-Dichloropropane	ND	0.0023	1	
c-1,3-Dichloropropene	ND	0.0023	1	
t-1,3-Dichloropropene	ND	0.0045	1	
Dichlorotetrafluoroethane	ND	0.014	1	
Ethylbenzene	ND	0.0022	1	
4-Ethyltoluene	ND	0.0025	1	
Hexachloro-1,3-Butadiene	ND	0.016	1	
2-Hexanone	ND	0.0061	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1	
Methylene Chloride	ND	0.017	1	
4-Methyl-2-Pentanone	ND	0.0061	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0813
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 4 of 4

Parameter	Result	RL	DF	Qualifiers
Styrene	ND	0.0064	1	
1,1,2,2-Tetrachloroethane	ND	0.0069	1	
Tetrachloroethene	ND	0.0034	1	
Toluene	ND	0.0019	1	
1,2,4-Trichlorobenzene	ND	0.015	1	
1,1,1-Trichloroethane	ND	0.0027	1	
1,1,2-Trichloroethane	ND	0.0027	1	
Trichloroethene	ND	0.0027	1	
Trichlorofluoromethane	ND	0.0056	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.011	1	
1,2,4-Trimethylbenzene	ND	0.0074	1	
1,3,5-Trimethylbenzene	ND	0.0025	1	
Vinyl Acetate	ND	0.0070	1	
Vinyl Chloride	ND	0.0013	1	
o-Xylene	ND	0.0022	1	
p/m-Xylene	ND	0.0087	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	97	68-134	
1,2-Dichloroethane-d4	99	67-133	
Toluene-d8	98	70-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0813
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
Project: Brookfield / SB0674			Page 1 of 2

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-021-12384	**Air**	**GC/MS LLL**	**N/A**	**11/18/13 07:32**	**131118L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acetone	0.05939	0.05393	91	0.05730	96	67-133	56-144	6	0-30	
Benzene	0.07987	0.08464	106	0.08544	107	70-130	60-140	1	0-30	
Benzyl Chloride	0.1294	0.1326	102	0.1320	102	38-158	18-178	1	0-30	
Bromodichloromethane	0.1675	0.1748	104	0.1761	105	70-130	60-140	1	0-30	
Bromoform	0.2584	0.2799	108	0.2796	108	63-147	49-161	0	0-30	
Bromomethane	0.09708	0.09462	97	0.09769	101	70-139	58-150	3	0-30	
2-Butanone	0.07373	0.07403	100	0.07520	102	66-132	55-143	2	0-30	
Carbon Disulfide	0.07785	0.08552	110	0.08665	111	68-146	55-159	1	0-30	
Carbon Tetrachloride	0.1573	0.1615	103	0.1645	105	70-136	59-147	2	0-30	
Chlorobenzene	0.1151	0.1184	103	0.1181	103	70-130	60-140	0	0-30	
Chloroethane	0.06596	0.06531	99	0.06848	104	65-149	51-163	5	0-30	
Chloroform	0.1221	0.1211	99	0.1232	101	70-130	60-140	2	0-30	
Chloromethane	0.05163	0.04572	89	0.05264	102	69-141	57-153	14	0-30	
Dibromochloromethane	0.2130	0.2247	106	0.2261	106	70-138	59-149	1	0-30	
1,2-Dibromoethane	0.1921	0.2006	104	0.2006	104	70-133	60-144	0	0-30	
1,2-Dichlorobenzene	0.1503	0.1426	95	0.1416	94	48-138	33-153	1	0-30	
1,3-Dichlorobenzene	0.1503	0.1509	100	0.1487	99	56-134	43-147	1	0-30	
1,4-Dichlorobenzene	0.1503	0.1484	99	0.1454	97	52-136	38-150	2	0-30	
Dichlorodifluoromethane	0.1236	0.1231	100	0.1250	101	67-139	55-151	2	0-30	
1,1-Dichloroethane	0.1012	0.1021	101	0.1034	102	70-130	60-140	1	0-30	
1,2-Dichloroethane	0.1012	0.09786	97	0.1000	99	70-132	60-142	2	0-30	
1,1-Dichloroethene	0.09912	0.1032	104	0.1050	106	70-135	59-146	2	0-30	
c-1,2-Dichloroethene	0.09912	0.1048	106	0.1058	107	70-130	60-140	1	0-30	
t-1,2-Dichloroethene	0.09912	0.1022	103	0.1037	105	70-130	60-140	1	0-30	
1,2-Dichloropropane	0.1155	0.1215	105	0.1230	107	70-130	60-140	1	0-30	
c-1,3-Dichloropropene	0.1135	0.1234	109	0.1244	110	70-130	60-140	1	0-30	
t-1,3-Dichloropropene	0.1135	0.1312	116	0.1319	116	70-147	57-160	1	0-30	
Dichlorotetrafluoroethane	0.1748	0.1352	77	0.1471	84	51-135	37-149	8	0-30	
Ethylbenzene	0.1086	0.1160	107	0.1159	107	70-130	60-140	0	0-30	
4-Ethyltoluene	0.1229	0.1279	104	0.1255	102	68-130	58-140	2	0-30	
Hexachloro-1,3-Butadiene	0.2666	0.2684	101	0.2731	102	44-146	27-163	2	0-30	
2-Hexanone	0.1024	0.1069	104	0.1078	105	70-136	59-147	1	0-30	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.09306	103	0.09426	105	68-130	58-140	1	0-30	
Methylene Chloride	0.08684	0.09188	106	0.09225	106	69-130	59-140	0	0-30	
4-Methyl-2-Pentanone	0.1024	0.1068	104	0.1074	105	70-130	60-140	1	0-30	
Styrene	0.1065	0.1078	101	0.1075	101	65-131	54-142	0	0-30	
1,1,2,2-Tetrachloroethane	0.1716	0.1629	95	0.1626	95	63-130	52-141	0	0-30	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0813
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
Project: Brookfield / SB0674			Page 2 of 2

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Tetrachloroethene	0.1696	0.1849	109	0.1880	111	70-130	60-140	2	0-30	
Toluene	0.09421	0.1007	107	0.1013	107	70-130	60-140	1	0-30	
1,2,4-Trichlorobenzene	0.1855	0.1787	96	0.1795	97	31-151	11-171	0	0-30	
1,1,1-Trichloroethane	0.1364	0.1326	97	0.1352	99	70-130	60-140	2	0-30	
1,1,2-Trichloroethane	0.1364	0.1409	103	0.1424	104	70-130	60-140	1	0-30	
Trichloroethene	0.1343	0.1422	106	0.1439	107	70-130	60-140	1	0-30	
Trichlorofluoromethane	0.1405	0.1371	98	0.1391	99	63-141	50-154	1	0-30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.1916	0.2022	106	0.2049	107	70-136	59-147	1	0-30	
1,2,4-Trimethylbenzene	0.1229	0.1214	99	0.1200	98	60-132	48-144	1	0-30	
1,3,5-Trimethylbenzene	0.1229	0.1230	100	0.1206	98	62-130	51-141	2	0-30	
Vinyl Acetate	0.08803	0.08084	92	0.08246	94	58-130	46-142	2	0-30	
Vinyl Chloride	0.06391	0.06063	95	0.06552	103	70-134	59-145	8	0-30	
o-Xylene	0.1086	0.1110	102	0.1106	102	69-130	59-140	0	0-30	
p/m-Xylene	0.2171	0.2301	106	0.2292	106	70-132	60-142	0	0-30	

Total number of LCS compounds: 51
Total number of ME compounds: 0
Total number of ME compounds allowed: 3
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Summa Canister Vacuum Summary

Work Order: 13-11-0813

Sample Name	Vacuum Out	Vacuum In	Equipment	Description
VP-6-15-111113S	-29.60 in Hg	-5.00 in Hg	LC082	Summa Canister 1L

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Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 13-11-0813

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA TO-15	N/A	866	GC/MS LLL	3

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-11-0813

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 FAX: (714) 894-7501

AIR CHAIN OF CUSTODY RECORD

DATE: 11-11-13
PAGE: 1 OF 1

LABORATORY CLIENT: Geosyntec Consultants
ADDRESS: 924 Anacapa St., Suite 4A
CITY: Santa Barbara STATE: CA ZIP: 93101
TEL: 805-897-3800 E-MAIL: gfrieman@geosyntec.com

CLIENT PROJECT NAME / NUMBER: Brookfield SB0674
PROJECT ADDRESS: 11850 Whittier Blvd.
CITY: Whittier STATE: CA ZIP:
PROJECT CONTACT: gfrieman → Geoff Frieman

P.O.NO.: SB0674
LAB CONTACT OR QUOTE NO.
LAB USE ONLY: 13-11-0813

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SAMPLER(S): (NAME / SIGNATURE) Derek Fisher / DMM

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☒ EDD

SPECIAL INSTRUCTIONS:

GF 11/12/13

REQUESTED ANALYSES: 8260B (VOCs) TO-15 GF 11/12/13

LAB USE ONLY	SAMPLE ID	FIELD ID / Point of Collection	Air Type (I) Indoor (SV) Soil Vap. (A) Ambient	Sampling Equipment: Canister ID#	Canister Size 6L or 1L	Flow Controller ID #	Start Sampling Information: Date	Time (24 hr clock)	Canister Pressure ("Hg)	Stop Sampling Information: Date	Time (24 hr clock)	Canister Pressure ("Hg)	8260B (VOCs)	TO-15 GF 11/12/13			
1	VP-6-15-111113S		SV	C0082	1L	A425	11.11.13	14:04	29.6	11.11.13	14:09	5	X				

Relinquished by: (Signature)	Received by: (Signature) CGL	Date: 11/11/13	Time: 15:30
Relinquished by: (Signature)	Received by: (Signature)	Date: 11/11/13	Time: 1730
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

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7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 FAX: (714) 894-7501

AIR CHAIN OF CUSTODY RECORD

DATE: 11-11-13
PAGE: 1 OF 1

LABORATORY CLIENT: Geosyntec Consultants
ADDRESS: 924 Anacapa St., Suite 4A
CITY: Santa Barbara STATE: CA ZIP: 93101
TEL: 805-897-3800 E-MAIL: gfrieman@geosyntec.com

CLIENT PROJECT NAME / NUMBER: Brookfield SB0674
PROJECT ADDRESS: 11850 Whittier Blvd.
CITY: Whittier STATE: CA ZIP:
PROJECT CONTACT: gfrieman → Geoff Frieman

P.O.NO.: SB0674
LAB CONTACT OR QUOTE NO.
LAB USE ONLY: 13-11-0813

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SAMPLER(S): (NAME / SIGNATURE) Derek Fisher / DMM

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☒ EDD

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES: 8260B (VOCs)

LAB USE ONLY	SAMPLE ID	FIELD ID / Point of Collection	Air Type (I) Indoor (SV) Soil Vap. (A) Ambient	Sampling Equipment: Canister ID#	Canister Size 6L or 1L	Flow Controller ID #	Start Sampling Information: Date	Time (24 hr clock)	Canister Pressure ("Hg)	Stop Sampling Information: Date	Time (24 hr clock)	Canister Pressure ("Hg)	8260B (VOCs)
1	VP-6-15-111113		SV	C082	1L	A425	11.11.13	14:04	29.6	11.11.13	14:09	5	X

Relinquished by: (Signature) [signature]
Relinquished by: (Signature) [signature]
Relinquished by: (Signature)

Received by: (Signature) [signature] Date: 11/11/13 Time: 15:30
Received by: (Signature) [signature] Date: 11/11/13 Time: 1730
Received by: (Signature) Date: Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively

04/01/13 Revision

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-0813

SAMPLE RECEIPT FORM

Cooler 0 of 0

CLIENT: GEOSYNTEC

DATE: 11/11/13

TEMPERATURE: Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter **Checked by:** 804

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☑ N/A **Checked by:** 804

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Checked by:** 854

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** 854

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 681

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** 681

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Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-11-0814

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Geosyntec Consultants

Client Project Name: Brookfield / SB0674

Attention: Geoff Frieman
924 Anacapa Street
Suite 4A
Santa Barbara, CA 93101-2177

Approved for release on 11/19/2013 by:
Stephen Nowak
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

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Work Order Number: 13-11-0814

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 11/11/13. They were assigned to Work Order 13-11-0814.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	Geosyntec Consultants 924 Anacapa Street, Suite 4A Santa Barbara, CA 93101-2177	Work Order:	13-11-0814
		Project Name:	Brookfield / SB0674
		PO Number:	
		Date/Time Received:	11/11/13 17:30
		Number of Containers:	20
Attn:	Geoff Frieman		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
T33-01-0.5	13-11-0814-1	11/11/13 08:45	1	Solid
T33-01-2	13-11-0814-2	11/11/13 08:45	1	Solid
T33-02-0.5	13-11-0814-3	11/11/13 08:55	1	Solid
T33-02-2	13-11-0814-4	11/11/13 08:55	1	Solid
T29-01-0.5	13-11-0814-5	11/11/13 09:18	1	Solid
T29-01-2	13-11-0814-6	11/11/13 09:18	1	Solid
T29-02-0.5	13-11-0814-7	11/11/13 09:28	1	Solid
T29-02-2	13-11-0814-8	11/11/13 09:28	1	Solid
T34-01-0.5	13-11-0814-9	11/11/13 09:45	1	Solid
T34-01-2	13-11-0814-10	11/11/13 09:45	1	Solid
T34-02-0.5	13-11-0814-11	11/11/13 09:55	1	Solid
T34-02-2	13-11-0814-12	11/11/13 09:55	1	Solid
QCEB-111113	13-11-0814-13	11/11/13 09:50	1	Aqueous
QCTB-111113	13-11-0814-14	11/11/13 00:00	2	Aqueous
IDW-111113	13-11-0814-15	11/11/13 10:40	5	Solid

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Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0814
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/11/13
Attn:	Geoff Frieman		

Client SampleID / Analyte	Result	Qualifiers	RL	Units	Method	Extraction
IDW-111113 (13-11-0814-15)						
Arsenic	7.78		0.750	mg/kg	EPA 6010B	EPA 3050B
Barium	178		0.500	mg/kg	EPA 6010B	EPA 3050B
Beryllium	0.400		0.250	mg/kg	EPA 6010B	EPA 3050B
Cadmium	0.954		0.500	mg/kg	EPA 6010B	EPA 3050B
Chromium	19.2		0.250	mg/kg	EPA 6010B	EPA 3050B
Cobalt	8.44		0.250	mg/kg	EPA 6010B	EPA 3050B
Copper	27.2		0.500	mg/kg	EPA 6010B	EPA 3050B
Lead	43.7		0.500	mg/kg	EPA 6010B	EPA 3050B
Molybdenum	2.05		0.250	mg/kg	EPA 6010B	EPA 3050B
Nickel	21.0		0.250	mg/kg	EPA 6010B	EPA 3050B
Vanadium	36.0		0.250	mg/kg	EPA 6010B	EPA 3050B
Zinc	153		1.00	mg/kg	EPA 6010B	EPA 3050B
C29-C32	12		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
C33-C36	16		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
C37-C40	21		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
C41-C44	8.7		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
C6-C44 Total	64		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
Acetone	65		52	ug/kg	EPA 8260B	EPA 5035
Toluene	1.0		1.0	ug/kg	EPA 8260B	EPA 5035

Subcontracted analyses, if any, are not included in this summary.

Return to Contents

* MDL is shown

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Brookfield / SB0674			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IDW-111113	**13-11-0814-15-A**	**11/11/13 10:40**	**Solid**	**GC 47**	**11/12/13**	**11/12/13 20:03**	**131112B02**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1	
C7	ND	5.0	1	
C8	ND	5.0	1	
C9-C10	ND	5.0	1	
C11-C12	ND	5.0	1	
C13-C14	ND	5.0	1	
C15-C16	ND	5.0	1	
C17-C18	ND	5.0	1	
C19-C20	ND	5.0	1	
C21-C22	ND	5.0	1	
C23-C24	ND	5.0	1	
C25-C28	ND	5.0	1	
C29-C32	12	5.0	1	
C33-C36	16	5.0	1	
C37-C40	21	5.0	1	
C41-C44	8.7	5.0	1	
C6-C44 Total	64	5.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	90	61-145	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Brookfield / SB0674			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-490-626**	**N/A**	**Solid**	**GC 47**	**11/12/13**	**11/12/13 13:09**	**131112B02**

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1	
C7	ND	5.0	1	
C8	ND	5.0	1	
C9-C10	ND	5.0	1	
C11-C12	ND	5.0	1	
C13-C14	ND	5.0	1	
C15-C16	ND	5.0	1	
C17-C18	ND	5.0	1	
C19-C20	ND	5.0	1	
C21-C22	ND	5.0	1	
C23-C24	ND	5.0	1	
C25-C28	ND	5.0	1	
C29-C32	ND	5.0	1	
C33-C36	ND	5.0	1	
C37-C40	ND	5.0	1	
C41-C44	ND	5.0	1	
C6-C44 Total	ND	5.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	97	61-145	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IDW-111113	**13-11-0814-15-A**	**11/11/13 10:40**	**Solid**	**ICP 7300**	**11/12/13**	**11/13/13 18:01**	**131112L06**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1	
Arsenic	7.78	0.750	1	
Barium	178	0.500	1	
Beryllium	0.400	0.250	1	
Cadmium	0.954	0.500	1	
Chromium	19.2	0.250	1	
Cobalt	8.44	0.250	1	
Copper	27.2	0.500	1	
Lead	43.7	0.500	1	
Molybdenum	2.05	0.250	1	
Nickel	21.0	0.250	1	
Selenium	ND	0.750	1	
Silver	ND	0.250	1	
Thallium	ND	0.750	1	
Vanadium	36.0	0.250	1	
Zinc	153	1.00	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Brookfield / SB0674			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-17633**	**N/A**	**Solid**	**ICP 7300**	**11/12/13**	**11/13/13 17:55**	**131112L06**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1	
Arsenic	ND	0.750	1	
Barium	ND	0.500	1	
Beryllium	ND	0.250	1	
Cadmium	ND	0.500	1	
Chromium	ND	0.250	1	
Cobalt	ND	0.250	1	
Copper	ND	0.500	1	
Lead	ND	0.500	1	
Molybdenum	ND	0.250	1	
Nickel	ND	0.250	1	
Selenium	ND	0.750	1	
Silver	ND	0.250	1	
Thallium	ND	0.750	1	
Vanadium	ND	0.250	1	
Zinc	ND	1.00	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
		Units:	mg/kg
Project: Brookfield / SB0674			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IDW-111113	**13-11-0814-15-A**	**11/11/13 10:40**	**Solid**	**Mercury**	**11/12/13**	**11/12/13 17:54**	**131112L03**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0835	1	

Method Blank	**099-04-007-9817**	**N/A**	**Solid**	**Mercury**	**11/12/13**	**11/12/13 11:31**	**131112L03**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0835	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: Brookfield / SB0674			Page 1 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T33-01-0.5	**13-11-0814-1-A**	**11/11/13 08:45**	**Solid**	**GC 58**	**11/12/13**	**11/14/13 22:56**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	90	50-130	
2,4,5,6-Tetrachloro-m-Xylene	84	50-130	

T33-01-2	**13-11-0814-2-A**	**11/11/13 08:45**	**Solid**	**GC 58**	**11/12/13**	**11/14/13 23:14**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	88	50-130	
2,4,5,6-Tetrachloro-m-Xylene	88	50-130	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: Brookfield / SB0674			Page 2 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T33-02-0.5	**13-11-0814-3-A**	**11/11/13 08:55**	**Solid**	**GC 58**	**11/12/13**	**11/14/13 23:49**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	82	50-130	
2,4,5,6-Tetrachloro-m-Xylene	79	50-130	

T33-02-2	**13-11-0814-4-A**	**11/11/13 08:55**	**Solid**	**GC 58**	**11/12/13**	**11/15/13 00:07**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	84	50-130	
2,4,5,6-Tetrachloro-m-Xylene	80	50-130	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: Brookfield / SB0674			Page 3 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T29-01-0.5	**13-11-0814-5-A**	**11/11/13 09:18**	**Solid**	**GC 58**	**11/12/13**	**11/15/13 00:25**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	88	50-130	
2,4,5,6-Tetrachloro-m-Xylene	86	50-130	

T29-01-2	**13-11-0814-6-A**	**11/11/13 09:18**	**Solid**	**GC 58**	**11/12/13**	**11/15/13 00:44**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	88	50-130	
2,4,5,6-Tetrachloro-m-Xylene	84	50-130	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: Brookfield / SB0674			Page 4 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T29-02-0.5	**13-11-0814-7-A**	**11/11/13 09:28**	**Solid**	**GC 58**	**11/12/13**	**11/15/13 01:02**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	86	50-130	
2,4,5,6-Tetrachloro-m-Xylene	83	50-130	

T29-02-2	**13-11-0814-8-A**	**11/11/13 09:28**	**Solid**	**GC 58**	**11/12/13**	**11/15/13 01:20**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	92	50-130	
2,4,5,6-Tetrachloro-m-Xylene	89	50-130	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: Brookfield / SB0674			Page 5 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T34-01-0.5	**13-11-0814-9-A**	**11/11/13 09:45**	**Solid**	**GC 58**	**11/12/13**	**11/15/13 01:38**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	91	50-130	
2,4,5,6-Tetrachloro-m-Xylene	92	50-130	

T34-01-2	**13-11-0814-10-A**	**11/11/13 09:45**	**Solid**	**GC 58**	**11/12/13**	**11/15/13 01:56**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	87	50-130	
2,4,5,6-Tetrachloro-m-Xylene	88	50-130	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: Brookfield / SB0674			Page 6 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T34-02-0.5	**13-11-0814-11-A**	**11/11/13 09:55**	**Solid**	**GC 58**	**11/12/13**	**11/15/13 02:14**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	91	50-130	
2,4,5,6-Tetrachloro-m-Xylene	92	50-130	

T34-02-2	**13-11-0814-12-A**	**11/11/13 09:55**	**Solid**	**GC 58**	**11/12/13**	**11/15/13 02:32**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	80	50-130	
2,4,5,6-Tetrachloro-m-Xylene	79	50-130	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: Brookfield / SB0674			Page 7 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-535-2368**	**N/A**	**Solid**	**GC 58**	**11/12/13**	**11/14/13 22:02**	**131112L28**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	90	50-130	
2,4,5,6-Tetrachloro-m-Xylene	90	50-130	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8082
		Units:	ug/L
Project: Brookfield / SB0674			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QCEB-111113	**13-11-0814-13-A**	**11/11/13 09:50**	**Aqueous**	**GC 58**	**11/12/13**	**11/15/13 15:29**	**131112L03**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	1.0	1	
Aroclor-1221	ND	1.0	1	
Aroclor-1232	ND	1.0	1	
Aroclor-1242	ND	1.0	1	
Aroclor-1248	ND	1.0	1	
Aroclor-1254	ND	1.0	1	
Aroclor-1260	ND	1.0	1	
Aroclor-1262	ND	1.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	99	50-135	
2,4,5,6-Tetrachloro-m-Xylene	96	50-135	

Method Blank	**099-12-533-858**	**N/A**	**Aqueous**	**GC 58**	**11/12/13**	**11/15/13 15:11**	**131112L03**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	1.0	1	
Aroclor-1221	ND	1.0	1	
Aroclor-1232	ND	1.0	1	
Aroclor-1242	ND	1.0	1	
Aroclor-1248	ND	1.0	1	
Aroclor-1254	ND	1.0	1	
Aroclor-1260	ND	1.0	1	
Aroclor-1262	ND	1.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	100	50-135	
2,4,5,6-Tetrachloro-m-Xylene	98	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IDW-111113	**13-11-0814-15-D**	**11/11/13 10:40**	**Solid**	**GC/MS PP**	**11/11/13**	**11/12/13 17:45**	**131112L02**

Parameter	Result	RL	DF	Qualifiers
Acetone	65	52	1.04	
Benzene	ND	1.0	1.04	
Bromobenzene	ND	1.0	1.04	
Bromochloromethane	ND	2.1	1.04	
Bromodichloromethane	ND	1.0	1.04	
Bromoform	ND	5.2	1.04	
Bromomethane	ND	21	1.04	
2-Butanone	ND	21	1.04	
n-Butylbenzene	ND	1.0	1.04	
sec-Butylbenzene	ND	1.0	1.04	
tert-Butylbenzene	ND	1.0	1.04	
Carbon Disulfide	ND	10	1.04	
Carbon Tetrachloride	ND	1.0	1.04	
Chlorobenzene	ND	1.0	1.04	
Chloroethane	ND	2.1	1.04	
Chloroform	ND	1.0	1.04	
Chloromethane	ND	21	1.04	
2-Chlorotoluene	ND	1.0	1.04	
4-Chlorotoluene	ND	1.0	1.04	
Dibromochloromethane	ND	2.1	1.04	
1,2-Dibromo-3-Chloropropane	ND	5.2	1.04	
1,2-Dibromoethane	ND	1.0	1.04	
Dibromomethane	ND	1.0	1.04	
1,2-Dichlorobenzene	ND	1.0	1.04	
1,3-Dichlorobenzene	ND	1.0	1.04	
1,4-Dichlorobenzene	ND	1.0	1.04	
Dichlorodifluoromethane	ND	2.1	1.04	
1,1-Dichloroethane	ND	1.0	1.04	
1,2-Dichloroethane	ND	1.0	1.04	
1,1-Dichloroethene	ND	1.0	1.04	
c-1,2-Dichloroethene	ND	1.0	1.04	
t-1,2-Dichloroethene	ND	1.0	1.04	
1,2-Dichloropropane	ND	1.0	1.04	
1,3-Dichloropropane	ND	1.0	1.04	
2,2-Dichloropropane	ND	5.2	1.04	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 2 of 6

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	2.1	1.04	
c-1,3-Dichloropropene	ND	1.0	1.04	
t-1,3-Dichloropropene	ND	2.1	1.04	
Ethylbenzene	ND	1.0	1.04	
2-Hexanone	ND	21	1.04	
Isopropylbenzene	ND	1.0	1.04	
p-Isopropyltoluene	ND	1.0	1.04	
Methylene Chloride	ND	10	1.04	
4-Methyl-2-Pentanone	ND	21	1.04	
Naphthalene	ND	10	1.04	
n-Propylbenzene	ND	2.1	1.04	
Styrene	ND	1.0	1.04	
1,1,1,2-Tetrachloroethane	ND	1.0	1.04	
1,1,2,2-Tetrachloroethane	ND	2.1	1.04	
Tetrachloroethene	ND	1.0	1.04	
Toluene	1.0	1.0	1.04	
1,2,3-Trichlorobenzene	ND	2.1	1.04	
1,2,4-Trichlorobenzene	ND	2.1	1.04	
1,1,1-Trichloroethane	ND	1.0	1.04	
1,1,2-Trichloroethane	ND	1.0	1.04	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1.04	
Trichloroethene	ND	2.1	1.04	
Trichlorofluoromethane	ND	10	1.04	
1,2,3-Trichloropropane	ND	2.1	1.04	
1,2,4-Trimethylbenzene	ND	2.1	1.04	
1,3,5-Trimethylbenzene	ND	2.1	1.04	
Vinyl Acetate	ND	10	1.04	
Vinyl Chloride	ND	1.0	1.04	
p/m-Xylene	ND	2.1	1.04	
o-Xylene	ND	1.0	1.04	
Methyl-t-Butyl Ether (MTBE)	ND	2.1	1.04	
Tert-Butyl Alcohol (TBA)	ND	21	1.04	
Diisopropyl Ether (DIPE)	ND	1.0	1.04	
Ethyl-t-Butyl Ether (ETBE)	ND	1.0	1.04	
Tert-Amyl-Methyl Ether (TAME)	ND	1.0	1.04	
Ethanol	ND	520	1.04	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 3 of 6

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	98	79-133	
1,2-Dichloroethane-d4	100	71-155	
Toluene-d8	98	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 4 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-312-314**	**N/A**	**Solid**	**GC/MS PP**	**11/12/13**	**11/12/13 17:13**	**131112L02**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	50	1	
Benzene	ND	1.0	1	
Bromobenzene	ND	1.0	1	
Bromochloromethane	ND	2.0	1	
Bromodichloromethane	ND	1.0	1	
Bromoform	ND	5.0	1	
Bromomethane	ND	20	1	
2-Butanone	ND	20	1	
n-Butylbenzene	ND	1.0	1	
sec-Butylbenzene	ND	1.0	1	
tert-Butylbenzene	ND	1.0	1	
Carbon Disulfide	ND	10	1	
Carbon Tetrachloride	ND	1.0	1	
Chlorobenzene	ND	1.0	1	
Chloroethane	ND	2.0	1	
Chloroform	ND	1.0	1	
Chloromethane	ND	20	1	
2-Chlorotoluene	ND	1.0	1	
4-Chlorotoluene	ND	1.0	1	
Dibromochloromethane	ND	2.0	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1	
1,2-Dibromoethane	ND	1.0	1	
Dibromomethane	ND	1.0	1	
1,2-Dichlorobenzene	ND	1.0	1	
1,3-Dichlorobenzene	ND	1.0	1	
1,4-Dichlorobenzene	ND	1.0	1	
Dichlorodifluoromethane	ND	2.0	1	
1,1-Dichloroethane	ND	1.0	1	
1,2-Dichloroethane	ND	1.0	1	
1,1-Dichloroethene	ND	1.0	1	
c-1,2-Dichloroethene	ND	1.0	1	
t-1,2-Dichloroethene	ND	1.0	1	
1,2-Dichloropropane	ND	1.0	1	
1,3-Dichloropropane	ND	1.0	1	
2,2-Dichloropropane	ND	5.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 5 of 6

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	2.0	1	
c-1,3-Dichloropropene	ND	1.0	1	
t-1,3-Dichloropropene	ND	2.0	1	
Ethylbenzene	ND	1.0	1	
2-Hexanone	ND	20	1	
Isopropylbenzene	ND	1.0	1	
p-Isopropyltoluene	ND	1.0	1	
Methylene Chloride	ND	10	1	
4-Methyl-2-Pentanone	ND	20	1	
Naphthalene	ND	10	1	
n-Propylbenzene	ND	2.0	1	
Styrene	ND	1.0	1	
1,1,1,2-Tetrachloroethane	ND	1.0	1	
1,1,2,2-Tetrachloroethane	ND	2.0	1	
Tetrachloroethene	ND	1.0	1	
Toluene	ND	1.0	1	
1,2,3-Trichlorobenzene	ND	2.0	1	
1,2,4-Trichlorobenzene	ND	2.0	1	
1,1,1-Trichloroethane	ND	1.0	1	
1,1,2-Trichloroethane	ND	1.0	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1	
Trichloroethene	ND	2.0	1	
Trichlorofluoromethane	ND	10	1	
1,2,3-Trichloropropane	ND	2.0	1	
1,2,4-Trimethylbenzene	ND	2.0	1	
1,3,5-Trimethylbenzene	ND	2.0	1	
Vinyl Acetate	ND	10	1	
Vinyl Chloride	ND	1.0	1	
p/m-Xylene	ND	2.0	1	
o-Xylene	ND	1.0	1	
Methyl-t-Butyl Ether (MTBE)	ND	2.0	1	
Tert-Butyl Alcohol (TBA)	ND	20	1	
Diisopropyl Ether (DIPE)	ND	1.0	1	
Ethyl-t-Butyl Ether (ETBE)	ND	1.0	1	
Tert-Amyl-Methyl Ether (TAME)	ND	1.0	1	
Ethanol	ND	500	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
		Units:	ug/kg
Project: Brookfield / SB0674			Page 6 of 6

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	97	79-133	
1,2-Dichloroethane-d4	96	71-155	
Toluene-d8	99	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QCTB-111113	**13-11-0814-14-A**	**11/11/13 00:00**	**Aqueous**	**GC/MS WW**	**11/18/13**	**11/18/13 14:39**	**131118L01**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	20	1	
Benzene	ND	0.50	1	
Bromobenzene	ND	1.0	1	
Bromochloromethane	ND	1.0	1	
Bromodichloromethane	ND	1.0	1	
Bromoform	ND	1.0	1	
Bromomethane	ND	10	1	
2-Butanone	ND	10	1	
n-Butylbenzene	ND	1.0	1	
sec-Butylbenzene	ND	1.0	1	
tert-Butylbenzene	ND	1.0	1	
Carbon Disulfide	ND	10	1	
Carbon Tetrachloride	ND	0.50	1	
Chlorobenzene	ND	1.0	1	
Chloroethane	ND	5.0	1	
Chloroform	ND	1.0	1	
Chloromethane	ND	10	1	
2-Chlorotoluene	ND	1.0	1	
4-Chlorotoluene	ND	1.0	1	
Dibromochloromethane	ND	1.0	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1	
1,2-Dibromoethane	ND	1.0	1	
Dibromomethane	ND	1.0	1	
1,2-Dichlorobenzene	ND	1.0	1	
1,3-Dichlorobenzene	ND	1.0	1	
1,4-Dichlorobenzene	ND	1.0	1	
Dichlorodifluoromethane	ND	1.0	1	
1,1-Dichloroethane	ND	1.0	1	
1,2-Dichloroethane	ND	0.50	1	
1,1-Dichloroethene	ND	1.0	1	
c-1,2-Dichloroethene	ND	1.0	1	
t-1,2-Dichloroethene	ND	1.0	1	
1,2-Dichloropropane	ND	1.0	1	
1,3-Dichloropropane	ND	1.0	1	
2,2-Dichloropropane	ND	1.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 2 of 6

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	1.0	1	
c-1,3-Dichloropropene	ND	0.50	1	
t-1,3-Dichloropropene	ND	0.50	1	
Ethylbenzene	ND	1.0	1	
2-Hexanone	ND	10	1	
Isopropylbenzene	ND	1.0	1	
p-Isopropyltoluene	ND	1.0	1	
Methylene Chloride	ND	10	1	
4-Methyl-2-Pentanone	ND	10	1	
Naphthalene	ND	10	1	
n-Propylbenzene	ND	1.0	1	
Styrene	ND	1.0	1	
1,1,1,2-Tetrachloroethane	ND	1.0	1	
1,1,2,2-Tetrachloroethane	ND	1.0	1	
Tetrachloroethene	ND	1.0	1	
Toluene	ND	1.0	1	
1,2,3-Trichlorobenzene	ND	1.0	1	
1,2,4-Trichlorobenzene	ND	1.0	1	
1,1,1-Trichloroethane	ND	1.0	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1	
1,1,2-Trichloroethane	ND	1.0	1	
Trichloroethene	ND	1.0	1	
Trichlorofluoromethane	ND	10	1	
1,2,3-Trichloropropane	ND	5.0	1	
1,2,4-Trimethylbenzene	ND	1.0	1	
1,3,5-Trimethylbenzene	ND	1.0	1	
Vinyl Acetate	ND	10	1	
Vinyl Chloride	ND	0.50	1	
p/m-Xylene	ND	1.0	1	
o-Xylene	ND	1.0	1	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1	
Tert-Butyl Alcohol (TBA)	ND	10	1	
Diisopropyl Ether (DIPE)	ND	2.0	1	
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	
Ethanol	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	104	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 3 of 6

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	118	80-126	
1,2-Dichloroethane-d4	108	80-134	
Toluene-d8	106	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 4 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-316-1201**	**N/A**	**Aqueous**	**GC/MS WW**	**11/18/13**	**11/18/13 14:06**	**131118L01**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	20	1	
Benzene	ND	0.50	1	
Bromobenzene	ND	1.0	1	
Bromochloromethane	ND	1.0	1	
Bromodichloromethane	ND	1.0	1	
Bromoform	ND	1.0	1	
Bromomethane	ND	10	1	
2-Butanone	ND	10	1	
n-Butylbenzene	ND	1.0	1	
sec-Butylbenzene	ND	1.0	1	
tert-Butylbenzene	ND	1.0	1	
Carbon Disulfide	ND	10	1	
Carbon Tetrachloride	ND	0.50	1	
Chlorobenzene	ND	1.0	1	
Chloroethane	ND	5.0	1	
Chloroform	ND	1.0	1	
Chloromethane	ND	10	1	
2-Chlorotoluene	ND	1.0	1	
4-Chlorotoluene	ND	1.0	1	
Dibromochloromethane	ND	1.0	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1	
1,2-Dibromoethane	ND	1.0	1	
Dibromomethane	ND	1.0	1	
1,2-Dichlorobenzene	ND	1.0	1	
1,3-Dichlorobenzene	ND	1.0	1	
1,4-Dichlorobenzene	ND	1.0	1	
Dichlorodifluoromethane	ND	1.0	1	
1,1-Dichloroethane	ND	1.0	1	
1,2-Dichloroethane	ND	0.50	1	
1,1-Dichloroethene	ND	1.0	1	
c-1,2-Dichloroethene	ND	1.0	1	
t-1,2-Dichloroethene	ND	1.0	1	
1,2-Dichloropropane	ND	1.0	1	
1,3-Dichloropropane	ND	1.0	1	
2,2-Dichloropropane	ND	1.0	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 5 of 6

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	1.0	1	
c-1,3-Dichloropropene	ND	0.50	1	
t-1,3-Dichloropropene	ND	0.50	1	
Ethylbenzene	ND	1.0	1	
2-Hexanone	ND	10	1	
Isopropylbenzene	ND	1.0	1	
p-Isopropyltoluene	ND	1.0	1	
Methylene Chloride	ND	10	1	
4-Methyl-2-Pentanone	ND	10	1	
Naphthalene	ND	10	1	
n-Propylbenzene	ND	1.0	1	
Styrene	ND	1.0	1	
1,1,1,2-Tetrachloroethane	ND	1.0	1	
1,1,2,2-Tetrachloroethane	ND	1.0	1	
Tetrachloroethene	ND	1.0	1	
Toluene	ND	1.0	1	
1,2,3-Trichlorobenzene	ND	1.0	1	
1,2,4-Trichlorobenzene	ND	1.0	1	
1,1,1-Trichloroethane	ND	1.0	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1	
1,1,2-Trichloroethane	ND	1.0	1	
Trichloroethene	ND	1.0	1	
Trichlorofluoromethane	ND	10	1	
1,2,3-Trichloropropane	ND	5.0	1	
1,2,4-Trimethylbenzene	ND	1.0	1	
1,3,5-Trimethylbenzene	ND	1.0	1	
Vinyl Acetate	ND	10	1	
Vinyl Chloride	ND	0.50	1	
p/m-Xylene	ND	1.0	1	
o-Xylene	ND	1.0	1	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1	
Tert-Butyl Alcohol (TBA)	ND	10	1	
Diisopropyl Ether (DIPE)	ND	2.0	1	
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	
Ethanol	ND	100	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	103	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: Brookfield / SB0674			Page 6 of 6

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibromofluoromethane	118	80-126	
1,2-Dichloroethane-d4	110	80-134	
Toluene-d8	105	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
Project: Brookfield / SB0674			Page 1 of 6

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0786-4	**Solid**	**GC 47**	**11/12/13**	**11/12/13 13:57**	**131112S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	ND	400.0	381.6	95	385.6	96	64-130	1	0-15	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 2 of 6

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
IDW-111113	**Solid**	**ICP 7300**	**11/12/13**	**11/13/13 18:03**	**131112S06**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Antimony	ND	25.00	5.799	23	6.653	27	50-115	14	0-20	3
Arsenic	7.776	25.00	36.18	114	34.99	109	75-125	3	0-20	
Barium	177.6	25.00	208.2	4X	209.2	4X	75-125	4X	0-20	Q
Beryllium	0.4003	25.00	28.13	111	27.01	106	75-125	4	0-20	
Cadmium	0.9539	25.00	27.80	107	26.74	103	75-125	4	0-20	
Chromium	19.17	25.00	50.53	125	48.95	119	75-125	3	0-20	
Cobalt	8.441	25.00	37.21	115	35.78	109	75-125	4	0-20	
Copper	27.17	25.00	58.77	126	59.40	129	75-125	1	0-20	3
Lead	43.74	25.00	73.03	117	81.55	151	75-125	11	0-20	3
Molybdenum	2.047	25.00	25.03	92	24.39	89	75-125	3	0-20	
Nickel	21.04	25.00	51.40	121	50.02	116	75-125	3	0-20	
Selenium	ND	25.00	23.91	96	21.63	87	75-125	10	0-20	
Silver	ND	12.50	14.07	113	13.65	109	75-125	3	0-20	
Thallium	ND	25.00	24.64	99	23.93	96	75-125	3	0-20	
Vanadium	36.03	25.00	67.22	125	64.57	114	75-125	4	0-20	
Zinc	153.1	25.00	177.5	4X	171.9	4X	75-125	4X	0-20	Q

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Brookfield / SB0674			Page 3 of 6

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0805-1	**Solid**	**Mercury**	**11/12/13**	**11/12/13 11:42**	**131112S03**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.8350	0.8888	106	0.8827	106	71-137	1	0-14	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
Project: Brookfield / SB0674			Page 4 of 6

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
T29-02-0.5	**Solid**	**GC 58**	**11/12/13**	**11/14/13 22:20**	**131112S28**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aroclor-1016	ND	100.0	85.30	85	74.98	75	50-135	13	0-20	
Aroclor-1260	ND	100.0	68.46	68	69.88	70	50-135	2	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: Brookfield / SB0674			Page 5 of 6

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-0954-2	**Aqueous**	**GC/MS WW**	**01/01/95**	**11/18/13 16:16**	**131118S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acetone	ND	50.00	75.78	152	63.13	126	70-130	18	0-20	3
Benzene	ND	50.00	54.03	108	48.17	96	78-120	11	0-20	
Bromobenzene	ND	50.00	53.33	107	49.32	99	70-130	8	0-20	
Bromochloromethane	ND	50.00	58.69	117	53.72	107	70-130	9	0-20	
Bromodichloromethane	ND	50.00	53.71	107	48.02	96	70-130	11	0-20	
Bromoform	ND	50.00	51.35	103	54.67	109	70-130	6	0-20	
Bromomethane	ND	50.00	35.05	70	24.75	49	70-130	34	0-20	3,4
2-Butanone	ND	50.00	74.04	148	60.08	120	70-130	21	0-20	3,4
n-Butylbenzene	1.447	50.00	55.35	108	53.80	105	70-130	3	0-25	
sec-Butylbenzene	ND	50.00	48.82	98	47.60	95	70-130	3	0-20	
tert-Butylbenzene	ND	50.00	51.41	103	51.82	104	70-130	1	0-20	
Carbon Disulfide	ND	50.00	54.04	108	48.97	98	70-130	10	0-20	
Carbon Tetrachloride	ND	50.00	55.72	111	46.34	93	69-139	18	0-20	
Chlorobenzene	ND	50.00	49.10	98	46.49	93	70-130	5	0-20	
Chloroethane	ND	50.00	57.04	114	48.58	97	70-130	16	0-20	
Chloroform	ND	50.00	58.96	118	54.49	109	70-130	8	0-20	
Chloromethane	ND	50.00	63.92	128	55.21	110	70-130	15	0-20	
2-Chlorotoluene	ND	50.00	52.01	104	46.45	93	70-130	11	0-20	
4-Chlorotoluene	ND	50.00	46.74	93	46.75	94	70-130	0	0-20	
Dibromochloromethane	ND	50.00	56.82	114	51.51	103	70-130	10	0-20	
1,2-Dibromo-3-Chloropropane	ND	50.00	55.55	111	52.16	104	70-130	6	0-20	
1,2-Dibromoethane	ND	50.00	57.43	115	52.27	105	80-123	9	0-20	
Dibromomethane	ND	50.00	49.25	99	46.79	94	70-130	5	0-20	
1,2-Dichlorobenzene	ND	50.00	48.75	98	47.19	94	76-120	3	0-20	
1,3-Dichlorobenzene	ND	50.00	48.08	96	47.06	94	70-130	2	0-20	
1,4-Dichlorobenzene	ND	50.00	50.50	101	49.27	99	70-130	2	0-20	
Dichlorodifluoromethane	ND	50.00	65.14	130	51.34	103	70-130	24	0-20	4
1,1-Dichloroethane	ND	50.00	51.56	103	47.63	95	70-130	8	0-20	
1,2-Dichloroethane	ND	50.00	56.51	113	51.87	104	76-130	9	0-20	
1,1-Dichloroethene	ND	50.00	51.31	103	47.50	95	70-130	8	0-27	
c-1,2-Dichloroethene	2.786	50.00	60.63	116	57.24	109	70-130	6	0-20	
t-1,2-Dichloroethene	ND	50.00	51.31	103	47.50	95	70-130	8	0-20	
1,2-Dichloropropane	ND	50.00	54.28	109	48.51	97	70-130	11	0-25	
1,3-Dichloropropane	ND	50.00	56.66	113	50.88	102	70-130	11	0-20	
2,2-Dichloropropane	ND	50.00	79.10	158	62.22	124	70-130	24	0-20	3,4
1,1-Dichloropropene	ND	50.00	60.32	121	50.03	100	70-130	19	0-20	
c-1,3-Dichloropropene	ND	50.00	62.94	126	55.62	111	70-130	12	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: Brookfield / SB0674			Page 6 of 6

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
t-1,3-Dichloropropene	ND	50.00	52.49	105	46.16	92	70-130	13	0-20	
Ethylbenzene	ND	50.00	52.40	105	48.71	97	73-127	7	0-20	
2-Hexanone	ND	50.00	61.20	122	55.62	111	70-130	10	0-20	
Isopropylbenzene	ND	50.00	48.70	97	44.57	89	70-130	9	0-20	
p-Isopropyltoluene	ND	50.00	49.70	99	47.92	96	70-130	4	0-20	
Methylene Chloride	ND	50.00	58.55	117	53.86	108	70-130	8	0-20	
4-Methyl-2-Pentanone	ND	50.00	55.19	110	53.35	107	70-130	3	0-20	
Naphthalene	ND	50.00	57.18	114	53.33	107	70-130	7	0-20	
n-Propylbenzene	ND	50.00	49.37	99	43.28	87	70-130	13	0-20	
Styrene	ND	50.00	54.50	109	49.85	100	70-130	9	0-20	
1,1,1,2-Tetrachloroethane	ND	50.00	54.55	109	51.40	103	70-130	6	0-20	
1,1,2,2-Tetrachloroethane	ND	50.00	59.49	119	62.56	125	70-130	5	0-20	
Tetrachloroethene	ND	50.00	38.18	76	37.39	75	70-130	2	0-20	
Toluene	ND	50.00	51.46	103	49.91	100	72-126	3	0-20	
1,2,3-Trichlorobenzene	ND	50.00	54.88	110	50.42	101	70-130	8	0-20	
1,2,4-Trichlorobenzene	ND	50.00	54.48	109	50.97	102	70-130	7	0-20	
1,1,1-Trichloroethane	ND	50.00	59.80	120	49.73	99	70-130	18	0-20	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50.00	68.80	138	57.24	114	70-130	18	0-20	3
1,1,2-Trichloroethane	ND	50.00	56.61	113	50.46	101	70-130	11	0-20	
Trichloroethene	3.030	50.00	52.60	99	45.85	86	74-122	14	0-20	
Trichlorofluoromethane	ND	50.00	59.52	119	54.59	109	70-130	9	0-20	
1,2,3-Trichloropropane	ND	50.00	56.59	113	51.85	104	70-130	9	0-20	
1,2,4-Trimethylbenzene	2.270	50.00	54.57	105	54.64	105	70-130	0	0-20	
1,3,5-Trimethylbenzene	1.698	50.00	59.48	116	52.80	102	70-130	12	0-20	
Vinyl Acetate	ND	50.00	104.0	208	87.83	176	70-130	17	0-20	3
Vinyl Chloride	ND	50.00	58.52	117	46.72	93	65-131	22	0-24	
p/m-Xylene	ND	100.0	102.5	102	92.75	93	70-130	10	0-20	
o-Xylene	ND	50.00	49.97	100	46.02	92	70-130	8	0-20	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	62.42	125	51.86	104	69-123	18	0-20	3
Tert-Butyl Alcohol (TBA)	ND	250.0	252.5	101	253.0	101	65-131	0	0-22	
Diisopropyl Ether (DIPE)	ND	50.00	61.95	124	54.93	110	68-128	12	0-22	
Ethyl-t-Butyl Ether (ETBE)	ND	50.00	62.99	126	55.27	111	69-123	13	0-21	3
Tert-Amyl-Methyl Ether (TAME)	ND	50.00	55.56	111	52.50	105	70-124	6	0-20	
Ethanol	ND	500.0	490.2	98	528.0	106	41-155	7	0-35	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
Project: Brookfield / SB0674			Page 1 of 10

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-15-490-626	**Solid**	**GC 47**	**11/12/13 13:25**	**131112B02**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Diesel	400.0	374.7	94	75-123	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: Brookfield / SB0674			Page 2 of 10

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
097-01-002-17633	**Solid**	**ICP 7300**	**11/13/13 17:58**	**131112L06**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Antimony	25.00	25.35	101	80-120	73-127	
Arsenic	25.00	25.33	101	80-120	73-127	
Barium	25.00	24.99	100	80-120	73-127	
Beryllium	25.00	25.12	100	80-120	73-127	
Cadmium	25.00	25.93	104	80-120	73-127	
Chromium	25.00	27.40	110	80-120	73-127	
Cobalt	25.00	27.48	110	80-120	73-127	
Copper	25.00	24.63	99	80-120	73-127	
Lead	25.00	25.06	100	80-120	73-127	
Molybdenum	25.00	24.63	99	80-120	73-127	
Nickel	25.00	26.92	108	80-120	73-127	
Selenium	25.00	24.32	97	80-120	73-127	
Silver	12.50	12.86	103	80-120	73-127	
Thallium	25.00	26.63	107	80-120	73-127	
Vanadium	25.00	24.44	98	80-120	73-127	
Zinc	25.00	27.20	109	80-120	73-127	

Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Brookfield / SB0674			Page 3 of 10

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-04-007-9817	**Solid**	**Mercury**	**11/12/13 11:37**	**131112L03**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.8350	0.9239	111	85-121	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
Project: Brookfield / SB0674			Page 4 of 10

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-535-2368	**Solid**	**GC 58**	**11/14/13 21:44**	**131112L28**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Aroclor-1016	100.0	98.90	99	50-135	
Aroclor-1260	100.0	87.09	87	50-135	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8082
Project: Brookfield / SB0674			Page 5 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-533-858	**Aqueous**	**GC 58**	**11/12/13**	**11/15/13 14:35**	**131112L03**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aroclor-1016	2.000	2.128	106	2.255	113	50-135	6	0-25	
Aroclor-1260	2.000	1.881	94	1.984	99	50-135	5	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
Project: Brookfield / SB0674			Page 6 of 10

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-312-314	**Solid**	**GC/MS PP**	**11/12/13**	**11/12/13 15:05**	**131112L02**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acetone	50.00	69.44	139	97.86	196	80-120	73-127	34	0-20	X
Benzene	50.00	45.32	91	48.46	97	80-120	73-127	7	0-20	
Bromobenzene	50.00	48.33	97	51.63	103	80-120	73-127	7	0-20	
Bromochloromethane	50.00	43.98	88	46.50	93	80-120	73-127	6	0-20	
Bromodichloromethane	50.00	46.13	92	47.29	95	80-120	73-127	2	0-20	
Bromoform	50.00	49.80	100	50.54	101	80-120	73-127	1	0-20	
Bromomethane	50.00	43.22	86	48.07	96	80-120	73-127	11	0-20	
2-Butanone	50.00	57.02	114	75.98	152	80-120	73-127	29	0-20	X
n-Butylbenzene	50.00	49.69	99	54.09	108	77-123	69-131	8	0-25	
sec-Butylbenzene	50.00	45.33	91	49.06	98	80-120	73-127	8	0-20	
tert-Butylbenzene	50.00	46.93	94	51.20	102	80-120	73-127	9	0-20	
Carbon Disulfide	50.00	39.76	80	42.68	85	80-120	73-127	7	0-20	
Carbon Tetrachloride	50.00	43.94	88	47.04	94	65-137	53-149	7	0-20	
Chlorobenzene	50.00	44.34	89	47.47	95	80-120	73-127	7	0-20	
Chloroethane	50.00	43.99	88	46.81	94	80-120	73-127	6	0-20	
Chloroform	50.00	43.96	88	46.32	93	80-120	73-127	5	0-20	
Chloromethane	50.00	41.04	82	46.23	92	80-120	73-127	12	0-20	
2-Chlorotoluene	50.00	44.36	89	47.98	96	80-120	73-127	8	0-20	
4-Chlorotoluene	50.00	43.05	86	46.42	93	80-120	73-127	8	0-20	
Dibromochloromethane	50.00	47.20	94	48.64	97	80-120	73-127	3	0-20	
1,2-Dibromo-3-Chloropropane	50.00	46.64	93	47.79	96	80-120	73-127	2	0-20	
1,2-Dibromoethane	50.00	48.65	97	51.79	104	80-120	73-127	6	0-20	
Dibromomethane	50.00	48.79	98	50.25	101	80-120	73-127	3	0-20	
1,2-Dichlorobenzene	50.00	44.97	90	47.47	95	80-120	73-127	5	0-20	
1,3-Dichlorobenzene	50.00	45.20	90	47.58	95	80-120	73-127	5	0-20	
1,4-Dichlorobenzene	50.00	47.93	96	51.03	102	80-120	73-127	6	0-20	
Dichlorodifluoromethane	50.00	47.11	94	50.28	101	80-120	73-127	7	0-20	
1,1-Dichloroethane	50.00	41.12	82	44.40	89	80-120	73-127	8	0-20	
1,2-Dichloroethane	50.00	46.15	92	47.19	94	80-120	73-127	2	0-20	
1,1-Dichloroethene	50.00	40.84	82	37.82	76	68-128	58-138	8	0-20	
c-1,2-Dichloroethene	50.00	45.66	91	48.81	98	80-120	73-127	7	0-20	
t-1,2-Dichloroethene	50.00	45.08	90	49.75	99	80-120	73-127	10	0-20	
1,2-Dichloropropane	50.00	45.75	91	47.92	96	79-115	73-121	5	0-25	
1,3-Dichloropropane	50.00	44.90	90	47.59	95	80-120	73-127	6	0-20	
2,2-Dichloropropane	50.00	44.75	89	49.12	98	80-120	73-127	9	0-20	
1,1-Dichloropropene	50.00	45.06	90	50.00	100	80-120	73-127	10	0-20	
c-1,3-Dichloropropene	50.00	51.98	104	55.42	111	80-120	73-127	6	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5035
		Method:	EPA 8260B
Project: Brookfield / SB0674			Page 7 of 10

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
t-1,3-Dichloropropene	50.00	46.75	94	48.08	96	80-120	73-127	3	0-20	
Ethylbenzene	50.00	46.36	93	49.59	99	80-120	73-127	7	0-20	
2-Hexanone	50.00	54.90	110	70.54	141	80-120	73-127	25	0-20	X
Isopropylbenzene	50.00	45.09	90	48.85	98	80-120	73-127	8	0-20	
p-Isopropyltoluene	50.00	45.54	91	49.32	99	80-120	73-127	8	0-20	
Methylene Chloride	50.00	45.25	91	46.93	94	80-120	73-127	4	0-20	
4-Methyl-2-Pentanone	50.00	49.52	99	52.59	105	80-120	73-127	6	0-20	
Naphthalene	50.00	54.03	108	58.02	116	80-120	73-127	7	0-20	
n-Propylbenzene	50.00	43.68	87	47.38	95	80-120	73-127	8	0-20	
Styrene	50.00	48.24	96	51.06	102	80-120	73-127	6	0-20	
1,1,1,2-Tetrachloroethane	50.00	46.38	93	49.05	98	80-120	73-127	6	0-20	
1,1,2,2-Tetrachloroethane	50.00	45.11	90	48.26	97	80-120	73-127	7	0-20	
Tetrachloroethene	50.00	44.81	90	49.02	98	80-120	73-127	9	0-20	
Toluene	50.00	44.83	90	48.91	98	80-120	73-127	9	0-20	
1,2,3-Trichlorobenzene	50.00	55.19	110	59.75	119	80-120	73-127	8	0-20	
1,2,4-Trichlorobenzene	50.00	56.49	113	62.11	124	80-120	73-127	9	0-20	ME
1,1,1-Trichloroethane	50.00	46.31	93	49.14	98	80-120	73-127	6	0-20	
1,1,2-Trichloroethane	50.00	46.57	93	47.40	95	80-120	73-127	2	0-20	
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.00	43.57	87	43.12	86	80-120	73-127	1	0-20	
Trichloroethene	50.00	47.20	94	51.90	104	80-120	73-127	9	0-20	
Trichlorofluoromethane	50.00	45.00	90	48.61	97	80-120	73-127	8	0-20	
1,2,3-Trichloropropane	50.00	46.84	94	47.01	94	80-120	73-127	0	0-20	
1,2,4-Trimethylbenzene	50.00	49.39	99	52.66	105	80-120	73-127	6	0-20	
1,3,5-Trimethylbenzene	50.00	50.48	101	54.74	109	80-120	73-127	8	0-20	
Vinyl Acetate	50.00	52.91	106	56.86	114	80-120	73-127	7	0-20	
Vinyl Chloride	50.00	46.34	93	50.27	101	67-127	57-137	8	0-20	
p/m-Xylene	100.0	90.49	90	96.49	96	80-120	73-127	6	0-20	
o-Xylene	50.00	44.93	90	48.26	97	80-120	73-127	7	0-20	
Methyl-t-Butyl Ether (MTBE)	50.00	46.49	93	48.88	98	70-124	61-133	5	0-20	
Tert-Butyl Alcohol (TBA)	250.0	248.8	100	263.5	105	73-121	65-129	6	0-20	
Diisopropyl Ether (DIPE)	50.00	44.27	89	46.84	94	69-129	59-139	6	0-20	
Ethyl-t-Butyl Ether (ETBE)	50.00	46.18	92	49.67	99	70-124	61-133	7	0-20	
Tert-Amyl-Methyl Ether (TAME)	50.00	48.39	97	51.13	102	74-122	66-130	5	0-20	
Ethanol	500.0	489.0	98	482.4	96	51-135	37-149	1	0-27	

Total number of LCS compounds: 71
Total number of ME compounds: 1
Total number of ME compounds allowed: 4

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants	Date Received:	11/11/13
924 Anacapa Street, Suite 4A	Work Order:	13-11-0814
Santa Barbara, CA 93101-2177	Preparation:	EPA 5035
	Method:	EPA 8260B
Project: Brookfield / SB0674		Page 8 of 10

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: Brookfield / SB0674			Page 9 of 10

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-14-316-1201	**Aqueous**	**GC/MS WW**	**11/18/13 11:39**	**131118L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Acetone	50.00	44.28	89	70-130	60-140	
Benzene	50.00	52.06	104	70-130	60-140	
Bromobenzene	50.00	54.88	110	70-130	60-140	
Bromochloromethane	50.00	53.14	106	70-130	60-140	
Bromodichloromethane	50.00	53.25	106	70-130	60-140	
Bromoform	50.00	54.57	109	70-130	60-140	
Bromomethane	50.00	33.28	67	70-130	60-140	ME
2-Butanone	50.00	53.97	108	70-130	60-140	
n-Butylbenzene	50.00	61.66	123	77-123	69-131	
sec-Butylbenzene	50.00	56.09	112	70-130	60-140	
tert-Butylbenzene	50.00	58.29	117	70-130	60-140	
Carbon Disulfide	50.00	52.72	105	70-130	60-140	
Carbon Tetrachloride	50.00	54.75	110	66-138	54-150	
Chlorobenzene	50.00	53.38	107	70-130	60-140	
Chloroethane	50.00	48.54	97	70-130	60-140	
Chloroform	50.00	52.70	105	70-130	60-140	
Chloromethane	50.00	44.96	90	70-130	60-140	
2-Chlorotoluene	50.00	55.72	111	70-130	60-140	
4-Chlorotoluene	50.00	53.64	107	70-130	60-140	
Dibromochloromethane	50.00	57.88	116	70-130	60-140	
1,2-Dibromo-3-Chloropropane	50.00	52.64	105	70-130	60-140	
1,2-Dibromoethane	50.00	55.82	112	70-130	60-140	
Dibromomethane	50.00	45.32	91	70-130	60-140	
1,2-Dichlorobenzene	50.00	54.13	108	70-130	60-140	
1,3-Dichlorobenzene	50.00	56.07	112	70-130	60-140	
1,4-Dichlorobenzene	50.00	53.76	108	70-130	60-140	
Dichlorodifluoromethane	50.00	69.29	139	70-130	60-140	ME
1,1-Dichloroethane	50.00	48.01	96	70-130	60-140	
1,2-Dichloroethane	50.00	52.20	104	80-129	72-137	
1,1-Dichloroethene	50.00	51.25	103	71-131	61-141	
c-1,2-Dichloroethene	50.00	49.65	99	70-130	60-140	
t-1,2-Dichloroethene	50.00	51.25	103	70-130	60-140	
1,2-Dichloropropane	50.00	51.84	104	79-115	73-121	
1,3-Dichloropropane	50.00	54.66	109	70-130	60-140	
2,2-Dichloropropane	50.00	81.70	163	70-130	60-140	X
1,1-Dichloropropene	50.00	56.64	113	70-130	60-140	
c-1,3-Dichloropropene	50.00	59.80	120	70-130	60-140	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/11/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0814
Santa Barbara, CA 93101-2177		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: Brookfield / SB0674			Page 10 of 10

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
t-1,3-Dichloropropene	50.00	54.00	108	70-130	60-140	
Ethylbenzene	50.00	53.71	107	80-123	73-130	
2-Hexanone	50.00	52.47	105	70-130	60-140	
Isopropylbenzene	50.00	54.48	109	70-130	60-140	
p-Isopropyltoluene	50.00	57.91	116	70-130	60-140	
Methylene Chloride	50.00	50.94	102	70-130	60-140	
4-Methyl-2-Pentanone	50.00	52.35	105	70-130	60-140	
Naphthalene	50.00	55.12	110	70-130	60-140	
n-Propylbenzene	50.00	56.34	113	70-130	60-140	
Styrene	50.00	55.23	110	70-130	60-140	
1,1,1,2-Tetrachloroethane	50.00	55.51	111	70-130	60-140	
1,1,2,2-Tetrachloroethane	50.00	59.43	119	70-130	60-140	
Tetrachloroethene	50.00	40.09	80	70-130	60-140	
Toluene	50.00	51.09	102	79-121	72-128	
1,2,3-Trichlorobenzene	50.00	59.33	119	70-130	60-140	
1,2,4-Trichlorobenzene	50.00	61.50	123	70-130	60-140	
1,1,1-Trichloroethane	50.00	55.36	111	70-130	60-140	
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.00	73.15	146	70-130	60-140	X
1,1,2-Trichloroethane	50.00	54.38	109	70-130	60-140	
Trichloroethene	50.00	49.15	98	70-130	60-140	
Trichlorofluoromethane	50.00	57.95	116	70-130	60-140	
1,2,3-Trichloropropane	50.00	52.77	106	70-130	60-140	
1,2,4-Trimethylbenzene	50.00	55.84	112	70-130	60-140	
1,3,5-Trimethylbenzene	50.00	57.62	115	70-130	60-140	
Vinyl Acetate	50.00	100.8	202	70-130	60-140	X
Vinyl Chloride	50.00	50.41	101	70-136	59-147	
p/m-Xylene	100.0	107.9	108	70-130	60-140	
o-Xylene	50.00	53.83	108	70-130	60-140	
Methyl-t-Butyl Ether (MTBE)	50.00	54.38	109	72-126	63-135	
Tert-Butyl Alcohol (TBA)	250.0	252.5	101	71-125	62-134	
Diisopropyl Ether (DIPE)	50.00	54.33	109	69-129	59-139	
Ethyl-t-Butyl Ether (ETBE)	50.00	55.10	110	69-129	59-139	
Tert-Amyl-Methyl Ether (TAME)	50.00	52.71	105	67-133	56-144	
Ethanol	500.0	476.1	95	47-155	29-173	

Total number of LCS compounds: 71
Total number of ME compounds: 2
Total number of ME compounds allowed: 4
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 13-11-0814

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 6010B	EPA 3050B	469	ICP 7300	1
EPA 7471A	EPA 7471A Total	769	Mercury	1
EPA 8015B (M)	EPA 3550B	682	GC 47	1
EPA 8082	EPA 3545	669	GC 58	1
EPA 8082	EPA 3510C	669	GC 58	1
EPA 8260B	EPA 5035	849	GC/MS PP	2
EPA 8260B	EPA 5030C	626	GC/MS WW	2

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-11-0814

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.

☐ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY: 13-11-0814

Date: 11/11/13

Page 1 of 2

LABORATORY CLIENT: Geosyntec Consultants

ADDRESS: 924 Anacapa St., Suite 4A

CITY: Santa Barbara STATE: CA ZIP: 93101

TEL: (805) 897-3800 E-MAIL: gfrieman@geosyntec.com

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

CLIENT PROJECT NAME / NUMBER: Brookfield SB0674

P.O. NO.: SB0674

PROJECT CONTACT: Geoffrey Frieman

SAMPLER(S): (PRINT) Derek Fisher

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]					
1	T33-01-0.5	11/11/13	0845	S	1	X												X								
2	T33-01-2		0845	S	1	X												X								
3	T33-02-0.5		0855	S	1	X												X								
4	T33-02-2		0855	S	1	X												X								
5	T29-01-0.5		0918	S	1	X												X								
6	T29-01-2		0918	S	1	X												X								
7	T29-02-0.5		0928	S	1	X												X								
8	T29-02-2		0928	S	1	X												X								
9	T34-01-0.5		0945	S	1	X												X								
10	T34-01-2		0945	S	1	X												X								

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	[signature] CEL	11/11/13	15:30
[signature]	[signature]	11/11/13	1730

DISTRIBUTION: White with final report, Green and Yellow to Client.
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Calscience Environmental Laboratories, Inc.

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(925) 689-9022

CHAIN OF CUSTODY RECORD

Date 11/11/13

Page 2 of 2

WO # / LAB USE ONLY: 1 1 - 0 8 1 4

LABORATORY CLIENT: Geosyntec Consultants

ADDRESS: 924 Anacapa St., Suite 4A

CITY: Santa Barbara STATE: CA ZIP: 93110

TEL: (805) 897-3800 E-MAIL: gfrieman@geosyntec.com

CLIENT PROJECT NAME / NUMBER: Brookfield SB0674

P.O. NO.: SB0674

PROJECT CONTACT: Geoffrey Frieman

SAMPLER(S): (PRINT) Derek Fischer

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)B	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	PAHs				
11	T34-02-0.5	11/11/13	0955	S	1	X												X								
12	T34-02-2	↓	0955	S	1	X												X								
13	QCEB-111113	↓	0950	W	1	X												X								
14	QCTB-111113	11/11/13	—	W	2		X						X													
	~~VP-6-15-111113~~	~~11/11/13~~	~~1409~~	~~W~~	~~11/11/13~~																					
15	IDW-111113	11/11/13	1040	S	5	X	X			X			X	X						X						

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	CEL	11/11/13	15.30
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
	[signature]	11/11/13	1730
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-0814

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: GEOSYNTEC

DATE: 11/11/13

TEMPERATURE: Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 2.8 °C - 0.2 °C (CF) = 2.6 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter **Checked by:** 804

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Checked by:** 804

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Checked by:** 739

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☐	☑	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☑4ozCGJ ☑8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☑TerraCores® (3) ☑2ozPJ

Aqueous: ☐VOA ☑VOAh ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☑500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:** 131017B **Labeled/Checked by:** 739

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 854

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** 854

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-0814

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments:

- ☐ **Sample(s) NOT RECEIVED but listed on COC**
- ☐ **Sample(s) received but NOT LISTED on COC**
- ☐ **Holding time expired** – list sample ID(s) and test
- ☑ **Insufficient quantities for analysis** – list test — (-13) Received 500 mL bottle for PCB.
- ☐ **Improper container(s) used** – list test
- ☐ **Improper preservative used** – list test
- ☐ **No preservative noted on COC or label** – list test & notify lab
- ☐ **Sample labels illegible** – note test/container type
- ☐ **Sample label(s) do not match COC** – Note in comments
  - ☐ **Sample ID**
  - ☐ **Date and/or Time Collected**
  - ☐ **Project Information**
  - ☐ **# of Container(s)**
  - ☐ **Analysis**
- ☐ **Sample container(s) compromised** – Note in comments
  - ☐ **Water present in sample container**
  - ☐ **Broken**
- ☐ **Sample container(s) not labeled**
- ☐ **Air sample container(s) compromised** – Note in comments
  - ☐ **Flat**
  - ☐ **Very low in volume**
  - ☐ **Leaking (Not transferred - duplicate bag submitted)**
  - ☐ **Leaking (transferred into Calscience Tedlar® Bag*)**
  - ☐ **Leaking (transferred into Client's Tedlar® Bag*)**
- ☐ **Other:** _____

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: 739 11/11/13

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Calscience Environmental Laboratories, Inc.

Supplemental Report 1

The original report has been revised/corrected.

CALSCIENCE

WORK ORDER NUMBER: 13-11-0944

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Geosyntec Consultants

Client Project Name: Brookfield / SB0674

Attention: Geoff Frieman
924 Anacapa Street
Suite 4A
Santa Barbara, CA 93101-2177

Approved for release on 11/26/2013 by:
Stephen Nowak
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

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Client Project Name: Brookfield / SB0674
Work Order Number: 13-11-0944

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-11-0944

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 11/12/13. They were assigned to Work Order 13-11-0944.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	Geosyntec Consultants 924 Anacapa Street, Suite 4A Santa Barbara, CA 93101-2177	Work Order:	13-11-0944
		Project Name:	Brookfield / SB0674
		PO Number:	
		Date/Time Received:	11/12/13 18:05
		Number of Containers:	17
Attn:	Geoff Frieman		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
T12-111213	13-11-0944-1	11/12/13 08:16	1	Solid
T10-111213	13-11-0944-2	11/12/13 08:24	1	Solid
T11-111213	13-11-0944-3	11/12/13 08:36	1	Solid
T6-111213	13-11-0944-4	11/12/13 09:03	1	Solid
T7-111213	13-11-0944-5	11/12/13 08:57	1	Solid
T4-111213	13-11-0944-6	11/12/13 09:25	1	Solid
T5-111213	13-11-0944-7	11/12/13 09:31	1	Solid
T9-111213	13-11-0944-8	11/12/13 09:52	1	Solid
T1-111213	13-11-0944-9	11/12/13 10:15	1	Solid
T18-111213	13-11-0944-10	11/12/13 10:46	1	Solid
T43-111213	13-11-0944-11	11/12/13 11:09	1	Solid
T14-111213	13-11-0944-12	11/12/13 11:45	1	Solid
T15-111213	13-11-0944-13	11/12/13 12:07	1	Solid
T19-111213	13-11-0944-14	11/12/13 12:28	1	Solid
QCEB-111213	13-11-0944-15	11/12/13 14:25	1	Aqueous
VP-8-15-111213S	13-11-0944-16	11/12/13 09:53	1	Air
VP-10-30-111213S	13-11-0944-17	11/12/13 12:09	1	Air

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Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-0944
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/12/13
Attn:	Geoff Frieman		

Client SampleID / Analyte	Result	Qualifiers	RL	Units	Method	Extraction
VP-8-15-111213S (13-11-0944-16)						
Acetone	0.055		0.0048	ug/L	EPA TO-15	N/A
2-Butanone	0.063		0.0044	ug/L	EPA TO-15	N/A
Dichlorodifluoromethane	0.0027		0.0025	ug/L	EPA TO-15	N/A
Tetrachloroethene	0.0039		0.0034	ug/L	EPA TO-15	N/A
Toluene	0.013		0.0019	ug/L	EPA TO-15	N/A
VP-10-30-111213S (13-11-0944-17)						
Acetone	0.090		0.0048	ug/L	EPA TO-15	N/A
Benzene	0.0063		0.0016	ug/L	EPA TO-15	N/A
2-Butanone	0.048		0.0044	ug/L	EPA TO-15	N/A
Carbon Disulfide	0.015		0.0062	ug/L	EPA TO-15	N/A
Chloromethane	0.0019		0.0010	ug/L	EPA TO-15	N/A
Dichlorodifluoromethane	0.0027		0.0025	ug/L	EPA TO-15	N/A
Ethylbenzene	0.0097		0.0022	ug/L	EPA TO-15	N/A
4-Ethyltoluene	0.0045		0.0025	ug/L	EPA TO-15	N/A
Tetrachloroethene	0.0039		0.0034	ug/L	EPA TO-15	N/A
Toluene	0.056		0.0019	ug/L	EPA TO-15	N/A
1,2,4-Trimethylbenzene	0.018		0.0074	ug/L	EPA TO-15	N/A
1,3,5-Trimethylbenzene	0.0056		0.0025	ug/L	EPA TO-15	N/A
o-Xylene	0.014		0.0022	ug/L	EPA TO-15	N/A
p/m-Xylene	0.038		0.0087	ug/L	EPA TO-15	N/A

Subcontracted analyses, if any, are not included in this summary.

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* MDL is shown

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/12/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0944
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP-8-15-111213S	**13-11-0944-16-A**	**11/12/13 09:53**	**Air**	**GC/MS KKK**	**N/A**	**11/18/13 19:36**	**131118L01**

Parameter	Result	RL	DF	Qualifiers
Acetone	0.055	0.0048	1	
Benzene	ND	0.0016	1	
Benzyl Chloride	ND	0.0078	1	
Bromodichloromethane	ND	0.0034	1	
Bromoform	ND	0.0052	1	
Bromomethane	ND	0.0019	1	
2-Butanone	0.063	0.0044	1	
Carbon Disulfide	ND	0.0062	1	
Carbon Tetrachloride	ND	0.0031	1	
Chlorobenzene	ND	0.0023	1	
Chloroethane	ND	0.0013	1	
Chloroform	ND	0.0024	1	
Chloromethane	ND	0.0010	1	
Dibromochloromethane	ND	0.0043	1	
1,2-Dibromoethane	ND	0.0038	1	
1,2-Dichlorobenzene	ND	0.0030	1	
1,3-Dichlorobenzene	ND	0.0030	1	
1,4-Dichlorobenzene	ND	0.0030	1	
Dichlorodifluoromethane	0.0027	0.0025	1	
1,1-Dichloroethane	ND	0.0020	1	
1,2-Dichloroethane	ND	0.0020	1	
1,1-Dichloroethene	ND	0.0020	1	
c-1,2-Dichloroethene	ND	0.0020	1	
t-1,2-Dichloroethene	ND	0.0020	1	
1,2-Dichloropropane	ND	0.0023	1	
c-1,3-Dichloropropene	ND	0.0023	1	
t-1,3-Dichloropropene	ND	0.0045	1	
Dichlorotetrafluoroethane	ND	0.014	1	
Ethylbenzene	ND	0.0022	1	
4-Ethyltoluene	ND	0.0025	1	
Hexachloro-1,3-Butadiene	ND	0.016	1	
2-Hexanone	ND	0.0061	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1	
Methylene Chloride	ND	0.017	1	
4-Methyl-2-Pentanone	ND	0.0061	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/12/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0944
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 2 of 6

Parameter	Result	RL	DF	Qualifiers
Styrene	ND	0.0064	1	
1,1,2,2-Tetrachloroethane	ND	0.0069	1	
Tetrachloroethene	0.0039	0.0034	1	
Toluene	0.013	0.0019	1	
1,2,4-Trichlorobenzene	ND	0.015	1	
1,1,1-Trichloroethane	ND	0.0027	1	
1,1,2-Trichloroethane	ND	0.0027	1	
Trichloroethene	ND	0.0027	1	
Trichlorofluoromethane	ND	0.0056	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.011	1	
1,2,4-Trimethylbenzene	ND	0.0074	1	
1,3,5-Trimethylbenzene	ND	0.0025	1	
Vinyl Acetate	ND	0.0070	1	
Vinyl Chloride	ND	0.0013	1	
o-Xylene	ND	0.0022	1	
p/m-Xylene	ND	0.0087	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	92	68-134	
1,2-Dichloroethane-d4	107	67-133	
Toluene-d8	98	70-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/12/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0944
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 3 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP-10-30-111213S	**13-11-0944-17-A**	**11/12/13 12:09**	**Air**	**GC/MS KKK**	**N/A**	**11/18/13 17:12**	**131118L01**

Parameter	Result	RL	DF	Qualifiers
Acetone	0.090	0.0048	1	
Benzene	0.0063	0.0016	1	
Benzyl Chloride	ND	0.0078	1	
Bromodichloromethane	ND	0.0034	1	
Bromoform	ND	0.0052	1	
Bromomethane	ND	0.0019	1	
2-Butanone	0.048	0.0044	1	
Carbon Disulfide	0.015	0.0062	1	
Carbon Tetrachloride	ND	0.0031	1	
Chlorobenzene	ND	0.0023	1	
Chloroethane	ND	0.0013	1	
Chloroform	ND	0.0024	1	
Chloromethane	0.0019	0.0010	1	
Dibromochloromethane	ND	0.0043	1	
1,2-Dibromoethane	ND	0.0038	1	
1,2-Dichlorobenzene	ND	0.0030	1	
1,3-Dichlorobenzene	ND	0.0030	1	
1,4-Dichlorobenzene	ND	0.0030	1	
Dichlorodifluoromethane	0.0027	0.0025	1	
1,1-Dichloroethane	ND	0.0020	1	
1,2-Dichloroethane	ND	0.0020	1	
1,1-Dichloroethene	ND	0.0020	1	
c-1,2-Dichloroethene	ND	0.0020	1	
t-1,2-Dichloroethene	ND	0.0020	1	
1,2-Dichloropropane	ND	0.0023	1	
c-1,3-Dichloropropene	ND	0.0023	1	
t-1,3-Dichloropropene	ND	0.0045	1	
Dichlorotetrafluoroethane	ND	0.014	1	
Ethylbenzene	0.0097	0.0022	1	
4-Ethyltoluene	0.0045	0.0025	1	
Hexachloro-1,3-Butadiene	ND	0.016	1	
2-Hexanone	ND	0.0061	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1	
Methylene Chloride	ND	0.017	1	
4-Methyl-2-Pentanone	ND	0.0061	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/12/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0944
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 4 of 6

Parameter	Result	RL	DF	Qualifiers
Styrene	ND	0.0064	1	
1,1,2,2-Tetrachloroethane	ND	0.0069	1	
Tetrachloroethene	0.0039	0.0034	1	
Toluene	0.056	0.0019	1	
1,2,4-Trichlorobenzene	ND	0.015	1	
1,1,1-Trichloroethane	ND	0.0027	1	
1,1,2-Trichloroethane	ND	0.0027	1	
Trichloroethene	ND	0.0027	1	
Trichlorofluoromethane	ND	0.0056	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.011	1	
1,2,4-Trimethylbenzene	0.018	0.0074	1	
1,3,5-Trimethylbenzene	0.0056	0.0025	1	
Vinyl Acetate	ND	0.0070	1	
Vinyl Chloride	ND	0.0013	1	
o-Xylene	0.014	0.0022	1	
p/m-Xylene	0.038	0.0087	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	100	68-134	
1,2-Dichloroethane-d4	103	67-133	
Toluene-d8	99	70-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/12/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0944
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 5 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-021-12379**	**N/A**	**Air**	**GC/MS KKK**	**N/A**	**11/18/13 14:44**	**131118L01**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	0.0048	1	
Benzene	ND	0.0016	1	
Benzyl Chloride	ND	0.0078	1	
Bromodichloromethane	ND	0.0034	1	
Bromoform	ND	0.0052	1	
Bromomethane	ND	0.0019	1	
2-Butanone	ND	0.0044	1	
Carbon Disulfide	ND	0.0062	1	
Carbon Tetrachloride	ND	0.0031	1	
Chlorobenzene	ND	0.0023	1	
Chloroethane	ND	0.0013	1	
Chloroform	ND	0.0024	1	
Chloromethane	ND	0.0010	1	
Dibromochloromethane	ND	0.0043	1	
1,2-Dibromoethane	ND	0.0038	1	
1,2-Dichlorobenzene	ND	0.0030	1	
1,3-Dichlorobenzene	ND	0.0030	1	
1,4-Dichlorobenzene	ND	0.0030	1	
Dichlorodifluoromethane	ND	0.0025	1	
1,1-Dichloroethane	ND	0.0020	1	
1,2-Dichloroethane	ND	0.0020	1	
1,1-Dichloroethene	ND	0.0020	1	
c-1,2-Dichloroethene	ND	0.0020	1	
t-1,2-Dichloroethene	ND	0.0020	1	
1,2-Dichloropropane	ND	0.0023	1	
c-1,3-Dichloropropene	ND	0.0023	1	
t-1,3-Dichloropropene	ND	0.0045	1	
Dichlorotetrafluoroethane	ND	0.014	1	
Ethylbenzene	ND	0.0022	1	
4-Ethyltoluene	ND	0.0025	1	
Hexachloro-1,3-Butadiene	ND	0.016	1	
2-Hexanone	ND	0.0061	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1	
Methylene Chloride	ND	0.017	1	
4-Methyl-2-Pentanone	ND	0.0061	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/12/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0944
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 6 of 6

Parameter	Result	RL	DF	Qualifiers
Styrene	ND	0.0064	1	
1,1,2,2-Tetrachloroethane	ND	0.0069	1	
Tetrachloroethene	ND	0.0034	1	
Toluene	ND	0.0019	1	
1,2,4-Trichlorobenzene	ND	0.015	1	
1,1,1-Trichloroethane	ND	0.0027	1	
1,1,2-Trichloroethane	ND	0.0027	1	
Trichloroethene	ND	0.0027	1	
Trichlorofluoromethane	ND	0.0056	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.011	1	
1,2,4-Trimethylbenzene	ND	0.0074	1	
1,3,5-Trimethylbenzene	ND	0.0025	1	
Vinyl Acetate	ND	0.0070	1	
Vinyl Chloride	ND	0.0013	1	
o-Xylene	ND	0.0022	1	
p/m-Xylene	ND	0.0087	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	89	68-134	
1,2-Dichloroethane-d4	111	67-133	
Toluene-d8	99	70-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/12/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0944
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
Project: Brookfield / SB0674			Page 1 of 2

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-021-12379	**Air**	**GC/MS KKK**	**N/A**	**11/18/13 12:13**	**131118L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acetone	0.05939	0.05917	100	0.05980	101	67-133	56-144	1	0-30	
Benzene	0.07987	0.07717	97	0.08329	104	70-130	60-140	8	0-30	
Benzyl Chloride	0.1294	0.1469	113	0.1631	126	38-158	18-178	10	0-30	
Bromodichloromethane	0.1675	0.1759	105	0.1894	113	70-130	60-140	7	0-30	
Bromoform	0.2584	0.3292	127	0.3656	141	63-147	49-161	10	0-30	
Bromomethane	0.09708	0.1058	109	0.1112	115	70-139	58-150	5	0-30	
2-Butanone	0.07373	0.07754	105	0.08103	110	66-132	55-143	4	0-30	
Carbon Disulfide	0.07785	0.08117	104	0.08518	109	68-146	55-159	5	0-30	
Carbon Tetrachloride	0.1573	0.1599	102	0.1726	110	70-136	59-147	8	0-30	
Chlorobenzene	0.1151	0.1121	97	0.1273	111	70-130	60-140	13	0-30	
Chloroethane	0.06596	0.06949	105	0.07250	110	65-149	51-163	4	0-30	
Chloroform	0.1221	0.1245	102	0.1312	108	70-130	60-140	5	0-30	
Chloromethane	0.05163	0.05652	109	0.05906	114	69-141	57-153	4	0-30	
Dibromochloromethane	0.2130	0.2210	104	0.2526	119	70-138	59-149	13	0-30	
1,2-Dibromoethane	0.1921	0.1925	100	0.2192	114	70-133	60-144	13	0-30	
1,2-Dichlorobenzene	0.1503	0.1513	101	0.1671	111	48-138	33-153	10	0-30	
1,3-Dichlorobenzene	0.1503	0.1732	115	0.1892	126	56-134	43-147	9	0-30	
1,4-Dichlorobenzene	0.1503	0.1672	111	0.1834	122	52-136	38-150	9	0-30	
Dichlorodifluoromethane	0.1236	0.1272	103	0.1342	109	67-139	55-151	5	0-30	
1,1-Dichloroethane	0.1012	0.09925	98	0.1042	103	70-130	60-140	5	0-30	
1,2-Dichloroethane	0.1012	0.1004	99	0.1054	104	70-132	60-142	5	0-30	
1,1-Dichloroethene	0.09912	0.1041	105	0.1078	109	70-135	59-146	4	0-30	
c-1,2-Dichloroethene	0.09912	0.09766	99	0.1022	103	70-130	60-140	5	0-30	
t-1,2-Dichloroethene	0.09912	0.09234	93	0.09676	98	70-130	60-140	5	0-30	
1,2-Dichloropropane	0.1155	0.1120	97	0.1208	105	70-130	60-140	8	0-30	
c-1,3-Dichloropropene	0.1135	0.1175	104	0.1262	111	70-130	60-140	7	0-30	
t-1,3-Dichloropropene	0.1135	0.1268	112	0.1363	120	70-147	57-160	7	0-30	
Dichlorotetrafluoroethane	0.1748	0.1547	89	0.1633	93	51-135	37-149	5	0-30	
Ethylbenzene	0.1086	0.1045	96	0.1186	109	70-130	60-140	13	0-30	
4-Ethyltoluene	0.1229	0.1294	105	0.1422	116	68-130	58-140	9	0-30	
Hexachloro-1,3-Butadiene	0.2666	0.2994	112	0.3400	128	44-146	27-163	13	0-30	
2-Hexanone	0.1024	0.1071	105	0.1172	114	70-136	59-147	9	0-30	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.09093	101	0.09573	106	68-130	58-140	5	0-30	
Methylene Chloride	0.08684	0.08534	98	0.08897	102	69-130	59-140	4	0-30	
4-Methyl-2-Pentanone	0.1024	0.1080	106	0.1137	111	70-130	60-140	5	0-30	
Styrene	0.1065	0.1022	96	0.1137	107	65-131	54-142	11	0-30	
1,1,2,2-Tetrachloroethane	0.1716	0.1689	98	0.1871	109	63-130	52-141	10	0-30	

RPD: Relative Percent Difference. CL: Control Limits

Return to Contents

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/12/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-0944
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
Project: Brookfield / SB0674			Page 2 of 2

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Tetrachloroethene	0.1696	0.1885	111	0.2140	126	70-130	60-140	13	0-30	
Toluene	0.09421	0.08511	90	0.09683	103	70-130	60-140	13	0-30	
1,2,4-Trichlorobenzene	0.1855	0.1578	85	0.1806	97	31-151	11-171	13	0-30	
1,1,1-Trichloroethane	0.1364	0.1309	96	0.1380	101	70-130	60-140	5	0-30	
1,1,2-Trichloroethane	0.1364	0.1382	101	0.1491	109	70-130	60-140	8	0-30	
Trichloroethene	0.1343	0.1426	106	0.1527	114	70-130	60-140	7	0-30	
Trichlorofluoromethane	0.1405	0.1451	103	0.1515	108	63-141	50-154	4	0-30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.1916	0.2046	107	0.2226	116	70-136	59-147	8	0-30	
1,2,4-Trimethylbenzene	0.1229	0.1385	113	0.1531	125	60-132	48-144	10	0-30	
1,3,5-Trimethylbenzene	0.1229	0.1232	100	0.1356	110	62-130	51-141	10	0-30	
Vinyl Acetate	0.08803	0.08103	92	0.08327	95	58-130	46-142	3	0-30	
Vinyl Chloride	0.06391	0.06646	104	0.07004	110	70-134	59-145	5	0-30	
o-Xylene	0.1086	0.1040	96	0.1159	107	69-130	59-140	11	0-30	
p/m-Xylene	0.2171	0.2278	105	0.2561	118	70-132	60-142	12	0-30	

Total number of LCS compounds: 51
Total number of ME compounds: 0
Total number of ME compounds allowed: 3
LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Summa Canister Vacuum Summary

Work Order: 13-11-0944

Sample Name	Vacuum Out	Vacuum In	Equipment	Description
VP-8-15-111213S	-29.60 in Hg	0.00 in Hg	LC180	Summa Canister 1L
VP-10-30-111213S	-29.60 in Hg	0.00 in Hg	SLC001	Summa Canister 1L

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Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 13-11-0944

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA TO-15	N/A	858	GC/MS KKK	2

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-11-0944

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.

☐ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY: 13-11-0944

Date: 11-12-13

Page 1 of 2

LABORATORY CLIENT: Geosyntec Consultants

ADDRESS: 924 Anacapa St, Suite 4A

CITY: Santa Barbara STATE: CA ZIP: 93101

TEL: 805-897-3800 E-MAIL: gfrieman@geosyntec.com

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

CLIENT PROJECT NAME / NUMBER: Brookfield SB0674

P.O. NO.: SB0674

PROJECT CONTACT: Geoff Frieman

SAMPLER(S): (PRINT) Derek Fisher

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]					
1	T12-111213	11-12-13	816	S	1	X												X								
2	T10-111213		824															X								
3	T11-111213		836															X								
4	T6-111213		903															X								
5	T7-111213		857															X								
6	T4-111213		925															X								
7	T5-111213		931															X								
8	T9-111213		952															X								
9	T1-111213		105															X								
10	T8-111213		1046															X								

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	[signature] CEL	11/12/13	1537
[signature]	[signature] CEL	11/12/13	1805

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5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY: 1 1 - 0 9 4 4

Date: 11-12-13

Page 2 of 2

LABORATORY CLIENT: Geosyntec Consultants

ADDRESS: 924 Anacapa St., Suite 4A

CITY: Santa Barbara STATE: CA ZIP: 93101

TEL: 805-897-3800 E-MAIL: gfrieman@geosyntec.com

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

CLIENT PROJECT NAME / NUMBER: Brookfield SB0674

P.O. NO.: SB0674

PROJECT CONTACT: Geoff Frieman

SAMPLER(S): (PRINT) DF.

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]		Pb-15			
11	T13-111213	11-12-13	1109	S	1	X												X								
12	T14-111213	↓	1145	S	1	↓												X								
13	T15-111213		1207	S	1													X								
14	T19-111213		1228	S	1													X								
15	QCEB-111213	↓	1425	W	1	↓												X								
			Start/End			Air Type			CAN ID		Can Size			FC		Start			End							
16	VP-8-15-111213S	11-12-13	0950/0953	Air	1	Soil Vapor			LC180		1L			A85		29.6" Hg			0" Hg			X				
17	VP-10-30-111213S	11-12-13	1206/1209	Air	1	Soil Vapor			SLR001		1L			A416		29.6" Hg			0" Hg			X				

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	[signature] CEL	11/12/13	1577
[signature]	[signature] CEL	11/12/13	1805

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-0 9 4 4

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Geosyntec Consultants

DATE: 11/12/13

TEMPERATURE: Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 2.3 °C - 0.2 °C (CF) = 2.1 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter **Checked by:** 676

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Checked by:** 676

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Checked by:** 862

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☐	☑	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☑4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☑1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** 862

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 802

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** 802

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-0947

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments: PCB - Samples 1-14, not enough sample received for test.

- ☐ **Sample(s) NOT RECEIVED but listed on COC**
- ☐ **Sample(s) received but NOT LISTED on COC**
- ☐ **Holding time expired** – list sample ID(s) and test
- ☑ **Insufficient quantities for analysis** – list test
- ☐ **Improper container(s) used** – list test
- ☐ **Improper preservative used** – list test
- ☐ **No preservative noted on COC or label** – list test & notify lab
- ☐ **Sample labels illegible** – note test/container type
- ☐ **Sample label(s) do not match COC** – Note in comments
  - ☐ **Sample ID**
  - ☐ **Date and/or Time Collected**
  - ☐ **Project Information**
  - ☐ **# of Container(s)**
  - ☐ **Analysis**
- ☐ **Sample container(s) compromised** – Note in comments
  - ☐ **Water present in sample container**
  - ☐ **Broken**
- ☐ **Sample container(s) not labeled**
- ☐ **Air sample container(s) compromised** – Note in comments
  - ☐ **Flat**
  - ☐ **Very low in volume**
  - ☐ **Leaking (Not transferred - duplicate bag submitted)**
  - ☐ **Leaking (transferred into Calscience Tedlar® Bag*)**
  - ☐ **Leaking (transferred into Client's Tedlar® Bag*)**
- ☐ **Other:** _____

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: BOZ 11/12/13

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-0944

SAMPLE RECEIPT FORM

Cooler 0 of 0

CLIENT: GEOSYNTEC CONSULTANTS DATE: 11/12/13

TEMPERATURE: Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☑ Air ☐ Filter Checked by: 676

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☑ N/A Checked by: 676

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Checked by: 862

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** 862

Container: C: Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 802

Preservative: h: HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** 802

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Stephen Nowak

From: Geoffrey Frieman [GFrieman@Geosyntec.com]
Sent: Wednesday, November 13, 2013 1:14 PM
To: Stephen Nowak
Subject: RE: Sample Receipt Confirmation -Brookfield / SB0674

Steve, please document on the anomaly form that insufficient sample volume was received. Please cancel the equipment blank sample. Thanks.

From: Stephen Nowak [mailto:snowak@calscience.com]
Sent: Wednesday, November 13, 2013 11:57 AM
To: Geoffrey Frieman
Subject: RE: Sample Receipt Confirmation -Brookfield / SB0674

No-
The average volume of sample in these is 0.01 grams – we need 20 grams.

We can document on the sample anomaly form that not enough sample was received for analysis.
If that will work for you.

Stephen Nowak
Project Manager
(714) 895-5494

The difference is service

From: Geoffrey Frieman [mailto:GFrieman@Geosyntec.com]
Sent: Wednesday, November 13, 2013 11:48 AM
To: Stephen Nowak
Subject: RE: Sample Receipt Confirmation -Brookfield / SB0674

I don't think we can get anymore. There's nothing you can do with what you have? We'll try to re-sample #8. How should this be documented? Send in a revised COC with just the air samples?

From: Stephen Nowak [mailto:snowak@calscience.com]
Sent: Wednesday, November 13, 2013 11:45 AM
To: Geoffrey Frieman
Subject: RE: Sample Receipt Confirmation -Brookfield / SB0674

Right- still not enough.

We need 20g of sample for the analysis – this is like 0.5 grams.

Stephen Nowak
Project Manager
(714) 895-5494

The difference is service

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Calscience Environmental Laboratories, Inc.

Supplemental Report 2

The original report has been revised/corrected.

CALSCIENCE

WORK ORDER NUMBER: 13-11-1034

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Geosyntec Consultants

Client Project Name: Brookfield / SB0674

Attention: Geoff Frieman
924 Anacapa Street
Suite 4A
Santa Barbara, CA 93101-2177

Approved for release on 12/04/2013 by:
Stephen Nowak
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

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Work Order Number: 13-11-1034

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Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-11-1034

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 11/13/13. They were assigned to Work Order 13-11-1034.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	Geosyntec Consultants 924 Anacapa Street, Suite 4A Santa Barbara, CA 93101-2177	Work Order:	13-11-1034
		Project Name:	Brookfield / SB0674
		PO Number:	
		Date/Time Received:	11/13/13 16:25
		Number of Containers:	4
Attn:	Geoff Frieman		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
VP-3-30-111313S	13-11-1034-1	11/13/13 11:40	1	Air
VP-14-15-111313S	13-11-1034-2	11/13/13 12:02	1	Air
T9-111313	13-11-1034-3	11/13/13 12:32	1	Solid
QCEB-111313	13-11-1034-4	11/13/13 12:40	1	Aqueous

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Calscience Environmental Laboratories, Inc.

Detections Summary

Client:	Geosyntec Consultants	Work Order:	13-11-1034
	924 Anacapa Street, Suite 4A	Project Name:	Brookfield / SB0674
	Santa Barbara, CA 93101-2177	Received:	11/13/13
Attn:	Geoff Frieman		

Client SampleID / Analyte	Result	Qualifiers	RL	Units	Method	Extraction
VP-3-30-111313S (13-11-1034-1)						
Acetone	0.082		0.0049	ug/L	EPA TO-15	N/A
Benzene	0.019		0.0016	ug/L	EPA TO-15	N/A
Bromodichloromethane	0.0066		0.0035	ug/L	EPA TO-15	N/A
2-Butanone	0.11		0.0046	ug/L	EPA TO-15	N/A
Carbon Disulfide	0.070		0.0064	ug/L	EPA TO-15	N/A
Chloroform	0.0065		0.0025	ug/L	EPA TO-15	N/A
Chloromethane	0.0012		0.0011	ug/L	EPA TO-15	N/A
Dibromochloromethane	0.0050		0.0044	ug/L	EPA TO-15	N/A
Dichlorodifluoromethane	0.0059		0.0025	ug/L	EPA TO-15	N/A
Ethylbenzene	0.031		0.0022	ug/L	EPA TO-15	N/A
4-Ethyltoluene	0.032		0.0025	ug/L	EPA TO-15	N/A
Methylene Chloride	0.022		0.018	ug/L	EPA TO-15	N/A
Tetrachloroethene	0.12		0.0035	ug/L	EPA TO-15	N/A
Toluene	0.11		0.0019	ug/L	EPA TO-15	N/A
1,1,1-Trichloroethane	0.0072		0.0028	ug/L	EPA TO-15	N/A
1,2,4-Trimethylbenzene	0.032		0.0076	ug/L	EPA TO-15	N/A
1,3,5-Trimethylbenzene	0.012		0.0025	ug/L	EPA TO-15	N/A
o-Xylene	0.032		0.0022	ug/L	EPA TO-15	N/A
p/m-Xylene	0.11		0.0089	ug/L	EPA TO-15	N/A
VP-14-15-111313S (13-11-1034-2)						
Acetone	0.044		0.0048	ug/L	EPA TO-15	N/A
2-Butanone	0.042		0.0044	ug/L	EPA TO-15	N/A
Dichlorodifluoromethane	0.0027		0.0025	ug/L	EPA TO-15	N/A
Ethylbenzene	0.0043		0.0022	ug/L	EPA TO-15	N/A
4-Ethyltoluene	0.0025		0.0025	ug/L	EPA TO-15	N/A
Tetrachloroethene	0.0040		0.0034	ug/L	EPA TO-15	N/A
Toluene	0.0025		0.0019	ug/L	EPA TO-15	N/A
o-Xylene	0.0047		0.0022	ug/L	EPA TO-15	N/A
p/m-Xylene	0.017		0.0087	ug/L	EPA TO-15	N/A
T9-111313 (13-11-1034-3)						
Aroclor-1260	9800		2500	ug/kg	EPA 8082	EPA 3545

Subcontracted analyses, if any, are not included in this summary.

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* MDL is shown

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP-3-30-111313S	**13-11-1034-1-A**	**11/13/13 11:40**	**Air**	**GC/MS NN**	**N/A**	**11/19/13 23:42**	**131119L01**

Parameter	Result	RL	DF	Qualifiers
Acetone	0.082	0.0049	1.03	
Benzene	0.019	0.0016	1.03	
Benzyl Chloride	ND	0.0080	1.03	
Bromodichloromethane	0.0066	0.0035	1.03	
Bromoform	ND	0.0053	1.03	
Bromomethane	ND	0.0020	1.03	
2-Butanone	0.11	0.0046	1.03	
Carbon Disulfide	0.070	0.0064	1.03	
Carbon Tetrachloride	ND	0.0032	1.03	
Chlorobenzene	ND	0.0024	1.03	
Chloroethane	ND	0.0014	1.03	
Chloroform	0.0065	0.0025	1.03	
Chloromethane	0.0012	0.0011	1.03	
Dibromochloromethane	0.0050	0.0044	1.03	
1,2-Dibromoethane	ND	0.0040	1.03	
1,2-Dichlorobenzene	ND	0.0031	1.03	
1,3-Dichlorobenzene	ND	0.0031	1.03	
1,4-Dichlorobenzene	ND	0.0031	1.03	
Dichlorodifluoromethane	0.0059	0.0025	1.03	
1,1-Dichloroethane	ND	0.0021	1.03	
1,2-Dichloroethane	ND	0.0021	1.03	
1,1-Dichloroethene	ND	0.0020	1.03	
c-1,2-Dichloroethene	ND	0.0020	1.03	
t-1,2-Dichloroethene	ND	0.0020	1.03	
1,2-Dichloropropane	ND	0.0024	1.03	
c-1,3-Dichloropropene	ND	0.0023	1.03	
t-1,3-Dichloropropene	ND	0.0047	1.03	
Dichlorotetrafluoroethane	ND	0.014	1.03	
Ethylbenzene	0.031	0.0022	1.03	
4-Ethyltoluene	0.032	0.0025	1.03	
Hexachloro-1,3-Butadiene	ND	0.016	1.03	
2-Hexanone	ND	0.0063	1.03	
Methyl-t-Butyl Ether (MTBE)	ND	0.0074	1.03	
Methylene Chloride	0.022	0.018	1.03	
4-Methyl-2-Pentanone	ND	0.0063	1.03	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 2 of 6

Parameter	Result	RL	DF	Qualifiers
Styrene	ND	0.0066	1.03	
1,1,2,2-Tetrachloroethane	ND	0.0071	1.03	
Tetrachloroethene	0.12	0.0035	1.03	
Toluene	0.11	0.0019	1.03	
1,2,4-Trichlorobenzene	ND	0.015	1.03	
1,1,1-Trichloroethane	0.0072	0.0028	1.03	
1,1,2-Trichloroethane	ND	0.0028	1.03	
Trichloroethene	ND	0.0028	1.03	
Trichlorofluoromethane	ND	0.0058	1.03	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.012	1.03	
1,2,4-Trimethylbenzene	0.032	0.0076	1.03	
1,3,5-Trimethylbenzene	0.012	0.0025	1.03	
Vinyl Acetate	ND	0.0073	1.03	
Vinyl Chloride	ND	0.0013	1.03	
o-Xylene	0.032	0.0022	1.03	
p/m-Xylene	0.11	0.0089	1.03	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	95	68-134	
1,2-Dichloroethane-d4	101	67-133	
Toluene-d8	100	70-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 3 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VP-14-15-111313S	**13-11-1034-2-A**	**11/13/13 12:02**	**Air**	**GC/MS NN**	**N/A**	**11/20/13 00:37**	**131119L01**

Parameter	Result	RL	DF	Qualifiers
Acetone	0.044	0.0048	1	
Benzene	ND	0.0016	1	
Benzyl Chloride	ND	0.0078	1	
Bromodichloromethane	ND	0.0034	1	
Bromoform	ND	0.0052	1	
Bromomethane	ND	0.0019	1	
2-Butanone	0.042	0.0044	1	
Carbon Disulfide	ND	0.0062	1	
Carbon Tetrachloride	ND	0.0031	1	
Chlorobenzene	ND	0.0023	1	
Chloroethane	ND	0.0013	1	
Chloroform	ND	0.0024	1	
Chloromethane	ND	0.0010	1	
Dibromochloromethane	ND	0.0043	1	
1,2-Dibromoethane	ND	0.0038	1	
1,2-Dichlorobenzene	ND	0.0030	1	
1,3-Dichlorobenzene	ND	0.0030	1	
1,4-Dichlorobenzene	ND	0.0030	1	
Dichlorodifluoromethane	0.0027	0.0025	1	
1,1-Dichloroethane	ND	0.0020	1	
1,2-Dichloroethane	ND	0.0020	1	
1,1-Dichloroethene	ND	0.0020	1	
c-1,2-Dichloroethene	ND	0.0020	1	
t-1,2-Dichloroethene	ND	0.0020	1	
1,2-Dichloropropane	ND	0.0023	1	
c-1,3-Dichloropropene	ND	0.0023	1	
t-1,3-Dichloropropene	ND	0.0045	1	
Dichlorotetrafluoroethane	ND	0.014	1	
Ethylbenzene	0.0043	0.0022	1	
4-Ethyltoluene	0.0025	0.0025	1	
Hexachloro-1,3-Butadiene	ND	0.016	1	
2-Hexanone	ND	0.0061	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1	
Methylene Chloride	ND	0.017	1	
4-Methyl-2-Pentanone	ND	0.0061	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 4 of 6

Parameter	Result	RL	DF	Qualifiers
Styrene	ND	0.0064	1	
1,1,2,2-Tetrachloroethane	ND	0.0069	1	
Tetrachloroethene	0.0040	0.0034	1	
Toluene	0.0025	0.0019	1	
1,2,4-Trichlorobenzene	ND	0.015	1	
1,1,1-Trichloroethane	ND	0.0027	1	
1,1,2-Trichloroethane	ND	0.0027	1	
Trichloroethene	ND	0.0027	1	
Trichlorofluoromethane	ND	0.0056	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.011	1	
1,2,4-Trimethylbenzene	ND	0.0074	1	
1,3,5-Trimethylbenzene	ND	0.0025	1	
Vinyl Acetate	ND	0.0070	1	
Vinyl Chloride	ND	0.0013	1	
o-Xylene	0.0047	0.0022	1	
p/m-Xylene	0.017	0.0087	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	73	68-134	
1,2-Dichloroethane-d4	101	67-133	
Toluene-d8	87	70-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 5 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-021-12392**	**N/A**	**Air**	**GC/MS NN**	**N/A**	**11/19/13 14:25**	**131119L01**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	0.0048	1	
Benzene	ND	0.0016	1	
Benzyl Chloride	ND	0.0078	1	
Bromodichloromethane	ND	0.0034	1	
Bromoform	ND	0.0052	1	
Bromomethane	ND	0.0019	1	
2-Butanone	ND	0.0044	1	
Carbon Disulfide	ND	0.0062	1	
Carbon Tetrachloride	ND	0.0031	1	
Chlorobenzene	ND	0.0023	1	
Chloroethane	ND	0.0013	1	
Chloroform	ND	0.0024	1	
Chloromethane	ND	0.0010	1	
Dibromochloromethane	ND	0.0043	1	
1,2-Dibromoethane	ND	0.0038	1	
1,2-Dichlorobenzene	ND	0.0030	1	
1,3-Dichlorobenzene	ND	0.0030	1	
1,4-Dichlorobenzene	ND	0.0030	1	
Dichlorodifluoromethane	ND	0.0025	1	
1,1-Dichloroethane	ND	0.0020	1	
1,2-Dichloroethane	ND	0.0020	1	
1,1-Dichloroethene	ND	0.0020	1	
c-1,2-Dichloroethene	ND	0.0020	1	
t-1,2-Dichloroethene	ND	0.0020	1	
1,2-Dichloropropane	ND	0.0023	1	
c-1,3-Dichloropropene	ND	0.0023	1	
t-1,3-Dichloropropene	ND	0.0045	1	
Dichlorotetrafluoroethane	ND	0.014	1	
Ethylbenzene	ND	0.0022	1	
4-Ethyltoluene	ND	0.0025	1	
Hexachloro-1,3-Butadiene	ND	0.016	1	
2-Hexanone	ND	0.0061	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1	
Methylene Chloride	ND	0.017	1	
4-Methyl-2-Pentanone	ND	0.0061	1	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ug/L
Project: Brookfield / SB0674			Page 6 of 6

Parameter	Result	RL	DF	Qualifiers
Styrene	ND	0.0064	1	
1,1,2,2-Tetrachloroethane	ND	0.0069	1	
Tetrachloroethene	ND	0.0034	1	
Toluene	ND	0.0019	1	
1,2,4-Trichlorobenzene	ND	0.015	1	
1,1,1-Trichloroethane	ND	0.0027	1	
1,1,2-Trichloroethane	ND	0.0027	1	
Trichloroethene	ND	0.0027	1	
Trichlorofluoromethane	ND	0.0056	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.011	1	
1,2,4-Trimethylbenzene	ND	0.0074	1	
1,3,5-Trimethylbenzene	ND	0.0025	1	
Vinyl Acetate	ND	0.0070	1	
Vinyl Chloride	ND	0.0013	1	
o-Xylene	ND	0.0022	1	
p/m-Xylene	ND	0.0087	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	104	68-134	
1,2-Dichloroethane-d4	96	67-133	
Toluene-d8	95	70-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/kg
Project: Brookfield / SB0674			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T9-111313	**13-11-1034-3-A**	**11/13/13 12:32**	**Solid**	**GC 58**	**11/15/13**	**11/19/13 15:36**	**131115L06**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	2500	50	
Aroclor-1221	ND	2500	50	
Aroclor-1232	ND	2500	50	
Aroclor-1242	ND	2500	50	
Aroclor-1248	ND	2500	50	
Aroclor-1254	ND	2500	50	
Aroclor-1260	9800	2500	50	
Aroclor-1262	ND	2500	50	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	166	50-130	1,2,7
2,4,5,6-Tetrachloro-m-Xylene	75	50-130	

Method Blank	099-12-535-2374	N/A	Solid	GC 58	11/15/13	11/18/13 16:14	131115L06

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	50	1	
Aroclor-1221	ND	50	1	
Aroclor-1232	ND	50	1	
Aroclor-1242	ND	50	1	
Aroclor-1248	ND	50	1	
Aroclor-1254	ND	50	1	
Aroclor-1260	ND	50	1	
Aroclor-1262	ND	50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	98	50-130	
2,4,5,6-Tetrachloro-m-Xylene	98	50-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8082
		Units:	ug/L
Project: Brookfield / SB0674			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
QCEB-111313	**13-11-1034-4-A**	**11/13/13 12:40**	**Aqueous**	**GC 58**	**11/14/13**	**11/18/13 15:20**	**131114L10**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	1.0	1	
Aroclor-1221	ND	1.0	1	
Aroclor-1232	ND	1.0	1	
Aroclor-1242	ND	1.0	1	
Aroclor-1248	ND	1.0	1	
Aroclor-1254	ND	1.0	1	
Aroclor-1260	ND	1.0	1	
Aroclor-1262	ND	1.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	92	50-135	
2,4,5,6-Tetrachloro-m-Xylene	81	50-135	

Method Blank	**099-12-533-861**	**N/A**	**Aqueous**	**GC 58**	**11/14/13**	**11/18/13 15:02**	**131114L10**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	1.0	1	
Aroclor-1221	ND	1.0	1	
Aroclor-1232	ND	1.0	1	
Aroclor-1242	ND	1.0	1	
Aroclor-1248	ND	1.0	1	
Aroclor-1254	ND	1.0	1	
Aroclor-1260	ND	1.0	1	
Aroclor-1262	ND	1.0	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	86	50-135	
2,4,5,6-Tetrachloro-m-Xylene	84	50-135	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
Project: Brookfield / SB0674			Page 1 of 1

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-11-1195-11	**Solid**	**GC 58**	**11/15/13**	**11/18/13 16:32**	**131115S06**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aroclor-1016	ND	100.0	93.16	93	94.32	94	50-135	1	0-20	
Aroclor-1260	ND	100.0	144.9	145	144.8	145	50-135	0	0-25	3

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
Project: Brookfield / SB0674			Page 1 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-021-12392	**Air**	**GC/MS NN**	**N/A**	**11/19/13 11:56**	**131119L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acetone	0.05939	0.06052	102	0.05807	98	67-133	56-144	4	0-30	
Benzene	0.07987	0.08223	103	0.08175	102	70-130	60-140	1	0-30	
Benzyl Chloride	0.1294	0.1533	118	0.1543	119	38-158	18-178	1	0-30	
Bromodichloromethane	0.1675	0.1775	106	0.1743	104	70-130	60-140	2	0-30	
Bromoform	0.2584	0.3157	122	0.3171	123	63-147	49-161	0	0-30	
Bromomethane	0.09708	0.09397	97	0.09073	93	70-139	58-150	4	0-30	
2-Butanone	0.07373	0.08189	111	0.07909	107	66-132	55-143	3	0-30	
Carbon Disulfide	0.07785	0.07805	100	0.07441	96	68-146	55-159	5	0-30	
Carbon Tetrachloride	0.1573	0.1633	104	0.1613	103	70-136	59-147	1	0-30	
Chlorobenzene	0.1151	0.1261	110	0.1285	112	70-130	60-140	2	0-30	
Chloroethane	0.06596	0.06567	100	0.06364	96	65-149	51-163	3	0-30	
Chloroform	0.1221	0.1244	102	0.1196	98	70-130	60-140	4	0-30	
Chloromethane	0.05163	0.05101	99	0.04909	95	69-141	57-153	4	0-30	
Dibromochloromethane	0.2130	0.2371	111	0.2395	112	70-138	59-149	1	0-30	
1,2-Dibromoethane	0.1921	0.2053	107	0.2058	107	70-133	60-144	0	0-30	
1,2-Dichlorobenzene	0.1503	0.1798	120	0.1800	120	48-138	33-153	0	0-30	
1,3-Dichlorobenzene	0.1503	0.1846	123	0.1860	124	56-134	43-147	1	0-30	
1,4-Dichlorobenzene	0.1503	0.1822	121	0.1833	122	52-136	38-150	1	0-30	
Dichlorodifluoromethane	0.1236	0.1304	105	0.1259	102	67-139	55-151	3	0-30	
1,1-Dichloroethane	0.1012	0.1095	108	0.1057	104	70-130	60-140	3	0-30	
1,2-Dichloroethane	0.1012	0.1071	106	0.1031	102	70-132	60-142	4	0-30	
1,1-Dichloroethene	0.09912	0.1013	102	0.09680	98	70-135	59-146	5	0-30	
c-1,2-Dichloroethene	0.09912	0.1029	104	0.09944	100	70-130	60-140	3	0-30	
t-1,2-Dichloroethene	0.09912	0.1019	103	0.09849	99	70-130	60-140	3	0-30	
1,2-Dichloropropane	0.1155	0.1194	103	0.1176	102	70-130	60-140	2	0-30	
c-1,3-Dichloropropene	0.1135	0.1175	104	0.1169	103	70-130	60-140	0	0-30	
t-1,3-Dichloropropene	0.1135	0.1197	105	0.1170	103	70-147	57-160	2	0-30	
Dichlorotetrafluoroethane	0.1748	0.1887	108	0.1831	105	51-135	37-149	3	0-30	
Ethylbenzene	0.1086	0.1187	109	0.1188	109	70-130	60-140	0	0-30	
4-Ethyltoluene	0.1229	0.1438	117	0.1432	117	68-130	58-140	0	0-30	
Hexachloro-1,3-Butadiene	0.2666	0.3353	126	0.3350	126	44-146	27-163	0	0-30	
2-Hexanone	0.1024	0.1129	110	0.1135	111	70-136	59-147	1	0-30	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.09381	104	0.09056	100	68-130	58-140	4	0-30	
Methylene Chloride	0.08684	0.08504	98	0.08148	94	69-130	59-140	4	0-30	
4-Methyl-2-Pentanone	0.1024	0.1076	105	0.1070	104	70-130	60-140	1	0-30	
Styrene	0.1065	0.1314	123	0.1318	124	65-131	54-142	0	0-30	
1,1,2,2-Tetrachloroethane	0.1716	0.1914	112	0.1919	112	63-130	52-141	0	0-30	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	N/A
		Method:	EPA TO-15
Project: Brookfield / SB0674			Page 2 of 4

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Tetrachloroethene	0.1696	0.1887	111	0.1888	111	70-130	60-140	0	0-30	
Toluene	0.09421	0.09674	103	0.09635	102	70-130	60-140	0	0-30	
1,2,4-Trichlorobenzene	0.1855	0.2226	120	0.2258	122	31-151	11-171	1	0-30	
1,1,1-Trichloroethane	0.1364	0.1407	103	0.1348	99	70-130	60-140	4	0-30	
1,1,2-Trichloroethane	0.1364	0.1407	103	0.1387	102	70-130	60-140	1	0-30	
Trichloroethene	0.1343	0.1387	103	0.1374	102	70-130	60-140	1	0-30	
Trichlorofluoromethane	0.1405	0.1382	98	0.1301	93	63-141	50-154	6	0-30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.1916	0.1925	100	0.1873	98	70-136	59-147	3	0-30	
1,2,4-Trimethylbenzene	0.1229	0.1546	126	0.1565	127	60-132	48-144	1	0-30	
1,3,5-Trimethylbenzene	0.1229	0.1501	122	0.1524	124	62-130	51-141	2	0-30	
Vinyl Acetate	0.08803	0.1020	116	0.09828	112	58-130	46-142	4	0-30	
Vinyl Chloride	0.06391	0.06443	101	0.06203	97	70-134	59-145	4	0-30	
o-Xylene	0.1086	0.1255	116	0.1256	116	69-130	59-140	0	0-30	
p/m-Xylene	0.2171	0.2509	116	0.2510	116	70-132	60-142	0	0-30	

Total number of LCS compounds: 51
Total number of ME compounds: 0
Total number of ME compounds allowed: 3
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	EPA 3545
		Method:	EPA 8082
Project: Brookfield / SB0674			Page 3 of 4

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-535-2374	**Solid**	**GC 58**	**11/18/13 15:56**	**131115L06**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Aroclor-1016	100.0	84.32	84	50-135	
Aroclor-1260	100.0	76.71	77	50-135	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Geosyntec Consultants		Date Received:	11/13/13
924 Anacapa Street, Suite 4A		Work Order:	13-11-1034
Santa Barbara, CA 93101-2177		Preparation:	EPA 3510C
		Method:	EPA 8082
Project: Brookfield / SB0674			Page 4 of 4

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-533-861	**Aqueous**	**GC 58**	**11/14/13**	**11/18/13 14:26**	**131114L10**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aroclor-1016	2.000	1.843	92	1.694	85	50-135	8	0-25	
Aroclor-1260	2.000	1.696	85	1.772	89	50-135	4	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Summa Canister Vacuum Summary

Work Order: 13-11-1034

Sample Name	Vacuum Out	Vacuum In	Equipment	Description
VP-3-30-111313S	-29.60 in Hg	-4.00 in Hg	SLC091	Summa Canister 1L
VP-14-15-111313S	-29.60 in Hg	-5.00 in Hg	LC600	Summa Canister 1L

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Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 13-11-1034

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 8082	EPA 3545	669	GC 58	1
EPA 8082	EPA 3510C	669	GC 58	1
EPA TO-15	N/A	866	GC/MS NN	2

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-11-1034

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 FAX: (714) 894-7501

AIR CHAIN OF CUSTODY RECORD

DATE: 11·13·13
PAGE: 1 OF 2

LABORATORY CLIENT: Geosyntec Consultants
ADDRESS: 924 Anacapa St., Suite 4A
CITY: Santa Barbara STATE: CA ZIP: 93101
TEL: (805) 897-3800 E-MAIL: gfrieman@geosyntec.com

CLIENT PROJECT NAME / NUMBER: Brookfield SB0674
PROJECT ADDRESS: 11850 Whittier Blvd.
CITY: Whittier STATE: CA ZIP:
PROJECT CONTACT: Geoff Frieman

P.O.NO.: SB0674
LAB CONTACT OR QUOTE NO.
LAB USE ONLY: 13-11-1034

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SAMPLER(S): (NAME / SIGNATURE) D. Fisher

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☒ EDD

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES: 51-Q1

LAB USE ONLY	SAMPLE ID	FIELD ID / Point of Collection	Air Type (I) Indoor (SV) Soil Vap. (A) Ambient	Sampling Equipment: Canister ID#	Canister Size 6L or 1L	Flow Controller ID #	Start Sampling Information: Date	Time (24 hr clock)	Canister Pressure ("Hg)	Stop Sampling Information: Date	Time (24 hr clock)	Canister Pressure ("Hg)	51-Q1
1	VP-3-30-111313S	12/3/13	SV	SLC091	1L	A419	11·13·13	1133	29.6	11·13·13	1140	4	X
2	VP-14-15-111313S		SV	LC600	1L	A420	11·13·13	1157	29.6	11·13·13	1202	5	X
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
[signature]	[signature] CEL	11/13/13	15:15
[signature]	[signature] CEL	11/13/13	1625

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7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 FAX: (714) 894-7501

AIR CHAIN OF CUSTODY RECORD

DATE: 11·13·13
PAGE: 1 OF 2

LABORATORY CLIENT: Geosyntec Consultants
ADDRESS: 924 Anacapa St., Suite 4A
CITY: Santa Barbara STATE: CA ZIP: 93101
TEL: (805) 897-3800 E-MAIL: gfrieman@geosyntec.com

CLIENT PROJECT NAME / NUMBER: Brookfield SB0674
PROJECT ADDRESS: 11850 Whittier Blvd.
CITY: Whittier STATE: CA ZIP:
PROJECT CONTACT: Geoff Frieman

P.O.NO.: SB0674
LAB CONTACT OR QUOTE NO.
LAB USE ONLY: 13-11-1034

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SAMPLER(S): (NAME / SIGNATURE) D. Fisher

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☒ EDD

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES: 51-PL

LAB USE ONLY	SAMPLE ID	FIELD ID / Point of Collection	Air Type (I) Indoor (SV) Soil Vap. (A) Ambient	Sampling Equipment: Canister ID#	Canister Size 6L or 1L	Flow Controller ID #	Start Sampling Information: Date	Time (24 hr clock)	Canister Pressure ("Hg)	Stop Sampling Information: Date	Time (24 hr clock)	Canister Pressure ("Hg)	51-PL
1	VP-3-30-111313		SV	SLC091	1L	A419	11·13·13	1133	29.6	11·13·13	1140	4	X
2	VP-14-15-111313		SV	LC600	1L	A420	11·13·13	1157	29.6	11·13·13	1202	5	X
3													
4													
5													
6													
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8													
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11													
12													
13													
14													
15													

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
[signature]	[signature] CEL	11/13/13	15:15
[signature]	[signature] CEL	11/13/13	1625

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Calscience Environmental Laboratories, Inc.

☐ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

Date 11/13/13

Page 2 of 2

WO # / LAB USE ONLY: 1 1 - 1 0 3 4

LABORATORY CLIENT: Geosyntec Consultants

ADDRESS: 924 Anacapa St., Suite 4A

CITY: Santa Barbara STATE: CA ZIP: 93101

TEL: (805) 897-3800 E-MAIL: gfrieman@geosyntec.com

CLIENT PROJECT NAME / NUMBER: Brookfield SB0674

P.O. NO.: SB0674

PROJECT CONTACT: Geoff Frieman

SAMPLER(S): (PRINT): [illegible]

TURNAROUND TIME:
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6-C44) or (C6C36)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]					
3	T9-111313	11.13.13	12:32	S	1	X												X								
4	QCEB-111313	11.13.13	12:40	W	1	X												X								

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	[signature] CEL	11/13/13	15:15
Relinquished by: (Signature) [signature]	Received by: (Signature/Affiliation) [signature] CEL	11/13/13	1625
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-1034

SAMPLE RECEIPT FORM

Cooler 0 of 0

CLIENT: GEOSYNTEC

DATE: 11/13/13

TEMPERATURE: Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature _____.____ °C - 0.2 °C (CF) = _____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter **Checked by:** 804

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☑ N/A **Checked by:** 804

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Checked by:** 836

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOA**h** ☐VOA**na_2** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na_2** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na_2** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** 836

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 802

Preservative: **h:** HCL **n:** HNO_3 **na_2:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** 802

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-11-1034

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: GEOSYNTEC

DATE: 11/13/13

TEMPERATURE: Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 2.8 °C - 0.2 °C (CF) = 2.6 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☐ Air ☐ Filter Checked by: 804

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Checked by: 804

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Checked by: 836

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☑4ozCGJ (C-3) ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☑1AGB (C-4) ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** 836

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 802

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** 802

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JONES ENVIRONMENTAL, INC.

P.O. Box 5387 | FULLERTON, CA 92838
(714) 449-9937 | FAX (714) 449-9685

JONES ENVIRONMENTAL
LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project Name:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

ANALYSES REQUESTED

1. EPA 8260B - Volatile Organics by GC/MS + Oxygenates

Sampling – Soil Gas samples were collected in glass gas-tight syringes equipped with Teflon plungers. Tubing placed in the ground for soil gas sampling was purged three different times as recommended by DTSC/RWQCB guidance documents. This purge test determined how many purges of the soil gas tubing were needed throughout the project. One, three and ten purge volumes were analyzed to make this determination.

A tracer gas mixture of n-propanol and n-pentane was placed at the tubing-surface interface before sampling. These compounds were analyzed during the 8260B analytical run to determine if there were surface leaks into the subsurface due to improper installation of the probe. No n-propanol or n-pentane was found in any of the samples reported herein.

The sampling rate was approximately 200 cc/min except when noted differently on the chain of custody record using a gas tight syringe. 1 & 10 purge volumes were used since this purging level gave the highest results for the compound(s) of greatest interest.

Prior to purging and sampling of soil gas at each point, a shut-in test was conducted to check for leaks in the above ground fittings. The shut-in test was performed on the above ground apparatus by evacuating the line to a vacuum of 100 inches of water, sealing the entire system and watching the vacuum for at least one minute. A vacuum gauge attached in parallel to the apparatus measured the vacuum. If there was any observable loss of vacuum, the fittings were adjusted as needed until the vacuum did not change noticeably. The soil gas sample was then taken.

No flow conditions occur when a sampling rate greater than 10 mL/min cannot be maintained without applying a vacuum greater than 100 inches of water to the sampling train. The sampling train is left at a vacuum for no less than three minutes. If the vacuum does not subside appreciably after three minutes, the sample location is determined to be a no flow sample.

Analytical – Soil Gas samples were analyzed using EPA Method 8260 that includes extra compounds required by DTSC/RWQCB (such as Freon 113). Instrument Continuing Calibration Verification, QC Reference Standards, Instrument Blanks and Sampling Blanks were analyzed every 12 hours as prescribed by the method. In addition, Matrix Spike (MS) and Matrix Spike Duplicates (MSD) were analyzed with each batch of Soil Gas samples. A duplicate/replicate sample was analyzed each day of the sampling activity. All samples were injected into the GC/MS system within 30 minutes of sampling except for the following samples: VP-6-30-111313 DUP (39 minutes) and VP-16-5-111313 DUP (36 minutes).

Approval: _____

Steve Jones, Ph.D.
Laboratory Manager

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Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-11-5-111313 1PV**	**VP-11-5-111313 3PV**	**VP-11-5-111313 10PV**	**VP-11-15-111313 1PV**	**VP-11-15-111313 3PV**		
JEL ID:	**E-0010-01**	**E-0010-02**	**E-0010-03**	**E-0010-04**	**E-0010-05**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	**0.040**	**0.028**	**0.031**	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	**0.013 J**	**0.012 J**	**0.011 J**	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-11-5-111313 1PV**	**VP-11-5-111313 3PV**	**VP-11-5-111313 10PV**	**VP-11-15-111313 1PV**	**VP-11-15-111313 3PV**		
JEL ID:	**E-0010-01**	**E-0010-02**	**E-0010-03**	**E-0010-04**	**E-0010-05**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	**0.024**	**0.010 J**	**0.012 J**	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	**0.027**	**0.027**	**0.029**	**0.224**	**0.214**	0.008	µg/L
Toluene	ND	**0.116**	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	**0.023**	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	ND	ND	ND	**0.016 J**	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	117%	113%	112%	115%	112%	75 - 125	
Toluene-d_8	101%	101%	101%	101%	99%	75 - 125	
4-Bromofluorobenzene	113%	111%	111%	95%	95%	75 - 125	
	E1-111313-CHECKS	E1-111313-CHECKS	E1-111313-CHECKS	D1-111313-CHECKS	D1-111313-CHECKS		

ND= Not Detected

J = Estimated Concentration

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-11-15-111313 10PV**	**VP-11-30-111313 1PV**	**VP-11-30-111313 3PV**	**VP-11-30-111313 10PV**	**VP-11-45-111313**		
JEL ID:	**E-0010-06**	**E-0010-07**	**E-0010-08**	**E-0010-09**	**E-0010-10**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-11-15-111313 10PV**	**VP-11-30-111313 1PV**	**VP-11-30-111313 3PV**	**VP-11-30-111313 10PV**	**VP-11-45-111313**		
JEL ID:	**E-0010-06**	**E-0010-07**	**E-0010-08**	**E-0010-09**	**E-0010-10**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	**0.011 J**	**0.015 J**	**0.009 J**	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	**0.172**	**0.031**	**0.021**	**0.017 J**	ND	0.008	µg/L
Toluene	ND	**0.021**	**0.014 J**	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	**0.010 J**	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	109%	102%	103%	97%	99%	75 - 125	
Toluene-d_8	98%	99%	101%	102%	103%	75 - 125	
4-Bromofluorobenzene	96%	115%	111%	111%	113%	75 - 125	
	D1-111313-CHECKS	E2-111313-CHECKS	E2-111313-CHECKS	E2-111313-CHECKS	E2-111313-CHECKS		

ND= Not Detected

J = Estimated concentration

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:**	E-0010
		Client Ref. No.:	SB0674
Attn:	Geoff Frieman	**Date Sampled:**	11/11-13/13
		Date Received:	11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-4-5-111313**	**VP-4-15-111313**	**VP-4-30-111313**	**VP-7-5-111313**	**VP-7-15-111313**		
JEL ID:	**E-0010-11**	**E-0010-12**	**E-0010-13**	**E-0010-14**	**E-0010-15**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-4-5-111313**	**VP-4-15-111313**	**VP-4-30-111313**	**VP-7-5-111313**	**VP-7-15-111313**		
JEL ID:	**E-0010-11**	**E-0010-12**	**E-0010-13**	**E-0010-14**	**E-0010-15**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	ND	**0.087**	ND	ND	**0.103**	0.008	µg/L
Toluene	ND	ND	**0.080**	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	**0.014 J**	ND	ND	**0.025**	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	108%	114%	96%	110%	111%	75 - 125	
Toluene-d_8	101%	99%	100%	100%	99%	75 - 125	
4-Bromofluorobenzene	111%	94%	110%	112%	98%	75 - 125	
	E1-111313-CHECKS	D1-111313-CHECKS	E2-111313-CHECKS	E1-111313-CHECKS	D1-111313-CHECKS		

ND= Not Detected

J = Estimated Concentration

JONES ENVIRONMENTAL, INC.

P.O. Box 5387 | FULLERTON, CA 92838
(714) 449-9937 | FAX (714) 449-9685

JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-7-30-111313**	**VP-6-5-111313**	**VP-6-15-111313**	**VP-6-15-111313 DUP**	**VP-6-30-111313**		
JEL ID:	**E-0010-16**	**E-0010-17**	**E-0010-18**	**E-0010-19**	**E-0010-20**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-7-30-111313**	**VP-6-5-111313**	**VP-6-15-111313**	**VP-6-15-111313 DUP**	**VP-6-30-111313**		
JEL ID:	**E-0010-16**	**E-0010-17**	**E-0010-18**	**E-0010-19**	**E-0010-20**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	**0.022**	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	**0.120**	ND	**0.098**	**0.266**	**0.008 J**	0.008	µg/L
Toluene	ND	ND	**0.102**	**0.127**	**0.127**	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	**0.010 J**	**0.014 J**	**0.066**	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	**0.022**	ND	ND	ND	**0.013 J**	0.008	µg/L
1,3,5-Trimethylbenzene	**0.010J**	ND	ND	ND	**0.008 J**	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	**0.080J**	ND	ND	ND	**0.069**	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	105%	100%	115%	113%	102%	75 - 125	
Toluene-d_8	101%	101%	100%	99%	102%	75 - 125	
4-Bromofluorobenzene	113%	109%	97%	95%	111%	75 - 125	
	E2-111313-CHECKS	E1-111313-CHECKS	D1-111313-CHECKS	D1-111313-CHECKS	E2-111313-CHECKS		

ND= Not Detected

J = Estimated Concentration

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-6-30-111313 DUP**	**VP-5-5 111313**	**VP-2-5-111313**	**VP-2-15-111313**	**VP-1-5-111313**		
JEL ID:	**E-0010-21**	**E-0010-22**	**E-0010-25**	**E-0010-26**	**E-0010-27**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-6-30-111313 DUP**	**VP-5-5 111313**	**VP-2-5-111313**	**VP-2-15-111313**	**VP-1-5-111313**		
JEL ID:	**E-0010-21**	**E-0010-22**	**E-0010-25**	**E-0010-26**	**E-0010-27**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	**0.019J**	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	**0.090**	**0.030**	ND	**0.012 J**	ND	0.008	µg/L
Toluene	**0.130**	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	**0.012 J**	ND	**0.032**	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	**0.034**	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	105%	115%	103%	110%	96%	75 - 125	
Toluene-d_8	101%	105%	99%	99%	101%	75 - 125	
4-Bromofluorobenzene	117%	111%	110%	110%	112%	75 - 125	
	E2-111313-CHECKS	E1-111313-CHECKS	E1-111313-CHECKS	E1-111313-CHECKS	E1-111313-CHECKS		

ND= Not Detected

J = Estimated Concentration

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-1-15-111313**	**VP-3-5-111313**	**VP-3-15-111313**	**VP-3-30-111313**	**VP-8-5-111313**		
JEL ID:	**E-0010-28**	**E-0010-29**	**E-0010-30**	**E-0010-31**	**E-0010-32**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-1-15-111313**	**VP-3-5-111313**	**VP-3-15-111313**	**VP-3-30-111313**	**VP-8-5-111313**		
JEL ID:	**E-0010-28**	**E-0010-29**	**E-0010-30**	**E-0010-31**	**E-0010-32**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	**0.204**	**0.025**	**0.223**	ND	ND	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	**0.042**	ND	**0.013 J**	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	116%	93%	102%	106%	106%	75 - 125	
Toluene-d_8	101%	101%	99%	100%	100%	75 - 125	
4-Bromofluorobenzene	98%	107%	109%	113%	111%	75 - 125	
	D1-111313-CHECKS	E1-111313-CHECKS	E1-111313-CHECKS	E2-111313-CHECKS	E2-111313-CHECKS		

ND= Not Detected

J = Estimated Concentration

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-8-15-111313**	**VP-8-30-111313**	**VP-3-5-111313 DUP**	**VP-9-5-111313**	**VP-9-15-111313**		
JEL ID:	**E-0010-33**	**E-0010-34**	**E-0010-35**	**E-0010-36**	**E-0010-37**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-8-15-111313**	**VP-8-30-111313**	**VP-3-5-111313 DUP**	**VP-9-5-111313**	**VP-9-15-111313**		
JEL ID:	**E-0010-33**	**E-0010-34**	**E-0010-35**	**E-0010-36**	**E-0010-37**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	**0.047**	**0.009 J**	**0.013 J**	ND	**0.136**	0.008	µg/L
Toluene	ND	ND	ND	**0.100**	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	**0.017 J**	ND	ND	ND	**0.040**	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	**0.025**	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	113%	104%	102%	106%	116%	75 - 125	
Toluene-d_8	103%	101%	99%	100%	101%	75 - 125	
4-Bromofluorobenzene	94%	111%	109%	111%	94%	75 - 125	
	D1-111313-CHECKS	E2-111313-CHECKS	E1-111313-CHECKS	E2-111313-CHECKS	D1-111313-CHECKS		

ND= Not Detected

J = Estimated Concentration

JONES ENVIRONMENTAL, INC.
P.O. Box 5387 | FULLERTON, CA 92838
(714) 449-9937 | Fax (714) 449-9685

JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-9-30-111313**	**VP-10-5-111313**	**VP-10-15-111313**	**VP-10-30-111313**	**VP-10-45-111313**		
JEL ID:	**E-0010-38**	**E-0010-39**	**E-0010-40**	**E-0010-41**	**E-0010-42**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-9-30-111313**	**VP-10-5-111313**	**VP-10-15-111313**	**VP-10-30-111313**	**VP-10-45-111313**		
JEL ID:	**E-0010-38**	**E-0010-39**	**E-0010-40**	**E-0010-41**	**E-0010-42**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	ND	ND	ND	**0.023**	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	108%	110%	97%	103%	114%	75 - 125	
Toluene-d_8	100%	112%	104%	99%	104%	75 - 125	
4-Bromofluorobenzene	114%	110%	114%	111%	110%	75 - 125	
	E2-111313-CHECKS	E1-111313-CHECKS	E1-111313-CHECKS	E2-111313-CHECKS	E1-111313-CHECKS		

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-12-5-111313**	**VP-12-15-111313**	**VP-12-30-111313**	**VP-12-45-111313**	**VP-13-5-111313**		
JEL ID:	**E-0010-43**	**E-0010-44**	**E-0010-45**	**E-0010-46**	**E-0010-47**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-12-5-111313**	**VP-12-15-111313**	**VP-12-30-111313**	**VP-12-45-111313**	**VP-13-5-111313**		
JEL ID:	**E-0010-43**	**E-0010-44**	**E-0010-45**	**E-0010-46**	**E-0010-47**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	ND	**0.115**	ND	ND	**0.110**	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	**0.027**	ND	ND	**0.028**	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	117%	117%	105%	101%	114%	75 - 125	
Toluene-d_8	101%	100%	99%	100%	97%	75 - 125	
4-Bromofluorobenzene	110%	93%	114%	113%	95%	75 - 125	
	E1-111313-CHECKS	D1-111313-CHECKS	E2-111313-CHECKS	E2-111313-CHECKS	D1-111313-CHECKS		

ND= Not Detected

JONES ENVIRONMENTAL, INC.
P.O. Box 5387 | FULLERTON, CA 92838
(714) 449-9937 | Fax (714) 449-9685

JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-13-15-111313**	**VP-13-30-111313**	**VP-14-5-111313**	**VP-14-15-111313**	**VP-15-5-111313**		
JEL ID:	**E-0010-48**	**E-0010-49**	**E-0010-50**	**E-0010-51**	**E-0010-52**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	**0.081**	**0.224**	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-13-15-111313**	**VP-13-30-111313**	**VP-14-5-111313**	**VP-14-15-111313**	**VP-15-5-111313**		
JEL ID:	**E-0010-48**	**E-0010-49**	**E-0010-50**	**E-0010-51**	**E-0010-52**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	**0.009 J**	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	**0.166**	**0.070**	ND	**0.102**	**0.127**	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	**0.008 J**	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	**0.058**	ND	ND	**0.020**	**0.028**	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	113%	115%	95%	117%	113%	75 - 125	
Toluene-d_8	99%	100%	101%	99%	102%	75 - 125	
4-Bromofluorobenzene	95%	94%	95%	96%	90%	75 - 125	
	D1-111313-CHECKS	D1-111313-CHECKS	D1-111313-CHECKS	D1-111313-CHECKS	D1-111313-CHECKS		

ND= Not Detected

J = Estimated Concentration

JONES ENVIRONMENTAL, INC.
P.O. Box 5387 | FULLERTON, CA 92838
(714) 449-9937 | Fax (714) 449-9685

JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-15-15-111313**	**VP-15-15-111313 DUP**	**VP-18-5-111313**	**VP-18-15-111313**	**VP-17-5-111313**		
JEL ID:	**E-0010-53**	**E-0010-54**	**E-0010-55**	**E-0010-56**	**E-0010-57**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-15-15-111313**	**VP-15-15-111313 DUP**	**VP-18-5-111313**	**VP-18-15-111313**	**VP-17-5-111313**		
JEL ID:	**E-0010-53**	**E-0010-54**	**E-0010-55**	**E-0010-56**	**E-0010-57**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	**0.091**	**0.126**	ND	ND	ND	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	**0.023**	**0.049**	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	113%	116%	95%	105%	106%	75 - 125	
Toluene-d_8	99%	99%	103%	99%	103%	75 - 125	
4-Bromofluorobenzene	93%	93%	109%	114%	111%	75 - 125	
	D1-111313-CHECKS	D1-111313-CHECKS	E1-111313-CHECKS	E2-111313-CHECKS	E1-111313-CHECKS		

ND= Not Detected

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P.O. Box 5387 | FULLERTON, CA 92838
(714) 449-9937 | Fax (714) 449-9685

JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-17-15-111313**	**VP-16-5-111313**	**VP-16-5-111313 DUP**	**VP-16-15-111313**		
JEL ID:	**E-0010-58**	**E-0010-59**	**E-0010-60**	**E-0010-61**	**Method Detection Limit**	**Units**
Analytes:						
Benzene	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**VP-17-15-111313**	**VP-16-5-111313**	**VP-16-5-111313 DUP**	**VP-16-15-111313**		
JEL ID:	**E-0010-58**	**E-0010-59**	**E-0010-60**	**E-0010-61**	**Method Detection Limit**	**Units**
Analytes:						
cis-1,3-Dichloropropene	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	ND	ND	**0.053**	ND	0.008	µg/L
Toluene	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	0.020	µg/L
TIC:						
n-propanol	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1		
Surrogate Recoveries:					**QC Limits**	
Dibromofluoromethane	93%	99%	108%	104%	75 - 125	
Toluene-d_8	101%	99%	95%	98%	75 - 125	
4-Bromofluorobenzene	109%	113%	111%	115%	75 - 125	
	E1-111313-CHECKS	E2-111313-CHECKS	E2-111313-CHECKS	E2-111313-CHECKS		

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:** **Client Ref. No.:**	E-0010 SB0674
Attn:	Geoff Frieman	**Date Sampled:** **Date Received:**	11/11-13/13 11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**METHOD BLANK**	**SAMPLING BLANK**	**METHOD BLANK**	**SAMPLING BLANK**	**METHOD BLANK**		
JEL ID:	**E-0010-62**	**E-0010-63**	**E-0010-67**	**E-0010-68**	**E-0010-72**	**Method Detection Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

ND= Not Detected

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B-Volatile Organics by GC/MS + Oxygenates

Sample ID:	**METHOD BLANK**	**SAMPLING BLANK**	**METHOD BLANK**	**SAMPLING BLANK**	**METHOD BLANK**		
JEL ID:	**E-0010-62**	**E-0010-63**	**E-0010-67**	**E-0010-68**	**E-0010-72**	**Method Detection Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.008	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.020	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.020	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.020	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.020	µg/L
TIC:							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	110%	111%	104%	117%	97%	75 - 125	
Toluene-d_8	98%	99%	100%	102%	96%	75 - 125	
4-Bromofluorobenzene	100%	94%	98%	115%	90%	75 - 125	
	D1-111313-CHECKS	D1-111313-CHECKS	E1-111313-CHECKS	E1-111313-CHECKS	E2-111313-CHECKS		

ND= Not Detected

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QUALITY CONTROL INFORMATION

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A	**JEL Ref. No.:**	E-0010
	Santa Barbara, CA 93101	**Client Ref. No.:**	SB0674
			1/0/1900
Attn:	Geoff Frieman	**Date Sampled:**	11/11-13/13
		Date Received:	11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd.	**Physical State:**	Soil Gas
	Whittier, CA		

EPA 8260B-Volatile Organics by GC/MS + Oxygenates/Total Petroleum Hydrocarbons

Sample Spiked: Ambient Air **GC#:** D1-111313-CHECKS

JEL ID:	**E-0010-65**	**E-0010-66**			**E-0010-64**	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD	Acceptability Range (%)	LCS	Acceptability Range (%)
Benzene	108%	102%	5.7%	70-130	102%	70-130
Bromobenzene	122%	111%	9.1%	70-130	125%	70-130
Bromodichloromethane	110%	109%	0.5%	70-130	110%	70-130
Bromoform	105%	99%	6.7%	70-130	111%	70-130
n-Butylbenzene	104%	98%	5.8%	70-130	99%	70-130
sec-Butylbenzene	115%	105%	9.1%	70-130	109%	70-130
tert-Butylbenzene	112%	107%	4.1%	70-130	108%	70-130
Carbon tetrachloride	105%	101%	4.0%	70-130	102%	70-130
Chlorobenzene	114%	111%	2.0%	70-130	115%	70-130
Chloroform	110%	107%	2.4%	70-130	111%	70-130
2-Chlorotoluene	119%	114%	3.7%	70-130	119%	70-130
4-Chlorotoluene	117%	113%	3.7%	70-130	119%	70-130
Dibromochloromethane	105%	100%	4.6%	70-130	110%	70-130
1,2-Dibromo-3-chloropropane	100%	84%	17%	70-130	105%	70-130
1,2-Dibromoethane (EDB)	104%	98%	6.3%	70-130	103%	70-130
Dibromomethane	109%	105%	3.9%	70-130	109%	70-130
1,2- Dichlorobenzene	114%	113%	1.1%	70-130	124%	70-130
1,3-Dichlorobenzene	118%	114%	3.5%	70-130	135%	70-130
1,4-Dichlorobenzene	105%	101%	4.2%	70-130	109%	70-130
Dichlorodifluoromethane	77%	71%	8.6%	70-130	46%	70-130
1,1-Dichloroethane	92%	87%	5.4%	70-130	99%	70-130
1,2-Dichloroethane	106%	100%	5.5%	70-130	107%	70-130
1,1-Dichloroethene	123%	115%	6.5%	70-130	115%	70-130
cis-1,2-Dichloroethene	116%	121%	4.7%	70-130	119%	70-130
trans-1,2-Dichloroethene	108%	95%	12%	70-130	98%	70-130
1,2-Dichloropropane	109%	103%	5.4%	70-130	109%	70-130
1,3-Dichloropropane	112%	105%	5.7%	70-130	114%	70-130
2,2-Dichloropropane	116%	120%	3.6%	70-130	118%	70-130
1,1-Dichloropropene	110%	104%	4.9%	70-130	102%	70-130

QUALITY CONTROL INFORMATION

EPA 8260B-Volatile Organics by GC/MS + Oxygenates/Total Petroleum Hydrocarbons

JEL ID:	E-0010-65	E-0010-66			E-0010-64	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD	Acceptability Range (%)	LCS	Acceptability Range (%)
Ethylbenzene	105%	104%	0.2%	70-130	105%	70-130
Freon 113	158%	125%	23%	70-130	145%	70-130
Hexachlorobutadiene	99%	80%	21%	70-130	94%	70-130
Isopropylbenzene	116%	111%	4.6%	70-130	112%	70-130
4-Isopropyltoluene	113%	101%	11%	70-130	10%	70-130
Methylene chloride	21%	21%	1.7%	70-130	41%	70-130
Naphthalene	95%	90%	5.8%	70-130	96%	70-130
n-Propylbenzene	120%	112%	6.9%	70-130	113%	70-130
Styrene	89%	87%	1.8%	70-130	92%	70-130
1,1,1,2-Tetrachloroethane	118%	111%	5.7%	70-130	122%	70-130
1,1,2,2-Tetrachloroethane	104%	96%	8.2%	70-130	109%	70-130
Tetrachloroethylene	106%	100%	6.0%	70-130	102%	70-130
Toluene	103%	101%	1.9%	70-130	104%	70-130
1,2,3-Trichlorobenzene	104%	102%	1.5%	70-130	107%	70-130
1,2,4-Trichlorobenzene	112%	103%	8.6%	70-130	107%	70-130
1,1,1-Trichloroethane	109%	109%	0.8%	70-130	114%	70-130
1,1,2-Trichloroethane	108%	105%	2.7%	70-130	108%	70-130
Trichloroethylene	102%	98%	4.2%	70-130	103%	70-130
Trichlorofluoromethane	86%	92%	6.9%	70-130	116%	70-130
1,2,3-Trichloropropane	103%	97%	6.2%	70-130	112%	70-130
1,2,4-Trimethylbenzene	104%	102%	2.0%	70-130	103%	70-130
1,3,5-Trimethylbenzene	101%	97%	4.0%	70-130	99%	70-130
Vinyl chloride	103%	106%	2.3%	70-130	91%	70-130
Xylenes	113%	109%	3.1%	70-130	114%	70-130
MTBE	125%	96%	26%	70-130	122%	70-130
Ethyl-tert-butylether	136%	126%	7.3%	70-130	142%	70-130
Di-isopropylether	123%	112%	8.9%	70-130	134%	70-130
tert-amylmethylether	134%	126%	6.2%	70-130	143%	70-130
tert-Butylalcohol	51%	37%	31%	70-130	53%	70-130
Surrogate Recovery:						
Dibromofluoromethane	110%	105%		75-125	107%	75-125
Toluene-d_8	100%	97%		75-125	100%	75-125
4-Bromofluorobenzene	111%	115%		75-125	90%	75-125

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

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JONES ENVIRONMENTAL
QUALITY CONTROL INFORMATION

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A	**JEL Ref. No.:**	E-0010
	Santa Barbara, CA 93101	**Client Ref. No.:**	SB0674
			1/0/1900
Attn:	Geoff Frieman	**Date Sampled:**	11/11-13/13
		Date Received:	11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd.	**Physical State:**	Soil Gas
	Whittier, CA		

EPA 8260B-Volatile Organics by GC/MS + Oxygenates/Total Petroleum Hydrocarbons

Sample Spiked: Ambient Air **GC#:** E1-111313-CHECKS

JEL ID:	**E-0010-70**	**E-0010-71**			**E-0010-69**	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD	Acceptability Range (%)	LCS	Acceptability Range (%)
Benzene	106%	104%	1.8%	70-130	99%	70-130
Bromobenzene	99%	102%	2.8%	70-130	105%	70-130
Bromodichloromethane	102%	106%	3.8%	70-130	99%	70-130
Bromoform	90%	107%	18%	70-130	92%	70-130
n-Butylbenzene	91%	84%	8.4%	70-130	105%	70-130
sec-Butylbenzene	103%	93%	9.6%	70-130	110%	70-130
tert-Butylbenzene	97%	95%	2.1%	70-130	107%	70-130
Carbon tetrachloride	114%	131%	14%	70-130	101%	70-130
Chlorobenzene	103%	108%	4.4%	70-130	109%	70-130
Chloroform	104%	101%	3.1%	70-130	101%	70-130
2-Chlorotoluene	102%	99%	3.4%	70-130	109%	70-130
4-Chlorotoluene	106%	103%	3.0%	70-130	112%	70-130
Dibromochloromethane	91%	111%	20%	70-130	94%	70-130
1,2-Dibromo-3-chloropropane	118%	124%	4.7%	70-130	91%	70-130
1,2-Dibromoethane (EDB)	115%	124%	7.5%	70-130	103%	70-130
Dibromomethane	107%	105%	2.3%	70-130	91%	70-130
1,2- Dichlorobenzene	115%	119%	3.7%	70-130	105%	70-130
1,3-Dichlorobenzene	103%	100%	3.3%	70-130	111%	70-130
1,4-Dichlorobenzene	95%	92%	3.3%	70-130	101%	70-130
Dichlorodifluoromethane	102%	100%	1.3%	70-130	88%	70-130
1,1-Dichloroethane	102%	107%	4.8%	70-130	109%	70-130
1,2-Dichloroethane	114%	106%	7.3%	70-130	102%	70-130
1,1-Dichloroethene	99%	94%	4.5%	70-130	100%	70-130
cis-1,2-Dichloroethene	99%	94%	5.7%	70-130	106%	70-130
trans-1,2-Dichloroethene	92%	90%	2.2%	70-130	111%	70-130
1,2-Dichloropropane	103%	107%	4.2%	70-130	109%	70-130
1,3-Dichloropropane	97%	126%	26%	70-130	106%	70-130
2,2-Dichloropropane	230%	274%	17%	70-130	108%	70-130
1,1-Dichloropropene	98%	104%	6.0%	70-130	102%	70-130

QUALITY CONTROL INFORMATION

EPA 8260B-Volatile Organics by GC/MS + Oxygenates/Total Petroleum Hydrocarbons

JEL ID:	E-0010-70	E-0010-71			E-0010-69	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD	Acceptability Range (%)	LCS	Acceptability Range (%)
Ethylbenzene	98%	97%	1.4%	70-130	105%	70-130
Freon 113	88%	94%	6.7%	70-130	100%	70-130
Hexachlorobutadiene	90%	75%	18%	70-130	104%	70-130
Isopropylbenzene	102%	101%	1.2%	70-130	110%	70-130
4-Isopropyltoluene	97%	89%	8.7%	70-130	105%	70-130
Methylene chloride	95%	97%	2.6%	70-130	94%	70-130
Naphthalene	98%	98%	0.2%	70-130	87%	70-130
n-Propylbenzene	108%	102%	5.6%	70-130	115%	70-130
Styrene	81%	80%	1.4%	70-130	81%	70-130
1,1,1,2-Tetrachloroethane	103%	108%	5.4%	70-130	107%	70-130
1,1,2,2-Tetrachloroethane	106%	120%	12%	70-130	88%	70-130
Tetrachloroethylene	86%	97%	12%	70-130	103%	70-130
Toluene	102%	100%	2.2%	70-130	101%	70-130
1,2,3-Trichlorobenzene	92%	90%	2.4%	70-130	94%	70-130
1,2,4-Trichlorobenzene	94%	89%	5.5%	70-130	100%	70-130
1,1,1-Trichloroethane	104%	101%	2.7%	70-130	104%	70-130
1,1,2-Trichloroethane	95%	100%	4.2%	70-130	96%	70-130
Trichloroethylene	101%	95%	6.8%	70-130	101%	70-130
Trichlorofluoromethane	106%	118%	10%	70-130	105%	70-130
1,2,3-Trichloropropane	112%	116%	3.3%	70-130	97%	70-130
1,2,4-Trimethylbenzene	94%	90%	4.7%	70-130	102%	70-130
1,3,5-Trimethylbenzene	92%	88%	4.8%	70-130	99%	70-130
Vinyl chloride	101%	65%	43%	70-130	252%	70-130
Xylenes	107%	104%	2.4%	70-130	112%	70-130
MTBE	122%	137%	11%	70-130	99%	70-130
Ethyl-tert-butylether	116%	125%	8.0%	70-130	105%	70-130
Di-isopropylether	96%	105%	9.4%	70-130	104%	70-130
tert-amylmethylether	119%	123%	3.5%	70-130	98%	70-130
tert-Butylalcohol	165%	176%	6.8%	70-130	80%	70-130
Surrogate Recovery:						
Dibromofluoromethane	117%	109%		75-125	115%	75-125
Toluene-d_8	101%	101%		75-125	99%	75-125
4-Bromofluorobenzene	103%	103%		75-125	97%	75-125

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

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(714) 449-9937 | Fax (714) 449-9685

JONES ENVIRONMENTAL
QUALITY CONTROL INFORMATION

Client:	Geosyntec Consultants, Inc.	**Report date:**	11/13/2013
Client Address:	924 Anacapa Street, Suite 4A Santa Barbara, CA 93101	**JEL Ref. No.:**	E-0010
		Client Ref. No.:	SB0674
Attn:	Geoff Frieman	**Date Sampled:**	11/11-13/13
		Date Received:	11/11-13/13
Project:	Brookfield	**Date Analyzed:**	11/11-13/13
Project Address:	18500 Whittier Blvd. Whittier, CA	**Physical State:**	Soil Gas

EPA 8260B-Volatile Organics by GC/MS + Oxygenates/Total Petroleum Hydrocarbons

Sample Spiked: Ambient Air **GC#:** E2-111313-CHECKS

JEL ID:	**E-0010-74**	**E-0010-75**			**E-0010-73**	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD	Acceptability Range (%)	LCS	Acceptability Range (%)
Benzene	98%	96%	2.6%	70-130	100%	70-130
Bromobenzene	108%	103%	5.0%	70-130	105%	70-130
Bromodichloromethane	96%	97%	0.9%	70-130	98%	70-130
Bromoform	85%	86%	0.5%	70-130	88%	70-130
n-Butylbenzene	96%	96%	0.5%	70-130	98%	70-130
sec-Butylbenzene	103%	104%	0.6%	70-130	105%	70-130
tert-Butylbenzene	105%	104%	0.5%	70-130	106%	70-130
Carbon tetrachloride	95%	93%	2.2%	70-130	94%	70-130
Chlorobenzene	106%	105%	0.8%	70-130	108%	70-130
Chloroform	100%	98%	1.5%	70-130	101%	70-130
2-Chlorotoluene	105%	105%	0.0%	70-130	108%	70-130
4-Chlorotoluene	105%	106%	1.7%	70-130	110%	70-130
Dibromochloromethane	90%	96%	5.9%	70-130	97%	70-130
1,2-Dibromo-3-chloropropane	84%	87%	3.6%	70-130	79%	70-130
1,2-Dibromoethane (EDB)	94%	98%	3.7%	70-130	94%	70-130
Dibromomethane	94%	94%	0.3%	70-130	95%	70-130
1,2- Dichlorobenzene	115%	112%	2.9%	70-130	107%	70-130
1,3-Dichlorobenzene	104%	104%	0.1%	70-130	104%	70-130
1,4-Dichlorobenzene	106%	104%	2.5%	70-130	102%	70-130
Dichlorodifluoromethane	102%	103%	1.6%	70-130	107%	70-130
1,1-Dichloroethane	99%	98%	1.3%	70-130	97%	70-130
1,2-Dichloroethane	102%	103%	0.9%	70-130	100%	70-130
1,1-Dichloroethene	93%	98%	4.9%	70-130	99%	70-130
cis-1,2-Dichloroethene	97%	95%	1.8%	70-130	100%	70-130
trans-1,2-Dichloroethene	91%	96%	5.9%	70-130	95%	70-130
1,2-Dichloropropane	103%	100%	3.1%	70-130	99%	70-130
1,3-Dichloropropane	92%	96%	4.7%	70-130	101%	70-130
2,2-Dichloropropane	76%	70%	8.5%	70-130	67%	70-130
1,1-Dichloropropene	98%	100%	2.6%	70-130	102%	70-130

QUALITY CONTROL INFORMATION

EPA 8260B-Volatile Organics by GC/MS + Oxygenates/Total Petroleum Hydrocarbons

JEL ID:	E-0010-74	E-0010-75			E-0010-73	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD	Acceptability Range (%)	LCS	Acceptability Range (%)
Ethylbenzene	96%	97%	1.4%	70-130	100%	70-130
Freon 113	96%	102%	6.1%	70-130	105%	70-130
Hexachlorobutadiene	99%	106%	6.8%	70-130	101%	70-130
Isopropylbenzene	106%	105%	0.9%	70-130	106%	70-130
4-Isopropyltoluene	101%	104%	3.6%	70-130	104%	70-130
Methylene chloride	92%	91%	1.1%	70-130	97%	70-130
Naphthalene	85%	84%	1.2%	70-130	93%	70-130
n-Propylbenzene	107%	108%	1.2%	70-130	108%	70-130
Styrene	85%	82%	4.2%	70-130	83%	70-130
1,1,1,2-Tetrachloroethane	101%	104%	3.0%	70-130	107%	70-130
1,1,2,2-Tetrachloroethane	85%	86%	1.1%	70-130	83%	70-130
Tetrachloroethylene	100%	99%	0.5%	70-130	103%	70-130
Toluene	95%	98%	3.0%	70-130	99%	70-130
1,2,3-Trichlorobenzene	90%	92%	2.3%	70-130	100%	70-130
1,2,4-Trichlorobenzene	94%	94%	0.6%	70-130	104%	70-130
1,1,1-Trichloroethane	99%	96%	3.5%	70-130	99%	70-130
1,1,2-Trichloroethane	99%	95%	3.8%	70-130	95%	70-130
Trichloroethylene	100%	100%	0.0%	70-130	105%	70-130
Trichlorofluoromethane	101%	105%	3.3%	70-130	103%	70-130
1,2,3-Trichloropropane	90%	93%	3.2%	70-130	93%	70-130
1,2,4-Trimethylbenzene	98%	94%	4.1%	70-130	98%	70-130
1,3,5-Trimethylbenzene	94%	94%	0.0%	70-130	96%	70-130
Vinyl chloride	112%	123%	9.2%	70-130	124%	70-130
Xylenes	102%	103%	0.9%	70-130	105%	70-130
MTBE	93%	96%	2.4%	70-130	98%	70-130
Ethyl-tert-butylether	93%	98%	5.0%	70-130	96%	70-130
Di-isopropylether	104%	111%	6.9%	70-130	108%	70-130
tert-amylmethylether	87%	90%	3.5%	70-130	89%	70-130
tert-Butylalcohol	85%	95%	11%	70-130	91%	70-130
Surrogate Recovery:						
Dibromofluoromethane	103%	101%		75-125	101%	75-125
Toluene-d_8	96%	99%		75-125	101%	75-125
4-Bromofluorobenzene	104%	103%		75-125	111%	75-125

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

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Fullerton, CA 92838
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Fax (714) 449-9685
www.jonesenvironmentallab.com

Chain-of-Custody Record

Client: GEOSYNTEC CONSULTANTS
Date: 11/13/13
Project Name: BIRCHFIELD
Client Project #: SB0674
Project Address: 11850 WHITTIER BLVD
WHITTIER, CA
Project Contact: GEOFF FREEMAN

Turn Around Requested:
- ☐ Immediate Attention
- ☐ Rush 24-48 Hours
- ☐ Rush 72-96 Hours
- ☐ Normal
- ☒ Mobile Lab

SOIL GAS
Purge Number: ☐ 1P ☒ 3P ☐ 7P ☐ 10P
Purge Rate: 200 cc/min
Shut in Test (Y) / N
Tracer:
- ☐ n-propanol
- ☒ n-pentane
- ☐ 1,1-DFA
- ☐ Helium
- ☐ _____

JEL Project #: E-0010
Page 1 of 7

Lab Use Only
Sample Condition as Received:
Chilled ☐ yes ☒ no
Sealed ☒ yes ☐ no

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG)	EPA 8260 TXNS				Magnehelic Vacuum (inH2O)	Number of Containers	Remarks/Special Instructions
VP-11-5-111313 1PV	1	503	11/13/13	07:31	0757	E-0010-01	SG	X				<2	2	GLASS GAS TIGHT SYRINGE
VP-11-5-111313 3PV	3	1510	11/13/13	07:45	0815	E-0010-02	SG	X				<2	2	
VP-11-5-111313 10PV	10	5035	11/13/13	08:04	0834	E-0010-03	SG	X				<2	2	
VP-11-15-111313 1PV	1	559	11/13/13	07:30	0741	E-0010-04	SG	X				<2	2	
VP-11-15-111313 3PV	3	1678	11/13/13	07:42	0757	E-0010-05	SG	X				<2	2	
VP-11-15-111313 10PV	10	5592	11/13/13	07:55	0814	E-0010-06	SG	X				<2	2	
VP-11-30-111313 1PV	1	643	11/13/13	08:45	0858	E-0010-07	SG	X				4	2	
VP-11-30-111313 3PV	3	1929	11/13/13	09:02	0915	E-0010-08	SG	X				4	2	
VP-11-30-111313 10PV	10	6428	11/13/13	09:21	0934	E-0010-09	SG	X				4	2	
VP-11-45-111313	1	726	11/13/13	1007	1018	E-0010-10	SG	X				5	2	

❶ Relinquished by (signature)	Date	❷ Received by (signature)	Date 11/13/13	Total Number of Containers
Company	Time	Company JEL	Time 15:20	The delivery of samples and the signature on this Chain of Custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.
❸ Relinquished by (signature)	Date	❹ Received by Laboratory (signature)	Date	
Company	Time	Company	Time	

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Chain-of-Custody Record

Client: GROUNDTEC CONSULTANTS
Date: 11/13/13
Project Name: BROOKFIELD
Client Project #: SB0674
Project Address: 11850 WHITTIER BLVD. WHITTIER, CA
Project Contact: GEOFF FRIEMAN

Turn Around Requested:
- ☐ Immediate Attention
- ☐ Rush 24-48 Hours
- ☐ Rush 72-96 Hours
- ☐ Normal
- ☒ Mobile Lab

SOIL GAS
Purge Number: ☐ 1P ☐ 3P ☐ 7P ☐ 10P
Purge Rate: 200 cc/min
Shut in Test ⓪ / N
Tracer:
- ☐ n-propanol
- ☑ n-pentane
- ☐ 1,1-DFA
- ☐ Helium
- ☐ _____

JEL Project #: E-040
Page 2 of 7

Lab Use Only
Sample Condition as Received:
Chilled ☐ yes ☑ no
Sealed ☑ yes ☐ no

Analysis Requested

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix SOIL (S), Sludge (SL), Aqueous (A), Soil Gas (SG)	EPA 8260 TUXEL				Manometer Vacuum (inH2O)	Number of Containers	Remarks/Special Instructions
VP-4-5-111313	10	5035	11/13/13	09:20	0930	E-W10-11	SG	X				<2	2	GLASS GAS TIGHT SYRINGE
VP-4-15-111313	1	559	11/13/13	08:25	0836	E-W10-12	SG	X				5	2	
VP-4-30-111313	1	643	11/13/13	10:05	1051	E-W10-13	SG	X				52	2	LOW FLOW
VP-7-5	10	5035	11/13/13	09:51	1004	E-W10-14	SG	X				<2	2	
VP-7-15	1	559	11/13/13	08:40	0853	E-W10-15	SG	X				<2	2	
VP-7-30	1	643	11/13/13	10:36	~~1048~~ 1109	E-W10-16	SG	X				62	2	LOW FLOW
VP-6-5	10	5035	11/13/13	10:26	1048	E-W10-17	SG	X				<2	2	
VP-6-15-111313	1	559	11/13/13	0857	09109	E-W10-18	SG	X				20	2	LOW FLOW
VP-6-15-111313DUP	1	559	11/13/13	08:57	0926	E-W10-19	SG	X				20	2	LOW FLOW
VP-6-30-111313	1	643	11/13/13	10:56	1127	E-W10-20	SG	X				33	2	LOW FLOW

❶ Relinquished by (signature)	Date	❷ Received by (signature)	Date 11/13/13		Total Number of Containers
Company	Time	Company JEL	Time 15:20		
❸ Relinquished by (signature)	Date	❹ Received by Laboratory (signature)	Date		
Company	Time	Company	Time		

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Fax (714) 449-9685
www.jonesenvironmentallab.com

Chain-of-Custody Record

Client: Geosyntec Consultants
Date: 11/13/13
Project Name: Brookfield
Client Project #:
Project Address: 11850 Whittier Blvd, Whittier, CA
Project Contact: Geoff Frieman

Turn Around Requested:
- ☐ Immediate Attention
- ☐ Rush 24-48 Hours
- ☐ Rush 72-96 Hours
- ☐ Normal
- ☒ Mobile Lab

SOIL GAS
Purge Number: ☒ 1P ☐ 3P ☐ 7P ☒ 10P
Purge Rate: 200 cc/min
Shut in Test: Y / N
Tracer:
- ☒ n-propanol
- ☒ n-pentane
- ☐ 1,1-DFA
- ☐ Helium
- ☐ _____

JEL Project #: E-0010
Page 3 of 7

Lab Use Only
Sample Condition as Received:
Chilled ☐ yes ☒ no
Sealed ☒ yes ☐ no

Analysis Requested

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG)	EPA 8260 TOXYS				Manometric Vacuum (in H_2O)	Number of Containers	Remarks/Special Instructions
VP-6-30-111313 DUP	1	643	11/13	1056	1146	E-0010-21	SG	X				30	2	LOW FLOW glass gas tight syringe
VP-5-5-111313	10	5035	11/13	1050	1125	E-0010-22	SG	X				<2	2	
VP-5-15-111313			11/13	0920	NO FLOW	E-0010-23	SG	X				>100		NO FLOW
VP-5-30-111313			11/13	1121	NO FLOW	E-0010-24	SG	X				>100		NO FLOW
VP-2-5-111313	10	5035	11/13	1229	1241	E-0010-25	SG	X				<5	2	
VP-2-15-111313	1	559	11/13	1020	1030	E-0010-26	SG	X				<2	2	
VP-1-5-111313	10	5035	11/13	1158	1221	E-0010-27	SG	X				<2	2	
VP-1-15-111313	1	559	11/13	0942	1000	E-0010-28	SG	X				<2	2	
VP-3-5-111313	10	5035	11/13	1132	1144	E-0010-29	SG	X				<2	2	
VP-3-15-111313	1	559	11/13	0927	0943	E-0010-30	SG	X				<2	2	

❶ Relinquished by (signature)	Date	❷ Received by (signature)	Date 11/13/13		Total Number of Containers
Company	Time	Company JEL	Time 1520		
❸ Relinquished by (signature)	Date	❹ Received by Laboratory (signature)	Date		
Company	Time	Company	Time		

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Fullerton, CA 92838
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Fax (714) 449-9685
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Chain-of-Custody Record

Client: GEOSYNTEC CONSULTANTS
Date: 11/13/13
Project Name: BROADWAY
Client Project #: SB0674
Project Address: 11850 WHITTIER BLVD. WHITTIER, CA
Project Contact: GRAFF FRIEDMAN

Turn Around Requested:
- ☐ Immediate Attention
- ☐ Rush 24-48 Hours
- ☐ Rush 72-96 Hours
- ☐ Normal
- ☒ Mobile Lab

SOIL GAS
Purge Number: ☑ 1P ☐ 3P ☐ 7P ☑ 10P
Purge Rate: 200 cc/min
Shut in Test (Y) / N
Tracer:
- ☑ n-propanol
- ☑ n-pentane
- ☐ 1,1-DFA
- ☐ Helium
- ☐ _____

JEL Project #: E-0010
Page 4 of 7

Lab Use Only
Sample Condition as Received:
Chilled ☐ yes ☑ no
Sealed ☑ yes ☐ no

Analysis Requested

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG)	EPA 8260 TOXIC				Manometric Vacuum (in H_2O)	Number of Containers	Remarks/Special Instructions
VP-3-30-111313	1	643	11/13/13	11:30	1204	E-0010-31	SG	X				40	2	LOW FLOW GAS TIGHT SYRINGES
VP-8-5-111313	10	5035	11/13/13	12:35	1315	E-0010-32	SG	X				<2	2	
VP-8-15-111313	1	559	11/13/13	10:27	1039	E-0010-33	SG	X				<2	2	
VP-8-30-111313	1	643	11/13/13	11:50	1223	E-0010-34	SG	X				9	2	
VP-3-5-111313 DUP	10	5035	11/13/13	11:32	1203	E-0010-35	SG	X				<2	2	
VP-9-5-111313	10	5035	11/13/13	13:03	1333	E-0010-36	SG	X				5	2	
VP-9-15-111313	1	559	11/13/13	10:41	1056	E-0010-37	SG	X				<2	2	
VP-9-30-111313	1	643	11/13/13	12:08	1248	E-0010-38	SG	X				<2	2	
VP-10-5-111313	10	5035	11/13/13	12:54	1309	E-0010-39	SG	X				<2	2	
VP-10-15-111313	1	559	11/13/13	10:44	1107	E-0010-40	SG	X				<2	2	

❶ Relinquished by (signature)	Date	❷ Received by (signature)	Date 11/13/13		Total Number of Containers
Company	Time	Company JEL	Time 15:20		
❸ Relinquished by (signature)	Date	❹ Received by Laboratory (signature)	Date		
Company	Time	Company	Time		

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Fax (714) 449-9685
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Chain-of-Custody Record

Client: GEOSYNTEC CONSULTANTS
Date: 11/13/13
Project Name: BROOKFIELD
Client Project #: SB0674
Project Address: 11850 WHITTIER BLVD. WHITTIER, CA
Project Contact: GEOFF FRIEDMAN

Turn Around Requested:
- ☐ Immediate Attention
- ☐ Rush 24-48 Hours
- ☐ Rush 72-96 Hours
- ☐ Normal
- ☒ Mobile Lab

SOIL GAS
Purge Number: ☒ 1P ☐ 3P ☐ 7P ☒ 10P
Purge Rate: 200 cc/min
Shut in Test (Y) / N
Tracer:
- ☒ n-propanol
- ☒ n-pentane
- ☐ 1,1-DFA
- ☐ Helium
- ☐ _____

JEL Project #: E-0010
Page 5 of 7

Lab Use Only
Sample Condition as Received:
Chilled ☐ yes ☒ no
Sealed ☒ yes ☐ no

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG)	EPA 8260 TCXYE				Methanol Vial Volume (ml H_2O)	Number of Containers	Remarks/Special Instructions
VP-10-30-111313	1	643	11/13/13	13:19	1351	E-0010-41	SG	X				4	2	GLASS GAS TIGHT SYRINGE
VP-10-45-111313	1	726	11/13/13	13:24	1334	E-0010-42	SG	X				<2	2	
VP-12-5-111313	10	5035	11/13/13	13:32	1354	E-0010-43	SG	X				<2	2	
VP-12-15-111313	1	559	11/13/13	10:54	1112	E-0010-44	SG	X				<2	2	
VP-12-30-111313	1	643	11/13/13	13:40	14:10	E-0010-45	SG	X				9	2	
VP-12-45-111313	1	726	11/13/13	~~13:47~~ 14:17	1438	E-0010-46	SG	X				12	2	
VP-13-5	10	5035	11/13/13	11:39	1150	E-0010-47	SG	X				<2	2	
VP-13-15	1	559	11/13/13	11:15	1129	E-0010-48	SG	X				<2	2	
VP-13-30	1	643	11/13/13	12:58	1314	E-0010-49	SG	X				<2	2	
VP-14-5	10	5035	11/13/13	13:14	1332	E-0010-50	SG	X				<2	2	

❶ Relinquished by (signature)	Date	❷ Received by (signature)	Date 11/13/13		Total Number of Containers
Company	Time	Company JEL	Time 15:20	The delivery of samples and the signature on this Chain of Custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.	
❸ Relinquished by (signature)	Date	❹ Received by Laboratory (signature)	Date		
Company	Time	Company	Time		

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Fullerton, CA 92838
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Fax (714) 449-9685
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Chain-of-Custody Record

Client: GEOSYNTEC CONSULTANTS
Date: 11/13/13
Project Name: BROOKFIELD
Client Project #: SB0674
Project Address: 11750 WHITTIER BLVD
WHITTIER, CA
Project Contact: GEOFF FREEMAN

Turn Around Requested:
- ☐ Immediate Attention
- ☐ Rush 24-48 Hours
- ☐ Rush 72-96 Hours
- ☐ Normal
- ☒ Mobile Lab

SOIL/GAS
Purge Number: ☑ 1P ☐ 3P ☐ 7P ☑ 10P
Purge Rate: 200 cc/min
Shut in Test ⊘ / N
Tracer:
- ☑ n-propanol
- ☑ n-pentane
- ☐ 1,1-DFA
- ☐ Helium
- ☐ _____

JEL Project #: E-0010
Page 6 of 7

Lab Use Only
Sample Condition as Received:
Chilled ☐ yes ☑ no
Sealed ☑ yes ☐ no

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG)	EPA 8260 + OXYS				Magnehelic Vacuum (inH2O)	Number of Containers	Remarks/Special Instructions
VP-14-15-111313	1	559	11/13/13	11:56	1206	E-0010-51	SG	X				<2	2	GlassGas Tight Syringe
VP-15-5-111313	10	5035	11/13/13	12:37	1258	E-0010-52	SG	X				<2	2	
VP-15-15-111313	1	559	11/13/13	12:12	1223	E-0010-53	SG	X				<2	2	
VP-15-15-111313 DUP	1	559	11/13/13	12:12	1241	E-0010-54	SG	X				<2	2	
VP-18-5	10	5035	11/13/13	14:22	1437	E-0010-55	SG	X				<2	2	
VP-18-15	1	559	11/13/13	~~1407~~ 13:57	1410	E-0010-56	SG	X				<2	2	
VP-17-5	10	5035	11/13/13	1435	1456	E-0010-57	SG	X				<2	2	
VP-17-15	1	559	11/13/13	1450	1515	E-0010-58	SG	X				<2	2	
VP-16-5	10	5035	11/13/13	~~15:04~~ 14:45 est	1456	E-0010-59	SG	X				<2	2	
VP-16-5 DUP	10	5035	11/13/13	~~15:04~~ 14:45 est	1532	E-0010-60	SG	X				<2	2	

❶ Relinquished by (signature)	Date	❷ Received by (signature)	Date 11/13/13		Total Number of Containers
Company	Time	Company JEL	Time 15:20	The delivery of samples and the signature on this Chain of Custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.	
❸ Relinquished by (signature)	Date	❹ Received by Laboratory (signature)	Date		
Company	Time	Company	Time		

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Fullerton, CA 92838
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Fax (714) 449-9685
www.jonesenvironmentallab.com

Chain-of-Custody Record

Client: GEOSYNTEC CONSULTANTS
Date: 11/13/13
Project Name: BRUKER FILM
Client Project #: 5130674
Project Address: 11850 WHITTIER BLVD.
WHITTIER, CA
Project Contact: GEOFF FREEMAN

Turn Around Requested:
- ☐ Immediate Attention
- ☐ Rush 24-48 Hours
- ☐ Rush 72-96 Hours
- ☐ Normal
- ☒ Mobile Lab

SOIL GAS
Purge Number: ☑ 1P ☐ 3P ☐ 7P ☐ 10P
Purge Rate: 200 cc/min
Shut in Test Y / N
Tracer:
- ☑ n-propanol
- ☑ n-pentane
- ☐ 1,1-DFA
- ☐ Helium
- ☐ _____

JEL Project #: E-0010
Page 7 of 7

Lab Use Only
Sample Condition as Received:
Chilled ☐ yes ☑ no
Sealed ☐ yes ☐ no

Analysis Requested: EPA-8260 TAVIC

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG)	EPA-8260 TAVIC				Magnehelic Vacuum (in H_2O)	Number of Containers	Remarks/Special Instructions
VP-16-15	1	559	11/7/13	14:44	1514	E-0010-61	SG	X				<2	2	GLASS GAS TIGHT SYRINGE
~~VP-16-15 DUP~~	~~1~~	~~559~~	~~11/7/13~~	~~14:44~~		~~E-0010-62~~	~~SG~~	~~X~~						

❶ Relinquished by (signature)	Date	❷ Received by (signature)	Date 11/13/13	Total Number of Containers
Company	Time	Company JEL	Time 15:20	The delivery of samples and the signature on this Chain of Custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.
❸ Relinquished by (signature)	Date	❹ Received by Laboratory (signature)	Date	
Company	Time	Company	Time	

Geosyntec consultants

APPENDIX D

DATA VALIDATION REPORTS

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 5 December 2013

To: Geoff Frieman

From: Mary Tyler

CC: J. Caprio

Subject: Stage 2A Data Validation - Level II Data Deliverable – Volatile Organic Compounds and Oxygenates by EPA Methods 5030C/ 8260B and 5035/8260B, Polynuclear Aromatic Compounds by EPA Methods 3510C/8270C and 3545/8270C using Selected Ion Monitoring, Total Petroleum Hydrocarbons, Carbon Chains C6-C44 by EPA Methods 3510C/8015B and 3550B/8015B and Title 22 Metals by EPA Methods 3010A/6010B, 3050B/6010B and 7470A/7471A – Calscience Work Order Number 13-11-2288

SITE: Brookfield/SB0674

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of nine soil samples, one equipment blank and one trip blank collected on October 30, 2013, as part of the Brookfield sampling event. The analyses were performed at Calscience Environmental Laboratories, Inc., Garden Grove, California. The samples were analyzed for the following tests:

- **EPA Methods 5030C/8260B and 5035/8260B - Volatile Organic Compounds (VOCs) and Oxygenates**
- **EPA Methods 3510C/8270C and 3545/8270C - Polynuclear Aromatic Hydrocarbons (PAHs) using Selected Ion Monitoring (SIM)**
- **EPA Methods 3510C/8015B and 3545/8015B - Total Petroleum Hydrocarbons (TPH), Carbon Chains C6-C44**
- **EPA Methods 3010A/6010B, 3050B/6010B and 7470A/7471A - Title 22 Metals (including Mercury)**

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 2A data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, January 2010 (OSWER 9240.1-51, EPA 540-R-10-011), the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 2A level:

Laboratory ID	Client ID
13-10-2288-1	VP2-0.5
13-10-2288-2	VP2-10
13-10-2288-3	VP2-5
13-10-2288-4	VP4-0.5
13-10-2288-5	VP4-5
13-10-2288-6	VP4-10

Laboratory ID	Client ID
13-10-2288-7	VP6-0.5
13-10-2288-8	VP6-5
13-10-2288-9	VP6-10
13-10-2288-10	QCEB-103013
13-10-2288-11	QCTB-103013

The samples were received at the laboratory within 0-6°C. No sample preservation issues were noted by the laboratory.

Incorrect error corrections were observed on the chain of custody (COC). The proper procedure of a single strike-through correction and initials and date of the person making the corrections was not followed.

The year was not included on the COC for the time of collection for sample VP2-0.5; in addition, there were no dates of collection recorded on the COC for samples VP2-10, VP2-5, VP4-0.5, VP4-5, VP4-10, VP6-0.5, VP6-5, VP6-10 and QCEB-103013. Based on professional judgment, these omissions did not have an adverse impact on the samples, since the dates of collection were taken from the container labels.

The Calscience Sample Anomaly Form indicated that the improper sample containers were sent to the laboratory for samples VP2-0.5, VP4-0.5 and VP6-0.5. The sample aliquots for PAH, TPH and Title 22 metals, taken from soil cutting samples collected using a hand auger, were placed in zip lock bags.

1.0 VOLATILE ORGANIC COMPOUNDS AND OXYGENATES

Nine soil samples, one equipment blank and one trip blank were analyzed for VOCs and oxygenates per EPA Methods 5030C/8260B and 5035/8260B.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
⊗ Laboratory Control Sample
✓ Surrogate
✓ Equipment Blank
✓ Trip Blank
✓ Sensitivity
✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The VOC data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Time

The holding time for a preserved soil sample is 14 days from collection to analysis. The holding time for a preserved water sample is 14 days from collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches

131104L01 and 131031L01). VOCs and oxygenates were not detected in the method blanks above the reporting limits (RLs).

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

A batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

1.5 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCS duplicate (LCSD) were reported. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and relative percent difference (RPD), with the following exceptions.

Either one or both of the LCS/LCSD pair recoveries for acetone, bromomethane, 2-butanone and 2-hexanone were high and the LCS recovery for 1,2,3-trichloropropane was low, all outside the laboratory specified acceptance criteria in batch 131104L01. Since bromomethane, 2-butanone and 2-hexanone were not detected in the associated samples, no qualifications were applied to the data. The concentrations of acetone in the associated samples were J qualified as estimated and the undetected values of 1,2,3-trichloropropane were UJ qualified as estimated less than the RLs.

The LCS recoveries for bromomethane, n-butylbenzene, dichlorodifluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane were high and outside the laboratory specified acceptance criteria in batch 131031L01. Since these compounds were not detected in the associated samples, no qualifications were applied to the data.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/ kg)	Validation Qualifier*	Reason Code**
VP6-0.5	Acetone	68	NA	68	J	5
VP6-10	Acetone	76	NA	76	J	5
VP2-0.5	1,2,3-Trichloropropane	2.2	U	2.2	UJ	5
VP2-10	1,2,3-Trichloropropane	2.4	U	2.4	UJ	5

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/ kg)	Validation Qualifier*	Reason Code**
VP2-5	1,2,3-Trichloropropane	2.5	U	2.5	UJ	5
VP4-0.5	1,2,3-Trichloropropane	2.3	U	2.3	UJ	5
VP4-5	1,2,3-Trichloropropane	2.7	U	2.7	UJ	5
VP4-10	1,2,3-Trichloropropane	2.2	U	2.2	UJ	5
VP6-0.5	1,2,3-Trichloropropane	2.1	U	2.1	UJ	5
VP6-5	1,2,3-Trichloropropane	1.8	U	1.8	UJ	5
VP6-10	1,2,3-Trichloropropane	2.0	U	2.0	UJ	5

µg/kg-microgram per kilogram
U-not detected at the stated RL
NA-not applicable
* Validation qualifiers are defined in Attachment 1 at the end of this report
**Reason codes are defined in Attachment 2 at the end of this report

1.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

1.7 Equipment Blank

One equipment blank, QCEB-103013, was collected with the samples. VOCs and oxygenates were not detected in the equipment blank above the RLs.

1.8 Trip Blank

One trip blank, QCTB-103013, accompanied the samples. VOCs and oxygenates were not detected in the trip blank above the RLs.

1.9 Sensitivity

The samples were reported to the RLs.

1.10 Electronic Data Deliverable (EDD) Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation. No discrepancies were identified between the level II report and the EDD.

2.0 POLYNUCLEAR AROMATIC HYDROCARBONS

Nine soil samples and one equipment blank were analyzed for PAHs per EPA Methods 3510C/8270C and 3545/8270C SIM.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
⊗ Laboratory Control Sample
✓ Surrogate
✓ Equipment Blank
✓ Sensitivity
✓ Electronic Data Deliverable Review

2.1 Overall Assessment

The PAH data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

2.2 Holding Time

The holding times for the PAH analysis of soil are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times for PAH analysis of water are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported with the data (batches 131031L05, 131105L02 and 131031L06). PAHs were not detected in the method blanks above the RLs.

2.4 Matrix Spike/Matrix Spike Duplicate

Two batch MS/MSD pairs were reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs and one LCS/LCSD pair were reported with the data. The results for the LCSs and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD, with the following exception.

The LCS recovery of fluorene in batch 131031L06 was low and outside the laboratory specified acceptance criteria. Therefore, the undetected value of fluorene in the associated sample was UJ qualified as estimated less than the RL.

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
QCEB-103013	Fluorene	0.20	U	0.20	UJ	5

U-not detected at the stated RL

2.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

2.7 Equipment Blank

One equipment blank, QCEB-103013, was collected with the samples. PAHs were not detected in the equipment blank above the RLs.

2.8 Sensitivity

The samples were reported to the RLs.

2.9 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 TOTAL PETROLEUM HYDROCARBONS, CARBON CHAIN C6-C44

Nine soil samples and one equipment blank were analyzed for TPH carbon chains C6-C44.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

⊗ Overall Assessment
✓ Holding Time
✓ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogate
✓ Equipment Blank
✓ Sensitivity
✓ Electronic Data Deliverable Review

3.1 Overall Assessment

The TPH C6-C44 data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

The laboratory report indicated that the total C6-C44 concentrations for VP4-0.5, VP4-10 and VP6-0.5 included estimated individual carbon range concentrations that were less than RLs.

Therefore, based on technical and professional judgment, the total C6-C44 concentrations for these samples were J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
VP4-0.5	C6-C44 Total	340	NA	340	J	13
VP4-10	C6-C44 Total	98	NA	98	J	13
VP6-0.5	C6-C44 Total	63	NA	63	J	13

mg/kg-milligram per kilogram
NA-not applicable

3.2 Holding Time

The holding times for the TPH C6-C44 analysis of soils are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times for the TPH C6-C44 analysis of waters are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 131031B20A and 131031B13A). TPH C6-C44 were not detected in the method blanks above the RLs.

3.4 Matrix Spike/Matrix Spike Duplicate

A batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

3.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCSD pair were analyzed. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

3.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

3.7 Equipment Blank

One equipment blank, QCEB-103013, was collected with the samples. TPH C6-C44 were not detected in the equipment blank above the RLs.

3.8 Sensitivity

The samples were reported to the RLs.

3.9 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

4.0 TITLE 22 METALS

Nine soil samples and one equipment blank were analyzed for Title 22 metals, including mercury, per EPA methods 3010A/6010B, 3050B/6010B and 7470A/7471A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
⊗ Equipment Blank
✓ Sensitivity
✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The Title 22 metals data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

4.2 Holding Times

The holding times for the metals analyses of soils and waters are 180 days from sample collection to analysis; the holding times for the mercury analyses of soils and waters are 28 days. The holding times were met for the sample analyses.

4.3 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four method blanks were reported with the data (batches 131031L04, 131031LA1, 131031L02 and 131031L06). Title 22 metals were not detected in the method blanks above the RLs.

4.4 Matrix Spike/Matrix Spike Duplicate

Two sample set specific MS/MSD pairs, both using sample VP6-5, were reported. The MS/MSD pairs had recovery and RPD results within the laboratory specified acceptance criteria, with the following exception.

The recoveries of antimony were low and outside the laboratory specified acceptance criteria, both 25% (limits 50-115%). A post digestion/post digestion spike duplicate pair was also analyzed; the recoveries were within the laboratory specified acceptance criteria. Therefore, the undetected value of antimony was UJ qualified as estimated less than the RL.

It was noted that the concentration of barium in the unspiked sample was four times greater than the spike concentration; therefore, the laboratory specified acceptance criteria were not applicable and qualifications were not applied to the data.

In addition, two batch MS/MSD pairs were reported. Since these are batch QC, the results do not affect the samples in this data set, qualifications were not applied to the samples.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
VP6-0.5	Antimony	0.750	U	0.750	UJ	4

mg/kg-milligram per kilogram
U-not detected at the stated RL

4.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs and one LCS/LCSD pair were reported. The results for the LCSs and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

4.6 Equipment Blank

One equipment blank, QCEB-103013, was collected with the samples. Title 22 metals were not detected in the equipment blank above the RLs.

4.7 Sensitivity

The samples were reported to the RLs.

4.8 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD

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ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference (inorganic analyses only).

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference (inorganic analyses only).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery or RPD outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 5 December 2013

To: Geoff Frieman

From: Mary Tyler

CC: J. Caprio

Subject: Stage 2A Data Validation - Level II Data Deliverable – Volatile Organic Compounds and Oxygenates by EPA Methods 5030C/ 8260B and 5035/8260B, Polynuclear Aromatic Compounds by EPA Methods 3510C/8270C and 3545/8270C using Selected Ion Monitoring, Total Petroleum Hydrocarbons, Carbon Chains C6-C44 by EPA Methods 3510C/8015B and 3550B/8015B, and Title 22 Metals by EPA Methods 3010A/6010B, 3050B/6010B and 7470A/7471A – Calscience Work Order Number 13-11-2392

SITE: Brookfield/SB0674

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of six soil samples, one equipment blank and one trip blank collected on October 31, 2013, as part of the Brookfield sampling event. The analyses were performed at Calscience Environmental Laboratories, Inc., Garden Grove, California. The samples were analyzed for the following tests:

- **EPA Methods 5030C/8260B and 5035/8260B - Volatile Organic Compounds (VOCs) and Oxygenates**
- **EPA Methods 3510C/8270C and 3545/8270C - Polynuclear Aromatic Hydrocarbons (PAHs) using Selected Ion Monitoring (SIM)**
- **EPA Methods 3510C/8015B and 3545/8015B - Total Petroleum Hydrocarbons (TPH), Carbon Chains C6-C44**
- **EPA Methods 3010A/6010B, 3050B/6010B and 7470A/7471A - Title 22 Metals**

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 2A data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, January 2010 (OSWER 9240.1-51, EPA 540-R-10-011), the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 2A level:

Laboratory ID	Client ID
13-10-2392-1	VP7-0.5
13-10-2392-2	VP7-5
13-10-2392-3	VP7-10
13-10-2392-4	VP10-0.5

Laboratory ID	Client ID
13-10-2392-5	VP10-5
13-10-2392-6	VP10-10
13-10-2392-7	QCTB-103113
13-10-2392-8	QCEB-103113

The samples were received at the laboratory within 0-6°C. No sample preservation issues were noted by the laboratory.

Incorrect error corrections were observed on the chain of custody (COC). The proper procedure of a single strike-through correction and initials and date of the person making the corrections was not followed.

The year was not included on the COC for the time of collection for the samples. Based on professional judgment, these omissions did not have an adverse impact on the samples, since the dates of collection were taken from the container labels.

The Calscience Sample Anomaly Form indicated that the improper sample containers were sent to the laboratory for samples VP7-0.5 and VP10-0.5. The sample aliquots for PAH, TPH and Title 22 metals, taken from soil cutting samples collected using a hand auger, were placed in zip lock bags.

1.0 VOLATILE ORGANIC COMPOUNDS AND OXYGENATES

Six soil samples, one equipment blank and one trip blank were analyzed for VOCs and oxygenates per EPA Methods 5030C/8260B and 5035/8260B.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
⊗ Laboratory Control Sample
✓ Surrogate
✓ Equipment Blank
✓ Trip Blank
✓ Sensitivity
✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The VOC data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Time

The holding time for a preserved soil sample is 14 days from collection to analysis. The holding time for a preserved water sample is 14 days from collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches

131104L01 and 131106L03). VOCs and oxygenates were not detected in the method blanks above the reporting limits (RLs).

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

A batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

1.5 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCS duplicate (LCSD) were reported. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and relative percent difference (RPD), with the following exceptions.

Either one or both of the LCS/LCSD pair recoveries for acetone, bromomethane, 2-butanone and 2-hexanone were high and the LCS recovery for 1,2,3-trichloropropane was low, all outside the laboratory specified acceptance criteria in batch 131104L01. Since acetone, bromomethane, 2-butanone and 2-hexanone were not detected in the associated samples, no qualifications were applied to the data. The undetected values of 1,2,3-trichloropropane were UJ qualified as estimated less than the RLs.

The LCS recovery for 2,2-dichloropropane in batch 131106L03 was low and outside the laboratory specified acceptance. Therefore, the undetected values of 2,2-dichloropropane in the associated samples were UJ qualified as estimated less than the RLs.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/ kg)	Validation Qualifier*	Reason Code**
VP7-0.5	1,2,3-Trichloropropane	1.7	U	1.7	UJ	5
VP7-5	1,2,3-Trichloropropane	2.0	U	2.0	UJ	5
VP7-10	1,2,3-Trichloropropane	1.9	U	1.9	UJ	5
VP10-0.5	1,2,3-Trichloropropane	1.9	U	1.9	UJ	5
VP10-5	1,2,3-Trichloropropane	2.3	U	2.3	UJ	5

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/ kg)	Validation Qualifier*	Reason Code**
VP10-10	1,2,3-Trichloropropane	1.8	U	1.8	UJ	5

µg/kg-microgram per kilogram
U-not detected at the stated RL
* Validation qualifiers are defined in Attachment 1 at the end of this report
**Reason codes are defined in Attachment 2 at the end of this report

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
QCTB-103113	2,2-Dichloropropane	1.0	U	1.0	UJ	5
QCEB-103113	2,2-Dichloropropane	1.0	U	1.0	UJ	5

µg/L-microgram per liter
U-not detected at the stated RL

1.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

1.7 Equipment Blank

One equipment blank, QCEB-103113, was collected with the samples. VOCs and oxygenates were not detected in the equipment blank above the RLs.

1.8 Trip Blank

One trip blank, QCTB-103113, accompanied the samples. VOCs and oxygenates were not detected in the trip blank above the RLs.

1.9 Sensitivity

The samples were reported to the RLs.

1.10 Electronic Data Deliverable (EDD) Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation. No discrepancies were identified between the level II report and the EDD.

2.0 POLYNUCLEAR AROMATIC HYDROCARBONS

Six soil samples and one equipment blank were analyzed for PAHs per EPA Methods 3510C/8270C and 3545/8270C SIM.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogate
- ✓ Equipment Blank
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

2.1 Overall Assessment

The PAH data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

2.2 Holding Time

The holding times for the PAH analysis of soil are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times for PAH analysis of water are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 131104L15 and 131106L07). PAHs were not detected in the method blanks above the RLs.

2.4 Matrix Spike/Matrix Spike Duplicate

A batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCSD pair were reported with the data. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

2.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

2.7 Equipment Blank

One equipment blank, QCEB-103113, was collected with the samples. PAHs were not detected in the equipment blank above the RLs.

2.8 Sensitivity

The samples were reported to the RLs.

2.9 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 TOTAL PETROLEUM HYDROCARBONS, CARBON CHAIN C6-C44

Six soil samples and one equipment blank were analyzed for TPH carbon chain C6-C44.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

⊗ Overall Assessment

- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogate
- ✓ Equipment Blank
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

3.1 Overall Assessment

The TPH C6-C44 data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

The laboratory report indicated that the total C6-C44 concentration for VP7-5 included estimated individual carbon range concentrations that were less than RLs. Therefore, based on technical and professional judgment, the total C6-C44 concentration for this sample was J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
VP7-5	C6-C44 Total	11	NA	11	J	13

mg/kg-milligram per kilogram
NA-not applicable

3.2 Holding Time

The holding times for the TPH C6-C44 analysis of soils are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times for the TPH C6-C44 analysis of waters are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches

131110B05 and 131104B11A). TPH C6-C44 were not detected in the method blanks above the RLs.

3.4 Matrix Spike/Matrix Spike Duplicate

A batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

3.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCSD pair were analyzed. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

3.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

3.7 Equipment Blank

One equipment blank, QCEB-103113, was collected with the samples. TPH C6-C44 were not detected in the equipment blank above the RLs.

3.8 Sensitivity

The samples were reported to the RLs.

3.9 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

4.0 TITLE 22 METALS

Six soil samples and one equipment blank were analyzed for Title 22 metals, including mercury, per EPA methods 3010A/6010B, 3050B/6010B and 7470A/7471A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues

were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The Title 22 metals data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

4.2 Holding Times

The holding times for the metals analyses of soils and waters are 180 days from sample collection to analysis; the holding times for the mercury analyses of soils and waters are 28 days. The holding times were met for the sample analyses.

4.3 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four method blanks were reported with the data (batches 131101L03, 131101LA2, 131101L01 and 131101L07). Title 22 metals were not detected in the method blanks above the RLs.

4.4 Matrix Spike/Matrix Spike Duplicate

Four batch MS/MSD pairs were reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

4.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four LCSs were reported. The results for the LCSs pair were within the laboratory specified acceptance criteria for recovery.

4.6 Equipment Blank

One equipment blank, QCEB-103113, was collected with the samples. Title 22 metals were not detected in the equipment blank above the RLs.

4.7 Sensitivity

The samples were reported to the RLs.

4.8 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD

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ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery or RPD outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 5 December 2013

To: Geoff Frieman

From: Mary Tyler

CC: J. Caprio

Subject: Stage 2A Data Validation - Level II Data Deliverable – Volatile Organic Compounds and Oxygenates by EPA Methods 5030C/ 8260B and 5035/8260B, Polynuclear Aromatic Compounds by EPA Methods 3510C/8270C and 3545/8270C using Selected Ion Monitoring, Total Petroleum Hydrocarbons, Carbon Chains C6-C40 by EPA Methods 3510C/8015B and 3550B/8015B and Title 22 Metals by EPA Methods 3010A/6010B, 3050B/6010B and 7470A/7471A – Calscience Work Order Number 13-11-0088

SITE: Brookfield/SB0674

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of four soil samples, one equipment blank and one trip blank collected on November 1, 2013, as part of the Brookfield sampling event. The analyses were performed at Calscience Environmental Laboratories, Inc., Garden Grove, California. The samples were analyzed for the following tests:

- **EPA Methods 5030C/8260B and 5035/8260B - Volatile Organic Compounds (VOCs) and Oxygenates**
- **EPA Methods 3510C/8270C and 3545/8270C - Polynuclear Aromatic Hydrocarbons (PAHs) using Selected Ion Monitoring (SIM)**
- **EPA Methods 3510C/8015B and 3545/8015B - Total Petroleum Hydrocarbons (TPH), Carbon Chains C6-C40**
- **EPA Methods 3010A/6010B, 3050B/6010B and 7470A/7471A - Title 22 Metals**

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 2A data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, January 2010 (OSWER 9240.1-51, EPA 540-R-10-011), the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 2A level:

Laboratory ID	Client ID
13-10-0088-1	VP13-0.5
13-10-0088-2	VP13-5
13-10-0088-3	VP13-10

Laboratory ID	Client ID
13-10-0088-4	VP11A-5
13-10-0088-5	QCEB-110113
13-10-0088-6	QCTB-110113

The samples were received at the laboratory within 0-6°C. No sample preservation issues were noted by the laboratory.

The year was not included on the chain of custody (COC) for the time of collection for sample VP13-0.5; in addition, there were no dates of collection for samples VP13-5, VP13-10, VP11A-5, QCEB-110113 and QCTB-110113 recorded on the COC. Based on professional judgment, these omissions did not have an adverse impact on the samples, since the dates of collection were taken from the container labels.

The Calscience Sample Anomaly Form indicated that the improper sample containers were sent to the laboratory for sample VP13-0.5. The sample aliquots for PAH, TPH and Title 22 metals, taken from a soil cutting sample collected using a hand auger, were placed in zip lock bags.

1.0 VOLATILE ORGANIC COMPOUNDS AND OXYGENATES

Four soil samples, one equipment blank and one trip blank were analyzed for VOCs and oxygenates per EPA Methods 5030C/8260B and 5035/8260B.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues

were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ⊗ Laboratory Control Sample
- ✓ Surrogate
- ✓ Equipment Blank
- ✓ Trip Blank
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The VOC data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Time

The holding time for a preserved soil sample is 14 days from collection to analysis. The holding time for a preserved water sample is 14 days from collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 131104L02 and 131106L02). VOCs and oxygenates were not detected in the method blanks above the reporting limits (RLs).

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

A batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

1.5 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCS duplicate (LCSD) were reported. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and relative percent difference (RPD), with the following exceptions.

Either one or both of the LCS/LCSD recoveries of carbon disulfide and 1,1,2-trichloro-1,2,2-trifluoroethane in batch 131104L02 were low and outside the laboratory specified acceptance criteria. Therefore, the undetected values of carbon disulfide and 1,1,2-trichloro-1,2,2-trifluoroethane were UJ qualified as estimated less than the RLs in the associated samples.

The LCS recoveries of n-butylbenzene, dichlorodifluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane in batch 131106L02 were high and outside the laboratory specified acceptance criteria. Since these three compounds were not detected in the associated samples, no qualifications were applied to the data.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier*	Reason Code**
VP13-0.5	Carbon Disulfide	12	U	12	UJ	5
VP13-0.5	1,1,2-Trichloro-1,2,2-Trifluoroethane	12	U	12	UJ	5
VP13-5	Carbon Disulfide	12	U	12	UJ	5
VP13-5	1,1,2-Trichloro-1,2,2-Trifluoroethane	12	U	12	UJ	5
VP13-10	Carbon Disulfide	12	U	12	UJ	5
VP13-10	1,1,2-Trichloro-1,2,2-Trifluoroethane	12	U	12	UJ	5
VP11A-5	Carbon Disulfide	11	U	11	UJ	5
VP11A-5	1,1,2-Trichloro-1,2,2-Trifluoroethane	11	U	11	UJ	5

µg/kg-microgram per kilogram
U-not detected at the stated RL
* Validation qualifiers are defined in Attachment 1 at the end of this report
**Reason codes are defined in Attachment 2 at the end of this report

1.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

1.7 Equipment Blank

One equipment blank, QCEB-110113, was collected with the samples. VOCs and oxygenates were not detected in the equipment blank above the RLs.

1.8 Trip Blank

One trip blank, QCTB-110113, acompanied the samples. VOCs and oxygenates were not detected in the trip blank above the RLs.

1.9 Sensitivity

The samples were reported to the RLs.

1.10 Electronic Data Deliverable (EDD) Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation. No discrepancies were identified between the level II report and the EDD.

2.0 POLYNUCLEAR AROMATIC HYDROCARBONS

Four soil samples and one equipment blank were analyzed for PAHs per EPA Methods 3510C/8270C and 3545/8270C SIM.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogate
- ✓ Equipment Blank

- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

2.1 Overall Assessment

The PAH data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

2.2 Holding Time

The holding times for the PAH analysis of soil are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times for PAH analysis of water are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 131104L15 and 131106L07). PAHs were not detected in the method blanks above the RLs.

2.4 Matrix Spike/Matrix Spike Duplicate

A sample set specific MS/MSD pair, using sample VP13-0.5, was reported. The MS/MSD pair had recovery and RPD results within the laboratory specified acceptance criteria.

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCSD pair were reported with the data. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

2.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

2.7 Equipment Blank

One equipment blank, QCEB-110113, was collected with the samples. PAHs were not detected in the equipment blank above the RLs.

2.8 Sensitivity

The samples were reported to the RLs.

2.9 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 TOTAL PETROLEUM HYDROCARBONS, CARBON CHAIN C6-C40

Four soil samples and one equipment blank were analyzed for TPH carbon chain C6-C40.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

⊗ Overall Assessment
✓ Holding Time
✓ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogate
✓ Equipment Blank
✓ Sensitivity
✓ Electronic Data Deliverable Review

3.1 Overall Assessment

The TPH C6-C40 data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

The laboratory report indicated that the total C6-C44 concentrations for samples VP-13-0.5 and VP11A-5 included estimated individual carbon range concentrations that were less than RLs. Therefore, based on technical and professional judgment, the total C6-C44 concentrations for these samples were J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
VP13-0.5	C6-C44 Total	34	NA	34	J	13
VP11A-5	C6-C44 Total	210	NA	210	J	13

mg/kg-milligram per kilogram
NA-not applicable

3.2 Holding Time

The holding times for the TPH C6-C40 analysis of soils are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times for the TPH C6-C40 analysis of waters are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 131104B01A and 131104B11A). TPH C6-C40 were not detected in the method blanks above the RLs.

3.4 Matrix Spike/Matrix Spike Duplicate

A batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

3.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCSD pair were analyzed. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

3.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

3.7 Equipment Blank

One equipment blank, QCEB-110113, was collected with the samples. TPH C6-C40 were not detected in the equipment blank above the RLs.

3.8 Sensitivity

The samples were reported to the RLs.

3.9 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

4.0 TITLE 22 METALS

Four soil samples and one equipment blank were analyzed for Title 22 metals, including mercury, per EPA methods 3010A/6010B, 3050B/6010B and 7470A/7471A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The Title 22 metals data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

4.2 Holding Times

The holding times for the metals analyses of soils and waters are 180 days from sample collection to analysis; the holding times for the mercury analyses of soils and waters are 28 days. The holding times were met for the sample analyses.

4.3 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four method blanks were reported with the data (batches 131104L05, 131105LA2, 131104L02 and 131104L03). Title 22 metals were not detected in the method blanks above the RLs.

4.4 Matrix Spike/Matrix Spike Duplicate

Four batch MS/MSD pairs were reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

4.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs and one LCS/LCSD pair were reported. The results for the LCSs and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

4.6 Equipment Blank

One equipment blank, QCEB-110113, was collected with the samples. Title 22 metals were not detected in the equipment blank above the RLs.

4.7 Sensitivity

The samples were reported to the RLs.

4.8 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD

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ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference (inorganic analyses only).

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference (inorganic analyses only).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery or RPD outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 5 December 2013

To: Geoff Frieman

From: Mary Tyler

CC: J. Caprio

Subject: Stage 2A Data Validation - Level II Data Deliverable – Organochlorine Pesticides by EPA Methods 3510C/8081A and 3454/8081A and Arsenic by EPA Methods 3010A/6010B and 3050B/6010B – Calscience Work Order Number 13-11-0216

SITE: Brookfield/SB0674

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of twenty-seven soil samples and one equipment blank collected on November 4, 2013, as part of the Brookfield sampling event. The analyses were performed at Calscience Environmental Laboratories, Inc., Garden Grove, California. The samples were analyzed for the following tests:

- **EPA Methods 3510C/8081A and 3454/8081A - Organochlorine Pesticides**
- **EPA Methods 3010A/6010B and 3050B/6010B - Arsenic**

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 2A data validation covering the quality control (QC) parameters listed below, the data are usable for meeting project objectives.

The organic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, January 2010 (OSWER 9240.1-51, EPA 540-R-10-011), the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 2A level:

Laboratory ID	Client ID
13-11-0216-1	AG-01-0.5
13-11-0216-2	AG-02-0.5
13-11-0216-3	AG-03-0.5
13-11-0216-4	AG-04-0.5
13-11-0216-5	AG-05-0.5
13-11-0216-6	AG-06-0.5
13-11-0216-7	AG-07-0.5
13-11-0216-8	AG-08-0.5
13-11-0216-9	AG-09-0.5
13-11-0216-10	AG-10-0.5
13-11-0216-11	AG-11-0.5
13-11-0216-12	AG-SB3-0.5
13-11-0216-13	AG-SB7-0.5
13-11-0216-14	AG-SB9-0.5

Laboratory ID	Client ID
13-11-0216-15	AG-SB15-0.5
13-11-0216-16	AG-SB24-0.5
13-11-0216-17	AG-SB35-0.5
13-11-0216-18	AG-SB42-0.5
13-11-0216-18	AG-SB40-0.5
13-11-0216-20	AG-SB33-0.5
13-11-0216-21	AG-SB23-0.5
13-11-0216-22	AG-SB26-0.5
13-11-0216-23	RR-01-0.5
13-11-0216-24	RR-02-0.5
13-11-0216-25	RR-03-0.5
13-11-0216-26	RR-04-0.5
13-11-0216-27	RR-05-0.5
13-11-0216-28	QC-EB-11-04-13

The samples were received at the laboratory within 0-6°C. No sample preservation issues were noted by the laboratory.

The Calscience Sample Anomaly Form indicated that there was insufficient sample volume for the pesticide analysis of sample QC-EB-11-04-13; approximately 480 mL of sample were sent and the nominal amount is 1000 mL. Email communication from the client, included in the laboratory report, instructed the laboratory to use the amount of sample sent.

1.0 ORGANOCHLORINE PESTICIDES

Eleven soil samples and one equipment blank were analyzed for organochlorine pesticides per EPA methods 3510C/8081A and 3454/8081A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues

were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogate
- ✓ Equipment Blank
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The organochlorine pesticide data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Time

The holding times for organochlorine pesticide analysis of waters are 7 days from sample collection to extraction and 40 days from extraction to analysis; the holding times for soils are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 131105L18 and 131105L08). Organochlorine pesticides were not detected in the method blanks above the reporting limits (RLs).

1.4 Matrix Spike/Matrix Spike Duplicate

One sample set specific MS/MSD pair, using sample AG-09-0.5, was reported. The MS/MSD pair had recovery and relative percent difference (RPD) results within the laboratory specified acceptance criteria.

1.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCS duplicate (LCSD) pair were analyzed. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

1.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

1.7 Equipment Blank

One equipment blank, QC-EB-11-04-13, was collected with the samples. Organochlorine pesticides were not detected in the equipment blank above the RLs.

1.8 Sensitivity

The samples were reported to the RLs.

1.9 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

2.0 ARSENIC

Sixteen soil samples and one equipment blank analyzed for arsenic per EPA methods 3010A/6010B and 3050B/6010B.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample

- ✓ Equipment Blank
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The arsenic data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

2.2 Holding Times

The holding times for the arsenic analyses of soils and waters are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 131105L09 and 131105LA2). Arsenic was not detected in the method blanks above the RLs.

2.4 Matrix Spike/Matrix Spike Duplicate

Two batch MS/MSD pairs were reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCSD pair were reported. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

2.6 Equipment Blank

One equipment blank, QC-EB-11-04-13, was collected with the samples. Arsenic was not detected in the equipment blank above the RL.

2.7 Sensitivity

The samples were reported to the RLs.

2.8 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

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ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery or RPD outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 5 December 2013

To: Geoff Frieman

From: Mary Tyler

CC: J. Caprio

Subject: Stage 2A Data Validation - Level II Data Deliverable – Organochlorine Pesticides by EPA Methods 3510C/8081A and 3454/8081A and Lead by EPA Methods 3010A/6010B and 3050B/6010B – Calscience Work Order Number 13-11-0333

SITE: Brookfield/SB0674

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of sixty soil samples and one equipment blank collected on November 5, 2013, as part of the Brookfield sampling event. The analyses were performed at Calscience Environmental Laboratories, Inc., Garden Grove, California. The samples were analyzed for the following tests:

- **EPA Methods 3510C/8081A and 3454/8081A - Organochlorine Pesticides**
- **EPA Methods 3010A/6010B and 3050B/6010B - Lead**

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 2A data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, January 2010 (OSWER 9240.1-51, EPA 540-R-10-011), the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 2A level:

Laboratory ID	Client ID
13-11-0333-1	OCP-59-01-0.5
13-11-0333-2	OCP-59-01-2
13-11-0333-3	OCP-59-02-0.5
13-11-0333-4	OCP-59-02-2
13-11-0333-5	Pb-59-01-0.5
13-11-0333-6	Pb-59-02-0.5
13-11-0333-7	Pb-59-03-0.5
13-11-0333-8	Pb-59-04-0.5
13-11-0333-9	Pb-59-05-0.5
13-11-0333-10	Pb-59-06-0.5
13-11-0333-11	OCP-50-01-0.5
13-11-0333-12	OCP-50-01-2
13-11-0333-13	OCP-50-02-0.5
13-11-0333-14	OCP-50-02-2
13-11-0333-15	Pb-50-01-0.5
13-11-0333-16	Pb-50-02-0.5
13-11-0333-17	Pb-50-03-0.5
13-11-0333-18	Pb-50-04-0.5
13-11-0333-19	Pb-50-05-0.5
13-11-0333-20	Pb-50-06-0.5
13-11-0333-21	OCP-38-01-0.5
13-11-0333-22	OCP-38-01-2
13-11-0333-23	OCP-38-02-0.5
13-11-0333-24	OCP-38-02-2
13-11-0333-25	Pb-38-01-0.5
13-11-0333-26	Pb-38-02-0.5
13-11-0333-27	Pb-38-03-0.5
13-11-0333-28	Pb-38-04-0.5
13-11-0333-29	Pb-38-05-0.5
13-11-0333-30	Pb-38-06-0.5
13-11-0333-31	OCP-8-01-0.5

Laboratory ID	Client ID
13-11-0333-32	OCP-8-01-2
13-11-0333-33	OCP-8-02-0.5
13-11-0333-34	OCP-8-02-2
13-11-0333-35	Pb-8-01-0.5
13-11-0333-36	Pb-8-02-0.5
13-11-0333-37	Pb-8-03-0.5
13-11-0333-38	Pb-8-04-0.5
13-11-0333-39	Pb-8-05-0.5
13-11-0333-40	Pb-8-06-0.5
13-11-0333-41	OCP-5-01-0.5
13-11-0333-42	OCP-5-01-2
13-11-0333-43	OCP-5-02-0.5
13-11-0333-44	OCP-5-02-2
13-11-0333-45	Pb-5-01-0.5
13-11-0333-46	Pb-5-02-0.5
13-11-0333-47	Pb-5-03-0.5
13-11-0333-48	Pb-5-04-0.5
13-11-0333-49	Pb-5-05-0.5
13-11-0333-50	Pb-5-06-0.5
13-11-0333-51	OCP-29-01-0.5
13-11-0333-52	OCP-29-01-2
13-11-0333-53	OCP-29-02-0.5
13-11-0333-54	OCP-29-02-2
13-11-0333-55	Pb-29-01-0.5
13-11-0333-56	Pb-29-02-0.5
13-11-0333-57	Pb-29-03-0.5
13-11-0333-58	Pb-29-04-0.5
13-11-0333-59	Pb-29-05-0.5
13-11-0333-60	Pb-29-06-0.5
13-11-0333-61	QC-EB-11-05-13

The samples were received at the laboratory within 0-6°C. No sample preservation issues were noted by the laboratory.

1.0 ORGANOCHLORINE PESTICIDES

Twenty-four soil samples and one equipment blank were analyzed for organochlorine pesticides per EPA methods 3510C/8081A and 3454/8081A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogate
- ✓ Equipment Blank
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The organochlorine pesticide data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Time

The holding times for organochlorine pesticide analysis of waters are 7 days from sample collection to extraction and 40 days from extraction to analysis; the holding times for soils are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four method blanks were reported with the data (batches 131107L22, 131107L27, 131112L26 and 131106L15). Organochlorine pesticides were not detected in the method blanks above the reporting limits (RLs).

1.4 Matrix Spike/Matrix Spike Duplicate

One sample set specific MS/MSD pair, using sample OCP-59-01-2, was reported. The MS/MSD pair had recovery and relative percent difference (RPD) results within the laboratory specified acceptance criteria, with the following exceptions.

The recoveries of 4,4'-DDT and 4,4'-DDE were high and outside the laboratory specified acceptance criteria. Since 4,4'-DDT and 4,4'-DDE were not detected in sample OCP-59-01-2, no qualifications were applied to the sample.

In addition, two batch MS/MSD pairs were reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples

1.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs and one LCS/LCS duplicate (LCSD) pair were analyzed. The results for the LCSs and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

1.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

1.7 Equipment Blank

One equipment blank, QC-EB-11-05-13, was collected with the samples. Organochlorine pesticides were not detected in the equipment blank above the RLs.

1.8 Sensitivity

The samples were reported to the RLs.

1.9 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

2.0 LEAD

Thirty-six soil samples and one equipment blank were analyzed for lead per EPA methods 3010A/6010B and 3050B/6010B.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Method Blank
⊗ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Equipment Blank
✓ Sensitivity
✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The lead data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

2.2 Holding Times

The holding times for the lead analyses of soils and waters are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported with the data (batches 131106L06, 131106L07 and 131106LA1). Lead was not detected in the method blanks above the RLs.

2.4 Matrix Spike/Matrix Spike Duplicate

Two sample set specific MS/MSD pairs, using samples Pb-59-02-0.5 and Pb-5-05-0.5, were reported. The MS/MSD pair using sample Pb-59-02-0.5 had recovery and RPD results within the laboratory specified acceptance criteria. The MSD recovery using sample Pb-5-05-0.5 was high and outside the laboratory specified acceptance criteria. Therefore, the concentration of lead in sample Pb-5-05-0.5 was J+ qualified as estimated with high bias.

In addition, one batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
Pb-5-05-0.5	Lead	99.6	NA	99.6	J+	4

mg/kg-milligram per kilogram
NA-not applicable

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs were reported. The results for the LCSs were within the laboratory specified acceptance criteria for recovery.

2.6 Equipment Blank

One equipment blank, QC-EB-11-05-13, was collected with the samples. Lead was not detected in the equipment blank above the RL.

2.7 Sensitivity

The samples were reported to the RLs.

2.8 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD

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* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery or RPD outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 5 December 2013

To: Geoff Frieman

From: Mary Tyler

CC: J. Caprio

Subject: Stage 2A Data Validation - Level II Data Deliverable – Volatile Organic Compounds by EPA Method TO-15 – Calscience Work Order Number 13-11-0813 Supplemental Report 1

SITE: Brookfield/SB0674

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of one air sample collected on November 11, 2013 as part of the Brookfield sampling event. The analyses were performed at Calscience Environmental Laboratories, Inc., Garden Grove, California. The sample was analyzed for the following test:

- **EPA Method TO-15 - Volatile Organic Compounds (VOCs)**

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 2A data validation covering the quality control (QC) parameters listed below, the data are usable for meeting project objectives.

The organic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), the pertinent methods referenced by the data package and professional judgment.

The following sample was analyzed and validated at a Stage 2A level:

Laboratory ID	Client ID
13-11-0813-1	VP-6-15-111113S

The sample was received at the laboratory at ambient temperature. No sample preservation issues were noted by the laboratory.

The report was revised at the client's request to report the sample results in µg/L. The revised report was identified as 13-11-0813 Supplemental Report 1.

1.0 VOLATILE ORGANIC COMPOUNDS

One air sample was analyzed for VOCs per EPA Method TO-15.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Laboratory Control Sample
- ✓ Surrogate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The VOC data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Time

The holding time for an air sample is 30 days from collection to analysis. The holding time was met for the sample analysis.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 131118L01). VOCs were not detected in the method blank above the reporting limits (RLs).

1.4 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS/LCS duplicate (LCSD) pair was reported. The results for the LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and relative percent difference (RPD).

1.5 Surrogate

Acceptable surrogate recoveries were reported for the sample analysis.

1.6 Sensitivity

The sample was reported to the RLs.

1.7 Electronic Data Deliverable (EDD) Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation. No discrepancies were identified between the level II report and the EDD.

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ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery or RPD outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 5 December 2013

To: Geoff Frieman

From: Mary Tyler

CC: J. Caprio

Subject: Stage 2A Data Validation - Level II Data Deliverable – Volatile Organic Compounds and Oxygenates by EPA Methods 5030C/ 8260B and 5035/8260B, Total Petroleum Hydrocarbons Carbon Chains C6-C44 by EPA Methods 3510C/8015B and 3550B/8015B, Polychlorinated Biphenyls by EPA Methods 3510C/8082 and 3454/8082 and Title 22 Metals by EPA Methods 3010A/6010B, 3050B/6010B and 7470A/7471A – Calscience Work Order Number 13-11-0814

SITE: Brookfield/SB0674

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of twelve soil samples, one solid sample, one equipment blank and one trip blank collected on November 11, 2013, as part of the Brookfield sampling event. The analyses were performed at Calscience Environmental Laboratories, Inc., Garden Grove, California. The samples were analyzed for the following tests:

- **EPA Methods 5030C/8260B and 5035/8260B - Volatile Organic Compounds (VOCs) and Oxygenates**
- **EPA Methods 3510C/8015B and 3545/8015B - Total Petroleum Hydrocarbons (TPH), Carbon Chains C6-C44**
- **EPA Methods 3510C/8081A and 3454/8081A - Polychlorinated Biphenyls (PCBs)**
- **EPA Methods 3010A/6010B, 3050B/6010B and 7470A/7471A - Title 22 Metals (including Mercury)**

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 2A data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives, with the following exception. The undetected value of antimony in sample IDW-111113 was R qualified as rejected due to recoveries of antimony less than 30% in the MS/MSD pair using sample IDW-111113.

Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, January 2010 (OSWER 9240.1-51, EPA 540-R-10-011), the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 2A level:

Laboratory ID	Client ID
13-11-0814-1	T33-01-0.5
13-11-0814-2	T33-01-2
13-11-0814-3	T33-02-0.5
13-11-0814-4	T33-02-2
13-11-0814-5	T29-01-0.5
13-11-0814-6	T29-01-2
13-11-0814-7	T29-02-0.5
13-11-0814-8	T29-02-2

Laboratory ID	Client ID
13-11-0814-9	T34-01-0.5
13-11-0814-10	T34-01-2
13-11-0814-11	T34-02-0.5
13-11-0814-12	T34-02-2
13-11-0814-13	QCEB-111113
13-11-0814-14	QCTB-111113
13-11-0814-15	IDW-111113

The samples were received at the laboratory within 0-6°C. No sample preservation issues were noted by the laboratory.

The Calscience Sample Anomaly Form indicated that there was insufficient sample volume for the PCB analysis of sample QCEB-111113; approximately 500 mL of sample were sent and the nominal amount is 1000 mL. The sample was analyzed using the reduced volume.

1.0 VOLATILE ORGANIC COMPOUNDS AND OXYGENATES

One solid sample and one trip blank were analyzed for VOCs and oxygenates per EPA Methods 5030C/8260B and 5035/8260B.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
⊗ Laboratory Control Sample
✓ Surrogate
✓ Equipment Blank
✓ Trip Blank
✓ Sensitivity
✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The VOC data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Time

The holding time for a preserved soil sample is 14 days from collection to analysis. The holding time for a preserved water sample is 14 days from collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 131112L02 and 131118L01). VOCs and oxygenates were not detected in the method blanks above the reporting limits (RLs).

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

A batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

1.5 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCS duplicate (LCSD) were reported. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and relative percent difference (RPD), with the following exceptions.

Either one or both of the recoveries of acetone, 2-butanone, 2-hexanone and 1,2,4-trichlorobenzene were high and outside the laboratory specified acceptance criteria in the LCS/LCSD pair in batch 131112L02. Since 2-butanone, 2-hexanone and 1,2,4-trichlorobenzene were not detected in the associated sample, no qualifications were applied to the data. However, the concentration of acetone in the associated sample was J qualified as estimated.

The recovery of bromomethane was low and the recoveries of dichlorodifluoromethane, 2,2-dichloropropane, 1,1,2-trichloro-1,2,2-trifluoroethane and vinyl acetate were high, all outside the laboratory specified acceptance criteria in the LCS in batch 131118L01. Since dichlorodifluoromethane, 22,-dichloropropane, 1,1,2-trichloro-1,2,2-trifluoromethane and vinyl acetate were not detected in the associated sample, no qualifications were applied to the data. The undetected value of bromomethane in the associated sample was UJ qualified as estimated less than the RL due to the low LCS recovery.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/ kg)	Validation Qualifier*	Reason Code**
IDW-111113	Acetone	65	NA	65	J	5

µg/kg-microgram per kilogram
NA-not applicable
* Validation qualifiers are defined in Attachment 1 at the end of this report
**Reason codes are defined in Attachment 2 at the end of this report

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
QCTB-111113	Bromomethane	10	U	10	UJ	5

µg/L-microgram per liter U-not detected at the stated RL

1.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

1.7 Equipment Blank

One equipment blank was collected with the samples, but not analyzed for VOCs and oxygenates.

1.8 Trip Blank

One trip blank, QCTB-111113, accompanied the samples. VOCs and oxygenates were not detected in the trip blank above the RLs.

1.9 Sensitivity

The samples were reported to the RLs.

1.10 Electronic Data Deliverable (EDD) Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation. No discrepancies were identified between the level II report and the EDD.

2.0 TOTAL PETROLEUM HYDROCARBONS, CARBON CHAIN C6-C44

One solid sample was analyzed for TPH carbon chain C6-C44.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

⊗ Overall Assessment
✓ Holding Time
✓ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate

- ✓ Laboratory Control Sample
- ✓ Surrogate
- ✓ Equipment Blank
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

2.1 Overall Assessment

The TPH C6-C44 data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

The laboratory report indicated that the total C6-C44 concentration for sample IDW-111113 included estimated individual carbon range concentrations that were less than RLs. Therefore, based on technical and professional judgment, the total C6-C44 concentration for this sample was J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
IDW-111113	C6-C44 Total	64	NA	64	J	13

mg/kg-milligram per kilogram
NA-not applicable

2.2 Holding Time

The holding times for the TPH C6-C44 analysis of soils are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 131112B02). TPH C6-C44 were not detected in the method blank above the RLs.

2.4 Matrix Spike/Matrix Spike Duplicate

A batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery.

2.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

2.7 Equipment Blank

One equipment blank was collected with the samples, but not analyzed for TPH C6-C44.

2.8 Sensitivity

The samples were reported to the RLs.

2.9 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 PCBS

Twelve soil samples and one equipment blank were analyzed for PCBs per EPA methods 3510C/8082 and 3454/8082.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time

- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogate
- ✓ Equipment Blank
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

3.1 Overall Assessment

The PCB data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

3.2 Holding Time

The holding times for PCB analysis of waters are 7 days from sample collection to extraction and 40 days from extraction to analysis; the holding times for soils are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 131112L28 and 131112L03). PCBs were not detected in the method blanks above the RLs.

3.4 Matrix Spike/Matrix Spike Duplicate

One sample set specific MS/MSD pair, using sample T-29-02-0.5, was reported. The MS/MSD pair had recovery and RPD results within the laboratory specified acceptance criteria.

3.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCSD pair were analyzed. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

3.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

3.7 Equipment Blank

One equipment blank, QCEB-111113, was collected with the samples. PCBs were not detected in the equipment blank above the RLs.

3.8 Sensitivity

The samples were reported to the RLs.

3.9 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

4.0 TITLE 22 METALS

One solid sample was analyzed for Title 22 metals, including mercury, per EPA methods 3010A/6010B, 3050B/6010B and 7470A/7471A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

⊗ Overall Assessment
✓ Holding Time
✓ Method Blank
⊗ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Equipment Blank
✓ Sensitivity
✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The Title 22 metals data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 94.1%. Because the recoveries of antimony were less than 30% in the MS/MSD pair using sample IDW-111113, the undetected value of antimony in sample IDW-111113 was R qualified as rejected.

4.2 Holding Times

The holding time for the metals analyses of soils is 180 days from sample collection to analysis; the holding time for the mercury analyses of soils is 28 days. The holding times were met for the sample analyses.

4.3 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 131112L06 and 131112L03). The Title 22 metals were not detected in the method blanks above the RLs.

4.4 Matrix Spike/Matrix Spike Duplicate

One sample set specific MS/MSD pair, using sample IDW-111113, was reported. The MS/MSD pair had recovery and RPD results within the laboratory specified acceptance criteria, with the following exceptions.

The recoveries of antimony were low (23% and 27%, limits 50-115%) and the recoveries of copper and lead were high, all outside the laboratory specified acceptance criteria. Therefore, the undetected value of antimony in sample IDW-111113 was R qualified as rejected due to recoveries less than 30% and the concentrations of copper and lead were J+ qualified as estimated with high biases in sample IDW-111113.

It was noted that the concentrations of barium and zinc in the unspiked sample were four times greater than the spike concentrations; therefore, the laboratory specified acceptance criteria were not applicable and qualifications were not applied to the data.

In addition, one batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
IDW-111113	Antimony	0.750	U	0.750	R	4
IDW-111113	Copper	27.2	NA	27.2	J+	4
IDW-111113	Lead	43.7	NA	43.7	J+	4

mg/kg-milligram per kilogram
U-not detected at the stated RL
NA-not applicable

4.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported. The results for the LCSs were within the laboratory specified acceptance criteria for recovery.

4.6 Equipment Blank

One equipment blank was collected with the samples, but not analyzed for Title 22 metals.

4.7 Sensitivity

The samples were reported to the RLs.

4.8 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

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* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery or RPD outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 5 December 2013

To: Geoff Frieman

From: Mary Tyler

CC: J. Caprio

Subject: Stage 2A Data Validation - Level II Data Deliverable – Volatile Organic Compounds by EPA Method TO-15 – Calscience Work Order Number 13-11-0944 Supplemental Report 1

SITE: Brookfield/SB0674

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of two air samples collected on November 12, 2013 as part of the Brookfield sampling event. The analyses were performed at Calscience Environmental Laboratories, Inc., Garden Grove, California. The samples were analyzed for the following test:

- **EPA Method TO-15 - Volatile Organic Compounds (VOCs)**

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 2A data validation covering the quality control (QC) parameters listed below, the data are usable for meeting project objectives.

The organic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), the pertinent methods referenced by the data package and professional judgment.

The following sample was analyzed and validated at a Stage 2A level:

Laboratory ID	Client ID
13-11-0944-1	VP-8-15-111213S

Laboratory ID	Client ID
13-11-0944-2	VP-10-30-111213S

The samples were received at the laboratory at ambient temperature. No sample preservation issues were noted by the laboratory.

The chain of custody (COC) included the requests for analysis of soil samples and an equipment blank for polychlorinated biphenyls (PCBs). Email communication between the laboratory and client, included in the laboratory report and documented on the Calscience Sample Anomaly Form, indicated that insufficient sample volumes were sent in for the PCB analyses. The PCB analyses of the soil samples and equipment blank were cancelled by the client.

The report was revised at the client's request to report the TO-15 sample results in µg/L. The revised report was identified as 13-11-0944 Supplemental Report 1.

1.0 VOLATILE ORGANIC COMPOUNDS

Two air samples were analyzed for VOCs per EPA Method TO-15.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Laboratory Control Sample
- ✓ Surrogate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 <u>Overall Assessment</u>

The VOC data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Time

The holding time for an air sample is 30 days from collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 131118L01). VOCs were not detected in the method blank above the reporting limits (RLs).

1.4 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS/LCS duplicate (LCSD) pair was reported. The results for the LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and relative percent difference (RPD).

1.5 Surrogate

Acceptable surrogate recoveries were reported for the sample analysis.

1.6 Sensitivity

The samples were reported to the RLs.

1.7 Electronic Data Deliverable (EDD) Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation. No discrepancies were identified between the level II report and the EDD.

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* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery or RPD outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 5 December 2013

To: Geoff Frieman

From: Mary Tyler

CC: J. Caprio

Subject: Stage 2A Data Validation - Level II Data Deliverable – Volatile Organic Compounds by EPA Method TO-15 and Polychlorinated Biphenyls by EPA Methods 3510C/8082 and 3454/8082 – Calscience Work Order Number 13-11-1034 Supplemental Report 1

SITE: Brookfield/SB0674

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of two air samples, one soil sample and one equipment blank, collected on November 13, 2013, as part of the Brookfield sampling event. The analyses were performed at Calscience Environmental Laboratories, Inc., Garden Grove, California. The samples were analyzed for the following tests:

- **EPA Method TO-15 - Volatile Organic Compounds (VOCs)**
- **EPA Methods 3510C/8081A and 3454/8081A - Polychlorinated Biphenyls (PCBs)**

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 2A data validation covering the quality control (QC) parameters listed below, the data are usable for meeting project objectives.

The organic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 2A level:

Laboratory ID	Client ID
13-11-1034-1	VP-3-30-111313
13-11-1034-2	VP-14-15-111313

Laboratory ID	Client ID
13-11-1034-3	T9-111313
13-11-1034-4	QCEB-111313

The air samples were received at the laboratory at ambient temperature; the soil sample and equipment blank were received at the laboratory within 0-6°C. No sample preservation issues were noted by the laboratory.

The report was revised at the client's request to report the TO-15 sample results in µg/L. The revised report was identified as 13-11-1034 Supplemental Report 1

1.0 VOLATILE ORGANIC COMPOUNDS

Two air samples were analyzed for VOCs per EPA Method TO-15.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Laboratory Control Sample
- ✓ Surrogate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 <u>Overall Assessment</u>

The VOC data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Time

The holding time for an air sample is 30 days from collection to analysis. The holding time was met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 131119L01). VOCs were not detected in the method blank above the reporting limits (RLs).

1.4 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS/LCS duplicate (LCSD) pair was reported. The results for the LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and relative percent difference (RPD).

1.5 Surrogate

Acceptable surrogate recoveries were reported for the sample analysis.

1.6 Sensitivity

The sample was reported to the RLs.

1.7 Electronic Data Deliverable (EDD) Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation. No discrepancies were identified between the level II report and the EDD.

2.0 PCBS

One soil sample and one equipment blank were analyzed for PCBs per EPA methods 3510C/8082 and 3454/8082.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogate
- ✓ Equipment Blank
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

2.1 Overall Assessment

The PCB data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

2.2 Holding Time

The holding times for PCB analysis of waters are 7 days from sample collection to extraction and 40 days from extraction to analysis; the holding times for soils are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 131115L06 and 131114L10). PCBs were not detected in the method blanks above the RLs.

2.4 Matrix Spike/Matrix Spike Duplicate

One batch MS/MSD pair was reported. Since these are batch QC, the results do not affect the samples in this data set and qualifications were not applied to the samples

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCSD pair were analyzed. The results for the

LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

2.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses, with the following exception. The decachlorobiphenyl recovery in sample T9-111313 was high and outside the laboratory specified acceptance criteria. Since the other surrogate recovery was acceptable (2,4,5,6-tetrachloro-m-xylene), no qualifications were applied to the sample, based on professional judgment.

2.7 Equipment Blank

One equipment blank, QCEB-111313, was collected with the samples. PCBs were not detected in the equipment blank above the RLs.

2.8 Sensitivity

The samples were reported to the RLs.

2.9 Electronic Data Deliverable Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

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ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference (inorganic analysis only).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery or RPD outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 6 January 6, 2014

To: Geoff Frieman

From: Mary Tyler

CC: J. Caprio

Subject: Stage 2A Data Validation - Level IV Data Deliverable – Volatile Organic Compounds and Oxygenates by EPA Method 8260B – Jones Environmental, Inc. Reference Number E-0010

SITE: Brookfield/SB0674

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of fifty-four soil gas samples and five field duplicate samples, collected on November 13, 2013 as part of the Brookfield sampling event. The analyses were performed at Jones Environmental, Inc., Fullerton, California. The samples were analyzed for the following test:

- **EPA Method 8260B - Volatile Organic Compounds (VOCs) and Oxygenates**

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 2A data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives, with the following exceptions. Due to laboratory control sample (LCS) recovery less than 20% in batch D1-111313-Checks and based on technical and professional judgment, the undetected values of 4-isopropyltoluene in the associated samples were R qualified as rejected. Other qualified data should be used within the limitations of the qualification. All of the adjusted practical quantitation limits (Section 1.1.1 below) were at or below the project risk based concentrations.

The organic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 2A level:

Laboratory ID	Client ID
E-0010-01	VP-11-5-111313 1PV
E-0010-02	VP-11-5-111313 3PV
E-0010-03	VP-11-5-111313 10PV
E-0010-04	VP-11-15-111313 1PV
E-0010-05	VP-11-15-111313 3PV
E-0010-06	VP-11-15-111313 10PV
E-0010-07	VP-11-30-111313 1PV
E-0010-08	VP-11-30-111313 3PV
E-0010-09	VP-11-30-111313 10PV
E-0010-10	VP-11-45-111313
E-0010-11	VP-4-5-111313
E-0010-12	VP-4-15-111313
E-0010-13	VP-4-30-111313
E-0010-14	VP-7-5-111313
E-0010-15	VP-7-15-111313
E-0010-16	VP-7-30-111313
E-0010-17	VP-6-5-111313
E-0010-18	VP-6-15-111313
E-0010-19	VP-6-15-111313 DUP
E-0010-20	VP-6-30-111313
E-0010-21	VP-6-30-111313 DUP
E-0010-22	VP-5-5 111313
E-0010-25	VP-2-5-111313
E-0010-26	VP-2-15-111313
E-0010-27	VP-1-5-111313
E-0010-28	VP-1-15-111313
E-0010-29	VP-3-5-111313
E-0010-30	VP-3-15-111313
E-0010-31	VP-3-30-111313
E-0010-32	VP-8-5-111313

Laboratory ID	Client ID
E-0010-33	VP-8-15-111313
E-0010-34	VP-8-30- 111313
E-0010-35	VP-3-5-111313 DUP
E-0010-36	VP-9-5- 111313
E-0010-37	VP-9-15-111313
E-0010-38	VP-9-30-111313
E-0010-39	VP-10-5-111313
E-0010-40	VP-10-15-111313
E-0010-41	VP-10-30-111313
E-0010-42	VP-10-45-111313
E-0010-43	VP-12-5-111313
E-0010-44	VP-12-15- 111313
E-0010-45	VP-12-30- 111313
E-0010-46	VP-12-45-111313
E-0010-47	VP-13-5- 111313
E-0010-48	VP-13-15- 111313
E-0010-49	VP-13-30- 111313
E-0010-50	VP-14-5- 111313
E-0010-51	VP-14-15- 111313
E-0010-52	VP-15-5- 111313
E-0010-53	VP-15-15- 111313
E-0010-54	VP-15-15-111313 DUP
E-0010-55	VP-18-5- 111313
E-0010-56	VP-18-15- 111313
E-0010-57	VP-17-5- 111313
E-0010-58	VP-17-15- 111313
E-0010-59	VP-16-5- 111313
E-0010-60	VP-16-5-111313 DUP
E-0010-61	VP-16-15-111313

1.0 VOLATILE ORGANIC COMPOUNDS

Fifty four soil gas samples and five field duplicate samples were analyzed for VOCs and oxygenates per EPA Method 8260B.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

⊗ Overall Assessment
⊗ Holding Time
✓ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
⊗ Laboratory Control Sample
✓ Surrogate
⊗ Field Duplicate
⊗ Sensitivity
⊗ Electronic Data Deliverable Review

1.1 Overall Assessment

1.1.1 Completeness

The VOC and oxygenates data reported in this package are considered to be usable for meeting project objectives. The analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 99.5%. Due to LCS recovery less than 20% in batch D1-111313-Checks and based on technical and professional judgment, the undetected values of 4-isopropyltoluene in the associated samples were R qualified as rejected.

The laboratory provided a full data package (level IV deliverable). Although a Stage 2A data validation was performed, review of the full data package indicated several issues with the calibration data:

- Based on the concentrations of the low level standards in the initial calibrations (ICALs) and the dropping of calibration points from the ICALs, the practical quantitation limits (PQLs) were adjusted for the samples.

- The method detection limits (MDLs) could not be verified with the information provided by the laboratory. Sample concentrations greater than the reported MDLs and the adjusted PQLs were J qualified as estimated less than the adjusted PQLs.

- The coefficient of determination (r^2) for 1,2-dichlorobenzene for the ICAL analyzed on instrument E1 was low, 0.970; EPA method 8000B states that r^2 for a linear fit ICAL curve must be > 0.9801. Therefore, the undetected values of 1,2-dichlorobenzene in the associated samples were UJ qualified as estimated less than the adjusted PQL.

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The data validation qualifications, including those due to the above anomalies, are summarized in the report tables in the project database.

1.2 Holding Time

The holding time for a soil gas sample is 30 minutes from collection to analysis. The holding times were met for the sample analyses, with the following exceptions.

Samples VP-6-30-111313 DUP and VP-16-5-111313 DUP were analyzed 9 minutes and 6 minutes, respectively, outside the 30 minute holding time. Therefore, the undetected values of VOCs and oxygenates in samples VP-6-30-111313 DUP and VP-16-5-111313 DUP were UJ qualified as estimated less than the PQLs and the detected concentrations were J qualified as estimated.

The data validation qualifications, including those for the holding time exceedances, are summarized in the report tables in the project database.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported (batches D1-111313-Checks, E-1-111313-Checks and E-2-111313-Checks). VOCs were not detected in the method blanks above the PQLs.

In addition, two sampling blanks were reported. VOCs were not detected in the sampling blanks above the PQLs.

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Three ambient air MS/MSD pairs were reported. The MS/MSD pairs had recovery and relative percent difference (RPD) results within the laboratory specified acceptance criteria, with the following exceptions.

The MS/MSD recoveries in batch D1-111313-Checks of methylene chloride were low and the recoveries of ETBE, Freon 113 and TAME were high, all outside the laboratory specified acceptance criteria. Based on professional judgment, no qualifications were applied to the associated soil gas samples*.

Either one or both of the MS/MSD recoveries in batch E1-111313-Checks of carbon tetrachloride, 2,2-dichloropropane and MTBE were high or the MSD recovery of vinyl chloride

was low, all outside the laboratory specified acceptance criteria. Based on professional judgment, no qualifications were applied to the associated soil gas samples*.

*Since ambient air is not the same matrix as soil gas, the MS/MSD results do not impact the data.

It was noted that cis-1,3-dichloropropene and trans-1,3-dichloropropene were not included in the MS/MSD spikes. Based on professional judgment, since cis-1,3-dichloropropene and trans-1,3-dichloropropene were included in the continuing calibration verification (CCV) standards, no qualifications were applied to the data.

1.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs were reported. The results for the LCSs were within the laboratory specified acceptance criteria for recovery, with the following exceptions.

The LCS recoveries in batch D1-111313-Checks of dichlorodifluoromethane and methylene chloride were low and the recoveries of 1,3-dichlorobenzene, Freon 113, ETBE, DIPE and TAME were high, all outside the laboratory specified acceptance criteria. In addition, the recovery of 4-isopropyltoluene was less than 20% (10%, limits 70-130%). Since 1,3-dichlorobenzene, Freon 113, ETBE, DIPE and TAME were not detected in the associated samples, no qualifications were applied to the data. However, based on the low recoveries, the undetected values of dichlorodifluoromethane and methylene chloride in the associated samples were UJ qualified as estimated less than the PQLs. Due to recovery less than 20% and professional and technical judgment, the undetected values of 4-isopropyltoluene in the associated samples were R qualified as rejected.

The LCS recovery in batch E1-111313-Checks of vinyl chloride was high and outside the laboratory specified acceptance criteria. Since vinyl chloride was not detected in the associated samples, no qualifications were applied to the data.

The LCS recovery in batch E2-111313-Checks of 2,2-dichloropropane was low and outside the laboratory specified acceptance criteria. Therefore, the undetected values of 2,2-dichloropropane in the associated samples were UJ qualified as estimated less than the PQL.

It was noted that cis-1,3-dichloropropene and trans-1,3-dichloropropene were not included in the LCS spikes. Based on professional judgment, since cis-1,3-dichloropropene and trans-1,3-dichloropropene were included in the CCV standards, no qualifications were applied to the data

The data validation qualifications, including those for the LCS exceedances, are summarized in the report tables in the project database.

1.6 Surrogate

Acceptable surrogate recoveries were reported for the sample analysis.

1.7 Field Duplicates

Five field duplicate samples, VP-6-15-111313 DUP, VP-6-30-111313 DUP, VP-3-5-111313 DUP, VP-15-15-111313 DUP and VP-16-5-111313 DUP, were collected with the samples. Acceptable precision (RPD <30%) was demonstrated between the field duplicates and the original samples, VP-6-15-111313, VP-6-30-111313, VP-3-5-111313, VP-15-15-111313 and VP-16-5-111313, respectively, with the following exceptions.

For compounds with RPDs greater than 30%, the concentrations were J qualified as estimated in the field duplicate pairs.

For compounds detected in one sample in the field duplicate pair and not detected in the other sample in the field duplicate pair, the RPD was noncalculable. Therefore, the detected concentration was J qualified as estimated and the undetected value was UJ qualified as estimated less than the adjusted PQL in the field duplicate pair.

For compounds detected in one sample in the field duplicate pair at a concentration greater than the PQL and detected in the other sample in the field duplicate pair at an estimated concentration, the RPD was noncalculable. Therefore, the concentrations were J qualified as estimated in the field duplicate pair.

The data validation qualifications, including those for the field duplicate exceedances, are summarized in the report tables in the project database.

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
VP-15-15-111313	Tetrachloroethylene	0.091	NA	32	0.091	J	7
VP-15-15-111313 DUP	Tetrachloroethylene	0.126	NA		0.126	J	7
VP-15-15-111313	Trichloroethylene	0.023	NA	72	0.023	J	7
VP-15-15-111313	Trichloroethylene	0.049	NA		0.049	J	7

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
DUP							
VP-15-15-111313	The other VOCs	ND	NA	0	NA	NA	NA
VP-15-15-111313 DUP	The other VOCs	ND	NA		NA	NA	NA
VP-16-5-111313	Tetrachloroethylene	0.040	U	NC	0.040	UJ	7
VP-16-5-111313 DUP	Tetrachloroethylene	0.053	NA		0.053	J	7
VP-16-5-111313	The other VOCs	ND	NA	0	NA	NA	NA
VP-16-5-111313 DUP	The other VOCs	ND	NA		NA	NA	NA
VP-3-5-111313	Tetrachloroethylene	0.025	NA	NC	0.025	J	7
VP-3-5-111313 DUP	Tetrachloroethylene	0.013	J		0.013	J	7
VP-3-5-111313	The other VOCs	ND	NA	0	NA	NA	NA
VP-3-5-111313 DUP	The other VOCs	ND	NA		NA	NA	NA
VP-6-15-111313	Tetrachloroethylene	0.098	NA	92	0.098	J	7
VP-6-15-111313 DUP	Tetrachloroethylene	0.266	NA		0.266	J	7
VP-6-15-111313	Toluene	0.102	NA	22	NA	NA	NA
VP-6-15-111313 DUP	Toluene	0.127	NA		NA	NA	NA
VP-6-15-111313	Trichloroethylene	0.014	J	NC	0.014	J	7
VP-6-15-111313 DUP	Trichloroethylene	0.066	NA		0.066	J	7
VP-6-15-111313	The other VOCs	ND	NA	0	NA	NA	NA
VP-6-15-111313 DUP	The other VOCs	ND	NA		NA	NA	NA
VP-6-30-111313	1,2,4-Trimethylbenzene	0.013	J	NC	0.013	J	7

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
VP-6-30-111313 DUP	1,2,4-Trimethylbenzene	0.040	U		0.040	UJ	7
VP-6-30-111313	1,3,5-Trimethylbenzene	0.008	J	NC	0.008	J	7
VP-6-30-111313 DUP	1,3,5-Trimethylbenzene	0.040	U		0.040	UJ	7
VP-6-30-111313	Methylene Chloride	0.022	NA	NC	0.022	J	7
VP-6-30-111313 DUP	Methylene Chloride	0.019	J		0.019	J	7
VP-6-30-111313	Tetrachloroethylene	0.008	J	NC	0.008	J	7
VP-6-30-111313 DUP	Tetrachloroethylene	0.090	NA		0.090	J	7
VP-6-30-111313	Toluene	0.127	NA	2	NA	NA	NA
VP-6-30-111313 DUP	Toluene	0.130	NA		NA	NA	NA
VP-6-30-111313	Xylenes	0.069	NA	68	0.069	J	7
VP-6-30-111313 DUP	Xylenes	0.034	NA		0.034	J	7
VP-6-30-111313	The other VOCs	ND	NA	0	NA	NA	NA
VP-6-30-111313 DUP	The other VOCs	ND	NA		NA	NA	NA

µg/L-microgram per liter
U-not detected at the adjusted PQL
J-estimated concentration
ND-not detected at the PQL
NC-not calculable
NA-not applicable

1.8 Sensitivity

The samples were reported to the MDLs. As noted in section 1.1 above, based on technical and professional judgment, due to the variability of the ICAL standard concentrations and the inability to verify the MDLs with the information provided by the laboratory in the level IV

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deliverable, the concentrations greater than the reported MDLs and less than the adjusted PQLs were J qualified as estimated less than the adjusted PQLs.

1.9 Electronic Data Deliverable (EDD) Review

The EDD was revised to correct discrepancies between the hardcopy report and the EDD. Results and sample IDs in the revised EDD were reviewed against the information provided by the associated level IV report at a minimum of 20% as part of the data validation. The laboratory reported the same values in the EDD for the reporting method detection limits and the PQLs; the PQLs were corrected to reflect the validation-calculated PQLs (based on the ICAL low level standards as noted above) in the report tables in the project database. No other discrepancies were identified between the level IV report and the EDD.

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ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference (for inorganic analyses only).

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference (for inorganic analyses only).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery or RPD outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

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APPENDIX E

HUMAN HEALTH SCREENING EVALUATION

Appendix E
HUMAN HEALTH SCREENING EVALUATION

This appendix presents a detailed discussion of the fate and transport modeling and chemical intake equations used in the human health screening evaluation for the former Fred C. Nelles Youth Correctional Facility (Site). Section 6 of this Report presents the human health screening evaluation with a summary of the Exposure Assessment in which fate and transport modeling and chemical of potential concern (COPC) intake were first discussed.

E.1 Fate and Transport Modeling

Fate and transport modeling is the quantitative analysis of how chemicals move through the environment and how they are transformed by processes such as chemical reaction and biological degradation. In the context of this screening evaluation, fate and transport modeling was employed to predict the movement of COPCs from impacted media (i.e., soil and soil vapor) to points of exposure for human populations. With respect to fate and transport modeling, chemical transformation processes of chemical reaction and biological degradation were not evaluated in this screening evaluation for the Site.

Fate and transport modeling was required to assess the indirect-exposure pathways identified in the CSM (**Figure 8**). Specifically, the following are the distinct transport mechanisms for which fate and transport modeling was employed:

- Transport of particulate-phase COPCs from soil matrix to outdoor air;
- Transport of vapor-phase COPCs from soil matrix to outdoor air; and
- Transport of vapor-phase COPCs from soil vapor to indoor air (vapor intrusion pathway).

For each of these transport mechanisms, fate and transport modeling quantifies the relationship between the chemical concentration in the impacted medium (soil or soil vapor) and the chemical concentration in the exposure medium (indoor or outdoor air). The relationship is expressed in the form of a "transfer factor," defined as, the ratio of the COPC concentration in the exposure medium to the COPC concentration in the impacted medium:

$$TF = \frac{C_{exp}}{C_{imp}}$$

Where:

TF = transfer factor;

C_{exp} = concentration of chemical in exposure medium; and
C_{imp} = concentration of chemical in impacted medium.

The concentration of a chemical in air – indoor air, outdoor air, or soil vapor – is expressed in units of milligrams of chemical per cubic meter of air (mg/m^3). The concentration of a chemical in soil is expressed in units of milligrams of chemical per kilogram of soil (mg/kg). Thus, the TF has units of either mg/m^3 per mg/kg or mg/m^3 per mg/m^3, depending on whether the impacted medium is soil or soil vapor, respectively.

The specific definition of the TF for each of the transport mechanisms identified above is presented in **Table 12** of the SSI report. The TFs were used in the intake factor and exposure concentration factor equations presented below to derive COPC-specific RBCs.

The fate and transport modeling that were used to assess the indirect-exposure pathways and the methodology for calculation of TFs are further discussed below.

E.1.1 Fugitive Dust Emissions into Outdoor Air

Metals, SVOCs, and OCPs were detected in soil at the Site. It is assumed that these COPCs could become airborne due to fugitive dust emissions; therefore, exposure to these chemicals may occur via inhalation of fugitive dust. Inhalation exposure to non-volatile compounds is typically minor in fugitive dust when compared to direct ingestion exposure (USEPA, 2002). Nevertheless, a relationship can be estimated between the COPC concentration in soil and the corresponding concentration in air (secondary media) attributable to fugitive dust emissions from soil.

Potential exposure to airborne dust is estimated using a TF called the particulate emission factor (PEF), which relates the chemical concentration in soil to the concentration of dust particles in outdoor air. The PEF is defined as the ratio of the COPC concentration in outdoor air to the COPC concentration in soil:

$$PEF = \frac{C_s}{C_{oa}}$$

Where:

PEF = particulate emission factor (mg/kg per mg/m^3, or m^3/kg);
C_s = concentration of COPC in soil (mg/kg); and
C_{oa} = concentration of COPC in outdoor air (mg/m^3).

The PEF is related to the concentration of particulate matter (dust) in air:

$$PEF = \frac{1}{CD}$$

Where:

CD = concentration of dust in air (kg/m^3).

The PEF represents an annual average emission rate based on wind erosion. The PEF equation can be found in the Soil Screening Guidance (USEPA, 2002). The emissions part of the PEF equation is based on the "unlimited reservoir" model developed to estimate PM_{10} emissions (particulate matter less than 10 micrometers in diameter) due to wind erosion (Cowherd et al., 1985).

E.1.1.1 Hypothetical Future Resident PEF

For the hypothetical future resident, the following equation was used to estimate the PEF (USEPA, 2002):

$$PEF_{res} = \frac{(Q/C_{res} \times CF)}{[0.036 \times (1 - G) \times \left(\frac{U_M}{U_T}\right)^3 \times F_x]}$$

Where:

PEF_{res} = particulate emission factor, cubic meters per kilogram (m^3/kg);

Q/C_{res} = inverse of the ratio of the geometric mean air concentration to the emission flux at center of the source (g/m^2-s per kg/m^3);

CF = units conversion factor (3,600 s/hr);

0.036 = empirical constant (g/m^2-hr);

G = fraction of vegetative or other cover (0.5 unitless; USEPA, 2002);

U_M = mean annual wind speed (3.31 m/sec, average wind speed for Los Angeles; NCDC, 2010);

U_T = equivalent threshold value of wind speed at 7 meters above ground surface (11.32 m/sec; USEPA, 2002); and

F_x = function dependent on U_M/U_T (0.00474 unitless; USEPA, 2002).

The dispersion coefficient (Q/C) in units of grams per square meter-second per kilogram per cubic meter (g/m^2-s per kg/m^3) was generated using the Industrial Source Complex model and varies depending on the source area, city, and climatic zone. This term accounts for the dispersion of particulate matter after emission and was estimated using the following equation (USEPA, 2002):

$$Q/C = A \times \exp\left[\frac{(\ln A_{SITE} - B)^2}{C}\right]$$

Where:

Q/C	=	inverse of the ratio of the geometric mean air concentration to the emission flux at center of the source (g/m^2-s per kg/m^3);
A_{SITE}	=	areal extent of soil impact; default 0.5-acre source in Los Angeles (USEPA, 2002);
A	=	coefficient; default = 11.911, based on air dispersion modeling for specific climate zones (unitless; USEPA, 2002);
B	=	coefficient; default = 18.4385 (unitless; USEPA, 2002); and
C	=	coefficient; default = 209.7845 (unitless; USEPA, 2002).

The A_{SITE} value of 0.5 acre is a default value used to estimate the residential Q/C for a residential lot size, which is generally considered an appropriate assumption. The coefficients A, B, and C are for the Los Angeles area (USEPA, 2002). A Q/C_{res} value of 68.18 g/m^2-s per kg/m^3 was estimated as the inverse of the mean concentration at the center of a 0.5-acre square source. The resulting PEF_{res} for the hypothetical future resident is 1.2×10^{11} m^3/kg (**Table E-1**). This PEF was incorporated into the exposure concentration factor equation for outdoor inhalation of particulates in the screening evaluation.

E.1.1.2 Construction Worker PEF

A Site-specific, time-weighted PEF was used in this screening evaluation for the construction worker based on the assumption that only a fraction of the construction time would have elevated dust levels. During times of intrusive activities, such as site grading, fugitive dust emissions are expected to be higher. During other times, such as building construction, fugitive dust emissions are expected to be lower and due only to wind-blown dust. The Site-specific, time-weighted PEF was developed to account for these differences in emission mechanisms coupled with the estimated time in which intrusive or non-intrusive construction activities would take place. It is assumed that the intrusive soil-handling activities will be conducted for a portion of the exposure duration for the construction worker (e.g., intrusive soil handling would occur for the first 60 days of construction when Site soils will be graded and the emissions during the remaining 190 working days, of the total 250 working days, would primarily be due to the more passive emission mechanisms such as wind-blown dust).

As noted above, the PEF is related to the concentration of particulate matter (dust) in air:

$$PEF = \frac{1}{CD}$$

Where:

CD	=	concentration of dust in air (kg/m^3).

Therefore, the Site-specific, time-weighted PEF is the sum of the contributions from the total dust concentration from intrusive activities (e.g., soil excavation, dumping, or hauling that may potentially generate relatively high levels of dust) and from non-intrusive activities (e.g., wind erosion of surface soil expected to generate lower levels of dust), as follows:

$$PEF_{cw} = \frac{1}{CD_{TOT}} = \left(CD_{INTR} + CD_{WIND}\right)^{-1}$$

Where:

CD_{TOT} = total concentration of dust in air (kg/m^3);

CD_{INTR} = concentration of airborne dust resulting from intrusive soil-handling activities (kg/m^3); and

CD_{WIND} = concentration of airborne dust resulting from wind erosion (kg/m^3).

The dust concentration resulting from intrusive work (e.g., excavation, dumping, hauling, and other soil-handling activities) is assumed to be equal to 1 mg/m^3 or 1×10^{-6} kg/m^3 (Cal-EPA, 2011b)[1] for the construction worker:

$$CD_{INTR} = 1\times10^{-6}\,\text{kg/m}^3$$

The concentration of dust in air resulting from dust emissions due to unpaved road traffic and wind erosion was calculated as:

$$CD_{WIND} = \frac{0.036\times(1-G_{cw})\times\left(\frac{U_M}{U_T}\right)^3\times F_x}{CF}\times\frac{1}{\left(Q/C_{p,cw}\right)}$$

Where:

CD_{WIND} = concentration of airborne dust resulting from dust emissions from unpaved road traffic and wind erosion (kg/m^3);

0.036 = empirical constant (g/m^2-hr);

G_{cw} = fraction of vegetative or other cover (0, unitless);

U_M = mean annual wind speed (3.31 m/sec, average wind speed for Los Angeles; NCDC, 2010);

U_T = equivalent threshold value of wind speed at 7 meters above ground

[1] The respirable dust concentration of 1 mg/m^3 is based on a maximum concentration of dust in air of 10 mg/m^3 recommended by the American Conference of Governmental Industrial Hygienists (ACGIH 2004, Threshold Limit Values and Biological Exposure Indices), and the assumption that 10 percent of the mass of particles are in the respirable PM_{10} range.

surface (11.32 m/sec) (USEPA, 2002);

F_x = function dependent on UM/UT derived using Cowherd et al. (1985) (0.00474, unitless) (USEPA, 2002);

CF = units conversion factor (3,600 sec/hr); and

$Q/C_{p,cw}$ = inverse of the ratio of the geometric mean air concentration to the emission flux at center of the source (g/m^2-sec per kg/m^3) (USEPA 2002).

The first term of the equation for CD_{WIND} represents the emission rate of particulate matter from the ground surface to air (i.e., erosion). This flux is a function of wind speed and surface vegetation. The 0% coverage assumes that source area is essentially exposed where bare soil is available for contact.

The second term of the equation for CD_{WIND} is the inverse of the ratio of the geometric mean air concentration to the emission flux along a straight road segment bisecting a square site. Therefore, the equation above accounts for both wind erosion emissions and emissions from other construction activities (e.g., traffic on unpaved roads). According to USEPA, construction traffic on impacted, unpaved roads "typically accounts for the majority of emissions, with wind erosion, excavation soil dumping, dozing, grading, and tilling operations contributing lesser emissions. The ambient air dispersion of emissions, therefore, is different for these two classes of emission sources" (USEPA, 2002). Therefore, the equation presented above, CD_{WIND}, accounts for subchronic exposures to dust from unpaved road traffic and from other construction activities (including wind erosion). The subchronic dispersion factor ($Q/C_{p,cw}$) term of the above equation was calculated as:

$$\left(Q/C_{p,cw}\right) = A \times \exp\left[\frac{\left(\ln A_{SITE} - B\right)^2}{C}\right]$$

Where:

A_{SITE} = areal extent of soil impact (construction worker Site-specific = 75 acres);

A = coefficient; default = 12.9351, based on air dispersion modeling (unitless; USEPA, 2002);

B = coefficient; default = 5.7383 (unitless; USEPA, 2002); and

C = coefficient; default = 71.7711 (unitless; USEPA, 2002).

A subchronic ($Q/C_{p,cw}$) dispersion factor of 13.30 g/m^2-s per kg/m^3 was estimated as the inverse of the mean concentration at the center of the 75-acre Site for a construction

worker. The PEF_{cw} for the onsite construction worker was estimated as a time-weighted average:

$$PEF_{cw} = \left(\frac{\left[(CD_{INTR}) \times \left(\frac{8\ hr}{8\ hr} \right) \times (EF_i) \right] + \left[(CD_{WIND}) \times \left(\frac{8\ hr}{8\ hr} \right) \times (EF_w) \right]}{EF} \right)^{-1}$$

Where:

EF_i = exposure frequency during intrusive activities (construction worker = 60 days);

EF_w = exposure frequency during the remaining wind-dispersed exposure period (construction worker = 190 days); and

EF = exposure frequency, total number of days at the Site (construction worker = 250 days).

This equation results in a Site-specific PEF_{cw} of 4.2×10^6 m^3/kg for the construction worker. This PEF_{cw} was incorporated into the exposure concentration factor equation for outdoor inhalation of particulates in this screening evaluation. The inverse of the PEF equation results in an average dust concentration (CD) of 2.4×10^{-7} kg/m^3, or 240 $\mu g/m^3$ of dust (**Table E-1**).

E.1.2 Vapor Emissions into Outdoor Air

Because VOCs were detected in soil samples collected at the Site, individuals could potentially be exposed to vapors migrating through the soil to outdoor air. Therefore, outdoor air exposures were evaluated for VOCs detected in soil, as discussed below.

The transfer factors for the soil to outdoor air pathways were derived using default soil physical property assumptions based on soil type silt loam as indicated in boring logs (see **Appendix A**) for shallow soils (0 to 10 ft bgs) completed at the Site.

Potential migration of vapors from vadose zone soil to outdoor air was estimated using the volatilization factor (VF), as presented in the Soil Screening Guidance (USEPA, 2002). The VF was used in the screening evaluation to estimate outdoor inhalation exposures for onsite hypothetical future residents and construction workers.

E.1.2.1 Hypothetical Future Resident VF

For hypothetical future residents, COPC-specific VFs were derived using the following equation (USEPA, 2002):

$$VF_{soil,res} = \frac{Q/C_{res} \times \left(10^{-4}\ \frac{m^2}{cm^2}\right) \times \left(3.14 \times D_A \times T\right)^{1/2}}{\left(2 \times Pb \times D_A\right)}$$

Where:

Q/C_{res}	=	inverse of the ratio of the geometric mean air concentration to the emission flux at center of the source (g/m^2-sec per kg/m^3) and is the same as that calculated in Section E.1.1.1 for a hypothetical future resident;
D_A	=	COPC-specific apparent diffusivity (cm^2/sec);
T_{res}	=	exposure interval (hypothetical resident 30 years = 9.5×10^8 sec); and
Pb	=	dry soil bulk density (1.49 g/cm^3).

And where:

$$D_A = \frac{\left(\frac{D_{air} \times \theta_a^{3.33}}{\theta_T^{\ 2}}\right) + \left(\frac{D_{water} \times \theta_w^{3.33}}{H \times \theta_T^{\ 2}}\right)}{\left(Pb \times Koc \times foc\right) + \theta_w + \left(\theta_a \times H\right)}$$

Where:

D_{air}	=	COPC-specific vapor diffusion coefficient in air (cm^2/sec);
D_{water}	=	COPC-specific molecular diffusion coefficient in water (cm^2/sec);
θ_a	=	air-filled porosity (0.259 cm^3-air/cm^3-soil);
θ_w	=	water-filled porosity (0.180 cm^3-water/cm^3-soil);
θ_T	=	total soil porosity (0.439 cm^3-air/cm^3-soil);
H'	=	COPC-specific Henry's law coefficient (unitless);
Pb	=	dry soil bulk density (1.49 g/cm^3);
K_{oc}	=	COPC-specific soil organic carbon partition coefficient (cm^3/g); and
foc	=	fraction organic carbon in soil (0.006 g/g; USEPA, 2002 default).

The COPC-specific VF_{soil} are presented in **Table E-2**. These VFs were incorporated into the exposure concentration factor equation for outdoor inhalation of VOCs detected in vadose zone soil for a hypothetical future resident.

E.1.2.2 Construction Worker VF

The Q/C term for a construction worker is specific to sub-chronic inhalation exposures and not specific to climatic zone, which differs from the residential Q/C term. Therefore, for

construction workers, a $Q/C_{vol,cw}$ dispersion factor was estimated as the inverse of the ratio of the geometric mean air concentration to the emission flux at center of the source using the following equation (USEPA, 2002):

$$Q/C_{vol,cw} = A \cdot \exp\left[\frac{(\ln A_{SITE} - B)^2}{C}\right]$$

Where:

A_{SITE}	=	areal extent of soil impact (construction worker = 75 acres);
A	=	coefficient; default = 2.4538, based on air dispersion modeling (unitless; USEPA, 2002);
B	=	coefficient; default = 17.566 (unitless; USEPA, 2002); and
C	=	coefficient; default = 189.0426 (unitless; USEPA, 2002).

A $Q/C_{vol,cw}$ of 6.21 g/m^2-s per kg/m^3 was estimated as the inverse of the mean concentration at the center of the 75-acre Site for a construction worker. COPC-specific $VF_{soil,cw}$ for construction worker exposures were derived using the following equation (USEPA, 2002):

$$VF_{soil,cw} = Q/C_{vol,cw} \times \left(\frac{1}{F_D}\right) \times \frac{\left(10^{-4}\ \frac{m^2}{cm^2}\right) \times (3.14 \times D_A \times T)^{1/2}}{(2 \times Pb \times D_A)}$$

Where:

$VF_{soil,cw}$	=	COPC-specific volatilization factor (m^3/kg);
$Q/C_{vol,cw}$	=	inverse of the ratio of the geometric mean air concentration to the emission flux at center of the source (g/m^2-sec per kg/m^3);
F_D	=	sub-chronic dispersion correction factor (unitless);
D_A	=	COPC-specific apparent diffusivity (cm^2/sec);
T_{cw}	=	exposure interval (construction worker for 1 year = 3.2×10^7 sec); and
Pb	=	dry soil bulk density (1.49 g/cm^3).

The subchronic dispersion correction factor, F_D, was used in the equation for a construction worker to adjust for the shorter, 1-year construction duration. The F_D of 0.188 was estimated using the following equation (USEPA, 2002):

$$F_D = 0.1852 + \frac{5.3537}{tc} + \frac{-9.6318}{(tc)^2}$$

Where:

0.1852	=	constant (unitless, US EPA 2002);
5.3537	=	constant (unitless, US EPA 2002);
9.6318	=	constant (unitless, US EPA 2002); and
t_C	=	duration of construction (250 days/yr × 8 hours/day = 2,000 hrs).

The COPC-specific VF_{soil} are presented in **Table E-2**. These VFs were incorporated into the exposure concentration factor equation for outdoor inhalation of VOCs detected in soil for a construction worker.

E.1.2 Vapor Emissions into Indoor Air

The potential exists for VOCs to volatilize from the subsurface and migrate into indoor air. This pathway was evaluated using the Johnson and Ettinger (J&E) subsurface vapor intrusion model (J&E, 1991 and Cal-EPA, 2011a) to estimate potential migration of subsurface vapors into indoor air. The model accounts for the diffusion of chemicals through the subsurface, the advection of chemicals through soil and concrete slabs due to pressure differentials between the soil and buildings, and the mixing in indoor air caused by heating and ventilation systems.

Soil vapor data are typically the preferred medium from which to evaluate the vapor intrusion pathway (Cal-EPA, 2011a). Therefore, potential indoor air exposure to VOCs in soil for the vapor intrusion pathway was evaluated through the use of the soil vapor data. Concentrations at each location and depth were evaluated so as to provide a complete profile of potential cancer risks and noncancer hazards associated with soil vapor at the Site.

The J&E vapor intrusion model requires the characterization of several building-specific parameters including building size (area and floor height), slab thickness, crack fraction (the ratio of crack area to building area), ventilation rate, and volumetric flow rate of soil vapor into the building. The model input parameters are presented in **Table E-3** and the hypothetical residential indoor air attenuation factors (or indoor air transfer factors) for soil vapor ($AF_{SV\text{-}IA}$), which were predicted using the J&E model, are presented in **Table E-4**. Default soil physical property assumptions based on soil type silt loam, as indicated in boring logs completed at the Site, were used in the J&E model (**Table E-3**). Note that the soil vapor attenuation factors were derived using the J&E model and based on various Site-specific sampling depths (i.e., depth-specific $AF_{SV\text{-}IA}$ at 5-, 15-, 30-, and 45-ft bgs). The J&E model spreadsheets for soil vapor are presented in **Attachment E-1**.

The DTSC default building dimensions (1,000 cm × 1,000 cm) with a ceiling height of 8 feet (244 cm) were used in the model (Cal-EPA, 2011a). The DTSC default air exchange rate (AER) of 0.5 exchanges per hour (hr^{-1}) was used in the model along with the DTSC default volumetric flow rate of soil vapor into the building, Q_{soil}, value of 5 liters per

minute (L/min) per 100 m^2 of floor space to represent the flow rate of chemicals from directly below the building foundation into indoor air (Cal-EPA, 2011a).

An additional analysis was conducted using the J&E model to calculate vapor intrusion attenuation factors assuming a post-development scenario that includes five feet of engineered fill that will be required beneath buildings consistent with DTSC guidance for evaluating future construction. The area is within a planned high-density residential area which will require, as part of the grading plan for the Site, over-excavation of approximately five feet of soil followed by placement of engineered fill (see grading and redevelopment plan in **Appendix F**). The J&E model spreadsheets, derivation of RBCs, and detailed risk calculation spreadsheets for this additional analysis are presented in **Attachment E-4**.

E.2 Estimating Chemical Intake

As discussed in Section 6.4.4 of the SSI report, the exposure assessment quantifies the magnitude, frequency, and duration of chemical intake (daily intake) by receptor populations using USEPA and Cal-EPA guidelines, Site-specific information, and professional judgment, as appropriate. The COPC intake factor (IF) was estimated for the incidental ingestion and dermal contact pathways. For the inhalation pathways, USEPA (2009) recommends using an exposure concentration factor (ECF) to estimate risk or hazard via inhalation. The sections below present the equations used to estimate the IF and ECF for each COPC.

E.2.1 Incidental Soil Ingestion

The rate of soil ingestion is based on the amount of soil a child or adult inadvertently swallows in a given day from all sources. Exposure to COPCs, via incidental ingestion of soil, was estimated using the following variables: (1) the rate of ingestion; (2) the fraction of ingested soil that is impacted; and (3) the frequency and duration of exposure. Individuals may ingest soil through incidental contact of the mouth with hands and clothing. The following equation was used to estimate the intake factor for incidental ingestion of soil (IF_{oral}):

$$IF_{oral} = \frac{IngR \times EF \times ED \times CF}{BW \times AT}$$

Where:

IngR = ingestion rate of soil (mg/day);
EF = exposure frequency (days/yr);
ED = exposure duration (yrs);
CF = conversion factor for soil (10^{-6} kg/mg);

BW = body weight (kg);

AT = averaging time (days):

cancer effects: 70 yrs x 365 days; and

noncancer effects: ED x 365 days.

For the hypothetical future residential exposure scenario, potential noncancer hazards were estimated using exposure factors for a child because they are more sensitive receptors for this scenario. Potential cancer risks were estimated using an age-adjusted factor for the soil ingestion pathway, since ingestion rates are different for children and adults in their first 30 years of life. The age-adjusted factor approximates the integrated exposure for small children and adults by combining their intake rates, body weights, and exposure frequency and duration. The following equation was used to estimate the age-adjusted ingestion factor:

$$IngF_{adj} = \left(\frac{ED_c \times IngR_c}{BW_c}\right) + \left(\frac{ED_a \times IngR_a}{BW_a}\right)$$

Where:

IngFadj = age-adjusted ingestion factor (mg-yr/kg-day);

ED = exposure duration (yrs);

IngR = ingestion rate of soil (mg/day);

BW = body weight (kg);

a = adult exposure parameter; and

c = child exposure parameter.

The IngFadj was used in the following equation to estimate the IF_{oral} for incidental ingestion of soil:

$$IF_{oral} = \frac{IngF_{adj} \times EF \times CF}{AT}$$

Where:

$IngF_{adj}$ = age-adjusted ingestion factor (mg-yr/kg-day);

EF = exposure frequency (days/yr);

CF = conversion factor for soil (10^{-6} kg/mg); and

AT = averaging time for cancer effects (70 yrs × 365 days).

For the construction worker exposure scenario, potential cancer risks and noncancer hazards were estimated using exposure factors for an adult. The exposure parameters used to estimate IF_{oral} for incidental soil ingestion are presented in **Table 11** of the SSI.

E.2.2 Dermal Contact with Soil

COPCs in soil may come into contact with skin and then become absorbed across the skin into the bloodstream. The amount of absorption into the body depends upon the amount of soil in contact with the skin, COPC concentrations in soil, the skin surface area exposed, and the potential for the chemical to be absorbed across the skin. The following equation was used to estimate the intake factor for dermal contact with soil (IF_{dermal}):

$$IF_{dermal} = \frac{SA \times AF \times EF \times ED \times CF \times ABSd}{BW \times AT}$$

Where:

SA	=	skin surface area exposed to soil per day (cm^2/day);
AF	=	soil-skin adherence factor (mg/cm^2);
EF	=	exposure frequency (days/yr);
ED	=	exposure duration (yrs);
CF	=	conversion factor for soil (10^{-6} kg/mg);
ABSd	=	percent dermal absorption (COPC-specific; unitless);
BW	=	body weight (kg);
AT	=	averaging time (days):
		cancer effects: 70 yrs × 365 days; and
		noncancer effects: ED × 365 days.

For the hypothetical future residential exposure scenario, potential noncancer hazards were estimated using exposure factors for a child. Potential cancer risks were estimated using an age-adjusted factor for the dermal contact pathway, since dermal exposure factors are different for children and adults in their first 30 years of life. The following equation was used to estimate the age-adjusted dermal factor:

$$DF_{adj} = \left(\frac{ED_c \times SA_c \times AF_c}{BW_c}\right) + \left(\frac{ED_a \times SA_a \times AF_a}{BW_a}\right)$$

Where:

DF_{adj}	=	age-adjusted dermal factor (mg-yr/kg-day);
ED	=	exposure duration (yrs);
SA	=	skin surface area exposed to soil per day (cm^2/day);

AF = soil-skin adherence factor (mg/cm^2);
BW = body weight (kg);
a = adult exposure parameter; and
c = child exposure parameter.

The DFadj was used in the following equation to estimate the IF_{dermal} for dermal contact with soil:

$$IF_{dermal} = \frac{DF_{adj} \times ABSd \times EF \times CF}{AT}$$

Where:

DF_{adj} = age-adjusted dermal factor (mg-yr/kg-day);
ABSd = percent dermal absorption (COPC-specific);
EF = exposure frequency (days/yr);
CF = conversion factor for soil (10^{-6} kg/mg);
AT = averaging time for cancer effects (70 years × 365 days).

For the construction worker exposure scenario, potential cancer risks and noncancer hazards were estimated using exposure factors for an adult. The exposure parameters that were used to estimate IF_{dermal} for dermal contact with soil are presented in **Table 11** of the SSI.

E.2.3 Inhalation of Vapors and Fugitive Dust

Inhalation of fugitive dust-containing COPCs and volatile COPCs in outdoor air is a consideration for soil matrix exposures. Inhalation of indoor air vapors is a consideration for soil vapor exposures. For the inhalation pathways, the IF is replaced with an ECF, as discussed in Section 6.4.4 of the SSI. The equations used to estimate the ECF is presented below.

E.2.3.1 Soil to Outdoor Air Pathway

The following equation was used to estimate the ECF for the inhalation pathway for outdoor air from soil:

$$ECF_{inh,s} = \frac{EF \times ED \times ET}{AT \times \left(VF_{soil} \text{ or } PEF\right)}$$

Where:

$ECF_{inh,s}$ = exposure concentration factor of COPC in outdoor air from soil (kg/m^3);

EF	=	exposure frequency (days/yr);
ED	=	exposure duration (yrs);
ET	=	exposure time (24 hrs/24 hrs for a hypothetical future resident; 8 hrs/24 hrs for workers);
AT	=	averaging time (days): cancer effects: 70 yrs × 365 days; noncancer effects: ED × 365 days;
PEF	=	particulate emission factor for soil (m^3/kg); PEF_{res} = for a hypothetical future resident (m^3/kg); PEF_{cw} = for a construction worker (m^3/kg);
VF_{soil}	=	volatilization factor for soil (m^3/kg); $VF_{soil,res}$ = for a hypothetical future resident (m^3/kg); and VF_{constW} = for a construction worker (m^3/kg).

Under the hypothetical future residential exposure scenario, potential cancer risks were estimated using an exposure duration of 30 years (6 years as a child and 24 years as an adult) for the outdoor air inhalation pathway. The exposure parameters used in the above ECF equations are presented in **Table 11** of the SSI.

E.2.3.2 Soil Vapor to Indoor Air Pathway

The following equation was used to estimate the ECF for the inhalation pathway for indoor air from soil vapor:

$$ECF_{SV\text{-}IA} = \frac{EF \times ED \times ET \times AF_{SV\text{-}IA}}{AT}$$

Where:

$ECF_{SV\text{-}IA}$	=	exposure concentration factor of COPC in indoor air from soil vapor (unitless);
EF	=	exposure frequency (days/yr);
ED	=	exposure duration (yrs);
ET	=	exposure time (24 hrs/24 hrs for a hypothetical future resident);
$AF_{SV\text{-}IA}$	=	J&E model-predicted attenuation factor for soil vapor (unitless), **Table E-4**;
AT	=	averaging time (days): cancer effects: 70 yrs × 365 days; and noncancer effects: ED × 365 days.

Under the hypothetical future residential exposure scenario, potential cancer risks were estimated using an exposure duration of 30 years (6 years as a child and 24 years as an adult) for the indoor air inhalation pathway. The exposure parameters used in the above ECF equations are presented in **Table 11** of the SSI.

Tables

Table E-1 Derivation of Particulate Emission Factors
Table E-2 Soil to Outdoor Air Volatilization Factors
Table E-3 J&E Model Input Parameters
Table E-4 Indoor Air Attenuation Factors

Attachments

E-1: J&E Vapor Intrusion Model Spreadsheets
E-2: RBC Derivation Spreadsheets
E-3: Detailed Cancer Risk and Noncancer Hazard Calculation Spreadsheets
E-4: Vapor Intrusion Analysis – Engineered Fill

E.3 References

Cal-EPA Department of Toxic Substances Control (DTSC) 2011a. Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air - Final. Revised October 26, 2011.

Cal-EPA DTSC 2011b. Human Health Risk Assessment (HHRA) Note. Office of Human and Ecological Risk (HERO) HHRA Note Number: 1. Recommended DTSC Default Exposure Factors For Use In Risk Assessment At California Hazardous Waste Sites and Permitted Facilities. Issue Date: May 20, 2011.

Cowherd, C., G.Muleski, P. Engelhart, and D. Gillette 1985. Rapid Assessment of Exposure to Particulate Emission from Subsurface Contamination. Prepared for Office of Health and Environmental Assessment, U.S.EPA Washington, DC. NTIS PB85-192219 7AS. EPA/600/8-85/002.

Johnson, P.C. and R.A. Ettinger (J&E) 1991. Heuristic model for predicting the intrusion rate of contaminant vapors into buildings. Environmental Science & Technology, vol. 25, no. 8:1445-1452.

National Climatic Data Center (NCDC) 2010. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), and the National Environmental Satellite, Data and Information Service (NESDIS).

USEPA 2009. Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment), Final. EPA-540-R-070-002, OSWER 9285.7-82. January

USEPA 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. Peer Review Draft. Office of Emergency and Remedial Response.

Geosyntec consultants

Appendix E, Tables

Table E-1
Derivation of Particulate Emission Factors
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

Parameter			Value	Units	Reference
Mean annual windspeed		Um	3.31	m/s	Average for Los Angeles, 7.4 mph (USEPA 2002)
Equivalent threshold value of windspeed at 7m		Ut	11.32	m/s	Default (USEPA 2002)
Function dependent on Um/Ut		Fx	4.74E-03	unitless	Los Angeles-Specific (Appendix D, Table 2 in USEPA 1996)
Exposure interval	residential	T_{res}	9.5E+08	sec	30 year exposure duration
	construction	T_{cw}	3.2E+07	sec	1 year exposure duration
Inverse ratio of the geomean air concentration to emission flux at center of source	residential	Q/C_{res}	68.18	(g/m^2-s per kg/m^3)	Estimated for an 0.5-acre site in Los Angeles (USEPA 2002)
	for particulates	$Q/C_{p,cw}$	13.30	(g/m^2-s per kg/m^3)	Estimated for a 75-acre site (eqn E-19, USEPA 2002)
Dispersion correction factor	construction	F_D	0.188	unitless	assumes 1-yr construction (eqn E-16, US EPA 2002)
Fraction of vegetative cover	residential	G_{res}	0.5	unitless	Default (USEPA 2002)
	construction	G_{cw}	0	unitless	Professional Judgment
Particulate Emission Factor	residential	PEF_{res}	1.2E+11	(m^3/kg)	Estimated for a 0.5-acre area
	construction	PEF_{cw}	4.2E+06	(m^3/kg)	Estimated for a 75-acre site; = approximately 240 $\mu g/m^3$ of dust

Table E-2
Soil to Outdoor Air Volatilization Factors
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

Parameter			Value	Units	Reference
Water-filled soil porosity		θw	0.180	(Lwater-Lsoil)	Default value for soil type: Silt loam
Total soil porosity		θ_T	0.439	(Lpore-Lsoil)	Default value for soil type: Silt loam
Air-filled soil porosity		θa	0.259	(Lair-Lsoil)	Default value for soil type: Silt loam
Soil bulk density		Pb	1.49	g/cm^3	Default value for soil type: Silt loam
Fraction organic carbon in soil		foc	0.006	unitless	Default (USEPA 2002)
Exposure interval	residential	T_{res}	9.5E+08	sec	30 year exposure duration
	construction	T_{cw}	3.2E+07	sec	1 year exposure duration
Inverse ratio of the geomean air concentration to emission flux at center of source	residential	Q/C_{res}	68.18	(g/m^2-s per kg/m^3)	Estimated for an 0.5-acre site in Los Angeles (USEPA 2002)
	construction	$Q/C_{vol,cw}$	6.21	(g/m^2-s per kg/m^3)	Estimated for a 75-acre site, subchronic (eqn E-15, USEPA 2002)
Dispersion correction factor	construction	F_D	0.188	unitless	assumes 1-yr construction (eqn E-16, US EPA 2002)

CAS Number	Chemicals of Potential Concern	Diffusivity in Air (D_{air}) (cm^2/s)	Henry's Law Constant (H) (unitless)	Diffusivity in Water (D_{water}) (cm^2/s)	Organic Carbon Partition Coefficient (K_{oc}) (cm^3/g)	Soil-Water Partition Coefficient (Kd) (cm^3/g)	Apparent Diffusivity (D_A) (cm^2/s)	Future Onsite Resident $VF_{soil,res}$ (m^3/kg)	Future Construction Worker $VF_{soil,cw}$ (m^3/kg)
95-63-6	1,2,4-Trimethylbenzene	6.1E-02	2.5E-01	7.9E-06	6.1E+02	3.7E+00	1.5E-04	1.0E+04	8.9E+02
108-67-8	1,3,5-Trimethylbenzene	6.0E-02	3.6E-01	7.8E-06	6.0E+02	3.6E+00	2.2E-04	8.4E+03	7.5E+02
67-64-1	Acetone	1.1E-01	1.4E-03	1.2E-05	2.4E+00	1.4E-02	4.4E-05	1.9E+04	1.7E+03
71-43-2	Benzene	9.0E-02	2.3E-01	1.0E-05	1.5E+02	8.7E-01	7.6E-04	4.5E+03	4.0E+02
104-51-8	Butylbenzene, n-	5.3E-02	6.5E-01	7.3E-06	1.5E+03	8.9E+00	1.4E-04	1.0E+04	9.2E+02
135-98-8	Butylbenzene, sec-	5.3E-02	7.2E-01	7.3E-06	1.3E+03	8.0E+00	1.8E-04	9.3E+03	8.3E+02
99-87-6	Cymene, p-	5.3E-02	4.5E-01	7.3E-06	1.1E+03	6.7E+00	1.3E-04	1.1E+04	9.6E+02
74-83-9	Methyl Bromide	1.0E-01	3.0E-01	1.4E-05	1.3E+01	7.9E-02	4.6E-03	1.8E+03	1.6E+02
91-20-3	Naphthalene	6.0E-02	1.8E-02	8.4E-06	1.5E+03	9.3E+00	4.5E-06	5.9E+04	5.2E+03
103-65-1	Propylbenzene, n-	6.0E-02	4.3E-01	7.8E-06	8.1E+02	4.9E+00	2.0E-04	8.9E+03	7.9E+02
75-65-0	tert-Butyl Alcohol (TBA)	8.5E-02	3.0E-03	9.1E-06	4.2E+00	2.5E-02	6.8E-05	1.5E+04	1.3E+03
108-88-3	Toluene	7.8E-02	2.7E-01	9.2E-06	2.3E+02	1.4E+00	5.2E-04	5.5E+03	4.8E+02

Table E-3
J&E Model Input Parameters
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

Model Input Parameter	Value Used	Rationale
Average Soil Temperature (Ts), ^{o}C	19	Area-specific average
Depth below grade to bottom of enclosed space floor (L_F), cm	15	Slab construction
Soil gas sampling depth below grade (Ls), cm	152.5; 457.5; 915; 1372	Sample depths: 5-; 15-; 30- and 45-ft bgs
Soil Physical Property Assumptions		
Soil stratum A SCS soil type	SIL	Silt Loam soil type based on information from soil borings
Thickness of soil stratum A (h_A), cm	--	0 to 45-ft bgs
Stratum A soil dry bulk density, gm/cm^3	1.49	J&E default value for soil type Silt Loam
Stratum A soil total porosity, unitless	0.439	J&E default value for soil type Silt Loam
Stratum A soil water-filled porosity, cm^3/cm^3	0.180	J&E default value for soil type Silt Loam
Future Onsite Residential Building Parameters		
Enclosed space floor thickness (L_{crack}), cm	10	Default building dimension (Cal-EPA, 2011a)
Soil building pressure differential (ΔP), g/cm-sec^2	40	Default building dimension (Cal-EPA, 2011a)
Enclosed space floor length (L_B), cm	1000	Default building dimension (Cal-EPA, 2011a)
Enclosed space floor width (W_B), cm	1000	Default building dimension (Cal-EPA, 2011a)
Floor-wall seam crack width (w), cm	0.1	Default assumption
Slab-on-Grade Parameters		
Enclosed space height (H_B), cm	244	Default ceiling height, 8 feet (Cal-EPA, 2011a)
Floor-wall seam crack width (w), cm	0.1	Default assumption
Indoor air exchange rate (ER), hour^{-1}	0.5	Default residential building assumption (Cal-EPA, 2011a)
Average vapor flow rate into building (Qsoil), L/m	5	Based on 5 L/min per 100 m^2 of building floor space

Table E-4
Indoor Air Attenuation Factors
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Potential Concern	Future Onsite Resident			
		AF_{SV-IA} ($\mu g/m^3$ per $\mu g/m^3$)			
		5-ft bgs	15-ft bgs	30-ft bgs	45-ft bgs
71-55-6	1,1,1-Trichloroethane	7.2E-04	2.8E-04	1.5E-04	1.0E-04
75-35-4	1,1-Dichloroethene	8.0E-04	3.2E-04	1.7E-04	1.1E-04
87-61-6	1,2,3-Trichlorobenzene	4.3E-04	1.5E-04	7.7E-05	5.2E-05
120-82-1	1,2,4-Trichlorobenzene	3.4E-04	1.2E-04	5.9E-05	3.9E-05
95-63-6	1,2,4-Trimethylbenzene	6.0E-04	2.2E-04	1.2E-04	7.8E-05
108-67-8	1,3,5-Trimethylbenzene	6.0E-04	2.2E-04	1.2E-04	7.8E-05
622-96-8	1-Ethyl-4-methylbenzene	6.6E-04	2.5E-04	1.3E-04	8.7E-05
67-64-1	Acetone	9.9E-04	4.3E-04	2.3E-04	1.6E-04
71-43-2	Benzene	7.9E-04	3.1E-04	1.6E-04	1.1E-04
135-98-8	Butylbenzene, sec-	5.8E-04	2.1E-04	1.1E-04	7.4E-05
75-15-0	Carbon Disulfide	8.8E-04	3.6E-04	1.9E-04	1.3E-04
124-48-1	Chlorodibromomethane	2.3E-04	7.8E-05	3.9E-05	2.6E-05
67-66-3	Chloroform	8.8E-04	3.6E-04	1.9E-04	1.3E-04
74-87-3	Chloromethane	9.9E-04	4.3E-04	2.3E-04	1.6E-04
95-49-8	Chlorotoluene, o-	6.9E-04	2.7E-04	1.4E-04	9.3E-05
99-87-6	Cymene, p-	5.4E-04	2.0E-04	1.0E-04	6.8E-05
75-27-4	Dichlorobromomethane	3.4E-04	1.2E-04	5.8E-05	3.9E-05
100-41-4	Ethylbenzene	7.0E-04	2.7E-04	1.4E-04	9.6E-05
75-69-4	Freon 11	7.8E-04	3.1E-04	1.6E-04	1.1E-04
75-71-8	Freon 12	6.4E-04	2.4E-04	1.3E-04	8.5E-05
98-82-8	Isopropylbenzene	6.3E-04	2.4E-04	1.2E-04	8.4E-05
74-83-9	Methyl Bromide	6.9E-04	2.7E-04	1.4E-04	9.3E-05
78-93-3	Methyl ethyl ketone	7.5E-04	3.0E-04	1.6E-04	1.1E-04
75-09-2	Methylene Chloride	8.6E-04	3.5E-04	1.9E-04	1.3E-04
103-65-1	Propylbenzene, n-	6.0E-04	2.2E-04	1.1E-04	7.7E-05

Table E-4
Indoor Air Attenuation Factors
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Potential Concern	Future Onsite Resident			
		AF_{SV-IA} ($\mu g/m^3$ per $\mu g/m^3$)			
		5-ft bgs	15-ft bgs	30-ft bgs	45-ft bgs
127-18-4	Tetrachloroethene	6.8E-04	2.6E-04	1.4E-04	9.2E-05
108-88-3	Toluene	7.8E-04	3.1E-04	1.6E-04	1.1E-04
79-01-6	Trichloroethene	7.3E-04	2.9E-04	1.5E-04	1.0E-04
95-47-6	Xylene, o-	7.8E-04	3.1E-04	1.6E-04	1.1E-04
179601-23-1	Xylenes, m&p-	6.7E-04	2.6E-04	1.3E-04	9.0E-05
1330-20-7	Xylenes, Total	7.7E-04	3.0E-04	1.6E-04	1.1E-04

Notes:
ft bgs = feet below ground surface
$\mu g/m^3$ = micrograms per cubic meter
" SV-IA " soil vapor to indoor air pathway

Geosyntec consultants

Appendix E, Attachment E-1

J&E Vapor Intrusion Model Spreadsheets

Worksheet: DATENTER

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SG-ADV
Version 3.1; 02/04

SV sample depth = **5 ft bgs**

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				1,1,1-Trichloroethane
75354				1,1-Dichloroethene
87616				1,2,3-Trichlorobenzene
120821				1,2,4-Trichlorobenzene
95636				1,2,4-Trimethylbenzene
108678				1,3,5-Trimethylbenzene
622968				1-Ethyl-4-methylbenzene
67641				Acetone
71432				Benzene
135988				sec-Butylbenzene
75150				Carbon disulfide
124481				Chlorodibromomethane
67663				Chloroform
74873				Chloromethane
95498				o-Chlorotoluene
99876				p-Isopropyltoluene (p-cymene)
75274				Dichlorobromomethane
100414				Ethylbenzene
75694				Freon 11
75718				Freon 12
98828				Isopropylbenzene (cumene)
74839				Methyl Bromide
78933				Methyl ethyl ketone
75092				Methylene chloride
103651				n-Propylbenzene
127184				Tetrachloroethene (PCE)
108883				Toluene
79016				Trichloroethene (TCE)
95476				o-Xylene
108383				m-Xylene
1330207				Xylene (total)

Worksheet: DATENTER

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm2)
			Totals must add up to value of Ls (cell F24)					
15	152.5	19	152.5	0	0	SIL		
	5 ft bgs		5 ft bgs					

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
Lookup Soil Parameters				Lookup Soil Parameters				Lookup Soil Parameters			
SIL	1.49	0.439	0.180								

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

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	6	30	350

Worksheet: CHEMPROPS

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	
7.8E-02	8.8E-06	1.7E-02	25	7,136	347.24	545.00	133.40	1,1,1-Trichloroethane
9.0E-02	1.0E-05	2.6E-02	25	6,247	304.75	576.05	96.94	1,1-Dichloroethene
4.0E-02	8.4E-06	1.3E-03	25	10,471	486.15	725.00	181.45	1,2,3-Trichlorobenzene
3.0E-02	8.2E-06	1.4E-03	25	10,471	486.15	725.00	181.45	1,2,4-Trichlorobenzene
6.1E-02	7.9E-06	6.1E-03	25	9,369	442.30	649.17	120.20	1,2,4-Trimethylbenzene
6.0E-02	8.7E-06	5.9E-03	25	9,321	437.89	637.25	120.20	1,3,5-Trimethylbenzene
6.8E-02	0.0E+00	5.0E-03	25	0	433.00	0.00	120.19	1-Ethyl-4-methylbenzene
1.2E-01	1.1E-05	3.9E-05	25	6,955	329.20	508.10	58.08	Acetone
8.8E-02	9.8E-06	5.5E-03	25	7,342	353.24	562.16	78.11	Benzene
5.7E-02	8.1E-06	1.4E-02	25	88,730	446.50	679.00	134.22	sec-Butylbenzene
1.0E-01	1.0E-05	3.0E-02	25	6,391	319.00	552.00	76.13	Carbon disulfide
2.0E-02	1.1E-05	7.8E-04	25	5,900	416.14	678.20	208.28	Chlorodibromomethane
1.0E-01	1.0E-05	3.7E-03	25	6,988	334.32	536.40	119.38	Chloroform
1.3E-01	6.5E-06	8.8E-03	25	5,115	249.00	416.25	50.49	Chloromethane
7.3E-02	0.0E+00	3.6E-03	25	0	432.15	630.30	126.59	o-Chlorotoluene
5.3E-02	7.3E-06	1.1E-02	25	0	450.00	0.00	134.22	p-Isopropyltoluene (p-cymene)
3.0E-02	1.1E-05	1.6E-03	25	7,800	363.15	585.85	163.83	Dichlorobromomethane
7.5E-02	7.8E-06	7.9E-03	25	8,501	409.34	617.20	106.17	Ethylbenzene
8.7E-02	9.7E-06	9.7E-02	25	5,999	296.70	471.00	137.36	Freon 11
6.7E-02	9.9E-06	3.4E-01	25	9,421	243.20	384.95	120.92	Freon 12
6.5E-02	7.1E-06	1.5E-02	25	10,335	425.56	631.10	120.19	Isopropylbenzene (cumene)
7.3E-02	1.2E-05	6.2E-03	25	5,714	276.71	467.00	94.94	Methyl Bromide
8.1E-02	9.8E-06	5.6E-05	25	7,481	352.50	536.78	72.11	Methyl ethyl ketone
1.0E-01	1.2E-05	2.2E-03	25	6,706	313.00	510.00	84.93	Methylene chloride
6.0E-02	7.8E-06	1.1E-02	25	9,123	432.20	630.00	120.19	n-Propylbenzene
7.2E-02	8.2E-06	1.8E-02	25	8,288	394.40	620.20	165.83	Tetrachloroethene (PCE)
8.7E-02	8.6E-06	6.6E-03	25	7,930	383.78	591.79	92.14	Toluene
7.9E-02	9.1E-06	1.0E-02	25	7,505	360.36	544.20	131.39	Trichloroethene (TCE)
8.7E-02	1.0E-05	5.2E-03	25	8,661	417.60	630.30	106.17	o-Xylene
7.0E-02	7.8E-06	7.3E-03	25	8,523	412.27	617.05	106.17	m-Xylene
8.5E-02	9.9E-06	6.6E-03	25	8,523	412.15	617.05	106.17	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **5 ft bgs**

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,1,1-Trichloroethane
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,1-Dichloroethene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,3-Trichlorobenzene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trichlorobenzene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trimethylbenzene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,3,5-Trimethylbenzene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1-Ethyl-4-methylbenzene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Acetone
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Benzene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	sec-Butylbenzene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Carbon disulfide
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chlorodibromomethane
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chloroform
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chloromethane
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	o-Chlorotoluene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	p-Isopropyltoluene (p-cymene)
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Dichlorobromomethane
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Ethylbenzene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Freon 11
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Freon 12
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Isopropylbenzene (cumene)
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methyl Bromide
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methyl ethyl ketone
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methylene chloride
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	n-Propylbenzene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Tetrachloroethene (PCE)
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Toluene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Trichloroethene (TCE)
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	o-Xylene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	m-Xylene
9.5E+08	137.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **5 ft bgs**

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	
1.1E+06	5.0E-03	15	7,787	1.3E-02	5.5E-01	1.8E-04	4.5E-03	0.0E+00	0.0E+00	4.5E-03	137.5	1,1,1-Trichloroethane
1.1E+06	5.0E-03	15	6,333	2.1E-02	8.7E-01	1.8E-04	5.2E-03	0.0E+00	0.0E+00	5.2E-03	137.5	1,1-Dichloroethene
1.1E+06	5.0E-03	15	13,127	7.9E-04	3.3E-02	1.8E-04	2.3E-03	0.0E+00	0.0E+00	2.3E-03	137.5	1,2,3-Trichlorobenzene
1.1E+06	5.0E-03	15	13,127	9.0E-04	3.7E-02	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	137.5	1,2,4-Trichlorobenzene
1.1E+06	5.0E-03	15	11,579	4.1E-03	1.7E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	137.5	1,2,4-Trimethylbenzene
1.1E+06	5.0E-03	15	11,561	3.9E-03	1.6E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	137.5	1,3,5-Trimethylbenzene
1.1E+06	5.0E-03	15	0	5.0E-03	2.1E-01	1.8E-04	3.9E-03	0.0E+00	0.0E+00	3.9E-03	137.5	1-Ethyl-4-methylbenzene
1.1E+06	5.0E-03	15	7,447	3.0E-05	1.2E-03	1.8E-04	7.3E-03	0.0E+00	0.0E+00	7.3E-03	137.5	Acetone
1.1E+06	5.0E-03	15	8,030	4.2E-03	1.7E-01	1.8E-04	5.1E-03	0.0E+00	0.0E+00	5.1E-03	137.5	Benzene
1.1E+06	5.0E-03	15	107,157	3.4E-04	1.4E-02	1.8E-04	3.3E-03	0.0E+00	0.0E+00	3.3E-03	137.5	sec-Butylbenzene
1.1E+06	5.0E-03	15	6,612	2.4E-02	1.0E+00	1.8E-04	6.0E-03	0.0E+00	0.0E+00	6.0E-03	137.5	Carbon disulfide
1.1E+06	5.0E-03	15	6,726	6.2E-04	2.6E-02	1.8E-04	1.1E-03	0.0E+00	0.0E+00	1.1E-03	137.5	Chlorodibromomethane
1.1E+06	5.0E-03	15	7,461	2.8E-03	1.2E-01	1.8E-04	6.0E-03	0.0E+00	0.0E+00	6.0E-03	137.5	Chloroform
1.1E+06	5.0E-03	15	4,640	7.5E-03	3.1E-01	1.8E-04	7.3E-03	0.0E+00	0.0E+00	7.3E-03	137.5	Chloromethane
1.1E+06	5.0E-03	15	0	3.6E-03	1.5E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	137.5	o-Chlorotoluene
1.1E+06	5.0E-03	15	0	1.1E-02	4.6E-01	1.8E-04	3.0E-03	0.0E+00	0.0E+00	3.0E-03	137.5	p-Isopropyltoluene (p-cymene)
1.1E+06	5.0E-03	15	8,576	1.2E-03	4.9E-02	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	137.5	Dichlorobromomethane
1.1E+06	5.0E-03	15	10,052	5.5E-03	2.3E-01	1.8E-04	4.3E-03	0.0E+00	0.0E+00	4.3E-03	137.5	Ethylbenzene
1.1E+06	5.0E-03	15	6,053	7.8E-02	3.3E+00	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	137.5	Freon 11
1.1E+06	5.0E-03	15	8,118	2.6E-01	1.1E+01	1.8E-04	3.8E-03	0.0E+00	0.0E+00	3.8E-03	137.5	Freon 12
1.1E+06	5.0E-03	15	12,518	9.5E-03	3.9E-01	1.8E-04	3.8E-03	0.0E+00	0.0E+00	3.8E-03	137.5	Isopropylbenzene (cumene)
1.1E+06	5.0E-03	15	5,560	5.1E-03	2.1E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	137.5	Methyl Bromide
1.1E+06	5.0E-03	15	8,307	4.2E-05	1.7E-03	1.8E-04	4.8E-03	0.0E+00	0.0E+00	4.8E-03	137.5	Methyl ethyl ketone
1.1E+06	5.0E-03	15	6,938	1.7E-03	7.2E-02	1.8E-04	5.8E-03	0.0E+00	0.0E+00	5.8E-03	137.5	Methylene chloride
1.1E+06	5.0E-03	15	11,251	7.2E-03	3.0E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	137.5	n-Propylbenzene
1.1E+06	5.0E-03	15	9,462	1.3E-02	5.5E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	137.5	Tetrachloroethene (PCE)
1.1E+06	5.0E-03	15	9,056	4.8E-03	2.0E-01	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	137.5	Toluene
1.1E+06	5.0E-03	15	8,445	7.7E-03	3.2E-01	1.8E-04	4.6E-03	0.0E+00	0.0E+00	4.6E-03	137.5	Trichloroethene (TCE)
1.1E+06	5.0E-03	15	10,302	3.6E-03	1.5E-01	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	137.5	o-Xylene
1.1E+06	5.0E-03	15	10,150	5.2E-03	2.1E-01	1.8E-04	4.0E-03	0.0E+00	0.0E+00	4.0E-03	137.5	m-Xylene
1.1E+06	5.0E-03	15	10,147	4.6E-03	1.9E-01	1.8E-04	4.9E-03	0.0E+00	0.0E+00	4.9E-03	137.5	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **5 ft bgs**

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	
15	0.0E+00	1.33	8.3E+01	4.5E-03	5.3E+03	1.5E+15	7.2E-04	1,1,1-Trichloroethane
15	0.0E+00	1.33	8.3E+01	5.2E-03	5.3E+03	1.4E+13	8.0E-04	1,1-Dichloroethene
15	0.0E+00	1.33	8.3E+01	2.3E-03	5.3E+03	7.4E+29	4.3E-04	1,2,3-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	2.2E+39	3.4E-04	1,2,4-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	3.3E+19	6.0E-04	1,2,4-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	4.4E+19	6.0E-04	1,3,5-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	3.9E-03	5.3E+03	2.3E+17	6.6E-04	1-Ethyl-4-methylbenzene
15	0.0E+00	1.33	8.3E+01	7.3E-03	5.3E+03	2.2E+09	9.9E-04	Acetone
15	0.0E+00	1.33	8.3E+01	5.1E-03	5.3E+03	2.8E+13	7.9E-04	Benzene
15	0.0E+00	1.33	8.3E+01	3.3E-03	5.3E+03	4.9E+20	5.8E-04	sec-Butylbenzene
15	0.0E+00	1.33	8.3E+01	6.0E-03	5.3E+03	2.4E+11	8.8E-04	Carbon disulfide
15	0.0E+00	1.33	8.3E+01	1.1E-03	5.3E+03	9.6E+59	2.3E-04	Chlorodibromomethane
15	0.0E+00	1.33	8.3E+01	6.0E-03	5.3E+03	2.4E+11	8.8E-04	Chloroform
15	0.0E+00	1.33	8.3E+01	7.3E-03	5.3E+03	2.4E+09	9.9E-04	Chloromethane
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	1.7E+16	6.9E-04	o-Chlorotoluene
15	0.0E+00	1.33	8.3E+01	3.0E-03	5.3E+03	2.8E+22	5.4E-04	p-Isopropyltoluene (p-cymene)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	4.1E+39	3.4E-04	Dichlorobromomethane
15	0.0E+00	1.33	8.3E+01	4.3E-03	5.3E+03	5.9E+15	7.0E-04	Ethylbenzene
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	4.0E+13	7.8E-04	Freon 11
15	0.0E+00	1.33	8.3E+01	3.8E-03	5.3E+03	6.1E+17	6.4E-04	Freon 12
15	0.0E+00	1.33	8.3E+01	3.8E-03	5.3E+03	1.6E+18	6.3E-04	Isopropylbenzene (cumene)
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	1.8E+16	6.9E-04	Methyl Bromide
15	0.0E+00	1.33	8.3E+01	4.8E-03	5.3E+03	2.2E+14	7.5E-04	Methyl ethyl ketone
15	0.0E+00	1.33	8.3E+01	5.8E-03	5.3E+03	5.1E+11	8.6E-04	Methylene chloride
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	4.8E+19	6.0E-04	n-Propylbenzene
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	2.7E+16	6.8E-04	Tetrachloroethene (PCE)
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	3.9E+13	7.8E-04	Toluene
15	0.0E+00	1.33	8.3E+01	4.6E-03	5.3E+03	9.4E+14	7.3E-04	Trichloroethene (TCE)
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	3.9E+13	7.8E-04	o-Xylene
15	0.0E+00	1.33	8.3E+01	4.0E-03	5.3E+03	7.9E+16	6.7E-04	m-Xylene
15	0.0E+00	1.33	8.3E+01	4.9E-03	5.3E+03	9.2E+13	7.7E-04	Xylene (total)

Worksheet: DATENTER

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SG-ADV
Version 3.1; 02/04

SV sample depth = **15 ft bgs**

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				1,1,1-Trichloroethane
75354				1,1-Dichloroethene
87616				1,2,3-Trichlorobenzene
120821				1,2,4-Trichlorobenzene
95636				1,2,4-Trimethylbenzene
108678				1,3,5-Trimethylbenzene
622968				1-Ethyl-4-methylbenzene
67641				Acetone
71432				Benzene
135988				sec-Butylbenzene
75150				Carbon disulfide
124481				Chlorodibromomethane
67663				Chloroform
74873				Chloromethane
95498				o-Chlorotoluene
99876				p-Isopropyltoluene (p-cymene)
75274				Dichlorobromomethane
100414				Ethylbenzene
75694				Freon 11
75718				Freon 12
98828				Isopropylbenzene (cumene)
74839				Methyl Bromide
78933				Methyl ethyl ketone
75092				Methylene chloride
103651				n-Propylbenzene
127184				Tetrachloroethene (PCE)
108883				Toluene
79016				Trichloroethene (TCE)
95476				o-Xylene
108383				m-Xylene
1330207				Xylene (total)

Worksheet: DATENTER

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm2)
			Totals must add up to value of Ls (cell F24)					
15	457.5	19	457.5	0	0	SIL		
	15 ft bgs		15 ft bgs					

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIL	1.49	0.439	0.180								

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

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	6	30	350

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **15 ft bgs**

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,1,1-Trichloroethane
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,1-Dichloroethene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,3-Trichlorobenzene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trichlorobenzene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trimethylbenzene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,3,5-Trimethylbenzene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1-Ethyl-4-methylbenzene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Acetone
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Benzene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	sec-Butylbenzene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Carbon disulfide
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chlorodibromomethane
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chloroform
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chloromethane
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	o-Chlorotoluene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	p-Isopropyltoluene (p-cymene)
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Dichlorobromomethane
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Ethylbenzene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Freon 11
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Freon 12
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Isopropylbenzene (cumene)
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methyl Bromide
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methyl ethyl ketone
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methylene chloride
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	n-Propylbenzene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Tetrachloroethene (PCE)
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Toluene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Trichloroethene (TCE)
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	o-Xylene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	m-Xylene
9.5E+08	442.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **15 ft bgs**

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	
1.1E+06	5.0E-03	15	7,787	1.3E-02	5.5E-01	1.8E-04	4.5E-03	0.0E+00	0.0E+00	4.5E-03	442.5	1,1,1-Trichloroethane
1.1E+06	5.0E-03	15	6,333	2.1E-02	8.7E-01	1.8E-04	5.2E-03	0.0E+00	0.0E+00	5.2E-03	442.5	1,1-Dichloroethene
1.1E+06	5.0E-03	15	13,127	7.9E-04	3.3E-02	1.8E-04	2.3E-03	0.0E+00	0.0E+00	2.3E-03	442.5	1,2,3-Trichlorobenzene
1.1E+06	5.0E-03	15	13,127	9.0E-04	3.7E-02	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	442.5	1,2,4-Trichlorobenzene
1.1E+06	5.0E-03	15	11,579	4.1E-03	1.7E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	442.5	1,2,4-Trimethylbenzene
1.1E+06	5.0E-03	15	11,561	3.9E-03	1.6E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	442.5	1,3,5-Trimethylbenzene
1.1E+06	5.0E-03	15	0	5.0E-03	2.1E-01	1.8E-04	3.9E-03	0.0E+00	0.0E+00	3.9E-03	442.5	1-Ethyl-4-methylbenzene
1.1E+06	5.0E-03	15	7,447	3.0E-05	1.2E-03	1.8E-04	7.3E-03	0.0E+00	0.0E+00	7.3E-03	442.5	Acetone
1.1E+06	5.0E-03	15	8,030	4.2E-03	1.7E-01	1.8E-04	5.1E-03	0.0E+00	0.0E+00	5.1E-03	442.5	Benzene
1.1E+06	5.0E-03	15	107,157	3.4E-04	1.4E-02	1.8E-04	3.3E-03	0.0E+00	0.0E+00	3.3E-03	442.5	sec-Butylbenzene
1.1E+06	5.0E-03	15	6,612	2.4E-02	1.0E+00	1.8E-04	6.0E-03	0.0E+00	0.0E+00	6.0E-03	442.5	Carbon disulfide
1.1E+06	5.0E-03	15	6,726	6.2E-04	2.6E-02	1.8E-04	1.1E-03	0.0E+00	0.0E+00	1.1E-03	442.5	Chlorodibromomethane
1.1E+06	5.0E-03	15	7,461	2.8E-03	1.2E-01	1.8E-04	6.0E-03	0.0E+00	0.0E+00	6.0E-03	442.5	Chloroform
1.1E+06	5.0E-03	15	4,640	7.5E-03	3.1E-01	1.8E-04	7.3E-03	0.0E+00	0.0E+00	7.3E-03	442.5	Chloromethane
1.1E+06	5.0E-03	15	0	3.6E-03	1.5E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	442.5	o-Chlorotoluene
1.1E+06	5.0E-03	15	0	1.1E-02	4.6E-01	1.8E-04	3.0E-03	0.0E+00	0.0E+00	3.0E-03	442.5	p-Isopropyltoluene (p-cymene)
1.1E+06	5.0E-03	15	8,576	1.2E-03	4.9E-02	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	442.5	Dichlorobromomethane
1.1E+06	5.0E-03	15	10,052	5.5E-03	2.3E-01	1.8E-04	4.3E-03	0.0E+00	0.0E+00	4.3E-03	442.5	Ethylbenzene
1.1E+06	5.0E-03	15	6,053	7.8E-02	3.3E+00	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	442.5	Freon 11
1.1E+06	5.0E-03	15	8,118	2.6E-01	1.1E+01	1.8E-04	3.8E-03	0.0E+00	0.0E+00	3.8E-03	442.5	Freon 12
1.1E+06	5.0E-03	15	12,518	9.5E-03	3.9E-01	1.8E-04	3.8E-03	0.0E+00	0.0E+00	3.8E-03	442.5	Isopropylbenzene (cumene)
1.1E+06	5.0E-03	15	5,560	5.1E-03	2.1E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	442.5	Methyl Bromide
1.1E+06	5.0E-03	15	8,307	4.2E-05	1.7E-03	1.8E-04	4.8E-03	0.0E+00	0.0E+00	4.8E-03	442.5	Methyl ethyl ketone
1.1E+06	5.0E-03	15	6,938	1.7E-03	7.2E-02	1.8E-04	5.8E-03	0.0E+00	0.0E+00	5.8E-03	442.5	Methylene chloride
1.1E+06	5.0E-03	15	11,251	7.2E-03	3.0E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	442.5	n-Propylbenzene
1.1E+06	5.0E-03	15	9,462	1.3E-02	5.5E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	442.5	Tetrachloroethene (PCE)
1.1E+06	5.0E-03	15	9,056	4.8E-03	2.0E-01	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	442.5	Toluene
1.1E+06	5.0E-03	15	8,445	7.7E-03	3.2E-01	1.8E-04	4.6E-03	0.0E+00	0.0E+00	4.6E-03	442.5	Trichloroethene (TCE)
1.1E+06	5.0E-03	15	10,302	3.6E-03	1.5E-01	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	442.5	o-Xylene
1.1E+06	5.0E-03	15	10,150	5.2E-03	2.1E-01	1.8E-04	4.0E-03	0.0E+00	0.0E+00	4.0E-03	442.5	m-Xylene
1.1E+06	5.0E-03	15	10,147	4.6E-03	1.9E-01	1.8E-04	4.9E-03	0.0E+00	0.0E+00	4.9E-03	442.5	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **15 ft bgs**

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	
15	0.0E+00	1.33	8.3E+01	4.5E-03	5.3E+03	1.5E+15	2.8E-04	1,1,1-Trichloroethane
15	0.0E+00	1.33	8.3E+01	5.2E-03	5.3E+03	1.4E+13	3.2E-04	1,1-Dichloroethene
15	0.0E+00	1.33	8.3E+01	2.3E-03	5.3E+03	7.4E+29	1.5E-04	1,2,3-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	2.2E+39	1.2E-04	1,2,4-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	3.3E+19	2.2E-04	1,2,4-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	4.4E+19	2.2E-04	1,3,5-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	3.9E-03	5.3E+03	2.3E+17	2.5E-04	1-Ethyl-4-methylbenzene
15	0.0E+00	1.33	8.3E+01	7.3E-03	5.3E+03	2.2E+09	4.3E-04	Acetone
15	0.0E+00	1.33	8.3E+01	5.1E-03	5.3E+03	2.8E+13	3.1E-04	Benzene
15	0.0E+00	1.33	8.3E+01	3.3E-03	5.3E+03	4.9E+20	2.1E-04	sec-Butylbenzene
15	0.0E+00	1.33	8.3E+01	6.0E-03	5.3E+03	2.4E+11	3.6E-04	Carbon disulfide
15	0.0E+00	1.33	8.3E+01	1.1E-03	5.3E+03	9.6E+59	7.8E-05	Chlorodibromomethane
15	0.0E+00	1.33	8.3E+01	6.0E-03	5.3E+03	2.4E+11	3.6E-04	Chloroform
15	0.0E+00	1.33	8.3E+01	7.3E-03	5.3E+03	2.4E+09	4.3E-04	Chloromethane
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	1.7E+16	2.7E-04	o-Chlorotoluene
15	0.0E+00	1.33	8.3E+01	3.0E-03	5.3E+03	2.8E+22	2.0E-04	p-Isopropyltoluene (p-cymene)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	4.1E+39	1.2E-04	Dichlorobromomethane
15	0.0E+00	1.33	8.3E+01	4.3E-03	5.3E+03	5.9E+15	2.7E-04	Ethylbenzene
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	4.0E+13	3.1E-04	Freon 11
15	0.0E+00	1.33	8.3E+01	3.8E-03	5.3E+03	6.1E+17	2.4E-04	Freon 12
15	0.0E+00	1.33	8.3E+01	3.8E-03	5.3E+03	1.6E+18	2.4E-04	Isopropylbenzene (cumene)
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	1.8E+16	2.7E-04	Methyl Bromide
15	0.0E+00	1.33	8.3E+01	4.8E-03	5.3E+03	2.2E+14	3.0E-04	Methyl ethyl ketone
15	0.0E+00	1.33	8.3E+01	5.8E-03	5.3E+03	5.1E+11	3.5E-04	Methylene chloride
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	4.8E+19	2.2E-04	n-Propylbenzene
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	2.7E+16	2.6E-04	Tetrachloroethene (PCE)
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	3.9E+13	3.1E-04	Toluene
15	0.0E+00	1.33	8.3E+01	4.6E-03	5.3E+03	9.4E+14	2.9E-04	Trichloroethene (TCE)
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	3.9E+13	3.1E-04	o-Xylene
15	0.0E+00	1.33	8.3E+01	4.0E-03	5.3E+03	7.9E+16	2.6E-04	m-Xylene
15	0.0E+00	1.33	8.3E+01	4.9E-03	5.3E+03	9.2E+13	3.0E-04	Xylene (total)

Worksheet: DATENTER

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SG-ADV
Version 3.1; 02/04

SV sample depth = **30 ft bgs**

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				1,1,1-Trichloroethane
75354				1,1-Dichloroethene
87616				1,2,3-Trichlorobenzene
120821				1,2,4-Trichlorobenzene
95636				1,2,4-Trimethylbenzene
108678				1,3,5-Trimethylbenzene
622968				1-Ethyl-4-methylbenzene
67641				Acetone
71432				Benzene
135988				sec-Butylbenzene
75150				Carbon disulfide
124481				Chlorodibromomethane
67663				Chloroform
74873				Chloromethane
95498				o-Chlorotoluene
99876				p-Isopropyltoluene (p-cymene)
75274				Dichlorobromomethane
100414				Ethylbenzene
75694				Freon 11
75718				Freon 12
98828				Isopropylbenzene (cumene)
74839				Methyl Bromide
78933				Methyl ethyl ketone
75092				Methylene chloride
103651				n-Propylbenzene
127184				Tetrachloroethene (PCE)
108883				Toluene
79016				Trichloroethene (TCE)
95476				o-Xylene
108383				m-Xylene
1330207				Xylene (total)

Worksheet: DATENTER

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm2)
			Totals must add up to value of Ls (cell F24)					
15	915	19	915	0	0	SIL		
	30 ft bgs		30 ft bgs					

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
Lookup Soil Parameters				Lookup Soil Parameters				Lookup Soil Parameters			
SIL	1.49	0.439	0.180								

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

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	6	30	350

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **30 ft bgs**

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,1,1-Trichloroethane
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,1-Dichloroethene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,3-Trichlorobenzene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trichlorobenzene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trimethylbenzene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,3,5-Trimethylbenzene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1-Ethyl-4-methylbenzene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Acetone
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Benzene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	sec-Butylbenzene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Carbon disulfide
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chlorodibromomethane
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chloroform
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chloromethane
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	o-Chlorotoluene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	p-Isopropyltoluene (p-cymene)
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Dichlorobromomethane
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Ethylbenzene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Freon 11
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Freon 12
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Isopropylbenzene (cumene)
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methyl Bromide
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methyl ethyl ketone
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methylene chloride
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	n-Propylbenzene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Tetrachloroethene (PCE)
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Toluene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Trichloroethene (TCE)
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	o-Xylene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	m-Xylene
9.5E+08	900	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **30 ft bgs**

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	
1.1E+06	5.0E-03	15	7,787	1.3E-02	5.5E-01	1.8E-04	4.5E-03	0.0E+00	0.0E+00	4.5E-03	900	1,1,1-Trichloroethane
1.1E+06	5.0E-03	15	6,333	2.1E-02	8.7E-01	1.8E-04	5.2E-03	0.0E+00	0.0E+00	5.2E-03	900	1,1-Dichloroethene
1.1E+06	5.0E-03	15	13,127	7.9E-04	3.3E-02	1.8E-04	2.3E-03	0.0E+00	0.0E+00	2.3E-03	900	1,2,3-Trichlorobenzene
1.1E+06	5.0E-03	15	13,127	9.0E-04	3.7E-02	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	900	1,2,4-Trichlorobenzene
1.1E+06	5.0E-03	15	11,579	4.1E-03	1.7E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	900	1,2,4-Trimethylbenzene
1.1E+06	5.0E-03	15	11,561	3.9E-03	1.6E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	900	1,3,5-Trimethylbenzene
1.1E+06	5.0E-03	15	0	5.0E-03	2.1E-01	1.8E-04	3.9E-03	0.0E+00	0.0E+00	3.9E-03	900	1-Ethyl-4-methylbenzene
1.1E+06	5.0E-03	15	7,447	3.0E-05	1.2E-03	1.8E-04	7.3E-03	0.0E+00	0.0E+00	7.3E-03	900	Acetone
1.1E+06	5.0E-03	15	8,030	4.2E-03	1.7E-01	1.8E-04	5.1E-03	0.0E+00	0.0E+00	5.1E-03	900	Benzene
1.1E+06	5.0E-03	15	107,157	3.4E-04	1.4E-02	1.8E-04	3.3E-03	0.0E+00	0.0E+00	3.3E-03	900	sec-Butylbenzene
1.1E+06	5.0E-03	15	6,612	2.4E-02	1.0E+00	1.8E-04	6.0E-03	0.0E+00	0.0E+00	6.0E-03	900	Carbon disulfide
1.1E+06	5.0E-03	15	6,726	6.2E-04	2.6E-02	1.8E-04	1.1E-03	0.0E+00	0.0E+00	1.1E-03	900	Chlorodibromomethane
1.1E+06	5.0E-03	15	7,461	2.8E-03	1.2E-01	1.8E-04	6.0E-03	0.0E+00	0.0E+00	6.0E-03	900	Chloroform
1.1E+06	5.0E-03	15	4,640	7.5E-03	3.1E-01	1.8E-04	7.3E-03	0.0E+00	0.0E+00	7.3E-03	900	Chloromethane
1.1E+06	5.0E-03	15	0	3.6E-03	1.5E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	900	o-Chlorotoluene
1.1E+06	5.0E-03	15	0	1.1E-02	4.6E-01	1.8E-04	3.0E-03	0.0E+00	0.0E+00	3.0E-03	900	p-Isopropyltoluene (p-cymene)
1.1E+06	5.0E-03	15	8,576	1.2E-03	4.9E-02	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	900	Dichlorobromomethane
1.1E+06	5.0E-03	15	10,052	5.5E-03	2.3E-01	1.8E-04	4.3E-03	0.0E+00	0.0E+00	4.3E-03	900	Ethylbenzene
1.1E+06	5.0E-03	15	6,053	7.8E-02	3.3E+00	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	900	Freon 11
1.1E+06	5.0E-03	15	8,118	2.6E-01	1.1E+01	1.8E-04	3.8E-03	0.0E+00	0.0E+00	3.8E-03	900	Freon 12
1.1E+06	5.0E-03	15	12,518	9.5E-03	3.9E-01	1.8E-04	3.8E-03	0.0E+00	0.0E+00	3.8E-03	900	Isopropylbenzene (cumene)
1.1E+06	5.0E-03	15	5,560	5.1E-03	2.1E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	900	Methyl Bromide
1.1E+06	5.0E-03	15	8,307	4.2E-05	1.7E-03	1.8E-04	4.8E-03	0.0E+00	0.0E+00	4.8E-03	900	Methyl ethyl ketone
1.1E+06	5.0E-03	15	6,938	1.7E-03	7.2E-02	1.8E-04	5.8E-03	0.0E+00	0.0E+00	5.8E-03	900	Methylene chloride
1.1E+06	5.0E-03	15	11,251	7.2E-03	3.0E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	900	n-Propylbenzene
1.1E+06	5.0E-03	15	9,462	1.3E-02	5.5E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	900	Tetrachloroethene (PCE)
1.1E+06	5.0E-03	15	9,056	4.8E-03	2.0E-01	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	900	Toluene
1.1E+06	5.0E-03	15	8,445	7.7E-03	3.2E-01	1.8E-04	4.6E-03	0.0E+00	0.0E+00	4.6E-03	900	Trichloroethene (TCE)
1.1E+06	5.0E-03	15	10,302	3.6E-03	1.5E-01	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	900	o-Xylene
1.1E+06	5.0E-03	15	10,150	5.2E-03	2.1E-01	1.8E-04	4.0E-03	0.0E+00	0.0E+00	4.0E-03	900	m-Xylene
1.1E+06	5.0E-03	15	10,147	4.6E-03	1.9E-01	1.8E-04	4.9E-03	0.0E+00	0.0E+00	4.9E-03	900	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **30 ft bgs**

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	
15	0.0E+00	1.33	8.3E+01	4.5E-03	5.3E+03	1.5E+15	1.5E-04	1,1,1-Trichloroethane
15	0.0E+00	1.33	8.3E+01	5.2E-03	5.3E+03	1.4E+13	1.7E-04	1,1-Dichloroethene
15	0.0E+00	1.33	8.3E+01	2.3E-03	5.3E+03	7.4E+29	7.7E-05	1,2,3-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	2.2E+39	5.9E-05	1,2,4-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	3.3E+19	1.2E-04	1,2,4-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	4.4E+19	1.2E-04	1,3,5-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	3.9E-03	5.3E+03	2.3E+17	1.3E-04	1-Ethyl-4-methylbenzene
15	0.0E+00	1.33	8.3E+01	7.3E-03	5.3E+03	2.2E+09	2.3E-04	Acetone
15	0.0E+00	1.33	8.3E+01	5.1E-03	5.3E+03	2.8E+13	1.6E-04	Benzene
15	0.0E+00	1.33	8.3E+01	3.3E-03	5.3E+03	4.9E+20	1.1E-04	sec-Butylbenzene
15	0.0E+00	1.33	8.3E+01	6.0E-03	5.3E+03	2.4E+11	1.9E-04	Carbon disulfide
15	0.0E+00	1.33	8.3E+01	1.1E-03	5.3E+03	9.6E+59	3.9E-05	Chlorodibromomethane
15	0.0E+00	1.33	8.3E+01	6.0E-03	5.3E+03	2.4E+11	1.9E-04	Chloroform
15	0.0E+00	1.33	8.3E+01	7.3E-03	5.3E+03	2.4E+09	2.3E-04	Chloromethane
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	1.7E+16	1.4E-04	o-Chlorotoluene
15	0.0E+00	1.33	8.3E+01	3.0E-03	5.3E+03	2.8E+22	1.0E-04	p-Isopropyltoluene (p-cymene)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	4.1E+39	5.8E-05	Dichlorobromomethane
15	0.0E+00	1.33	8.3E+01	4.3E-03	5.3E+03	5.9E+15	1.4E-04	Ethylbenzene
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	4.0E+13	1.6E-04	Freon 11
15	0.0E+00	1.33	8.3E+01	3.8E-03	5.3E+03	6.1E+17	1.3E-04	Freon 12
15	0.0E+00	1.33	8.3E+01	3.8E-03	5.3E+03	1.6E+18	1.2E-04	Isopropylbenzene (cumene)
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	1.8E+16	1.4E-04	Methyl Bromide
15	0.0E+00	1.33	8.3E+01	4.8E-03	5.3E+03	2.2E+14	1.6E-04	Methyl ethyl ketone
15	0.0E+00	1.33	8.3E+01	5.8E-03	5.3E+03	5.1E+11	1.9E-04	Methylene chloride
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	4.8E+19	1.1E-04	n-Propylbenzene
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	2.7E+16	1.4E-04	Tetrachloroethene (PCE)
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	3.9E+13	1.6E-04	Toluene
15	0.0E+00	1.33	8.3E+01	4.6E-03	5.3E+03	9.4E+14	1.5E-04	Trichloroethene (TCE)
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	3.9E+13	1.6E-04	o-Xylene
15	0.0E+00	1.33	8.3E+01	4.0E-03	5.3E+03	7.9E+16	1.3E-04	m-Xylene
15	0.0E+00	1.33	8.3E+01	4.9E-03	5.3E+03	9.2E+13	1.6E-04	Xylene (total)

Worksheet: DATENTER

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SG-ADV
Version 3.1; 02/04

SV sample depth = **45 ft bgs**

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				1,1,1-Trichloroethane
75354				1,1-Dichloroethene
87616				1,2,3-Trichlorobenzene
120821				1,2,4-Trichlorobenzene
95636				1,2,4-Trimethylbenzene
108678				1,3,5-Trimethylbenzene
622968				1-Ethyl-4-methylbenzene
67641				Acetone
71432				Benzene
135988				sec-Butylbenzene
75150				Carbon disulfide
124481				Chlorodibromomethane
67663				Chloroform
74873				Chloromethane
95498				o-Chlorotoluene
99876				p-Isopropyltoluene (p-cymene)
75274				Dichlorobromomethane
100414				Ethylbenzene
75694				Freon 11
75718				Freon 12
98828				Isopropylbenzene (cumene)
74839				Methyl Bromide
78933				Methyl ethyl ketone
75092				Methylene chloride
103651				n-Propylbenzene
127184				Tetrachloroethene (PCE)
108883				Toluene
79016				Trichloroethene (TCE)
95476				o-Xylene
108383				m-Xylene
1330207				Xylene (total)

Worksheet: DATENTER

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm2)
			Totals must add up to value of Ls (cell F24)					
15	1372.5	19	1372.5	0	0	SIL		
	45 ft bgs		45 ft bgs					

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIL	1.49	0.439	0.180								

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

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	6	30	350

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **45 ft bgs**

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,1,1-Trichloroethane
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,1-Dichloroethene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,3-Trichlorobenzene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trichlorobenzene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trimethylbenzene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1,3,5-Trimethylbenzene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	1-Ethyl-4-methylbenzene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Acetone
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Benzene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	sec-Butylbenzene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Carbon disulfide
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chlorodibromomethane
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chloroform
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Chloromethane
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	o-Chlorotoluene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	p-Isopropyltoluene (p-cymene)
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Dichlorobromomethane
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Ethylbenzene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Freon 11
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Freon 12
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Isopropylbenzene (cumene)
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methyl Bromide
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methyl ethyl ketone
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Methylene chloride
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	n-Propylbenzene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Tetrachloroethene (PCE)
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Toluene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Trichloroethene (TCE)
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	o-Xylene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	m-Xylene
9.5E+08	1357.5	0.259	ERROR	ERROR	0.307	2.86E-09	0.798	2.3E-09	4,000	0.0E+00	3.4E+04	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **45 ft bgs**

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	
1.1E+06	5.0E-03	15	7,787	1.3E-02	5.5E-01	1.8E-04	4.5E-03	0.0E+00	0.0E+00	4.5E-03	1357.5	1,1,1-Trichloroethane
1.1E+06	5.0E-03	15	6,333	2.1E-02	8.7E-01	1.8E-04	5.2E-03	0.0E+00	0.0E+00	5.2E-03	1357.5	1,1-Dichloroethene
1.1E+06	5.0E-03	15	13,127	7.9E-04	3.3E-02	1.8E-04	2.3E-03	0.0E+00	0.0E+00	2.3E-03	1357.5	1,2,3-Trichlorobenzene
1.1E+06	5.0E-03	15	13,127	9.0E-04	3.7E-02	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	1357.5	1,2,4-Trichlorobenzene
1.1E+06	5.0E-03	15	11,579	4.1E-03	1.7E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	1357.5	1,2,4-Trimethylbenzene
1.1E+06	5.0E-03	15	11,561	3.9E-03	1.6E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	1357.5	1,3,5-Trimethylbenzene
1.1E+06	5.0E-03	15	0	5.0E-03	2.1E-01	1.8E-04	3.9E-03	0.0E+00	0.0E+00	3.9E-03	1357.5	1-Ethyl-4-methylbenzene
1.1E+06	5.0E-03	15	7,447	3.0E-05	1.2E-03	1.8E-04	7.3E-03	0.0E+00	0.0E+00	7.3E-03	1357.5	Acetone
1.1E+06	5.0E-03	15	8,030	4.2E-03	1.7E-01	1.8E-04	5.1E-03	0.0E+00	0.0E+00	5.1E-03	1357.5	Benzene
1.1E+06	5.0E-03	15	107,157	3.4E-04	1.4E-02	1.8E-04	3.3E-03	0.0E+00	0.0E+00	3.3E-03	1357.5	sec-Butylbenzene
1.1E+06	5.0E-03	15	6,612	2.4E-02	1.0E+00	1.8E-04	6.0E-03	0.0E+00	0.0E+00	6.0E-03	1357.5	Carbon disulfide
1.1E+06	5.0E-03	15	6,726	6.2E-04	2.6E-02	1.8E-04	1.1E-03	0.0E+00	0.0E+00	1.1E-03	1357.5	Chlorodibromomethane
1.1E+06	5.0E-03	15	7,461	2.8E-03	1.2E-01	1.8E-04	6.0E-03	0.0E+00	0.0E+00	6.0E-03	1357.5	Chloroform
1.1E+06	5.0E-03	15	4,640	7.5E-03	3.1E-01	1.8E-04	7.3E-03	0.0E+00	0.0E+00	7.3E-03	1357.5	Chloromethane
1.1E+06	5.0E-03	15	0	3.6E-03	1.5E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	1357.5	o-Chlorotoluene
1.1E+06	5.0E-03	15	0	1.1E-02	4.6E-01	1.8E-04	3.0E-03	0.0E+00	0.0E+00	3.0E-03	1357.5	p-Isopropyltoluene (p-cymene)
1.1E+06	5.0E-03	15	8,576	1.2E-03	4.9E-02	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	1357.5	Dichlorobromomethane
1.1E+06	5.0E-03	15	10,052	5.5E-03	2.3E-01	1.8E-04	4.3E-03	0.0E+00	0.0E+00	4.3E-03	1357.5	Ethylbenzene
1.1E+06	5.0E-03	15	6,053	7.8E-02	3.3E+00	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	1357.5	Freon 11
1.1E+06	5.0E-03	15	8,118	2.6E-01	1.1E+01	1.8E-04	3.8E-03	0.0E+00	0.0E+00	3.8E-03	1357.5	Freon 12
1.1E+06	5.0E-03	15	12,518	9.5E-03	3.9E-01	1.8E-04	3.8E-03	0.0E+00	0.0E+00	3.8E-03	1357.5	Isopropylbenzene (cumene)
1.1E+06	5.0E-03	15	5,560	5.1E-03	2.1E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	1357.5	Methyl Bromide
1.1E+06	5.0E-03	15	8,307	4.2E-05	1.7E-03	1.8E-04	4.8E-03	0.0E+00	0.0E+00	4.8E-03	1357.5	Methyl ethyl ketone
1.1E+06	5.0E-03	15	6,938	1.7E-03	7.2E-02	1.8E-04	5.8E-03	0.0E+00	0.0E+00	5.8E-03	1357.5	Methylene chloride
1.1E+06	5.0E-03	15	11,251	7.2E-03	3.0E-01	1.8E-04	3.5E-03	0.0E+00	0.0E+00	3.5E-03	1357.5	n-Propylbenzene
1.1E+06	5.0E-03	15	9,462	1.3E-02	5.5E-01	1.8E-04	4.2E-03	0.0E+00	0.0E+00	4.2E-03	1357.5	Tetrachloroethene (PCE)
1.1E+06	5.0E-03	15	9,056	4.8E-03	2.0E-01	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	1357.5	Toluene
1.1E+06	5.0E-03	15	8,445	7.7E-03	3.2E-01	1.8E-04	4.6E-03	0.0E+00	0.0E+00	4.6E-03	1357.5	Trichloroethene (TCE)
1.1E+06	5.0E-03	15	10,302	3.6E-03	1.5E-01	1.8E-04	5.0E-03	0.0E+00	0.0E+00	5.0E-03	1357.5	o-Xylene
1.1E+06	5.0E-03	15	10,150	5.2E-03	2.1E-01	1.8E-04	4.0E-03	0.0E+00	0.0E+00	4.0E-03	1357.5	m-Xylene
1.1E+06	5.0E-03	15	10,147	4.6E-03	1.9E-01	1.8E-04	4.9E-03	0.0E+00	0.0E+00	4.9E-03	1357.5	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **45 ft bgs**

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	
15	0.0E+00	1.33	8.3E+01	4.5E-03	5.3E+03	1.5E+15	1.0E-04	1,1,1-Trichloroethane
15	0.0E+00	1.33	8.3E+01	5.2E-03	5.3E+03	1.4E+13	1.1E-04	1,1-Dichloroethene
15	0.0E+00	1.33	8.3E+01	2.3E-03	5.3E+03	7.4E+29	5.2E-05	1,2,3-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	2.2E+39	3.9E-05	1,2,4-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	3.3E+19	7.8E-05	1,2,4-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	4.4E+19	7.8E-05	1,3,5-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	3.9E-03	5.3E+03	2.3E+17	8.7E-05	1-Ethyl-4-methylbenzene
15	0.0E+00	1.33	8.3E+01	7.3E-03	5.3E+03	2.2E+09	1.6E-04	Acetone
15	0.0E+00	1.33	8.3E+01	5.1E-03	5.3E+03	2.8E+13	1.1E-04	Benzene
15	0.0E+00	1.33	8.3E+01	3.3E-03	5.3E+03	4.9E+20	7.4E-05	sec-Butylbenzene
15	0.0E+00	1.33	8.3E+01	6.0E-03	5.3E+03	2.4E+11	1.3E-04	Carbon disulfide
15	0.0E+00	1.33	8.3E+01	1.1E-03	5.3E+03	9.6E+59	2.6E-05	Chlorodibromomethane
15	0.0E+00	1.33	8.3E+01	6.0E-03	5.3E+03	2.4E+11	1.3E-04	Chloroform
15	0.0E+00	1.33	8.3E+01	7.3E-03	5.3E+03	2.4E+09	1.6E-04	Chloromethane
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	1.7E+16	9.3E-05	o-Chlorotoluene
15	0.0E+00	1.33	8.3E+01	3.0E-03	5.3E+03	2.8E+22	6.8E-05	p-Isopropyltoluene (p-cymene)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	4.1E+39	3.9E-05	Dichlorobromomethane
15	0.0E+00	1.33	8.3E+01	4.3E-03	5.3E+03	5.9E+15	9.6E-05	Ethylbenzene
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	4.0E+13	1.1E-04	Freon 11
15	0.0E+00	1.33	8.3E+01	3.8E-03	5.3E+03	6.1E+17	8.5E-05	Freon 12
15	0.0E+00	1.33	8.3E+01	3.8E-03	5.3E+03	1.6E+18	8.4E-05	Isopropylbenzene (cumene)
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	1.8E+16	9.3E-05	Methyl Bromide
15	0.0E+00	1.33	8.3E+01	4.8E-03	5.3E+03	2.2E+14	1.1E-04	Methyl ethyl ketone
15	0.0E+00	1.33	8.3E+01	5.8E-03	5.3E+03	5.1E+11	1.3E-04	Methylene chloride
15	0.0E+00	1.33	8.3E+01	3.5E-03	5.3E+03	4.8E+19	7.7E-05	n-Propylbenzene
15	0.0E+00	1.33	8.3E+01	4.2E-03	5.3E+03	2.7E+16	9.2E-05	Tetrachloroethene (PCE)
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	3.9E+13	1.1E-04	Toluene
15	0.0E+00	1.33	8.3E+01	4.6E-03	5.3E+03	9.4E+14	1.0E-04	Trichloroethene (TCE)
15	0.0E+00	1.33	8.3E+01	5.0E-03	5.3E+03	3.9E+13	1.1E-04	o-Xylene
15	0.0E+00	1.33	8.3E+01	4.0E-03	5.3E+03	7.9E+16	9.0E-05	m-Xylene
15	0.0E+00	1.33	8.3E+01	4.9E-03	5.3E+03	9.2E+13	1.1E-04	Xylene (total)

Geosyntec consultants

Appendix E, Attachment E-2

RBC Derivation Spreadsheets

Table E2-1
Derivation of Risk-Based Concentrations for a Future Onsite Resident, Soil
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Concern	Noncancer Effects							Cancer Effects						
		Ingestion		Dermal Contact		Outdoor Inhalation		$RBC_{soil-nc}$ (mg/kg)	Ingestion		Dermal Contact		Outdoor Inhalation		RBC_{soil-c} (mg/kg)
		IF_{oral} (mg/kg-day)	Reference Dose (mg/kg-day)	IF_{dermal} (mg/kg-day)	Reference Dose (mg/kg-day)	$ECF_{inh,soil}$ (mg/m^3-mg/kg)	Reference Concentration (mg/m^3)		IF_{oral} (mg/kg-day)	Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	IF_{dermal} (mg/kg-day)	Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	$ECF_{inh,soil}$ (mg/m^3-mg/kg)	Inhalation Unit Risk $(\mu g/m^3)^{-1}$	
	Inorganics														
7440-36-0	Antimony	1.3E-05	4.0E-04	--	NA	8.3E-12	NA	**3.1E+01**	1.6E-06	NC	--	NC	3.6E-12	NC	**--**
7440-38-2	Arsenic	1.3E-05	3.0E-04	1.1E-06	3.0E-04	8.3E-12	1.5E-05	**2.2E+01**	1.6E-06	9.5E+00	1.5E-07	9.5E+00	3.6E-12	3.3E-03	**6.1E-02**
7440-39-3	Barium	1.3E-05	2.0E-01	--	NA	8.3E-12	5.0E-04	**1.6E+04**	1.6E-06	NC	--	NC	3.6E-12	NC	**--**
7440-41-7	Beryllium	1.3E-05	2.0E-03	--	NA	8.3E-12	2.0E-05	**1.6E+02**	1.6E-06	NC	--	NC	3.6E-12	2.4E-03	**1.2E+05**
7440-43-9	Cadmium	1.3E-05	1.0E-03	3.7E-08	2.5E-05	8.3E-12	2.0E-05	**7.0E+01**	1.6E-06	NC	5.1E-09	NC	3.6E-12	4.2E-03	**6.7E+04**
7440-47-3	Chromium	1.3E-05	1.5E+00	--	NA	8.3E-12	NA	**1.2E+05**	1.6E-06	NC	--	NC	3.6E-12	NC	**--**
7440-48-4	Cobalt	1.3E-05	3.0E-04	--	NA	8.3E-12	6.0E-06	**2.3E+01**	1.6E-06	NC	--	NC	3.6E-12	9.0E-03	**3.1E+04**
7440-50-8	Copper	1.3E-05	4.0E-02	--	NA	8.3E-12	NA	**3.1E+03**	1.6E-06	NC	--	NC	3.6E-12	NC	**--**
7439-92-1	Lead	1.3E-05	NA	--	NA	8.3E-12	NA	**--**	1.6E-06	NC	--	NC	3.6E-12	NC	**--**
7439-97-6	Mercury	1.3E-05	3.0E-04	--	NA	8.3E-12	3.0E-05	**2.3E+01**	1.6E-06	NC	--	NC	3.6E-12	NC	**--**
7439-98-7	Molybdenum	1.3E-05	5.0E-03	--	NA	8.3E-12	NA	**3.9E+02**	1.6E-06	NC	--	NC	3.6E-12	NC	**--**
7440-02-0	Nickel	1.3E-05	2.0E-02	--	NA	8.3E-12	9.0E-05	**1.6E+03**	1.6E-06	NC	--	NC	3.6E-12	2.6E-04	**1.1E+06**
7782-49-2	Selenium	1.3E-05	5.0E-03	--	NA	8.3E-12	2.0E-02	**3.9E+02**	1.6E-06	NC	--	NC	3.6E-12	NC	**--**
7440-22-4	Silver	1.3E-05	5.0E-03	--	NA	8.3E-12	NA	**3.9E+02**	1.6E-06	NC	--	NC	3.6E-12	NC	**--**
7440-62-2	Vanadium	1.3E-05	5.0E-03	--	NA	8.3E-12	1.0E-04	**3.9E+02**	1.6E-06	NC	--	NC	3.6E-12	NC	**--**
7440-66-6	Zinc	1.3E-05	3.0E-01	--	NA	8.3E-12	NA	**2.3E+04**	1.6E-06	NC	--	NC	3.6E-12	NC	**--**
	PAHs														
90-12-0	1-Methylnaphthalene	1.3E-05	7.0E-02	4.8E-06	7.0E-02	8.3E-12	NA	**4.0E+03**	1.6E-06	2.9E-02	6.6E-07	2.9E-02	3.6E-12	NC	**1.6E+01**
91-57-6	2-Methylnaphthalene	1.3E-05	4.0E-03	4.8E-06	4.0E-03	8.3E-12	NA	**2.3E+02**	1.6E-06	NC	6.6E-07	NC	3.6E-12	NC	**--**
83-32-9	Acenaphthene	1.3E-05	6.0E-02	4.8E-06	6.0E-02	8.3E-12	2.1E-01	**3.4E+03**	1.6E-06	NC	6.6E-07	NC	3.6E-12	NC	**--**
120-12-7	Anthracene	1.3E-05	3.0E-01	4.8E-06	3.0E-01	8.3E-12	1.1E+00	**1.7E+04**	1.6E-06	NC	6.6E-07	NC	3.6E-12	NC	**--**
56-55-3	Benz[a]anthracene	1.3E-05	NA	4.8E-06	NA	8.3E-12	NA	**--**	1.6E-06	2.9E-01	6.6E-07	2.9E-01	3.6E-12	1.1E-04	**1.6E+00**
50-32-8	Benzo(a)pyrene	1.3E-05	NA	4.8E-06	NA	8.3E-12	NA	**--**	1.6E-06	2.9E+00	6.6E-07	2.9E+00	3.6E-12	1.1E-03	**1.6E-01**
205-99-2	Benzo(b)fluoranthene	1.3E-05	NA	4.8E-06	NA	8.3E-12	NA	**--**	1.6E-06	2.9E-01	6.6E-07	2.9E-01	3.6E-12	1.1E-04	**1.6E+00**
191-24-2	Benzo(g,h,i)perylene	1.3E-05	3.0E-02	4.8E-06	3.0E-02	8.3E-12	1.1E-01	**1.7E+03**	1.6E-06	NC	6.6E-07	NC	3.6E-12	NC	**--**
207-08-9	Benzo[k]fluoranthene	1.3E-05	NA	4.8E-06	NA	8.3E-12	NA	**--**	1.6E-06	2.9E-01	6.6E-07	2.9E-01	3.6E-12	1.1E-04	**1.6E+00**
218-01-9	Chrysene	1.3E-05	NA	4.8E-06	NA	8.3E-12	NA	**--**	1.6E-06	2.9E-02	6.6E-07	2.9E-02	3.6E-12	1.1E-05	**1.6E+01**
206-44-0	Fluoranthene	1.3E-05	4.0E-02	4.8E-06	4.0E-02	8.3E-12	1.4E-01	**2.3E+03**	1.6E-06	NC	6.6E-07	NC	3.6E-12	NC	**--**
193-39-5	Indeno(1,2,3-cd)pyrene	1.3E-05	NA	4.8E-06	NA	8.3E-12	NA	**--**	1.6E-06	2.9E-01	6.6E-07	2.9E-01	3.6E-12	1.1E-04	**1.6E+00**
85-01-8	Phenanthrene	1.3E-05	3.0E-02	4.8E-06	3.0E-02	8.3E-12	1.1E-01	**1.7E+03**	1.6E-06	NC	6.6E-07	NC	3.6E-12	NC	**--**
129-00-0	Pyrene	1.3E-05	3.0E-02	4.8E-06	3.0E-02	8.3E-12	1.1E-01	**1.7E+03**	1.6E-06	NC	6.6E-07	NC	3.6E-12	NC	**--**
	PCBs														
11096-82-5	Aroclor 1260	1.3E-05	NA	5.2E-06	NA	8.3E-12	NA	**--**	1.6E-06	2.0E+00	7.1E-07	2.0E+00	3.6E-12	5.7E-04	**2.2E-01**

Table E2-1
Derivation of Risk-Based Concentrations for a Future Onsite Resident, Soil
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Concern	Noncancer Effects							Cancer Effects						
		Ingestion		Dermal Contact		Outdoor Inhalation		$RBC_{soil\text{-}nc}$ (mg/kg)	Ingestion		Dermal Contact		Outdoor Inhalation		$RBC_{soil\text{-}c}$ (mg/kg)
		IF_{oral} (mg/kg-day)	Reference Dose (mg/kg-day)	IF_{dermal} (mg/kg-day)	Reference Dose (mg/kg-day)	$ECF_{inh,soil}$ (mg/m^3-mg/kg)	Reference Concentration (mg/m^3)		IF_{oral} (mg/kg-day)	Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	IF_{dermal} (mg/kg-day)	Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	$ECF_{inh,soil}$ (mg/m^3-mg/kg)	Inhalation Unit Risk $(\mu g/m^3)^{-1}$	
	Pesticides														
72-54-8	4,4'-DDD	1.3E-05	NA	3.7E-06	NA	8.3E-12	NA	--	1.6E-06	2.4E-01	5.1E-07	2.4E-01	3.6E-12	6.9E-05	**2.0E+00**
72-55-9	4,4'-DDE	1.3E-05	NA	3.7E-06	NA	8.3E-12	NA	--	1.6E-06	3.4E-01	5.1E-07	3.4E-01	3.6E-12	9.7E-05	**1.4E+00**
50-29-3	4,4'-DDT	1.3E-05	5.0E-04	1.1E-06	5.0E-04	8.3E-12	NA	**3.6E+01**	1.6E-06	3.4E-01	1.5E-07	3.4E-01	3.6E-12	9.7E-05	**1.7E+00**
57-74-9	Chlordane	1.3E-05	5.0E-04	1.5E-06	5.0E-04	8.3E-12	7.0E-04	**3.5E+01**	1.6E-06	1.3E+00	2.0E-07	1.3E+00	3.6E-12	3.4E-04	**4.4E-01**
319-86-8	delta-BHC	1.3E-05	NA	3.7E-06	NA	8.3E-12	NA	--	1.6E-06	1.5E+00	5.1E-07	1.5E+00	3.6E-12	4.3E-04	**3.2E-01**
60-57-1	Dieldrin	1.3E-05	5.0E-05	3.7E-06	5.0E-05	8.3E-12	NA	**3.0E+00**	1.6E-06	1.6E+01	5.1E-07	1.6E+01	3.6E-12	4.6E-03	**3.0E-02**
959-98-8	Endosulfan I	1.3E-05	6.0E-03	3.7E-06	6.0E-03	8.3E-12	NA	**3.6E+02**	1.6E-06	NC	5.1E-07	NC	3.6E-12	NC	--
1031-07-8	Endosulfan Sulfate	1.3E-05	6.0E-03	3.7E-06	6.0E-03	8.3E-12	NA	**3.6E+02**	1.6E-06	NC	5.1E-07	NC	3.6E-12	NC	--
7421-93-4	Endrin Aldehyde	1.3E-05	3.0E-04	3.7E-06	3.0E-04	8.3E-12	NA	**1.8E+01**	1.6E-06	NC	5.1E-07	NC	3.6E-12	NC	--
1024-57-3	Heptachlor Epoxide	1.3E-05	1.3E-05	3.7E-06	1.3E-05	8.3E-12	NA	**7.9E-01**	1.6E-06	5.5E+00	5.1E-07	5.5E+00	3.6E-12	2.6E-03	**8.8E-02**
	SVOCs														
117-84-0	Dioctyl Phthalate	1.3E-05	1.0E-02	3.7E-06	1.0E-02	8.3E-12	3.5E-02	**6.1E+02**	1.6E-06	NC	5.1E-07	NC	3.6E-12	NC	--
	VOCs														
95-63-6	1,2,4-Trimethylbenzene	1.3E-05	NA	--	NA	9.5E-05	7.0E-03	**7.4E+01**	1.6E-06	NC	--	NC	4.1E-05	NC	--
108-67-8	1,3,5-Trimethylbenzene	1.3E-05	1.0E-02	--	NA	1.1E-04	3.5E-02	**2.2E+02**	1.6E-06	NC	--	NC	4.9E-05	NC	--
67-64-1	Acetone	1.3E-05	9.0E-01	--	NA	5.1E-05	3.1E+01	**6.3E+04**	1.6E-06	NC	--	NC	2.2E-05	NC	--
71-43-2	Benzene	1.3E-05	4.0E-03	--	NA	2.1E-04	3.0E-02	**9.8E+01**	1.6E-06	1.0E-01	--	NA	9.1E-05	2.9E-05	**3.6E-01**
104-51-8	Butylbenzene, n-	1.3E-05	5.0E-02	--	NA	9.3E-05	1.8E-01	**1.3E+03**	1.6E-06	NC	--	NC	4.0E-05	NC	--
135-98-8	Butylbenzene, sec-	1.3E-05	1.0E-01	--	NA	1.0E-04	3.5E-01	**2.4E+03**	1.6E-06	NC	--	NC	4.4E-05	NC	--
99-87-6	Cymene, p-	1.3E-05	2.0E-01	--	NA	8.8E-05	1.0E-01	**1.1E+03**	1.6E-06	NC	--	NC	3.8E-05	NC	--
74-83-9	Methyl Bromide	1.3E-05	1.4E-03	--	NA	5.2E-04	5.0E-03	**8.8E+00**	1.6E-06	NC	--	NC	2.2E-04	NC	--
91-20-3	Naphthalene	1.3E-05	2.0E-02	4.8E-06	2.0E-02	1.6E-05	3.0E-03	**1.6E+02**	1.6E-06	NC	6.6E-07	NC	7.0E-06	3.4E-05	**4.2E+00**
103-65-1	Propylbenzene, n-	1.3E-05	1.0E-01	3.7E-06	1.0E-01	1.1E-04	1.0E+00	**3.7E+03**	1.6E-06	NC	5.1E-07	NC	4.6E-05	NC	--
75-65-0	tert-Butyl Alcohol (TBA)	1.3E-05	3.0E-01	3.7E-06	3.0E-01	6.3E-05	1.1E+00	**8.7E+03**	1.6E-06	NC	5.1E-07	NC	2.7E-05	NC	--
108-88-3	Toluene	1.3E-05	8.0E-02	--	NA	1.8E-04	3.0E-01	**1.3E+03**	1.6E-06	NC	--	NC	7.5E-05	NC	--

Note: " -- " not applicable

Table E2-2
Derivation of Risk-Based Concentrations for a Construction Worker, Soil
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Concern	Noncancer Effects							Cancer Effects						
		Ingestion		Dermal Contact		Outdoor Inhalation		$RBC_{soil-nc}$ (mg/kg)	Ingestion		Dermal Contact		Outdoor Inhalation		RBC_{soil-c} (mg/kg)
		IF_{oral} (mg/kg-day)	Reference Dose (mg/kg-day)	IF_{dermal} (mg/kg-day)	Reference Dose (mg/kg-day)	$ECF_{inh,soil}$ (mg/m^3-mg/kg)	Reference Concentration (mg/m^3)		IF_{oral} (mg/kg-day)	Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	IF_{dermal} (mg/kg-day)	Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	$ECF_{inh,soil}$ (mg/m^3-mg/kg)	Inhalation Unit Risk $(\mu g/m^3)^{-1}$	
	Inorganics														
7440-36-0	Antimony	3.2E-06	4.0E-04	--	NA	5.5E-08	NA	**1.2E+02**	4.6E-08	NC	--	NC	7.8E-10	NC	**--**
7440-38-2	Arsenic	3.2E-06	3.0E-04	7.7E-07	3.0E-04	5.5E-08	1.5E-05	**5.9E+01**	4.6E-08	9.5E+00	1.1E-08	9.5E+00	7.8E-10	3.3E-03	**1.8E+01**
7440-39-3	Barium	3.2E-06	2.0E-01	--	NA	5.5E-08	5.0E-04	**8.0E+03**	4.6E-08	NC	--	NC	7.8E-10	NC	**--**
7440-41-7	Beryllium	3.2E-06	2.0E-03	--	NA	5.5E-08	2.0E-05	**2.3E+02**	4.6E-08	NC	--	NC	7.8E-10	2.4E-03	**5.3E+03**
7440-43-9	Cadmium	3.2E-06	1.0E-03	2.6E-08	2.5E-05	5.5E-08	2.0E-05	**1.4E+02**	4.6E-08	NC	3.7E-10	NC	7.8E-10	4.2E-03	**3.0E+03**
7440-47-3	Chromium	3.2E-06	1.5E+00	--	NA	5.5E-08	NA	**4.6E+05**	4.6E-08	NC	--	NC	7.8E-10	NC	**--**
7440-48-4	Cobalt	3.2E-06	3.0E-04	--	NA	5.5E-08	6.0E-06	**5.0E+01**	4.6E-08	NC	--	NC	7.8E-10	9.0E-03	**1.4E+03**
7440-50-8	Copper	3.2E-06	4.0E-02	--	NA	5.5E-08	NA	**1.2E+04**	4.6E-08	NC	--	NC	7.8E-10	NC	**--**
7439-92-1	Lead	3.2E-06	NA	--	NA	5.5E-08	NA	**--**	4.6E-08	NC	--	NC	7.8E-10	NC	**--**
7439-97-6	Mercury	3.2E-06	3.0E-04	--	NA	5.5E-08	3.0E-05	**7.9E+01**	4.6E-08	NC	--	NC	7.8E-10	NC	**--**
7439-98-7	Molybdenum	3.2E-06	5.0E-03	--	NA	5.5E-08	NA	**1.5E+03**	4.6E-08	NC	--	NC	7.8E-10	NC	**--**
7440-02-0	Nickel	3.2E-06	2.0E-02	--	NA	5.5E-08	9.0E-05	**1.3E+03**	4.6E-08	NC	--	NC	7.8E-10	2.6E-04	**4.9E+04**
7782-49-2	Selenium	3.2E-06	5.0E-03	--	NA	5.5E-08	2.0E-02	**1.5E+03**	4.6E-08	NC	--	NC	7.8E-10	NC	**--**
7440-22-4	Silver	3.2E-06	5.0E-03	--	NA	5.5E-08	NA	**1.5E+03**	4.6E-08	NC	--	NC	7.8E-10	NC	**--**
7440-62-2	Vanadium	3.2E-06	5.0E-03	--	NA	5.5E-08	1.0E-04	**8.4E+02**	4.6E-08	NC	--	NC	7.8E-10	NC	**--**
7440-66-6	Zinc	3.2E-06	3.0E-01	--	NA	5.5E-08	NA	**9.3E+04**	4.6E-08	NC	--	NC	7.8E-10	NC	**--**
	PAHs														
90-12-0	1-Methylnaphthalene	3.2E-06	7.0E-02	3.4E-06	7.0E-02	5.5E-08	NA	**1.1E+04**	4.6E-08	2.9E-02	4.8E-08	2.9E-02	7.8E-10	NC	**3.7E+03**
91-57-6	2-Methylnaphthalene	3.2E-06	4.0E-03	3.4E-06	4.0E-03	5.5E-08	NA	**6.1E+02**	4.6E-08	NC	4.8E-08	NC	7.8E-10	NC	**--**
83-32-9	Acenaphthene	3.2E-06	6.0E-02	3.4E-06	6.0E-02	5.5E-08	2.1E-01	**9.1E+03**	4.6E-08	NC	4.8E-08	NC	7.8E-10	NC	**--**
120-12-7	Anthracene	3.2E-06	3.0E-01	3.4E-06	3.0E-01	5.5E-08	1.1E+00	**4.5E+04**	4.6E-08	NC	4.8E-08	NC	7.8E-10	NC	**--**
56-55-3	Benz[a]anthracene	3.2E-06	NA	3.4E-06	NA	5.5E-08	NA	**--**	4.6E-08	2.9E-01	4.8E-08	2.9E-01	7.8E-10	1.1E-04	**3.7E+02**
50-32-8	Benzo(a)pyrene	3.2E-06	NA	3.4E-06	NA	5.5E-08	NA	**--**	4.6E-08	2.9E+00	4.8E-08	2.9E+00	7.8E-10	1.1E-03	**3.7E+01**
205-99-2	Benzo(b)fluoranthene	3.2E-06	NA	3.4E-06	NA	5.5E-08	NA	**--**	4.6E-08	2.9E-01	4.8E-08	2.9E-01	7.8E-10	1.1E-04	**3.7E+02**
191-24-2	Benzo(g,h,i)perylene	3.2E-06	3.0E-02	3.4E-06	3.0E-02	5.5E-08	1.1E-01	**4.5E+03**	4.6E-08	NC	4.8E-08	NC	7.8E-10	NC	**--**
207-08-9	Benzo[k]fluoranthene	3.2E-06	NA	3.4E-06	NA	5.5E-08	NA	**--**	4.6E-08	2.9E-01	4.8E-08	2.9E-01	7.8E-10	1.1E-04	**3.7E+02**
218-01-9	Chrysene	3.2E-06	NA	3.4E-06	NA	5.5E-08	NA	**--**	4.6E-08	2.9E-02	4.8E-08	2.9E-02	7.8E-10	1.1E-05	**3.7E+03**
206-44-0	Fluoranthene	3.2E-06	4.0E-02	3.4E-06	4.0E-02	5.5E-08	1.4E-01	**6.1E+03**	4.6E-08	NC	4.8E-08	NC	7.8E-10	NC	**--**
193-39-5	Indeno(1,2,3-cd)pyrene	3.2E-06	NA	3.4E-06	NA	5.5E-08	NA	**--**	4.6E-08	2.9E-01	4.8E-08	2.9E-01	7.8E-10	1.1E-04	**3.7E+02**
85-01-8	Phenanthrene	3.2E-06	3.0E-02	3.4E-06	3.0E-02	5.5E-08	1.1E-01	**4.5E+03**	4.6E-08	NC	4.8E-08	NC	7.8E-10	NC	**--**
129-00-0	Pyrene	3.2E-06	3.0E-02	3.4E-06	3.0E-02	5.5E-08	1.1E-01	**4.5E+03**	4.6E-08	NC	4.8E-08	NC	7.8E-10	NC	**--**
	PCBs														
11096-82-5	Aroclor 1260	3.2E-06	NA	3.6E-06	NA	5.5E-08	NA	**--**	4.6E-08	2.0E+00	5.2E-08	2.0E+00	7.8E-10	5.7E-04	**5.1E+01**

Table E2-2
Derivation of Risk-Based Concentrations for a Construction Worker, Soil
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Concern	Noncancer Effects							Cancer Effects						
		Ingestion		Dermal Contact		Outdoor Inhalation		$RBC_{soil\text{-}nc}$ (mg/kg)	Ingestion		Dermal Contact		Outdoor Inhalation		$RBC_{soil\text{-}c}$ (mg/kg)
		IF_{oral} (mg/kg-day)	Reference Dose (mg/kg-day)	IF_{dermal} (mg/kg-day)	Reference Dose (mg/kg-day)	$ECF_{inh,soil}$ (mg/m^3-mg/kg)	Reference Concentration (mg/m^3)		IF_{oral} (mg/kg-day)	Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	IF_{dermal} (mg/kg-day)	Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	$ECF_{inh,soil}$ (mg/m^3-mg/kg)	Inhalation Unit Risk $(\mu g/m^3)^{-1}$	
	Pesticides														
72-54-8	4,4'-DDD	3.2E-06	NA	2.6E-06	NA	5.5E-08	NA	--	4.6E-08	2.4E-01	3.7E-08	2.4E-01	7.8E-10	6.9E-05	**5.0E+02**
72-55-9	4,4'-DDE	3.2E-06	NA	2.6E-06	NA	5.5E-08	NA	--	4.6E-08	3.4E-01	3.7E-08	3.4E-01	7.8E-10	9.7E-05	**3.5E+02**
50-29-3	4,4'-DDT	3.2E-06	5.0E-04	7.7E-07	5.0E-04	5.5E-08	NA	**1.2E+02**	4.6E-08	3.4E-01	1.1E-08	3.4E-01	7.8E-10	9.7E-05	**5.1E+02**
57-74-9	Chlordane	3.2E-06	5.0E-04	1.0E-06	5.0E-04	5.5E-08	7.0E-04	**1.2E+02**	4.6E-08	1.3E+00	1.5E-08	1.3E+00	7.8E-10	3.4E-04	**1.3E+02**
319-86-8	delta-BHC	3.2E-06	NA	2.6E-06	NA	5.5E-08	NA	--	4.6E-08	1.5E+00	3.7E-08	1.5E+00	7.8E-10	4.3E-04	**8.0E+01**
60-57-1	Dieldrin	3.2E-06	5.0E-05	2.6E-06	5.0E-05	5.5E-08	NA	**8.6E+00**	4.6E-08	1.6E+01	3.7E-08	1.6E+01	7.8E-10	4.6E-03	**7.5E+00**
959-98-8	Endosulfan I	3.2E-06	6.0E-03	2.6E-06	6.0E-03	5.5E-08	NA	**1.0E+03**	4.6E-08	NC	3.7E-08	NC	7.8E-10	NC	--
1031-07-8	Endosulfan Sulfate	3.2E-06	6.0E-03	2.6E-06	6.0E-03	5.5E-08	NA	**1.0E+03**	4.6E-08	NC	3.7E-08	NC	7.8E-10	NC	--
7421-93-4	Endrin Aldehyde	3.2E-06	3.0E-04	2.6E-06	3.0E-04	5.5E-08	NA	**5.2E+01**	4.6E-08	NC	3.7E-08	NC	7.8E-10	NC	--
1024-57-3	Heptachlor Epoxide	3.2E-06	1.3E-05	2.6E-06	1.3E-05	5.5E-08	NA	**2.2E+00**	4.6E-08	5.5E+00	3.7E-08	5.5E+00	7.8E-10	2.6E-03	**2.2E+01**
	SVOCs														
117-84-0	Dioctyl Phthalate	3.2E-06	1.0E-02	2.6E-06	1.0E-02	5.5E-08	3.5E-02	**1.7E+03**	4.6E-08	NC	3.7E-08	NC	7.8E-10	NC	--
	VOCs														
95-63-6	1,2,4-Trimethylbenzene	3.2E-06	NA	--	NA	2.6E-04	7.0E-03	**2.7E+01**	4.6E-08	NC	--	NC	3.7E-06	NC	--
108-67-8	1,3,5-Trimethylbenzene	3.2E-06	1.0E-02	--	NA	3.1E-04	3.5E-02	**1.1E+02**	4.6E-08	NC	--	NC	4.4E-06	NC	--
67-64-1	Acetone	3.2E-06	9.0E-01	--	NA	1.4E-04	3.1E+01	**1.2E+05**	4.6E-08	NC	--	NC	2.0E-06	NC	--
71-43-2	Benzene	3.2E-06	4.0E-03	--	NA	5.7E-04	3.0E-02	**5.1E+01**	4.6E-08	1.0E-01	--	NA	8.1E-06	2.9E-05	**4.2E+01**
104-51-8	Butylbenzene, n-	3.2E-06	5.0E-02	--	NA	2.5E-04	1.8E-01	**6.7E+02**	4.6E-08	NC	--	NC	3.6E-06	NC	--
135-98-8	Butylbenzene, sec-	3.2E-06	1.0E-01	--	NA	2.8E-04	3.5E-01	**1.2E+03**	4.6E-08	NC	--	NC	3.9E-06	NC	--
99-87-6	Cymene, p-	3.2E-06	2.0E-01	--	NA	2.4E-04	1.0E-01	**4.2E+02**	4.6E-08	NC	--	NC	3.4E-06	NC	--
74-83-9	Methyl Bromide	3.2E-06	1.4E-03	--	NA	1.4E-03	5.0E-03	**3.5E+00**	4.6E-08	NC	--	NC	2.0E-05	NC	--
91-20-3	Naphthalene	3.2E-06	2.0E-02	3.4E-06	2.0E-02	4.4E-05	3.0E-03	**6.7E+01**	4.6E-08	NC	4.8E-08	NC	6.3E-07	3.4E-05	**4.7E+02**
103-65-1	Propylbenzene, n-	3.2E-06	1.0E-01	2.6E-06	1.0E-01	2.9E-04	1.0E+00	**2.9E+03**	4.6E-08	NC	3.7E-08	NC	4.1E-06	NC	--
75-65-0	tert-Butyl Alcohol (TBA)	3.2E-06	3.0E-01	2.6E-06	3.0E-01	1.7E-04	1.1E+00	**5.5E+03**	4.6E-08	NC	3.7E-08	NC	2.4E-06	NC	--
108-88-3	Toluene	3.2E-06	8.0E-02	--	NA	4.7E-04	3.0E-01	**6.2E+02**	4.6E-08	NC	--	NC	6.7E-06	NC	--

Note: " -- " not applicable

Table E2-3
Summary of Soil RBCs
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Potential Concern	Future Onsite Resident		Construction Worker	
		Soil RBC_{NC} (mg/kg)	Soil RBC_{C} (mg/kg)	Soil RBC_{NC} (mg/kg)	Soil RBC_{C} (mg/kg)
	Inorganics				
7440-36-0	Antimony	3.1E+01	--	1.2E+02	--
7440-38-2	Arsenic	2.2E+01	6.1E-02	5.9E+01	1.8E+01
7440-39-3	Barium	1.6E+04	--	8.0E+03	--
7440-41-7	Beryllium	1.6E+02	1.2E+05	2.3E+02	5.3E+03
7440-43-9	Cadmium	7.0E+01	6.7E+04	1.4E+02	3.0E+03
7440-47-3	Chromium	1.2E+05	--	4.6E+05	--
7440-48-4	Cobalt	2.3E+01	3.1E+04	5.0E+01	1.4E+03
7440-50-8	Copper	3.1E+03	--	1.2E+04	--
7439-92-1	Lead	8.0E+01	--	3.2E+02	--
7439-97-6	Mercury	2.3E+01	--	7.9E+01	--
7439-98-7	Molybdenum	3.9E+02	--	1.5E+03	--
7440-02-0	Nickel	1.6E+03	1.1E+06	1.3E+03	4.9E+04
7782-49-2	Selenium	3.9E+02	--	1.5E+03	--
7440-22-4	Silver	3.9E+02	--	1.5E+03	--
7440-62-2	Vanadium	3.9E+02	--	8.4E+02	--
7440-66-6	Zinc	2.3E+04	--	9.3E+04	--
	PAHs				
90-12-0	1-Methylnaphthalene	4.0E+03	1.6E+01	1.1E+04	3.7E+03
91-57-6	2-Methylnaphthalene	2.3E+02	--	6.1E+02	--
83-32-9	Acenaphthene	3.4E+03	--	9.1E+03	--
120-12-7	Anthracene	1.7E+04	--	4.5E+04	--
56-55-3	Benz[a]anthracene	--	1.6E+00	--	3.7E+02
50-32-8	Benzo(a)pyrene	--	1.6E-01	--	3.7E+01
205-99-2	Benzo(b)fluoranthene	--	1.6E+00	--	3.7E+02
191-24-2	Benzo(g,h,i)perylene	1.7E+03	--	4.5E+03	--
207-08-9	Benzo[k]fluoranthene	--	1.6E+00	--	3.7E+02
218-01-9	Chrysene	--	1.6E+01	--	3.7E+03
206-44-0	Fluoranthene	2.3E+03	--	6.1E+03	--
193-39-5	Indeno(1,2,3-cd)pyrene	--	1.6E+00	--	3.7E+02
85-01-8	Phenanthrene	1.7E+03	--	4.5E+03	--
129-00-0	Pyrene	1.7E+03	--	4.5E+03	--
	PCBs				
11096-82-5	Aroclor 1260	--	2.2E-01	--	5.1E+01
	Pesticides				
72-54-8	4,4'-DDD	--	2.0E+00	--	5.0E+02
72-55-9	4,4'-DDE	--	1.4E+00	--	3.5E+02
50-29-3	4,4'-DDT	3.6E+01	1.7E+00	1.2E+02	5.1E+02
57-74-9	Chlordane	3.5E+01	4.4E-01	1.2E+02	1.3E+02
319-86-8	delta-BHC	--	3.2E-01	--	8.0E+01
60-57-1	Dieldrin	3.0E+00	3.0E-02	8.6E+00	7.5E+00
959-98-8	Endosulfan I	3.6E+02	--	1.0E+03	--

Table E2-3
Summary of Soil RBCs
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Potential Concern	Future Onsite Resident		Construction Worker	
		Soil RBC_{NC} (mg/kg)	Soil RBC_C (mg/kg)	Soil RBC_{NC} (mg/kg)	Soil RBC_C (mg/kg)
1031-07-8	Endosulfan Sulfate	3.6E+02	--	1.0E+03	--
7421-93-4	Endrin Aldehyde	1.8E+01	--	5.2E+01	--
1024-57-3	Heptachlor Epoxide	7.9E-01	8.8E-02	2.2E+00	2.2E+01
	SVOCs				
117-84-0	Dioctyl Phthalate	6.1E+02	--	1.7E+03	--
	VOCs				
95-63-6	1,2,4-Trimethylbenzene	7.4E+01	--	2.7E+01	--
108-67-8	1,3,5-Trimethylbenzene	2.2E+02	--	1.1E+02	--
67-64-1	Acetone	6.3E+04	--	1.2E+05	--
71-43-2	Benzene	9.8E+01	3.6E-01	5.1E+01	4.2E+01
104-51-8	Butylbenzene, n-	1.3E+03	--	6.7E+02	--
135-98-8	Butylbenzene, sec-	2.4E+03	--	1.2E+03	--
99-87-6	Cymene, p-	1.1E+03	--	4.2E+02	--
74-83-9	Methyl Bromide	8.8E+00	--	3.5E+00	--
91-20-3	Naphthalene	1.6E+02	4.2E+00	6.7E+01	4.7E+02
103-65-1	Propylbenzene, n-	3.7E+03	--	2.9E+03	--
75-65-0	tert-Butyl Alcohol (TBA)	8.7E+03	--	5.5E+03	--
108-88-3	Toluene	1.3E+03	--	6.2E+02	--

Notes:
" -- " not applicable
" RBC_{NC} " risk-based concentration based on noncancer effects
" RBC_C " risk-based concentration based on cancer effects

Table E2-4
Derivation of Risk-Based Concentrations for a Future Onsite Resident, Soil Vapor
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Concern	Soil Vapor to Indoor Air Attenuation Factor, AFsv-ia				Noncancer Effects					Cancer Effects				
						Reference Concentration (mg/m^3)	**Soil Vapor RBC_{NC} ($\mu g/m^3$)**				Inhalation Unit Risk $(\mu g/m^3)^{-1}$	**Soil Vapor RBC_C ($\mu g/m^3$)**			
		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs
71-55-6	1,1,1-Trichloroethane	7.2E-04	2.8E-04	1.5E-04	1.0E-04	1.0E+00	1.4E+06	3.7E+06	7.1E+06	1.0E+07	NC	--	--	--	--
75-35-4	1,1-Dichloroethene	8.0E-04	3.2E-04	1.7E-04	1.1E-04	7.0E-02	9.1E+04	2.3E+05	4.3E+05	6.4E+05	NC	--	--	--	--
87-61-6	1,2,3-Trichlorobenzene	4.3E-04	1.5E-04	7.7E-05	5.2E-05	2.8E-03	6.8E+03	1.9E+04	3.8E+04	5.7E+04	NC	--	--	--	--
120-82-1	1,2,4-Trichlorobenzene	3.4E-04	1.2E-04	5.9E-05	3.9E-05	2.0E-03	6.1E+03	1.8E+04	3.5E+04	5.3E+04	NC	--	--	--	--
95-63-6	1,2,4-Trimethylbenzene	6.0E-04	2.2E-04	1.2E-04	7.8E-05	7.0E-03	1.2E+04	3.2E+04	6.3E+04	9.4E+04	NC	--	--	--	--
108-67-8	1,3,5-Trimethylbenzene	6.0E-04	2.2E-04	1.2E-04	7.8E-05	3.5E-02	6.1E+04	1.6E+05	3.2E+05	4.7E+05	NC	--	--	--	--
622-96-8	1-Ethyl-4-methylbenzene	6.6E-04	2.5E-04	1.3E-04	8.7E-05	1.0E-01	1.6E+05	4.2E+05	8.1E+05	1.2E+06	NC	--	--	--	--
67-64-1	Acetone	9.9E-04	4.3E-04	2.3E-04	1.6E-04	3.1E+01	3.3E+07	7.6E+07	1.4E+08	2.0E+08	NC	--	--	--	--
71-43-2	Benzene	7.9E-04	3.1E-04	1.6E-04	1.1E-04	3.0E-02	4.0E+04	1.0E+05	1.9E+05	2.8E+05	2.9E-05	1.1E+02	2.7E+02	5.1E+02	7.5E+02
135-98-8	Butylbenzene, sec-	5.8E-04	2.1E-04	1.1E-04	7.4E-05	3.5E-01	6.3E+05	1.7E+06	3.3E+06	4.9E+06	NC	--	--	--	--
75-15-0	Carbon Disulfide	8.8E-04	3.6E-04	1.9E-04	1.3E-04	7.0E-01	8.3E+05	2.0E+06	3.8E+06	5.6E+06	NC	--	--	--	--
124-48-1	Chlorodibromomethane	2.3E-04	7.8E-05	3.9E-05	2.6E-05	7.0E-02	3.1E+05	9.4E+05	1.9E+06	2.8E+06	2.7E-05	3.8E+02	1.2E+03	2.3E+03	3.5E+03
67-66-3	Chloroform	8.8E-04	3.6E-04	1.9E-04	1.3E-04	9.8E-02	1.2E+05	2.8E+05	5.3E+05	7.8E+05	2.3E-05	1.2E+02	2.9E+02	5.5E+02	8.1E+02
74-87-3	Chloromethane	9.9E-04	4.3E-04	2.3E-04	1.6E-04	9.0E-02	9.5E+04	2.2E+05	4.1E+05	6.0E+05	NC	--	--	--	--
95-49-8	Chlorotoluene, o-	6.9E-04	2.7E-04	1.4E-04	9.3E-05	7.0E-02	1.1E+05	2.8E+05	5.3E+05	7.8E+05	NC	--	--	--	--
99-87-6	Cymene, p-	5.4E-04	2.0E-04	1.0E-04	6.8E-05	1.0E-01	1.9E+05	5.3E+05	1.0E+06	1.5E+06	NC	--	--	--	--
75-27-4	Dichlorobromomethane	3.4E-04	1.2E-04	5.8E-05	3.9E-05	7.0E-02	2.2E+05	6.3E+05	1.2E+06	1.9E+06	3.7E-05	1.9E+02	5.7E+02	1.1E+03	1.7E+03
100-41-4	Ethylbenzene	7.0E-04	2.7E-04	1.4E-04	9.6E-05	1.0E+00	1.5E+06	3.8E+06	7.4E+06	1.1E+07	2.5E-06	1.4E+03	3.6E+03	6.9E+03	1.0E+04
75-69-4	Freon 11	7.8E-04	3.1E-04	1.6E-04	1.1E-04	7.0E-01	9.4E+05	2.4E+06	4.5E+06	6.6E+06	NC	--	--	--	--
75-71-8	Freon 12	6.4E-04	2.4E-04	1.3E-04	8.5E-05	1.0E-01	1.6E+05	4.3E+05	8.2E+05	1.2E+06	NC	--	--	--	--
98-82-8	Isopropylbenzene	6.3E-04	2.4E-04	1.2E-04	8.4E-05	4.0E-01	6.6E+05	1.7E+06	3.4E+06	5.0E+06	NC	--	--	--	--
74-83-9	Methyl Bromide	6.9E-04	2.7E-04	1.4E-04	9.3E-05	5.0E-03	7.6E+03	2.0E+04	3.8E+04	5.6E+04	NC	--	--	--	--
78-93-3	Methyl ethyl ketone	7.5E-04	3.0E-04	1.6E-04	1.1E-04	5.0E+00	6.9E+06	1.8E+07	3.4E+07	5.0E+07	NC	--	--	--	--
75-09-2	Methylene Chloride	8.6E-04	3.5E-04	1.9E-04	1.3E-04	4.0E-01	4.8E+05	1.2E+06	2.2E+06	3.3E+06	1.0E-06	2.8E+03	6.9E+03	1.3E+04	1.9E+04
103-65-1	Propylbenzene, n-	6.0E-04	2.2E-04	1.1E-04	7.7E-05	1.0E+00	1.7E+06	4.7E+06	9.1E+06	1.3E+07	NC	--	--	--	--
127-18-4	Tetrachloroethene	6.8E-04	2.6E-04	1.4E-04	9.2E-05	3.5E-02	5.3E+04	1.4E+05	2.7E+05	4.0E+05	5.9E-06	6.0E+02	1.6E+03	3.0E+03	4.5E+03
108-88-3	Toluene	7.8E-04	3.1E-04	1.6E-04	1.1E-04	3.0E-01	4.0E+05	1.0E+06	1.9E+06	2.8E+06	NC	--	--	--	--
79-01-6	Trichloroethene	7.3E-04	2.9E-04	1.5E-04	1.0E-04	2.0E-03	2.9E+03	7.3E+03	1.4E+04	2.1E+04	4.1E-06	5.9E+02	1.5E+03	2.9E+03	4.3E+03

Table E2-4
Derivation of Risk-Based Concentrations for a Future Onsite Resident, Soil Vapor
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Concern	Soil Vapor to Indoor Air Attenuation Factor, AFsv-ia				Noncancer Effects					Cancer Effects				
						Reference Concentration (mg/m^3)	**Soil Vapor RBC_{NC} ($\mu g/m^3$)**				Inhalation Unit Risk $(\mu g/m^3)^{-1}$	**Soil Vapor RBC_C ($\mu g/m^3$)**			
		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs
95-47-6	Xylene, o-	7.8E-04	3.1E-04	1.6E-04	1.1E-04	1.0E-01	1.3E+05	3.4E+05	6.4E+05	9.4E+05	NC	--	--	--	--
179601-23-1	Xylenes, m&p-	6.7E-04	2.6E-04	1.3E-04	9.0E-05	1.0E-01	1.6E+05	4.1E+05	7.8E+05	1.2E+06	NC	--	--	--	--
1330-20-7	Xylenes, Total	7.7E-04	3.0E-04	1.6E-04	1.1E-04	1.0E-01	1.4E+05	3.4E+05	6.6E+05	9.7E+05	NC	--	--	--	--

Note: " -- " not applicable or not available

Exposure Concentration (ECF_{SV-IA}) (mg/m^3)		
	9.6E-04	based on noncancer effects
	4.1E-04	based on cancer effects
	1.0E-03	based on mutagenic effects

Table E2-5
Summary of Soil Vapor RBCs, Future Onsite Resident
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Potential Concern	Soil Vapor RBC_{NC} ($\mu g/m^3$)				Soil Vapor RBC_C ($\mu g/m^3$)			
		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs	5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs
71-55-6	1,1,1-Trichloroethane	1.4E+06	3.7E+06	7.1E+06	1.0E+07	--	--	--	--
75-35-4	1,1-Dichloroethene	9.1E+04	2.3E+05	4.3E+05	6.4E+05	--	--	--	--
87-61-6	1,2,3-Trichlorobenzene	6.8E+03	1.9E+04	3.8E+04	5.7E+04	--	--	--	--
120-82-1	1,2,4-Trichlorobenzene	6.1E+03	1.8E+04	3.5E+04	5.3E+04	--	--	--	--
95-63-6	1,2,4-Trimethylbenzene	1.2E+04	3.2E+04	6.3E+04	9.4E+04	--	--	--	--
108-67-8	1,3,5-Trimethylbenzene	6.1E+04	1.6E+05	3.2E+05	4.7E+05	--	--	--	--
622-96-8	1-Ethyl-4-methylbenzene	1.6E+05	4.2E+05	8.1E+05	1.2E+06	--	--	--	--
67-64-1	Acetone	3.3E+07	7.6E+07	1.4E+08	2.0E+08	--	--	--	--
71-43-2	Benzene	4.0E+04	1.0E+05	1.9E+05	2.8E+05	1.1E+02	2.7E+02	5.1E+02	7.5E+02
135-98-8	Butylbenzene, sec-	6.3E+05	1.7E+06	3.3E+06	4.9E+06	--	--	--	--
75-15-0	Carbon Disulfide	8.3E+05	2.0E+06	3.8E+06	5.6E+06	--	--	--	--
124-48-1	Chlorodibromomethane	3.1E+05	9.4E+05	1.9E+06	2.8E+06	3.8E+02	1.2E+03	2.3E+03	3.5E+03
67-66-3	Chloroform	1.2E+05	2.8E+05	5.3E+05	7.8E+05	1.2E+02	2.9E+02	5.5E+02	8.1E+02
74-87-3	Chloromethane	9.5E+04	2.2E+05	4.1E+05	6.0E+05	--	--	--	--
95-49-8	Chlorotoluene, o-	1.1E+05	2.8E+05	5.3E+05	7.8E+05	--	--	--	--
99-87-6	Cymene, p-	1.9E+05	5.3E+05	1.0E+06	1.5E+06	--	--	--	--
75-27-4	Dichlorobromomethane	2.2E+05	6.3E+05	1.2E+06	1.9E+06	1.9E+02	5.7E+02	1.1E+03	1.7E+03
100-41-4	Ethylbenzene	1.5E+06	3.8E+06	7.4E+06	1.1E+07	1.4E+03	3.6E+03	6.9E+03	1.0E+04
75-69-4	Freon 11	9.4E+05	2.4E+06	4.5E+06	6.6E+06	--	--	--	--
75-71-8	Freon 12	1.6E+05	4.3E+05	8.2E+05	1.2E+06	--	--	--	--
98-82-8	Isopropylbenzene	6.6E+05	1.7E+06	3.4E+06	5.0E+06	--	--	--	--
74-83-9	Methyl Bromide	7.6E+03	2.0E+04	3.8E+04	5.6E+04	--	--	--	--
78-93-3	Methyl ethyl ketone	6.9E+06	1.8E+07	3.4E+07	5.0E+07	--	--	--	--
75-09-2	Methylene Chloride	4.8E+05	1.2E+06	2.2E+06	3.3E+06	2.8E+03	6.9E+03	1.3E+04	1.9E+04
103-65-1	Propylbenzene, n-	1.7E+06	4.7E+06	9.1E+06	1.3E+07	--	--	--	--
127-18-4	Tetrachloroethene	5.3E+04	1.4E+05	2.7E+05	4.0E+05	6.0E+02	1.6E+03	3.0E+03	4.5E+03
108-88-3	Toluene	4.0E+05	1.0E+06	1.9E+06	2.8E+06	--	--	--	--
79-01-6	Trichloroethene	2.9E+03	7.3E+03	1.4E+04	2.1E+04	5.9E+02	1.5E+03	2.9E+03	4.3E+03
95-47-6	Xylene, o-	1.3E+05	3.4E+05	6.4E+05	9.4E+05	--	--	--	--
179601-23-1	Xylenes, m&p-	1.6E+05	4.1E+05	7.8E+05	1.2E+06	--	--	--	--
1330-20-7	Xylenes, Total	1.4E+05	3.4E+05	6.6E+05	9.7E+05	--	--	--	--

Notes:

" -- " not applicable

" RBC_{NC} " risk-based concentration based on noncancer effects

" RBC_C " risk-based concentration based on cancer effects

Geosyntec consultants

Appendix E, Attachment E-3

Detailed Cancer Risk and Noncancer Hazard Calculation Spreadsheets

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result	Units	Results (mg/kg)	Qualifier	Future Onsite Resident				Construction Worker			
											$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk	$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk
Ag Composite-01 (SB-01, SB-02, SB-03, SB-04)	0.5	11/4/2013	0	AG-01-0.5	72-55-9	4,4'-DDE	30	µg/kg	0.03		--	1.4E+00	**--**	**2.1E-08**	--	3.5E+02	**--**	**8.5E-10**
Ag Composite-01 (SB-01, SB-02, SB-03, SB-04)	0.5	11/4/2013	0	AG-01-0.5	50-29-3	4,4'-DDT	38	µg/kg	0.038		3.6E+01	1.7E+00	**1.1E-03**	**2.2E-08**	1.2E+02	5.1E+02	**3.0E-04**	**7.4E-10**
Ag Composite-03 (SB-08, SB-09, SB-11, SB-12)	0.5	11/4/2013	0	AG-03-0.5	50-29-3	4,4'-DDT	5.4	µg/kg	0.0054		3.6E+01	1.7E+00	**1.5E-04**	**3.2E-09**	1.2E+02	5.1E+02	**4.3E-05**	**1.1E-10**
Ag Composite-04 (SB-13, SB-15, SB-16, SB-19)	0.5	11/4/2013	0	AG-04-0.5	72-55-9	4,4'-DDE	26	µg/kg	0.026		--	1.4E+00	**--**	**1.8E-08**	--	3.5E+02	**--**	**7.4E-10**
Ag Composite-04 (SB-13, SB-15, SB-16, SB-19)	0.5	11/4/2013	0	AG-04-0.5	50-29-3	4,4'-DDT	10	µg/kg	0.01		3.6E+01	1.7E+00	**2.8E-04**	**5.8E-09**	1.2E+02	5.1E+02	**8.0E-05**	**2.0E-10**
Ag Composite-07 (SB-36, SB-39, SB-42, SB-43)	0.5	11/4/2013	0	AG-07-0.5	72-55-9	4,4'-DDE	19	µg/kg	0.019		--	1.4E+00	**--**	**1.3E-08**	--	3.5E+02	**--**	**5.4E-10**
Ag Composite-07 (SB-36, SB-39, SB-42, SB-43)	0.5	11/4/2013	0	AG-07-0.5	50-29-3	4,4'-DDT	8.4	µg/kg	0.0084		3.6E+01	1.7E+00	**2.3E-04**	**4.9E-09**	1.2E+02	5.1E+02	**6.7E-05**	**1.6E-10**
B05 Composite-01 (B05-01, B05-02, B05-03)	0.5	11/5/2013	0	OCP-5-01-0.5	72-55-9	4,4'-DDE	10	µg/kg	0.01		--	1.4E+00	**--**	**7.0E-09**	--	3.5E+02	**--**	**2.8E-10**
B05 Composite-01 (B05-01, B05-02, B05-03)	0.5	11/5/2013	0	OCP-5-01-0.5	319-86-8	delta-BHC	5.6	µg/kg	0.0056		--	3.2E-01	**--**	**1.7E-08**	--	8.0E+01	**--**	**7.0E-10**
B05 Composite-01 (B05-01, B05-02, B05-03)	0.5	11/5/2013	0	OCP-5-01-0.5	60-57-1	Dieldrin	93	µg/kg	0.093		3.0E+00	3.0E-02	**3.1E-02**	**3.1E-06**	8.6E+00	7.5E+00	**1.1E-02**	**1.2E-07**
B05 Composite-01 (B05-01, B05-02, B05-03)	2	11/5/2013	0	OCP-5-01-2	60-57-1	Dieldrin	16	µg/kg	0.016		3.0E+00	3.0E-02	**5.3E-03**	**5.3E-07**	8.6E+00	7.5E+00	**1.9E-03**	**2.1E-08**
B05 Composite-02 (B05-04, B05-05, B05-06)	0.5	11/5/2013	0	OCP-5-02-0.5	72-55-9	4,4'-DDE	16	µg/kg	0.016		--	1.4E+00	**--**	**1.1E-08**	--	3.5E+02	**--**	**4.5E-10**
B05 Composite-02 (B05-04, B05-05, B05-06)	0.5	11/5/2013	0	OCP-5-02-0.5	50-29-3	4,4'-DDT	18	µg/kg	0.018		3.6E+01	1.7E+00	**5.0E-04**	**1.1E-08**	1.2E+02	5.1E+02	**1.4E-04**	**3.5E-10**
B05 Composite-02 (B05-04, B05-05, B05-06)	0.5	11/5/2013	0	OCP-5-02-0.5	60-57-1	Dieldrin	46	µg/kg	0.046		3.0E+00	3.0E-02	**1.5E-02**	**1.5E-06**	8.6E+00	7.5E+00	**5.3E-03**	**6.1E-08**
B05 Composite-02 (B05-04, B05-05, B05-06)	2	11/5/2013	0	OCP-5-02-2	50-29-3	4,4'-DDT	8.7	µg/kg	0.0087		3.6E+01	1.7E+00	**2.4E-04**	**5.1E-09**	1.2E+02	5.1E+02	**7.0E-05**	**1.7E-10**
B05 Composite-02 (B05-04, B05-05, B05-06)	2	11/5/2013	0	OCP-5-02-2	60-57-1	Dieldrin	9.5	µg/kg	0.0095		3.0E+00	3.0E-02	**3.1E-03**	**3.1E-07**	8.6E+00	7.5E+00	**1.1E-03**	**1.3E-08**
B05-01	0.5	11/5/2013	0	Pb-5-01-0.5	7439-92-1	Lead	86.9	mg/kg	86.9		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B05-02	0.5	11/5/2013	0	Pb-5-02-0.5	7439-92-1	Lead	98.8	mg/kg	98.8		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B05-03	0.5	11/5/2013	0	Pb-5-03-0.5	7439-92-1	Lead	151	mg/kg	151		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B05-04	0.5	11/5/2013	0	Pb-5-04-0.5	7439-92-1	Lead	60.6	mg/kg	60.6		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
B05-05	0.5	11/5/2013	0	Pb-5-05-0.5	7439-92-1	Lead	99.6	mg/kg	99.6	J+	8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B05-06	0.5	11/5/2013	0	Pb-5-06-0.5	7439-92-1	Lead	194	mg/kg	194		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B08 Composite-01 (B08-01, B08-02, B08-03)	0.5	11/5/2013	0	OCP-8-01-0.5	72-55-9	4,4'-DDE	24	µg/kg	0.024		--	1.4E+00	**--**	**1.7E-08**	--	3.5E+02	**--**	**6.8E-10**
B08 Composite-01 (B08-01, B08-02, B08-03)	0.5	11/5/2013	0	OCP-8-01-0.5	50-29-3	4,4'-DDT	58	µg/kg	0.058		3.6E+01	1.7E+00	**1.6E-03**	**3.4E-08**	1.2E+02	5.1E+02	**4.6E-04**	**1.1E-09**
B08 Composite-01 (B08-01, B08-02, B08-03)	0.5	11/5/2013	0	OCP-8-01-0.5	57-74-9	Chlordane	68	µg/kg	0.068		3.5E+01	4.4E-01	**1.9E-03**	**1.6E-07**	1.2E+02	1.3E+02	**5.8E-04**	**5.4E-09**
B08 Composite-01 (B08-01, B08-02, B08-03)	2	11/5/2013	0	OCP-8-01-2	50-29-3	4,4'-DDT	7	µg/kg	0.007		3.6E+01	1.7E+00	**1.9E-04**	**4.1E-09**	1.2E+02	5.1E+02	**5.6E-05**	**1.4E-10**
B08 Composite-02 (B08-04, B08-05, B08-06)	0.5	11/5/2013	0	OCP-8-02-0.5	72-55-9	4,4'-DDE	5.4	µg/kg	0.0054		--	1.4E+00	**--**	**3.8E-09**	--	3.5E+02	**--**	**1.5E-10**
B08 Composite-02 (B08-04, B08-05, B08-06)	0.5	11/5/2013	0	OCP-8-02-0.5	50-29-3	4,4'-DDT	7.3	µg/kg	0.0073		3.6E+01	1.7E+00	**2.0E-04**	**4.3E-09**	1.2E+02	5.1E+02	**5.8E-05**	**1.4E-10**
B08 Composite-02 (B08-04, B08-05, B08-06)	0.5	11/5/2013	0	OCP-8-02-0.5	57-74-9	Chlordane	60	µg/kg	0.06		3.5E+01	4.4E-01	**1.7E-03**	**1.4E-07**	1.2E+02	1.3E+02	**5.2E-04**	**4.8E-09**
B08-01	0.5	11/5/2013	0	Pb-8-01-0.5	7439-92-1	Lead	90.3	mg/kg	90.3		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B08-02	0.5	11/5/2013	0	Pb-8-02-0.5	7439-92-1	Lead	25.9	mg/kg	25.9		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
B08-03	0.5	11/5/2013	0	Pb-8-03-0.5	7439-92-1	Lead	394	mg/kg	394		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**> CHHSL**	**--**
B08-04	0.5	11/5/2013	0	Pb-8-04-0.5	7439-92-1	Lead	142	mg/kg	142		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B08-05	0.5	11/5/2013	0	Pb-8-05-0.5	7439-92-1	Lead	108	mg/kg	108		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B08-06	0.5	11/5/2013	0	Pb-8-06-0.5	7439-92-1	Lead	113	mg/kg	113		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B29 Composite-01 (B29-01, B29-02, B29-06)	0.5	11/5/2013	0	OCP-29-01-0.5	72-54-8	4,4'-DDD	190	µg/kg	0.19		--	2.0E+00	**--**	**9.4E-08**	--	5.0E+02	**--**	**3.8E-09**
B29 Composite-01 (B29-01, B29-02, B29-06)	0.5	11/5/2013	0	OCP-29-01-0.5	72-55-9	4,4'-DDE	240	µg/kg	0.24		--	1.4E+00	**--**	**1.7E-07**	--	3.5E+02	**--**	**6.8E-09**
B29 Composite-01 (B29-01, B29-02, B29-06)	0.5	11/5/2013	0	OCP-29-01-0.5	50-29-3	4,4'-DDT	260	µg/kg	0.26		3.6E+01	1.7E+00	**7.2E-03**	**1.5E-07**	1.2E+02	5.1E+02	**2.1E-03**	**5.1E-09**
B29 Composite-01 (B29-01, B29-02, B29-06)	0.5	11/5/2013	0	OCP-29-01-0.5	57-74-9	Chlordane	920	µg/kg	0.92		3.5E+01	4.4E-01	**2.6E-02**	**2.1E-06**	1.2E+02	1.3E+02	**7.9E-03**	**7.3E-08**
B29 Composite-01 (B29-01, B29-02, B29-06)	0.5	11/5/2013	0	OCP-29-01-0.5	60-57-1	Dieldrin	560	µg/kg	0.56		3.0E+00	3.0E-02	**1.8E-01**	**1.9E-05**	8.6E+00	7.5E+00	**6.5E-02**	**7.5E-07**
B29 Composite-01 (B29-01, B29-02, B29-06)	0.5	11/5/2013	0	OCP-29-01-0.5	7421-93-4	Endrin Aldehyde	76	µg/kg	0.076		1.8E+01	--	**4.2E-03**	**--**	5.2E+01	--	**1.5E-03**	**--**
B29 Composite-01 (B29-01, B29-02, B29-06)	0.5	11/5/2013	0	OCP-29-01-0.5	1024-57-3	Heptachlor Epoxide	98	µg/kg	0.098		7.9E-01	8.8E-02	**1.2E-01**	**1.1E-06**	2.2E+00	2.2E+01	**4.4E-02**	**4.5E-08**
B29 Composite-01 (B29-01, B29-02, B29-06)	2	11/5/2013	0	OCP-29-01-2	72-54-8	4,4'-DDD	67	µg/kg	0.067		--	2.0E+00	**--**	**3.3E-08**	--	5.0E+02	**--**	**1.3E-09**
B29 Composite-01 (B29-01, B29-02, B29-06)	2	11/5/2013	0	OCP-29-01-2	72-55-9	4,4'-DDE	97	µg/kg	0.097		--	1.4E+00	**--**	**6.8E-08**	--	3.5E+02	**--**	**2.7E-09**
B29 Composite-01 (B29-01, B29-02, B29-06)	2	11/5/2013	0	OCP-29-01-2	50-29-3	4,4'-DDT	59	µg/kg	0.059		3.6E+01	1.7E+00	**1.6E-03**	**3.4E-08**	1.2E+02	5.1E+02	**4.7E-04**	**1.2E-09**
B29 Composite-01 (B29-01, B29-02, B29-06)	2	11/5/2013	0	OCP-29-01-2	57-74-9	Chlordane	370	µg/kg	0.37		3.5E+01	4.4E-01	**1.1E-02**	**8.5E-07**	1.2E+02	1.3E+02	**3.2E-03**	**2.9E-08**
B29 Composite-01 (B29-01, B29-02, B29-06)	2	11/5/2013	0	OCP-29-01-2	60-57-1	Dieldrin	190	µg/kg	0.19		3.0E+00	3.0E-02	**6.3E-02**	**6.3E-06**	8.6E+00	7.5E+00	**2.2E-02**	**2.5E-07**
B29 Composite-01 (B29-01, B29-02, B29-06)	2	11/5/2013	0	OCP-29-01-2	1031-07-8	Endosulfan Sulfate	5.4	µg/kg	0.0054		3.6E+02	--	**1.5E-05**	**--**	1.0E+03	--	**5.2E-06**	**--**
B29 Composite-01 (B29-01, B29-02, B29-06)	2	11/5/2013	0	OCP-29-01-2	7421-93-4	Endrin Aldehyde	16	µg/kg	0.016		1.8E+01	--	**8.8E-04**	**--**	5.2E+01	--	**3.1E-04**	**--**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result	Units	Results (mg/kg)	Qualifier	Future Onsite Resident				Construction Worker			
											$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk	$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk
B29 Composite-02 (B29-03, B29-04, B29-05)	0.5	11/5/2013	0	OCP-29-02-0.5	72-54-8	4,4'-DDD	140	µg/kg	0.14		--	2.0E+00	--	**7.0E-08**	--	5.0E+02	--	**2.8E-09**
B29 Composite-02 (B29-03, B29-04, B29-05)	0.5	11/5/2013	0	OCP-29-02-0.5	72-55-9	4,4'-DDE	100	µg/kg	0.1		--	1.4E+00	--	**7.0E-08**	--	3.5E+02	--	**2.8E-09**
B29 Composite-02 (B29-03, B29-04, B29-05)	0.5	11/5/2013	0	OCP-29-02-0.5	50-29-3	4,4'-DDT	69	µg/kg	0.069		3.6E+01	1.7E+00	**1.9E-03**	**4.0E-08**	1.2E+02	5.1E+02	**5.5E-04**	**1.3E-09**
B29 Composite-02 (B29-03, B29-04, B29-05)	0.5	11/5/2013	0	OCP-29-02-0.5	57-74-9	Chlordane	1400	µg/kg	1.4		3.5E+01	4.4E-01	**4.0E-02**	**3.2E-06**	1.2E+02	1.3E+02	**1.2E-02**	**1.1E-07**
B29 Composite-02 (B29-03, B29-04, B29-05)	0.5	11/5/2013	0	OCP-29-02-0.5	60-57-1	Dieldrin	140	µg/kg	0.14		3.0E+00	3.0E-02	**4.6E-02**	**4.6E-06**	8.6E+00	7.5E+00	**1.6E-02**	**1.9E-07**
B29-01	0.5	11/5/2013	0	Pb-29-01-0.5	7439-92-1	Lead	87.5	mg/kg	87.5		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B29-02	0.5	11/5/2013	0	Pb-29-02-0.5	7439-92-1	Lead	279	mg/kg	279		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B29-03	0.5	11/5/2013	0	Pb-29-03-0.5	7439-92-1	Lead	191	mg/kg	191		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B29-04	0.5	11/5/2013	0	Pb-29-04-0.5	7439-92-1	Lead	224	mg/kg	224		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B29-05	0.5	11/5/2013	0	Pb-29-05-0.5	7439-92-1	Lead	257	mg/kg	257		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B29-06	0.5	11/5/2013	0	Pb-29-06-0.5	7439-92-1	Lead	97.1	mg/kg	97.1		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B38 Composite-01 (B38-01, B38-02, B38-03)	0.5	11/5/2013	0	OCP-38-01-0.5	72-54-8	4,4'-DDD	27	µg/kg	0.027		--	2.0E+00	--	**1.3E-08**	--	5.0E+02	--	**5.4E-10**
B38 Composite-01 (B38-01, B38-02, B38-03)	0.5	11/5/2013	0	OCP-38-01-0.5	72-55-9	4,4'-DDE	73	µg/kg	0.073		--	1.4E+00	--	**5.1E-08**	--	3.5E+02	--	**2.1E-09**
B38 Composite-01 (B38-01, B38-02, B38-03)	0.5	11/5/2013	0	OCP-38-01-0.5	50-29-3	4,4'-DDT	44	µg/kg	0.044		3.6E+01	1.7E+00	**1.2E-03**	**2.6E-08**	1.2E+02	5.1E+02	**3.5E-04**	**8.6E-10**
B38 Composite-01 (B38-01, B38-02, B38-03)	0.5	11/5/2013	0	OCP-38-01-0.5	57-74-9	Chlordane	98	µg/kg	0.098		3.5E+01	4.4E-01	**2.8E-03**	**2.3E-07**	1.2E+02	1.3E+02	**8.4E-04**	**7.8E-09**
B38 Composite-01 (B38-01, B38-02, B38-03)	0.5	11/5/2013	0	OCP-38-01-0.5	60-57-1	Dieldrin	24	µg/kg	0.024		3.0E+00	3.0E-02	**7.9E-03**	**8.0E-07**	8.6E+00	7.5E+00	**2.8E-03**	**3.2E-08**
B38 Composite-02 (B38-04, B38-05, B38-06)	0.5	11/5/2013	0	OCP-38-02-0.5	72-54-8	4,4'-DDD	110	µg/kg	0.11		--	2.0E+00	--	**5.5E-08**	--	5.0E+02	--	**2.2E-09**
B38 Composite-02 (B38-04, B38-05, B38-06)	0.5	11/5/2013	0	OCP-38-02-0.5	72-55-9	4,4'-DDE	260	µg/kg	0.26		--	1.4E+00	--	**1.8E-07**	--	3.5E+02	--	**7.4E-09**
B38 Composite-02 (B38-04, B38-05, B38-06)	0.5	11/5/2013	0	OCP-38-02-0.5	50-29-3	4,4'-DDT	150	µg/kg	0.15		3.6E+01	1.7E+00	**4.2E-03**	**8.8E-08**	1.2E+02	5.1E+02	**1.2E-03**	**2.9E-09**
B38 Composite-02 (B38-04, B38-05, B38-06)	0.5	11/5/2013	0	OCP-38-02-0.5	57-74-9	Chlordane	350	µg/kg	0.35		3.5E+01	4.4E-01	**1.0E-02**	**8.0E-07**	1.2E+02	1.3E+02	**3.0E-03**	**2.8E-08**
B38 Composite-02 (B38-04, B38-05, B38-06)	0.5	11/5/2013	0	OCP-38-02-0.5	60-57-1	Dieldrin	14	µg/kg	0.014		3.0E+00	3.0E-02	**4.6E-03**	**4.6E-07**	8.6E+00	7.5E+00	**1.6E-03**	**1.9E-08**
B38 Composite-02 (B38-04, B38-05, B38-06)	0.5	11/5/2013	0	OCP-38-02-0.5	1024-57-3	Heptachlor Epoxide	7.3	µg/kg	0.0073		7.9E-01	8.8E-02	**9.3E-03**	**8.3E-08**	2.2E+00	2.2E+01	**3.3E-03**	**3.3E-09**
B38-01	0.5	11/5/2013	0	Pb-38-01-0.5	7439-92-1	Lead	182	mg/kg	182		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B38-02	0.5	11/5/2013	0	Pb-38-02-0.5	7439-92-1	Lead	167	mg/kg	167		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B38-03	0.5	11/5/2013	0	Pb-38-03-0.5	7439-92-1	Lead	83.6	mg/kg	83.6		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B38-04	0.5	11/5/2013	0	Pb-38-04-0.5	7439-92-1	Lead	335	mg/kg	335		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**> CHHSL**	**--**
B38-05	0.5	11/5/2013	0	Pb-38-05-0.5	7439-92-1	Lead	99	mg/kg	99		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B38-06	0.5	11/5/2013	0	Pb-38-06-0.5	7439-92-1	Lead	175	mg/kg	175		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B50 Composite-01 (B50-01, B50-02, B50-03)	0.5	11/5/2013	0	OCP-50-01-0.5	50-29-3	4,4'-DDT	6.4	µg/kg	0.0064		3.6E+01	1.7E+00	**1.8E-04**	**3.7E-09**	1.2E+02	5.1E+02	**5.1E-05**	**1.2E-10**
B50 Composite-01 (B50-01, B50-02, B50-03)	0.5	11/5/2013	0	OCP-50-01-0.5	57-74-9	Chlordane	2700	µg/kg	2.7		3.5E+01	4.4E-01	**7.7E-02**	**6.2E-06**	1.2E+02	1.3E+02	**2.3E-02**	**2.1E-07**
B50 Composite-01 (B50-01, B50-02, B50-03)	0.5	11/5/2013	0	OCP-50-01-0.5	959-98-8	Endosulfan I	16	µg/kg	0.016		3.6E+02	--	**4.4E-05**	**--**	1.0E+03	--	**1.5E-05**	**--**
B50 Composite-01 (B50-01, B50-02, B50-03)	0.5	11/5/2013	0	OCP-50-01-0.5	1024-57-3	Heptachlor Epoxide	47	µg/kg	0.047		7.9E-01	8.8E-02	**6.0E-02**	**5.4E-07**	2.2E+00	2.2E+01	**2.1E-02**	**2.2E-08**
B50 Composite-01 (B50-01, B50-02, B50-03)	2	11/5/2013	0	OCP-50-01-2	57-74-9	Chlordane	130	µg/kg	0.13		3.5E+01	4.4E-01	**3.7E-03**	**3.0E-07**	1.2E+02	1.3E+02	**1.1E-03**	**1.0E-08**
B50 Composite-02 (B50-04, B50-05, B50-06)	0.5	11/5/2013	0	OCP-50-02-0.5	50-29-3	4,4'-DDT	5.7	µg/kg	0.0057		3.6E+01	1.7E+00	**1.6E-04**	**3.3E-09**	1.2E+02	5.1E+02	**4.6E-05**	**1.1E-10**
B50 Composite-02 (B50-04, B50-05, B50-06)	0.5	11/5/2013	0	OCP-50-02-0.5	57-74-9	Chlordane	2100	µg/kg	2.1		3.5E+01	4.4E-01	**6.0E-02**	**4.8E-06**	1.2E+02	1.3E+02	**1.8E-02**	**1.7E-07**
B50 Composite-02 (B50-04, B50-05, B50-06)	0.5	11/5/2013	0	OCP-50-02-0.5	7421-93-4	Endrin Aldehyde	8	µg/kg	0.008		1.8E+01	--	**4.4E-04**	**--**	5.2E+01	--	**1.5E-04**	**--**
B50 Composite-02 (B50-04, B50-05, B50-06)	2	11/5/2013	0	OCP-50-02-2	57-74-9	Chlordane	600	µg/kg	0.6		3.5E+01	4.4E-01	**1.7E-02**	**1.4E-06**	1.2E+02	1.3E+02	**5.2E-03**	**4.8E-08**
B50 Composite-02 (B50-04, B50-05, B50-06)	2	11/5/2013	0	OCP-50-02-2	1024-57-3	Heptachlor Epoxide	9.9	µg/kg	0.0099		7.9E-01	8.8E-02	**1.3E-02**	**1.1E-07**	2.2E+00	2.2E+01	**4.4E-03**	**4.5E-09**
B50-01	0.5	11/5/2013	0	Pb-50-01-0.5	7439-92-1	Lead	335	mg/kg	335		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**> CHHSL**	**--**
B50-02	0.5	11/5/2013	0	Pb-50-02-0.5	7439-92-1	Lead	86.7	mg/kg	86.7		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B50-03	0.5	11/5/2013	0	Pb-50-03-0.5	7439-92-1	Lead	48.6	mg/kg	48.6		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
B50-04	0.5	11/5/2013	0	Pb-50-04-0.5	7439-92-1	Lead	59.9	mg/kg	59.9		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
B50-05	0.5	11/5/2013	0	Pb-50-05-0.5	7439-92-1	Lead	101	mg/kg	101		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B50-06	0.5	11/5/2013	0	Pb-50-06-0.5	7439-92-1	Lead	81	mg/kg	81		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
B59 Composite-01 (B59-04, B59-05, B59-06)	0.5	11/5/2013	0	OCP-59-01-0.5	72-55-9	4,4'-DDE	5.6	µg/kg	0.0056		--	1.4E+00	--	**3.9E-09**	--	3.5E+02	--	**1.6E-10**
B59 Composite-01 (B59-04, B59-05, B59-06)	0.5	11/5/2013	0	OCP-59-01-0.5	50-29-3	4,4'-DDT	9.5	µg/kg	0.0095		3.6E+01	1.7E+00	**2.6E-04**	**5.5E-09**	1.2E+02	5.1E+02	**7.6E-05**	**1.9E-10**
B59 Composite-01 (B59-04, B59-05, B59-06)	0.5	11/5/2013	0	OCP-59-01-0.5	57-74-9	Chlordane	860	µg/kg	0.86		3.5E+01	4.4E-01	**2.5E-02**	**2.0E-06**	1.2E+02	1.3E+02	**7.4E-03**	**6.8E-08**
B59 Composite-02 (B59-01, B59-02, B59-03)	0.5	11/5/2013	0	OCP-59-02-0.5	50-29-3	4,4'-DDT	60	µg/kg	0.06		3.6E+01	1.7E+00	**1.7E-03**	**3.5E-08**	1.2E+02	5.1E+02	**4.8E-04**	**1.2E-09**
B59 Composite-02 (B59-01, B59-02, B59-03)	0.5	11/5/2013	0	OCP-59-02-0.5	57-74-9	Chlordane	22000	µg/kg	22		3.5E+01	4.4E-01	**6.3E-01**	**5.1E-05**	1.2E+02	1.3E+02	**1.9E-01**	**1.7E-06**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result	Units	Results (mg/kg)	Qualifier	Future Onsite Resident				Construction Worker			
											$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk	$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk
B59 Composite-02 (B59-01, B59-02, B59-03)	2	11/5/2013	0	OCP-59-02-2	50-29-3	4,4'-DDT	5.2	µg/kg	0.0052		3.6E+01	1.7E+00	**1.4E-04**	**3.0E-09**	1.2E+02	5.1E+02	**4.2E-05**	**1.0E-10**
B59 Composite-02 (B59-01, B59-02, B59-03)	2	11/5/2013	0	OCP-59-02-2	57-74-9	Chlordane	580	µg/kg	0.58		3.5E+01	4.4E-01	**1.7E-02**	**1.3E-06**	1.2E+02	1.3E+02	**5.0E-03**	**4.6E-08**
B59 Composite-02 (B59-01, B59-02, B59-03)	2	11/5/2013	0	OCP-59-02-2	959-98-8	Endosulfan I	6.6	µg/kg	0.0066		3.6E+02	--	**1.8E-05**	**--**	1.0E+03	--	**6.4E-06**	**--**
B59-01	0.5	11/5/2013	0	Pb-59-01-0.5	7439-92-1	Lead	49.5	mg/kg	49.5		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
B59-02	0.5	11/5/2013	0	Pb-59-02-0.5	7439-92-1	Lead	70.7	mg/kg	70.7		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
B59-03	0.5	11/5/2013	0	Pb-59-03-0.5	7439-92-1	Lead	75.1	mg/kg	75.1		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
B59-04	0.5	11/5/2013	0	Pb-59-04-0.5	7439-92-1	Lead	19.6	mg/kg	19.6		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
B59-05	0.5	11/5/2013	0	Pb-59-05-0.5	7439-92-1	Lead	3.04	mg/kg	3.04		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
B59-06	0.5	11/5/2013	0	Pb-59-06-0.5	7439-92-1	Lead	51.7	mg/kg	51.7		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7440-38-2	Arsenic	13.8	mg/kg	13.8		2.2E+01	6.1E-02	**> Bkgd**	**> Bkgd**	5.9E+01	1.8E+01	**> Bkgd**	**> Bkgd**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7440-39-3	Barium	389	mg/kg	389		1.6E+04	--	**2.5E-02**	**--**	8.0E+03	--	**4.9E-02**	**--**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7440-43-9	Cadmium	6	mg/kg	6		7.0E+01	6.7E+04	**8.6E-02**	**9.0E-11**	1.4E+02	3.0E+03	**4.2E-02**	**2.0E-08**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7440-47-3	Chromium	23.2	mg/kg	23.2		1.2E+05	--	**2.0E-04**	**--**	4.6E+05	--	**5.0E-05**	**--**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7440-48-4	Cobalt	6.7	mg/kg	6.7		2.3E+01	3.1E+04	**2.9E-01**	**2.2E-10**	5.0E+01	1.4E+03	**1.3E-01**	**4.7E-08**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7440-50-8	Copper	81	mg/kg	81		3.1E+03	--	**2.6E-02**	**--**	1.2E+04	--	**6.5E-03**	**--**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7439-92-1	Lead	673	mg/kg	673		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**> CHHSL**	**--**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7439-97-6	Mercury	6.9	mg/kg	6.9		2.3E+01	--	**2.9E-01**	**--**	7.9E+01	--	**8.7E-02**	**--**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7440-02-0	Nickel	20.4	mg/kg	20.4		1.6E+03	1.1E+06	**1.3E-02**	**1.9E-11**	1.3E+03	4.9E+04	**1.6E-02**	**4.2E-09**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7782-49-2	Selenium	0.93	mg/kg	0.93		3.9E+02	--	**2.4E-03**	**--**	1.5E+03	--	**6.0E-04**	**--**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7440-62-2	Vanadium	34.6	mg/kg	34.6		3.9E+02	--	**8.8E-02**	**--**	8.4E+02	--	**4.1E-02**	**--**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	7440-66-6	Zinc	5520	mg/kg	5520		2.3E+04	--	**2.4E-01**	**--**	9.3E+04	--	**5.9E-02**	**--**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	67-64-1	Acetone	33	µg/kg	0.033		6.3E+04	--	**5.2E-07**	**--**	1.2E+05	--	**2.6E-07**	**--**
Historic-SB-03	10	7/20/2005	0	SB-3-10-20050720	117-81-7	Dioctyl Phthalate	1.99	mg/kg	1.99		6.1E+02	--	**3.3E-03**	**--**	1.7E+03	--	**1.2E-03**	**--**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7440-38-2	Arsenic	5.6	mg/kg	5.6		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7440-39-3	Barium	210	mg/kg	210		1.6E+04	--	**1.3E-02**	**--**	8.0E+03	--	**2.6E-02**	**--**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7440-41-7	Beryllium	0.57	mg/kg	0.57		1.6E+02	1.2E+05	**3.6E-03**	**4.9E-12**	2.3E+02	5.3E+03	**2.5E-03**	**1.1E-09**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7440-43-9	Cadmium	2.1	mg/kg	2.1		7.0E+01	6.7E+04	**3.0E-02**	**3.1E-11**	1.4E+02	3.0E+03	**1.5E-02**	**6.9E-09**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7440-47-3	Chromium	27.2	mg/kg	27.2		1.2E+05	--	**2.3E-04**	**--**	4.6E+05	--	**5.9E-05**	**--**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7440-48-4	Cobalt	8.9	mg/kg	8.9		2.3E+01	3.1E+04	**3.8E-01**	**2.9E-10**	5.0E+01	1.4E+03	**1.8E-01**	**6.3E-08**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7440-50-8	Copper	27.8	mg/kg	27.8		3.1E+03	--	**8.9E-03**	**--**	1.2E+04	--	**2.2E-03**	**--**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7439-92-1	Lead	8.3	mg/kg	8.3		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7440-02-0	Nickel	25.7	mg/kg	25.7		1.6E+03	1.1E+06	**1.6E-02**	**2.4E-11**	1.3E+03	4.9E+04	**2.0E-02**	**5.2E-09**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7782-49-2	Selenium	0.97	mg/kg	0.97		3.9E+02	--	**2.5E-03**	**--**	1.5E+03	--	**6.3E-04**	**--**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7440-62-2	Vanadium	60	mg/kg	60		3.9E+02	--	**1.5E-01**	**--**	8.4E+02	--	**7.2E-02**	**--**
Historic-SB-03	20	7/20/2005	0	SB-3-20-20050720	7440-66-6	Zinc	71.9	mg/kg	71.9		2.3E+04	--	**3.1E-03**	**--**	9.3E+04	--	**7.7E-04**	**--**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7440-38-2	Arsenic	5.2	mg/kg	5.2		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7440-39-3	Barium	189	mg/kg	189		1.6E+04	--	**1.2E-02**	**--**	8.0E+03	--	**2.4E-02**	**--**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7440-41-7	Beryllium	0.56	mg/kg	0.56		1.6E+02	1.2E+05	**3.6E-03**	**4.8E-12**	2.3E+02	5.3E+03	**2.4E-03**	**1.1E-09**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7440-43-9	Cadmium	1.8	mg/kg	1.8		7.0E+01	6.7E+04	**2.6E-02**	**2.7E-11**	1.4E+02	3.0E+03	**1.3E-02**	**5.9E-09**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7440-47-3	Chromium	23.5	mg/kg	23.5		1.2E+05	--	**2.0E-04**	**--**	4.6E+05	--	**5.1E-05**	**--**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7440-48-4	Cobalt	9.5	mg/kg	9.5		2.3E+01	3.1E+04	**4.0E-01**	**3.1E-10**	5.0E+01	1.4E+03	**1.9E-01**	**6.7E-08**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7440-50-8	Copper	22	mg/kg	22		3.1E+03	--	**7.0E-03**	**--**	1.2E+04	--	**1.8E-03**	**--**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7439-92-1	Lead	4.2	mg/kg	4.2		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7440-02-0	Nickel	22.9	mg/kg	22.9		1.6E+03	1.1E+06	**1.5E-02**	**2.1E-11**	1.3E+03	4.9E+04	**1.8E-02**	**4.7E-09**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7782-49-2	Selenium	1.6	mg/kg	1.6		3.9E+02	--	**4.1E-03**	**--**	1.5E+03	--	**1.0E-03**	**--**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7440-62-2	Vanadium	54.1	mg/kg	54.1		3.9E+02	--	**1.4E-01**	**--**	8.4E+02	--	**6.5E-02**	**--**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	7440-66-6	Zinc	55.5	mg/kg	55.5		2.3E+04	--	**2.4E-03**	**--**	9.3E+04	--	**6.0E-04**	**--**
Historic-SB-03	30	7/20/2005	0	SB-3-30-20050720	117-81-7	Dioctyl Phthalate	0.58	mg/kg	0.58		6.1E+02	--	**9.6E-04**	**--**	1.7E+03	--	**3.4E-04**	**--**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7440-38-2	Arsenic	6.4	mg/kg	6.4		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result	Units	Results (mg/kg)	Qualifier	Future Onsite Resident				Construction Worker			
											$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk	$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7440-39-3	Barium	213	mg/kg	213		1.6E+04	--	**1.4E-02**	**--**	8.0E+03	--	**2.7E-02**	**--**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7440-41-7	Beryllium	0.53	mg/kg	0.53		1.6E+02	1.2E+05	**3.4E-03**	**4.5E-12**	2.3E+02	5.3E+03	**2.3E-03**	**1.0E-09**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7440-43-9	Cadmium	2.1	mg/kg	2.1		7.0E+01	6.7E+04	**3.0E-02**	**3.1E-11**	1.4E+02	3.0E+03	**1.5E-02**	**6.9E-09**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7440-47-3	Chromium	34.2	mg/kg	34.2		1.2E+05	--	**2.9E-04**	**--**	4.6E+05	--	**7.4E-05**	**--**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7440-48-4	Cobalt	8.7	mg/kg	8.7		2.3E+01	3.1E+04	**3.7E-01**	**2.8E-10**	5.0E+01	1.4E+03	**1.7E-01**	**6.1E-08**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7440-50-8	Copper	36.6	mg/kg	36.6		3.1E+03	--	**1.2E-02**	**--**	1.2E+04	--	**3.0E-03**	**--**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7439-92-1	Lead	155	mg/kg	155		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7439-97-6	Mercury	2.6	mg/kg	2.6		2.3E+01	--	**1.1E-01**	**--**	7.9E+01	--	**3.3E-02**	**--**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7440-02-0	Nickel	29.3	mg/kg	29.3		1.6E+03	1.1E+06	**1.9E-02**	**2.7E-11**	1.3E+03	4.9E+04	**2.3E-02**	**6.0E-09**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7782-49-2	Selenium	0.59	mg/kg	0.59		3.9E+02	--	**1.5E-03**	**--**	1.5E+03	--	**3.8E-04**	**--**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7440-62-2	Vanadium	54.6	mg/kg	54.6		3.9E+02	--	**1.4E-01**	**--**	8.4E+02	--	**6.5E-02**	**--**
Historic-SB-04	10	7/20/2005	0	SB-4-10-20050720	7440-66-6	Zinc	168	mg/kg	168		2.3E+04	--	**7.2E-03**	**--**	9.3E+04	--	**1.8E-03**	**--**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7440-38-2	Arsenic	6.4	mg/kg	6.4		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7440-39-3	Barium	221	mg/kg	221		1.6E+04	--	**1.4E-02**	**--**	8.0E+03	--	**2.8E-02**	**--**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7440-41-7	Beryllium	0.59	mg/kg	0.59		1.6E+02	1.2E+05	**3.8E-03**	**5.1E-12**	2.3E+02	5.3E+03	**2.6E-03**	**1.1E-09**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7440-43-9	Cadmium	2.3	mg/kg	2.3		7.0E+01	6.7E+04	**3.3E-02**	**3.4E-11**	1.4E+02	3.0E+03	**1.6E-02**	**7.6E-09**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7440-47-3	Chromium	30.9	mg/kg	30.9		1.2E+05	--	**2.6E-04**	**--**	4.6E+05	--	**6.7E-05**	**--**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7440-48-4	Cobalt	8.9	mg/kg	8.9		2.3E+01	3.1E+04	**3.8E-01**	**2.9E-10**	5.0E+01	1.4E+03	**1.8E-01**	**6.3E-08**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7440-50-8	Copper	28.6	mg/kg	28.6		3.1E+03	--	**9.1E-03**	**--**	1.2E+04	--	**2.3E-03**	**--**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7439-92-1	Lead	5.2	mg/kg	5.2		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7439-97-6	Mercury	0.57	mg/kg	0.57		2.3E+01	--	**2.4E-02**	**--**	7.9E+01	--	**7.2E-03**	**--**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7440-02-0	Nickel	27.2	mg/kg	27.2		1.6E+03	1.1E+06	**1.7E-02**	**2.5E-11**	1.3E+03	4.9E+04	**2.1E-02**	**5.5E-09**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7782-49-2	Selenium	0.81	mg/kg	0.81		3.9E+02	--	**2.1E-03**	**--**	1.5E+03	--	**5.3E-04**	**--**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7440-62-2	Vanadium	64	mg/kg	64		3.9E+02	--	**1.6E-01**	**--**	8.4E+02	--	**7.6E-02**	**--**
Historic-SB-04	20	7/20/2005	0	SB-4-20-20050720	7440-66-6	Zinc	64.8	mg/kg	64.8		2.3E+04	--	**2.8E-03**	**--**	9.3E+04	--	**7.0E-04**	**--**
Historic-SB-04	30	7/20/2005	0	SB-4-30-20050720	7440-38-2	Arsenic	4.6	mg/kg	4.6		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
Historic-SB-04	30	7/20/2005	0	SB-4-30-20050720	7440-39-3	Barium	185	mg/kg	185		1.6E+04	--	**1.2E-02**	**--**	8.0E+03	--	**2.3E-02**	**--**
Historic-SB-04	30	7/20/2005	0	SB-4-30-20050720	7440-43-9	Cadmium	2	mg/kg	2		7.0E+01	6.7E+04	**2.9E-02**	**3.0E-11**	1.4E+02	3.0E+03	**1.4E-02**	**6.6E-09**
Historic-SB-04	30	7/20/2005	0	SB-4-30-20050720	7440-47-3	Chromium	21.7	mg/kg	21.7		1.2E+05	--	**1.8E-04**	**--**	4.6E+05	--	**4.7E-05**	**--**
Historic-SB-04	30	7/20/2005	0	SB-4-30-20050720	7440-48-4	Cobalt	8.7	mg/kg	8.7		2.3E+01	3.1E+04	**3.7E-01**	**2.8E-10**	5.0E+01	1.4E+03	**1.7E-01**	**6.1E-08**
Historic-SB-04	30	7/20/2005	0	SB-4-30-20050720	7440-50-8	Copper	19.4	mg/kg	19.4		3.1E+03	--	**6.2E-03**	**--**	1.2E+04	--	**1.6E-03**	**--**
Historic-SB-04	30	7/20/2005	0	SB-4-30-20050720	7439-92-1	Lead	3.9	mg/kg	3.9		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
Historic-SB-04	30	7/20/2005	0	SB-4-30-20050720	7440-02-0	Nickel	20.7	mg/kg	20.7		1.6E+03	1.1E+06	**1.3E-02**	**1.9E-11**	1.3E+03	4.9E+04	**1.6E-02**	**4.2E-09**
Historic-SB-04	30	7/20/2005	0	SB-4-30-20050720	7782-49-2	Selenium	1.5	mg/kg	1.5		3.9E+02	--	**3.8E-03**	**--**	1.5E+03	--	**9.7E-04**	**--**
Historic-SB-04	30	7/20/2005	0	SB-4-30-20050720	7440-62-2	Vanadium	48.1	mg/kg	48.1		3.9E+02	--	**1.2E-01**	**--**	8.4E+02	--	**5.7E-02**	**--**
Historic-SB-04	30	7/20/2005	0	SB-4-30-20050720	7440-66-6	Zinc	48.6	mg/kg	48.6		2.3E+04	--	**2.1E-03**	**--**	9.3E+04	--	**5.2E-04**	**--**
Historic-SB-06	20	7/20/2005	0	SB-6-20-20050720	95-63-6	1,2,4-Trimethylbenzene	1500	µg/kg	1.5		7.4E+01	--	**2.0E-02**	**--**	2.7E+01	--	**5.5E-02**	**--**
Historic-SB-06	20	7/20/2005	0	SB-6-20-20050720	67-64-1	Acetone	4800	µg/kg	4.8		6.3E+04	--	**7.6E-05**	**--**	1.2E+05	--	**3.9E-05**	**--**
Historic-SB-06	20	7/20/2005	0	SB-6-20-20050720	104-51-8	Butylbenzene	1900	µg/kg	1.9		1.3E+03	--	**1.5E-03**	**--**	6.7E+02	--	**2.8E-03**	**--**
Historic-SB-06	20	7/20/2005	0	SB-6-20-20050720	91-20-3	Naphthalene	28	mg/kg	28		1.6E+02	4.2E+00	**1.8E-01**	**6.6E-06**	6.7E+01	4.7E+02	**4.2E-01**	**6.0E-07**
Historic-SB-06	20	7/20/2005	0	SB-6-20-20050720	103-65-1	n-Propylbenzene	1100	µg/kg	1.1		3.7E+03	--	**3.0E-04**	**--**	2.9E+03	--	**3.8E-04**	**--**
Historic-SB-06	20	7/20/2005	0	SB-6-20-20050720	99-87-6	p-Cymene	1000	µg/kg	1		1.1E+03	--	**9.5E-04**	**--**	4.2E+02	--	**2.4E-03**	**--**
Historic-SB-06	20	7/20/2005	0	SB-6-20-20050720	135-98-8	sec-Butylbenzene	1500	µg/kg	1.5		2.4E+03	--	**6.3E-04**	**--**	1.2E+03	--	**1.2E-03**	**--**
Historic-SB-06	30	7/20/2005	0	SB-6-30-20050720	TPH-d	TPH as Diesel	40000	mg/kg	40000		--	--	**--**	**--**	--	--	**--**	**--**
Historic-SB-06	30	7/20/2005	0	SB-6-30-20050720	95-63-6	1,2,4-Trimethylbenzene	23000	µg/kg	23		7.4E+01	--	**3.1E-01**	**--**	2.7E+01	--	**8.4E-01**	**--**
Historic-SB-06	30	7/20/2005	0	SB-6-30-20050720	108-67-8	1,3,5-Trimethylbenzene	7800	µg/kg	7.8		2.2E+02	--	**3.5E-02**	**--**	1.1E+02	--	**7.1E-02**	**--**
Historic-SB-06	30	7/20/2005	0	SB-6-30-20050720	104-51-8	Butylbenzene	10000	µg/kg	10		1.3E+03	--	**7.8E-03**	**--**	6.7E+02	--	**1.5E-02**	**--**
Historic-SB-06	30	7/20/2005	0	SB-6-30-20050720	74-83-9	Methyl Bromide	11000	µg/kg	11		8.8E+00	--	**1.2E+00**	**--**	3.5E+00	--	**3.1E+00**	**--**
Historic-SB-06	30	7/20/2005	0	SB-6-30-20050720	91-20-3	Naphthalene	100	mg/kg	100		1.6E+02	4.2E+00	**6.3E-01**	**2.4E-05**	6.7E+01	4.7E+02	**1.5E+00**	**2.1E-06**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result	Units	Results (mg/kg)	Qualifier	Future Onsite Resident				Construction Worker			
											$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk	$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk
Historic-SB-06	30	7/20/2005	0	SB-6-30-20050720	99-87-6	p-Cymene	6000	µg/kg	6		1.1E+03	--	**5.7E-03**	**--**	4.2E+02	--	**1.4E-02**	**--**
Historic-SB-06	30	7/20/2005	0	SB-6-30-20050720	135-98-8	sec-Butylbenzene	6600	µg/kg	6.6		2.4E+03	--	**2.8E-03**	**--**	1.2E+03	--	**5.4E-03**	**--**
RR-01	0.5	11/4/2013	0	RR-01-0.5	7440-38-2	Arsenic	19.8	mg/kg	19.8		2.2E+01	6.1E-02	**> Bkgd**	**> Bkgd**	5.9E+01	1.8E+01	**> Bkgd**	**> Bkgd**
RR-02	0.5	11/4/2013	0	RR-02-0.5	7440-38-2	Arsenic	10.1	mg/kg	10.1		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
RR-03	0.5	11/4/2013	0	RR-03-0.5	7440-38-2	Arsenic	16.5	mg/kg	16.5		2.2E+01	6.1E-02	**> Bkgd**	**> Bkgd**	5.9E+01	1.8E+01	**> Bkgd**	**> Bkgd**
RR-04	0.5	11/4/2013	0	RR-04-0.5	7440-38-2	Arsenic	3.87	mg/kg	3.87		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
RR-05	0.5	11/4/2013	0	RR-05-0.5	7440-38-2	Arsenic	7.15	mg/kg	7.15		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
SB-03	0.5	11/4/2013	0	AG-SB3-0.5	7440-38-2	Arsenic	22.9	mg/kg	22.9		2.2E+01	6.1E-02	**> Bkgd**	**> Bkgd**	5.9E+01	1.8E+01	**> Bkgd**	**> Bkgd**
SB-07	0.5	11/4/2013	0	AG-SB7-0.5	7440-38-2	Arsenic	21.7	mg/kg	21.7		2.2E+01	6.1E-02	**> Bkgd**	**> Bkgd**	5.9E+01	1.8E+01	**> Bkgd**	**> Bkgd**
SB-09	0.5	11/4/2013	0	AG-SB9-0.5	7440-38-2	Arsenic	32.3	mg/kg	32.3		2.2E+01	6.1E-02	**> Bkgd**	**> Bkgd**	5.9E+01	1.8E+01	**> Bkgd**	**> Bkgd**
SB-15	0.5	11/4/2013	0	AG-SB15-0.5	7440-38-2	Arsenic	22.4	mg/kg	22.4		2.2E+01	6.1E-02	**> Bkgd**	**> Bkgd**	5.9E+01	1.8E+01	**> Bkgd**	**> Bkgd**
SB-23	0.5	11/4/2013	0	AG-SB23-0.5	7440-38-2	Arsenic	11.7	mg/kg	11.7		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
SB-24	0.5	11/4/2013	0	AG-SB24-0.5	7440-38-2	Arsenic	9.37	mg/kg	9.37		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
SB-26	0.5	11/4/2013	0	AG-SB26-0.5	7440-38-2	Arsenic	8.96	mg/kg	8.96		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
SB-33	0.5	11/4/2013	0	AG-SB33-0.5	7440-38-2	Arsenic	18	mg/kg	18		2.2E+01	6.1E-02	**> Bkgd**	**> Bkgd**	5.9E+01	1.8E+01	**> Bkgd**	**> Bkgd**
SB-35	0.5	11/4/2013	0	AG-SB35-0.5	7440-38-2	Arsenic	11.3	mg/kg	11.3		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
SB-40	0.5	11/4/2013	0	AG-SB40-0.5	7440-38-2	Arsenic	14.8	mg/kg	14.8		2.2E+01	6.1E-02	**> Bkgd**	**> Bkgd**	5.9E+01	1.8E+01	**> Bkgd**	**> Bkgd**
SB-42	0.5	11/4/2013	0	AG-SB42-0.5	7440-38-2	Arsenic	35.6	mg/kg	35.6		2.2E+01	6.1E-02	**> Bkgd**	**> Bkgd**	5.9E+01	1.8E+01	**> Bkgd**	**> Bkgd**
T09	0	11/13/2013	0	T9-111313	11096-82-5	Aroclor 1260	9800	µg/kg	9.8		--	2.2E-01	**--**	**4.5E-05**	--	5.1E+01	**--**	**1.9E-06**
VP-02	0.5	10/30/2013	0	VP2-0.5	7440-38-2	Arsenic	8.01	mg/kg	8.01		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-02	0.5	10/30/2013	0	VP2-0.5	7440-39-3	Barium	203	mg/kg	203		1.6E+04	--	**1.3E-02**	**--**	8.0E+03	--	**2.6E-02**	**--**
VP-02	0.5	10/30/2013	0	VP2-0.5	7440-41-7	Beryllium	0.554	mg/kg	0.554		1.6E+02	1.2E+05	**3.5E-03**	**4.7E-12**	2.3E+02	5.3E+03	**2.4E-03**	**1.0E-09**
VP-02	0.5	10/30/2013	0	VP2-0.5	7440-43-9	Cadmium	1.23	mg/kg	1.23		7.0E+01	6.7E+04	**1.8E-02**	**1.8E-11**	1.4E+02	3.0E+03	**8.6E-03**	**4.0E-09**
VP-02	0.5	10/30/2013	0	VP2-0.5	7440-47-3	Chromium	24.9	mg/kg	24.9		1.2E+05	--	**2.1E-04**	**--**	4.6E+05	--	**5.4E-05**	**--**
VP-02	0.5	10/30/2013	0	VP2-0.5	7440-48-4	Cobalt	12.6	mg/kg	12.6		2.3E+01	3.1E+04	**5.4E-01**	**4.0E-10**	5.0E+01	1.4E+03	**2.5E-01**	**8.9E-08**
VP-02	0.5	10/30/2013	0	VP2-0.5	7440-50-8	Copper	25.7	mg/kg	25.7		3.1E+03	--	**8.2E-03**	**--**	1.2E+04	--	**2.1E-03**	**--**
VP-02	0.5	10/30/2013	0	VP2-0.5	7439-92-1	Lead	5.93	mg/kg	5.93		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-02	0.5	10/30/2013	0	VP2-0.5	7439-98-7	Molybdenum	2.66	mg/kg	2.66		3.9E+02	--	**6.8E-03**	**--**	1.5E+03	--	**1.7E-03**	**--**
VP-02	0.5	10/30/2013	0	VP2-0.5	7440-02-0	Nickel	32.9	mg/kg	32.9		1.6E+03	1.1E+06	**2.1E-02**	**3.1E-11**	1.3E+03	4.9E+04	**2.5E-02**	**6.7E-09**
VP-02	0.5	10/30/2013	0	VP2-0.5	7440-62-2	Vanadium	51.5	mg/kg	51.5		3.9E+02	--	**1.3E-01**	**--**	8.4E+02	--	**6.1E-02**	**--**
VP-02	0.5	10/30/2013	0	VP2-0.5	7440-66-6	Zinc	65.7	mg/kg	65.7		2.3E+04	--	**2.8E-03**	**--**	9.3E+04	--	**7.1E-04**	**--**
VP-02	10	10/30/2013	0	VP2-10	7440-38-2	Arsenic	6.46	mg/kg	6.46		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-02	10	10/30/2013	0	VP2-10	7440-39-3	Barium	169	mg/kg	169		1.6E+04	--	**1.1E-02**	**--**	8.0E+03	--	**2.1E-02**	**--**
VP-02	10	10/30/2013	0	VP2-10	7440-41-7	Beryllium	0.51	mg/kg	0.51		1.6E+02	1.2E+05	**3.3E-03**	**4.4E-12**	2.3E+02	5.3E+03	**2.2E-03**	**9.6E-10**
VP-02	10	10/30/2013	0	VP2-10	7440-43-9	Cadmium	1.03	mg/kg	1.03		7.0E+01	6.7E+04	**1.5E-02**	**1.5E-11**	1.4E+02	3.0E+03	**7.2E-03**	**3.4E-09**
VP-02	10	10/30/2013	0	VP2-10	7440-47-3	Chromium	22.9	mg/kg	22.9		1.2E+05	--	**2.0E-04**	**--**	4.6E+05	--	**4.9E-05**	**--**
VP-02	10	10/30/2013	0	VP2-10	7440-48-4	Cobalt	10.5	mg/kg	10.5		2.3E+01	3.1E+04	**4.5E-01**	**3.4E-10**	5.0E+01	1.4E+03	**2.1E-01**	**7.4E-08**
VP-02	10	10/30/2013	0	VP2-10	7440-50-8	Copper	22.2	mg/kg	22.2		3.1E+03	--	**7.1E-03**	**--**	1.2E+04	--	**1.8E-03**	**--**
VP-02	10	10/30/2013	0	VP2-10	7439-92-1	Lead	4.33	mg/kg	4.33		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-02	10	10/30/2013	0	VP2-10	7439-98-7	Molybdenum	2.41	mg/kg	2.41		3.9E+02	--	**6.2E-03**	**--**	1.5E+03	--	**1.6E-03**	**--**
VP-02	10	10/30/2013	0	VP2-10	7440-02-0	Nickel	28.4	mg/kg	28.4		1.6E+03	1.1E+06	**1.8E-02**	**2.6E-11**	1.3E+03	4.9E+04	**2.2E-02**	**5.8E-09**
VP-02	10	10/30/2013	0	VP2-10	7440-62-2	Vanadium	48.3	mg/kg	48.3		3.9E+02	--	**1.2E-01**	**--**	8.4E+02	--	**5.8E-02**	**--**
VP-02	10	10/30/2013	0	VP2-10	7440-66-6	Zinc	54.9	mg/kg	54.9		2.3E+04	--	**2.3E-03**	**--**	9.3E+04	--	**5.9E-04**	**--**
VP-02	10	10/30/2013	0	VP2-10	71-43-2	Benzene	2.2	µg/kg	0.0022		9.8E+01	3.6E-01	**2.3E-05**	**6.1E-09**	5.1E+01	4.2E+01	**4.4E-05**	**5.3E-10**
VP-02	5	10/30/2013	0	VP2-5	7440-38-2	Arsenic	7.36	mg/kg	7.36		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-02	5	10/30/2013	0	VP2-5	7440-39-3	Barium	196	mg/kg	196		1.6E+04	--	**1.3E-02**	**--**	8.0E+03	--	**2.5E-02**	**--**
VP-02	5	10/30/2013	0	VP2-5	7440-41-7	Beryllium	0.561	mg/kg	0.561		1.6E+02	1.2E+05	**3.6E-03**	**4.8E-12**	2.3E+02	5.3E+03	**2.4E-03**	**1.1E-09**
VP-02	5	10/30/2013	0	VP2-5	7440-43-9	Cadmium	1.16	mg/kg	1.16		7.0E+01	6.7E+04	**1.7E-02**	**1.7E-11**	1.4E+02	3.0E+03	**8.1E-03**	**3.8E-09**
VP-02	5	10/30/2013	0	VP2-5	7440-47-3	Chromium	25.6	mg/kg	25.6		1.2E+05	--	**2.2E-04**	**--**	4.6E+05	--	**5.5E-05**	**--**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result	Units	Results (mg/kg)	Qualifier	Future Onsite Resident				Construction Worker			
											$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk	$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk
VP-02	5	10/30/2013	0	VP2-5	7440-48-4	Cobalt	12.4	mg/kg	12.4		2.3E+01	3.1E+04	**5.3E-01**	**4.0E-10**	5.0E+01	1.4E+03	**2.5E-01**	**8.7E-08**
VP-02	5	10/30/2013	0	VP2-5	7440-50-8	Copper	24.9	mg/kg	24.9		3.1E+03	--	**8.0E-03**	**--**	1.2E+04	--	**2.0E-03**	**--**
VP-02	5	10/30/2013	0	VP2-5	7439-92-1	Lead	5.14	mg/kg	5.14		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-02	5	10/30/2013	0	VP2-5	7439-98-7	Molybdenum	2.51	mg/kg	2.51		3.9E+02	--	**6.4E-03**	**--**	1.5E+03	--	**1.6E-03**	**--**
VP-02	5	10/30/2013	0	VP2-5	7440-02-0	Nickel	32.7	mg/kg	32.7		1.6E+03	1.1E+06	**2.1E-02**	**3.0E-11**	1.3E+03	4.9E+04	**2.5E-02**	**6.7E-09**
VP-02	5	10/30/2013	0	VP2-5	7440-62-2	Vanadium	53.4	mg/kg	53.4		3.9E+02	--	**1.4E-01**	**--**	8.4E+02	--	**6.4E-02**	**--**
VP-02	5	10/30/2013	0	VP2-5	7440-66-6	Zinc	62.3	mg/kg	62.3		2.3E+04	--	**2.7E-03**	**--**	9.3E+04	--	**6.7E-04**	**--**
VP-02	5	10/30/2013	0	VP2-5	90-12-0	1-Methylnaphthalene	0.059	mg/kg	0.059		4.0E+03	1.6E+01	**1.5E-05**	**3.8E-09**	1.1E+04	3.7E+03	**5.6E-06**	**1.6E-10**
VP-02	5	10/30/2013	0	VP2-5	91-57-6	2-Methylnaphthalene	0.11	mg/kg	0.11		2.3E+02	--	**4.8E-04**	**--**	6.1E+02	--	**1.8E-04**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	7440-38-2	Arsenic	6.39	mg/kg	6.39		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-04	0.5	10/30/2013	0	VP4-0.5	7440-39-3	Barium	286	mg/kg	286		1.6E+04	--	**1.8E-02**	**--**	8.0E+03	--	**3.6E-02**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	7440-41-7	Beryllium	0.475	mg/kg	0.475		1.6E+02	1.2E+05	**3.0E-03**	**4.1E-12**	2.3E+02	5.3E+03	**2.1E-03**	**8.9E-10**
VP-04	0.5	10/30/2013	0	VP4-0.5	7440-43-9	Cadmium	1.11	mg/kg	1.11		7.0E+01	6.7E+04	**1.6E-02**	**1.7E-11**	1.4E+02	3.0E+03	**7.8E-03**	**3.6E-09**
VP-04	0.5	10/30/2013	0	VP4-0.5	7440-47-3	Chromium	22.9	mg/kg	22.9		1.2E+05	--	**2.0E-04**	**--**	4.6E+05	--	**4.9E-05**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	7440-48-4	Cobalt	10.3	mg/kg	10.3		2.3E+01	3.1E+04	**4.4E-01**	**3.3E-10**	5.0E+01	1.4E+03	**2.0E-01**	**7.3E-08**
VP-04	0.5	10/30/2013	0	VP4-0.5	7440-50-8	Copper	31.1	mg/kg	31.1		3.1E+03	--	**9.9E-03**	**--**	1.2E+04	--	**2.5E-03**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	7439-92-1	Lead	178	mg/kg	178		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	7439-97-6	Mercury	0.885	mg/kg	0.885		2.3E+01	--	**3.8E-02**	**--**	7.9E+01	--	**1.1E-02**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	7439-98-7	Molybdenum	2.25	mg/kg	2.25		3.9E+02	--	**5.8E-03**	**--**	1.5E+03	--	**1.5E-03**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	7440-02-0	Nickel	27.5	mg/kg	27.5		1.6E+03	1.1E+06	**1.8E-02**	**2.6E-11**	1.3E+03	4.9E+04	**2.1E-02**	**5.6E-09**
VP-04	0.5	10/30/2013	0	VP4-0.5	7440-62-2	Vanadium	46.4	mg/kg	46.4		3.9E+02	--	**1.2E-01**	**--**	8.4E+02	--	**5.5E-02**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	7440-66-6	Zinc	111	mg/kg	111		2.3E+04	--	**4.7E-03**	**--**	9.3E+04	--	**1.2E-03**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	C06-C44 Total	C06-C44 Total	340	mg/kg	340	J	--	--	**--**	**--**	--	--	**--**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	C25-C28	C25-C28	48	mg/kg	48		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	C29-C32	C29-C32	75	mg/kg	75		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	C33-C36	C33-C36	76	mg/kg	76		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	C37-C40	C37-C40	69	mg/kg	69		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	0.5	10/30/2013	0	VP4-0.5	C41-C44	C41-C44	29	mg/kg	29		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	10	10/30/2013	0	VP4-10	7440-38-2	Arsenic	6.45	mg/kg	6.45		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-04	10	10/30/2013	0	VP4-10	7440-39-3	Barium	199	mg/kg	199		1.6E+04	--	**1.3E-02**	**--**	8.0E+03	--	**2.5E-02**	**--**
VP-04	10	10/30/2013	0	VP4-10	7440-41-7	Beryllium	0.507	mg/kg	0.507		1.6E+02	1.2E+05	**3.2E-03**	**4.3E-12**	2.3E+02	5.3E+03	**2.2E-03**	**9.5E-10**
VP-04	10	10/30/2013	0	VP4-10	7440-43-9	Cadmium	1.27	mg/kg	1.27		7.0E+01	6.7E+04	**1.8E-02**	**1.9E-11**	1.4E+02	3.0E+03	**8.9E-03**	**4.2E-09**
VP-04	10	10/30/2013	0	VP4-10	7440-47-3	Chromium	24.3	mg/kg	24.3		1.2E+05	--	**2.1E-04**	**--**	4.6E+05	--	**5.2E-05**	**--**
VP-04	10	10/30/2013	0	VP4-10	7440-48-4	Cobalt	11.1	mg/kg	11.1		2.3E+01	3.1E+04	**4.7E-01**	**3.6E-10**	5.0E+01	1.4E+03	**2.2E-01**	**7.8E-08**
VP-04	10	10/30/2013	0	VP4-10	7440-50-8	Copper	24.7	mg/kg	24.7		3.1E+03	--	**7.9E-03**	**--**	1.2E+04	--	**2.0E-03**	**--**
VP-04	10	10/30/2013	0	VP4-10	7439-92-1	Lead	79.9	mg/kg	79.9		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-04	10	10/30/2013	0	VP4-10	7439-97-6	Mercury	0.259	mg/kg	0.259		2.3E+01	--	**1.1E-02**	**--**	7.9E+01	--	**3.3E-03**	**--**
VP-04	10	10/30/2013	0	VP4-10	7439-98-7	Molybdenum	2.59	mg/kg	2.59		3.9E+02	--	**6.6E-03**	**--**	1.5E+03	--	**1.7E-03**	**--**
VP-04	10	10/30/2013	0	VP4-10	7440-02-0	Nickel	29.4	mg/kg	29.4		1.6E+03	1.1E+06	**1.9E-02**	**2.7E-11**	1.3E+03	4.9E+04	**2.3E-02**	**6.0E-09**
VP-04	10	10/30/2013	0	VP4-10	7440-62-2	Vanadium	50.7	mg/kg	50.7		3.9E+02	--	**1.3E-01**	**--**	8.4E+02	--	**6.1E-02**	**--**
VP-04	10	10/30/2013	0	VP4-10	7440-66-6	Zinc	78.3	mg/kg	78.3		2.3E+04	--	**3.3E-03**	**--**	9.3E+04	--	**8.4E-04**	**--**
VP-04	10	10/30/2013	0	VP4-10	90-12-0	1-Methylnaphthalene	0.1	mg/kg	0.1		4.0E+03	1.6E+01	**2.5E-05**	**6.4E-09**	1.1E+04	3.7E+03	**9.4E-06**	**2.7E-10**
VP-04	10	10/30/2013	0	VP4-10	91-57-6	2-Methylnaphthalene	0.19	mg/kg	0.19		2.3E+02	--	**8.4E-04**	**--**	6.1E+02	--	**3.1E-04**	**--**
VP-04	10	10/30/2013	0	VP4-10	C06-C44 Total	C06-C44 Total	98	mg/kg	98	J	--	--	**--**	**--**	--	--	**--**	**--**
VP-04	10	10/30/2013	0	VP4-10	C25-C28	C25-C28	11	mg/kg	11		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	10	10/30/2013	0	VP4-10	C29-C32	C29-C32	17	mg/kg	17		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	10	10/30/2013	0	VP4-10	C33-C36	C33-C36	21	mg/kg	21		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	10	10/30/2013	0	VP4-10	C37-C40	C37-C40	22	mg/kg	22		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	10	10/30/2013	0	VP4-10	C41-C44	C41-C44	16	mg/kg	16		--	--	**--**	**--**	--	--	**--**	**--**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result	Units	Results (mg/kg)	Qualifier	Future Onsite Resident				Construction Worker			
											$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk	$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk
VP-04	5	10/30/2013	0	VP4-5	7440-36-0	Antimony	2.5	mg/kg	2.5		3.1E+01	--	**8.0E-02**	**--**	1.2E+02	--	**2.0E-02**	**--**
VP-04	5	10/30/2013	0	VP4-5	7440-38-2	Arsenic	11.1	mg/kg	11.1		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-04	5	10/30/2013	0	VP4-5	7440-39-3	Barium	353	mg/kg	353		1.6E+04	--	**2.3E-02**	**--**	8.0E+03	--	**4.4E-02**	**--**
VP-04	5	10/30/2013	0	VP4-5	7440-41-7	Beryllium	0.314	mg/kg	0.314		1.6E+02	1.2E+05	**2.0E-03**	**2.7E-12**	2.3E+02	5.3E+03	**1.4E-03**	**5.9E-10**
VP-04	5	10/30/2013	0	VP4-5	7440-43-9	Cadmium	2.54	mg/kg	2.54		7.0E+01	6.7E+04	**3.6E-02**	**3.8E-11**	1.4E+02	3.0E+03	**1.8E-02**	**8.4E-09**
VP-04	5	10/30/2013	0	VP4-5	7440-47-3	Chromium	24.4	mg/kg	24.4		1.2E+05	--	**2.1E-04**	**--**	4.6E+05	--	**5.3E-05**	**--**
VP-04	5	10/30/2013	0	VP4-5	7440-48-4	Cobalt	5.71	mg/kg	5.71		2.3E+01	3.1E+04	**2.4E-01**	**1.8E-10**	5.0E+01	1.4E+03	**1.1E-01**	**4.0E-08**
VP-04	5	10/30/2013	0	VP4-5	7440-50-8	Copper	150	mg/kg	150		3.1E+03	--	**4.8E-02**	**--**	1.2E+04	--	**1.2E-02**	**--**
VP-04	5	10/30/2013	0	VP4-5	7439-92-1	Lead	2380	mg/kg	2380		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**> CHHSL**	**--**
VP-04	5	10/30/2013	0	VP4-5	7439-97-6	Mercury	15.9	mg/kg	15.9		2.3E+01	--	**6.8E-01**	**--**	7.9E+01	--	**2.0E-01**	**--**
VP-04	5	10/30/2013	0	VP4-5	7439-98-7	Molybdenum	2.58	mg/kg	2.58		3.9E+02	--	**6.6E-03**	**--**	1.5E+03	--	**1.7E-03**	**--**
VP-04	5	10/30/2013	0	VP4-5	7440-02-0	Nickel	20.2	mg/kg	20.2		1.6E+03	1.1E+06	**1.3E-02**	**1.9E-11**	1.3E+03	4.9E+04	**1.6E-02**	**4.1E-09**
VP-04	5	10/30/2013	0	VP4-5	7440-22-4	Silver	1.27	mg/kg	1.27		3.9E+02	--	**3.2E-03**	**--**	1.5E+03	--	**8.2E-04**	**--**
VP-04	5	10/30/2013	0	VP4-5	7440-62-2	Vanadium	31.3	mg/kg	31.3		3.9E+02	--	**8.0E-02**	**--**	8.4E+02	--	**3.7E-02**	**--**
VP-04	5	10/30/2013	0	VP4-5	7440-66-6	Zinc	650	mg/kg	650		2.3E+04	--	**2.8E-02**	**--**	9.3E+04	--	**7.0E-03**	**--**
VP-04	5	10/30/2013	0	VP4-5	91-57-6	2-Methylnaphthalene	0.54	mg/kg	0.54		2.3E+02	--	**2.4E-03**	**--**	6.1E+02	--	**8.9E-04**	**--**
VP-04	5	10/30/2013	0	VP4-5	C06-C44 Total	C06-C44 Total	21000	mg/kg	21000		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	5	10/30/2013	0	VP4-5	C17-C18	C17-C18	690	mg/kg	690		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	5	10/30/2013	0	VP4-5	C19-C20	C19-C20	1300	mg/kg	1300		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	5	10/30/2013	0	VP4-5	C21-C22	C21-C22	1400	mg/kg	1400		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	5	10/30/2013	0	VP4-5	C23-C24	C23-C24	1700	mg/kg	1700		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	5	10/30/2013	0	VP4-5	C25-C28	C25-C28	3400	mg/kg	3400		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	5	10/30/2013	0	VP4-5	C29-C32	C29-C32	4100	mg/kg	4100		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	5	10/30/2013	0	VP4-5	C33-C36	C33-C36	3600	mg/kg	3600		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	5	10/30/2013	0	VP4-5	C37-C40	C37-C40	3000	mg/kg	3000		--	--	**--**	**--**	--	--	**--**	**--**
VP-04	5	10/30/2013	0	VP4-5	C41-C44	C41-C44	1500	mg/kg	1500		--	--	**--**	**--**	--	--	**--**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	7440-38-2	Arsenic	8.27	mg/kg	8.27		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-06	0.5	10/30/2013	0	VP6-0.5	7440-39-3	Barium	239	mg/kg	239		1.6E+04	--	**1.5E-02**	**--**	8.0E+03	--	**3.0E-02**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	7440-41-7	Beryllium	0.445	mg/kg	0.445		1.6E+02	1.2E+05	**2.8E-03**	**3.8E-12**	2.3E+02	5.3E+03	**1.9E-03**	**8.4E-10**
VP-06	0.5	10/30/2013	0	VP6-0.5	7440-43-9	Cadmium	1.04	mg/kg	1.04		7.0E+01	6.7E+04	**1.5E-02**	**1.6E-11**	1.4E+02	3.0E+03	**7.3E-03**	**3.4E-09**
VP-06	0.5	10/30/2013	0	VP6-0.5	7440-47-3	Chromium	19.7	mg/kg	19.7		1.2E+05	--	**1.7E-04**	**--**	4.6E+05	--	**4.2E-05**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	7440-48-4	Cobalt	17	mg/kg	17		2.3E+01	3.1E+04	**7.2E-01**	**5.5E-10**	5.0E+01	1.4E+03	**3.4E-01**	**1.2E-07**
VP-06	0.5	10/30/2013	0	VP6-0.5	7440-50-8	Copper	27.3	mg/kg	27.3		3.1E+03	--	**8.7E-03**	**--**	1.2E+04	--	**2.2E-03**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	7439-92-1	Lead	250	mg/kg	250		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	7439-97-6	Mercury	0.13	mg/kg	0.13		2.3E+01	--	**5.5E-03**	**--**	7.9E+01	--	**1.6E-03**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	7439-98-7	Molybdenum	2.27	mg/kg	2.27		3.9E+02	--	**5.8E-03**	**--**	1.5E+03	--	**1.5E-03**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	7440-02-0	Nickel	24.9	mg/kg	24.9		1.6E+03	1.1E+06	**1.6E-02**	**2.3E-11**	1.3E+03	4.9E+04	**1.9E-02**	**5.1E-09**
VP-06	0.5	10/30/2013	0	VP6-0.5	7440-22-4	Silver	0.493	mg/kg	0.493		3.9E+02	--	**1.3E-03**	**--**	1.5E+03	--	**3.2E-04**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	7440-62-2	Vanadium	41.7	mg/kg	41.7		3.9E+02	--	**1.1E-01**	**--**	8.4E+02	--	**5.0E-02**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	7440-66-6	Zinc	94.8	mg/kg	94.8		2.3E+04	--	**4.0E-03**	**--**	9.3E+04	--	**1.0E-03**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	90-12-0	1-Methylnaphthalene	0.12	mg/kg	0.12		4.0E+03	1.6E+01	**3.0E-05**	**7.7E-09**	1.1E+04	3.7E+03	**1.1E-05**	**3.3E-10**
VP-06	0.5	10/30/2013	0	VP6-0.5	91-57-6	2-Methylnaphthalene	0.19	mg/kg	0.19		2.3E+02	--	**8.4E-04**	**--**	6.1E+02	--	**3.1E-04**	**--**
VP-06	0.5	10/30/2013	2	VP6-0.5	91-20-3	Naphthalene	0.065	mg/kg	0.065		1.6E+02	4.2E+00	**4.1E-04**	**1.5E-08**	6.7E+01	4.7E+02	**9.7E-04**	**1.4E-09**
VP-06	0.5	10/30/2013	0	VP6-0.5	85-01-8	Phenanthrene	0.028	mg/kg	0.028		1.7E+03	--	**1.6E-05**	**--**	4.5E+03	--	**6.2E-06**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	C06-C44 Total	C06-C44 Total	63	mg/kg	63	J	--	--	**--**	**--**	--	--	**--**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	C29-C32	C29-C32	20	mg/kg	20		--	--	**--**	**--**	--	--	**--**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	C33-C36	C33-C36	16	mg/kg	16		--	--	**--**	**--**	--	--	**--**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	C37-C40	C37-C40	13	mg/kg	13		--	--	**--**	**--**	--	--	**--**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	67-64-1	Acetone	68	µg/kg	0.068	J	6.3E+04	--	**1.1E-06**	**--**	1.2E+05	--	**5.5E-07**	**--**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result	Units	Results (mg/kg)	Qualifier	Future Onsite Resident				Construction Worker			
											$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk	$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk
VP-06	0.5	10/30/2013	0	VP6-0.5	75-65-0	tert-Butyl Alcohol (TBA)	28	µg/kg	0.028		8.7E+03	--	**3.2E-06**	**--**	5.5E+03	--	**5.1E-06**	**--**
VP-06	0.5	10/30/2013	0	VP6-0.5	108-88-3	Toluene	1.4	µg/kg	0.0014		1.3E+03	--	**1.0E-06**	**--**	6.2E+02	--	**2.3E-06**	**--**
VP-06	10	10/30/2013	0	VP6-10	7440-38-2	Arsenic	5.98	mg/kg	5.98		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-06	10	10/30/2013	0	VP6-10	7440-39-3	Barium	166	mg/kg	166		1.6E+04	--	**1.1E-02**	**--**	8.0E+03	--	**2.1E-02**	**--**
VP-06	10	10/30/2013	0	VP6-10	7440-41-7	Beryllium	0.456	mg/kg	0.456		1.6E+02	1.2E+05	**2.9E-03**	**3.9E-12**	2.3E+02	5.3E+03	**2.0E-03**	**8.6E-10**
VP-06	10	10/30/2013	0	VP6-10	7440-43-9	Cadmium	1	mg/kg	1		7.0E+01	6.7E+04	**1.4E-02**	**1.5E-11**	1.4E+02	3.0E+03	**7.0E-03**	**3.3E-09**
VP-06	10	10/30/2013	0	VP6-10	7440-47-3	Chromium	21.1	mg/kg	21.1		1.2E+05	--	**1.8E-04**	**--**	4.6E+05	--	**4.5E-05**	**--**
VP-06	10	10/30/2013	0	VP6-10	7440-48-4	Cobalt	9.92	mg/kg	9.92		2.3E+01	3.1E+04	**4.2E-01**	**3.2E-10**	5.0E+01	1.4E+03	**2.0E-01**	**7.0E-08**
VP-06	10	10/30/2013	0	VP6-10	7440-50-8	Copper	19.8	mg/kg	19.8		3.1E+03	--	**6.3E-03**	**--**	1.2E+04	--	**1.6E-03**	**--**
VP-06	10	10/30/2013	0	VP6-10	7439-92-1	Lead	4.35	mg/kg	4.35		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-06	10	10/30/2013	0	VP6-10	7439-98-7	Molybdenum	2.14	mg/kg	2.14		3.9E+02	--	**5.5E-03**	**--**	1.5E+03	--	**1.4E-03**	**--**
VP-06	10	10/30/2013	0	VP6-10	7440-02-0	Nickel	26.4	mg/kg	26.4		1.6E+03	1.1E+06	**1.7E-02**	**2.5E-11**	1.3E+03	4.9E+04	**2.0E-02**	**5.4E-09**
VP-06	10	10/30/2013	0	VP6-10	7440-62-2	Vanadium	44.6	mg/kg	44.6		3.9E+02	--	**1.1E-01**	**--**	8.4E+02	--	**5.3E-02**	**--**
VP-06	10	10/30/2013	0	VP6-10	7440-66-6	Zinc	50.9	mg/kg	50.9		2.3E+04	--	**2.2E-03**	**--**	9.3E+04	--	**5.5E-04**	**--**
VP-06	10	10/30/2013	0	VP6-10	90-12-0	1-Methylnaphthalene	0.024	mg/kg	0.024		4.0E+03	1.6E+01	**6.0E-06**	**1.5E-09**	1.1E+04	3.7E+03	**2.3E-06**	**6.5E-11**
VP-06	10	10/30/2013	0	VP6-10	91-57-6	2-Methylnaphthalene	0.041	mg/kg	0.041		2.3E+02	--	**1.8E-04**	**--**	6.1E+02	--	**6.8E-05**	**--**
VP-06	10	10/30/2013	0	VP6-10	67-64-1	Acetone	76	µg/kg	0.076	J	6.3E+04	--	**1.2E-06**	**--**	1.2E+05	--	**6.1E-07**	**--**
VP-06	10	10/30/2013	0	VP6-10	75-65-0	tert-Butyl Alcohol (TBA)	40	µg/kg	0.04		8.7E+03	--	**4.6E-06**	**--**	5.5E+03	--	**7.3E-06**	**--**
VP-06	10	10/30/2013	0	VP6-10	108-88-3	Toluene	1.1	µg/kg	0.0011		1.3E+03	--	**8.2E-07**	**--**	6.2E+02	--	**1.8E-06**	**--**
VP-06	5	10/30/2013	0	VP6-5	7440-38-2	Arsenic	7.4	mg/kg	7.4		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-06	5	10/30/2013	0	VP6-5	7440-39-3	Barium	218	mg/kg	218		1.6E+04	--	**1.4E-02**	**--**	8.0E+03	--	**2.7E-02**	**--**
VP-06	5	10/30/2013	0	VP6-5	7440-41-7	Beryllium	0.543	mg/kg	0.543		1.6E+02	1.2E+05	**3.5E-03**	**4.7E-12**	2.3E+02	5.3E+03	**2.4E-03**	**1.0E-09**
VP-06	5	10/30/2013	0	VP6-5	7440-43-9	Cadmium	1.11	mg/kg	1.11		7.0E+01	6.7E+04	**1.6E-02**	**1.7E-11**	1.4E+02	3.0E+03	**7.8E-03**	**3.6E-09**
VP-06	5	10/30/2013	0	VP6-5	7440-47-3	Chromium	25.7	mg/kg	25.7		1.2E+05	--	**2.2E-04**	**--**	4.6E+05	--	**5.5E-05**	**--**
VP-06	5	10/30/2013	0	VP6-5	7440-48-4	Cobalt	11.6	mg/kg	11.6		2.3E+01	3.1E+04	**4.9E-01**	**3.7E-10**	5.0E+01	1.4E+03	**2.3E-01**	**8.2E-08**
VP-06	5	10/30/2013	0	VP6-5	7440-50-8	Copper	25.5	mg/kg	25.5		3.1E+03	--	**8.2E-03**	**--**	1.2E+04	--	**2.1E-03**	**--**
VP-06	5	10/30/2013	0	VP6-5	7439-92-1	Lead	11	mg/kg	11		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-06	5	10/30/2013	0	VP6-5	7439-98-7	Molybdenum	2.25	mg/kg	2.25		3.9E+02	--	**5.8E-03**	**--**	1.5E+03	--	**1.5E-03**	**--**
VP-06	5	10/30/2013	0	VP6-5	7440-02-0	Nickel	30.1	mg/kg	30.1		1.6E+03	1.1E+06	**1.9E-02**	**2.8E-11**	1.3E+03	4.9E+04	**2.3E-02**	**6.1E-09**
VP-06	5	10/30/2013	0	VP6-5	7440-62-2	Vanadium	51.1	mg/kg	51.1		3.9E+02	--	**1.3E-01**	**--**	8.4E+02	--	**6.1E-02**	**--**
VP-06	5	10/30/2013	0	VP6-5	7440-66-6	Zinc	67.4	mg/kg	67.4		2.3E+04	--	**2.9E-03**	**--**	9.3E+04	--	**7.3E-04**	**--**
VP-06	5	10/30/2013	0	VP6-5	71-43-2	Benzene	1	µg/kg	0.001		9.8E+01	3.6E-01	**1.0E-05**	**2.8E-09**	5.1E+01	4.2E+01	**2.0E-05**	**2.4E-10**
VP-07	0.5	10/31/2013	0	VP7-0.5	7440-38-2	Arsenic	5.36	mg/kg	5.36		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-07	0.5	10/31/2013	0	VP7-0.5	7440-39-3	Barium	158	mg/kg	158		1.6E+04	--	**1.0E-02**	**--**	8.0E+03	--	**2.0E-02**	**--**
VP-07	0.5	10/31/2013	0	VP7-0.5	7440-41-7	Beryllium	0.313	mg/kg	0.313		1.6E+02	1.2E+05	**2.0E-03**	**2.7E-12**	2.3E+02	5.3E+03	**1.4E-03**	**5.9E-10**
VP-07	0.5	10/31/2013	0	VP7-0.5	7440-43-9	Cadmium	0.838	mg/kg	0.838		7.0E+01	6.7E+04	**1.2E-02**	**1.3E-11**	1.4E+02	3.0E+03	**5.9E-03**	**2.8E-09**
VP-07	0.5	10/31/2013	0	VP7-0.5	7440-47-3	Chromium	12.9	mg/kg	12.9		1.2E+05	--	**1.1E-04**	**--**	4.6E+05	--	**2.8E-05**	**--**
VP-07	0.5	10/31/2013	0	VP7-0.5	7440-48-4	Cobalt	7.74	mg/kg	7.74		2.3E+01	3.1E+04	**3.3E-01**	**2.5E-10**	5.0E+01	1.4E+03	**1.5E-01**	**5.5E-08**
VP-07	0.5	10/31/2013	0	VP7-0.5	7440-50-8	Copper	19	mg/kg	19		3.1E+03	--	**6.1E-03**	**--**	1.2E+04	--	**1.5E-03**	**--**
VP-07	0.5	10/31/2013	0	VP7-0.5	7439-92-1	Lead	127	mg/kg	127		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**
VP-07	0.5	10/31/2013	0	VP7-0.5	7439-97-6	Mercury	0.16	mg/kg	0.16		2.3E+01	--	**6.8E-03**	**--**	7.9E+01	--	**2.0E-03**	**--**
VP-07	0.5	10/31/2013	0	VP7-0.5	7439-98-7	Molybdenum	1.57	mg/kg	1.57		3.9E+02	--	**4.0E-03**	**--**	1.5E+03	--	**1.0E-03**	**--**
VP-07	0.5	10/31/2013	0	VP7-0.5	7440-02-0	Nickel	16.6	mg/kg	16.6		1.6E+03	1.1E+06	**1.1E-02**	**1.5E-11**	1.3E+03	4.9E+04	**1.3E-02**	**3.4E-09**
VP-07	0.5	10/31/2013	0	VP7-0.5	7440-62-2	Vanadium	29.3	mg/kg	29.3		3.9E+02	--	**7.5E-02**	**--**	8.4E+02	--	**3.5E-02**	**--**
VP-07	0.5	10/31/2013	0	VP7-0.5	7440-66-6	Zinc	83.2	mg/kg	83.2		2.3E+04	--	**3.5E-03**	**--**	9.3E+04	--	**9.0E-04**	**--**
VP-07	10	10/31/2013	0	VP7-10	7440-38-2	Arsenic	4.61	mg/kg	4.61		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-07	10	10/31/2013	0	VP7-10	7440-39-3	Barium	157	mg/kg	157		1.6E+04	--	**1.0E-02**	**--**	8.0E+03	--	**2.0E-02**	**--**
VP-07	10	10/31/2013	0	VP7-10	7440-41-7	Beryllium	0.389	mg/kg	0.389		1.6E+02	1.2E+05	**2.5E-03**	**3.3E-12**	2.3E+02	5.3E+03	**1.7E-03**	**7.3E-10**
VP-07	10	10/31/2013	0	VP7-10	7440-43-9	Cadmium	0.893	mg/kg	0.893		7.0E+01	6.7E+04	**1.3E-02**	**1.3E-11**	1.4E+02	3.0E+03	**6.3E-03**	**2.9E-09**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result	Units	Results (mg/kg)	Qualifier	Future Onsite Resident				Construction Worker			
											$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk	$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk
VP-07	10	10/31/2013	0	VP7-10	7440-47-3	Chromium	16.2	mg/kg	16.2		1.2E+05	--	**1.4E-04**	**--**	4.6E+05	--	**3.5E-05**	**--**
VP-07	10	10/31/2013	0	VP7-10	7440-48-4	Cobalt	8.6	mg/kg	8.6		2.3E+01	3.1E+04	**3.7E-01**	**2.8E-10**	5.0E+01	1.4E+03	**1.7E-01**	**6.1E-08**
VP-07	10	10/31/2013	0	VP7-10	7440-50-8	Copper	18.5	mg/kg	18.5		3.1E+03	--	**5.9E-03**	**--**	1.2E+04	--	**1.5E-03**	**--**
VP-07	10	10/31/2013	0	VP7-10	7439-92-1	Lead	4.43	mg/kg	4.43		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-07	10	10/31/2013	0	VP7-10	7439-98-7	Molybdenum	1.64	mg/kg	1.64		3.9E+02	--	**4.2E-03**	**--**	1.5E+03	--	**1.1E-03**	**--**
VP-07	10	10/31/2013	0	VP7-10	7440-02-0	Nickel	21.7	mg/kg	21.7		1.6E+03	1.1E+06	**1.4E-02**	**2.0E-11**	1.3E+03	4.9E+04	**1.7E-02**	**4.4E-09**
VP-07	10	10/31/2013	0	VP7-10	7440-62-2	Vanadium	35.3	mg/kg	35.3		3.9E+02	--	**9.0E-02**	**--**	8.4E+02	--	**4.2E-02**	**--**
VP-07	10	10/31/2013	0	VP7-10	7440-66-6	Zinc	47.9	mg/kg	47.9		2.3E+04	--	**2.0E-03**	**--**	9.3E+04	--	**5.2E-04**	**--**
VP-07	5	10/31/2013	0	VP7-5	7440-38-2	Arsenic	3.76	mg/kg	3.76		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-07	5	10/31/2013	0	VP7-5	7440-39-3	Barium	195	mg/kg	195		1.6E+04	--	**1.2E-02**	**--**	8.0E+03	--	**2.5E-02**	**--**
VP-07	5	10/31/2013	0	VP7-5	7440-43-9	Cadmium	0.716	mg/kg	0.716		7.0E+01	6.7E+04	**1.0E-02**	**1.1E-11**	1.4E+02	3.0E+03	**5.0E-03**	**2.4E-09**
VP-07	5	10/31/2013	0	VP7-5	7440-47-3	Chromium	10.7	mg/kg	10.7		1.2E+05	--	**9.1E-05**	**--**	4.6E+05	--	**2.3E-05**	**--**
VP-07	5	10/31/2013	0	VP7-5	7440-48-4	Cobalt	4.96	mg/kg	4.96		2.3E+01	3.1E+04	**2.1E-01**	**1.6E-10**	5.0E+01	1.4E+03	**9.9E-02**	**3.5E-08**
VP-07	5	10/31/2013	0	VP7-5	7440-50-8	Copper	19.4	mg/kg	19.4		3.1E+03	--	**6.2E-03**	**--**	1.2E+04	--	**1.6E-03**	**--**
VP-07	5	10/31/2013	0	VP7-5	7439-92-1	Lead	1100	mg/kg	1100		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**> CHHSL**	**--**
VP-07	5	10/31/2013	0	VP7-5	7439-97-6	Mercury	0.184	mg/kg	0.184		2.3E+01	--	**7.8E-03**	**--**	7.9E+01	--	**2.3E-03**	**--**
VP-07	5	10/31/2013	0	VP7-5	7439-98-7	Molybdenum	0.961	mg/kg	0.961		3.9E+02	--	**2.5E-03**	**--**	1.5E+03	--	**6.2E-04**	**--**
VP-07	5	10/31/2013	0	VP7-5	7440-02-0	Nickel	11.8	mg/kg	11.8		1.6E+03	1.1E+06	**7.5E-03**	**1.1E-11**	1.3E+03	4.9E+04	**9.1E-03**	**2.4E-09**
VP-07	5	10/31/2013	0	VP7-5	7440-62-2	Vanadium	20	mg/kg	20		3.9E+02	--	**5.1E-02**	**--**	8.4E+02	--	**2.4E-02**	**--**
VP-07	5	10/31/2013	0	VP7-5	7440-66-6	Zinc	248	mg/kg	248		2.3E+04	--	**1.1E-02**	**--**	9.3E+04	--	**2.7E-03**	**--**
VP-07	5	10/31/2013	0	VP7-5	C06-C44 Total	C06-C44 Total	11	mg/kg	11	J	--	--	**--**	**--**	--	--	**--**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	7440-38-2	Arsenic	6.36	mg/kg	6.36		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-10	0.5	10/31/2013	0	VP10-0.5	7440-39-3	Barium	187	mg/kg	187		1.6E+04	--	**1.2E-02**	**--**	8.0E+03	--	**2.4E-02**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	7440-41-7	Beryllium	0.443	mg/kg	0.443		1.6E+02	1.2E+05	**2.8E-03**	**3.8E-12**	2.3E+02	5.3E+03	**1.9E-03**	**8.3E-10**
VP-10	0.5	10/31/2013	0	VP10-0.5	7440-43-9	Cadmium	1.22	mg/kg	1.22		7.0E+01	6.7E+04	**1.7E-02**	**1.8E-11**	1.4E+02	3.0E+03	**8.5E-03**	**4.0E-09**
VP-10	0.5	10/31/2013	0	VP10-0.5	7440-47-3	Chromium	17.6	mg/kg	17.6		1.2E+05	--	**1.5E-04**	**--**	4.6E+05	--	**3.8E-05**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	7440-48-4	Cobalt	10.2	mg/kg	10.2		2.3E+01	3.1E+04	**4.3E-01**	**3.3E-10**	5.0E+01	1.4E+03	**2.0E-01**	**7.2E-08**
VP-10	0.5	10/31/2013	0	VP10-0.5	7440-50-8	Copper	27.2	mg/kg	27.2		3.1E+03	--	**8.7E-03**	**--**	1.2E+04	--	**2.2E-03**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	7439-92-1	Lead	79.8	mg/kg	79.8		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	7439-97-6	Mercury	13.5	mg/kg	13.5		2.3E+01	--	**5.8E-01**	**--**	7.9E+01	--	**1.7E-01**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	7439-98-7	Molybdenum	2.16	mg/kg	2.16		3.9E+02	--	**5.5E-03**	**--**	1.5E+03	--	**1.4E-03**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	7440-02-0	Nickel	25.6	mg/kg	25.6		1.6E+03	1.1E+06	**1.6E-02**	**2.4E-11**	1.3E+03	4.9E+04	**2.0E-02**	**5.2E-09**
VP-10	0.5	10/31/2013	0	VP10-0.5	7440-62-2	Vanadium	37.6	mg/kg	37.6		3.9E+02	--	**9.6E-02**	**--**	8.4E+02	--	**4.5E-02**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	7440-66-6	Zinc	85.8	mg/kg	85.8		2.3E+04	--	**3.7E-03**	**--**	9.3E+04	--	**9.2E-04**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	83-32-9	Acenaphthene	0.025	mg/kg	0.025		3.4E+03	--	**7.3E-06**	**--**	9.1E+03	--	**2.8E-06**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	120-12-7	Anthracene	0.047	mg/kg	0.047		1.7E+04	--	**2.8E-06**	**--**	4.5E+04	--	**1.0E-06**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	56-55-3	Benz[a]anthracene	0.11	mg/kg	0.11		--	1.6E+00	**--**	**7.1E-08**	--	3.7E+02	**--**	**3.0E-09**
VP-10	0.5	10/31/2013	0	VP10-0.5	50-32-8	Benzo(a)pyrene	0.12	mg/kg	0.12		--	1.6E-01	**--**	**7.7E-07**	--	3.7E+01	**--**	**3.3E-08**
VP-10	0.5	10/31/2013	0	VP10-0.5	205-99-2	Benzo(b)fluoranthene	0.075	mg/kg	0.075		--	1.6E+00	**--**	**4.8E-08**	--	3.7E+02	**--**	**2.1E-09**
VP-10	0.5	10/31/2013	0	VP10-0.5	191-24-2	Benzo(g,h,i)perylene	0.08	mg/kg	0.08		1.7E+03	--	**4.7E-05**	**--**	4.5E+03	--	**1.8E-05**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	207-08-9	Benzo[k]fluoranthene	0.088	mg/kg	0.088		--	1.6E+00	**--**	**5.7E-08**	--	3.7E+02	**--**	**2.4E-09**
VP-10	0.5	10/31/2013	0	VP10-0.5	218-01-9	Chrysene	0.12	mg/kg	0.12		--	1.6E+01	**--**	**7.7E-09**	--	3.7E+03	**--**	**3.3E-10**
VP-10	0.5	10/31/2013	0	VP10-0.5	206-44-0	Fluoranthene	0.31	mg/kg	0.31		2.3E+03	--	**1.4E-04**	**--**	6.1E+03	--	**5.1E-05**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	193-39-5	Indeno(1,2,3-cd)pyrene	0.083	mg/kg	0.083		--	1.6E+00	**--**	**5.3E-08**	--	3.7E+02	**--**	**2.3E-09**
VP-10	0.5	10/31/2013	0	VP10-0.5	85-01-8	Phenanthrene	0.21	mg/kg	0.21		1.7E+03	--	**1.2E-04**	**--**	4.5E+03	--	**4.6E-05**	**--**
VP-10	0.5	10/31/2013	0	VP10-0.5	129-00-0	Pyrene	0.3	mg/kg	0.3		1.7E+03	--	**1.8E-04**	**--**	4.5E+03	--	**6.6E-05**	**--**
VP-10	10	10/31/2013	0	VP10-10	7440-38-2	Arsenic	7.43	mg/kg	7.43		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-10	10	10/31/2013	0	VP10-10	7440-39-3	Barium	178	mg/kg	178		1.6E+04	--	**1.1E-02**	**--**	8.0E+03	--	**2.2E-02**	**--**
VP-10	10	10/31/2013	0	VP10-10	7440-41-7	Beryllium	0.548	mg/kg	0.548		1.6E+02	1.2E+05	**3.5E-03**	**4.7E-12**	2.3E+02	5.3E+03	**2.4E-03**	**1.0E-09**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result	Units	Results (mg/kg)	Qualifier	Future Onsite Resident				Construction Worker			
											$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk	$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk
VP-10	10	10/31/2013	0	VP10-10	7440-43-9	Cadmium	1.14	mg/kg	1.14		7.0E+01	6.7E+04	**1.6E-02**	**1.7E-11**	1.4E+02	3.0E+03	**8.0E-03**	**3.7E-09**
VP-10	10	10/31/2013	0	VP10-10	7440-47-3	Chromium	23.1	mg/kg	23.1		1.2E+05	--	**2.0E-04**	**--**	4.6E+05	--	**5.0E-05**	**--**
VP-10	10	10/31/2013	0	VP10-10	7440-48-4	Cobalt	11.2	mg/kg	11.2		2.3E+01	3.1E+04	**4.8E-01**	**3.6E-10**	5.0E+01	1.4E+03	**2.2E-01**	**7.9E-08**
VP-10	10	10/31/2013	0	VP10-10	7440-50-8	Copper	26.2	mg/kg	26.2		3.1E+03	--	**8.4E-03**	**--**	1.2E+04	--	**2.1E-03**	**--**
VP-10	10	10/31/2013	0	VP10-10	7439-92-1	Lead	5.06	mg/kg	5.06		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-10	10	10/31/2013	0	VP10-10	7439-98-7	Molybdenum	1.93	mg/kg	1.93		3.9E+02	--	**4.9E-03**	**--**	1.5E+03	--	**1.2E-03**	**--**
VP-10	10	10/31/2013	0	VP10-10	7440-02-0	Nickel	29.5	mg/kg	29.5		1.6E+03	1.1E+06	**1.9E-02**	**2.7E-11**	1.3E+03	4.9E+04	**2.3E-02**	**6.0E-09**
VP-10	10	10/31/2013	0	VP10-10	7440-62-2	Vanadium	48.3	mg/kg	48.3		3.9E+02	--	**1.2E-01**	**--**	8.4E+02	--	**5.8E-02**	**--**
VP-10	10	10/31/2013	0	VP10-10	7440-66-6	Zinc	61	mg/kg	61		2.3E+04	--	**2.6E-03**	**--**	9.3E+04	--	**6.6E-04**	**--**
VP-10	5	10/31/2013	0	VP10-5	7440-38-2	Arsenic	7.12	mg/kg	7.12		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-10	5	10/31/2013	0	VP10-5	7440-39-3	Barium	188	mg/kg	188		1.6E+04	--	**1.2E-02**	**--**	8.0E+03	--	**2.4E-02**	**--**
VP-10	5	10/31/2013	0	VP10-5	7440-41-7	Beryllium	0.519	mg/kg	0.519		1.6E+02	1.2E+05	**3.3E-03**	**4.4E-12**	2.3E+02	5.3E+03	**2.3E-03**	**9.8E-10**
VP-10	5	10/31/2013	0	VP10-5	7440-43-9	Cadmium	1.43	mg/kg	1.43		7.0E+01	6.7E+04	**2.0E-02**	**2.1E-11**	1.4E+02	3.0E+03	**1.0E-02**	**4.7E-09**
VP-10	5	10/31/2013	0	VP10-5	7440-47-3	Chromium	21	mg/kg	21		1.2E+05	--	**1.8E-04**	**--**	4.6E+05	--	**4.5E-05**	**--**
VP-10	5	10/31/2013	0	VP10-5	7440-48-4	Cobalt	11.6	mg/kg	11.6		2.3E+01	3.1E+04	**4.9E-01**	**3.7E-10**	5.0E+01	1.4E+03	**2.3E-01**	**8.2E-08**
VP-10	5	10/31/2013	0	VP10-5	7440-50-8	Copper	25.5	mg/kg	25.5		3.1E+03	--	**8.2E-03**	**--**	1.2E+04	--	**2.1E-03**	**--**
VP-10	5	10/31/2013	0	VP10-5	7439-92-1	Lead	6.88	mg/kg	6.88		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-10	5	10/31/2013	0	VP10-5	7439-98-7	Molybdenum	2.37	mg/kg	2.37		3.9E+02	--	**6.1E-03**	**--**	1.5E+03	--	**1.5E-03**	**--**
VP-10	5	10/31/2013	0	VP10-5	7440-02-0	Nickel	29.8	mg/kg	29.8		1.6E+03	1.1E+06	**1.9E-02**	**2.8E-11**	1.3E+03	4.9E+04	**2.3E-02**	**6.1E-09**
VP-10	5	10/31/2013	0	VP10-5	7440-62-2	Vanadium	44.2	mg/kg	44.2		3.9E+02	--	**1.1E-01**	**--**	8.4E+02	--	**5.3E-02**	**--**
VP-10	5	10/31/2013	0	VP10-5	7440-66-6	Zinc	63.8	mg/kg	63.8		2.3E+04	--	**2.7E-03**	**--**	9.3E+04	--	**6.9E-04**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	7440-36-0	Antimony	1.61	mg/kg	1.61		3.1E+01	--	**5.1E-02**	**--**	1.2E+02	--	**1.3E-02**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	7440-38-2	Arsenic	3.48	mg/kg	3.48		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-11a	5	11/1/2013	0	VP11A-5	7440-39-3	Barium	702	mg/kg	702		1.6E+04	--	**4.5E-02**	**--**	8.0E+03	--	**8.8E-02**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	7440-43-9	Cadmium	1.2	mg/kg	1.2		7.0E+01	6.7E+04	**1.7E-02**	**1.8E-11**	1.4E+02	3.0E+03	**8.4E-03**	**3.9E-09**
VP-11a	5	11/1/2013	0	VP11A-5	7440-47-3	Chromium	19.9	mg/kg	19.9		1.2E+05	--	**1.7E-04**	**--**	4.6E+05	--	**4.3E-05**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	7440-48-4	Cobalt	3.86	mg/kg	3.86		2.3E+01	3.1E+04	**1.6E-01**	**1.2E-10**	5.0E+01	1.4E+03	**7.7E-02**	**2.7E-08**
VP-11a	5	11/1/2013	0	VP11A-5	7440-50-8	Copper	39.1	mg/kg	39.1		3.1E+03	--	**1.2E-02**	**--**	1.2E+04	--	**3.2E-03**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	7439-92-1	Lead	2740	mg/kg	2740		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**> CHHSL**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	7439-97-6	Mercury	0.526	mg/kg	0.526		2.3E+01	--	**2.2E-02**	**--**	7.9E+01	--	**6.6E-03**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	7439-98-7	Molybdenum	1.55	mg/kg	1.55		3.9E+02	--	**4.0E-03**	**--**	1.5E+03	--	**1.0E-03**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	7440-02-0	Nickel	12.6	mg/kg	12.6		1.6E+03	1.1E+06	**8.1E-03**	**1.2E-11**	1.3E+03	4.9E+04	**9.7E-03**	**2.6E-09**
VP-11a	5	11/1/2013	0	VP11A-5	7440-62-2	Vanadium	19.3	mg/kg	19.3		3.9E+02	--	**4.9E-02**	**--**	8.4E+02	--	**2.3E-02**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	7440-66-6	Zinc	297	mg/kg	297		2.3E+04	--	**1.3E-02**	**--**	9.3E+04	--	**3.2E-03**	**--**
VP-11a	5	11/1/2013	2	VP11A-5	91-20-3	Naphthalene	0.08	mg/kg	0.08		1.6E+02	4.2E+00	**5.0E-04**	**1.9E-08**	6.7E+01	4.7E+02	**1.2E-03**	**1.7E-09**
VP-11a	5	11/1/2013	0	VP11A-5	85-01-8	Phenanthrene	0.046	mg/kg	0.046		1.7E+03	--	**2.7E-05**	**--**	4.5E+03	--	**1.0E-05**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	C06-C44 Total	C06-C44 Total	210	mg/kg	210	J	--	--	**--**	**--**	--	--	**--**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	C29-C32	C29-C32	44	mg/kg	44		--	--	**--**	**--**	--	--	**--**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	C33-C36	C33-C36	45	mg/kg	45		--	--	**--**	**--**	--	--	**--**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	C37-C40	C37-C40	51	mg/kg	51		--	--	**--**	**--**	--	--	**--**	**--**
VP-11a	5	11/1/2013	0	VP11A-5	C41-C44	C41-C44	38	mg/kg	38		--	--	**--**	**--**	--	--	**--**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	7440-38-2	Arsenic	18.6	mg/kg	18.6		2.2E+01	6.1E-02	**> Bkgd**	**> Bkgd**	5.9E+01	1.8E+01	**> Bkgd**	**> Bkgd**
VP-13	0.5	11/1/2013	0	VP13-0.5	7440-39-3	Barium	184	mg/kg	184		1.6E+04	--	**1.2E-02**	**--**	8.0E+03	--	**2.3E-02**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	7440-41-7	Beryllium	0.373	mg/kg	0.373		1.6E+02	1.2E+05	**2.4E-03**	**3.2E-12**	2.3E+02	5.3E+03	**1.6E-03**	**7.0E-10**
VP-13	0.5	11/1/2013	0	VP13-0.5	7440-43-9	Cadmium	1.49	mg/kg	1.49		7.0E+01	6.7E+04	**2.1E-02**	**2.2E-11**	1.4E+02	3.0E+03	**1.0E-02**	**4.9E-09**
VP-13	0.5	11/1/2013	0	VP13-0.5	7440-47-3	Chromium	39.2	mg/kg	39.2		1.2E+05	--	**3.3E-04**	**--**	4.6E+05	--	**8.4E-05**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	7440-48-4	Cobalt	9.4	mg/kg	9.4		2.3E+01	3.1E+04	**4.0E-01**	**3.0E-10**	5.0E+01	1.4E+03	**1.9E-01**	**6.6E-08**
VP-13	0.5	11/1/2013	0	VP13-0.5	7440-50-8	Copper	29.3	mg/kg	29.3		3.1E+03	--	**9.4E-03**	**--**	1.2E+04	--	**2.4E-03**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	7439-92-1	Lead	81.2	mg/kg	81.2		8.0E+01	--	**> CHHSL**	**--**	3.2E+02	--	**--**	**--**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result	Units	Results (mg/kg)	Qualifier	Future Onsite Resident				Construction Worker			
											$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk	$RBC_{soil-NC}$ (mg/kg)	RBC_{soil-C} (mg/kg)	Noncancer Hazard	Cancer Risk
VP-13	0.5	11/1/2013	0	VP13-0.5	7439-97-6	Mercury	0.0881	mg/kg	0.0881		2.3E+01	--	**3.8E-03**	**--**	7.9E+01	--	**1.1E-03**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	7439-98-7	Molybdenum	1.77	mg/kg	1.77		3.9E+02	--	**4.5E-03**	**--**	1.5E+03	--	**1.1E-03**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	7440-02-0	Nickel	25.2	mg/kg	25.2		1.6E+03	1.1E+06	**1.6E-02**	**2.3E-11**	1.3E+03	4.9E+04	**1.9E-02**	**5.1E-09**
VP-13	0.5	11/1/2013	0	VP13-0.5	7440-62-2	Vanadium	40.6	mg/kg	40.6		3.9E+02	--	**1.0E-01**	**--**	8.4E+02	--	**4.8E-02**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	7440-66-6	Zinc	156	mg/kg	156		2.3E+04	--	**6.6E-03**	**--**	9.3E+04	--	**1.7E-03**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	56-55-3	Benz[a]anthracene	0.025	mg/kg	0.025		--	1.6E+00	**--**	**1.6E-08**	--	3.7E+02	**--**	**6.8E-10**
VP-13	0.5	11/1/2013	0	VP13-0.5	50-32-8	Benzo(a)pyrene	0.031	mg/kg	0.031		--	1.6E-01	**--**	**2.0E-07**	--	3.7E+01	**--**	**8.5E-09**
VP-13	0.5	11/1/2013	0	VP13-0.5	205-99-2	Benzo(b)fluoranthene	0.025	mg/kg	0.025		--	1.6E+00	**--**	**1.6E-08**	--	3.7E+02	**--**	**6.8E-10**
VP-13	0.5	11/1/2013	0	VP13-0.5	191-24-2	Benzo(g,h,i)perylene	0.027	mg/kg	0.027		1.7E+03	--	**1.6E-05**	**--**	4.5E+03	--	**5.9E-06**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	207-08-9	Benzo[k]fluoranthene	0.027	mg/kg	0.027		--	1.6E+00	**--**	**1.7E-08**	--	3.7E+02	**--**	**7.4E-10**
VP-13	0.5	11/1/2013	0	VP13-0.5	218-01-9	Chrysene	0.03	mg/kg	0.03		--	1.6E+01	**--**	**1.9E-09**	--	3.7E+03	**--**	**8.2E-11**
VP-13	0.5	11/1/2013	0	VP13-0.5	206-44-0	Fluoranthene	0.044	mg/kg	0.044		2.3E+03	--	**1.9E-05**	**--**	6.1E+03	--	**7.3E-06**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	193-39-5	Indeno(1,2,3-cd)pyrene	0.028	mg/kg	0.028		--	1.6E+00	**--**	**1.8E-08**	--	3.7E+02	**--**	**7.7E-10**
VP-13	0.5	11/1/2013	0	VP13-0.5	129-00-0	Pyrene	0.043	mg/kg	0.043		1.7E+03	--	**2.5E-05**	**--**	4.5E+03	--	**9.5E-06**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	C06-C44 Total	C06-C44 Total	34	mg/kg	34	J	--	--	**--**	**--**	--	--	**--**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	C29-C32	C29-C32	9.9	mg/kg	9.9		--	--	**--**	**--**	--	--	**--**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	C33-C36	C33-C36	15	mg/kg	15		--	--	**--**	**--**	--	--	**--**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	C37-C40	C37-C40	6.6	mg/kg	6.6		--	--	**--**	**--**	--	--	**--**	**--**
VP-13	0.5	11/1/2013	0	VP13-0.5	67-64-1	Acetone	97	µg/kg	0.097		6.3E+04	--	**1.5E-06**	**--**	1.2E+05	--	**7.8E-07**	**--**
VP-13	10	11/1/2013	0	VP13-10	7440-38-2	Arsenic	2.32	mg/kg	2.32		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-13	10	11/1/2013	0	VP13-10	7440-39-3	Barium	118	mg/kg	118		1.6E+04	--	**7.5E-03**	**--**	8.0E+03	--	**1.5E-02**	**--**
VP-13	10	11/1/2013	0	VP13-10	7440-41-7	Beryllium	0.382	mg/kg	0.382		1.6E+02	1.2E+05	**2.4E-03**	**3.3E-12**	2.3E+02	5.3E+03	**1.7E-03**	**7.2E-10**
VP-13	10	11/1/2013	0	VP13-10	7440-43-9	Cadmium	1.1	mg/kg	1.1		7.0E+01	6.7E+04	**1.6E-02**	**1.6E-11**	1.4E+02	3.0E+03	**7.7E-03**	**3.6E-09**
VP-13	10	11/1/2013	0	VP13-10	7440-47-3	Chromium	16.3	mg/kg	16.3		1.2E+05	--	**1.4E-04**	**--**	4.6E+05	--	**3.5E-05**	**--**
VP-13	10	11/1/2013	0	VP13-10	7440-48-4	Cobalt	8.55	mg/kg	8.55		2.3E+01	3.1E+04	**3.6E-01**	**2.7E-10**	5.0E+01	1.4E+03	**1.7E-01**	**6.0E-08**
VP-13	10	11/1/2013	0	VP13-10	7440-50-8	Copper	20.3	mg/kg	20.3		3.1E+03	--	**6.5E-03**	**--**	1.2E+04	--	**1.6E-03**	**--**
VP-13	10	11/1/2013	0	VP13-10	7439-92-1	Lead	3.62	mg/kg	3.62		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-13	10	11/1/2013	0	VP13-10	7439-98-7	Molybdenum	2.27	mg/kg	2.27		3.9E+02	--	**5.8E-03**	**--**	1.5E+03	--	**1.5E-03**	**--**
VP-13	10	11/1/2013	0	VP13-10	7440-02-0	Nickel	21.7	mg/kg	21.7		1.6E+03	1.1E+06	**1.4E-02**	**2.0E-11**	1.3E+03	4.9E+04	**1.7E-02**	**4.4E-09**
VP-13	10	11/1/2013	0	VP13-10	7440-62-2	Vanadium	35	mg/kg	35		3.9E+02	--	**9.0E-02**	**--**	8.4E+02	--	**4.2E-02**	**--**
VP-13	10	11/1/2013	0	VP13-10	7440-66-6	Zinc	48.8	mg/kg	48.8		2.3E+04	--	**2.1E-03**	**--**	9.3E+04	--	**5.3E-04**	**--**
VP-13	5	11/1/2013	0	VP13-5	7440-38-2	Arsenic	1.36	mg/kg	1.36		2.2E+01	6.1E-02	**Bkgd**	**Bkgd**	5.9E+01	1.8E+01	**Bkgd**	**Bkgd**
VP-13	5	11/1/2013	0	VP13-5	7440-39-3	Barium	168	mg/kg	168		1.6E+04	--	**1.1E-02**	**--**	8.0E+03	--	**2.1E-02**	**--**
VP-13	5	11/1/2013	0	VP13-5	7440-41-7	Beryllium	0.42	mg/kg	0.42		1.6E+02	1.2E+05	**2.7E-03**	**3.6E-12**	2.3E+02	5.3E+03	**1.8E-03**	**7.9E-10**
VP-13	5	11/1/2013	0	VP13-5	7440-43-9	Cadmium	1.2	mg/kg	1.2		7.0E+01	6.7E+04	**1.7E-02**	**1.8E-11**	1.4E+02	3.0E+03	**8.4E-03**	**3.9E-09**
VP-13	5	11/1/2013	0	VP13-5	7440-47-3	Chromium	18.6	mg/kg	18.6		1.2E+05	--	**1.6E-04**	**--**	4.6E+05	--	**4.0E-05**	**--**
VP-13	5	11/1/2013	0	VP13-5	7440-48-4	Cobalt	9.5	mg/kg	9.5		2.3E+01	3.1E+04	**4.0E-01**	**3.1E-10**	5.0E+01	1.4E+03	**1.9E-01**	**6.7E-08**
VP-13	5	11/1/2013	0	VP13-5	7440-50-8	Copper	23	mg/kg	23		3.1E+03	--	**7.4E-03**	**--**	1.2E+04	--	**1.9E-03**	**--**
VP-13	5	11/1/2013	0	VP13-5	7439-92-1	Lead	4.51	mg/kg	4.51		8.0E+01	--	**--**	**--**	3.2E+02	--	**--**	**--**
VP-13	5	11/1/2013	0	VP13-5	7439-98-7	Molybdenum	2.07	mg/kg	2.07		3.9E+02	--	**5.3E-03**	**--**	1.5E+03	--	**1.3E-03**	**--**
VP-13	5	11/1/2013	0	VP13-5	7440-02-0	Nickel	24.7	mg/kg	24.7		1.6E+03	1.1E+06	**1.6E-02**	**2.3E-11**	1.3E+03	4.9E+04	**1.9E-02**	**5.0E-09**
VP-13	5	11/1/2013	0	VP13-5	7440-62-2	Vanadium	39.9	mg/kg	39.9		3.9E+02	--	**1.0E-01**	**--**	8.4E+02	--	**4.8E-02**	**--**
VP-13	5	11/1/2013	0	VP13-5	7440-66-6	Zinc	54.8	mg/kg	54.8		2.3E+04	--	**2.3E-03**	**--**	9.3E+04	--	**5.9E-04**	**--**

Matrix	Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
										RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
Soil Vapor	SG-01	5	7/21/2005	0	SG-1	67-64-1	Acetone	25		3.3E+07	--	**7.7E-07**	**--**
Soil Vapor	SG-01	5	7/21/2005	0	SG-1	75-15-0	Carbon Disulfide	20		8.3E+05	--	**2.4E-05**	**--**
Soil Vapor	SG-01	5	7/21/2005	0	SG-1	127-18-4	Tetrachloroethene (PCE)	440		5.3E+04	6.0E+02	**8.2E-03**	**7.3E-07**
Soil Vapor	SG-01	5	7/20/2005	0	SG-1-5	127-18-4	Tetrachloroethene (PCE)	340		5.3E+04	6.0E+02	**6.4E-03**	**5.6E-07**
Soil Vapor	SG-01	15	7/20/2005	0	SG-1-15	127-18-4	Tetrachloroethene (PCE)	280		1.4E+05	1.6E+03	**2.0E-03**	**1.8E-07**
Soil Vapor	SG-02	5	7/20/2005	0	SG-2-5	95-63-6	1,2,4-Trimethylbenzene	640		1.2E+04	--	**5.3E-02**	**--**
Soil Vapor	SG-02	5	7/20/2005	0	SG-2-5	127-18-4	Tetrachloroethene (PCE)	230		5.3E+04	6.0E+02	**4.3E-03**	**3.8E-07**
Soil Vapor	SG-02	15	7/20/2005	0	SG-2-15	95-63-6	1,2,4-Trimethylbenzene	1600		3.2E+04	--	**4.9E-02**	**--**
Soil Vapor	SG-02	15	7/20/2005	0	SG-2-15	127-18-4	Tetrachloroethene (PCE)	220		1.4E+05	1.6E+03	**1.6E-03**	**1.4E-07**
Soil Vapor	SG-03	5	7/20/2005	0	SG-3-5	127-18-4	Tetrachloroethene (PCE)	200		5.3E+04	6.0E+02	**3.7E-03**	**3.3E-07**
Soil Vapor	SG-03	15	7/20/2005	0	SG-3-15	127-18-4	Tetrachloroethene (PCE)	190		1.4E+05	1.6E+03	**1.4E-03**	**1.2E-07**
Soil Vapor	SG-04	5	7/20/2005	0	SG-4-5 (1PV)	100-41-4	Ethylbenzene	350		1.5E+06	1.4E+03	**2.4E-04**	**2.5E-07**
Soil Vapor	SG-04	5	7/20/2005	0	SG-4-5 (1PV)	179601-23-1	m&p-Xylenes	900		1.6E+05	--	**5.8E-03**	**--**
Soil Vapor	SG-04	5	7/20/2005	0	SG-4-5 (1PV)	127-18-4	Tetrachloroethene (PCE)	190		5.3E+04	6.0E+02	**3.6E-03**	**3.1E-07**
Soil Vapor	SG-04	5	7/20/2005	0	SG-4-5 (1PV)	108-88-3	Toluene	380		4.0E+05	--	**9.5E-04**	**--**
Soil Vapor	SG-04	5	7/20/2005	13	SG-4-5 (3PV)	71-43-2	Benzene	100		4.0E+04	1.1E+02	**2.5E-03**	**9.4E-07**
Soil Vapor	SG-04	5	7/20/2005	13	SG-4-5 (3PV)	100-41-4	Ethylbenzene	580		1.5E+06	1.4E+03	**3.9E-04**	**4.2E-07**
Soil Vapor	SG-04	5	7/20/2005	13	SG-4-5 (3PV)	179601-23-1	m&p-Xylenes	1500		1.6E+05	--	**9.6E-03**	**--**
Soil Vapor	SG-04	5	7/20/2005	13	SG-4-5 (3PV)	95-47-6	o-Xylene	280		1.3E+05	--	**2.1E-03**	**--**
Soil Vapor	SG-04	5	7/20/2005	13	SG-4-5 (3PV)	127-18-4	Tetrachloroethene (PCE)	200		5.3E+04	6.0E+02	**3.7E-03**	**3.3E-07**
Soil Vapor	SG-04	5	7/20/2005	13	SG-4-5 (3PV)	108-88-3	Toluene	690		4.0E+05	--	**1.7E-03**	**--**
Soil Vapor	SG-04	5	7/20/2005	14	SG-4-5 (7PV)	100-41-4	Ethylbenzene	310		1.5E+06	1.4E+03	**2.1E-04**	**2.2E-07**
Soil Vapor	SG-04	5	7/20/2005	14	SG-4-5 (7PV)	179601-23-1	m&p-Xylenes	820		1.6E+05	--	**5.3E-03**	**--**
Soil Vapor	SG-04	5	7/20/2005	14	SG-4-5 (7PV)	127-18-4	Tetrachloroethene (PCE)	200		5.3E+04	6.0E+02	**3.7E-03**	**3.3E-07**
Soil Vapor	SG-04	5	7/20/2005	14	SG-4-5 (7PV)	108-88-3	Toluene	310		4.0E+05	--	**7.7E-04**	**--**
Soil Vapor	SG-04	15	7/20/2005	0	SG-4-15 (1PV)	127-18-4	Tetrachloroethene (PCE)	170		1.4E+05	1.6E+03	**1.2E-03**	**1.1E-07**
Soil Vapor	SG-04	15	7/20/2005	0	SG-4-15 (1PV)	108-88-3	Toluene	220		1.0E+06	--	**2.2E-04**	**--**
Soil Vapor	SG-04	15	7/20/2005	13	SG-4-15 (3PV)	71-43-2	Benzene	100		1.0E+05	2.7E+02	**1.0E-03**	**3.7E-07**
Soil Vapor	SG-04	15	7/20/2005	13	SG-4-15 (3PV)	127-18-4	Tetrachloroethene (PCE)	180		1.4E+05	1.6E+03	**1.3E-03**	**1.1E-07**
Soil Vapor	SG-04	15	7/20/2005	14	SG-4-15 (7PV)	127-18-4	Tetrachloroethene (PCE)	180		1.4E+05	1.6E+03	**1.3E-03**	**1.1E-07**
Soil Vapor	SG-06	5	7/20/2005	0	SG-6-5	127-18-4	Tetrachloroethene (PCE)	230		5.3E+04	6.0E+02	**4.3E-03**	**3.8E-07**
Soil Vapor	SG-06	15	7/20/2005	0	SG-6-15	127-18-4	Tetrachloroethene (PCE)	200		1.4E+05	1.6E+03	**1.4E-03**	**1.3E-07**
Soil Vapor	SG-07	5	7/20/2005	0	SG-7-5	127-18-4	Tetrachloroethene (PCE)	190		5.3E+04	6.0E+02	**3.6E-03**	**3.1E-07**
Soil Vapor	SG-07	15	7/20/2005	0	SG-7-15	75-15-0	Carbon Disulfide	2100		2.0E+06	--	**1.0E-03**	**--**
Soil Vapor	SG-07	15	7/20/2005	0	SG-7-15	127-18-4	Tetrachloroethene (PCE)	220		1.4E+05	1.6E+03	**1.6E-03**	**1.4E-07**
Soil Vapor	SG-08	5	7/21/2005	0	SG-8-5	75-15-0	Carbon Disulfide	800		8.3E+05	--	**9.6E-04**	**--**
Soil Vapor	SG-08	15	7/21/2005	0	SG-8-15	75-15-0	Carbon Disulfide	620		2.0E+06	--	**3.1E-04**	**--**
Soil Vapor	SG-08	15	7/21/2005	0	SG-8-15	108-88-3	Toluene	220		1.0E+06	--	**2.2E-04**	**--**
Soil Vapor	SG-09	15	7/21/2005	0	SG-9-15	75-15-0	Carbon Disulfide	1400		2.0E+06	--	**6.9E-04**	**--**
Soil Vapor	SG-10	5	7/21/2005	0	SG-10-5	75-15-0	Carbon Disulfide	590		8.3E+05	--	**7.1E-04**	**--**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	95-63-6	1,2,4-Trimethylbenzene	2.7		3.2E+04	--	**8.3E-05**	**--**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	622-96-8	1-Ethyl-4-methylbenzene	2.6		4.2E+05	--	**6.2E-06**	**--**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	67-64-1	Acetone	12		7.6E+07	--	**1.6E-07**	**--**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	71-43-2	Benzene	0.72		1.0E+05	2.7E+02	**7.2E-06**	**2.7E-09**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	67-66-3	Chloroform	3.5		2.8E+05	2.9E+02	**1.2E-05**	**1.2E-08**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	75-27-4	Dichlorobromomethane	2.7		6.3E+05	5.7E+02	**4.3E-06**	**4.8E-09**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	100-41-4	Ethylbenzene	9.3		3.8E+06	3.6E+03	**2.4E-06**	**2.6E-09**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	75-69-4	Freon 11	3		2.4E+06	--	**1.3E-06**	**--**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	75-71-8	Freon 12	3.8		4.3E+05	--	**8.9E-06**	**--**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	179601-23-1	m&p-Xylenes	39		4.1E+05	--	**9.6E-05**	**--**

Matrix	Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
										RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	78-93-3	Methyl ethyl ketone	2.9		1.8E+07	--	**1.6E-07**	**--**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	95-47-6	o-Xylene	12		3.4E+05	--	**3.6E-05**	**--**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	127-18-4	Tetrachloroethene (PCE)	12		1.4E+05	1.6E+03	**8.6E-05**	**7.6E-09**
Soil Vapor	SG-10	15	7/21/2005	2	SG-10	108-88-3	Toluene	15		1.0E+06	--	**1.5E-05**	**--**
Soil Vapor	SG-10	15	7/21/2005	0	SG-10-15	75-15-0	Carbon Disulfide	3800		2.0E+06	--	**1.9E-03**	**--**
Soil Vapor	SG-11	5	7/21/2005	0	SG-11-5	75-15-0	Carbon Disulfide	5700		8.3E+05	--	**6.9E-03**	**--**
Soil Vapor	SG-11	15	7/21/2005	0	SG-11-15	75-15-0	Carbon Disulfide	2900		2.0E+06	--	**1.4E-03**	**--**
Soil Vapor	SG-12	15	7/21/2005	0	SG-12-15	75-15-0	Carbon Disulfide	3800		2.0E+06	--	**1.9E-03**	**--**
Soil Vapor	SG-14	5	7/19/2010	0	SG-14-5	95-63-6	1,2,4-Trimethylbenzene	213		1.2E+04	--	**1.8E-02**	**--**
Soil Vapor	SG-14	5	7/19/2010	0	SG-14-5	108-67-8	1,3,5-Trimethylbenzene	129		6.1E+04	--	**2.1E-03**	**--**
Soil Vapor	SG-14	5	7/19/2010	0	SG-14-5	71-43-2	Benzene	257		4.0E+04	1.1E+02	**6.5E-03**	**2.4E-06**
Soil Vapor	SG-14	5	7/19/2010	0	SG-14-5	100-41-4	Ethylbenzene	304		1.5E+06	1.4E+03	**2.1E-04**	**2.2E-07**
Soil Vapor	SG-14	5	7/19/2010	0	SG-14-5	103-65-1	n-Propylbenzene	107		1.7E+06	--	**6.1E-05**	**--**
Soil Vapor	SG-14	5	7/19/2010	0	SG-14-5	108-88-3	Toluene	1150		4.0E+05	--	**2.9E-03**	**--**
Soil Vapor	SG-14	5	7/19/2010	0	SG-14-5	1330-20-7	Xylenes, Total	809		1.4E+05	--	**5.9E-03**	**--**
Soil Vapor	SG-14	15	7/19/2010	0	SG-14-15	71-43-2	Benzene	122		1.0E+05	2.7E+02	**1.2E-03**	**4.6E-07**
Soil Vapor	SG-14	15	7/19/2010	0	SG-14-15	100-41-4	Ethylbenzene	35.1		3.8E+06	3.6E+03	**9.2E-06**	**9.8E-09**
Soil Vapor	SG-14	15	7/19/2010	0	SG-14-15	108-88-3	Toluene	551		1.0E+06	--	**5.5E-04**	**--**
Soil Vapor	SG-14	15	7/19/2010	0	SG-14-15	1330-20-7	Xylenes, Total	143		3.4E+05	--	**4.2E-04**	**--**
Soil Vapor	SG-15	15	7/19/2010	0	SG-15-15	108-88-3	Toluene	66.4		1.0E+06	--	**6.6E-05**	**--**
Soil Vapor	SG-16	5	7/19/2010	0	SG-16-5	95-63-6	1,2,4-Trimethylbenzene	135		1.2E+04	--	**1.1E-02**	**--**
Soil Vapor	SG-16	5	7/19/2010	0	SG-16-5	108-67-8	1,3,5-Trimethylbenzene	120		6.1E+04	--	**2.0E-03**	**--**
Soil Vapor	SG-16	5	7/19/2010	0	SG-16-5	71-43-2	Benzene	44.4		4.0E+04	1.1E+02	**1.1E-03**	**4.2E-07**
Soil Vapor	SG-16	5	7/19/2010	0	SG-16-5	100-41-4	Ethylbenzene	91		1.5E+06	1.4E+03	**6.1E-05**	**6.6E-08**
Soil Vapor	SG-16	5	7/19/2010	0	SG-16-5	99-87-6	p-Cymene	200		1.9E+05	--	**1.0E-03**	**--**
Soil Vapor	SG-16	5	7/19/2010	0	SG-16-5	108-88-3	Toluene	520		4.0E+05	--	**1.3E-03**	**--**
Soil Vapor	SG-16	5	7/19/2010	0	SG-16-5	1330-20-7	Xylenes, Total	209		1.4E+05	--	**1.5E-03**	**--**
Soil Vapor	SG-16	15	7/19/2010	0	SG-16-15	108-88-3	Toluene	51.2		1.0E+06	--	**5.1E-05**	**--**
Soil Vapor	SG-16	15	7/19/2010	1	SG-16-15-DUP	95-63-6	1,2,4-Trimethylbenzene	135		3.2E+04	--	**4.2E-03**	**--**
Soil Vapor	SG-16	15	7/19/2010	1	SG-16-15-DUP	108-67-8	1,3,5-Trimethylbenzene	118		1.6E+05	--	**7.2E-04**	**--**
Soil Vapor	SG-16	15	7/19/2010	1	SG-16-15-DUP	71-43-2	Benzene	68.2		1.0E+05	2.7E+02	**6.8E-04**	**2.5E-07**
Soil Vapor	SG-16	15	7/19/2010	1	SG-16-15-DUP	100-41-4	Ethylbenzene	85.8		3.8E+06	3.6E+03	**2.2E-05**	**2.4E-08**
Soil Vapor	SG-16	15	7/19/2010	1	SG-16-15-DUP	99-87-6	p-Cymene	193		5.3E+05	--	**3.7E-04**	**--**
Soil Vapor	SG-16	15	7/19/2010	1	SG-16-15-DUP	108-88-3	Toluene	536		1.0E+06	--	**5.3E-04**	**--**
Soil Vapor	SG-16	15	7/19/2010	1	SG-16-15-DUP	1330-20-7	Xylenes, Total	93		3.4E+05	--	**2.7E-04**	**--**
Soil Vapor	SG-17	5	7/19/2010	0	SG-17-5	95-63-6	1,2,4-Trimethylbenzene	178		1.2E+04	--	**1.5E-02**	**--**
Soil Vapor	SG-17	5	7/19/2010	0	SG-17-5	108-67-8	1,3,5-Trimethylbenzene	109		6.1E+04	--	**1.8E-03**	**--**
Soil Vapor	SG-17	5	7/19/2010	0	SG-17-5	71-43-2	Benzene	275		4.0E+04	1.1E+02	**6.9E-03**	**2.6E-06**
Soil Vapor	SG-17	5	7/19/2010	0	SG-17-5	100-41-4	Ethylbenzene	223		1.5E+06	1.4E+03	**1.5E-04**	**1.6E-07**
Soil Vapor	SG-17	5	7/19/2010	0	SG-17-5	103-65-1	n-Propylbenzene	101		1.7E+06	--	**5.8E-05**	**--**
Soil Vapor	SG-17	5	7/19/2010	0	SG-17-5	108-88-3	Toluene	1170		4.0E+05	--	**2.9E-03**	**--**
Soil Vapor	SG-17	5	7/19/2010	0	SG-17-5	1330-20-7	Xylenes, Total	586		1.4E+05	--	**4.3E-03**	**--**
Soil Vapor	SG-17	15	7/19/2010	0	SG-17-15	108-88-3	Toluene	72.4		1.0E+06	--	**7.2E-05**	**--**
Soil Vapor	SG-18	5	7/16/2010	0	SG-18-5	95-63-6	1,2,4-Trimethylbenzene	115		1.2E+04	--	**9.5E-03**	**--**
Soil Vapor	SG-18	5	7/16/2010	0	SG-18-5	108-88-3	Toluene	195		4.0E+05	--	**4.9E-04**	**--**
Soil Vapor	SG-18	15	7/16/2010	0	SG-18-15	95-63-6	1,2,4-Trimethylbenzene	133		3.2E+04	--	**4.1E-03**	**--**
Soil Vapor	SG-18	15	7/16/2010	0	SG-18-15	108-67-8	1,3,5-Trimethylbenzene	110		1.6E+05	--	**6.7E-04**	**--**
Soil Vapor	SG-18	15	7/16/2010	0	SG-18-15	100-41-4	Ethylbenzene	22.4		3.8E+06	3.6E+03	**5.8E-06**	**6.3E-09**
Soil Vapor	SG-18	15	7/16/2010	0	SG-18-15	108-88-3	Toluene	123		1.0E+06	--	**1.2E-04**	**--**
Soil Vapor	SG-18	15	7/16/2010	0	SG-18-15	1330-20-7	Xylenes, Total	68.8		3.4E+05	--	**2.0E-04**	**--**

Matrix	Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
										RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
Soil Vapor	SG-18	30	7/19/2010	0	SG-18-30	71-43-2	Benzene	56.8		1.9E+05	5.1E+02	**3.0E-04**	**1.1E-07**
Soil Vapor	SG-18	30	7/19/2010	0	SG-18-30	100-41-4	Ethylbenzene	32.6		7.4E+06	6.9E+03	**4.4E-06**	**4.7E-09**
Soil Vapor	SG-18	30	7/19/2010	0	SG-18-30	108-88-3	Toluene	326		1.9E+06	--	**1.7E-04**	**--**
Soil Vapor	SG-18	30	7/19/2010	0	SG-18-30	1330-20-7	Xylenes, Total	65.8		6.6E+05	--	**1.0E-04**	**--**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	95-63-6	1,2,4-Trimethylbenzene	16		6.3E+04	--	**2.5E-04**	**--**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	622-96-8	1-Ethyl-4-methylbenzene	29		8.1E+05	--	**3.6E-05**	**--**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	67-64-1	Acetone	390		1.4E+08	--	**2.8E-06**	**--**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	71-43-2	Benzene	170		1.9E+05	5.1E+02	**9.0E-04**	**3.3E-07**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	75-15-0	Carbon Disulfide	23		3.8E+06	--	**6.1E-06**	**--**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	100-41-4	Ethylbenzene	55		7.4E+06	6.9E+03	**7.5E-06**	**8.0E-09**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	179601-23-1	m&p-Xylenes	200		7.8E+05	--	**2.5E-04**	**--**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	78-93-3	Methyl ethyl ketone	110		3.4E+07	--	**3.3E-06**	**--**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	75-09-2	Methylene Chloride (DCM)	5.8		2.2E+06	1.3E+04	**2.6E-06**	**4.5E-10**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	95-47-6	o-Xylene	57		6.4E+05	--	**8.9E-05**	**--**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	108-88-3	Toluene	600		1.9E+06	--	**3.1E-04**	**--**
Soil Vapor	SG-18	30	7/19/2010	2	SG-18B-30	1330-20-7	Xylenes, Total	260		6.6E+05	--	**4.0E-04**	**--**
Soil Vapor	SG-19	5	7/19/2010	0	SG-19-5	95-63-6	1,2,4-Trimethylbenzene	122		1.2E+04	--	**1.0E-02**	**--**
Soil Vapor	SG-19	5	7/19/2010	0	SG-19-5	108-67-8	1,3,5-Trimethylbenzene	89		6.1E+04	--	**1.5E-03**	**--**
Soil Vapor	SG-19	5	7/19/2010	0	SG-19-5	100-41-4	Ethylbenzene	58.3		1.5E+06	1.4E+03	**3.9E-05**	**4.2E-08**
Soil Vapor	SG-19	5	7/19/2010	0	SG-19-5	108-88-3	Toluene	282		4.0E+05	--	**7.0E-04**	**--**
Soil Vapor	SG-19	5	7/19/2010	0	SG-19-5	1330-20-7	Xylenes, Total	107		1.4E+05	--	**7.9E-04**	**--**
Soil Vapor	SG-19	15	7/19/2010	0	SG-19-15	108-88-3	Toluene	89		1.0E+06	--	**8.8E-05**	**--**
Soil Vapor	SG-20	5	7/16/2010	0	SG-20-5	95-63-6	1,2,4-Trimethylbenzene	119		1.2E+04	--	**9.8E-03**	**--**
Soil Vapor	SG-20	5	7/16/2010	0	SG-20-5	108-67-8	1,3,5-Trimethylbenzene	99.4		6.1E+04	--	**1.6E-03**	**--**
Soil Vapor	SG-20	5	7/16/2010	0	SG-20-5	108-88-3	Toluene	62.8		4.0E+05	--	**1.6E-04**	**--**
Soil Vapor	SG-20	15	7/16/2010	0	SG-20-15	95-63-6	1,2,4-Trimethylbenzene	119		3.2E+04	--	**3.7E-03**	**--**
Soil Vapor	SG-20	15	7/16/2010	0	SG-20-15	108-67-8	1,3,5-Trimethylbenzene	41.2		1.6E+05	--	**2.5E-04**	**--**
Soil Vapor	SG-20	15	7/16/2010	0	SG-20-15	100-41-4	Ethylbenzene	14.1		3.8E+06	3.6E+03	**3.7E-06**	**3.9E-09**
Soil Vapor	SG-20	15	7/16/2010	0	SG-20-15	108-88-3	Toluene	81.8		1.0E+06	--	**8.1E-05**	**--**
Soil Vapor	SG-20	15	7/16/2010	1	SG-20-15-DUP	95-63-6	1,2,4-Trimethylbenzene	123		3.2E+04	--	**3.8E-03**	**--**
Soil Vapor	SG-20	15	7/16/2010	1	SG-20-15-DUP	108-67-8	1,3,5-Trimethylbenzene	64.8		1.6E+05	--	**4.0E-04**	**--**
Soil Vapor	SG-20	15	7/16/2010	1	SG-20-15-DUP	100-41-4	Ethylbenzene	16.9		3.8E+06	3.6E+03	**4.4E-06**	**4.7E-09**
Soil Vapor	SG-20	15	7/16/2010	1	SG-20-15-DUP	108-88-3	Toluene	94		1.0E+06	--	**9.3E-05**	**--**
Soil Vapor	SG-21	5	7/19/2010	0	SG-21-5	95-63-6	1,2,4-Trimethylbenzene	392		1.2E+04	--	**3.2E-02**	**--**
Soil Vapor	SG-21	5	7/19/2010	0	SG-21-5	108-67-8	1,3,5-Trimethylbenzene	193		6.1E+04	--	**3.2E-03**	**--**
Soil Vapor	SG-21	5	7/19/2010	0	SG-21-5	71-43-2	Benzene	383		4.0E+04	1.1E+02	**9.6E-03**	**3.6E-06**
Soil Vapor	SG-21	5	7/19/2010	0	SG-21-5	100-41-4	Ethylbenzene	631		1.5E+06	1.4E+03	**4.3E-04**	**4.6E-07**
Soil Vapor	SG-21	5	7/19/2010	0	SG-21-5	103-65-1	n-Propylbenzene	138		1.7E+06	--	**7.9E-05**	**--**
Soil Vapor	SG-21	5	7/19/2010	0	SG-21-5	108-88-3	Toluene	2160		4.0E+05	--	**5.4E-03**	**--**
Soil Vapor	SG-21	5	7/19/2010	0	SG-21-5	1330-20-7	Xylenes, Total	1760		1.4E+05	--	**1.3E-02**	**--**
Soil Vapor	SG-21	15	7/19/2010	0	SG-21-15	108-88-3	Toluene	47		1.0E+06	--	**4.7E-05**	**--**
Soil Vapor	SG-22	5	7/16/2010	13	SG-22-5 (3P)	95-63-6	1,2,4-Trimethylbenzene	130		1.2E+04	--	**1.1E-02**	**--**
Soil Vapor	SG-22	5	7/16/2010	13	SG-22-5 (3P)	108-67-8	1,3,5-Trimethylbenzene	108		6.1E+04	--	**1.8E-03**	**--**
Soil Vapor	SG-22	5	7/16/2010	13	SG-22-5 (3P)	100-41-4	Ethylbenzene	26.8		1.5E+06	1.4E+03	**1.8E-05**	**1.9E-08**
Soil Vapor	SG-22	5	7/16/2010	13	SG-22-5 (3P)	108-88-3	Toluene	227		4.0E+05	--	**5.7E-04**	**--**
Soil Vapor	SG-22	5	7/16/2010	13	SG-22-5 (3P)	1330-20-7	Xylenes, Total	69.6		1.4E+05	--	**5.1E-04**	**--**
Soil Vapor	SG-22	15	7/16/2010	0	SG-22-15	95-63-6	1,2,4-Trimethylbenzene	130		3.2E+04	--	**4.0E-03**	**--**
Soil Vapor	SG-22	15	7/16/2010	0	SG-22-15	108-67-8	1,3,5-Trimethylbenzene	107		1.6E+05	--	**6.5E-04**	**--**
Soil Vapor	SG-22	15	7/16/2010	0	SG-22-15	100-41-4	Ethylbenzene	34.3		3.8E+06	3.6E+03	**9.0E-06**	**9.6E-09**
Soil Vapor	SG-22	15	7/16/2010	0	SG-22-15	108-88-3	Toluene	546		1.0E+06	--	**5.4E-04**	**--**

Matrix	Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
										RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
Soil Vapor	SG-22	15	7/16/2010	0	SG-22-15	1330-20-7	Xylenes, Total	71.4		3.4E+05	--	**2.1E-04**	**--**
Soil Vapor	SG-22	30	7/19/2010	0	SG-22-30	67-64-1	Acetone	34		1.4E+08	--	**2.4E-07**	**--**
Soil Vapor	SG-22	30	7/19/2010	0	SG-22-30	75-09-2	Methylene Chloride (DCM)	3.8		2.2E+06	1.3E+04	**1.7E-06**	**2.9E-10**
Soil Vapor	SG-22	30	7/19/2010	0	SG-22-30	108-88-3	Toluene	22		1.9E+06	--	**1.1E-05**	**--**
Soil Vapor	SG-22	30	7/16/2010	13	SG-22-30 (3P)	95-63-6	1,2,4-Trimethylbenzene	120		6.3E+04	--	**1.9E-03**	**--**
Soil Vapor	SG-22	30	7/16/2010	13	SG-22-30 (3P)	108-67-8	1,3,5-Trimethylbenzene	99.8		3.2E+05	--	**3.1E-04**	**--**
Soil Vapor	SG-22	30	7/16/2010	13	SG-22-30 (3P)	100-41-4	Ethylbenzene	14.5		7.4E+06	6.9E+03	**2.0E-06**	**2.1E-09**
Soil Vapor	SG-22	30	7/16/2010	13	SG-22-30 (3P)	108-88-3	Toluene	76.8		1.9E+06	--	**4.0E-05**	**--**
Soil Vapor	SG-23	5	8/4/2010	0	SG-23-5	100-41-4	Ethylbenzene	6		1.5E+06	1.4E+03	**4.0E-06**	**4.3E-09**
Soil Vapor	SG-23	5	8/4/2010	0	SG-23-5	179601-23-1	m&p-Xylenes	18		1.6E+05	--	**1.2E-04**	**--**
Soil Vapor	SG-23	5	8/4/2010	0	SG-23-5	127-18-4	Tetrachloroethene (PCE)	25		5.3E+04	6.0E+02	**4.7E-04**	**4.1E-08**
Soil Vapor	SG-23	5	8/4/2010	0	SG-23-5	108-88-3	Toluene	22		4.0E+05	--	**5.5E-05**	**--**
Soil Vapor	SG-23	15	8/4/2010	0	SG-23-15	100-41-4	Ethylbenzene	7		3.8E+06	3.6E+03	**1.8E-06**	**2.0E-09**
Soil Vapor	SG-23	15	8/4/2010	0	SG-23-15	127-18-4	Tetrachloroethene (PCE)	16		1.4E+05	1.6E+03	**1.2E-04**	**1.0E-08**
Soil Vapor	SG-23	15	8/4/2010	0	SG-23-15	108-88-3	Toluene	12		1.0E+06	--	**1.2E-05**	**--**
Soil Vapor	SG-23	30	8/4/2010	0	SG-23-30	71-43-2	Benzene	13		1.9E+05	5.1E+02	**6.8E-05**	**2.6E-08**
Soil Vapor	SG-23	30	8/4/2010	0	SG-23-30	127-18-4	Tetrachloroethene (PCE)	12		2.7E+05	3.0E+03	**4.5E-05**	**4.0E-09**
Soil Vapor	SG-23	30	8/4/2010	0	SG-23-30	108-88-3	Toluene	23		1.9E+06	--	**1.2E-05**	**--**
Soil Vapor	SG-24	5	8/5/2010	0	SG-24-5	127-18-4	Tetrachloroethene (PCE)	11		5.3E+04	6.0E+02	**2.1E-04**	**1.8E-08**
Soil Vapor	SG-24	5	8/5/2010	0	SG-24-5	108-88-3	Toluene	10		4.0E+05	--	**2.5E-05**	**--**
Soil Vapor	SG-24	15	8/5/2010	0	SG-24-15	127-18-4	Tetrachloroethene (PCE)	9		1.4E+05	1.6E+03	**6.5E-05**	**5.7E-09**
Soil Vapor	SG-24	15	8/5/2010	0	SG-24-15	108-88-3	Toluene	8		1.0E+06	--	**7.9E-06**	**--**
Soil Vapor	SG-25	5	8/4/2010	0	SG-25-5	71-43-2	Benzene	60		4.0E+04	1.1E+02	**1.5E-03**	**5.6E-07**
Soil Vapor	SG-25	5	8/4/2010	0	SG-25-5	67-66-3	Chloroform	20		1.2E+05	1.2E+02	**1.7E-04**	**1.7E-07**
Soil Vapor	SG-25	5	8/4/2010	0	SG-25-5	100-41-4	Ethylbenzene	20		1.5E+06	1.4E+03	**1.3E-05**	**1.4E-08**
Soil Vapor	SG-25	5	8/4/2010	0	SG-25-5	179601-23-1	m&p-Xylenes	45		1.6E+05	--	**2.9E-04**	**--**
Soil Vapor	SG-25	5	8/4/2010	0	SG-25-5	127-18-4	Tetrachloroethene (PCE)	19		5.3E+04	6.0E+02	**3.6E-04**	**3.1E-08**
Soil Vapor	SG-25	5	8/4/2010	0	SG-25-5	108-88-3	Toluene	44		4.0E+05	--	**1.1E-04**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	95-63-6	1,2,4-Trimethylbenzene	15		1.2E+04	--	**1.2E-03**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	108-67-8	1,3,5-Trimethylbenzene	13		6.1E+04	--	**2.1E-04**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	622-96-8	1-Ethyl-4-methylbenzene	39		1.6E+05	--	**2.5E-04**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	67-64-1	Acetone	48		3.3E+07	--	**1.5E-06**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	71-43-2	Benzene	35		4.0E+04	1.1E+02	**8.8E-04**	**3.3E-07**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	67-66-3	Chloroform	17		1.2E+05	1.2E+02	**1.5E-04**	**1.4E-07**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	74-87-3	Chloromethane	13		9.5E+04	--	**1.4E-04**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	100-41-4	Ethylbenzene	85		1.5E+06	1.4E+03	**5.7E-05**	**6.1E-08**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	75-69-4	Freon 11	50		9.4E+05	--	**5.3E-05**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	75-71-8	Freon 12	11		1.6E+05	--	**6.8E-05**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	179601-23-1	m&p-Xylenes	270		1.6E+05	--	**1.7E-03**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	74-83-9	Methyl Bromide	45		7.6E+03	--	**5.9E-03**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	95-47-6	o-Xylene	55		1.3E+05	--	**4.1E-04**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	127-18-4	Tetrachloroethene (PCE)	41		5.3E+04	6.0E+02	**7.7E-04**	**6.8E-08**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	108-88-3	Toluene	280		4.0E+05	--	**7.0E-04**	**--**
Soil Vapor	SG-25	5	8/5/2010	0	SG-25-5-20100805	1330-20-7	Xylenes, Total	320		1.4E+05	--	**2.4E-03**	**--**
Soil Vapor	SG-25	15	8/4/2010	0	SG-25-15	100-41-4	Ethylbenzene	27		3.8E+06	3.6E+03	**7.0E-06**	**7.6E-09**
Soil Vapor	SG-25	15	8/4/2010	0	SG-25-15	75-69-4	Freon 11	16		2.4E+06	--	**6.8E-06**	**--**
Soil Vapor	SG-25	15	8/4/2010	0	SG-25-15	179601-23-1	m&p-Xylenes	46		4.1E+05	--	**1.1E-04**	**--**
Soil Vapor	SG-25	15	8/4/2010	0	SG-25-15	127-18-4	Tetrachloroethene (PCE)	12		1.4E+05	1.6E+03	**8.6E-05**	**7.6E-09**
Soil Vapor	SG-25	15	8/4/2010	0	SG-25-15	108-88-3	Toluene	21		1.0E+06	--	**2.1E-05**	**--**
Soil Vapor	SG-26	5	8/5/2010	0	SG-26-5	100-41-4	Ethylbenzene	6		1.5E+06	1.4E+03	**4.0E-06**	**4.3E-09**

Matrix	Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
										RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
Soil Vapor	SG-26	5	8/5/2010	0	SG-26-5	179601-23-1	m&p-Xylenes	15		1.6E+05	--	**9.6E-05**	**--**
Soil Vapor	SG-26	5	8/5/2010	0	SG-26-5	127-18-4	Tetrachloroethene (PCE)	17		5.3E+04	6.0E+02	**3.2E-04**	**2.8E-08**
Soil Vapor	SG-26	5	8/5/2010	0	SG-26-5	108-88-3	Toluene	24		4.0E+05	--	**6.0E-05**	**--**
Soil Vapor	SG-26	15	8/5/2010	0	SG-26-15	100-41-4	Ethylbenzene	44		3.8E+06	3.6E+03	**1.1E-05**	**1.2E-08**
Soil Vapor	SG-26	15	8/5/2010	0	SG-26-15	179601-23-1	m&p-Xylenes	110		4.1E+05	--	**2.7E-04**	**--**
Soil Vapor	SG-26	15	8/5/2010	0	SG-26-15	95-47-6	o-Xylene	29		3.4E+05	--	**8.6E-05**	**--**
Soil Vapor	SG-26	15	8/5/2010	0	SG-26-15	135-98-8	sec-Butylbenzene	10		1.7E+06	--	**5.8E-06**	**--**
Soil Vapor	SG-26	15	8/5/2010	0	SG-26-15	127-18-4	Tetrachloroethene (PCE)	19		1.4E+05	1.6E+03	**1.4E-04**	**1.2E-08**
Soil Vapor	SG-26	15	8/5/2010	0	SG-26-15	108-88-3	Toluene	46		1.0E+06	--	**4.6E-05**	**--**
Soil Vapor	SG-27	5	8/4/2010	0	SG-27-5	100-41-4	Ethylbenzene	35		1.5E+06	1.4E+03	**2.4E-05**	**2.5E-08**
Soil Vapor	SG-27	5	8/4/2010	0	SG-27-5	179601-23-1	m&p-Xylenes	71		1.6E+05	--	**4.6E-04**	**--**
Soil Vapor	SG-27	5	8/4/2010	0	SG-27-5	127-18-4	Tetrachloroethene (PCE)	28		5.3E+04	6.0E+02	**5.2E-04**	**4.6E-08**
Soil Vapor	SG-27	5	8/4/2010	0	SG-27-5	108-88-3	Toluene	75		4.0E+05	--	**1.9E-04**	**--**
Soil Vapor	SG-27	5	8/5/2010	0	SG-27-5-20100805	74-87-3	Chloromethane	14		9.5E+04	--	**1.5E-04**	**--**
Soil Vapor	SG-27	5	8/5/2010	0	SG-27-5-20100805	74-83-9	Methyl Bromide	41		7.6E+03	--	**5.4E-03**	**--**
Soil Vapor	SG-27	5	8/5/2010	0	SG-27-5-20100805	75-09-2	Methylene Chloride (DCM)	7.1		4.8E+05	2.8E+03	**1.5E-05**	**2.5E-09**
Soil Vapor	SG-27	5	8/5/2010	0	SG-27-5-20100805	108-88-3	Toluene	4.5		4.0E+05	--	**1.1E-05**	**--**
Soil Vapor	SG-27	15	8/4/2010	0	SG-27-15	95-63-6	1,2,4-Trimethylbenzene	6		3.2E+04	--	**1.8E-04**	**--**
Soil Vapor	SG-27	15	8/4/2010	0	SG-27-15	100-41-4	Ethylbenzene	160		3.8E+06	3.6E+03	**4.2E-05**	**4.5E-08**
Soil Vapor	SG-27	15	8/4/2010	0	SG-27-15	179601-23-1	m&p-Xylenes	340		4.1E+05	--	**8.3E-04**	**--**
Soil Vapor	SG-27	15	8/4/2010	0	SG-27-15	95-47-6	o-Xylene	62		3.4E+05	--	**1.8E-04**	**--**
Soil Vapor	SG-27	15	8/4/2010	0	SG-27-15	127-18-4	Tetrachloroethene (PCE)	21		1.4E+05	1.6E+03	**1.5E-04**	**1.3E-08**
Soil Vapor	SG-27	15	8/4/2010	0	SG-27-15	108-88-3	Toluene	100		1.0E+06	--	**9.9E-05**	**--**
Soil Vapor	SG-28	5	8/5/2010	0	SG-28-5	100-41-4	Ethylbenzene	5		1.5E+06	1.4E+03	**3.4E-06**	**3.6E-09**
Soil Vapor	SG-28	5	8/5/2010	0	SG-28-5	108-88-3	Toluene	17		4.0E+05	--	**4.2E-05**	**--**
Soil Vapor	SG-28	15	8/5/2010	0	SG-28-15	100-41-4	Ethylbenzene	6		3.8E+06	3.6E+03	**1.6E-06**	**1.7E-09**
Soil Vapor	SG-28	15	8/5/2010	0	SG-28-15	108-88-3	Toluene	7		1.0E+06	--	**6.9E-06**	**--**
Soil Vapor	SG-29	5	8/4/2010	0	SG-29-5	127-18-4	Tetrachloroethene (PCE)	25		5.3E+04	6.0E+02	**4.7E-04**	**4.1E-08**
Soil Vapor	SG-29	5	8/4/2010	0	SG-29-5	108-88-3	Toluene	16		4.0E+05	--	**4.0E-05**	**--**
Soil Vapor	SG-29	15	8/4/2010	0	SG-29-15	127-18-4	Tetrachloroethene (PCE)	19		1.4E+05	1.6E+03	**1.4E-04**	**1.2E-08**
Soil Vapor	SG-29	15	8/4/2010	0	SG-29-15	108-88-3	Toluene	8		1.0E+06	--	**7.9E-06**	**--**
Soil Vapor	SG-30	5	8/5/2010	0	SG-30-5	127-18-4	Tetrachloroethene (PCE)	10		5.3E+04	6.0E+02	**1.9E-04**	**1.7E-08**
Soil Vapor	SG-31	5	8/5/2010	0	SG-31-5	127-18-4	Tetrachloroethene (PCE)	18		5.3E+04	6.0E+02	**3.4E-04**	**3.0E-08**
Soil Vapor	SG-31	5	8/5/2010	0	SG-31-5	108-88-3	Toluene	17		4.0E+05	--	**4.2E-05**	**--**
Soil Vapor	SG-31	15	8/5/2010	0	SG-31-15	127-18-4	Tetrachloroethene (PCE)	20		1.4E+05	1.6E+03	**1.4E-04**	**1.3E-08**
Soil Vapor	SG-31	15	8/5/2010	0	SG-31-15	108-88-3	Toluene	10		1.0E+06	--	**9.9E-06**	**--**
Soil Vapor	SG-32	5	8/5/2010	0	SG-32-5	95-63-6	1,2,4-Trimethylbenzene	9		1.2E+04	--	**7.4E-04**	**--**
Soil Vapor	SG-32	5	8/5/2010	0	SG-32-5	67-66-3	Chloroform	51		1.2E+05	1.2E+02	**4.4E-04**	**4.2E-07**
Soil Vapor	SG-32	5	8/5/2010	0	SG-32-5	179601-23-1	m&p-Xylenes	26		1.6E+05	--	**1.7E-04**	**--**
Soil Vapor	SG-32	5	8/5/2010	0	SG-32-5	127-18-4	Tetrachloroethene (PCE)	17		5.3E+04	6.0E+02	**3.2E-04**	**2.8E-08**
Soil Vapor	SG-32	5	8/5/2010	0	SG-32-5	108-88-3	Toluene	39		4.0E+05	--	**9.7E-05**	**--**
Soil Vapor	SG-32	15	8/5/2010	0	SG-32-15	67-66-3	Chloroform	10		2.8E+05	2.9E+02	**3.5E-05**	**3.4E-08**
Soil Vapor	SG-32	15	8/5/2010	0	SG-32-15	127-18-4	Tetrachloroethene (PCE)	11		1.4E+05	1.6E+03	**7.9E-05**	**7.0E-09**
Soil Vapor	SG-32	15	8/5/2010	0	SG-32-15	108-88-3	Toluene	13		1.0E+06	--	**1.3E-05**	**--**
Soil Vapor	VP-01	15	11/13/2013	0	VP-1-15-111313	127-18-4	Tetrachloroethene (PCE)	204	J	1.4E+05	1.6E+03	**1.5E-03**	**1.3E-07**
Soil Vapor	VP-01	15	11/13/2013	0	VP-1-15-111313	79-01-6	Trichloroethene (TCE)	42		7.3E+03	1.5E+03	**5.7E-03**	**2.8E-08**
Soil Vapor	VP-02	15	11/13/2013	0	VP-2-15-111313	127-18-4	Tetrachloroethene (PCE)	12	J	1.4E+05	1.6E+03	**8.6E-05**	**7.6E-09**
Soil Vapor	VP-02	15	11/13/2013	0	VP-2-15-111313	79-01-6	Trichloroethene (TCE)	32	J	7.3E+03	1.5E+03	**4.4E-03**	**2.1E-08**
Soil Vapor	VP-03	5	11/13/2013	0	VP-3-5-111313	127-18-4	Tetrachloroethene (PCE)	25	J	5.3E+04	6.0E+02	**4.7E-04**	**4.1E-08**
Soil Vapor	VP-03	5	11/13/2013	1	VP-3-5-111313 DUP	127-18-4	Tetrachloroethene (PCE)	13	J	5.3E+04	6.0E+02	**2.4E-04**	**2.2E-08**

Matrix	Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
										RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
Soil Vapor	VP-03	15	11/13/2013	0	VP-3-15-111313	127-18-4	Tetrachloroethene (PCE)	223		1.4E+05	1.6E+03	**1.6E-03**	**1.4E-07**
Soil Vapor	VP-03	15	11/13/2013	0	VP-3-15-111313	79-01-6	Trichloroethene (TCE)	13	J	7.3E+03	1.5E+03	**1.8E-03**	**8.6E-09**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	71-55-6	1,1,1-Trichloroethane	7.2		7.1E+06	--	**1.0E-06**	**--**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	95-63-6	1,2,4-Trimethylbenzene	32		6.3E+04	--	**5.1E-04**	**--**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	108-67-8	1,3,5-Trimethylbenzene	12		3.2E+05	--	**3.8E-05**	**--**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	622-96-8	1-Ethyl-4-methylbenzene	32		8.1E+05	--	**4.0E-05**	**--**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	67-64-1	Acetone	82		1.4E+08	--	**5.8E-07**	**--**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	71-43-2	Benzene	19		1.9E+05	5.1E+02	**1.0E-04**	**3.7E-08**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	75-15-0	Carbon Disulfide	70		3.8E+06	--	**1.8E-05**	**--**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	124-48-1	Chlorodibromomethane	5		1.9E+06	2.3E+03	**2.7E-06**	**2.2E-09**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	67-66-3	Chloroform	6.5		5.3E+05	5.5E+02	**1.2E-05**	**1.2E-08**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	74-87-3	Chloromethane	1.2		4.1E+05	--	**2.9E-06**	**--**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	75-27-4	Dichlorobromomethane	6.6		1.2E+06	1.1E+03	**5.3E-06**	**5.9E-09**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	100-41-4	Ethylbenzene	31		7.4E+06	6.9E+03	**4.2E-06**	**4.5E-09**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	75-71-8	Freon 12	5.9		8.2E+05	--	**7.2E-06**	**--**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	179601-23-1	m&p-Xylenes	110		7.8E+05	--	**1.4E-04**	**--**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	78-93-3	Methyl ethyl ketone	110		3.4E+07	--	**3.3E-06**	**--**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	75-09-2	Methylene Chloride (DCM)	22		2.2E+06	1.3E+04	**9.9E-06**	**1.7E-09**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	95-47-6	o-Xylene	32		6.4E+05	--	**5.0E-05**	**--**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	127-18-4	Tetrachloroethene (PCE)	120		2.7E+05	3.0E+03	**4.5E-04**	**4.0E-08**
Soil Vapor	VP-03	30	11/13/2013	1	VP-3-30-111313S	108-88-3	Toluene	110		1.9E+06	--	**5.7E-05**	**--**
Soil Vapor	VP-04	15	11/13/2013	0	VP-4-15-111313	127-18-4	Tetrachloroethene (PCE)	87		1.4E+05	1.6E+03	**6.3E-04**	**5.5E-08**
Soil Vapor	VP-04	15	11/13/2013	0	VP-4-15-111313	79-01-6	Trichloroethene (TCE)	14	J	7.3E+03	1.5E+03	**1.9E-03**	**9.2E-09**
Soil Vapor	VP-04	30	11/13/2013	0	VP-4-30-111313	108-88-3	Toluene	80		1.9E+06	--	**4.2E-05**	**--**
Soil Vapor	VP-05	5	11/13/2013	0	VP-5-5 111313	127-18-4	Tetrachloroethene (PCE)	30	J	5.3E+04	6.0E+02	**5.6E-04**	**5.0E-08**
Soil Vapor	VP-05	5	11/13/2013	0	VP-5-5 111313	79-01-6	Trichloroethene (TCE)	12	J	2.9E+03	5.9E+02	**4.2E-03**	**2.0E-08**
Soil Vapor	VP-06	5	11/13/2013	0	VP-6-5-111313	79-01-6	Trichloroethene (TCE)	10	J	2.9E+03	5.9E+02	**3.5E-03**	**1.7E-08**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	75-35-4	1,1-Dichloroethene	31		2.3E+05	--	**1.4E-04**	**--**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	95-63-6	1,2,4-Trimethylbenzene	43		3.2E+04	--	**1.3E-03**	**--**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	108-67-8	1,3,5-Trimethylbenzene	16		1.6E+05	--	**9.8E-05**	**--**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	622-96-8	1-Ethyl-4-methylbenzene	12		4.2E+05	--	**2.9E-05**	**--**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	67-64-1	Acetone	75		7.6E+07	--	**9.9E-07**	**--**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	71-43-2	Benzene	45		1.0E+05	2.7E+02	**4.5E-04**	**1.7E-07**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	75-15-0	Carbon Disulfide	40		2.0E+06	--	**2.0E-05**	**--**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	67-66-3	Chloroform	9.6		2.8E+05	2.9E+02	**3.4E-05**	**3.3E-08**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	100-41-4	Ethylbenzene	32		3.8E+06	3.6E+03	**8.4E-06**	**8.9E-09**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	179601-23-1	m&p-Xylenes	110		4.1E+05	--	**2.7E-04**	**--**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	78-93-3	Methyl ethyl ketone	110		1.8E+07	--	**6.2E-06**	**--**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	95-47-6	o-Xylene	39		3.4E+05	--	**1.2E-04**	**--**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	127-18-4	Tetrachloroethene (PCE)	61		1.4E+05	1.6E+03	**4.4E-04**	**3.9E-08**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	108-88-3	Toluene	240		1.0E+06	--	**2.4E-04**	**--**
Soil Vapor	VP-06	15	11/11/2013	0	VP-6-15-111113S	79-01-6	Trichloroethene (TCE)	240		7.3E+03	1.5E+03	**3.3E-02**	**1.6E-07**
Soil Vapor	VP-06	15	11/13/2013	0	VP-6-15-111313	127-18-4	Tetrachloroethene (PCE)	98	J	1.4E+05	1.6E+03	**7.0E-04**	**6.2E-08**
Soil Vapor	VP-06	15	11/13/2013	0	VP-6-15-111313	108-88-3	Toluene	102		1.0E+06	--	**1.0E-04**	**--**
Soil Vapor	VP-06	15	11/13/2013	0	VP-6-15-111313	79-01-6	Trichloroethene (TCE)	14	J	7.3E+03	1.5E+03	**1.9E-03**	**9.2E-09**
Soil Vapor	VP-06	15	11/13/2013	1	VP-6-15-111313 DUP	127-18-4	Tetrachloroethene (PCE)	266	J	1.4E+05	1.6E+03	**1.9E-03**	**1.7E-07**
Soil Vapor	VP-06	15	11/13/2013	1	VP-6-15-111313 DUP	108-88-3	Toluene	127		1.0E+06	--	**1.3E-04**	**--**
Soil Vapor	VP-06	15	11/13/2013	1	VP-6-15-111313 DUP	79-01-6	Trichloroethene (TCE)	66	J	7.3E+03	1.5E+03	**9.0E-03**	**4.4E-08**
Soil Vapor	VP-06	30	11/13/2013	0	VP-6-30-111313	95-63-6	1,2,4-Trimethylbenzene	13	J	6.3E+04	--	**2.1E-04**	**--**
Soil Vapor	VP-06	30	11/13/2013	0	VP-6-30-111313	108-67-8	1,3,5-Trimethylbenzene	8	J	3.2E+05	--	**2.5E-05**	**--**

Matrix	Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
										RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
Soil Vapor	VP-06	30	11/13/2013	0	VP-6-30-111313	75-09-2	Methylene Chloride (DCM)	22	J	2.2E+06	1.3E+04	**9.9E-06**	**1.7E-09**
Soil Vapor	VP-06	30	11/13/2013	0	VP-6-30-111313	127-18-4	Tetrachloroethene (PCE)	8	J	2.7E+05	3.0E+03	**3.0E-05**	**2.6E-09**
Soil Vapor	VP-06	30	11/13/2013	0	VP-6-30-111313	108-88-3	Toluene	127		1.9E+06	--	**6.6E-05**	**--**
Soil Vapor	VP-06	30	11/13/2013	0	VP-6-30-111313	1330-20-7	Xylenes, Total	69	J	6.6E+05	--	**1.1E-04**	**--**
Soil Vapor	VP-06	30	11/13/2013	1	VP-6-30-111313 DUP	75-09-2	Methylene Chloride (DCM)	19	J	2.2E+06	1.3E+04	**8.5E-06**	**1.5E-09**
Soil Vapor	VP-06	30	11/13/2013	1	VP-6-30-111313 DUP	127-18-4	Tetrachloroethene (PCE)	90	J	2.7E+05	3.0E+03	**3.4E-04**	**3.0E-08**
Soil Vapor	VP-06	30	11/13/2013	1	VP-6-30-111313 DUP	108-88-3	Toluene	130	J	1.9E+06	--	**6.8E-05**	**--**
Soil Vapor	VP-06	30	11/13/2013	1	VP-6-30-111313 DUP	1330-20-7	Xylenes, Total	34	J	6.6E+05	--	**5.2E-05**	**--**
Soil Vapor	VP-07	15	11/13/2013	0	VP-7-15-111313	127-18-4	Tetrachloroethene (PCE)	103		1.4E+05	1.6E+03	**7.4E-04**	**6.6E-08**
Soil Vapor	VP-07	15	11/13/2013	0	VP-7-15-111313	79-01-6	Trichloroethene (TCE)	25	J	7.3E+03	1.5E+03	**3.4E-03**	**1.6E-08**
Soil Vapor	VP-07	30	11/13/2013	0	VP-7-30-111313	95-63-6	1,2,4-Trimethylbenzene	22	J	6.3E+04	--	**3.5E-04**	**--**
Soil Vapor	VP-07	30	11/13/2013	0	VP-7-30-111313	108-67-8	1,3,5-Trimethylbenzene	10	J	3.2E+05	--	**3.2E-05**	**--**
Soil Vapor	VP-07	30	11/13/2013	0	VP-7-30-111313	127-18-4	Tetrachloroethene (PCE)	120		2.7E+05	3.0E+03	**4.5E-04**	**4.0E-08**
Soil Vapor	VP-07	30	11/13/2013	0	VP-7-30-111313	1330-20-7	Xylenes, Total	80	J	6.6E+05	--	**1.2E-04**	**--**
Soil Vapor	VP-08	15	11/12/2013	0	VP-8-15-111213S	67-64-1	Acetone	55		7.6E+07	--	**7.3E-07**	**--**
Soil Vapor	VP-08	15	11/12/2013	0	VP-8-15-111213S	75-71-8	Freon 12	2.7		4.3E+05	--	**6.3E-06**	**--**
Soil Vapor	VP-08	15	11/12/2013	0	VP-8-15-111213S	78-93-3	Methyl ethyl ketone	63		1.8E+07	--	**3.6E-06**	**--**
Soil Vapor	VP-08	15	11/12/2013	0	VP-8-15-111213S	127-18-4	Tetrachloroethene (PCE)	3.9		1.4E+05	1.6E+03	**2.8E-05**	**2.5E-09**
Soil Vapor	VP-08	15	11/12/2013	0	VP-8-15-111213S	108-88-3	Toluene	13		1.0E+06	--	**1.3E-05**	**--**
Soil Vapor	VP-08	15	11/13/2013	0	VP-8-15-111313	127-18-4	Tetrachloroethene (PCE)	47		1.4E+05	1.6E+03	**3.4E-04**	**3.0E-08**
Soil Vapor	VP-08	15	11/13/2013	0	VP-8-15-111313	79-01-6	Trichloroethene (TCE)	17	J	7.3E+03	1.5E+03	**2.3E-03**	**1.1E-08**
Soil Vapor	VP-08	30	11/13/2013	0	VP-8-30- 111313	127-18-4	Tetrachloroethene (PCE)	9	J	2.7E+05	3.0E+03	**3.4E-05**	**3.0E-09**
Soil Vapor	VP-09	5	11/13/2013	0	VP-9-5- 111313	108-88-3	Toluene	100		4.0E+05	--	**2.5E-04**	**--**
Soil Vapor	VP-09	5	11/13/2013	0	VP-9-5- 111313	1330-20-7	Xylenes, Total	25	J	1.4E+05	--	**1.8E-04**	**--**
Soil Vapor	VP-09	15	11/13/2013	0	VP-9-15-111313	127-18-4	Tetrachloroethene (PCE)	136		1.4E+05	1.6E+03	**9.8E-04**	**8.7E-08**
Soil Vapor	VP-09	15	11/13/2013	0	VP-9-15-111313	79-01-6	Trichloroethene (TCE)	40		7.3E+03	1.5E+03	**5.5E-03**	**2.6E-08**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	95-63-6	1,2,4-Trimethylbenzene	18		6.3E+04	--	**2.9E-04**	**--**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	108-67-8	1,3,5-Trimethylbenzene	5.6		3.2E+05	--	**1.8E-05**	**--**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	622-96-8	1-Ethyl-4-methylbenzene	4.5		8.1E+05	--	**5.6E-06**	**--**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	67-64-1	Acetone	90		1.4E+08	--	**6.4E-07**	**--**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	71-43-2	Benzene	6.3		1.9E+05	5.1E+02	**3.3E-05**	**1.2E-08**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	75-15-0	Carbon Disulfide	15		3.8E+06	--	**4.0E-06**	**--**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	74-87-3	Chloromethane	1.9		4.1E+05	--	**4.6E-06**	**--**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	100-41-4	Ethylbenzene	9.7		7.4E+06	6.9E+03	**1.3E-06**	**1.4E-09**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	75-71-8	Freon 12	2.7		8.2E+05	--	**3.3E-06**	**--**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	179601-23-1	m&p-Xylenes	38		7.8E+05	--	**4.8E-05**	**--**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	78-93-3	Methyl ethyl ketone	48		3.4E+07	--	**1.4E-06**	**--**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	95-47-6	o-Xylene	14		6.4E+05	--	**2.2E-05**	**--**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	127-18-4	Tetrachloroethene (PCE)	3.9		2.7E+05	3.0E+03	**1.5E-05**	**1.3E-09**
Soil Vapor	VP-10	30	11/12/2013	0	VP-10-30-111213S	108-88-3	Toluene	56		1.9E+06	--	**2.9E-05**	**--**
Soil Vapor	VP-10	45	11/13/2013	0	VP-10-45-111313	79-01-6	Trichloroethene (TCE)	23	J	2.1E+04	4.3E+03	**1.1E-03**	**5.4E-09**
Soil Vapor	VP-11	5	11/13/2013	0	VP-11-5-111313 1PV	120-82-1	1,2,4-Trichlorobenzene	23	J	6.1E+03	--	**3.8E-03**	**--**
Soil Vapor	VP-11	5	11/13/2013	0	VP-11-5-111313 1PV	95-49-8	o-Chlorotoluene	13	J	1.1E+05	--	**1.2E-04**	**--**
Soil Vapor	VP-11	5	11/13/2013	0	VP-11-5-111313 1PV	99-87-6	p-Cymene	24	J	1.9E+05	--	**1.2E-04**	**--**
Soil Vapor	VP-11	5	11/13/2013	0	VP-11-5-111313 1PV	135-98-8	sec-Butylbenzene	40		6.3E+05	--	**6.3E-05**	**--**
Soil Vapor	VP-11	5	11/13/2013	0	VP-11-5-111313 1PV	127-18-4	Tetrachloroethene (PCE)	27	J	5.3E+04	6.0E+02	**5.1E-04**	**4.5E-08**
Soil Vapor	VP-11	5	11/13/2013	13	VP-11-5-111313 3PV	95-49-8	o-Chlorotoluene	12	J	1.1E+05	--	**1.1E-04**	**--**
Soil Vapor	VP-11	5	11/13/2013	13	VP-11-5-111313 3PV	99-87-6	p-Cymene	10	J	1.9E+05	--	**5.2E-05**	**--**
Soil Vapor	VP-11	5	11/13/2013	13	VP-11-5-111313 3PV	135-98-8	sec-Butylbenzene	28	J	6.3E+05	--	**4.4E-05**	**--**
Soil Vapor	VP-11	5	11/13/2013	13	VP-11-5-111313 3PV	127-18-4	Tetrachloroethene (PCE)	27	J	5.3E+04	6.0E+02	**5.1E-04**	**4.5E-08**

Matrix	Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
										RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
Soil Vapor	VP-11	5	11/13/2013	13	VP-11-5-111313 3PV	108-88-3	Toluene	116		4.0E+05	--	**2.9E-04**	**--**
Soil Vapor	VP-11	5	11/13/2013	15	VP-11-5-111313 10PV	95-49-8	o-Chlorotoluene	11	J	1.1E+05	--	**1.0E-04**	**--**
Soil Vapor	VP-11	5	11/13/2013	15	VP-11-5-111313 10PV	99-87-6	p-Cymene	12	J	1.9E+05	--	**6.2E-05**	**--**
Soil Vapor	VP-11	5	11/13/2013	15	VP-11-5-111313 10PV	135-98-8	sec-Butylbenzene	31	J	6.3E+05	--	**4.9E-05**	**--**
Soil Vapor	VP-11	5	11/13/2013	15	VP-11-5-111313 10PV	127-18-4	Tetrachloroethene (PCE)	29	J	5.3E+04	6.0E+02	**5.4E-04**	**4.8E-08**
Soil Vapor	VP-11	15	11/13/2013	15	VP-11-15-111313 10PV	127-18-4	Tetrachloroethene (PCE)	172		1.4E+05	1.6E+03	**1.2E-03**	**1.1E-07**
Soil Vapor	VP-11	15	11/13/2013	15	VP-11-15-111313 10PV	79-01-6	Trichloroethene (TCE)	10	J	7.3E+03	1.5E+03	**1.4E-03**	**6.6E-09**
Soil Vapor	VP-11	15	11/13/2013	0	VP-11-15-111313 1PV	127-18-4	Tetrachloroethene (PCE)	224		1.4E+05	1.6E+03	**1.6E-03**	**1.4E-07**
Soil Vapor	VP-11	15	11/13/2013	13	VP-11-15-111313 3PV	127-18-4	Tetrachloroethene (PCE)	214		1.4E+05	1.6E+03	**1.5E-03**	**1.4E-07**
Soil Vapor	VP-11	15	11/13/2013	13	VP-11-15-111313 3PV	79-01-6	Trichloroethene (TCE)	16	J	7.3E+03	1.5E+03	**2.2E-03**	**1.1E-08**
Soil Vapor	VP-11	30	11/13/2013	0	VP-11-30-111313 1PV	99-87-6	p-Cymene	11	J	1.0E+06	--	**1.1E-05**	**--**
Soil Vapor	VP-11	30	11/13/2013	0	VP-11-30-111313 1PV	127-18-4	Tetrachloroethene (PCE)	31	J	2.7E+05	3.0E+03	**1.2E-04**	**1.0E-08**
Soil Vapor	VP-11	30	11/13/2013	0	VP-11-30-111313 1PV	108-88-3	Toluene	21	J	1.9E+06	--	**1.1E-05**	**--**
Soil Vapor	VP-11	30	11/13/2013	13	VP-11-30-111313 3PV	99-87-6	p-Cymene	15	J	1.0E+06	--	**1.5E-05**	**--**
Soil Vapor	VP-11	30	11/13/2013	13	VP-11-30-111313 3PV	127-18-4	Tetrachloroethene (PCE)	21	J	2.7E+05	3.0E+03	**7.8E-05**	**6.9E-09**
Soil Vapor	VP-11	30	11/13/2013	13	VP-11-30-111313 3PV	108-88-3	Toluene	14	J	1.9E+06	--	**7.3E-06**	**--**
Soil Vapor	VP-11	30	11/13/2013	15	VP-11-30-111313 10PV	99-87-6	p-Cymene	9	J	1.0E+06	--	**8.7E-06**	**--**
Soil Vapor	VP-11	30	11/13/2013	15	VP-11-30-111313 10PV	127-18-4	Tetrachloroethene (PCE)	17	J	2.7E+05	3.0E+03	**6.4E-05**	**5.6E-09**
Soil Vapor	VP-12	15	11/13/2013	0	VP-12-15- 111313	127-18-4	Tetrachloroethene (PCE)	115		1.4E+05	1.6E+03	**8.3E-04**	**7.3E-08**
Soil Vapor	VP-12	15	11/13/2013	0	VP-12-15- 111313	79-01-6	Trichloroethene (TCE)	27	J	7.3E+03	1.5E+03	**3.7E-03**	**1.8E-08**
Soil Vapor	VP-13	5	11/13/2013	0	VP-13-5- 111313	127-18-4	Tetrachloroethene (PCE)	110		5.3E+04	6.0E+02	**2.1E-03**	**1.8E-07**
Soil Vapor	VP-13	5	11/13/2013	0	VP-13-5- 111313	79-01-6	Trichloroethene (TCE)	28	J	2.9E+03	5.9E+02	**9.8E-03**	**4.7E-08**
Soil Vapor	VP-13	15	11/13/2013	0	VP-13-15- 111313	127-18-4	Tetrachloroethene (PCE)	166		1.4E+05	1.6E+03	**1.2E-03**	**1.1E-07**
Soil Vapor	VP-13	15	11/13/2013	0	VP-13-15- 111313	79-01-6	Trichloroethene (TCE)	58		7.3E+03	1.5E+03	**7.9E-03**	**3.8E-08**
Soil Vapor	VP-13	30	11/13/2013	0	VP-13-30- 111313	127-18-4	Tetrachloroethene (PCE)	70		2.7E+05	3.0E+03	**2.6E-04**	**2.3E-08**
Soil Vapor	VP-14	5	11/13/2013	0	VP-14-5- 111313	75-35-4	1,1-Dichloroethene	81		9.1E+04	--	**8.9E-04**	**--**
Soil Vapor	VP-14	15	11/13/2013	0	VP-14-15- 111313	75-35-4	1,1-Dichloroethene	224		2.3E+05	--	**9.8E-04**	**--**
Soil Vapor	VP-14	15	11/13/2013	0	VP-14-15- 111313	87-61-6	1,2,3-Trichlorobenzene	8	J	1.9E+04	--	**4.2E-04**	**--**
Soil Vapor	VP-14	15	11/13/2013	0	VP-14-15- 111313	98-82-8	Isopropylbenzene	9	J	1.7E+06	--	**5.2E-06**	**--**
Soil Vapor	VP-14	15	11/13/2013	0	VP-14-15- 111313	127-18-4	Tetrachloroethene (PCE)	102		1.4E+05	1.6E+03	**7.3E-04**	**6.5E-08**
Soil Vapor	VP-14	15	11/13/2013	0	VP-14-15- 111313	79-01-6	Trichloroethene (TCE)	20	J	7.3E+03	1.5E+03	**2.7E-03**	**1.3E-08**
Soil Vapor	VP-14	15	11/13/2013	1	VP-14-15-111313S	622-96-8	1-Ethyl-4-methylbenzene	2.5		4.2E+05	--	**6.0E-06**	**--**
Soil Vapor	VP-14	15	11/13/2013	1	VP-14-15-111313S	67-64-1	Acetone	44		7.6E+07	--	**5.8E-07**	**--**
Soil Vapor	VP-14	15	11/13/2013	1	VP-14-15-111313S	100-41-4	Ethylbenzene	4.3		3.8E+06	3.6E+03	**1.1E-06**	**1.2E-09**
Soil Vapor	VP-14	15	11/13/2013	1	VP-14-15-111313S	75-71-8	Freon 12	2.7		4.3E+05	--	**6.3E-06**	**--**
Soil Vapor	VP-14	15	11/13/2013	1	VP-14-15-111313S	179601-23-1	m&p-Xylenes	17		4.1E+05	--	**4.2E-05**	**--**
Soil Vapor	VP-14	15	11/13/2013	1	VP-14-15-111313S	78-93-3	Methyl ethyl ketone	42		1.8E+07	--	**2.4E-06**	**--**
Soil Vapor	VP-14	15	11/13/2013	1	VP-14-15-111313S	95-47-6	o-Xylene	4.7		3.4E+05	--	**1.4E-05**	**--**
Soil Vapor	VP-14	15	11/13/2013	1	VP-14-15-111313S	127-18-4	Tetrachloroethene (PCE)	4		1.4E+05	1.6E+03	**2.9E-05**	**2.5E-09**
Soil Vapor	VP-14	15	11/13/2013	1	VP-14-15-111313S	108-88-3	Toluene	2.5		1.0E+06	--	**2.5E-06**	**--**
Soil Vapor	VP-15	5	11/13/2013	0	VP-15-5- 111313	127-18-4	Tetrachloroethene (PCE)	127		5.3E+04	6.0E+02	**2.4E-03**	**2.1E-07**
Soil Vapor	VP-15	5	11/13/2013	0	VP-15-5- 111313	79-01-6	Trichloroethene (TCE)	28	J	2.9E+03	5.9E+02	**9.8E-03**	**4.7E-08**
Soil Vapor	VP-15	15	11/13/2013	0	VP-15-15- 111313	127-18-4	Tetrachloroethene (PCE)	91	J	1.4E+05	1.6E+03	**6.5E-04**	**5.8E-08**
Soil Vapor	VP-15	15	11/13/2013	0	VP-15-15- 111313	79-01-6	Trichloroethene (TCE)	23	J	7.3E+03	1.5E+03	**3.1E-03**	**1.5E-08**
Soil Vapor	VP-15	15	11/13/2013	1	VP-15-15-111313 DUP	127-18-4	Tetrachloroethene (PCE)	126	J	1.4E+05	1.6E+03	**9.1E-04**	**8.0E-08**
Soil Vapor	VP-15	15	11/13/2013	1	VP-15-15-111313 DUP	79-01-6	Trichloroethene (TCE)	49	J	7.3E+03	1.5E+03	**6.7E-03**	**3.2E-08**
Soil Vapor	VP-16	5	11/13/2013	1	VP-16-5-111313 DUP	127-18-4	Tetrachloroethene (PCE)	53	J	5.3E+04	6.0E+02	**9.9E-04**	**8.8E-08**

Geosyntec consultants

Appendix E, Attachment E-4

Vapor Intrusion Analysis - Engineered Fill

Worksheet: DATENTER

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SG-ADV
Version 3.1; 02/04

SV sample depth = **5 ft bgs**

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				1,1,1-Trichloroethane
75354				1,1-Dichloroethene
87616				1,2,3-Trichlorobenzene
120821				1,2,4-Trichlorobenzene
95636				1,2,4-Trimethylbenzene
108678				1,3,5-Trimethylbenzene
622968				1-Ethyl-4-methylbenzene
67641				Acetone
71432				Benzene
135988				sec-Butylbenzene
75150				Carbon disulfide
124481				Chlorodibromomethane
67663				Chloroform
74873				Chloromethane
95498				o-Chlorotoluene
99876				p-Isopropyltoluene (p-cymene)
75274				Dichlorobromomethane
100414				Ethylbenzene
75694				Freon 11
75718				Freon 12
98828				Isopropylbenzene (cumene)
74839				Methyl Bromide
78933				Methyl ethyl ketone
75092				Methylene chloride
103651				n-Propylbenzene
127184				Tetrachloroethene (PCE)
108883				Toluene
79016				Trichloroethene (TCE)
95476				o-Xylene
108383				m-Xylene
1330207				Xylene (total)

Worksheet: DATENTER

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm2)
			Totals must add up to value of Ls (cell F24)					
15	152.5	19	152.5	0	0	SIC		
	5 ft bgs		5 ft bgs					

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
Lookup Soil Parameters				Lookup Soil Parameters				Lookup Soil Parameters			
SIC	1.8	0.30	0.15								

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

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	6	30	350

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **5 ft bgs**

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,1,1-Trichloroethane
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,1-Dichloroethene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,3-Trichlorobenzene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trichlorobenzene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trimethylbenzene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,3,5-Trimethylbenzene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1-Ethyl-4-methylbenzene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Acetone
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Benzene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	sec-Butylbenzene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Carbon disulfide
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chlorodibromomethane
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chloroform
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chloromethane
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	o-Chlorotoluene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	p-Isopropyltoluene (p-cymene)
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Dichlorobromomethane
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Ethylbenzene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Freon 11
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Freon 12
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Isopropylbenzene (cumene)
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methyl Bromide
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methyl ethyl ketone
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methylene chloride
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	n-Propylbenzene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Tetrachloroethene (PCE)
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Toluene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Trichloroethene (TCE)
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	o-Xylene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	m-Xylene
9.5E+08	137.5	0.150	ERROR	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **5 ft bgs**

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	
1.1E+06	5.0E-03	15	7,787	1.3E-02	5.5E-01	1.8E-04	1.6E-03	0.0E+00	0.0E+00	1.6E-03	137.5	1,1,1-Trichloroethane
1.1E+06	5.0E-03	15	6,333	2.1E-02	8.7E-01	1.8E-04	1.8E-03	0.0E+00	0.0E+00	1.8E-03	137.5	1,1-Dichloroethene
1.1E+06	5.0E-03	15	13,127	7.9E-04	3.3E-02	1.8E-04	8.0E-04	0.0E+00	0.0E+00	8.0E-04	137.5	1,2,3-Trichlorobenzene
1.1E+06	5.0E-03	15	13,127	9.0E-04	3.7E-02	1.8E-04	6.1E-04	0.0E+00	0.0E+00	6.1E-04	137.5	1,2,4-Trichlorobenzene
1.1E+06	5.0E-03	15	11,579	4.1E-03	1.7E-01	1.8E-04	1.2E-03	0.0E+00	0.0E+00	1.2E-03	137.5	1,2,4-Trimethylbenzene
1.1E+06	5.0E-03	15	11,561	3.9E-03	1.6E-01	1.8E-04	1.2E-03	0.0E+00	0.0E+00	1.2E-03	137.5	1,3,5-Trimethylbenzene
1.1E+06	5.0E-03	15	0	5.0E-03	2.1E-01	1.8E-04	1.4E-03	0.0E+00	0.0E+00	1.4E-03	137.5	1-Ethyl-4-methylbenzene
1.1E+06	5.0E-03	15	7,447	3.0E-05	1.2E-03	1.8E-04	2.7E-03	0.0E+00	0.0E+00	2.7E-03	137.5	Acetone
1.1E+06	5.0E-03	15	8,030	4.2E-03	1.7E-01	1.8E-04	1.8E-03	0.0E+00	0.0E+00	1.8E-03	137.5	Benzene
1.1E+06	5.0E-03	15	107,157	3.4E-04	1.4E-02	1.8E-04	1.2E-03	0.0E+00	0.0E+00	1.2E-03	137.5	sec-Butylbenzene
1.1E+06	5.0E-03	15	6,612	2.4E-02	1.0E+00	1.8E-04	2.1E-03	0.0E+00	0.0E+00	2.1E-03	137.5	Carbon disulfide
1.1E+06	5.0E-03	15	6,726	6.2E-04	2.6E-02	1.8E-04	4.0E-04	0.0E+00	0.0E+00	4.0E-04	137.5	Chlorodibromomethane
1.1E+06	5.0E-03	15	7,461	2.8E-03	1.2E-01	1.8E-04	2.1E-03	0.0E+00	0.0E+00	2.1E-03	137.5	Chloroform
1.1E+06	5.0E-03	15	4,640	7.5E-03	3.1E-01	1.8E-04	2.5E-03	0.0E+00	0.0E+00	2.5E-03	137.5	Chloromethane
1.1E+06	5.0E-03	15	0	3.6E-03	1.5E-01	1.8E-04	1.5E-03	0.0E+00	0.0E+00	1.5E-03	137.5	o-Chlorotoluene
1.1E+06	5.0E-03	15	0	1.1E-02	4.6E-01	1.8E-04	1.1E-03	0.0E+00	0.0E+00	1.1E-03	137.5	p-Isopropyltoluene (p-cymene)
1.1E+06	5.0E-03	15	8,576	1.2E-03	4.9E-02	1.8E-04	6.0E-04	0.0E+00	0.0E+00	6.0E-04	137.5	Dichlorobromomethane
1.1E+06	5.0E-03	15	10,052	5.5E-03	2.3E-01	1.8E-04	1.5E-03	0.0E+00	0.0E+00	1.5E-03	137.5	Ethylbenzene
1.1E+06	5.0E-03	15	6,053	7.8E-02	3.3E+00	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	137.5	Freon 11
1.1E+06	5.0E-03	15	8,118	2.6E-01	1.1E+01	1.8E-04	1.3E-03	0.0E+00	0.0E+00	1.3E-03	137.5	Freon 12
1.1E+06	5.0E-03	15	12,518	9.5E-03	3.9E-01	1.8E-04	1.3E-03	0.0E+00	0.0E+00	1.3E-03	137.5	Isopropylbenzene (cumene)
1.1E+06	5.0E-03	15	5,560	5.1E-03	2.1E-01	1.8E-04	1.5E-03	0.0E+00	0.0E+00	1.5E-03	137.5	Methyl Bromide
1.1E+06	5.0E-03	15	8,307	4.2E-05	1.7E-03	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	137.5	Methyl ethyl ketone
1.1E+06	5.0E-03	15	6,938	1.7E-03	7.2E-02	1.8E-04	2.0E-03	0.0E+00	0.0E+00	2.0E-03	137.5	Methylene chloride
1.1E+06	5.0E-03	15	11,251	7.2E-03	3.0E-01	1.8E-04	1.2E-03	0.0E+00	0.0E+00	1.2E-03	137.5	n-Propylbenzene
1.1E+06	5.0E-03	15	9,462	1.3E-02	5.5E-01	1.8E-04	1.4E-03	0.0E+00	0.0E+00	1.4E-03	137.5	Tetrachloroethene (PCE)
1.1E+06	5.0E-03	15	9,056	4.8E-03	2.0E-01	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	137.5	Toluene
1.1E+06	5.0E-03	15	8,445	7.7E-03	3.2E-01	1.8E-04	1.6E-03	0.0E+00	0.0E+00	1.6E-03	137.5	Trichloroethene (TCE)
1.1E+06	5.0E-03	15	10,302	3.6E-03	1.5E-01	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	137.5	o-Xylene
1.1E+06	5.0E-03	15	10,150	5.2E-03	2.1E-01	1.8E-04	1.4E-03	0.0E+00	0.0E+00	1.4E-03	137.5	m-Xylene
1.1E+06	5.0E-03	15	10,147	4.6E-03	1.9E-01	1.8E-04	1.7E-03	0.0E+00	0.0E+00	1.7E-03	137.5	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **5 ft bgs**

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	
15	0.0E+00	1.33	8.3E+01	1.6E-03	5.3E+03	4.5E+43	3.1E-04	1,1,1-Trichloroethane
15	0.0E+00	1.33	8.3E+01	1.8E-03	5.3E+03	6.8E+37	3.5E-04	1,1-Dichloroethene
15	0.0E+00	1.33	8.3E+01	8.0E-04	5.3E+03	4.0E+85	1.7E-04	1,2,3-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	6.1E-04	5.3E+03	4.9E+112	1.3E-04	1,2,4-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	1.4E+56	2.5E-04	1,2,4-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	3.3E+56	2.5E-04	1,3,5-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	1.0E+50	2.8E-04	1-Ethyl-4-methylbenzene
15	0.0E+00	1.33	8.3E+01	2.7E-03	5.3E+03	3.8E+25	4.9E-04	Acetone
15	0.0E+00	1.33	8.3E+01	1.8E-03	5.3E+03	4.7E+38	3.5E-04	Benzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	1.4E+59	2.4E-04	sec-Butylbenzene
15	0.0E+00	1.33	8.3E+01	2.1E-03	5.3E+03	5.5E+32	4.0E-04	Carbon disulfide
15	0.0E+00	1.33	8.3E+01	4.0E-04	5.3E+03	1.7E+170	8.8E-05	Chlorodibromomethane
15	0.0E+00	1.33	8.3E+01	2.1E-03	5.3E+03	5.2E+32	4.0E-04	Chloroform
15	0.0E+00	1.33	8.3E+01	2.5E-03	5.3E+03	1.1E+27	4.7E-04	Chloromethane
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	5.2E+46	2.9E-04	o-Chlorotoluene
15	0.0E+00	1.33	8.3E+01	1.1E-03	5.3E+03	4.0E+64	2.2E-04	p-Isopropyltoluene (p-cymene)
15	0.0E+00	1.33	8.3E+01	6.0E-04	5.3E+03	2.9E+113	1.3E-04	Dichlorobromomethane
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	2.4E+45	3.0E-04	Ethylbenzene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.4E+39	3.4E-04	Freon 11
15	0.0E+00	1.33	8.3E+01	1.3E-03	5.3E+03	1.6E+51	2.7E-04	Freon 12
15	0.0E+00	1.33	8.3E+01	1.3E-03	5.3E+03	2.4E+52	2.6E-04	Isopropylbenzene (cumene)
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	5.5E+46	2.9E-04	Methyl Bromide
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	2.6E+39	3.4E-04	Methyl ethyl ketone
15	0.0E+00	1.33	8.3E+01	2.0E-03	5.3E+03	4.6E+33	3.9E-04	Methylene chloride
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	4.4E+56	2.5E-04	n-Propylbenzene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	1.9E+47	2.9E-04	Tetrachloroethene (PCE)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.3E+39	3.4E-04	Toluene
15	0.0E+00	1.33	8.3E+01	1.6E-03	5.3E+03	1.2E+43	3.1E-04	Trichloroethene (TCE)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.3E+39	3.4E-04	o-Xylene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	4.2E+48	2.8E-04	m-Xylene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.5E+40	3.3E-04	Xylene (total)

Worksheet: DATENTER

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SG-ADV
Version 3.1; 02/04

SV sample depth = **15 ft bgs**

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				1,1,1-Trichloroethane
75354				1,1-Dichloroethene
87616				1,2,3-Trichlorobenzene
120821				1,2,4-Trichlorobenzene
95636				1,2,4-Trimethylbenzene
108678				1,3,5-Trimethylbenzene
622968				1-Ethyl-4-methylbenzene
67641				Acetone
71432				Benzene
135988				sec-Butylbenzene
75150				Carbon disulfide
124481				Chlorodibromomethane
67663				Chloroform
74873				Chloromethane
95498				o-Chlorotoluene
99876				p-Isopropyltoluene (p-cymene)
75274				Dichlorobromomethane
100414				Ethylbenzene
75694				Freon 11
75718				Freon 12
98828				Isopropylbenzene (cumene)
74839				Methyl Bromide
78933				Methyl ethyl ketone
75092				Methylene chloride
103651				n-Propylbenzene
127184				Tetrachloroethene (PCE)
108883				Toluene
79016				Trichloroethene (TCE)
95476				o-Xylene
108383				m-Xylene
1330207				Xylene (total)

Worksheet: DATENTER

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm2)
			Totals must add up to value of Ls (cell F24)					
15	457.5	19	152.5	305	0	SIC		
	15 ft bgs		5 ft	10 ft				

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
Lookup Soil Parameters				Lookup Soil Parameters				Lookup Soil Parameters			
SIC	1.8	0.30	0.15	SIL	1.49	0.439	0.180				

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

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	6	30	350

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **15 ft bgs**

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,1,1-Trichloroethane
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,1-Dichloroethene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,3-Trichlorobenzene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trichlorobenzene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trimethylbenzene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,3,5-Trimethylbenzene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1-Ethyl-4-methylbenzene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Acetone
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Benzene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	sec-Butylbenzene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Carbon disulfide
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chlorodibromomethane
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chloroform
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chloromethane
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	o-Chlorotoluene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	p-Isopropyltoluene (p-cymene)
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Dichlorobromomethane
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Ethylbenzene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Freon 11
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Freon 12
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Isopropylbenzene (cumene)
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methyl Bromide
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methyl ethyl ketone
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methylene chloride
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	n-Propylbenzene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Tetrachloroethene (PCE)
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Toluene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Trichloroethene (TCE)
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	o-Xylene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	m-Xylene
9.5E+08	442.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **15 ft bgs**

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	
1.1E+06	5.0E-03	15	7,787	1.3E-02	5.5E-01	1.8E-04	1.6E-03	4.5E-03	0.0E+00	2.8E-03	442.5	1,1,1-Trichloroethane
1.1E+06	5.0E-03	15	6,333	2.1E-02	8.7E-01	1.8E-04	1.8E-03	5.2E-03	0.0E+00	3.3E-03	442.5	1,1-Dichloroethene
1.1E+06	5.0E-03	15	13,127	7.9E-04	3.3E-02	1.8E-04	8.0E-04	2.3E-03	0.0E+00	1.4E-03	442.5	1,2,3-Trichlorobenzene
1.1E+06	5.0E-03	15	13,127	9.0E-04	3.7E-02	1.8E-04	6.1E-04	1.7E-03	0.0E+00	1.1E-03	442.5	1,2,4-Trichlorobenzene
1.1E+06	5.0E-03	15	11,579	4.1E-03	1.7E-01	1.8E-04	1.2E-03	3.5E-03	0.0E+00	2.2E-03	442.5	1,2,4-Trimethylbenzene
1.1E+06	5.0E-03	15	11,561	3.9E-03	1.6E-01	1.8E-04	1.2E-03	3.5E-03	0.0E+00	2.2E-03	442.5	1,3,5-Trimethylbenzene
1.1E+06	5.0E-03	15	0	5.0E-03	2.1E-01	1.8E-04	1.4E-03	3.9E-03	0.0E+00	2.5E-03	442.5	1-Ethyl-4-methylbenzene
1.1E+06	5.0E-03	15	7,447	3.0E-05	1.2E-03	1.8E-04	2.7E-03	7.3E-03	0.0E+00	4.7E-03	442.5	Acetone
1.1E+06	5.0E-03	15	8,030	4.2E-03	1.7E-01	1.8E-04	1.8E-03	5.1E-03	0.0E+00	3.2E-03	442.5	Benzene
1.1E+06	5.0E-03	15	107,157	3.4E-04	1.4E-02	1.8E-04	1.2E-03	3.3E-03	0.0E+00	2.1E-03	442.5	sec-Butylbenzene
1.1E+06	5.0E-03	15	6,612	2.4E-02	1.0E+00	1.8E-04	2.1E-03	6.0E-03	0.0E+00	3.8E-03	442.5	Carbon disulfide
1.1E+06	5.0E-03	15	6,726	6.2E-04	2.6E-02	1.8E-04	4.0E-04	1.1E-03	0.0E+00	7.2E-04	442.5	Chlorodibromomethane
1.1E+06	5.0E-03	15	7,461	2.8E-03	1.2E-01	1.8E-04	2.1E-03	6.0E-03	0.0E+00	3.8E-03	442.5	Chloroform
1.1E+06	5.0E-03	15	4,640	7.5E-03	3.1E-01	1.8E-04	2.5E-03	7.3E-03	0.0E+00	4.6E-03	442.5	Chloromethane
1.1E+06	5.0E-03	15	0	3.6E-03	1.5E-01	1.8E-04	1.5E-03	4.2E-03	0.0E+00	2.7E-03	442.5	o-Chlorotoluene
1.1E+06	5.0E-03	15	0	1.1E-02	4.6E-01	1.8E-04	1.1E-03	3.0E-03	0.0E+00	1.9E-03	442.5	p-Isopropyltoluene (p-cymene)
1.1E+06	5.0E-03	15	8,576	1.2E-03	4.9E-02	1.8E-04	6.0E-04	1.7E-03	0.0E+00	1.1E-03	442.5	Dichlorobromomethane
1.1E+06	5.0E-03	15	10,052	5.5E-03	2.3E-01	1.8E-04	1.5E-03	4.3E-03	0.0E+00	2.7E-03	442.5	Ethylbenzene
1.1E+06	5.0E-03	15	6,053	7.8E-02	3.3E+00	1.8E-04	1.7E-03	5.0E-03	0.0E+00	3.2E-03	442.5	Freon 11
1.1E+06	5.0E-03	15	8,118	2.6E-01	1.1E+01	1.8E-04	1.3E-03	3.8E-03	0.0E+00	2.4E-03	442.5	Freon 12
1.1E+06	5.0E-03	15	12,518	9.5E-03	3.9E-01	1.8E-04	1.3E-03	3.8E-03	0.0E+00	2.4E-03	442.5	Isopropylbenzene (cumene)
1.1E+06	5.0E-03	15	5,560	5.1E-03	2.1E-01	1.8E-04	1.5E-03	4.2E-03	0.0E+00	2.7E-03	442.5	Methyl Bromide
1.1E+06	5.0E-03	15	8,307	4.2E-05	1.7E-03	1.8E-04	1.7E-03	4.8E-03	0.0E+00	3.1E-03	442.5	Methyl ethyl ketone
1.1E+06	5.0E-03	15	6,938	1.7E-03	7.2E-02	1.8E-04	2.0E-03	5.8E-03	0.0E+00	3.7E-03	442.5	Methylene chloride
1.1E+06	5.0E-03	15	11,251	7.2E-03	3.0E-01	1.8E-04	1.2E-03	3.5E-03	0.0E+00	2.2E-03	442.5	n-Propylbenzene
1.1E+06	5.0E-03	15	9,462	1.3E-02	5.5E-01	1.8E-04	1.4E-03	4.2E-03	0.0E+00	2.6E-03	442.5	Tetrachloroethene (PCE)
1.1E+06	5.0E-03	15	9,056	4.8E-03	2.0E-01	1.8E-04	1.7E-03	5.0E-03	0.0E+00	3.2E-03	442.5	Toluene
1.1E+06	5.0E-03	15	8,445	7.7E-03	3.2E-01	1.8E-04	1.6E-03	4.6E-03	0.0E+00	2.9E-03	442.5	Trichloroethene (TCE)
1.1E+06	5.0E-03	15	10,302	3.6E-03	1.5E-01	1.8E-04	1.7E-03	5.0E-03	0.0E+00	3.2E-03	442.5	o-Xylene
1.1E+06	5.0E-03	15	10,150	5.2E-03	2.1E-01	1.8E-04	1.4E-03	4.0E-03	0.0E+00	2.6E-03	442.5	m-Xylene
1.1E+06	5.0E-03	15	10,147	4.6E-03	1.9E-01	1.8E-04	1.7E-03	4.9E-03	0.0E+00	3.1E-03	442.5	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **15 ft bgs**

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	
15	0.0E+00	1.33	8.3E+01	1.6E-03	5.3E+03	4.5E+43	1.9E-04	1,1,1-Trichloroethane
15	0.0E+00	1.33	8.3E+01	1.8E-03	5.3E+03	6.8E+37	2.1E-04	1,1-Dichloroethene
15	0.0E+00	1.33	8.3E+01	8.0E-04	5.3E+03	4.0E+85	9.8E-05	1,2,3-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	6.1E-04	5.3E+03	4.9E+112	7.5E-05	1,2,4-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	1.4E+56	1.5E-04	1,2,4-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	3.3E+56	1.5E-04	1,3,5-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	1.0E+50	1.6E-04	1-Ethyl-4-methylbenzene
15	0.0E+00	1.33	8.3E+01	2.7E-03	5.3E+03	3.8E+25	3.0E-04	Acetone
15	0.0E+00	1.33	8.3E+01	1.8E-03	5.3E+03	4.7E+38	2.1E-04	Benzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	1.4E+59	1.4E-04	sec-Butylbenzene
15	0.0E+00	1.33	8.3E+01	2.1E-03	5.3E+03	5.5E+32	2.4E-04	Carbon disulfide
15	0.0E+00	1.33	8.3E+01	4.0E-04	5.3E+03	1.7E+170	5.0E-05	Chlorodibromomethane
15	0.0E+00	1.33	8.3E+01	2.1E-03	5.3E+03	5.2E+32	2.4E-04	Chloroform
15	0.0E+00	1.33	8.3E+01	2.5E-03	5.3E+03	1.1E+27	2.9E-04	Chloromethane
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	5.2E+46	1.7E-04	o-Chlorotoluene
15	0.0E+00	1.33	8.3E+01	1.1E-03	5.3E+03	4.0E+64	1.3E-04	p-Isopropyltoluene (p-cymene)
15	0.0E+00	1.33	8.3E+01	6.0E-04	5.3E+03	2.9E+113	7.5E-05	Dichlorobromomethane
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	2.4E+45	1.8E-04	Ethylbenzene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.4E+39	2.1E-04	Freon 11
15	0.0E+00	1.33	8.3E+01	1.3E-03	5.3E+03	1.6E+51	1.6E-04	Freon 12
15	0.0E+00	1.33	8.3E+01	1.3E-03	5.3E+03	2.4E+52	1.6E-04	Isopropylbenzene (cumene)
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	5.5E+46	1.7E-04	Methyl Bromide
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	2.6E+39	2.0E-04	Methyl ethyl ketone
15	0.0E+00	1.33	8.3E+01	2.0E-03	5.3E+03	4.6E+33	2.4E-04	Methylene chloride
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	4.4E+56	1.5E-04	n-Propylbenzene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	1.9E+47	1.7E-04	Tetrachloroethene (PCE)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.3E+39	2.1E-04	Toluene
15	0.0E+00	1.33	8.3E+01	1.6E-03	5.3E+03	1.2E+43	1.9E-04	Trichloroethene (TCE)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.3E+39	2.1E-04	o-Xylene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	4.2E+48	1.7E-04	m-Xylene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.5E+40	2.0E-04	Xylene (total)

Worksheet: DATENTER

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SG-ADV
Version 3.1; 02/04

SV sample depth = **30 ft bgs**

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				1,1,1-Trichloroethane
75354				1,1-Dichloroethene
87616				1,2,3-Trichlorobenzene
120821				1,2,4-Trichlorobenzene
95636				1,2,4-Trimethylbenzene
108678				1,3,5-Trimethylbenzene
622968				1-Ethyl-4-methylbenzene
67641				Acetone
71432				Benzene
135988				sec-Butylbenzene
75150				Carbon disulfide
124481				Chlorodibromomethane
67663				Chloroform
74873				Chloromethane
95498				o-Chlorotoluene
99876				p-Isopropyltoluene (p-cymene)
75274				Dichlorobromomethane
100414				Ethylbenzene
75694				Freon 11
75718				Freon 12
98828				Isopropylbenzene (cumene)
74839				Methyl Bromide
78933				Methyl ethyl ketone
75092				Methylene chloride
103651				n-Propylbenzene
127184				Tetrachloroethene (PCE)
108883				Toluene
79016				Trichloroethene (TCE)
95476				o-Xylene
108383				m-Xylene
1330207				Xylene (total)

Worksheet: DATENTER

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)		ENTER User-defined stratum A soil vapor permeability, k_v (cm2)
			Totals must add up to value of Ls (cell F24)					
15	915	19	152.5	762.5	0	SIC		
	30 ft bgs		5 ft	25 ft				

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
Lookup Soil Parameters				Lookup Soil Parameters				Lookup Soil Parameters			
SIC	1.8	0.30	0.15	SIL	1.49	0.439	0.180				

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)		ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5		5

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	6	30	350

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **30 ft bgs**

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,1,1-Trichloroethane
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,1-Dichloroethene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,3-Trichlorobenzene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trichlorobenzene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trimethylbenzene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,3,5-Trimethylbenzene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1-Ethyl-4-methylbenzene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Acetone
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Benzene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	sec-Butylbenzene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Carbon disulfide
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chlorodibromomethane
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chloroform
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chloromethane
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	o-Chlorotoluene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	p-Isopropyltoluene (p-cymene)
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Dichlorobromomethane
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Ethylbenzene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Freon 11
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Freon 12
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Isopropylbenzene (cumene)
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methyl Bromide
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methyl ethyl ketone
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methylene chloride
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	n-Propylbenzene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Tetrachloroethene (PCE)
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Toluene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Trichloroethene (TCE)
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	o-Xylene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	m-Xylene
9.5E+08	900	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **30 ft bgs**

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	
1.1E+06	5.0E-03	15	7,787	1.3E-02	5.5E-01	1.8E-04	1.6E-03	4.5E-03	0.0E+00	3.5E-03	900	1,1,1-Trichloroethane
1.1E+06	5.0E-03	15	6,333	2.1E-02	8.7E-01	1.8E-04	1.8E-03	5.2E-03	0.0E+00	4.0E-03	900	1,1-Dichloroethene
1.1E+06	5.0E-03	15	13,127	7.9E-04	3.3E-02	1.8E-04	8.0E-04	2.3E-03	0.0E+00	1.8E-03	900	1,2,3-Trichlorobenzene
1.1E+06	5.0E-03	15	13,127	9.0E-04	3.7E-02	1.8E-04	6.1E-04	1.7E-03	0.0E+00	1.4E-03	900	1,2,4-Trichlorobenzene
1.1E+06	5.0E-03	15	11,579	4.1E-03	1.7E-01	1.8E-04	1.2E-03	3.5E-03	0.0E+00	2.7E-03	900	1,2,4-Trimethylbenzene
1.1E+06	5.0E-03	15	11,561	3.9E-03	1.6E-01	1.8E-04	1.2E-03	3.5E-03	0.0E+00	2.7E-03	900	1,3,5-Trimethylbenzene
1.1E+06	5.0E-03	15	0	5.0E-03	2.1E-01	1.8E-04	1.4E-03	3.9E-03	0.0E+00	3.1E-03	900	1-Ethyl-4-methylbenzene
1.1E+06	5.0E-03	15	7,447	3.0E-05	1.2E-03	1.8E-04	2.7E-03	7.3E-03	0.0E+00	5.8E-03	900	Acetone
1.1E+06	5.0E-03	15	8,030	4.2E-03	1.7E-01	1.8E-04	1.8E-03	5.1E-03	0.0E+00	3.9E-03	900	Benzene
1.1E+06	5.0E-03	15	107,157	3.4E-04	1.4E-02	1.8E-04	1.2E-03	3.3E-03	0.0E+00	2.6E-03	900	sec-Butylbenzene
1.1E+06	5.0E-03	15	6,612	2.4E-02	1.0E+00	1.8E-04	2.1E-03	6.0E-03	0.0E+00	4.7E-03	900	Carbon disulfide
1.1E+06	5.0E-03	15	6,726	6.2E-04	2.6E-02	1.8E-04	4.0E-04	1.1E-03	0.0E+00	8.9E-04	900	Chlorodibromomethane
1.1E+06	5.0E-03	15	7,461	2.8E-03	1.2E-01	1.8E-04	2.1E-03	6.0E-03	0.0E+00	4.7E-03	900	Chloroform
1.1E+06	5.0E-03	15	4,640	7.5E-03	3.1E-01	1.8E-04	2.5E-03	7.3E-03	0.0E+00	5.7E-03	900	Chloromethane
1.1E+06	5.0E-03	15	0	3.6E-03	1.5E-01	1.8E-04	1.5E-03	4.2E-03	0.0E+00	3.3E-03	900	o-Chlorotoluene
1.1E+06	5.0E-03	15	0	1.1E-02	4.6E-01	1.8E-04	1.1E-03	3.0E-03	0.0E+00	2.4E-03	900	p-Isopropyltoluene (p-cymene)
1.1E+06	5.0E-03	15	8,576	1.2E-03	4.9E-02	1.8E-04	6.0E-04	1.7E-03	0.0E+00	1.3E-03	900	Dichlorobromomethane
1.1E+06	5.0E-03	15	10,052	5.5E-03	2.3E-01	1.8E-04	1.5E-03	4.3E-03	0.0E+00	3.4E-03	900	Ethylbenzene
1.1E+06	5.0E-03	15	6,053	7.8E-02	3.3E+00	1.8E-04	1.7E-03	5.0E-03	0.0E+00	3.9E-03	900	Freon 11
1.1E+06	5.0E-03	15	8,118	2.6E-01	1.1E+01	1.8E-04	1.3E-03	3.8E-03	0.0E+00	3.0E-03	900	Freon 12
1.1E+06	5.0E-03	15	12,518	9.5E-03	3.9E-01	1.8E-04	1.3E-03	3.8E-03	0.0E+00	2.9E-03	900	Isopropylbenzene (cumene)
1.1E+06	5.0E-03	15	5,560	5.1E-03	2.1E-01	1.8E-04	1.5E-03	4.2E-03	0.0E+00	3.3E-03	900	Methyl Bromide
1.1E+06	5.0E-03	15	8,307	4.2E-05	1.7E-03	1.8E-04	1.7E-03	4.8E-03	0.0E+00	3.8E-03	900	Methyl ethyl ketone
1.1E+06	5.0E-03	15	6,938	1.7E-03	7.2E-02	1.8E-04	2.0E-03	5.8E-03	0.0E+00	4.5E-03	900	Methylene chloride
1.1E+06	5.0E-03	15	11,251	7.2E-03	3.0E-01	1.8E-04	1.2E-03	3.5E-03	0.0E+00	2.7E-03	900	n-Propylbenzene
1.1E+06	5.0E-03	15	9,462	1.3E-02	5.5E-01	1.8E-04	1.4E-03	4.2E-03	0.0E+00	3.2E-03	900	Tetrachloroethene (PCE)
1.1E+06	5.0E-03	15	9,056	4.8E-03	2.0E-01	1.8E-04	1.7E-03	5.0E-03	0.0E+00	3.9E-03	900	Toluene
1.1E+06	5.0E-03	15	8,445	7.7E-03	3.2E-01	1.8E-04	1.6E-03	4.6E-03	0.0E+00	3.5E-03	900	Trichloroethene (TCE)
1.1E+06	5.0E-03	15	10,302	3.6E-03	1.5E-01	1.8E-04	1.7E-03	5.0E-03	0.0E+00	3.9E-03	900	o-Xylene
1.1E+06	5.0E-03	15	10,150	5.2E-03	2.1E-01	1.8E-04	1.4E-03	4.0E-03	0.0E+00	3.1E-03	900	m-Xylene
1.1E+06	5.0E-03	15	10,147	4.6E-03	1.9E-01	1.8E-04	1.7E-03	4.9E-03	0.0E+00	3.8E-03	900	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **30 ft bgs**

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	
15	0.0E+00	1.33	8.3E+01	1.6E-03	5.3E+03	4.5E+43	1.2E-04	1,1,1-Trichloroethane
15	0.0E+00	1.33	8.3E+01	1.8E-03	5.3E+03	6.8E+37	1.3E-04	1,1-Dichloroethene
15	0.0E+00	1.33	8.3E+01	8.0E-04	5.3E+03	4.0E+85	6.0E-05	1,2,3-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	6.1E-04	5.3E+03	4.9E+112	4.6E-05	1,2,4-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	1.4E+56	9.1E-05	1,2,4-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	3.3E+56	9.0E-05	1,3,5-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	1.0E+50	1.0E-04	1-Ethyl-4-methylbenzene
15	0.0E+00	1.33	8.3E+01	2.7E-03	5.3E+03	3.8E+25	1.9E-04	Acetone
15	0.0E+00	1.33	8.3E+01	1.8E-03	5.3E+03	4.7E+38	1.3E-04	Benzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	1.4E+59	8.6E-05	sec-Butylbenzene
15	0.0E+00	1.33	8.3E+01	2.1E-03	5.3E+03	5.5E+32	1.5E-04	Carbon disulfide
15	0.0E+00	1.33	8.3E+01	4.0E-04	5.3E+03	1.7E+170	3.1E-05	Chlorodibromomethane
15	0.0E+00	1.33	8.3E+01	2.1E-03	5.3E+03	5.2E+32	1.5E-04	Chloroform
15	0.0E+00	1.33	8.3E+01	2.5E-03	5.3E+03	1.1E+27	1.8E-04	Chloromethane
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	5.2E+46	1.1E-04	o-Chlorotoluene
15	0.0E+00	1.33	8.3E+01	1.1E-03	5.3E+03	4.0E+64	8.0E-05	p-Isopropyltoluene (p-cymene)
15	0.0E+00	1.33	8.3E+01	6.0E-04	5.3E+03	2.9E+113	4.6E-05	Dichlorobromomethane
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	2.4E+45	1.1E-04	Ethylbenzene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.4E+39	1.3E-04	Freon 11
15	0.0E+00	1.33	8.3E+01	1.3E-03	5.3E+03	1.6E+51	9.9E-05	Freon 12
15	0.0E+00	1.33	8.3E+01	1.3E-03	5.3E+03	2.4E+52	9.7E-05	Isopropylbenzene (cumene)
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	5.5E+46	1.1E-04	Methyl Bromide
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	2.6E+39	1.2E-04	Methyl ethyl ketone
15	0.0E+00	1.33	8.3E+01	2.0E-03	5.3E+03	4.6E+33	1.5E-04	Methylene chloride
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	4.4E+56	9.0E-05	n-Propylbenzene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	1.9E+47	1.1E-04	Tetrachloroethene (PCE)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.3E+39	1.3E-04	Toluene
15	0.0E+00	1.33	8.3E+01	1.6E-03	5.3E+03	1.2E+43	1.2E-04	Trichloroethene (TCE)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.3E+39	1.3E-04	o-Xylene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	4.2E+48	1.0E-04	m-Xylene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.5E+40	1.3E-04	Xylene (total)

Worksheet: DATENTER

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SG-ADV
Version 3.1; 02/04

SV sample depth = **45 ft bgs**

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				1,1,1-Trichloroethane
75354				1,1-Dichloroethene
87616				1,2,3-Trichlorobenzene
120821				1,2,4-Trichlorobenzene
95636				1,2,4-Trimethylbenzene
108678				1,3,5-Trimethylbenzene
622968				1-Ethyl-4-methylbenzene
67641				Acetone
71432				Benzene
135988				sec-Butylbenzene
75150				Carbon disulfide
124481				Chlorodibromomethane
67663				Chloroform
74873				Chloromethane
95498				o-Chlorotoluene
99876				p-Isopropyltoluene (p-cymene)
75274				Dichlorobromomethane
100414				Ethylbenzene
75694				Freon 11
75718				Freon 12
98828				Isopropylbenzene (cumene)
74839				Methyl Bromide
78933				Methyl ethyl ketone
75092				Methylene chloride
103651				n-Propylbenzene
127184				Tetrachloroethene (PCE)
108883				Toluene
79016				Trichloroethene (TCE)
95476				o-Xylene
108383				m-Xylene
1330207				Xylene (total)

Worksheet: DATENTER

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm2)
			Totals must add up to value of Ls (cell F24)					
15	1372.5	19	152.5	1220	0	SIC		
	45 ft bgs		5 ft	40 ft				

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
Lookup Soil Parameters				Lookup Soil Parameters				Lookup Soil Parameters			
SIC	1.8	0.30	0.15	SIL	1.49	0.439	0.180				

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

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	6	30	350

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **45 ft bgs**

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,1,1-Trichloroethane
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,1-Dichloroethene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,3-Trichlorobenzene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trichlorobenzene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,2,4-Trimethylbenzene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1,3,5-Trimethylbenzene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	1-Ethyl-4-methylbenzene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Acetone
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Benzene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	sec-Butylbenzene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Carbon disulfide
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chlorodibromomethane
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chloroform
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Chloromethane
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	o-Chlorotoluene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	p-Isopropyltoluene (p-cymene)
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Dichlorobromomethane
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Ethylbenzene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Freon 11
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Freon 12
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Isopropylbenzene (cumene)
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methyl Bromide
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methyl ethyl ketone
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Methylene chloride
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	n-Propylbenzene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Tetrachloroethene (PCE)
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Toluene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Trichloroethene (TCE)
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	o-Xylene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	m-Xylene
9.5E+08	1357.5	0.150	0.259	ERROR	0.206	1.51E-09	0.890	1.3E-09	4,000	0.0E+00	3.4E+04	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **45 ft bgs**

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	
1.1E+06	5.0E-03	15	7,787	1.3E-02	5.5E-01	1.8E-04	1.6E-03	4.5E-03	0.0E+00	3.8E-03	1357.5	1,1,1-Trichloroethane
1.1E+06	5.0E-03	15	6,333	2.1E-02	8.7E-01	1.8E-04	1.8E-03	5.2E-03	0.0E+00	4.4E-03	1357.5	1,1-Dichloroethene
1.1E+06	5.0E-03	15	13,127	7.9E-04	3.3E-02	1.8E-04	8.0E-04	2.3E-03	0.0E+00	1.9E-03	1357.5	1,2,3-Trichlorobenzene
1.1E+06	5.0E-03	15	13,127	9.0E-04	3.7E-02	1.8E-04	6.1E-04	1.7E-03	0.0E+00	1.5E-03	1357.5	1,2,4-Trichlorobenzene
1.1E+06	5.0E-03	15	11,579	4.1E-03	1.7E-01	1.8E-04	1.2E-03	3.5E-03	0.0E+00	2.9E-03	1357.5	1,2,4-Trimethylbenzene
1.1E+06	5.0E-03	15	11,561	3.9E-03	1.6E-01	1.8E-04	1.2E-03	3.5E-03	0.0E+00	2.9E-03	1357.5	1,3,5-Trimethylbenzene
1.1E+06	5.0E-03	15	0	5.0E-03	2.1E-01	1.8E-04	1.4E-03	3.9E-03	0.0E+00	3.3E-03	1357.5	1-Ethyl-4-methylbenzene
1.1E+06	5.0E-03	15	7,447	3.0E-05	1.2E-03	1.8E-04	2.7E-03	7.3E-03	0.0E+00	6.2E-03	1357.5	Acetone
1.1E+06	5.0E-03	15	8,030	4.2E-03	1.7E-01	1.8E-04	1.8E-03	5.1E-03	0.0E+00	4.3E-03	1357.5	Benzene
1.1E+06	5.0E-03	15	107,157	3.4E-04	1.4E-02	1.8E-04	1.2E-03	3.3E-03	0.0E+00	2.8E-03	1357.5	sec-Butylbenzene
1.1E+06	5.0E-03	15	6,612	2.4E-02	1.0E+00	1.8E-04	2.1E-03	6.0E-03	0.0E+00	5.0E-03	1357.5	Carbon disulfide
1.1E+06	5.0E-03	15	6,726	6.2E-04	2.6E-02	1.8E-04	4.0E-04	1.1E-03	0.0E+00	9.6E-04	1357.5	Chlorodibromomethane
1.1E+06	5.0E-03	15	7,461	2.8E-03	1.2E-01	1.8E-04	2.1E-03	6.0E-03	0.0E+00	5.0E-03	1357.5	Chloroform
1.1E+06	5.0E-03	15	4,640	7.5E-03	3.1E-01	1.8E-04	2.5E-03	7.3E-03	0.0E+00	6.1E-03	1357.5	Chloromethane
1.1E+06	5.0E-03	15	0	3.6E-03	1.5E-01	1.8E-04	1.5E-03	4.2E-03	0.0E+00	3.5E-03	1357.5	o-Chlorotoluene
1.1E+06	5.0E-03	15	0	1.1E-02	4.6E-01	1.8E-04	1.1E-03	3.0E-03	0.0E+00	2.6E-03	1357.5	p-Isopropyltoluene (p-cymene)
1.1E+06	5.0E-03	15	8,576	1.2E-03	4.9E-02	1.8E-04	6.0E-04	1.7E-03	0.0E+00	1.5E-03	1357.5	Dichlorobromomethane
1.1E+06	5.0E-03	15	10,052	5.5E-03	2.3E-01	1.8E-04	1.5E-03	4.3E-03	0.0E+00	3.6E-03	1357.5	Ethylbenzene
1.1E+06	5.0E-03	15	6,053	7.8E-02	3.3E+00	1.8E-04	1.7E-03	5.0E-03	0.0E+00	4.2E-03	1357.5	Freon 11
1.1E+06	5.0E-03	15	8,118	2.6E-01	1.1E+01	1.8E-04	1.3E-03	3.8E-03	0.0E+00	3.2E-03	1357.5	Freon 12
1.1E+06	5.0E-03	15	12,518	9.5E-03	3.9E-01	1.8E-04	1.3E-03	3.8E-03	0.0E+00	3.2E-03	1357.5	Isopropylbenzene (cumene)
1.1E+06	5.0E-03	15	5,560	5.1E-03	2.1E-01	1.8E-04	1.5E-03	4.2E-03	0.0E+00	3.5E-03	1357.5	Methyl Bromide
1.1E+06	5.0E-03	15	8,307	4.2E-05	1.7E-03	1.8E-04	1.7E-03	4.8E-03	0.0E+00	4.0E-03	1357.5	Methyl ethyl ketone
1.1E+06	5.0E-03	15	6,938	1.7E-03	7.2E-02	1.8E-04	2.0E-03	5.8E-03	0.0E+00	4.9E-03	1357.5	Methylene chloride
1.1E+06	5.0E-03	15	11,251	7.2E-03	3.0E-01	1.8E-04	1.2E-03	3.5E-03	0.0E+00	2.9E-03	1357.5	n-Propylbenzene
1.1E+06	5.0E-03	15	9,462	1.3E-02	5.5E-01	1.8E-04	1.4E-03	4.2E-03	0.0E+00	3.5E-03	1357.5	Tetrachloroethene (PCE)
1.1E+06	5.0E-03	15	9,056	4.8E-03	2.0E-01	1.8E-04	1.7E-03	5.0E-03	0.0E+00	4.2E-03	1357.5	Toluene
1.1E+06	5.0E-03	15	8,445	7.7E-03	3.2E-01	1.8E-04	1.6E-03	4.6E-03	0.0E+00	3.8E-03	1357.5	Trichloroethene (TCE)
1.1E+06	5.0E-03	15	10,302	3.6E-03	1.5E-01	1.8E-04	1.7E-03	5.0E-03	0.0E+00	4.2E-03	1357.5	o-Xylene
1.1E+06	5.0E-03	15	10,150	5.2E-03	2.1E-01	1.8E-04	1.4E-03	4.0E-03	0.0E+00	3.4E-03	1357.5	m-Xylene
1.1E+06	5.0E-03	15	10,147	4.6E-03	1.9E-01	1.8E-04	1.7E-03	4.9E-03	0.0E+00	4.1E-03	1357.5	Xylene (total)

Worksheet: INTERCALCS

Soil Vapor to Indoor Air Pathway
Future Residential Scenario
Former Fred C. Nelles Youth Correctional Facility

SV sample depth = **45 ft bgs**

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	
15	0.0E+00	1.33	8.3E+01	1.6E-03	5.3E+03	4.5E+43	8.4E-05	1,1,1-Trichloroethane
15	0.0E+00	1.33	8.3E+01	1.8E-03	5.3E+03	6.8E+37	9.7E-05	1,1-Dichloroethene
15	0.0E+00	1.33	8.3E+01	8.0E-04	5.3E+03	4.0E+85	4.4E-05	1,2,3-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	6.1E-04	5.3E+03	4.9E+112	3.3E-05	1,2,4-Trichlorobenzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	1.4E+56	6.6E-05	1,2,4-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	3.3E+56	6.6E-05	1,3,5-Trimethylbenzene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	1.0E+50	7.4E-05	1-Ethyl-4-methylbenzene
15	0.0E+00	1.33	8.3E+01	2.7E-03	5.3E+03	3.8E+25	1.4E-04	Acetone
15	0.0E+00	1.33	8.3E+01	1.8E-03	5.3E+03	4.7E+38	9.5E-05	Benzene
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	1.4E+59	6.2E-05	sec-Butylbenzene
15	0.0E+00	1.33	8.3E+01	2.1E-03	5.3E+03	5.5E+32	1.1E-04	Carbon disulfide
15	0.0E+00	1.33	8.3E+01	4.0E-04	5.3E+03	1.7E+170	2.2E-05	Chlorodibromomethane
15	0.0E+00	1.33	8.3E+01	2.1E-03	5.3E+03	5.2E+32	1.1E-04	Chloroform
15	0.0E+00	1.33	8.3E+01	2.5E-03	5.3E+03	1.1E+27	1.3E-04	Chloromethane
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	5.2E+46	7.9E-05	o-Chlorotoluene
15	0.0E+00	1.33	8.3E+01	1.1E-03	5.3E+03	4.0E+64	5.8E-05	p-Isopropyltoluene (p-cymene)
15	0.0E+00	1.33	8.3E+01	6.0E-04	5.3E+03	2.9E+113	3.3E-05	Dichlorobromomethane
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	2.4E+45	8.1E-05	Ethylbenzene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.4E+39	9.4E-05	Freon 11
15	0.0E+00	1.33	8.3E+01	1.3E-03	5.3E+03	1.6E+51	7.2E-05	Freon 12
15	0.0E+00	1.33	8.3E+01	1.3E-03	5.3E+03	2.4E+52	7.1E-05	Isopropylbenzene (cumene)
15	0.0E+00	1.33	8.3E+01	1.5E-03	5.3E+03	5.5E+46	7.9E-05	Methyl Bromide
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	2.6E+39	9.0E-05	Methyl ethyl ketone
15	0.0E+00	1.33	8.3E+01	2.0E-03	5.3E+03	4.6E+33	1.1E-04	Methylene chloride
15	0.0E+00	1.33	8.3E+01	1.2E-03	5.3E+03	4.4E+56	6.5E-05	n-Propylbenzene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	1.9E+47	7.8E-05	Tetrachloroethene (PCE)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.3E+39	9.4E-05	Toluene
15	0.0E+00	1.33	8.3E+01	1.6E-03	5.3E+03	1.2E+43	8.5E-05	Trichloroethene (TCE)
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.3E+39	9.4E-05	o-Xylene
15	0.0E+00	1.33	8.3E+01	1.4E-03	5.3E+03	4.2E+48	7.6E-05	m-Xylene
15	0.0E+00	1.33	8.3E+01	1.7E-03	5.3E+03	1.5E+40	9.1E-05	Xylene (total)

Table E4-1

Derivation of Risk-Based Concentrations for a Future Onsite Resident, Soil Vapor (Engineered Fill)

Former Fred C. Nelles Youth Correctional Facility

Whittier, California

CAS Number	Chemical of Concern	Soil Vapor to Indoor Air Attenuation Factor, AFsv-ia				Noncancer Effects					Cancer Effects				
						Reference Concentration (mg/m^3)	**Soil Vapor RBC_{NC} ($\mu g/m^3$)**				Inhalation Unit Risk $(\mu g/m^3)^{-1}$	**Soil Vapor RBC_C ($\mu g/m^3$)**			
		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs
71-55-6	1,1,1-Trichloroethane	**3.1E-04**	**1.9E-04**	**1.2E-04**	**8.4E-05**	1.0E+00	3.4E+06	5.6E+06	9.0E+06	1.2E+07	NC	--	--	--	--
75-35-4	1,1-Dichloroethene	**3.5E-04**	**2.1E-04**	**1.3E-04**	**9.7E-05**	7.0E-02	2.1E+05	3.4E+05	5.5E+05	7.6E+05	NC	--	--	--	--
87-61-6	1,2,3-Trichlorobenzene	**1.7E-04**	**9.8E-05**	**6.0E-05**	**4.4E-05**	2.8E-03	1.7E+04	3.0E+04	4.8E+04	6.7E+04	NC	--	--	--	--
120-82-1	1,2,4-Trichlorobenzene	**1.3E-04**	**7.5E-05**	**4.6E-05**	**3.3E-05**	2.0E-03	1.6E+04	2.8E+04	4.5E+04	6.3E+04	NC	--	--	--	--
95-63-6	1,2,4-Trimethylbenzene	**2.5E-04**	**1.5E-04**	**9.1E-05**	**6.6E-05**	7.0E-03	2.9E+04	5.0E+04	8.0E+04	1.1E+05	NC	--	--	--	--
108-67-8	1,3,5-Trimethylbenzene	**2.5E-04**	**1.5E-04**	**9.0E-05**	**6.6E-05**	3.5E-02	1.5E+05	2.5E+05	4.0E+05	5.6E+05	NC	--	--	--	--
622-96-8	1-Ethyl-4-methylbenzene	**2.8E-04**	**1.6E-04**	**1.0E-04**	**7.4E-05**	1.0E-01	3.8E+05	6.4E+05	1.0E+06	1.4E+06	NC	--	--	--	--
67-64-1	Acetone	**4.9E-04**	**3.0E-04**	**1.9E-04**	**1.4E-04**	3.1E+01	6.6E+07	1.1E+08	1.7E+08	2.4E+08	NC	--	--	--	--
71-43-2	Benzene	**3.5E-04**	**2.1E-04**	**1.3E-04**	**9.5E-05**	3.0E-02	9.1E+04	1.5E+05	2.4E+05	3.3E+05	2.9E-05	2.4E+02	4.0E+02	6.5E+02	8.9E+02
135-98-8	Butylbenzene, sec-	**2.4E-04**	**1.4E-04**	**8.6E-05**	**6.2E-05**	3.5E-01	1.5E+06	2.6E+06	4.2E+06	5.9E+06	NC	--	--	--	--
75-15-0	Carbon Disulfide	**4.0E-04**	**2.4E-04**	**1.5E-04**	**1.1E-04**	7.0E-01	1.8E+06	3.0E+06	4.8E+06	6.6E+06	NC	--	--	--	--
124-48-1	Chlorodibromomethane	**8.8E-05**	**5.0E-05**	**3.1E-05**	**2.2E-05**	7.0E-02	8.3E+05	1.5E+06	2.4E+06	3.3E+06	2.7E-05	1.0E+03	1.8E+03	3.0E+03	4.1E+03
67-66-3	Chloroform	**4.0E-04**	**2.4E-04**	**1.5E-04**	**1.1E-04**	9.8E-02	2.6E+05	4.2E+05	6.7E+05	9.2E+05	2.3E-05	2.7E+02	4.4E+02	7.0E+02	9.5E+02
74-87-3	Chloromethane	**4.7E-04**	**2.9E-04**	**1.8E-04**	**1.3E-04**	9.0E-02	2.0E+05	3.3E+05	5.2E+05	7.0E+05	NC	--	--	--	--
95-49-8	Chlorotoluene, o-	**2.9E-04**	**1.7E-04**	**1.1E-04**	**7.9E-05**	7.0E-02	2.5E+05	4.2E+05	6.7E+05	9.3E+05	NC	--	--	--	--
99-87-6	Cymene, p-	**2.2E-04**	**1.3E-04**	**8.0E-05**	**5.8E-05**	1.0E-01	4.8E+05	8.1E+05	1.3E+06	1.8E+06	NC	--	--	--	--
75-27-4	Dichlorobromomethane	**1.3E-04**	**7.5E-05**	**4.6E-05**	**3.3E-05**	7.0E-02	5.6E+05	9.8E+05	1.6E+06	2.2E+06	3.7E-05	5.1E+02	8.8E+02	1.4E+03	2.0E+03
100-41-4	Ethylbenzene	**3.0E-04**	**1.8E-04**	**1.1E-04**	**8.1E-05**	1.0E+00	3.5E+06	5.8E+06	9.3E+06	1.3E+07	2.5E-06	3.2E+03	5.4E+03	8.7E+03	1.2E+04
75-69-4	Freon 11	**3.4E-04**	**2.1E-04**	**1.3E-04**	**9.4E-05**	7.0E-01	2.1E+06	3.6E+06	5.7E+06	7.8E+06	NC	--	--	--	--
75-71-8	Freon 12	**2.7E-04**	**1.6E-04**	**9.9E-05**	**7.2E-05**	1.0E-01	3.9E+05	6.5E+05	1.0E+06	1.4E+06	NC	--	--	--	--
98-82-8	Isopropylbenzene	**2.6E-04**	**1.6E-04**	**9.7E-05**	**7.1E-05**	4.0E-01	1.6E+06	2.7E+06	4.3E+06	5.9E+06	NC	--	--	--	--
74-83-9	Methyl Bromide	**2.9E-04**	**1.7E-04**	**1.1E-04**	**7.9E-05**	5.0E-03	1.8E+04	3.0E+04	4.8E+04	6.6E+04	NC	--	--	--	--
78-93-3	Methyl ethyl ketone	**3.4E-04**	**2.0E-04**	**1.2E-04**	**9.0E-05**	5.0E+00	1.5E+07	2.6E+07	4.2E+07	5.8E+07	NC	--	--	--	--
75-09-2	Methylene Chloride	**3.9E-04**	**2.4E-04**	**1.5E-04**	**1.1E-04**	4.0E-01	1.1E+06	1.8E+06	2.8E+06	3.9E+06	1.0E-06	6.3E+03	1.0E+04	1.6E+04	2.3E+04
103-65-1	Propylbenzene, n-	**2.5E-04**	**1.5E-04**	**9.0E-05**	**6.5E-05**	1.0E+00	4.2E+06	7.2E+06	1.2E+07	1.6E+07	NC	--	--	--	--
127-18-4	Tetrachloroethene	**2.9E-04**	**1.7E-04**	**1.1E-04**	**7.8E-05**	3.5E-02	1.3E+05	2.1E+05	3.4E+05	4.7E+05	5.9E-06	1.4E+03	2.4E+03	3.8E+03	5.3E+03
108-88-3	Toluene	**3.4E-04**	**2.1E-04**	**1.3E-04**	**9.4E-05**	3.0E-01	9.2E+05	1.5E+06	2.4E+06	3.3E+06	NC	--	--	--	--
79-01-6	Trichloroethene	**3.1E-04**	**1.9E-04**	**1.2E-04**	**8.5E-05**	2.0E-03	6.6E+03	1.1E+04	1.8E+04	2.4E+04	4.1E-06	1.4E+03	2.3E+03	3.7E+03	5.1E+03

Table E4-1

Derivation of Risk-Based Concentrations for a Future Onsite Resident, Soil Vapor (Engineered Fill)

Former Fred C. Nelles Youth Correctional Facility

Whittier, California

CAS Number	Chemical of Concern	Soil Vapor to Indoor Air Attenuation Factor, AFsv-ia				Noncancer Effects					Cancer Effects				
						Reference Concentration (mg/m^3)	**Soil Vapor RBC_{NC} ($\mu g/m^3$)**				Inhalation Unit Risk $(\mu g/m^3)^{-1}$	**Soil Vapor RBC_C ($\mu g/m^3$)**			
		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs
95-47-6	Xylene, o-	**3.4E-04**	**2.1E-04**	**1.3E-04**	**9.4E-05**	1.0E-01	3.1E+05	5.1E+05	8.1E+05	1.1E+06	NC	--	--	--	--
179601-23-1	Xylenes, m&p-	**2.8E-04**	**1.7E-04**	**1.0E-04**	**7.6E-05**	1.0E-01	3.7E+05	6.2E+05	1.0E+06	1.4E+06	NC	--	--	--	--
1330-20-7	Xylenes, Total	**3.3E-04**	**2.0E-04**	**1.3E-04**	**9.1E-05**	1.0E-01	3.1E+05	5.2E+05	8.3E+05	1.1E+06	NC	--	--	--	--

Note: " -- " not applicable or not available

Exposure Concentration (ECF_{SV-IA}) (mg/m^3)		
	9.6E-04	based on noncancer effects
	4.1E-04	based on cancer effects
	1.0E-03	based on mutagenic effects

Table E4-2
Summary of Soil Vapor RBCs (Engineered Fill), Future Onsite Resident
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

CAS Number	Chemical of Potential Concern	Soil Vapor RBC_{NC} ($\mu g/m^3$)				Soil Vapor RBC_C ($\mu g/m^3$)			
		5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs	5 ft bgs	15 ft bgs	30 ft bgs	45 ft bgs
71-55-6	1,1,1-Trichloroethane	3.4E+06	5.6E+06	9.0E+06	1.2E+07	--	--	--	--
75-35-4	1,1-Dichloroethene	2.1E+05	3.4E+05	5.5E+05	7.6E+05	--	--	--	--
87-61-6	1,2,3-Trichlorobenzene	1.7E+04	3.0E+04	4.8E+04	6.7E+04	--	--	--	--
120-82-1	1,2,4-Trichlorobenzene	1.6E+04	2.8E+04	4.5E+04	6.3E+04	--	--	--	--
95-63-6	1,2,4-Trimethylbenzene	2.9E+04	5.0E+04	8.0E+04	1.1E+05	--	--	--	--
108-67-8	1,3,5-Trimethylbenzene	1.5E+05	2.5E+05	4.0E+05	5.6E+05	--	--	--	--
622-96-8	1-Ethyl-4-methylbenzene	3.8E+05	6.4E+05	1.0E+06	1.4E+06	--	--	--	--
67-64-1	Acetone	6.6E+07	1.1E+08	1.7E+08	2.4E+08	--	--	--	--
71-43-2	Benzene	9.1E+04	1.5E+05	2.4E+05	3.3E+05	2.4E+02	4.0E+02	6.5E+02	8.9E+02
135-98-8	Butylbenzene, sec-	1.5E+06	2.6E+06	4.2E+06	5.9E+06	--	--	--	--
75-15-0	Carbon Disulfide	1.8E+06	3.0E+06	4.8E+06	6.6E+06	--	--	--	--
124-48-1	Chlorodibromomethane	8.3E+05	1.5E+06	2.4E+06	3.3E+06	1.0E+03	1.8E+03	3.0E+03	4.1E+03
67-66-3	Chloroform	2.6E+05	4.2E+05	6.7E+05	9.2E+05	2.7E+02	4.4E+02	7.0E+02	9.5E+02
74-87-3	Chloromethane	2.0E+05	3.3E+05	5.2E+05	7.0E+05	--	--	--	--
95-49-8	Chlorotoluene, o-	2.5E+05	4.2E+05	6.7E+05	9.3E+05	--	--	--	--
99-87-6	Cymene, p-	4.8E+05	8.1E+05	1.3E+06	1.8E+06	--	--	--	--
75-27-4	Dichlorobromomethane	5.6E+05	9.8E+05	1.6E+06	2.2E+06	5.1E+02	8.8E+02	1.4E+03	2.0E+03
100-41-4	Ethylbenzene	3.5E+06	5.8E+06	9.3E+06	1.3E+07	3.2E+03	5.4E+03	8.7E+03	1.2E+04
75-69-4	Freon 11	2.1E+06	3.6E+06	5.7E+06	7.8E+06	--	--	--	--
75-71-8	Freon 12	3.9E+05	6.5E+05	1.0E+06	1.4E+06	--	--	--	--
98-82-8	Isopropylbenzene	1.6E+06	2.7E+06	4.3E+06	5.9E+06	--	--	--	--
74-83-9	Methyl Bromide	1.8E+04	3.0E+04	4.8E+04	6.6E+04	--	--	--	--
78-93-3	Methyl ethyl ketone	1.5E+07	2.6E+07	4.2E+07	5.8E+07	--	--	--	--
75-09-2	Methylene Chloride	1.1E+06	1.8E+06	2.8E+06	3.9E+06	6.3E+03	1.0E+04	1.6E+04	2.3E+04
103-65-1	Propylbenzene, n-	4.2E+06	7.2E+06	1.2E+07	1.6E+07	--	--	--	--
127-18-4	Tetrachloroethene	1.3E+05	2.1E+05	3.4E+05	4.7E+05	1.4E+03	2.4E+03	3.8E+03	5.3E+03
108-88-3	Toluene	9.2E+05	1.5E+06	2.4E+06	3.3E+06	--	--	--	--
79-01-6	Trichloroethene	6.6E+03	1.1E+04	1.8E+04	2.4E+04	1.4E+03	2.3E+03	3.7E+03	5.1E+03
95-47-6	Xylene, o-	3.1E+05	5.1E+05	8.1E+05	1.1E+06	--	--	--	--
179601-23-1	Xylenes, m&p-	3.7E+05	6.2E+05	1.0E+06	1.4E+06	--	--	--	--
1330-20-7	Xylenes, Total	3.1E+05	5.2E+05	8.3E+05	1.1E+06	--	--	--	--

Notes:

" -- " not applicable

" RBC_{NC} " risk-based concentration based on noncancer effects

" RBC_C " risk-based concentration based on cancer effects

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
									RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
SG-01	5	7/21/2005	0	SG-1	67-64-1	Acetone	25		6.6E+07	--	**3.8E-07**	**--**
SG-01	5	7/21/2005	0	SG-1	75-15-0	Carbon Disulfide	20		1.8E+06	--	**1.1E-05**	**--**
SG-01	5	7/21/2005	0	SG-1	127-18-4	Tetrachloroethene (PCE)	440		1.3E+05	1.4E+03	**3.5E-03**	**3.1E-07**
SG-01	5	7/20/2005	0	SG-1-5	127-18-4	Tetrachloroethene (PCE)	340		1.3E+05	1.4E+03	**2.7E-03**	**2.4E-07**
SG-01	15	7/20/2005	0	SG-1-15	127-18-4	Tetrachloroethene (PCE)	280		2.1E+05	2.4E+03	**1.3E-03**	**1.2E-07**
SG-02	5	7/20/2005	0	SG-2-5	95-63-6	1,2,4-Trimethylbenzene	640		2.9E+04	--	**2.2E-02**	**--**
SG-02	5	7/20/2005	0	SG-2-5	127-18-4	Tetrachloroethene (PCE)	230		1.3E+05	1.4E+03	**1.8E-03**	**1.6E-07**
SG-02	15	7/20/2005	0	SG-2-15	95-63-6	1,2,4-Trimethylbenzene	1600		5.0E+04	--	**3.2E-02**	**--**
SG-02	15	7/20/2005	0	SG-2-15	127-18-4	Tetrachloroethene (PCE)	220		2.1E+05	2.4E+03	**1.0E-03**	**9.2E-08**
SG-03	5	7/20/2005	0	SG-3-5	127-18-4	Tetrachloroethene (PCE)	200		1.3E+05	1.4E+03	**1.6E-03**	**1.4E-07**
SG-03	15	7/20/2005	0	SG-3-15	127-18-4	Tetrachloroethene (PCE)	190		2.1E+05	2.4E+03	**9.0E-04**	**7.9E-08**
SG-04	5	7/20/2005	0	SG-4-5 (1PV)	100-41-4	Ethylbenzene	350		3.5E+06	3.2E+03	**1.0E-04**	**1.1E-07**
SG-04	5	7/20/2005	0	SG-4-5 (1PV)	179601-23-1	m&p-Xylenes	900		3.7E+05	--	**2.4E-03**	**--**
SG-04	5	7/20/2005	0	SG-4-5 (1PV)	127-18-4	Tetrachloroethene (PCE)	190		1.3E+05	1.4E+03	**1.5E-03**	**1.3E-07**
SG-04	5	7/20/2005	0	SG-4-5 (1PV)	108-88-3	Toluene	380		9.2E+05	--	**4.2E-04**	**--**
SG-04	5	7/20/2005	13	SG-4-5 (3PV)	71-43-2	Benzene	100		9.1E+04	2.4E+02	**1.1E-03**	**4.1E-07**
SG-04	5	7/20/2005	13	SG-4-5 (3PV)	100-41-4	Ethylbenzene	580		3.5E+06	3.2E+03	**1.7E-04**	**1.8E-07**
SG-04	5	7/20/2005	13	SG-4-5 (3PV)	179601-23-1	m&p-Xylenes	1500		3.7E+05	--	**4.1E-03**	**--**
SG-04	5	7/20/2005	13	SG-4-5 (3PV)	95-47-6	o-Xylene	280		3.1E+05	--	**9.2E-04**	**--**
SG-04	5	7/20/2005	13	SG-4-5 (3PV)	127-18-4	Tetrachloroethene (PCE)	200		1.3E+05	1.4E+03	**1.6E-03**	**1.4E-07**
SG-04	5	7/20/2005	13	SG-4-5 (3PV)	108-88-3	Toluene	690		9.2E+05	--	**7.5E-04**	**--**
SG-04	5	7/20/2005	14	SG-4-5 (7PV)	100-41-4	Ethylbenzene	310		3.5E+06	3.2E+03	**8.9E-05**	**9.6E-08**
SG-04	5	7/20/2005	14	SG-4-5 (7PV)	179601-23-1	m&p-Xylenes	820		3.7E+05	--	**2.2E-03**	**--**
SG-04	5	7/20/2005	14	SG-4-5 (7PV)	127-18-4	Tetrachloroethene (PCE)	200		1.3E+05	1.4E+03	**1.6E-03**	**1.4E-07**
SG-04	5	7/20/2005	14	SG-4-5 (7PV)	108-88-3	Toluene	310		9.2E+05	--	**3.4E-04**	**--**
SG-04	15	7/20/2005	0	SG-4-15 (1PV)	127-18-4	Tetrachloroethene (PCE)	170		2.1E+05	2.4E+03	**8.0E-04**	**7.1E-08**
SG-04	15	7/20/2005	0	SG-4-15 (1PV)	108-88-3	Toluene	220		1.5E+06	--	**1.4E-04**	**--**
SG-04	15	7/20/2005	13	SG-4-15 (3PV)	71-43-2	Benzene	100		1.5E+05	4.0E+02	**6.6E-04**	**2.5E-07**
SG-04	15	7/20/2005	13	SG-4-15 (3PV)	127-18-4	Tetrachloroethene (PCE)	180		2.1E+05	2.4E+03	**8.5E-04**	**7.5E-08**
SG-04	15	7/20/2005	14	SG-4-15 (7PV)	127-18-4	Tetrachloroethene (PCE)	180		2.1E+05	2.4E+03	**8.5E-04**	**7.5E-08**
SG-06	5	7/20/2005	0	SG-6-5	127-18-4	Tetrachloroethene (PCE)	230		1.3E+05	1.4E+03	**1.8E-03**	**1.6E-07**
SG-06	15	7/20/2005	0	SG-6-15	127-18-4	Tetrachloroethene (PCE)	200		2.1E+05	2.4E+03	**9.5E-04**	**8.4E-08**
SG-07	5	7/20/2005	0	SG-7-5	127-18-4	Tetrachloroethene (PCE)	190		1.3E+05	1.4E+03	**1.5E-03**	**1.3E-07**
SG-07	15	7/20/2005	0	SG-7-15	75-15-0	Carbon Disulfide	2100		3.0E+06	--	**7.0E-04**	**--**
SG-07	15	7/20/2005	0	SG-7-15	127-18-4	Tetrachloroethene (PCE)	220		2.1E+05	2.4E+03	**1.0E-03**	**9.2E-08**
SG-08	5	7/21/2005	0	SG-8-5	75-15-0	Carbon Disulfide	800		1.8E+06	--	**4.4E-04**	**--**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
									RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
SG-08	15	7/21/2005	0	SG-8-15	75-15-0	Carbon Disulfide	620		3.0E+06	--	**2.1E-04**	**--**
SG-08	15	7/21/2005	0	SG-8-15	108-88-3	Toluene	220		1.5E+06	--	**1.4E-04**	**--**
SG-09	15	7/21/2005	0	SG-9-15	75-15-0	Carbon Disulfide	1400		3.0E+06	--	**4.6E-04**	**--**
SG-10	5	7/21/2005	0	SG-10-5	75-15-0	Carbon Disulfide	590		1.8E+06	--	**3.2E-04**	**--**
SG-10	15	7/21/2005	2	SG-10	95-63-6	1,2,4-Trimethylbenzene	2.7		5.0E+04	--	**5.4E-05**	**--**
SG-10	15	7/21/2005	2	SG-10	622-96-8	1-Ethyl-4-methylbenzene	2.6		6.4E+05	--	**4.1E-06**	**--**
SG-10	15	7/21/2005	2	SG-10	67-64-1	Acetone	12		1.1E+08	--	**1.1E-07**	**--**
SG-10	15	7/21/2005	2	SG-10	71-43-2	Benzene	0.72		1.5E+05	4.0E+02	**4.8E-06**	**1.8E-09**
SG-10	15	7/21/2005	2	SG-10	67-66-3	Chloroform	3.5		4.2E+05	4.4E+02	**8.3E-06**	**8.0E-09**
SG-10	15	7/21/2005	2	SG-10	75-27-4	Dichlorobromomethane	2.7		9.8E+05	8.8E+02	**2.8E-06**	**3.1E-09**
SG-10	15	7/21/2005	2	SG-10	100-41-4	Ethylbenzene	9.3		5.8E+06	5.4E+03	**1.6E-06**	**1.7E-09**
SG-10	15	7/21/2005	2	SG-10	75-69-4	Freon 11	3		3.6E+06	--	**8.4E-07**	**--**
SG-10	15	7/21/2005	2	SG-10	75-71-8	Freon 12	3.8		6.5E+05	--	**5.8E-06**	**--**
SG-10	15	7/21/2005	2	SG-10	179601-23-1	m&p-Xylenes	39		6.2E+05	--	**6.3E-05**	**--**
SG-10	15	7/21/2005	2	SG-10	78-93-3	Methyl ethyl ketone	2.9		2.6E+07	--	**1.1E-07**	**--**
SG-10	15	7/21/2005	2	SG-10	95-47-6	o-Xylene	12		5.1E+05	--	**2.4E-05**	**--**
SG-10	15	7/21/2005	2	SG-10	127-18-4	Tetrachloroethene (PCE)	12		2.1E+05	2.4E+03	**5.7E-05**	**5.0E-09**
SG-10	15	7/21/2005	2	SG-10	108-88-3	Toluene	15		1.5E+06	--	**9.9E-06**	**--**
SG-10	15	7/21/2005	0	SG-10-15	75-15-0	Carbon Disulfide	3800		3.0E+06	--	**1.3E-03**	**--**
SG-11	5	7/21/2005	0	SG-11-5	75-15-0	Carbon Disulfide	5700		1.8E+06	--	**3.1E-03**	**--**
SG-11	15	7/21/2005	0	SG-11-15	75-15-0	Carbon Disulfide	2900		3.0E+06	--	**9.6E-04**	**--**
SG-12	15	7/21/2005	0	SG-12-15	75-15-0	Carbon Disulfide	3800		3.0E+06	--	**1.3E-03**	**--**
SG-14	5	7/19/2010	0	SG-14-5	95-63-6	1,2,4-Trimethylbenzene	213		2.9E+04	--	**7.3E-03**	**--**
SG-14	5	7/19/2010	0	SG-14-5	108-67-8	1,3,5-Trimethylbenzene	129		1.5E+05	--	**8.7E-04**	**--**
SG-14	5	7/19/2010	0	SG-14-5	71-43-2	Benzene	257		9.1E+04	2.4E+02	**2.8E-03**	**1.1E-06**
SG-14	5	7/19/2010	0	SG-14-5	100-41-4	Ethylbenzene	304		3.5E+06	3.2E+03	**8.8E-05**	**9.4E-08**
SG-14	5	7/19/2010	0	SG-14-5	103-65-1	n-Propylbenzene	107		4.2E+06	--	**2.5E-05**	**--**
SG-14	5	7/19/2010	0	SG-14-5	108-88-3	Toluene	1150		9.2E+05	--	**1.3E-03**	**--**
SG-14	5	7/19/2010	0	SG-14-5	1330-20-7	Xylenes, Total	809		3.1E+05	--	**2.6E-03**	**--**
SG-14	15	7/19/2010	0	SG-14-15	71-43-2	Benzene	122		1.5E+05	4.0E+02	**8.1E-04**	**3.0E-07**
SG-14	15	7/19/2010	0	SG-14-15	100-41-4	Ethylbenzene	35.1		5.8E+06	5.4E+03	**6.0E-06**	**6.5E-09**
SG-14	15	7/19/2010	0	SG-14-15	108-88-3	Toluene	551		1.5E+06	--	**3.6E-04**	**--**
SG-14	15	7/19/2010	0	SG-14-15	1330-20-7	Xylenes, Total	143		5.2E+05	--	**2.7E-04**	**--**
SG-15	15	7/19/2010	0	SG-15-15	108-88-3	Toluene	66.4		1.5E+06	--	**4.4E-05**	**--**
SG-16	5	7/19/2010	0	SG-16-5	95-63-6	1,2,4-Trimethylbenzene	135		2.9E+04	--	**4.6E-03**	**--**
SG-16	5	7/19/2010	0	SG-16-5	108-67-8	1,3,5-Trimethylbenzene	120		1.5E+05	--	**8.1E-04**	**--**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
									RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
SG-16	5	7/19/2010	0	SG-16-5	71-43-2	Benzene	44.4		9.1E+04	2.4E+02	**4.9E-04**	**1.8E-07**
SG-16	5	7/19/2010	0	SG-16-5	100-41-4	Ethylbenzene	91		3.5E+06	3.2E+03	**2.6E-05**	**2.8E-08**
SG-16	5	7/19/2010	0	SG-16-5	99-87-6	p-Cymene	200		4.8E+05	--	**4.2E-04**	**--**
SG-16	5	7/19/2010	0	SG-16-5	108-88-3	Toluene	520		9.2E+05	--	**5.7E-04**	**--**
SG-16	5	7/19/2010	0	SG-16-5	1330-20-7	Xylenes, Total	209		3.1E+05	--	**6.7E-04**	**--**
SG-16	15	7/19/2010	0	SG-16-15	108-88-3	Toluene	51.2		1.5E+06	--	**3.4E-05**	**--**
SG-16	15	7/19/2010	1	SG-16-15-DUP	95-63-6	1,2,4-Trimethylbenzene	135		5.0E+04	--	**2.7E-03**	**--**
SG-16	15	7/19/2010	1	SG-16-15-DUP	108-67-8	1,3,5-Trimethylbenzene	118		2.5E+05	--	**4.7E-04**	**--**
SG-16	15	7/19/2010	1	SG-16-15-DUP	71-43-2	Benzene	68.2		1.5E+05	4.0E+02	**4.5E-04**	**1.7E-07**
SG-16	15	7/19/2010	1	SG-16-15-DUP	100-41-4	Ethylbenzene	85.8		5.8E+06	5.4E+03	**1.5E-05**	**1.6E-08**
SG-16	15	7/19/2010	1	SG-16-15-DUP	99-87-6	p-Cymene	193		8.1E+05	--	**2.4E-04**	**--**
SG-16	15	7/19/2010	1	SG-16-15-DUP	108-88-3	Toluene	536		1.5E+06	--	**3.5E-04**	**--**
SG-16	15	7/19/2010	1	SG-16-15-DUP	1330-20-7	Xylenes, Total	93		5.2E+05	--	**1.8E-04**	**--**
SG-17	5	7/19/2010	0	SG-17-5	95-63-6	1,2,4-Trimethylbenzene	178		2.9E+04	--	**6.1E-03**	**--**
SG-17	5	7/19/2010	0	SG-17-5	108-67-8	1,3,5-Trimethylbenzene	109		1.5E+05	--	**7.4E-04**	**--**
SG-17	5	7/19/2010	0	SG-17-5	71-43-2	Benzene	275		9.1E+04	2.4E+02	**3.0E-03**	**1.1E-06**
SG-17	5	7/19/2010	0	SG-17-5	100-41-4	Ethylbenzene	223		3.5E+06	3.2E+03	**6.4E-05**	**6.9E-08**
SG-17	5	7/19/2010	0	SG-17-5	103-65-1	n-Propylbenzene	101		4.2E+06	--	**2.4E-05**	**--**
SG-17	5	7/19/2010	0	SG-17-5	108-88-3	Toluene	1170		9.2E+05	--	**1.3E-03**	**--**
SG-17	5	7/19/2010	0	SG-17-5	1330-20-7	Xylenes, Total	586		3.1E+05	--	**1.9E-03**	**--**
SG-17	15	7/19/2010	0	SG-17-15	108-88-3	Toluene	72.4		1.5E+06	--	**4.8E-05**	**--**
SG-18	5	7/16/2010	0	SG-18-5	95-63-6	1,2,4-Trimethylbenzene	115		2.9E+04	--	**3.9E-03**	**--**
SG-18	5	7/16/2010	0	SG-18-5	108-88-3	Toluene	195		9.2E+05	--	**2.1E-04**	**--**
SG-18	15	7/16/2010	0	SG-18-15	95-63-6	1,2,4-Trimethylbenzene	133		5.0E+04	--	**2.7E-03**	**--**
SG-18	15	7/16/2010	0	SG-18-15	108-67-8	1,3,5-Trimethylbenzene	110		2.5E+05	--	**4.4E-04**	**--**
SG-18	15	7/16/2010	0	SG-18-15	100-41-4	Ethylbenzene	22.4		5.8E+06	5.4E+03	**3.8E-06**	**4.1E-09**
SG-18	15	7/16/2010	0	SG-18-15	108-88-3	Toluene	123		1.5E+06	--	**8.1E-05**	**--**
SG-18	15	7/16/2010	0	SG-18-15	1330-20-7	Xylenes, Total	68.8		5.2E+05	--	**1.3E-04**	**--**
SG-18	30	7/19/2010	0	SG-18-30	71-43-2	Benzene	56.8		2.4E+05	6.5E+02	**2.4E-04**	**8.8E-08**
SG-18	30	7/19/2010	0	SG-18-30	100-41-4	Ethylbenzene	32.6		9.3E+06	8.7E+03	**3.5E-06**	**3.7E-09**
SG-18	30	7/19/2010	0	SG-18-30	108-88-3	Toluene	326		2.4E+06	--	**1.3E-04**	**--**
SG-18	30	7/19/2010	0	SG-18-30	1330-20-7	Xylenes, Total	65.8		8.3E+05	--	**7.9E-05**	**--**
SG-18	30	7/19/2010	2	SG-18B-30	95-63-6	1,2,4-Trimethylbenzene	16		8.0E+04	--	**2.0E-04**	**--**
SG-18	30	7/19/2010	2	SG-18B-30	622-96-8	1-Ethyl-4-methylbenzene	29		1.0E+06	--	**2.8E-05**	**--**
SG-18	30	7/19/2010	2	SG-18B-30	67-64-1	Acetone	390		1.7E+08	--	**2.2E-06**	**--**
SG-18	30	7/19/2010	2	SG-18B-30	71-43-2	Benzene	170		2.4E+05	6.5E+02	**7.1E-04**	**2.6E-07**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
									RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
SG-18	30	7/19/2010	2	SG-18B-30	75-15-0	Carbon Disulfide	23		4.8E+06	--	**4.8E-06**	**--**
SG-18	30	7/19/2010	2	SG-18B-30	100-41-4	Ethylbenzene	55		9.3E+06	8.7E+03	**5.9E-06**	**6.3E-09**
SG-18	30	7/19/2010	2	SG-18B-30	179601-23-1	m&p-Xylenes	200		1.0E+06	--	**2.0E-04**	**--**
SG-18	30	7/19/2010	2	SG-18B-30	78-93-3	Methyl ethyl ketone	110		4.2E+07	--	**2.6E-06**	**--**
SG-18	30	7/19/2010	2	SG-18B-30	75-09-2	Methylene Chloride (DCM)	5.8		2.8E+06	1.6E+04	**2.1E-06**	**3.5E-10**
SG-18	30	7/19/2010	2	SG-18B-30	95-47-6	o-Xylene	57		8.1E+05	--	**7.0E-05**	**--**
SG-18	30	7/19/2010	2	SG-18B-30	108-88-3	Toluene	600		2.4E+06	--	**2.5E-04**	**--**
SG-18	30	7/19/2010	2	SG-18B-30	1330-20-7	Xylenes, Total	260		8.3E+05	--	**3.1E-04**	**--**
SG-19	5	7/19/2010	0	SG-19-5	95-63-6	1,2,4-Trimethylbenzene	122		2.9E+04	--	**4.2E-03**	**--**
SG-19	5	7/19/2010	0	SG-19-5	108-67-8	1,3,5-Trimethylbenzene	89		1.5E+05	--	**6.0E-04**	**--**
SG-19	5	7/19/2010	0	SG-19-5	100-41-4	Ethylbenzene	58.3		3.5E+06	3.2E+03	**1.7E-05**	**1.8E-08**
SG-19	5	7/19/2010	0	SG-19-5	108-88-3	Toluene	282		9.2E+05	--	**3.1E-04**	**--**
SG-19	5	7/19/2010	0	SG-19-5	1330-20-7	Xylenes, Total	107		3.1E+05	--	**3.4E-04**	**--**
SG-19	15	7/19/2010	0	SG-19-15	108-88-3	Toluene	89		1.5E+06	--	**5.8E-05**	**--**
SG-20	5	7/16/2010	0	SG-20-5	95-63-6	1,2,4-Trimethylbenzene	119		2.9E+04	--	**4.1E-03**	**--**
SG-20	5	7/16/2010	0	SG-20-5	108-67-8	1,3,5-Trimethylbenzene	99.4		1.5E+05	--	**6.7E-04**	**--**
SG-20	5	7/16/2010	0	SG-20-5	108-88-3	Toluene	62.8		9.2E+05	--	**6.9E-05**	**--**
SG-20	15	7/16/2010	0	SG-20-15	95-63-6	1,2,4-Trimethylbenzene	119		5.0E+04	--	**2.4E-03**	**--**
SG-20	15	7/16/2010	0	SG-20-15	108-67-8	1,3,5-Trimethylbenzene	41.2		2.5E+05	--	**1.6E-04**	**--**
SG-20	15	7/16/2010	0	SG-20-15	100-41-4	Ethylbenzene	14.1		5.8E+06	5.4E+03	**2.4E-06**	**2.6E-09**
SG-20	15	7/16/2010	0	SG-20-15	108-88-3	Toluene	81.8		1.5E+06	--	**5.4E-05**	**--**
SG-20	15	7/16/2010	1	SG-20-15-DUP	95-63-6	1,2,4-Trimethylbenzene	123		5.0E+04	--	**2.5E-03**	**--**
SG-20	15	7/16/2010	1	SG-20-15-DUP	108-67-8	1,3,5-Trimethylbenzene	64.8		2.5E+05	--	**2.6E-04**	**--**
SG-20	15	7/16/2010	1	SG-20-15-DUP	100-41-4	Ethylbenzene	16.9		5.8E+06	5.4E+03	**2.9E-06**	**3.1E-09**
SG-20	15	7/16/2010	1	SG-20-15-DUP	108-88-3	Toluene	94		1.5E+06	--	**6.2E-05**	**--**
SG-21	5	7/19/2010	0	SG-21-5	95-63-6	1,2,4-Trimethylbenzene	392		2.9E+04	--	**1.3E-02**	**--**
SG-21	5	7/19/2010	0	SG-21-5	108-67-8	1,3,5-Trimethylbenzene	193		1.5E+05	--	**1.3E-03**	**--**
SG-21	5	7/19/2010	0	SG-21-5	71-43-2	Benzene	383		9.1E+04	2.4E+02	**4.2E-03**	**1.6E-06**
SG-21	5	7/19/2010	0	SG-21-5	100-41-4	Ethylbenzene	631		3.5E+06	3.2E+03	**1.8E-04**	**1.9E-07**
SG-21	5	7/19/2010	0	SG-21-5	103-65-1	n-Propylbenzene	138		4.2E+06	--	**3.3E-05**	**--**
SG-21	5	7/19/2010	0	SG-21-5	108-88-3	Toluene	2160		9.2E+05	--	**2.4E-03**	**--**
SG-21	5	7/19/2010	0	SG-21-5	1330-20-7	Xylenes, Total	1760		3.1E+05	--	**5.6E-03**	**--**
SG-21	15	7/19/2010	0	SG-21-15	108-88-3	Toluene	47		1.5E+06	--	**3.1E-05**	**--**
SG-22	5	7/16/2010	13	SG-22-5 (3P)	95-63-6	1,2,4-Trimethylbenzene	130		2.9E+04	--	**4.4E-03**	**--**
SG-22	5	7/16/2010	13	SG-22-5 (3P)	108-67-8	1,3,5-Trimethylbenzene	108		1.5E+05	--	**7.3E-04**	**--**
SG-22	5	7/16/2010	13	SG-22-5 (3P)	100-41-4	Ethylbenzene	26.8		3.5E+06	3.2E+03	**7.7E-06**	**8.3E-09**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
									RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
SG-22	5	7/16/2010	13	SG-22-5 (3P)	108-88-3	Toluene	227		9.2E+05	--	**2.5E-04**	**--**
SG-22	5	7/16/2010	13	SG-22-5 (3P)	1330-20-7	Xylenes, Total	69.6		3.1E+05	--	**2.2E-04**	**--**
SG-22	15	7/16/2010	0	SG-22-15	95-63-6	1,2,4-Trimethylbenzene	130		5.0E+04	--	**2.6E-03**	**--**
SG-22	15	7/16/2010	0	SG-22-15	108-67-8	1,3,5-Trimethylbenzene	107		2.5E+05	--	**4.3E-04**	**--**
SG-22	15	7/16/2010	0	SG-22-15	100-41-4	Ethylbenzene	34.3		5.8E+06	5.4E+03	**5.9E-06**	**6.3E-09**
SG-22	15	7/16/2010	0	SG-22-15	108-88-3	Toluene	546		1.5E+06	--	**3.6E-04**	**--**
SG-22	15	7/16/2010	0	SG-22-15	1330-20-7	Xylenes, Total	71.4		5.2E+05	--	**1.4E-04**	**--**
SG-22	30	7/19/2010	0	SG-22-30	67-64-1	Acetone	34		1.7E+08	--	**2.0E-07**	**--**
SG-22	30	7/19/2010	0	SG-22-30	75-09-2	Methylene Chloride (DCM)	3.8		2.8E+06	1.6E+04	**1.3E-06**	**2.3E-10**
SG-22	30	7/19/2010	0	SG-22-30	108-88-3	Toluene	22		2.4E+06	--	**9.0E-06**	**--**
SG-22	30	7/16/2010	13	SG-22-30 (3P)	95-63-6	1,2,4-Trimethylbenzene	120		8.0E+04	--	**1.5E-03**	**--**
SG-22	30	7/16/2010	13	SG-22-30 (3P)	108-67-8	1,3,5-Trimethylbenzene	99.8		4.0E+05	--	**2.5E-04**	**--**
SG-22	30	7/16/2010	13	SG-22-30 (3P)	100-41-4	Ethylbenzene	14.5		9.3E+06	8.7E+03	**1.6E-06**	**1.7E-09**
SG-22	30	7/16/2010	13	SG-22-30 (3P)	108-88-3	Toluene	76.8		2.4E+06	--	**3.2E-05**	**--**
SG-23	5	8/4/2010	0	SG-23-5	100-41-4	Ethylbenzene	6		3.5E+06	3.2E+03	**1.7E-06**	**1.9E-09**
SG-23	5	8/4/2010	0	SG-23-5	179601-23-1	m&p-Xylenes	18		3.7E+05	--	**4.9E-05**	**--**
SG-23	5	8/4/2010	0	SG-23-5	127-18-4	Tetrachloroethene (PCE)	25		1.3E+05	1.4E+03	**2.0E-04**	**1.8E-08**
SG-23	5	8/4/2010	0	SG-23-5	108-88-3	Toluene	22		9.2E+05	--	**2.4E-05**	**--**
SG-23	15	8/4/2010	0	SG-23-15	100-41-4	Ethylbenzene	7		5.8E+06	5.4E+03	**1.2E-06**	**1.3E-09**
SG-23	15	8/4/2010	0	SG-23-15	127-18-4	Tetrachloroethene (PCE)	16		2.1E+05	2.4E+03	**7.6E-05**	**6.7E-09**
SG-23	15	8/4/2010	0	SG-23-15	108-88-3	Toluene	12		1.5E+06	--	**7.9E-06**	**--**
SG-23	30	8/4/2010	0	SG-23-30	71-43-2	Benzene	13		2.4E+05	6.5E+02	**5.4E-05**	**2.0E-08**
SG-23	30	8/4/2010	0	SG-23-30	127-18-4	Tetrachloroethene (PCE)	12		3.4E+05	3.8E+03	**3.5E-05**	**3.1E-09**
SG-23	30	8/4/2010	0	SG-23-30	108-88-3	Toluene	23		2.4E+06	--	**9.5E-06**	**--**
SG-24	5	8/5/2010	0	SG-24-5	127-18-4	Tetrachloroethene (PCE)	11		1.3E+05	1.4E+03	**8.7E-05**	**7.7E-09**
SG-24	5	8/5/2010	0	SG-24-5	108-88-3	Toluene	10		9.2E+05	--	**1.1E-05**	**--**
SG-24	15	8/5/2010	0	SG-24-15	127-18-4	Tetrachloroethene (PCE)	9		2.1E+05	2.4E+03	**4.3E-05**	**3.8E-09**
SG-24	15	8/5/2010	0	SG-24-15	108-88-3	Toluene	8		1.5E+06	--	**5.3E-06**	**--**
SG-25	5	8/4/2010	0	SG-25-5	71-43-2	Benzene	60		9.1E+04	2.4E+02	**6.6E-04**	**2.5E-07**
SG-25	5	8/4/2010	0	SG-25-5	67-66-3	Chloroform	20		2.6E+05	2.7E+02	**7.8E-05**	**7.5E-08**
SG-25	5	8/4/2010	0	SG-25-5	100-41-4	Ethylbenzene	20		3.5E+06	3.2E+03	**5.8E-06**	**6.2E-09**
SG-25	5	8/4/2010	0	SG-25-5	179601-23-1	m&p-Xylenes	45		3.7E+05	--	**1.2E-04**	**--**
SG-25	5	8/4/2010	0	SG-25-5	127-18-4	Tetrachloroethene (PCE)	19		1.3E+05	1.4E+03	**1.5E-04**	**1.3E-08**
SG-25	5	8/4/2010	0	SG-25-5	108-88-3	Toluene	44		9.2E+05	--	**4.8E-05**	**--**
SG-25	5	8/5/2010	0	SG-25-5-20100805	95-63-6	1,2,4-Trimethylbenzene	15		2.9E+04	--	**5.1E-04**	**--**
SG-25	5	8/5/2010	0	SG-25-5-20100805	108-67-8	1,3,5-Trimethylbenzene	13		1.5E+05	--	**8.8E-05**	**--**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
									RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
SG-25	5	8/5/2010	0	SG-25-5-20100805	622-96-8	1-Ethyl-4-methylbenzene	39		3.8E+05	--	**1.0E-04**	**--**
SG-25	5	8/5/2010	0	SG-25-5-20100805	67-64-1	Acetone	48		6.6E+07	--	**7.2E-07**	**--**
SG-25	5	8/5/2010	0	SG-25-5-20100805	71-43-2	Benzene	35		9.1E+04	2.4E+02	**3.9E-04**	**1.4E-07**
SG-25	5	8/5/2010	0	SG-25-5-20100805	67-66-3	Chloroform	17		2.6E+05	2.7E+02	**6.6E-05**	**6.4E-08**
SG-25	5	8/5/2010	0	SG-25-5-20100805	74-87-3	Chloromethane	13		2.0E+05	--	**6.5E-05**	**--**
SG-25	5	8/5/2010	0	SG-25-5-20100805	100-41-4	Ethylbenzene	85		3.5E+06	3.2E+03	**2.4E-05**	**2.6E-08**
SG-25	5	8/5/2010	0	SG-25-5-20100805	75-69-4	Freon 11	50		2.1E+06	--	**2.3E-05**	**--**
SG-25	5	8/5/2010	0	SG-25-5-20100805	75-71-8	Freon 12	11		3.9E+05	--	**2.8E-05**	**--**
SG-25	5	8/5/2010	0	SG-25-5-20100805	179601-23-1	m&p-Xylenes	270		3.7E+05	--	**7.3E-04**	**--**
SG-25	5	8/5/2010	0	SG-25-5-20100805	74-83-9	Methyl Bromide	45		1.8E+04	--	**2.5E-03**	**--**
SG-25	5	8/5/2010	0	SG-25-5-20100805	95-47-6	o-Xylene	55		3.1E+05	--	**1.8E-04**	**--**
SG-25	5	8/5/2010	0	SG-25-5-20100805	127-18-4	Tetrachloroethene (PCE)	41		1.3E+05	1.4E+03	**3.3E-04**	**2.9E-08**
SG-25	5	8/5/2010	0	SG-25-5-20100805	108-88-3	Toluene	280		9.2E+05	--	**3.1E-04**	**--**
SG-25	5	8/5/2010	0	SG-25-5-20100805	1330-20-7	Xylenes, Total	320		3.1E+05	--	**1.0E-03**	**--**
SG-25	15	8/4/2010	0	SG-25-15	100-41-4	Ethylbenzene	27		5.8E+06	5.4E+03	**4.6E-06**	**5.0E-09**
SG-25	15	8/4/2010	0	SG-25-15	75-69-4	Freon 11	16		3.6E+06	--	**4.5E-06**	**--**
SG-25	15	8/4/2010	0	SG-25-15	179601-23-1	m&p-Xylenes	46		6.2E+05	--	**7.4E-05**	**--**
SG-25	15	8/4/2010	0	SG-25-15	127-18-4	Tetrachloroethene (PCE)	12		2.1E+05	2.4E+03	**5.7E-05**	**5.0E-09**
SG-25	15	8/4/2010	0	SG-25-15	108-88-3	Toluene	21		1.5E+06	--	**1.4E-05**	**--**
SG-26	5	8/5/2010	0	SG-26-5	100-41-4	Ethylbenzene	6		3.5E+06	3.2E+03	**1.7E-06**	**1.9E-09**
SG-26	5	8/5/2010	0	SG-26-5	179601-23-1	m&p-Xylenes	15		3.7E+05	--	**4.1E-05**	**--**
SG-26	5	8/5/2010	0	SG-26-5	127-18-4	Tetrachloroethene (PCE)	17		1.3E+05	1.4E+03	**1.3E-04**	**1.2E-08**
SG-26	5	8/5/2010	0	SG-26-5	108-88-3	Toluene	24		9.2E+05	--	**2.6E-05**	**--**
SG-26	15	8/5/2010	0	SG-26-15	100-41-4	Ethylbenzene	44		5.8E+06	5.4E+03	**7.6E-06**	**8.1E-09**
SG-26	15	8/5/2010	0	SG-26-15	179601-23-1	m&p-Xylenes	110		6.2E+05	--	**1.8E-04**	**--**
SG-26	15	8/5/2010	0	SG-26-15	95-47-6	o-Xylene	29		5.1E+05	--	**5.7E-05**	**--**
SG-26	15	8/5/2010	0	SG-26-15	135-98-8	sec-Butylbenzene	10		2.6E+06	--	**3.8E-06**	**--**
SG-26	15	8/5/2010	0	SG-26-15	127-18-4	Tetrachloroethene (PCE)	19		2.1E+05	2.4E+03	**9.0E-05**	**7.9E-09**
SG-26	15	8/5/2010	0	SG-26-15	108-88-3	Toluene	46		1.5E+06	--	**3.0E-05**	**--**
SG-27	5	8/4/2010	0	SG-27-5	100-41-4	Ethylbenzene	35		3.5E+06	3.2E+03	**1.0E-05**	**1.1E-08**
SG-27	5	8/4/2010	0	SG-27-5	179601-23-1	m&p-Xylenes	71		3.7E+05	--	**1.9E-04**	**--**
SG-27	5	8/4/2010	0	SG-27-5	127-18-4	Tetrachloroethene (PCE)	28		1.3E+05	1.4E+03	**2.2E-04**	**2.0E-08**
SG-27	5	8/4/2010	0	SG-27-5	108-88-3	Toluene	75		9.2E+05	--	**8.2E-05**	**--**
SG-27	5	8/5/2010	0	SG-27-5-20100805	74-87-3	Chloromethane	14		2.0E+05	--	**6.9E-05**	**--**
SG-27	5	8/5/2010	0	SG-27-5-20100805	74-83-9	Methyl Bromide	41		1.8E+04	--	**2.3E-03**	**--**
SG-27	5	8/5/2010	0	SG-27-5-20100805	75-09-2	Methylene Chloride (DCM)	7.1		1.1E+06	6.3E+03	**6.6E-06**	**1.1E-09**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
									RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
SG-27	5	8/5/2010	0	SG-27-5-20100805	108-88-3	Toluene	4.5		9.2E+05	--	**4.9E-06**	**--**
SG-27	15	8/4/2010	0	SG-27-15	95-63-6	1,2,4-Trimethylbenzene	6		5.0E+04	--	**1.2E-04**	**--**
SG-27	15	8/4/2010	0	SG-27-15	100-41-4	Ethylbenzene	160		5.8E+06	5.4E+03	**2.7E-05**	**2.9E-08**
SG-27	15	8/4/2010	0	SG-27-15	179601-23-1	m&p-Xylenes	340		6.2E+05	--	**5.5E-04**	**--**
SG-27	15	8/4/2010	0	SG-27-15	95-47-6	o-Xylene	62		5.1E+05	--	**1.2E-04**	**--**
SG-27	15	8/4/2010	0	SG-27-15	127-18-4	Tetrachloroethene (PCE)	21		2.1E+05	2.4E+03	**9.9E-05**	**8.8E-09**
SG-27	15	8/4/2010	0	SG-27-15	108-88-3	Toluene	100		1.5E+06	--	**6.6E-05**	**--**
SG-28	5	8/5/2010	0	SG-28-5	100-41-4	Ethylbenzene	5		3.5E+06	3.2E+03	**1.4E-06**	**1.5E-09**
SG-28	5	8/5/2010	0	SG-28-5	108-88-3	Toluene	17		9.2E+05	--	**1.9E-05**	**--**
SG-28	15	8/5/2010	0	SG-28-15	100-41-4	Ethylbenzene	6		5.8E+06	5.4E+03	**1.0E-06**	**1.1E-09**
SG-28	15	8/5/2010	0	SG-28-15	108-88-3	Toluene	7		1.5E+06	--	**4.6E-06**	**--**
SG-29	5	8/4/2010	0	SG-29-5	127-18-4	Tetrachloroethene (PCE)	25		1.3E+05	1.4E+03	**2.0E-04**	**1.8E-08**
SG-29	5	8/4/2010	0	SG-29-5	108-88-3	Toluene	16		9.2E+05	--	**1.7E-05**	**--**
SG-29	15	8/4/2010	0	SG-29-15	127-18-4	Tetrachloroethene (PCE)	19		2.1E+05	2.4E+03	**9.0E-05**	**7.9E-09**
SG-29	15	8/4/2010	0	SG-29-15	108-88-3	Toluene	8		1.5E+06	--	**5.3E-06**	**--**
SG-30	5	8/5/2010	0	SG-30-5	127-18-4	Tetrachloroethene (PCE)	10		1.3E+05	1.4E+03	**7.9E-05**	**7.0E-09**
SG-31	5	8/5/2010	0	SG-31-5	127-18-4	Tetrachloroethene (PCE)	18		1.3E+05	1.4E+03	**1.4E-04**	**1.3E-08**
SG-31	5	8/5/2010	0	SG-31-5	108-88-3	Toluene	17		9.2E+05	--	**1.9E-05**	**--**
SG-31	15	8/5/2010	0	SG-31-15	127-18-4	Tetrachloroethene (PCE)	20		2.1E+05	2.4E+03	**9.5E-05**	**8.4E-09**
SG-31	15	8/5/2010	0	SG-31-15	108-88-3	Toluene	10		1.5E+06	--	**6.6E-06**	**--**
SG-32	5	8/5/2010	0	SG-32-5	95-63-6	1,2,4-Trimethylbenzene	9		2.9E+04	--	**3.1E-04**	**--**
SG-32	5	8/5/2010	0	SG-32-5	67-66-3	Chloroform	51		2.6E+05	2.7E+02	**2.0E-04**	**1.9E-07**
SG-32	5	8/5/2010	0	SG-32-5	179601-23-1	m&p-Xylenes	26		3.7E+05	--	**7.0E-05**	**--**
SG-32	5	8/5/2010	0	SG-32-5	127-18-4	Tetrachloroethene (PCE)	17		1.3E+05	1.4E+03	**1.3E-04**	**1.2E-08**
SG-32	5	8/5/2010	0	SG-32-5	108-88-3	Toluene	39		9.2E+05	--	**4.3E-05**	**--**
SG-32	15	8/5/2010	0	SG-32-15	67-66-3	Chloroform	10		4.2E+05	4.4E+02	**2.4E-05**	**2.3E-08**
SG-32	15	8/5/2010	0	SG-32-15	127-18-4	Tetrachloroethene (PCE)	11		2.1E+05	2.4E+03	**5.2E-05**	**4.6E-09**
SG-32	15	8/5/2010	0	SG-32-15	108-88-3	Toluene	13		1.5E+06	--	**8.5E-06**	**--**
VP-01	15	11/13/2013	0	VP-1-15-111313	127-18-4	Tetrachloroethene (PCE)	204	J	2.1E+05	2.4E+03	**9.6E-04**	**8.5E-08**
VP-01	15	11/13/2013	0	VP-1-15-111313	79-01-6	Trichloroethene (TCE)	42		1.1E+04	2.3E+03	**3.8E-03**	**1.8E-08**
VP-02	15	11/13/2013	0	VP-2-15-111313	127-18-4	Tetrachloroethene (PCE)	12	J	2.1E+05	2.4E+03	**5.7E-05**	**5.0E-09**
VP-02	15	11/13/2013	0	VP-2-15-111313	79-01-6	Trichloroethene (TCE)	32	J	1.1E+04	2.3E+03	**2.9E-03**	**1.4E-08**
VP-03	5	11/13/2013	0	VP-3-5-111313	127-18-4	Tetrachloroethene (PCE)	25	J	1.3E+05	1.4E+03	**2.0E-04**	**1.8E-08**
VP-03	5	11/13/2013	1	VP-3-5-111313 DUP	127-18-4	Tetrachloroethene (PCE)	13	J	1.3E+05	1.4E+03	**1.0E-04**	**9.1E-09**
VP-03	15	11/13/2013	0	VP-3-15-111313	127-18-4	Tetrachloroethene (PCE)	223		2.1E+05	2.4E+03	**1.1E-03**	**9.3E-08**
VP-03	15	11/13/2013	0	VP-3-15-111313	79-01-6	Trichloroethene (TCE)	13	J	1.1E+04	2.3E+03	**1.2E-03**	**5.7E-09**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
									RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
VP-03	30	11/13/2013	1	VP-3-30-111313S	71-55-6	1,1,1-Trichloroethane	7.2		9.0E+06	--	**8.0E-07**	**--**
VP-03	30	11/13/2013	1	VP-3-30-111313S	95-63-6	1,2,4-Trimethylbenzene	32		8.0E+04	--	**4.0E-04**	**--**
VP-03	30	11/13/2013	1	VP-3-30-111313S	108-67-8	1,3,5-Trimethylbenzene	12		4.0E+05	--	**3.0E-05**	**--**
VP-03	30	11/13/2013	1	VP-3-30-111313S	622-96-8	1-Ethyl-4-methylbenzene	32		1.0E+06	--	**3.1E-05**	**--**
VP-03	30	11/13/2013	1	VP-3-30-111313S	67-64-1	Acetone	82		1.7E+08	--	**4.7E-07**	**--**
VP-03	30	11/13/2013	1	VP-3-30-111313S	71-43-2	Benzene	19		2.4E+05	6.5E+02	**7.9E-05**	**2.9E-08**
VP-03	30	11/13/2013	1	VP-3-30-111313S	75-15-0	Carbon Disulfide	70		4.8E+06	--	**1.5E-05**	**--**
VP-03	30	11/13/2013	1	VP-3-30-111313S	124-48-1	Chlorodibromomethane	5		2.4E+06	3.0E+03	**2.1E-06**	**1.7E-09**
VP-03	30	11/13/2013	1	VP-3-30-111313S	67-66-3	Chloroform	6.5		6.7E+05	7.0E+02	**9.7E-06**	**9.3E-09**
VP-03	30	11/13/2013	1	VP-3-30-111313S	74-87-3	Chloromethane	1.2		5.2E+05	--	**2.3E-06**	**--**
VP-03	30	11/13/2013	1	VP-3-30-111313S	75-27-4	Dichlorobromomethane	6.6		1.6E+06	1.4E+03	**4.1E-06**	**4.6E-09**
VP-03	30	11/13/2013	1	VP-3-30-111313S	100-41-4	Ethylbenzene	31		9.3E+06	8.7E+03	**3.3E-06**	**3.6E-09**
VP-03	30	11/13/2013	1	VP-3-30-111313S	75-71-8	Freon 12	5.9		1.0E+06	--	**5.6E-06**	**--**
VP-03	30	11/13/2013	1	VP-3-30-111313S	179601-23-1	m&p-Xylenes	110		1.0E+06	--	**1.1E-04**	**--**
VP-03	30	11/13/2013	1	VP-3-30-111313S	78-93-3	Methyl ethyl ketone	110		4.2E+07	--	**2.6E-06**	**--**
VP-03	30	11/13/2013	1	VP-3-30-111313S	75-09-2	Methylene Chloride (DCM)	22		2.8E+06	1.6E+04	**7.8E-06**	**1.3E-09**
VP-03	30	11/13/2013	1	VP-3-30-111313S	95-47-6	o-Xylene	32		8.1E+05	--	**3.9E-05**	**--**
VP-03	30	11/13/2013	1	VP-3-30-111313S	127-18-4	Tetrachloroethene (PCE)	120		3.4E+05	3.8E+03	**3.5E-04**	**3.1E-08**
VP-03	30	11/13/2013	1	VP-3-30-111313S	108-88-3	Toluene	110		2.4E+06	--	**4.5E-05**	**--**
VP-04	15	11/13/2013	0	VP-4-15-111313	127-18-4	Tetrachloroethene (PCE)	87		2.1E+05	2.4E+03	**4.1E-04**	**3.6E-08**
VP-04	15	11/13/2013	0	VP-4-15-111313	79-01-6	Trichloroethene (TCE)	14	J	1.1E+04	2.3E+03	**1.3E-03**	**6.1E-09**
VP-04	30	11/13/2013	0	VP-4-30-111313	108-88-3	Toluene	80		2.4E+06	--	**3.3E-05**	**--**
VP-05	5	11/13/2013	0	VP-5-5 111313	127-18-4	Tetrachloroethene (PCE)	30	J	1.3E+05	1.4E+03	**2.4E-04**	**2.1E-08**
VP-05	5	11/13/2013	0	VP-5-5 111313	79-01-6	Trichloroethene (TCE)	12	J	6.6E+03	1.4E+03	**1.8E-03**	**8.7E-09**
VP-06	5	11/13/2013	0	VP-6-5-111313	79-01-6	Trichloroethene (TCE)	10	J	6.6E+03	1.4E+03	**1.5E-03**	**7.3E-09**
VP-06	15	11/11/2013	0	VP-6-15-111113S	75-35-4	1,1-Dichloroethene	31		3.4E+05	--	**9.0E-05**	**--**
VP-06	15	11/11/2013	0	VP-6-15-111113S	95-63-6	1,2,4-Trimethylbenzene	43		5.0E+04	--	**8.7E-04**	**--**
VP-06	15	11/11/2013	0	VP-6-15-111113S	108-67-8	1,3,5-Trimethylbenzene	16		2.5E+05	--	**6.4E-05**	**--**
VP-06	15	11/11/2013	0	VP-6-15-111113S	622-96-8	1-Ethyl-4-methylbenzene	12		6.4E+05	--	**1.9E-05**	**--**
VP-06	15	11/11/2013	0	VP-6-15-111113S	67-64-1	Acetone	75		1.1E+08	--	**6.9E-07**	**--**
VP-06	15	11/11/2013	0	VP-6-15-111113S	71-43-2	Benzene	45		1.5E+05	4.0E+02	**3.0E-04**	**1.1E-07**
VP-06	15	11/11/2013	0	VP-6-15-111113S	75-15-0	Carbon Disulfide	40		3.0E+06	--	**1.3E-05**	**--**
VP-06	15	11/11/2013	0	VP-6-15-111113S	67-66-3	Chloroform	9.6		4.2E+05	4.4E+02	**2.3E-05**	**2.2E-08**
VP-06	15	11/11/2013	0	VP-6-15-111113S	100-41-4	Ethylbenzene	32		5.8E+06	5.4E+03	**5.5E-06**	**5.9E-09**
VP-06	15	11/11/2013	0	VP-6-15-111113S	179601-23-1	m&p-Xylenes	110		6.2E+05	--	**1.8E-04**	**--**
VP-06	15	11/11/2013	0	VP-6-15-111113S	78-93-3	Methyl ethyl ketone	110		2.6E+07	--	**4.2E-06**	**--**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
									RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
VP-06	15	11/11/2013	0	VP-6-15-111113S	95-47-6	o-Xylene	39		5.1E+05	--	**7.7E-05**	**--**
VP-06	15	11/11/2013	0	VP-6-15-111113S	127-18-4	Tetrachloroethene (PCE)	61		2.1E+05	2.4E+03	**2.9E-04**	**2.6E-08**
VP-06	15	11/11/2013	0	VP-6-15-111113S	108-88-3	Toluene	240		1.5E+06	--	**1.6E-04**	**--**
VP-06	15	11/11/2013	0	VP-6-15-111113S	79-01-6	Trichloroethene (TCE)	240		1.1E+04	2.3E+03	**2.2E-02**	**1.0E-07**
VP-06	15	11/13/2013	0	VP-6-15-111313	127-18-4	Tetrachloroethene (PCE)	98	J	2.1E+05	2.4E+03	**4.6E-04**	**4.1E-08**
VP-06	15	11/13/2013	0	VP-6-15-111313	108-88-3	Toluene	102		1.5E+06	--	**6.7E-05**	**--**
VP-06	15	11/13/2013	0	VP-6-15-111313	79-01-6	Trichloroethene (TCE)	14	J	1.1E+04	2.3E+03	**1.3E-03**	**6.1E-09**
VP-06	15	11/13/2013	1	VP-6-15-111313 DUP	127-18-4	Tetrachloroethene (PCE)	266	J	2.1E+05	2.4E+03	**1.3E-03**	**1.1E-07**
VP-06	15	11/13/2013	1	VP-6-15-111313 DUP	108-88-3	Toluene	127		1.5E+06	--	**8.3E-05**	**--**
VP-06	15	11/13/2013	1	VP-6-15-111313 DUP	79-01-6	Trichloroethene (TCE)	66	J	1.1E+04	2.3E+03	**5.9E-03**	**2.9E-08**
VP-06	30	11/13/2013	0	VP-6-30-111313	95-63-6	1,2,4-Trimethylbenzene	13	J	8.0E+04	--	**1.6E-04**	**--**
VP-06	30	11/13/2013	0	VP-6-30-111313	108-67-8	1,3,5-Trimethylbenzene	8	J	4.0E+05	--	**2.0E-05**	**--**
VP-06	30	11/13/2013	0	VP-6-30-111313	75-09-2	Methylene Chloride (DCM)	22	J	2.8E+06	1.6E+04	**7.8E-06**	**1.3E-09**
VP-06	30	11/13/2013	0	VP-6-30-111313	127-18-4	Tetrachloroethene (PCE)	8	J	3.4E+05	3.8E+03	**2.4E-05**	**2.1E-09**
VP-06	30	11/13/2013	0	VP-6-30-111313	108-88-3	Toluene	127		2.4E+06	--	**5.2E-05**	**--**
VP-06	30	11/13/2013	0	VP-6-30-111313	1330-20-7	Xylenes, Total	69	J	8.3E+05	--	**8.3E-05**	**--**
VP-06	30	11/13/2013	1	VP-6-30-111313 DUP	75-09-2	Methylene Chloride (DCM)	19	J	2.8E+06	1.6E+04	**6.7E-06**	**1.2E-09**
VP-06	30	11/13/2013	1	VP-6-30-111313 DUP	127-18-4	Tetrachloroethene (PCE)	90	J	3.4E+05	3.8E+03	**2.6E-04**	**2.3E-08**
VP-06	30	11/13/2013	1	VP-6-30-111313 DUP	108-88-3	Toluene	130	J	2.4E+06	--	**5.3E-05**	**--**
VP-06	30	11/13/2013	1	VP-6-30-111313 DUP	1330-20-7	Xylenes, Total	34	J	8.3E+05	--	**4.1E-05**	**--**
VP-07	15	11/13/2013	0	VP-7-15-111313	127-18-4	Tetrachloroethene (PCE)	103		2.1E+05	2.4E+03	**4.9E-04**	**4.3E-08**
VP-07	15	11/13/2013	0	VP-7-15-111313	79-01-6	Trichloroethene (TCE)	25	J	1.1E+04	2.3E+03	**2.3E-03**	**1.1E-08**
VP-07	30	11/13/2013	0	VP-7-30-111313	95-63-6	1,2,4-Trimethylbenzene	22	J	8.0E+04	--	**2.7E-04**	**--**
VP-07	30	11/13/2013	0	VP-7-30-111313	108-67-8	1,3,5-Trimethylbenzene	10	J	4.0E+05	--	**2.5E-05**	**--**
VP-07	30	11/13/2013	0	VP-7-30-111313	127-18-4	Tetrachloroethene (PCE)	120		3.4E+05	3.8E+03	**3.5E-04**	**3.1E-08**
VP-07	30	11/13/2013	0	VP-7-30-111313	1330-20-7	Xylenes, Total	80	J	8.3E+05	--	**9.6E-05**	**--**
VP-08	15	11/12/2013	0	VP-8-15-111213S	67-64-1	Acetone	55		1.1E+08	--	**5.0E-07**	**--**
VP-08	15	11/12/2013	0	VP-8-15-111213S	75-71-8	Freon 12	2.7		6.5E+05	--	**4.1E-06**	**--**
VP-08	15	11/12/2013	0	VP-8-15-111213S	78-93-3	Methyl ethyl ketone	63		2.6E+07	--	**2.4E-06**	**--**
VP-08	15	11/12/2013	0	VP-8-15-111213S	127-18-4	Tetrachloroethene (PCE)	3.9		2.1E+05	2.4E+03	**1.8E-05**	**1.6E-09**
VP-08	15	11/12/2013	0	VP-8-15-111213S	108-88-3	Toluene	13		1.5E+06	--	**8.5E-06**	**--**
VP-08	15	11/13/2013	0	VP-8-15-111313	127-18-4	Tetrachloroethene (PCE)	47		2.1E+05	2.4E+03	**2.2E-04**	**2.0E-08**
VP-08	15	11/13/2013	0	VP-8-15-111313	79-01-6	Trichloroethene (TCE)	17	J	1.1E+04	2.3E+03	**1.5E-03**	**7.4E-09**
VP-08	30	11/13/2013	0	VP-8-30- 111313	127-18-4	Tetrachloroethene (PCE)	9	J	3.4E+05	3.8E+03	**2.6E-05**	**2.3E-09**
VP-09	5	11/13/2013	0	VP-9-5- 111313	108-88-3	Toluene	100		9.2E+05	--	**1.1E-04**	**--**
VP-09	5	11/13/2013	0	VP-9-5- 111313	1330-20-7	Xylenes, Total	25	J	3.1E+05	--	**8.0E-05**	**--**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
									RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
VP-09	15	11/13/2013	0	VP-9-15-111313	127-18-4	Tetrachloroethene (PCE)	136		2.1E+05	2.4E+03	**6.4E-04**	**5.7E-08**
VP-09	15	11/13/2013	0	VP-9-15-111313	79-01-6	Trichloroethene (TCE)	40		1.1E+04	2.3E+03	**3.6E-03**	**1.7E-08**
VP-10	30	11/12/2013	0	VP-10-30-111213S	95-63-6	1,2,4-Trimethylbenzene	18		8.0E+04	--	**2.2E-04**	**--**
VP-10	30	11/12/2013	0	VP-10-30-111213S	108-67-8	1,3,5-Trimethylbenzene	5.6		4.0E+05	--	**1.4E-05**	**--**
VP-10	30	11/12/2013	0	VP-10-30-111213S	622-96-8	1-Ethyl-4-methylbenzene	4.5		1.0E+06	--	**4.4E-06**	**--**
VP-10	30	11/12/2013	0	VP-10-30-111213S	67-64-1	Acetone	90		1.7E+08	--	**5.2E-07**	**--**
VP-10	30	11/12/2013	0	VP-10-30-111213S	71-43-2	Benzene	6.3		2.4E+05	6.5E+02	**2.6E-05**	**9.8E-09**
VP-10	30	11/12/2013	0	VP-10-30-111213S	75-15-0	Carbon Disulfide	15		4.8E+06	--	**3.1E-06**	**--**
VP-10	30	11/12/2013	0	VP-10-30-111213S	74-87-3	Chloromethane	1.9		5.2E+05	--	**3.7E-06**	**--**
VP-10	30	11/12/2013	0	VP-10-30-111213S	100-41-4	Ethylbenzene	9.7		9.3E+06	8.7E+03	**1.0E-06**	**1.1E-09**
VP-10	30	11/12/2013	0	VP-10-30-111213S	75-71-8	Freon 12	2.7		1.0E+06	--	**2.6E-06**	**--**
VP-10	30	11/12/2013	0	VP-10-30-111213S	179601-23-1	m&p-Xylenes	38		1.0E+06	--	**3.8E-05**	**--**
VP-10	30	11/12/2013	0	VP-10-30-111213S	78-93-3	Methyl ethyl ketone	48		4.2E+07	--	**1.1E-06**	**--**
VP-10	30	11/12/2013	0	VP-10-30-111213S	95-47-6	o-Xylene	14		8.1E+05	--	**1.7E-05**	**--**
VP-10	30	11/12/2013	0	VP-10-30-111213S	127-18-4	Tetrachloroethene (PCE)	3.9		3.4E+05	3.8E+03	**1.1E-05**	**1.0E-09**
VP-10	30	11/12/2013	0	VP-10-30-111213S	108-88-3	Toluene	56		2.4E+06	--	**2.3E-05**	**--**
VP-10	45	11/13/2013	0	VP-10-45-111313	79-01-6	Trichloroethene (TCE)	23	J	2.4E+04	5.1E+03	**9.4E-04**	**4.5E-09**
VP-11	5	11/13/2013	0	VP-11-5-111313 1PV	120-82-1	1,2,4-Trichlorobenzene	23	J	1.6E+04	--	**1.4E-03**	**--**
VP-11	5	11/13/2013	0	VP-11-5-111313 1PV	95-49-8	o-Chlorotoluene	13	J	2.5E+05	--	**5.2E-05**	**--**
VP-11	5	11/13/2013	0	VP-11-5-111313 1PV	99-87-6	p-Cymene	24	J	4.8E+05	--	**5.0E-05**	**--**
VP-11	5	11/13/2013	0	VP-11-5-111313 1PV	135-98-8	sec-Butylbenzene	40		1.5E+06	--	**2.6E-05**	**--**
VP-11	5	11/13/2013	0	VP-11-5-111313 1PV	127-18-4	Tetrachloroethene (PCE)	27	J	1.3E+05	1.4E+03	**2.1E-04**	**1.9E-08**
VP-11	5	11/13/2013	13	VP-11-5-111313 3PV	95-49-8	o-Chlorotoluene	12	J	2.5E+05	--	**4.8E-05**	**--**
VP-11	5	11/13/2013	13	VP-11-5-111313 3PV	99-87-6	p-Cymene	10	J	4.8E+05	--	**2.1E-05**	**--**
VP-11	5	11/13/2013	13	VP-11-5-111313 3PV	135-98-8	sec-Butylbenzene	28	J	1.5E+06	--	**1.8E-05**	**--**
VP-11	5	11/13/2013	13	VP-11-5-111313 3PV	127-18-4	Tetrachloroethene (PCE)	27	J	1.3E+05	1.4E+03	**2.1E-04**	**1.9E-08**
VP-11	5	11/13/2013	13	VP-11-5-111313 3PV	108-88-3	Toluene	116		9.2E+05	--	**1.3E-04**	**--**
VP-11	5	11/13/2013	15	VP-11-5-111313 10PV	95-49-8	o-Chlorotoluene	11	J	2.5E+05	--	**4.4E-05**	**--**
VP-11	5	11/13/2013	15	VP-11-5-111313 10PV	99-87-6	p-Cymene	12	J	4.8E+05	--	**2.5E-05**	**--**
VP-11	5	11/13/2013	15	VP-11-5-111313 10PV	135-98-8	sec-Butylbenzene	31	J	1.5E+06	--	**2.0E-05**	**--**
VP-11	5	11/13/2013	15	VP-11-5-111313 10PV	127-18-4	Tetrachloroethene (PCE)	29	J	1.3E+05	1.4E+03	**2.3E-04**	**2.0E-08**
VP-11	15	11/13/2013	15	VP-11-15-111313 10PV	127-18-4	Tetrachloroethene (PCE)	172		2.1E+05	2.4E+03	**8.1E-04**	**7.2E-08**
VP-11	15	11/13/2013	15	VP-11-15-111313 10PV	79-01-6	Trichloroethene (TCE)	10	J	1.1E+04	2.3E+03	**9.0E-04**	**4.4E-09**
VP-11	15	11/13/2013	0	VP-11-15-111313 1PV	127-18-4	Tetrachloroethene (PCE)	224		2.1E+05	2.4E+03	**1.1E-03**	**9.4E-08**
VP-11	15	11/13/2013	13	VP-11-15-111313 3PV	127-18-4	Tetrachloroethene (PCE)	214		2.1E+05	2.4E+03	**1.0E-03**	**9.0E-08**
VP-11	15	11/13/2013	13	VP-11-15-111313 3PV	79-01-6	Trichloroethene (TCE)	16	J	1.1E+04	2.3E+03	**1.4E-03**	**7.0E-09**

Location	Sample Depth (ft bgs)	Sample Date	Dup	Sample ID	CAS Number	Analyte	Result ($\mu g/m^3$)	Qualifier	Future Onsite Resident			
									RBC_{SV-NC} ($\mu g/m^3$)	RBC_{SV-C} ($\mu g/m^3$)	Noncancer Hazard	Cancer Risk
VP-11	30	11/13/2013	0	VP-11-30-111313 1PV	99-87-6	p-Cymene	11	J	1.3E+06	--	**8.4E-06**	**--**
VP-11	30	11/13/2013	0	VP-11-30-111313 1PV	127-18-4	Tetrachloroethene (PCE)	31	J	3.4E+05	3.8E+03	**9.1E-05**	**8.1E-09**
VP-11	30	11/13/2013	0	VP-11-30-111313 1PV	108-88-3	Toluene	21	J	2.4E+06	--	**8.6E-06**	**--**
VP-11	30	11/13/2013	13	VP-11-30-111313 3PV	99-87-6	p-Cymene	15	J	1.3E+06	--	**1.1E-05**	**--**
VP-11	30	11/13/2013	13	VP-11-30-111313 3PV	127-18-4	Tetrachloroethene (PCE)	21	J	3.4E+05	3.8E+03	**6.2E-05**	**5.5E-09**
VP-11	30	11/13/2013	13	VP-11-30-111313 3PV	108-88-3	Toluene	14	J	2.4E+06	--	**5.8E-06**	**--**
VP-11	30	11/13/2013	15	VP-11-30-111313 10PV	99-87-6	p-Cymene	9	J	1.3E+06	--	**6.9E-06**	**--**
VP-11	30	11/13/2013	15	VP-11-30-111313 10PV	127-18-4	Tetrachloroethene (PCE)	17	J	3.4E+05	3.8E+03	**5.0E-05**	**4.4E-09**
VP-12	15	11/13/2013	0	VP-12-15- 111313	127-18-4	Tetrachloroethene (PCE)	115		2.1E+05	2.4E+03	**5.4E-04**	**4.8E-08**
VP-12	15	11/13/2013	0	VP-12-15- 111313	79-01-6	Trichloroethene (TCE)	27	J	1.1E+04	2.3E+03	**2.4E-03**	**1.2E-08**
VP-13	5	11/13/2013	0	VP-13-5- 111313	127-18-4	Tetrachloroethene (PCE)	110		1.3E+05	1.4E+03	**8.7E-04**	**7.7E-08**
VP-13	5	11/13/2013	0	VP-13-5- 111313	79-01-6	Trichloroethene (TCE)	28	J	6.6E+03	1.4E+03	**4.2E-03**	**2.0E-08**
VP-13	15	11/13/2013	0	VP-13-15- 111313	127-18-4	Tetrachloroethene (PCE)	166		2.1E+05	2.4E+03	**7.8E-04**	**6.9E-08**
VP-13	15	11/13/2013	0	VP-13-15- 111313	79-01-6	Trichloroethene (TCE)	58		1.1E+04	2.3E+03	**5.2E-03**	**2.5E-08**
VP-13	30	11/13/2013	0	VP-13-30- 111313	127-18-4	Tetrachloroethene (PCE)	70		3.4E+05	3.8E+03	**2.1E-04**	**1.8E-08**
VP-14	5	11/13/2013	0	VP-14-5- 111313	75-35-4	1,1-Dichloroethene	81		2.1E+05	--	**3.9E-04**	**--**
VP-14	15	11/13/2013	0	VP-14-15- 111313	75-35-4	1,1-Dichloroethene	224		3.4E+05	--	**6.5E-04**	**--**
VP-14	15	11/13/2013	0	VP-14-15- 111313	87-61-6	1,2,3-Trichlorobenzene	8	J	3.0E+04	--	**2.7E-04**	**--**
VP-14	15	11/13/2013	0	VP-14-15- 111313	98-82-8	Isopropylbenzene	9	J	2.7E+06	--	**3.4E-06**	**--**
VP-14	15	11/13/2013	0	VP-14-15- 111313	127-18-4	Tetrachloroethene (PCE)	102		2.1E+05	2.4E+03	**4.8E-04**	**4.3E-08**
VP-14	15	11/13/2013	0	VP-14-15- 111313	79-01-6	Trichloroethene (TCE)	20	J	1.1E+04	2.3E+03	**1.8E-03**	**8.7E-09**
VP-14	15	11/13/2013	1	VP-14-15-111313S	622-96-8	1-Ethyl-4-methylbenzene	2.5		6.4E+05	--	**3.9E-06**	**--**
VP-14	15	11/13/2013	1	VP-14-15-111313S	67-64-1	Acetone	44		1.1E+08	--	**4.0E-07**	**--**
VP-14	15	11/13/2013	1	VP-14-15-111313S	100-41-4	Ethylbenzene	4.3		5.8E+06	5.4E+03	**7.4E-07**	**7.9E-10**
VP-14	15	11/13/2013	1	VP-14-15-111313S	75-71-8	Freon 12	2.7		6.5E+05	--	**4.1E-06**	**--**
VP-14	15	11/13/2013	1	VP-14-15-111313S	179601-23-1	m&p-Xylenes	17		6.2E+05	--	**2.7E-05**	**--**
VP-14	15	11/13/2013	1	VP-14-15-111313S	78-93-3	Methyl ethyl ketone	42		2.6E+07	--	**1.6E-06**	**--**
VP-14	15	11/13/2013	1	VP-14-15-111313S	95-47-6	o-Xylene	4.7		5.1E+05	--	**9.3E-06**	**--**
VP-14	15	11/13/2013	1	VP-14-15-111313S	127-18-4	Tetrachloroethene (PCE)	4		2.1E+05	2.4E+03	**1.9E-05**	**1.7E-09**
VP-14	15	11/13/2013	1	VP-14-15-111313S	108-88-3	Toluene	2.5		1.5E+06	--	**1.6E-06**	**--**
VP-15	5	11/13/2013	0	VP-15-5- 111313	127-18-4	Tetrachloroethene (PCE)	127		1.3E+05	1.4E+03	**1.0E-03**	**8.9E-08**
VP-15	5	11/13/2013	0	VP-15-5- 111313	79-01-6	Trichloroethene (TCE)	28	J	6.6E+03	1.4E+03	**4.2E-03**	**2.0E-08**
VP-15	15	11/13/2013	0	VP-15-15- 111313	127-18-4	Tetrachloroethene (PCE)	91	J	2.1E+05	2.4E+03	**4.3E-04**	**3.8E-08**
VP-15	15	11/13/2013	0	VP-15-15- 111313	79-01-6	Trichloroethene (TCE)	23	J	1.1E+04	2.3E+03	**2.1E-03**	**1.0E-08**
VP-15	15	11/13/2013	1	VP-15-15-111313 DUP	127-18-4	Tetrachloroethene (PCE)	126	J	2.1E+05	2.4E+03	**6.0E-04**	**5.3E-08**
VP-15	15	11/13/2013	1	VP-15-15-111313 DUP	79-01-6	Trichloroethene (TCE)	49	J	1.1E+04	2.3E+03	**4.4E-03**	**2.1E-08**
VP-16	5	11/13/2013	1	VP-16-5-111313 DUP	127-18-4	Tetrachloroethene (PCE)	53	J	1.3E+05	1.4E+03	**4.2E-04**	**3.7E-08**

Appendix E: Attachment E-4, Table E4
Cumulative Cancer Risk and Noncancer Hazard
Soil Vapor to Indoor Air Exposure Pathway
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

Sample Location	Sample Depth (ft bgs)	Soil Vapor to Indoor Air - Future Onsite Resident		
		5 Feet of Engineered Fill		
		Cancer Risk	Noncancer Hazard	Risk Drivers
SG-01	5	3E-07	4E-03	
	15	1E-07	1E-03	
SG-02	5	2E-07	2E-02	
	15	9E-08	3E-02	
SG-03	5	1E-07	2E-03	
	15	8E-08	9E-04	
SG-06	5	2E-07	2E-03	
	15	8E-08	9E-04	
SG-07	5	1E-07	2E-03	
	15	9E-08	2E-03	
SG-08	5	--	4E-04	
	15	--	3E-04	
SG-09	15	--	5E-04	
SG-10	5	--	3E-04	
	15	2E-08	1E-03	
SG-11	5	--	3E-03	
	15	--	1E-03	
SG-12	15	--	1E-03	
SG-13	5	nd	nd	
	15	nd	nd	
SG-14	5	1E-06	1E-02	
	15	3E-07	1E-03	
SG-15	15	--	4E-05	
SG-16	5	2E-07	8E-03	
	15	2E-07	4E-03	
SG-17	5	1E-06	1E-02	
	15	--	5E-05	
SG-18	5	--	4E-03	
	15	4E-09	3E-03	
	30	3E-07	2E-03	
SG-19	5	2E-08	5E-03	
	15	--	6E-05	
SG-20	5	--	5E-03	
	15	3E-09	3E-03	
SG-21	5	**2E-06**	3E-02	Benzene
	15	--	3E-05	
SG-22	5	8E-09	6E-03	
	15	6E-09	4E-03	
	30	2E-09	2E-03	

Appendix E: Attachment E-4, Table E4
Cumulative Cancer Risk and Noncancer Hazard
Soil Vapor to Indoor Air Exposure Pathway
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

Sample Location	Sample Depth (ft bgs)	Soil Vapor to Indoor Air - Future Onsite Resident		
		5 Feet of Engineered Fill		
		Cancer Risk	Noncancer Hazard	Risk Drivers
SG-23	5	2E-08	3E-04	
	15	8E-09	8E-05	
	30	2E-08	1E-04	
SG-24	5	8E-09	1E-04	
	15	4E-09	5E-05	
SG-25	5	4E-07	6E-03	
	15	1E-08	2E-04	
SG-26	5	1E-08	2E-04	
	15	2E-08	4E-04	
SG-27	5	3E-08	3E-03	
	15	4E-08	1E-03	
SG-28	5	2E-09	2E-05	
	15	1E-09	6E-06	
SG-29	5	2E-08	2E-04	
	15	8E-09	1E-04	
SG-30	5	7E-09	8E-05	
SG-31	5	1E-08	2E-04	
	15	8E-09	1E-04	
SG-32	5	2E-07	8E-04	
	15	3E-08	8E-05	
SG-4-15 (1PV)	15	7E-08	9E-04	
SG-4-15 (3PV)	15	3E-07	2E-03	
SG-4-15 (7PV)	15	8E-08	9E-04	
SG-4-5 (1PV)	5	2E-07	4E-03	
SG-4-5 (3PV)	5	7E-07	9E-03	
SG-4-5 (7PV)	5	2E-07	4E-03	
VP-01	15	1E-07	5E-03	
VP-02	15	2E-08	3E-03	
VP-03	5	2E-08	2E-04	
	15	1E-07	2E-03	
	30	8E-08	1E-03	
VP-04	15	4E-08	2E-03	
	30	--	3E-05	
VP-05	5	3E-08	2E-03	
VP-06	5	7E-09	2E-03	
	15	4E-07	2E-02	
	30	2E-08	6E-04	
VP-07	15	5E-08	3E-03	
	30	3E-08	7E-04	

Appendix E: Attachment E-4, Table E4
Cumulative Cancer Risk and Noncancer Hazard
Soil Vapor to Indoor Air Exposure Pathway
Former Fred C. Nelles Youth Correctional Facility
Whittier, California

Sample Location	**Sample Depth** (ft bgs)	**Soil Vapor to Indoor Air - Future Onsite Resident**		
		5 Feet of Engineered Fill		
		Cancer Risk	**Noncancer Hazard**	**Risk Drivers**
VP-08	15	3E-08	2E-03	
	30	2E-09	3E-05	
VP-09	5	--	2E-04	
	15	7E-08	4E-03	
VP-10	30	1E-08	4E-04	
	45	5E-09	9E-04	
VP-11-15 (1PV)	15	8E-08	2E-03	
VP-11-15 (3PV)	15	9E-08	1E-03	
VP-11-15 (10PV)	15	1E-07	2E-03	
VP-11-30 (1PV)	30	4E-09	6E-05	
VP-11-30 (3PV)	30	8E-09	1E-04	
VP-11-30 (10PV)	30	5E-09	8E-05	
VP-11-5 (1PV)	5	2E-08	3E-04	
VP-11-5 (3PV)	5	2E-08	2E-03	
VP-11-5 (10PV)	5	2E-08	4E-04	
VP-12	15	6E-08	3E-03	
VP-13	5	1E-07	5E-03	
	15	9E-08	6E-03	
	30	2E-08	2E-04	
VP-14	5	--	4E-04	
	15	5E-08	3E-03	
VP-15	5	1E-07	5E-03	
	15	7E-08	5E-03	
VP-16	5	4E-08	4E-04	
VP-17	5	nd	nd	
	15	nd	nd	
VP-18	5	nd	nd	
	15	nd	nd	

Notes:

-- not applicable

" nd " chemicals were non-detect

Target cancer risk = 10^{-6} for future onsite residents and Target noncancer hazard = 1

Risk drivers are those chemicals that have a cancer risk > target risk or a noncancer hazard > target hazard

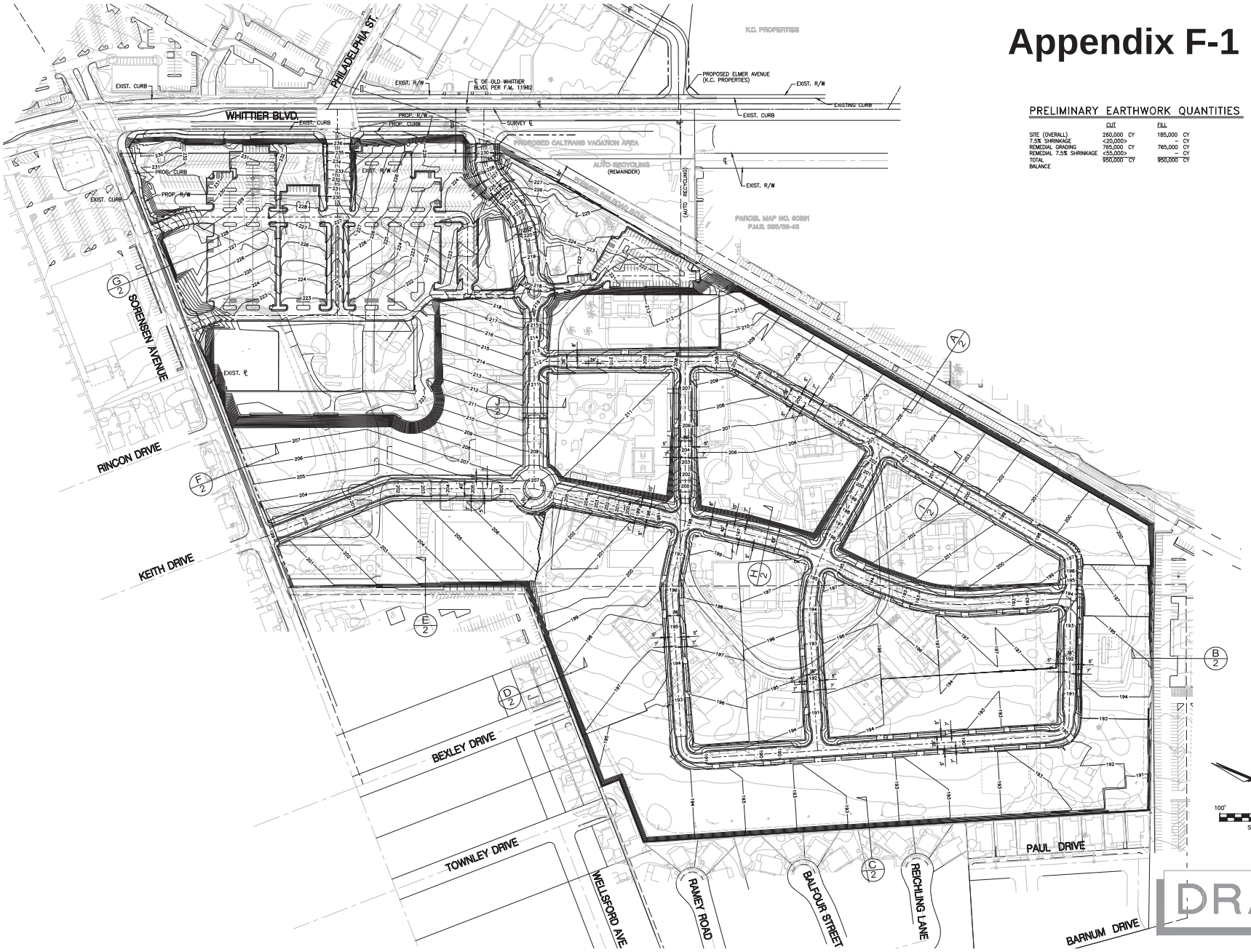
Shaded+Bold: indicates cumulative risk > target risk and/or cumulative hazard > target noncancer hazard

Geosyntec consultants

APPENDIX F

FUTURE SITE GRADING PLAN AND DEVELOPMENT PLAN

Appendix F-1



PRELIMINARY EARTHWORK QUANTITIES

	CUT	FILL
SITE (OVERALL)	260,000 CY	185,000 CY
7.5% SHRINKAGE	<20,000>	- CY
REMEDIAL GRADING	765,000 CY	765,000 CY
REMEDIAL 7.5% SHRINKAGE	<55,000>	- CY
TOTAL	950,000 CY	950,000 CY
BALANCE		

DRAFT

Brookfield Residential

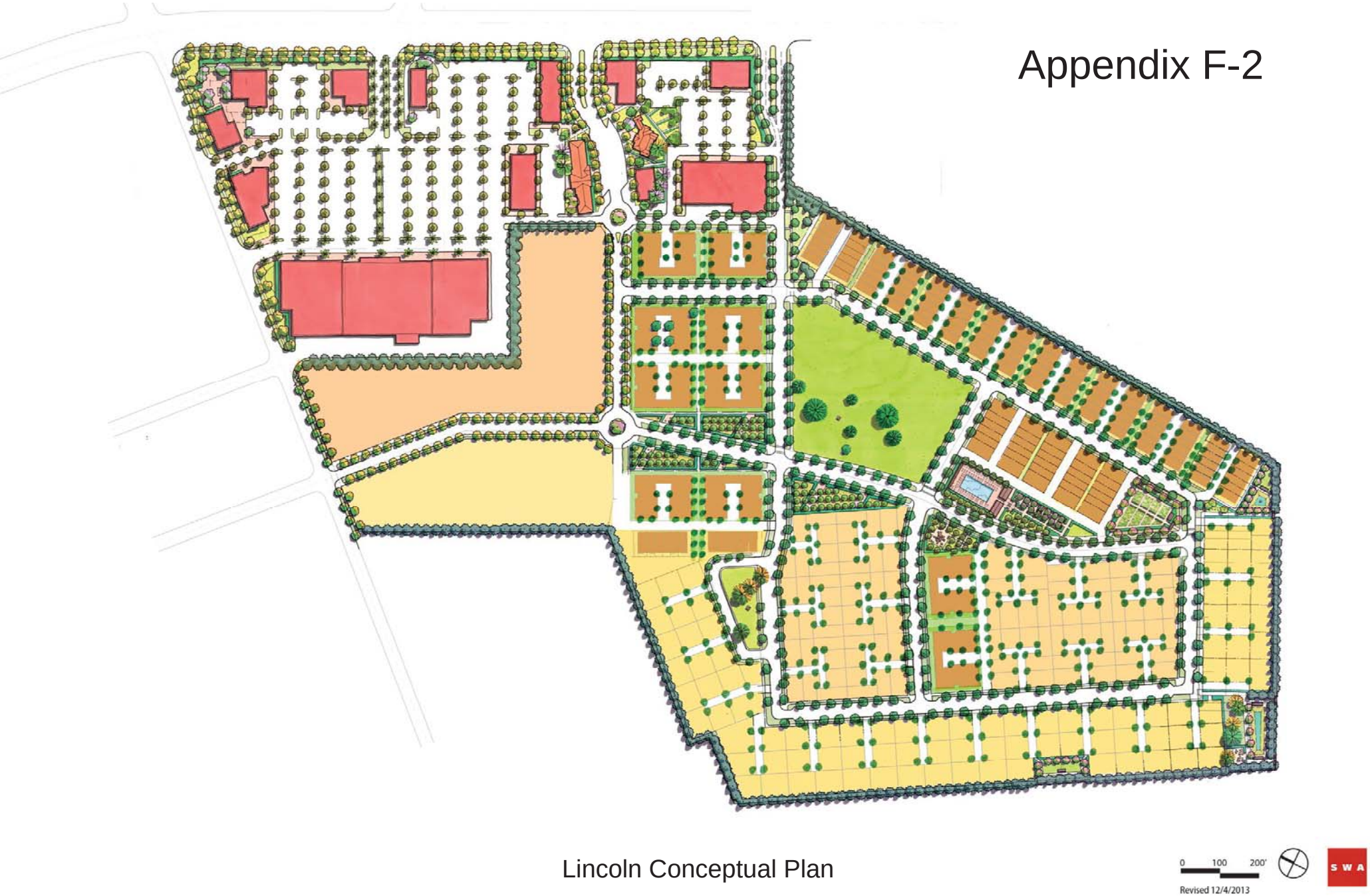
GRADING EXHIBIT

OCTOBER 22, 2013

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 • fax 949.474.5315
www.fuscoe.com

SHEET 1 OF 2

Appendix F-2



Lincoln Conceptual Plan