

Table B-4
Indoor, Garage, and Outdoor Air Results
Former East Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection														
					Tetrahydrofuran UG/M3	2-Hexanone UG/M3	Carbon Disulfide UG/M3	Propylbenzene UG/M3	Vinyl Chloride UG/M3	1,1,1-Trichloroethane UG/M3	Bromo-methane UG/M3	Trichloro-ethene UG/M3	Cumene (isopropylbenzene) UG/M3	Methyl-tert-Butyl Ether UG/M3	1,1,2-Trichloroethane UG/M3	1,1,2,2-Tetrachloroethane UG/M3	1,2-Dichlorobenzene UG/M3	cis-1,2-Dichloroethane UG/M3	Chloroethane UG/M3
R24718IAG	24718 RAVENNA AVE	2012-02-29	10:37	Garage	<0.73 U	<0.73 U	<7.3 U	0.4 J		<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.15 U	<0.097 U	<0.73 U	<0.73 U	<0.73 U
R24718IAK	24718 RAVENNA AVE	2012-02-29	10:38	Kitchen	<0.81 U	<0.81 U	<8.1 U	0.28 J		<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.04 U	<0.81 U	<0.81 U	<0.81 U
R24718IAB	24718 RAVENNA AVE	2012-02-29	10:38	Bedroom	<0.75 U	<0.75 U	<7.5 U	0.29 J		<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.15 U	<0.08 U	<0.75 U	<0.75 U	<0.75 U
M24717OAF	24717 MARBELLA AVE	2012-07-25	08:10	Outdoor Air	<0.92 U	<0.92 U	<9.2 U	<0.92 U		<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.045 U	<0.92 U	<0.92 U	<0.92 U
M24717OAB	24717 MARBELLA AVE	2012-07-25	08:13	Outdoor Air	<0.98 U	<0.98 U	<9.8 U	<0.98 U		<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.2 U	<0.043 U	<0.98 U	<0.98 U	<0.98 U
M24717IAB	24717 MARBELLA AVE	2012-07-25	09:14	Bedroom	<0.99 U	2.3	<9.9 U	<0.99 U		<0.99 U	<0.99 U	<0.99 U	<0.99 U	0.41 J	<1.3 U	<0.33 U	<0.99 U	<0.99 U	<0.99 U
M24717IAG	24717 MARBELLA AVE	2012-07-25	09:14	Garage	<0.93 U	11	<9.3 U	<0.93 U		<0.93 U	<0.93 U	<0.93 U	<0.93 U	1.4	<0.93 U	<0.23 U	<0.93 U	<0.93 U	<0.93 U
M24717IAC	24717 MARBELLA AVE	2012-07-25	09:14	Kitchen	<0.88 U	2	<8.8 U	<0.88 U		<0.88 U	<0.88 U	<0.88 U	<0.88 U	0.33 J	<1.2 U	<0.25 U	<0.88 U	<0.88 U	<0.88 U
N24718OAF	24718 NEPTUNE AVE	2012-02-23	09:01	Outdoor Air	<0.79 U	<0.79 U	<7.9 U	<0.79 U		<0.79 U	0.35 J	<0.79 U	<0.79 U	<0.79 U	<0.16 U	<0.04 U	<0.79 U	<0.79 U	<0.79 U
N24718OAF	24718 NEPTUNE AVE	2012-02-23	09:01	Outdoor Air	<0.78 U	<0.78 U	<7.8 U	<0.78 U		<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.16 U	<0.039 U	<0.78 U	<0.78 U	<0.78 U
N24718IAB	24718 NEPTUNE AVE	2012-02-23	09:18	Bedroom	<0.75 U	<0.75 U	<7.5 U	<0.75 U		<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.15 U	<0.038 U	<0.75 U	<0.75 U	<0.75 U
N24718IAC	24718 NEPTUNE AVE	2012-02-23	09:18	Kitchen	<0.81 U	<0.81 U	<8.1 U	<0.81 U		<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.04 U	<0.81 U	<0.81 U	<0.81 U
N24718IAG	24718 NEPTUNE AVE	2012-02-23	09:19	Garage	<0.77 U	<0.77 U	<7.7 U	<0.77 U		<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.15 U	<0.039 U	<0.77 U	<0.77 U	<0.77 U
P24718OAF	24718 PANAMA AVE	2012-10-17	08:13	Outdoor Air	<0.77 U	<0.77 U	<7.7 U	<0.77 U		<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.17 U	<0.042 U	<0.77 U	<0.77 U	<0.77 U
P24718OAB	24718 PANAMA AVE	2012-10-17	08:15	Outdoor Air	<0.88 U	0.62 J	<8.8 U	<0.88 U		<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.2 U	<0.049 U	<0.88 U	<0.88 U	<0.88 U
P24718IAG	24718 PANAMA AVE	2012-10-17	09:13	Garage	7.9	1.3	<7.3 U	1.5		<0.73 U	0.28 J	<0.73 U	<0.73 U	<0.73 U	<0.19 U	<0.047 U	<0.73 U	<0.73 U	<0.73 U
P24718IAB	24718 PANAMA AVE	2012-10-17	09:14	Bedroom	<0.85 U	1.4	0.56 J	4		<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.2 U	<0.049 U	<0.85 U	<0.85 U	<0.85 U
P24718IAC	24718 PANAMA AVE	2012-10-17	09:14	Kitchen	<0.99 U	1.1	0.3 J	2.7		<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.25 U	<0.052 U	<0.99 U	<0.99 U	<0.99 U
N24719OAF	24719 NEPTUNE AVE	2012-07-18	12:12	Outdoor Air	<0.86 U	<0.86 U	<8.6 U	<0.86 U		<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.043 U	<0.86 U	<0.86 U	<0.86 U
N24719OAB	24719 NEPTUNE AVE	2012-07-18	13:15	Outdoor Air	<0.89 U	<0.89 U	<8.9 U	<0.89 U		<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.044 U	<0.89 U	<0.89 U	<0.89 U
N24719IAG	24719 NEPTUNE AVE	2012-07-18	14:13	Garage	<0.91 U	<0.91 U	<9.1 U	<0.91 U		<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.046 U	<0.91 U	<0.91 U	<0.91 U
N24719IAB	24719 NEPTUNE AVE	2012-07-18	14:14	Bedroom	<0.81 U	<0.81 U	<8.1 U	<0.81 U		<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.15 U	<0.041 U	<0.81 U	<0.81 U	<0.81 U
N24719IAC	24719 NEPTUNE AVE	2012-07-18	14:14	Kitchen	<0.98 U	<0.98 U	<9.8 U	<0.98 U		<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.2 U	<0.049 U	<0.98 U	<0.98 U	<0.98 U
P24719OAF	24719 PANAMA AVE	2012-09-27	08:08	Outdoor Air	<0.94 U	<0.94 U	1.2 J	<0.94 U		<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.047 U	<0.94 U	<0.94 U	<0.94 U
P24719OAB	24719 PANAMA AVE	2012-09-27	08:08	Outdoor Air	<1.2 U	<1.2 U	<12 U	<1.2 U		<1.2 U	<1.2 U	<1.2 U	<1.2 U	<1.2 U	<0.24 U	<0.06 U	<1.2 U	<1.2 U	<1.2 U
P24719IAB	24719 PANAMA AVE	2012-09-27	09:12	Bedroom	0.53 J	0.53 J	0.44 J	<0.3 U		<0.4 U	<0.4 U	<0.4 U	<0.4 U	<0.4 U	<0.16 U	<0.04 U	<0.4 U	<0.4 U	<0.4 U
P24719IAC	24719 PANAMA AVE	2012-09-27	09:13	Garage	<1 U	<1 U	0.5 J	<1 U		<1 U	<1 U	<1 U	<1 U	<1 U	<0.15 U	<0.05 U	<1 U	<1 U	<1 U
P24719IAD	24719 PANAMA AVE	2012-09-27	09:13	Kitchen	0.6 J	<0.96 U	0.3 J	<0.96 U		<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.048 U	<0.96 U	<0.96 U	<0.96 U
R24719OAF	24719 RAVENNA AVE	2012-11-28	08:14	Outdoor Air	<0.81 U	<0.81 U	<8.1 U	<0.81 U		<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.041 U	<0.81 U	<0.81 U	<0.81 U
R24719OAB	24719 RAVENNA AVE	2012-11-28	08:15	Outdoor Air	<0.81 U	<0.81 U	<8.1 U	<0.81 U		<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.041 U	<0.81 U	<0.81 U	<0.81 U
R24719IAC	24719 RAVENNA AVE	2012-11-28	09:15	Kitchen	<0.94 U	<0.94 U	0.59 J	<0.94 U		<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.047 U	<0.94 U	<0.94 U	<0.94 U
R24719IAD	24719 RAVENNA AVE	2012-11-28	09:17	Remodeled Garage	<0.94 U	<0.94 U	<9.4 U	<0.94 U		<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.047 U	<0.94 U	<0.94 U	<0.94 U
R24719IAB	24719 RAVENNA AVE	2012-11-28	09:20	Bedroom	<0.97 U	<0.97 U	0.75 J	<0.97 U		<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.049 U	<0.97 U	<0.97 U	<0.97 U
M24722OAF	24722 MARBELLA AVE	2012-06-06	09:16	Outdoor Air	<0.94 U	<0.94 U	<9.4 U	<0.94 U		<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.047 U	<0.94 U	<0.94 U	<0.94 U
M24722OAB	24722 MARBELLA AVE	2012-06-06	09:18	Outdoor Air	<0.93 U	<0.93 U	<9.3 U	<0.93 U		<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.047 U	<0.93 U	<0.93 U	<0.93 U
M24722IAG	24722 MARBELLA AVE	2012-06-06	09:16	Garage	<0.98 U	<0.98 U	<9.8 U	<0.98 U		<0.97 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.2 U	<0.049 U	<0.98 U	<0.98 U	<0.98 U
M24722IAB	24722 MARBELLA AVE	2012-06-06	09:17	Bedroom	<0.87 U	<0.87 U	<8.7 U	<0.87 U		<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.045 U	<0.87 U	<0.87 U	<0.87 U
M24722IAC	24722 MARBELLA AVE	2012-06-06	09:17	Kitchen	<0.91 U	<0.91 U	<9.1 U	<0.91 U		<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.046 U	<0.91 U	<0.91 U	<0.91 U
M24722OAB	24722 NEPTUNE AVE	2012-04-12	13:08	Outdoor Air	<0.81 U	<0.81 U	<8.1 U	<0.81 U		<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.04 U	<0.81 U	<0.81 U	<0.81 U
M24722OAF	24722 NEPTUNE AVE	2012-04-12	13:10	Outdoor Air	<0.79 U	<0.79 U	0.6 J	<0.79 U		<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.16 U	<0.04 U	<0.79 U	<0.79 U	<0.79 U
M24722IAB	24722 NEPTUNE AVE	2012-04-12	14:10	Bedroom	<0.81 U	0.47 J	0.28 J	<0.81 U		<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.04 U	<0.81 U	<0.81 U	<0.81 U
M24722IAC	24722 NEPTUNE AVE	2012-04-12	14:10	Garage	<0.82 U	<0.82 U	<8.2 U	<0.82 U		<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.041 U	<0.82 U	<0.82 U	<0.82 U
M24722IAD	24722 NEPTUNE AVE	2012-04-12	14:10	Kitchen	<0.83 U	0.37 J	<8.3 U	<0.83 U		<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.042 U	<0.83 U	<0.83 U	<0.83 U
P24722OAF	24722 PANAMA AVE	2012-04-25	08:08	Outdoor Air	<0.8 U	<0.8 U	<8 U	<0.8 U		<0.8 U	0.27 J	<0.8 U	<0.8 U	<0.8 U	<0.16 U	<0.04 U	<0.8 U	<0.8 U	<0.8 U
P24722OAB	24722 PANAMA AVE	2012-04-25	08:09	Outdoor Air	<0.81 U	<0.81 U	<8.1 U	<0.81 U		<0.81 U	0.23 J	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.04 U	<0.81 U	<0.81 U	<0.81 U
P24722IAG	24722 PANAMA AVE	2012-04-25	09:12	Garage	0.58 J	<0.95 U	<9.5 U	<0.95 U		<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.048 U	<0.95 U	<0.95 U	<0.95 U
P24722IAB	24722 PANAMA AVE	2012-04-25	09:14	Bedroom	<0.79 U	0.47 J	1 J	<0.79 U		<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.16 U	<0.04 U	<0.79 U	<0.79 U	<0.79 U

Table B-4
Indoor, Garage, and Outdoor Air Results
Former K&L Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection														
					Tetrahydrofuran UG/M3	2-Hexanone UG/M3	Carbon Dioxide UG/M3	Propylbenzene UG/M3	Vinyl Chloride UG/M3	1,1,1-Trichloroethane UG/M3	Bromomethane UG/M3	Trichloroethane UG/M3	Cumene (Isopropylbenzene) UG/M3	Methyl-tert-Butyl Ether UG/M3	1,1,2-Trichloroethane UG/M3	1,1,2,2-Tetrachloroethane UG/M3	1,2-Dichlorobenzene UG/M3	cis-1,2-Dichloroethane UG/M3	Chloroethane UG/M3
R24722IAB	24723 RAVENNA AVE	2012-11-08	14:07	Bedroom	<0.95 U	1.2	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	10	<0.95 U	1.2	<0.19 U	<0.047 U	<0.95 U	<0.95 U	<0.95 U
M24723OAB	24723 MARBELLA AVE	2012-06-20	13:15	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.045 U	<0.88 U	<0.88 U	<0.88 U
M24723OAF	24723 MARBELLA AVE	2012-06-20	13:15	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.043 U	<0.86 U	<0.86 U	<0.86 U
M24723IAG	24723 MARBELLA AVE	2012-06-20	14:17	Garage	1.1 J	<1.1 U	<1.1 U	1.1	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<0.22 U	<0.054 U	<1.1 U	<1.1 U	<1.1 U
M24723IAB	24723 MARBELLA AVE	2012-06-20	14:18	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.046 U	<0.93 U	<0.93 U	<0.93 U
M24723IAK	24723 MARBELLA AVE	2012-06-20	14:18	Kitchen	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<0.21 U	<0.053 U	<1.1 U	<1.1 U	<1.1 U
R24723CAF	24723 RAVENNA AVE	2012-11-07	09:06	Outdoor Air	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	0.028 U	<0.048 U	<0.97 U	<0.97 U	<0.97 U
R24723OAB	24723 RAVENNA AVE	2012-11-07	09:08	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.05 U	<1 U	<1 U	<1 U
R24723IAG	24723 RAVENNA AVE	2012-11-07	09:08	Garage	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.046 U	<0.92 U	<0.92 U	<0.92 U
R24723IAK	24723 RAVENNA AVE	2012-11-07	09:10	Kitchen	<0.72 U	0.64 J	0.21 U	<0.72 U	<0.72 U	<0.72 U	0.3 J	<0.72 U	<0.72 U	<0.72 U	<0.14 U	<0.038 U	<0.72 U	<0.72 U	<0.72 U
R24723IAB	24723 RAVENNA AVE	2012-11-07	09:11	Bedroom	<0.85 U	<0.85 U	0.33 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.08 U	<0.034 U	<0.85 U	<0.85 U	<0.85 U
N24725OAF	24725 NEPTUNE AVE	2012-06-21	13:10	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.046 U	<0.91 U	<0.91 U	<0.91 U
N24725OAB	24725 NEPTUNE AVE	2012-06-21	13:12	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.05 U	<1 U	<1 U	<1 U
N24725IAG	24725 NEPTUNE AVE	2012-06-21	14:10	Garage	7.4	<0.94 U	0.74 J,B	1.1	34	<0.94 U	<0.94 U	0.45 J	<0.94 U	<0.94 U	<0.37 U	<0.093 U	<0.94 U	<0.94 U	<0.94 U
N24725IAB	24725 NEPTUNE AVE	2012-06-21	14:12	Bedroom	<0.97 U	<0.97 U	0.58 J,B	<0.97 U	0.71 J	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.049 U	<0.97 U	<0.97 U	<0.97 U
N24725IAK	24725 NEPTUNE AVE	2012-06-21	14:12	Kitchen	<0.99 U	<0.99 U	0.38 J,B	<0.99 U	0.76 J	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.2 U	<0.05 U	<0.99 U	<0.99 U	<0.99 U	
M24726OAF	24726 MARBELLA AVE	2012-12-13	13:11	Outdoor Air	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.048 U	<0.96 U	<0.96 U	<0.96 U	
M24726OAB	24726 MARBELLA AVE	2012-12-13	13:13	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.046 U	<0.91 U	<0.91 U	<0.91 U	
M24726IAK	24726 MARBELLA AVE	2012-12-13	14:19	Kitchen	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<0.21 U	<0.054 U	<1.1 U	<1.1 U	<1.1 U
M24726IAB	24726 MARBELLA AVE	2012-12-13	14:20	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	0.68 J	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.04 U	<0.81 U	<0.81 U	<0.81 U	
M24726IAG	24726 MARBELLA AVE	2012-12-13	14:20	Garage	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.2 U	<0.049 U	<0.99 U	<0.99 U	<0.99 U	
R24726OAF	24726 RAVENNA AVE	2012-12-19	13:08	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.041 U	<0.81 U	<0.81 U	<0.81 U	
R24726OAB	24726 RAVENNA AVE	2012-12-19	13:11	Outdoor Air	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.043 U	<0.85 U	<0.85 U	<0.85 U	
R24726IAG	24726 RAVENNA AVE	2012-12-19	14:09	Remodeled Garage	<0.81 U	<0.81 U	<0.81 U	0.43 J	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.041 U	<0.81 U	<0.81 U	<0.81 U	
R24726IAB	24726 RAVENNA AVE	2012-12-19	14:10	Kitchen	<0.89 U	<0.89 U	<0.89 U	0.34 J	0.65 J	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.17 U	<0.042 U	<0.89 U	<0.89 U	<0.89 U	
R24726IAB	24726 RAVENNA AVE	2012-12-19	14:11	Bedroom	<0.84 U	<0.84 U	<0.84 U	0.41 J	0.71 J	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.17 U	<0.042 U	<0.84 U	<0.84 U	<0.84 U	
R24726OAF	24726 RAVENNA AVE	2012-11-01	08:20	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.049 U	<0.93 U	<0.93 U	<0.93 U	
F24728OAF	24728 PANAMA AVE	2012-11-01	09:27	Outdoor Air	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.13 U	<0.038 U	<0.75 U	<0.75 U	<0.75 U	
F24728IAG	24728 PANAMA AVE	2012-11-01	09:26	Garage	<0.82 U	<0.82 U	<0.82 U	<0.82 U	0.27 J	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.041 U	<0.82 U	<0.82 U	<0.82 U	
F24728IAK	24728 PANAMA AVE	2012-11-01	09:26	Kitchen	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.046 U	<0.92 U	<0.92 U	<0.92 U	
F24728IAB	24728 PANAMA AVE	2012-11-01	09:21	Bedroom	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.045 U	<0.9 U	<0.9 U	<0.9 U	
N24729IAB	24729 NEPTUNE AVE	2012-10-18	10:07	Bedroom	<0.83 U	0.52 J	<0.83 U	<0.83 U	0.58 J	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.042 U	<0.83 U	<0.83 U	<0.83 U	
N24729OAF	24729 NEPTUNE AVE	2012-10-18	13:05	Outdoor Air	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.2 U	<0.049 U	<0.98 U	<0.98 U	<0.98 U	
N24729OAB	24729 NEPTUNE AVE	2012-10-18	13:07	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.047 U	<0.94 U	<0.94 U	<0.94 U	
N24729IAG	24729 NEPTUNE AVE	2012-10-18	14:05	Garage	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.045 U	<0.91 U	<0.91 U	<0.91 U	
N24729IAB	24729 NEPTUNE AVE	2012-10-18	14:06	Kitchen	<0.97 U	<0.97 U	1.1	<0.97 U	0.81 J	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.048 U	<0.97 U	<0.97 U	<0.97 U	
N24729OAF	24729 NEPTUNE AVE	2012-08-23	13:04	Outdoor Air	<0.87 U	<0.87 U	1.79 J,B	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.043 U	<0.87 U	<0.87 U	<0.87 U	
N24729OAB	24729 NEPTUNE AVE	2012-08-23	13:05	Outdoor Air	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.38 U	<0.096 U	<0.96 U	<0.96 U	<0.96 U	
R24729IAB	24729 RAVENNA AVE	2012-08-23	14:05	Bedroom	<0.93 U	0.64 J	0.52 J,B	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.37 U	<0.093 U	<0.93 U	<0.93 U	<0.93 U	
R24729IAK	24729 RAVENNA AVE	2012-08-23	14:05	Kitchen	<1 U	0.57 J	0.47 J,B	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.051 U	<1 U	<1 U	<1 U	
R24729IAG	24729 RAVENNA AVE	2012-06-23	14:06	Garage	<0.95 U	<0.95 U	0.27 J,B	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.38 U	<0.095 U	<0.95 U	<0.95 U	<0.95 U	
N24732OAB	24732 NEPTUNE AVE	2011-03-09	08:03	Outdoor Air	0.61 J	<0.66	<0.66	0.25 J	<0.66	<0.66	<0.66	<0.66	<0.66	<0.14	<0.034 U	<0.66	<0.66	<0.66	
N24732OAF	24732 NEPTUNE AVE	2011-03-09	08:04	Outdoor Air	0.65 J	<0.68	<0.68	0.25 J	<0.68	<0.68	<0.68	<0.68	<0.68	<0.14	<0.033 U	<0.68	<0.68	<0.68	
N24732IAK	24732 NEPTUNE AVE	2011-03-09	08:18	Kitchen	0.5 J	<0.59	<0.59	0.24 J	0.57 J	<0.59	<0.59	<0.59	<0.59	<0.12	<0.031 U	<0.59	<0.59	<0.59	
N24732IAB	24732 NEPTUNE AVE	2011-03-09	09:10	Bedroom	0.56 J	<0.64	<0.64	0.27 J	0.66	<0.64	<0.64	<0.64	<0.64	<0.15	<0.037 U	<0.64	<0.64	<0.64	
N24732IAG	24732 NEPTUNE AVE	2011-03-09	09:22	Garage	0.73 J	<0.95	<0.95	0.33 J	4.3	<0.95	<0.95	<0.95	<0.95	<0.21	<0.052 U	<0.95	<0.95	<0.95	
F24732OAF	24732 PANAMA AVE	2012-06-13	13:05	Outdoor Air	<0.93 U	<0.93 U	1.0 J	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.046 U	<0.93 U	<0.93 U	<0.93 U	
F24732OAB	24732 PANAMA AVE	2012-06-13	13:07	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<											

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kast Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection															
					Tetrahydrofuran UG/M3 81.26%	2-Hexanone UG/M3 24.93%	Carbon Dioxide UG/M3 23.29%	Propylbenzene UG/M3 22.21%	Vinyl Chloride UG/M3 20.00%	1,1,1-Trichloroethane UG/M3 10.42%	Bromonethane UG/M3 8.07%	Trichloroethene UG/M3 7.18%	Cumene (isopropylbenzene) UG/M3 8.02%	Methyl-Tert-Butyl Ether UG/M3 3.02%	1,1,2-Trichloroethane UG/M3 2.67%	1,1,2,2-Tetrachloroethane UG/M3 2.22%	1,2-Dichlorobenzene UG/M3 0.97%	cis-1,2-Dichloroethene UG/M3 0.49%	Chloroethane UG/M3 0.29%	
M24741AB	24741 MARBELLA AVE	2012-06-14	09:11	Bedroom	<0.84 U	0.41 J	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.17 U	<0.042 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U
M24741AB	24741 MARBELLA AVE	2012-06-14	09:11	Kitchen	<0.92 U	0.53 J	1 J	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.045 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U
M24741AB	24741 MARBELLA AVE	2012-06-14	09:12	Bedroom	0.51 J	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.047 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U
M24740AF	24744 MARBELLA AVE	2012-03-14	13:11	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	0.31	<0.77 U	<0.77 U	<0.77 U	<0.15 U	<0.038 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U
M24740AF	24744 MARBELLA AVE	2012-03-14	13:12	Outdoor Air	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	0.81	<0.74 U	<0.74 U	<0.74 U	<0.15 U	<0.037 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U
M24740AF	24744 MARBELLA AVE	2012-03-14	14:19	Garage	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	0.57 J	<0.75 U	<0.75 U	<0.75 U	<0.15 U	<0.038 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U
M24740AF	24744 MARBELLA AVE	2012-03-14	14:20	Bedroom	0.42 J	0.56 J	0.39 J	0.28 J	0.76	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.15 U	<0.037 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U
M24740AF	24744 MARBELLA AVE	2012-03-14	14:21	Kitchen	<0.84 U	0.38 J	0.39 J	<0.84 U	0.51	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.17 U	<0.042 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U
R247480AB	24748 RAVENNA AVE	2012-09-13	08:19	Outdoor Air	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.042 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U
R247480AB	24748 RAVENNA AVE	2012-09-13	08:19	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.047 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U
R247480AB	24748 RAVENNA AVE	2012-09-13	09:19	Garage	0.69	<0.92 U	0.81 J	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.19 U	<0.047 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U
R247480AB	24748 RAVENNA AVE	2012-09-13	09:19	Kitchen	5.1	0.78 J	0.27 J	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.21 U	<0.049 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U
R247480AB	24748 RAVENNA AVE	2012-09-13	09:20	Bedroom	4.1	<0.92 U	1.4 J	<0.92 U	<0.92 U	<0.92 U	0.85 J	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.046 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U
R247490AB	24749 RAVENNA AVE	2010-12-16	08:18	Outdoor Air	<0.68 U	<0.68 U	0.37 J	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.14 U	<0.034 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U
R247490AB	24749 RAVENNA AVE	2010-12-16	08:20	Outdoor Air	<0.69 U	<0.69 U	0.43 J	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.14 U	<0.034 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U
R247490AB	24749 RAVENNA AVE	2010-12-16	10:00	Garage	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.13 U	<0.033 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U	
R247490AB	24749 RAVENNA AVE	2010-12-16	10:01	Kitchen	<0.68 U	0.48 J	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.14 U	<0.034 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U
R247490AB	24749 RAVENNA AVE	2010-12-16	10:03	Bedroom	0.99	0.58 J	<0.65 U	0.31 J	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.13 U	<0.033 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U
R247520AF	24752 RAVENNA AVE	2012-07-19	13:40	Outdoor Air	<0.83 U	0.37 J	1.9 J	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.18 U	<0.044 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U
R247520AF	24752 RAVENNA AVE	2012-07-19	13:12	Outdoor Air	<0.88 U	0.41 J	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.044 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U
R247520AF	24752 RAVENNA AVE	2012-07-19	14:14	Garage	2.4	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.044 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U
R247520AF	24752 RAVENNA AVE	2012-07-19	14:15	Bedroom	1.3	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.043 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U
R247520AF	24752 RAVENNA AVE	2012-07-19	14:15	Kitchen	1.1	0.79 J	0.31 J	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.045 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U
N248090AF	24809 NEPTUNE AVE	2012-07-19	08:11	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.045 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U
N248090AF	24809 NEPTUNE AVE	2012-07-19	08:12	Outdoor Air	<0.82 U	0.36 J	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.041 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U
N248090AF	24809 NEPTUNE AVE	2012-07-19	09:12	Garage	3.2	<0.86 U	0.31 J	0.45 J	0.29 J	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.043 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U
N248090AF	24809 NEPTUNE AVE	2012-07-19	09:12	Kitchen	1	<0.9 U	0.51 J	0.37 J	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.045 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U
N248090AF	24809 NEPTUNE AVE	2012-07-19	09:13	Bedroom	1.3	<0.81 U	0.77 J	0.41 J	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.17 U	<0.044 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U
P248090AF	24809 PANAMA AVE	2012-03-23	09:30	Kitchen	0.61	<0.77 U	<0.77 U	<0.77 U	0.32 J	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	0.32 J	<0.15 U	<0.033 U	<0.77 U	<0.77 U	<0.77 U
P248090AF	24809 PANAMA AVE	2012-03-23	09:31	Bedroom	0.73 J	<0.75 U	0.34 J	<0.75 U	0.34 J	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	0.35 J	<0.15 U	<0.033 U	<0.75 U	<0.75 U	<0.75 U
P248090AF	24809 PANAMA AVE	2012-03-23	09:32	Garage	2.8	<0.81 U	<0.81 U	0.28 J	2.1	<0.81 U	<0.81 U	<0.81 U	<0.81 U	2.6	<0.16 U	<0.034 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U
P248090AF	24809 PANAMA AVE	2012-03-23	09:55	Outdoor Air	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.15 U	<0.033 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U
P248090AF	24809 PANAMA AVE	2012-03-23	09:58	Outdoor Air	<0.76 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.15 U	<0.033 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U
P248120AF	24812 PANAMA AVE	2012-12-05	13:05	Outdoor Air	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	0.0061 J	<0.041 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U
P248120AF	24812 PANAMA AVE	2012-12-05	13:14	Outdoor Air	<0.81 U	<0.81 U	0.61 J	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	0.0059 J	<0.04 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U
P248120AF	24812 PANAMA AVE	2012-12-05	14:14	Garage	<0.9 U	<0.9 U	0.76 J	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.044 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U
P248120AF	24812 PANAMA AVE	2012-12-05	14:16	Kitchen	<0.89 U	0.57 J	0.31 J	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.044 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U
P248120AF	24812 PANAMA AVE	2012-12-05	14:25	Bedroom	<1.1 U	0.8 J	1.1 J	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	0.0074 J	<0.053 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U
P248130AF	24813 PANAMA AVE	2012-08-22	08:13	Outdoor Air	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.048 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U
P248130AF	24813 PANAMA AVE	2012-08-22	08:15	Outdoor Air	<0.97 U	0.45 J	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.048 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U
P248130AF	24813 PANAMA AVE	2012-08-22	09:22	Kitchen	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.15 U	0.097	<0.76 U	<0.76 U	<0.76 U	<0.76 U
P248130AF	24813 PANAMA AVE	2012-08-22	09:23	Bedroom	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.044 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U
P248130AF	24813 PANAMA AVE	2012-08-22	09:24	Garage	<0.85 U	0.52 J	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.044 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U
N248150AF	24815 NEPTUNE AVE																			

Table D-4
Indoor, Garage, and Outdoor Air Results
Former Kait Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Analyte Units														
					Tetrahydrofuran UG/M3	2-Hexanone UG/M3	Carbon Disulfide UG/M3	Propylbenzene UG/M3	Vinyl Chloride UG/M3	1,1,1-Trichloroethane UG/M3	Bromomethane UG/M3	Trichloroethene UG/M3	Cumene (Isopropylbenzene) UG/M3	Methyl-tert-Butyl Ether UG/M3	1,1,2-Trichloroethane UG/M3	1,2-Dichlorobenzene UG/M3	di-1,2-Dichloroethene UG/M3	Chloroethane UG/M3	
244341OAB	361 244TH ST	2012-08-01	08:08	Outdoor Air	<0.77 U	<0.77 U	<7.7 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.15 U	<0.039 U	<0.77 U	<0.77 U	<0.77 U
244341IAG	361 244TH ST	2012-08-01	09:01	Garage	<0.92 U	<0.92 U	<9.2 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.046 U	<0.92 U	<0.92 U	<0.92 U	
244341IAK	361 244TH ST	2012-08-01	09:02	Kitchen	<0.94 U	<0.94 U	<9.4 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.047 U	<0.94 U	<0.94 U	<0.94 U	
244341IAB	361 244TH ST	2012-08-01	09:03	Bedroom	<0.95 U	<0.95 U	<9.5 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.047 U	<0.95 U	<0.95 U	<0.95 U	
244341IAB	361 244TH ST	2012-08-01	09:05	Bedroom	<0.92 U	<0.92 U	<9.2 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.046 U	<0.92 U	<0.92 U	<0.92 U	
249345OAF	345 249TH ST	2012-11-01	13:03	Outdoor Air	<0.9 U	<0.9 U	<9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.045 U	<0.9 U	<0.9 U	<0.9 U	
249345OAB	345 249TH ST	2012-11-01	13:09	Outdoor Air	<0.87 U	<0.87 U	<8.7 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.043 U	<0.87 U	<0.87 U	<0.87 U	
249345IAG	345 249TH ST	2012-11-01	14:08	Garage	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.05 U	<1 U	<1 U	<1 U	
249345IAK	345 249TH ST	2012-11-01	14:09	Kitchen	<0.97 U	<0.97 U	<9.7 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.048 U	<0.97 U	<0.97 U	<0.97 U	
249345IAB	345 249TH ST	2012-11-01	14:11	Bedroom	<0.94 U	<0.94 U	<9.4 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.047 U	<0.94 U	<0.94 U	<0.94 U	
249345OAF	345 249TH ST	2012-12-20	13:06	Outdoor Air	<0.81 U	<0.81 U	<8.1 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.04 U	<0.81 U	<0.81 U	<0.81 U	
244347OAB	367 244TH ST	2012-12-20	13:09	Outdoor Air	0.46 J	<0.84 U	<8.4 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.17 U	<0.042 U	<0.84 U	<0.84 U	<0.84 U	
249347IAG	367 244TH ST	2012-12-20	14:09	Garage	1.4	<0.82 U	<8.2 U	0.51 J	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.041 U	<0.82 U	<0.82 U	<0.82 U	
244347IAB	367 244TH ST	2012-12-20	14:10	Bedroom	0.86 J	<0.87 U	0.35 J, b	0.31 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.044 U	<0.87 U	<0.87 U	<0.87 U	
244347IAK	367 244TH ST	2012-12-20	14:11	Kitchen	0.87 J	<1.1 U	0.32 J, b	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<0.22 U	<0.054 U	<1.1 U	<1.1 U	<1.1 U		
248-348-OAB	348 248TH ST	2010-08-25	08:21	Outdoor Air	<0.71	<0.71	<7.1	0.37 J	<0.71	<0.71	<0.71	<0.71	<0.14	<0.035	<0.71	<0.71	<0.71		
248-348-OAF	348 248TH ST	2010-08-25	08:29	Outdoor Air	<0.73	<0.73	<7.3	<0.73	<0.73	<0.73	<0.73	<0.73	<0.15	<0.036	<0.73	<0.73	<0.73		
248-348-IAB	348 248TH ST	2010-08-25	09:29	Bedroom	<0.68	0.53 J	<6.8	0.55 J	<0.68	<0.68	<0.68	<0.68	<0.14	<0.034	<0.68	<0.68	<0.68		
248-348-IAK	348 248TH ST	2010-08-25	09:30	Kitchen	<0.71	0.61 J	<7.1	0.41 J	<0.71	<0.71	<0.71	<0.71	<0.14	<0.035	<0.71	<0.71	<0.71		
248-348-IAG	348 248TH ST	2010-08-25	09:31	Garage	<0.7	<0.7	<7	4.6	<0.7	<0.7	<0.7	<0.7	<0.15	<0.036	<0.7	<0.7	<0.7		
248348-OAF	348 248TH ST	2011-01-12	08:25	Outdoor Air	<0.64	<0.64	<6.4	<0.64	<0.64	1.3	<0.64	<0.64	<0.64	<0.13	<0.032	<0.64	<0.64		
248348-OAB	348 248TH ST	2011-01-12	08:28	Outdoor Air	<0.67	<0.67	<6.7	<0.67	<0.67	0.74	<0.67	<0.67	<0.67	<0.14	<0.036	<0.67	<0.67		
248348-IAB	348 248TH ST	2011-01-12	09:33	Bedroom	0.29 J	<0.66	<6.6	<0.66	<0.66	0.77	<0.66	<0.66	<0.66	<0.14	<0.034	<0.66	<0.66		
248348-IAK	348 248TH ST	2011-01-12	09:33	Kitchen	<0.66	<0.66	<6.6	0.26 J	<0.66	<0.66	<0.66	<0.66	<0.15	<0.038	<0.66	<0.66			
248348-IAG	348 248TH ST	2011-01-12	09:34	Garage	0.29 J	<0.68	<6.8	3.5	<0.68	1.5	<0.68	0.51 J	<0.68	<0.14	<0.036	<0.68	<0.68		
249348OAF	345 249TH ST	2012-08-16	08:43	Outdoor Air	<0.86 U	<0.86 U	<8.6 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.043 U	<0.86 U	<0.86 U	<0.86 U		
209348OAB	348 249TH ST	2012-08-16	08:44	Outdoor Air	<0.91 U	<0.91 U	<9.1 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.045 U	<0.91 U	<0.91 U	<0.91 U		
249348IAB	348 249TH ST	2012-08-16	09:47	Bedroom	<0.94 U	<0.94 U	0.34 J	0.99 J	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.047 U	<0.94 U	<0.94 U			
249348IAK	348 249TH ST	2012-08-16	09:47	Kitchen	<0.98 U	<0.98 U	0.29 J	0.31	0.11	<0.98 U	<0.98 U	<0.98 U	<0.19 U	<0.044 U	<0.98 U	<0.98 U			
249348IAG	348 249TH ST	2012-08-16	09:48	Garage	<0.84 U	<0.84 U	<8.4 U	1.6	<0.84 U	<0.84 U	0.48 J	<0.84 U	<0.67 U	<0.17 U	<0.038 U	<0.84 U	<0.84 U		
244351OAF	351 244TH ST	2010-10-22	08:01	Outdoor Air	0.8	<0.68	0.52 J	<0.68	<0.68	<0.68	<0.68	<0.68	<0.14	<0.034	<0.68	<0.68			
244351OAB	351 244TH ST	2010-10-22	08:02	Outdoor Air	<0.65	0.42 J	<6.5	<0.65	<0.65	<0.65	<0.65	<0.65	<0.14	<0.035	<0.65	<0.65			
244351IAK	351 244TH ST	2010-10-22	09:03	Kitchen	0.89	0.73 J	0.43 J	0.7 J	<0.68	<0.68	<0.68	<0.68	<0.14	<0.036	<0.68	<0.68			
244351IAB	351 244TH ST	2010-10-22	09:04	Bedroom	0.31 J	0.54 J	0.37 J	0.26 J	<0.63	<0.63	<0.63	<0.63	<0.13	<0.033	<0.63	<0.63			
244351IAG	351 244TH ST	2010-10-22	09:05	Garage	<0.68	<0.68	<6.8	1.9	<0.68	<0.68	<0.68	<0.68	<0.15	<0.037	<0.68	<0.68			
249352OAB	352 249TH ST	2011-02-09	13:11	Outdoor Air	0.36 J	<0.76	<7.6	<0.76	<0.76	0.39 J	<0.76	<0.76	<0.16	<0.039	<0.76	<0.76			
249352OAF	352 249TH ST	2011-02-09	13:12	Outdoor Air	0.38 J	0.72	<6.3	<0.63	<0.63	0.64	<0.63	<0.63	<0.63	<0.15	<0.037	<0.63	<0.63		
249352IAK	352 249TH ST	2011-02-09	14:26	Kitchen	0.41 J	<0.61	<6.1	<0.61	<0.61	0.29 J	0.45 J	<0.61	<0.61	<0.12	<0.033 J	<0.61	<0.61		
249352IAB	352 249TH ST	2011-02-09	14:27	Bedroom	0.47 J	0.98	<6.6	<0.66	<0.66	0.29 J	0.67 J	<0.66	<0.66	<0.13	<0.033 J	<0.66	<0.66		
249352IAG	352 249TH ST	2011-02-09	14:28	Garage	0.54 J	<0.69	<6.9	0.28 J	<0.69	0.41 J	<0.69	<0.69	<0.69	<0.15	<0.038	<0.69	<0.69		
249353OAB	353 249TH ST	2011-02-03	10:19	Outdoor Air	0.30 J	<0.68	<6.8	<0.68	<0.68	0.53 J	<0.68	<0.68	<0.68	<0.14	<0.036	<0.68	<0.68		
249353OAF	353 249TH ST	2011-02-03	10:20	Outdoor Air	0.33 J	<0.63	<6.3	<0.63	<0.63	0.52 J	<0.63	<0.63	<0.63	<0.13	<0.033	<0.63	<0.63		
249353IAB	353 249TH ST	2011-02-03	11:20	Bedroom	0.54 J	<0.61	<6.1	0.42 J	0.056 J	<0.61	1.2	<0.61	<0.61	<0.13	<0.032	<0.61	<0.61		
249353IAK	353 249TH ST	2011-02-03	11:20	Kitchen	0.51 J	<0.67	<6.7	0.38 J	<0.66	<0.67	<0.67	<0.67	<0.14	<0.035	<0.67	<0.67			
249353IAG	353 249TH ST	2011-02-03	11:21	Garage	0.55 J	<0.67	<6.7	<0.67	<0.67	0.51	<0.67	<0.67	<0.67	<0.14	<0.035	<0.67	<0.67		
248354OAF	354 248TH ST	2012-06-13	08:03	Outdoor Air	<0.84 U	<0.84 U	<8.4 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.17 U	<0.042 U	<0.84 U	<0.84 U		
248354OAB	354 248TH ST	2012-06-13	08:04	Outdoor Air	<0.82 U	<0.82 U	<8.2 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.041 U	<0.82 U	<0.82 U		
248354IAB	354 248TH ST	2012-06-13	09:16	Bedroom	<0.94 U	<0.94 U	0.4 J	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.044 U	2	<0.94 U		
248354IAK	354 248TH ST	2012-06-13	09:17	Kitchen	<0.99 U	<0.99 U	0.35 J	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.19 U	<0.044 U	2.5	<0.99 U		
248354IAG	354 248TH ST	2012-06-13	09:18	Garage	<0.88 U	<0.88 U	0.71 J	1.3	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.044 U	0.76 J	<0.88 U		
244357OAF	357 244TH ST	2012-11-29	08:18	Outdoor Air	<0.93 U	<0.93 U	<9.3 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.046 U	<0.93 U	<0.93 U		
244357OAB	357 244TH ST	2012-11-29	08:20	Outdoor Air	<0.88 U	<0.88 U	<8.8 U	<0.88 U	<0.88 U	<0.88 U	<								

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kist Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Analyte Units	Frequency of Detection												
						Tetrahydrofuran UG/M3	2-Hexanone UG/M3	Carbon Disulfide UG/M3	Propylbenzene UG/M3	Vinyl Chloride UG/M3	1,1,1-Trichloroethane UG/M3	Bromomethane UG/M3	Trichloroethene UG/M3	Oxene (Isopropylbenzene) UG/M3	Methyl-tert-Butyl Ether UG/M3	1,1,2-Trichloroethane UG/M3	1,1,2-Tetrachloroethane UG/M3	1,2-Dichlorobenzene UG/M3
244957IAG	357 244TH ST	2012-11-29	09:32	Garage	4.2	<0.95 U	<9.6 U	1.1	0.85 J	<0.95 U	3	<0.96 U	<0.96 U	<0.19 U	<0.049 U	1.5	<0.95 U	<0.96 U
244957IAK	357 244TH ST	2012-11-29	09:34	Kitchen	0.57 J	<0.95 U	<9.6 U	0.33 J	0.85 J	<0.95 U	0.94 J	<0.99 U	<0.99 U	<0.19 U	<0.049 U	0.28 J	<0.89 U	<0.89 U
244957IAB	357 244TH ST	2012-11-29	09:35	Bedroom	0.53 J	<0.91 U	0.38 J	0.41	0.87 J	<0.91 U	0.51 J	<0.91 U	<0.91 U	0.012 J	0.38 J	0.38 J	<0.91 U	<0.91 U
249937OAB	357 249TH ST	2012-08-02	13:05	Outdoor Air	<0.85 U	<0.88 U	0.75 J	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.16 U	<0.044 U	<0.88 U	<0.88 U	<0.88 U
249937OAF	357 249TH ST	2012-08-02	13:06	Outdoor Air	<0.87 U	0.39 J	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.044 U	<0.87 U	<0.87 U	<0.87 U
249937IAB	357 249TH ST	2012-08-02	14:05	Bedroom	<1 U	0.52 J	0.28 J	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.21 U	<0.052 U	<1 U	<1 U	<1 U
249937IAK	357 249TH ST	2012-08-02	14:05	Kitchen	<0.93 U	0.51 J	0.25 J	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.047 U	<0.93 U	<0.93 U	<0.93 U
249937IAG	357 249TH ST	2012-08-02	14:06	Garage	3	<0.93 U	0.41 J	0.94 J	<0.93 U	<0.93 U	<0.93 U	0.33 J	<0.93 U	<0.19 U	<0.047 U	<0.93 U	<0.93 U	<0.93 U
249938OAF	358 249TH ST	2012-03-08	08:14	Outdoor Air	0.52 J	<0.86 U	0.73 J	0.24 J	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.13 U	<0.033 U	<0.86 U	<0.86 U	<0.86 U
249938OAB	358 249TH ST	2012-03-08	08:15	Outdoor Air	0.51 J	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.15 U	<0.037 U	<0.73 U	<0.73 U	<0.73 U
249938IAK	358 249TH ST	2012-03-08	09:16	Kitchen	0.5 J	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.15 U	<0.034 U	<0.79 U	<0.79 U	<0.79 U
249938IAB	358 249TH ST	2012-03-08	09:17	Bedroom	0.51 J	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.15 U	<0.034 U	<0.77 U	<0.77 U	<0.77 U
249938IAG	358 249TH ST	2012-03-08	09:18	Garage	0.42 J	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.15 U	<0.035 U	<0.73 U	<0.73 U	<0.73 U
249938OAF2	358 249TH ST	2012-03-08	14:13	Outdoor Air	0.52 J	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.042 U	<0.83 U	<0.83 U	<0.83 U
248360OAF	360 248TH ST	2012-07-05	13:05	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.04 U	<0.81 U	<0.81 U	<0.81 U
248360OAB	360 248TH ST	2012-07-05	13:07	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.046 U	<0.91 U	<0.91 U	<0.91 U
248360IAB	360 248TH ST	2012-07-05	14:08	Bedroom	<0.81 U	<0.81 U	<0.81 U	1.1	<0.81 U	<0.81 U	0.27 J	<0.81 U	<0.81 U	<0.32 U	<0.081 U	<0.81 U	<0.81 U	<0.81 U
248360IAK	360 248TH ST	2012-07-05	14:08	Kitchen	<0.98 U	<0.98 U	1.1	0.85 J	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.37 U	<0.096 U	<0.98 U	<0.98 U	<0.98 U
248360IAG	360 248TH ST	2012-07-05	14:09	Garage	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.37 U	<0.096 U	<0.94 U	<0.94 U	<0.94 U
249610OAB	361 244TH ST	2010-11-11	13:06	Outdoor Air	0.91	<0.68	<6.9	0.44 J	<0.69	<0.69	0.61 J	<0.69	<0.69	<0.14	<0.036	<0.69	<0.69	<0.69
244361OAF	361 244TH ST	2010-11-11	13:08	Outdoor Air	0.94	<0.68	<6.8	0.42 J	<0.68	<0.68	0.56 J	<0.68	<0.68	<0.14	<0.036	<0.68	<0.68	<0.68
244361IAK	361 244TH ST	2010-11-11	14:07	Kitchen	0.64 J	<0.68	<6.8	0.26 J	<0.68	<0.68	0.33 J	<0.68	<0.68	<0.14	<0.036	<0.68	<0.68	<0.68
244361IAB	361 244TH ST	2010-11-11	14:09	Bedroom	0.69	<0.66	<6.6	0.28 J	<0.66	<0.66	0.37 J	<0.66	<0.66	<0.13	<0.034	<0.66	<0.66	<0.66
244361IAG	361 244TH ST	2010-11-11	14:11	Garage	0.8	<0.66	<6.6	0.45 J	1.1	<0.66	0.59 J	<0.66	<0.66	<0.13	<0.034	<0.66	<0.66	<0.66
249967OAF	367 249TH ST	2012-10-24	13:35	Outdoor Air	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.046 U	<0.92 U	<0.92 U	<0.92 U
249967OAB	367 249TH ST	2012-10-24	13:36	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.046 U	<0.93 U	<0.93 U	<0.93 U
249967IAG	367 249TH ST	2012-10-24	14:33	Garage	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.046 U	<0.97 U	<0.97 U	<0.97 U
249967IAB	367 249TH ST	2012-10-24	14:33	Bedroom	<0.79 U	<0.79 U	0.21 J	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.16 U	<0.04 U	<0.79 U	<0.79 U	<0.79 U
249967IAC	367 249TH ST	2012-10-24	14:36	Kitchen	<0.79 U	<0.79 U	0.21 J	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.16 U	<0.04 U	<0.79 U	<0.79 U	<0.79 U
249967IAD	367 249TH ST	2012-10-24	14:37	Bedroom	<0.93 U	0.87 J	0.28 J	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.047 U	<0.93 U	<0.93 U	<0.93 U
249967OAF	368 249TH ST	2012-08-08	13:24	Outdoor Air	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.046 U	<0.92 U	<0.92 U	<0.92 U
249968OAB	368 249TH ST	2012-08-08	13:25	Outdoor Air	<0.9 U	<0.9 U	0.24 J	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.045 U	<0.9 U	<0.9 U	<0.9 U
249968IAB	368 249TH ST	2012-08-08	14:24	Bedroom	1.6	0.85 J	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.046 U	<0.91 U	<0.91 U	<0.91 U
249968IAK	368 249TH ST	2012-08-08	14:25	Kitchen	1.5	<0.96 U	<9.6 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.048 U	<0.96 U	<0.96 U	<0.96 U
249968IAG	368 249TH ST	2012-08-08	14:26	Garage	1.1	<0.91 U	<9.1 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.045 U	<0.91 U	<0.91 U	<0.91 U
249973OAF	373 249TH ST	2012-04-11	08:24	Outdoor Air	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.14 U	<0.036 U	<0.72 U	<0.72 U	<0.72 U
249973OAB	373 249TH ST	2012-04-11	08:25	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.16 U	<0.039 U	<0.78 U	<0.78 U	<0.78 U
249973IAB	373 249TH ST	2012-04-11	09:23	Bedroom	1.5	<0.77 U	<7.7 U	0.75 J	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	0.068 J	<0.039 U	<0.77 U	<0.77 U	<0.77 U
249973IAG	373 249TH ST	2012-04-11	09:23	Garage	2.9	<0.77 U	<7.7 U	5.3	<0.77 U	<0.77 U	<0.77 U	1.1	<0.77 U	<0.039 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U
249973IAK	373 249TH ST	2012-04-11	09:23	Kitchen	2.4	<0.81 U	<8.1 U	1.1	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.04 U	<0.81 U	<0.81 U	<0.81 U
249973IAD	373 249TH ST	2012-10-04	13:02	Outdoor Air	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.21 U	<0.052 U	<1 U	<1 U	<1 U
248374OAB	374 248TH ST	2012-10-04	13:05	Outdoor Air	<0.79 U	<0.79 U	<7.9 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.16 U	<0.039 U	<0.79 U	<0.79 U	<0.79 U
248374IAB	374 248TH ST	2012-10-04	14:02	Bedroom	<0.91 U	<0.91 U	<9.1 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.36 U	<0.061 U	<0.91 U	<0.91 U	<0.91 U
248374IAK	374 248TH ST	2012-10-04	14:02	Kitchen	0.59 J	<0.87 U	0.21 J	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.044 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U
248374IAB	374 248TH ST	2012-10-04	14:03	Bedroom	0.69 J	<0.93 U	0.21 J	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.37 U	<0.039 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U
248374OAF	377 244TH ST	2012-06-27	13:01	Outdoor Air	<0.85 U	<0.85 U	<8.5 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.042 U	<0.85 U	<0.85 U	<0.85 U
248377OAB	377 244TH ST	2012-06-27	13:02	Outdoor Air	<0.9 U	0.56 J	<9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.045 U	<0.9 U	<0.9 U	<0.9 U
248377IAB	377 244TH ST	2012-06-27	14:01	Bedroom	<0.93 U	<0.93 U	<9.3 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.33 U	<0.046 U	<0.93 U	<0.93 U	<0.93 U
248377IAK	377 244TH ST	2012-06-27	14:02	Kitchen	<0.91 U	<0.91 U	<9.1 U											

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kasz Property
Cason, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection	Analyte Units													
						Tetrahydrofuran UG/M3	2-Hexanone UG/M3	Carbon Disulfide UG/M3	Propylbenzene UG/M3	Vinyl Chloride UG/M3	1,1,1-Trichloroethane UG/M3	Bromomethane UG/M3	Trichloroethene UG/M3	Cumene (isopropylbenzene) UG/M3	Methyl-tert-Butyl Ether UG/M3	1,1,2-Trichloroethene UG/M3	1,2-Dichlorobenzene UG/M3	cis-1,2-Dichloroethene UG/M3	Chloroethane UG/M3
249377IAD	377 249TH ST	2012-08-28	09:25	Bedroom		<0.93 U	0.74 J	0.88 J	<0.93 U		<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.046 U	<0.93 U	<0.93 U	<0.93 U
249377IAK	377 249TH ST	2012-08-28	09:25	Kitchen		<0.86 U	0.51 J	0.51 J	<0.86 U		<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.043 U	<0.86 U	<0.86 U	<0.86 U
249378OAB	378 249TH ST	2011-05-11	13:11	Outdoor Air		<0.78 U	0.41 J	<0.78 U	<0.78 U		<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.15 U	0.038 J	<0.78 U	<0.78 U	<0.78 U
249378OAF	378 249TH ST	2011-05-11	13:14	Outdoor Air		0.41 J	1	<0.76 U	<0.76 U		<0.76 U	<0.76 U	<0.76 U	<0.76 U	0.35 J	<0.088 U	<0.76 U	<0.76 U	<0.76 U
249378IAK	378 249TH ST	2011-05-11	14:27	Kitchen		2.4	0.51	<0.76 U	0.45 J		<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.36 U	<0.15 U	<0.76 U	<0.76 U	<0.76 U
249378IAB	378 249TH ST	2011-05-11	14:28	Bedroom		2.1	0.66 J	0.26 J	0.43 J		<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.14 U	<0.35 U	<0.71 U	<0.71 U	<0.71 U
249378IAG	378 249TH ST	2011-05-11	14:28	Garage		15	1	<0.79 U	0.71 J		<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.16 U	<0.039 U	<0.79 U	<0.79 U	<0.79 U
249378OAF	378 249TH ST	2012-02-23	13:08	Outdoor Air		<0.82 U	<0.82 U	<0.82 U	<0.82 U		<0.82 U	0.34 J	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.041 U	<0.82 U	<0.82 U
249378OAB	378 249TH ST	2012-02-23	13:05	Outdoor Air		<0.74 U	<0.74 U	<0.74 U	<0.74 U		<0.74 U	0.44 J	<0.74 U	<0.74 U	<0.74 U	<0.15 U	<0.037 U	<0.74 U	<0.74 U
249378IAK	378 249TH ST	2012-02-23	14:04	Kitchen		0.88 J	<0.75 U	<0.75 U	0.51 J		<0.75 U	0.25 J	<0.75 U	<0.75 U	<0.15 U	<0.038 U	<0.75 U	<0.75 U	<0.75 U
249378IAD	378 249TH ST	2012-02-23	14:05	Bedroom		0.96	<0.74 U	0.31 J	0.41 J		<0.74 U	0.21 J	<0.74 U	<0.74 U	<0.15 U	<0.037 U	<0.74 U	<0.74 U	<0.74 U
249378IAG	378 249TH ST	2012-02-23	14:06	Garage		3.7	<0.74 U	<0.74 U	0.93 J		<0.74 U	0.34 J	<0.74 U	<0.74 U	<0.15 U	<0.037 U	<0.74 U	<0.74 U	<0.74 U
249383OAF	383 249TH ST	2012-06-06	13:02	Outdoor Air		<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.045 U	<0.9 U	<0.9 U	<0.9 U
249383OAB	383 249TH ST	2012-06-06	13:04	Outdoor Air		<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.044 U	<0.87 U	<0.87 U	<0.87 U
249383IAG	383 249TH ST	2012-06-06	14:03	Garage		<1 U	<1 U	<10 U	0.82 J		0.82 J	<1 U	<1 U	<1 U	<0.2 U	<0.044 U	<0.87 U	<0.87 U	<0.87 U
249383IAK	383 249TH ST	2012-06-06	14:03	Kitchen		<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.042 U	<0.83 U	<0.83 U	<0.83 U
249383IAB	383 249TH ST	2012-06-06	14:04	Bedroom		<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.047 U	<0.94 U	<0.94 U	<0.94 U
249402OAF	402 249TH ST	2012-03-21	08:11	Outdoor Air		<0.74 U	<0.74 U	1.1 J	<0.74 U		<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.15 U	<0.037 U	<0.74 U	<0.74 U	<0.74 U
249402OAB	402 249TH ST	2012-03-21	08:12	Outdoor Air		<0.71 U	<0.71 U	<0.71 U	<0.71 U		<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.14 U	<0.036 U	<0.71 U	<0.71 U	<0.71 U
249402IAB	402 249TH ST	2012-03-21	09:11	Bedroom		0.48 J	0.5 J	0.25 J	0.27 J		<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.15 U	<0.037 U	<0.73 U	<0.73 U	<0.73 U
249402IAC	402 249TH ST	2012-03-21	09:12	Bedroom		0.52 J	0.5 J	<0.85 U	0.26 J		<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.043 U	<0.85 U	<0.85 U	<0.85 U
249402IAD	402 249TH ST	2012-03-21	09:12	Kitchen		<0.81 U	0.47 J	<0.81 U	0.25 J		<0.81 U	<0.81 U	<0.81 U	<0.81 U	0.022 J	<0.04 U	<0.81 U	<0.81 U	<0.81 U
249412OAF	412 249TH ST	2012-09-26	13:10	Outdoor Air		<0.78 U	<0.78 U	<0.78 U	<0.78 U		<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.16 U	<0.039 U	<0.78 U	<0.78 U	<0.78 U
249412OAB	412 249TH ST	2012-09-26	13:11	Outdoor Air		<0.9 U	<0.9 U	0.55 J	<0.9 U		<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.045 U	<0.9 U	<0.9 U	<0.9 U
249412IAB	412 249TH ST	2012-09-26	14:20	Bedroom		0.6 J	<0.95 U	<0.95 U	0.33 J		<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.047 U	<0.95 U	<0.95 U	<0.95 U
249412IAK	412 249TH ST	2012-09-26	14:50	Kitchen		0.6 J	<0.95 U	<0.95 U	<0.95 U		0.51 J	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.046 U	<0.95 U	<0.95 U	<0.95 U
249412IAG	412 249TH ST	2012-09-26	14:11	Garage		4.3	<0.86 U	0.23 J	1.1 J		1.3	<0.86 U	<0.86 U	0.27 J	<0.36 U	<0.17 U	<0.86 U	<0.86 U	<0.86 U

Table B-4
Indoor, Garage, and Outdoor Air Results
Former East Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection							
					Analyte Units	Hexachloro-1,3-Butadiene UG/M3 0.29%	1,1-Dichloro-ethane UG/M3 0.19%	1,1-Dichloro-ethene UG/M3 0.19%	trans-1,2-Dichloro-ethene UG/M3 0.19%	1,3-Dichloro-benzene UG/M3 0.10%	1,4-Dioxane UG/M3 0.00%	Carbon Dioxide MOL % 0.00%
M24401DAB	24401 MARBELLA AVE	2012-03-28	13:02	Outdoor Air	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U
M24401DAB	24401 MARBELLA AVE	2012-03-28	13:08	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.21 U	<0.21 U
M24401DAB	24401 MARBELLA AVE	2012-03-28	14:02	Bedroom	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U		<0.18 U	<0.18 U
M24401UAK	24401 MARBELLA AVE	2012-03-28	14:03	Kitchen	<0.79 U	<0.78 U	<0.79 U	<0.79 U	<0.79 U		<0.19 U	<0.19 U
M24401JAG	24401 MARBELLA AVE	2012-03-28	14:04	Garage	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U		<0.17 U	<0.17 U
N24402OAF	24402 NEPTUNE AVE	2012-10-03	13:06	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U
N24402OAB	24402 NEPTUNE AVE	2012-10-03	13:08	Outdoor Air	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U
N24402OAB	24402 NEPTUNE AVE	2012-10-03	14:06	Garage	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.2 U	<0.2 U
N24402OAK	24402 NEPTUNE AVE	2012-10-03	14:07	Kitchen	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.17 U	<0.17 U
N24402OAB	24402 NEPTUNE AVE	2012-10-03	14:08	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.19 U	<0.19 U
P24402OAF	24402 PANAMA AVE	2012-12-20	08:15	Outdoor Air	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U		<0.14 U	<0.14 U
P24402OAB	24402 PANAMA AVE	2012-12-20	08:17	Outdoor Air	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U		<0.16 U	<0.16 U
P24402OAK	24402 PANAMA AVE	2012-12-20	09:15	Kitchen	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U
P24402OAB	24402 PANAMA AVE	2012-12-20	09:16	Bedroom	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U		<0.17 U	<0.17 U
P24402OAG	24402 PANAMA AVE	2012-12-20	09:17	Garage	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.15 U	<0.15 U
R24402OAB	24402 RAVENNA AVE	2012-12-08	09:15	Outdoor Air	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U		<0.18 U	<0.18 U
R24402OAF	24402 RAVENNA AVE	2012-12-08	09:16	Outdoor Air	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U		<0.15 U	<0.15 U
R24402OAK	24402 RAVENNA AVE	2012-12-08	10:17	Kitchen	<0.62 U	<0.62 U	<0.62 U	<0.62 U	<0.62 U		<0.14 U	<0.14 U
R24402OAB	24402 RAVENNA AVE	2012-12-08	10:18	Bedroom	<0.58 U	<0.58 U	<0.58 U	<0.58 U	<0.58 U		<0.13 U	<0.13 U
R24402OAG	24402 RAVENNA AVE	2012-12-08	10:19	Garage	<0.66 U	<0.66 U	<0.66 U	<0.66 U	<0.66 U		<0.15 U	<0.15 U
R24402OAF	24402 RAVENNA AVE	2012-05-24	08:10	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.19 U	<0.19 U
R24402OAB	24402 RAVENNA AVE	2012-05-24	08:12	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U		<0.16 U	<0.16 U
R24402OAG	24402 RAVENNA AVE	2012-05-24	09:14	Garage	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U		<0.19 U	<0.19 U
R24402OAK	24402 RAVENNA AVE	2012-05-24	09:15	Kitchen	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U		<0.18 U	<0.18 U
R24402OAB	24402 RAVENNA AVE	2012-05-24	09:16	Bedroom	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.19 U	<0.19 U
N24403OAF	24403 NEPTUNE AVE	2012-11-08	08:09	Outdoor Air	0.37 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.17 U	<0.17 U
N24403OAB	24403 NEPTUNE AVE	2012-11-08	08:11	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.15 U	<0.15 U
N24403JAG	24403 NEPTUNE AVE	2012-11-08	09:09	Garage	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U
N24403JAB	24403 NEPTUNE AVE	2012-11-08	09:10	Bedroom	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U		<0.16 U	<0.16 U
N24403IAK	24403 NEPTUNE AVE	2012-11-08	09:11	Kitchen	<1 U	<1 U	<1 U	<1 U	<1 U		<0.2 U	<0.2 U
M24405OAF	24405 MARBELLA AVE	2012-03-21	13:07	Outdoor Air	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U
M24405OAB	24405 MARBELLA AVE	2012-03-21	13:10	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U
M24405OAG	24405 MARBELLA AVE	2012-03-21	14:07	Garage	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U
M24405OAK	24405 MARBELLA AVE	2012-03-21	14:07	Kitchen	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U		<0.19 U	<0.19 U
M24405OAB	24405 MARBELLA AVE	2012-03-21	14:09	Bedroom	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U
M24406OAF	24406 MARBELLA AVE	2012-03-08	13:05	Outdoor Air	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U
M24406OAB	24406 MARBELLA AVE	2012-03-08	13:09	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.19 U	<0.19 U
M24406IAK	24406 MARBELLA AVE	2012-03-08	14:05	Kitchen	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.17 U	<0.17 U
M24406IAB	24406 MARBELLA AVE	2012-03-08	14:07	Bedroom	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U		<0.17 U	<0.17 U
M24406IAG	24406 MARBELLA AVE	2012-03-08	14:08	Garage	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U		<0.19 U	<0.19 U
N24406OAB	24406 NEPTUNE AVE	2010-11-12	09:17	Outdoor Air	<0.61 U	<0.61 U	<0.61 U	<0.61 U	<0.61 U		<0.13 U	<0.13 U
N24406OAF	24406 NEPTUNE AVE	2010-11-12	09:18	Outdoor Air	<0.66 U	<0.66 U	<0.66 U	<0.66 U	<0.66 U		<0.15 U	<0.15 U
N24406IAG	24406 NEPTUNE AVE	2010-11-12	10:20	Garage	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U
N24406IAY	24406 NEPTUNE AVE	2010-11-12	10:20	Kitchen	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U		<0.15 U	<0.15 U
N24406IAB	24406 NEPTUNE AVE	2010-11-12	10:21	Bedroom	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U		<0.17 U	<0.17 U
N24406OAB	24406 NEPTUNE AVE	2012-01-25	08:48	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U		<0.19 U	<0.19 U
N24406OAF	24406 NEPTUNE AVE	2012-01-25	08:49	Outdoor Air	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U		<0.19 U	<0.19 U
N24406IAB	24406 NEPTUNE AVE	2012-01-25	09:50	Bedroom	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.22 U	<0.22 U
N24406IAK	24406 NEPTUNE AVE	2012-01-25	09:51	Kitchen	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U		<0.15 U	<0.15 U
N24406IAG	24406 NEPTUNE AVE	2012-01-25	09:52	Garage	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U		<0.2 U	<0.2 U
P24406OAF	24406 PANAMA AVE	2012-08-15	13:04	Outdoor Air	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U		<0.2 U	<0.2 U
P24406OAB	24406 PANAMA AVE	2012-08-15	13:06	Outdoor Air	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U		<0.18 U	<0.18 U

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kast Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection								
					Analyte Units	Hexachloro-1,3-Butadiene UG/M3 0.25%	1,1-Dichloro-ethane UG/M3 0.19%	1,1-Dichloro-ethene UG/M3 0.19%	trans-1,2-Dichloro-ethene UG/M3 0.19%	1,3-Dichlorobenzene UG/M3 0.10%	1,4-Dioxane UG/M3 0.00%	Carbon Dioxide MOL.% 0.00%	Methane MOL.% 0.00%
P24408IAG	24408 PANAMA AVE	2012-08-15	14:05	Garage	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U			<0.18 U	<0.18 U
P24408IAK	24408 PANAMA AVE	2012-08-15	14:05	Kitchen	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U			<0.17 U	<0.17 U
P24408IAB	24408 PANAMA AVE	2012-08-15	14:06	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U			<0.19 U	<0.19 U
N24409DAB	24409 NEPTUNE AVE	2012-05-03	08:15	Outdoor Air	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U			<0.17 U	<0.17 U
N24409DAF	24409 NEPTUNE AVE	2012-05-03	08:17	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U			<0.15 U	<0.15 U
N24409IAB	24409 NEPTUNE AVE	2012-05-03	09:17	Bedroom	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U			<0.19 U	<0.19 U
N24409IAG	24409 NEPTUNE AVE	2012-05-03	09:17	Garage	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U			<0.18 U	<0.18 U
N24409IAK	24409 NEPTUNE AVE	2012-05-03	09:18	Kitchen	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U			<0.17 U	<0.17 U
P24410DAF	24410 PANAMA AVE	2012-07-18	06:00	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U			<0.16 U	<0.16 U
P24410DAB	24410 PANAMA AVE	2012-07-18	06:06	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U			<0.16 U	<0.16 U
P24410IAG	24410 PANAMA AVE	2012-07-18	09:04	Garage	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U			<0.17 U	<0.17 U
P24410IAK	24410 PANAMA AVE	2012-07-18	09:05	Kitchen	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U			<0.17 U	<0.17 U
P24410IAB	24410 PANAMA AVE	2012-07-18	09:06	Bedroom	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U			<0.17 U	<0.17 U
M24411DAF	24411 MARBELLA AVE	2012-04-26	12:20	Outdoor Air	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U			<0.17 U	<0.17 U
M24411DAB	24411 MARBELLA AVE	2012-04-26	12:23	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U			<0.18 U	<0.18 U
M24411IAG	24411 MARBELLA AVE	2012-04-26	13:20	Garage	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U			<0.19 U	<0.19 U
M24411IAB	24411 MARBELLA AVE	2012-04-26	13:21	Bedroom	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U			<0.16 U	<0.16 U
M24411IAK	24411 MARBELLA AVE	2012-04-26	13:22	Kitchen	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U			<0.19 U	<0.19 U
P24411DAF	24411 PANAMA AVE	2012-12-13	08:15	Outdoor Air	0.43 U	<0.94 U	<0.94 U	<0.94 U	0.43 U			<0.19 U	<0.19 U
P24411DAB	24411 PANAMA AVE	2012-12-13	08:16	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U			<0.2 U	<0.2 U
P24411IAK	24411 PANAMA AVE	2012-12-13	09:16	Kitchen	<1 U	<1 U	<1 U	<1 U	<1 U			<0.2 U	<0.2 U
P24411IAB	24411 PANAMA AVE	2012-12-13	09:18	Bedroom	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U			<0.19 U	<0.19 U
P24411IAG	24411 PANAMA AVE	2012-12-13	09:18	Garage	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U			<0.18 U	<0.18 U
N24413DAB	24413 NEPTUNE AVE	2012-10-10	13:05	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U			<0.18 U	<0.18 U
N24413DAF	24413 NEPTUNE AVE	2012-10-10	13:07	Outdoor Air	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U			<0.18 U	<0.18 U
N24413IAB	24413 NEPTUNE AVE	2012-10-10	14:19	Bedroom	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U			<0.17 U	<0.17 U
N24413IAG	24413 NEPTUNE AVE	2012-10-10	14:14	Garage	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U			<0.16 U	<0.16 U
N24413IAK	24413 NEPTUNE AVE	2012-10-10	14:14	Kitchen	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U			<0.19 U	<0.19 U
R24413OAF	24413 RAVENNA AVE	2012-09-19	13:06	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U			<0.19 U	<0.19 U
R24413OAB	24413 RAVENNA AVE	2012-09-19	13:08	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U			<0.19 U	<0.19 U
R24413IAK	24413 RAVENNA AVE	2012-09-19	14:06	Kitchen	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U			<0.18 U	<0.18 U
R24413IAB	24413 RAVENNA AVE	2012-09-19	14:07	Bedroom	<1 U	<1 U	<1 U	<1 U	<1 U			<0.2 U	<0.2 U
R24413IAG	24413 RAVENNA AVE	2012-09-19	14:07	Garage	<1 U	<1 U	<1 U	<1 U	<1 U			<0.21 U	<0.21 U
R24413DAF	24413 NEPTUNE AVE	2012-07-12	13:00	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U			<0.19 U	<0.19 U
N24415OAB	24415 NEPTUNE AVE	2012-07-12	13:09	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U			<0.18 U	<0.18 U
N24415IAG	24415 NEPTUNE AVE	2012-07-12	14:06	Garage	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U			<0.17 U	<0.17 U
N24415IAG2	24415 NEPTUNE AVE	2012-07-12	14:06	Garage	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U			<0.16 U	<0.16 U
N24415IAK	24415 NEPTUNE AVE	2012-07-12	14:08	Kitchen	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U			<0.15 U	<0.15 U
N24415IAB	24415 NEPTUNE AVE	2012-07-12	14:09	Bedroom	<1 U	<1 U	<1 U	<1 U	<1 U			<0.2 U	<0.2 U
F24416OAF	24416 PANAMA AVE	2012-05-17	08:11	Outdoor Air	<0.08 U	<0.08 U	<0.08 U	<0.08 U	<0.08 U			<0.2 U	<0.2 U
F24416OAB	24416 PANAMA AVE	2012-05-17	08:12	Outdoor Air	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U			<0.21 U	<0.21 U
F24416IAG	24416 PANAMA AVE	2012-05-17	09:12	Garage	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U			<0.19 U	<0.19 U
F24416IAB	24416 PANAMA AVE	2012-05-17	09:13	Bedroom	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U			<0.15 U	<0.15 U
F24416IAK	24416 PANAMA AVE	2012-05-17	09:13	Kitchen	<1 U	<1 U	<1 U	<1 U	<1 U			<0.21 U	<0.21 U
N24419OAB	24419 NEPTUNE AVE	2012-08-02	08:12	Outdoor Air	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U			<0.21 U	<0.21 U
N24419OAF	24419 NEPTUNE AVE	2012-08-02	08:13	Outdoor Air	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U			<0.17 U	<0.17 U
N24419IAK	24419 NEPTUNE AVE	2012-08-02	09:12	Kitchen	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U			<0.19 U	<0.19 U
N24419IAB	24419 NEPTUNE AVE	2012-08-02	09:13	Bedroom	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U			<0.19 U	<0.19 U
N24419IAB2	24419 NEPTUNE AVE	2012-08-02	09:13	Bedroom	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U			<0.2 U	<0.2 U
N24419IAG	24419 NEPTUNE AVE	2012-08-02	09:14	Garage	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U			<0.19 U	<0.19 U
R24419OAB	24419 RAVENNA AVE	2012-06-14	13:15	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U			<0.18 U	<0.18 U
R24419OAF	24419 RAVENNA AVE	2012-06-14	13:15	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U			<0.18 U	<0.18 U

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kast Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Hexachloro- 1,3-Butadiene		1,1-Dichloro- ethane	1,1-Dichloro- ethene	trans-1,2- Dichloro- ethene	1,3-Dichloro- benzene	1,4-Dioxane	Carbon Dioxide	Methane
					UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	MOL %	MOL %
Frequency of Detection					0.79%	0.19%	0.19%	0.19%	0.10%	0.00%	0.00%	0.00%	0.00%
R24419A3	24419 RAVENNA AVE	2012-06-14	14:15	Bedroom	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U			<0.18 U	<0.18 U
R24419A3	24419 RAVENNA AVE	2012-06-14	14:16	Garage	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U			<0.18 U	<0.18 U
R24419A3	24419 RAVENNA AVE	2012-06-14	14:16	Kitchen	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U			<0.1 U	<0.2 U
P24420A0F	24420 PANAMA AVE	2012-12-06	06:06	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U			<0.18 U	<0.18 U
P24420A0B	24420 PANAMA AVE	2012-12-06	08:06	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U			<0.17 U	<0.17 U
P24420A0C	24420 PANAMA AVE	2012-12-06	09:13	Garage	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U			<0.19 U	<0.19 U
P24420A0D	24420 PANAMA AVE	2012-12-06	09:14	Kitchen	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U			<0.17 U	<0.17 U
P24420A0E	24420 PANAMA AVE	2012-12-06	09:15	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U			<0.19 U	<0.19 U
M24422A0F	24422 MARBELLA AVE	2012-07-11	08:10	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U			<0.21 U	<0.21 U
M24422A0B	24422 MARBELLA AVE	2012-07-11	08:11	Outdoor Air	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U			<0.18 U	<0.18 U
M24422A0C	24422 MARBELLA AVE	2012-07-11	09:14	Bedroom	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U			<0.19 U	<0.19 U
M24422A0D	24422 MARBELLA AVE	2012-07-11	09:15	Garage	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U			<0.22 U	<0.22 U
M24422A0E	24422 MARBELLA AVE	2012-07-11	09:15	Kitchen	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U			<0.19 U	<0.19 U
N24422A0A	24422 NEPTUNE AVE	2011-01-19	13:19	Outdoor Air	<0.66	<0.66	<0.66	<0.66	<0.66			<0.15	<0.15
N24422A0B	24422 NEPTUNE AVE	2011-01-19	13:20	Outdoor Air	<0.6	<0.6	<0.6	<0.6	<0.6			<0.13	<0.13
N24422A0C	24422 NEPTUNE AVE	2011-01-19	14:40	Bedroom	<0.63	<0.63	<0.63	<0.63	<0.63			<0.14	<0.14
N24422A0D	24422 NEPTUNE AVE	2011-01-19	14:40	Kitchen	<0.66	<0.66	<0.66	<0.66	<0.66			<0.15	<0.15
N24422A0E	24422 NEPTUNE AVE	2011-01-19	14:41	Garage	<0.68	<0.68	<0.68	<0.68	<0.68			<0.15	<0.15
R24422A0A	24422 RAVENNA AVE	2012-12-19	08:09	Outdoor Air	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U			<0.16 U	<0.16 U
R24422A0B	24422 RAVENNA AVE	2012-12-19	08:11	Outdoor Air	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U			<0.18 U	<0.18 U
R24422A0C	24422 RAVENNA AVE	2012-12-19	09:11	Garage	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U			<0.17 U	<0.17 U
R24422A0D	24422 RAVENNA AVE	2012-12-19	09:12	Kitchen	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U			<0.19 U	<0.19 U
R24422A0E	24422 RAVENNA AVE	2012-12-19	09:13	Bedroom	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U			<0.16 U	<0.16 U
M24423A0A	24423 MARBELLA AVE	2012-06-20	08:05	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U			<0.19 U	<0.19 U
M24423A0B	24423 MARBELLA AVE	2012-06-20	08:06	Outdoor Air	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U			<0.17 U	<0.17 U
M24423A0C	24423 MARBELLA AVE	2012-06-20	09:05	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U			<0.16 U	<0.16 U
M24423A0D	24423 MARBELLA AVE	2012-06-20	09:06	Kitchen	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U			<0.19 U	<0.19 U
M24423A0E	24423 MARBELLA AVE	2012-06-20	09:07	Garage	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U			<0.17 U	<0.17 U
N24423A0A	24423 NEPTUNE AVE	2012-10-11	13:09	Outdoor Air	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U			<0.17 U	<0.17 U
N24423A0B	24423 NEPTUNE AVE	2012-10-11	13:13	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U			<0.16 U	<0.16 U
N24423A0C	24423 NEPTUNE AVE	2012-10-11	14:12	Garage	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U			<0.19 U	<0.19 U
N24423A0D	24423 NEPTUNE AVE	2012-10-11	14:14	Kitchen	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U			<0.19 U	<0.19 U
N24423A0E	24423 NEPTUNE AVE	2012-10-11	14:15	Bedroom	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U			<0.17 U	<0.17 U
R24423A0A	24423 RAVENNA AVE	2012-10-25	13:03	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U			<0.19 U	<0.19 U
R24423A0B	24423 RAVENNA AVE	2012-10-25	13:05	Outdoor Air	<1.2 U	<1.2 U	<1.2 U	<1.2 U	<1.2 U			<0.25 U	<0.25 U
R24423A0C	24423 RAVENNA AVE	2012-10-25	14:04	Bedroom	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U			<0.22 U	<0.22 U
R24423A0D	24423 RAVENNA AVE	2012-10-25	14:04	Garage	<1.4 U	<1.4 U	<1.4 U	<1.4 U	<1.4 U			<0.27 U	<0.27 U
R24423A0E	24423 RAVENNA AVE	2012-10-25	14:05	Kitchen	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U			<0.19 U	<0.19 U
M24426A0A	24426 MARBELLA AVE	2012-02-23	13:03	Outdoor Air	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U			<0.16 U	<0.16 U
M24426A0B	24426 MARBELLA AVE	2012-02-23	13:04	Outdoor Air	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U			<0.15 U	<0.15 U
M24426A0C	24426 MARBELLA AVE	2012-02-23	14:03	Bedroom	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U			<0.16 U	<0.16 U
M24426A0D	24426 MARBELLA AVE	2012-02-23	14:04	Kitchen	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U			<0.15 U	<0.15 U
M24426A0E	24426 MARBELLA AVE	2012-02-23	14:05	Garage	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U			<0.13 U	<0.13 U
N24426A0A	24426 NEPTUNE AVE	2010-10-29	12:51	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68			<0.16	<0.16
N24426A0B	24426 NEPTUNE AVE	2010-10-29	12:55	Outdoor Air	<0.64	<0.64	<0.64	<0.64	<0.64			<0.14	<0.14
N24426A0C	24426 NEPTUNE AVE	2010-10-29	13:59	Kitchen	<0.68	<0.68	<0.68	<0.68	<0.68			<0.15	<0.15
N24426A0D	24426 NEPTUNE AVE	2010-10-29	14:00	Bedroom	<0.65	<0.65	<0.65	<0.65	<0.65			<0.15	<0.15
N24426A0E	24426 NEPTUNE AVE	2010-10-29	14:02	Garage	<0.68	<0.68	<0.68	<0.68	<0.68			<0.15	<0.15
P24426A0A	24426 PANAMA AVE	2012-12-05	08:05	Outdoor Air	<0.85 U	<0.17 U	<0.17 U	<0.17 U	<0.17 U			<0.17 U	<0.17 U
P24426A0B	24426 PANAMA AVE	2012-12-05	08:10	Outdoor Air	<0.89 U	<0.18 U	<0.18 U	<0.18 U	<0.18 U			<0.18 U	<0.18 U
P24426A0C	24426 PANAMA AVE	2012-12-05	09:06	Garage	<0.84 U	<0.17 U	<0.17 U	<0.17 U	<0.17 U			<0.17 U	<0.17 U
P24426A0D	24426 PANAMA AVE	2012-12-05	09:07	Bedroom	<0.94 U	<0.19 U	<0.19 U	<0.19 U	<0.19 U			<0.19 U	<0.19 U

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kast Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection								
					Herachloro-1,3-Butadiene UG/M3 0.29%	1,1-Dichloro-ethane UG/M3 0.19%	1,1-Dichloro-ethene UG/M3 0.19%	trans-1,2-Dichloro-ethene UG/M3 0.19%	1,3-Dichloro-benzene UG/M3 0.10%	1,4-Dioxane UG/M3 0.00%	Carbon Dioxide MOL % 0.00%	Methane MOL % 0.00%	
M24426IAK	24426 PANAMA AVE	2012-12-05	09:10	Kitchen	<0.89 U	<0.18 U	<0.18 U	<0.18 U	<0.18 U		<0.18 U	<0.18 U	
M24427OAB	24427 MARBELLA AVE	2012-04-05	08:22	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U		<0.18 U	<0.18 U	
M24427OAF	24427 MARBELLA AVE	2012-04-05	08:23	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U		<0.18 U	<0.18 U	
M24427IAG	24427 MARBELLA AVE	2012-04-05	09:22	Garage	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U		<0.19 U	<0.19 U	
M24427IAB	24427 MARBELLA AVE	2012-04-05	09:23	Bedroom	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U		<0.16 U	<0.16 U	
M24427IAK	24427 MARBELLA AVE	2012-04-05	09:24	Kitchen	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U		<0.2 U	<0.2 U	
M24428OAB	24428 NEPTUNE AVE	2011-01-13	13:28	Outdoor Air	<0.75	<0.75	<0.75	<0.75	<0.75		<0.18	<0.18	
M24428OAF	24428 NEPTUNE AVE	2011-01-13	13:24	Outdoor Air	<0.67	<0.67	<0.67	<0.67	<0.67		<0.15	<0.15	
M24428IAK	24428 NEPTUNE AVE	2011-01-13	14:32	Kitchen	<0.68	<0.68	<0.68	<0.68	<0.68		<0.15	<0.15	
M24428IAB	24428 NEPTUNE AVE	2011-01-13	14:33	Bedroom	<0.54	<0.54	<0.54	<0.54	<0.54		<0.13	<0.13	
M24428IAG	24428 NEPTUNE AVE	2011-01-13	14:33	Garage	<0.68	<0.68	<0.68	<0.68	<0.68		<0.16	<0.16	
M24430OAB	24430 PANAMA AVE	2012-11-29	13:10	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.15 U	<0.15 U	
M24430DAF	24430 PANAMA AVE	2012-11-29	13:10	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U		<0.16 U	<0.16 U	
M24430IAK	24430 PANAMA AVE	2012-11-29	14:12	Kitchen	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U		<0.18 U	<0.18 U	
M24430IAB	24430 PANAMA AVE	2012-11-29	14:13	Bedroom	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U		<0.17 U	<0.17 U	
M24430IAG	24430 PANAMA AVE	2012-11-29	14:13	Garage	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U		<0.19 U	<0.19 U	
M24432OAF	24432 MARBELLA AVE	2012-03-15	08:07	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U		<0.16 U	<0.16 U	
M24432OAB	24432 MARBELLA AVE	2012-03-15	08:09	Outdoor Air	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U		<0.16 U	<0.16 U	
M24432IAK	24432 MARBELLA AVE	2012-03-15	09:21	Kitchen	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.16 U	<0.16 U	
M24432IAB	24432 MARBELLA AVE	2012-03-15	09:22	Bedroom	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U		<0.14 U	<0.14 U	
M24432IAG	24432 MARBELLA AVE	2012-03-15	09:24	Garage	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U		<0.15 U	<0.15 U	
M24433OAB	24433 MARBELLA AVE	2012-03-01	13:03	Outdoor Air	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U		<0.16 U	<0.16 U	
M24433OAF	24433 MARBELLA AVE	2012-03-01	13:13	Outdoor Air	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U	
M24433IAG	24433 MARBELLA AVE	2012-03-01	14:13	Garage	<0.67 U	<0.67 U	<0.67 U	<0.67 U	<0.67 U		<0.15 U	<0.15 U	
M24433IAB	24433 MARBELLA AVE	2012-03-01	14:14	Bedroom	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U		<0.17 U	<0.17 U	
M24433IAK	24433 MARBELLA AVE	2012-03-01	14:14	Kitchen	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U	
M24436OAF	24436 PANAMA AVE	2012-06-27	08:04	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U	
M24436OAB	24436 PANAMA AVE	2012-06-27	08:06	Outdoor Air	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U		<0.17 U	<0.17 U	
M24436IAG	24436 PANAMA AVE	2012-06-27	09:08	Garage	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.17 U	<0.17 U	
M24436IAK	24436 PANAMA AVE	2012-06-27	09:09	Kitchen	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U		<0.2 U	<0.2 U	
M24436IAB	24436 PANAMA AVE	2012-06-27	09:10	Bedroom	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U		<0.16 U	<0.16 U	
M24502OAF	24502 MARBELLA AVE	2012-05-03	13:08	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U	
M24502OAB	24502 MARBELLA AVE	2012-05-03	13:09	Outdoor Air	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U		<0.18 U	<0.18 U	
M24502IAG	24502 MARBELLA AVE	2012-05-03	14:09	Garage	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U		<0.18 U	<0.18 U	
M24502IAB	24502 MARBELLA AVE	2012-05-03	14:10	Bedroom	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U		<0.19 U	<0.19 U	
M24502IAK	24502 MARBELLA AVE	2012-05-03	14:10	Kitchen	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U		<0.17 U	<0.17 U	
R24502OAB	24502 RAVENNA AVE	2010-10-06	08:29	Outdoor Air	<0.56	<0.56	<0.56	<0.56	<0.56		<0.12	<0.12	
R24502OAF	24502 RAVENNA AVE	2010-10-06	08:29	Outdoor Air	<0.63	<0.63	<0.63	<0.63	<0.63		<0.14	<0.14	
R24502IAB	24502 RAVENNA AVE	2010-10-06	09:49	Bedroom	<0.56	<0.56	<0.56	<0.56	<0.56		<0.12	<0.12	
R24502IAK	24502 RAVENNA AVE	2010-10-06	09:50	Kitchen	<0.59	<0.59	<0.59	<0.59	<0.59		<0.13	<0.13	
R24502IAG	24502 RAVENNA AVE	2010-10-06	09:53	Garage	<0.75	<0.75	<0.75	<0.75	<0.75		<0.17	<0.17	
R24502OAF	24502 RAVENNA AVE	2012-07-25	13:06	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U	
R24502OAB	24502 RAVENNA AVE	2012-07-25	13:07	Outdoor Air	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U		<0.19 U	<0.19 U	
R24502IAG	24502 RAVENNA AVE	2012-07-25	14:07	Garage	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U	
R24502IAK	24502 RAVENNA AVE	2012-07-25	14:09	Kitchen	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.19 U	<0.19 U	
R24502IAB	24502 RAVENNA AVE	2012-07-25	14:10	Bedroom	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U		<0.17 U	<0.17 U	
M24503OAF	24503 MARBELLA AVE	2012-03-29	13:00	Outdoor Air	<0.7 U	<0.7 U	<0.7 U	<0.7 U	<0.7 U		<0.16 U	<0.16 U	
M24503OAB	24503 MARBELLA AVE	2012-03-29	13:03	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U	
M24503IAG	24503 MARBELLA AVE	2012-03-29	14:03	Garage	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U		<0.16 U	<0.16 U	
M24503IAB	24503 MARBELLA AVE	2012-03-29	14:04	Garage	<0.66 U	<0.66 U	<0.66 U	<0.66 U	<0.66 U		<0.15 U	<0.15 U	
M24503IAK	24503 MARBELLA AVE	2012-03-29	14:05	Kitchen	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.2 U	<0.2 U	
M24503IAB	24503 MARBELLA AVE	2012-03-29	14:06	Bedroom	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U		<0.19 U	<0.19 U	

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kist Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection									
					Hexachloro-1,3-Butadiene UG/M3	1,1-Dichloro-ethane UG/M3	1,1-Dichloro-ethene UG/M3	trans-1,2-Dichloro-ethene UG/M3	1,3-Dichloro-benzene UG/M3	1,4-Dioxane UG/M3	Carbon Dioxide MOL %	Methane MOL %		
N24503DAF	24503 NEPTUNE AVE	2012-04-12	08:01	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U		
N24503DAB	24503 NEPTUNE AVE	2012-04-12	08:06	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.17 U	<0.17 U		
N24503IAG	24503 NEPTUNE AVE	2012-04-12	09:06	Garage	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U		<0.2 U	<0.2 U		
N24503IAX	24503 NEPTUNE AVE	2012-04-12	09:07	Kitchen	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U		<0.21 U	<0.21 U		
N24503IAB	24503 NEPTUNE AVE	2012-04-11	09:06	Bedroom	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U		
F24503OAB	24503 PANAMA AVE	2012-08-09	13:04	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U		<0.18 U	<0.18 U		
F24503OAF	24503 PANAMA AVE	2012-08-09	13:04	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U		<0.19 U	<0.19 U		
F24503IAG	24503 PANAMA AVE	2012-08-09	14:04	Garage	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U		
F24503IAB	24503 PANAMA AVE	2012-08-09	14:05	Bedroom	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U		<0.17 U	<0.17 U		
F24503IAX	24503 PANAMA AVE	2012-08-09	14:05	Kitchen	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U		<0.19 U	<0.19 U		
R24503OAF	24503 RAVENNA AVE	2012-11-07	13:05	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U		<0.17 U	<0.17 U		
R24503OAB	24503 RAVENNA AVE	2012-11-07	13:07	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.16 U	<0.16 U		
R24503IAG	24503 RAVENNA AVE	2012-11-07	14:07	Garage	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U		<0.19 U	<0.19 U		
R24503IAX	24503 RAVENNA AVE	2012-11-07	14:08	Kitchen	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U		<0.19 U	<0.19 U		
R24503IAB	24503 RAVENNA AVE	2012-11-07	14:09	Bedroom	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U		<0.18 U	<0.18 U		
M24509OAF	24509 MARBELLA AVE	2012-03-14	08:24	Outdoor Air	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U		<0.16 U	<0.16 U		
M24509IAB	24509 MARBELLA AVE	2012-03-14	09:25	Kitchen	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U		<0.17 U	<0.17 U		
M24509IAB	24509 MARBELLA AVE	2012-03-14	09:26	Bedroom	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U		<0.17 U	<0.17 U		
M24509IAG	24509 MARBELLA AVE	2012-03-14	09:27	Garage	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U		
M24509OAB	24509 MARBELLA AVE	2012-03-14	10:03	Outdoor Air	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U		<0.16 U	<0.16 U		
N24508DAB	24508 NEPTUNE AVE	2011-01-27	08:26	Outdoor Air	<0.77	<0.77	<0.77	<0.77	<0.77		<0.18	<0.18		
N24508DAF	24508 NEPTUNE AVE	2011-01-27	08:27	Outdoor Air	<0.67	<0.67	<0.67	<0.67	<0.67		<0.15	<0.15		
N24508IAG	24508 NEPTUNE AVE	2011-01-27	09:32	Garage	<0.68	<0.68	0.74	<0.68	<0.68		<0.15	<0.15		
N24508IAX	24508 NEPTUNE AVE	2011-01-27	09:32	Kitchen	<0.68	<0.68	<0.68	<0.68	<0.68		<0.16	<0.16		
N24508IAB	24508 NEPTUNE AVE	2011-01-27	09:34	Bedroom	<0.78	<0.78	<0.78	<0.78	<0.78		<0.18	<0.18		
F24508OAF	24508 PANAMA AVE	2012-04-25	13:06	Outdoor Air	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U		<0.19 U	<0.19 U		
F24508OAB	24508 PANAMA AVE	2012-04-25	13:08	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U		
F24508IAG	24508 PANAMA AVE	2012-04-25	14:05	Garage	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U		<0.17 U	<0.17 U		
F24508IAB	24508 PANAMA AVE	2012-04-25	14:05	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.19 U	<0.19 U		
F24508IAX	24508 PANAMA AVE	2012-04-25	14:06	Kitchen	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U		<0.17 U	<0.17 U		
N24509DAF	24509 NEPTUNE AVE	2012-07-05	09:05	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U		
N24509DAB	24509 NEPTUNE AVE	2012-07-05	09:07	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U		<0.19 U	<0.19 U		
N24509IAB	24509 NEPTUNE AVE	2012-07-05	09:08	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.16 U	<0.16 U		
N24509IAX	24509 NEPTUNE AVE	2012-07-05	09:08	Kitchen	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U		<0.17 U	<0.17 U		
N24509IAG	24509 NEPTUNE AVE	2012-07-05	09:10	Garage	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U		<0.19 U	<0.19 U		
R24509OAB	24509 RAVENNA AVE	2012-04-11	13:40	Outdoor Air	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U		<0.17 U	<0.17 U		
R24509OAF	24509 RAVENNA AVE	2012-04-11	13:40	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.19 U	<0.19 U		
R24509IAB	24509 RAVENNA AVE	2012-04-11	14:40	Garage	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U		<0.2 U	<0.2 U		
R24509IAG	24509 RAVENNA AVE	2012-04-11	14:42	Bedroom	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U		<0.2 U	<0.2 U		
R24509IAX	24509 RAVENNA AVE	2012-04-11	14:42	Kitchen	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U		
M24512OAF	24512 MARBELLA AVE	2012-01-19	09:07	Outdoor Air	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.17 U	<0.17 U		
M24512IAB	24512 MARBELLA AVE	2012-01-19	09:17	Kitchen	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.23 U	<0.23 U		
M24512IAB	24512 MARBELLA AVE	2012-01-19	09:18	Bedroom	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.17 U	<0.17 U		
M24512IAG	24512 MARBELLA AVE	2012-01-19	09:18	Garage	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U		<0.2 U	<0.2 U		
M24512IAB	24512 MARBELLA AVE	2012-01-19	09:19	Bedroom	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U		<0.18 U	<0.18 U		
M24512OAB	24512 MARBELLA AVE	2012-01-19	09:21	Outdoor Air	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U		<0.19 U	<0.19 U		
P24512OAF	24512 PANAMA AVE	2012-11-14	14:08	Outdoor Air	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.17 U	<0.17 U		
P24512OAB	24512 PANAMA AVE	2012-11-14	14:09	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U		<0.2 U	<0.2 U		
P24512IAX	24512 PANAMA AVE	2012-11-14	15:10	Kitchen	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U		<0.17 U	<0.17 U		
P24512IAB	24512 PANAMA AVE	2012-11-14	15:11	Bedroom	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U		<0.18 U	<0.18 U		
N24513OAF	24513 NEPTUNE AVE	2012-08-01	13:03	Outdoor Air	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U		<0.16 U	<0.16 U		
N24513OAB	24513 NEPTUNE AVE	2012-08-01	13:04	Outdoor Air	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U		<0.19 U	<0.19 U		

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kwi Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection							
					Hexachloro- 1,3-Butadiene UG/M3 0.29%	1,1-Dichloro- ethane UG/M3 0.19%	1,1-Dichloro- ethene UG/M3 0.19%	trans-1,2- Dichloro- ethene UG/M3 0.19%	1,3-Dichloro- benzene UG/M3 0.10%	1,4-Dioxane UG/M3 0.00%	Carbon Dioxide MOL % 0.00%	Methane MOL % 0.00%
N24513IAG	24513 NEPTUNE AVE	2012-08-01	14:01	Garage	<1.4 U	2.5	<1.4 U	<1.4 U	<1.4 U		<0.27 U	<0.27 U
N24513IAB	24513 NEPTUNE AVE	2012-08-01	14:02	Bedroom	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U		<0.18 U	<0.18 U
R24513OAF	24513 RAVENNA AVE	2012-05-24	13:06	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U		<0.18 U	<0.18 U
R24513OAB	24513 RAVENNA AVE	2012-05-24	13:08	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U		<0.16 U	<0.16 U
R24513IAG	24513 RAVENNA AVE	2012-05-24	14:06	Garage	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U		<0.18 U	<0.18 U
R24513IAB	24513 RAVENNA AVE	2012-05-24	14:07	Kitchen	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U		<0.18 U	<0.18 U
R24513IAB	24513 RAVENNA AVE	2012-05-24	14:08	Bedroom	<0.98 U	<0.98 U	<0.88 U	<0.98 U	<0.98 U		<0.2 U	<0.2 U
M24516OAF	24516 MARBELLA AVE	2012-05-23	13:10	Outdoor Air	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U		<0.19 U	<0.19 U
M24516OAB	24516 MARBELLA AVE	2012-05-23	13:12	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U
M24516IAG	24516 MARBELLA AVE	2012-05-23	14:12	Garage	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U		<0.2 U	<0.2 U
M24516IAK	24516 MARBELLA AVE	2012-05-23	14:12	Kitchen	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U		<0.19 U	<0.19 U
M24516IAB	24516 MARBELLA AVE	2012-05-23	14:15	Bedroom	<0.93 U	<0.93 U	<0.83 U	<0.93 U	<0.93 U		<0.19 U	<0.19 U
M24517IAG	24517 MARBELLA AVE	2012-03-23	14:14	Garage	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U
M24517IAB	24517 MARBELLA AVE	2012-03-23	14:15	Bedroom	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U		<0.17 U	<0.17 U
M24517IAK	24517 MARBELLA AVE	2012-03-23	14:15	Kitchen	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.17 U	<0.17 U
M24517OAF	24517 MARBELLA AVE	2012-03-23	14:22	Outdoor Air	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U		<0.18 U	<0.18 U
M24517OAB	24517 MARBELLA AVE	2012-03-23	14:28	Outdoor Air	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.18 U	<0.18 U
R24518OAF	24518 RAVENNA AVE	2012-07-11	13:04	Outdoor Air	<1.3 U	<1.3 U	<1.3 U	<1.3 U	<1.3 U		<0.26 U	<0.26 U
R24518OAB	24518 RAVENNA AVE	2012-07-11	13:05	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U
R24518IAG	24518 RAVENNA AVE	2012-07-11	14:05	Garage	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U		<0.18 U	<0.18 U
R24518IAK	24518 RAVENNA AVE	2012-07-11	14:06	Kitchen	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U		<0.18 U	<0.18 U
R24518IAB	24518 RAVENNA AVE	2012-07-11	14:07	Bedroom	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U		<0.19 U	<0.19 U
M24519OAF	24519 NEPTUNE AVE	2012-06-28	13:03	Outdoor Air	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U		<0.17 U	<0.17 U
M24519OAB	24519 NEPTUNE AVE	2012-06-28	13:05	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U		<0.18 U	<0.18 U
N24519IAG	24519 NEPTUNE AVE	2012-06-28	14:05	Garage	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U		<0.18 U	<0.18 U
N24519IAK	24519 NEPTUNE AVE	2012-06-28	14:07	Kitchen	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U		<0.19 U	<0.19 U
N24519IAB	24519 NEPTUNE AVE	2012-06-28	14:08	Bedroom	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U		<0.17 U	<0.17 U
M24522OAF	24522 MARBELLA AVE	2012-04-19	08:20	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U		<0.18 U	<0.18 U
M24522OAB	24522 MARBELLA AVE	2012-04-19	08:22	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U
M24522IAB	24522 MARBELLA AVE	2012-04-19	09:24	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.19 U	<0.19 U
M24522IAG	24522 MARBELLA AVE	2012-04-19	09:24	Garage	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U		<0.18 U	<0.18 U
M24522IAK	24522 MARBELLA AVE	2012-04-19	09:24	Kitchen	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.2 U	<0.2 U
N24522OAF	24522 NEPTUNE AVE	2012-04-04	08:02	Outdoor Air	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U		<0.16 U	<0.16 U
N24522OAB	24522 NEPTUNE AVE	2012-04-04	08:03	Outdoor Air	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U		<0.17 U	<0.17 U
N24522IAG	24522 NEPTUNE AVE	2012-04-04	09:02	Garage	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U		<0.19 U	<0.19 U
N24522IAK	24522 NEPTUNE AVE	2012-04-04	09:03	Kitchen	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U
N24522IAB	24522 NEPTUNE AVE	2012-04-04	09:04	Bedroom	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U
R24522OAF	24522 RAVENNA AVE	2012-08-22	13:21	Outdoor Air	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U		<0.17 U	<0.17 U
R24522OAB	24522 RAVENNA AVE	2012-08-22	13:24	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U
R24522IAB	24522 RAVENNA AVE	2012-08-22	14:24	Bedroom	<1 U	<1 U	<1 U	<1 U	<1 U		<0.21 U	<0.21 U
R24522IAG	24522 RAVENNA AVE	2012-08-22	14:24	Garage	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U
R24522IAK	24522 RAVENNA AVE	2012-08-22	14:25	Kitchen	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U		<0.2 U	<0.2 U
M24523OAF	24523 MARBELLA AVE	2012-04-26	08:06	Outdoor Air	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U		<0.19 U	<0.19 U
M24523OAB	24523 MARBELLA AVE	2012-04-26	08:09	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.22 U	<0.22 U
M24523IAG	24523 MARBELLA AVE	2012-04-26	09:06	Garage	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.18 U	<0.18 U
M24523IAK	24523 MARBELLA AVE	2012-04-26	09:06	Kitchen	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.2 U	<0.2 U
M24523IAB	24523 MARBELLA AVE	2012-04-26	09:07	Bedroom	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U		<0.2 U	<0.2 U
N24523OAF	24523 NEPTUNE AVE	2012-10-03	08:02	Outdoor Air	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U
N24523OAB	24523 NEPTUNE AVE	2012-10-03	08:05	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U
N24523IAG	24523 NEPTUNE AVE	2012-10-03	09:04	Garage	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U		<0.17 U	<0.17 U
N24523IAK	24523 NEPTUNE AVE	2012-10-03	09:06	Kitchen	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U		<0.19 U	<0.19 U
N24523IAB	24523 NEPTUNE AVE	2012-10-03	09:07	Bedroom	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.18 U	<0.18 U

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kist Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection									
					Hexachloro-1,3-Butadiene UG/M3	1,1-Dichloro-ethane UG/M3	1,1-Dichloro-ethane UG/M3	trans-1,2-Dichloro-ethane UG/M3	1,3-Dichloro-benzene UG/M3	1,4-Dioxane UG/M3	Carbon Dioxide MOL %	Methane MOL %		
R24523-CAF	24523 RAVENNA AVE	2010-08-23	07:26	Outdoor Air	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.15	<0.15		
R24523-CA3	24523 RAVENNA AVE	2010-08-23	07:30	Outdoor Air	<0.74	<0.74	<0.74	<0.74	<0.74	<0.17	<0.17			
R24523-IAG	24523 RAVENNA AVE	2010-08-23	08:30	Garage	<0.79	<0.79	<0.79	<0.79	<0.79	<0.18	<0.18			
R24523-IAK	24523 RAVENNA AVE	2010-08-23	08:31	Kitchen	<0.72	<0.72	<0.72	<0.72	<0.72	<0.17	<0.17			
R24523-IAB	24523 RAVENNA AVE	2010-08-23	08:32	Bedroom	<0.75	<0.75	<0.75	<0.75	<0.75	<0.17	<0.17			
R24523OAF	24523 RAVENNA AVE	2011-03-24	07:32	Outdoor Air	<1.1	<1.1	<1.1	<1.1	<1.1	<0.28	<0.28			
R24523DAB	24523 RAVENNA AVE	2011-03-24	07:34	Outdoor Air	<0.74	<0.74	<0.74	<0.74	<0.74	<0.17	<0.17			
R24523IAB	24523 RAVENNA AVE	2011-03-24	08:33	Bedroom	<0.71	<0.71	<0.71	<0.71	<0.71	<0.16	<0.16			
R24523IAK	24523 RAVENNA AVE	2011-03-24	08:34	Kitchen	<0.79	<0.79	<0.79	<0.79	<0.79	<0.18	<0.18			
R24523IAG	24523 RAVENNA AVE	2011-03-24	08:35	Garage	<0.71	<0.71	<0.71	<0.71	<0.71	<0.16	<0.16			
M24526OAF	24526 MARBELLA AVE	2012-04-18	08:11	Outdoor Air	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.19 U	<0.19 U			
M24526OAB	24526 MARBELLA AVE	2012-04-18	08:13	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U			
M24526IAB	24526 MARBELLA AVE	2012-04-18	09:11	Garage	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.18 U	<0.18 U			
M24526IAB	24526 MARBELLA AVE	2012-04-18	09:12	Bedroom	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.17 U	<0.17 U			
M24526IAK	24526 MARBELLA AVE	2012-04-18	09:13	Kitchen	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.19 U	<0.19 U			
N24529OAF	24529 NEPTUNE AVE	2012-03-07	08:24	Outdoor Air	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.15 U	<0.15 U			
N24529OAF	24529 NEPTUNE AVE	2012-03-07	08:25	Outdoor Air	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.17 U	<0.17 U			
N24529IAG	24529 NEPTUNE AVE	2012-03-07	09:42	Garage	<1 U	<1 U	<1 U	<1 U	<1 U	<0.26 U	<0.26 U			
N24529IAB	24529 NEPTUNE AVE	2012-03-07	09:43	Bedroom	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.18 U	<0.18 U			
N24529IAK	24529 NEPTUNE AVE	2012-03-07	09:44	Kitchen	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.19 U	<0.19 U			
N24529OAB	24529 NEPTUNE AVE	2012-03-01	08:20	Outdoor Air	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.17 U	<0.17 U			
N24529OAF	24529 NEPTUNE AVE	2012-03-01	08:21	Outdoor Air	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.16 U	<0.16 U			
N24529IAG	24529 NEPTUNE AVE	2012-03-01	09:20	Garage	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.18 U	<0.18 U			
N24529IAB	24529 NEPTUNE AVE	2012-03-01	09:22	Bedroom	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.17 U	<0.17 U			
N24529IAK	24529 NEPTUNE AVE	2012-03-01	09:23	Kitchen	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.17 U	<0.17 U			
P24529OAF	24529 PANAMA AVE	2012-05-16	08:12	Outdoor Air	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.18 U			
P24529OAB	24529 PANAMA AVE	2012-05-16	08:15	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U			
P24529IAG	24529 PANAMA AVE	2012-05-16	09:12	Garage	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.18 U			
P24529IAB	24529 PANAMA AVE	2012-05-16	09:13	Bedroom	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.14 U	<0.14 U			
P24529IAK	24529 PANAMA AVE	2012-05-16	09:13	Kitchen	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.16 U	<0.16 U			
R24529OAB	24529 RAVENNA AVE	2011-08-17	12:22	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.18 U	<0.18 U			
R24529OAF	24529 RAVENNA AVE	2011-08-17	12:23	Outdoor Air	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.17 U	<0.17 U			
R24529IAG	24529 RAVENNA AVE	2011-08-17	13:40	Garage	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.18 U	<0.18 U			
R24529IAB	24529 RAVENNA AVE	2011-08-17	13:41	Bedroom	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.19 U	<0.19 U			
R24529IAK	24529 RAVENNA AVE	2011-08-17	13:41	Kitchen	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.2 U	<0.2 U			
M24532OAF	24532 MARBELLA AVE	2012-04-04	13:35	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.21 U	<0.21 U			
M24532OAB	24532 MARBELLA AVE	2012-04-04	13:37	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U			
M24532IAG	24532 MARBELLA AVE	2012-04-04	14:35	Garage	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.18 U	<0.18 U			
M24532IAK	24532 MARBELLA AVE	2012-04-04	14:36	Kitchen	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.21 U	<0.21 U			
M24532IAB	24532 MARBELLA AVE	2012-04-04	14:37	Bedroom	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.2 U	<0.2 U			
P24532OAF	24532 PANAMA AVE	2012-05-09	08:20	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.20 U	<0.20 U			
P24532OAB	24532 PANAMA AVE	2012-05-09	08:21	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.19 U	<0.19 U			
P24532IAG	24532 PANAMA AVE	2012-05-09	09:20	Garage	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.20 U	<0.20 U			
P24532IAK	24532 PANAMA AVE	2012-05-09	09:20	Kitchen	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.20 U	<0.20 U			
P24532IAB	24532 PANAMA AVE	2012-05-09	09:21	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U			
R24532OAF	24532 RAVENNA AVE	2012-11-15	13:08	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.17 U			
R24532OAB	24532 RAVENNA AVE	2012-11-15	13:13	Outdoor Air	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.2 U	<0.2 U			
R24532IAG	24532 RAVENNA AVE	2012-11-15	14:10	Garage	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<0.24 U	<0.24 U			
R24532IAK	24532 RAVENNA AVE	2012-11-15	14:13	Kitchen	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.18 U			
R24532IAB	24532 RAVENNA AVE	2012-11-15	14:14	Bedroom	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.17 U			
P24533OAF	24533 PANAMA AVE	2012-09-19	08:18	Outdoor Air	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.19 U			
P24533OAB	24533 PANAMA AVE	2012-09-19	08:19	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.17 U			

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kart Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection								
					Hexachloro- 1,3-Butadiene UG/M3	1,1-Dichloro- ethane UG/M3	1,1-Dichloro- ethene UG/M3	trans-1,2- Dichloro- ethene UG/M3	1,3-Dichloro- benzene UG/M3	1,4-Dioxane UG/M3	Carbon Dioxide MOL %	Methane MOL %	
P24533IAK	24533 PANAMA AVE	2012-09-19	09:55	Kitchen	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		< 0.21 U	< 0.21 U	
P24533IAB	24533 PANAMA AVE	2012-09-19	09:56	Bedroom	< 0.24 U	< 0.34 U	< 0.34 U	< 0.34 U	< 0.34 U		< 0.17 U	< 0.17 U	
P24533IAG	24533 PANAMA AVE	2012-09-19	09:56	Garage	< 0.97 U	< 0.97 U	< 0.97 U	< 0.97 U	< 0.97 U		< 0.19 U	< 0.19 U	
R24533OAF	24533 RAVENNA AVE	2012-09-26	08:08	Outdoor Air	< 0.97 U	< 0.97 U	< 0.97 U	< 0.97 U	< 0.97 U		< 0.19 U	< 0.19 U	
R24533OAB	24533 RAVENNA AVE	2012-09-26	08:10	Outdoor Air	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		< 0.2 U	< 0.2 U	
R24533IAB	24533 RAVENNA AVE	2012-09-26	09:10	Bedroom	< 0.95 U	< 0.95 U	< 0.95 U	< 0.95 U	< 0.95 U		< 0.19 U	< 0.19 U	
R24533IAG	24533 RAVENNA AVE	2012-09-26	09:10	Garage	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U		< 0.17 U	< 0.17 U	
R24533IAK	24533 RAVENNA AVE	2012-09-26	09:10	Kitchen	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U		< 0.17 U	< 0.17 U	
M24602OAF	24602 MARBELLA AVE	2012-05-31	08:02	Outdoor Air	< 0.93 U	< 0.93 U	< 0.93 U	< 0.93 U	< 0.93 U		< 0.19 U	< 0.19 U	
M24602OAB	24602 MARBELLA AVE	2012-05-31	08:04	Outdoor Air	< 0.91 U	< 0.91 U	< 0.91 U	< 0.91 U	< 0.91 U		< 0.18 U	< 0.18 U	
M24602IAG	24602 MARBELLA AVE	2012-05-31	09:17	Garage	< 0.95 U	< 0.95 U	< 0.95 U	< 0.95 U	< 0.95 U		< 0.19 U	< 0.19 U	
M24602IAK	24602 MARBELLA AVE	2012-05-31	09:18	Kitchen	< 0.92 U	< 0.92 U	< 0.92 U	< 0.92 U	< 0.92 U		< 0.18 U	< 0.18 U	
M24602IAB	24602 MARBELLA AVE	2012-05-31	09:19	Bedroom	< 0.93 U	< 0.93 U	< 0.93 U	< 0.93 U	< 0.93 U		< 0.19 U	< 0.19 U	
N24602OAB	24602 NEPTUNE AVE	2011-03-03	13:36	Outdoor Air	< 0.58	< 0.58	< 0.58	< 0.58	< 0.58		< 0.13	< 0.13	
N24602OAF	24602 NEPTUNE AVE	2011-03-03	13:39	Outdoor Air	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6		< 0.13	< 0.13	
N24602IAB	24602 NEPTUNE AVE	2011-03-03	14:39	Bedroom	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6		< 0.13	< 0.13	
N24602IAK	24602 NEPTUNE AVE	2011-03-03	14:39	Kitchen	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75		< 0.17	< 0.17	
N24602IAG	24602 NEPTUNE AVE	2011-03-03	14:40	Garage	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7		< 0.16	< 0.16	
N24602OAF	24602 NEPTUNE AVE	2012-06-28	08:11	Outdoor Air	< 0.87 U	< 0.87 U	< 0.87 U	< 0.87 U	< 0.87 U		< 0.17 U	< 0.17 U	
N24602OAB	24602 NEPTUNE AVE	2012-06-28	08:13	Outdoor Air	< 0.85 U	< 0.85 U	< 0.85 U	< 0.85 U	< 0.85 U		< 0.17 U	< 0.17 U	
N24602IAB	24602 NEPTUNE AVE	2012-06-28	09:11	Bedroom	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U		< 0.17 U	< 0.17 U	
N24602IAK	24602 NEPTUNE AVE	2012-06-28	09:12	Kitchen	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		< 0.21 U	< 0.21 U	
N24602IAG	24602 NEPTUNE AVE	2012-06-28	09:13	Garage	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U		< 0.17 U	< 0.17 U	
R24602OAF	24602 RAVENNA AVE	2012-10-04	08:06	Outdoor Air	< 0.85 U	< 0.85 U	< 0.85 U	< 0.85 U	< 0.85 U		< 0.17 U	< 0.17 U	
R24602OAB	24602 RAVENNA AVE	2012-10-04	08:09	Outdoor Air	< 0.88 U	< 0.88 U	< 0.88 U	< 0.88 U	< 0.88 U		< 0.18 U	< 0.18 U	
R24602IAG	24602 RAVENNA AVE	2012-10-04	09:05	Garage	< 0.91 U	< 0.91 U	< 0.91 U	< 0.91 U	< 0.91 U		< 0.18 U	< 0.18 U	
R24602IAK	24602 RAVENNA AVE	2012-10-04	09:06	Kitchen	< 0.91 U	< 0.91 U	< 0.91 U	< 0.91 U	< 0.91 U		< 0.18 U	< 0.18 U	
R24602IAB	24602 RAVENNA AVE	2012-10-04	09:07	Bedroom	< 0.95 U	< 0.95 U	< 0.95 U	< 0.95 U	< 0.95 U		< 0.19 U	< 0.19 U	
M24603-OAF	24603 MARBELLA AVE	2010-01-14	09:05	Outdoor Air	< 0.66	< 0.66	< 0.66	< 0.66	< 0.66		< 0.15	< 0.15	
M24603-OAB	24603 MARBELLA AVE	2010-01-14	09:10	Outdoor Air	< 0.66	< 0.66	< 0.66	< 0.66	< 0.66		< 0.15	< 0.15	
M24603-GA	24603 MARBELLA AVE	2010-01-14	09:16	Garage	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78		< 0.18	< 0.18	
M24603-IAB	24603 MARBELLA AVE	2010-01-14	10:02	Bedroom	< 0.58	< 0.58	< 0.58	< 0.58	< 0.58		< 0.13	< 0.13	
M24603-IAK	24603 MARBELLA AVE	2010-01-14	10:04	Kitchen	< 0.65	< 0.65	< 0.65	< 0.65	< 0.65		< 0.15	< 0.15	
M24603OAF	24603 MARBELLA AVE	2010-01-14	11:32	Outdoor Air	< 0.63	< 0.63	< 0.63	< 0.63	< 0.63		< 0.16	< 0.16	
M24603OAB	24603 MARBELLA AVE	2010-01-14	11:33	Outdoor Air	< 0.66	< 0.66	< 0.66	< 0.66	< 0.66		< 0.15	< 0.15	
M24603IAB	24603 MARBELLA AVE	2010-01-14	12:33	Bedroom	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81		< 0.18	< 0.18	
M24603IAG	24603 MARBELLA AVE	2010-01-14	12:33	Garage	< 0.72	< 0.72	< 0.72	< 0.72	< 0.72		< 0.17	< 0.17	
M24603IAK	24603 MARBELLA AVE	2010-01-14	12:34	Kitchen	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6		< 0.13	< 0.13	
P24603OAF	24603 PANAMA AVE	2012-10-18	08:17	Outdoor Air	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U		< 0.25 U	< 0.25 U	
P24603OAB	24603 PANAMA AVE	2012-10-18	08:19	Outdoor Air	< 0.92 U	< 0.92 U	< 0.92 U	< 0.92 U	< 0.92 U		< 0.18 U	< 0.18 U	
P24603IAG	24603 PANAMA AVE	2012-10-18	09:17	Garage	< 0.92 U	< 0.92 U	< 0.92 U	< 0.92 U	< 0.92 U		< 0.18 U	< 0.18 U	
P24603IAB	24603 PANAMA AVE	2012-10-18	09:18	Bedroom	< 0.73 U	< 0.73 U	< 0.73 U	< 0.73 U	< 0.73 U		< 0.15 U	< 0.15 U	
P24603IAK	24603 PANAMA AVE	2012-10-18	09:19	Kitchen	< 0.93 U	< 0.93 U	< 0.93 U	< 0.93 U	< 0.93 U		< 0.19 U	< 0.19 U	
R24603OAF	24603 RAVENNA AVE	2012-05-31	14:11	Outdoor Air	< 0.87 U	< 0.87 U	< 0.87 U	< 0.87 U	< 0.87 U		< 0.17 U	< 0.17 U	
R24603OAB	24603 RAVENNA AVE	2012-05-31	14:16	Outdoor Air	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U		< 0.17 U	< 0.17 U	
R24603IAG	24603 RAVENNA AVE	2012-05-31	15:11	Garage	< 0.92 U	< 0.92 U	< 0.92 U	< 0.92 U	< 0.92 U		< 0.18 U	< 0.18 U	
R24603IAK	24603 RAVENNA AVE	2012-05-31	15:11	Kitchen	< 0.85 U	< 0.85 U	< 0.85 U	< 0.85 U	< 0.85 U		< 0.17 U	< 0.17 U	
R24603IAB	24603 RAVENNA AVE	2012-05-31	15:12	Bedroom	< 0.99 U	< 0.99 U	< 0.99 U	< 0.99 U	< 0.99 U		< 0.2 U	< 0.2 U	
M24603OAF	24603 MARBELLA AVE	2012-01-12	10:10	Outdoor Air	< 0.78 U	< 0.78 U	< 0.78 U	< 0.78 U	< 0.78 U		< 0.18 U	< 0.18 U	
M24603OAB	24603 MARBELLA AVE	2012-01-12	10:10	Outdoor Air	< 0.78 U	< 0.78 U	< 0.78 U	< 0.78 U	< 0.78 U		< 0.18 U	< 0.18 U	
M24603IAB	24603 MARBELLA AVE	2012-01-12	11:10	Bedroom	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U	< 0.86 U		< 0.21 U	< 0.21 U	
M24603IAG	24603 MARBELLA AVE	2012-01-12	11:10	Garage	< 0.87 U	< 0.87 U	< 0.87 U	< 0.87 U	< 0.87 U		< 0.21 U	< 0.21 U	

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kasi Property
Conson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection									
					Hexachloro- 1,3-Butadiene UG/M3 0.29%	1,1-Dichloro- ethane UG/M3 0.19%	1,1-Dichloro- ethene UG/M3 0.19%	trans-1,2- Dichloro- ethene UG/M3 0.19%	1,3-Dichloro- benzene UG/M3 0.10%	1,4-Dioxane UG/M3 0.00%	Carbon Dioxide MOL % 0.00%	Methane MOL % 0.00%		
M24609FAK	24608 MARBELLA AVE	2012-01-12	11:30	Kitchen	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.19 U	<0.19 U		
N24608OAF	24608 NEPTUNE AVE	2012-05-17	14:06	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U		<0.19 U	<0.19 U		
N24608OAB	24608 NEPTUNE AVE	2012-05-17	14:08	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U		
N24608IAD	24608 NEPTUNE AVE	2012-05-17	14:19	Bedroom	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U		<0.17 U	<0.17 U		
N24608IAC	24608 NEPTUNE AVE	2012-05-17	14:19	Garage	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.16 U	<0.16 U		
N24608IAK	24608 NEPTUNE AVE	2012-05-17	14:19	Kitchen	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U		
P24608OAB	24608 PANAMA AVE	2012-04-05	13:20	Outdoor Air	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U		
P24608OAF	24608 PANAMA AVE	2012-04-05	13:13	Outdoor Air	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U		<0.24 U	<0.24 U		
P24608IAG	24608 PANAMA AVE	2012-04-05	14:10	Garage	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U		<0.19 U	<0.19 U		
P24608IAK	24608 PANAMA AVE	2012-04-05	14:11	Kitchen	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U		<0.2 U	<0.2 U		
P24608IAB	24608 PANAMA AVE	2012-04-05	14:12	Bedroom	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U		<0.18 U	<0.18 U		
R24608OAF	24608 RAVENNA AVE	2012-05-16	13:12	Outdoor Air	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U		<0.19 U	<0.19 U		
R24608OAB	24608 RAVENNA AVE	2012-05-16	13:14	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U		
R24608IAB	24608 RAVENNA AVE	2012-05-16	14:12	Bedroom	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U		<0.19 U	<0.19 U		
R24608IAK	24608 RAVENNA AVE	2012-05-16	14:13	Kitchen	<1.3 U	<1.3 U	<1.3 U	<1.3 U	<1.3 U		<0.27 U	<0.27 U		
R24608IAG	24608 RAVENNA AVE	2012-05-16	14:14	Garage	<1 U	<1 U	<1 U	<1 U	<1 U		<0.2 U	<0.2 U		
N24609OAF	24609 NEPTUNE AVE	2010-12-09	13:13	Outdoor Air	<0.73	<0.73	<0.73	<0.73	<0.73		<0.17	<0.17		
N24609OAB	24609 NEPTUNE AVE	2010-12-09	13:15	Outdoor Air	<0.66	<0.66	<0.66	<0.66	<0.66		<0.15	<0.15		
N24609IAC	24609 NEPTUNE AVE	2010-12-09	14:16	Garage	<0.71	<0.71	<0.71	<0.71	<0.71		<0.16	<0.16		
N24609IAB	24609 NEPTUNE AVE	2010-12-09	14:17	Bedroom	<0.6	<0.6	<0.6	<0.6	<0.6		<0.13	<0.13		
N24609IAC	24609 NEPTUNE AVE	2010-12-09	14:17	Kitchen	<0.63	<0.63	<0.63	<0.63	<0.63		<0.14	<0.14		
P24609OAB	24609 PANAMA AVE	2011-02-17	08:11	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68		<0.15	<0.15		
P24609OAF	24609 PANAMA AVE	2011-02-17	08:13	Outdoor Air	<0.69	<0.69	<0.69	<0.69	<0.69		<0.16	<0.16		
P24609IAC	24609 PANAMA AVE	2011-02-17	09:35	Kitchen	<0.65	<0.65	<0.65	<0.65	<0.65		<0.15	<0.15		
P24609IAB	24609 PANAMA AVE	2011-02-17	09:34	Bedroom	<0.68	<0.68	<0.68	<0.68	<0.68		<0.15	<0.15		
P24609IAG	24609 PANAMA AVE	2011-02-17	09:36	Garage	<0.65	<0.65	<0.65	<0.65	<0.65		<0.15	<0.15		
R24609OAF	24609 RAVENNA AVE	2012-09-20	13:10	Outdoor Air	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U		<0.19 U	<0.19 U		
R24609OAB	24609 RAVENNA AVE	2012-09-20	13:11	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U		
R24609IAK	24609 RAVENNA AVE	2012-09-20	14:10	Kitchen	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U		
R24609IAB	24609 RAVENNA AVE	2012-09-20	14:11	Bedroom	<1 U	<1 U	<1 U	<1 U	<1 U		<0.2 U	<0.2 U		
R24609IAG	24609 RAVENNA AVE	2012-09-20	14:12	Garage	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.19 U	<0.19 U		
M24612OAF	24612 MARBELLA AVE	2012-05-09	13:07	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.15 U	<0.15 U		
M24612OAB	24612 MARBELLA AVE	2012-05-09	13:09	Outdoor Air	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U		<0.16 U	<0.16 U		
M24612IAB	24612 MARBELLA AVE	2012-05-09	14:09	Bedroom	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.15 U	<0.15 U		
M24612IAK	24612 MARBELLA AVE	2012-05-09	14:09	Kitchen	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U		
M24612IAG	24612 MARBELLA AVE	2012-05-09	14:10	Garage	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.15 U	<0.15 U		
N24612OAB	24612 NEPTUNE AVE	2011-03-10	13:14	Outdoor Air	<0.77	<0.77	<0.77	<0.77	<0.77		<0.18	<0.18		
N24612OAF	24612 NEPTUNE AVE	2011-03-10	13:16	Outdoor Air	<0.81	<0.81	<0.81	<0.81	<0.81		<0.19	<0.19		
N24612IAB	24612 NEPTUNE AVE	2011-03-10	14:23	Garage	<0.69	<0.69	<0.69	<0.69	<0.69		<0.16	<0.16		
N24612IAK	24612 NEPTUNE AVE	2011-03-10	14:25	Kitchen	<0.77	<0.77	<0.77	<0.77	<0.77		<0.18	<0.18		
N24612IAB	24612 NEPTUNE AVE	2011-03-10	14:26	Bedroom	<0.83	<0.83	<0.83	<0.83	<0.83		<0.2	<0.2		
B24612OAF	24612 RAVENNA AVE	2012-10-31	13:03	Outdoor Air	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.17 U	<0.17 U		
B24612OAB	24612 RAVENNA AVE	2012-10-31	13:05	Outdoor Air	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U		<0.18 U	<0.18 U		
R24612IAB	24612 RAVENNA AVE	2012-10-31	14:05	Bedroom	<1 U	<1 U	<1 U	<1 U	<1 U		<0.2 U	<0.2 U		
R24612IAG	24612 RAVENNA AVE	2012-10-31	14:05	Garage	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U		
R24612IAK	24612 RAVENNA AVE	2012-10-31	14:06	Kitchen	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U		<0.2 U	<0.2 U		
M24613OAB	24613 MARBELLA AVE	2012-10-10	08:30	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U		<0.18 U	<0.18 U		
M24613OAF	24613 MARBELLA AVE	2012-10-10	08:34	Outdoor Air	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U		<0.17 U	<0.17 U		
M24613IAB	24613 MARBELLA AVE	2012-10-10	09:45	Bedroom	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U		<0.17 U	<0.17 U		
M24613IAG	24613 MARBELLA AVE	2012-10-10	09:46	Garage	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U		<0.18 U	<0.18 U		
M24613IAK	24613 MARBELLA AVE	2012-10-10	09:46	Kitchen	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U		<0.19 U	<0.19 U		
N24613OAF	24613 NEPTUNE AVE	2012-05-10	08:00	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.16 U	<0.16 U		

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kasi Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection									
					Hexachloro- 1,3-Butadiene UG/M3	1,1-Dichloro- ethane UG/M3	1,1-Dichloro- ethene UG/M3	trans-1,2- Dichloro- ethene UG/M3	1,3-Dichloro- benzene UG/M3	1,4-Dioxane UG/M3	Carbon Dioxide MCL %	Methane MCL %		
N24613OAB	24613 NEPTUNE AVE	2012-05-10	08:00	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.16 U	<0.16 U		
N24613IAB	24613 NEPTUNE AVE	2012-05-10	09:00	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.16 U	<0.16 U		
N24613IAG	24613 NEPTUNE AVE	2012-05-10	09:00	Garage	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.14 U	<0.14 U		
N24613IAK	24613 NEPTUNE AVE	2012-05-10	09:01	Kitchen	<1.2 U	<1.2 U	<1.2 U	<1.2 U	<1.2 U	<1.2 U	<0.21 U	<0.21 U		
P24613OAB	24613 PANAMA AVE	2011-02-09	08:19	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.19 U	<0.19 U		
P24613OAF	24613 PANAMA AVE	2011-02-09	08:20	Outdoor Air	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.16 U	<0.16 U		
P24613IAB	24613 PANAMA AVE	2011-02-09	09:24	Bedroom	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.12 U	<0.12 U		
P24613IAK	24613 PANAMA AVE	2011-02-09	09:24	Kitchen	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.14 U	<0.14 U		
P24613IAG	24613 PANAMA AVE	2011-02-09	09:27	Garage	<0.59 U	<0.59 U	<0.59 U	<0.59 U	<0.59 U	<0.59 U	<0.13 U	<0.13 U		
P24613OAF	24613 PANAMA AVE	2012-09-12	13:07	Outdoor Air	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.17 U	<0.17 U		
P24613OAF	24613 PANAMA AVE	2012-09-12	13:07	Outdoor Air	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.19 U		
P24613IAG	24613 PANAMA AVE	2012-09-12	14:06	Garage	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.19 U		
P24613IAB	24613 PANAMA AVE	2012-09-12	14:09	Bedroom	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.16 U		
P24613IAK	24613 PANAMA AVE	2012-09-12	14:09	Kitchen	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.17 U		
P24613OAB	24613 RAVENNA AVE	2011-05-19	08:00	Outdoor Air	<0.67 U	<0.67 U	<0.67 U	<0.67 U	<0.67 U	<0.67 U	<0.15 U	<0.15 U		
P24613OAF	24613 RAVENNA AVE	2011-05-19	08:00	Outdoor Air	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.19 U	<0.19 U		
P24613IAB	24613 RAVENNA AVE	2011-05-19	09:12	Bedroom	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.17 U	<0.17 U		
P24613IAK	24613 RAVENNA AVE	2011-05-19	09:12	Kitchen	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.17 U	<0.17 U		
P24613IAG	24613 RAVENNA AVE	2011-05-19	09:14	Garage	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.14 U	<0.14 U		
M24618OAB	24616 MARBELLA AVE	2011-03-17	13:05	Outdoor Air	<0.66 U	<0.66 U	<0.66 U	<0.66 U	<0.66 U	<0.66 U	<0.15 U	<0.15 U		
M24618OAF	24616 MARBELLA AVE	2011-03-17	13:05	Outdoor Air	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.65 U	<0.15 U	<0.15 U		
M24618IAG	24616 MARBELLA AVE	2011-03-17	14:06	Garage	<0.59 U	<0.59 U	<0.59 U	<0.59 U	<0.59 U	<0.59 U	<0.13 U	<0.13 U		
M24618IAK	24616 MARBELLA AVE	2011-03-17	14:07	Kitchen	<0.59 U	<0.59 U	<0.59 U	<0.59 U	<0.59 U	<0.59 U	<0.13 U	<0.13 U		
M24618IAB	24616 MARBELLA AVE	2011-03-17	14:08	Bedroom	<0.64 U	<0.64 U	<0.64 U	<0.64 U	<0.64 U	<0.64 U	<0.14 U	<0.14 U		
M24617OAF	24617 MARBELLA AVE	2012-09-02	08:04	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
M24617OAB	24617 MARBELLA AVE	2012-09-02	08:06	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.21 U	<0.21 U		
M24617IAG	24617 MARBELLA AVE	2012-09-02	09:04	Garage	<1.3 U	<1.3 U	<1.3 U	<1.3 U	<1.3 U	<1.3 U	<0.26 U	<0.26 U		
M24617IAK	24617 MARBELLA AVE	2012-09-02	09:05	Kitchen	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.16 U		
M24617IAB	24617 MARBELLA AVE	2012-09-02	09:06	Bedroom	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.17 U		
N24618OAB	24618 NEPTUNE AVE	2011-01-26	13:17	Outdoor Air	<0.61 U	<0.61 U	<0.61 U	<0.61 U	<0.61 U	<0.61 U	<0.13 U	<0.13 U		
N24618OAF	24618 NEPTUNE AVE	2011-01-26	13:18	Outdoor Air	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.14 U	<0.14 U		
N24618IAB	24618 NEPTUNE AVE	2011-01-26	14:20	Bedroom	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.12 U	<0.12 U		
N24618IAK	24618 NEPTUNE AVE	2011-01-26	14:21	Kitchen	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.14 U	<0.14 U		
N24618IAG	24618 NEPTUNE AVE	2011-01-26	14:22	Garage	<0.6 U	<0.6 U	<0.6 U	<0.6 U	<0.6 U	<0.6 U	<0.15 U	<0.15 U		
N24618OAF	24618 NEPTUNE AVE	2012-07-26	13:11	Outdoor Air	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.17 U		
N24618OAB	24618 NEPTUNE AVE	2012-07-26	13:12	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.17 U		
N24618IAB	24618 NEPTUNE AVE	2012-07-26	14:11	Bedroom	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.17 U		
N24618IAK	24618 NEPTUNE AVE	2012-07-26	14:11	Kitchen	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U		
N24618IAG	24618 NEPTUNE AVE	2012-07-26	14:13	Garage	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.18 U		
P24618OAF	24618 PANAMA AVE	2012-04-18	13:43	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.18 U	<0.18 U		
P24618OAB	24618 PANAMA AVE	2012-04-18	13:44	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U		
P24618IAK	24618 PANAMA AVE	2012-04-18	14:01	Kitchen	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.21 U	<0.21 U		
P24618IAB	24618 PANAMA AVE	2012-04-18	14:42	Bedroom	<0.67 U	<0.67 U	<0.67 U	<0.67 U	<0.67 U	<0.67 U	<0.15 U	<0.15 U		
P24618IAG	24618 PANAMA AVE	2012-04-18	14:43	Garage	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.16 U	<0.16 U		
N24619OAF	24619 NEPTUNE AVE	2012-07-12	08:51	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.17 U		
N24619OAB	24619 NEPTUNE AVE	2012-07-12	08:53	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U		
N24619IAK	24619 NEPTUNE AVE	2012-07-12	09:08	Kitchen	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.18 U		
N24619IAB	24619 NEPTUNE AVE	2012-07-12	09:09	Bedroom	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U		
N24619IAG	24619 NEPTUNE AVE	2012-07-12	09:12	Garage	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.18 U		
P24619OAB	24619 PANAMA AVE	2011-02-10	13:30	Outdoor Air	<0.66 U	<0.66 U	<0.66 U	<0.66 U	<0.66 U	<0.66 U	<0.15 U	<0.15 U		
P24619OAF	24619 PANAMA AVE	2011-02-10	13:11	Outdoor Air	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.63 U	<0.14 U	<0.14 U		
P24619IAG	24619 PANAMA AVE	2011-02-10	14:13	Garage	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.15 U	<0.15 U		

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kast Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection								
					Analyte Units	Hexachloro-1,3-butadiene UG/M3	1,1-Dichloroethane UG/M3	1,1-Dichloroethene UG/M3	trans-1,2-Dichloroethene UG/M3	1,3-Dichlorobenzene UG/M3	1,4-Dioxane UG/M3	Carbon Dioxide MOL %	Methane MOL %
P24619A0A	24619 PANAMA AVE	2011-02-10	14:14	Bedroom	<0.67	<0.67	<0.67	<0.67	<0.67			<0.15	<0.15
P24619A0B	24619 PANAMA AVE	2011-02-10	14:14	Kitchen	<0.64	<0.64	<0.64	<0.64	<0.64			<0.14	<0.14
P24619A0C	24619 PANAMA AVE	2011-12-07	13:14	Outdoor Air	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U			<0.18 U	<0.18 U
P24619A0F	24619 PANAMA AVE	2011-12-07	13:14	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U			<0.18 U	<0.18 U
P24619A0E	24619 PANAMA AVE	2011-12-07	14:14	Bedroom	<0.64 U	<0.64 U	<0.64 U	<0.64 U	<0.64 U			<0.14 U	<0.14 U
P24619A0G	24619 PANAMA AVE	2011-12-07	14:14	Garage	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U			<0.19 U	<0.19 U
P24619A0H	24619 PANAMA AVE	2011-12-07	14:14	Kitchen	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U			<0.15 U	<0.15 U
M24622A0A	24622 MARBELLA AVE	2012-11-15	08:10	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U			<0.18 U	<0.18 U
M24622A0B	24622 MARBELLA AVE	2012-11-15	08:12	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U			<0.16 U	<0.16 U
M24622A0C	24622 MARBELLA AVE	2012-11-15	09:10	Bedroom	<0.83 U	<0.83 U	<0.83 U	0.84	<0.83 U			<0.17 U	<0.17 U
M24622A0D	24622 MARBELLA AVE	2012-11-15	09:10	Garage	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U			<0.19 U	<0.19 U
M24622A0E	24622 MARBELLA AVE	2012-11-15	09:11	Kitchen	<0.98 U	<0.98 U	<0.98 U	0.85	<0.98 U			<0.2 U	<0.2 U
M24622A0F	24622 NEPTUNE AVE	2012-03-29	09:41	Outdoor Air	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U			<0.17 U	<0.17 U
M24622A0G	24622 NEPTUNE AVE	2012-03-29	09:41	Outdoor Air	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U			<0.18 U	<0.18 U
M24622A0H	24622 NEPTUNE AVE	2012-03-29	10:12	Bedroom	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U			<0.18 U	<0.18 U
M24622A0I	24622 NEPTUNE AVE	2012-03-29	10:16	Kitchen	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U			<0.18 U	<0.18 U
M24622A0J	24622 NEPTUNE AVE	2012-03-29	10:17	Garage	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U			<0.18 U	<0.18 U
M24623A0A	24623 MARBELLA AVE	2011-01-27	13:14	Outdoor Air	<0.67	<0.67	<0.67	<0.67	<0.67			<0.15	<0.15
M24623A0B	24623 MARBELLA AVE	2011-01-27	13:15	Outdoor Air	<0.71	<0.71	<0.71	<0.71	<0.71			<0.16	<0.16
M24623A0C	24623 MARBELLA AVE	2011-01-27	14:15	Garage	<0.71	<0.71	<0.71	<0.71	<0.71			<0.16	<0.16
M24623A0D	24623 MARBELLA AVE	2011-01-27	14:15	Bedroom	<0.65	<0.65	<0.65	<0.65	<0.65			<0.15	<0.15
M24623A0E	24623 MARBELLA AVE	2011-01-27	14:17	Kitchen	<0.63	<0.63	<0.63	<0.63	<0.63			<0.14	<0.14
M24623A0F	24623 NEPTUNE AVE	2011-03-30	08:12	Outdoor Air	<0.71	<0.71	<0.71	<0.71	<0.71			<0.16	<0.16
M24623A0G	24623 NEPTUNE AVE	2011-03-30	08:15	Outdoor Air	<0.71	<0.71	<0.71	<0.71	<0.71			<0.16	<0.16
M24623A0H	24623 NEPTUNE AVE	2011-03-30	09:24	Bedroom	<0.75	<0.75	<0.75	<0.75	<0.75			<0.18	<0.18
M24623A0I	24623 NEPTUNE AVE	2011-03-30	09:24	Kitchen	<0.59	<0.59	<0.59	<0.59	<0.59			<0.21	<0.21
M24623A0J	24623 NEPTUNE AVE	2011-03-30	09:27	Garage	<0.66	<0.66	<0.66	<0.66	<0.66			<0.15	<0.15
M24627A0A	24627 MARBELLA AVE	2012-09-10	13:05	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U			<0.15 U	<0.15 U
M24627A0B	24627 MARBELLA AVE	2012-09-10	13:08	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U			<0.15 U	<0.15 U
M24627A0C	24627 MARBELLA AVE	2012-09-10	14:06	Garage	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U			<0.16 U	<0.16 U
M24627A0D	24627 MARBELLA AVE	2012-09-10	14:07	Kitchen	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U			<0.17 U	<0.17 U
M24627A0E	24627 MARBELLA AVE	2012-09-10	14:08	Bedroom	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U			<0.16 U	<0.16 U
M24628A0A	24628 MARBELLA AVE	2011-06-22	08:04	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U			<0.19 U	<0.19 U
M24628A0B	24628 MARBELLA AVE	2011-06-22	08:05	Outdoor Air	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U			<0.2 U	<0.2 U
M24628A0C	24628 MARBELLA AVE	2011-06-22	09:07	Bedroom	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U			<0.17 U	<0.17 U
M24628A0D	24628 MARBELLA AVE	2011-06-22	09:07	Garage	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U			<0.17 U	<0.17 U
M24628A0E	24628 MARBELLA AVE	2011-06-22	09:08	Kitchen	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U			<0.16 U	<0.16 U
M24628A0F	24628 MARBELLA AVE	2011-10-26	11:12	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U			<0.16 U	<0.16 U
M24628A0G	24628 MARBELLA AVE	2011-10-26	11:13	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U			<0.15 U	<0.15 U
M24628A0H	24628 MARBELLA AVE	2011-10-26	12:13	Bedroom	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U			<0.14 U	<0.14 U
M24628A0I	24628 MARBELLA AVE	2011-10-26	12:13	Garage	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U			<0.17 U	<0.17 U
M24628A0J	24628 MARBELLA AVE	2011-10-26	12:13	Kitchen	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U			<0.14 U	<0.14 U
M24629A0A	24629 NEPTUNE AVE	2011-02-02	13:13	Outdoor Air	<0.73	<0.73	<0.73	<0.73	<0.73			<0.17	<0.17
M24629A0B	24629 NEPTUNE AVE	2011-02-02	13:14	Outdoor Air	<0.73	<0.73	<0.73	<0.73	<0.73			<0.17	<0.17
M24629A0C	24629 NEPTUNE AVE	2011-02-02	13:18	Bedroom	<0.91	<0.91	<0.91	<0.91	<0.91			<0.22	<0.22
M24629A0D	24629 NEPTUNE AVE	2011-02-02	14:19	Kitchen	<0.61	<0.61	<0.61	<0.61	<0.61			<0.14	<0.14
M24629A0E	24629 NEPTUNE AVE	2011-02-02	14:20	Garage	<0.71	<0.71	<0.71	<0.71	<0.71			<0.16	<0.16
P24702D0A	24702 PANAMA AVE	2011-02-23	13:00	Outdoor Air	<0.64	<0.64	<0.64	<0.64	<0.64			<0.14	<0.14
P24702D0F	24702 PANAMA AVE	2011-02-23	13:01	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68			<0.15	<0.15
P24702D0K	24702 PANAMA AVE	2011-02-23	14:09	Kitchen	<0.65	<0.65	<0.65	<0.65	<0.65			<0.15	<0.15
P24702D0B	24702 PANAMA AVE	2011-02-23	14:10	Bedroom	<0.59	<0.59	<0.59	<0.59	<0.59			<0.13	<0.13
P24702D0G	24702 PANAMA AVE	2011-02-23	14:13	Garage	<0.64	<0.64	<0.64	<0.64	<0.64			<0.14	<0.14

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kati Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection									
					Analyte Units	Hexachloro-1,3-Butadiene UG/M3	1,1-Dichloro-ethane UG/M3	1,1-Dichloro-ethene UG/M3	trans-1,2-Dichloro-ethene UG/M3	1,3-Dichloro-benzene UG/M3	1,4-Dioxane UG/M3	Carbon Dioxide MOL %	Methane MOL %	
M24703CAB	24703 MARBELLA AVE	2012-04-19	13:07	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U	
M24703CAF	24703 MARBELLA AVE	2012-04-19	13:09	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.18 U	<0.18 U	
M24703IAB	24703 MARBELLA AVE	2012-04-19	14:07	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U		
M24703IAG	24703 MARBELLA AVE	2012-04-19	14:08	Garage -	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.22 U	<0.22 U		
M24703IAX	24703 MARBELLA AVE	2012-04-19	14:08	Kitchen	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.19 U	<0.19 U		
M24707CAF	24707 MARBELLA AVE	2012-09-06	08:40	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.21 U	<0.21 U		
M24707COB	24707 MARBELLA AVE	2012-09-06	08:42	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
M24707IAG	24707 MARBELLA AVE	2012-09-06	09:40	Garage	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
M24707IAB	24707 MARBELLA AVE	2012-09-06	09:41	Bedroom	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.18 U		
M24707IAC	24707 MARBELLA AVE	2012-09-06	09:42	Kitchen	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
P24708OAB	24708 PANAMA AVE	2012-08-15	08:21	Outdoor Air	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.15 U	<0.15 U		
P24708OAF	24708 PANAMA AVE	2012-08-15	08:24	Outdoor Air	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.19 U		
P24708IAB	24708 PANAMA AVE	2012-08-15	09:25	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U		
P24708IAC	24708 PANAMA AVE	2012-08-15	09:25	Kitchen	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.19 U		
P24708IAG	24708 PANAMA AVE	2012-08-15	09:27	Garage	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.19 U		
N24709OAF	24709 NEPTUNE AVE	2012-08-09	08:26	Outdoor Air	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.17 U		
N24709OAB	24709 NEPTUNE AVE	2012-08-09	08:28	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U		
N24709IAG	24709 NEPTUNE AVE	2012-08-09	09:25	Garage	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
N24709IAB	24709 NEPTUNE AVE	2012-08-09	09:27	Bedroom	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.2 U	<0.2 U		
N24709IAC	24709 NEPTUNE AVE	2012-08-09	09:27	Kitchen	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U		
P24709OAF	24709 PANAMA AVE	2012-03-07	13:58	Outdoor Air	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.16 U	<0.16 U		
P24709OAB	24709 PANAMA AVE	2012-03-07	14:00	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U		
P24709IAB	24709 PANAMA AVE	2012-03-07	14:55	Bedroom	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.16 U	<0.16 U		
P24709IAC	24709 PANAMA AVE	2012-03-07	14:56	Kitchen	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.16 U	<0.16 U		
P24709IAD	24709 PANAMA AVE	2012-03-07	14:57	Garage	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.17 U	<0.17 U		
M24710CAF	24710 MARBELLA AVE	2012-05-02	13:50	Outdoor Air	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.18 U		
M24710CAD	24710 MARBELLA AVE	2012-05-02	13:54	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.17 U		
M24710IAG	24710 MARBELLA AVE	2012-05-02	14:35	Garage	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
M24710IAB	24710 MARBELLA AVE	2012-05-02	14:38	Kitchen	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
M24710IAB	24710 MARBELLA AVE	2012-05-02	14:40	Bedroom	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.19 U		
P24712DAB	24712 PANAMA AVE	2011-02-24	13:18	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15		
P24712DAF	24712 PANAMA AVE	2011-02-24	13:19	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15		
P24712IAB	24712 PANAMA AVE	2011-02-24	14:23	Bedroom	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.14	<0.14		
P24712IAC	24712 PANAMA AVE	2011-02-24	14:23	Garage	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.15	<0.15		
P24712IAD	24712 PANAMA AVE	2011-02-24	14:24	Kitchen	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.15	<0.15		
R24712DAB	24712 RAVENNA AVE	2011-06-09	08:13	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.25 U	<0.25 U		
R24712DAF	24712 RAVENNA AVE	2011-06-09	09:14	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.18 U	<0.18 U		
R24712IAC	24712 RAVENNA AVE	2011-06-09	10:30	Kitchen	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.19 U	<0.19 U		
R24712IAB	24712 RAVENNA AVE	2011-06-09	10:31	Bedroom	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.17 U	<0.17 U		
R24712IAG	24712 RAVENNA AVE	2011-06-09	10:34	Garage	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.68 U	<0.16 U	<0.16 U		
N24715IAB	24715 NEPTUNE AVE	2011-02-17	00:00	Bedroom	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.14	<0.14		
N24715IAB	24715 NEPTUNE AVE	2011-02-17	00:00	Garage	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.22	<0.22		
N24715IAC	24715 NEPTUNE AVE	2011-02-17	00:00	Kitchen	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.14	<0.14		
N24715OAB	24715 NEPTUNE AVE	2011-02-17	00:00	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15		
N24715OAF	24715 NEPTUNE AVE	2011-02-17	00:00	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15		
M24716OAF	24716 MARBELLA AVE	2012-05-23	08:11	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U		
M24716OAB	24716 MARBELLA AVE	2012-05-23	08:13	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U		
M24716IAC	24716 MARBELLA AVE	2012-05-23	09:14	Kitchen	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.18 U		
M24716IAB	24716 MARBELLA AVE	2012-05-23	09:15	Bedroom	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.17 U		
M24716IAB	24716 MARBELLA AVE	2012-05-23	09:16	Garage	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.17 U		
R24716OAB	24716 RAVENNA AVE	2012-02-29	09:37	Outdoor Air	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.17 U	<0.17 U		
R24716OAF	24716 RAVENNA AVE	2012-02-29	09:38	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.18 U	<0.18 U		

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kist Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection	Analyte		1,1-Dichloro-ethene	trans-1,2-Dichloro-ethene	1,3-Dichloro-benzene	1,4-Dioxane	Carbon Dioxide	Methane
						Units	UG/M3						
						1,3-Butadiene	1,1-Dichloro-ethene	1,1-Dichloro-ethene	trans-1,2-Dichloro-ethene	1,3-Dichloro-benzene	1,4-Dioxane	Carbon Dioxide	Methane
						0.29%	0.19%	0.19%	0.19%	0.10%	0.00%	0.00%	0.00%
R24719AG	24716 RAVENNA AVE	2012-02-23	10:37	Garage	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.17 U	<0.17 U
R24719AK	24716 RAVENNA AVE	2012-02-23	10:38	Kitchen	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U
R24719AB	24716 RAVENNA AVE	2012-02-23	10:39	Bedroom	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.18 U	<0.18 U
M24717OAF	24717 MARBELLA AVE	2012-07-25	08:10	Outdoor Air	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.18 U
M24717OAB	24717 MARBELLA AVE	2012-07-25	08:13	Outdoor Air	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.2 U	<0.2 U
M24717IAB	24717 MARBELLA AVE	2012-07-25	09:14	Bedroom	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.2 U	<0.2 U
M24717IAG	24717 MARBELLA AVE	2012-07-25	09:14	Garage	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U
M24717IAC	24717 MARBELLA AVE	2012-07-25	09:14	Kitchen	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U
N24718OAB	24718 NEPTUNE AVE	2012-02-23	08:23	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.18 U	<0.18 U
N24718OAF	24718 NEPTUNE AVE	2012-02-23	08:01	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.18 U	<0.18 U
N24718IAB	24718 NEPTUNE AVE	2012-02-23	09:18	Bedroom	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.17 U	<0.17 U
N24718IAC	24718 NEPTUNE AVE	2012-02-23	09:18	Kitchen	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U
N24718IAG	24718 NEPTUNE AVE	2012-02-23	09:19	Garage	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.18 U	<0.18 U
P24719OAF	24719 PANAMA AVE	2012-10-17	08:15	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.15 U	<0.15 U
P24719OAB	24719 PANAMA AVE	2012-10-17	08:15	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U
P24719IAB	24719 PANAMA AVE	2012-10-17	09:13	Garage	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.15 U	<0.15 U
P24719IAC	24719 PANAMA AVE	2012-10-17	09:14	Bedroom	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.17 U
P24719IAD	24719 PANAMA AVE	2012-10-17	09:14	Kitchen	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.2 U	<0.2 U
N24719OAF	24719 NEPTUNE AVE	2012-07-18	13:12	Outdoor Air	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.17 U
N24719OAB	24719 NEPTUNE AVE	2012-07-18	13:15	Outdoor Air	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.18 U
N24719IAG	24719 NEPTUNE AVE	2012-07-18	14:13	Garage	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U
N24719IAB	24719 NEPTUNE AVE	2012-07-18	14:14	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.16 U
N24719IAC	24719 NEPTUNE AVE	2012-07-18	14:14	Kitchen	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.2 U	<0.2 U
P24719OAB	24719 PANAMA AVE	2012-09-27	08:08	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U
P24719OAF	24719 PANAMA AVE	2012-09-27	08:08	Outdoor Air	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<0.24 U	<0.24 U
P24719IAB	24719 PANAMA AVE	2012-09-27	09:12	Bedroom	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.16 U	<0.16 U
P24719IAC	24719 PANAMA AVE	2012-09-27	09:13	Garage	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U
P24719IAD	24719 PANAMA AVE	2012-09-27	09:13	Kitchen	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.19 U
R24719OAF	24719 RAVENNA AVE	2012-11-28	08:14	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.16 U
R24719OAB	24719 RAVENNA AVE	2012-11-28	08:15	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.16 U
R24719IAB	24719 RAVENNA AVE	2012-11-28	09:15	Kitchen	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U
R24719IAC	24719 RAVENNA AVE	2012-11-28	09:17	Remodeled Garage	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U
R24719IAD	24719 RAVENNA AVE	2012-11-28	09:20	Bedroom	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.19 U
M24722OAF	24722 MARBELLA AVE	2012-06-06	08:16	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U
M24722OAB	24722 MARBELLA AVE	2012-06-06	08:18	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U
M24722IAB	24722 MARBELLA AVE	2012-06-06	09:16	Garage	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.2 U	<0.2 U
M24722IAC	24722 MARBELLA AVE	2012-06-06	09:17	Bedroom	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.17 U
M24722IAD	24722 MARBELLA AVE	2012-06-06	09:17	Kitchen	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U
N24722OAB	24722 NEPTUNE AVE	2012-04-12	13:08	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U
N24722OAF	24722 NEPTUNE AVE	2012-04-12	13:10	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.19 U	<0.19 U
N24722IAB	24722 NEPTUNE AVE	2012-04-12	14:10	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U
N24722IAC	24722 NEPTUNE AVE	2012-04-12	14:10	Garage	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.19 U	<0.19 U
N24722IAD	24722 NEPTUNE AVE	2012-04-12	14:10	Kitchen	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.2 U	<0.2 U
P24722OAF	24722 PANAMA AVE	2012-04-25	08:08	Outdoor Air	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.19 U	<0.19 U
P24722OAB	24722 PANAMA AVE	2012-04-25	08:09	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U
P24722IAG	24722 PANAMA AVE	2012-04-25	09:12	Garage	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.23 U	<0.23 U
P24722IAB	24722 PANAMA AVE	2012-04-25	09:14	Bedroom	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.19 U	<0.19 U
P24722IAC	24722 PANAMA AVE	2012-04-25	09:15	Kitchen	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U
R24722OAF	24722 RAVENNA AVE	2012-11-08	13:06	Outdoor Air	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.18 U
R24722OAB	24722 RAVENNA AVE	2012-11-08	13:08	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U
R24722IAG	24722 RAVENNA AVE	2012-11-08	14:05	Garage	<1 U	0.21 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U
R24722IAC	24722 RAVENNA AVE	2012-11-08	14:06	Kitchen	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kait Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection									
					Hexachloro- 1,3-Butadiene UG/M3	1,1-Dichloro- ethane UG/M3	1,1-Dichloro- ethene UG/M3	trans-1,2- Dichloro- ethene UG/M3	1,3-Dichloro- benzene UG/M3	1,4-Dioxane UG/M3	Carbon Dioxide MOL %	Methane MOL %		
R24721AB	24723 RAVENNA AVE	2012-11-08	14:07	Bedroom	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.19 U		
M247230AB	24723 MARBELLA AVE	2012-06-20	13:15	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.17 U		
M24723CAF	24723 MARBELLA AVE	2012-06-20	13:15	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.17 U		
M24723IAG	24723 MARBELLA AVE	2012-06-20	14:17	Garage	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<0.22 U	<0.22 U		
M24723IAB	24723 MARBELLA AVE	2012-06-20	14:18	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U		
M24723IAC	24723 MARBELLA AVE	2012-06-20	14:18	Kitchen	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<0.21 U	<0.21 U		
R24723OAF	24723 RAVENNA AVE	2012-11-07	08:06	Outdoor Air	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.19 U		
R24723OAB	24723 RAVENNA AVE	2012-11-07	08:08	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
R24723IAG	24723 RAVENNA AVE	2012-11-07	09:06	Garage	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.18 U		
R24723IAC	24723 RAVENNA AVE	2012-11-07	09:10	Kitchen	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.14 U	<0.14 U		
R24723IAB	24723 RAVENNA AVE	2012-11-07	09:11	Bedroom	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.18 U		
N24723OAF	24723 NEPTUNE AVE	2012-06-21	13:10	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U		
N24723OAB	24723 NEPTUNE AVE	2012-06-21	13:12	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
N24723IAG	24723 NEPTUNE AVE	2012-06-21	14:10	Garage	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U		
N24723IAB	24723 NEPTUNE AVE	2012-06-21	14:12	Bedroom	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.19 U		
N24723IAC	24723 NEPTUNE AVE	2012-06-21	14:12	Kitchen	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.2 U	<0.2 U		
M24726CAF	24726 MARBELLA AVE	2012-12-13	13:11	Outdoor Air	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.19 U		
M24726OAB	24726 MARBELLA AVE	2012-12-13	13:13	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U		
M24726IAC	24726 MARBELLA AVE	2012-12-13	14:19	Kitchen	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<0.21 U	<0.21 U		
M24726IAB	24726 MARBELLA AVE	2012-12-13	14:20	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.16 U		
M24726IAG	24726 MARBELLA AVE	2012-12-13	14:20	Garage	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.2 U	<0.2 U		
R24726OAF	24726 RAVENNA AVE	2012-12-19	13:08	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.16 U		
R24726OAB	24726 RAVENNA AVE	2012-12-19	13:11	Outdoor Air	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.17 U		
R24726IAGM	24726 RAVENNA AVE	2012-12-19	14:09	Remodeled Garage	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.16 U		
R24726IAC	24726 RAVENNA AVE	2012-12-19	14:10	Kitchen	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.17 U		
R24726IAB	24726 RAVENNA AVE	2012-12-19	14:11	Bedroom	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.17 U	<0.17 U		
P24728CAF	24728 PANAMA AVE	2012-11-01	08:20	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U		
P24728OAB	24728 PANAMA AVE	2012-11-01	08:27	Outdoor Air	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.15 U	<0.15 U		
P24728IAG	24728 PANAMA AVE	2012-11-01	09:20	Garage	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.16 U		
P24728IAC	24728 PANAMA AVE	2012-11-01	09:20	Kitchen	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.18 U		
P24728IAB	24728 PANAMA AVE	2012-11-01	09:21	Bedroom	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.18 U		
N24729IAB	24729 NEPTUNE AVE	2012-10-18	10:07	Bedroom	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.17 U		
N24729OAF	24729 NEPTUNE AVE	2012-10-18	13:05	Outdoor Air	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.2 U	<0.2 U		
N24729OAB	24729 NEPTUNE AVE	2012-10-18	13:07	Outdoor Air	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.19 U	<0.19 U		
N24729IAG	24729 NEPTUNE AVE	2012-10-18	14:05	Garage	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U		
N24729IAC	24729 NEPTUNE AVE	2012-10-18	14:05	Kitchen	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.19 U		
R24729OAF	24729 RAVENNA AVE	2012-08-23	13:04	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.17 U		
R24729OAB	24729 RAVENNA AVE	2012-08-23	13:05	Outdoor Air	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.19 U		
R24729IAB	24729 RAVENNA AVE	2012-08-23	14:05	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U		
R24729IAC	24729 RAVENNA AVE	2012-08-23	14:05	Kitchen	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
R24729IAG	24729 RAVENNA AVE	2012-08-23	14:06	Garage	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.19 U		
N24732OAB	24732 NEPTUNE AVE	2011-03-09	08:03	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15		
N24732OAF	24732 NEPTUNE AVE	2011-03-09	08:04	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15		
N24732IAC	24732 NEPTUNE AVE	2011-03-09	09:18	Kitchen	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.13	<0.13		
N24732IAB	24732 NEPTUNE AVE	2011-03-09	09:19	Bedroom	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.14	<0.14		
N24732IAG	24732 NEPTUNE AVE	2011-03-09	09:22	Garage	<0.95	<0.95	0.261	<0.95	<0.95	<0.95	<0.23	<0.23		
P24732OAF	24732 PANAMA AVE	2012-06-13	13:05	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U		
P24732OAB	24732 PANAMA AVE	2012-06-13	13:07	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.17 U		
P24732IAB	24732 PANAMA AVE	2012-06-13	14:08	Bedroom	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U		
P24732IAC	24732 PANAMA AVE	2012-06-13	14:08	Garage	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.16 U	<0.16 U		
R24732IAC	24732 PANAMA AVE	2012-06-13	14:08	Kitchen	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.17 U		
R24732OAF	24732 RAVENNA AVE	2012-06-21	08:12	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.17 U		

Table B-4
Indoor, Garage, and Outdoor Air Results
Farmer Kist Property
Cason, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection									
					Hexachloro-1,3-Butadiene UG/M3 0.25%	1,1-Dichloro-ethane UG/M3 0.15%	1,1-Dichloro-ethene UG/M3 0.15%	trans-1,2-Dichloro-ethane UG/M3 0.15%	1,3-Dichloro-benzene UG/M3 0.10%	1,4-Dioxane UG/M3 0.00%	Carbon Dioxide MOL % 0.00%	Methane MOL % 0.00%		
R24732OAB	24732 RAVENNA AVE	2012-06-21	08:14	Outdoor Air	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.19 U	<0.19 U		
R24732IAG	24732 RAVENNA AVE	2012-06-21	09:12	Garage	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U		
R24732IAB	24732 RAVENNA AVE	2012-06-21	09:13	Bedroom	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.17 U	<0.17 U		
R24732IAK	24732 RAVENNA AVE	2012-06-21	09:14	Kitchen	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U		
M24733OAF	24733 MARBELLA AVE	2012-06-07	13:00	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.17 U		
M24733OAB	24733 MARBELLA AVE	2012-06-07	13:07	Outdoor Air	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.19 U		
M24733IAG	24733 MARBELLA AVE	2012-06-07	14:07	Garage	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.2 U	<0.2 U		
M24733IAK	24733 MARBELLA AVE	2012-06-07	14:08	Kitchen	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.19 U		
M24733IAB	24733 MARBELLA AVE	2012-06-07	14:09	Bedroom	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.19 U		
R24733OAB	24733 RAVENNA AVE	2012-07-26	08:17	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U		
R24733OAF	24733 RAVENNA AVE	2012-07-26	08:17	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.18 U		
R24733IAD	24733 RAVENNA AVE	2012-07-26	09:17	Bedroom	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.17 U		
R24733IAG	24733 RAVENNA AVE	2012-07-26	09:19	Garage	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.18 U		
R24733IAK	24733 RAVENNA AVE	2012-07-26	09:19	Kitchen	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U		
M24735OAF	24735 NEPTUNE AVE	2012-11-14	08:10	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U		
M24735OAB	24735 NEPTUNE AVE	2012-11-14	08:13	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U		
M24735IAG	24735 NEPTUNE AVE	2012-11-14	09:09	Garage	<1.2 U	<1.2 U	<1.2 U	<1.2 U	<1.2 U	<1.2 U	<0.23 U	<0.23 U		
M24735IAK	24735 NEPTUNE AVE	2012-11-14	09:10	Kitchen	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.17 U		
M24735IAB	24735 NEPTUNE AVE	2012-11-14	09:11	Bedroom	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.15 U	<0.15 U		
M24737OAF	24737 MARBELLA AVE	2012-12-06	13:09	Outdoor Air	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.17 U		
M24737OAB	24737 MARBELLA AVE	2012-12-06	13:17	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U		
M24737IAG	24737 MARBELLA AVE	2012-12-06	14:09	Garage	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.17 U		
M24737IAK	24737 MARBELLA AVE	2012-12-06	14:10	Kitchen	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.17 U	<0.17 U		
M24737IAB	24737 MARBELLA AVE	2012-12-06	14:12	Bedroom	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U		
M24738OAF	24738 NEPTUNE AVE	2012-02-22	08:01	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.15 U	<0.15 U		
M24738OAB	24738 NEPTUNE AVE	2012-02-22	08:03	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.15 U	<0.15 U		
M24738IAK	24738 NEPTUNE AVE	2012-02-22	09:02	Kitchen	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.17 U		
M24738IAB	24738 NEPTUNE AVE	2012-02-22	09:03	Bedroom	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.15 U	<0.15 U		
M24738IAG	24738 NEPTUNE AVE	2012-02-22	09:04	Garage	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.15 U	<0.15 U		
P24738OAF	24738 PANAMA AVE	2012-09-06	13:04	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U		
P24738OAB	24738 PANAMA AVE	2012-09-06	13:07	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
P24738IAG	24738 PANAMA AVE	2012-09-06	14:07	Garage	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.2 U	<0.2 U		
P24738IAK	24738 PANAMA AVE	2012-09-06	14:07	Kitchen	<1.2 U	<1.2 U	<1.2 U	<1.2 U	<1.2 U	<1.2 U	<0.25 U	<0.25 U		
P24738IAB	24738 PANAMA AVE	2012-09-06	14:08	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.16 U		
M24739OAF	24739 NEPTUNE AVE	2012-09-20	08:15	Outdoor Air	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.18 U		
M24739OAB	24739 NEPTUNE AVE	2012-09-20	08:17	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.15 U	<0.15 U		
M24739IAB	24739 NEPTUNE AVE	2012-09-20	09:24	Bedroom	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.16 U		
M24739IAK	24739 NEPTUNE AVE	2012-09-20	09:24	Kitchen	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.18 U		
M24739IAG	24739 NEPTUNE AVE	2012-09-20	09:25	Garage	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.21 U	<0.21 U		
P24739OAF	24739 PANAMA AVE	2012-10-25	08:10	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U		
P24739OAB	24739 PANAMA AVE	2012-10-25	08:12	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U		
P24739IAG	24739 PANAMA AVE	2012-10-25	09:11	Garage	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.2 U	<0.2 U		
P24739IAB	24739 PANAMA AVE	2012-10-25	09:13	Bedroom	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U		
P24739IAK	24739 PANAMA AVE	2012-10-25	09:14	Kitchen	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
R24739OAB	24739 RAVENNA AVE	2011-03-02	08:10	Outdoor Air	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.15	<0.15		
R24739OAF	24739 RAVENNA AVE	2011-03-02	08:11	Outdoor Air	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.14	<0.14		
R24739IAB	24739 RAVENNA AVE	2011-03-02	09:33	Bedroom	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.15	<0.15		
R24739IAK	24739 RAVENNA AVE	2011-03-02	09:34	Kitchen	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.14	<0.14		
R24739IAG	24739 RAVENNA AVE	2011-03-02	09:35	Garage	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.13	<0.13		
M24741OAB	24741 MARBELLA AVE	2012-06-14	08:10	Outdoor Air	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.18 U		
M24741OAF	24741 MARBELLA AVE	2012-06-14	08:11	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.18 U		
M24741IAG	24741 MARBELLA AVE	2012-06-14	09:10	Garage	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.19 U		

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kest Property
Cusson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection								
					Analyte Units	Hexachloro- 1,3-Butadiene UG/M3	1,1-Dichloro- ethane UG/M3	1,1-Dichloro- ethene UG/M3	trans-1,2- Dichloro- ethene UG/M3	1,3-Dichloro- benzene UG/M3	1,4-Dioxane UG/M3	Carbon Dioxide MOL %	Methane MOL %
M24711AB	24741 MARBELLA AVE	2012-05-14	09:11	Bedroom	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U		<0.17 U	<0.17 U
M24711AK	24741 MARBELLA AVE	2012-05-14	09:11	Kitchen	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U		<0.18 U	<0.18 U
M24711AB2	24741 MARBELLA AVE	2012-05-14	09:12	Bedroom	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.19 U	<0.19 U
M24740AF	24744 MARBELLA AVE	2012-03-14	13:11	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U
M24740AB	24744 MARBELLA AVE	2012-03-14	13:12	Outdoor Air	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U		<0.17 U	<0.17 U
M24740AG	24744 MARBELLA AVE	2012-03-14	14:10	Garage	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.17 U	<0.17 U
M24740AB	24744 MARBELLA AVE	2012-03-14	14:20	Bedroom	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U		<0.17 U	<0.17 U
M24740AK	24744 MARBELLA AVE	2012-03-14	14:21	Kitchen	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U		<0.2 U	<0.2 U
R24740AB	24748 RAVENNA AVE	2012-09-13	08:19	Outdoor Air	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U		<0.17 U	<0.17 U
R24740AF	24748 RAVENNA AVE	2012-09-13	08:19	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.19 U	<0.19 U
R24740AG	24748 RAVENNA AVE	2012-09-13	08:19	Garage	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U		<0.18 U	<0.18 U
R24740IAK	24748 RAVENNA AVE	2012-09-13	05:19	Kitchen	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U		<0.2 U	<0.2 U
R24740IAB	24748 RAVENNA AVE	2012-09-13	08:20	Bedroom	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U		<0.18 U	<0.18 U
R24740DAB	24749 RAVENNA AVE	2010-12-16	08:18	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68		<0.15	<0.15
R24740DAF	24749 RAVENNA AVE	2010-12-16	08:20	Outdoor Air	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69		<0.16	<0.16
R24740IAG	24749 RAVENNA AVE	2010-12-16	10:00	Garage	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65		<0.15	<0.15
R24740IAK	24749 RAVENNA AVE	2010-12-16	10:01	Kitchen	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68		<0.15	<0.15
R24740IAB	24749 RAVENNA AVE	2010-12-16	10:03	Bedroom	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65		<0.15	<0.15
R24752DAF	24752 RAVENNA AVE	2012-07-19	13:10	Outdoor Air	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.17 U	<0.17 U
R24752DAB	24752 RAVENNA AVE	2012-07-19	13:12	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U		<0.18 U	<0.18 U
R24752IAG	24752 RAVENNA AVE	2012-07-19	14:14	Garage	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U		<0.18 U	<0.18 U
R24752IAB	24752 RAVENNA AVE	2012-07-19	14:15	Bedroom	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.17 U	<0.17 U
R24752IAK	24752 RAVENNA AVE	2012-07-19	14:15	Kitchen	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U
N24809DAF	24809 NEPTUNE AVE	2012-07-19	08:11	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U		<0.18 U	<0.18 U
N24809DAB	24809 NEPTUNE AVE	2012-07-19	08:12	Outdoor Air	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U		<0.16 U	<0.16 U
N24809IAG	24809 NEPTUNE AVE	2012-07-19	09:12	Garage	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U		<0.17 U	<0.17 U
N24809IAK	24809 NEPTUNE AVE	2012-07-19	09:12	Kitchen	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U
N24809IAB	24809 NEPTUNE AVE	2012-07-19	09:13	Bedroom	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.17 U	<0.17 U
P24809IAK	24809 PANAMA AVE	2012-03-23	09:30	Kitchen	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U		<0.18 U	<0.18 U
P24809IAB	24809 PANAMA AVE	2012-03-23	09:31	Bedroom	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.18 U	<0.18 U
P24809IAG	24809 PANAMA AVE	2012-03-23	09:32	Garage	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.19 U	<0.19 U
P24809DAB	24809 PANAMA AVE	2012-03-23	09:55	Outdoor Air	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.18 U	<0.18 U
P24809DAF	24809 PANAMA AVE	2012-03-23	09:58	Outdoor Air	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U		<0.17 U	<0.17 U
P24812DAF	24812 PANAMA AVE	2012-12-05	13:05	Outdoor Air	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.17 U	<0.17 U
P24812DAB	24812 PANAMA AVE	2012-12-05	13:14	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.16 U	<0.16 U
P24812IAG	24812 PANAMA AVE	2012-12-05	14:14	Garage	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U		<0.18 U	<0.18 U
P24812IAK	24812 PANAMA AVE	2012-12-05	14:16	Kitchen	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U		<0.18 U	<0.18 U
P24812IAB	24812 PANAMA AVE	2012-12-05	14:25	Bedroom	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U		<0.21 U	<0.21 U
P24813DAF	24813 PANAMA AVE	2012-08-22	08:13	Outdoor Air	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U		<0.19 U	<0.19 U
P24813DAB	24813 PANAMA AVE	2012-08-22	08:15	Outdoor Air	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U		<0.19 U	<0.19 U
P24813IAK	24813 PANAMA AVE	2012-08-22	09:22	Kitchen	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U		<0.15 U	<0.15 U
P24813IAB	24813 PANAMA AVE	2012-08-22	09:23	Bedroom	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U
P24813IAG	24813 PANAMA AVE	2012-08-22	09:24	Garage	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U		<0.17 U	<0.17 U
N24815DAF	24815 NEPTUNE AVE	2012-03-26	08:00	Outdoor Air	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U		<0.16 U	<0.16 U
N24815DAB	24815 NEPTUNE AVE	2012-03-26	08:01	Outdoor Air	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U	<0.76 U		<0.18 U	<0.18 U
N24815IAG	24815 NEPTUNE AVE	2012-03-26	09:00	Garage	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U	<0.8 U		<0.19 U	<0.19 U
N24815IAK	24815 NEPTUNE AVE	2012-03-26	09:00	Kitchen	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U		<0.19 U	<0.19 U
N24815IAB	24815 NEPTUNE AVE	2012-03-26	09:01	Bedroom	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U		<0.16 U	<0.16 U
P24816DAF	24816 PANAMA AVE	2012-06-07	08:08	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U		<0.17 U	<0.17 U
P24816DAB	24816 PANAMA AVE	2012-06-07	08:11	Outdoor Air	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U		<0.18 U	<0.18 U
P24816IAG	24816 PANAMA AVE	2012-06-07	09:08	Garage	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U		<0.17 U	<0.17 U
P24816IAK	24816 PANAMA AVE	2012-06-07	09:08	Kitchen	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U

Table B-4
Indoor, Garage, and Outdoor Air Results
Former East Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection							
					Analyte Units	Hexachloro-1,3-Butadiene UG/M3	1,1-Dichloro-ethane 0.15%	1,1-Dichloro-ethane UG/M3	trans-1,2-Dichloro-ethane UG/M3	1,3-Dichloro-benzene UG/M3	1,4-Dioxane UG/M3	Carbon Dioxide MGL %
P24819IAB	24819 PANAMA AVE	2012-06-07	09:59	Bedroom	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U		<0.19 U	<0.19 U
P24819OAB	24819 PANAMA AVE	2011-04-20	09:30	Outdoor Air	<0.67	<0.67	<0.67	<0.67	<0.67		<0.15	<0.15
P24819OAF	24819 PANAMA AVE	2011-04-20	09:30	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68		<0.15	<0.15
P24819IAG	24819 PANAMA AVE	2011-04-20	10:30	Garage	<0.63	<0.63	<0.63	<0.63	<0.63		<0.14	<0.14
P24819IAK	24819 PANAMA AVE	2011-04-20	10:31	Kitchen	<0.64	<0.64	<0.64	<0.64	<0.64		<0.14	<0.14
P24819IAB	24819 PANAMA AVE	2011-04-20	10:32	Bedroom	<0.61	<0.61	<0.61	<0.61	<0.61		<0.13	<0.13
P24828OAF	24828 PANAMA AVE	2012-09-12	08:25	Outdoor Air	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U		<0.19 U	<0.19 U
P24828OAB	24828 PANAMA AVE	2012-09-12	08:26	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U		<0.2 U	<0.2 U
P24828IAC	24828 PANAMA AVE	2012-09-12	09:26	Garage	<1 U	<1 U	<1 U	<1 U	<1 U		<0.2 U	<0.2 U
P24828IAK	24828 PANAMA AVE	2012-09-12	09:27	Kitchen	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U		<0.18 U	<0.18 U
P24828IAB	24828 PANAMA AVE	2012-09-12	09:28	Bedroom	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U		<0.19 U	<0.19 U
P24832OAB	24832 PANAMA AVE	2012-09-27	13:06	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.19 U	<0.19 U
P24832OAF	24832 PANAMA AVE	2012-09-27	13:10	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U		<0.19 U	<0.19 U
P24832IAB	24832 PANAMA AVE	2012-09-27	14:12	Bedroom	<1 U	<1 U	<1 U	<1 U	<1 U		<0.2 U	<0.2 U
P24832IAG	24832 PANAMA AVE	2012-09-27	14:13	Garage	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U		<0.18 U	<0.18 U
P24832IAK	24832 PANAMA AVE	2012-09-27	14:15	Kitchen	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U		<0.2 U	<0.2 U
P24832OAF	24833 PANAMA AVE	2012-11-28	13:05	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U
P24832OAB	24833 PANAMA AVE	2012-11-28	13:07	Outdoor Air	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U		<0.18 U	<0.18 U
P24833IAG	24833 PANAMA AVE	2012-11-28	14:07	Garage	<1 U	<1 U	<1 U	<1 U	<1 U		<0.2 U	<0.2 U
P24833IAB	24833 PANAMA AVE	2012-11-28	14:08	Bedroom	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.15 U	<0.15 U
P24833IAK	24833 PANAMA AVE	2012-11-28	14:08	Kitchen	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U		<0.19 U	<0.19 U
N24904OAB	24904 NEPTUNE AVE	2012-09-13	14:05	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U
N24904OAF	24904 NEPTUNE AVE	2012-09-13	14:05	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U
N24904IAK	24904 NEPTUNE AVE	2012-09-13	15:05	Kitchen	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U		<0.2 U	<0.2 U
N24904IAB	24904 NEPTUNE AVE	2012-09-13	15:06	Bedroom	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U		<0.18 U	<0.18 U
N24904IAG	24904 NEPTUNE AVE	2012-09-13	15:07	Garage	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.19 U	<0.19 U
N24912IAB	24912 NEPTUNE AVE	2012-09-15	14:32	Bedroom	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U		<0.16 U	<0.16 U
N24912IAB	24912 NEPTUNE AVE	2012-09-15	14:35	Bedroom	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U		<0.17 U	<0.17 U
N24912IAK	24912 NEPTUNE AVE	2012-09-15	14:38	Kitchen	<0.7 U	<0.7 U	<0.7 U	<0.7 U	<0.7 U		<0.16 U	<0.16 U
N24912OAB	24912 NEPTUNE AVE	2012-09-15	14:41	Outdoor Air	<0.69 U	<0.69 U	<0.69 U	<0.69 U	<0.69 U		<0.16 U	<0.16 U
N24912OAF	24912 NEPTUNE AVE	2012-09-15	14:43	Outdoor Air	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U		<0.17 U	<0.17 U
N24905OAF	305 244TH ST	2012-10-17	13:12	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.19 U	<0.19 U
N24905OAB	305 244TH ST	2012-10-17	13:13	Outdoor Air	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.19 U	<0.19 U
N24905IAK	305 244TH ST	2012-10-17	14:12	Kitchen	<1 U	<1 U	<1 U	<1 U	<1 U		<0.2 U	<0.2 U
N24905IAB	305 244TH ST	2012-10-17	14:13	Bedroom	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U		<0.19 U	<0.19 U
N24905IAG	305 244TH ST	2012-10-17	14:14	Garage	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U		<0.18 U	<0.18 U
N24917OAB	317 244TH ST	2011-03-23	14:07	Outdoor Air	<0.77	<0.77	<0.77	<0.77	<0.77		<0.18	<0.18
N24917OAF	317 244TH ST	2011-03-23	14:08	Outdoor Air	<0.75	<0.75	<0.75	<0.75	<0.75		<0.17	<0.17
N24917IAB	317 244TH ST	2011-03-23	15:09	Bedroom	<0.69	<0.69	<0.69	<0.69	<0.69		<0.16	<0.16
N24917IAK	317 244TH ST	2011-03-23	15:09	Kitchen	<0.72	<0.72	<0.72	<0.72	<0.72		<0.17	<0.17
N24917IAG	317 244TH ST	2011-03-23	15:10	Garage	<0.81	<0.81	<0.81	<0.81	<0.81		<0.19	<0.19
N24931OAF	331 244TH ST	2012-08-29	13:28	Outdoor Air	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U		<0.2 U	<0.2 U
N24931OAB	331 244TH ST	2012-08-29	13:31	Outdoor Air	<0.98 U	<0.98 U	<0.98 U	<0.98 U	<0.98 U		<0.2 U	<0.2 U
N24931IAG	331 244TH ST	2012-08-29	14:30	Garage	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U		<0.18 U	<0.18 U
N24931IAB	331 244TH ST	2012-08-29	14:31	Bedroom	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U		<0.18 U	<0.18 U
N24931IAK	331 244TH ST	2012-08-29	14:32	Kitchen	<1 U	<1 U	<1 U	<1 U	<1 U		<0.2 U	<0.2 U
N24937OAF	337 244TH ST	2010-11-11	08:32	Outdoor Air	<0.58	<0.58	<0.58	<0.58	<0.58		<0.13	<0.13
N24937OAB	337 244TH ST	2010-11-11	13:03	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68		<0.15	<0.15
N24937IAG	337 244TH ST	2010-11-11	14:04	Garage	<0.67	<0.67	<0.67	<0.67	<0.67		<0.15	<0.15
N24937IAK	337 244TH ST	2010-11-11	14:05	Kitchen	<0.64	<0.64	<0.64	<0.64	<0.64		<0.14	<0.14
N24937IAB	337 244TH ST	2010-11-11	14:06	Bedroom	<0.65	<0.65	<0.65	<0.65	<0.65		<0.15	<0.15
N24941OAF	341 244TH ST	2012-09-01	08:01	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U		<0.17 U	<0.17 U

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kast Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection									
					Analyte Units	Hexachloro-1,3-Butadiene UG/M3	1,1-Dichloro-ethane UG/M3	1,1-Dichloro-ethane UG/M3	trans-1,2-Dichloro-ethene UG/M3	1,3-Dichloro-benzene UG/M3	1,4-Dioxane UG/M3	Carbon Dioxide MOL %	Methane MOL %	
244341OAB	341 244TH ST	2012-08-01	08:03	Outdoor Air	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.15 U	<0.15 U	
244341IAG	341 244TH ST	2012-08-01	09:01	Garage	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.19 U	<0.19 U		
244341IAK	341 244TH ST	2012-08-01	09:02	Kitchen	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U		
244341IAB	341 244TH ST	2012-08-01	09:03	Bedroom	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.19 U		
244341IAB	341 244TH ST	2012-08-01	09:05	Bedroom	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.18 U		
244345OAF	345 249TH ST	2012-11-01	13:05	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.18 U		
244345OAB	345 249TH ST	2012-11-01	13:09	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.17 U		
244345IAG	345 249TH ST	2012-11-01	14:06	Garage	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.2 U	<0.2 U		
244345IAK	345 249TH ST	2012-11-01	14:09	Kitchen	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.19 U		
244345IAB	345 249TH ST	2012-11-01	14:11	Bedroom	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U		
244347OAF	347 244TH ST	2012-12-20	13:06	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.16 U		
244347OAB	347 244TH ST	2012-12-20	13:09	Outdoor Air	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.17 U	<0.17 U		
244347IAB	347 244TH ST	2012-12-20	14:10	Bedroom	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.16 U		
244347IAB	347 244TH ST	2012-12-20	14:10	Bedroom	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.17 U		
244347IAK	347 244TH ST	2012-12-20	14:11	Kitchen	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<0.22 U	<0.22 U		
248-348-OAB	348 248TH ST	2010-08-25	08:21	Outdoor Air	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.16	<0.16		
248-348-OAF	348 248TH ST	2010-08-25	08:29	Outdoor Air	<0.73	<0.73	<0.73	<0.73	<0.73	<0.73	<0.17	<0.17		
248-348-IAB	348 248TH ST	2010-08-25	09:29	Bedroom	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.16	<0.16		
248-348-IAK	348 248TH ST	2010-08-25	09:30	Kitchen	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.16	<0.16		
248-348-IAB	348 248TH ST	2010-08-25	09:31	Garage	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.16	<0.16		
248348-OAF	348 248TH ST	2011-01-12	08:25	Outdoor Air	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.14	<0.14		
248348-OAB	348 248TH ST	2011-01-12	08:28	Outdoor Air	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.15	<0.15		
248348-IAB	348 248TH ST	2011-01-12	09:39	Bedroom	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.15	<0.15		
248348-IAK	348 248TH ST	2011-01-12	09:39	Kitchen	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.15	<0.15		
248348-IAG	348 248TH ST	2011-01-12	09:34	Garage	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15		
249348OAF	348 249TH ST	2012-08-16	08:43	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.17 U		
249348OAB	348 249TH ST	2012-08-16	08:44	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U		
249348IAB	348 249TH ST	2012-08-16	09:47	Bedroom	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U		
249348IAK	348 249TH ST	2012-08-16	09:47	Kitchen	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.18 U		
249348IAG	348 249TH ST	2012-08-16	09:48	Garage	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.17 U	<0.17 U		
249351OAB	351 244TH ST	2010-10-22	08:01	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15		
249351OAF	351 244TH ST	2010-10-22	08:02	Outdoor Air	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.15	<0.15		
249351IAK	351 244TH ST	2010-10-22	09:03	Kitchen	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15		
249351IAB	351 244TH ST	2010-10-22	09:04	Bedroom	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.14	<0.14		
249351IAG	351 244TH ST	2010-10-22	09:05	Garage	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15		
249352OAB	352 249TH ST	2011-02-09	12:11	Outdoor Air	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.17	<0.17		
249352OAF	352 249TH ST	2011-02-09	13:12	Outdoor Air	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.13	<0.13		
249352IAK	352 249TH ST	2011-02-09	14:26	Kitchen	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.13	<0.13		
249352IAB	352 249TH ST	2011-02-09	14:27	Bedroom	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.14	<0.14		
249352IAG	352 249TH ST	2011-02-09	14:28	Garage	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.15	<0.15		
249353OAB	353 249TH ST	2011-02-03	10:10	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.16	<0.16		
249353OAF	353 249TH ST	2011-02-03	10:20	Outdoor Air	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.14	<0.14		
249353IAB	353 249TH ST	2011-02-03	11:20	Bedroom	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.14	<0.14		
249353IAK	353 249TH ST	2011-02-03	11:20	Kitchen	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.15	<0.15		
249353IAG	353 249TH ST	2011-02-03	11:21	Garage	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.15	<0.15		
248354OAF	354 248TH ST	2012-06-13	08:03	Outdoor Air	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.17 U	<0.17 U		
248354OAB	354 248TH ST	2012-06-13	08:04	Outdoor Air	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.16 U		
248354IAD	354 248TH ST	2012-06-13	09:16	Bedroom	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.19 U	<0.19 U		
248354IAK	354 248TH ST	2012-06-13	09:17	Kitchen	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.99 U	<0.2 U	<0.2 U		
248354IAG	354 248TH ST	2012-06-13	09:18	Garage	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U		
248357OAF	357 244TH ST	2012-11-29	08:18	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U		
248357OAB	357 244TH ST	2012-11-29	08:20	Outdoor Air	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.18 U	<0.18 U		

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kasz Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Analyte		1,1-Dichloro-ethane	trans-1,2-Dichloro-ethane	1,1-Dichloro-ethane	1,3-Dichloro-benzene	1,4-Dioxane	Carbon Dioxide	Methane
					Unit	Frequency of Detection							
					Hexachloro-1,3-Butadiene	0.29%	0.15%	0.15%	0.15%	0.10%	0.00%	0.00%	0.00%
					UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	MOL %	MOL %
244357IAG	357 244TH ST	2012-11-29	09:32	Garage	<0.88 U	<0.95 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.19 U
244357IAK	357 244TH ST	2012-11-29	09:34	Kitchen	<0.89 U	<0.93 U	<0.93 U	<0.89 U	<0.89 U	<0.89 U	<0.89 U	<0.18 U	<0.18 U
244357IAB	357 244TH ST	2012-11-29	09:35	Bedroom	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U
249357OAB	357 249TH ST	2012-08-02	13:05	Outdoor Air	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.88 U	<0.18 U	<0.18 U
249357OAF	357 249TH ST	2012-08-02	13:06	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.17 U
249357IAB	357 249TH ST	2012-08-02	14:05	Bedroom	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.21 U	<0.21 U
249357IAK	357 249TH ST	2012-08-02	14:05	Kitchen	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U
249357IAB	357 249TH ST	2012-08-02	14:06	Garage	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.19 U	<0.19 U
249357OAF	358 249TH ST	2012-03-08	08:14	Outdoor Air	<0.66 U	<0.65 U	<0.65 U	<0.66 U	<0.66 U	<0.66 U	<0.66 U	<0.15 U	<0.15 U
249358OAB	358 249TH ST	2012-03-08	08:16	Outdoor Air	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.17 U	<0.17 U
249358IAK	358 249TH ST	2012-03-08	09:16	Kitchen	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.18 U	<0.18 U
249358IAB	358 249TH ST	2012-03-08	09:17	Bedroom	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.18 U	<0.18 U
249358IAG	358 249TH ST	2012-03-08	09:18	Garage	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.17 U	<0.17 U
249358OAF	358 249TH ST	2012-03-08	14:13	Outdoor Air	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.2 U	<0.2 U
248360OAF	360 248TH ST	2012-07-05	13:05	Outdoor Air	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.16 U
248360OAB	360 248TH ST	2012-07-05	13:07	Outdoor Air	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U
248360IAB	360 248TH ST	2012-07-05	14:08	Bedroom	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.16 U	<0.16 U
248360IAK	360 248TH ST	2012-07-05	14:08	Kitchen	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.19 U
248360IAG	360 248TH ST	2012-07-05	14:09	Garage	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.84 U	<0.19 U	<0.19 U
244361OAF	361 244TH ST	2010-11-11	13:06	Outdoor Air	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.16	<0.16
244361OAF	361 244TH ST	2010-11-11	13:08	Outdoor Air	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15
244361IAK	361 244TH ST	2010-11-11	14:07	Kitchen	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.15	<0.15
244361IAB	361 244TH ST	2010-11-11	14:09	Bedroom	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.15	<0.15
244361IAG	361 244TH ST	2010-11-11	14:11	Garage	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.15	<0.15
249370OAF	367 249TH ST	2012-10-24	13:35	Outdoor Air	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.18 U
249370OAB	367 249TH ST	2012-10-24	13:36	Outdoor Air	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U
249370IAG	367 249TH ST	2012-10-24	14:33	Garage	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.19 U	<0.19 U
249370IAK	367 249TH ST	2012-10-24	14:34	Kitchen	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.16 U	<0.16 U
249370IAB	367 249TH ST	2012-10-24	14:37	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U
249380OAF	368 249TH ST	2012-08-08	13:24	Outdoor Air	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.92 U	<0.18 U	<0.18 U
249380OAB	368 249TH ST	2012-08-08	13:25	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.18 U
249380IAK	368 249TH ST	2012-08-08	14:24	Bedroom	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U
249380IAB	368 249TH ST	2012-08-08	14:25	Kitchen	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.96 U	<0.19 U	<0.19 U
249380IAG	368 249TH ST	2012-08-08	14:26	Garage	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U
249373OAF	373 249TH ST	2012-04-11	08:14	Outdoor Air	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.72 U	<0.17 U	<0.17 U
249373OAB	373 249TH ST	2012-04-11	08:15	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.18 U	<0.18 U
249373IAB	373 249TH ST	2012-04-11	09:23	Bedroom	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.18 U	<0.18 U
249373IAG	373 249TH ST	2012-04-11	09:23	Garage	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.77 U	<0.18 U	<0.18 U
249373IAK	373 249TH ST	2012-04-11	09:23	Kitchen	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.19 U	<0.19 U
248374OAF	374 248TH ST	2012-10-04	13:02	Outdoor Air	0.93 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.21 U	<0.21 U
248374OAB	374 248TH ST	2012-10-04	13:05	Outdoor Air	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.79 U	<0.16 U	<0.16 U
248374IAG	374 248TH ST	2012-10-04	14:02	Garage	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U
248374IAK	374 248TH ST	2012-10-04	14:02	Kitchen	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.17 U	<0.17 U
248374IAB	374 248TH ST	2012-10-04	14:03	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U
244377OAF	377 244TH ST	2012-06-27	13:01	Outdoor Air	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.17 U	<0.17 U
244377OAB	377 244TH ST	2012-06-27	13:02	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.18 U
244377IAB	377 244TH ST	2012-06-27	14:01	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.19 U	<0.19 U
244377IAK	377 244TH ST	2012-06-27	14:02	Kitchen	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.91 U	<0.18 U	<0.18 U
244377IAG	377 244TH ST	2012-06-27	14:03	Garage	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.17 U	<0.17 U
249377OAF	377 249TH ST	2012-08-23	08:23	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.18 U	<0.18 U
249377OAB	377 249TH ST	2012-08-23	08:24	Outdoor Air	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.21 U	<0.21 U
249377IAG	377 249TH ST	2012-08-23	09:24	Garage	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.16 U	<0.16 U

Table B-4
Indoor, Garage, and Outdoor Air Results
Former Kest Property
Carson, California

Sample ID	Address	Sample Date	Sample Time	Location	Frequency of Detection		Hexachloro-1,3-Butadiene		1,1-Dichloroethane		1,1-Dichloroethene		trans-1,2-Dichloroethene		1,3-Dichlorobenzene		1,4-Dioxane		Carbon Dioxide		Methane		
					Units	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	MOL %	MOL %
249378IAB	377 249TH ST	2012-08-23	09:25	Bedroom	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	
249378IAC	377 249TH ST	2012-08-23	09:25	Kitchen	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	
249378OAB	878 249TH ST	2011-05-11	13:11	Outdoor Air	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	
249378OAF	378 249TH ST	2011-05-11	13:14	Outdoor Air	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	
249378IAC	378 249TH ST	2011-05-11	14:27	Kitchen	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	
249378IAB	378 249TH ST	2011-05-11	14:28	Bedroom	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	
249378IAG	378 249TH ST	2011-05-11	14:28	Garage	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	
249378OAF	378 249TH ST	2012-02-23	13:03	Outdoor Air	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	<0.82 U	
249378OAB	378 249TH ST	2012-02-23	13:05	Outdoor Air	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	
249378IAC	378 249TH ST	2012-02-23	14:04	Kitchen	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	<0.75 U	
249378IAB	378 249TH ST	2012-02-23	14:05	Bedroom	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	
249378IAG	378 249TH ST	2012-02-23	14:05	Garage	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	
249383OAF	383 249TH ST	2012-06-06	13:02	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	
249383OAB	383 249TH ST	2012-06-06	13:04	Outdoor Air	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	<0.87 U	
249383IAG	383 249TH ST	2012-06-06	14:03	Garage	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	
249383IAC	383 249TH ST	2012-06-06	14:03	Kitchen	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U	<0.83 U
249383IAB	383 249TH ST	2012-06-06	14:04	Bedroom	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U	<0.94 U
249422OAF	402 249TH ST	2012-09-21	09:11	Outdoor Air	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	<0.74 U	
249422OAB	402 249TH ST	2012-09-21	08:32	Outdoor Air	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	<0.71 U	
249422IAB	402 249TH ST	2012-03-21	09:11	Bedroom	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	<0.73 U	
249422IAG	402 249TH ST	2012-03-21	09:11	Garage	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	<0.85 U	
249422IAC	402 249TH ST	2012-03-21	09:12	Kitchen	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	<0.81 U	
249422OAF	412 249TH ST	2012-09-26	13:10	Outdoor Air	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	<0.78 U	
249422OAB	412 249TH ST	2012-09-26	13:11	Outdoor Air	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	<0.9 U	
249422IAB	412 249TH ST	2012-09-26	14:10	Bedroom	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	<0.95 U	
249422IAC	412 249TH ST	2012-09-26	14:10	Kitchen	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	<0.93 U	
249422IAG	412 249TH ST	2012-09-26	14:11	Garage	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	<0.86 U	

Table B-5
 Summary Statistics of Site Indoor Air, Garage, and Outdoor Air Analytical Results
 Former Kast Property
 Carson, California

Analyte	Indoor Air					Garage Air					Outdoor Air				
	Number of samples	Frequency of Detection	Minimum	Median	Maximum	Number of samples	Frequency of Detection	Minimum	Median	Maximum	Number of samples	Frequency of Detection	Minimum	Median	Maximum
1,2-Dichloroethane	405	100%	0.069	0.55	22	199	99%	0.04	0.15	10	202	100%	0.04	0.08	0.75
Benzene	405	100%	0.23	0.96	6.8	199	100%	0.32	1.2	81	202	100%	0.20	0.68	4.5
Carbon Tetrachloride	403	100%	0.28	0.47	0.67	198	100%	0.32	0.49	2	201	100%	0.34	0.47	0.68
Chloroform	405	100%	0.14	0.43	2.1	199	99%	0.00	0.31	4.7	202	100%	0.07	0.19	2.1
Ethylbenzene	405	100%	0.22	0.91	13	199	100%	0.17	0.99	92	202	100%	0.09	0.36	3.2
m,p-Xylene	405	100%	0.46	2.4	48	199	99%	0.55	3.3	280	202	90%	0.42	1.20	10
Naphthalene	405	100%	0.057	0.34	4.4	199	100%	0.03	0.31	14	202	100%	0.05	0.17	1.6
o-Xylene	405	98%	0.23	0.93	12	199	95%	0.22	1.2	120	202	74%	0.17	0.43	3.8
Tetrachloroethene	405	100%	0.038	0.28	45	199	99%	0.04	0.21	14	202	100%	0.01	0.17	0.82
Toluene	405	100%	1.2	5.9	91	199	100%	1.10	6.7	450	202	100%	0.51	2.10	22

Notes:

N - sample size
 % - percentile

Summary statistics were calculated including non-detects at the full reporting limit
 All concentrations are reported in $\mu\text{g}/\text{m}^3$

Table B-6
Background Sources of Chemicals in Indoor Air
Former Kast Property
Carson, California

Analyte	CAS	Common Sources ^{1,2,3}	Typical Value ⁴ (ug/m ³)	Max Value ^{5,6} (ug/m ³)
1,1,1-Trichloroethane	71-55-6	Automotive adhesive, lubricant, wood parquet adhesive, silicone lubricant, floor adhesive, furniture cleaner, horticulture spreader/sticker	1.9	150
1,1,2,2-Tetrachloroethane	79-34-5	Paint, pesticide, adhesives, lubricant	NR	NR
1,1,2-Trichloroethane	79-00-5	Electronics lubricant, automotive adhesive, glass cleaner	NR	NR
1,1-Dichloroethane	75-34-3	Air freshener	NR	0.9
1,2,4-Trimethylbenzene	95-63-6	Gasoline, paints, automotive parts cleaners, wood floor wax, pesticides	3.9	NR
1,2-Dichloroethane	107-06-2	Molded plastic consumer products (e.g., toys and holiday decorations), Dorersol (Dexol Industries), home defense fogger (pepper spray)	0.04	1.1
1,3,5-Trimethylbenzene	108-67-8	Gasoline, paints, automotive parts cleaners, wood floor wax, pesticides	1.2	32
1,4-Dichlorobenzene	106-46-7	Mothballs, bathroom fresheners. A common fumigant for moths, molds and mildews; minor use for control of tree-boring insects	0.54	160
2-Butanone	78-93-3	Paint, automotive parts cleaners, adhesives	NR	NR
4-Methyl-2-Pentanone (MIBK)	108-10-1	Paint, shellac, dry erase marker	NR	NR
Acetone	67-64-1	Paints, laquers, paint thinners, adhesives, automotive parts cleaners, nail polish remover, air fresheners, super glue remover, household cleaners, pet care, foggers	36	670
Benzene	71-43-2	Gasoline, other petroleum products, natural gas, tobacco smoke, solvents	2.9	58
Bromodichloromethane	75-27-4	Byproduct of municipal water chlorination process	NR	NR
Bromomethane	74-83-9	Byproduct of municipal water chlorination process	NR	2.8
Carbon Tetrachloride	56-23-5	Automotive trim/detail adhesive, Radio Shack plastic bonder, adhesive remover, byproduct of chemical bleach reacting with surfactants, auto brake cleaner, Clorox cleanup, Formula 44/40, Lysol toilet bowl cleaner with bleach	0.57	1.8
Chloroform	67-66-3	Byproduct of municipal water chlorination process, solvent (adhesive remover), Fix-a-Flat, Clorox Cleanup, Lysol toilet bowl cleaner with bleach	1.1	13
Chloromethane	74-87-3	Static guard, aerosol	NR	NR
Cyclohexane	110-87-7	Adhesive/glue, laquer thinner, degreaser, paint	0.62	NR
Ethanol	64-17-5	Paints, cleaners, air fresheners, adhesives, windshield treatment/glass cleaners, soaps/detergents, aerosol sprays, personal care products, insecticides, pet care products, beverages	NR	NR
Ethylbenzene	100-41-4	Gasoline, other petroleum products, paints, degreaser, pesticides	2.3	48
Freon 11	75-69-4	Refrigerant, electronics cleaner (flux stripper)	NR	NR
Freon 113	76-13-1	Refrigerant, solvent	NR	7
Freon 12	75-71-8	Refrigerant	NR	NR
Heptane	142-82-5	Gasoline, other petroleum products, adhesive, laquer, automotive cleaner and lubricant, water repellent, pesticide	1.1	NR

Table B-6
Background Sources of Chemicals in Indoor Air
Former Kast Property
Carson, California

Analyte	CAS	Common Sources ^{1,2,3}	Typical Value ⁴ (ug/m ³)	Max Value ^{5,6} (ug/m ³)
Hexane	110-54-3	Gasoline, other petroleum products, adhesive, automotive parts cleaner, solvent, flea treatment for pets	1.8	NR
Isopropanol	67-63-0	Personal care products, paints, adhesive, cleaning products, water repellent, automotive parts cleaner, ink cartridges, household cleaning products	NR	NR
Methylene Chloride	75-09-2	Automotive cleaner/lubricant/degreaser, adhesive and paint remover, herbicide	4.9	260
Naphthalene	91-20-3	Gasoline, other petroleum products, mothballs, automotive parts cleaner, paint, herbicide, pesticide	0.47	5.0
n-Propylbenzene	103-65-1	Gasoline, other petroleum products	0.54	17
o-Xylene	95-47-6	Gasoline, other petroleum products, paint, automotive parts cleaner, adhesive, pesticide, pet care products	2.2	61
p/m-Xylene	1330-20-7-1	Gasoline, other petroleum products, paint, automotive parts cleaner, adhesive, pesticide, pet care products	5.7	290
Styrene	100-42-5	Gasoline, other petroleum products, automotive care, adhesive	0.98	23
Tetrachloroethene	127-18-4	Dry cleaner solvent, adhesive, automotive parts cleaner/degreaser/lubricant, stain remover, garage door lubricant, gutter seal, electrical parts, Gunk cleaner/lubricants, Shoo Goo, tire inflator and sealer, windshield cleaner	0.95	47
Tetrahydrofuran	109-99-9	Solvent, primer, cement,	NR	NR
Toluene	108-88-3	Gasoline, other petroleum products, paints, adhesives, automotive parts cleaner, pesticide	12	180
Trichloroethene	79-01-6	Dry cleaner solvent, automotive parts-solvent cleaner/degreaser garage door lubricant, auto brake cleaner, fabric stain remover/cleaner, electronics cleaner, gun cleaner/lubricant, insecticide, pepper spray, rain and stain guard, rubber cement, leather finish, windshield cleaner	0.38	10

All concentrations reported in ug/m³ (micrograms per cubic meter)

NR Not reported

1. Taken from NIH Household Products Database (<http://householdproducts.nlm.nih.gov/index.htm>)
2. Taken from ATSDR Toxic Substances Database (<http://www.atsdr.cdc.gov/substances/index.asp>)
3. Gorder and Dettenmaier. Department of Defense Hill Air Force Base, Detailed Indoor Air Characterization and Interior Source Identification by Portable GC/MS. AWMA, 30 September 2010 (<http://events.awma.org/education/vapor-proceed.html>)
4. "Best Estimate" average value from Hodgson and Levin, 2003. Volatile Organic Compounds in Indoor Air: A Review of Concentrations Measured in North America Since 1990, LBNL-51715
5. Maximum value from Hodgson and Levin, 2003. Volatile Organic Compounds in Indoor Air: A Review of Concentrations Measured in North America Since 1990, LBNL-51716. When available geometric mean of maximum values reported among studies
6. Maximum values from Dawson and McAlary, 2009. A Compilation of Statistics for VOCs from Post-1990 Indoor Air Concentration Studies in North American Residences Unaffected by Subsurface Vapor Intrusion. Ground Water Monitoring & Remediation 29, no. 1/Winter 2009/pages 60-69.

Table B-7
 USEPA Indoor Air Background Summary
 Former Kast Property
 Carson, California

Analyte	Number of Studies	Number of Samples	Range % Detect	Total % Detects	RL Range	Range of 50th%	N*	Range of 75th%	N*	Range of 90th%	N*	Range of 95th%	N*
1,2-Dichloroethane	7	1,432	1-25	13.8	0.08-2.0	<RL	7	<RL-0.08	6	<RL-0.4	7	<RL-0.2	4
Benzene	14	2,615	31-100	91.1	0.05-1.6	<RL-4.7	14	1.9-7.0	9	5.2-15	11	9.9-29	5
Carbon tetrachloride	6	1248	1-100	53.5	0.15-1.3	<RL-0.68	6	<RL-0.72	3	<RL-0.94	5	<RL-1.1	2
Chloroform	11	2,278	9-100	68.5	0.02-2.4	<RL-2.4	11	<RL-3.4	7	<RL-6.2	9	4.1-7.5	5
Ethylbenzene	10	1,484	26-100	85.7	0.01-2.2	1-3.7	10	2-5.6	5	4.8-13	7	12-17	3
m,p-Xylene	10	1,920	52-100	92.9	0.4-2.2	1.5-14	10	4.6-21	7	12-56	9	21-63.5	4
Naphthalene	2	175	0.02-2	<RL-0.4	2	<RL-1.3	2	2.4-2.7	2	3	1	NR	NA
o-Xylene	12	2,004	31-100	89.0	0.11-2.2	1.1-3.6	12	2.4-6.2	7	5.5-16	9	13-20	4
Tetrachloroethene	13	2,312	5-100	62.5	0.03-3.4	<RL-2.2	13	<RL-4.1	8	<RL-7	10	4.1-9.5	5
Toluene	12	2,065	86-100	96.4	0.03-1.9	4.8-24	12	12-41	7	25-77	9	79-144	4

Notes:

N* - number of studies reporting the percentile.

<RL - less than the reporting limit

NR - not reported

NA - not applicable

% - percentile

All concentrations are reported in µg/m³

Table B-8
 Summary Statistics of Site Indoor Air Analytical Results
 Former Kast Property
 Carson, California

Analyte	N	Detection Frequency	Minimum	25th %	50th %	Mean	75th %	90th %	95th %	Maximum
1,2-Dichloroethane	405	100%	0.069	0.26	0.55	1.56	1.5	4.56	6.7	22
Benzene	405	100%	0.23	0.67	0.96	1.33	1.7	2.8	3.56	6.8
Carbon tetrachloride	403	100%	0.28	0.43	0.47	0.47	0.51	0.558	0.58	0.67
Chloroform	405	100%	0.14	0.31	0.43	0.51	0.6	0.882	1.1	2.1
Ethylbenzene	405	100%	0.22	0.56	0.91	1.14	1.4	2.06	2.68	13
m,p-Xylene ¹	405	100%	0.46	1.5	2.4	3.33	3.8	6.6	8.68	48
Naphthalene	405	100%	0.06	0.24	0.34	0.45	0.5	0.78	1.08	4.4
o-Xylene ¹	405	98%	0.23	0.57	0.93	1.23	1.4	2.4	3.08	12
Tetrachloroethene	405	100%	0.04	0.15	0.28	0.87	0.51	1.3	3.4	45
Toluene	405	100%	1.2	3.6	5.9	7.64	9.9	14	17	91

Notes:

N - sample size

% - percentile

¹ - summary statistics were calculated including non-detects at the full reporting limit

All concentrations are reported in $\mu\text{g}/\text{m}^3$

Table B-9
Outdoor Background Levels
Former Kast Property
Carson, California

Study	Analyte	Benzene	Carbon Tetrachloride	Ethylbenzene	Methylene Chloride	Toluene	Chloroform	1,4-Dichlorobenzene	Naphthalene	1,2-Dichloroethane	Tetrachloroethene	2-Butanone (Methyl Ethyl Ketone)	p/m-Xylene	
		UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	
	Frequency of Detection	100.00%	100.00%	100.00%	100.00%	100.00%	99.90%	99.90%	99.90%	99.80%	99.70%	98.17%	93.17%	
MATES III North Long Beach	April 2004 - March 2005	Confidence												
		Interval	1.79 ± 0.19	0.50 ± 0.00	0.95 ± 0.13	6.59 ± 7.32	6.03 ± 0.75	0.15 ± 0.00	0.18 ± 0.00	0.00	0.27 ± 0.07	0.89 ± 0.12	3.69 ± 0.48	
		SD	1.12	0.06	0.74	40.81	4.26	0.10	0.18	0.00	0.27	0.68	2.69	
		Max	5.17	0.63	3.26	381.49	20.55	0.44	0.72	0.00	1.49	2.60	13.15	
	April 2005 - March 2006	Min	0.54	0.19	0.17	0.17	1.24	0.05	0.00	0.00	0.00	0.00	0.69	
		Confidence												
		Interval	1.53 ± 0.19	0.57 ± 0.00	0.87 ± 0.13	0.66 ± 0.07	5.28 ± 0.75	0.15 ± 0.00	0.06 ± 0.00	0.18 ± 0.03	0.00 ± 0.00	0.27 ± 0.07	0.50 ± 0.06	2.95 ± 0.43
		SD	1.08	0.06	0.74	0.45	4.15	0.10	0.12	0.15	0.00	0.27	0.35	2.47
April 2005 - March 2006	Max	5.42	0.69	3.69	2.39	21.04	0.34	0.48	0.73	0.42	1.29	2.09	12.67	
	Min	0.45	0.44	0.17	0.14	1.06	0.00	0.00	0.03	0.00	0.00	0.03	0.56	
	April 2004 - March 2005	Confidence												
		Interval	1.82 ± 0.26	0.44 ± 0.00	1.17 ± 0.17	0.73 ± 0.14	7.46 ± 1.17	0.15 ± 0.00	0.18 ± 0.06	0.00	0.27 ± 0.07	1.21 ± 0.24	4.04 ± 0.65	
SD		1.40	0.06	0.95	0.69	6.48	0.10	0.18	0.00	0.27	1.21	3.52		
Max		6.22	0.57	4.90	4.93	31.82	0.44	0.96	0.00	1.22	7.08	19.66		
April 2005 - March 2006	Min	0.26	0.19	0.17	0.14	0.38	0.00	0.00	0.00	0.00	0.06	0.09		
	Confidence													
	Interval	1.60 ± 0.22	0.57 ± 0.00	0.95 ± 0.13	0.66 ± 0.10	5.88 ± 0.87	0.15 ± 0.00	0.06 ± 0.00	0.00 ± 0.00	0.27 ± 0.07	0.68 ± 0.12	2.69		
	SD	1.21	0.06	0.78	0.56	4.86	0.10	0.12	0.06	0.27	0.68	3.12 ± 0.48		
April 2005 - March 2006	Max	5.65	0.75	4.21	3.75	25.22	0.34	0.48	0.36	1.29	3.51	14.02		
	Min	0.32	0.38	0.22	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.65		
	HCMS 2007	Confidence												
		Interval	1.50 ± 0.26		1.65 ± 0.56		6.03 ± 0.98						5.25 ± 0.65 **	

HCMS - Harbor Community Monitoring Study, Desert Research Institute, May 15, 2009
MATES III - Multiple Air Toxics Exposure Study in the South Coast Air Basin, SCAQMD, September 2008
** HCMS study reported total xylenes (sum of m,p-xylene and o-xylene)

Table B-9
Outdoor Background Levels
Former Kast Property
Carson, California

Study	Analyte	o-Xylene	Styrene	Vinyl Chloride	Trichloro-ethene	Methyl-tert-Butyl Ether	1,2-Dichloro-benzene	
		UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	
	Frequency of Detection	86.01%	65.27%	20.00%	7.53%	3.17%	0.92%	
MATES III North Long Beach	April 2004 - March 2005	Confidence						
		Interval	0.82 ± 0.13	0.38 ± 0.09	0.00 ± 0.00	0.05 ± 0.00	0.04 ± 0.00	0.00
		SD	0.74	0.43	0.00	0.11	0.04	0.00
		Max	3.60	1.83	0.05	0.48	0.18	0.00
	April 2005 - March 2006	Confidence						
		Interval	0.74 ± 0.17	0.43 ± 0.13	0.00	0.05 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
		SD	0.87	0.68	0.00	0.05	0.04	0.06
		Max	3.60	3.32	0.00	0.27	0.35	0.42
MATES III West Long Beach	April 2004 - March 2005	Confidence						
		Interval	0.95 ± 0.17	1.28 ± 0.26	0.00 ± 0.00	0.11 ± 0.00	0.04 ± 0.00	0.00
		SD	0.91	1.41	0.00	0.16	0.07	0.00
		Max	5.25	6.01	0.05	0.70	0.47	0.00
	April 2005 - March 2006	Confidence						
		Interval	0.82 ± 0.17	1.36 ± 0.38	0.00 ± 0.00	0.05 ± 0.05	0.04 ± 0.00	0.00 ± 0.00
		SD	1.04	2.13	0.00	0.21	0.11	0.06
		Max	5.56	15.72	0.08	1.93	0.61	0.36
HCMS 2007	Confidence							
	Interval							

HCMS - Harbor Community Monitoring Study
MATES III - Multiple Air Toxics Exposure Study
** HCMS study reported total xylenes (sum o

Table B-10
 Summary Statistics of Site Outdoor Air Analytical Results
 Former Kast Property
 Carson, California

Analyte	N	Detection Frequency	Minimum	25th %	50th %	Mean	75th %	90th %	95th %	Maximum
1,2-Dichloroethane	202	100%	0.04	0.06	0.08	0.09	0.11	0.14	0.16	0.75
1,4-Dichlorobenzene	202	100%	0.02	0.05	0.08	0.12	0.14	0.25	0.30	1.20
Benzene	202	100%	0.20	0.46	0.68	1.00	1.30	2.00	2.69	4.50
Carbon tetrachloride	201	100%	0.34	0.43	0.47	0.47	0.50	0.54	0.56	0.68
Chloroform	202	100%	0.07	0.15	0.19	0.23	0.26	0.36	0.45	2.10
Ethylbenzene	202	100%	0.09	0.22	0.36	0.56	0.70	1.20	1.70	3.20
m,p-Xylene ¹	202	90%	0.42	0.71	1.20	1.90	2.50	4.18	5.97	10
Naphthalene	202	100%	0.05	0.12	0.17	0.22	0.28	0.43	0.50	1.60
o-Xylene ¹	202	74%	0.17	0.29	0.43	0.69	0.93	1.49	1.90	3.80
Tetrachloroethene	202	100%	0.01	0.10	0.17	0.20	0.25	0.39	0.46	0.82
Toluene	202	100%	0.51	1.30	2.10	3.38	4.30	6.99	10.00	22

Notes:

N - sample size

% - percentile

¹ - summary statistics were calculated including non-detects at the full reporting limit

All concentrations are reported in $\mu\text{g}/\text{m}^3$

Table B-11
Multiple Linear Regression Analysis Input Data
Former Kast Property
Carson, California

Address	Date	1,2-Dichloroethane				Benzene				Carbon tetrachloride				Chloroform				Ethylbenzene			
		Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor
24401 MARBELLA AVE	Mar-12	0.16	0.058	0.055	4.5	0.52	0.42	0.4	0.89 U	0.42	0.45	0.41	1.2 U	0.16	0.21	0.14	4.2	0.38	0.49	0.14	0.92 U
24402 NEPTUNE AVE	Oct-12	0.66	0.11	0.15	0.72 U	0.93	0.85	0.52	0.62 U	0.52	0.54	0.5	2.1 U	0.24	0.21	0.22	3.1 U	0.49	0.29	0.3	1.8 U
24402 PANAMA AVE	Dec-12	0.91	0.091	0.076	0.72 U	1.6	1.9	1.6	0.62 U	0.49	0.46	0.47	2.1 U	0.39	0.14	0.14	3.1 U	1.4	0.95	0.89	1.8 U
24402 RAVENNA AVE	Dec-10	0.28	0.091	0.2	0.71 U	4.1	4.5	4.5	0.64 U	0.52	0.5	0.49	0.54 U	0.51	0.42	0.42	1.7	2.2	3	3.2	0.54 U
24402 RAVENNA AVE	May-12	0.37	0.081	0.08	0.54 U	0.43	0.43	0.27	0.25 U	0.55	0.53	0.54	0.62 U	0.21	0.12	0.1	16	0.3	0.26	0.12	0.6 U
24403 NEPTUNE AVE	Nov-12	1.1	0.71	0.078	0.7 U	1.3	2.3	0.44	0.61 U	0.58	0.6	0.57	2.1 U	0.79	0.65	0.2	3 U	0.86	1.1	0.17	1.8 U
24405 MARBELLA AVE	Mar-12	0.5	0.071	0.071	0.96 U	1.2	1.3	0.93	0.86 U	0.37	0.37	0.34	1.1 U	0.21	0.15	0.13	1.1 U	0.59	0.6	0.41	0.88 U
24406 MARBELLA AVE	Mar-12	1	0.093	0.097	0.53 U	1.4	1.6	1.7	0.25 U	0.47	0.45	0.47	0.61 U	0.66	0.24	0.24	4	1.1	2.2	0.71	0.6 U
24406 NEPTUNE AVE	Jan-12	0.25	0.49	0.15	0.57 U	3.3	3.6	3.7	0.27 U	0.42	0.4	0.42	0.58 U	0.52	0.44	0.45	0.6 U	2.2	3.2	2.1	0.54 U
24406 NEPTUNE AVE	Nov-10	0.44	0.37	0.13	0.77 U	2.9	2.8	2.7	0.79 U	0.5	0.52	0.46	0.79 U	1.7	2.9	0.45	0.54 U	3.7	3.7	2	0.53 U
24406 PANAMA AVE	Aug-12	0.33	0.6	0.05	0.56 U	0.84	3.3	0.63	0.26 U	0.55	0.54	0.5	0.65 U	1	0.73	0.13	0.59 U	0.74	4.7	0.43	0.63 U
24409 NEPTUNE AVE	May-12	0.96	0.13	0.088	0.46 U	1.2	2.7	0.82	0.25 U	0.43	0.56	0.42	0.49 U	1.1	0.43	0.15	1.7	2.2	7.7	0.44	0.49 U
24410 PANAMA AVE	Jul-12	0.53	0.28	0.043	0.54 U	1.1	6.9	0.43	0.56 U	0.48	0.62	0.45	0.5 U	0.16	0.19	0.12	4.2	1.3	5.4	0.25	0.88 U
24411 MARBELLA AVE	Apr-12	0.92	0.15	0.094	0.52 U	0.53	0.99	0.51	0.24 U	0.4	0.43	0.42	0.6 U	0.43	1	0.16	0.55 U	0.65	0.81	0.25	0.58 U
24411 PANAMA AVE	Dec-12	0.96	1.1	0.083	0.68 U	1.1	1.3	1.3	0.58 U	0.52	0.51	0.47	2 U	0.38	0.28	0.29	2.0 U	0.81	0.79	0.69	1.7 U
24413 NEPTUNE AVE	Oct-12	0.12	0.12	0.084	0.73 U	0.76	1.1	0.77	3.9	0.52	0.62	0.5	2.2 U	0.62	0.35	0.26	3.1 U	0.91	0.88	0.34	3.1
24413 RAVENNA AVE	Sep-12	1.3	0.075 U	0.062	0.69 U	1.1	1.6	0.84	0.6 U	0.48	0.53	0.45	2 U	0.38	0.28	0.19	3 U	1.5	3.1	0.47	1.8 U
24416 NEPTUNE AVE	Jul-12	1.6	1.2	0.079	0.59 U	0.94	1.5	1	0.51 U	0.46	0.48	0.45	0.55 U	0.49	1.4	0.17	5.2	1.3	2	0.62	0.96 U
24415 PANAMA AVE	May-12	0.18	0.086	0.082	0.54 U	0.85	0.58	0.42	0.25 U	0.57	0.57	0.52	0.65 U	0.47	0.17	0.14	0.57 U	0.67	0.78	0.2	0.61 U
24419 NEPTUNE AVE	Aug-12	0.56	0.54	0.059	0.56 U	0.71	0.6	0.37	0.57 U	0.45	0.35	0.46	0.53 U	1	0.17	0.13	1.400	0.51	0.59	0.21	0.65 U
24419 RAVENNA AVE	Jun-12	6	2.2	0.062	0.56 U	0.63	0.49	0.27	0.26 U	0.5	0.6	0.5	0.64 U	0.59	0.25	0.094	12	0.63	1	0.13	0.63 U
24420 PANAMA AVE	Dec-12	2.2	0.23	0.12	0.68 U	2.1	2.2	2.2	0.58 U	0.61	0.59	0.61	2 U	0.4	0.51	0.34	2.0 U	1.6	1.7	1.2	1.7 U
24422 MARBELLA AVE	Jul-12	0.2	0.1	0.17	0.55 U	0.6	0.7	0.5	0.55 U	0.48	0.61	0.47	0.53 U	0.22	0.26	0.14	4.5	0.53	0.8	0.19	0.59 U
24422 NEPTUNE AVE	Jan-11	0.81	0.24	0.11	0.76 U	2.9	7.4	1.3	0.75 U	0.44	0.45	0.45	1.7 U	1.8	0.4	0.15	1.1 U	2.1	2.9	0.66	0.47 U
24422 RAVENNA AVE	Dec-12	0.12	0.077	0.073	0.69 U	1.5	1.7	1.7	0.6 U	0.48	0.45	0.45	2 U	0.21	0.46	0.15	2.9 U	0.67	0.78	0.78	1.8 U
24423 MARBELLA AVE	Jun-12	0.21	0.13	0.11	0.48 U	0.42	0.32	0.37	0.26 U	0.45	0.46	0.42	0.52 U	0.27	0.19	0.12	0.48 U	0.47	0.37	0.16	0.52 U
24423 NEPTUNE AVE	Oct-12	7	0.77	-0.13	0.72 U	4.4	1.6	1.6	0.62 U	0.49	0.45	0.49	2.1 U	1	0.24	0.21	6.5	1	0.75	0.76	1.8 U
24423 RAVENNA AVE	Oct-12	0.73	0.16	0.1	0.7 U	2.2	1.4	1.3	0.5 U	0.49	0.9	0.68	2 U	0.4	0.88	0.22	9.4	0.81	0.83	0.69	1.8 U
24426 MARBELLA AVE	Feb-12	0.19	0.11	0.11	0.54 U	2.3	1.7	2	0.36 U	0.46	0.44	0.45	0.55 U	0.48	0.23	0.29	0.57 U	1.3	0.98	1	0.36 U
24426 NEPTUNE AVE	Oct-10	0.21	0.22	0.11	0.75 U	4.1	6.9	2.2	0.74 U	0.43	0.5	0.37	1.7 U	0.82	1	0.3	1.1 U	3.4	4.8	1.7	0.47 U
24426 PANAMA AVE	Dec-12	0.29	0.12	0.095	0.69 U	1.8	1.6	1.5	0.6 U	0.57	0.57	0.55	2 U	0.32	0.25	0.2	3 U	1.5	1	0.83	1.8 U
24427 MARBELLA AVE	Apr-12	0.17	0.12	0.13	0.98 U	0.65	0.74	0.78	0.87 U	0.41	0.36	0.4	1.1 U	0.28	0.17	0.18	1.2 U	0.54	0.76	0.35	0.91 U
24429 NEPTUNE AVE	Jan-11	0.49	0.36	0.2	0.66 U	4.3	12	3.5	0.66 U	0.44	0.42	0.48	1.5 U	1.7	0.0044 U	0.61	0.94 U	4	15	2.5	0.41 U
24430 PANAMA AVE	Nov-12	0.21	0.08	0.057	0.68 U	0.67	0.79	0.49	0.58 U	0.51	0.47	0.48	2 U	0.26	0.1	0.065	2.0 U	0.86	0.76	0.3	1.7 U
24432 MARBELLA AVE	Mar-12	0.16	0.065	0.061	0.95 U	0.49	0.43	0.46	0.84 U	0.46	0.45	0.45	1.1 U	0.76	0.12	0.098	14	0.24	0.19	0.18	0.87 U
24433 MARBELLA AVE	Mar-12	3.7	0.68	0.098	0.59 U	0.93	0.98	1	0.27 U	0.43	0.45	0.45	0.67 U	0.32	0.2	0.17	0.62 U	0.81	0.5	0.39	0.66 U
24436 PANAMA AVE	Jun-12	5.4	0.094	0.056	0.5 U	2.9	0.4	0.5	0.5 U	0.43	0.44	0.43	0.53 U	0.33	0.85	0.13	3.2	1.4	0.32	0.27	0.53 U
24502 MARBELLA AVE	May-12	2.3	0.28	0.12	0.53 U	0.59	0.78	0.83	0.25 U	0.39	0.46	0.46	0.61 U	0.49	0.87	0.23	11	0.43	0.52	0.38	0.6 U
24502 RAVENNA AVE	Jul-12	0.97	0.3	0.048	0.56 U	0.41	0.85	0.32	0.59 U	0.49	0.44	0.46	0.53 U	0.32	0.19	0.15	7.5	0.34	0.25	0.2	0.93 U
24502 RAVENNA AVE	Oct-10	0.97	0.27	0.058	0.74 U	0.62	0.91	0.71	0.74 U	0.41	0.39	0.39	1.6 U	0.47	0.69	0.16	7.7	0.81	0.91	0.54	0.47 U
24503 MARBELLA AVE	Mar-12	0.72	1.3	0.086	1 U	1.7	0.87	0.58	0.21 U	0.42	0.42	0.39	1.2 U	0.35	0.88	0.13	1.2 U	0.45	0.98	0.2	0.95 U
24503 NEPTUNE AVE	Apr-12	0.19	0.46	0.071	1 U	0.84	1.7	0.39	0.93 U	0.47	0.46	0.47	1.2 U	0.52	0.73	0.13	1.2 U	0.55	0.58	0.14	6.2
24503 PANAMA AVE	Aug-12	1.4	0.26	0.051	0.58 U	0.68	0.5	0.4	0.58 U	0.49	0.47	0.44	0.54 U	1.2	0.17	0.12	15	2.7	1.1	0.28	0.95 U
24503 RAVENNA AVE	Nov-12	0.26	0.097	0.1	0.7 U	3	3.9	0.76	0.61 U	0.58	0.74	0.54	2.1 U	0.2	0.27	0.16	3 U	0.76	3.3	0.29	1.8 U
24506 MARBELLA AVE	Mar-12	0.095	0.084	0.066	0.68 U	0.85	2.7	0.78	0.5 U	0.45	0.45	0.45	0.57 U	0.28	0.15	0.12	0.68 U	0.26	0.76	0.21	0.53 U
24508 NEPTUNE AVE	Jan-11	1.7	0.72	0.17	0.75 U	3.7	23	2.9	0.68 U	0.44	0.46	0.42	0.68 U	0.63	0.7	0.34	0.52 U	2.1	1.7	1.8	0.54 U
24508 PANAMA AVE	Apr-12	1.1	0.088	0.063	0.56 U	1.8	1.3	0.46	0.26 U	0.4	0.44	0.42	0.65 U	0.39	0.22	0.1	0.59 U	0.51	0.59	0.21	0.63 U
24509 NEPTUNE AVE	Jul-12	0.11	0.077	0.067	0.48 U	0.24	0.53	0.2	0.48 U	0.45	0.9	0.45	0.49 U	0.47	1.4	0.1	0.48 U	0.26	0.72	0.11	0.52 U
24509 RAVENNA AVE	Apr-12	0.19	0.15	0.097	1 U	0.86	0.87	0.68	0.95 U	0.47	0.47	0.46	1.2 U	0.38	0.32	0.22	1.2 U	0.54	0.62	0.31	0.96 U
24512 MARBELLA AVE	Jan-12	0.14	0.12	0.11	0.54 U	2.4	2.2	2.1	0.25 U	0.42	0.43	0.41	0.55 U	0.34	0.28	0.28	0.57 U	1.1	1	1	0.51 U
24513 NEPTUNE AVE	Aug-12	0.54	1.6	0.068	0.55 U	0.58	0.37	0.6	0.58 U	0.44	0.59	0.41	0.52 U	0.21	0.37	0.24	0.65 U	0.52	0.39	0.17	0.91 U
24513 RAVENNA AVE	May-12	1.4	0.46	0.079	0.53 U	0.44	0.52	0.26	0.25 U	0.52	0.55	0.54	0.61 U	0.76	0.35	0.11	0.56 U	0.83			

Table B-11
Multiple Linear Regression Analysis Input Data
Former Kest Property
Carson, California

Address	Date	1,2-Dichloroethane				Benzene				Cis-butyl trichloride				Chloroform				Ethylbenzene			
		Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor
24518 RAVENNA AVE	Jul-12	4.9	0.4	0.064	0.51 U	0.55	0.46	0.62	0.54 U	0.48	0.53	0.46	0.48 U	0.31	0.17	0.13	0.6 U	0.47	0.28	0.21	0.84 U
24519 NEPTUNE AVE	Jun-12	0.65	0.25	0.074	0.55 U	0.83	1.1	0.38	0.58 U	0.43	0.4	0.42	0.52 U	0.34	0.28	0.17	0.65 U	0.53	1.6	0.34	0.91 U
24522 MARBELLA AVE	Apr-12	4.6	0.81	0.068	0.55 U	0.83	0.66	0.46	0.26 U	0.45	0.41	0.44	0.63 U	0.45	0.13	0.16	0.58 U	0.86	0.38	0.18	0.62 U
24522 NEPTUNE AVE	Apr-12	0.89	0.89	0.75	1.1 U	1	0.82	0.89	0.98 U	0.47	0.55	0.39	1.3 U	0.33	0.31	0.3	1.3 U	1.1	0.65	0.93	1 U
24522 RAVENNA AVE	Aug-12	3.5	0.061	0.063	0.86 U	0.76	0.39	0.38	0.4 U	0.53	0.54	0.52	0.99 U	0.23	0.14	0.12	0.91 U	0.72	0.26	0.22	0.97 U
24523 MARBELLA AVE	Apr-12	0.4	0.12	0.075	0.51 U	0.39	0.36	0.53	0.25 U	0.41	0.43	0.41	0.61 U	0.4	0.36	0.22	0.56 U	0.36	0.59	0.27	0.6 U
24523 NEPTUNE AVE	Oct-12	0.41	1.7	0.075	0.36 U	1	0.83	0.54	0.35 U	0.51	0.5	0.52	0.6 U	0.36	0.19	0.21	0.56 U	0.84	0.98	0.31	0.6 U
24523 RAVENNA AVE	Aug-10	2.9	5.7	0.11	0.77 U	1.3	3.2	1.1	0.76 U	0.55	2	0.52	1.7 U	1.7	4.6	0.2	0.80	1.1	9.2	0.68	0.48 U
24523 RAVENNA AVE	Mar-11	1.1	0.82	0.13	0.77 U	1.6	3.5	0.78	0.77 U	0.5	0.54	0.51	1.7 U	0.66	0.6	0.13	1.1 U	1.3	9.6	0.35	0.48 U
24526 MARBELLA AVE	Apr-12	0.66	0.19	0.076	0.55 U	0.92	0.84	0.54	0.26 U	0.44	0.43	0.45	0.63 U	0.39	0.23	0.15	0.58 U	0.62	1.2	0.27	0.62 U
24528 NEPTUNE AVE	Mar-12	1.4	0.091	0.075	0.52 U	1.3	2	1.3	0.24 U	0.44	0.43	0.43	0.6 U	0.22	0.25	0.18	0.53 U	0.53	0.86	0.61	0.58 U
24529 NEPTUNE AVE	Mar-12	0.56	0.27	0.071	0.57 U	6.8	8.2	1.1	0.27 U	0.43	0.43	0.42	0.66 U	0.49	0.87	0.22	1.4	4.6	6.8	0.4	0.64 U
24529 PANAMA AVE	May-12	2.2	0.098	0.1	0.52 U	1.1	0.74	0.59	0.26 U	0.52	0.51	0.52	0.56 U	2.1	0.33	0.15	0.53 U	1.1	1.1	0.36	0.56 U
24529 RAVENNA AVE	Aug-11	1.8	4.2	0.062	0.66 U	0.98	1.4	0.58	0.48 U	0.42	0.39	0.4	0.53 U	0.27	1	0.15	1.7	0.53	2.2	0.31	0.49 U
24532 MARBELLA AVE	Apr-12	0.21	0.11	0.087	0.98 U	0.89	1.1	0.6	0.87 U	0.41	0.44	0.41	1.1 U	0.37	0.22	0.18	1.2 U	0.64	0.43	0.24	0.9 U
24532 PANAMA AVE	May-12	2.9	0.45	0.08	0.49 U	0.96	0.93	0.39	0.25 U	0.5	0.48	0.48	0.52 U	1	1.8	0.17	4.6	1.3	2.8	1.18	0.52 U
24532 RAVENNA AVE	Nov-12	1.3	0.14	0.12	0.7 U	2	1.9	1.9	0.61 U	0.61	0.63	0.61	2.1 U	0.64	0.28	0.32	3 U	1.4	2.1	1.1	1.8 U
24533 PANAMA AVE	Sep-12	0.22	0.42	0.053	0.56 U	1.7	1.1	0.84	0.56 U	0.49	0.5	0.49	0.6 U	0.6	0.25	0.24	0.56 U	1.3	2.2	0.48	0.6 U
24533 RAVENNA AVE	Sep-12	0.53	0.076	0.077	0.65 U	0.72	0.65	0.64	0.56 U	0.53	0.52	0.5	1.3 U	0.49	0.26	0.19	2.3 U	0.82	0.62	0.41	1.7 U
24602 MARBELLA AVE	May-12	6	0.38	0.059	0.47 U	0.77	1.1	0.51	3.6	0.65	0.75	0.64	0.5 U	0.52	0.82	0.17	2.8	1.1	1	0.23	0.5 U
24602 NEPTUNE AVE	Jun-12	0.35	0.077	0.073	0.49 U	0.58	0.42	0.44	0.49 U	0.44	0.39	0.44	0.52 U	0.51	0.31	0.19	0.49 U	0.5	0.42	0.3	0.52 U
24602 NEPTUNE AVE	Mar-11	0.28	0.1	0.096	0.77 U	0.81	0.63	0.83	0.84 U	0.5	0.53	0.47	0.9 U	0.33	0.25	0.19	0.53 U	0.43	0.59	0.44	0.55 U
24602 RAVENNA AVE	Oct-12	1.5	0.11	0.098	0.72 U	0.87	1.1	0.72	0.62 U	0.55	0.66	0.52	0.79 U	0.65	0.74	0.24	0.74 U	0.64	0.48	0.36	0.79 U
24603 MARBELLA AVE	Jan-10	0.53	0.17	0.14	0.57 U	2.4	3.4	2	0.25 U					1.7	0.6	0.4	2.4	2	3	1.7	0.59 U
24603 MARBELLA AVE	Oct-10	0.53	0.072	0.047	0.74 U	0.61	0.69	0.36	0.67 U	0.4	0.41	0.4	0.67 U	0.3	0.23	0.12	1.40	0.85	1	0.23	0.48 U
24603 PANAMA AVE	Oct-12	0.47	0.073	0.056	0.72 U	0.86	0.44	0.72	0.62 U	0.48	0.5	0.45	2.1 U	0.22	0.2	0.093	1.7	1	0.55	0.31	1.8 U
24603 RAVENNA AVE	Nov-12	1.6	0.58	0.083	0.56 U	0.52	2	0.69	0.26 U	0.56	1.8	0.53	0.64 U	0.78	0.45	0.21	0.58 U	1.6	2.2	0.31	0.62 U
24606 MARBELLA AVE	Jan-12	1.9	0.19	0.17	0.55 U	4.4	4	3.2	0.26 U	0.45	0.45	0.44	0.53 U	0.56	0.5	0.48	0.58 U	2.2	2	1.6	0.51 U
24608 NEPTUNE AVE	May-12	0.41	0.43	0.083	0.55 U	0.45	0.51	0.53	0.65 U	0.57	0.59	0.54	0.64 U	1.8	0.73	2.1	1.9	0.95	2.1	0.26	0.62 U
24608 PANAMA AVE	Apr-12	0.16	0.088	0.079	0.55 U	0.94	0.9	0.88	0.26 U	0.39	0.4	0.39	0.64 U	0.51	0.2	0.2	1.60	0.64	0.49	0.36	0.63 U
24608 RAVENNA AVE	May-12	4.8	0.19	0.088	0.56 U	1.3	0.86	0.47	0.26 U	0.6	0.69	0.53	0.64 U	0.68	0.59	0.14	5.4	0.93	0.85	0.23	0.63 U
24609 NEPTUNE AVE	Dec-10	1.6	0.15	0.12	0.74 U	2	1.6	1.5	5.2	0.52	0.5	0.49	0.87 U	0.8	0.35	0.26	0.52 U	2.2	2	1.6	0.53 U
24609 PANAMA AVE	Feb-11	0.54	0.11	0.11	0.71 U	1.2	1.1	1.2	0.64 U	0.48	0.47	0.47	0.64 U	0.36	0.3	0.16	0.52 U	0.69	0.97	0.49	0.54 U
24609 RAVENNA AVE	Sep-12	1.8	0.12	0.073	0.68 U	1	1.1	0.89	0.58 U	0.52	0.67	0.49	2 U	0.96	0.58	0.31	2.9 U	1.2	0.66	0.55	1.7 U
24612 MARBELLA AVE	May-12	0.13	0.082	0.083	0.55 U	0.52	0.34	0.35	0.26 U	0.47	0.39	0.48	0.63 U	0.17	0.12	0.12	0.58 U	0.32	0.17	0.14	0.62 U
24612 NEPTUNE AVE	Mar-11	1.5	0.34	0.22	0.77 U	1.9	1.2	1.3	0.77 U	0.53	0.48	0.49	1.7 U	0.51	0.44	0.29	6.4	1.4	0.95	0.88	0.48 U
24612 RAVENNA AVE	Oct-12	0.63	0.095	0.09	0.66 U	2.2	0.89	0.96	0.57 U	0.46	0.45	0.43	1.9 U	0.4	0.28	0.28	8.6	0.85	0.68	0.63	1.7 U
24613 MARBELLA AVE	Oct-12	0.68	0.12	0.069	0.51 U	1.7	1.5	0.6	0.51 U	0.5	0.48	0.5	0.55 U	0.39	0.31	0.31	0.81 U	1.3	0.91	0.35	0.55 U
24613 NEPTUNE AVE	May-12	0.21	0.087	0.09	0.49 U	0.42	0.44	0.47	0.49 U	0.48	0.5	0.49	0.51 U	0.36	0.13	0.12	8.8	0.33	0.37	0.2	0.53 U
24613 PANAMA AVE	Feb-11	0.22	0.13	0.14	0.75 U	2.5	1.5	2	0.83 U	0.5	0.5	0.49	0.83 U	0.57	0.28	0.29	0.52 U	1.3	0.91	1.1	0.54 U
24613 PANAMA AVE	Sep-12	0.23	0.049	0.056	0.72 U	0.39	0.49	0.7	0.62 U	0.5	0.49	0.51	2.1 U	0.32	0.18	0.16	3.1 U	0.23	0.2	0.16	1.8 U
24613 RAVENNA AVE	May-11	0.53	0.15	0.099	0.44 U	0.76	2.4	0.47	0.41 U	0.48	0.5	0.49	0.48 U	0.21	0.24	0.12	3.8	0.51	0.9	0.25	0.41 U
24616 MARBELLA AVE	Mar-11	0.16	0.13	0.14	0.8 U	1.1	1.1	1.2	0.87 U	0.55	0.51	0.54	0.93 U	0.3	0.3	0.3	0.56 U	0.61	0.55	0.6	0.57 U
24616 MARBELLA AVE	May-12	0.24	0.056	0.052	0.49 U	0.46	0.42	0.3	0.25 U	0.39	0.39	0.39	0.53 U	0.71	0.35	0.15	0.49 U	0.88	1.3	0.12	0.33 U
24618 NEPTUNE AVE	Jul-11	1.7	0.2	0.19	0.79 U	3.8	3.8	3.9	0.87 U	0.46	0.44	0.45	0.93 U	0.83	0.52	0.51	0.55 U	2.1	2.4	2.3	0.56 U
24618 NEPTUNE AVE	Jul-12	1.2	0.096	0.045	0.55 U	0.49	0.4	0.37	0.58 U	0.44	0.46	0.47	0.52 U	0.49	0.96	0.22	4.3	0.33	0.6	0.15	0.91 U
24618 PANAMA AVE	Apr-12	4.1	2.7	0.077	0.55 U	0.94	0.86	0.45	0.26 U	0.46	0.61	0.45	0.63 U	0.47	0.71	0.12	0.58 U	0.99	1.6	0.19	0.62 U
24619 NEPTUNE AVE	Jul-12	1.5	3.3	0.061	0.57 U	1	1.3	0.67	0.57 U	0.47	0.55	0.46	0.53 U	1.2	0.27	0.24	0.57 U	0.91	2.1	0.36	0.62 U
24619 PANAMA AVE	Dec-11	0.38	0.17	0.17	0.54 U	2.8	3.5	3.8	0.56 U	0.43	0.48	0.42	0.54 U	0.53	0.48	0.36	0.57 U	1.6	1.9	2.2	0.36 U
24619 PANAMA AVE	Feb-11	0.19	0.16	0.16	0.8 U	2.9	2.7	3.1	0.83 U	0.5	0.5	0.49	0.94 U	0.49	0.39	0.36	0.56 U	1.6	1.5	1.5	0.57 U
24622 MARBELLA AVE	Nov-12	14	6.5	0.11	0.68 U	3.6	9.2	1.7	0.58 U	0.67	1.1	0.62	2.1 U	1.1	2.5	0.23	2.9 U	3.3	6.1	0.95	1.7 U
24622 NEPTUNE AVE	Mar-12	4.9	0.15	0.062	1 U	0.67	0.61	0.53	0.91 U	0.42	0.43	0.4	1.2 U	0.45	0.8	0.12	1.2 U	0.94	0.99	0.2	0.95 U
24623 MARBELLA AVE	Jan-11	1.8	0.22	0.21	0.77 U	3.1	3.3	2.9	0.84 U	0.44	0.4	0.41	0.9 U	2	0.41	0.37	0.54 U	2	2.3	1.8	0.55 U
24623 NEPTUNE AVE	Mar-11	4.5	0.11	0.12	0.47 U	1.5	1.2	1.8	0.43 U	0.49	0.52	0.48	0.51 U	0.25	0.23	0.25	0.4 U	1.3	1.9	1.3	0.43 U

Table B-11
Multiple Linear Regression Analysis Input Data
Former Kast Property
Carson, California

Address	Date	L2-Dibromobenzene				Benzene				Carbon tetrachloride				Chloroform				Ethylbenzene			
		Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor
24627 MARBELLA AVE	May-12	1.5	3	0.076	0.55 U	0.56	0.89	0.5	0.58 U	0.46	0.41	0.48	0.52 U	0.4	0.96	0.1	0.65 U	0.46	0.57	0.23	0.91 U
24628 MARBELLA AVE	Jun-11	0.073	0.055	0.054	0.67 U	0.49	0.5	0.4	0.49 U	0.39	0.37	0.38	0.56 U	0.23	0.14	0.15	0.55 U	0.43	0.38	0.34	0.53 U
24628 MARBELLA AVE	Oct-11	0.11	0.13	0.13	0.55 U	0.84	1.3	1.5	0.26 U	0.39	0.37	0.38	0.56 U	0.23	0.26	0.26	0.58 U	0.38	0.7	0.66	0.52 U
24702 PANAMA AVE	Feb-11	0.16	0.24	0.16	1 U	3.4	2.8	2.5	0.63 U	0.47	0.51	0.43	1.3 U	0.67	0.33	0.36	0.96 U	2.8	4.3	1.3	1 U
24702 PANAMA AVE	Feb-11	1.4	0.15	0.12	0.73 U	1.2	1.2	1.2	0.8 U	0.51	0.58	0.48	0.86 U	0.4	0.34	0.22	0.51 U	0.97	0.8	0.86	0.52 U
24703 MARBELLA AVE	Apr-12	7.9	0.21	0.067	0.55 U	0.83	0.76	0.57	0.26 U	0.46	0.46	0.46	0.63 U	0.48	0.36	0.12	0.58 U	1	0.76	0.29	0.62 U
24707 MARBELLA AVE	Sep-12	0.22	0.079	0.077	0.55 U	0.96	0.84	0.64	0.55 U	0.54	0.58	0.5	0.59 U	0.47	0.5	0.18	0.55 U	1.2	0.77	0.33	0.59 U
24708 PANAMA AVE	Aug-12	1.2	0.11	0.063	0.55 U	0.79	0.58	0.55	0.26 U	0.53	0.54	0.47	0.59 U	0.81	0.16	0.13	0.72	1.1	0.7	0.24	0.59 U
24709 NEPTUNE AVE	Aug-12	1	0.057	0.059	0.58 U	0.75	0.53	0.44	0.5 U	0.45	0.43	0.44	0.54 U	0.97	0.16	0.17	0.61 U	1.3	0.41	0.24	0.65 U
24709 PANAMA AVE	Mar-12	0.64	1.2	0.084	0.55 U	1.1	1.1	1.4	0.26 U	0.44	0.33	0.43	0.63 U	0.29	0.23	0.22	0.58 U	0.85	0.57	0.72	0.62 U
24710 MARBELLA AVE	May-12	0.22	0.16	0.06	0.55 U	0.41	1.9	0.28	0.26 U	0.41	0.32	0.41	0.63 U	0.4	0.3	0.21	0.94	0.69	1.5	0.685	0.74
24712 PANAMA AVE	Feb-11	0.22	0.081	0.085	0.77 U	0.91	0.82	0.85	0.84 U	0.48	0.48	0.46	0.9 U	0.33	0.34	0.32	0.53 U	0.58	0.48	0.36	0.55 U
24712 RAVENNA AVE	Jun-11	0.12	0.11	0.051	0.45 U	1.6	6.5	0.29	0.42 U	0.39	0.39	0.39	0.49 U	0.26	0.29	0.14	4.1	2.2	10	0.17	0.42 U
24715 NEPTUNE AVE	Feb-11	0.13	0.088	0.094	0.79 U	1.5	1.2	1.2	0.87 U	0.48	0.47	0.47	0.93 U	0.52	0.29	0.17	0.55 U	1.5	1.2	0.49	0.56 U
24716 MARBELLA AVE	May-12	2.8	0.11	0.069	0.54 U	0.92	0.38	0.28	5.6	0.46	0.49	0.47	0.62 U	0.59	0.38	0.19	890	0.94	0.85	0.14	4.9
24716 RAVENNA AVE	Feb-12	0.66	0.14	0.062	0.58 U	1.8	3.7	0.68	0.38 U	0.45	0.43	0.42	0.58 U	0.42	0.37	0.28	49	1.3	2.2	0.33	0.38 U
24717 MARBELLA AVE	Jul-12	0.29	0.04 U	0.058	0.55 U	0.77	1.1	0.74	0.58 U	0.46	0.46	0.56	0.52 U	0.51	0.39	0.31	0.65 U	0.57	0.69	0.37	0.91 U
24718 NEPTUNE AVE	Feb-12	0.58	0.12	0.072	0.54 U	1.9	1.1	1.2	0.36 U	0.45	0.37	0.46	0.55 U	0.32	0.15	0.14	0.57 U	1.1	0.62	0.36	0.36 U
24718 PANAMA AVE	Oct-12	4.7	2.4	0.11	0.68 U	2	1.8	1.8	0.58 U	0.49	0.6	0.49	2 U	0.29	0.23	0.21	830	0.91	1.5	0.1	0.93 U
24719 NEPTUNE AVE	Jul-12	2.3	0.24	0.059	0.56 U	0.79	0.82	0.54	0.59 U	0.45	0.53	0.44	0.53 U	0.49	0.19	0.17	3 U	1.9	1.8	0.35	1.8 U
24719 PANAMA AVE	Sep-12	0.88	0.37	0.081	0.7 U	1.2	1.2	0.82	0.61 U	0.57	0.53	0.54	2.1 U	0.38	0.44	0.23	3 U	1.9	1.8	0.35	1.8 U
24722 MARBELLA AVE	Jun-12	0.43	0.61	0.085	0.49 U	0.63	0.44	0.42	0.26 U	0.54	1	0.49	0.53 U	0.47	0.24	0.16	0.49 U	0.44	0.47	0.18	0.53 U
24722 NEPTUNE AVE	Apr-12	1	0.093	0.068	0.89 U	0.78	0.58	0.4	0.79 U	0.46	0.48	0.45	1 U	0.34	0.14	0.097	1.1 U	0.32	0.27	0.18	0.83 U
24722 PANAMA AVE	Apr-12	0.53	0.17	0.066	0.56 U	0.78	0.73	0.71	0.26 U	0.45	0.57	0.43	0.65 U	0.26	0.23	0.14	0.59 U	0.51	0.62	0.37	0.63 U
24722 RAVENNA AVE	Nov-12	0.53	0.09	0.074	0.72 U	0.79	1.8	0.56	0.62 U	0.64	0.63	0.6	2.1 U	0.68	0.35	0.25	3.1 U	1.8	3.4	0.2	1.8 U
24723 MARBELLA AVE	Jun-12	1	1.2	0.061	0.57 U	0.81	1.3	0.38	0.77 U	0.43	0.46	0.43	0.66 U	0.29	0.55	0.2	0.6 U	13	6.3	0.25	0.64 U
24723 RAVENNA AVE	Nov-12	0.22	0.15	0.14	0.72 U	1.3	0.72	0.67	0.62 U	0.58	0.58	0.55	2.1 U	0.47	0.3	0.18	3.1 U	1.3	0.56	0.55	1.8 U
24723 NEPTUNE AVE	Jun-12	1.1	0.46	0.062	0.36 U	0.75	8.5	0.43	0.26 U	0.45	1.6	0.43	0.64 U	0.68	4.7	0.23	1.30	0.86	7.3	0.27	0.62 U
24726 MARBELLA AVE	Dec-12	0.56	0.19	0.1	0.66 U	1.4	1.6	1.4	0.58 U	0.31	0.52	0.53	2 U	0.51	0.45	0.4	2.9 U	0.87	0.72	0.69	1.7 U
24728 PANAMA AVE	Nov-12	0.22	0.075	0.072	0.73 U	0.8	0.79	0.88	0.63 U	0.44	0.45	0.43	2.2 U	0.49	0.19	0.17	3.1 U	0.96	0.5	0.46	1.9 U
24729 NEPTUNE AVE	Oct-12	9.6	0.49	0.07	0.62 U	0.74	0.8	0.66	0.54 U	0.55	0.77	0.46	1.8 U	0.3	0.18	0.16	9	0.81	0.46	0.32	1.6 U
24729 RAVENNA AVE	Aug-12	4.9	0.34	0.039	0.82 U	0.81	2.5	0.38	0.84 U	0.5	0.52	0.55	0.94 U	0.57	0.26	0.23	0.86 U	1.2	3.1	0.18	0.92 U
24732 NEPTUNE AVE	Mar-11	0.15	0.19	0.13	0.47 U	1.7	2.3	1.7	0.44 U	0.5	0.46	0.48	0.51 U	0.36	0.31	0.28	0.4 U	1.4	1.8	1.2	0.44 U
24732 PANAMA AVE	Jun-12	1.1	0.14	0.063	0.54 U	0.78	0.69	0.35	0.25 U	0.5	0.52	0.51	0.62 U	0.59	0.18	0.15	0.57 U	0.54	0.64	0.16	0.61 U
24732 RAVENNA AVE	Jun-12	0.094	0.064	0.057	0.5 U	0.41	0.34	0.35	0.26 U	0.43	0.45	0.43	0.54 U	0.31	0.23	0.21	0.5 U	0.36	0.35	0.18	0.54 U
24733 MARBELLA AVE	Jun-12	1.4	0.073	0.071	0.56 U	0.68	0.56	0.38	0.26 U	0.52	0.52	0.51	0.65 U	0.29	0.18	0.16	0.59 U	0.6	0.5	0.25	0.63 U
24733 RAVENNA AVE	Jul-12	0.15	0.11	0.043	0.55 U	0.36	0.39	0.29	0.58 U	0.47	0.46	0.43	0.52 U	0.38	2.4	0.25	2.5	0.39	13	0.14	0.91 U
24735 NEPTUNE AVE	Nov-12	0.37	0.15	0.1	0.7 U	5.2	2.5	1.9	0.6 U	0.82	0.62	0.6	2 U	0.57	0.48	0.26	9.1	1.8	3.3	1	1.8 U
24737 MARBELLA AVE	Dec-12	3	0.17	0.13	0.7 U	3.3	2.6	2.3	0.61 U	0.63	0.64	0.59	2.1 U	0.76	0.92	0.52	3 U	1.8	1.8	1.4	1.8 U
24738 NEPTUNE AVE	Feb-12	0.38	0.12	0.12	0.75 U	2.8	3.2	2.3	3.4	0.46	0.49	0.45	0.76 U	0.79	0.41	0.32	0.78 U	1.8	3	1.3	0.5 U
24738 PANAMA AVE	Sep-12	4.4	0.67	0.093	0.65 U	5.1	8.1	0.64	12	0.52	0.85	0.47	1.9 U	0.31	0.61	0.16	2.8 U	1.8	4.4	0.33	1.7 U
24739 NEPTUNE AVE	Sep-12	4.3	1	0.066	0.52 U	1.1	1.3	0.84	0.52 U	0.52	0.5	0.49	0.56 U	0.54	0.65	0.25	9.6	1.6	4.1	0.45	0.56 U
24739 PANAMA AVE	Oct-12	0.15	0.11	0.097	0.67 U	1.1	4	1.3	0.58 U	0.5	0.97	0.41	2 U	0.67	0.63	0.38	2.8 U	0.62	2.8	0.67	1.7 U
24739 RAVENNA AVE	Mar-11	3.2	0.29	0.08	0.78 U	1.3	1.2	0.97	0.86 U	0.49	0.55	0.48	0.92 U	0.27	0.31	0.17	0.55 U	0.64	0.81	0.4	0.56 U
24741 MARBELLA AVE	Jun-12	3.2	2.7	0.065	0.47 U	0.6	0.62	0.38	0.25 U	0.5	0.42	0.5	0.5 U	0.72	1	0.34	38	0.55	1.5	0.17	0.5 U
24744 MARBELLA AVE	Mar-12	0.3	0.07	0.063	1 U	0.77	0.76	0.47	3.8	0.45	0.45	0.46	1.2 U	0.42	0.25	0.17	1.2 U	1.4	0.35	0.13	0.96 U
24748 RAVENNA AVE	Sep-12	0.74	0.1	0.12	0.59 U	1.1	1.2	1.4	0.59 U	0.56	0.98	0.52	0.63 U	0.6	1.9	0.44	0.59 U	0.88	0.68	0.89	0.63 U
24749 RAVENNA AVE	Dec-10	0.3	0.11	0.1	0.7 U	1.5	1.9	1.5	4.9 U	0.51	0.48	0.51	0.62 U	0.32	0.18	0.16	0.62 U	3.5	5	1.8	1.20
24752 RAVENNA AVE	Jul-12	0.45	0.2	0.086	0.55 U	1.1	1.1	0.49	0.58 U	0.46	0.45	0.44	0.52 U	0.35	0.23	0.36	7.7	1.4	1.6	0.4	0.91 U
24809 NEPTUNE AVE	Jul-12	0.44	0.12	0.052	0.55 U	0.97	1.1	0.45	0.59 U	0.47	0.48	0.45	0.53 U	0.55	0.61	0.11	0.66 U	1.4	1.6	0.3	0.93 U
24809 PANAMA AVE	Mar-12	0.88	0.14	0.056	0.64 U	1.2	1.7	0.64	0.47 U	0.42	0.42	0.4	0.54 U	0.32	0.15	0.12	6.3	0.75	1.2	0.27	0.51 U
24812 PANAMA AVE	Dec-12	2.4	0.91	0.1	0.72 U	1.7	2.5	1.7	0.62 U	0.6	0.86	0.56	2.1 U	0.6	0						

Table B-11
Multiple Linear Regression Analysis Input Data
Former Kast Property
Carson, California

Address	Date	1,2-Dichloroethane				Benzene				Carbon tetrachloride				Chloroform				Ethylbenzene			
		Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor
24818 PANAMA AVE	Jun-12	0.52	0.39	0.069	0.49 U	0.62	0.68	0.33	0.26 U	0.51	0.49	0.48	0.52 U	1	0.5	0.12	30	0.79	1.3	0.14	0.52 U
24819 PANAMA AVE	Apr-11	4.7	4.1	0.081	0.37 U	0.53	2.1	0.35	0.35 U	0.47	0.44	0.45	0.4 U	0.89	0.28	0.18	2.6	1.5	2.5	0.16	0.35 U
24828 PANAMA AVE	Sep-12	0.098	2.7	0.045	0.55 U	0.54	1.9	0.38	0.55 U	0.51	0.51	0.52	0.59 U	0.8	4.2	0.2	0.55 U	0.34	0.29	0.16	0.59 U
24833 PANAMA AVE	Sep-12	0.36	0.071	0.064	0.69 U	1.2	0.87	0.59	0.6 U	0.53	0.66	0.51	2 U	0.36	0.27	0.23	3 U	1.5	0.67	0.37	1.8 U
24833 PANAMA AVE	Nov-12	0.62	0.087	0.062	0.66 U	0.86	1.8	0.76	0.57 U	0.52	0.51	0.48	2 U	0.35	0.086	0.087	2.8 U	1	1.4	0.37	1.7 U
24904 NEPTUNE AVE	Sep-12	2	0.49	0.14	0.72 U	1.4	1.8	1.8	0.62 U	0.54	0.53	0.54	2.1 U	0.3	0.55	0.51	3.1 U	0.9	1.3	1.1	1.8 U
24912 NEPTUNE AVE	Mar-12	0.11	0.085	0.057	1.1 U	0.58	0.54	0.64	0.94 U	0.45	0.46	0.44	1.2 U	0.26	0.15	0.26	1.3 U	0.55	0.46	0.23	0.98 U
305 244TH ST	Oct-12	2.5	2.6	0.12	0.7 U	2	1.7	1.6	0.51 U	0.5	0.5	0.49	2.1 U	0.82	0.4	0.34	3 U	1.4	1.1	0.77	1.8 U
317 244TH ST	Mar-11	0.24	0.14	0.14	0.46 U	1.5	1.7	1.6	0.42 U	0.55	0.57	0.49	0.49 U	0.83	0.39	0.17	399	0.86	1	0.92	0.42 U
331 244TH ST	Aug-12	0.67	1.7	0.096	0.65 U	1.9	0.96	0.58	0.56 U	0.51	0.44	0.52	1.9 U	0.27	0.2	0.17	2.8 U	0.87	1	0.36	1.7 U
337 244TH ST	Nov-10	0.39	0.22	0.095	0.78 U	1.9	5.9	1.3	0.86 U	0.34	0.35	0.34	0.52 U	0.37	1.1	0.18	0.55 U	1.6	5.8	1	0.56 U
341 244TH ST	Aug-12	0.32	0.045	0.04	0.55 U	0.41	0.36	0.37	0.55 U	0.44	0.46	0.44	0.52 U	0.73	0.67	0.13	0.55 U	0.43	0.32	0.22	0.59 U
345 249TH ST	Nov-12	1.5	0.27	0.072	0.72 U	1.1	1.3	0.9	0.62 U	0.44	0.46	0.44	2.1 U	0.41	0.23	0.23	3 U	0.73	0.97	0.39	1.8 U
347 244TH ST	Dec-12	0.13	0.11	0.076	0.7 U	1.9	1.9	1.7	0.61 U	0.5	0.48	0.5	2.1 U	0.31	0.21	0.16	3 U	1.9	2.4	0.88	1.8 U
348 248TH ST	Aug-10	3.1	0.62	0.076	0.8 U	0.96	9.7	0.64	24	0.57	0.69	0.56	1.8 U	0.63	1.6	0.15	1.1 U	1.3	18	0.32	0.5 U
348 248TH ST	Jun-11	0.48	0.38	0.13	0.75 U	1.9	10	1.8	0.68 U	0.49	0.47	0.47	0.68 U	0.9	0.37	0.35	0.68 U	1.3	14	0.92	0.48 U
348 249TH ST	Aug-12	8.6	10	0.11	0.56 U	3.9	16	0.72	0.39 U	0.36	0.39	0.5	0.5 U	0.49	0.35	0.24	41	4.3	14	0.38	0.6 U
351 244TH ST	Oct-10	0.11	0.11	0.049	0.71 U	1.1	6.1	0.44	0.71 U	0.39	0.35	0.38	1.5 U	0.27	0.14	0.26	1 U	1.7	7	0.39	0.45 U
352 249TH ST	Feb-11	0.55	0.16	0.14	0.74 U	2	2.1	2	0.81 U	0.48	0.5	0.48	0.87 U	0.65	0.36	0.31	0.52 U	1.8	1.2	1	0.55 U
353 249TH ST	Feb-11	0.75	0.13	0.12	0.75 U	3	2.2	2	0.83 U	0.44	0.44	0.44	0.88 U	0.5	0.38	0.29	0.52 U	1.8	1.2	0.97	0.54 U
354 243TH ST	Jun-12	0.52	0.23	0.062	0.54 U	3.2	12	0.29	6.4	0.57	0.66	0.47	0.62 U	0.5	0.64	0.19	10	2.3	6.3	0.18	0.6 U
357 244TH ST	Nov-12	0.74	0.13	0.06	0.72 U	0.91	1.1	0.58	0.62 U	0.52	0.49	0.51	2.1 U	0.19	0.084	0.066	3.1 U	1.7	3.2	0.46	1.8 U
357 249TH ST	Aug-12	14	0.32	0.042	0.55 U	0.64	0.63	0.35	0.58 U	0.43	0.52	0.44	0.52 U	0.45	0.44	0.14	47	1.1	4.4	0.18	0.91 U
358 249TH ST	Mar-12	0.26	0.15	0.095	0.52 U	2.5	1.6	2.4	0.24 U	0.46	0.46	0.49	0.6 U	0.49	0.4	0.46	0.55 U	0.95	0.72	1.1	0.58 U
360 248TH ST	Jul-12	6.9	4.5	0.044	0.58 U	0.51	0.38	0.24	0.6 U	0.44	0.44	0.43	0.54 U	0.39	0.22	0.17	0.67 U	0.6	0.67	0.11	0.94 U
361 244TH ST	Nov-10	0.27	0.13	0.13	0.77 U	2.6	3.1	3.1	0.84 U	0.48	0.58	0.47	0.9 U	0.67	0.5	0.69	0.53 U	1.7	2	2	0.55 U
367 249TH ST	Oct-12	0.5	0.13	0.058	0.63 U	0.85	0.36	0.67	0.54 U	0.45	0.39	0.45	1.8 U	0.31	0.22	0.2	37	1.7	0.53	0.3	8.9
368 249TH ST	Aug-12	0.11	0.061	0.052	0.58 U	0.59	0.82	0.47	0.5 U	0.46	0.51	0.43	0.54 U	0.54	0.24	0.17	0.67 U	2.1	0.77	0.24	0.94 U
373 249TH ST	Apr-12	0.41	0.14	0.073	0.98 U	2	2.2	0.64	0.87 U	0.45	0.43	0.48	1.1 U	0.32	0.32	0.2	1.2 U	2	8	0.29	0.9 U
374 248TH ST	Oct-12	9.3	0.16	0.096	0.69 U	0.97	1.2	0.86	0.6 U	0.35	0.5	0.35	2 U	0.59	1.5	0.41	55	0.63	0.97	0.42	1.8 U
377 244TH ST	Jun-12	2.1	2.5	0.058	0.65 U	0.96	1.8	0.44	0.58 U	0.44	0.46	0.44	0.52 U	1.4	0.58	0.13	0.65 U	0.64	1.7	0.3	0.91 U
377 249TH ST	Aug-12	0.72	0.048	0.044	0.83 U	0.83	0.5	0.4	0.39 U	0.55	1.6	0.54	0.95 U	0.51	0.48	0.25	130	0.45	0.48	0.21	0.93 U
378 249TH ST	Feb-12	0.52	0.079	0.067	0.52 U	1.9	1.7	1.1	800	0.45	0.42	0.44	0.53 U	0.3	0.52	0.13	0.54 U	2.7	2.7	0.53	0.34 U
378 249TH ST	May-11	0.77	0.13	0.11	0.43 U	1.5	1.2	0.81	1200	0.57	0.56	0.55	0.46 U	0.53	0.52	0.25	4	2.2	2.6	0.47	0.4 U
383 249TH ST	Jun-12	0.44	0.15	0.083	0.54 U	0.87	1.5	0.58	0.25 U	0.51	0.41	0.52	0.62 U	0.42	0.24	0.36	11	0.97	2.4	0.26	0.61 U
402 249TH ST	Mar-12	2.3	1.5	0.081	0.84 U	1.6	1.5	1.4	0.62 U	0.55	0.34	0.41	0.71 U	0.7	0.68	0.2	0.84 U	1.6	1.3	0.68	0.66 U
412 249TH ST	Sep-12	0.78	0.097	0.06	0.73 U	1.3	2.3	1	0.63 U	0.5	0.46	0.5	2.2 U	0.36	0.26	0.29	3.1 U	1.6	5.8	0.7	6.5

Notes:
All concentrations are reported in µg/m³
U - non-detect

Table B-11
Multiple Linear Regression Analysts Input Data
Former Kast Property
Carson, California

Address	Date	m,p-Xylene				Naphthalene				o-Xylene				Tetrachloroethene				Toluene				
		Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	
24401 MARBELLA AVE	Mar-12	1.2	1.7	0.53	0.87 U	0.14	0.029	0.09	1.3	0.46	0.7	0.2 U	0.95 U	0.22	0.23	0.12	17	3.2	6.7	0.77	5.4	
24402 NEPTUNE AVE	Oct-12	1.7	0.92	0.98	0.97 U	0.65	0.26	0.37	2.7	0.7	0.54	0.35	1.2 U	0.42	0.14	0.13	1 U	2.9	1.7	1.6	0.53 U	
24402 PANAMA AVE	Dec-12	2.9	2.8	3	0.97 U	0.33	0.14	0.18	3.5	1.1	0.99	1.1	1.2 U	0.22	0.22	0.24	1 U	8.1	4.8	4.8	0.53 U	
24402 RAVENNA AVE	Dec-10	7.3	8.6	10	0.36 U	1.2	0.48	0.72	1	2.5	3.1	3.8	0.7 U	1.4	0.97	0.82	0.49 U	14	15	16	3	
24402 RAVENNA AVE	May-12	0.66	0.55 U	0.45 U	0.74 U	1.2	0.18	0.23	0.32	0.3	0.31 U	0.25 U	0.33 U	0.83	0.53	0.044	1 U	3	3.2	0.54	0.38 U	
24403 NEPTUNE AVE	Nov-12	2.6	3.8	0.57	0.95 U	0.53	0.32	0.21	3.9	1	1.3	0.24 U	1.2 U	0.089	0.069	0.053	1 U	10	8.3	1	0.52 U	
24405 MARBELLA AVE	Mar-12	2.4	2.8	2.2	0.84 U	0.22	0.14	0.14	6.3	0.84	0.93	0.77	0.52 U	0.57	0.88	0.084	19	5.2	4.7	3.7	0.38 U	
24406 MARBELLA AVE	Mar-12	3.4	9	3.8	0.73 U	0.34	0.1	0.16	1.8	1.1	2.1	1.3	0.33 U	3.5	0.32	0.33	1 U	7.3	7.1	6.2	2.2	
24406 NEPTUNE AVE	Jan-12	7.9	13	8	0.79 U	0.52	1.3	0.34	0.71	2.8	4.8	2.8	0.33 U	0.47	0.38	0.44	0.5 U	21	46	23	0.4 U	
24406 NEPTUNE AVE	Nov-10	13	16	7.3	0.37 U	1.1	1.8	0.39	0.73	4.6	5.7	2.5	0.72 U	0.47	0.42	0.39	0.5 U	36	16	12	2.2	
24406 PANAMA AVE	Aug-12	1.6	200	1.4	0.77 U	0.19	0.53	0.28	3.9	0.71	5.4	0.46	0.34 U	0.26	1.4	0.24	1.1 U	29	27	21	6.5	
24409 NEPTUNE AVE	May-12	9.4	36	1.9	0.73 U	1.1	1.3	0.11	4.7	3.5	13	0.69	0.33 U	0.58	0.27	0.1	0.39 U	11	29	29	0.39 U	
24410 PANAMA AVE	Jul-12	4.9	26	1	0.45 U	0.58	2.7	0.12	2.8 U	1.9	9.5	0.36	0.64 U	0.43	0.14	0.23	-1.5 U	8.8	61	21	0.36 U	
24411 MARBELLA AVE	Apr-12	1.8	2.4	1.1	0.72 U	0.23	0.2	0.15	2	0.75	0.94	0.36	0.32 U	2.5	0.17	0.39	0.99 U	13	22	21	0.37 U	
24411 PANAMA AVE	Dec-12	2.2	2.7	2.6	0.92 U	0.23	0.21	0.17	1.9	0.84	0.95	0.93	1.1 U	0.35	0.18	0.17	48	4.5	4.1	4.3	6.5	
24413 NEPTUNE AVE	Oct-12	2.3	3.2	1.4	0.7	0.23	1.1	0.17	3.4	0.92	1.2	0.49	1.2 U	0.13	0.31	0.16	0.99 U	11	5.5	3	0.51 U	
24413 NEPTUNE AVE	Oct-12	2.3	3.2	1.4	0.7	0.23	1.1	0.17	3.4	0.92	1.2	0.49	1.2 U	0.13	0.31	0.16	0.99 U	11	5.5	3	0.51 U	
24413 RAVENNA AVE	Sep-12	3.8	9.8	1.7	0.94 U	0.46	1	0.2	1.9	1.3	2.3	0.78	0.7 U	0.4	0.29	0.21	1 U	3.1	3.5	1.2	0.38 U	
24415 NEPTUNE AVE	Jul-12	3.5	7	2.1	0.49 U	0.23	0.21	0.29	3.1 U	1.3	2.3	0.78	0.7 U	0.4	0.29	0.21	1 U	3.4	21	1.2	0.37 U	
24415 PANAMA AVE	May-12	2	2.7	0.59	0.75 U	1.4	0.54	0.11	0.68	0.65	0.9	0.31 U	0.34 U	0.75	0.059	0.089	1 U	13	9.4	3.2	0.61 U	
24419 NEPTUNE AVE	Aug-12	0.93	1.1	0.57	0.48 U	0.39	0.13	0.19	0.86 U	0.43	0.38	0.27 U	0.68 U	0.12	0.062	0.013 U	0.49 U	4.8	4.2	0.84	0.39 U	
24419 RAVENNA AVE	Jul-12	1.3	4.7	0.52 U	0.77 U	0.28	0.13	0.055	0.31 U	0.55	0.57	0.29 U	0.34 U	0.1	0.088	0.17	1.1 U	4.8	4.2	0.84	0.39 U	
24420 PANAMA AVE	Dec-12	3	4.1	2.7	0.92 U	0.77	0.28	0.24	2.6	1.2	1.5	1	1.1 U	0.38	0.3	0.3	0.97 U	12	12	5	0.5 U	
24422 MARBELLA AVE	Jul-12	1.2	2.4	0.73	0.48 U	0.28	0.16	0.19	0.62 U	0.5	0.72	0.29 U	0.62 U	0.34	0.89	0.17	0.47 U	3.3	8.6	1.4	4.6	
24422 NEPTUNE AVE	Jan-11	6.9	9.9	2.4	0.56 U	0.65	0.55	0.21	1.3 U	2.6	3.4	0.83	0.92 U	0.24	0.18	0.35	1.3 U	23	67	4.3	0.68 U	
24422 RAVENNA AVE	Dec-12	2.4	3	3.1	0.93 U	0.09	0.1	0.15	2.2	0.86	1	1.3	1.1 U	0.16	0.2	0.2	0.98 U	8	5.5	5	0.51 U	
24423 MARBELLA AVE	Jan-12	1.1	1.1	0.65	0.76 U	0.32	0.086	0.29	1.2	0.65	0.54	0.29	0.34 U	0.29	0.53	0.075	2.6	5.2	3.6	1.6	0.39 U	
24423 NEPTUNE AVE	Oct-12	2.5	2.2	2.5	0.97 U	0.55	0.3	0.22	0.59 U	0.99	0.77	0.92	1.2 U	0.3	0.14	0.17	1 U	25	5	5	6.5	
24423 RAVENNA AVE	Oct-12	2.5	3.3	2.8	0.94 U	0.29	0.16	0.12	5.8	1	1.2	1.1	1.1 U	0.16	0.45	0.18	0.99 U	8.4	11	7.9	0.51 U	
24426 MARBELLA AVE	Feb-12	3.9	3.2	3.3	0.64 U	0.56	0.26	0.26	1.4	1.3	1.1	1.1	0.47 U	0.29	0.29	0.24	19	11	7.2	6.2	0.35 U	
24426 NEPTUNE AVE	Oct-10	15	22	7.3	0.55 U	0.81	0.83	0.58	1.3 U	4.8	6.9	2.5	0.91 U	0.35	0.44	0.36	1.3 U	30	47	14	0.68 U	
24426 PANAMA AVE	Dec-12	3.5	2.8	2.3	0.94 U	0.35	0.3	0.18	2.1	1.3	1	0.86	1.1 U	1.7	0.21	0.21	0.99 U	11	6.2	3.8	2.4	
24429 MARBELLA AVE	Apr-12	1.8	2.1	1.4	0.85 U	0.19	0.55	0.1	1.6	0.61	0.79	0.52	0.94 U	0.39	0.099	0.084	5.1	2.9	7.2	2.5	0.6 U	
24429 NEPTUNE AVE	Jan-11	1.4	7.7	8	4.5	0.93	1.1	0.54	1.4	4.4	23	2.7	0.8 U	0.53	0.54	0.45	360	22	84	17	33	
24430 PANAMA AVE	Nov-12	2.4	2.9	1.2	0.92 U	0.38	0.23	0.16	2.3	0.94	1	0.45	1.1 U	0.096	0.061	0.14	12	26	9.6	2	0.5 U	
24432 MARBELLA AVE	Mar-12	0.63	0.58	0.69	0.83 U	0.11	0.15	0.065	0.9	0.23	0.22 U	0.24	0.9 U	0.18	0.074	0.15	1.5 U	1.7	1.1	1.1	0.58 U	
24433 MARBELLA AVE	Mar-12	1.8	1.6	1.3	0.81 U	0.23	0.18	0.14	6.5	0.84	0.57	0.48	0.36 U	0.37	0.19	0.1	7.9	9.9	3.2	2.8	0.41 U	
24436 PANAMA AVE	Jun-12	3.6	0.97	0.91	0.48 U	0.71	0.35	0.16	0.74 U	1.5	0.38	0.33	0.57 U	1.4	0.11	0.19	9.6	3.9	2.7	2.7	0.5 U	
24502 MARBELLA AVE	May-12	0.95	1.3	1.1	0.73 U	0.17	0.13	0.17	3.4	0.36	0.49	0.39	0.33 U	0.32	1.4	0.081	1.1 U	2.7	3.1	3	0.37 U	
24502 RAVENNA AVE	Jul-12	0.85	0.72	0.71	0.48 U	0.23	0.13	0.084	3.1 U	0.36	0.28 U	0.28 U	0.67 U	1.4	0.655	0.25	1.5 U	2.4	2.6	1.1	0.39 U	
24502 RAVENNA AVE	Oct-10	1.8	1.5	1.6	0.55 U	0.43	0.18	0.48	1.3 U	0.42	0.55	0.55	0.9 U	0.24	0.093	0.092	3 U	8.1	3.1	2.9	0.67 U	
24503 MARBELLA AVE	Mar-12	1.5	4.6	0.86	0.89 U	0.32	0.54	0.17	3.5	0.55	1.5	0.31	0.98 U	2.1	0.45	0.072	1.40	4.4	17	21	0.62 U	
24503 NEPTUNE AVE	Apr-12	1.2	1.7	0.42 U	20	0.21	0.17	0.14	1.1	0.45	0.56	0.2 U	4.6	0.057	0.1	0.22	1.7 U	2.1	3.8	0.73	1.6	
24503 PANAMA AVE	Aug-12	4.1	2.4	0.76	0.49 U	0.9	0.26	0.12	4.5	1.7	0.78	0.29 U	0.69 U	9.2	0.059	0.33	0.96 U	9	4.7	1.4	4.6	
24503 RAVENNA AVE	Nov-12	2.5	11	0.8	0.95 U	0.34	0.43	0.16	0.6	1.3	4.8	0.3	1.2 U	0.73	0.12	0.1	19	4.8	13	1.3	0.52 U	
24503 MARBELLA AVE	Mar-12	1	3.6	0.84	0.92 U	0.18	0.13	0.076	3.8	0.36	1.2	0.29	0.5 U	0.096	0.069	0.19	0.5 U	2.3	6.2	1.5	0.57 U	
24503 NEPTUNE AVE	Jan-11	7.1	110	6	0.36 U	0.43	1.5	0.38	0.76	2.5	32	2.1	0.7 U	0.5	0.51	0.43	0.49 U	12	110	11	0.68 U	
24503 PANAMA AVE	Apr-12	1.3	1.8	0.72	0.77 U	0.24	0.14	0.094	5.2	0.56	0.63	0.27	0.34 U	1.7	0.73	0.074	1.1 U	9.4	3.3	1.5	3.4	
24509 NEPTUNE AVE	Jul-12	0.73	2.2	0.52 U	0.44 U	0.27	0.15	0.055	0.72 U	0.35	0.73	0.29 U	0.35 U	0.29	0.045	0.11	0.41 U	1.9	6.8	0.9	1.3	
24509 RAVENNA AVE	Apr-12	1.2	2.2	0.95	0.91 U	0.44	0.36	0.1	0.77	0.47	0.72	0.31	0.99 U	1.1	1	0.22	10	3.5	5	1.5	0.63 U	
24512 MARBELLA AVE	Jan-12	3.9	3.4	3.8	0.74 U	0.19	0.2	0.51	0.92	1.4	1.2	1.3	0.33 U	0.24	0.21	0.22	0.48 U	10	3.5	5	1.5	0.63 U
24513 NEPTUNE AVE	Aug-12	0.99	0.89	0.48 U	0.47 U	0.87	0.15	0.21	2.9 U	0.45	0.43 U	0.26 U	0.66 U	0.29	0.58	0.067	1.5 U	2.9	2.3	1.1	0.58 U	
24513 RAVENNA AVE	May-12	1.3	0.98	0.46 U	0.74 U	0.4	0.21	0.047	0.38	0.67	0.5	0.25 U	0.33 U	1.3	0.092	0.16	1 U	10	1.4	0.58	0.38 U	
24516 MARBELLA AVE	May-12	2	3.7	0.5 U	0.76 U	0.42	0.53	0.12	1.6	0.63	0.95	0.28 U	0.34 U	0.34	0.15	0.083	1 U	4.1	2.8	0.51	0.39 U	
24517 MARBELLA AVE	Mar-12	1.6	2.2	0.65	16	0.27	0.73	0.16	2.5	0.63	0.87	0.27	6.5	0.078	0.1	0.045	5.7	4.2	3.7	1.2	4.5	

Table B-11
Multiple Linear Regression Analysis Input Data
Former Kast Property
Carson, California

Address	Date	m,p-Xylene				Naphthalene				o-Xylene				Tetrachloroethene				Toluene			
		Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor
24518 RAVENNA AVE	Jul-12	1.3	0.83	0.79	0.43 U	0.72	0.2	0.12	2.7 U	0.54	0.32	0.29 U	0.61 U	0.16	0.1	0.13	1.4 U	8.3	1.4	1.4	0.54 U
24519 NEPTUNE AVE	Jun-12	1.3	3.6	0.74	0.47 U	0.19	0.3	0.11	2.9 U	0.48	1.3	0.28	0.66 U	0.27	0.15	0.091	1.5 U	3.3	1.1	1.3	0.58 U
24522 MARBELLA AVE	Apr-12	1.7	1	0.65	0.76 U	0.51	0.18	0.12	2.3	0.67	0.38	0.24 U	0.34 U	0.25	0.081	0.11	1 U	5.9	1.8	1.2	0.39 U
24522 NEPTUNE AVE	Apr-12	3.8	2.4	1.2	0.96 U	0.23	0.27	0.14	1.6	1.3	0.89	0.41 U	1 U	0.11	0.22	0.097	1.8 U	4.8	3.4	2	0.67 U
24522 RAVINNA AVE	Aug-12	1.2	0.58	0.63	1.2 U	0.32	0.17	0.18	1.3	0.56	0.29 U	0.27 U	0.53 U	0.21	0.56	0.28	1.6 U	4.8	1.1	1	0.61 U
24522 MARBELLA AVE	Apr-12	0.94	1.8	1.1	0.73 U	0.23	0.31	0.096	8.5	0.35	0.53	0.39	0.39 U	0.5	0.39	0.059	45	3	2.8	1.9	3.1
24523 NEPTUNE AVE	Oct-12	2.5	4	0.96	0.87 U	0.38	0.62	0.21	1.7	0.95	1.4	0.37	0.64 U	0.11	0.11	0.36	0.48 U	7	3.9	1.8	0.47 U
24523 RAVINNA AVE	Aug-10	2.6	280	1.8	0.57 U	0.42	1.4	0.45	2.2	1	1.20	0.75	0.93 U	0.18	0.18	0.15	1.3 U	5.9	450	6	0.69 U
24523 RAVINNA AVE	Mar-11	3.2	30	1.2	0.57 U	0.96	0.71	0.18	2.5	1.2	1.1	0.42	0.94 U	0.16	0.14	0.099	1.4 U	9.8	110	1.9	0.7 U
24526 MARBELLA AVE	Apr-12	1.9	4.6	0.77	0.76 U	0.32	0.42	0.12	2.7	0.69	1.7	0.28	0.34 U	0.13	0.11	0.26	1 U	4.8	15	1.3	0.39 U
24528 NEPTUNE AVE	Mar-12	2	3.5	2.8	4.7	0.14	0.12	0.084	10	0.73	1.2	0.94	0.32 U	3.5	0.14	0.12	0.99 U	3.6	6.8	4.4	0.37 U
24529 NEPTUNE AVE	Mar-12	19	36	1.3	3.7	1.2	2.4	0.096	7.7	7.1	13	0.48	0.35 U	0.21	0.084	0.13	82	21	45	4.8	0.4 U
24529 PANAMA AVE	May-12	2.8	2.9	0.94	0.77 U	1.2	0.88	0.26	1.5	1.3	0.95	0.34	0.34 U	0.6	0.32	0.47	0.44 U	6.1	2.1	1.5	0.4 U
24529 RAVINNA AVE	Aug-11	1.7	9.4	1.1	5	0.42	0.93	0.1	2.5	0.65	3.7	0.4	0.48 U	0.22	0.091	0.089	9.5	7.1	12	2.9	0.55 U
24532 MARBELLA AVE	Apr-12	2	1.6	1	0.85 U	0.54	0.13	0.13	0.92	0.77	0.56	0.37	0.94 U	0.15	0.072	0.077	1.6 U	5	3.9	1.5	0.6 U
24532 PANAMA AVE	May-12	4.2	10	0.57	0.73 U	0.51	0.85	0.11	0.76	1.4	2.9	0.28 U	0.33 U	0.52	0.22	0.46	0.42 U	6.7	18	0.94	0.37 U
24532 RAVENNA AVE	Nov-12	3.6	6.1	3.1	0.95 U	0.5	0.6	0.43	1.8	1.4	2.1	1.1	1.2 U	1.2	3.5	0.37	1 U	12	11	5.2	0.52 U
24533 PANAMA AVE	Sep-12	3.4	4.4	1.4	0.99 U	0.42	0.5	0.21	2.9	1.2	1.6	0.49	0.64 U	0.4	0.12	0.13	0.48 U	6	12	2.4	0.54 U
24533 RAVENNA AVE	Sep-12	2.2	2	1.1	0.88 U	1.6	0.28	0.13	0.63	0.9	0.71	0.39	1.1 U	0.13	0.025	0.28	0.93 U	4.9	4.9	1.9	0.48 U
24602 MARBELLA AVE	May-12	1.5	2	0.56	0.74 U	0.64	0.22	0.28	1.5	0.66	0.83	0.29 U	0.33 U	1.3	0.45	0.11	0.4 U	3	5.9	0.97	32
24602 NEPTUNE AVE	Jun-12	1.2	1.2	0.79	0.47 U	0.15	0.28	0.12	0.73 U	0.48	0.54	0.3	0.56 U	0.13	0.078	0.21	0.42 U	2.4	2.6	2.4	0.49 U
24602 NEPTUNE AVE	Mar-11	1.3	2	1.2	0.37 U	0.3	0.28	0.18	1.6	0.5	0.59	0.45	0.71 U	0.13	0.2	0.17	0.5 U	2.7	5.4	2.2	0.69 U
24602 RAVENNA AVE	Oct-12	1.7	1.5	1.2	0.97 U	0.64	0.077	0.15	5	0.72	0.5	0.45	0.84 U	5.3	0.14	0.38	14	6.7	4.7	2.4	0.53 U
24603 MARBELLA AVE	Jan-10	7.2	12	6.3	0.37 U	0.43	0.66	0.36	2.1 U	2.8	4.5	2.2	0.2 U	1.9	9.8	0.7	11	12	1.6	11	0.22 U
24603 MARBELLA AVE	Oct-10	2.3	3.3	0.76	0.56 U	0.46	0.35	0.2	1.8	1.1	1.3	0.28	0.74 U	1.3	8.9	0.074	14	4	3.7	1.4	0.67 U
24603 PANAMA AVE	Oct-12	2.9	2	1.4	0.97 U	1.3	0.22	0.19	0.59 U	1.1	0.75	0.5	1.2 U	0.07	0.042	0.044	1 U	5.3	3.1	4	6.8
24603 RAVENNA AVE	May-12	3.9	6.1	1	0.76 U	0.56	0.96	0.3	0.94	0.74	2.2	0.45	0.34 U	0.68	0.13	0.12	1 U	3.6	14	2.7	4.3
24606 MARBELLA AVE	Jan-12	5.9	6.1	5.3	3.9	0.42	0.31	0.47	0.76	2	2.2	1.9	0.34 U	0.47	0.47	0.46	2.2	11	12	10	14
24608 NEPTUNE AVE	May-12	1.6	6	0.73	0.76 U	0.29	0.26	0.16	0.77	0.57	1.2	0.28 U	0.14	0.15	0.077	1 U	2.4	5.6	1.3	0.39 U	
24608 PANAMA AVE	Apr-12	2	1.9	1.6	0.77 U	0.46	0.17	0.13	4.2	0.73	0.65	0.53	0.34 U	0.08	0.086	0.084	98	6.2	3.4	2.9	0.39 U
24608 PANAMA AVE	May-12	2	2.2	0.59	0.77 U	0.29	0.3	1.6	0.46	0.93	1.1	0.28 U	0.34 U	5.6	0.3	0.13	1.1 U	6.1	2.2	1	3.3
24609 NEPTUNE AVE	Dec-10	6.2	5.4	4.5	0.36 U	0.55	0.49	0.34	1.9	2.3	1.9	1.5	0.69 U	0.34	0.4	0.24	0.48 U	16	6.2	5.6	0.67 U
24609 PANAMA AVE	Feb-11	2.1	3.3	1.6	0.36 U	0.38	0.25	0.18	3.2	0.79	1.1	0.55	0.7 U	0.51	1.3	0.18	0.49 U	5	6.8	3.9	0.64 U
24609 RAVENNA AVE	Sep-12	2.3	1.6	1.5	0.92 U	0.3	0.41	0.31	0.92	0.97	0.61	0.62	1.1 U	0.61	0.35	0.14	0.97 U	4	3.3	2.3	0.5 U
24612 MARBELLA AVE	May-12	0.92	0.55	0.53	0.76 U	0.56	0.15	0.11	0.3 U	0.37	0.25 U	0.25 U	0.34 U	0.74	0.054	0.041	1 U	2.4	1.1	1	0.39 U
24612 NEPTUNE AVE	Mar-11	3.9	3.2	2.9	0.57 U	2	0.67	0.65	2	1.4	1.1	1	0.94 U	0.27	0.27	0.18	1.4 U	9.9	5.7	4.9	0.7 U
24612 RAVENNA AVE	Oct-12	2.7	3	3	0.89 U	0.19	0.16	0.21	5.5	1	1.1	1.1	1.1 U	0.11	0.099	0.098	0.94 U	5.4	7.9	4.6	5.3
24613 MARBELLA AVE	Oct-12	3.2	3.7	1.2	0.88 U	0.42	0.22	0.097	3.3	1.3	1.2	0.44	0.58 U	0.09	0.082	0.086	0.44 U	6.1	6.5	1.9	0.48 U
24613 NEPTUNE AVE	May-12	0.9	1.2	0.54 U	0.45 U	0.5	0.18	0.099	0.74 U	0.39	0.48	0.3 U	0.56 U	0.19	0.073	0.17	0.42 U	2.4	1.3	1.1	0.49 U
24613 PANAMA AVE	Feb-11	4.4	2.8	3.4	0.36 U	0.33	0.2	0.23	0.8	1.5	0.94	1.1	0.7 U	0.42	0.23	0.33	120	9.8	17	7	0.68 U
24613 PANAMA AVE	Sep-12	0.58	0.68	0.57	0.97 U	0.18	0.079	0.11	4.5	0.26 U	0.31 U	0.28 U	1.2 U	0.47	0.19	0.15	190	9.1	2.1	1.2	0.53 U
24613 RAVENNA AVE	May-11	1.2	2.5	0.7	0.38 U	0.25	0.41	0.14	2.8	0.52	0.92	0.26	0.44 U	0.33	0.52	0.077	0.48 U	3.1	5.3	1.4	17
24616 MARBELLA AVE	Mar-11	1.6	1.6	1.8	0.38 U	0.35	0.15	0.21	0.94	0.58	0.54	0.63	0.74 U	0.21	0.21	0.23	0.52 U	3.5	3.6	3.9	0.71 U
24617 MARBELLA AVE	May-12	1.7	3.1	0.58 U	0.74 U	0.66	0.49	0.48	4.7	0.63	0.77	0.32 U	0.33 U	8.3	1.4	0.23	39	15	14	0.91	5.5
24618 NEPTUNE AVE	Jan-11	8.2	9.4	9	0.38 U	0.47	0.4	0.42	1.4	2.9	3.2	3.1	0.73 U	0.67	0.67	0.7	0.52 U	15	19	15	0.71 U
24618 NEPTUNE AVE	Jul-12	1.2	2.9	0.48	0.47 U	2	0.59	0.061	2.9 U	0.43	1	0.26 U	0.66 U	0.046	0.34	0.041	1.5 U	2.9	3.9	0.98	0.58 U
24618 PANAMA AVE	Apr-12	1.9	4.1	0.53	0.76 U	0.32	0.29	0.11	2	0.75	1.2	0.27 U	0.34 U	0.32	0.22 U	0.11	1 U	7.8	13	0.9	0.39 U
24619 NEPTUNE AVE	Jul-12	2	7.9	1.3	0.49 U	0.4	0.95	0.2	0.85 U	0.86	3	0.47	0.65 U	0.86	0.45	0.26	0.49 U	14	7.7	2	0.57 U
24619 PANAMA AVE	Dec-11	5.5	7.1	8.4	0.64 U	0.3	0.28	0.37	0.46	2.1	2.3	3	0.47 U	3.8	0.34	0.34	0.47 U	9.7	12	13	3.4
24619 PANAMA AVE	Feb-11	4.9	5	5	0.39 U	0.44	0.35	0.58	2.4	1.7	1.7	1.8	0.74 U	0.14	1.2	0.48	0.52 U	10	28	9.6	9.7
24622 MARBELLA AVE	Nov-12	9.1	18	2.7	0.92 U	0.49	0.59	0.27	0.55 U	3.3	5.3	0.99	1.1 U	0.31	0.3	0.34	0.97 U	14	20	4.1	0.5 U
24622 NEPTUNE AVE	Mar-12	3.3	3.4	0.77	0.89 U	0.23	0.15	0.12	3.1	1.6	1.3	0.29	0.98 U	0.4	0.071	0.12	1.7 U	11	14	1.3	0.62 U
24623 MARBELLA AVE	Jan-11	6.2	7.4	5.4	0.37 U	0.47	1.9	0.5	0.96	2.2	2.6	1.9	0.72 U	2.5	0.44	0.39	0.5 U	13	13	9.9	0.60 U
24623 NEPTUNE AVE	Mar-11	2.9	4.2	3.4	0.37 U	1	0.33	0.48	0.55	1	1.4	1.2	0.47 U	0.2	0.19	0.25	0.5 U	6.1	4.5	6.5	0.47 U

Table B-11
Multiple Linear Regression Analysis Input Data
Former Kast Property,
Carson, California

Address	Date	m,p-Xylene				Naphthalene				o-Xylene				Tetrachloroethene				Toluene			
		Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor
24627 MARBELLA AVE	May-12	0.95	1.4	0.78	0.47 U	0.24	0.23	0.061	2.9 U	0.43	0.55	0.29 U	0.66 U	0.068	0.13	0.15	1.5 U	2.2	3.6	1.2	0.58 U
24628 MARBELLA AVE	Jun-11	1	1.2	1.3	0.38 U	0.21	0.13	0.32	1.2	0.39	0.42	0.39	0.49 U	0.055	0.056	0.062	1.9	1.8	1.6	1.5	0.36 U
24628 MARBELLA AVE	Oct-11	1.5	2.9	2.8	0.76 U	0.12	0.11	0.12	0.51	0.53	1	0.99	0.34 U	0.1	0.17	0.16	0.49 U	3.7	6.3	6.1	5.4
24629 NEPTUNE AVE	Feb-11	9.4	16	4	0.54 U	4.4	2.1	0.41	1.7 U	3.7	5.8	1.4	0.57 U	0.31	0.38	0.34	1.2 U	12	18	6.5	0.47 U
24702 PANAMA AVE	Feb-11	3.1	2.8	3.4	0.35 U	0.57	0.19	0.92	0.71	1.1	0.93	1.2	0.68 U	0.53	0.52	0.18	0.48 U	11	5.2	4.9	36
24703 MARBELLA AVE	Apr-12	2.2	2.5	0.76	0.76 U	0.67	0.75	0.12	4	1	0.87	0.28	0.34 U	0.33	1	0.26	1 U	5	7.5	1.4	0.39 U
24703 MARBELLA AVE	Sep-12	3.3	2.7	1	0.94 U	0.56	0.77	0.35	1.4	1.2	0.95	0.37	0.63 U	0.21	0.1	0.54	11	6.6	4.5	2.1	0.51 U
24708 PANAMA AVE	Apr-12	3.3	2.6	0.78	0.77 U	1.3	0.6	0.19	3.8	1.3	1.1	0.25	0.34 U	1.2	0.42	0.23	2	11	3	1.4	0.4 U
24709 NEPTUNE AVE	Aug-12	2.7	1.3	0.7	0.48 U	0.97	0.38	0.073	0.91 U	1.1	0.53	0.27	0.68 U	0.9	0.094	0.16	4.8	7	3	1.4	0.6 U
24709 PANAMA AVE	Mar-12	3.9	1.7	2.5	0.76 U	0.18	0.13	0.15	6	2.1	0.68	0.89	0.34 U	0.35	0.11	0.16	1 U	4.3	3.1	4	0.39 U
24710 MARBELLA AVE	May-12	1.2	6.6	0.5 U	57	0.23	0.14	0.076	3.5	0.47	2.7	0.28 U	37	0.1	0.12	0.18	1 U	9	18	0.71	35
24712 PANAMA AVE	Feb-11	1.7	1.8	1.3	0.37 U	0.39	0.35	0.71	0.73	0.6	0.61	0.46	0.71 U	0.68	1.2	0.11	0.5 U	5.7	3.3	2.3	0.69 U
24712 PANAMA AVE	Jun-11	8.2	4.2	0.58	0.37 U	0.38	0.5	0.12	5	2.8	1.4	0.21	0.45 U	0.48	0.603	0.11	4.6	16	69	1.3	0.45 U
24715 NEPTUNE AVE	Feb-11	5.1	4.4	1.8	0.38 U	0.91	1.1	0.21	0.34 U	1.8	1.7	0.62	0.73 U	0.16	0.16	0.17	0.52 U	13	10	3.9	0.71 U
24716 MARBELLA AVE	May-12	2.8	2.7	0.51 U	0.75 U	0.56	1.5	0.889	4.9	1.1	1.1	0.28 U	0.34 U	0.63	0.44	0.037	20	4.8	2.3	0.78	6.2
24716 RAVENNA AVE	Feb-12	4.4	7.5	1.1	0.68 U	0.67	0.54	0.094	1.5	1.6	2.5	0.41	0.5 U	0.099	0.066	0.094	0.68 U	9	18	1.7	0.37 U
24717 MARBELLA AVE	Jul-12	1.3	2.4	1	0.47 U	0.31	0.15	0.27	2.9 U	0.48	0.82	0.39	0.66 U	0.57	0.075	0.26	10	2.8	4.6	1.4	0.38 U
24718 NEPTUNI AVE	Feb-12	3	1.8	1.8	0.64 U	0.25	0.21	0.2	1.3	1.1	0.66	0.64	0.47 U	1.4	0.69	0.31	12	9.9	4.3	3.1	0.35 U
24718 PANAMA AVE	Oct-12	4.4	10	4.4	0.92 U	0.81	0.37	0.3	0.67	1.8	3.9	1.5	1.1 U	2	1.5	0.19	200	16	12	8.3	0.5 U
24719 NEPTUNI AVE	Jul-12	2.3	4.9	1.1	0.48 U	0.34	0.27	0.17	3 U	0.81	1.4	0.39	0.67 U	0.36	0.058	0.055	1.5 U	5.8	5.1	1.8	0.59 U
24719 PANAMA AVE	Sep-12	4.1	4	0.84	0.95 U	0.41	0.6	0.13	1.6	1.6	1.3	0.3 U	1.2 U	0.95	0.16	0.15	1 U	6.1	4.2	1.6	12
24722 PANAMA AVE	Jun-12	0.9	1	0.59	0.76 U	0.33	0.2	0.14	0.74	0.35	0.36	0.24	0.34 U	0.32	0.05	0.035	0.42 U	5.3	3.9	0.99	4.8
24722 NEPTUNI AVE	Apr-12	0.75	0.67	0.46 U	0.77 U	0.35	0.11	0.24	1.8	0.28	0.24	0.22 U	0.85 U	4.7	0.13	0.035	1.4 U	2	1.3	0.74	38
24722 MARBELLA AVE	Apr-12	1.6	1.7	1.2	0.77 U	0.34	0.16	0.12	7.5	0.6	0.65	0.44	0.34 U	0.35	0.24	0.27	1.1 U	3.9	4.4	2.4	0.4 U
24722 RAVENNA AVE	Nov-12	7.7	14	0.59	0.98 U	0.62	1.1	0.2	2.1	4.6	5	0.28 U	1.2 U	0.16	0.051	0.039	1 U	15	17	1.1	0.53 U
24723 MARBELLA AVE	Jun-12	48	22	0.87	0.79 U	0.32	1.3	0.2	0.57	12	7.8	0.28 U	0.35 U	0.31	0.077	0.19	1.1 U	2.8	9.8	1.1	3.4
24723 RAVENNA AVE	Nov-12	4	1.9	1.5	0.97 U	0.41	0.28	0.2	1.1	1.6	0.79	0.73	1.2 U	0.15	0.1	0.12	1 U	7.1	3.3	1.5	0.33 U
24725 NEPTUNI AVE	Jun-12	1.6	20	0.59	0.76 U	0.28	0.6	0.07	0.83	0.73	7.7	0.29 U	0.34 U	1.6	0.77	0.12	1 U	3.6	7.6	4	0.39 U
24726 MARBELLA AVE	Dec-12	2.4	2.4	2.5	0.92 U	0.41	0.18	0.18	3	0.9	0.89	0.93	1.1 U	0.18	0.23	0.2	0.97 U	11	3.9	4	0.51 U
24728 PANAMA AVE	Nov-12	2.8	2.1	1.9	0.99 U	0.2	0.12	0.11	2.1	1.1	0.76	0.72	1.2 U	0.78	0.074	0.07	1 U	5.9	7.5	4.3	0.54 U
24729 NEPTUNE AVE	Oct-12	3.5	2.3	1.5	0.84 U	0.28	0.18	0.11	3.4	1.3	0.81	0.53	1 U	0.095	0.056	0.058	0.89 U	8.9	4.3	2.4	0.46 U
24729 RAVENNA AVE	Aug-12	2	7.2	0.5 U	1.1 U	0.35	0.14	0.099	1.2	0.69	1.6	0.28 U	0.5 U	0.15	0.1	0.27	1.6 U	5.1	9.7	0.83	0.58 U
24732 NEPTUNE AVE	Mar-11	4.1	5.3	4.6	0.33 U	3.7	1.4	0.39	0.67	1.4	1.8	1.6	0.47 U	0.43	0.63	0.39	0.45 U	7.9	12	7.2	15
24732 PANAMA AVE	Jun-12	1.2	2.1	0.5 U	0.74 U	0.51	0.2	0.18	1.5	0.57	0.71	0.28 U	0.33 U	0.29	0.36	0.088	1 U	2.7	4.7	0.89	23
24732 RAVENNA AVE	Jun-12	0.9	0.86	0.55	0.77 U	0.17	0.13	0.066	0.31 U	0.41	0.35	0.28 U	0.34 U	0.17	0.26	0.22	0.43 U	1.5	1.7	1.1	0.39 U
24733 MARBELLA AVE	Jun-12	1.5	1.6	0.5 U	0.77 U	0.37	0.5	0.099	0.55	0.3 U	0.32 U	0.28 U	0.34 U	0.56	0.041	0.23	1.1 U	4.3	2.1	0.94	11
24733 RAVENNA AVE	Jul-12	0.81	48	0.51 U	0.47 U	0.58	0.15	0.14	2.9 U	0.34	14	0.28 U	0.65 U	0.13	0.46	0.037	6.1	4	18	0.84	0.38 U
24735 NEPTUNI AVE	Nov-12	5.2	10	2.6	0.95 U	0.75	0.48	0.45	1.7	1.8	2.6	0.29	1.1 U	0.58	0.32	0.24	1 U	22	24	4.2	0.51 U
24737 MARBELLA AVE	Dec-12	3.7	3.9	3.6	0.95 U	0.42	0.24	0.29	1.2	1.4	1.4	1.4	1.2 U	3.5	0.39	0.37	33	15	7	6.1	4.6
24738 NEPTUNI AVE	Feb-12	5.8	11	4.6	6.1	0.37	0.86	0.25	2	1.9	3.6	1.7	0.63 U	0.33	0.26	0.31	7.5	9.9	14	6.8	10
24738 PANAMA AVE	Sep-12	3.4	13	1.2	0.88 U	0.71	0.49	0.2	14	1.4	2.8	0.42	1.1 U	0.8	1.4	0.11	0.93 U	5.3	19	2.1	0.48 U
24739 NEPTUNE AVE	Sep-12	3.4	13	1.2	0.97 U	0.53	0.43	0.31	1.2	1.2	3.9	0.46	0.5 U	0.68	0.37	0.44	0.45 U	5.5	5.6	2	0.52 U
24739 PANAMA AVE	Oct-12	2.4	12	2.9	0.9 U	0.3	0.27	0.26	0.91	0.88	3.9	1	1.1 U	0.12	0.43	0.17	0.96 U	4.6	21	4.8	26
24739 RAVENNA AVE	Mar-11	1.6	2.2	1.3	0.38 U	0.48	0.44	0.53	5.2	0.57	0.78	0.47	0.73 U	0.21	0.23	0.2	0.51 U	5.5	5.4	3.2	0.7 U
24741 MARBELLA AVE	Jun-12	1.6	5.3	0.55	0.74 U	0.51	1.2	0.081	0.36	0.62	2	0.29 U	0.33 U	0.6	0.24	0.11	769	4.3	4.8	1.1	0.38 U
24744 MARBELLA AVE	Mar-12	4.7	1.3	0.5	0.91 U	0.41	0.24	0.068	0.88	1.9	0.46	0.21 U	0.59 U	0.46	0.076	0.15	58	6.1	2.9	1.1	0.63 U
24748 RAVENNA AVE	Sep-12	2.2	2.1	3.2	0.99 U	0.31	0.17	0.36	3.6	0.87	0.77	1.1	0.67 U	0.21	0.2	0.66	0.5 U	4.4	5.4	5.6	0.84 U
24749 RAVENNA AVE	Dec-10	11	20	7.2	49	0.45	1	0.34	2.5	2.8	7.5	1.9	34	0.23	0.26	0.29	0.62 U	9.7	36	4.5	26
24752 RAVENNA AVE	Jul-12	3.5	3.9	1.3	0.47 U	0.49	0.53	0.14	2.9 U	1.3	1.5	0.46	0.66 U	0.21	0.3	0.18	1.5 U	9.2	9.6	2.3	0.58 U
24809 NEPTUNE AVE	Jul-12	5.5	7.9	1	0.48 U	0.64	1.3	0.19	3 U	2.1	2.7	0.38	0.67 U	0.21	0.095	0.07	1.5 U	14	8.9	1.6	0.59 U
24809 PANAMA AVE	Mar-12	2.6	4.7	0.94	0.89 U	0.17	0.24	0.11	2.9	1	1.4	0.35	0.47 U	0.4	2	0.056	0.47 U	8.9	35	1.5	0.54 U
24812 PANAMA AVE	Dec-12	3.3	3.8	2.4	0.97 U	0.48	1.1	0.24	1.9	1.3	1.4	0.9	1.2 U	0.23	0.19	0.19	1 U	7.9	8.1	3.9	30
24813 PANAMA AVE	Aug-12	0.67	0.85	0.55 U	1.1 U	0.34	0.16	0.12	1.3	0.31	0.32	0.31 U	0.51 U	0.15	0.24	0.14	1.6 U	1.5	3	0.77	0.88 U
24815 NEPTUNE AVE	Mar-12	1.6	1.8	0.72	0.87 U	0.2	0.24	0.078	0												

Table B-11
Multiple Linear Regression Analysis Input Data
Former Kast Property
Corson, California

Address	Date	m,p-Xylene				Naphthalene				o-Xylene				Tetrahydrothiophene				Toluene				
		Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	Indoor Air	Garage Air	Outdoor Air	Sub-Slab Soil Vapor	
24818 PANAMA AVE	Jun-12	1.6	3.6	0.55	0.77 U	0.46	1	0.074	2.9	0.69	1.5	0.28 U	0.34 U	0.11	0.14	0.16	0.42 U	4.3	15	0.71	7.3	
24819 PANAMA AVE	Aug-11	3.8	7.6	0.44	0.38 U	0.41	1.2	0.17	0.78	1.2	2.6	0.17 U	0.37 U	0.19	0.13	0.078	0.4 U	23	35	1	0.37 U	
24828 PANAMA AVE	Sep-12	0.72	0.84	0.56 U	0.88 U	0.43	0.15	0.11	5.2	0.32	0.35	0.31 U	0.63 U	0.69	0.091	0.16	0.47 U	3.2	11	1.1	0.48 U	
24832 PANAMA AVE	Sep-12	2.5	1.1	0.81	0.94 U	0.48	0.29	0.16	1.3	1	0.46	0.31	1.1 U	0.36	0.32	0.19	0.99 U	3.3	2.3	1.5	0.51 U	
24833 PANAMA AVE	Nov-12	1.9	3.6	1.1	0.9 U	0.3	0.61	0.37	1.1	0.79	1.4	0.38	1.1 U	0.19	0.065	0.1	0.95 U	3.6	4.3	2	0.49 U	
24904 NEPTUNE AVE	Sep-12	2.1	3.8	3.3	0.97 U	1.1	0.46	0.39	4.3	0.81	1.4	1.2	1.2 U	1.1	0.35	0.41	1 U	6	7.2	5.8	0.33 U	
24912 NEPTUNE AVE	Mar-12	1.6	1.8	0.52	0.92 U	0.15	0.12	0.084	9.4	0.56	0.54	0.34	1 U	0.84	1.4	0.23	10	3.5	2.3	1.4	0.64 U	
305 244TH ST	Oct-12	4.9	4.2	3.5	0.95 U	0.35	0.4	0.21	0.56 U	2	1.6	1.3	1.2 U	0.22	0.22	0.15	1 U	17	13	6.9	0.52 U	
317 244TH ST	Mar-11	2.2	2.7	2.6	0.55 U	0.31	0.33	0.36	1.4	0.8	0.98	0.92	0.46 U	0.21	0.23	0.14	16	5.1	5.6	5.6	0.46 U	
331 244TH ST	Aug-12	2	2.4	1.3	0.88 U	0.31	0.17	0.17	3.4	0.85	0.59	0.48	1.1 U	0.4	0.1	0.2	18	2.7	2.5	1.6	0.48 U	
337 244TH ST	Nov-10	6.6	26	4.4	0.38 U	0.27	0.37	0.34	0.35	2.5	9.3	1.6	0.73 U	0.23	0.21	0.24	0.51 U	17	51	8.6	0.7 U	
341 244TH ST	Aug-12	0.91	0.75	0.57	0.47 U	0.33	0.16	0.26	0.83 U	0.38	0.29 U	0.25 U	0.63 U	0.098	0.17	0.19	0.47 U	3.4	1.7	1.1	0.35 U	
345 249TH ST	Nov-12	2.5	4.3	1.6	0.97 U	0.18	0.78	0.087	1.6	0.97	1.5	0.57	1.2 U	0.59	0.1	0.086	1 U	5.7	6.8	2.5	0.53 U	
347 244TH ST	Dec-12	6.9	9.9	3.4	0.95 U	0.27	0.44	0.28	1	2.5	3.5	1.2	1.2 U	0.23	0.25	0.25	1 U	10	11	5.2	0.52 U	
348 248TH ST	Aug-10	1.8	5.7	0.78	0.59 U	0.57	3.6	0.4	2.1	0.74	21	0.32	0.97 U	0.3	0.29	0.26	1.4 U	7.9	61	1.4	0.72 U	
348 248TH ST	Jun-11	3.8	69	3.1	0.57 U	0.52	3.1	0.27	1.3 U	1.4	20	1.1	0.78 U	0.36	0.32	0.31	0.68 U	10	98	6.3	0.68 U	
348 249TH ST	Aug-12	9.3	40	1.1	1.2 U	0.35	0.64	0.22	4.9	3.3	17	0.39	0.52 U	2.4	3.6	0.2	0.48 U	21	91	1.9	0.56 U	
351 244TH ST	Oct-10	4.6	37	1.4	0.53 U	0.45	1.2	0.47	1.2 U	1.6	12	0.36	0.87 U	0.15	0.082	0.26	1.2 U	8.7	49	3.2	0.78	
352 249TH ST	Feb-11	3.3	4.8	3.5	0.36 U	0.43	0.18	0.22	1	1.2	1.7	1.2	0.69 U	45	21	0.31	0.48 U	9	17	6.9	0.66 U	
353 249TH ST	Feb-11	7	3.9	3.8	0.36 U	3.7	0.4	0.41	0.43	2.4	1.3	1.3	0.7 U	0.32	0.21	0.22	0.49 U	12	10	7	6.1	
354 248TH ST	Jun-12	5.7	23	0.48 U	6.6	0.4	2.5	0.655	1.2	2.2	8.4	0.56 U	0.33 U	0.26	0.28	0.044	1 U	12	30	0.74	1.8	
357 244TH ST	Nov-12	5	11	1.2	0.97 U	0.64	0.93	0.14	5.6	1.8	3.5	0.45	1.2 U	0.36	1.3	0.14	1 U	12	16	2	0.53 U	
357 249TH ST	Aug-12	2.5	14	0.55	0.47 U	0.71	2	0.091	2.9 U	0.99	5.7	0.38 U	0.66 U	0.2	0.072	0.067	1.5 U	9.4	20	0.87	3.5	
358 249TH ST	Mar-12	3.2	2.9	4.2	5.8	0.29	0.12	0.29	4.4	1.1	1	1.5	0.33 U	0.24	0.26	0.38	0.99 U	5.7	4.9	6.2	5	
360 248TH ST	Jul-12	1.4	1.8	0.47 U	0.48 U	0.39	0.23	0.088	3 U	0.62	0.62	0.36 U	0.68 U	0.22	0.22	0.067	1.6 U	5.3	3.2	0.64	0.6 U	
361 244TH ST	Nov-10	5.2	7.9	7.9	0.37 U	0.42	0.67	0.43	1.8	1.8	2.7	2.7	0.71 U	0.36	0.46	0.49	0.5 U	11	14	13	0.69 U	
367 249TH ST	Oct-12	2.8	1.5	1.1	0.86 U	0.25	0.12	0.074	6.4	1.3	0.57	0.4	1 U	0.094	0.14	0.061	0.9 U	7.2	2.9	1.8	6.2	
368 249TH ST	Aug-12	3.3	3	0.87	0.48 U	0.43	0.55	0.11	3 U	1.5	1.2	0.33	0.68 U	0.59	0.1	0.004	45	5.4	6.4	1.6	5	
373 249TH ST	Apr-12	9.2	41	1.1	0.85 U	0.53	1.6	0.17	0.81	4.2	19	0.43	0.94 U	0.089	0.058	0.13	1.6 U	4.6	13	1.5	4.4	
374 248TH ST	Oct-12	1.8	3.6	1.4	0.94 U	0.17	0.13	0.13	4	0.73	1.3	0.51	1.1 U	0.078	0.097	0.17	0.99 U	3.8	5.4	2.5	0.51 U	
377 244TH ST	Jun-12	1.5	5.7	0.83	0.47 U	0.32	0.2	0.14	2.9 U	0.65	1.8	0.34	0.66 U	0.5	6.6	3.4	0.76	1.5 U	7.3	1.1	1.5	0.88 U
378 249TH ST	Aug-12	1.3	1.3	0.52 U	1.1 U	0.4	0.26	0.097	0.73	0.66	0.39	0.29 U	0.51 U	0.5	0.41	0.43	1.6 U	11	1.8	0.92	0.88 U	
378 249TH ST	Feb-12	9.5	12	2.1	0.61 U	0.4	0.61	0.17	15	3.8	4.9	0.73	0.45 U	0.33	0.17	0.1	0.62 U	12	11	3.5	150	
378 249TH ST	May-11	6.3	9.1	1.4	0.37 U	0.97	0.91	0.48	0.32 U	2.6	3.8	0.52	0.43 U	0.41	0.15	0.098	0.46 U	16	12	2.3	0.43 U	
383 249TH ST	Jun-12	3.6	12	0.79	0.74 U	0.68	2.1	0.12	0.56	1.2	4.1	0.32	0.33 U	0.47	0.045	0.036	1 U	6.2	11	1.8	5.6	
402 249TH ST	Mar-12	5.2	4.7	2.3	0.89 U	1.3	1.6	0.16	1.2	1.9	1.7	0.78	0.62 U	1.3	0.71	0.25	0.62 U	10	7.6	4.3	0.62 U	
412 249TH ST	Sep-12	3.1	20	1.9	5.2	0.66	1.6	0.16	9.1	1.8	6.6	0.68	1.2 U	1.2	8.4	0.082	18	11	40	3	12	

Notes:
All concentrations are reported in µg/l
U - non-detect

Table B-12
Multiple Linear Regression Analysis Input Data Summary Statistics
Former Kast Property
Carson, California

Analyte	Indoor Air				Garage				Outdoor Air				Sub-Slab Soil Vapor			
	N	Detection Frequency	Min	Max	N	Detection Frequency	Min	Max	N	Detection Frequency	Min	Max	N	Detection Frequency	Min	Max
<i>All Data:</i>																
1,2-Dichloroethane	199	100%	0.073	22	199	99%	0.04 U	10	199	100%	0.04	0.75	199	1%	0.37 U	47
Benzene	199	100%	0.24	6.8	199	100%	0.32	81	199	100%	0.2	4.5	199	7%	0.24 U	1200
Carbon tetrachloride	198	100%	0.34	0.67	198	100%	0.32	2	198	100%	0.34	0.68	198	0%	0.4 U	2.2 U
Chloroform	199	100%	0.16	2.1	199	99%	0.0044 U	4.7	199	100%	0.065	2.1	199	31%	0.4 U	1400
Ethylbenzene	199	100%	0.23	13	199	100%	0.17	92	199	100%	0.085	3.2	199	5%	0.34 U	170
m,p-Xylene	199	100%	0.58	48	199	99%	0.55 U	280	199	89%	0.42 U	10	199	7%	0.33 U	57
Naphthalene	199	100%	0.09	4.4	199	100%	0.029	14	199	100%	0.047	1.6	199	79%	0.3 U	15
o-Xylene	199	99%	0.23	12	199	95%	0.22 U	120	199	74%	0.17 U	3.8	199	2%	0.2 U	37
Tetrachloroethene	199	100%	0.046	45	199	99%	0.041 U	14	199	99%	0.013 U	0.82	199	22%	0.39 U	760
Toluene	199	100%	1.5	91	199	100%	1.1	450	199	100%	0.51	22	199	28%	0.22 U	1200
<i>Detected Sub-slab Data Only :</i>																
Chloroform	61	100%	0.16	1.8	61	100%	0.12	4.7	61	100%	0.093	2.1	61	100%	1.7	1400
Naphthalene	157	100%	0.09	3.7	157	100%	0.029	14	157	100%	0.047	1.6	157	100%	0.32	15
Tetrachloroethene	44	100%	0.055	14	44	100%	0.056	9.8	44	100%	0.037	0.7	44	100%	1.9	760
Toluene	56	100%	1.9	36	56	100%	1.3	84	56	100%	0.71	17	56	100%	2.2	1200

Notes:

All concentrations are reported in $\mu\text{g}/\text{m}^3$

N - sample size

ND - non-detect

Table B-13
 Multiple Linear Regression Analysis Results
 Former Kast Property
 Carson, California

Analyte	Log-transformed Data			R ²
	Coefficient Estimates			
	β_1 - GA to IA	β_2 - OA to IA	β_3 - SS to IA	
<i>1,2-Dichloroethane</i>	0.51	-0.16	-0.24	23%
<i>Benzene</i>	0.27	0.54	0.03	72%
<i>Carbon Tetrachloride</i>	0.10	0.74	0.01	79%
Chloroform	0.14	0.34	0.07	25%
<i>Ethylbenzene</i>	0.31	0.31	0.06	53%
<i>m,p-Xylene</i>	0.31	0.39	-0.02	57%
Naphthalene	0.33	0.22	-0.05	35%
<i>o-Xylene</i>	0.32	0.36	-0.02	53%
Tetrachloroethene	0.38	0.61	0.03	32%
Toluene	0.20	0.34	-0.02	40%

Notes:

Analytes in italics - These analytes had low sub-slab soil vapor detection frequencies (less than 10%). MLRA includes properties where constituent was not detected in sub-slab soil vapor. Bolded and unshaded values indicate statistically significant coefficient estimates, tested at a 5% level of significance. Coefficient estimates are for log-transformed data

Table B-14
Full and Reduced Model Multiple Linear Regression Analysis Results
Former Kast Property
Carson, California

Analyte	Full Model				Reduced Model			F-test for Comparison of Full and Reduced Models	
	Coefficient Estimates			R ²	Coefficient Estimates		R ²	p-value	Conclusion
	β_1 - GA to IA	β_2 - OA to IA	β_3 - SS to IA		β_1 - GA to IA	β_2 - OA to IA			
<i>1,2-Dichloroethane</i>	0.51	-0.16	-0.24	23%	0.51	-0.19	23%	0.236	Do not reject H ₀ , reduced model is correct.
<i>Benzene</i>	0.27	0.54	0.03	72%	0.28	0.54	72%	0.164	Do not reject H ₀ , reduced model is correct.
<i>Carbon Tetrachloride</i>	0.10	0.74	0.01	79%	0.11	0.76	78%	0.084	Do not reject H ₀ , reduced model is correct.
<i>Chloroform</i>	0.14	0.34	0.07	25%	0.15	0.35	21%	0.071	Do not reject H ₀ , reduced model is correct.
<i>Ethylbenzene</i>	0.31	0.31	0.06	53%	0.31	0.31	53%	0.138	Do not reject H ₀ , reduced model is correct.
<i>m,p-Xylene</i>	0.31	0.39	0.02	57%	0.31	0.39	57%	0.661	Do not reject H ₀ , reduced model is correct.
<i>Naphthalene</i>	0.33	0.22	-0.05	35%	0.33	0.23	34%	0.358	Do not reject H ₀ , reduced model is correct.
<i>o-Xylene</i>	0.32	0.36	-0.02	53%	0.32	0.36	53%	0.731	Do not reject H ₀ , reduced model is correct.
<i>Tetrachloroethene</i>	0.38	0.61	0.03	32%	0.38	0.60	31%	0.771	Do not reject H ₀ , reduced model is correct.
<i>Toluene</i>	0.20	0.34	-0.02	40%	0.19	0.34	40%	0.780	Do not reject H ₀ , reduced model is correct.

Notes:

Analytes in italics - These analytes had low sub-slab soil vapor detection frequencies (less than 10%). MLRA includes properties where constituent was not detected in sub-slab soil vapor.

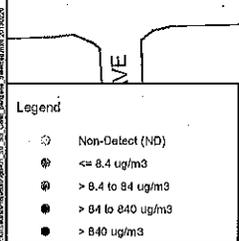
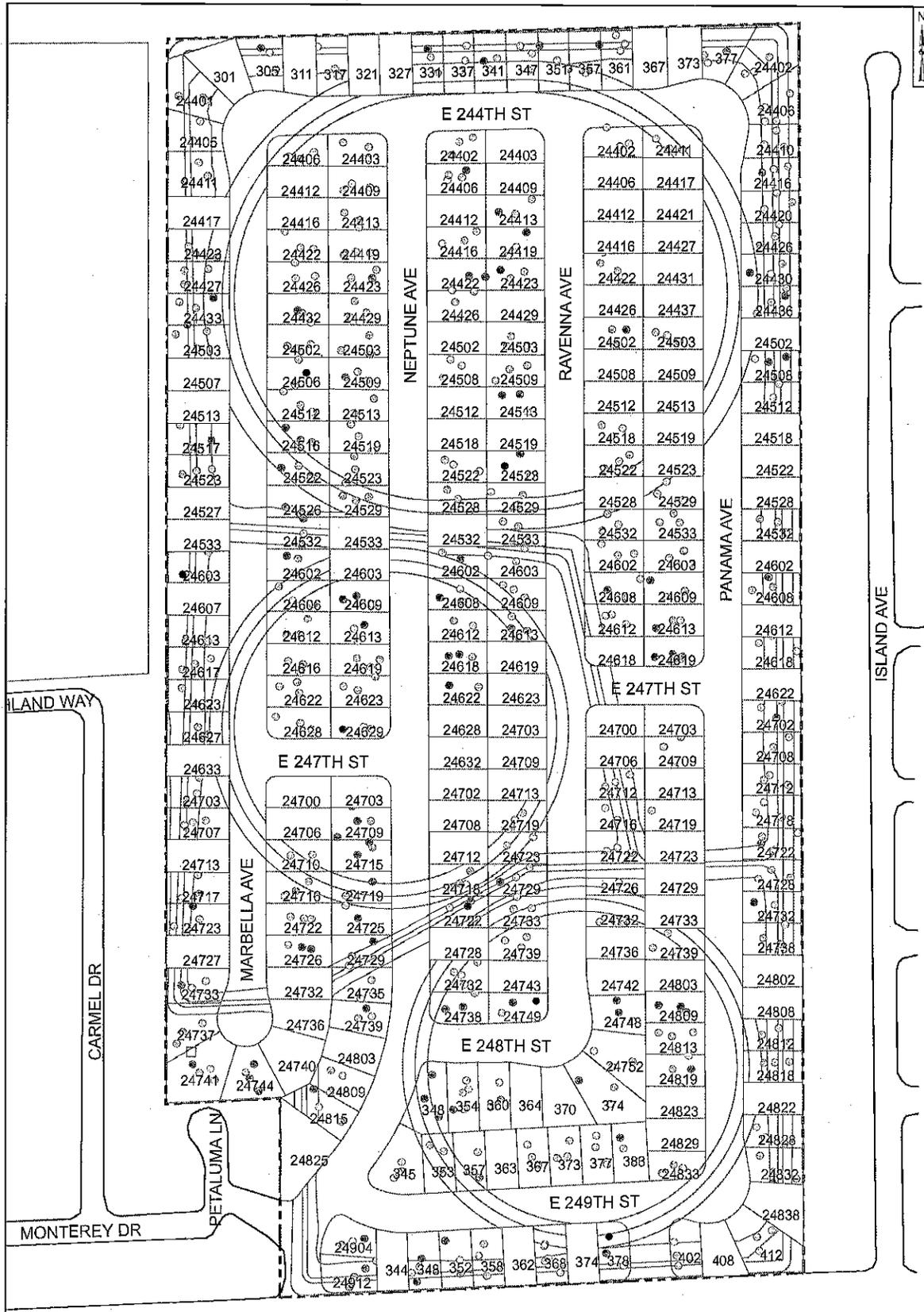
Bolded and unshaded values indicate statistically significant coefficient estimates, tested at a 5% level of significance.

Coefficient estimates are for log-transformed data

H₀ - null hypothesis

APPENDIX B
Vapor Intrusion Evaluation

FIGURES



150 75 0 150 Feet

**Benzene Sub-Slab Soil
Vapor Analytical Results**

Former Kast Property

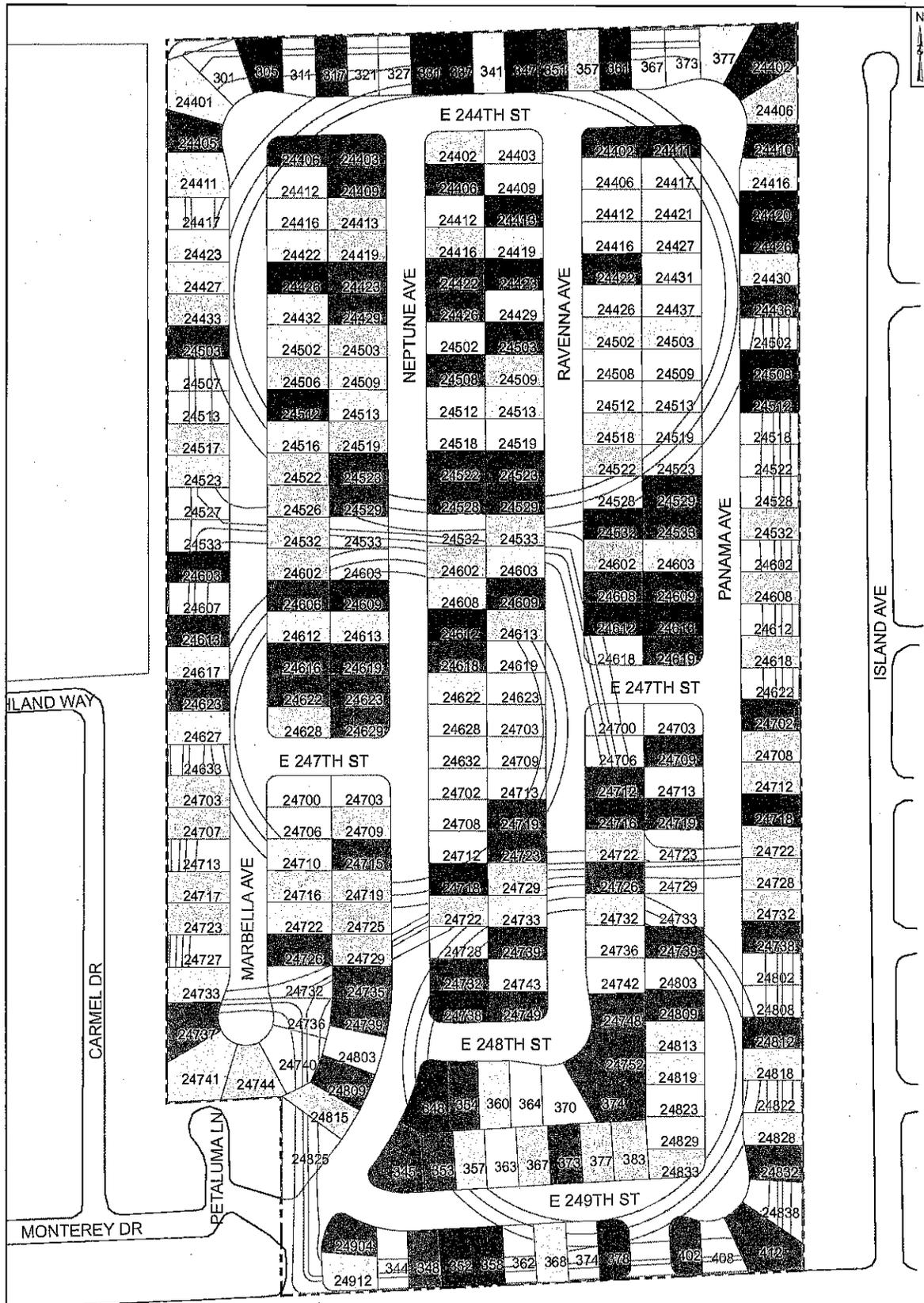
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Santa Barbara February 2013

Figure

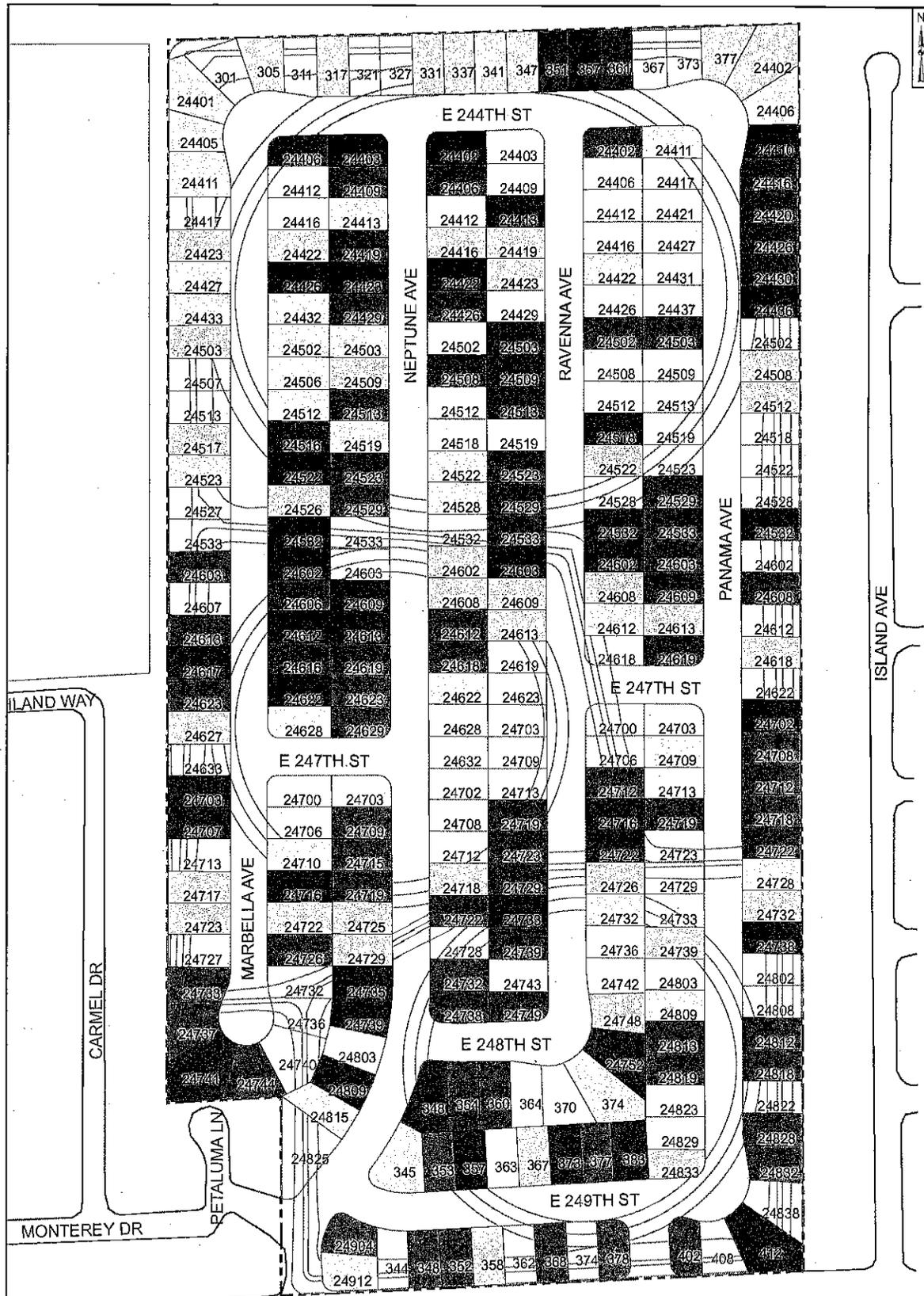
B-1

10/20/2013 10:30 AM
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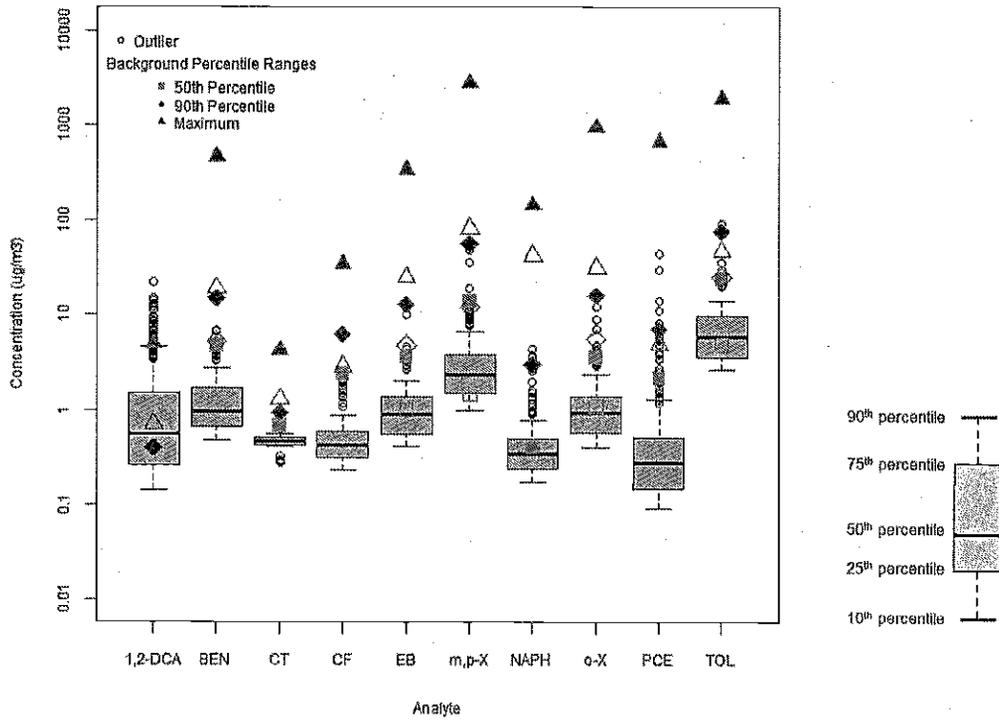
<p>Legend</p> <ul style="list-style-type: none"> <= 25th Percentile > 25th to <= 50th Percentile > 50th to <= 75th Percentile > 75th to <= 90th Percentile > 90th Percentile 	<p>150 75 0 150 Feet</p>	
	<p>Benzene Indoor Air Analytical Results</p> <p>Former Kast Property</p>	
	<p>Geosyntec[®] consultants</p>	
	<p>Santa Barbara</p>	<p>February 2013</p>

Figure
B-3



<p>Legend</p> <ul style="list-style-type: none"> ≤ 25th Percentile > 25th to ≤ 50th Percentile > 50th to ≤ 75th Percentile > 75th to ≤ 90th Percentile > 90th Percentile 	<p>150 75 0 150 Feet</p>	
	<p>Naphthalene Indoor Air Analytical Results</p> <p>Former Kast Property</p>	
	<p>Geosyntec[®] consultants</p>	
	<p>Santa Barbara</p>	<p>February 2013</p>

Figure
B-4



Comparison of Indoor Air Results to Literature Background Concentrations

Former Kast Property

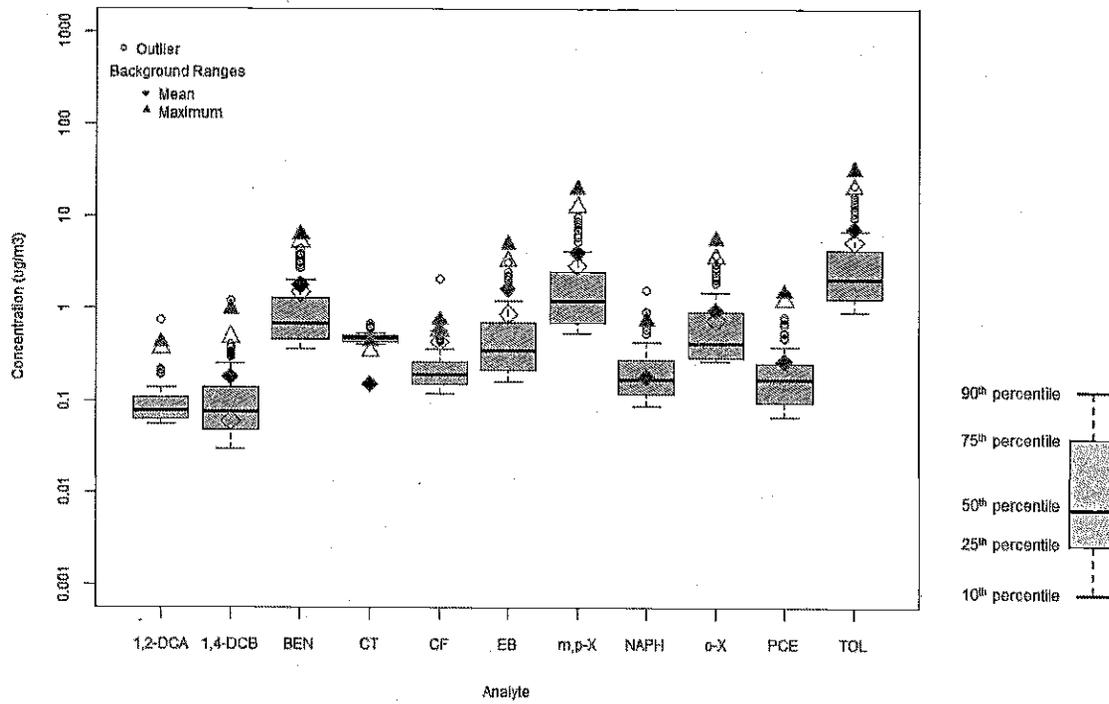
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Figure

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B-5



Comparison of Outdoor Air Results to Literature Background Concentrations

Former Kast Property

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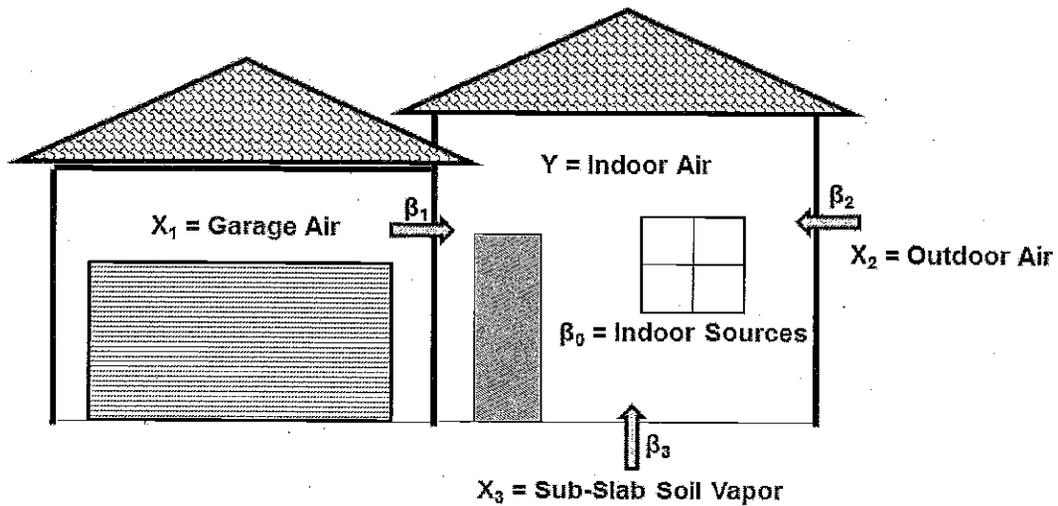
Figure

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B-6

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$



Multiple Linear Regression Conceptual Model

Former Kast Property

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Figure

Santa Barbara

February 2013

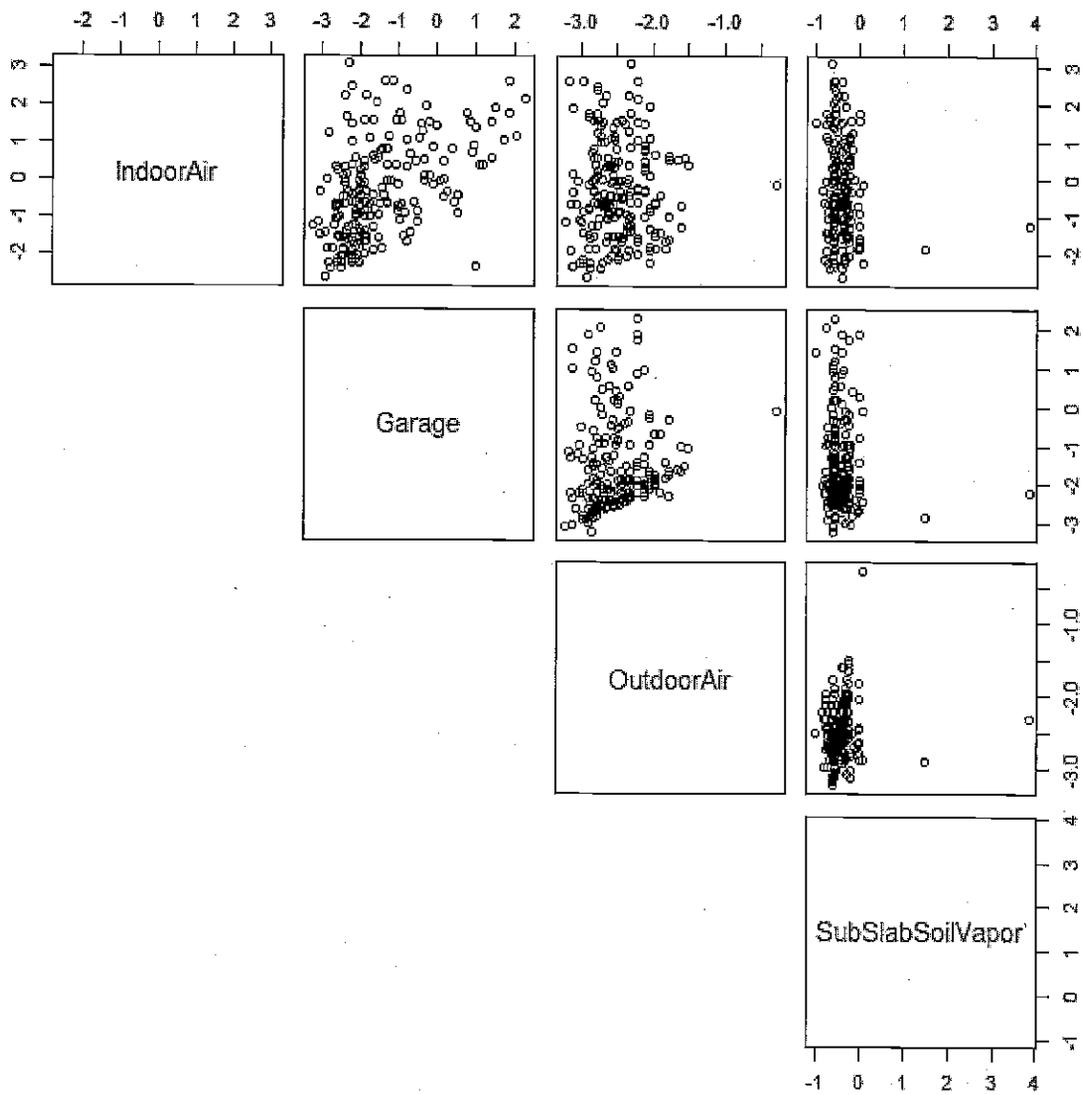
B-7

APPENDIX B
Vapor Intrusion Evaluation

ATTACHMENT A

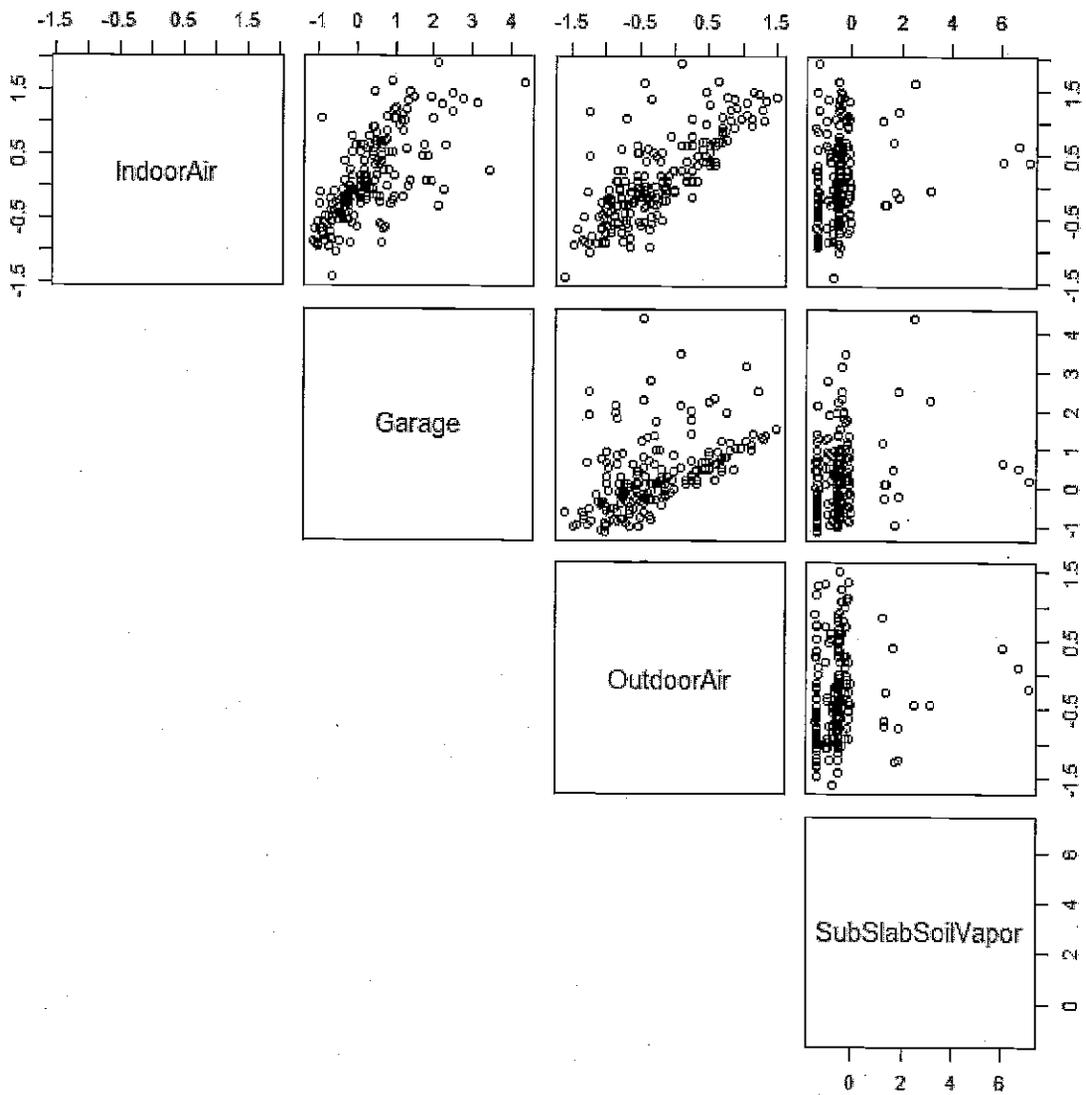
Attachment A
Correlation Plots for Log-Transformed Data

Figure 1: 1,2-Dichloroethane



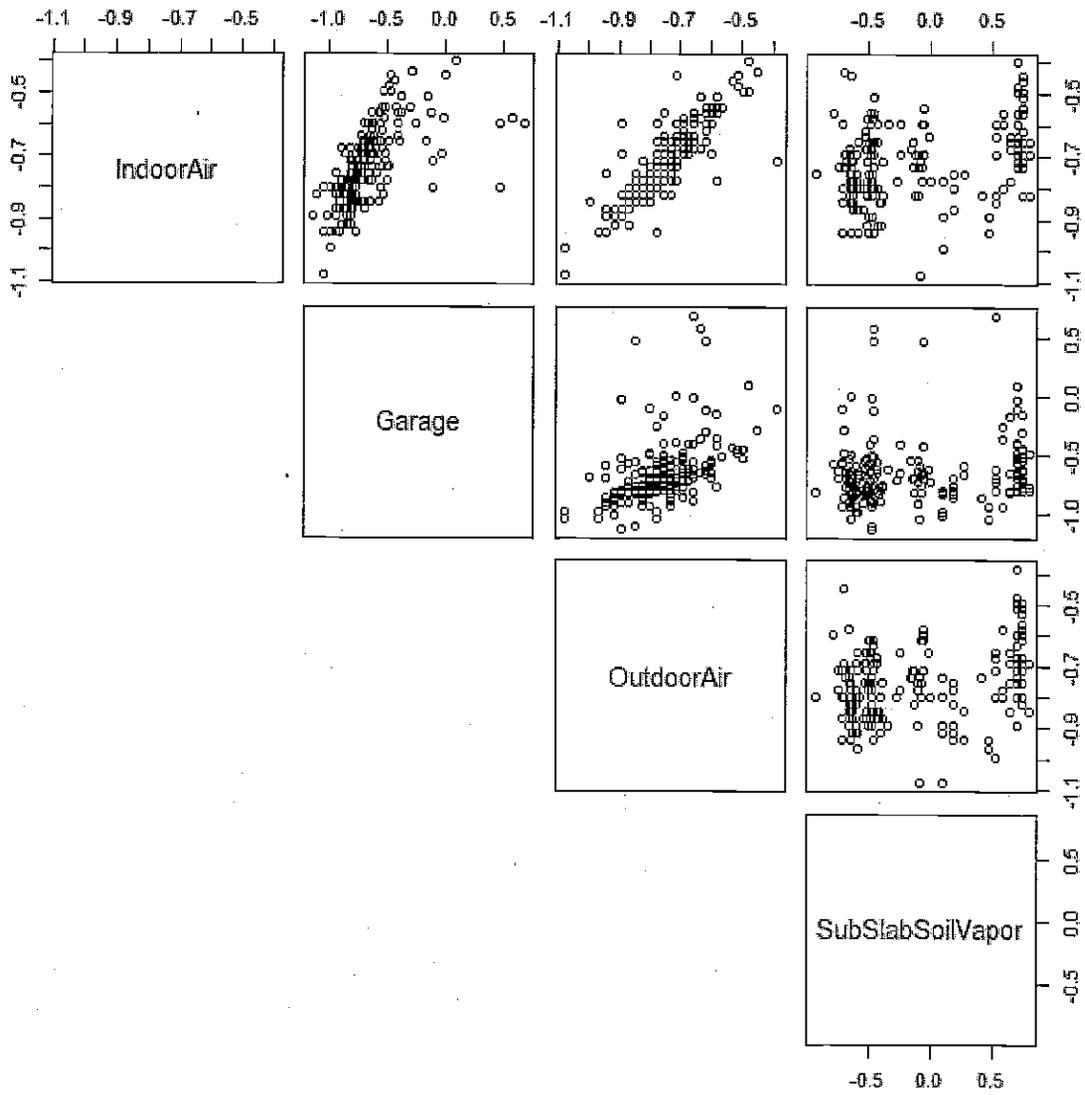
Attachment A
Correlation Plots for Log-Transformed Data

Figure 2: Benzene



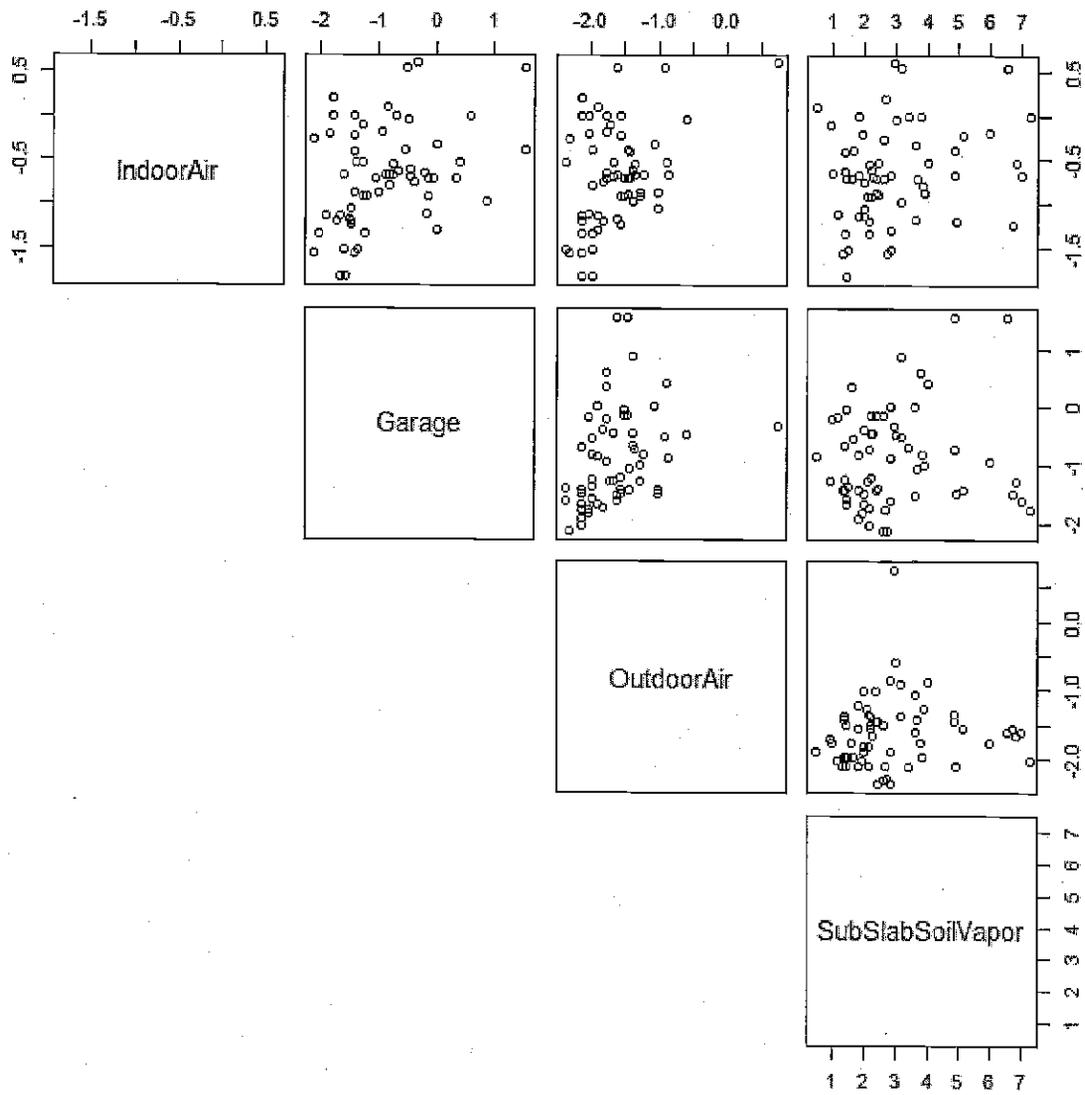
Attachment A
Correlation Plots for Log-Transformed Data

Figure 3: Carbon Tetrachloride



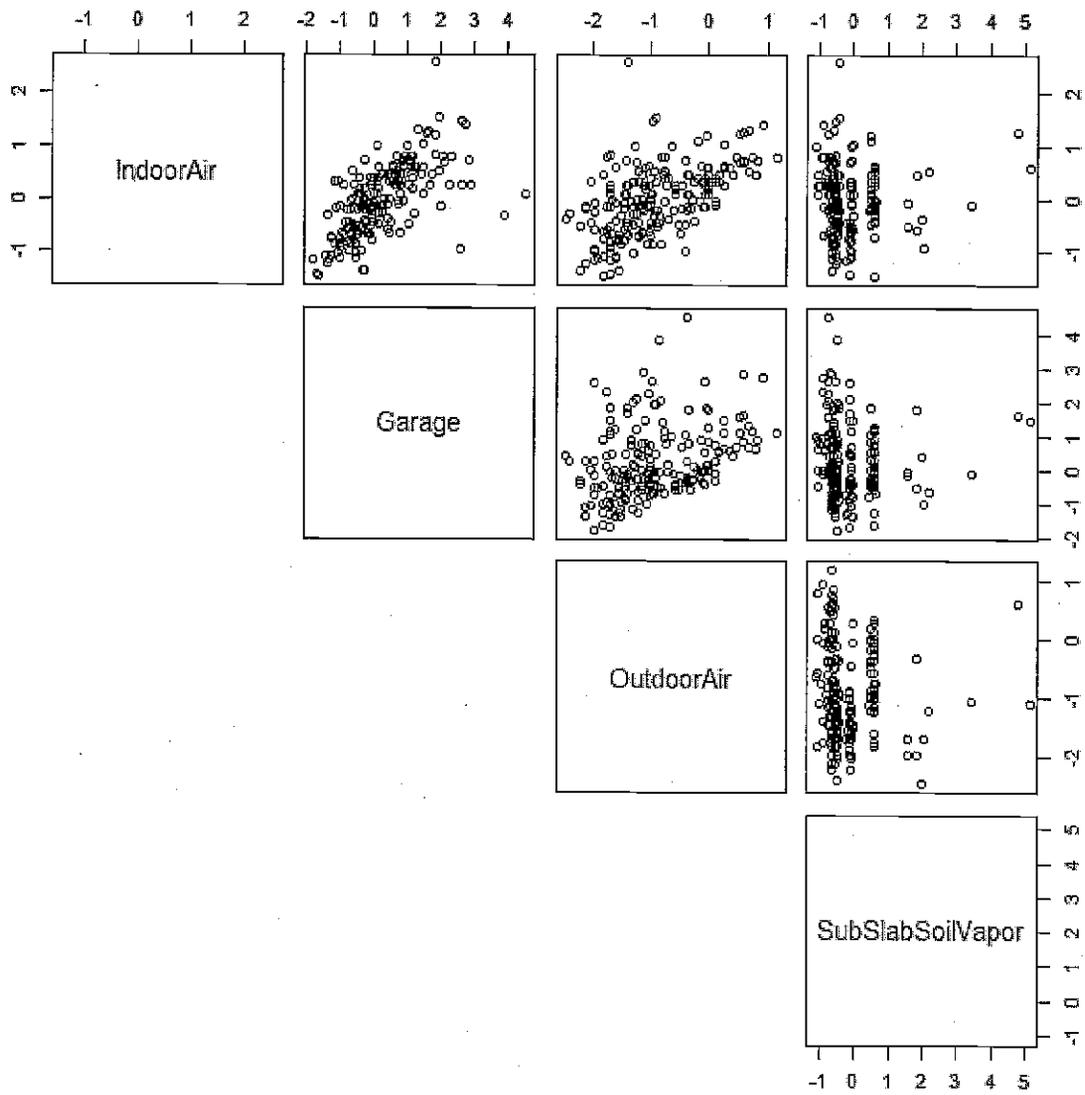
Attachment A
Correlation Plots for Log-Transformed Data

Figure 4: Chloroform



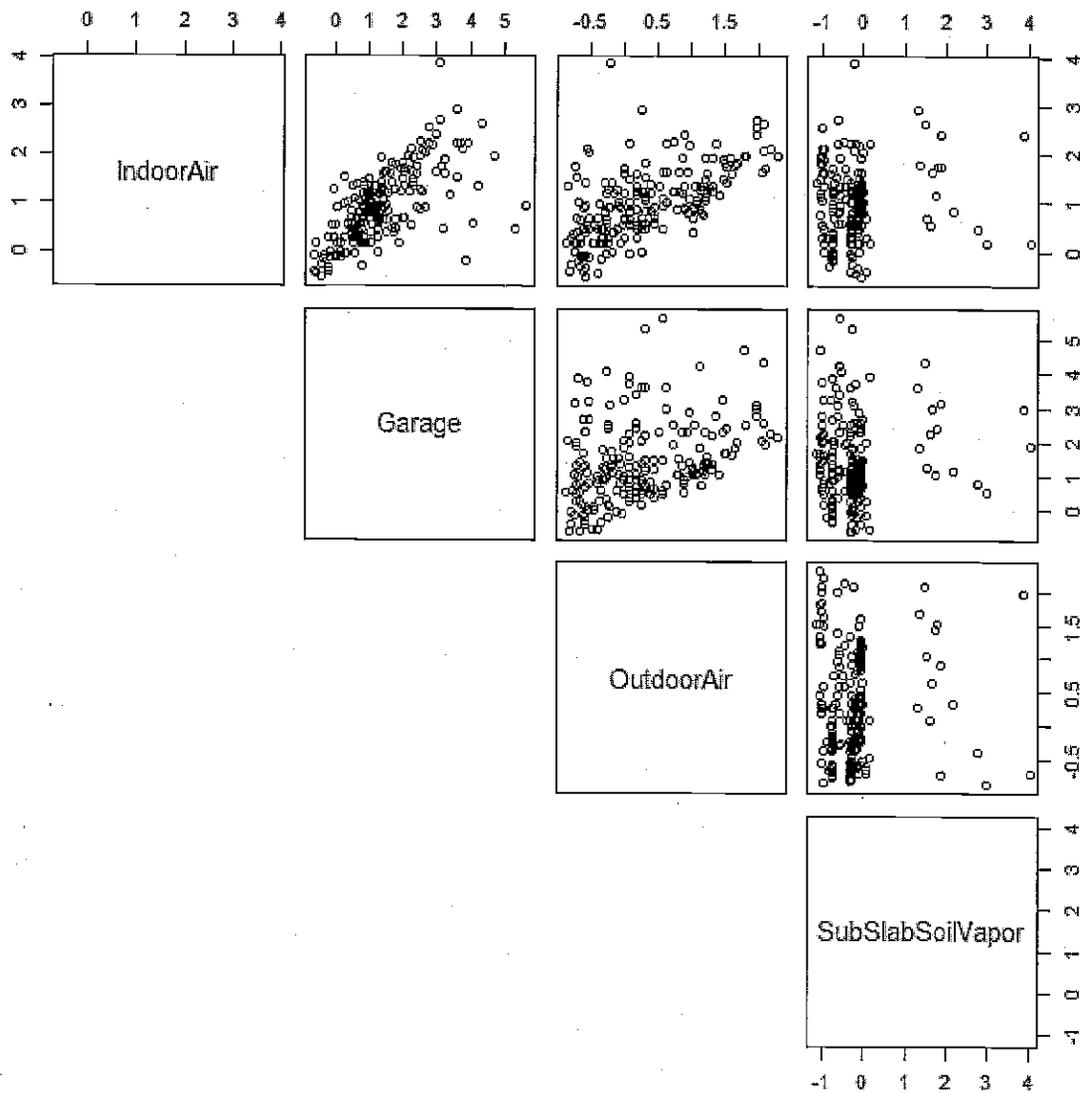
Attachment A
Correlation Plots for Log-Transformed Data

Figure 5: Ethylbenzene



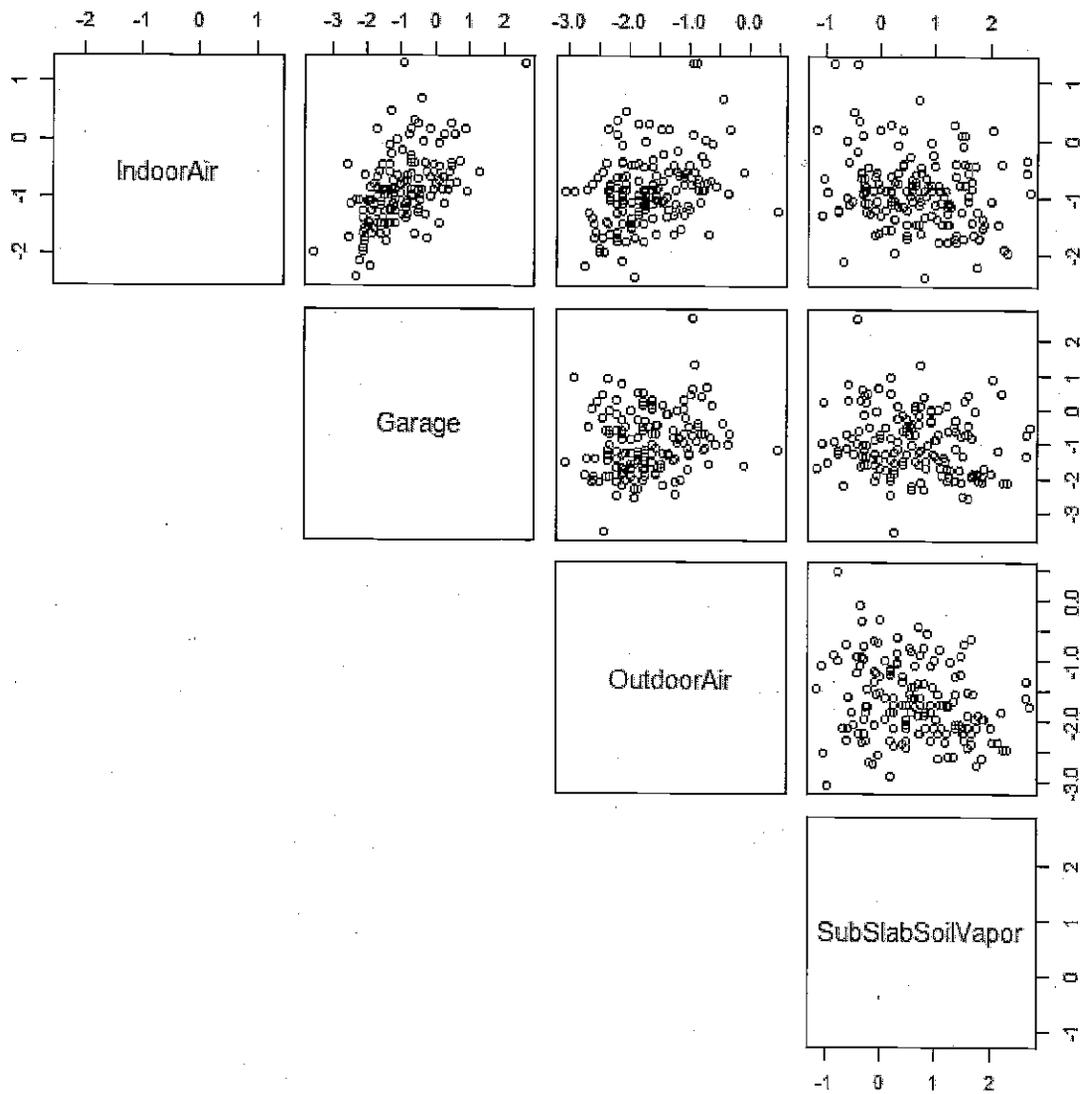
Attachment A
Correlation Plots for Log-Transformed Data

Figure 6: m,p-Xylene



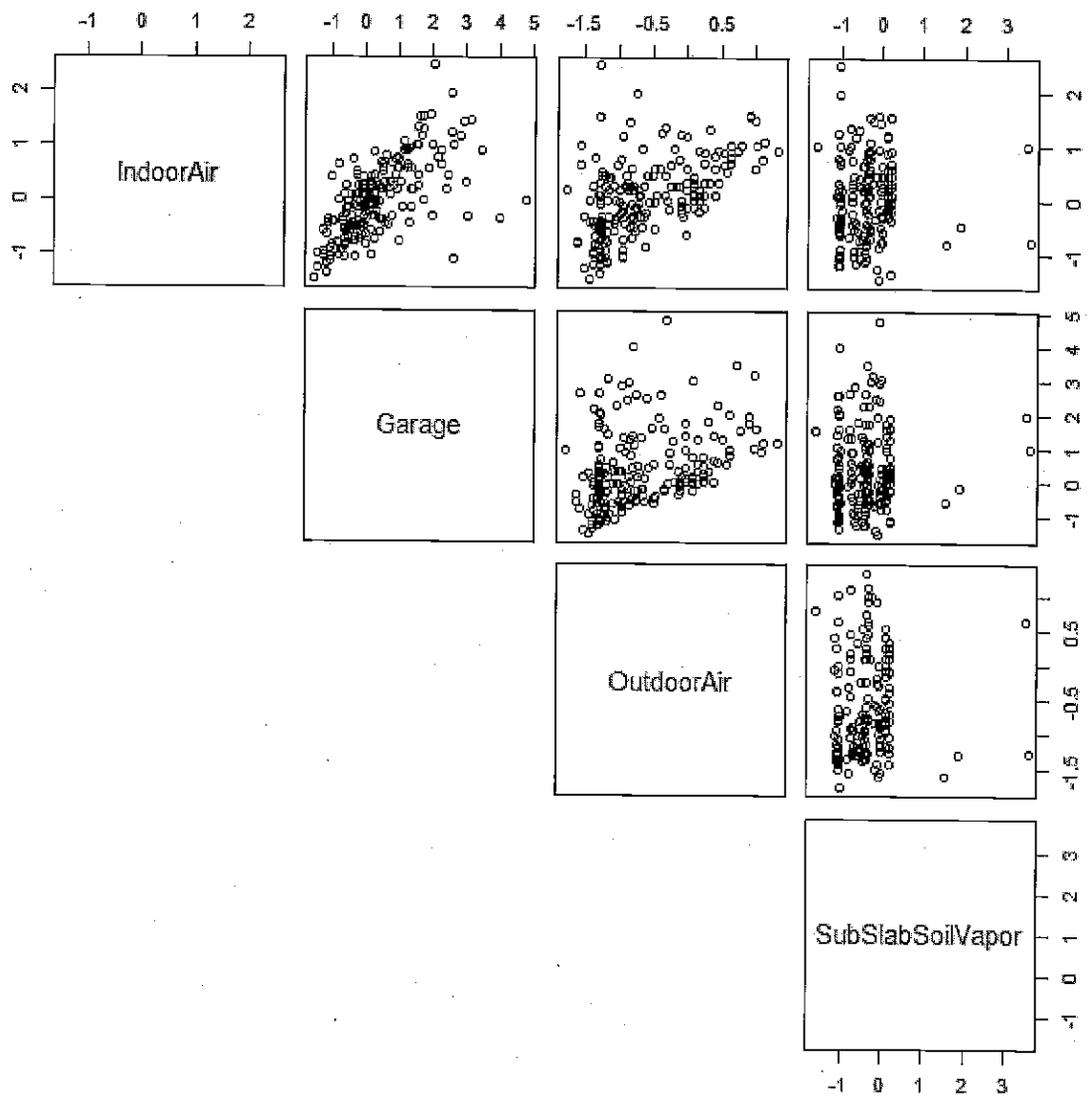
Attachment A
Correlation Plots for Log-Transformed Data

Figure 7: Naphthalene



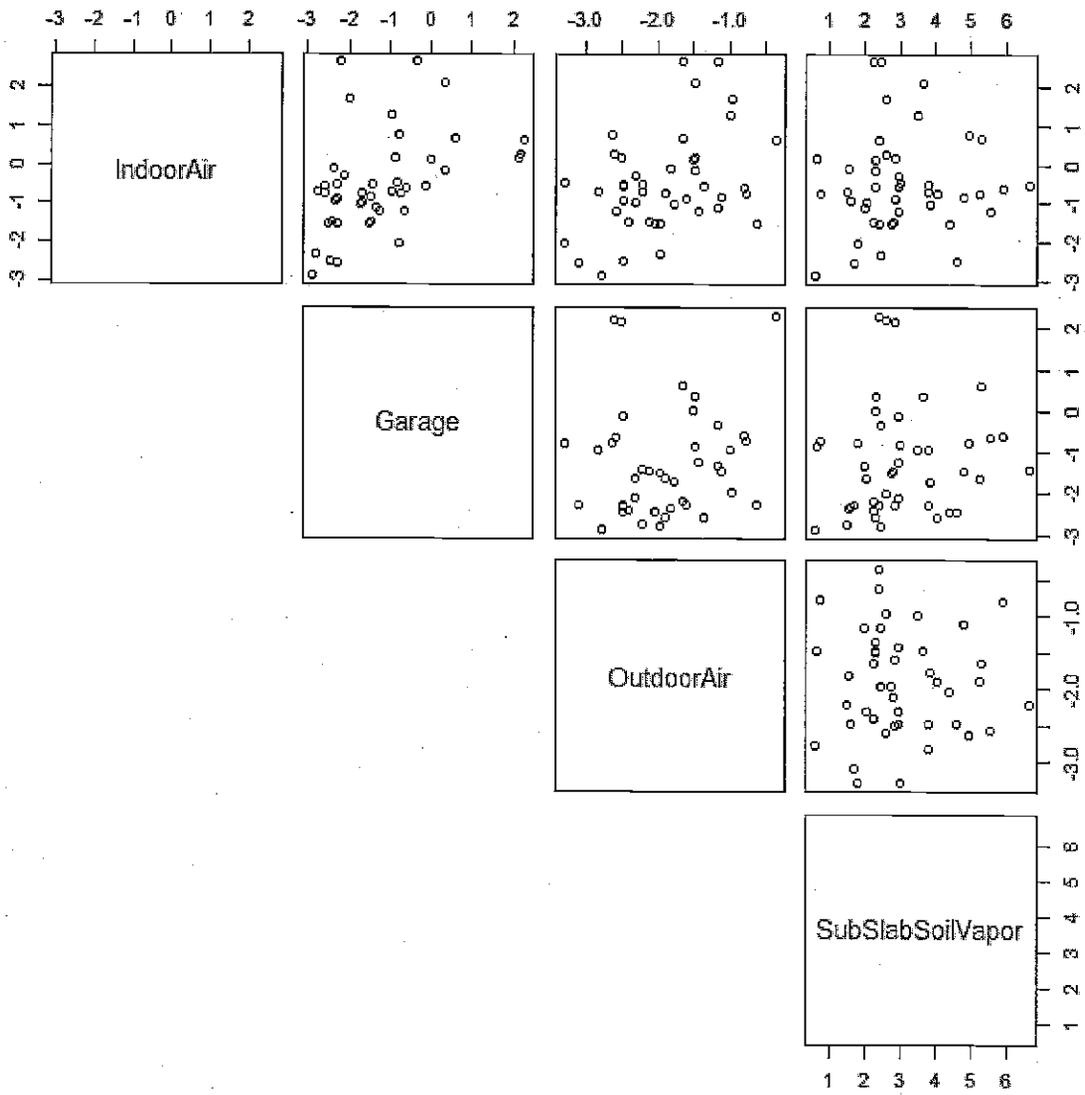
Attachment A
Correlation Plots for Log-Transformed Data

Figure 8: o-Xylene



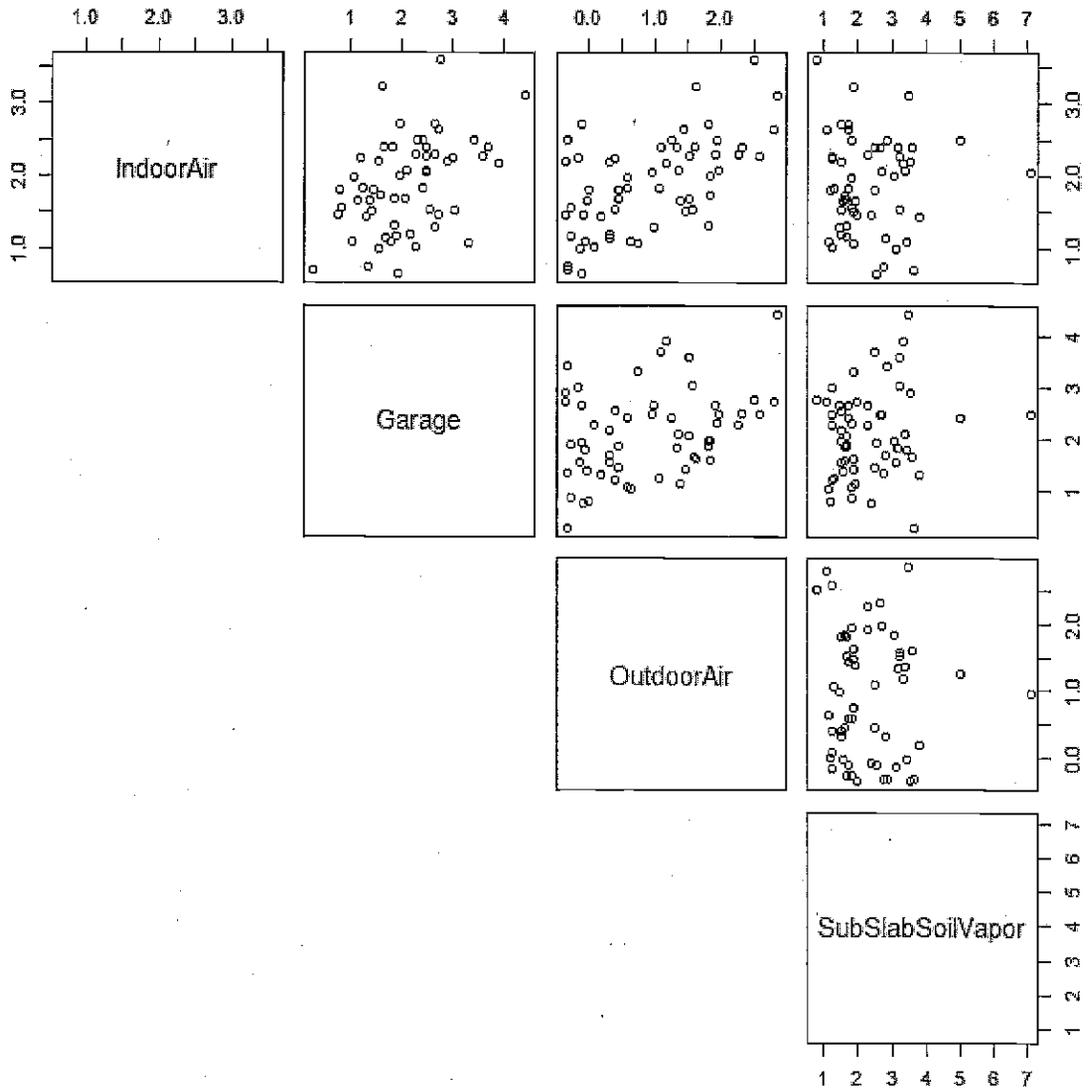
Attachment A
Correlation Plots for Log-Transformed Data

Figure 9: PCE



Attachment A
Correlation Plots for Log-Transformed Data

Figure 10: Toluene



APPENDIX C

**MONITORING AND REMEDIATION
OPTIMIZATION SYSTEM (MAROS)
MODEL RESULTS**

APPENDIX C

Benzene Plume Stability Analysis

MAROS Software

To characterize the stability of the benzene groundwater plume at the Former Kast property (Site), a public-domain software package (Monitoring and Remediation Optimization System (MAROS), AFCEE, 2004) was employed to analyze the temporal trends of the plume. The statistical plume analysis module of MAROS evaluates the trend in historical groundwater monitoring data and characterizes the stability of contaminant plumes. Both the United States Environmental Protection Agency's (USEPA) directive on using monitored natural attenuation at superfund, Resource Conservation and Recovery Act (RCRA) corrective action, and underground storage tank sites (USEPA, 1999), and the American Society for Testing and Materials (ASTM) guide on remediation of ground water by natural attenuation at petroleum release sites (ASTM, 2004) classified the trend in historical groundwater monitoring data as a first or primary line of evidence to evaluate whether natural attenuation is occurring at a site.

As part of the MAROS analyses the nonparametric Mann-Kendall test was used to evaluate benzene concentration trends. Because the Mann-Kendall test assumes no distribution and permits irregularly spaced measurement periods, it minimizes biases caused by data outliers. The Mann-Kendall analysis determines a sign of the trend (positive as increasing and negative as decreasing) and a statistical confidence level in the trend. A third parameter, the coefficient of variation (COV), describes how an individual data point varies about the mean. MAROS classifies concentration trends as follows:

- Trends with greater than 95% statistical confidence - Increasing or Decreasing
- Trends with 90-95% statistical confidence - Probably Increasing or Probably Decreasing
- Trends with less than 90% statistical confidence and $COV > 1$ - No Trend
- Negative trends with less than 90% statistical confidence and $COV < 1$ - Stable.

Method description

Both the shallow monitoring network wells (15 wells in total) and the Gage aquifer wells (8 colocated well locations in total, each with a shallow and deep Gage well) were included in the MAROS analysis. MAROS differentiates "source" wells (located in areas with light non-aqueous phase liquid (LNAPL) and/or contaminated vadose zone soils, and areas where aqueous-phase contaminant releases to groundwater occur) from "tail" wells (located downgradient of the contaminant source zone). Monitoring wells located on the Site were assumed as source wells (MW-1, 2, 4 to 6, 8, 12 to 17, and the four Gage aquifer well pairs), whereas the three off-Site wells (MW-9, 10, 11) that are downgradient of the Site were assumed as tail wells. MW-03 was not included because it contains LNAPL and is not monitored for groundwater quality. Off-Site monitoring well MW-07 was excluded from the analysis because it is located upgradient of the Site (assumed to not be impacted by former Site operations).

Groundwater data collected from August 2009 to October 2012 were used in the analysis. Non-detect results were substituted with half of the associated detection limit. J flagged results were

APPENDIX C
Benzene Plume Stability Analysis

analyzed based on the estimated values. Duplicates were averaged. Seepage velocity (a required input to the software) was estimated based on soil types reported on boring logs and hydraulic gradient measured during the quarterly monitoring.

Trend analysis result – Individual Wells

The MAROS Mann-Kendall trend results for benzene are listed below. MAROS reports for individual wells are presented in Attachment A.

MAROS trend analysis result for individual wells

Well	Mann-Kendall
MW-01	S
MW-02	D
MW-04	D
MW-05	I
MW-06	I
MW-08	D
MW-09	ND
MW-10	NT
MW-11	ND
MW-12	D
MW-13	S
MW-14	NT
MW-15	PD
MW-16	NT
MW-17	NT
MW-G01S	ND
MW-G02S	S
MW-G03S	D
MW-G04S	NT
MW-G01D	ND
MW-G02D	ND
MW-G03D	NT
MW-G04D	ND

Notes:

Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD);
Decreasing (D); No Trend (NT); Not detected
(ND)

APPENDIX C
Benzene Plume Stability Analysis

Site Mann-Kendall (benzene results summarized by number of wells)

Compound	Total Wells	Non-detect	Decreasing or Probably Decreasing	Stable	Increasing or Probably Increasing	No Trend
Benzene	23	6 (26%)	6 (26%)	3 (13%)	2 (9%)	6 (26%)

Six wells had no detection (ND) throughout the monitoring period. Based on the Mann-Kendall analyses, benzene concentrations in the majority of the wells were either decreasing, probably decreasing, stable, showed no trend (NT) or ND. Benzene concentrations in nine wells showed NT or a stable trend, and benzene concentrations in six wells were decreasing or probably decreasing. Only two wells (MW-05 and MW-06) had increasing benzene concentrations. Well MW-05 is located in the northwestern portion of the Site, and MW-06 is located in the northeastern portion of the Site. Benzene was detected at three of the four Shallow Gage aquifer wells and showed either stable, decreasing, or no trends. Only one Deep Gage aquifer well (MW-G03D) had a detection of benzene, and no trend was indicated by the Mann-Kendall analyses.

Trend analysis – Total Plume

MAROS weighs trends of individual wells to obtain the overall trend of the source and the tail zones. First a number is assigned to each trend. “I” (Increasing) = 1, “PI” (Probably Increasing) = 2, “NT” (No Trend) = 3, “S” (Stable) = 4, “PD” (Probably Decreasing) = 5, “D” (Decreasing) = 6, and “ND” (Not Detected) = 7. Then the overall trend of the source or tail zone is evaluated by averaging the trends of all the wells within the zone. Based on the benzene concentration trends of individual wells, MAROS characterized the overall stability of the source zone as Stable, and the tail area as Decreasing.

Summary

Based on the data collected to date from 23 Site wells, benzene concentrations show statistically increasing trends in only two shallow Site wells (MW-5, MW-6) located in the northwest and northeast portion of the Site. All other locations have No Trend, Stable trend, or Decreasing/Probably Decreasing trends, or have non-detected levels of the benzene.

Overall the MAROS analysis indicates the plume is Stable on the Site and Decreasing off-Site. These results are consistent with a benzene plume that is being attenuated through natural biodegradation processes.

APPENDIX C
Benzene Plume Stability Analysis

References

AFCEE, 2004. Monitoring and Remediation Optimization System Software and User's Guide. <http://www.gsinet.com/en/software/free-software/maros.html>

ASTM. 2004. Standard guide for remediation of ground water by natural attenuation at petroleum release sites. E 1943-98.

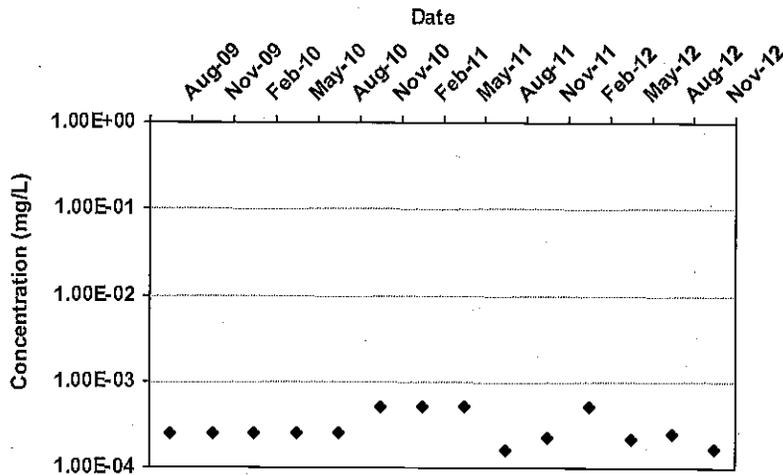
USEPA, 1999. Use of monitored natural attenuation at Superfund, RCRA corrective action, and underground storage tank sites. 9200.4-17P.

Attachment A
MAROS Report – Individual Well Mann-Kendall Analysis Results
KAST site, Carson, California

MAROS Mann-Kendall Statistics Summary

Well: MW-01
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values: Actual Value



Mann Kendall S Statistic:

-14

Confidence in Trend:

75.8%

Coefficient of Variation:

0.43

Mann Kendall Concentration Trend: (See Note)

S

Data Table:

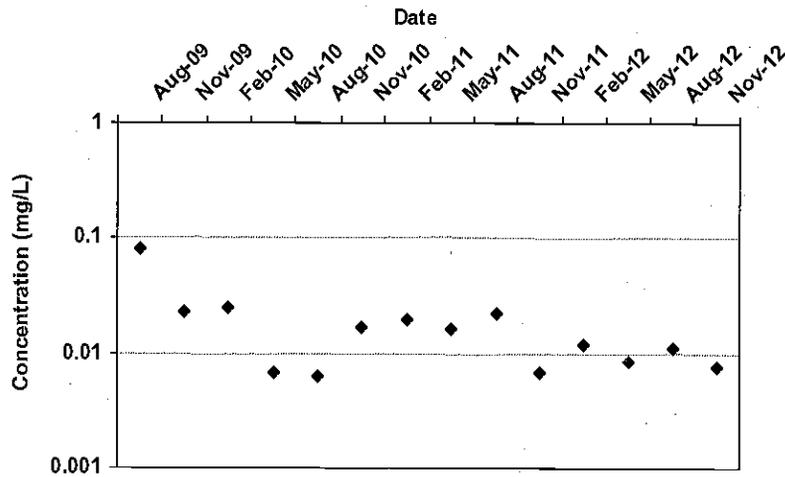
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-01	S	8/15/2009	BENZENE	2.5E-04	ND	1	0
MW-01	S	11/15/2009	BENZENE	2.5E-04	ND	1	0
MW-01	S	2/15/2010	BENZENE	2.5E-04	ND	1	0
MW-01	S	5/15/2010	BENZENE	2.5E-04	ND	1	0
MW-01	S	8/15/2010	BENZENE	2.5E-04	ND	1	0
MW-01	S	11/15/2010	BENZENE	5.0E-04	ND	1	0
MW-01	S	2/15/2011	BENZENE	5.0E-04	ND	1	0
MW-01	S	5/15/2011	BENZENE	5.0E-04	ND	1	0
MW-01	S	8/15/2011	BENZENE	1.6E-04		1	1
MW-01	S	11/15/2011	BENZENE	2.3E-04		1	1
MW-01	S	2/15/2012	BENZENE	5.0E-04	ND	1	0
MW-01	S	5/15/2012	BENZENE	2.2E-04		1	1
MW-01	S	8/15/2012	BENZENE	2.5E-04	ND	1	0
MW-01	S	11/15/2012	BENZENE	1.7E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-02
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values: Actual Value



Mann Kendall S Statistic:

-37

Confidence in Trend:

97.6%

Coefficient of Variation:

1.03

Mann Kendall Concentration Trend:
(See Note)

D

Data Table:

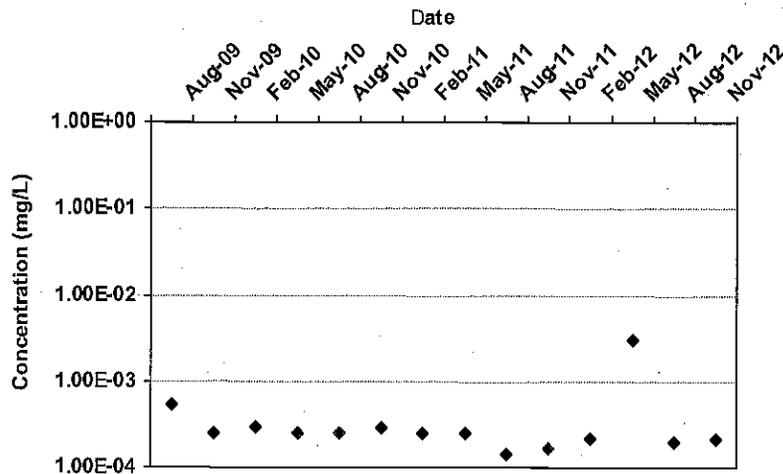
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-02	S	8/15/2009	BENZENE	8.2E-02		1	1
MW-02	S	11/15/2009	BENZENE	2.3E-02		1	1
MW-02	S	2/15/2010	BENZENE	2.5E-02		1	1
MW-02	S	5/15/2010	BENZENE	6.8E-03		1	1
MW-02	S	8/15/2010	BENZENE	6.3E-03		1	1
MW-02	S	11/15/2010	BENZENE	1.7E-02		1	1
MW-02	S	2/15/2011	BENZENE	2.0E-02		1	1
MW-02	S	5/15/2011	BENZENE	1.6E-02		1	1
MW-02	S	8/15/2011	BENZENE	2.2E-02		1	1
MW-02	S	11/15/2011	BENZENE	6.7E-03		1	1
MW-02	S	2/15/2012	BENZENE	1.2E-02		1	1
MW-02	S	5/15/2012	BENZENE	8.5E-03		1	1
MW-02	S	8/15/2012	BENZENE	1.1E-02		1	1
MW-02	S	11/15/2012	BENZENE	7.5E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-04
Well Type: S
COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
Consolidation Period: Quarterly
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic:

-34

Confidence in Trend:

96.5%

Coefficient of Variation:

1.68

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

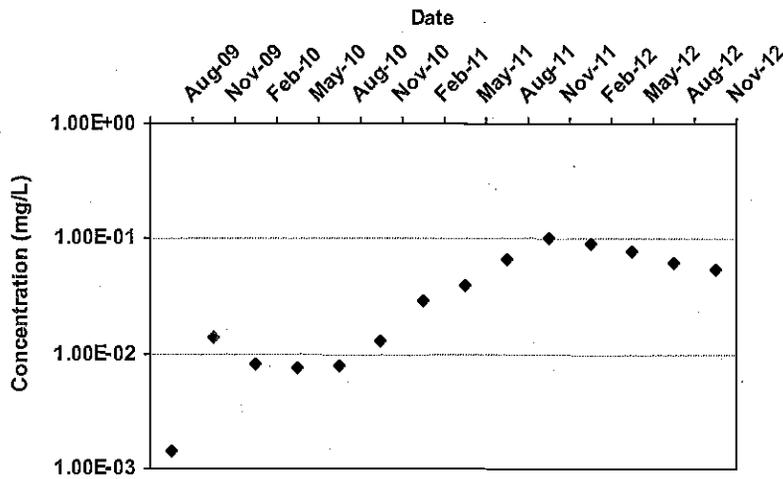
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-04	S	8/15/2009	BENZENE	5.3E-04		1	1
MW-04	S	11/15/2009	BENZENE	2.5E-04	ND	1	0
MW-04	S	2/15/2010	BENZENE	2.9E-04		1	1
MW-04	S	5/15/2010	BENZENE	2.5E-04	ND	1	0
MW-04	S	8/15/2010	BENZENE	2.5E-04	ND	1	0
MW-04	S	11/15/2010	BENZENE	2.9E-04		1	1
MW-04	S	2/15/2011	BENZENE	2.5E-04	ND	1	0
MW-04	S	5/15/2011	BENZENE	2.5E-04	ND	1	0
MW-04	S	8/15/2011	BENZENE	1.4E-04		1	1
MW-04	S	11/15/2011	BENZENE	1.7E-04		1	1
MW-04	S	2/15/2012	BENZENE	2.2E-04		1	1
MW-04	S	5/15/2012	BENZENE	3.1E-03		1	1
MW-04	S	8/15/2012	BENZENE	1.9E-04		1	1
MW-04	S	11/15/2012	BENZENE	2.1E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-05
Well Type: S
COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
Consolidation Period: Quarterly
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values: Actual Value



Mann Kendall S Statistic:

55

Confidence in Trend:

99.9%

Coefficient of Variation:

0.84

Mann Kendall Concentration Trend:
(See Note)

1

Data Table:

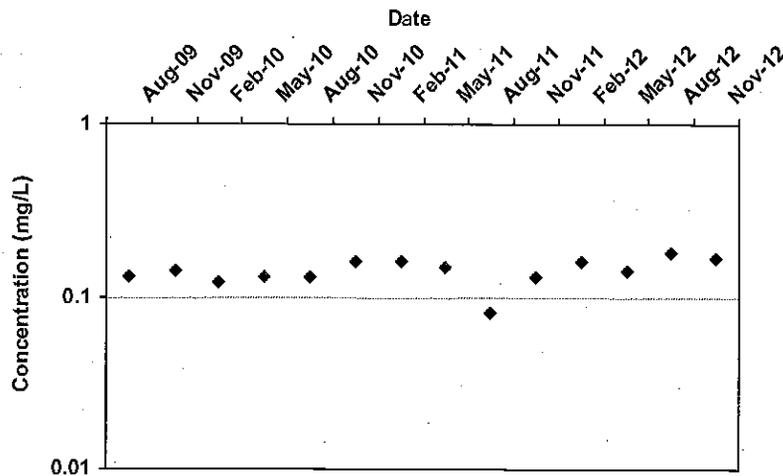
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-05	S	8/15/2009	BENZENE	1.4E-03		1	1
MW-05	S	11/15/2009	BENZENE	1.4E-02		1	1
MW-05	S	2/15/2010	BENZENE	8.3E-03		1	1
MW-05	S	5/15/2010	BENZENE	7.6E-03		1	1
MW-05	S	8/15/2010	BENZENE	8.0E-03		1	1
MW-05	S	11/15/2010	BENZENE	1.3E-02		1	1
MW-05	S	2/15/2011	BENZENE	2.9E-02		1	1
MW-05	S	5/15/2011	BENZENE	3.9E-02		1	1
MW-05	S	8/15/2011	BENZENE	6.6E-02		1	1
MW-05	S	11/15/2011	BENZENE	1.0E-01		1	1
MW-05	S	2/15/2012	BENZENE	9.2E-02		1	1
MW-05	S	5/15/2012	BENZENE	7.9E-02		1	1
MW-05	S	8/15/2012	BENZENE	6.1E-02		1	1
MW-05	S	11/15/2012	BENZENE	5.4E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-06
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values: Actual Value



Mann Kendall S Statistic:

35

Confidence in Trend:

96.9%

Coefficient of Variation:

0.18

Mann Kendall Concentration Trend:
(See Note)

1

Data Table:

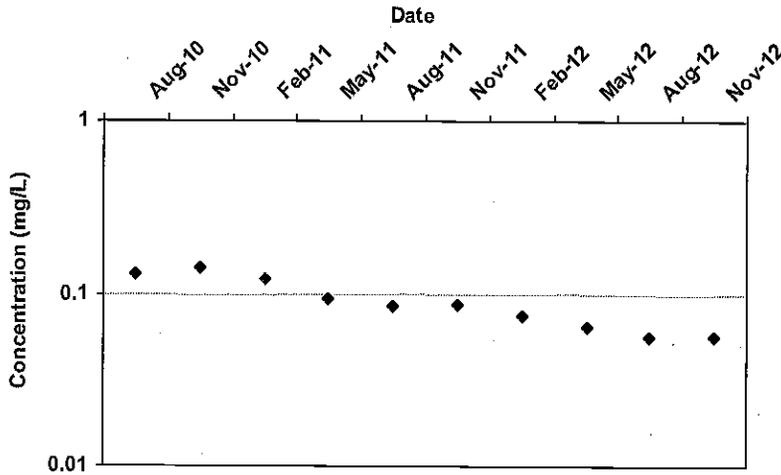
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-06	S	8/15/2009	BENZENE	1.3E-01		1	1
MW-06	S	11/15/2009	BENZENE	1.4E-01		1	1
MW-06	S	2/15/2010	BENZENE	1.2E-01		1	1
MW-06	S	5/15/2010	BENZENE	1.3E-01		1	1
MW-06	S	8/15/2010	BENZENE	1.3E-01		1	1
MW-06	S	11/15/2010	BENZENE	1.6E-01		1	1
MW-06	S	2/15/2011	BENZENE	1.6E-01		1	1
MW-06	S	5/15/2011	BENZENE	1.5E-01		1	1
MW-06	S	8/15/2011	BENZENE	8.1E-02		1	1
MW-06	S	11/15/2011	BENZENE	1.3E-01		1	1
MW-06	S	2/15/2012	BENZENE	1.6E-01		1	1
MW-06	S	5/15/2012	BENZENE	1.4E-01		1	1
MW-06	S	8/15/2012	BENZENE	1.8E-01		1	1
MW-06	S	11/15/2012	BENZENE	1.7E-01		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-08
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values: Actual Value



Mann Kendall S Statistic:

-39

Confidence in Trend:

100.0%

Coefficient of Variation:

0.33

Mann Kendall Concentration Trend:
(See Note)

D

Data Table:

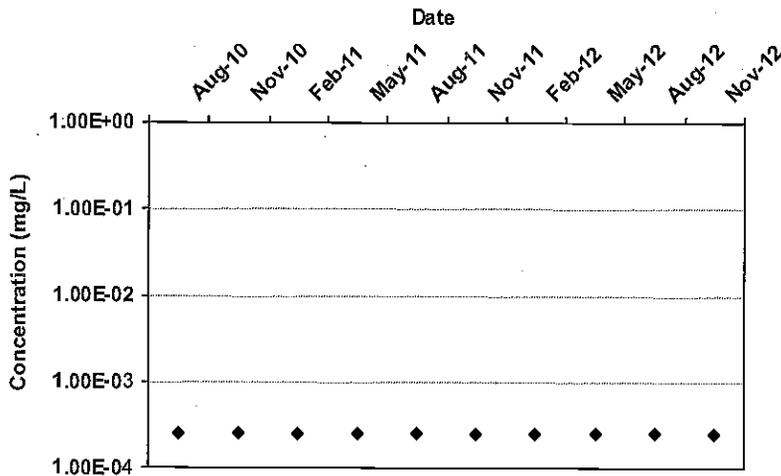
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-08	S	8/15/2010	BENZENE	1.3E-01		1	1
MW-08	S	11/15/2010	BENZENE	1.4E-01		1	1
MW-08	S	2/15/2011	BENZENE	1.2E-01		1	1
MW-08	S	5/15/2011	BENZENE	9.4E-02		1	1
MW-08	S	8/15/2011	BENZENE	8.5E-02		1	1
MW-08	S	11/15/2011	BENZENE	8.6E-02		1	1
MW-08	S	2/15/2012	BENZENE	7.4E-02		1	1
MW-08	S	5/15/2012	BENZENE	6.4E-02		1	1
MW-08	S	8/15/2012	BENZENE	5.6E-02		1	1
MW-08	S	11/15/2012	BENZENE	5.7E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-09
 Well Type: T
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

0

Confidence in Trend:

46.4%

Coefficient of Variation:

0.00

Mann Kendall Concentration Trend:
(See Note)

ND

Data Table:

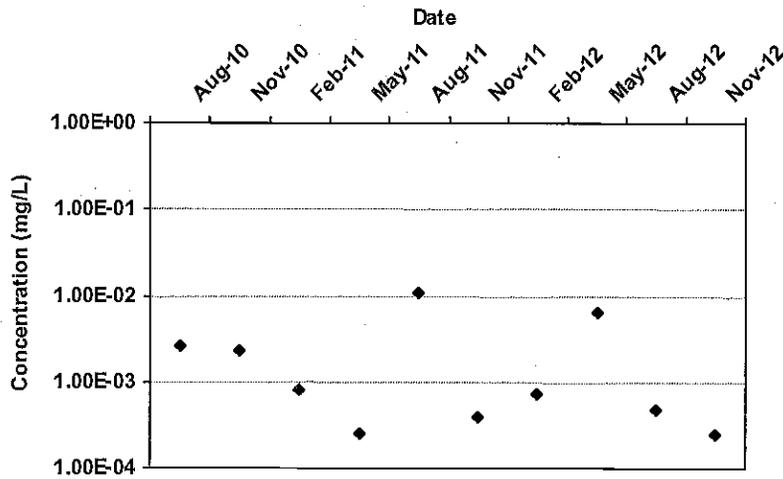
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-09	T	8/15/2010	BENZENE	2.5E-04	ND	1	0
MW-09	T	11/15/2010	BENZENE	2.5E-04	ND	1	0
MW-09	T	2/15/2011	BENZENE	2.5E-04	ND	1	0
MW-09	T	5/15/2011	BENZENE	2.5E-04	ND	1	0
MW-09	T	8/15/2011	BENZENE	2.5E-04	ND	1	0
MW-09	T	11/15/2011	BENZENE	2.5E-04	ND	1	0
MW-09	T	2/15/2012	BENZENE	2.5E-04	ND	1	0
MW-09	T	5/15/2012	BENZENE	2.5E-04	ND	1	0
MW-09	T	8/15/2012	BENZENE	2.5E-04	ND	1	0
MW-09	T	11/15/2012	BENZENE	2.5E-04	ND	1	0

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-10
 Well Type: T
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values: Actual Value



Mann Kendall S Statistic:

-14

Confidence in Trend:

87.3%

Coefficient of Variation:

1.40

Mann Kendall Concentration Trend:
 (See Note)

NT

Data Table:

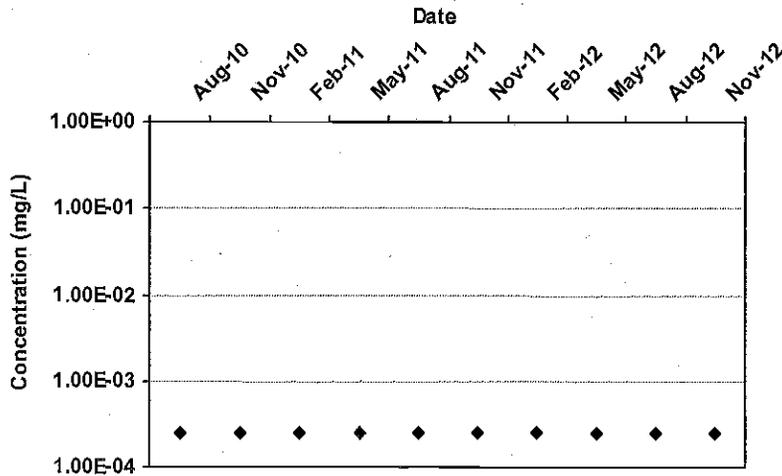
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-10	T	8/15/2010	BENZENE	2.6E-03		1	1
MW-10	T	11/15/2010	BENZENE	2.4E-03		1	1
MW-10	T	2/15/2011	BENZENE	8.1E-04		1	1
MW-10	T	5/15/2011	BENZENE	2.5E-04	ND	1	0
MW-10	T	8/15/2011	BENZENE	1.1E-02		1	1
MW-10	T	11/15/2011	BENZENE	4.0E-04		1	1
MW-10	T	2/15/2012	BENZENE	7.1E-04		1	1
MW-10	T	5/15/2012	BENZENE	6.5E-03		1	1
MW-10	T	8/15/2012	BENZENE	4.9E-04		1	1
MW-10	T	11/15/2012	BENZENE	2.5E-04	ND	1	0

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-11
 Well Type: T
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values: Actual Value



Mann Kendall S Statistic:

0

Confidence in Trend:

46.4%

Coefficient of Variation:

0.00

Mann Kendall Concentration Trend:
(See Note)

ND

Data Table:

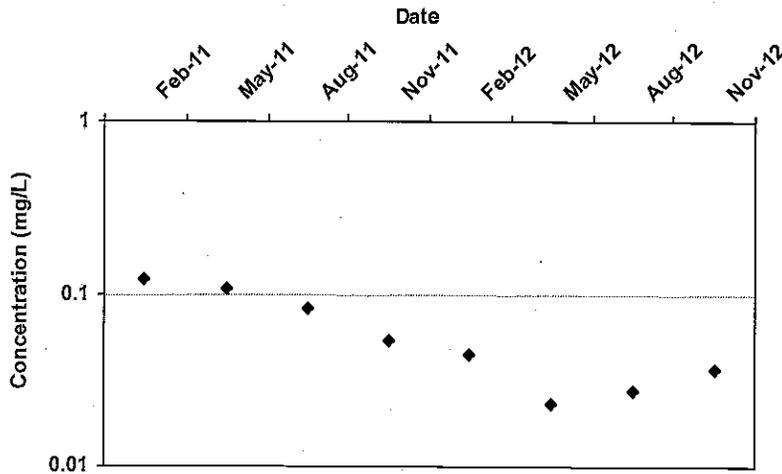
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-11	T	8/15/2010	BENZENE	2.5E-04	ND	1	0
MW-11	T	11/15/2010	BENZENE	2.5E-04	ND	1	0
MW-11	T	2/15/2011	BENZENE	2.5E-04	ND	1	0
MW-11	T	5/15/2011	BENZENE	2.5E-04	ND	1	0
MW-11	T	8/15/2011	BENZENE	2.5E-04	ND	1	0
MW-11	T	11/15/2011	BENZENE	2.5E-04	ND	1	0
MW-11	T	2/15/2012	BENZENE	2.5E-04	ND	1	0
MW-11	T	5/15/2012	BENZENE	2.5E-04	ND	1	0
MW-11	T	8/15/2012	BENZENE	2.5E-04	ND	1	0
MW-11	T	11/15/2012	BENZENE	2.5E-04	ND	1	0

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-12
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-22

Confidence in Trend:

99.8%

Coefficient of Variation:

0.60

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

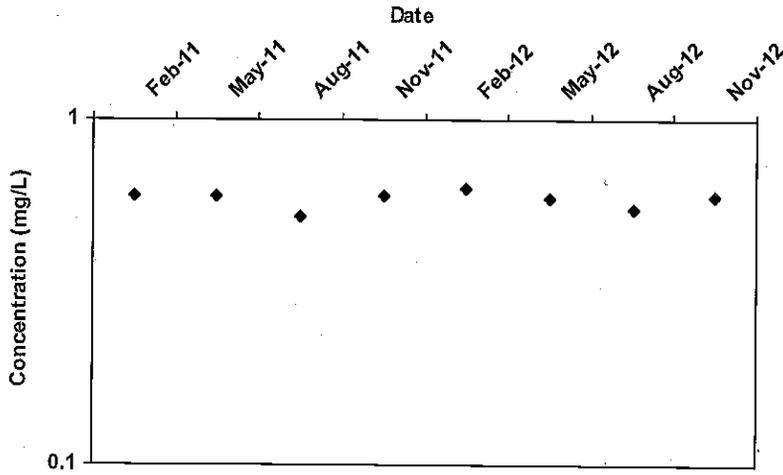
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-12	S	2/15/2011	BENZENE	1.2E-01		1	1
MW-12	S	5/15/2011	BENZENE	1.1E-01		1	1
MW-12	S	8/15/2011	BENZENE	8.2E-02		1	1
MW-12	S	11/15/2011	BENZENE	5.3E-02		1	1
MW-12	S	2/15/2012	BENZENE	4.5E-02		1	1
MW-12	S	5/15/2012	BENZENE	2.3E-02		1	1
MW-12	S	8/15/2012	BENZENE	2.8E-02		1	1
MW-12	S	11/15/2012	BENZENE	3.7E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to Insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-13
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values: Actual Value



Mann Kendall S Statistic:

-1

Confidence In Trend:

50.0%

Coefficient of Variation:

0.06

Mann Kendall Concentration Trend:
(See Note)

S

Data Table:

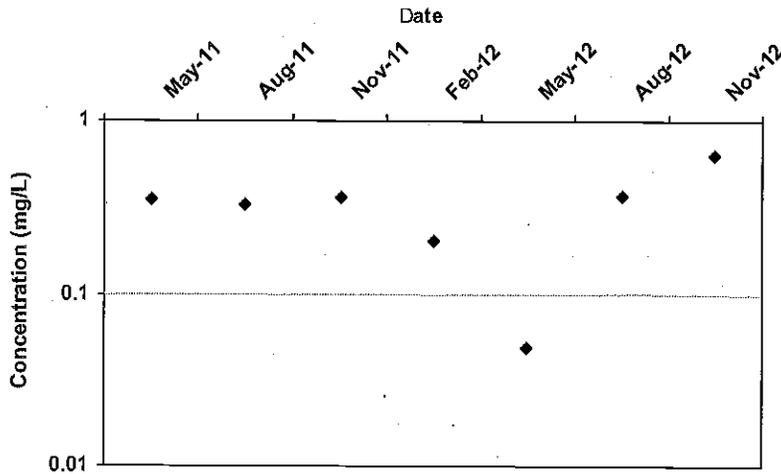
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-13	S	2/15/2011	BENZENE	6.0E-01		1	1
MW-13	S	5/15/2011	BENZENE	6.0E-01		1	1
MW-13	S	8/15/2011	BENZENE	5.2E-01		1	1
MW-13	S	11/15/2011	BENZENE	6.1E-01		1	1
MW-13	S	2/15/2012	BENZENE	6.3E-01		1	1
MW-13	S	5/15/2012	BENZENE	6.0E-01		1	1
MW-13	S	8/15/2012	BENZENE	5.5E-01		1	1
MW-13	S	11/15/2012	BENZENE	6.0E-01		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-14
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

5

Confidence in Trend:

71.9%

Coefficient of Variation:

0.55

Mann Kendall Concentration Trend: (See Note)

NT

Data Table:

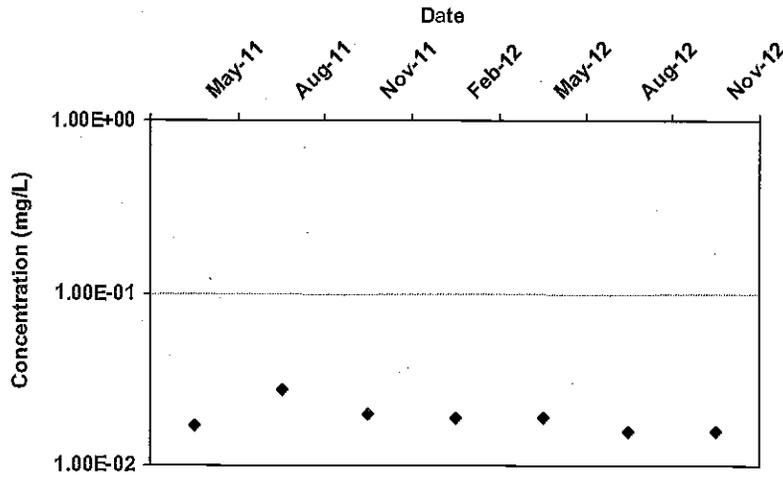
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-14	S	5/15/2011	BENZENE	3.5E-01		1	1
MW-14	S	8/15/2011	BENZENE	3.3E-01		1	1
MW-14	S	11/15/2011	BENZENE	3.6E-01		1	1
MW-14	S	2/15/2012	BENZENE	2.0E-01		1	1
MW-14	S	5/15/2012	BENZENE	4.9E-02		1	1
MW-14	S	8/15/2012	BENZENE	3.7E-01		1	1
MW-14	S	11/15/2012	BENZENE	6.4E-01		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-15
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values: Actual Value



Mann Kendall S Statistic:

-11

Confidence in Trend:

93.2%

Coefficient of Variation:

0.22

Mann Kendall Concentration Trend: (See Note)

PD

Data Table:

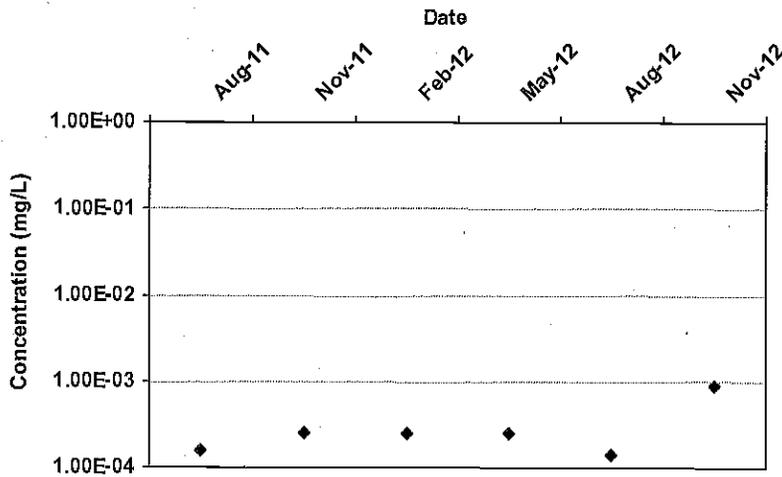
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-15	S	5/15/2011	BENZENE	1.7E-02		1	1
MW-15	S	8/15/2011	BENZENE	2.8E-02		1	1
MW-15	S	11/15/2011	BENZENE	2.0E-02		1	1
MW-15	S	2/15/2012	BENZENE	1.9E-02		1	1
MW-15	S	5/15/2012	BENZENE	1.9E-02		1	1
MW-15	S	8/15/2012	BENZENE	1.6E-02		1	1
MW-15	S	11/15/2012	BENZENE	1.6E-02		1	1

Note: Increasing (I); Probably Increasing (Pi); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-16
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values: Actual Value



Mann Kendall S Statistic:

4

Confidence in Trend:

70.3%

Coefficient of Variation:

0.86

Mann Kendall Concentration Trend: (See Note)

NT

Data Table:

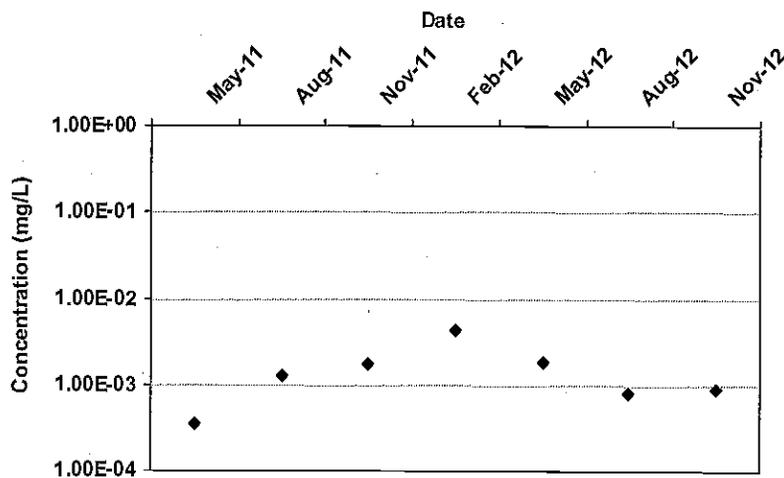
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-16	S	8/15/2011	BENZENE	1.6E-04		1	1
MW-16	S	11/15/2011	BENZENE	2.5E-04	ND	1	0
MW-16	S	2/15/2012	BENZENE	2.5E-04	ND	1	0
MW-16	S	5/15/2012	BENZENE	2.5E-04	ND	1	0
MW-16	S	8/15/2012	BENZENE	1.4E-04		1	1
MW-16	S	11/15/2012	BENZENE	8.8E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-17
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

3

Confidence in Trend:

61.4%

Coefficient of Variation:

0.82

Mann Kendall Concentration Trend:
(See Note)

NT

Data Table:

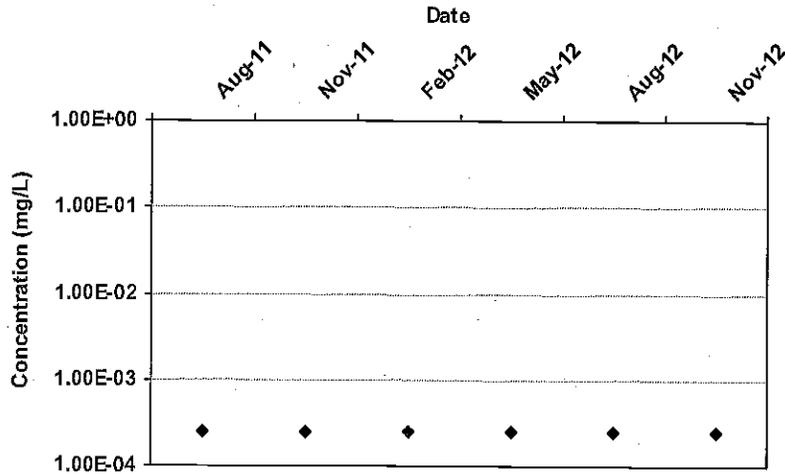
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-17	S	5/15/2011	BENZENE	3.6E-04		1	1
MW-17	S	8/15/2011	BENZENE	1.3E-03		1	1
MW-17	S	11/15/2011	BENZENE	1.7E-03		1	1
MW-17	S	2/15/2012	BENZENE	4.4E-03		1	1
MW-17	S	5/15/2012	BENZENE	1.8E-03		1	1
MW-17	S	8/15/2012	BENZENE	8.2E-04		1	1
MW-17	S	11/15/2012	BENZENE	9.1E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-G01S
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

0

Confidence in Trend:

42.3%

Coefficient of Variation:

0.00

Mann Kendall Concentration Trend: (See Note)

ND

Data Table:

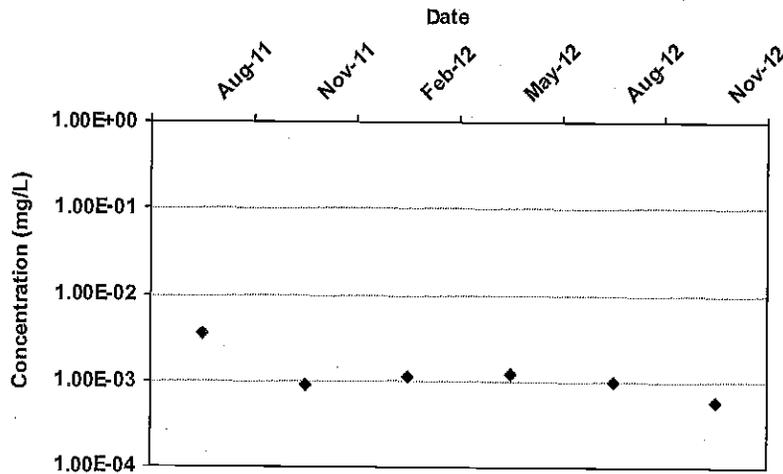
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-G01S	S	8/15/2011	BENZENE	2.5E-04	ND	1	0
MW-G01S	S	11/15/2011	BENZENE	2.5E-04	ND	1	0
MW-G01S	S	2/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G01S	S	5/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G01S	S	8/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G01S	S	11/15/2012	BENZENE	2.5E-04	ND	1	0

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-G02S
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-7

Confidence in Trend:

86.4%

Coefficient of Variation:

0.77

Mann Kendall Concentration Trend: (See Note)

S

Data Table:

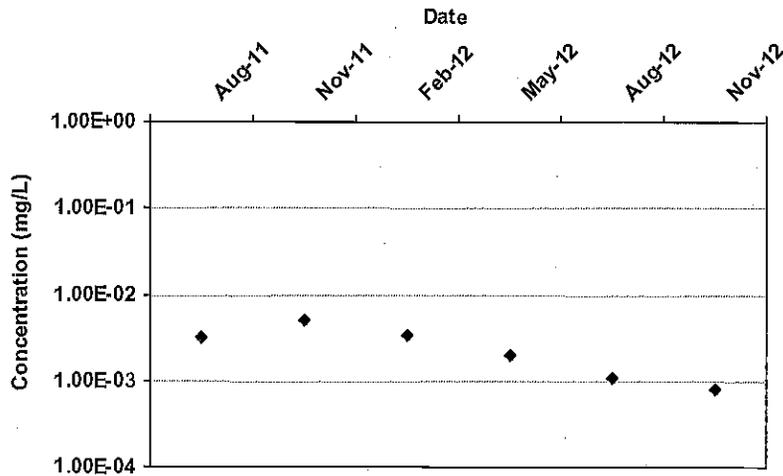
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-G02S	S	8/15/2011	BENZENE	3.5E-03		1	1
MW-G02S	S	11/15/2011	BENZENE	8.9E-04		1	1
MW-G02S	S	2/15/2012	BENZENE	1.1E-03		1	1
MW-G02S	S	5/15/2012	BENZENE	1.2E-03		1	1
MW-G02S	S	8/15/2012	BENZENE	1.0E-03		1	1
MW-G02S	S	11/15/2012	BENZENE	5.7E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-G03S
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-11

Confidence in Trend:

97.2%

Coefficient of Variation:

0.61

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

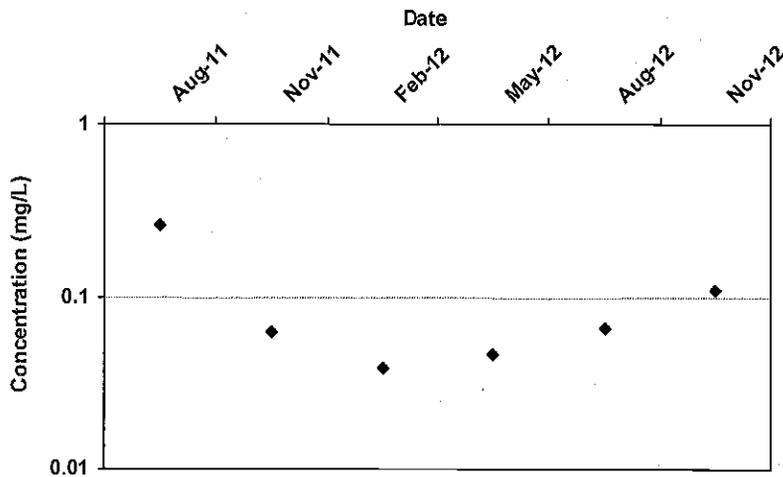
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-G03S	S	8/15/2011	BENZENE	3.2E-03		1	1
MW-G03S	S	11/15/2011	BENZENE	5.0E-03		1	1
MW-G03S	S	2/15/2012	BENZENE	3.4E-03		1	1
MW-G03S	S	5/15/2012	BENZENE	2.0E-03		1	1
MW-G03S	S	8/15/2012	BENZENE	1.1E-03		1	1
MW-G03S	S	11/15/2012	BENZENE	8.1E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-G04S
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

1

Confidence in Trend:

50.0%

Coefficient of Variation:

0.86

Mann Kendall Concentration Trend:
 (See Note)

NT

Data Table:

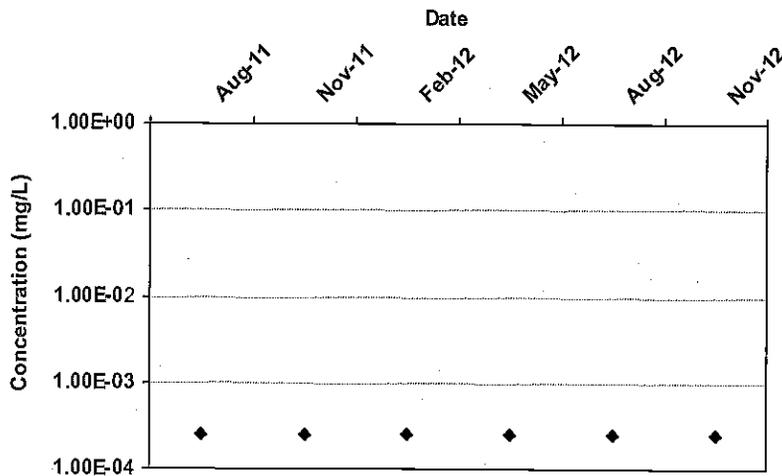
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-G04S	S	8/15/2011	BENZENE	2.6E-01		1	1
MW-G04S	S	11/15/2011	BENZENE	6.2E-02		1	1
MW-G04S	S	2/15/2012	BENZENE	3.9E-02		1	1
MW-G04S	S	5/15/2012	BENZENE	4.6E-02		1	1
MW-G04S	S	8/15/2012	BENZENE	6.5E-02		1	1
MW-G04S	S	11/15/2012	BENZENE	1.1E-01		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-G01D
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

0

Confidence in Trend:

42.3%

Coefficient of Variation:

0.00

Mann Kendall Concentration Trend: (See Note)

ND

Data Table:

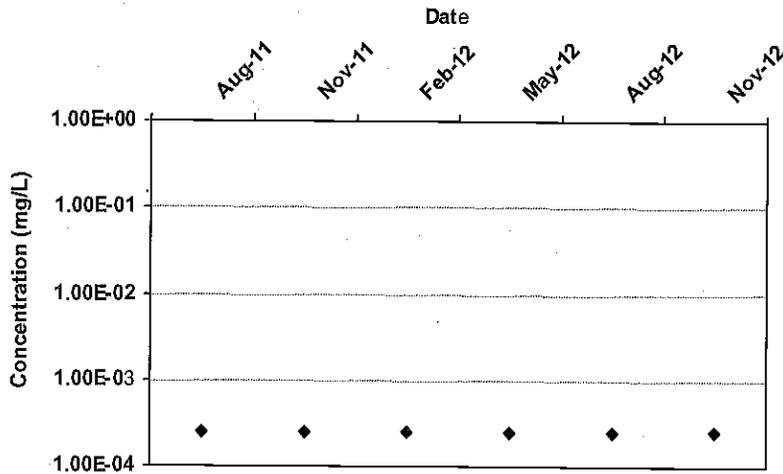
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-G01D	S	8/15/2011	BENZENE	2.5E-04	ND	1	0
MW-G01D	S	11/15/2011	BENZENE	2.5E-04	ND	1	0
MW-G01D	S	2/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G01D	S	5/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G01D	S	8/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G01D	S	11/15/2012	BENZENE	2.5E-04	ND	1	0

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-G02D
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

0

Confidence in Trend:

42.3%

Coefficient of Variation:

0.00

Mann Kendall Concentration Trend:
 (See Note)

ND

Data Table:

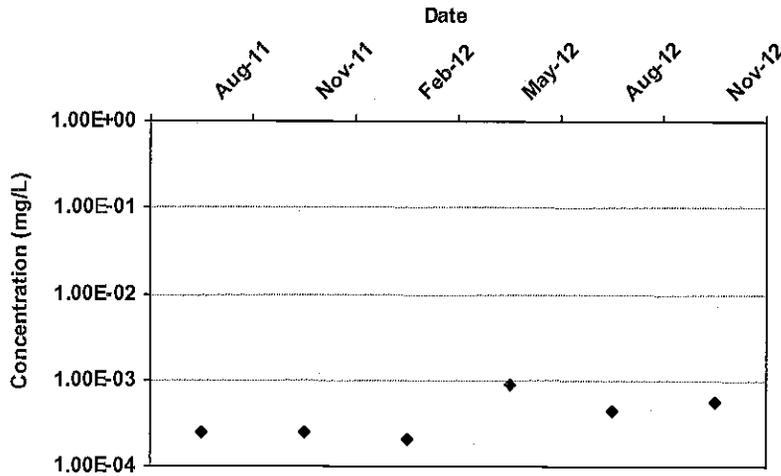
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-G02D	S	8/15/2011	BENZENE	2.5E-04	ND	1	0
MW-G02D	S	11/15/2011	BENZENE	2.5E-04	ND	1	0
MW-G02D	S	2/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G02D	S	5/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G02D	S	8/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G02D	S	11/15/2012	BENZENE	2.5E-04	ND	1	0

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-G03D
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

6

Confidence in Trend:

81.5%

Coefficient of Variation:

0.61

Mann Kendall Concentration Trend:
(See Note)

NT

Data Table:

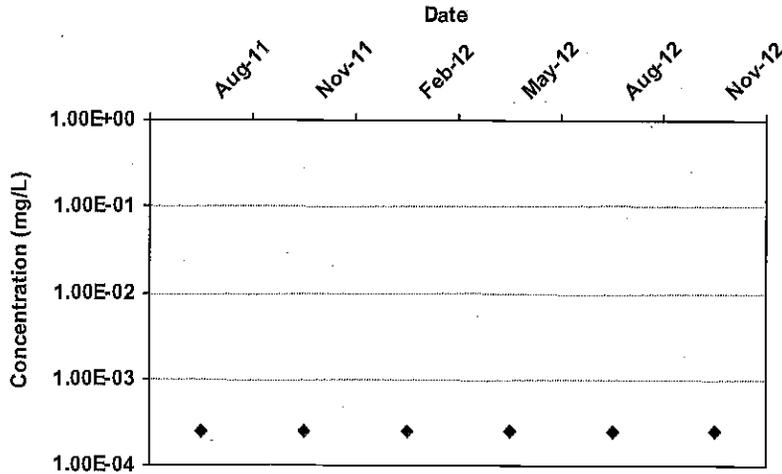
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-G03D	S	8/15/2011	BENZENE	2.5E-04	ND	1	0
MW-G03D	S	11/15/2011	BENZENE	2.5E-04	ND	1	0
MW-G03D	S	2/15/2012	BENZENE	2.0E-04		1	1
MW-G03D	S	5/15/2012	BENZENE	8.9E-04		1	1
MW-G03D	S	8/15/2012	BENZENE	4.4E-04		1	1
MW-G03D	S	11/15/2012	BENZENE	5.6E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-G04D
 Well Type: S
 COC: BENZENE

Time Period: 8/13/2009 to 10/23/2012
 Consolidation Period: Quarterly
 Consolidation Type: Median
 Duplicate Consolidation: Average
 ND Values: 1/2 Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

0

Confidence In Trend:

42.3%

Coefficient of Variation:

0.00

Mann Kendall Concentration Trend:
(See Note)

ND

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-G04D	S	8/15/2011	BENZENE	2.5E-04	ND	1	0
MW-G04D	S	11/15/2011	BENZENE	2.5E-04	ND	1	0
MW-G04D	S	2/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G04D	S	5/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G04D	S	8/15/2012	BENZENE	2.5E-04	ND	1	0
MW-G04D	S	11/15/2012	BENZENE	2.5E-04	ND	1	0

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

EXHIBIT 3

Los Angeles Regional Water Quality Control Board

August 21, 2013

Douglas J. Weimer, PG
Shell Oil Products US
Environmental Services Company
20945 S. Wilmington Avenue
Carson, CA 90810

SUBJECT: REVIEW OF SITE-SPECIFIC CLEANUP GOAL REPORT

**SITE: FORMER KAST PROPERTY TANK FARM, CARSON, CALIFORNIA
(SCP NO. 1230, SITE ID NO. 2040330, CAO NO. R4-2011-0046)**

Dear Mr. Weimer:

The Former Kast Property Tank Farm (Site) is located southeast of the intersection of Marbella Avenue and East 244th Street in Carson, California. Shell Oil Company (Shell) owned and operated a crude oil tank farm at the Site from the 1920s until the mid-1960s when it was redeveloped into the Carousel residential housing tract (Carousel Tract). Residual oil from the tank farm was not completely removed prior to or during Site redevelopment and thus remains in the soils beneath the existing houses. Environmental investigations to date indicate that, in addition to crude oil detected in shallow soils at the Site, hydrocarbons and other constituents of concern (COCs) have also been detected in the soil, soil vapor, and groundwater at the Site.

The California Regional Water Quality Control Board, Los Angeles Region (Regional Board) is the primary state agency that regulates discharges of wastes to ground and surface waters in the Los Angeles Region, including Los Angeles and Ventura Counties, under the authority of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (Cal. Wat. Code §§ 13000 *et seq.*). The Regional Board has served as the lead agency overseeing the environmental investigation and remediation of the Site since 2008. The Regional Board's oversight is supported by other public agencies, including the state Office of Environmental Health Hazard Assessment (OEHHA), the Los Angeles County Department of Public Health, and the Los Angeles County Fire Department.

On March 11, 2011, the Regional Board issued Cleanup and Abatement Order No. R4-2011-0046 (CAO), pursuant to California Water Code section 13304. The CAO directed Shell to completely investigate the Site, continue to conduct groundwater monitoring and reporting, and conduct remedial action to cleanup and abate the waste in the soil, soil vapor, and groundwater at the Site. As part of conducting remedial action, Shell was required to evaluate cleanup methodologies through pilot testing, assess any potential environmental impacts of the residual concrete slabs of the former reservoir, submit and implement a remedial action plan (RAP) to cleanup the wastes at and below the Site, and continue to conduct residential surface and

subsurface soil and sub-slab soil vapor sampling. The CAO directed Shell to submit cleanup goals, including site-specific cleanup goals (SSCGs), for all COCs for residential (i.e., unrestricted) land use. Proposed SSCGs were required to include detailed technical rationale and assumptions underlying each goal. The CAO required Shell to apply the following guidelines and policies to the proposed cleanup goals: (i) cleanup goals must comply with various state and federal policies and guidance identified in the CAO; (ii) groundwater cleanup goals shall achieve applicable water quality objectives in the Regional Boards' Water Quality Control Plan for the Los Angeles Region (Basin Plan), including California's Maximum Contaminant Levels (MCLs) or Action Levels for drinking water as established by the California Department of Public Health and the state's "anti-degradation policy" in State Water Resources Control Board (State Water Board) Resolution No. 68-16 ("Statement of Policy With Respect to Maintaining High Quality of Waters in California"); (iii) all cleanup goals must comply with the State Water Board's "anti-degradation policy"; and (iv) all cleanup goals must comply with State Water Board Resolution No. 92-49 ("Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304") (Resolution 92-49).

In accordance with the CAO, Shell timely submitted proposed SSCGs to the Regional Board in a report entitled "Site-Specific Cleanup Goal Report" (Report) on February 22, 2013. The Regional Board circulated the Report for a 30-day public review and comment period, and received comments from interested persons. In addition, the Regional Board received a memorandum from OEHHA dated July 22, 2013 (OEHHA Memorandum), as well as a report from the Expert Panel from the University of California, Los Angeles (UCLA Expert Panel) that was convened to provide recommendations to the Regional Board on various technical aspects of the Site investigation and cleanup. The UCLA Expert Panel's report is entitled "Interim Review of the Site-Specific Cleanup Goal Report and Human Health Screening Risk Evaluation" (UCLA Expert Panel Interim Report) and is dated July 24, 2013. The Regional Board agrees with all of the comments in the OEHHA Memorandum and the UCLA Expert Panel Interim Report. Regional Board staff also prepared a memorandum dated August 14, 2013 regarding vapor intrusion (Regional Board Staff Memorandum). The Regional Board¹ reviewed the Report taking into account applicable law and policy, the requirements of the CAO, and the comments received from interested persons, OEHHA, and the UCLA Expert Panel.

The Regional Board acknowledges that Shell has conducted a thorough investigation of the Site in compliance with the CAO. This investigation includes the collection of extensive site data that characterized soil, soil vapor, indoor air and vapor intrusion on a parcel-by-parcel basis; groundwater underlying the Site; and soil and ambient air conditions at reference sites in the vicinity of the Site to evaluate ambient outdoor air and background soil conditions for COCs. The Regional Board finds that the site investigation provided reliable, comprehensive, and high quality data. Based on the data collected, Shell proposed SSCGs largely based on human health screening risk evaluations (HHSREs). Shell has submitted HHSREs for individual parcels based on environmental investigation data collected during the Site investigation. The Regional Board

¹ Note that for purposes of this letter, the term "Regional Board" refers to the staff, including the Executive Officer. Consistent with the Porter-Cologne Act, the Regional Board members themselves have not taken action with respect to the CAO or Report.

supports the use of human health considerations for sites with residential uses, such as the Carousel Tract. In their comments on the Report, OEHHA and the UCLA Expert Panel generally agree with the methodology used to calculate the HHSREs, but noted that some areas of the HHSREs require greater clarity. Although the proposed SSCGs are generally consistent with applicable practices regarding calculation of HHSREs, the proposed SSCGs require revision for the reasons described in this letter. The proposed SSCGs also do not appear to take into account Resolution 92-49, the Basin Plan, and other federal and state policies and guidance as required by the CAO, and may not be fully protective of unrestricted residential land use.

This letter provides the Regional Board's reasons for not approving the SSCGs and directs Shell to revise the Report and the SSCGs, as appropriate. This letter is organized by the following topics: Regulatory Requirements for Establishing SSCGs; Comments and Directives on the Proposed Remedial Action Objectives and SSCGs; and Directive to Revise the Report. Additionally, the OEHHA Memorandum and the UCLA Expert Panel Interim Report regarding the HHSREs, as well as the Regional Board Staff Memorandum regarding vapor intrusion, are all attached to this letter. As indicated below, Shell is directed to address the comments in all three attachments when revising the Report.

Regulatory Requirements for Establishing SSCGs

Key regulations and policies governing establishment of cleanup goals, including SSCGs, for the Site are set forth in the CAO. These include: Resolution 92-49 (which incorporates California Code of Regulations (CCR), title 23, section 2550.4), the Regional Board's Basin Plan, the California Department of Public Health's MCLs, State Water Board Resolution No. 68-16 (the state's "anti-degradation policy"), and other state and federal policies and guidance for establishing cleanup goals. An overview of these policies and regulations is provided below.

State Water Board Resolution No. 92-49

The CAO requires all cleanup goals to comply with Resolution 92-49. In determining cleanup levels for sites subject to the Porter-Cologne Act, the Regional Board is required to implement Resolution 92-49. Resolution 92-49 requires the Regional Board to assure that waste is cleaned up to background conditions², or if that is not reasonable, to an alternative level that is the most stringent level that is economically and technologically feasible in accordance with CCR, title 23, section 2550.4. Any alternative cleanup level to background must: (1) be consistent with the maximum benefit to the people of the state; (2) not unreasonably affect present and anticipated beneficial uses of such water; and (3) not result in water quality less than that prescribed in the Basin Plan and applicable Water Quality Control Plans and Policies of the State Water Board.

² Background conditions mean the water quality that existed before the discharge of waste.

California Code of Regulations, Title 23, Section 2550.4

Resolution 92-49 incorporates, by reference, CCR, title 23, section 2550.4. Section 2550.4 guides the establishment of concentration limits for COCs in corrective action programs in California. Section 2550.4, states, in part:

(c) For a corrective action program, the regional board shall establish a concentration limit for a constituent of concern that is greater than the background value of that constituent only if the regional board finds that it is technologically or economically infeasible to achieve the background value for that constituent and that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the concentration limit greater than background is not exceeded. In making this finding, the regional board shall consider that factors specified in subsection (d) of this section, the results of the engineering feasibility study submitted pursuant to subsection 2550.9(c) of this article, data submitted by the discharger pursuant to section 2550.9(d)(2) of this article to support the proposed concentration limit greater than background, public testimony on the proposal, and any additional data obtained during the evaluation of the monitoring program.

(d) In establishing a concentration limit greater than background for a constituent of concern, the regional board shall consider the following factors:

(1) potential adverse effects on ground water quality and beneficial uses, considering:

.....

(G) the potential for health risks caused by human exposure to waste constituents;

.....

(I) the persistence and permanence of the potential adverse effects.....

Regional Board's Basin Plan

The CAO requires that groundwater cleanup goals achieve the applicable water quality objectives set forth in the Basin Plan, including California's MCLs or Action Levels for drinking water established by the California Department of Public Health and the State Water Board's "anti-degradation policy" in State Water Board Resolution No. 68-16. Groundwater beneath the Site is designated for municipal supply.³ The Basin Plan sets forth water quality objectives to protect beneficial uses, including MCLs for drinking water.

³ Note that the residents of the Carousel Tract are not being supplied drinking water from the underlying groundwater at the Site.

State Water Board Resolution No. 68-16

The CAO requires that all cleanup goals comply with the State Water Board's "anti-degradation policy." This policy requires attainment of background levels of water quality, or the highest level of water quality that is reasonable in the event that background levels cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of water, and not result in exceedance of water quality objectives in the Regional Board's Basin Plan.

State and Federal Policies and Guidance

The CAO requires that cleanup goals for all COCs shall support residential (i.e. unrestricted) land use and be consistent with the following state and federal policies and guidance:

- Soil cleanup goals set forth in the Regional Board's *Interim Site Assessment and Cleanup Guidebook, May 1996*
- Human health protection levels set forth in *USEPA Regional Screening Levels (Formerly Preliminary Remediation Goals)*
- California Environmental Protection Agency's (CalEPA) *Use of Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties*, dated January 2005, or its latest version
- Total Petroleum Hydrocarbon Criteria Working Group, Volumes 1 through 5, 1997, 1998, 1999
- San Francisco Bay Regional Water Quality Control Board's Environmental Screening Levels (ESL) document
- Commonwealth of Massachusetts, Department of Environmental Protection, *Characterizing Risks Posed by Petroleum Contaminated Sites: Implementation of MADEP VPH/EPH approach*; MADEP 2002
- Commonwealth of Massachusetts, Department of Environmental Protection, *Updated Petroleum Hydrocarbon Fraction Toxicity Values for the VPH/EPH/APH Methodology*; MADEP 2003
- Commonwealth of Massachusetts, Department of Environmental Protection, *Method for the Determination of Air-Phase Petroleum Hydrocarbons (APH) Final*, MADEP 2008
- Department of Toxic Substances Control (DTSC) *Interim Guidance* and the Regional Board's *Advisory - Active Soil Gas Investigations*, dated January 28, 2003, or its latest version
- DTSC's *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air*, revised February 7, 2005, or its latest version
- U.S. Environmental Protection Agency's (USEPA) *Risk Assessment Guidance for Superfund, Parts A through E*
- USEPA's *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings*, 2003

- USEPA's *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites*, 2002
- USEPA's *Supplemental Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites*, 2002
- CalEPA's *Selecting Inorganic Constituents as Chemicals of Potential Concern at Risk Assessments at Hazardous Waste Sites and Permitted Facilities*, CalEPA DTSC, February 1997
- CalEPA's *Use of the Northern and Southern California Polynuclear Aromatic Hydrocarbons (PAH) Studies in the Manufactured Gas Plant Site Cleanup Process*, CalEPA DTSC, July 2009

The Regional Board's *Interim Site Assessment and Cleanup Guidebook, May 1996*, recommends taking into consideration the waste concentrations, depth to the water table, the nature of the chemicals, soil conditions and texture, and attenuation trends, and human health protection levels set forth in *USEPA Regional Screening Levels (Formerly Preliminary Remediation Goals)*.

Comments and Directives on the Proposed Remedial Action Objectives and SSCGs

The Report sets forth both proposed remedial action objectives (RAOs) and proposed SSCGs for COCs in soil, soil vapor, indoor air (including but not limited to methane), and groundwater. The COCs at the Site include total petroleum hydrocarbons (TPH); TPH-related volatile organic compounds (VOCs); TPH-related semi-volatile organic compounds (SVOCs) including polycyclic aromatic hydrocarbons (PAHs); metals (lead and arsenic); and methane. This section summarizes Shell's proposed RAOs and SSCGs. After each summary, the Regional Board provides comments on the proposed RAOs and SSCGs and provides directives to Shell for revision.

Summary of Shell's Proposed RAOs

The Report proposes RAOs that define the basis and methodology for deriving the proposed SSCGs. Shell proposed the following RAOs for the Site:

- Prevent human exposures to on-site residents and construction and utility maintenance workers to concentrations of COCs in soil, soil vapor, and indoor air such that total lifetime incremental carcinogenic risks are within the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) risk management range of 10^{-6} to 10^{-4} and non-cancer hazard indices are less than 1 or concentrations are below background, whichever is higher;
- Prevent fire/explosion risks in indoor air and/or enclosed spaces due to the generation of methane;
- Remove light non-aqueous phase liquid (LNAPL) to the extent practicable and where a significant reduction in current and future risk to groundwater will result; and

- Maintain a stable or decreasing plume of COCs in groundwater beneath the Site.

Comments and Directive on Shell's Proposed RAOs

The Regional Board has the following comments on each RAOs:

- The Regional Board disagrees that the proposed COCs are limited to TPH-related compounds. During the Site investigation, chlorinated VOCs were detected on Site. Shell is required to include all compounds detected on site as COCs and develop RAOs and SSCGs to address all COCs. Also, as indicated by the UCLA Expert Panel's Interim Report, "It is possible that cleaning of machinery and other operations on-site resulted in release of these CVOCs on-site. This cannot be ruled out." (See UCLA Expert Panel Interim Report at p. 13.)
- The Regional Board agrees with the RAO of preventing human exposure and also agrees that the NCP sets forth a risk management range of 10^{-6} to 10^{-4} . The Regional Board agrees that such a range is appropriate for construction and utility maintenance workers. However, the Regional Board notes that the Report properly proposes to use a target incremental cancer risk of 10^{-6} and a non-cancer hazard quotient of 1 as the point of departure. The Department of Toxic Substances Control's (DTSC) Vapor Intrusion Mitigation Advisory (October 2011) sets forth the point of departure for risk management decisions for cancer risk at 10^{-6} . A target cancer risk of 10^{-6} or less is considered protective of on-site residents by Cal/EPA and should be used to support an unrestricted land use scenario.
- The Regional Board agrees that an RAO for methane should be to prevent fire and explosions. The RAO should also focus on eliminating methane to the extent technically and economically feasible.
- The Regional Board generally agrees with the RAO with respect to LNAPL. However, the RAO should be reworded to say "remove or treat to the extent technically and economically feasible," rather than "to the extent practicable," to mirror the language in Resolution 92-49.
- The Regional Board does not fully agree with the RAO for groundwater. Maintaining a stable plume in groundwater is important, but the RAO should be to reduce the plume to the extent technically and economically feasible to achieve, at a minimum, the water quality objectives in the Basin Plan to protect the designated beneficial uses, including municipal supply. Maintenance of plume stability may not restore groundwater to its designated beneficial uses.

Directive: Revise the proposed RAOs in accordance with the comments above.

Summary of Shell's Proposed SSCGs

The intent of the proposed SSCGs is to achieve the proposed RAOs described above. The methodology for developing the SSCGs involved evaluating and mitigating risks to human health and safety, and reducing continued hydrocarbon loading to the groundwater beneath the Site. Shell's methodology, organized by medium, is as follows:

Soil:

The Report proposes numerical SSCGs for TPH in soil. These SSCGs were developed using a risk assessment methodology that is similar to the methodology used for HHSREs for analyzing potential risks from indoor vapor intrusion in the Site investigation. Key elements of the HHSREs are:

- The proposed SSCGs to address residential exposures are chemical-specific numerical values assuming a target incremental cancer risk of 10^{-6} and a non-cancer hazard quotient of 1. These proposed numerical values are to be applied to individual chemicals and soils not covered by hardscape and are calculated for both surface soils (0-2 feet below ground surface (bgs)) and sub-surface soils (>2-10 feet bgs). The former is based on exposure for 350 days per year, while the latter is based on 4 exposure days per year to reflect a less frequent exposure to deeper soil. The proposed SSCGs are not based on cumulative risk assessments. There are no SSCGs proposed for areas below hardscape.
- The proposed SSCGs for construction and utility maintenance workers are chemical-specific numerical values assuming a target incremental cancer risk of 10^{-5} and a hazard quotient of 1. These criteria are proposed to be applied to soils from 0-10 feet bgs.

Soil Vapor:

Shell evaluated the vapor intrusion exposure pathway to develop SSCGs for soil vapor for VOCs and methane based on a residential exposure scenario. The Report concluded that numeric SSCGs for residential exposure of soil vapor are not warranted due to a "multiple lines-of-evidence" analysis of the vapor intrusion pathway as follows:

- Indoor air and outdoor air concentrations detected at the properties are indistinguishable from background and within the typical ranges reported in literature.
- Vapor intrusion is not affecting indoor air quality at the Site for COCs based on multiple-linear regression analysis in which indoor air concentrations were found to be significantly correlated with garage air and outdoor air concentrations but shows poor correlation with sub-slab vapor concentrations.
- Variability in indoor air concentrations is attributed to the presence of indoor sources of VOCs. These sources include outdoor air, indoor product use, residential building materials, dry cleaned clothing, and sources within attached garages.

- An empirical vapor intrusion attenuation factor cannot be calculated for the Site on the basis of the observed similarity of indoor and background air concentrations, and the lack of significant correlation between sub-slab soil vapor and indoor air concentrations.

Based on the multiple lines-of-evidence analysis described above, the Report proposes that a vapor intrusion assessment will be made on a property-specific basis to assess whether the sub-slab data result in indoor air concentrations above background, rather than a numeric SSCG for soil vapor.

Indoor Air (Methane):

The Report considers fire and explosion risks from methane. The proposed SSCGs are consistent with DTSC guidance for school sites that state methane levels of greater than 5000 parts per million by volume (ppmv) and soil vapor pressure greater than 13.9 inches water shall be evaluated for engineering controls.

Groundwater:

The proposed SSCGs for groundwater are as follows:

- Remove LNAPL to the extent practicable;
- Maintain a stable or decreasing plume beneath the Site through a monitoring program to be presented in the RAP;
- Return shallow zone and Gage aquifer groundwater quality to background levels for petroleum hydrocarbons through natural biodegradation, and arsenic through maintaining an oxidizing chemical environment over time; and
- No documented or expected future use of site groundwater is anticipated.

Comments and Directives on Shell's Proposed SSCGs

The proposed SSCGs are generally derived from human health risk assessments that focus on reducing risks associated with COCs to a level that is acceptable for residential land use. However, the CAO also requires the proposed SSCGs to comply with Resolution 92-49, the Basin Plan, other regulations and policies, and be based on unrestricted residential land use. Shell is therefore required to address the following comments in its revised Report.

Soil:

The proposed SSCGs for soils for many of the COCs, including but not limited to TPH and benzene, exceed background levels. The Report does not contain an analysis of the cleanup levels that are economically and technically feasible for the COCs. To comply with Resolution 92-49, the SSCGs must range between background and the level that is technically and economically feasible. The SSCGs must also be protective of groundwater and be based on unrestricted residential land use. The SSCGs also do not comport with the Regional Board's

Interim Site Assessment and Cleanup Guidebook, May 1996, and do not consider criteria such as waste concentrations, depth to the water table, the nature of the chemicals, soil conditions and texture, and attenuation trends, and human health protection levels set forth in *USEPA Regional Screening Levels (Formerly Preliminary Remediation Goals)*. The Report derives SSCGs based on contaminant fate and transport and human health risk criteria. This methodology does not completely comport with CCR, title 23, section 2550.4, which requires that cleanup levels must be protective of groundwater quality. The proposed SSCGs would allow significant quantities of wastes to remain beneath the Site, which may not be protective of groundwater and support unrestricted residential land uses. Further, in some areas of the Site, these wastes may persist and continue to generate soil vapor.

The Report also uses methodologies and assumptions that may not comport with the CAO, as described below:

- The Regional Board disagrees that the proposed COCs are limited to TPH-related compounds. During the Site investigation, chlorinated VOCs were detected on Site. Shell is required to include all compounds detected on site as COCs and develop RAOs and SSCGs to address all COCs. Also, as indicated by the UCLA Expert Panel's Interim Report, "It is possible that cleaning of machinery and other operations on-site resulted in release of these CVOCs on-site. This cannot be ruled out." (See UCLA Expert Panel Interim Report at p. 13.)
- The OEHHA Memorandum and UCLA Expert Panel Interim Report identify several issues regarding the risk calculations. A key issue concerns segregating the shallow soil exposure scenario into two layers: 0-2 feet bgs and 2-10 feet bgs. The fraction-specific soil SSCGs for TPH ranges (Appendix A Page 17-20) for soil between 2 and 10 feet bgs are quite high. The Report assumes specific exposure conditions of 4 days per year exposure frequency to subsurface soils between 2 and 10 feet bgs.
- The proposed chemical-specific SSCGs are based on the average concentrations or the 95[%] Upper Confidence Limit (95UCL) chemical concentrations calculated for each property, rather than using maximum concentrations in soil. Although the use of the 95UCL was approved by the Regional Board for Human Health Screening Evaluations, 95UCL may not be appropriate for SSCGs.
- The proposed SSCGs are based on chemical-specific risks and do not consider cumulative risks to receptors that may exceed 10^{-6} .
- The proposed SSCGs need to address all areas of the Site. The proposed SSCGs do not address areas below hardscape. The Regional Board does not typically distinguish SSCGs based on hardscape and softscape because such an approach is not likely to be protective of unrestricted residential land use or groundwater protection.
- Fruits and vegetables grown in the yards of the homes at the Site may uptake COCs, but that exposure scenario has not been considered in developing SSCGs.

The proposed SSCGs for TPH in soil do not support unrestricted residential land use for several reasons, including, but not limited to:

- Using the proposed SSCGs, land use restrictions (also known as deed restrictions or environmental covenants) may be necessary to inform and protect existing and future residents from exposure to certain COCs. The proposed SSCGs in soil cannot exceed human health values for dermal contact at shallow depths unless land use restrictions to control exposure are implemented. Any land use restrictions would be required to be recorded by the existing property owner.
- The proposed SSCGs for TPH would continue to pose a nuisance as defined in California Water Code section 13050(m) because the properties would be subject to continuing land use restrictions.

Directive: Revise the Report to: (1) include an evaluation of compliance with Resolution 92-49, including determining cleanup levels that are technically and economically feasible; (2) provide SSCGs that are inclusive of both hardscape and softscape areas of the Site; (3) provide the rationale for using average concentrations or propose another methodology; and (4) address the comments regarding supporting unrestricted residential land uses.

Soil Vapor:

The Report does not propose SSCGs for soil vapor COCs because the Report states that vapor intrusion is not affecting indoor air quality based on an analysis of approximately 300 indoor air tests. A multiple lines-of-evidence approach was used to reach this conclusion. However, the Regional Board notes that soil vapor can be generated from COCs sorbed to the soil column and can continue to be generated into the future. Overall, the proposed SSCGs would leave a significant mass of hydrocarbons in the subsurface. Such hydrocarbons may continue to degrade and generate VOCs that may pose future risks to humans. The proposed SSCGs do not appear to consider the persistence and permanence of potential adverse effects. The Regional Board notes that the Report proposes that a vapor intrusion assessment will be made on a property-specific basis to assess whether the sub-slab data result in indoor air concentrations above background, rather than a numeric site-specific cleanup for soil vapor. In addition, the concrete in the soils below grade may contribute to soil vapors and needs to be evaluated. The Regional Board has received, and is evaluating, a separate report from Shell regarding the slabs. Given that the amount of hydrocarbons in the subsurface varies throughout the Site, a property-specific evaluation is appropriate.

The Report specifies screening levels for VOCs in sub-slab vapors that are 1% of the CHHSLs for indoor air. This implies that indoor air concentrations resulting from vapor intrusion are expected to be no more than 1% of the sub-slab concentrations (i.e., the attenuation factor is assumed to be 0.01 or less). Regional Board staff review of the statistical analysis of sub-slab soil vapor and indoor air data for vapor intrusion evaluation suggests that some VOCs detected in indoor air may be there in part from the intrusion of sub-slab vapors. (See attached Regional Board Staff Memorandum). Also, as indicated by the UCLA Expert Panel's Interim Report,

“any determination that there is a relationship between sub-slab soil vapor and indoor air will have a direct and profound impact on all risk estimates and cleanup calculations.” (See attached UCLA Expert Panel Interim Report at p. 5.)

Directive: Shell is required to address the following: (1) Propose numeric SSCGs for VOCs in soil vapor that are equivalent to sub-slab screening levels or develop a site-specific attenuation factor (AF) to support development of a site-specific sub-slab vapor cleanup goal using indoor air and sub-slab data for VOCs; (2) develop SSCGs for soil vapor based on potential vapor intrusion concerns in individual homes; and (3) determine when concentrations of TPH may present a nuisance and detectable odor in accordance with the San Francisco Bay Regional Water Quality Control Board’s Environmental Screening Levels (ESL) document.

Indoor Air (Methane):

The Regional Board agrees that the proposed SSCGs for methane may be suitable for risk management screening levels. The SSCGs are also consistent with DTSC guidance and have been approved by the Los Angeles County Fire Department for Site investigation screening levels. However, the proposed SSCGs only consider methane above ground or in vaults. Methane in soil vapor also represents a safety risk as it may contribute to elevated levels that can accumulate in structures, which pose a potential safety risk.

Directive: Shell is directed to develop SSCGs for methane in soil vapor for residential exposure scenarios.

Groundwater:

The groundwater beneath the Site is impacted by petroleum hydrocarbons, including LNAPL free phase product. The Report does propose removal of LNAPL to the extent practicable. However, pursuant to Resolution 92-49, LNAPL should be removed “to the extent technically and economically feasible.”

The Report does not propose numeric SSCGs for groundwater. Rather, the Report proposes to achieve background concentrations in groundwater through monitoring and natural biodegradation. The proposed SSCGs for soil do not consider the effects of continuing migration of waste into groundwater in excess of Basin Plan water quality objectives nor the permanence of the potential adverse effects. To comply with Resolution 92-49, cleanup levels less stringent than background conditions must not result in exceedance of water quality objectives set forth in the Basin Plan. Groundwater beneath the site is impacted with various chemicals that exceed their respective MCLs, including benzene, naphthalene, tetrachloroethene (PCE), trichloroethene (TCE), and tert-butyl alcohol (TBA). Although the proposed SSCGs to achieve background conditions appear appropriate, the period of time to reach these goals through monitoring and natural attenuation has not been analyzed. The attenuation rate for the COCs at the Site may be so long as to render these methods unsuitable for meeting the proposed SSCGs within a reasonable time frame and eliminate the potential impact to underlying aquifers.

Directive: Shell is required to: (1) propose removal of LNAPL “to the extent technically and economically feasible” in accordance with Resolution 92-49; and (2) propose SSCGs for

groundwater to achieve, at a minimum, applicable Basin Plan water quality objectives within a reasonable time frame and that take into account continuing migration of waste into groundwater.

Directive to Revise the Report

Shell is required to revise the Report and the SSCGs, as appropriate, in accordance with the specific directives and other comments provided in this letter. Shell is also directed to address all comments in the attached OEHHA Memorandum, UCLA Expert Panel Interim Report, and Regional Board Staff Memorandum. Shell must submit the revised Report by **October 21, 2013**. Shell is further directed to meet with Regional Board staff no later than **September 18, 2013** to discuss Shell's approach to revising the Report and proposed SSCGs. Revisions are necessary to take into consideration the requirements of Resolution 92-49, the Basin Plan, and regulations and policies referred to in these comments; to address the comments contained in the attached OEHHA Memorandum, UCLA Expert Panel Interim Report, and Regional Board Staff Memorandum; and to assure that SSCGs are sufficient to be protective of unrestricted residential land uses.

The due date for the revised report constitutes an amendment to Cleanup and Abatement Order No. R4-2011-0046, originally dated March 11, 2011. All other aspects of Order No. R4-2011-0046, and amendments thereto, remain in full force and effect. Pursuant to section 13350 of the California Water Code, failure to comply with the requirements of Order No. R4-2011-0046 by the specified due date, including dates in this amendment, may result in civil liability administratively imposed by the Regional Board in an amount of up to five thousand dollars (\$5000) for each day of noncompliance.

Please note that the Regional Board requires Shell to include a perjury statement in all reports submitted under the CAO. The perjury statement shall be signed by a senior authorized Shell Oil Products US representative (and not by a consultant). The statement shall be in the following format:

"I, [NAME], do hereby declare, under penalty of perjury under the laws of the State of California, that I am [JOB TITLE] for Shell Oil Company, that I am authorized to attest to the veracity of the information contained in [NAME AND DATE OF REPORT], that the information contained in the reports described herein is true and correct, and that this declaration was executed at [PLACE], [STATE], on DATE."

If you have any questions, please contact the project manager, Dr. Teklewold Ayalew, at (213) 576-6739 (tayalew@waterboards.ca.gov), or Ms. Thizar Tintut-Williams, Site Cleanup Unit III Chief, at (213) 576-6723 (twilliams@waterboards.ca.gov).

Sincerely,



Samuel Unger, PE
Executive Officer

Attachments: (1) OEHHA Memorandum, dated July 22, 2013
(2) Regional Board Staff Memorandum, dated August 14, 2013
(3) UCLA Expert Panel Interim Report, dated July 24, 2013

cc: See Mailing List ([next page](#))

Mailing List

Janice Hahn, Honorable Congresswoman, US House of Representatives, California's 44th District
Ted Lieu, Senator, California Senate District 28
Isadore Hall, III, Assembly Member, 64th Assembly District
Mark Ridley-Thomas, Supervisor, Second District County of Los Angeles
Jim Dear, Mayor, City of Carson
Sheri Repp-Loadsman, City of Carson
Ky Truong, City of Carson
Sam Ghaly, City of Carson
Michael Lauffer, State Water Resources Control Board
Frances McChesney, State Water Resources Control Board
Robert Egel, State Water Resources Control Board
Robert Romero, Department of Toxic Substances Control
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Edmund G. Brown Jr.
Governor

MEMORANDUM

TO: Teklewold Ayalew, Ph.D., P.G.
Engineering Geologist
Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013

FROM: James C. Carlisle, D.V.M., M.Sc. *J.C.*
Staff Toxicologist
Air, Community, and Environmental Research Branch

DATE: July 22, 2013

SUBJECT: SITE-SPECIFIC CLEAN-UP GOAL REPORT FOR KAST PROPERTIES,
CARSON, CA SWRCB#R4-09-17 OEHHA #880212-01

Document reviewed

- Site-Specific Clean-Up Goal Report for Former Kast Properties, Carson, California, dated February 22, 2013 by Geosyntec Consultants

Scope of review

- OEHHA's review is focused solely on risk-based and background-based SSCGs; therefore the comments herein refer only those issues. OEHHA recognizes that there are other considerations besides health risks in determining the final remedial goals.
- OEHHA's review excluded the ground water section.

Exposure pathways and exposure assessment

1. The appropriate exposure frequency and duration for the construction worker are site-specific and should be based on the most likely construction scenarios.
2. Proposed gastrointestinal and dermal absorption fractions should be referenced.
3. Residents are only considered to be exposed to deeper soils 4 days per year, based on a tree planting scenario. Page 23 states that soils from 0-10 feet were evaluated to address the scenario that deep soils contact would occur during a major renovation project such as pool installation or underground utility work. Since the site is fully developed, this scenario is considered unlikely. Nonetheless, this is a commonly evaluated scenario and its omission may be questioned, regardless of how unlikely it is. If renovation involving excavation were to occur, then residents could be exposed to deeper soils that are

California Environmental Protection Agency

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption.

redistributed to the surface, and this exposure would likely be greater than four days per year. During our teleconference, OEHHA was advised that there is no room to place excavated soil on these lots, and that any excavated soil would have to be hauled away.

4. Please explain the differences between the VF equation in Section 3.1.2.1 and Equation 4-8 in the EPA Soil Screening Guidance on which it is based.
5. Construction and maintenance workers are assumed to be exposed to vapors from soil and soil vapor. These pathways may also be complete for onsite residents, who would have a greater exposure, resulting in lower SSCGs.

Background assessment

6. In order to fully evaluate background arsenic and PAHs, reviewers need to see site-wide arsenic & PAH data.
7. Page 27 states that the Site-Specific Clean-Up Goals (SSCGs) will be compared to the 95 percent upper confidence limit (UCL₉₅) for each property.
 - a. OEHHA agrees that this is appropriate for risk-based SSCGs.
 - b. However, OEHHA does not agree that this is appropriate for background-based SSCGs if the Southern California UTL (the upper confidence limit on the 95th percentile) is used, for the following reason:
 - i. A person exposed to general Southern California soil arsenic would be exposed mostly to soils with less than 12 mg/kg arsenic, with less than 5% of samples equal to or greater than 12 mg/kg.
 - ii. However, a person exposed to soils on a property with a UCL₉₅ soil arsenic concentration of 12 mg/kg would be exposed to soils with arsenic concentrations above and below 12 mg/kg. This person's exposure would exceed the general Southern California background exposure.
 - c. An upper-end statistic like a UTL of a maximum would be a more reasonable basis for comparison.

Exposure point concentrations

8. The site-wide average and UCL₉₅ concentrations of the compounds of concern are not useful metrics for assessing exposure to the residents on the 285 individual lots. This site-wide approach could mask localized problem areas: the UCL on the mean for the entire site could be below risk-based thresholds despite risk and hazard estimates for some individual properties exceeding risk-based thresholds.
9. OEHHA supports assessment of exposure and risk over the area to which individuals are likely to be exposed. Each resident is exposed primarily to the soil on his or her individual lot and to the air in and around and his or her house. That means assessing exposure for each parcel separately.
10. Parcel-specific risks may be calculated based on the UCL₉₅ for that parcel; however, if there are insufficient samples from a given parcel to calculate a UCL, the exposure and risk calculations should be based on the maximum detected concentration in a particular medium on that parcel.

11. The statement (page 29) that soil vapor samples collected at depth are not considered in the residential receptor analysis needs further explanation.

SSCGs

12. OEHHA calculated risks and hazards corresponding to selected SSCGs using standard exposure equations for workers and residents. The resulting risk and hazard estimates were 1×10^{-6} and the resulting hazard estimates were 1 or less.
13. SSCGs must be evaluated in the context of how they will be used. OEHHA supports the summation of chemical-specific risks and hazards to estimate cumulative risks and hazards (as proposed on page 27).
14. No SSCGS are provided for VOCs in soil gas.

Vapor intrusion analysis

15. Table B-1 gives concentrations of various VOCs used in the regression analysis. For non-detects, the minimum analytical reporting limit was used in the analysis. These values differ from the detection limits cited in the individual property reports. Please explain the use of the minimum analytical reporting limits.
16. As more paired indoor/sub-slab data are generated, the regression analysis should be expanded to include these data. Since co-variation could limit the effect of removing one variable on r^2 , OEHHA suggests single regression in addition to the multiple regression method used.
17. Paired indoor/sub-slab data for various VOCs can be used to estimate site-specific attenuation factors (SSAFs). If supported by adequate data, these SSAFs may provide an alternative to the generic assumed AF of 0.01.

Communication issues

18. The separation of soil vapor and indoor air into separate sections seems unnecessary and results in redundancy.
19. Table A9 presents risk-based clean-up goals; Table 12 presents background-based clean-up goals. A table of final clean-up goals with a column showing whether they were risk-based or background-based would improve transparency.
20. The first three sentences in the second full paragraph on page 24 deal with COCs. The next three sentences discuss sampling strategies, and do not belong in the same paragraph.
21. The statement that metals that are below CHHSLs are not considered site-related defies logic. Site-related chemicals can be present at concentrations less than CHHSLs.
22. The second full paragraph on page 26 deals with background metals except for the last sentence. The latter does not belong in that paragraph and its presence there could be confusing.
23. In the same paragraph, the phrase "will be used", implying that the work will be done in the future, is confusing, since it appears that this selection is complete.

24. Table 7 is titled "Site-specific cleanup goals for soil", but these do not appear to be final clean-up goals since some of them are below background.
25. In the first sentence in section 7, "prevent" should probably be "limit".
26. In the following paragraph, "impacts" should probably be "vapors" (3x).

Conclusions

- Please reconsider whether residents could be exposed to soils in the 2-10 foot depth horizon more than 4 days per year. This could be following major renovation projects such as pool installation or underground utility work involving redistribution of soils and/or in the course of gardening, planting, etc.
- A Table showing final SSCGs and whether each is health-based or background-based would improve transparency.
- OEHHA questions the appropriateness of comparing background-based SSCGs to the 95 percent upper confidence limit (UCL₉₅) for each property. In order to fully evaluate background arsenic and PAHs, reviewers need to see site-wide arsenic & PAH data.
- Please consider evaluating the outdoor vapor inhalation pathway for residents or explain the exclusion of this pathway.
- OEHHA supports assessing exposure and risk over the area to which individuals are likely to be exposed. This is typically the UCL₉₅ for each property, but if there are not enough samples from a given parcel to calculate a UCL, the exposure and risk calculations should be based on the maximum detected concentration in a particular medium on that parcel.
- OEHHA supports the summation of chemical-specific risks and hazards to estimate cumulative risks and hazards. The implication of cumulative risks and/or hazards that exceed target levels needs to be considered.
- The communication issues noted above should be addressed by providing additional information and/or correcting the text as indicated.

Memo peer reviewed by:



Hristo Hristov, M.D., Ph.D.
Staff Toxicologist

Expert Panel Interim Review of the Site-Specific Cleanup Goal Report and Human Health Screening Risk Evaluation

July 24, 2013

1. Introduction

This report contains the Expert Panel's interim review of the 2013 Site-Specific Cleanup Goal Report and Human Health Screening Risk Evaluation (2009, amended 2010 and 2011) as requested by the Regional Water Quality Control Board.

The Expert Panel's charge is to provide its recommendation for the Regional Board to consider in determining whether remedial actions and cleanup goals proposed by the responsible parties named in the Cleanup Order are consistent with applicable legal authorities, including State Water Resources Control Board (State Water Board) Resolution No. 92-49 ("Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304) (Resolution 92-49). Resolution 92-49 governs the Regional Board in requiring responsible parties to remediate the site to levels that will result in meeting all water quality standards and are "consistent with the maximum benefit to the people of the state."

The Expert Panel has reviewed several aspects of the Site-Specific Cleanup Goal Report (SSCG) and Human Health Screening Risk Evaluation (HHSRE). First, the panel evaluated the transparency, consistency, objectivity and the use of appropriate sensitivity analysis within and across the reports. Second, the panel identified areas of potentially important uncertainty in the reported knowledge of sources, transport and exposure to chemical of potential concern.

This interim report begins by laying out technical review criteria/principles. Section 3 then contains background information relevant to how the Expert Panel applied these technical criteria/principles in their review of the SSCG and HHSRE. Section 4 introduces concerns that arise when applying these principles to the SSCG and HHSRE. Section 5 contains other concerns/questions that arise from insufficient evidence. Finally, Section 6 summarizes and applies State Water Board Resolution 92-49 to this interim review.

2. Technical Review Criteria

This interim review of the human health risk assessment and cleanup goals work for the Former Kast Property (herein after referred to as Kast) has been analyzed based upon these principles:

- **Transparency**- A regulator and/or informed reader should be able to clearly identify and follow the logic and **underlying assumptions** (including those made under the banner of “best professional judgment”) utilized in (i) the derivation of cleanup goals and (ii) overall risks for the site as a whole and at an individual homeowner level.
- **Consistency**- Methodological approaches for the risk assessment work should be based on a combination of (i) guidance and procedures published by the relevant **regulatory agencies/authorities** and as **needed** (ii) **peer-reviewed scientific literature**. If possible, **methodological disparities** (e.g., selection of **chemicals of concern**) should be minimized; however, if these differences occur a **scientific and/or regulatory rationale** should be provided.
- **Objectivity** (evidence based)- There should be a relevant and reasonably complete database that is useable for **quantitative risk assessment**. If there are significant data gaps for (i) **media specific data sets** (e.g., soil, air, water, biota), (ii) **exposure assessment parameters** (e.g., frequency, duration, **behavioral patterns**), and (iii) **key toxicological parameters** (e.g., slope factors, reference doses, toxic equivalency factors) then clear explanation and justification for bridging assumptions should be provided.
- **Sensitivity**- “How do we know what’s important?” As applied to risk assessment, **sensitivity analysis** is “any systematic, **common sense technique** used to understand how risk estimates and, in particular risk-based decisions, are dependent on variability and uncertainty in the factors contributing to risk” (USEPA, 2001).
 - It is **extremely useful** for regulators and readers to understand the major “**drivers**” of the risk estimates, i.e., those parameters, factors, and assumptions that are **significantly impacting** the calculated risk.

3. Background Relevant to Application of the Technical Review Principles

The SSCG has these stated objectives:

- Evaluate impacts to **shallow soils** 0-10 feet below ground surface.
- Consider listed guidelines and Policies in the development of cleanup goals.
- Address groundwater cleanup goals.
- Develop site-specific cleanup levels for residential land use and for construction/utility worker exposures.

The SSCG utilizes over 550 Phase II Interim and Follow-up Reports that contain **property-specific investigations** and these include a *Human Health Screening Risk Evaluation (HHSRE)*. The HHSREs (various dates 2009/2010/2011) provided an initial evaluation, residential property by property, of calculated potential risks and

is tantamount, in many respects, to a baseline human health risk assessment. The HHSRE was designed to assist in interim response planning.

However, it is not clear whether 1) the HHSREs are now considered to constitute the “full” human health risk assessment, as the Expert Panel is hearing from Regional Board staff, or 2) whether a “full” human health risk assessment is scheduled for release in the future, as is stated in the SSCG report: “A full Human Health Risk Assessment (HHRA) incorporating the SSCGs proposed in this report will be conducted to further evaluate potential health risks once the site characterization work is complete. The HHRA will be used to guide final response action for impacted media at the Site and will likely be included in the Remediation Action Plan” (Site-Specific Cleanup Goal Report, Feb, 2013, page ES-1). The Expert Panel has concerns with either scenario 1) or 2).

Concerns with Either Scenario:

- 1) The HHSRE does not follow the guidelines of a standard human health risk assessment.
- 2) Alternatively, the utility of developing this document after the execution and release of the SSCG is potentially problematic for key decision makers at the Water Board. Typically, a human risk assessment should inform cleanup goals rather than be released after the cleanup goals are determined.

Other Issues:

- There are mathematical and methodological connections between calculating a cleanup level and a screening risk assessment; hence, there are links between the SSCG and the HHSREs. While the stated purposes of the two are “different,” there is substantial methodological overlap.
 - There should be transparency, consistency, objectivity (same/similar data sets) and sensitivity (mathematical connection between the two calculated outcomes).
 - (i) Cleanup level based on a target risk (SSCG) and;
 - (ii) Property-specific risk based on an underlying media-specific screening level.
 - Both the SSCG and HHSREs utilize the same core calculation equation(s), it is simply a matter of variable rearrangement.
 - The basic media –specific data sets are similar (the SSCG has a somewhat fuller set simply because it is a more recent report);
 - Core exposure factors are the same as the residential scenarios;
 - Core toxicology parameters, e.g., reference doses, slope factors would be the same unless there was a published regulatory revision.
 - SSCG uses a ‘target risk’ level to back calculate scenario and media-specific cleanup levels, e.g., a residential scenario, assuming (a) standard exposure factors/parameters, (b) media-specific data sets for chosen

chemicals of concern (COCs) and (c) standard chemical-specific toxicity factors

- HHSREs uses (a) media-specific data combined plus a COC selection process (all detects are included) in combination with (b) exposure factors and (c) toxicity parameters in order to calculate media-specific (e.g., soil, indoor air and sub-slab soil vapor) “cumulative risk index” for both carcinogenic and non-carcinogenic COCs, as well as a separate total petroleum hydrocarbon screen.
- While there is an acknowledged risk range that is utilized for carcinogens (10^{-6} – 10^{-4}) and non-carcinogens (hazard index <1.0) the point of departure is conservative, i.e., carcinogens 10^{-6} .
 - Risk range and points of departure are the same for both the SSCG and the HHSRE.
- Both documents correctly state (and this requires emphasis) that risk estimates generated should not be interpreted as the expected rates of disease in the exposed population but rather as estimates of potential risk, based on current knowledge and a number of assumptions.
 - There are a variety of uncertainty factors integrated within the toxicity factors that are meant to err on the side of public health protection in order to avoid underestimation of risk.
 - Risk assessment is best used as a ruler to compare one source with another and to prioritize concerns.
- Risk estimates are best used to prioritize different options and scenarios for decision makers. The risk estimates do not inform either an individual or a defined population whether a defined disease endpoint (e.g., cancer) is going to be actually developed.
 - Consistency and transparency of methodological approaches are essential for regulators.
 - Changes in certain key inputs have a cascade effect on the risk estimates (or risk indices) as the variables are connected

Sensitivity analysis is a useful tool for revealing which variable in the risk model contribute most to the variation in estimates of risk.

According to USEPA (2001), “This variation in risk could represent variability, uncertainty, or both, depending on the type of risk model and characterization of input variables.”

4. General and Specific Analysis

• **Sub-slab soil vapor and residential air quality.**

The most consequential decision is whether to accept, reject, or request modifications to the Geosyntec analysis of the relationship, (or lack thereof), between chemical-specific sub-slab soil vapor concentrations and residential indoor air monitoring.

- Any determination that there is a relationship between sub-slab soil vapor and indoor air will have a direct and profound impact on all risk estimates and cleanup calculations, i.e., there will be a definite increase in risk estimates and a concomitant lowering (more stringent) of chemical-specific cleanup levels as pathway additivity will clearly change the calculations.

Concern:

The statistical analysis done to determine whether there is sub-slab to indoor air VOC (volatile organic compound) transfer, although impressive in the volume of data used, is flawed because it ignores spatial and temporal factors. It would be much more valuable if it was done for each individual home, rather than for the aggregate; mixing data from various time periods can also distort the results.

However, a review of the sub-slab concentrations compared to the indoor air concentrations for each of the VOCs indicates that: (1) the 10-12 homes with elevated levels of a given VOC in the sub-slab soil vapors do not have elevated levels of that VOC in indoor air; (2) the few homes with elevated levels of a given VOC in indoor air have low levels of the same VOC in sub-slab vapors; (3) higher levels of indoor benzene or toluene concentrations correlate well with high levels of garage benzene or toluene concentrations, suggesting that this is the more likely source of benzene or toluene in these homes. The only apparent exceptions (from a preliminary analysis) were high levels of PCE in sub-slab soil vapor and indoors for 24436 Panama Ave, 24617 Marbella Ave and 24737 Marbella Ave.

In light of the assertions by Everett and Associates that the input data in the statistical analysis is incomplete (as depicted in Everett's letter in Page 9), it may be necessary to review the results with a higher level of scrutiny.

• **Consistency in chemical of concern selection between the SSCG and HHSRE.**

The absolute number of potential chemicals of concern (COCs) retained matters as the more carcinogens that are retained, mathematically the more it will drive back calculated cleanup levels as carcinogens are considered to be additive.

- It matters if there are 10 versus 30 carcinogenic and/or non-carcinogenic compound selected.

Concern:

DTSC guidance typically advises that compounds retained if there is a "hit"

regardless of whether there are otherwise numerous non-detects for the same compound. This procedure was followed for the HHSRE; however, a different process was utilized in the SSCG.

The SSCG excluded certain detects based on overall frequency of detection. In risk assessment practice there is a screening argument that is often made for dropping compounds based on level of non-detects versus a single detect.

In terms of **transparency** the different COC selection methodology across reports should be highlighted AND the impact of this decision further characterized (**sensitivity**).

Consistency of methodology is critical for regulators and decision-makers.

- The calculated media-specific SSCG values would mathematically change (become more stringent) if the COC process used in the HHSRE was utilized.

- **Calculation of SSCG without considering additivity of risk and hazards.** HHRA Note 4 (Page 12) states "Risk must be summed across all carcinogenic chemicals and exposure pathways (including vapor intrusion to indoor air evaluated separately from comparison to RSLs). Similarly, hazard quotients must be summed across all chemicals and exposure pathways (including vapor intrusion to indoor air evaluated separately from comparison to RSLs) for threshold (non-carcinogenic) effects to provide a hazard index. ... If the summed hazard index for the site is greater than one, then the hazard index may be recalculated for chemicals which have the same toxic manifestation or which affect the same target organ."

Concern:

The number of both carcinogenic and non-carcinogenic chemicals is greater than 10 for both site-wide and residential-specific COCs. While the SSCG uses 10^{-6} as the target risk and 1.0 for threshold hazard index, as the number of COCs becomes >10, the mathematical impact results in an overall risk greater than 10^{-5} and hazard risk well over 1. The SSCG does take additivity partially into account by multiply any target or threshold by 0.1 but again there are more than 10 COCs. Most states including California typically use 10^{-5} as a carcinogenic target. While cumulative and/or individual risks can be at the 10^{-4} level this is not typical and may not be agreeable to either regulators or Water Board decision makers.

- **SSCGs for soils.**

The analysis provide for the development of SSCGs for soils in general follows reasonable methods and assumptions. Yet several issues deserve attention.

Concerns/Issues:

One important point is the SSCGs were developed for each COC independently, but there may be several COCs at any one location that exceed the SSCGs, and even though they may all be remediated to the SSCGs, when added up they may still exceed the one in a million or HQ =1 target levels; adequate measures need to be in place to avoid this situation. The 0-2 ft bgs levels (EF = 350 days/yr) seem adequate for protecting residents, including children, to exposure of site soils. There is a bit more concern with the 2-10 ft bgs (EF = 4 days/yr) levels which are two orders of magnitude higher in general, due to the low exposure frequency (EF) expected. While it is valid to assume a very low exposure frequency, these higher levels in soils may under certain circumstances be a source of sub-slab soil vapors that could slowly leak into the subsurface soils (0-2 ft below ground surface or bgs) and under exceptional circumstances into homes. It may also be a concern for construction workers, although this has been addressed (Table 8). In fact, the difference between the subsurface levels (0-2 ft bgs) for residents and the 0-10 ft bgs SSCGs of VOCs for construction workers is so small, that it makes sense to use the SSCGs for VOCs from the subsurface levels throughout the entire first ten feet bgs.

It has been suggested that the 95 UCL be used as the criterion to use for each property. The PRPs should realize that a greater number of soils samples will be needed to determine a 95 UCL, given the large variability in COC concentrations in a given property. In addition, when there are some clear hot spots above the 95 UCL, a more thorough investigation is warranted to make sure that a site with high levels of contamination in some small hot spots is not classified as not requiring remediation because the hot spot is combined with data from cleaner soils.

In addition, given the tolerance in SSCGs (e.g. not requiring cleanup to TPH = 100 mg/kg), it may make sense to request that the PRPs set up a trust fund that would be available in the future (next 20-25 yrs) for (1) long term monitoring of COCs in indoor air and sub-slab soil vapors (once a year in key locations which have tested high in the past, plus a few random additional locations); (2) providing adequate protection to construction workers and nearby residents in the case that excavation below 2 ft bgs is needed for an extended period (e.g. 5 days or more); (3) engineering controls for methane in sub-surface as needed.

- **Sensitivity.**

As the COC selection results in 26 different carcinogens (12 Site COCs) and 34 non-carcinogens (15 Site COCs) the SSCG can be calculated based on the target risk or acceptable hazard quotient divided by the number of COC that make up that risk/hazard.

Concern/Issue:

The sensitivity (impact) of this change should and can be easily shown for Board decision makers.

- **Consistency and objectivity of screening levels.**

Screening levels developed in the HHSRE (Human Health Screening Evaluation Work Plan; Geosyntec 2009) are stated (pg 3) to be “consistent with” Cal-EPA-OEHHA and USEPA RSL.” Geosyntec writes that COC screening was conducted using risk-based screening levels (RBSLs) that were calculated assuming potential residential exposures to COC in soil and soil vapor as part of the HHSRE process and presented in the approved HHSRE Work Plan (Geosyntec 2009) and that the screening criteria is 1/10 of the RBSLs regardless whether of Cancer (C) or Non Cancer (NC). Geosyntec also describes the background screen for both metals and carcinogenic PAHs (known as “cPAH”).

- **Objectivity-** It is unclear at this stage of the review whether the DTSC list of cPAHs was analyzed versus the shorter OEHHA cPAH list, i.e., DTSC includes several PAHs as “carcinogenic” that are not typically considered as cPAHs by USEPA or OEHHA.

Concerns:

1. Cal-EPA January 2005 (Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil, page 6) indicates that standard “Superfund” algorithms are used for unrestricted land use scenario. HHRA Note 3 (version August 2012 updated May 2013, see Summary page 1) indicates that the EPA RSLs are appropriate risk based screening levels unless the analyte is listed on one of the accompanying tables then the RSL on the table should be used.
 - a. EPA RSL equations were not used as mutagenic effects were not included in the RBSL calculations (determined using verification calculations and the provided spreadsheets). While HHRA Note 3 (Page 4) indicates that in 2008 the RSLs did include this effect, it is unclear whether Cal-EPA fully implements the uncertainty factors as the corresponding equations have not be referenced in the Cal-EPA documents review to date. This would impact the PAH RBSLs which are calculated using Cal-EPA toxicity values.
 - b. PEF Calculation: In the HHSRE (Table 3), the F(x) is specific for Los Angeles so the resulting PEF is 1.2E+11 m³/kg. However, in SSCG Report, Appendix A, page 5, the F(x) is noted to be the default from USEPA 2002 (Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites) but the mean wind speed is specific for Los Angeles, so the change results in a PEF of 2.8E+9 m³/kg. This is two orders of magnitude more conservative, so this may have been a requested change, as USEPA 2002 does not specify that the default be used. USEPA 1996 (Soil Screening Guidance: Technical Background Document) actually provides the Los Angeles specific number for F(x) per Cowherd 1985, as recommend in USEPA 2002. (Note the 2009

HHSRE Work Plan did include the Los Angeles F(x) but all later versions of the PEF calculation did not).

While the inhalation dose from particulates is typically very small relative to the incidental ingestion making this variance insignificant (in of itself), it does demonstrate that RBSLs were modified between the HHSRE and the ones used in the SSCG Report. This would indicate that Geosyntec could have made other updates, especially in the case of toxicity updates or guidance updates between 2009 and 2013. The 2010 HHSRE addendum does demonstrate updates due to toxicity, in this case cPAH.

- c. Does not appear that for analytes listed on the HHRA Note 3 Table 1 that the table's soil screening values were used but instead the corresponding Cal-EPA toxicity values from the on-line screening calculator with the exception of the cPAH which used the corresponding TEQ of the Cal-EPA 2010 BaP toxicity value. This is appropriate but as there were no modifications to the exposure parameters or to the equations with the exception of that discussed above in 1a (mutagenic effects) and 1b (PEF which is insignificant), it is unclear why the residential soil RBSLs from USEPA RSLs and the Cal-EPA HHRA Note 3 Table 1 were calculated versus using the published screening concentrations.
2. HHRA Note 4 (Page 3) dated June 2011 supports the above concerns with the following statement: "As discussed in HHRA Note 3, for the majority of the 706 listed chemicals with RSLs, HERO recommends use of the soil and tap water values listed in the Spring 2010 U.S. EPA RSL table. However some values listed in the U.S. EPA RSL table differ significantly (greater than four-fold) than values calculated using Cal/EPA toxicity criteria and risk assessment procedures. HERO has prepared a reference table for soil and tap water RSLs which indicate contaminants for which: 1) the 2004 EPA Region 9 PRG should be used; 2) the 2004 EPA Region 9 'Cal-modified' PRG should be used; or 3) the Cal/EPA California Human Health Screening Level (CHHSL) should be used."
3. HHRA Note 4 (Page 9) also indicated that RBSLs used should be annotated as they "do not consider physical limitations such as soil saturation and some RSLs exceed the "ceiling limit" concentration of 1×10^5 mg/kg. Soil RSLs that exceed C_{sat} are denoted as "s." Soil RSLs exceeding 1×10^5 mg/kg are denoted as "m", meaning that the chemical represents more than 10% by weight of the soil sample. At such concentrations, the assumptions for soil contact used to derive the RSLs may no longer be valid. Cases in which the chemicals are present at concentrations exceeding 1×10^5 mg/kg or C_{sat} need to be identified and addressed in the risk assessment." This was not done.

4. HHRA Note 4 (Page 12) "In general, HERO recommends that all detected compounds be selected as COPCs and be included in the quantitative risk evaluation. ... Potential chemical breakdown products must also be considered, and the rationale should not be based on a "bright line" approach (e.g. preliminary cancer risk $<1E-07$, preliminary HQ <0.1). As detailed above, inorganics which are determined to be present at concentrations consistent with background will still need to be included in the total risk and hazard evaluation."
5. RBSLs do not appear to have been updated from the HHSRE (Geosyntec 2009, Table 10) using the more recent Cal-EPA guidance, though small input parameters are indicated (see 1b) to have been different. Earlier Cal-EPA (2005) guidance set the default sub-slab soil vapor to indoor air attenuation factor as 0.01 mg/m³ to mg/m³; whereas current guidance Cal-EPA [2011b, Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance)] recommends the attenuation factor of 0.05 mg/m³ to mg/ m³. Reviewing the COC selection for Soil Vapor and multiply the screening concentration by 0.2 for the correction, an additional four COC would be selected (styrene and vinyl acetate from non-sub-slab samples and 1,2-dichlorobenzene and cis-1,2-dichloroethene from sub-slab samples). Additionally bromomethane, already selected from sub-slab samples would be selected in the non-sub-slab samples. One would assume only styrene would be classified as a Site COC.

While the vapor intrusion pathway used for the derivation of the RBSL for soil vapor, these SSCGs for soil vapor were calculated for the Utility Worker scenario for all COCs. If the vapor intrusion into the residential structure is believed to be an incomplete pathway (as per Appendix B of the SSCG Report), the RBSLs for soil vapor could be calculated using an industrial air RSL and the soil vapor attenuation for trench/utility workers in order to possibly reduce the number of soil vapor SSCGs.

- **Definition of surface soil.**

HHRA Note 4 (Page 10) states "For evaluation of future residential land use scenarios, soil samples from the 0 to 10 foot (ft) below ground surface (bgs) interval should be collected. While recommended soil sampling depths may vary based on site-specific conditions; in general, discrete soil samples should be collected from both surface (0 to 0.5 ft bgs) and subsurface soil."

Concerns: While the data collection appears to have followed this sampling the depth of surface soil was extended to 2 feet. This is considered reasonable given the potential for gardening as referenced in the text. However the data were not presented by depth in any of the documents reviewed, especially in the SSCG document.

- **Multiple SSCGs for subsurface soil.**

SSCGs were calculated for both residential and construction/utility worker exposure to subsurface soils (Tables 7 and 8, respectively). However, the SSCGs for construction and utility maintenance worker exposures ... will be applied to soils from 0-10 feet bgs" (page 48).

Concerns: Due to the exposure calculation using the child exposure factors in the residential exposure scenario, the SSCGs for the subsurface soils are more conservative for the residential subsurface exposure than the construction/utility worker. Why then was the worker-based SSCGs selected for the subsurface soils?

- **Use of cPAH: HHRA Note 4 (Page 13).**

In some cases, benzo(a)pyrene (BaP)-equivalent concentrations are calculated and used in screening-level risk evaluations to assess risk from carcinogenic PAHs. ... If the BaP-equivalent concentration is calculated, the OEHHA potency equivalency factors (PEFs) should be used (OEHHA 2002). See Table 1."

Concern: Document references use of cPAH, especially for background characterization, but the data tables do not show that the cPAH were calculated and background concentration was used only for BaP. Since the maximum BaP concentration was greater than background cPAH, the point becomes moot but should be considered as it makes the argument weak.

- **Lead.**

Use of the Adult Lead Model (ALM) for the intermittent exposures to subsurface soils is inaccurate due to the lack of steady state scenario.

Concern: Lead SSCG is not accurate for subsurface soil. USEPA (1994, 2003a, 2003b) recommends a minimum frequency of one day per week and duration of three consecutive months. For most of the construction/utility worker populations, this assumption is not met within the neighborhood or Site. Given the half-life of lead in blood is 30 days, the lead levels in the blood will not reach steady state but will probably be at least partly flushed from the blood prior to the next exposure. The current biokinetic models are not appropriate to evaluate non-steady-state exposures to lead and may underestimate the peak blood concentrations following short-term transient exposure.

USEPA's 2003b guidance *ASSESSING INTERMITTENT OR VARIABLE EXPOSURES AT LEAD SITES* addresses how "to use the IEUBK model and ALM to assess a wider variety of exposure scenarios, including exposure from more than one location, varying intensities of exposure, track-in of soil from another location, and intermittent air exposures." Given the subsurface

exposure is described by Geosyntec as the potential of the resident (child and adult) to come in contact with subsurface soil 4 times per year, the USEPA guidance would recommend using the time-weighted average to evaluate the child exposure. USEPA guidance (2003b) considers three (3) months "to be the minimum exposure to produce a quasi-steady-state PbB concentration. The reliability of the models for predicting PbB concentrations for exposure durations shorter than 3 months has not been assessed." This document for the ALM recommends using the shortest averaging time of the exposure, for example the exposure could be per week or 90 days.

While the utility worker exposure is not over the full exposure period, the weighted media concentration will not be annualized across the year, even though the models will assume the exposure occurs over a year. The TRW recommends not annualizing the weighted concentrations even though some of the lead burden accumulated during the exposure season will be eliminated during the intervening months between seasonal exposures. However, neither the IEUBK nor the ALM can simulate this loss of lead, so model predictions correspond to a full year of exposure to a constant exposure level regardless of the actual exposure period. The seasonal exposure can occur successively over years or for only one year. Since the model cannot predict the wash out period (no exposure), the resulting risk assessment is probably over-estimating the resulting risk.

- **Recap of the technical review.**

An interim review of the Kast risk assessment has been performed. Knowledgeable and sophisticated practitioners have obviously performed the work. Spot check of risk spreadsheets demonstrates no calculation errors. The complexity and numerosity of the risk assessment reports is formidable almost to a fault. If the point of the entire risk assessment exercise is to provide a clear road map for regulators, Water Board decision makers and the public stakeholders then there are critical issues that should be more clearly addressed. Critical stakeholders should be able to more clearly follow a transparent, consistent and objective analysis that includes an analysis of the sensitivity of key assumptions and technical decisions.

5. Important Unknowns: Needed Additional Information

- **GW Plume delineation.**

The extent of the plumes (different plumes for different COCs) is not explicitly determined in the information provided. In addition, the plume delineation analysis should establish the rate of migration of the various COCs, to better understand the risk to neighboring properties and wells. A gradient is provided, as well as soil types (sands) for the aquifers, but there should be some evaluation of adsorption (retardation), biodegradation and other processes that will support the assertion that the plumes are stable and will eventually be

decreasing, not just a statistical analysis (MAROS) of benzene (one COC). At present not all locations indicate stable or decreasing; some are increasing and many had "no trend" which means there is insufficient information to state they are stable or decreasing. Stable could be the norm for decades given the levels of TPH and the presence of LNAPLs. While in most cases the concentrations are not very high, there are a few locations where the concentrations of some COCs is many times above the MCL. The proposed SSCG of maintaining a stable or decreasing plume would require more monitoring. Given the significant amount of TPH in the overlying soils (Figure 10B in Plume Delineation Report indicates a very thick zone contaminated with petroleum derived compounds, at depth (8-40 ft bgs)), it is likely that the petroleum derived COC plumes will last for decades, with a significant monitoring cost to the PRPs. These can also be a continuous source of soil vapors to the sub-slab region. While there is not sufficient evidence to indicate that there is much migration of COC vapors from sub-slab to indoor air (see below), it will remain a concern that needs to be monitored for decades.

- **CVOCs sources.**

There are CVOCs (chlorinated VOCs, allegedly from off-site activities) at relatively high concentrations in MW-01, which is not downgradient of Turco. May be from former OTC. However, many CVOCs found in sub-slab soil samples at concentrations that appear to be too high for volatilization from groundwater 53 feet below (Bellflower aquifer). Figures 15A & B, 16 A & B (Plume Delineation Report) provide some sense of PCE & TCE contamination at shallow depths, which is difficult to explain as a result of GW transport from Turco or OTC. If these vapors are in equilibrium (or near equilibrium) with the soils in the shallow area, the concentrations in the soils are significant. As indicated by the SSCG report, one would not expect transport from off-site to on-site to be significant due to adsorption, dilution, biodegradation and other fate and transport processes. It is possible that cleaning of machinery and other operations on-site resulted in release of these CVOCs on-site. This cannot be ruled out.

Lack of maps for CVOCs hinder ability to better understand their distribution and thus sources and risks. There is an emphasis on only considering petroleum-based COCs, even though data is available for many other COCs. Most of the CVOC data is only presented in tables and not considered in some of the analyses, which is not helpful for determining risk, regardless of PRP. They are considered as part of the SSCGs, and must be considered in the remedial action plan.

6. Cleanup Goals and the "Maximal benefit" Criteria

State Water Board Resolution 92-49 governs the Regional Board in requiring responsible parties to remediate the site to levels that will result in meeting all

water quality standards and are “consistent with maximum benefit to the people of the state.” The current SSCG remains consistent with this so long as it seeks to enable unrestricted land use of the parcels and is consistent with, and preserves, the previous level of residential land use and the value derived there from subject to it being economically and technically feasible. Whether it achieves these standards depends, in part, upon addressing the concerns raised above in the technical review of the SSCG and HHSRE.

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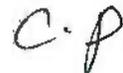
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Los Angeles Regional Water Quality Control Board

Date: August 14, 2013

Subject: Comments on Statistical Analysis for Vapor Intrusion Evaluation at Kast Property Performed by Geosyntech Consultants

From: C.P. Lai, Ph D., P.E., Water Resources Control Engineer
Los Angeles Regional Water Quality Control Board



This memorandum contains comments on the Statistical Analysis for Vapor Intrusion Evaluation at Kast Property (Site) performed by Geosyntech Consultants dated February 22, 2013.

1. To assess the vapor intrusion pathway at the former Kast property, the spatial distribution of concentrations of sub-slab soil vapor, indoor air, and outdoor air respectively for benzene, ethylbenzene, naphthalene and toluene were analyzed by staff using 2012 data and presented in Figure 1 through Figure 4. It can be seen from these Figures that at some of the parcels the concentrations of sub-slab soil vapor are higher than those of indoor air and outdoor air as shown in Table 1 as well. The maximum measured concentrations of petroleum hydrocarbons vary from 1200 to 15 in different petroleum compounds at sub-slab layer, 91 to 4.4 at indoor layer, and then 22 to 1.6 at outdoor layer. Similarly for mean measured concentrations of petroleum hydrocarbons at different layers, they vary from 13.08 to 2.48 at sub-slab layer, 8.44 to 0.53 at indoor layer, and then 3.36 to 0.22 at outdoor layer. It is obvious that high concentrations of these compounds disperse and transport from sub-slab soil to indoor air, and then outdoor air. These physical pathways demonstrate that the indoor air concentrations above indoor screening levels at some of the parcels appear to be from the sub-slab soil vapor, which is the result of vapor intrusion.
2. The concentrations of sub-slab and indoor air vary both spatially and temporally as indicated above. As such, the linear regression analysis used by Geosyntech to evaluate the direct relationship between indoor air concentrations and sub-slab soil vapor concentrations would be insignificant. As shown in the statistical results obtained by Geosyntech using dataset in 2012, it indicated that there is no statistically significant relationship between the sub-slab soil vapor and indoor air concentrations for petroleum hydrocarbons. As mentioned above, staff does not completely agree with this conclusion because of the inconsistency with spatial distribution of field data as discussed in item 1 above.
3. Staff also found that there exists a significant relationship between vapor attenuation factor and sub-slab soil vapor concentration for petroleum hydrocarbon compounds (PHCs). Vapor attenuation factor is defined as the ratio of the indoor air concentration to the subsurface vapor concentration, which is a measurement of the overall dilution that occurs as vapors migrate from a subsurface source into a

building. These relationships in log-log scale are presented in Figure 5 through Figure 8. The probability distributions of vapor attenuation factor for these PHCs are also shown in Figure 9 through Figure 12. It can be seen that when vapor attenuation factor screening level is set to be 0.01 to 0.5, the indoor air concentrations have strong relationship with sub-slab soil vapor concentrations for PHCs at some of the parcels. In addition, the relationships in log-normal scale are presented in Figure 13 through Figure 16. It can be seen that a constant-valued attenuation factor (the horizontal portion of the line in Figure 13 through 16) is observed at high sub-slab soil concentrations. At smaller sub-slab soil concentrations, the background contribution to indoor air concentrations becomes larger than the subsurface contribution, which manifests as a plateau in indoor air concentrations and imposes an upward bias in the attenuation factor. These analyses demonstrate that attenuation factors representing vapor intrusion are observed when indoor air concentrations are greater than background indoor air levels (i.e. not contributed by sub-slab concentrations) and/or when sub-slab soil concentrations are high.

In summary, these results including the spatial distribution of concentrations and the relationships between attenuation factor and sub-slab concentration support the line of evidence for vapor intrusion in the Kast Property.

References:

1. "Site-specific Cleanup Goal Report for Former Kast Property", prepared by Geosyntech Consultants, February 22, 2013.
2. "EPA's Vapor Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings" Office of Solid Waste and Emergency Response U.S. Environmental Protection Agency Washington, DC, EPA 530-R-10-002, March 16, 2012.
3. "Guidance For Addressing Petroleum Vapor Intrusion At Leaking Underground Storage Tank Sites", U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response Office of Underground Storage Tanks, Washington, D.C., EPA 510-R-13-xxx, April, 2013.

Figure 1 Spatial distribution of Benzene concentrations for sub-slab soil vapor, indoor air and outdoor air respectively using 2012 data

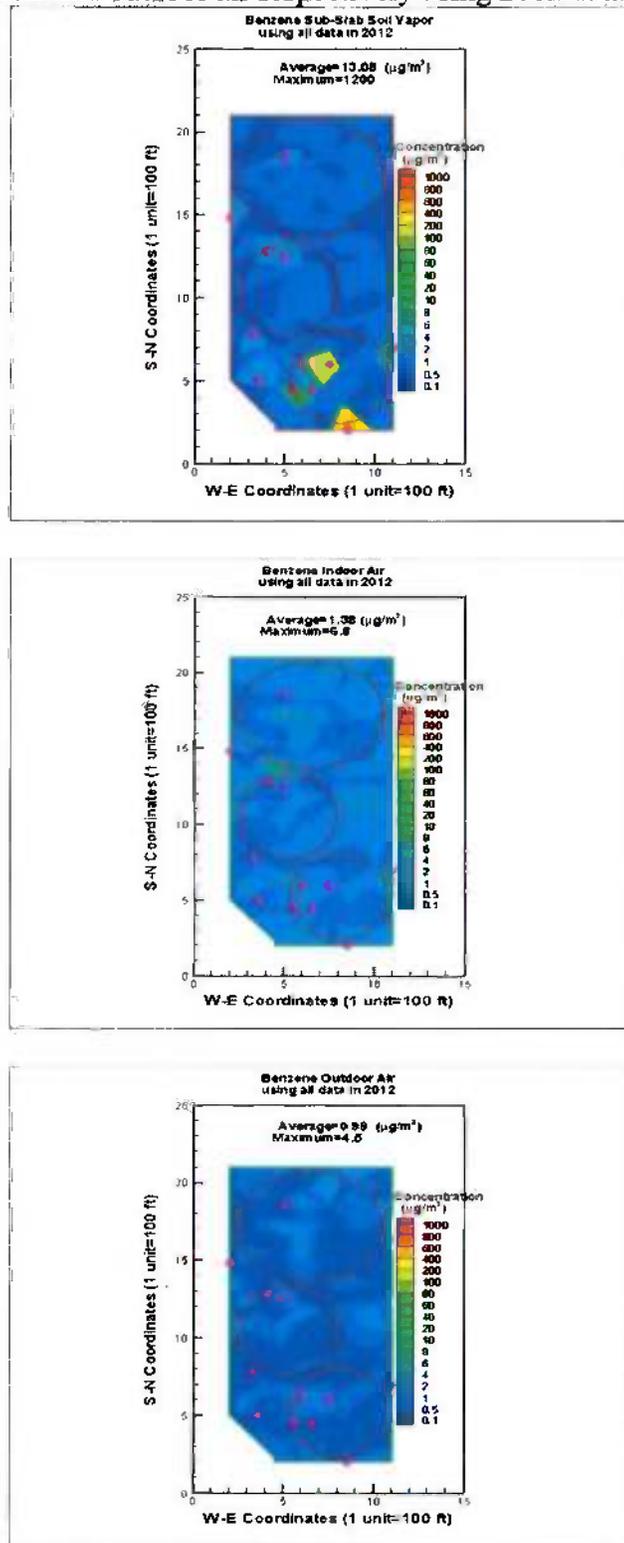


Figure 2 Spatial distribution of Ethylbenzene concentrations for sub-slab soil vapor, indoor air and outdoor air respectively using 2012 data

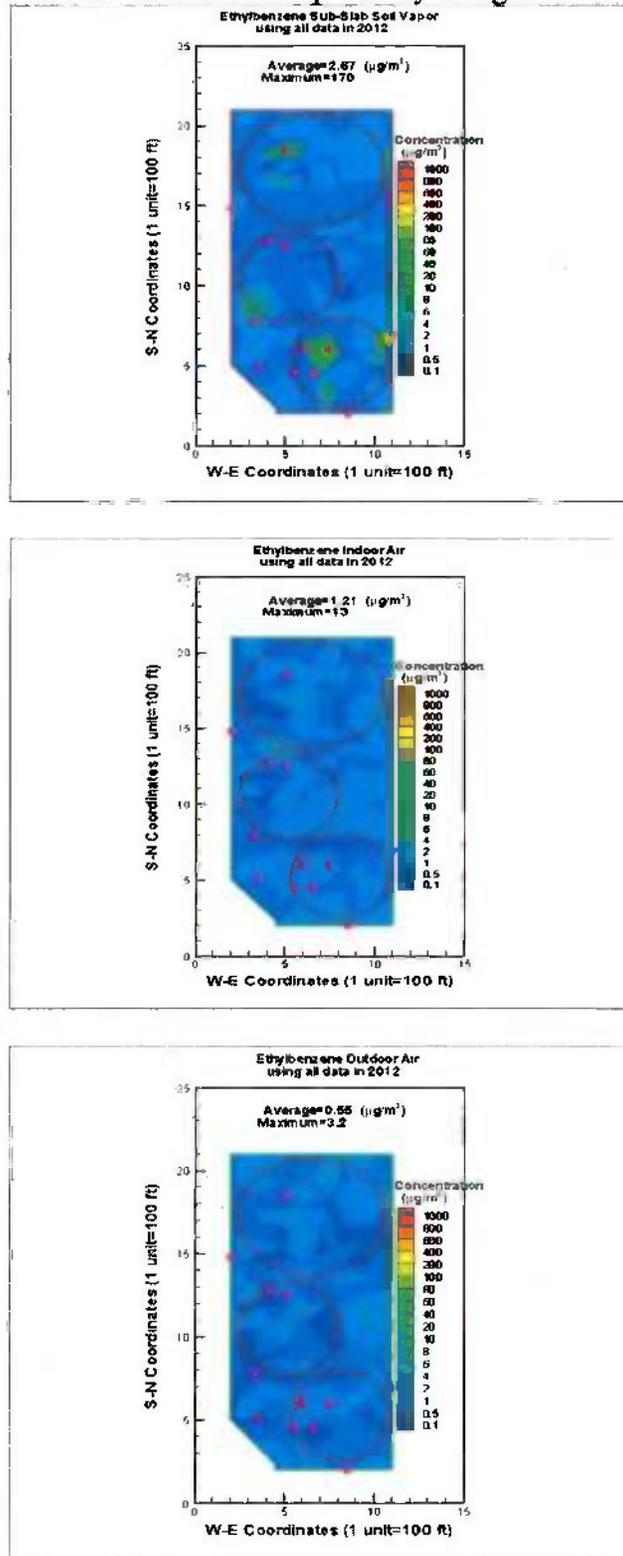


Figure 3 Spatial distribution of Toluene concentrations for sub-slab soil vapor, indoor air and outdoor air respectively using 2012 data

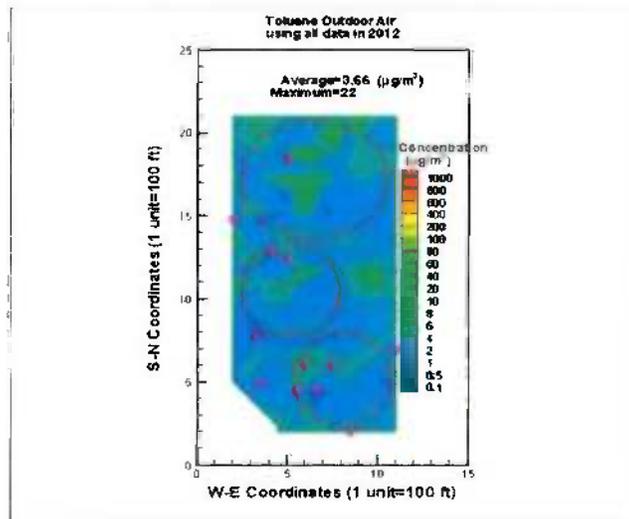
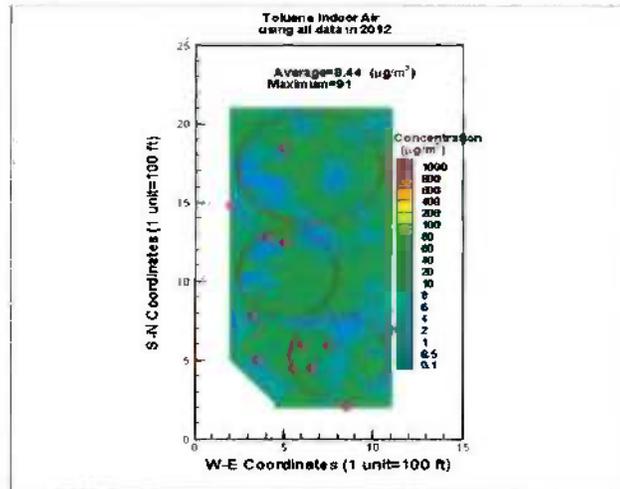
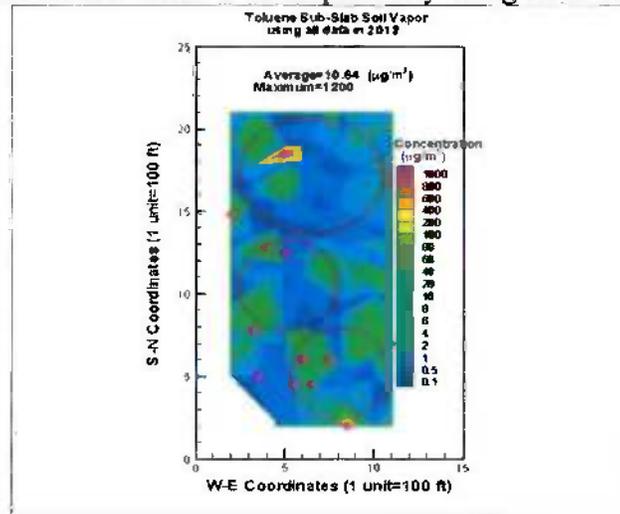


Figure 4 Spatial distribution of Naphthalene concentrations for sub-slab soil vapor, indoor air and outdoor air respectively using 2012 data

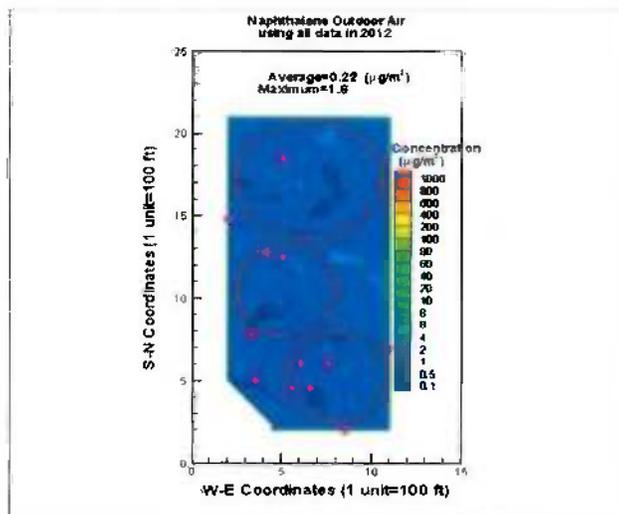
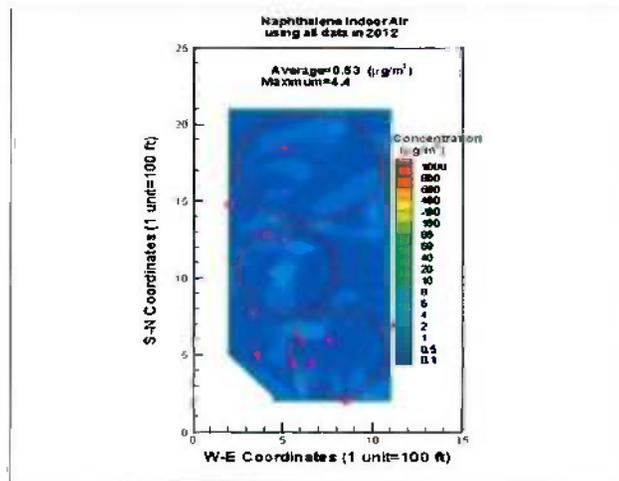
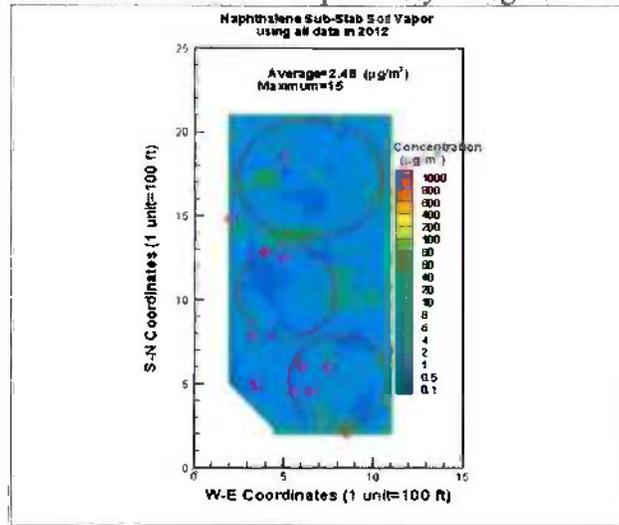


Table 1 Mean and maximum concentrations of petroleum hydrocarbon compounds in different spatial layers based on measured data at the Site in 2012

Benzene			
	Sub-Slab Soil Vapor	Indoor Air	Outdoor Air
Average	13.08	1.38	0.99
Maximum	1200	6.8	4.5
Exylebenzene			
	Sub-Slab Soil Vapor	Indoor Air	Outdoor Air
Average	2.67	1.21	0.55
Maximum	170	13	3.2
Toluene			
	Sub-Slab Soil Vapor	Indoor Air	Outdoor Air
Average	10.64	8.44	3.36
Maximum	1200	91	22
Naphthalene			
	Sub-Slab Soil Vapor	Indoor Air	Outdoor Air
Average	2.48	0.53	0.22
Maximum	15	4.4	1.6

Note: concentrations are reported in $\mu\text{g}/\text{m}^3$

Figure 5 Vapor attenuation factor vs. sub-slab soil vapor in log-log scale for Benzene

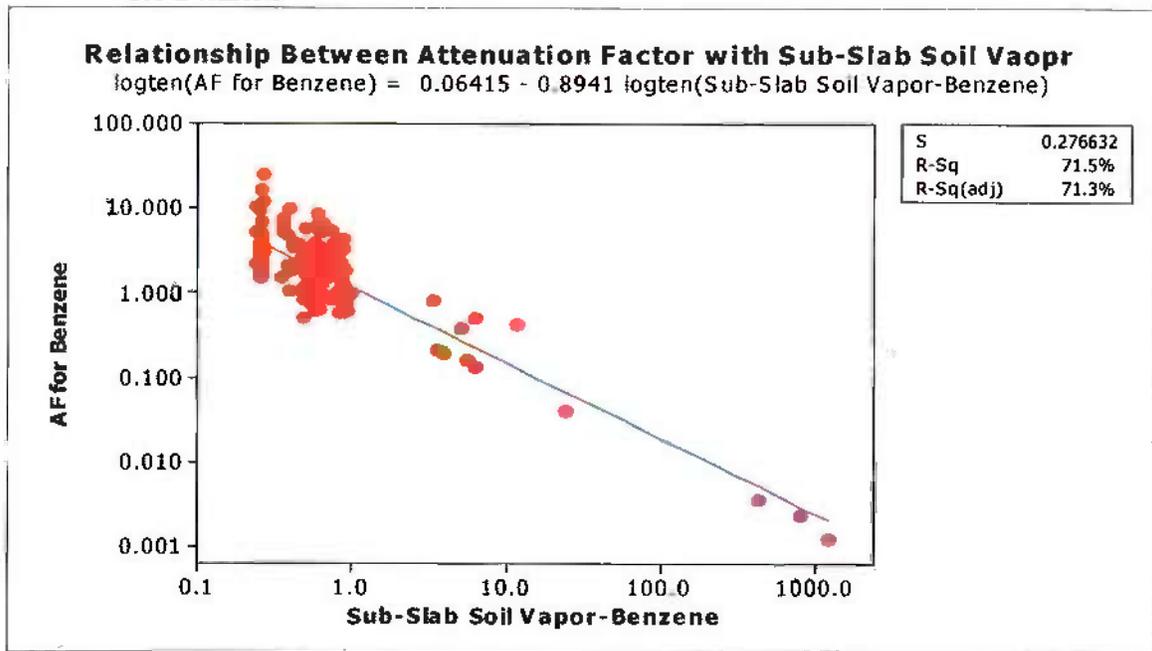


Figure 6 Vapor attenuation factor vs. sub-slab soil vapor in log-log scale for Ethylbenzene

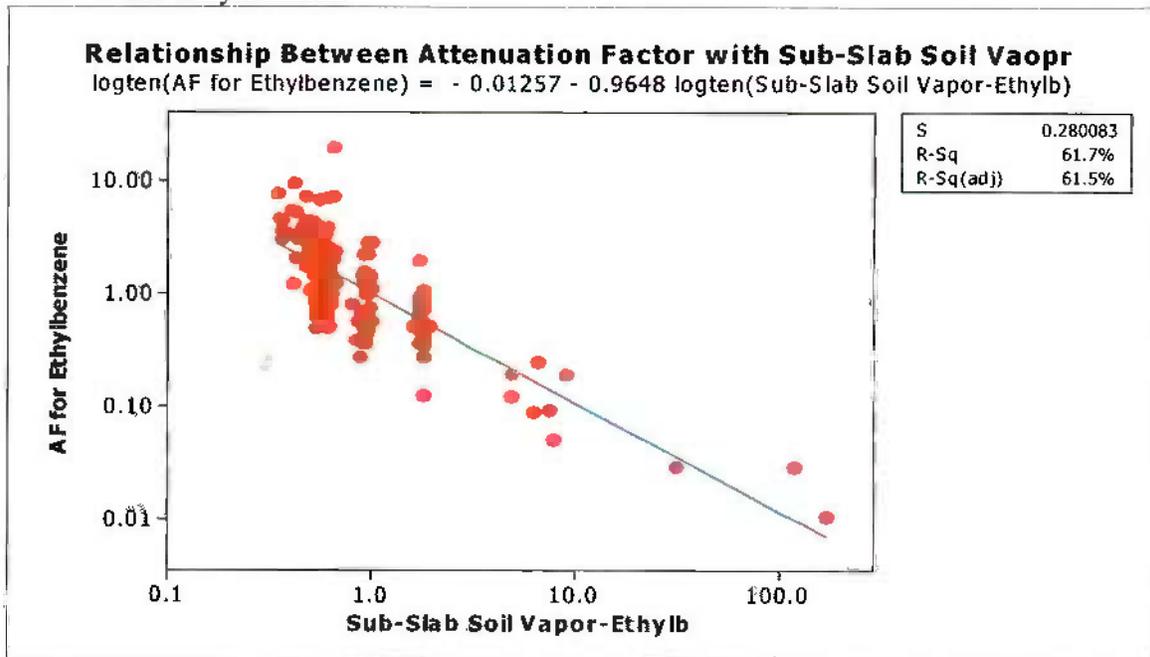


Figure 7 Vapor attenuation factor vs. sub-slab soil vapor in log-log scale for Naphthalene

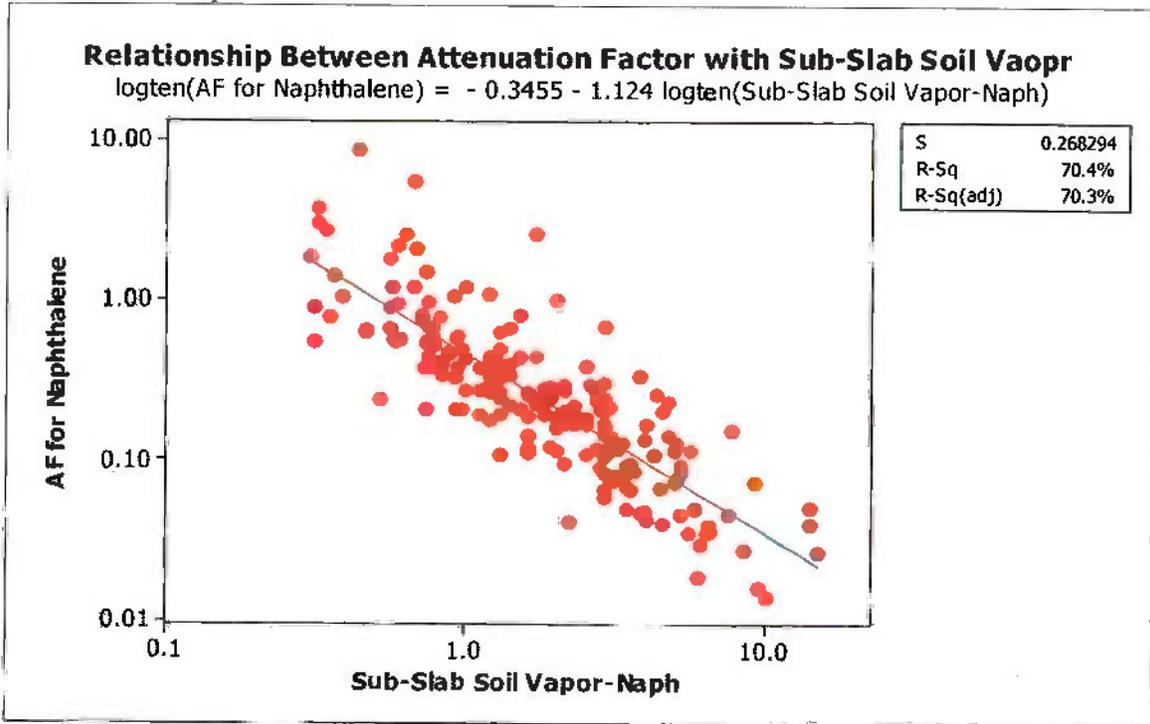


Figure 8 Vapor attenuation factor vs. sub-slab soil vapor in log-log scale for Toluene

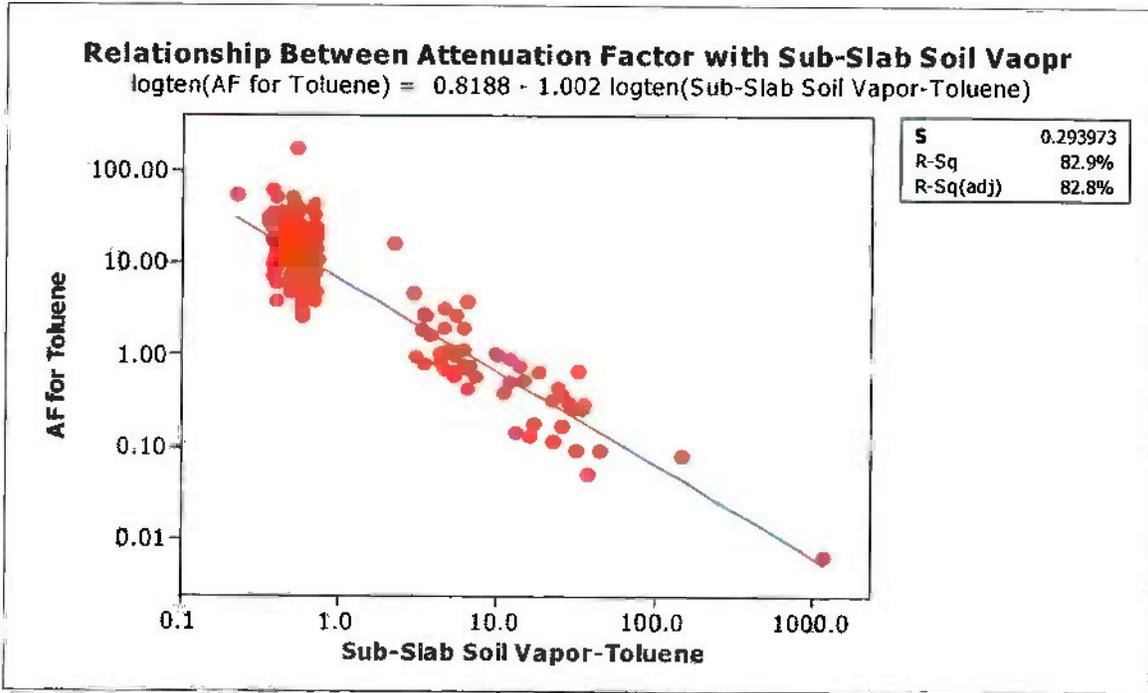


Figure 9 Percentile distribution of vapor attenuation factor for Benzene

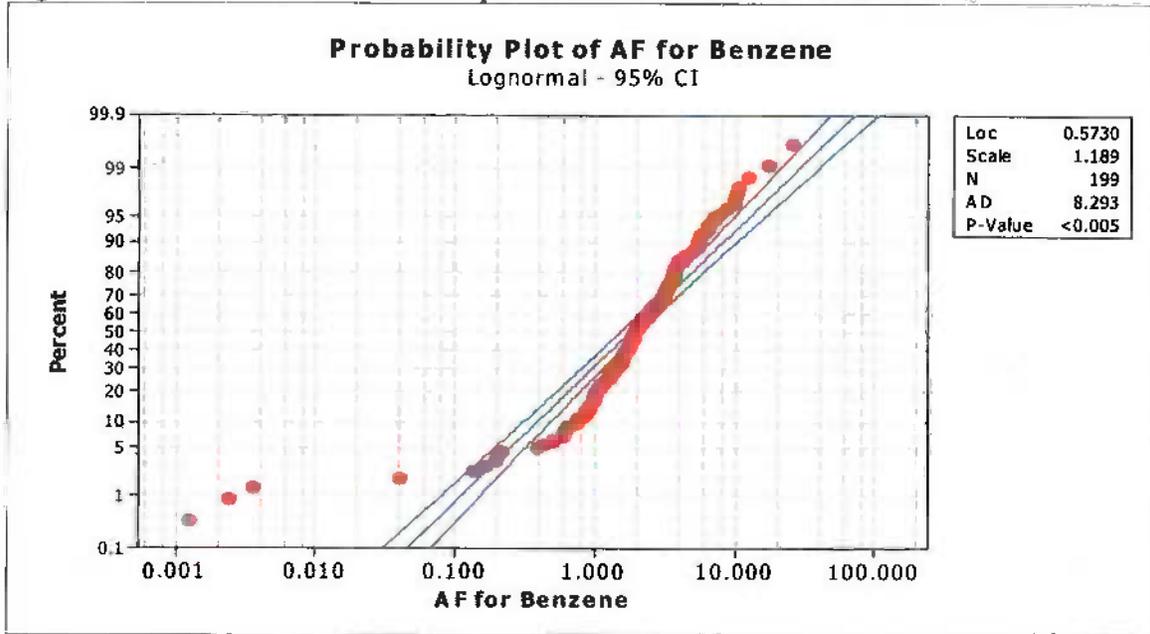


Figure 10 Percentile distribution of vapor attenuation factor for Ethylbenzene

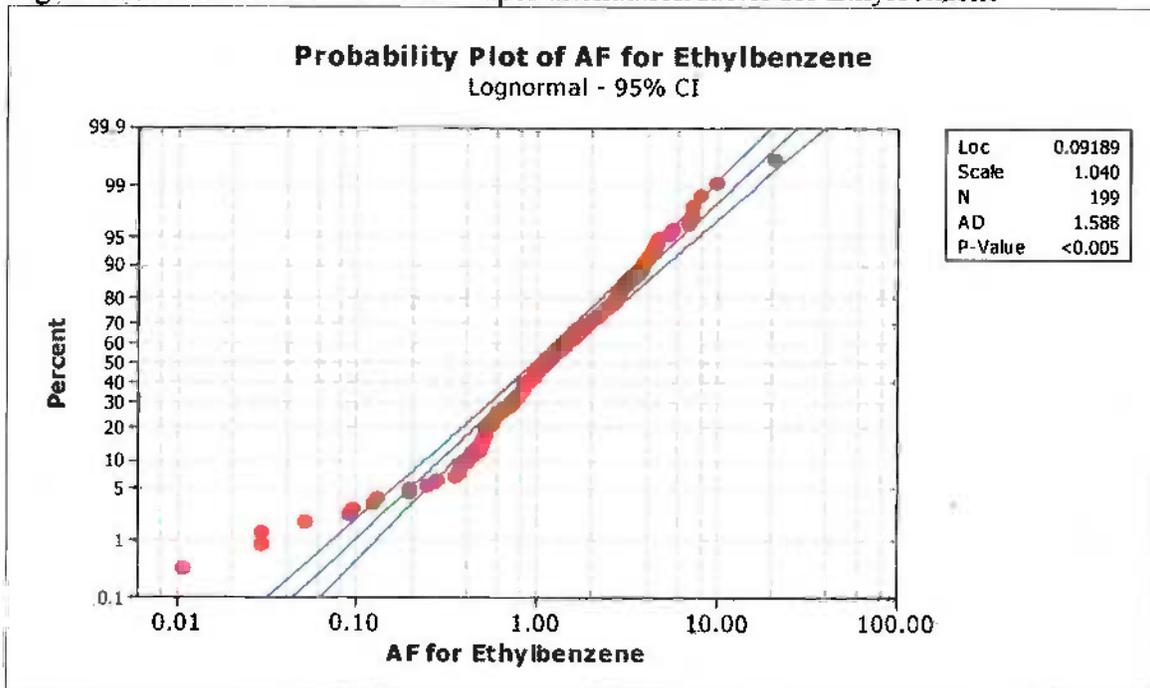


Figure 11 Percentile distribution of vapor attenuation factor for Naphthalene

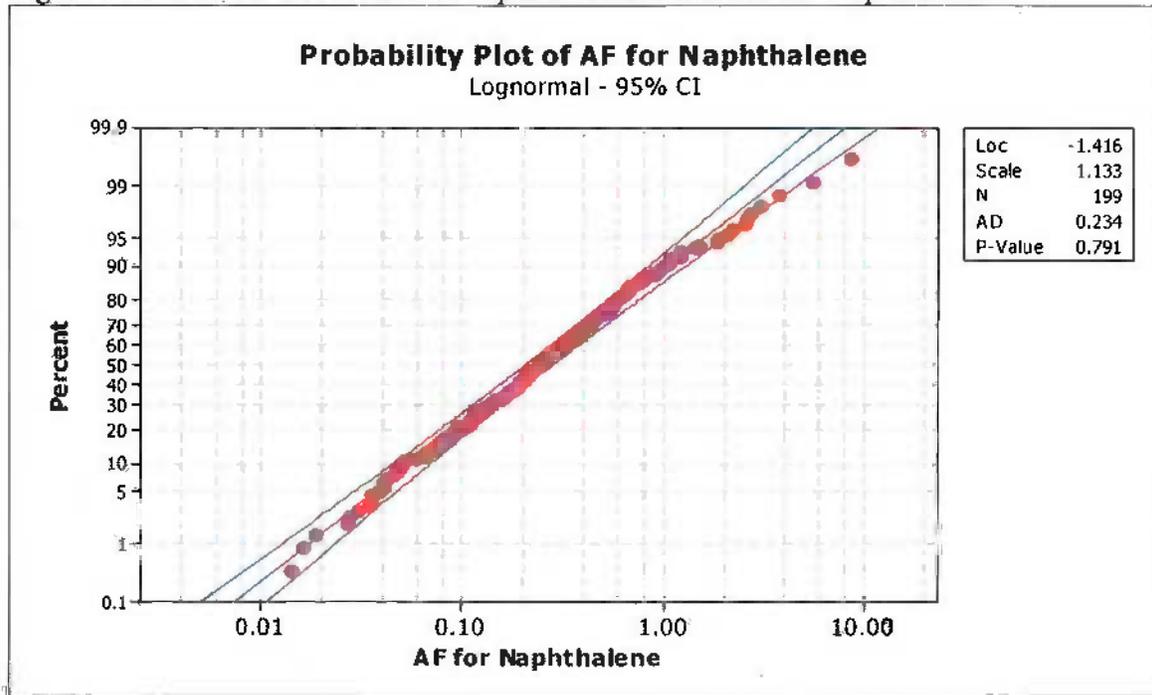


Figure 12 Percentile distribution of vapor attenuation factor for Toluene

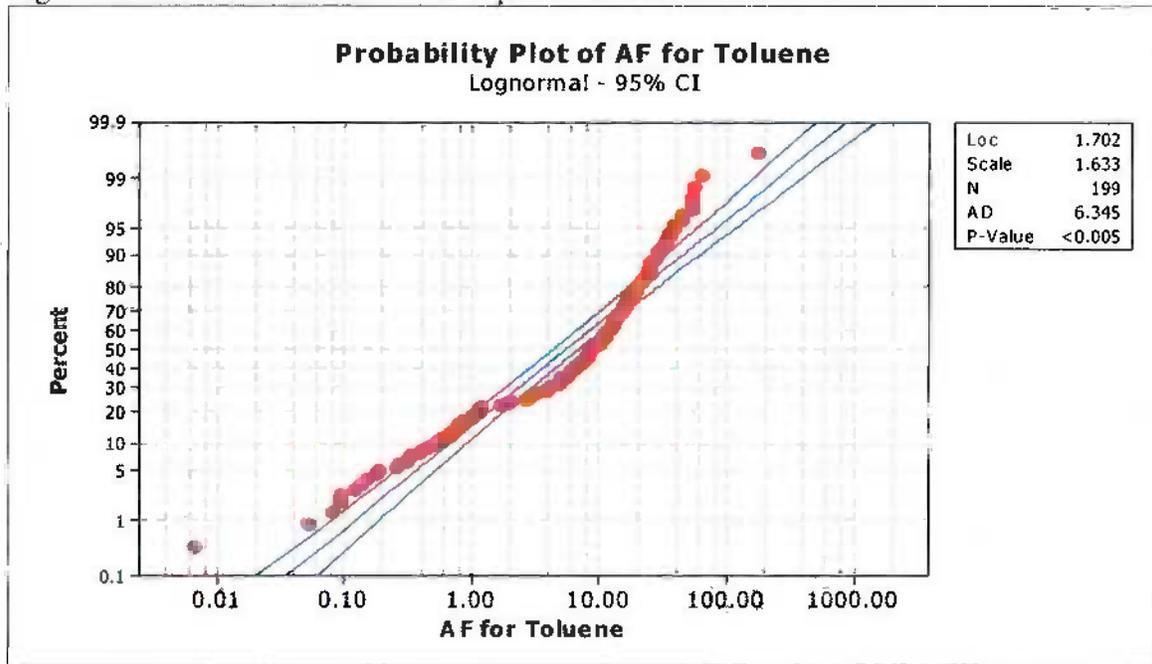


Figure 13 Vapor attenuation factor vs. sub-slab soil vapor in log-normal scale for Benzene

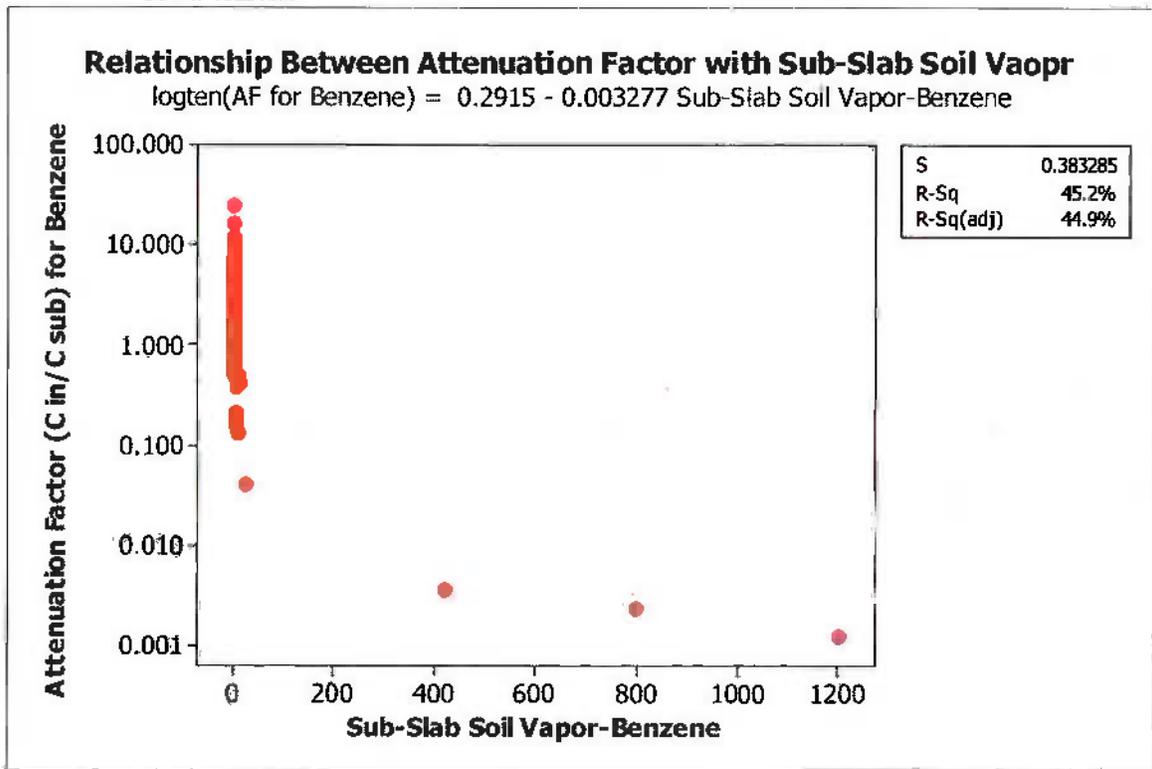


Figure 14 Vapor attenuation factor vs. sub-slab soil vapor in log-normal scale for Ethylbenzene

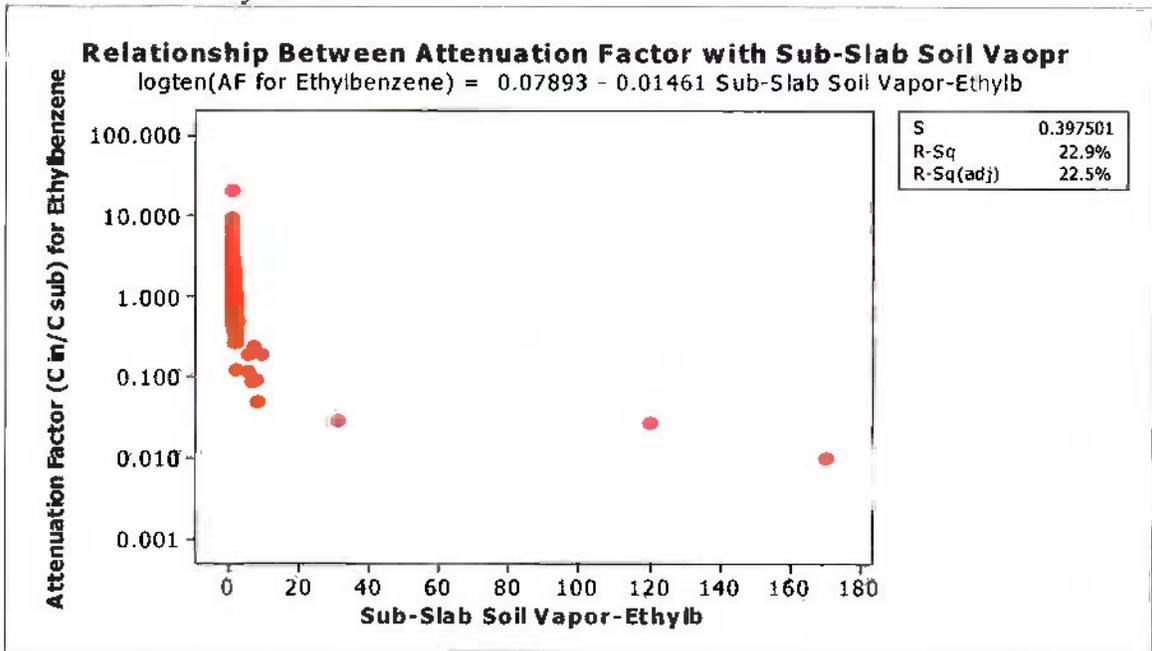


Figure 15 Vapor attenuation factor vs. sub-slab soil vapor in log-normal scale for Naphthalene

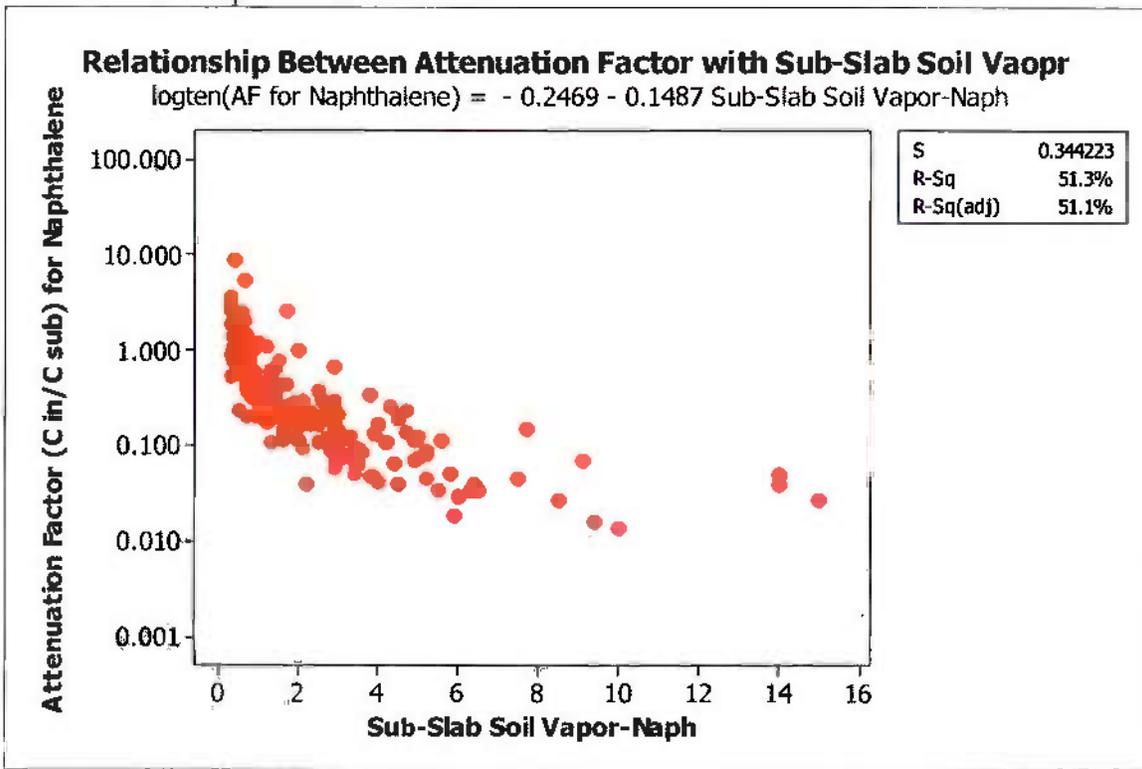


Figure 16 Vapor attenuation factor vs. sub-slab soil vapor in log-normal scale for Toluene

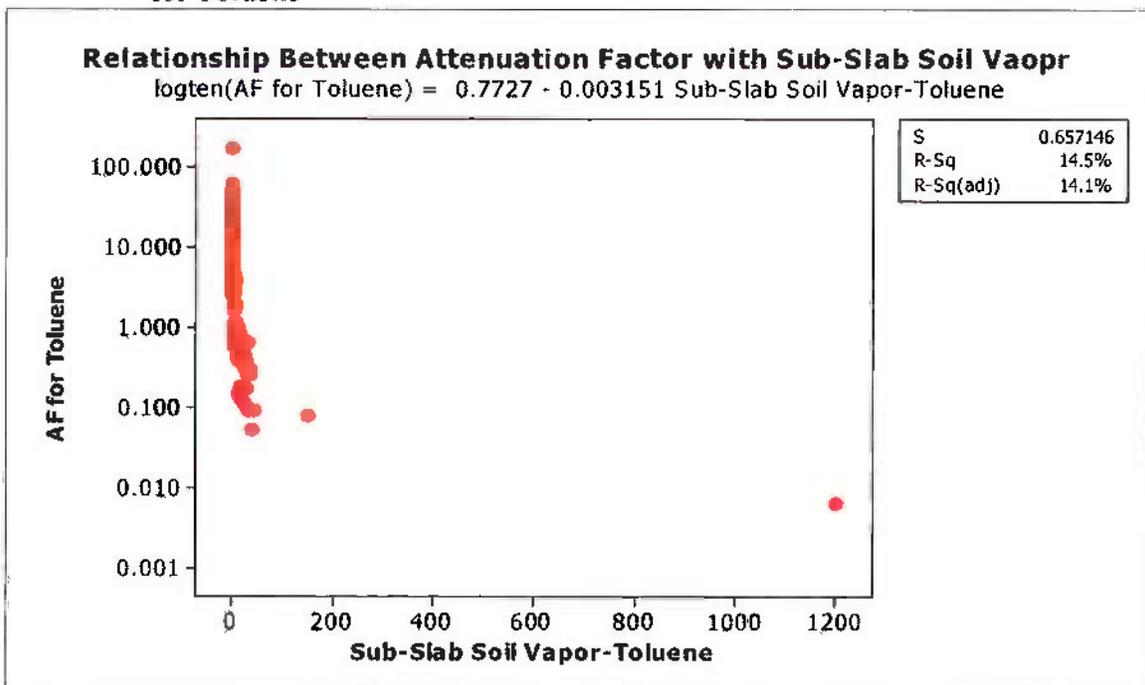


EXHIBIT 4

Prepared for:

Shell Oil Products US
20945 S. Wilmington Avenues
Carson, CA 90810

Revised Site-Specific Cleanup Goal Report

**Former Kast Property
Carson, California**

Prepared by:

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Project Number: SB0484-04-2

October 21, 2013

REVISED SITE-SPECIFIC CLEANUP GOAL REPORT

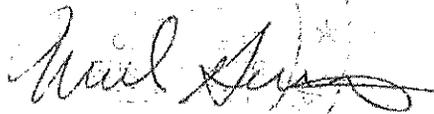
Former Kast Property Carson, California

Prepared for:

Shell Oil Products US

Prepared by:

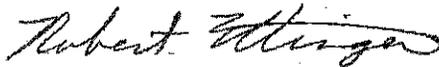
Geosyntec Consultants, Inc.



Mark Grivetti, P.G., CHG
Principal Hydrogeologist



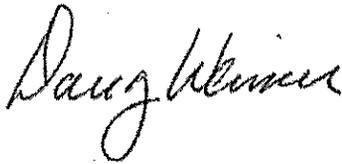
Ruth Custance
Principal



Robert Ettinger
Principal

CERTIFICATION
REVISED SITE-SPECIFIC CLEANUP GOAL REPORT
FORMER KAST PROPERTY
CARSON, CALIFORNIA

I am the Project Manager for Equilon Enterprises LLC doing business as Shell Oil Products US for this project. I am informed and believe that the matters stated in the Revised Site-Specific Cleanup Goal Report dated October 21, 2013 are true, and on that ground I declare, under penalty of perjury in accordance with Water Code section 13267, that the statements contained therein are true and correct.



Doug Weimer
Project Manager
Shell Oil Products US
October 21, 2013

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EXECUTIVE SUMMARY

This Revised Site-specific Cleanup Goal Report (Revised SSCG Report) was prepared for the Former Kast Property (Site) in Carson, California by Equilon Enterprises LLC, doing business as Shell Oil Products US (SOPUS) for Shell Oil Company, (Shell). In the Cleanup and Abatement Order No. R4-2011-0046, issued March 11, 2011 (CAO), Shell was required to submit Site-specific cleanup goals (SSCGs) following the completion of pilot testing at the Site and in advance of the Remedial Action Plan (RAP) for the Site. This Revised SSCG Report addresses comments provided by the Los Angeles Regional Water Quality Control Board (Regional Board) in their letter dated August 21, 2013.¹ In the letter, the Regional Board requested that the Site-specific Cleanup Goal Report originally submitted February 22, 2013 be revised in accordance with the specific directives and other comments provided in the letter. SOPUS was also directed to address all comments in the attachments to the Regional Board letter, including comments from the Office of Environmental Health Hazard Assessment (OEHHA), the UCLA Expert Panel, and Regional Board Staff.

Once the SSCGs are approved by the Regional Board, a full Human Health Risk Assessment (HHRA) incorporating the SSCGs will be conducted. The HHRA will further evaluate potential human health risks and will be used to guide final response actions for impacted media (soil, soil vapor and indoor air) at each residence on the Site. Evaluation of the final response actions may include a detailed Feasibility Study to select the final Site remedy. Details of the final Site remedy, as well as the Feasibility Study if conducted, will be included in the RAP, which is due to be submitted within 45 days after the Regional Board approves the SSCGs. The HHRA will be submitted prior to or concurrent with the RAP.

The Site is a former petroleum storage facility that operated from the mid-1920s to the mid-1960s, and was sold by Shell to residential developers Lomita Development Company and Barclay Hollander Corporation, now a subsidiary of Dole Food Company, Inc. The developers drained and decommissioned the reservoirs, graded the Site, and redeveloped it into the Carousel Community residential housing tract in the late 1960s. The objectives of the Revised SSCG Report are to propose remedial action objectives (RAOs) and site-specific cleanup goals (SSCGs) for soil, soil vapor, indoor air, and groundwater that will be used in preparation of the RAP. As required by the

¹ Appendix D contains responses by SOPUS to the agency and Expert Panel comments to the February 22, 2013 Site-specific Cleanup Goals Report.

Regional Board comments, the Revised SSCG Report presents cleanup goals that are based on technological and economic feasibility and that include all constituents of concern (COCs) identified for the Site, whether associated with Shell's historic use of the Site or associated with activities by other parties. Soil SSCGs are based on human health considerations and potential leaching to groundwater assuming that groundwater is a potable water source. For soil vapor, SSCGs have been developed for the vapor intrusion pathway into indoor air and potential human exposure, as well as considering both nuisance and potential methane-related risks. Groundwater SSCGs have been developed considering the Basin Plan, State Board Resolution No. 68-16, and State Board Resolution No. 92-49.

In order to meet the Regional Board's requirement that SSCGs are technologically and economically feasible, a Screening Feasibility Study (Screening FS) was conducted to evaluate a number of factors related to potential remedial alternatives that could be implemented at the Site. These factors included implementability; environmental considerations; reduction of toxicity, mobility, and volume; social considerations; other issues; and estimated cost of each remedial alternative. The remedial alternatives encompassed a range of possible response actions, including options which would result in unrestricted and restricted land use. Based on the outcome of this evaluation, the SSCGs associated with the most technologically and economically feasible alternative remedies were selected for the Site. As stated above, a more detailed Feasibility Study may be conducted in conjunction with the preparation of the RAP to evaluate potential response actions and select a final Site remedy.

Previous Site Evaluations

Analysis to develop SSCGs included data from the extensive environmental investigation of the Site, which has been conducted under the directives of the Regional Board. Environmental characterization of the Site has followed agency-approved work plans and according to accepted scientific protocols. The investigation is ongoing and is nearly completed as to soils, soil vapor and indoor air at the residential properties. As part of the characterization, investigations conducted include Site-wide and off-Site assessment of soil, soil vapor, and groundwater in roadways and an adjacent rail right-of-way. Property-specific investigations at individual residential properties have included assessment of soil, sub-slab soil vapor, indoor air, and methane screening. Over 10,000 soil samples, 2,000 soil vapor samples and 1,000 indoor air samples have been collected so far.

Through August 31, 2013, the following number of residential properties have been sampled:

- 267 properties (94%) have been screened for methane,
- 266 properties (93%) have had soil samples collected,
- 265 properties (93%) have had sub-slab soil vapor collected, and
- 241 properties (85%) have had been sampled for indoor air samples collected (of which 147 properties (52%) have had the required two rounds of indoor air sampling).

These investigations have indicated the presence of petroleum-related and some non-petroleum-related constituents. To date, over 700 Phase II Interim, Follow-up, and Final Interim Reports² have been prepared to document the results of these property-specific investigations and submitted to the Regional Board. These reports included property-specific Human Health Screening Risk Evaluations (HHSREs) and evaluation of interim response actions, which have been reviewed by the Regional Board and OEHHA on an ongoing basis.

The HHSREs provide a preliminary evaluation of potential human health risks associated with detected chemicals at individual properties to assist in interim response planning. The screening-level concentrations used in the HHSREs were developed following California Environmental Protection Agency (Cal-EPA), OEHHA and United States Environmental Protection Agency (USEPA) guidance. Screening levels are based on conservative health-protective assumptions and are used to gain a general understanding of potential issues at the Site. The presence of a chemical at a concentration in excess of a screening level does not indicate that adverse impacts to human health are occurring or will occur, but rather suggests that further evaluation of potential human health concerns is warranted.

As indicated in the Phase II Interim, Follow-up, and Final Interim Reports, concentrations of potential COCs exceeding screening levels were detected in various media (soil, soil vapor, indoor air and groundwater) at various properties at the Site. Based on these results, interim response actions to limit exposure to impacted soils and soil vapor were recommended, as appropriate. The investigations conducted at the Site to date have not found potentially hazardous levels of methane due to petroleum degradation in indoor air or in public areas at the Site. Additionally, the investigations to date have concluded that COCs detected in indoor air are reflective of background levels and are not indicative of vapor intrusion into indoor air.

² Multiple reports are submitted for each property.

Constituents of Concern

Potential COCs were initially identified by reviewing the Site investigation results and include constituents associated with the petroleum storage facility activities in the 1924 to 1966 time frame, as well as constituents that are interpreted to have been introduced from non-Site-related sources, such as the adjacent Turco chemical facility and the Fletcher Oil site, and post-development residential land-use activities. COCs potentially related to the previous operation of the Site as a crude/bunker oil storage facility are considered as Site-related COCs. The remaining COCs are considered non-Site-related COCs. Potential Site-related COCs include:

- Total Petroleum Hydrocarbons (TPH);
- TPH-related volatile organic compounds (VOCs);
- TPH-related semi-volatile organic compounds (SVOCs) (including polycyclic aromatic hydrocarbons [PAHs]);
- Metals (lead and arsenic); and
- Methane.

Non-Site-related COCs include:

- Chlorinated VOCs;
- Trihalomethanes (THMs, which are associated with municipal water treatment);
- Oxygenated VOCs (including tert-butyl alcohol [TBA]); and
- Metals present in soil or groundwater at background levels.

SSCGs for all COCs (i.e., both Site-related and non-Site-related COCs) are presented in this report. The final list of COCs that was incorporated into the SSCG derivation was selected using a conservative screening process based on (1) detection of the constituent during Site investigation activities, (2) the screening levels presented in the HHSRE reports, and (3) background levels.

Remedial Action Objectives and Site-specific Cleanup Goals

Medium-specific response action objectives (RAOs) for soil, soil vapor, indoor air and groundwater were developed based on the results of the Site investigation and HHSREs. The proposed objectives of the remedial action at the Site are:

- Prevent human exposures to concentrations of COCs in soil, soil vapor, and indoor air such that total (i.e., cumulative) lifetime incremental carcinogenic risks are within the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) risk range of 1×10^{-6} (one in a million) to 1×10^{-4} (or

one in ten thousand) and noncancer hazard indices are less than 1, or COC concentrations are below background, whichever is higher. Potential human exposures include onsite residents and construction and utility maintenance workers. The point of departure risk level for onsite residents is the lower end of the NCP risk range (i.e., 1×10^{-6}) and a noncancer hazard index less than 1.

- Prevent fire or explosion risks in homes, garages and other enclosed spaces (such as neighborhood utility vaults) due to the potential accumulation of methane generated from anaerobic biodegradation of petroleum hydrocarbons in soils. Eliminate methane in the subsurface to the extent technologically and economically feasible.
- Remove or treat light non-aqueous phase liquid (LNAPL) to the extent technologically and economically feasible, and where a significant reduction in current and future risk to groundwater will result.
- Reduce COCs in groundwater to the extent technologically and economically feasible to achieve, at a minimum, the water quality objectives in the Basin Plan to protect designated beneficial uses, including possible use as municipal supply in the future³.

This Revised SSCG Report proposes medium-specific SSCGs for soil, soil vapor, indoor air, and groundwater designed to achieve these RAOs. The SSCGs were developed using the guidance documents and agency policies identified by the Regional Board, as well as other applicable resources. The SSCGs for each medium are summarized below.

SSCGs for Soil

SSCGs for soil were calculated considering human health exposure pathways (i.e., risk-based SSCGs), and the leaching to groundwater pathway. Risk-based SSCGs were developed using a methodology and approach similar to that used to conduct the property-specific HHRSEs. Risk-based SSCGs for the residential scenario are based on (1) frequent exposure assumptions (350 days per year) for shallow soil (e.g., from 0 to 2 feet below ground surface [bgs]), and (2) infrequent exposure assumptions (4 days per year) for soils at depth that residents are unlikely to contact more than a few times per year (e.g., from 2 to 10 feet bgs). Risk-based SSCGs for the construction and utility maintenance worker scenario are developed assuming exposures can occur to soil at

³ Shallow impacted groundwater at the Site is not currently used for drinking water nor will be in the foreseeable future.

depths from 0 to 10 feet below ground surface (bgs). Soil SSCGs for the leaching to groundwater pathway are calculated using Site-specific soil physical properties following methods recommended in Regional Board (1996) and relevant USEPA guidance documents.

The SSCGs for soil are detailed in Section 6:

- The Soil SSCGs for residential exposures are chemical-specific numerical values for COCs assuming a target incremental cancer risk of 1×10^{-6} and a hazard quotient of 1. These numerical SSCGs are calculated for both frequent and infrequent exposure assumptions.
- The Soil SSCGs for construction and utility maintenance worker exposures are chemical-specific numerical values for COCs assuming a target incremental cancer risk of 1×10^{-5} and a hazard quotient of 1. These numerical SSCGs will be applied to soils from 0-10 feet bgs.
- The Soil SSCGs for the leaching to groundwater pathway are chemical-specific numerical values for COCs based on protection of groundwater to California Maximum Contaminant Levels (MCLs), Notification Levels (NLs), or risk-based values for COCs with no published MCL or NL.

The technological and economic feasibility of the various soil SSCGs were evaluated in the Screening FS. Based on the findings of the Screening FS, soil SSCGs to be used in preparation of the RAP are proposed.

SSCGs for Soil Vapor and Indoor Air

Soil vapor cleanup goals for the residential scenario are based on the sub-slab soil vapor analytical results, the indoor and outdoor air sample results, and a multiple-lines-of-evidence vapor intrusion pathway evaluation. In other words, multiple data evaluation approaches were used to assess whether there is a correlation between the sub-slab COC levels and the COC levels found in indoor air. As summarized here and discussed in detail in Section 7, the results of this multiple-lines-of-evidence evaluation indicate that sub-slab soil vapor concentrations do not have a significant effect on indoor air quality, and that COCs found in indoor air are related to COCs from outdoor air, attached garages and household product use. In their review of the residential sampling reports, the Regional Board and OEHHA have generally concurred in these findings.

Similar to the approach used to calculate soil SSCGs for the construction and utility maintenance worker exposure scenario, the soil vapor SSCGs for the construction and utility maintenance worker consider exposure to volatiles during excavation activities. Additionally, fire and explosion risks are considered for methane.

The multiple-lines-of-evidence evaluation considered the sub-slab soil vapor, indoor air, garage air, and outdoor air data for the 241 properties where indoor air and concomitant sub-slab soil vapor sampling has been conducted as of August 31, 2013. The evaluation relied on published studies of background concentrations of indoor and outdoor air quality. The conclusions of the evaluation are as follows.

- Indoor air and outdoor air concentrations of VOCs detected at the properties evaluated are indistinguishable from background and within the typical ranges of background concentrations reported in the literature.
- Multiple regression analysis results indicate that indoor air concentrations are correlated with outdoor or garage air concentrations and/or largely influenced by indoor sources. This statistical analysis indicates that sub-slab soil vapor concentrations do not have a significant effect on indoor air concentrations as compared to these other sources.
- The presence of background sources⁴ of VOCs contributes to the variability in indoor air concentrations detected at the Site. Common household sources of VOCs include cigarette and cigar smoke, gasoline- or diesel-powered equipment, paints, glues, solvents, cleaners, and natural gas leaks. In addition, outdoor air COC levels, which impact indoor air, often exceed screening levels for indoor air.
- Although the literature background comparison and the multiple linear regression analysis indicate that the indoor air COC concentrations are due to background sources and not related to sub-slab soil vapor levels, sub-slab soil vapor SSCGs were calculated based on a vapor intrusion attenuation factor as directed by the Regional Board. These sub-slab soil vapor SSCGs may be used for corrective action planning; however, because the indoor air concentrations are due to background sources, mitigation or remediation will not result in a measureable reduction in indoor air risks.
- Using a single regression analysis of sub-slab soil vapor and indoor air results, a conservative upper-bound vapor intrusion attenuation factor of 0.001 was calculated to determine sub-slab soil vapor SSCGs as required by the Regional Board.

⁴ For vapor intrusion evaluations, background is defined as sources that are not due to subsurface impacts (i.e., contributions due to outdoor air or indoor sources).

The technological and economic feasibility of the potential residential soil vapor SSCGs were evaluated in the Screening FS. Based on the findings of the Screening FS, residential soil vapor SSCGs to be used in preparation of the RAP are proposed.

The SSCGs for construction and utility maintenance worker exposures are chemical-specific numerical values for COCs assuming a target incremental cancer risk of 1×10^{-5} and a hazard quotient of 1. These numerical SSCGs will be applied to soil vapor from 0-10 feet bgs. These numerical values are listed in the report.

Methane screening has been conducted in indoor structures on the Site and in utility vaults, storm drains, and sewer manholes at and surrounding the Site. The screening assessments have not found methane concentrations in enclosed spaces that would indicate a potential safety risk. Methane has not been detected in any of the more than 1,000 indoor air samples collected at the residences. Additionally, more than 2,000 sub-slab soil vapor samples have been collected at 265 properties at the Site and analyzed for methane. Methane resulting from anaerobic biodegradation of residual petroleum hydrocarbons above the interim action levels of 0.1% and 0.5% has been found in one sub-slab soil vapor probe located beneath the garage at a single property (out of more than 840 soil vapor probes installed at the Site); however, no methane exceedances were indicated during the indoor air screening at this property and methane was not detected in the analytical results of the indoor air sampling. Engineering controls were installed to mitigate potential risks due to methane detected beneath the garage at this location. Methane has been detected as a result of leaking natural gas utility lines, which were found at four of the residential properties, and a leaking sewer line at one residential property.

Proposed SSCGs for methane are the same as those presented in the Data Evaluation and Decision Matrix previously prepared for the Site. These SSCGs are consistent with California Environmental Protection Agency Department of Toxic Substances Control (Cal-EPA DTSC) guidance for addressing methane detected at school sites.

Methane Level	Response
>10%LEL (> 5,000 ppmv) Soil vapor pressure > 13.9 in H ₂ O	Evaluate engineering controls
> 2% - 10%LEL (> 1,000 - 5,000 ppmv) Soil vapor pressure > 2.8 in H ₂ O	Perform follow-up sampling and evaluate engineering controls

SSCGs for Groundwater

Uppermost (or first) groundwater (Shallow Zone) occurs at variable depths of approximately 51-68 feet bgs depending on well location and timing of sampling. The Gage aquifer underlies the Site at a depth of approximately 80-90 feet bgs, and is underlain by low permeability materials which separate the Gage aquifer from the underlying Lynwood aquifer. There is no documented or expected future use of groundwater within the Shallow Zone or Gage aquifer at or near the Site, and these water-bearing zones are not used as sources of drinking water. Furthermore, the local water purveyor has stated that drinking water supplied to the Carousel Community is safe.

Groundwater beneath the Site, including groundwater in the Shallow Zone and Gage aquifer, is impacted with various chemicals including petroleum hydrocarbons, chlorinated hydrocarbons, metals, and general minerals. Of these, potential Site-related COCs in groundwater which exceed a California drinking water MCL or health-based NL include benzene, naphthalene, and arsenic.

- Benzene: The distribution of benzene in groundwater beneath the Site is well defined, both laterally and vertically, and the dissolved benzene plume at the Site appears to be stable or declining. Concentrations of benzene are non-detect or close to non-detect in the three off-Site, downgradient monitoring wells located near the Site boundaries. The stable or declining plume is consistent with an old crude oil source and the well-documented process of natural degradation of petroleum hydrocarbon compounds in the subsurface environment through microbial activity.
- Naphthalene: Concentrations of naphthalene exceed the NL in two monitoring wells on-Site, both of which are also impacted by benzene.
- Arsenic: Concentrations of arsenic are above the MCL in multiple Site monitoring wells, with higher concentrations detected in the west central portion of the Site. The source of arsenic is likely naturally occurring. The concentrations of arsenic may be locally enhanced due to the presence of degrading petroleum hydrocarbon compounds which can cause arsenic to dissolve into groundwater from some naturally occurring minerals found beneath the Site. Arsenic is recognized as a regional contaminant in southern California groundwater.
- TPH: TPH does not have an MCL or NL. Concentrations of TPH exceeding the San Francisco RWQCB Environmental Screening Levels

(ESL)s were detected in four on-Site wells and the off-Site upgradient well (MW-7) in the most recent monitoring event.

Because no current or future use of the Shallow Zone and Gage aquifer at or near the Site is anticipated, the following groundwater SSCGs are proposed for the Site (consistent with the RAOs):

- Remove or treat LNAPL to the extent technologically and economically feasible, and where a significant reduction in current and future risk to groundwater will result, and
- Reduce concentrations of COCs in groundwater to the extent technologically and economically feasible to achieve, at a minimum, the water quality objectives in the Basin Plan to protect the designated beneficial uses, including municipal supply.

The technological and economic feasibility of the potential groundwater SSCGs, detailed in Section 8, were evaluated in the Screening FS. Based on the findings of the Screening FS, groundwater SSCGs are proposed to be used in preparation of the RAP.

Screening Feasibility Study

A Screening FS was conducted to evaluate the technological and economic feasibility of the SSCGs. The Screening FS consists of a preliminary evaluation of representative remedial alternatives that could achieve various site SSCGs at the residential properties. The technological and economic feasibility for each alternative were compared and evaluated to the extent practical at this level of project development, and the technologically and economically feasible alternatives were selected for further detailed evaluation in the RAP.

Several remedial alternatives were evaluated in the Screening FS. The alternatives consist of different combinations of the following technologies:

- Sub-slab vapor mitigation;
- Capping;
- Institutional controls;
- Excavation;
- Soil vapor extraction (SVE);
- LNAPL/source removal;
- Hot spot remediation of groundwater; and
- Monitored natural attenuation (MNA).

The preliminary remedial alternatives were screened on the basis of the following criteria:

- a) Implementability;
- b) Environmental considerations;
- c) Reduction of toxicity, mobility, and volume;
- d) Social considerations; and
- e) Estimated cost.

Cleanup goals that are technologically and economically feasible have been identified using the Screening FS. Based on this evaluation, four remedial alternatives and their associated SSCGs are recommended and will be further evaluated in the RAP. The technologically and economically feasible remedial alternatives identified in the Screening FS consist of:

- Surface soil excavation (0-2 feet bgs) in either open areas and/or areas beneath open and hardscape in areas exceeding soil SSCGs;
- Installation of sub-slab depressurization or ventilation system for properties exceeding soil vapor SSCGs;
- LNAPL removal to the extent technologically and economically feasible;
- Hot spot groundwater and deep soil remediation;
- Monitored natural attenuation for groundwater to achieve MCLs and/or background concentrations; and
- Institutional controls to address residual COCs in soils beneath homes and to limit access to unexcavated soils below 2 feet bgs and groundwater.

Under the identified remedial alternatives, the excavated and filled Site areas would achieve all proposed soil SSCGs. The unexcavated soils would meet the residential human health SSCGs assuming infrequent exposure and the utilization of institutional controls, and would meet nuisance goals.

Soil cleanup levels for groundwater protection (leaching to groundwater) may not be met in all the soils that remain in place. However, over time, groundwater concentrations for the petroleum-related COCs (TPH, naphthalene, benzene and to some extent arsenic) are expected to decline to levels protective of a municipal use for the water. This conclusion is based on the stable to declining plume present at the Site, the age of the source materials (leaching of the COCs has already occurred), and the proposed actions which include further source reduction (hot spot groundwater and deeper soil remediation with SVE). It is also noted that there will be no use of the impacted groundwater in the foreseeable future. Meeting municipal levels for other

COCs in Site groundwater including CVOCs and TBA will require remediation of upgradient sources.

Additionally, the identified remedial alternatives for soil vapor will achieve the SSCGs for VOCs and methane.

1.0 INTRODUCTION

This Revised Site-specific Cleanup Goal Report (Revised SSCG Report) was prepared for the Former Kast Property (Site) in Carson, California on behalf of Equilon Enterprises LLC, doing business as Shell Oil Products US (SOPUS), for Shell Oil Company (“Shell”). This Revised SSCG Report responds to comments provided by the Los Angeles Regional Water Quality Control Board (RWQCB or Regional Board) in their letter dated August 21, 2013. In the letter, the RWQCB requested that the Site-specific Cleanup Goal Report originally submitted February 22, 2013 (Geosyntec, 2013a) be revised in accordance with the specific directives and other comments provided in the letter. Shell was also directed to address all comments in the attachments to the letter, including comments from the Office of Environmental Health Hazard Assessment (OEHHA), the UCLA Expert Panel Interim Report, and Regional Board Staff. A summary of responses to comments contained in the RWQCB August 21 letter and attachments is provided in Appendix D. This summary provides a response to the comment and, where appropriate, a description of the location within the Revised SSCG Report where the comment is specifically addressed.

The Former Kast Property is a former petroleum storage facility that operated from the mid-1920s to the mid-1960s that was sold by Shell to residential real estate developers Lomita Development Company and Barclay Hollander Corporation, now a subsidiary of Dole Food Company, Inc., who had knowledge of the Site’s former use and developers, who drained and decommissioned the reservoirs, graded the site and redeveloped it into the Carousel Community residential housing tract in the late 1960s. The site is located in the area between Marbella Avenue on the west and Panama Avenue on the east and E. 244th Street on the north to E. 249th Street to the south (Figure 1).

1.1 Background

This report was prepared in response to Cleanup and Abatement Order (CAO) No. R4-2011-0046 issued to Shell on March 11, 2011 by the California Regional Water Quality Control Board – Los Angeles Region (RWQCB or Regional Board). Section 3.c of the CAO orders Shell to “prepare a full-scale impacted soil Remedial Action Plan (RAP) for the Site.” As a part of the RAP several requirements have been set forth that address the development of remedial action objectives (RAOs) and cleanup goals for the Site.

The CAO also ordered that a SSCG report be prepared in advance of the RAP and submitted concurrently with the Pilot Test Report. Pilot tests for the following technologies have been evaluated for applicability at the Site: soil vapor extraction

(SVE), in-situ chemical oxidation (ISCO), bioventing, and excavation. The results of these pilot studies have been submitted to the Regional Board (URS, 2010b; Geosyntec, 2012a; Geosyntec, 2012b; Geosyntec, 2013b; and URS, 2013a, d). Pilot Test Reports summarizing the results of the pilot studies were submitted to RWQCB in May 2013 and August 2013 (URS, 2013e, g) and an evaluation of the feasibility of removing the concrete slabs of the former reservoirs was submitted in June 2013 (URS and Geosyntec, 2013).

The SSCG Report was prepared to address these requirements of the CAO and provide an overview of the Site conditions, as well as the RAOs and cleanup goals to address petroleum hydrocarbon impacts at the Site. As noted above, this Revised SSCG Report addresses comments provided by the RWQCB on the February 22, 2013 SSCG Report.

The Revised SSCG Report presents cleanup goals that are based on technological and economic feasibility and includes all constituents of concern (COCs) identified for the Site. Soil SSCGs are based on exposure to human health and potential leaching to groundwater considering the groundwater as a potable water source. For soil vapor, SSCGs have been developed for the vapor intrusion pathway and considering nuisance and methane. Groundwater SSCGs have been developed considering the Basin Plan, State Board Resolution No. 68-16, and State Board Resolution No. 92-49.

The Revised SSCG Report is organized into the following sections:

- 1.0 Introduction
- 2.0 Site Conceptual Model
- 3.0 Pilot Test Results
- 4.0 Constituents of Concern and Remedial Action Objectives
- 5.0 Guidance Documents Considered
- 6.0 Soil
- 7.0 Soil Vapor, Indoor Air, and Outdoor Air
- 8.0 Groundwater
- 9.0 Evaluation of Technological and Economic Feasibility of SSCGs and Selection of SSCGs
- 10.0 Summary
- 11.0 References

1.2 Objectives

The objectives of this report are to provide the RAOs and site-specific cleanup goals (SSCGs) that will be used in the forthcoming Human Health Risk Assessment (HHRA) and RAP for the Site. Specifically, this report addresses the following requirements of the CAO:

- Evaluate impacts to shallow soils, defined in the CAO as soils from 0-10 feet below ground surface (bgs)⁵ (CAO Section 3);
- Consider listed guidelines and Policies in the development of cleanup goals (CAO Section 3.c.II.i);
- Address groundwater cleanup goals considering the Basin Plan, State Board Resolution No. 68-16, and State Board Resolution No. 92-49 (CAO Sections 3.c.II.ii, iii, and iv); and
- Develop site-specific cleanup levels for residential (i.e., unrestricted) land use (CAO Section 3.c.III) and for construction/utility worker exposures.

In addition, this Revised SSCG Report addresses the directives provided in the August 21, 2013 RWQCB Review of the February 22, 2013 SSCG Report (Geosyntec, 2013a) to determine site-specific cleanup levels that are technologically and economically feasible.

1.3 Previous Response Actions

URS Corporation (URS) and Geosyntec Consultants (Geosyntec) are conducting environmental characterization at the Site on behalf of SOPUS and Shell, as requested in the Regional Board's Section 13267 letter dated May 8, 2008. As part of the characterization, investigations conducted at the Site include (1) Site-wide assessment of soil, soil vapor, and groundwater in roadways and an adjacent rail right-of-way, and (2) property-specific investigations at individual residential properties that have included assessment of soil, sub-slab soil vapor, and indoor air and methane screening.

Results of these investigations have detected the presence of a number of petroleum-related and some non-petroleum-related constituents. Total petroleum hydrocarbons (TPH) quantified as gasoline-range organics (TPHg), diesel-range organics (TPHd), and

⁵ Impacts to shallow soils for residential properties and public rights of way are addressed in this report.

motor oil-range organics (TPHmo) have been detected in Site soils and groundwater. A number of volatile organic compounds (VOCs), including compounds associated with petroleum hydrocarbons (e.g., benzene, toluene, ethylbenzene, xylenes [BTEX], trimethylbenzenes, and other substituted aromatic compounds), and non-petroleum-related VOCs, including the chlorinated solvents trichloroethene (TCE) and tetrachloroethene (PCE) and related breakdown products, as well as chloroform and trihalomethanes associated with drinking water purification byproducts, have been detected in Site soils, groundwater, soil vapor, and indoor/outdoor air. In addition, polycyclic aromatic hydrocarbons (PAHs), including naphthalene and benzo(a)pyrene, have been detected in Site soils associated with hydrocarbon impacts. Various metals including arsenic have been detected in site soils and groundwater.

For each of the property-specific evaluations, a Human Health Screening Risk Evaluation (HHSRE) was conducted to provide a preliminary evaluation of potential human health risks associated with chemicals detected at the property. These were based on the analytical results of the soil, sub-slab soil vapor, and indoor air samples collected to date and conservative screening levels. The HHSREs were conducted in accordance with the approved HHSRE Work Plan (Geosyntec, 2009) and addendum (Geosyntec, 2010b). In conjunction with the HHSRE Work Plan, a Data Evaluation and Decision Matrix was developed (Geosyntec, 2010a). The purpose of the matrix was to identify potential follow-up interim response actions that could be performed upon evaluation of Phase II Site characterization of soil, sub-slab soil vapor, and indoor air analytical data and HHSRE screening results. The screening level concentrations that were used in the HHSRE are consistent with the California Environmental Protection Agency (Cal-EPA), Office of Environmental Health Hazard Assessment (OEHHA) and United States Environmental Protection Agency (USEPA) screening levels. Screening levels are based on general assumptions and are useful to gain a general understanding of potential issues at the Site. The presence of a chemical at concentrations in excess of a screening level does not indicate that adverse impacts to human health are occurring or will occur but suggests that further evaluation of potential human health concerns is warranted. A full Human Health Risk Assessment (HHRA) and an update to the Soil Background Evaluation (URS, 2010) will be conducted to further evaluate potential health risks and will be submitted with the RAP.

Based on the findings of the Phase II investigations, potential follow-up interim response actions were identified. The interim response actions that could be used at the Site were documented in the Interim Remediation Action Plan (IRAP, URS, 2009a). Through August 31, 2013, the number of properties that have been evaluated for potential interim response actions based on the matrix criteria and the IRAP are:

- 267 properties (94%) screened for methane,
- 266 properties (93%) for soil,
- 265 properties (93%) for sub-slab soil vapor, and
- 241 properties (85%) for indoor air (of which 147 properties (52%) have had the required two rounds of indoor air sampling).

These investigations have indicated the presence of petroleum-related and some non-petroleum-related constituents. To date, over 700 Phase II Interim, Follow-up, and Final Interim Reports⁶ have been prepared to document the results of these property-specific investigations and submitted to the Regional Board. These reports included property-specific Human Health Screening Risk Evaluations (HHSREs) and evaluation of interim response actions.

The HHSREs provide a preliminary evaluation of potential human health risks associated with detected chemicals at individual properties to assist in interim response planning. The screening-level concentrations used in the HHSREs were developed following California Environmental Protection Agency (Cal-EPA), OEHHA and United States Environmental Protection Agency (USEPA) guidance. Screening levels are based on conservative health-protective assumptions and are used to gain a general understanding of potential issues at the Site. The presence of a chemical at a concentration in excess of a screening level does not indicate that adverse impacts to human health are occurring or will occur, but rather suggests that further evaluation of potential human health concerns is warranted.

As indicated in the Phase II Interim, Follow-up, and Final Interim Reports, concentrations of potential COCs exceeding screening levels were detected in various media (soil, soil vapor, indoor air and groundwater) across the Site. Based on these results, interim response actions to limit exposure to impacted soils and soil vapor were recommended, as appropriate. The investigations conducted at the Site did not identify potentially hazardous levels of methane due to petroleum degradation in indoor air or in public areas at the Site. Additionally, COCs detected in indoor air are reflective of background levels and are not indicative of vapor intrusion into indoor air. Interim response actions for COCs exceeding screening levels in soils were further evaluated at 21 properties and reported in the Evaluation of Interim Institutional and/or Engineering Control Letters submitted to the Regional Board.

⁶ Multiple reports are submitted for each property.

As stated previously, a full HHRA will be submitted with the RAP. The HHRA will incorporate the SSCGs developed in this report and will be used to guide final response actions for impacted media at the Site.

2.0 SITE CONCEPTUAL MODEL

This section summarizes and updates the Site Conceptual Model (SCM), which was included as an appendix to the Plume Delineation Report (PDR) (URS, 2010a). The objectives of the SCM were to summarize the Site understanding related to: (1) identification of potential constituents of concern (COCs); (2) sources of COCs and potential release mechanisms; and (3) potential fate and transport of COCs, including identification of exposure pathways and receptors for the COCs. The information in this section has been updated to incorporate new data and understanding of the site obtained through site investigations conducted subsequent to the September 2010 date of the PDR.

2.1 Potential Sources and Potential Constituents of Concern

Historically, petroleum-related operations were associated with the Site. Crude oil was stored in three concrete-lined earthen reservoirs from 1924 to about 1966. Bunker oil, a very viscous residuum from refining of lighter-end hydrocarbons, was apparently also stored at the Site. Some records also refer to the storage of other heavy intermediate refinery streams. Due to the nature of former crude oil storage operations at the Site, and the oil production and former industrial operations in the surrounding area, a number of sources may have contributed to the contaminants that have been detected at and around the Site. Detailed information about potential sources was included in Section 4.0 of the SCM (URS, 2010a), and is summarized below.

The historical onsite petroleum storage reservoirs are considered to have been a source of petroleum releases to Site soils. The reservoirs are believed to have had reinforced concrete-lined earthen floors and sloped sidewalls with wood frame roofs supported by wooden posts and/or concrete pedestals, and they were surrounded by earthen levees averaging 20 feet in height. The site was sold by Shell to residential real estate developers Lomita Development Company and Barclay Hollander, now a subsidiary of Dole Food Company, Inc., who drained and demolished the reservoirs in the mid-late 1960s for the development of the residential housing tract. Where concrete from the reservoirs was not removed, records indicate that following the removal of residual hydrocarbons remaining in the reservoirs by the residential developer, the developer's contractors cut trenches into the reservoir bases so that the reservoirs would not pond water and adversely affect drainage/infiltration for the subsequent residential development on the Site. Concrete from the reservoir sides was then reportedly placed by the developer's contractors into the base of the reservoirs, and soil from the surrounding levees was subsequently graded and compacted in place, spreading existing petroleum impacts around the site.

In addition to the reservoirs, other potential sources include former pipelines, an onsite oil pump house, various offsite operations by others at surrounding facilities (including refining operations, refined hydrocarbon storage, industrial chemicals processing, and chemical milling operations, dry cleaners), offsite oil wells owned and operated by others, atmospheric depositions, and, likely to a smaller extent, various residential activities.

Compounds associated with crude or bunker oil include TPH and TPH-related compounds such as certain VOCs (primarily BTEX: benzene, toluene, ethylbenzene, and xylene), polycyclic aromatic hydrocarbons (PAHs), and possibly metals. Potential COCs were identified by reviewing the historical and current uses associated with the Site and were selected based on their likelihood of being associated with the petroleum storage facility operating in the 1924 to 1966 time frame. The potential introduction of COCs from non-Site-related sources and residential land-use activities was also considered. Section 5.0 of the SCM (URS, 2010a) contains detailed information about sources for each potential COC. Only COCs related to the previous operation of the Site as a crude/bunker oil storage facility are considered as Site-related COCs⁷. The remaining COCs are considered non-Site-related COCs. The remainder of this section discusses key potential COCs as follows:

- TPH;
- VOCs;
- Semi-volatile organic compounds (SVOCs) including PAHs;
- Metals; and
- Methane.

In addition to the above constituents, polychlorinated biphenyls (PCBs), pesticides, and fuel oxygenates were considered. PCBs and pesticides have not been detected in Site soils and are not considered COCs. The oxygenate tert-butyl alcohol (TBA) and other oxygenates have been detected in Site groundwater and/or other media; however as discussed below, TBA and other oxygenates were not used before the 1970's and are considered non-Site-related COCs.

⁷ Note that Site- versus non-Site -related COCs are identified for purposes of the Site Conceptual Model. SSCGs for all compounds are provided later in this document in accordance with RWQCB directives.

2.1.1 Total Petroleum Hydrocarbons

The specific source of the crude oil stored in the reservoirs is not known. Crude oil is a complex mixture of various petroleum hydrocarbon compounds. TPH concentrations are often reported in general hydrocarbon chain ranges corresponding to gasoline, diesel, and motor oil. If the TPH from crude or bunker oil is present at sufficiently high concentration it will occur as a non-aqueous phase liquid (NAPL), which typically has lower density than water and is often referred to as “light NAPL” or LNAPL. LNAPL has been detected at the Site. An LNAPL sample collected and analyzed from Site monitoring well MW-3 was characterized as a relatively unweathered crude oil likely produced from the Monterey Formation, a common oil-producing geologic formation found throughout southern California.

Borings completed during Site characterization found evidence of petroleum releases at the Site. Elevated TPH and other indicators of petroleum releases were found: (1) beneath the footprint of the former reservoirs (below their bases, but primarily along the perimeter, in the area near the presumed joint between the reservoir bases and the reservoir sidewalls); (2) within the fill material above the base level of the former reservoirs (the source of these impacts appears to be from the developer’s reuse of petroleum-impacted fill from other portions of the Site, such as berm areas), and (3) in areas outside the footprints of the former reservoirs. The impacts outside the former reservoirs are potentially from a combination of sources, including the developer’s grading activities, possible former on-Site/off-Site pipelines or spills during operation of the storage facility, offsite sources, and shallow soil sources associated with residential activities.

2.1.2 Volatile Organic Compounds

Volatile organic compounds (VOCs) are light molecular weight hydrocarbons which have low boiling points and therefore evaporate readily. Some VOCs occur naturally in the environment, others occur only as a result of manmade activities, and some have both origins. Only VOCs associated with crude oil such as aromatic and aliphatic hydrocarbons are considered Site-related COCs. In addition to a crude oil source, these compounds may also have been released to the Site through accidental releases of gasoline or other refined petroleum products following residential development.

Site-related VOCs: The most prevalent VOCs associated with crude oil include aromatic compounds such as BTEX and aliphatic compounds such as the alkanes (e.g., hexane, heptane). They can impact soil or volatilize from the liquid or sorbed phase to impact soil vapor. For example, BTEX could volatilize from LNAPL and migrate

through soil as a soil vapor to an enclosed space or enter a building through vapor intrusion.

Benzene has been detected in Site soil, soil vapor, and groundwater. However, as indicated in regional groundwater concentration maps shown in Appendix E (Figure E-3), benzene is widespread in groundwater in the general Site area and additional sources in the area have been identified. For example, concentrations of benzene in excess of 3,000 µg/L have been detected at the Fletcher Oil and Refining Company site (Fletcher Oil site) located 1,300 feet west (generally upgradient) of the Site. Similarly, Leymaster Environmental Consulting (Leymaster, 2013) reports concentrations of benzene as high as 4,600 µg/L detected in shallow groundwater at the adjacent Turco site, likely associated with their former leaking underground storage tank (UST) (see discussion below).

It is apparent that former Site crude oil operations have contributed to the presence of benzene in shallow groundwater beneath the Site, but some off-Site sources (e.g., Turco leaking UST) have likely contributed to hydrocarbons detected in Site groundwater. It is unlikely that a significant mass of benzene from the Fletcher Oil site has migrated onto the Site, based on the distribution of benzene detections shown in Figure E-3 and the fact that the Fletcher Oil site is located approximately 1,000 feet from the Site. However, the Turco site which is located immediately upgradient of the Site and has had elevated benzene concentrations detected in monitoring wells located adjacent to the Site's western boundary, has likely contributed some benzene in the northwest portion of the Site.

Non-Site-related Chlorinated VOCs: Chlorinated VOCs include hydrocarbon compounds that contain chlorine atoms and are typically used as solvents (such as tetrachloroethene [PCE] and trichloroethene [TCE]). Although these compounds have been infrequently detected at the Site, they are not considered Site-related COCs because there is no historical evidence that chlorinated solvents were used at the Site and the observed distributions of TCE and PCE in soil do not indicate that these constituents are related to Site activities. If these constituents were used during former Site operations (there is no historical evidence that they were) and subsequently released to Site soils, it is expected that they would be more widely distributed and present in deeper soils. A general description of TCE and PCE in Site soils follows.

- TCE was detected in approximately 0.5% of the on-Site soil samples with a maximum concentration of 0.72 mg/kg (see Appendix E, Figure E-1). TCE was only detected in vadose-zone samples collected in shallow soil (i.e., 0 - 10 feet bgs) and only 11 of the 10,290 soil samples collected on the Site had

concentrations greater than 0.001 mg/kg. There were no detections of TCE in soils between 10 feet bgs and groundwater (a total of 249 samples).

- PCE was detected in approximately 1.6% of the on-Site soil samples with a maximum concentration of 19 mg/kg (see Appendix E, Figure E-2). The maximum PCE concentration was detected in a sample on the western edge of the Site. PCE was only detected in vadose-zone samples collected in shallow soil (i.e., 0 - 10 feet bgs) and only 66 of the 10,290 soil samples collected on the Site had concentrations greater than 0.001 mg/kg. There were no detections of PCE in soils between 10 feet bgs and groundwater (a total of 249 samples).
- TCE and PCE were most frequently detected in shallow soils on the western border of the Site. As shown on the figures included in Appendix E, other than samples collected on the western border of the Site, detected concentrations of TCE and PCE were generally less than 0.001 mg/kg. The detections of these constituents at higher concentrations along the western border of the Site, and only in shallow soils, suggest that their presence is related to other sources. These sources include the adjacent former Turco Products/Purex facility (Turco) where they are an identified COC (see below); the former Oil Transport Company, Inc. (OTC) site, which is now the location of the Monterey Pines community directly west of the Former Kast Property; or possibly residential chemical product use. A general description of the potential off-site sources, Turco and OTC, follows.

Turco: Turco's former operations, which included the processing of industrial chemicals and chemical milling operations associated with aircraft production, resulted in contamination of soil and groundwater with VOCs. Contamination is greatest in the areas formerly used for chemical and hazardous waste storage, handling, and treatment. A summary of results of Turco's soil and groundwater investigations indicated that volatile compounds, including benzene, toluene, and chlorinated VOCs, were detected in the groundwater (ERM, 2010). These results are further discussed in Section 8.0. Soil, soil vapor, and groundwater samples were also collected in the Carousel Tract residential area east of the former Turco facility as part of Turco's investigation. Hydrocarbons, including benzene, toluene, xylenes, and ethylbenzene, and chlorinated solvents were detected (ERM, 2010; Leymaster, 2010; and Leymaster, 2013). In an April 2008 Fact Sheet for the former Turco facility, California Environmental Protection Agency Department of Toxic Substances Control (Cal-EPA DTSC) associated the detected VOCs within the soil vapor with past Turco operations (Cal-EPA DTSC, 2008).

Former OTC Facility: OTC operated a trucking firm from 1953 to 1996 specializing in the transportation of crude oil and asphalt (Cal-EPA DTSC, 2009a). The OTC site was used for truck parking and maintenance. The OTC site included one active oil well, above ground and underground fuel and water storage tanks, a clarifier, garage and mechanic shops, and truck wash down areas (PIC Environmental Services, 1996). It is documented that activities at the former OTC facility included the use of chlorinated solvents in the clarifier area (Ecology and Environment, Inc., 2013). In 1997, Blue Jay Partners constructed a residential subdivision called Monterey Pines on the OTC site. Prior to construction operations, seven underground storage tanks (USTs) used to store gasoline, diesel, and waste oil, and associated piping and dispensing islands, were excavated and removed from the site. A brick-lined sump and concrete clarifier were also removed. Soil sampling during the UST and clarifier removal indicated TPH, BTEX, TCE, and PCE impacts in soil (PIC Environmental Services, 1995). PCE and TCE concentrations as high as 1,840 µg/kg and 7,850 µg/kg, respectively, were detected in soils collected during soil excavation operations (PIC, 1995a). Cal EPA-DTSC (2009a) reported that during construction of the residential subdivision, contaminated soils were consolidated under the roads of the new subdivision. As part of the environmental investigation and plume delineation for the Former Kast Property, URS documented elevated concentrations of chlorinated VOCs beneath Monterey and Carmel Drives (URS, 2010a). URS reported TCE and PCE soil vapor concentrations as high as 20,000 µg/m³ and 82,000 µg/m³, respectively. These soil vapor concentrations are approximately one to two orders of magnitude higher than any TCE and PCE soil vapor concentrations reported in the adjacent southwest corner of the Site. More recently, USEPA completed an investigation within the OTC area (Monterey Pines neighborhood) and also documented the presence of chlorinated VOCs in both soil and soil vapor in areas near the Site (Ecology and Environment, 2013). DTSC did not believe the chlorinated VOC plume beneath the current Monterey Pines Development to be associated with the Former Kast Property (USEPA, 2012a).

In summary, although chlorinated solvents have been detected at the Site, it is unlikely that they are related to former Site operations for the following reasons:

- No records indicate that chlorinated solvents were used or stored at the former oil storage facility.

- Generally, TCE and PCE in vadose zone soils have been detected at relatively low concentrations and sporadically at shallow depths. There are no detections of these compounds in vadose zone soils between 10 feet and groundwater. If undocumented use of these solvents during former Site operations resulted in releases to Site soils, it is likely that they would be detected at higher concentrations, be more widely distributed, and be present in deeper soils.
- The number of TCE and PCE detections in soil (especially PCE) is relatively high on the western boundary of the Site, adjacent to the former Turco facility where TCE and PCE are COCs. Consequently, TCE and PCE in the western portion of the Site may be related to this off-Site facility.

The preponderance of the evidence points to the fact that chlorinated VOCs detected in Site soils are not related to Shell's operations at the Site:

- TCE and PCE were not detected in soil samples collected below a depth of 10 feet at the Site,
- TCE and PCE were detected very infrequently in the upper 10 feet at the Site, and
- The limited detections of TCE and PCE in the upper 10 feet at the Site were at low concentrations.

Given the low concentrations of these compounds in shallow Site soils and their lack of detection in deeper Site soils, the potential for any significant migration to groundwater from on-Site shallow soils is extremely low. As discussed in Section 8.0, off-Site sources are the most likely sources of the TCE, PCE, and other chlorinated solvents observed in groundwater beneath the Site.

Trihalomethanes (THMs) are another group of VOCs detected at the Site, and these can be present from residential activities. Common THMs include bromomethane, chloroform, bromodichloromethane, dibromochloromethane, and bromoform. These have all been detected in Site soils and soil vapor. Their presence at the Site is most likely related to irrigation of yards and landscaping or leaking water lines and other household water use, as THMs are found in the domestic water supply from the California Water Service Company which provides water to the area. THMs are used for water treatment/purification (California Water, 2008/2009). Although these compounds are present at the Site, they are not considered Site-related COCs.

Additionally, some chlorinated VOCs that have been detected at the Site are often found in household products that are generally perceived as safe by the average consumer. For example, 1,4-dichlorobenzene is a compound that is commonly detected in homes due to its presence in household products, including air fresheners, mothballs, and toilet deodorizer blocks (ATSDR, 2006). Other household products that contain these VOCs include paint degreasers and removers, adhesives and adhesive removers, and auto products including brake cleaners, carburetor cleaners, degreasers, and lubricants. Although typical releases are expected to be small, some of these compounds may have been released through resident activities. A list of commonly detected chemicals present on some of the residential properties as well as some known household products that contain these chemicals was provided in the SCM (URS, 2010a).

Non-Site-related Oxygenated VOCs: TBA has been detected in groundwater beneath the Site. TBA is a fuel oxygenate additive and is also a breakdown product of methyl-tert butyl ether (MTBE). TBA and MTBE were both used as gasoline additives beginning in 1979. Although this compound has been detected in Site groundwater, it is considered a non-Site-related COC because its use post-dates the Site use as a crude oil storage facility that ended in the 1960s. The presence of TBA at the Site is likely related to other sources, including offsite sources such as the adjacent former Turco site (discussed above) and the Fletcher Oil site located 1,300 feet west of the Site. Leymaster (2009) indicated that the Fletcher Oil site was used to refine and store petroleum products including crude oil, light distillates such as gasoline, naphtha, and intermediate and heavier distillates such as diesel and asphalt. The refinery was in operation from 1939 to 1992. TBA was detected in groundwater at both the Turco and Fletcher Oil sites. Available information indicates that TBA in groundwater was detected as high as 850 µg/L at the Turco site (Leymaster, 2010) and 800 µg/L at the Fletcher Oil site (Leymaster, 2012).

Residential Activities: Various residential activities which are not related to historical Site activities, including lawn care, hobbies and crafts, auto repair, and home maintenance such as painting, may have resulted in release of and subsequent detections of chemicals in soil, soil vapor, or indoor air. Although it is unlikely that a large volume of a contaminant would be released to the ground surface by resident activities, localized impacts could be noticeable in surface soils, soil vapor, or indoor air.

In summary, with respect to VOCs, only TPH-related VOCs are considered to be related to historical Site activities. Chlorinated VOCs, though present at the Site are not considered Site-related because their presence is not consistent with previous operation of the Site as a crude and bunker oil storage facility and for the other reasons detailed

above. Chlorinated VOCs are believed to be present at the Site as a result of either offsite sources (e.g., Turco or OTC) and/or residential activities. Oxygenated VOCs are similarly not considered Site-related because their presence is not consistent with previous operation of the Site as a crude and bunker oil storage facility and for the other reasons listed above. In particular, TBA and MTBE did not come into use as gasoline additives until the late 1970s, many years after the use of the Site as a crude oil storage facility had ended and Shell had sold the Site to others, which occurred in the mid-1960s.

2.1.3 Semi-volatile Organic Compounds

Semi-volatile organic compounds (SVOCs) are organic compounds which have a boiling point higher than water, but may volatilize when exposed to temperatures above room temperature. SVOCs vary widely in their chemical structures. Forms include, but are not limited to, PAHs, phthalates, and phenols. Certain SVOCs can be associated with crude oil and petroleum, and/or produced through combustion. Because of their association with crude oil, select SVOCs are considered Site-related COCs.

PAHs are composed of two or more aromatic hydrocarbon rings bound in a lattice formation. They are commonly found in crude oil, tar, coal, and residues from former manufactured gas plant sites. PAHs are also commonly produced as a by-product of burning fossil fuels (in power plants or vehicle emissions) or biomass fuels (like wood), or as residues from brush or forest fires. While PAHs may have been introduced historically from the crude oil storage operations at the Site, there are other natural and anthropogenic sources that may also be sources of PAHs detected at the Site. In addition to their derivation from the burning of organic materials, PAHs are widely distributed throughout modern urban areas in near-surface soils as a result of atmospheric deposition. As a result, PAHs are found in almost all urban and rural surface soils. PAHs are generally found at higher ambient concentrations in urban areas, near heavily traveled roadways, areas that have been occupied/established for an extended period of time, and areas downwind of urbanized areas (Cal-EPA DTSC, 2009b; Environ, 2002). The PAHs that have been most regularly detected at the Site include pyrene, phenanthrene, chrysene, benzo(a)anthracene, fluoranthene, 2-methylnaphthalene, naphthalene, benzo(a)pyrene, benzo(b)fluorathene, and benzo(g,h,i)perylene. Chrysene, benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluorathene are in a group of PAHs that are associated with carcinogenic effects and are commonly evaluated together as the carcinogenic PAHs (cPAHs).

2.1.4 Metals

Metals may be found in crude oil in trace amounts, but are also naturally occurring in southern California soils or are present due to anthropogenic sources. Site investigations indicated the limited, localized presence of arsenic and lead in soils at concentrations above their respective California Human Health Screening Level (CHHSL, Cal-EPA OEHHA, 2005) or regional background values. The sources of these metals are not known. Other metals that are consistent with background concentrations or below CHHSLs are not considered COCs for the Site.

Lead is known to be deposited in urban areas through atmospheric deposition, which was most significant historically prior to the widespread phase-out of leaded gasoline in the late 1970s. Other potential sources of lead include lead-based paint, which may have been used during the crude oil storage operation and on residences before the use of lead-based paint was restricted in 1978.

Arsenic has been used in the past as a pesticide/rodenticide agent and as a wood preservative. It is not known to have been specifically used at the Site. However, it is possible it was used during the crude oil storage period, the residential period, or both. Arsenic is also known to occur naturally in soils and groundwater at concentrations exceeding risk-based screening levels.

Several other metals exceed the California Maximum Contaminant Level (MCL) in groundwater beneath the Site. These metals are arsenic, thallium, and antimony. Additional discussion of the distribution of these metals in groundwater is presented in Section 8.0.

2.1.5 Methane

Methane has been detected in soil vapor samples collected at the Site. Based on the characterization work completed, methane is present primarily as the by-product of anaerobic biological degradation of crude oil compounds in the soils beneath the Site (biogenic methane). Methane has also been detected as a result of leaking natural gas utility lines, which were found at several of the residential properties, and a leaking sewer line at one residential property.

Although petroleum hydrocarbons in the subsurface have likely fermented to produce methane at depth, such methane is generally not present in the shallow subsurface and has not been detected in residences or enclosed areas of the Site at levels that pose a hazard. In one instance to date, methane believed to be attributable to fermentation of

petroleum hydrocarbons was detected at a concentration above the interim action level in a sub-slab probe beneath a garage; however, methane was not detected above the interim action level in other sub-slab soil vapor probes located at this property and no methane exceedances were found during the indoor air screening and sampling conducted at this property. The detection at this location is anomalous in that it represents the only detection of petroleum hydrocarbon-related methane out of 840 sub-slab soil vapor locations sampled through August 31, 2013. Although methane has been indicated by hand-held instrument readings in a few instances during indoor air screening, in each of those cases the source was determined to be leaking natural gas lines or connections to a stove, clothes dryer, furnace, or fireplace. In none of these instances was the methane linked to subsurface hydrocarbon impacts.

Methane generated at depth typically migrates very slowly through soils because it is not under significant pressure. Transport is primarily through diffusion, and methane moving upward from depth is typically biologically degraded and/or significantly attenuated in the aerobic shallow soils before it reaches the surface. This bio-attenuation in the vadose zone is evident in the soil vapor data collected at the Site that has been reported in the Interim, Follow-up, and Final Interim Reports and the street soil vapor monitoring reports (URS, 2013b). These natural mechanisms explain the lack of elevated methane levels in the sub-slab soil vapor samples and in indoor air within the residences that have been tested.

2.1.6 Summary of Potential COCs

The SCM identifies a range of constituents that are potential COCs. These are divided into Site-related COCs (i.e., COCs considered to be potentially related to the previous operation of a crude/bunker oil storage facility) and non-Site-related COCs (i.e., COCs related to offsite activities, COCs related to site activities following Site redevelopment, and COCs representative of background conditions). Potential Site-related COCs include:

- TPH;
- TPH-related VOCs;
- TPH-related SVOCs (including PAHs);
- Metals (lead and arsenic); and
- Methane.

Non-Site-related COCs include:

- Chlorinated VOCs;

- THMs;
- Oxygenated VOCs including TBA; and
- Metals present in soil or groundwater at background levels.

Further discussion of COCs is provided in Section 4.0. The RAP will propose what corrective actions, if any, are warranted for the different COCs identified in this report.

2.2 Fate and Transport

Based on the presence of petroleum impacted soils, it appears that crude oil was released to the Site from the former crude oil storage operations. It is assumed that one release mechanism was through leakage of the crude oil storage reservoirs (primarily in the area where the side walls and floors were joined). Also, site grading for residential development appears to have redistributed impacted soils, particularly in the areas overlying the former reservoirs and outside the reservoir boundaries. There may also have been releases from former on-Site pipelines, in adjacent streets and rights-of-way, from adjacent oil production and industrial facilities owned and operated by others, and oil field operations (oil wells) owned and operated by others.

COCs released to soils during the crude oil storage operation presumably migrated downward through soils in the liquid phase. If sufficient volume existed (i.e., through significant leakage over a long period of time), crude oil containing the associated COCs would have migrated downward through the soil profile to the groundwater table as LNAPL. LNAPL has been detected at the groundwater table at MW-3 and adjacent MW-12 near the former location of a sidewall and floor joint of the central storage reservoir.

Petroleum VOCs, PAHs, and metals detected at the Site may be related to crude oil; however, some may be from other sources. For example, their origin at the Site may be through mechanisms such as atmospheric deposition or a combination of Site releases and atmospheric deposition as well as natural occurrence. The presence of secondary sources may complicate the pattern of detections in environmental media and therefore interpretation of transport pathways.

Once COCs enter the soil, they may migrate or have been redistributed via one or more of the mechanisms described below.

Construction Activities: The demolition, grading, and home construction activities, particularly Site grading by Lomita Development Company and Barclay Hollander, now a subsidiary of Dole Food Company, Inc., and their contractors, appear to have

redistributed some petroleum-containing soils at the Site, especially in surface soils (approximately the upper 10 feet). Such fill may have been derived from the Site itself (e.g., the berms that formed the reservoirs). Redistribution of petroleum-containing soil during grading by the developer is the most likely explanation for detection of petroleum hydrocarbons in the soils at the Site above the elevation of the former reservoir bases.

LNAPL Migration: If sufficient driving force was present, crude oil in the liquid phase could migrate directly through the soil column. For example, the presence of LNAPL in Site monitoring well (MW-3) indicates that crude oil migrated downward from near-surface release(s) to groundwater at this location. However, cessation of crude storage operations and decommissioning of the reservoirs, which occurred by the mid-1960s, have reduced this potential downward driving force for LNAPL migration.

Leaching: COCs may also have partitioned out of residual crude oil released to Site soils and into infiltrating water (via leaching) from rainfall or Site irrigation water that eventually came in contact with the crude oil in the subsurface. COCs most subject to leaching include VOCs, certain SVOCs, and, to a much lesser degree, PAHs and metals. Infiltrating water could potentially have carried these compounds downward through the soil column and eventually into groundwater.

Based on the SCM and the age of potential petroleum releases at the Site, groundwater impacts due to leaching from Site soils are expected to be stable or decrease. This is discussed further in Section 8 and supported by the age of on-Site releases (greater than 45 years) and the plume stability analysis conducted for the most significant Site-related COC - benzene. It is expected that the VOCs and other COCs currently present in the vadose zone will be further reduced over time through degradation processes and/or continued, but reduced leaching, as the sources diminish. As a result, constituents detected in soil, but not identified as groundwater COCs are not considered COCs for the soil leaching to groundwater pathway.

Groundwater Transport: COCs that reach groundwater would be subject to transport via moving groundwater. Shallow groundwater at the Site currently flows northeastward. The vertical gradient at the Site between the shallow water table aquifer and the underlying Gage aquifer is slightly downward or slightly upward depending upon the area of the Site (URS, 2013c). COCs are expected to migrate at rates much lower than the actual flow of groundwater, as concentrations will attenuate through adsorption to soil particles, dilution, biodegradation, and other mechanisms.

Volatilization: Some VOCs associated with crude oil, including BTEX and naphthalene, may have partitioned from crude oil into the vapor phase (soil vapor). These compounds have the potential to migrate through the Site soils and potentially impact residences through the vapor intrusion pathway. BTEX and naphthalene have generally been detected in deeper soil and soil vapor samples collected throughout the Site. Their presence in these deeper zones is generally attributed to their persistence in anaerobic (no or limited oxygen) conditions. Their migration upward into the shallow soils is limited because these soils are generally aerobic (contain oxygen) which then facilitates their degradation through microbial activity.

Degradation: As with most organic materials, crude oil is subject to biological degradation. A significant by-product of anaerobic biodegradation of crude oil is methane, which is present in the subsurface at the Site. As biological degradation proceeds, the volume of crude oil is decreased. Methane has the potential to migrate through the soil profile and impact residences through the vapor intrusion pathway. However, methane rapidly degrades biologically in the presence of sufficient bacteria and oxygen (Ririe and Sweeney, 1995; Eklund, 2010). It is likely that significant degradation of methane occurs in near-surface (top several feet) soils at the Site where oxygen is more plentiful than deeper zones (URS, 2013b). It is important to note that aerobic degradation of other petroleum compounds such as benzene also likely occurs in the near-surface soils at the Site.

Plant Uptake: Plant uptake of chemicals is controlled by the physical/chemical properties of the chemical, the environmental conditions, and the plant species. Lipophilicity (attraction to fatty compounds) and volatility are the two major parameters that dictate a chemical's potential for plant uptake. Hydrophilic (water-loving) and non-volatile organic compounds can enter plants by root uptake and be translocated to the aboveground parts of the plants through the transpiration stream; while lipophilic and volatile organic compounds enter plants mainly through air deposition.

For the COCs related to crude oil, PAHs, and BTEX, results of prior investigations suggests that the soil-root-above ground plant or fruit pathway plays an insignificant role in their uptake. For PAHs, a number of studies suggest that air deposition is the major pathway for plant uptake of PAHs (Edwards, 1983; Nakajima et al., 1995; Kipopoulou et al., 1999; Wilcke, 2000; Li et al., 2010). Li et al. (2010) investigated PAH distribution in water, sediment, soil, and plants, and no correlation was found between PAH concentrations in soils and plants, suggesting that plants accumulate PAHs mainly through air deposition and not through translocation from the soil to the

plant. Kaliszova et al. (2010) summarizes that “plant root PAH uptake was observed in some species, but the available data suggest that it does not represent a significant public health risk, even in heavily polluted soils.” In addition, green plants may naturally produce benzo(a)pyrene (New Zealand Ministry for the Environment, 2011). For BTEX, either rapid degradation in the root-zone or volatilization to the atmosphere would occur, preventing effective uptake by plant roots. Volatile contaminants have a low potential to accumulate by root uptake because they quickly escape to air (Trapp and Legind, 2011). Consistent with the literature, Cal-EPA OEHHA does not require evaluation of the soil to root uptake pathway for organic compounds (Cal-EPA OEHHA, 2012). In addition, the CHHSLs which are derived by OEHHA based on an unrestricted land use do not include the produce ingestion pathway.

2.3 Potential Exposure Pathways Evaluated

Potential exposure to COCs at the Site is partly dependent on the type of chemicals that are present and the respective exposure media. For VOCs detected in soil, exposure may occur via direct contact to soil (dermal contact or incidental ingestion) as well as indirect exposure from vapors migrating from the subsurface into indoor or outdoor air. For non-volatile chemicals such as metals and most SVOCs and PAHs, direct human contact exposures should be considered as well as inhalation of particulates.

While the water beneath the Site is not currently used for drinking water, COCs in Site soils may migrate to groundwater through leaching and need to be addressed consistent with the Basin Plan, State Board Resolution No. 68-16 (if applicable), and State Board Resolution No. 92-49. As discussed in Section 2.2, chemical uptake from soil into plants for the primary COCs is considered insignificant. Therefore this pathway was not included in the SSCG derivation.

The potential for exposure is also dependent on the locations at which impacts are identified and the likelihood of different receptors to contact an impacted media. For example, reasonable maximum exposure assumptions are considered for soils which are readily available for human contact. Conversely, infrequent exposures may be considered for soils where limited contact is expected (e.g., soils covered by impermeable media such as a building foundation, driveway, or hardscape, or soils at greater depths). Consequently, this report evaluates cleanup goals for surface soils (considering frequent- and infrequent-exposure scenarios) as well as potential leaching to groundwater. Additionally, the residential exposure scenario is assumed to be limited to the residential properties, while construction and utility maintenance worker may be exposed to impact present on residential properties or within the public rights of way (e.g., utility work within streets).

The following receptors and exposure pathways are considered relevant for the Site.

Receptor	Exposure Medium	Potentially Complete Exposure Pathway
Onsite Resident	Shallow Surface Soil (0-2 feet bgs)	<ul style="list-style-type: none"> • Incidental Ingestion • Dermal Contact • Outdoor Air Inhalation
	Shallow Subsurface Soil (>2-10 feet bgs)	<ul style="list-style-type: none"> • Infrequent Incidental Ingestion • Infrequent Dermal Contact • Outdoor Air Inhalation
	Soil Vapor	<ul style="list-style-type: none"> • Vapor Inhalation in Indoor Air via Vapor Intrusion
	Indoor Air	<ul style="list-style-type: none"> • Inhalation in Indoor Air
Construction and Utility Maintenance Worker	Shallow Soil (0-10 feet bgs)	<ul style="list-style-type: none"> • Incidental Ingestion • Dermal Contact • Outdoor Air Inhalation
	Soil Vapor	<ul style="list-style-type: none"> • Vapor Inhalation in Outdoor Air
Groundwater	Shallow Soil (0-10 feet bgs)	<ul style="list-style-type: none"> • Leaching to Groundwater

3.0 PILOT TEST RESULTS

Pilot tests have been completed in accordance with RWQCB-approved work plans to evaluate potential remedial actions for the Site. Pilot tests include:

- Soil vapor extraction (SVE) pilot testing at three locations;
- In-situ chemical oxidation (ISCO) bench-scale testing using persulfate and ozone;
- Bioventing pilot testing at six locations; and
- Excavation pilot testing at two locations.

Detailed pilot testing procedures and results were provided in individual pilot test reports prepared by URS and Geosyntec and are summarized in the *Final Pilot Test Summary Report – Part 1* dated May 30, 2013 (URS, 2013e) and *Final Pilot Test Summary Report – Part 2* dated August 30, 2013 (URS, 2013g).

3.1 SVE Pilot Tests

SVE pilot tests were conducted to evaluate the potential effectiveness of using SVE to remove vapor-phase VOCs from subsurface soils. The SVE pilot test activities and results are detailed in the *Soil Vapor Extraction Pilot Test Report* (URS, 2010b).

SVE pilot tests were conducted at three onsite locations in areas with soil conditions ranging from likely favorable to potentially unfavorable for SVE. At each location, tests were done at three different depth intervals to evaluate the radius of vapor influence (ROVI) in shallow (5 to 10 feet bgs), intermediate (15 to 25 feet bgs), and deep (30 to 40 feet bgs) depth intervals.

On average, vapor flow rates observed from the extraction wells were sufficient for SVE operation. The effective ROVI in the shallow zone (5 to 10 feet bgs) ranged from 24 to 78 feet with an average of approximately 50 feet. The effective ROVI in the intermediate zone (15 to 25 feet bgs) was estimated to be 112 to 131 feet with an average of approximately 125 feet, and the estimated ROVI in the deep zone (30 to 40 feet bgs) was 75 to 156 feet with an average of approximately 115 feet.

Based on findings from the SVE pilot tests, URS concluded that SVE is a potentially feasible option for the remediation of TPHg and VOC-impacted soils at the Site in the intermediate and deep zones. For two of the three shallow test locations, soil permeability to air flow estimates indicated marginal suitability for SVE operations in the shallow zone.

Although SVE technology is potentially feasible for remediation of the lighter gasoline-range petroleum hydrocarbons, VOCs, and methane, this technology would not be effective for diesel and motor oil-range petroleum hydrocarbons and SVOCs. However, increased air flow induced by an operating vapor extraction system might promote microbial degradation of longer-chain hydrocarbons and, over the long term, could potentially reduce concentrations of these non-volatile compounds.

3.2 ISCO Bench-Scale Testing

A preliminary feasibility evaluation for ISCO was conducted at the time the Pilot Test Work Plan was prepared (URS and Geosyntec, 2011). The preliminary feasibility evaluation concluded that sodium persulfate and ozone had greater potential for treatment of COCs than other oxidants considered, and laboratory bench-scale testing was conducted using sodium persulfate and ozone.

Sodium persulfate was found not to be effective for treatment of TPH and PAHs, despite relatively high doses of sodium persulfate application. Based on the bench-scale test results, Geosyntec concluded that hydrocarbon treatment using high doses of sodium persulfate would not be effective for Site soils, and field-scale tests were therefore not conducted.

ISCO pilot testing using ozone was conducted in two phases. The first phase is documented in the Technical Memorandum prepared by Geosyntec dated July 16, 2012 (Geosyntec, 2012a). The second expanded bench-testing phase is documented in the Phase II Bench-Scale Report (Geosyntec, 2013b).

The results from the Phase I studies indicated that ozone treatment could be effective on Site soils (at the bench-scale level); however, the dose required for achieving greater than 90% treatment was very high and an excessive quantity of ozone would be required for field application. Additionally, ozone consumption rates were slow, presenting the potential for fugitive ozone emissions. As a result, field-scale pilot testing was not recommended based on feasibility analysis and modeling that was reported the Technical Memorandum summarizing Phase I results (Geosyntec, 2012a).

Phase II ozone treatment bench-scale soil column tests were designed to evaluate the impact of varying ozone concentrations and flow rates, and thus doses, on the treatment of TPH in Site soils, and to provide additional insight into the feasibility of in-situ chemical oxidation using ozone. The Phase II test results indicated that higher ozone utilization could be achieved using lower flow rates and lower applied ozone dose per

mass of soil; however, less than approximately 50% reduction in TPH concentrations was observed in the Phase II tests.

As with the Phase I findings, Geosyntec concluded that effective field applications would require an excessive quantity of ozone to treat a single injection location, and that full-scale treatment would require an excessive quantity of ozone to achieve greater than 50% reduction in hydrocarbon mass. Therefore, field pilot testing of ISCO using ozone was not recommended based on both Phase I and Phase II findings, and will not be considered as a possible remedial alternative in the RAP.

3.3 Bioventing Pilot Testing

Bioventing pilot testing was conducted at six locations at the Site: four locations used vertical bioventing wells and two locations used horizontal wells installed in a trench. At each location a series of monitoring probes was installed to monitor fixed gases with field instruments during the tests. Individual tests ran for one to two weeks, followed by a week of respirometry measurements. Results from the bioventing pilot tests are summarized in the final *Bioventing Pilot Test Summary Report* (Geosyntec, 2012b).

Evidence of degradation of petroleum hydrocarbons was observed during the pilot tests, indicating that bioventing is a potential technology to remediate residual petroleum hydrocarbons. The bioventing pilot test results indicate that relatively low flow rates are necessary to deliver sufficient oxygen to the subsurface meet the bioventing oxygen demand. Because the horizontal wells affect a larger volume of soils, higher flow rates are required when using the horizontal well configuration. Results of the fan technology testing indicated that required flow rates theoretically can be achieved using commercially available fans; however, radon fans were shown to be more effective than the other two fan technologies tested.

The time frame required for bioventing system operation was estimated using biodegradation rates calculated from respirometry tests conducted at the extraction wells and vapor monitoring probes during the bioventing tests. The mean initial biodegradation rate from the six bioventing tests is 6.6 mg/kg/day and the mean average biodegradation rate is 0.31 mg/kg/day.

The bioventing time frame for hydrocarbon reduction is dependent on the biodegradation rates as well as initial TPH concentration and remedial objectives. To calculate bioventing time frame, Geosyntec assumed an initial soil TPH concentration of 10,000 mg/kg, which is representative of the midrange of the concentrations measured during the pilot tests. The calculated time frame for bioventing system

operations ranged from approximately 1 to 4 years, assuming the higher initial biodegradation rate, to several decades assuming the average biodegradation rate.

Based on the pilot test results, the following conclusions were reached regarding application of bioventing at the Site:

- Oxygen delivery is generally more effective using horizontal wells than vertical wells.
- No benefit was observed from using the vapor monitoring probes as passive vents to enhance subsurface flow.
- The radon fans evaluated during the pilot testing provide sufficient air flow to meet the bioventing oxygen demands.
- Radius of influence for the bioventing extraction wells ranged from less than 5 feet to 20 feet with an average radius of influence of approximately 10 feet.

3.4 Excavation Pilot Testing

Excavation pilot testing was conducted to evaluate the feasibility of excavating impacted soils to a depth of 10 feet bgs and removing the concrete reservoir bases (slabs) located at approximately 8 to 10 feet bgs beneath portions of the former oil storage reservoirs, and also to evaluate smaller “surgical” excavation. The excavation pilot tests were conducted in accordance with the *Pilot Test Work Plan* (URS and Geosyntec, 2011).

A slot-trench excavation was completed to approximately 10 feet bgs, including removal of the concrete slab, in the front yard of a property, and a surgical excavation was done to approximately 6 feet bgs in the back yard of a property to evaluate the ability to conduct hot spot removal. The scope of pilot test excavations at these two locations was expanded to include excavation of the remaining portions of the front and back yards, respectively, to a depth of 2 feet throughout the entire non-hardscape covered portions of the yards. Details are provided in the individual excavation pilot test reports (URS, 2013a and 2013d).

Engineering controls and mitigation measures were implemented during excavation activities to mitigate impacts to the community, including:

- Establishing an exclusion zone around work areas to limit access to essential personnel;
- Installing sound attenuation panels around noise-generating equipment operating onsite to lessen noise impacts associated with equipment operations;

- Use of ground protection mats and/or plywood sheeting to prevent damage to hardscape flatwork and adjacent structures;
- Implementing traffic control, as approved by the City of Carson, to manage traffic in the vicinity of excavation operations;
- Offsite staging of trucks to minimize idling of trucks within the neighborhood;
- Application of water mist to control fugitive dust;
- Use and pilot testing of different vapor and odor suppressants to mitigate fugitive vapors; and
- Providing for site security during non-working hours.

Monitoring conducted during pilot excavation activities included:

- Monitoring of existing cracks in hardscape near excavation areas for changes potentially associated with excavation activities (none were noted);
- Monitoring of ground stability in the vicinity of the excavations (no indications of instability were noted);
- Vibration monitoring for potential structurally-damaging vibration levels associated with excavation activities (no potentially damaging vibrations were noted);
- Real-time monitoring of the worker's breathing zone for worker health and safety and collection of time-weighted samples to monitor worker VOC exposure (no worker health and safety issues were identified);
- VOC emissions monitoring in compliance with South Coast Air Quality Management District (SCAQMD) Rule 1166 (compliance with the Rule 1166 permit was maintained);
- Meteorological monitoring for wind speed and direction and ambient temperature;
- Monitoring for VOCs upwind and downwind of the work area for laboratory analysis for VOCs (no downwind impacts were observed);
- Dust monitoring surrounding the work area for SCAQMD Rule 403 compliance (dust control measures were implemented periodically in accordance with monitoring results);
- Odor monitoring within the exclusion zone, at the property boundary, and within the adjacent neighborhood (odor control measures were implemented periodically in accordance with monitoring results); and
- Noise monitoring at multiple locations adjacent to and across the street from excavation operations.

Based upon setbacks from existing structures, a slot-trench excavation 12 feet wide by 26 feet long was completed in the front yard of a selected property. A medium-sized

18,000-pound track-mounted excavator with rubber tracks was used to excavate three approximately 4-foot-wide unshored slot trenches to 10+ feet bgs. The exposed portion of the underlying concrete reservoir base was successfully removed from each trench. The excavator was also used to directly load excavated soil and concrete rubble into dump trucks staged at curbside.

In addition to the pilot excavation to 10 feet bgs, the upper 2 feet of soils were excavated from the remaining part of the front yard and side yard north of the driveway. The additional 2-foot excavation extended to the edge of hardscape walkways, the driveway, and a low fence along the southern property boundary. The shallow excavation was done using a combination of mechanized excavation with the excavator and hand excavation using small hand tools.

The slot-trench excavation pilot test yielded the following findings and conclusions:

- Excavation of impacted soils to a depth of 10 feet bgs and the concrete slab at the former reservoir base was accomplished without the need for installation of shoring.
- Excavation to 10 feet bgs using slot trenching is technologically feasible in geotechnically similar site soils, subject to allowable setback distances from structures and hardscape, and absence of underground utilities that cannot be interrupted. The presence of utilities in excavation areas would significantly complicate deep excavations. Utilities are present in the front yards of many of the residential properties at the Site.
- Allowing for setbacks from structures and hardscape, the overall area of the excavation was approximately 12 feet wide by 26 feet long. Soils were excavated to a depth of 10 feet bgs over approximately 40% of the non-hardscaped area of the yard in front of the property.
- Setbacks will limit the area of yards where excavation can be accomplished to 10 feet bgs to a varying degree based on site-specific geotechnical properties and the area of the yards. This property was selected for pilot testing due to its relatively large front yard without complex landscaping or hardscape configuration. Smaller yards or those with complex hardscape configuration will complicate deep excavations.
- It is technologically feasible to remove most of the exposed concrete reservoir base within the excavation using the slot-trenching method; however, some concrete around the margins of the trenches cannot effectively be removed due to logistical constraints. The concrete base was removed over approximately 75 to 80% of the excavated area, which represents approximately 5% of the total area of the lot at this property.

- Soils within the remaining portion of the front yard and the side yard were readily excavated to a depth of 2 feet bgs using a combination of excavating equipment and hand tools.
- Induced vibrations associated with excavation activities and removal of the reservoir base were well below established damage threshold curves.
- Sound attenuation panels reduced noise levels during the majority of excavation activities to less than the maximum allowable noise level of 75 decibels (dBA) per the City of Carson noise ordinance; however, noise levels associated with some excavation and transportation activities exceeded this level for short periods of time. With sound attenuation panels removed, it was not possible to stay below the 75 dBA maximum.
- Testing of different odor control methods indicated that application of long-acting vapor suppression foam provided the best mitigation of vapor and odors, significantly reducing odors at the source immediately after application.

A surgical excavation was conducted in the back yard of a second property to evaluate the ability to conduct “hot spot” excavation of defined areas in back yards of properties using appropriately-sized equipment. Surgical excavation at this location accomplished a secondary purpose of providing an interim remedy to remove impacted soils that resulted in an elevated risk index from a small, well-defined area of the yard.

The surgical excavation was 9 feet x 9 feet in diameter and 6 feet deep and was conducted using an approximately 3,500-pound rubber track-mounted mini-excavator that was sufficiently narrow to access the back of the property via the side yard. A Bobcat skid-steer mini-loader was used to move the excavated material to the front yard and load soil into covered roll-off bins staged in front of the driveway for transport and disposal. The Bobcat was also used to shuttle clean backfill material from the driveway to the backyard for placement as fill.

In addition to the surgical excavation, the remaining non-hardscaped part of the back yard and the northern side yard were excavated to a depth of 2 feet bgs. The additional 2-foot excavation was done using the mini-excavator and manually using hand tools and wheel barrows.

The surgical excavation yielded the following findings and conclusions:

- Surgical excavation to 6 feet bgs is technologically feasible in geotechnically similar site soils, subject to allowable setback distances from structures and hardscape, and absence of underground utilities that cannot be interrupted. At other locations with less favorable soil conditions, shoring or slot-trenching

methods may be required. The presence of utilities in excavation areas could significantly complicate excavations.

- Setbacks from structures or fences may limit the area of some yards where surgical excavation can be accomplished to a varying degree based on site-specific geotechnical properties, depth of planned excavations, and proximity of features that must be protected.
- It is technologically feasible to perform surgical excavations and yard-wide excavations to shallow depths in back yards of properties using a mini-excavator and hand tools, given a sufficiently wide unobstructed access route along a side yard.
- Induced vibrations associated with excavation activities were well below established damage threshold curves.
- Use of sound attenuation panels placed along the fence line of the back yard reduced noise levels during the majority of excavation activities to less than the maximum allowable noise level of 75 dBA per the City of Carson noise ordinance; however, noise levels associated with some excavation and transportation activities exceeded this level. Where it was not feasible to erect sound attenuation panels, it was not possible to stay below the 75 dBA maximum.

4.0 CONSTITUENTS OF CONCERN AND REMEDIAL ACTION OBJECTIVES

As a first step in developing cleanup goals for the Site, the COCs and remedial action objectives (RAOs) must be established. As discussed in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR 300), which is incorporated into the California Hazardous Substances Account Act (HSAA) by reference), RAOs describe in general terms what a remedial action should accomplish in order to be protective of human health and the environment. RAOs are narrative statements that specify the chemicals and environmental media of concern, the potential exposure pathways to be addressed by remedial actions, and the receptors to be protected. According to USEPA (USEPA, 1988), "RAOs for protecting human receptors should express both a contaminant level and an exposure route, rather than contaminant levels alone, because protectiveness may be achieved by reducing exposure (such as capping an area, limiting access, or providing an alternate water supply) as well as by reducing contaminant levels." The RAOs are used to help develop specific response actions for each media in the remedial action process.

This section presents the COCs and RAOs for the Site. In Sections 6 through 8, the RAOs are discussed in the context of each medium to identify Site-specific Cleanup Goals (SSCGs) for the Site.

4.1 Constituents of Concern

Property-specific HHSREs have been conducted for the majority of properties at the Site to evaluate the analytical results of soil and sub-slab soil vapor samples using a screening evaluation. The HHSRE is a preliminary, conservative evaluation of potential human health risks associated with detected organic chemicals (whether or not they are Site-related COCs). The results of the HHSREs have been used throughout the characterization phase to evaluate whether interim action is warranted in advance of the full HHRA that will be performed for submission with the RAP. The results of the full HHRA will be used to focus further evaluations in the RAP on those media and constituents that pose the majority of potential risk.

The Site-specific cleanup goals presented in this Revised SSCG Report will be used in the full HHRA. In response to the Regional Board's directive, Site-specific clean-up

goals have been developed for both Site-related and non-Site-related COCs.⁸ In addition to potential human exposure pathways, migration to groundwater through the leaching pathway will be considered. Recommendations for corrective actions for COCs will be presented in the RAP for the Site and will consider the SCM, results of the upcoming HHRA, pilot test results, and the economic and technological feasibility evaluation.

COC screening was conducted using risk-based screening levels (RBSLs) that were calculated assuming potential residential exposures to COCs in soil and soil vapor; the RBSLs were calculated as a part of the HHSRE process and are presented in the approved HHSRE Work Plan (Geosyntec, 2009). The RBSLs address the exposure pathways presented in the SCM in Section 2 and represent the chemical concentrations in the relevant environmental media that would be consistent with a target risk level for the current land use under conservative (i.e., protective) exposure conditions. For the carcinogenic PAHs and metals, a background comparison value was used along with the calculated RBSLs for COC selection. For the selection of soil COCs to address the leaching to groundwater pathway, chemicals that were detected in groundwater above the MCL or notification level (NL) were carried forward into the SSCG derivation process. Based on the SCM presented in Section 2 and the age of potential petroleum releases at the Site, groundwater impacts from leaching from Site soils are expected to decrease through time. This is discussed further in Section 8 and supported by the age of the release and the plume stability analysis. As a result, the inclusion of only chemicals that have been detected above MCLs and NLs in groundwater is considered appropriate for soil COC selection for the leaching to groundwater pathway. As an additional screening criterion for soil, if the chemical was detected in five or less samples it was excluded from the SSCG derivation. Given the large number of soil samples collected (over 10,000) this equates to less than or equal to 0.05% of soil samples.

In the first step of COC selection, a list of detected chemicals in each medium was identified. Tables 4-1 through 4-4 present the prevalence and range of concentrations of all chemicals that were detected at least once in soil, soil vapor, indoor air, and groundwater, respectively, across the Site.

⁸ While Site-specific clean-up goals have been developed for non-Site-related COCs, the Regional Board has previously made clear that Shell is not responsible for addressing contamination not related to Shell's former use of the Site. Regional Board's Response to Comments to Tentative CAO, Response Nos. 8.45, 8.51 (January 27, 2011),

To identify COCs for soil and soil vapor, the maximum concentration was compared to one-tenth of its respective RBSL. If the maximum concentration was greater than one-tenth of the RBSL it was selected as a COC for the Site. One-tenth of the RBSL (i.e., 1×10^{-7} for carcinogenic effects and 0.1 for noncancer effects) was used as a conservative adjustment to screen chemicals for further analysis and to address potential cumulative effects. In addition to the RBSL screen, background concentrations for metals and carcinogenic PAHs (cPAHs as benzo(a)pyrene equivalents⁹) were considered. For groundwater, chemicals present above their respective MCLs or notification levels were identified as COCs. These same groundwater COCs were evaluated for the soil leaching to groundwater pathway with the exception of those chemicals that were detected in five or less soil samples.

Tables 4-5 through 4-6 present the COCs that have been identified for soil and soil vapor. Groundwater COCs are presented in Section 8.

4.2 Remedial Action Objectives

Medium-specific RAOs have been developed based on Site investigations completed to date. Numerical SSCGs for the COCs, where applicable, have been developed to achieve the medium-specific RAOs. It is anticipated that the medium-specific RAOs and SSCGs along with the analysis of Applicable or Relevant and Appropriate Requirements (ARARs) will be presented and used in the RAP to identify the final response actions for each medium.

Various demarcations of acceptable risk have been established by regulatory agencies. The NCP (40 CFR 300) indicates that lifetime incremental cancer risks posed by a site should not exceed a range of one in one million (1×10^{-6}) to one hundred in one million (1×10^{-4}) and that noncarcinogenic chemicals should not be present at levels expected to cause adverse health effects (i.e., a Hazard Quotient [HQ] greater than 1). In addition, other relevant guidance (*The Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions*, USEPA, 1991c) states that sites posing a cumulative cancer risk of less than 1×10^{-4} and hazard indices less than unity (1) for noncancer endpoints are generally not considered to pose a significant risk warranting remediation. The California Hazardous Substances Account Act (HSAA) incorporates the NCP by

⁹ Benzo(a)pyrene equivalents are calculated following methods recommended by Cal-EPA (Cal-EPA DTSC 2009c). Additional details regarding calculation of benzo(a)pyrene equivalents are provided in Appendix A.

reference, and thus also incorporates the acceptable risk range set forth in the NCP. In California, the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) regulates chemical exposures to the general population and is based on an acceptable risk level of 1×10^{-5} . The California Department of Toxic Substances Control (DTSC) considers the 1×10^{-6} risk level as the generally accepted point of departure for risk management decisions for unrestricted land use. Cumulative cancer risks in the range of 1×10^{-6} to 1×10^{-4} may therefore be considered to be acceptable, with cancer risks less than 1×10^{-6} considered *de minimis*. The risk range and target hazard index has been considered in developing RAOs based on human health exposures to soil and soil vapor. For groundwater and the soil leaching to groundwater pathway, water quality objectives in the Basin Plan to protect the designated beneficial uses, including municipal supply, have been considered.

The following RAOs are proposed for the Site based on the above and site-specific considerations:

- Prevent human exposures to concentrations of COCs in soil, soil vapor, and indoor air such that total (i.e., cumulative) lifetime incremental carcinogenic risks are within the NCP risk range of 1×10^{-6} to 1×10^{-4} and noncancer hazard indices are less than 1 or concentrations are below background, whichever is higher. Potential human exposures include onsite residents and construction and utility maintenance workers. The point of departure risk level for onsite residents is the lower end of the NCP risk range (i.e., 1×10^{-6}) and a noncancer hazard index less than 1.
- Prevent fire/explosion risks in indoor air and/or enclosed spaces (e.g., utility vaults) due to the accumulation of methane generated from the anaerobic biodegradation of petroleum hydrocarbons in soils. Eliminate methane in the subsurface to the extent technologically and economically feasible.
- Remove or treat LNAPL to the extent technologically and economically feasible, and where a significant reduction in current and future risk to groundwater will result.
- Reduce COCs in groundwater to the extent technologically and economically feasible to achieve, at a minimum, the water quality objectives in the Basin Plan to protect the designated beneficial uses, including municipal supply.

The RAOs are addressed for each specific medium in Sections 6 through 8.

5.0 GUIDANCE DOCUMENTS AND POLICIES CONSIDERED

Per the CAO, the following guidance documents and Policies were considered in establishing SSCGs for the Site¹⁰:

- LARWQCB Interim Site Assessment and Cleanup Guidebook (LARWQCB, 1996).
- USEPA Regional Screening Levels (Formerly Preliminary Remediation Goals) (USEPA, 2012b).
- Use of Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties (Cal-EPA DTSC, 2005a).
- TPHCWG Series (TPHCWG, 1997a,b, 1998a,b, 1999).
- Characterizing Risks Posed by Petroleum Contaminated Sites: Implementation of MADEP VPH/EPH Approach (MADEP, 2002).
- Updated Petroleum Hydrocarbon Fraction Toxicity Values for the VPH/EPH/APH Methodology (MADEP, 2003).
- Air-Phase Petroleum Hydrocarbons (APH) Final (MADEP, 2009).
- Advisory-Active Soil Gas Investigations (Cal-EPA DTSC, 2012).
- Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Cal-EPA DTSC, 2011).
- Risk Assessment Guidance for Superfund (RAGS) Parts A-F.
- USEPA User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings (2004).
- USPEA Supplemental Guidance for Developing Soil Screening Levels (2002b).
- USEPA Supplemental Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites, (2002a).

¹⁰Information contained in some documents may be in conflict (e.g., toxicity factors). Nevertheless, the SSCGs presented in this report are consistent with the listed documents.

- Cal-EPA Selecting Inorganic Constituents as Chemicals of Potential Concern at Risk Assessments at Hazardous Wastes Sites and Permitted Facilities (Cal-EPA DTSC, 1997).
- Cal-EPA use of the Northern and Southern California Polynuclear Aromatic Hydrocarbons (PAH) Studies in the Manufactured Gas Plant Site Cleanup Process (Cal-EPA DTSC, 2009b).
- California's Maximum Contaminant Levels (MCLs), Notification Levels (NLs), or Archived Action Levels (AALs) for drinking water as established by the California Department of Public Health.
- State Water Resources Control Board's "Antidegradation Policy" (State Board Resolution No. 68-16).
- The Regional Board's Basin Plan.
- Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304 (State Board Resolution No. 92-49).

Additional publications and agency guidance documents considered in establishing SSCGs for the Site include:

- Dichlorobenzenes ToxFAQ, Division of Toxicology and Environmental Medicine, (Agency for Toxic Substances and Disease Registry [ATSDR], 2006).
- Heavy Metals in Soils, Glasgow, Blackie and Son, – As cited by Duverge, D., 2011, Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region, Masters Thesis, San Francisco State University. (Alloway, 1990).
- Advisory on Methane Assessment and Common Remedies at School Sites, School Property Evaluation and Cleanup Division, (Cal-EPA DTSC, 2005b).
- Arsenic Strategies: Determination of Arsenic Remediation, Development of Arsenic Cleanup Goals for Proposed and Existing School Sites (March 21, 2007). (Cal-EPA DTSC, 2007).
- Interim Guidance: Evaluating Human Health Risks from Total Petroleum Hydrocarbons. URL: www.dtsc.ca.gov/AssessingRisk/upload/TPH-Guidance-6_16_09.pdf (Cal-EPA DTSC 2009c).

- Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soils, (Cal-EPA, Office of Environmental Health Hazard Assessment [OEHHA]. 2005).
- Air Toxics Hot Spots Program Risk Assessment Guidelines Technical Support Document for Exposure Assessment and Stochastic Analysis. (Cal-EPA, OEHHA. 2012).
- Harbor Community Monitoring Study (HCMS) Saturation Monitoring, Final Report. (Desert Research Institute, 2009).
- Emissions of 1,2-Dichloroethane from Holiday Decorations as a Source of Indoor Air Contamination, (Doucette, W.J., A.J. Hall, and K.A. Gorder, 2010).
- Polycyclic aromatic hydrocarbons (PAH's) in the terrestrial environment—a review. (Edwards, N.T., 1983).
- Proposed Regulatory Framework for Evaluating the Methane Hazard due to Vapor Intrusion, (Eklund, B., 2010).
- A Methodology for using Background PAHs to Support Remediation Decisions, (Environ, 2002).
- Human Health Screening Evaluation Work Plan, Former Kast Property, Carson, California. (Geosyntec, 2009).
- Data Evaluation and Decision Matrix, Former Kast Property, Carson, California. April 6, 2010 (Geosyntec, 2010a).
- Addendum to the HHSE Work Plan, Former Kast Property, Carson, California. (Geosyntec, 2010b).
- Volatile Organic Compounds in Indoor Air: A Review of Concentrations Measured in North America Since 1990. (Hodgson and Levin, 2003).
- A Critical Review of Naphthalene Sources and Exposures Relevant to Indoor and Outdoor Air. (Jia, C. and S. Batterman, 2010).
- Polycyclic aromatic hydrocarbons in the atmosphere-soil-plant system. The root uptake role and consequences. (Kaliszova, R., Javorska, H., Tlustos, P., and Balik, J., 2010).

- Bioconcentration of polycyclic aromatic hydrocarbons in vegetables grown in an industrial area. (Kipopoulou, A. M., Manoli, E., and Samara, C., 1999).
- Polycyclic aromatic hydrocarbons in water, sediment, soil, and plants of the Aojiang River waterway in Wenzhou, China. (Li, J., Shang, X., Zhao, Z., Tanguay, R. L., Dong, Q., and Huang, C., 2010).
- Guidelines for assessing and managing petroleum hydrocarbon contaminated sites in New Zealand. (New Zealand Ministry for the Environment, 2011).
- Comparison of Personal, Indoor, and Outdoor Exposures to Hazardous Air Pollutants in Three Urban Communities. (Sexton, K., Adgate, J.L., Ramachandran, G., Pratt, G.C., Mongin, S.J., Stock, T.H., and Morandi, M.T., 2004).
- Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-III), Final Report. (South Coast Air Quality Management District, 2008).
- Uptake of organic contaminants from soil into vegetables and fruits. (Trapp, S., and Legind, C. N., 2011).
- Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, ((USEPA, 1988).
- The Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions. (USEPA, 1991c).
- Exposure Factors Handbook. Volumes I-III. An Update to Exposure Factors Handbook (USEPA, 1997).
- Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences (1990-2005): A Compilation of Statistics for Assessing Vapor Intrusion, (USEPA, 2011).
- EPA's Vapor Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings, (USEPA, 2012c).

References for these guidance documents and policies are included in Section 11.

6.0 SOIL

The RAOs for soil are to prevent human exposures to concentrations of COCs in soil such that total (i.e., cumulative) lifetime incremental carcinogenic risks are within the NCP risk range of 1×10^{-6} to 1×10^{-4} and noncancer hazard indices are less than 1 or concentrations are below background, whichever is higher. Potential human exposures include onsite residents and construction and utility maintenance workers. For derivation of individual chemical SSCGs, a lifetime incremental cancer risk of 1×10^{-6} was used for residential land use and a lifetime incremental cancer risk of 1×10^{-5} was used for construction and utility worker exposures consistent with the NCP risk management ranges and common practice within the State of California. A target hazard quotient (HQ) of 1 was used for noncarcinogens.

For the soil leaching to groundwater pathway, water quality objectives in the Basin Plan to protect the designated beneficial uses, including municipal supply, have been considered. Therefore, MCLs and NLs were used as the target groundwater concentration. For TPH, risk-based values were used as no MCL or NL is available.

Because background concentrations for some COCs detected in soil exceed risk-based levels, the evaluation of background concentrations is a critical element in identifying cleanup goals. The background concentration evaluations are detailed in Appendix A and background values used in the SSCG selection process are presented in Table 6-1.

As of August 31, 2013, soil sampling has been conducted at 266 residential properties and in the streets within the Site. Soil samples have been collected within the 0-10 foot bgs range to assess potential exposures to shallow soils as defined in the CAO and were typically collected at a minimum of six locations per property in accessible areas at four depths (0.5, 2, 5, and 10 feet bgs). Samples were collected at alternate depths if impacts were observed or if refusal was met due to subsurface obstructions that prevented collection of the deeper samples. The site investigations have detected soil impacts by primarily petroleum-related constituents. Petroleum-related constituents detected in over 50% of the samples include TPHd and TPHmo; the PAHs pyrene, phenanthrene, chrysene, benzo(a)anthracene, fluoranthene, 2-methylnaphthalene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(b)fluoranthene; and the VOCs naphthalene and benzene. Of these, chrysene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, and benzo(b)fluoranthene are considered cPAHs for purposes of evaluating benzo(a)pyrene equivalents. In addition, metals have been detected in soils, with arsenic and lead detected at concentrations above background.

To evaluate potential human health exposures to these constituents in soil and the need for interim actions, a screening level risk assessment (HHSRE) was conducted for each property where soil sampling was completed and the results were included in the Interim and Follow-up Residential Sampling reports. Potential exposures were initially evaluated for a depth interval of 0-2 feet bgs, the depth interval where there is a higher potential for residential exposure during recreational activities, landscaping, and yard maintenance. In addition, the full depth interval of 0-10 feet bgs was evaluated to address the more unlikely scenario that contact with deep soils would occur during a major renovation project (e.g., pool installation or underground utility work). Because the Site is completely developed, this deep soil exposure scenario is considered unlikely for residents. However, exposures to these deeper soils could occur during construction or utility maintenance work at the Site.

As presented in Section 4, the Site-related COCs (those COCs associated with the historic use of the Site as an oil storage facility) consist of the petroleum hydrocarbon derived constituents, and some metals. In addition, other chemicals have been detected in Site soils that are unrelated to the Site's use as an oil storage facility and are considered non-Site-related COCs. In response to the Regional Board's directive, SSCGs are established for Site-related and non-Site-related COCs identified for the Site.

The Site-related and non-Site-related COCs are presented below based on human health exposures to soil and the COC selection process described in Section 4.1. Those COCs also detected in groundwater above an MCL or NL and evaluated in the soil leaching to groundwater analysis are noted with an asterisk. For TPH constituents, no MCL or NL is available but given their prevalence in Site soils they are included in the evaluation of leaching to groundwater and are also noted with an asterisk. Figures 6-1 through 6-3 summarize the soil results for the primary Site-related COCs for human exposure to Site soils: cPAHs (as defined by benzo(a)pyrene equivalents), TPH-diesel, and TPH-motor oil.

Site-related Soil COCs	
1,2,4-Trimethylbenzene	Chrysene
1,3,5-Trimethylbenzene	Dibenz(a,h)anthracene
1-Methylnaphthalene	Ethylbenzene
2-Methylnaphthalene	Indeno(1,2,3-c,d)pyrene
Arsenic *	Lead
Benzene *	Naphthalene *
Benzo(a)anthracene	Pyrene
Benzo(a)pyrene	TPH as Diesel *

Benzo(b)fluoranthene Benzo(k)fluoranthene	TPH as Gasoline * TPH as Motor Oil *
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Non-Site-related Soil COCs	
1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane * 1,2-Dichloropropane 1,4-Dichlorobenzene * 2,4-Dinitrotoluene Antimony * Bis(2-Ethylhexyl) Phthalate Bromodichloromethane Bromomethane Cadmium	Chromium VI Cobalt Copper Methylene Chloride Tetrachloroethene * Thallium * Trichloroethene * Vanadium Vinyl Chloride * Zinc

* COCs also detected in groundwater above an MCL or NL and evaluated in the soil leaching to groundwater evaluation. TPH also noted due to being primary COC for Site.

Once the COCs and potentially exposed populations are identified, the complete exposure pathways by which individuals may contact chemicals must be determined. A complete exposure pathway requires a source and mechanism of chemical release, a point of potential human contact within the impacted medium, and an exposure route (e.g., ingestion) at the contact point. These source-pathway-receptor relationships provide the basis for the quantitative exposure assessment.

The following table summarizes the exposure pathways that are relevant for potential residential exposures, potential construction and utility maintenance worker exposures, and groundwater at the Site.

Receptor	Sample Medium	Potentially Complete Exposure Pathway
Onsite Resident (Child and Adult)	Surface Soil (0-2 feet bgs)	<ul style="list-style-type: none"> • Incidental Ingestion • Dermal Contact • Outdoor Air Inhalation
	Shallow Subsurface Soil (>2-10 feet bgs)	<ul style="list-style-type: none"> • Infrequent Incidental Ingestion • Infrequent Dermal Contact • Outdoor Air Inhalation

Receptor	Sample Medium	Potentially Complete Exposure Pathway
Onsite Construction/Utility Maintenance Worker	Surface and Subsurface Soil (0-10 feet bgs)	<ul style="list-style-type: none"> • Incidental Ingestion • Dermal Contact • Outdoor Air Inhalation
Groundwater	Surface and Subsurface Soil (0-10 feet bgs)	<ul style="list-style-type: none"> • Leaching to Groundwater

6.1 Residential Receptor

The SSCGs for the residential scenario are based on frequent and infrequent exposure assumptions. Surface soils (e.g. 0-2 feet bgs) are considered for more frequent typical residential exposures whereas subsurface soils (e.g. >2-10 feet bgs) are considered for infrequent contact; the likelihood of a resident contacting soils at deeper depths is extremely low given the developed nature of the Site and typical residential activities where exposure to soil could occur (e.g., recreational activities, lawn care, landscaping). In addition, it is unlikely that soils from a deeper excavation (such as during a major renovation or utility repair work) would be placed at the surface due to the lack of area to place excavated soils. It is assumed for the infrequent contact scenario that institutional controls (e.g., a notification trigger added to the existing excavation permitting process, a soil management plan) to prevent redistribution of deep soils at the surface would be required. The potential for nuisance (e.g., odor) due to the presence of TPH-impacted soils that may be infrequently contacted is addressed in the discussion of soil vapor SSCGs in Section 7.

SSCGs were developed considering the exposure pathways identified above using the same methodology and approach presented in the RWQCB and OEHHA-approved HHSRE Work Plan and addenda. Development of SSCGs also considered background conditions (both natural and non-site-related anthropogenic sources) for metals and PAHs. The consideration of background concentrations is important in risk assessment and remedial planning as it is infeasible to clean up to lower concentrations than background.

As discussed in Section 2.2, evidence from the literature suggests that for the chemicals related to crude oil, PAHs, and BTEX, which are primary COCs for the Site, uptake from soil into plants and fruit does not play a significant role. A number of studies suggest that air deposition is the major pathway for plant uptake of PAHs. For BTEX,

either rapid degradation or volatilization to the atmosphere would occur, preventing effective uptake by plant roots. Volatile contaminants in general have a low potential to accumulate by root uptake from soil because they quickly escape to air. Consistent with the literature, Cal-EPA OEHHA does not require evaluation of the soil to root uptake pathway for organic compounds (Cal-EPA OEHHA, 2012). Based on this information, this exposure scenario was not considered in the derivation of the SSCGs. Rather, the pathways that have the most exposure potential, incidental soil ingestion and dermal contact, were included in the SSCG calculation along with particulate and VOC exposure in outdoor air.

Metals may be associated with petroleum hydrocarbons, but are also naturally occurring in the environment. According to DTSC (Cal-EPA DTSC 2009c), an evaluation of background concentrations for naturally occurring materials such as metals is important to evaluate whether the metals concentrations at the Site are consistent with naturally occurring or ambient levels in the area, and whether they should be included in the risk assessment. If concentrations of a metal are within background, the metal is not considered a COC and is not evaluated further. For each metal, an Upper Tolerance Limit (UTL) has been developed based on local background (Appendix A). These values are used with upper-bound Site concentration estimates to determine if a metal is above background and should be considered further. For arsenic, the DTSC background concentration of 12 mg/kg for southern California sites (Cal-EPA DTSC, 2007) or a more detailed statistical evaluation will be used for this Site as presented in Appendix A. For lead, a background comparison is not made but rather the California Human Health Screening Level (CHHSL) of 80 mg/kg is used for surface soil for residential land-use.

PAHs can also be naturally occurring or present at ambient levels not associated with former site activities. A background data set and methodology has been developed to evaluate the presence of PAHs in soil (Cal-EPA DTSC, 2009c). Consistent with agency-approved risk assessment practice in California, the DTSC-developed background concentration of 0.9 mg/kg benzo(a)pyrene equivalents (Bap-eq) (see Appendix A) will be used to evaluate cPAHs results. Benzo(a)pyrene equivalents are calculated following methods recommended by Cal-EPA (*Use of the Northern and Southern California Polynuclear Aromatic Hydrocarbon (PAH) Studies in the Manufactured Gas Plant Site Cleanup Process*, Cal-EPA DTSC, 2009b). Additional details regarding calculation of benzo(a)pyrene equivalents are provided in Appendix A.

Table 6-1 presents the SSCGs for Site-related and non-Site-related COCs using the target risk levels of 1×10^{-6} and a target hazard quotient of 1 for residential land use. Appendix A presents the methodology that was used to derive the SSCGs.

Because of the developed nature of the Site and the reduced exposure potential to soil at depth, SSCGs are calculated separately for surface soil (soils from 0-2 feet bgs) and subsurface soil (>2-10 feet bgs). Residential reasonable maximum exposure (RME) assumptions that are equivalent to frequent exposure (350 days per year) are used to calculate SSCGs for surface soils (soils from 0-2 feet bgs) within the residential property areas. This is consistent with the focus on exposure potential stated in USEPA for conducting feasibility studies [USEPA, 1988]. "RAOs for protecting human receptors should express both a contaminant level and an exposure route, rather than contaminant levels alone, because protectiveness may be achieved by reducing exposure (such as capping an area, limiting access, or providing an alternate water supply) as well as by reducing contaminant levels." The application of cleanup levels to surface soils (0-2 feet bgs) based on frequent contact is considered protective and would meet the RAO for the Site.

To address the unlikely infrequent exposure to subsurface soils (>2-10 feet bgs), SSCGs have been developed assuming a lower frequency of exposures (see Appendix A) based on an exposure frequency of 4 days per year assuming a resident may want to dig deeper than 2 feet to plant a tree as part of gardening. The exposure frequency of 4 days per year is based on 1/10th of the USEPA recommended event frequency of 40 events per year for an adult resident gardening outdoors on a more routine basis (USEPA, 1997). Since the value of 40 days per year is based on routine gardening, an adjustment to this value was made to account for infrequent contact to account for instances where a resident may contact deeper soil (e.g., planting a tree).

In addition, it is unlikely that residents would contact soils from a deeper excavation (such as during a major renovation or utility repair work) as these soils could not be placed on site due to the developed nature of the neighborhood and lack of area to place the excavated soils. The conceptual model for this assumption is consistent with existing institutional controls (e.g., requirement for a permit for excavation) to prevent redistribution of deep soils at the surface. A soil management plan will be prepared either as a part of, or subsequent to, the RAP to provide the detailed approach to preventing residential exposure to subsurface soils impacted by COCs.

The chemical-specific SSCGs will be used in the HHRA along with the exposure point concentration for each property and depth interval being evaluated to estimate chemical-specific risks and noncancer hazards. The 95% Upper Confidence Limit

(95UCL) of the arithmetic mean concentration is commonly used as the exposure point concentration when sufficient data are available (Cal-EPA, 2005; Cal-EPA, 1996; USEPA, 2002). The adequacy of the data as it relates to the use of the 95UCL will be described in the HHRA. Cumulative estimates of cancer risk and noncancer hazard will be calculated by summing the chemical-specific estimates presented in the HHRA. In addition, for metals and cPAHs, a parcel-specific comparison to background will be conducted as discussed in Appendix A. Note the SSCGs are independent of the site data and are not based on average concentrations or the 95UCL (i.e. the site concentration data is not used in the SSCG calculation).

6.2 Construction Worker and Utility Maintenance Worker

The soil cleanup goals for the construction and utility maintenance worker scenario apply to the soil data results from 0-10 feet bgs. This is considered an interval where exposure is more likely should utility maintenance work be required at the Site.

Soil cleanup goals were developed considering the exposure pathways identified previously using the same methodology and approach presented in the HHSE Work Plan and HHSE Work Plan Addendum (Geosyntec, 2009, 2010b), modified to account for the different exposure assumptions used for construction workers in risk assessment. In addition, because utility workers may need to conduct subsurface utility repair or maintenance, the potential exists for worker exposure within a trench and this exposure scenario was also included.

Soil cleanup goals were developed considering background conditions (both natural and non-site-related anthropogenic sources) for metals and PAHs as discussed for residential cleanup goals. As mentioned earlier, consideration of background concentrations is important in risk assessment and remedial planning as it is infeasible to cleanup to lower concentrations than background.

Table 6-1 presents cleanup goals for the Site-related COCs using the target risk levels of 1×10^{-5} and a target hazard quotient of 1 for construction and utility maintenance worker exposures. Appendix A presents the methodology that was used to derive the cleanup goals.

While it is unlikely that utility repair will be conducted to depths of 10 feet bgs, this depth interval was included to address that potential. A soil management plan will be prepared either as a part of, or subsequent to, the RAP to provide the detailed approach to preventing unacceptable construction and utility worker exposure to COCs.

The chemical-specific SSCGs will be used in the HHRA with the 95UCL chemical concentrations calculated for each property, as appropriate, for the depth interval being evaluated to estimate chemical-specific risks and noncancer hazards. Data collected from the streets will be evaluated separately in a similar manner. Cumulative estimates of cancer risk and noncancer hazard will be calculated by summing the chemical-specific estimates. In addition, for metals and cPAHs, a comparison to background will be conducted as discussed in Appendix A.

6.3 Soil Leaching to Groundwater

As discussed in Section 2.0, some COCs may have migrated through the vadose zone to groundwater. However, as discussed in more detail in Section 8.0, based on groundwater data collected at and adjacent to the Site, it appears that the extent of the COCs in groundwater related to the Site is stable and decreasing. Furthermore, COC values in the downgradient wells near the Site boundary are below or very close to the MCLs and NLs. Based on these facts and the age of the releases of COCs in the vadose zone (>~45 years), it is unlikely that significant additional groundwater impacts will result from the remaining shallow soil contamination. Constituents of Concern currently present in the vadose zone at the Site which are also present in Site groundwater may theoretically represent a continuing source of potential groundwater contamination.

In general, infiltration of rainwater and irrigation in open areas of the Site has the potential to mobilize COCs present in the vadose zone and continue to transport those COCs to groundwater. This transport is expected to occur at a declining rate through time as the compounds degrade in the vadose zone and they are depleted through leaching. To address this migration pathway cleanup goals for the leaching to groundwater pathway were established for COCs present in both Site soils and groundwater that are protective of groundwater quality, consistent with the Basin Plan and the State's anti-degradation policy.¹¹

For groundwater, chemicals present above their respective MCLs or NLs were identified as COCs. These same groundwater COCs were evaluated for the soil

¹¹ As noted below in Section 8.4.2, because groundwater conditions at the time the Basin Plan was adopted in 1994 likely did not meet the water quality objectives set forth in the Basin Plan, State Water Board Resolution No. 68-16 may not be applicable. *Asociacion de Gente Unida por el Agua v. Cent. Valley Reg'l Water Quality Control Bd.*, 210 Cal.App.4th 1255, 1270 (2012). Accordingly, the MCLs set forth in the Basin Plan have been used to develop cleanup goals for soil and groundwater.

leaching to groundwater pathway with the exception of chemicals that were detected in five or less soil samples out of the over 10,000 samples collected for the Site. The chemicals not evaluated are the non-Site-related COCs 1,1-dichloroethane, 1,1-dichloroethene, and trans-1,2-dichloroethene.

For the soil leaching to groundwater pathway, water quality objectives in the Basin Plan to protect the designated beneficial uses, including municipal supply, have been considered. MCLs or NLs were used as the target groundwater concentrations for the COCs evaluated. For TPH constituents, no MCL or NL is available but, given their prevalence in Site soils, they are included in the evaluation of leaching to groundwater. The Site-related and non-Site-related COCs are presented below based on potential leaching to groundwater.

Site-related Soil COCs for Leaching to Groundwater Evaluation	
Arsenic Benzene Naphthalene	TPH as Diesel TPH as Gasoline TPH as Motor Oil

Non-Site-related Soil COCs for Leaching to Groundwater Evaluation	
1,2-Dichloroethane cis-1,2-Dichloroethene 1,2,3-Trichloropropane 1,4-Dichlorobenzene Antimony	Thallium Tert-Butyl Alcohol Tetrachloroethene Trichloroethene Vinyl Chloride

6.3.1 Methodology

To estimate cleanup goals for protection of groundwater quality, the migration of COCs to groundwater was simulated as a two-step process: leaching from soil particles to soil moisture, and mixing of the soil leachate with groundwater. The leaching step was modeled by using the 1996 California Regional Water Quality Control Board “Interim Site Assessment & Cleanup Guidebook” approach (the Water Board approach, LARWQCB, 1996) for organic chemicals. For metals, the USEPA Regional Screening Level methodology was used (USEPA, 2012b). The leachate-groundwater mixing step was modeled by the Soil Attenuation Model (SAM) (Connor et al., 1997). To establish

soil cleanup goals, a “backward” calculation was needed, i.e., leachate criteria were first calculated based on regulatory groundwater quality standards and dilution attenuation factors (DAF, obtained from the SAM). A soil concentration (the cleanup goal) which would result in the target leachate criterion was then calculated.

When available, the California MCLs were used as the regulatory groundwater quality standards. In the case where an MCL was not available for a given COC, the California Department of Public Health NL was used. For TPH, the San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (ESL) based on noncancer health-effects was used.

A simple box model approach, proposed in the SAM model (Connor et al., 1997), was used to estimate the mixing of dissolved COCs when soil leachate mixes with lateral groundwater flow. Site-specific weather conditions were accounted for by using Site area precipitation data to quantify the infiltration rate. The mixing zone height was calculated based on the thickness of the aquifer and the relative magnitudes of the infiltration rate and lateral groundwater flow rate. Using the regulatory groundwater quality standard and the DAF, SSCGs for soil leaching to groundwater for specific COCs were obtained.

Waste Extraction Tests (WET) were conducted on site soil samples to quantify the site-specific leachability of soil COCs. The WET extraction method uses a citric acid buffered solution and is intended to simulate acid rain conditions; use of this extraction method is considered conservative. When WET data were available, a sample-specific soil/water partitioning coefficient (K_d) value was calculated (NJDEP, 2013). The geometric mean of the sample-specific K_d values was used as the site-specific K_d .

When WET data were not available, K_d values were calculated from the site-specific fraction organic carbon (f_{oc}) data and the chemical-specific organic carbon/water partitioning coefficients (K_{oc}). Based on soil physical property data, the vadose zone soil was classified as 100% sand. The average soil bulk density, total porosity, water-filled porosity, and fraction organic content (f_{oc}) from the site soil physical property measurements were used as model input; and organic carbon/water partitioning coefficients (K_{oc}) and Henry’s Law Constants (K_H) were obtained from the USEPA Regional Screening Level (USEPA RSL) database.

6.3.2 Cleanup Goals for Soil Leaching to Groundwater

Using the methodology described above, cleanup goals for Site-related and non-Site-related COCs found in the vadose zone were calculated for leaching to groundwater.

Table 6-2 lists the SSCGs for soil leaching to groundwater. The details of the SAM model calculation, site-specific K_d determinations, and the Water Board and USEPA RSL approach are presented in Appendix A.

7.0 SOIL VAPOR, INDOOR AIR, AND OUTDOOR AIR

The RAOs for soil vapor and indoor and outdoor air are to limit human exposures to COCs: (1) to concentrations that are at or below background levels¹², or (2) to concentrations such that total lifetime incremental carcinogenic risks are within the NCP risk range and target hazard level (i.e., cancer risk of 1×10^{-6} to 1×10^{-4} and noncancer hazard index less than 1). As described in this section, the SSCGs for soil vapor have been calculated to meet the RAOs for indoor air for residents and outdoor air for construction and utility maintenance workers. The lower end of the NCP risk range (i.e., 1×10^{-6}) and a noncancer hazard index less than 1 is used for the residential exposure scenario and a target risk of 1×10^{-5} and a noncancer hazard index less than 1 is used for the construction and utility maintenance worker exposure scenario. Additionally, the soil vapor SSCGs also consider nuisance-based screening levels for TPH that are presented in the San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (ESL) document.

The RAOs for methane in soil vapor are (1) to prevent fire/explosion risks in indoor air and/or enclosed spaces (e.g., utility vaults) due to the accumulation of methane generated from the anaerobic biodegradation of petroleum hydrocarbons in soils, and (2) eliminate methane in the subsurface to the extent technologically and economically feasible.

Soil vapor cleanup goals for residential and construction worker scenarios are presented in the following subsections.

7.1 Residential Receptor

This section addresses soil vapor SSCGs for VOCs and methane for the residential scenario. For VOCs, the vapor intrusion exposure pathway is evaluated. This is the most sensitive pathway for potential residential exposures to soil vapor; and therefore, SSCGs for the vapor intrusion to indoor air pathway are also protective of potential outdoor air exposures. Fire and explosion risks are considered for methane. The soil vapor cleanup goals for the residential scenario are based on the sub-slab soil vapor sample analytical results and a multiple-lines-of-evidence vapor intrusion pathway analysis including indoor air data collected on Site (Appendix B). Site data are used to

¹² For vapor intrusion evaluations, background is defined as sources that are not due to subsurface impacts (i.e., contributions due to outdoor air or indoor sources). More details on characterization of background in indoor air are provided in Appendix B.

develop a conservative upper-bound estimate for a site-specific vapor intrusion attenuation factor which is used to calculate SSCGs for sub-slab soil vapor. These sub-slab soil vapor SSCGs may be used in the RAP.

Data collected at the Site indicate significant natural attenuation of VOCs in the vadose zone that mitigates the potential migration of vapors detected in soil vapor samples collected at depth to reach the atmosphere. Based on the multiple-lines-of-evidence evaluation, soil vapor samples collected at depth are not considered in the residential receptor analysis. This approach is consistent with Cal-EPA DTSC vapor intrusion guidance (Cal-EPA DTSC, 2011) which states "In general, the closer the sampled medium is to the receptor, the more relevant the data are for estimating exposure and greater its weight of evidence."

7.1.1 Vapor Intrusion to Indoor Air

The sub-slab soil vapor and indoor air data were used to evaluate the vapor intrusion pathway for potential exposure to residents at the Site. As of August 31, 2013, sub-slab soil vapor and indoor/outdoor air sampling events have been conducted at 241 residential properties at the Site, and 147 of these properties have had two sub-slab soil vapor and indoor/outdoor air sampling events. In order to address the temporal and spatial variability of the vapor intrusion data, sampling has been conducted across the Site and on multiple dates. As discussed below, spatial variability in the sub-slab soil vapor and indoor air data is evident; however, the vapor intrusion pathway is evaluated for each property (as reported in the Interim, Follow-up, and Final Interim Phase II reports) to address questions concerning spatial variability. Additionally, indoor air samples have been (or will be) collected two times, at least 3 months apart, at each property to assess temporal variability. Furthermore, indoor air samples have been collected at the Site on more than 220 sampling dates over a period of more than 3 years. As discussed in Appendix B, sub-slab soil vapor and indoor air samples have been collected throughout this sampling period and these data provide a basis for assessing temporal variability across the Site, supplementing the temporal variability assessment for each property based on the two sampling events for each residence.

7.1.1.1 Sub-Slab Soil Vapor Data

As of August 31, 2013, sub-slab soil vapor samples have been collected at 265 properties. Sub-slab soil vapor samples were typically collected at three locations, and multiple sampling events have been conducted at most properties. Through August 31, 2013, more than 2,000 sub-slab soil vapor samples have been collected and the results compared to risk-based screening levels in the HHSREs. The sub-slab soil vapor results

for the two primary Site-related sub-slab soil vapor COCs, benzene and naphthalene, are summarized on Figures 7-1 and 7-2. Figures 7-3 and 7-4 show the sub-slab soil vapor results for non-Site-related sub-slab soil vapor COCs, TCE and PCE. The sub-slab soil vapor screening results for COCs that exceed the RBSLs are summarized below.

COC	Number of Samples	# of Samples Above RBSL	# Properties Sampled	# Properties With a Single Exceedance	# Properties With Multiple Exceedances
1,2,4-Trichlorobenzene	2074	1	265	1	0
1,2,4-Trimethylbenzene	2074	2	265	2	0
1,2-Dichloroethane	2074	1	265	1	0
1,3,5-Trimethylbenzene	2074	1	265	1	0
1,3-Butadiene	2074	1	265	1	0
1,4-Dichlorobenzene	2074	1	265	1	0
1,4-Dioxane	2074	11	265	11	0
2,2,4-Trimethylpentane	2074	1	265	1	0
Benzene	2074	79	265	45	15
Bromodichloromethane	2074	28	265	19	4
Carbon Tetrachloride	2074	6	265	6	0
Chloroform	2074	81	265	31	18
Dibromochloromethane	2074	6	265	4	1
Ethylbenzene	2074	7	265	5	1
Methylene Chloride	2074	3	265	1	1
Naphthalene	2074	62	265	41	10
Tetrachloroethene	2074	50	265	16	11
Trichloroethene	2074	3	265	1	1

Note that comparison to RBSLs is a preliminary evaluation of potential human health risks associated with COCs detected at the property. These results are used to evaluate if further action is warranted as data are being collected and processed and does not necessarily indicate that remedial actions are needed.

As shown above and on Figures 7-1 through 7-4, exceedances of sub-slab soil vapor screening levels from the HHSREs for benzene, naphthalene, TCE, and PCE are infrequent. When an exceedance at a property is identified, this is often a result of a single soil vapor sample and is not representative of the bulk of the sub-slab data collected at a property. Sub-slab soil vapor sampling has been conducted throughout the Phase II investigation; consequently, potential variability in concentrations due to seasonal or other effects has been evaluated. Because the majority of exceedances of

sub-slab soil vapor screening levels at a specific property are not reproducible, corrective action decisions based on the maximum concentration at that property likely will lead to implementation of mitigation or remedial measures that do not result in a quantifiable reduction of risk. Consequently, the complete data set for each property should be reviewed during the corrective action decision-making process.

7.1.1.2 Background Concentrations in Indoor Air

Background indoor air concentrations for some COCs frequently exceed risk-based levels, making an evaluation of background indoor air concentrations a critical element in identifying cleanup goals. Details of the background indoor air evaluation as well as the statistical evaluation of the vapor intrusion pathway at the Site are provided in Appendix B.

A variety of background sources can contribute to concentrations of VOCs in indoor air, including (1) outdoor air, (2) products used indoors, (3) residential building materials (e.g., paint, carpet, vinyl flooring.), (4) materials brought into the home (e.g., dry cleaned clothing), (5) emissions from municipal water, and (6) sources within attached garages (including vehicles, lawnmowers, paints, etc.).

Outdoor vapors can migrate indoors through open doors and/or windows. Concentrations of VOCs in indoor air are often associated with indoor product use, occupant activities (e.g., hobbies, smoking), and building materials (Van Winkle and Scheff, 2001). Trihalomethanes, such as chloroform and bromodichloromethane, are disinfection byproducts in municipal water that may be emitted to indoor air. Vapors from attached garages may be present in living spaces as a result of poor seals between the garage and the house (CARB, 2005). Common sources of background vapors include cigarette and cigar smoke, gasoline- or diesel-powered equipment, paints, glues, solvents, cleaners, and natural gas leaks. Table 7-1 summarizes potential background sources and the associated VOC concentrations detected in indoor air.

Consideration of household activities and indoor sources of VOCs is a critical element in background evaluations because indoor air background levels commonly exceed outdoor air concentrations (Van Winkle and Scheff, 2001; Hodgson and Levin, 2003; Sexton et al., 2004; CARB, 2005). On average, indoor concentrations reported in literature studies were one (Jia and Batterman, 2010) to five (CARB, 2005) orders of magnitude higher than measured outdoor concentrations. This trend likely is due to the various indoor sources discussed above, and lower indoor ventilation compared to outdoor dispersion (Sexton et al., 2004). Studies have also shown that background

levels in indoor air are building-specific due to household use and occupant activities (Van Winkle and Scheff, 2001; CARB, 2005).

7.1.1.3 Indoor Air Results

The residential air sampling conducted at the Site included indoor, outdoor, and garage air samples collected to evaluate indoor air quality and potential background contributions due to outdoor air and materials present in the garages, which are frequently attached to the living area of the residence. Chemical inventories conducted prior to indoor air sampling are also in the assessment of the contributions of background sources due to household product use.

As of August 31, 2013, more than 780 indoor air samples have been collected at the Site and the results compared to risk-based screening levels in the HHSREs and background concentrations. The indoor air results for benzene, naphthalene, and PCE¹³ are summarized on Figures 7-5 through 7-7. As shown in these figures, and discussed below, indoor air concentrations detected at the Site are reflective of background levels. These findings were discussed in the Interim, Follow-up, and Final Interim Phase II reports which have been reviewed by the Regional Board and OEHHA. Overall, the regulatory agency reviews of the Interim, Follow-up, and Final Interim Phase II Site Characterization reports have concurred that the VOCs detected in indoor air appear to be due to background sources.

Appendix B includes a comparison of the measured Site indoor air concentrations to the literature values summarized by USEPA (USEPA, 2011). A comparison of the two data sets also is shown on Figure 7-8. Box and whisker plots are provided for the ten compounds detected most frequently in indoor air samples (detection frequencies greater than 95%). The boxes in this figure show the interquartile range (i.e., 25th to 75th percentile) and the bar in the middle of the box is the median value. The whiskers of the plots show the 10th and 90th percentile concentrations, and outlier results are plotted to illustrate the range of detected concentrations. The colored symbols on this plot show the ranges of median, 90th percentile, and maximum indoor air concentrations reported in the USEPA report (USEPA, 2011). Open and closed symbols show the lower and upper end of the ranges for these statistics, respectively.

¹³ A figure summarizing the indoor air results for TCE is not included, because TCE was infrequently detected in indoor air.

With the exception of 1,2-dichloroethane (1,2-DCA), the concentrations of constituents in samples collected from the Site are within the background range reported by USEPA (which included data collected between 1990 and 2005). Although 1,2-DCA was outside of the background range reported in the USEPA study, more current studies (Doucette et al., 2010 and Kurtz et al., 2010) conclude that this compound has been detected in increasing frequency and higher concentrations since 2004.

The comparison of Site data with literature background values demonstrates that VOCs detected in indoor air are reflective of background concentrations. As a result, the Site indoor air data cannot be used to calculate an empirical vapor intrusion attenuation factor¹⁴ that is not biased high due to the effect of background sources on indoor air quality. Exclusion of data where background concentrations have a significant effect on the indoor air concentrations is an approach that has been used by USEPA in evaluation of empirical attenuation factors for sites across the United States (USEPA, 2012c).

7.1.1.4 Statistical Analysis of Vapor Intrusion Data

To further investigate the relationship between indoor air and sub-slab soil vapor concentrations, single and multiple linear regression analysis methods (as described in Appendix B) were applied to the Site data. A multiple linear regression statistical analysis (in which the potential effects of more than one factor is assessed) evaluated the relationships between VOC concentrations measured in indoor air and VOC concentrations from (1) indoor sources, (2) garage air, (3) outdoor air, and (4) sub-slab soil vapor (i.e., vapor intrusion). The single regression analysis evaluated the relationship between (1) the indoor air concentrations above outdoor levels and (2) sub-slab soil vapor concentrations.

The multiple linear regression results showed that that the correlations for garage air to indoor air and outdoor air to indoor air are statistically significant¹⁵. This indicates that the indoor air concentrations are related to the garage and outdoor air concentrations. The analysis calculated statistically significant relationships between sub-slab soil vapor and indoor air for chloroform and naphthalene. However, an inverse correlation was calculated for naphthalene (i.e., the contribution to indoor air would be lower for cases

¹⁴ The vapor intrusion attenuation factor is the ratio of indoor and sub-slab soil vapor concentrations for constituents measured in both media assuming that the contributions from background sources are insignificant.

¹⁵ Note that the outdoor air to garage air coefficient estimate for 1,2-dichloroethane is not statistically significant.

with higher sub-slab soil vapor concentrations) which is not consistent with the vapor intrusion conceptual model. Additionally, the variability in indoor air concentrations was due to indoor sources and not concentrations in sub-slab soil vapor, outdoor air, or garage air. Consequently, the multiple linear regression analysis indicated that sub-slab soil vapor concentrations do not have a significant effect on indoor air quality. In other words, homes with higher indoor air concentrations for a given COC are not any more likely to have higher soil vapor concentrations than homes with low indoor air concentrations.

In summary, the results of this vapor intrusion pathway evaluation at the Site indicate:

- Indoor air and outdoor air concentrations of VOCs detected at the properties evaluated are indistinguishable from background and within the typical ranges of background concentrations reported in the literature.
- The multiple regression analysis results indicate that indoor air concentrations are generally correlated with outdoor or garage air concentrations, are largely influenced by indoor sources, and sub-slab soil vapor concentrations do not have a significant effect on indoor air concentrations as compared to these other sources.

Although the literature background comparison and the multiple linear regression analysis indicate that the indoor concentrations are due to background sources, sub-slab soil vapor SSCGs have been calculated for corrective action planning as directed by the Regional Board. Based on the findings presented above, remediation to the SSCGs will not result in a measureable reduction in indoor air risks. These soil vapor SSCGs have not been developed to address indoor air risks, which are equivalent to background risks, but may be used to identify properties where higher concentrations of COCs were detected in sub-slab soil vapor for further evaluation.

To calculate SSCGs for sub-slab soil vapor, a single regression analysis was conducted to evaluate the relationship between (1) indoor air concentrations above outdoor levels, and (2) sub-slab soil vapor concentrations. Based on the single regression analysis, an upper-bound vapor intrusion attenuation factor was identified. This attenuation factor was based on evaluation of the vapor intrusion data set for cases where higher sub-slab soil vapor concentrations (i.e., greater than $100 \mu\text{g}/\text{m}^3$) were observed at residential properties. Although the effect of background sources was still apparent in this data set, the data analysis indicates that the vapor intrusion attenuation factor observed at the Site was less than 0.001. This conservative upper-bound vapor intrusion attenuation factor

is used to calculate sub-slab soil vapor SSCGs to address the Regional Board's directive.

7.1.1.5 Sub-Slab Soil Vapor SSCGs

SSCGs for sub-slab soil vapor at the Site are presented in Table 7-2. These SSCGs are based on levels that will not theoretically result in an incremental indoor air concentration above risk-based levels. As discussed in Appendix B, indoor sources have a significant effect on the measured indoor air concentrations, and the empirical attenuation factor will overestimate the potential for vapor intrusion at the Site. Additionally, as indoor air data continue to be collected as part of each Phase II property investigation, the data will be reviewed to assess whether indoor air concentrations are representative of background conditions.

7.1.2 Vapor Migration to Outdoor Air

Appendix B summarizes the results of the outdoor air concentrations measured at the Site. These data were compared to literature values for studies conducted in the region (SCAQMD, 2008; DRI, 2009). A comparison of the two data sets is shown on Figure 7-9. The box and whisker plot for each chemical shows the outdoor air concentration distributions for eleven compounds reported in the regional studies. The boxes in this figure show the interquartile range (i.e., 25th to 75th percentile) and the bar in the middle of the box is the median value. The whiskers of the plots show the 10th and 90th percentile concentrations, and outlier results are plotted to illustrate the range of detected concentrations. The colored symbols on this plot show the ranges of mean and maximum outdoor air concentrations reported in the regional studies (SCAQMD, 2008; DRI, 2009). Open and closed symbols show the lower and upper end of the ranges for these statistics, respectively.

The concentrations of these constituents detected in samples collected from the Site are within the reported background ranges. The results of the comparison of Site data with literature background values indicates that VOCs detected in outdoor air are reflective of background concentrations.

A community outdoor air sampling program was also conducted to evaluate concentrations of contaminants detected in outdoor air and to assess whether outdoor air contaminant concentrations within the Site boundary are statistically similar to upwind and downwind locations (Geosyntec, 2010b). Results were used to assess whether or not volatile subsurface contamination is contributing to concentrations of contaminants detected in outdoor air at the Site. Four outdoor air sampling events were conducted

between July 31 and September 17, 2010. Outdoor air samples were collected at four locations west of the Site boundary, four locations east of the Site boundary, and four locations within the interior of the Site. Based on the data evaluation, all statistical tests (ANOVA, t-test, and Mann-Whitney) show that air concentrations within the Site boundary are not significantly different from concentrations from areas to the east (generally downwind) and west (generally upwind) of the Site. Consequently, soil vapor to outdoor air screening levels have not been developed for the soil vapor to outdoor air pathway.

7.2 Methane

Methane screening has been conducted in indoor structures on the Site and utility vaults, storm drains, and sewer manholes at and surrounding the Site. The screening assessments have not identified methane concentrations in enclosed spaces that indicate a potential safety risk. Additionally, over 2000 sub-slab soil vapor samples have been collected at 265 properties at the Site and analyzed for methane. Through August 31, 2013, methane concentrations above the interim action levels of 0.1% and 0.5% resulting from biodegradation of residual petroleum hydrocarbons have been identified at one location at one property¹⁶; however, no methane exceedances were found at this property during the indoor air screening and sampling. Engineering controls have been installed to mitigate potential risks due to methane detected at this location.

Proposed SSCGs for methane are the same as those presented in the Data Evaluation and Decision Matrix (Geosyntec, 2010a). These SSCGs are consistent with DTSC guidance for addressing methane detected at school sites (Cal-EPA DTSC, 2005b). These methane SSCGs are applicable to concentrations measured in soil vapor, in vaults, or above ground.

Methane Level	Response
>10%LEL (> 5,000 ppmv) Soil vapor pressure > 13.9 in H ₂ O	Evaluate engineering controls
> 2% - 10%LEL (> 1,000 – 5,000 ppmv) Soil vapor pressure > 2.8 in H ₂ O	Perform follow-up sampling and evaluate engineering controls

¹⁶ Sub-slab soil vapor methane concentrations exceeding interim action levels have been identified as a result of leaking natural gas utility lines, which were found at several of the residential properties, and a leaking sewer line at one residential property

7.3 Construction and Utility Maintenance Worker Receptor

The conceptual exposure scenario for the construction and utility maintenance worker receptor is the same as that considered for soils: exposure to volatiles during excavation. The volatilization factor for soil vapor migration to a trench was calculated using the same relationships as those used for soil, with an additional factor to relate soil and soil vapor source concentrations. Worker exposure due to the dermal and ingestion pathways was not considered in the soil vapor source term (Appendix A). For derivation of individual chemical SSCGs, a lifetime incremental cancer risk of 1×10^{-5} was used for construction and utility worker exposures consistent with the NCP risk range and common practice within the State of California. A target hazard quotient (HQ) of 1 was used for noncarcinogens. Table 7-2 presents the SSCGs for VOCs in soil vapor. Potential worker safety concerns associated with methane detected at the site are addressed by occupational safety and health laws.

The chemical-specific soil vapor SSCGs will be used in the HHRA to estimate chemical-specific risks and noncancer hazards. Data collected from the streets will be evaluated separately in a similar manner. Cumulative estimates of cancer risk and noncancer hazard will be calculated by summing the chemical-specific estimates.

8.0 GROUNDWATER

8.1 Introduction

The proposed RAOs listed in Section 3.0 relevant to groundwater are:

- Remove or treat LNAPL to the extent technologically and economically feasible, and where a significant reduction in current and future risk to groundwater will result, and
- Reduce COCs in groundwater to the extent technologically and economically feasible to achieve, at a minimum, the water quality objectives in the Basin Plan to protect the designated beneficial uses, including municipal supply.

This section contains a summary of:

- Overall occurrence of groundwater at the Site, including information relevant to establishing cleanup goals for the Site.
- Groundwater quality, including identification of COCs exceeding California MCLs or other relevant action levels, COC migration from off-Site sources, plume configuration, and plume stability analysis.
- Issues relevant to establishing Site-specific cleanup goals.

The proposed Site-specific cleanup goals for groundwater, based on technological and economic feasibility and the Basin Plan, are presented in Section 9.0.

8.2 Groundwater Occurrence

Groundwater beneath the Site has been extensively investigated (URS, 2010a and 2011), including quarterly monitoring reports which have been prepared and submitted to the LARWQCB since initial well installation in 2009. The most recent monitoring event, the 3rd quarter 2013 event, was conducted in August 2013 (URS, 2013h). Key findings of the previous investigations related to groundwater are highlighted below.

Shallow Zone Groundwater

- Uppermost (or first) groundwater occurs at variable depths of approximately 51-68 feet bgs, depending on well location and timing of sampling, within sandy deposits of the Bellflower aquitard. This zone is referred to as the "Shallow Zone." A cross section (Figure 8-1) depicting the Bellflower aquitard and underlying units is presented in URS (2011).

- There are currently 17 monitoring wells associated with the Site which are used to monitor Shallow Zone groundwater on a quarterly basis (Figure 8-2).
- Groundwater flow direction in the Shallow Zone is to the northeast (Figure 8-2) with a gradient of approximately 0.002 feet per foot, which has remained generally consistent since monitoring began.
- There is no documented use of groundwater within the Shallow Zone.
- As of September 2013, LNAPL was present in two wells, MW-3 and MW-12. These two wells are located 40 feet apart. Active recovery of LNAPL through pumping currently occurs monthly in MW-3 and LNAPL recovery in MW-12 is scheduled to begin in October 2013.

Gage Aquifer

- The Gage aquifer is interpreted to underlie the Site at a depth of approximately 80-90 feet bgs (Figure 8-1). The base of the unit is estimated to occur at a depth of approximately 163-176 feet. The Gage aquifer is underlain by low permeability materials which separate the Gage aquifer from the underlying Lynwood aquifer.
- Four monitoring wells were installed in the upper portion of the Gage aquifer, and these are paired spatially with four monitoring wells completed in the lower portion of the Gage (Figures 8-3 and 8-4). These well pairs are also co-located near Shallow Zone wells.
- In the shallow Gage wells, the recent groundwater flow direction is reported to be east-northeast with a gradient of approximately 0.0018 feet per foot (3rd Quarter 2013). The groundwater flow direction has varied from east-southeast to northeast over the monitoring period.
- In the deep Gage wells, the recent groundwater flow direction is reported to be east-northeast with an approximate gradient of 0.0019 feet per foot (3rd Quarter 2013). The groundwater flow direction has varied from east-northeast to east over the monitoring period.
- The vertical gradient varies from slightly downward from the Shallow Zone to the Upper Gage to the Lower Gage, to slightly upward in the same zones.
- There is no documented use of groundwater within the Gage aquifer near the Site. The nearest production well to the Site (CWS Well 275 located 435 feet west of the western Site boundary) produces water from the underlying Lynwood and Silverado aquifers. The drinking water supplied to the Carousel

community by the water provider is tested according to state standards and is safe to drink (California Water Service Company, 2013).

8.3 Groundwater Quality¹⁷

Quarterly monitoring of both Shallow Zone and Gage wells has been conducted since well installation. Wells are sampled quarterly for VOCs and TPH. Additionally, the wells have been sampled for metals, SVOCs, and general mineral parameters, although not on a quarterly basis. Table 4-4 summarizes the on-Site groundwater sampling data¹⁸.

Several compounds have been detected above their respective MCL or NL. Compounds detected in one or more sampling rounds in on-Site monitoring wells which exceed their respective MCL or NL are summarized below.

¹⁷ Note that Site versus Non-Site related COCs are identified herein. SSCGs for all compounds regardless of their source are provided in accordance with RWQCB directives.

¹⁸ Data in Table 4-4 do not include off-Site monitoring well data.

	Chemical	MCL (µg/L)	NL (µg/L)	Maximum detected concentration (µg/L)*
VOCs and Hydrocarbons	1,1-Dichloroethane	5		22
	1,1-Dichloroethene	6		33
	1,2,3-Trichloropropane		0.005	27
	1,2-Dichloroethane	0.5		6.1
	Benzene	1		680
	cis-1,2-Dichloroethene	6		510
	Naphthalene		17	82
	tert-Butyl Alcohol (TBA)		12	250
	Tetrachloroethene	5		260
	trans-1,2-Dichloroethene	10		120
	Trichloroethene	5		400
	Vinyl Chloride	0.5		0.71
	1,4-Dichlorobenzene	5		11
	Metals and General Minerals	Antimony	6	
Arsenic		10		900
Thallium		2		4.24J
Iron		300		67,000
Manganese		50		2550
Chloride		500 mg/L		1400 mg/L
Nitrate (as N)		10000		14000
Total Dissolved Solids		1000 mg/L		3320 mg/L
Specific Conductance	1600 µS/cm		4200 µS/cm	

* Unless noted

J: Estimated

Note: MCLs for iron, manganese, chloride, Total Dissolved Solids, and Specific Conductance are secondary MCLs. MCLs shown for chloride, Total Dissolved Solids, and Specific Conductance are the "upper" secondary MCLs.

Of the compounds listed, only benzene, naphthalene, and arsenic are considered Site-related COCs in groundwater. TPH is also considered a Site-related COC in

groundwater. Although MCLs or NLs do not exist for TPH, concentrations in Site groundwater exceed San Francisco Regional Water Quality Control Board Risk Based Environmental Screening Levels (SFRWQCB ESLs). Additional discussion of non-Site and Site-related COCs is presented in Sections 8.3.1 and 8.3.2.

8.3.1 Non Site-Related COCs

8.3.1.1 Tert-Butyl Alcohol (TBA)

TBA has been detected in groundwater beneath the Site. TBA is a fuel oxygenate additive and is also a breakdown product of methyl-tert butyl ether (MTBE). TBA and MTBE were both used as gasoline additives beginning in 1979. Although this compound has been detected in Site groundwater, it is considered a non-Site-related COC because its use post-dates the Site use as a crude oil storage facility that ended in the 1960s. The presence of TBA at the Site is likely related to other sources, including offsite sources such as the adjacent former Turco site (discussed above) and the Fletcher Oil site located 1,300 feet west of the Site. Leymaster (2009) indicated that the Fletcher Oil site was used to refine and store petroleum products including crude oil, light distillates such as gasoline, naphtha, and intermediate and heavier distillates such as diesel and asphalt. The refinery was in operation from 1939 to 1992. TBA was detected in groundwater at both the Turco and Fletcher Oil sites. Available information indicates that TBA in groundwater was detected as high as 850 µg/L at the Turco site (Leymaster, 2010) and 800 µg/L at the Fletcher Oil site (Leymaster, 2012).

TBA is widely detected in groundwater at the Site, both in Shallow Zone and Gage wells. It has been detected in 11 of the 17 Shallow Zone wells including the upgradient well MW-7. It has also been detected in 3 of the 4 shallow Gage wells and one of the deep Gage wells. The highest recorded (i.e., historical) concentration (250 µg/L) is in the shallow Gage well MW-G04S located in the northwestern portion of the Site. Its presence at the Site clearly demonstrates the migration of impacted groundwater onto the Site from off-Site sources. Potential sources are described in Section 2.1.2.

8.3.1.2 Chlorinated Compounds

Chlorinated compounds which exceed their respective MCLs in one or more Site monitoring wells include: 1,1-dichloroethane; 1,1-dichloroethene; cis-1,2-dichloroethene; trans-1,2-dichloroethene; 1,2-dichloroethane; 1,4 dichlorobenzene; tetrachloroethene; trichloroethene; and vinyl chloride. The presence of these chlorinated compounds in Site groundwater is attributed to off-Site sources and further demonstrates the migration of impacted groundwater onto the Site (as with TBA). Off-

Site sources for these compounds are clearly indicated by the observed distribution of TCE and PCE in shallow groundwater. Figures summarizing recent TCE and PCE concentrations in shallow groundwater for the Site and for upgradient off-Site locations, including the Turco Facility, OTC Facility (Monterey Pines), and Fletcher Oil site, are presented in Appendix E (Figures E-4 and E-5). In addition, maximum historical TCE and PCE detections are depicted in Appendix E (Figures E-6 and E-7). The following are salient points regarding the observed TCE and PCE distribution in groundwater.

- There are numerous upgradient monitoring wells located on the adjacent former Turco Facility and OTC facility sites that contain significant concentrations of TCE and PCE. TCE and PCE have recently been detected as high as 660 µg/L and 480 µg/L in the Turco site monitoring wells screened in the Shallow Zone (MW-13S/D nested location). In the past, prior to ongoing remedial efforts at Turco, TCE and PCE were detected as high as 5,500 µg/L and 9,200 µg/L in Turco monitoring wells (Leymaster, 2013). The off-Site Turco monitoring wells containing these elevated TCE and PCE concentrations are located directly adjacent to and upgradient of the Site (Figures E-6 and E-7). Based on the northeasterly groundwater flow direction, groundwater in the vicinity of these impacted off-Site wells has flowed and continues to flow onto the Site.
- The highest concentrations of dissolved TCE and PCE on the Site are present in shallow monitoring wells MW-01 and MW-05; these are both located on the western boundary of the Site immediately downgradient of the former Turco and OTC sites. In August 2013 TCE and PCE were detected at 380 µg/L and 260 µg/L, respectively, in MW-1 and at 310 and 3.5 µg/L, respectively, in MW-05 (URS, 2013h).

MW-1 is located in the very southwest corner of the Site immediately downgradient of the former clarifier and wash area at the OTC site (Figures E-4 and E-5). As discussed previously in Section 2.0, investigations conducted during the clarifier removal indicated PCE and TCE impacts in underlying soil (PIC Environmental Services, 1995 and 1995a). PCE and TCE concentrations as high as 1,840 µg/kg and 7,850 µg/kg, respectively, were detected in soil samples collected during soil excavation operations in the former OTC wash/clarifier area (PIC, 1995a). Although the PIC report notes the soil concentration data, it is unclear whether groundwater samples were collected. Given the elevated soil impacts at OTC and the lack of deeper vadose zone impacts at the Site (see below), it is likely that groundwater impacts occurred at OTC and migrated downgradient to the Site. MW-05 is located in the

northwestern portion of the Site immediately adjacent to the former Turco facility site where high TCE and PCE concentrations have been detected in shallow groundwater (Figures E-4 through E-7).

- Data do not support the Site as a source of the TCE and PCE found in groundwater. No historical evidence for solvent use on-Site was found during extensive research associated with Site investigations over the past several years. Analysis of more than 400 Site soil samples collected in the deeper vadose zone (10 feet to groundwater) contained no detectable TCE or PCE, while these constituents were detected in deeper vadose zone samples collected at the adjacent OTC and Turco sites. TCE and PCE concentrations in Site shallow groundwater are observed to rapidly attenuate across the Site from west (near the off-Site Turco and OTC sources) to east (generally in the downgradient direction of groundwater flow).
- The highest recorded detections of the chlorinated solvents 1,1-dichloroethane, 1,1-dichloroethene, and vinyl chloride in monitoring wells installed during this investigation has occurred in the upgradient and off-Site MW-7 monitoring well. MW-7 is located in the former OTC facility area.

Based on the preponderance of data and information regarding sources of chlorinated solvents, including information presented in Section 2.1.2, the presence of chlorinated compounds in Site groundwater is attributed to off-Site sources.

1,2,3-trichloropropane (1,2,3-TCP) has been previously detected in two Shallow Zone monitoring wells (Shallow Zone well MW-06 located in the northeast portion of the Site and MW-7 located west and hydraulically upgradient of the Site) and shallow Gage well MW-G02S located in the west central portion of the Site. During the most recent 3rd quarter 2013 monitoring event, 1,2,3-TCP was only detected in MW-06 at a concentration of 8.7 µg/L. 1,2,3-TCP is an emerging chemical of concern with no MCL, but a relatively low NL of 5 parts per trillion. 1,2,3-TCP is commonly associated with agricultural soil fumigation activities or industrial solvent use. The chemical is not considered a Site-related COC, but has been detected at the adjacent upgradient Turco site.

8.3.1.3 General Minerals

The general mineral quality of groundwater in nearly all Shallow Zone Site wells exceeds State Secondary MCLs for total dissolved solids (TDS) and electrical conductivity (Table 4-4)¹⁹. Chloride also exceeds the Secondary MCL in the wells with the highest TDS. Iron and manganese exceed the Secondary MCL in nearly all wells. This is typical of shallow water in the general area.

The most-recently reported TDS concentrations in the Shallow Zone wells ranged from 745 mg/L to 9,700 mg/L (URS, 2013i). The TDS in the underlying Gage aquifer is generally less than 1,000 mg/L and is of better quality than the Shallow Zone groundwater. Elevated concentrations of TDS (and electrical conductivity) are common in groundwater in much of the LA Basin (Water Replenishment District [WRD], 2008), particularly in shallow groundwater and near the coast where aquifers have been affected by seawater intrusion. WRD (2013) indicates that TDS concentrations in the West Coast Basin have been elevated due to seawater intrusion, and the secondary MCL of 1,000 mg/L has been exceeded in areas along the coast and in the Dominguez Gap area. As an illustration of the high background of general mineral concentrations in the area, the highest reported TDS, specific conductance, and chloride in a Site monitoring well have been measured in the upgradient MW-7 well. TDS, specific conductance, and chloride in MW-7 were measured at 9,700 mg/L, 10,000 μ mhos/cm, and 4,700 mg/l, respectively, during the 2nd quarter 2013 monitoring event (URS, 2013i). The very high TDS in MW-7 may be also related to historic oil brine disposal on the former OTC site (PIC, 1995b).

Iron and manganese are also elevated in the upgradient well MW-7; these were detected at 15.4 mg/L and 3.3 mg/L, respectively, during the 2nd quarter 2013 event (URS, 2013i). The elevated detection of manganese is higher than any detections in on-Site monitoring wells. The dissolved iron and manganese in groundwater is likely derived primarily from native Site soils (i.e., soils contain a large amount of iron and manganese). WRD (2013) indicates that iron and manganese in groundwater are naturally occurring and that their concentrations in WRD West Coast Basin monitoring wells often exceed their respective secondary MCLs.

¹⁹ Electrical Conductivity or EC is a generally related and proportional to Total Dissolved Solid concentrations.

The elevated TDS, specific conductance, chloride, iron, and manganese concentrations at the Site are considered to be regional in nature or from natural or upgradient sources and are not attributed to previous Site activities prior to the late 1960s.

Nitrate exceeds the MCL in one Shallow Zone Site well (MW-01). Detected nitrate (as nitrogen) concentrations have ranged between 12 mg/L and 14 mg/L in the well. The source of the nitrate is not known, but is not expected to be related to previous Site activities prior to the late 1960s. Furthermore, the extremely limited distribution of impact in the Site groundwater indicates that nitrate is unlikely to be related to Site activities.

8.3.1.4 Metals

Antimony and thallium exceed the MCL in several Site wells (Table 4-4). In the most recent monitoring event that sampled and analyzed for these metals (4th quarter 2012), antimony slightly exceeded the MCL in only one shallow monitoring well, and thallium slightly exceeded the MCL in three shallow monitoring wells and three Gage wells (URS, 2013c). Thallium concentrations were reported above the MCL in only the 4th quarter 2012 event and were reported as estimates because of the low levels detected (i.e., 3-4 µg/L).

These metals can be present in trace concentrations in crude oil, but also occur naturally in the environment. Given the very limited distribution of impact in Site groundwater, they are unlikely to be related to crude oil impacts and are not considered Site-related COCs.

8.3.2 Site-Related COCs

Site-related COCs in groundwater exceeding State MCLs or NLs are benzene, naphthalene, and arsenic. TPH also exceeds ESLs. These compounds are discussed below.

8.3.2.1 Benzene

As discussed in Section 2.1.2, benzene is widespread beneath the Site and in upgradient areas. Benzene in Site groundwater is attributed to one or more of the following potential sources:

- Leaching of benzene from hydrocarbon-impacted Site soils,

- Leaching of benzene from LNAPL locally present at or near the water table beneath the Site, and
- Migration onto the Site from upgradient sources, including Turco.

The distribution of benzene in Site groundwater is depicted on Figures 8-2, 8-3, and 8-4; these figures are based on data in the 3rd quarter 2013 groundwater monitoring report (URS, 2013h). As shown on Figure 8-2, benzene is present beneath much of the Site in the Shallow Zone. The highest concentrations of benzene detected in the Shallow Zone during the 3rd quarter 2013 were in wells MW-13 and MW-06 (440 µg/L and 150 µg/L, respectively). Both monitoring wells are located in the northeast portion of the Site. Off-Site to the northeast (downgradient), benzene was detected in one downgradient well, MW-10, at a concentration of 3.6 µg/L (URS, 2013h).

Concentrations of benzene attenuate markedly in the underlying Gage aquifer. Figure 8-3 shows recent data for the shallow Gage (URS, 2013h). Benzene concentrations in wells MW-G01S, -G02S, -G03S, and -G04S are ND, 0.19 µg/L, 0.31 µg/L, and 130 µg/L, respectively. The benzene concentration of 130 µg/L in MW-G04S is anomalous because that concentration is significantly higher than the overlying Shallow Zone concentration of 4.9 µg/L in MW-17. Furthermore, the elevated benzene concentration in this shallow Gage well MW-G04S is also associated with the highest TBA concentrations at the Site: 210 µg/L in the 3rd quarter 2013 and up to 250 µg/L historically. As described previously, TBA was introduced as a gasoline additive in 1979 and is associated with relatively recent gasoline impacts. Thus, TBA in MW-G04S is unrelated to Site activities prior to the late 1960s. The association of the anomalous elevated benzene concentration in MW-G04S with the elevated TBA concentration in the same well indicates that benzene impacts in this well are attributable to refined gasoline from an off-Site source and not to former Site operations. Elevated benzene concentrations have been detected in off-site Turco monitoring wells MW-8 and MW-13D, which are directly upgradient of MW-G04S (Figure E-3). Benzene concentrations in Turco monitoring wells MW-8 and MW-13D were recently detected at 210 µg/L and 130 µg/L, respectively. Historically, benzene has been detected as high as 4,600 µg/L in Turco MW-8 and 190 µg/L in Turco MW-13D (Leymaster, 2013).

Benzene was not detected in samples collected in the deeper portion of the Gage aquifer during the most recent monitoring event (Figure 8-4).

As shown on Figures 8-2 through 8-4, the lateral and vertical distributions of benzene at the Site are generally well defined. Benzene concentrations in downgradient, off-Site

wells (MW-09, MW-10, and MW-11) ranged from ND to 3.6 µg/L in the 3rd quarter 2013 and are significantly lower than in on-Site wells. The Gage aquifer wells define the vertical benzene distribution, with the exception of the anomalously high benzene detection in shallow Gage well MW-G04S which, as discussed above, is attributed to an off-Site source.

To characterize the stability of the benzene groundwater plume at the Site, two public-domain software packages, Monitoring and Remediation Optimization System (MAROS) and Bioscreen, were used to analyze the temporal trends of the plume (AFCEE, 2004 and USEPA, 1996). Details of these analyses are presented in Appendix C.

The results of the MAROS analysis are summarized as follows.

- Based on statistical analysis of the data collected to date from the 23 on-Site and off-Site wells with dissolved phase data (MW-07 was not included because it is an upgradient off-Site well), benzene concentrations in most wells are non-detect or have either No Trend, or Stable or Decreasing trends.
- Overall the MAROS trend analysis indicates that the dissolved benzene plume located beneath the Site is Potentially Decreasing and that benzene concentrations in the “tail area” or downgradient (off-Site) areas are Decreasing.
- The moment analysis shows that the total dissolved mass of the benzene plume displays a Probably Decreasing trend. Four wells display statistically increasing trends. Overall, the MAROS analysis shows the plume is Potentially Decreasing in size.

Given these overall trends provided by the MAROS analysis, it is likely that the benzene in Site groundwater is being attenuated through natural biodegradation processes and is a stable or decreasing plume. This conclusion is supported by the current observed distribution of benzene in the plume, which shows significant attenuation (to non-detect or near non-detect concentrations) at the downgradient plume edge near the property boundary). The conclusion is also supported by the significant age of the plume source (more than ~45years).

Additional modeling was performed using the Bioscreen model (USEPA, 1996) to further evaluate plume stability and to estimate the migration and biodegradation of the benzene groundwater plume. Bioscreen simulates key fate and transport processes of hydrocarbons such as advection, dispersion, sorption, and biodegradation. A

description of the model, information on selection of parameters, and simulation results are presented in Appendix C.

Two source-zone scenarios were modeled with the Bioscreen model: (1) a source zone (LNAPL) without reduction, and (2) a source zone assuming 80% reduction (i.e., source removal). Simulation results show that without source zone reduction, the benzene concentration at the source zone will decrease to below the MCL (1 µg/L) in over 300 years, but also that no noticeable down-gradient migration of the benzene plume is predicted. The second simulation (assuming 80% benzene source zone mass removal) predicts that the benzene concentrations in groundwater will be degraded to below the MCL in approximately 70 years, also with no discernible down-gradient migration of the benzene plume.

8.3.2.2 Naphthalene

Naphthalene is detected in groundwater from the majority of Site wells. However, concentrations that exceed the NL of 17 µg/L have been detected in only two wells. Naphthalene has been detected at a maximum concentration of 82 µg/L in well MW-13, located in the northern portion of the Site (detected at 60 µg/L in the 3rd Quarter 2013). MW-13 is the monitoring well with the highest detected concentration of benzene at the Site. Naphthalene is also present above the NL (detected at 30 µg/L during the 3rd Quarter 2013) in well MW-14, located in the southern portion of the Site. Concentrations of naphthalene exceeding the NL are limited to these two areas and the extent is relatively well delineated.

8.3.2.3 TPH

TPH has been detected in Site monitoring wells at concentrations exceeding SFRWQCB groundwater ESLs. TPH-gasoline, TPH-diesel, and TPH-motor oil in Site groundwater have historically been detected as high as 3,200 µg/L, 3,000 µg/L, and 1,700 µg/L, respectively. In the most recent groundwater monitoring event (3rd quarter 2013), TPH-gasoline concentrations above the ESL of 410 µg/L were detected in three Site monitoring wells: MW-02, MW-06 and MW-13 (URS, 2013h). The highest TPH-gasoline concentration, 1,400 µg/L, was detected in MW-13 located in the northern portion of the Site. In the same monitoring event TPH-diesel concentrations above the ESL (200 µg/L) were detected in three wells: MW-06, MW-08, and MW-13 (URS, 2013h). The highest TPH-diesel concentration, 2,400 µg/L, was also detected in MW-13. The TPH-diesel ESL was also exceeded in the off-site upgradient monitoring well MW-07. The TPH-motor oil ESL was not exceeded in samples collected during the 3rd quarter 2013 monitoring event.

8.3.2.4 Arsenic

Arsenic has been detected in most of the Site monitoring wells. During the most recent groundwater monitoring event in which arsenic was sampled (2nd quarter 2013), arsenic concentrations exceeding the MCL of 10 µg/L were detected in several wells MW-4, 5, 6, 7, 8, 10 11, 13, 14, 15, 16, 17, G-04S, and G-03D (URS, 2013i). Dissolved arsenic was relatively elevated (above 100 µg/L) in three Shallow Zone wells located in the west central portion of the Site (MW-05, MW-08, and MW-15) and in one downgradient well (MW-10). The highest historical arsenic concentration, 900 µg/L, was reported in a sample collected from MW-08. Arsenic was not detected in the three off-Site Shallow Zone downgradient wells.

Dissolved arsenic concentrations in the deeper Gage wells are significantly lower and are only slightly above the MCL of 10 µg/L. The highest reported arsenic concentration in the Gage aquifer was 17.1 µg/L in MW-G04S.

Although arsenic is identified as a COC (Section 2.2), it is likely that a portion, if not all, of the arsenic present in groundwater is derived from native Site soils. Arsenic is a natural trace element that occurs in soils. Under reducing conditions, iron oxides that can bind with natural arsenic tend to dissolve. Arsenic can then be freed and will be in a more soluble and, thus, mobile phase. The relatively high dissolved iron and manganese concentrations in many of the Site wells may be indicative of reducing conditions beneath the Site; the relatively low field oxidation reduction potential (ORP) measurements in the field during sampling also indicate reducing conditions. These reducing conditions in the Site subsurface may be natural, but may also be enhanced by the presence of petroleum hydrocarbon compounds that consume oxygen during aerobic biodegradation. Welch et al. (2000) indicates that arsenic in the iron oxides of natural aquifer materials may be an important source of dissolved arsenic at sites contaminated with VOCs.

Because arsenic is naturally soluble, dissolved arsenic is a common contaminant in southern California groundwater. Out of all wells sampled by WRD in the West and Central Groundwater Basins in the Los Angeles area, arsenic exceeds its MCL more than any other constituent (WRD, 2008). WRD (2008) reports that arsenic concentrations as high as 205 µg/L were detected in the wells they monitor. Groundwater immediately upgradient of the Site has elevated arsenic. In the 2nd quarter 2013 event, arsenic was detected above the MCL at a concentration of 38.8 µg/L in the upgradient well MW-7.

In summary, it is known that arsenic is a regional contaminant in southern California. It is likely that at least a portion, if not all, of the dissolved arsenic beneath the Site is derived from natural sediments beneath the Site. Petroleum hydrocarbon impacts at the Site may enhance the solubility of arsenic by lowering oxygen levels in the subsurface, thus increasing the mobility of arsenic in soils beneath the Site. Based on monitoring well data, relatively elevated arsenic concentrations are localized in the central western portion of the Site and are attenuated significantly in the downgradient direction.

8.4 Proposed Cleanup Goals for Groundwater

8.4.1 Site Conditions Relevant to Establishing Cleanup Goals

As described in Section 8.2, groundwater beneath the Site is impacted with various chemicals including petroleum hydrocarbons, chlorinated hydrocarbons, metals, and general minerals. Of these, COCs which exceed an MCL or NL in groundwater are benzene, naphthalene, arsenic, trace metals (antimony and thallium), various chlorinated compounds and 1,2,3-TCP, and general minerals. TPH exceeds ESLs. Key factors in establishing cleanup goals for these compounds are discussed below for these COCs. Selection of the appropriate SSCGs for Site groundwater is addressed in Section 9.

8.4.1.1 Benzene

- Benzene is the most significant of the COCs in groundwater because it is widespread in the Shallow Zone as well as in soil and soil vapor.
- The distribution of benzene in groundwater is generally well defined, both laterally and vertically. The downgradient limit of the benzene plume is at or near the northeastern property boundary. Benzene concentrations are low to non-detect in the Gage aquifer with the exception of one well that is likely being affected by an off-Site source given the co-located elevated concentrations of TBA.
- The benzene groundwater plume at the Site appears to be stable or decreasing in volume and size as shown by statistical analysis and modeling. Statistical analysis indicates that the plume concentrations are decreasing and model simulations predict a reduction of benzene concentrations to MCLs in 70 to over 300 years depending on the level of source removal. The observed current distribution of dissolved benzene in Site monitoring wells demonstrates attenuation of benzene to MCLs or near MCLs at the downgradient end of the

plume on the northeastern Site boundary. The presence of relatively low levels of dissolved oxygen in groundwater samples suggests the benzene plume (and other TPH compounds) in groundwater is degrading through microbial activity.

- It is expected that the benzene sources have declined over time and will continue to do so in the future. Based on the SCM and the age of potential petroleum releases at the Site, groundwater impacts from leaching from Site soils are expected to decrease through time. Crude oil present in the vadose zone above the groundwater table and in a limited area at or below the water table has been subject to biological degradation and leaching over a period of more than 45-years. It is expected that benzene concentrations in soils will be further reduced over time by degradation and/or continued, but reduced leaching, as the sources diminish. The diminishing concentrations of benzene in the vadose zone are expected to result in continued declining benzene levels in groundwater in the future.
- The technological and economic feasibility of groundwater remediation of benzene is largely dependent on the ability to remove potential sources in the vadose zone, in LNAPL, in the higher concentration areas of the plume, and in upgradient areas (see above discussion of upgradient sources). This is discussed in detail in Section 9).

8.4.1.2 Naphthalene

- Naphthalene is not expected to be naturally occurring in shallow groundwater beneath the Site and exceeds the NL in two wells on-Site, both of which are already impacted by benzene.

8.4.1.3 TPH

- TPH is not expected to be naturally occurring in shallow groundwater beneath the Site and, based on recent quarterly monitoring results (URS, 2013h), exceeds TPH-gasoline ESLs in three on-site monitoring wells and TPH-diesel ESLs in three on-site monitoring wells. These locations are also impacted by benzene.
- The technological and economic feasibility of groundwater remediation of TPH is largely dependent on the ability to remove potential sources in the vadose zone, LNAPL in groundwater, and in upgradient areas (see Section 9).

8.4.1.4 Arsenic

- The source of arsenic is likely naturally occurring, although the concentrations may be locally enhanced due to the presence of reducing conditions related to the degradation of petroleum hydrocarbon compounds). Once petroleum hydrocarbons are depleted, elevated arsenic would be expected to return to background concentrations.
- Arsenic is recognized as a regional issue in southern California groundwater. Arsenic has been reported by WRD as the constituent that exceeds its MCL more than any other constituent in the West and Central Groundwater Basins (WRD, 2008).

8.4.1.5 Trace Metals

- Dissolved antimony and thallium have been detected at low concentrations above their respective MCLs in groundwater from several Site wells. These metals are present in natural soils and in trace concentrations in crude oil. They are present at very low concentration and have limited distribution in Site groundwater.

8.4.1.6 TCE, PCE and other Chlorinated Compounds

- Based on the lack of detections of TCE and PCE in vadose zone soils below 10 feet and their presence at significant concentrations in groundwater in upgradient areas, the source of these compounds in Site groundwater is considered to be off-Site.
- The technological and economic feasibility of groundwater remediation of all chlorinated compounds will be dependent on the ability to remediate upgradient sources. Cleanup of chlorinated solvents to MCLs at the Site will not be technologically feasible without cleanup of off-Site sources. A groundwater remedy that reduces the concentrations of these compounds in groundwater without source reduction will have limited success (see Section 9).

8.4.1.7 General Minerals

- General minerals or parameters exceeding secondary MCLs include TDS, electrical conductivity, chloride, iron, and manganese. These compounds are observed to be highly elevated in the one upgradient monitoring well (MW-7)

and elevated concentrations of these dissolved compounds are common in LA Basin groundwater, particularly near the coast. However, in general, the sources of these general mineral compounds are not thought to be related to previous Site activities prior to the late 1960s.

- Nitrate exceeds the primary MCL in one well. The source of the nitrate is not known, but is not expected to be related to previous Site activities prior to the late 1960s.

8.4.1.8 Other Factors

- Although groundwater beneath the Site is designated for municipal use, groundwater in both the Shallow Zone and the Gage aquifer in the Site vicinity is not currently used for drinking or other purposes. Because groundwater extractions from the area are strictly controlled (the West Coast Basin is adjudicated), there is no foreseeable future use of water from the Shallow Zone and Gage aquifer in the area.

8.4.2 Regulatory Standards Relevant to Establishing Cleanup Goals

CAO # R4-2011-0046 (LARWQCB, 2011) included a discussion of the Basin Plan and State Water Board Resolution Nos 68-16 and 92-49. As stated in the CAO:

“Groundwater cleanup goals shall at a minimum achieve applicable Basin Plan water quality objectives, including California’s MCLs or Action Levels for drinking water as established by the California Department of Public Health, and the State Water Resources Control Board’s (SWRCB) ‘Antidegradation Policy’ (SWRCB Resolution No 68-16), at a point of compliance approved by the LARWQCB, and comply with other applicable implementation programs in the Basin Plan.”

“The SWRCB’s ‘Antidegradation Policy’ requires attainment of background levels of water quality, or the highest level of water quality that is reasonable in the event that background levels cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, and not unreasonably affect present and anticipated beneficial uses of the water, and not result in exceedance of water quality objectives in the LARWQCB’s Basin Plan.”

It is not clear that State Water Board Resolution No. 68-16 is triggered here. Resolution No. 68-16 was implemented to regulate “the granting of permits and licenses for unappropriated waters and the disposal of wastes into the waters of the State” where groundwater conditions are better than water quality levels. In such cases, new discharges may only be permitted where certain findings are made. The establishment of SSCGs for the Site does not include a request for approval for disposal of wastes into the groundwater beneath the Site; to the contrary the proposed SSCGs, the future submission of the RAP and the other steps Shell is taking to comply with the CAO are all aimed at addressing the effects of existing Site-related COCs.

Also, Resolution No. 68-16 was implemented to maintain water quality conditions where such conditions are better than water quality levels established in a policy, such as the Basin Plan, at the time of its adoption. Given the historical nature of the Site conditions, it appears unlikely that water quality at the Site (with respect to the COCs in groundwater) was better than the standards set forth in the Basin Plan when it was adopted in 1994. “When undertaking an antidegradation analysis, the Regional Board must compare the baseline water quality ... to the water quality objectives. If the baseline water quality is equal to or less than the objectives, the objectives set forth the water quality that must be maintained or achieved. In that case the antidegradation policy is not triggered.” *Asociacion de Gente Unida por el Agua v. Cent. Valley Reg'l Water Quality Control Bd.*, 210 Cal.App.4th 1255, 1270 (2012).

In its comments to the original SSCG Report, the Regional Board provided the following discussion concerning State Water Board Resolution No. 92-49:

“The SWRCB’s ‘Resolution No. 92-49’ requires the Regional Board to assure that waste is cleaned up to background conditions, or if that is not reasonable, to an alternative level that is the most stringent level that is economically and technologically feasible. Resolution 92-49 does not require, however, that the requisite level of water quality be met at the time of site closure. Even if the requisite level of water quality has not yet been attained, a site may be closed if the level will be attained within a reasonable period.”

We generally agree with this summary but note that Resolution No. 92-49 does not mandate cleanup of soil, soil vapor, or indoor air to background levels for each of those media. Instead, Resolution No. 92-49 requires that waste is cleaned up and abated:

“in a manner that promotes attainment of either background water quality, or the best water quality which is reasonable if background levels of water quality cannot be restored, considering all demands being made and to be made on those

waters and the total values involved, beneficial and detrimental, economic, social, tangible and intangible.”

The focus in Resolution No. 92-49 with respect to remedial activity is on water quality and not on all media. Waste in non-water media (such as soil) should be addressed through remediation to promote the attainment of background water quality (not, for example, background levels in soil) or the best water quality that is reasonably feasible given the considerations listed.

8.4.3 Proposed Site-specific Cleanup Goals for Groundwater

To reiterate, the proposed RAOs listed in Section 3.0 relevant to groundwater are:

- Remove or treat LNAPL to the extent technologically and economically feasible, and where a significant reduction in current and future risk to groundwater will result, and
- Reduce COCs in groundwater to the extent technologically and economically feasible to achieve, at a minimum, the water quality objectives in the Basin Plan to protect the designated beneficial uses, including municipal supply.

There are several possible SSCGs that could be applied to the Site to meet the RAOs for groundwater, as described in general below. Table 8-1 summarizes possible SSCGs for the COCs in groundwater at the Site. Section 9.0 addresses selection of the most appropriate SSCG for the Site, based on the RWQCB directive to “propose SSCGs for groundwater to achieve, at a minimum, applicable Basin Plan water quality objectives within a reasonable time frame and that take into account continuing migration of waste into groundwater” as well as levels that are “economically and technologically feasible.”

8.4.3.1 LNAPL

The SSCG for LNAPL is to remove or treat LNAPL to the extent technologically and economically feasible, and where a significant reduction in current and future risk to groundwater will result. The technological and economic feasibility of implementing this SSCG is discussed in Section 9.0.

8.4.3.2 Background Water Quality

One possible SSCG for the Site is background water quality. Background would generally be considered non-detect for most organic compounds (TPH and chlorinated compounds). Background for metals is much more difficult to assess considering that

Shallow Zone groundwater data for metals from non-impacted sites in the Site vicinity are very limited, metals occur naturally in soils), and naturally elevated concentrations can occur in groundwater due to localized geochemical conditions. For similar reasons, background for general mineral compounds is also difficult to assess. Background levels for several of the metals and general mineral compounds, including arsenic, iron, manganese, TDS, chloride, and specific conductance, are well documented to be elevated in the West Coast Basin.

SSCGs based on background concentrations would be highly protective considering that the groundwater is not used as a water source, nor would be used as a water source in the foreseeable future. As discussed in Section 9.0, cleanup to background levels over a relatively short time period is not technologically or economically feasible given the need to remove all sources both on- and off-Site in order to achieve background water quality.

8.4.3.3 Maximum Contaminant Levels

Given that all groundwater beneath the Site is designated for municipal use in the Basin Plan, MCLs, NLs, and ESLs are possible SSCGs for the Site. MCLs would meet the requirements of the Basin Plan and are protective of hypothetical municipal use, although there is no reasonably anticipated use of the Shallow Zone groundwater in the future given its elevated general mineral content and the adjudicated nature of the basin which effectively restricts future well installation and pumping.

COCs above their MCLs, NLs, or ESLs are presented in Section 8.3 and Table 8-1. The major site-related COC is benzene. As noted in Section 8.3.2.1, based on modeling results for current conditions, the benzene plume will reduce to MCL concentrations in approximately 70 to over 300 depending on While this time frame could be reduced through source removal, it is difficult to quantify the reduction in time to reach MCLs given the potential contribution from off-Site sources.

The Low Threat Closure Policy (SWRCB, 2012e) currently allows closure of sites with up to 1 mg/L or 3 mg/L benzene (based on plume length) where certain criteria are met. Although the Site is not an UST site and does not meet all the criteria for closure under the Low Threat Closure Policy, there are several general criteria which the Site does meet including: (1) the release is located within the service area of a public water system, (2) the unauthorized release consists only of petroleum, (3) the unauthorized release has been stopped, (4) a site conceptual model that assesses the nature, extent, and mobility of the release has been developed, and (5) soil and groundwater has been tested for MTBE and results have been reported. The benzene plume beneath the Site

appears be more than 250 feet in length but less than 1,000 feet in length, so the specific criterion of benzene concentrations being less than 1,000 µg/L is met. However, other specific criteria, such as the requirement of the nearest water supply well being located greater than 1,000 feet away is not met, although the one well located within 1,000 feet of the Site is in a hydraulically upgradient area and is completed below the Shallow zone and Gage aquifers.

Cleanup of TPH-related compounds (including benzene) to MCLs will eventually occur due to natural biodegradation; however the length of time needed to meet MCLs will be long and the length of time to meet background levels even longer. The time could be expedited through removal of some source material, such as LNAPL removal, targeting high benzene areas in the vadose zone for SVE, and/or conducting “hot spot” remediation of elevated concentration areas in groundwater. Reduction of TPH-related compounds to the MCL or low-level range is expected to cause arsenic to decrease to background levels as well.

9.0 EVALUATION OF TECHNOLOGICAL AND ECONOMIC FEASIBILITY OF SSCGs AND SELECTION OF SSCGs (SCREENING FEASIBILITY STUDY)

9.1 Introduction

This section provides a preliminary evaluation of remedial alternatives (Screening Feasibility Study [Screening FS]) for the residential properties and the selection of SSCGs²⁰.

As directed in the CAO and comments from RWQCB and others, SSCGs selected for the Site must be technologically and economically feasible. In order to evaluate the technological and economic feasibility of the SSCGs, possible SSCGs were first defined for soil, soil vapor, and groundwater. These were discussed in Sections 6, 7, and 8 of this report. Next, a series of representative potential remedial alternatives to achieve the various SSCGs were selected and compared against one another using criteria including implementability; environmental considerations; reduction of toxicity, mobility and volume of COCs; social considerations; other issues; and cost. The SSCGs selected for the Site are those SSCGs associated with the recommended remedial alternatives that are identified in this comparative analysis. This process, the Screening FS, is described in this Section and summarized in Table 9-1. The selected SSCGs for the Site are listed in Tables 9-2 through 9-4. It is envisioned that a detailed evaluation of the recommended remedial alternatives will be conducted and presented in the forthcoming RAP.

Remedial alternatives consist of groupings of treatment technologies selected to achieve a specified cleanup goal or set of goals. Remedial alternatives were assembled for evaluation to the extent practical at this level of project development based on the following process:

1. Define possible cleanup goals (Sections 6, 7 and 8).

²⁰ The technical and economic feasibility evaluation focuses on remediation of the residential properties located on the Site. This evaluation does not include an assessment of remediation to meet construction and utility maintenance workers goals, because we anticipate that a soil management plan will be put in place to address these exposures. The soil management plan will be prepared either as a part of or subsequent to the RAP.

2. Identify technologies that may be used to meet those goals and screen out technologies that are not effective or are not suitable for the site based on site-specific information and tests conducted on the technologies (Section 9.2).
3. Assemble the technologies into remedial alternatives (Section 9.3).
4. Perform a preliminary evaluation of alternatives based on implementability; environmental considerations; reduction of toxicity, mobility and volume of COCs; social considerations; other issues; and cost. This preliminary evaluation results in a set of alternatives for which a comparative evaluation is performed (Section 9.4).
5. Perform a comparative evaluation (Section 9.5).
6. Recommend an alternative or alternatives and associated SSCGs (Section 9.6).

Steps 2 through 6 are described in the sections that follow.

9.2 Identification and Screening of Remedial Technologies

Technologies implemented in remedial actions mitigate exposure either through elimination of exposure pathways or through removal of COC mass in one or more of the affected media (i.e., soil, soil vapor, or groundwater). In this section, potential technologies are screened on the basis of effectiveness and feasibility.

9.2.1 Remedial Technologies that Interrupt the Human Health Exposure Pathway

The following technologies interrupt the human health exposure pathway:

- Sub-slab vapor mitigation, which may include the installation of vapor barriers, venting, or sub-slab depressurization;
- Capping portions of the Site, which involves the placement of synthetic fibers, clays, and/or concrete; and
- Institutional controls, which restrict access to contaminated media.

Each of these technologies is discussed below with respect to their potential for inclusion in remedial alternatives.

Sub-slab Vapor Mitigation: This technology is proven effective at interrupting the human health exposure pathway to subsurface vapor sources. Although there does not appear to be a measurable contribution of COCs from sub-slab vapor to indoor air, sub-slab vapor mitigation is technologically feasible to implement at the Site and it has been retained for inclusion in remedial alternatives.

Capping Portions of the Site: As a technology, capping is quite effective at interrupting the human health exposure pathway at a site. Various types of site caps may be employed to accommodate future site uses. Types of site caps include soil, asphalt, concrete, marker beds or layers, and chemical or other types of sprays that can solidify a site surface. Capping is technologically feasible to implement at the Site and it has been retained for inclusion in remedial alternatives.

Institutional Controls: Institutional controls consist of administrative steps that may be used, in conjunction with other technologies or as a stand-alone approach, to minimize the potential for exposure and/or protect the integrity of a response action. Institutional controls are commonly utilized at sites to achieve cleanup objectives, and can take many forms (USEPA, 2012d). At this Site, Institutional Controls may include some form of deed notification to ensure current and future residents are aware of any residual contamination. They would also likely involve establishing a process, possibly through existing building and grading permit reviews, general plan overlay or footnote, area plan, or the like, to ensure that if a property owner plans to conduct activities such as building renovation, installation of a pool or deeper landscape alterations, Shell is notified so that the company can arrange for sampling and proper handling of any impacted soils that may be present. As such, it is not expected that Institutional Controls would interfere with the resident's use and enjoyment of his or her property. Institutional controls are technologically feasible to implement at the Site and they have been retained for inclusion in remedial alternatives.

9.2.2 Remedial Technologies that Remove COC Mass and Interrupt the Human Health Exposure Pathway

Technologies that remove COC mass in addition to interrupting the human health exposure pathway can operate through physical removal processes, such as excavation, as well as through chemical or biological processes. The following technologies have been evaluated for their capacity to remove COC mass from the Site in addition to interrupting the human health exposure pathway:

- Excavation;
- Soil vapor extraction (SVE);
- Bioventing;
- In-situ chemical oxidation (ISCO);
- LNAPL/source removal;
- Other removal or remediation of groundwater; and
- Monitored natural attenuation (MNA).

Each of these technologies is discussed below with respect to its relevance for inclusion in remedial alternatives.

Excavation: As discussed in Section 3, selective excavation of the Site around existing structures is feasible. Selective excavation could remove most of the contaminated soils for which a human exposure pathway is complete. Excavation of the entire Site would involve the removal of Site features, such as homes, roads, and utilities. While that may be technologically feasible, it is not considered feasible due to social and other considerations. In addition, excavation of the entire Site is likely not economically feasible especially in light of the limited reduction of risk that would be achieved by razing of the homes and removal of the streets given that the data collected indicate an incomplete pathway from soils beneath the homes and street. Moreover, any marginal improvement to groundwater resulting from Site-wide removal of structures would be greatly outweighed by the tremendous economic and social costs involved. Nevertheless, because excavation in some form is technologically and economically feasible, it is retained for inclusion in remedial alternatives.

Soil Vapor Extraction (SVE): Based on pilot tests conducted onsite, SVE may be able to remove lighter petroleum hydrocarbons, VOCs, and methane (Section 3). However, SVE would not effectively extract diesel, other heavier petroleum hydrocarbons, or SVOCs. SVE was retained for inclusion in remedial alternatives because it is feasible and it appears to be effective at removing some of the COCs.

Bioventing: As discussed in Section 3, bioventing appears to enhance the degradation of petroleum hydrocarbons. However, based on the average rate of biodegradation, the systems would have to be in place for several decades. Additionally, the average radius of influence of bioventing pilot test extraction wells was estimated to be approximately 10 feet. This translates to 15 to 20 extraction points that would have to be installed on each property to use bioventing at this Site, which would be considered to be prohibitive. Therefore, although a bioventing system may be capable of degrading some of the COCs, it would not be technologically and economically feasible to implement and is therefore eliminated from consideration for inclusion in remedial alternatives.

In-situ Chemical Oxidation (ISCO): Oxidants with a relatively high potential for site treatment were tested to assess the technological feasibility of treating Site soils using ISCO, as discussed in Section 3. These tests indicated that sodium persulfate was not effective and that an excessive quantity of ozone would be required for treatment. Based on these results, ISCO is not retained as a treatment technology and is therefore eliminated from consideration for inclusion in remedial alternatives.

LNAPL/Source Removal: Direct LNAPL removal, such as through pumping as is currently done or through direct excavation, is feasible in some areas and can be an effective treatment. Therefore, it is retained for inclusion in remedial alternatives.

Other Remediation or Removal of Groundwater: There are several technologies that may be used to treat the groundwater contaminants. Many of them involve pumping the groundwater to the surface to treat, which increases the probability of exposure. There are also in-situ remedies for some COCs. It is unlikely that widespread active remediation of all compounds in groundwater can be achieved effectively because the sources of the COCs will persist in the vadose zone and/or are located off-Site. Even assuming active remediation could remove all COCs in Site groundwater, the groundwater would become “re-contaminated” in time unless all sources were removed in the vadose zone as well as upgradient sources. Given that natural degradation of the petroleum hydrocarbon COCs is occurring and will continue to occur through time, “hot-spot” remediation of certain COCs in localized areas of groundwater (e.g. where COCs exceed 100x MCLs) may shorten the time over which the concentrations will return to background or MCL levels. Thus, “hot-spot” remediation of certain COCs in localized Site areas is retained for inclusion in the remedial alternatives. It is important to note that there is no complete human health exposure pathway for groundwater currently or in the foreseeable future.

Monitored Natural Attenuation (MNA): MNA relies on naturally occurring processes to decrease concentrations of chemical constituents in soil and groundwater. Natural processes include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of constituents in media of concern. Monitoring is performed to confirm that the concentrations of COCs are decreasing or to show that they are not. Hot spot remediation of groundwater could reduce the time needed for conditions to reach remedial objectives. MNA, with or without hot spot remediation, was retained for inclusion in remedial alternatives because its implementation is highly feasible and it is anticipated to be effective.

In summary, the following technologies were retained for inclusion in remedial alternatives:

- Sub-slab vapor mitigation,
- Capping,
- Institutional controls,
- Excavation,

- Soil vapor extraction (SVE),
- Hot-spot remediation of groundwater,
- LNAPL/source removal, and
- Monitored natural attenuation (MNA).

9.3 Assembly of Remedial Alternatives for Consideration in Developing SSCGs

In order to assist in the consideration and selection of SSCGs, technologies retained from the screening process were combined into representative preliminary remedial alternatives, as shown in Table 9-1. These remedial alternatives can achieve various SSCGs as discussed in Sections 6 through 8 and shown in Table 9-1. The remedial alternatives consider Site features, such as homes, roads, utilities, residential hardscape, and landscaping. "Residential hardscape" includes driveways, city sidewalks, patios, and walkways on residential properties. Remedial alternatives that involve excavating or capping the entire Site would involve the removal of all Site features, including homes, roads, utilities, residential hardscape, and landscaping.

The representative preliminary remedial alternatives that were assembled for the Screening FS and selection of the cleanup goals are as follows:

1. Excavation of impacted soils over the entire Site, LNAPL removal as feasible, groundwater MNA, and hot spot remediation of groundwater to reduce the time needed to achieve cleanup goals.
2. Excavation of the upper 10 feet of the entire Site, LNAPL removal as feasible, groundwater MNA, institutional controls on soil deeper than 10 feet, and hot spot remediation of groundwater to reduce the time needed to achieve cleanup goals.
3. Excavation of exposed soils and soils under residential hardscape to 2 feet bgs where human health goals based on 350 days of exposure per year (HH350) or soil leaching to groundwater goals are exceeded, installation of sub-slab mitigation at homes where sub-slab vapor concentrations exceed the screening value, LNAPL removal as feasible, groundwater MNA, institutional controls on soil deeper than 2 feet beneath homes, and hot spot remediation of groundwater to reduce the time needed to achieve cleanup goals.
- 3A. Excavation of exposed soils and soils under residential hardscape to 5 feet bgs where HH350 goals or soil leaching to groundwater goals are exceeded, installation of sub-slab mitigation at homes where sub-slab vapor concentrations exceed the screening value, LNAPL removal as feasible, groundwater MNA, and

institutional controls on soil deeper than 5 feet beneath homes, and hot spot remediation of groundwater to reduce the time needed to achieve cleanup goals.

- 3B. Excavation of exposed soils and soils under residential hardscape to 10 feet bgs where HH350 goals or soil leaching to groundwater goals are exceeded, installation of sub-slab mitigation at homes where sub-slab vapor concentrations exceed the screening value, LNAPL removal as feasible, groundwater MNA, institutional controls on COCs in soil deeper than 10 feet beneath homes, and hot spot remediation of groundwater to reduce the time needed to achieve cleanup goals.
4. Excavation of exposed soils to 2 feet bgs where HH350 goals or soil leaching to groundwater goals are exceeded, installation of sub-slab mitigation at homes where sub-slab vapor concentrations exceed screening value, LNAPL removal as feasible, groundwater MNA, institutional controls on residual COCs in soils deeper than 2 feet beneath homes and hardscape, and hot spot remediation of groundwater to reduce the time needed to achieve cleanup goals.
- 4A. Excavation of exposed soils to 5 feet bgs where HH350 goals or soil leaching to groundwater goals are exceeded, installation of sub-slab mitigation at homes where sub-slab vapor concentrations exceed screening value, LNAPL removal as feasible, groundwater MNA, institutional controls on residual COCs in soils deeper than 5 feet beneath homes and hardscape, and hot spot remediation of groundwater to reduce the time needed to achieve cleanup goals.
- 4B. Excavation of exposed soils to 10 feet where HH350 goals or soil leaching to groundwater goals are exceeded, installation of sub-slab mitigation at homes where sub-slab vapor concentrations exceed screening value, LNAPL removal as feasible, groundwater MNA, institutional controls on residual COCs in soils deeper than 10 feet beneath homes and hardscape, and hot spot remediation of groundwater to reduce the time needed to achieve cleanup goals.
5. Capping over the entire Site, removal of LNAPL as feasible, institutional controls onsite soils, and hot spot remediation of groundwater to reduce the time needed to achieve cleanup goals.
6. Capping exposed soils, installation of sub-slab mitigation at homes where sub-slab concentrations exceed screening value, LNAPL removal as feasible, groundwater MNA, institutional controls on residual COCs in soils and hot spot

remediation of groundwater to reduce the time needed to achieve cleanup goals.

7. The addition of limited SVE to Alternatives 2 through 6 for VOC/TPH mass reduction.

9.4 Preliminary Screening of Remedial Alternatives

The preliminary remedial alternatives were screened on the basis of the following criteria:

- f) Implementability;
- g) Environmental costs;
- h) Reduction of toxicity, mobility, and volume;
- i) Social costs; and
- j) Cost.

The considerations associated with the various criteria for each of the alternatives are summarized in Table 9-1, which also indicates the areas and depths for which each cleanup goal is achieved. Site investigation data collected at the Site (e.g., data reported in the Phase II Interim, Follow-up, and Final Interim Reports, and quarterly groundwater monitoring reports) were used to develop preliminary estimates of the scope of the different remedial technologies for the alternatives considered in the Screening FS. Conceptual costs for each alternative were estimated (approximately +50%/-30%) for the purposes of comparison between the alternatives and are provided in Table 9-5. It is envisioned that proposed remedial actions and costs for the selected alternative will be evaluated in more detail in the forthcoming RAP.

Assumptions used in screening of alternatives are:

- The soil SSCGs were developed assuming that residents would be exposed to surface soils (e.g., <2 feet bgs, <5 feet bgs, or <10 feet bgs) more frequently (350 days/year) than deeper subsurface soils (4 days/year) (see Section 6). These exposure periods are considered typical for residents. Based on the data presented in the Phase II Interim, Follow-up, and Final Interim Reports, the assumed numbers of properties that exceed the HH350 goals that are considered in the Screening FS are: 100 properties for the less than 2 feet bgs interval, 190 properties for the less than 5 feet interval, and 210 properties for the less than 10 feet interval.
- The soil vapor SSCGs were calculated based on the vapor intrusion analysis and assume a vapor intrusion attenuation factor of 0.001. Although the vapor

intrusion evaluation concluded that the indoor air concentrations are reflective of background concentrations, the sub-slab soil vapor data collected at the Site were used to identify potential properties for vapor intrusion mitigation systems. Based on the results presented in the HHSREs, the number of properties that exceed the soil vapor SSCGs that are considered in the Screening FS is 30 properties.

- With respect to groundwater, the possible SSCGs are MCLs/NLs/background for metals; or, background for all compounds. The only appreciable difference in these SSCGs is the length of time needed to achieve the SSCGs which is approximately 70-100 years for the petroleum compounds to meet MCLs/NLs, and longer to meet background.

9.4.1 Alternative 1

Alternative 1 would involve the removal of all Site features, including homes, roads, and utilities in order to remove impacted soils through excavation. This would achieve all soil goals, soil vapor goals, and nuisance goals. Assuming sources of COCs are successfully addressed through LNAPL removal and possibly hot spot groundwater remediation, LNAPL goals would be achieved, groundwater goals (MCLs) would be met in the long term, and background levels for groundwater would be achieved in the longer term, both through MNA. Hot-spot remediation of groundwater (e.g., where concentrations exceed 100x MCLs) would reduce the time to achieve the cleanup goals.

- a) This alternative would be very difficult to implement. Every resident within the Site would have to agree to relocate and all 285 houses would be razed. If some homeowners declined to move, the presence of some residents would make it untenable to remove all of the surrounding homes, streets and utilities. Permits for this removal action would be difficult to obtain. Approximately 250,000 truckloads of COC-impacted and non-impacted soil, as well as other construction debris from the razed structures (including asbestos), would be hauled to and/or from the Site via Lomita Avenue. It is very unlikely that this alternative would be allowed to proceed due to the need for complete participation from the all homeowners and residents, the anticipated public reactions from residential and commercial areas proximate to the Site, environmental effects, traffic impacts and permitting difficulties. The active remedial action is estimated to take approximately 4-½ years.

- b) In the long term, RAOs would be met for the Site. However, in the short term, significant and possibly unmitigatable air quality, noise, and traffic impacts would occur. It is very unlikely that this remedial action would be permitted under California Environmental Quality Act (CEQA).
- c) Alternative 1 would remove a high volume of COCs from the Site. Soil and soil vapor COCs would be removed, and source removal would facilitate the faster restoration of groundwater. The time for groundwater restoration is difficult to quantify, but is likely to be shorter than other alternatives that utilize SVE to reduce VOC mass in the Site vadose zone. The limited additional reduction in risk and modest impact to groundwater quality when compared with other alternatives is substantially outweighed by the high additional economic and social (including environmental) costs it would impose on the City, the surrounding residents and business owners and others, as well as the difficulties associated with implementation and the substantial costs required for implementation.
- d) The removal of this housing development would have significant long-term impacts to the community. All of the current Site residents would be displaced. Residents in the surrounding neighborhoods would experience the disruption of the community and the City would experience a loss of tax revenue.
- e) The cost of this alternative would be in the range of \$290MM to \$630MM. It is the most costly of the alternatives listed.

Alternative 1 is not considered technologically and economically feasible due to the very difficult degree of implementability; and very high social, environmental, and economic costs. The benefit of more substantial reduction in COC mass throughout the Site compared to other alternatives is outweighed by the high social, environmental, and economic costs of this alternative. Consequently, this remedial alternative is not retained for additional evaluation.

Alternative 2

Alternative 2 would involve the removal of all Site features, including homes, roads, and utilities, in order to excavate the upper 10 feet of Site soils. As a result of this action, all soil goals would be met in the upper 10 feet of Site soils, including leaching to groundwater and HH350. The remaining Site soils would achieve the human health

goals for infrequent exposure (4 days per year), and nuisance goals. Soil cleanup levels for groundwater protection (leaching to groundwater) may not be met in all the unexcavated soils. The soil vapor SSCGs would also be met. Assuming sources of COCs are successfully addressed through LNAPL removal, LNAPL goals would be achieved, groundwater goals (MCLs) would be met in the long term, and background levels for groundwater would be achieved in the longer term, both through MNA. Hot-spot remediation of groundwater (e.g. where concentrations exceed 100x MCLs) would reduce the time to achieve the cleanup goals.

- a) As with Alternative 1, Alternative 2 would be very difficult to implement. Every resident within the Site would have to agree to relocate and all 285 homes would be razed. If some homeowners declined to move, the presence of some residents would make it untenable to remove all of the surrounding homes, streets and utilities. Permits for this removal action would be difficult to obtain. Approximately 130,000 truckloads of COC-impacted and non-impacted soil, as well as other construction debris from the razed structures (including asbestos), would be hauled to and/or from the Site via Lomita Avenue. It is very unlikely that this alternative would be allowed to proceed due to the need for complete participation from the all homeowners and residents, the anticipated public reactions from residential and commercial areas proximate to the Site, environmental effects, traffic impacts, and permitting difficulties. The active remedial action is estimated to take approximately 2-½ years. Despite the implementation of comprehensive soil removal from the Site, institutional controls would be required to limit access to soils below 10 feet.
- b) In the long term, RAOs would be met for the Site. However, in the short term, significant air quality, noise, and traffic impacts would occur. It is very unlikely that this remedial action would be permitted under CEQA.
- c) Alternative 2 would remove a high volume of COCs from the Site. Soil and soil vapor COCs would be removed, and source removal would facilitate the faster restoration of groundwater through MNA. The time for groundwater restoration is difficult to quantify, but will be similar to other alternatives that utilize SVE to reduce VOC mass in the Site vadose zone. The limited additional reduction in risk when compared with other alternatives is substantially outweighed by the insignificant impact to groundwater quality, high additional economic and social (including environmental) costs it would impose on the City, the surrounding

residents and business owners and others, as well as the difficulties associated with implementation and the substantial costs required for implementation.

- d) The removal of this housing development would have significant long-term impacts to the community. All of the current Site residents would be displaced. Residents in the surrounding neighborhoods would experience the disruption of the community and the City would experience a loss of tax revenue.
- e) Alternative 2 costs are anticipated to be between \$190MM and \$410MM, which would make it the second most expensive alternative.

Alternative 2 is not considered technologically and economically feasible due to very difficult degree of implementability, and very high social, environmental, and economic costs. The benefit of greater reduction in COC mass in soil throughout the Site compared to alternatives 3 through 6 is outweighed by the high social, environmental, and economic costs of this alternative. Consequently, this remedial alternative is not retained for additional evaluation.

The elimination of Alternatives 1 and 2 indicates that remedial actions to achieve the HH350 goals throughout the upper 10 feet of all Site soils are infeasible.

9.4.2 Alternative 3

Alternative 3 would involve excavation to 2 feet bgs in open areas and areas beneath hardscape where human health goals for 350 days of exposure per year or soil leaching to groundwater goals are exceeded. However, soil will not be excavated in areas where soil concentrations are below background levels. Excavated areas and residential hardscape would be replaced in kind with clean soils and new hardscape. Under this alternative, the upper 2 feet of excavated and filled areas would achieve all soil goals. The unexcavated soils would meet the residential human health goal (assuming infrequent exposure) and nuisance goals. Soil cleanup levels for groundwater protection (leaching to groundwater) may not be met in all the unexcavated soils. The soil vapor goals would be addressed by installation of a sub-slab depressurization system for homes where SSCGs are exceeded for sub-slab soil vapor. Assuming sources of COCs are successfully addressed through LNAPL removal, LNAPL goals would be achieved. Groundwater goals (MCLs) would be met in the long term, and background levels for groundwater would be achieved in the longer term, both through MNA. Hot-spot remediation of groundwater (e.g. where concentrations exceed 100x MCLs) would reduce the time to achieve the cleanup goals.

- a) Implementation of Alternative 3 would be moderately difficult. Although it would not displace the existing community, it would disrupt it in the short term to excavate landscaped and hardscaped areas. Permission from property owners and tenants at approximately 100 residences would have to be obtained to excavate parts of their property. On the order of 4,000 truckloads of impacted and non-impacted soil would be hauled to and from the Site. Sub-slab mitigation would be installed at approximately 30 homes. The active remedial action is estimated to take approximately 2-½ years. Institutional controls would be used to address residual COCs beneath homes, and to limit access to soils below 2 feet.
- b) In the long term, RAOs would be met for the Site. However, in the short term, air quality, noise, and traffic impacts would be anticipated. Based on pilot testing, these impacts are expected to be able to be mitigated.
- c) Alternative 3 would remove a high volume of COCs from the upper 2 feet of soils. COCs below 2 feet would not be removed through excavation. There would be a moderate to high reduction in the mobility of soil vapor, with vapor intrusion (VI) potential reduced through sub-slab mitigation (although the data collected do not indicate a measurable impact to indoor air from sub-slab soil vapor). Depending on the use of hot spot remediation, there may be limited COC removal in groundwater.
- d) The excavation activities may have a significant impact on the community in the short term, as their driveways, sidewalks, and other hardscape would be removed. Because those features would be replaced in kind following excavation and fill placement, those impacts would not be long term. Surrounding neighborhoods would be impacted in the short term to a lesser extent by heavy truck traffic.
- e) Alternative 3 costs are anticipated to be between \$22MM and \$46MM. This is moderate relative to the costs of other alternatives.

Alternative 3 meets the human health goal for exposure to soils for 350 days per year in the upper 2 feet. Groundwater goals (MCLs) are achievable through MNA in the long term. Background groundwater goals are achievable through MNA in the longer term. Use of hot spot remediation of groundwater will hasten the restoration of groundwater through MNA. Alternative 3 is considered potentially technologically and economically feasible due to the moderate degree of implementability, and moderate

social, environmental, and economic costs. Consequently, this remedial alternative is retained for additional evaluation.

9.4.3 Alternative 3A

Alternative 3A would involve excavation to 5 feet bgs in open areas and areas beneath hardscape where human health goals for 350 days of exposure per year or soil leaching to groundwater goals are exceeded. However, soil will not be excavated in areas where soil concentrations are below background levels. Excavated areas and residential hardscape would be replaced in kind with clean soils and new hardscape. Under this alternative, the upper 5 feet of excavated and filled areas would achieve all soil goals. The unexcavated soils would meet the residential human health goal (assuming infrequent exposure) and nuisance goals. Soil cleanup levels for groundwater protection (leaching to groundwater) may not be met in all the unexcavated soils. The soil vapor goals would be addressed by installation of a sub-slab depressurization system for homes where SSCGs are exceeded for sub-slab soil vapor. Assuming sources of COCs are successfully addressed through LNAPL removal, LNAPL goals would be achieved. Groundwater goals (MCLs) would be met in the long term, and background levels for groundwater would be achieved in the longer term, both through MNA. Hot-spot remediation of groundwater (e.g. where concentrations exceed 100x MCLs) would reduce the time to achieve the clean-up goals.

- a) Implementation of Alternative 3A would be moderately difficult. Although it would not displace the existing community, it would disrupt it in the short term to excavate landscaped areas and residential hardscape. Permission from property owners and tenants at approximately 190 residences would have to be obtained. Excavation would need to be conducted around public water supply lines, which are located about 3 feet inside the sidewalks in the front yards of approximately one-half of the properties in the Carousel Tract. These water pipes are of asbestos-cement (transite) construction. Implementation of excavation to depths of 5 feet or greater in the vicinity of the transite water main piping will be very difficult to achieve without damaging the pipes, potentially resulting in interruption of water supply to the community. On the order of 18,000 truckloads of impacted and non-impacted soil would be hauled to and from the Site. Sub-slab mitigation would be installed at approximately 30 homes. This alternative is estimated to take approximately 7-½ years to implement. Institutional controls would be used to address residual COCs beneath homes, and to limit access to soils below 5 feet.

- b) In the long term, RAOs would be met for the Site. However, in the short term, air quality, noise, and traffic impacts would be anticipated. Based on pilot testing, these impacts are expected to be able to be mitigated.
- c) Alternative 3A would remove a moderate to high volume of COCs from the upper 5 feet of soils. Not all soils would be able to be removed to 5 feet due to setback and sloping requirements and the need to avoid and protect in place certain underground utilities (water mains). COCs below 5 feet would not be removed through excavation. There would be a moderate to high reduction in the mobility of soil vapor, with VI potential reduced through sub-slab mitigation (although the data collected do not indicate a measurable impact to indoor air from sub-slab soil vapor). Depending on the use of hot spot remediation, there would be low COC removal in groundwater.
- d) The excavation activities may have a significant impact on the community in the short term, as their driveways, sidewalks, and other hardscape would be removed. Surrounding neighborhoods would be impacted to a lesser extent by heavy truck traffic. Impacts to the community would be somewhat higher for this alternative than for Alternative 3 because a larger soil volume would be excavated and the remedy would take longer to implement.
- e) Alternative 3A costs are anticipated to be between \$60MM and \$130MM. This is high relative to the costs of other alternatives.

This alternative meets the human health goal for exposure to soils for 350 days per year in the upper 5 feet. Groundwater goals (MCLs) are achievable through MNA in the long term. Background groundwater goals are achievable through MNA in the longer term. Use of hot spot remediation of groundwater will hasten the restoration of groundwater through MNA. Alternative 3A is considered potentially technologically and economically feasible due to the moderately difficult degree of implementability, moderate to high social and environmental, and high economic costs. Consequently, this remedial alternative is retained for additional evaluation.

9.4.4 Alternative 3B

Alternative 3B would involve excavation to 10 feet bgs in open areas and areas beneath hardscape where human health goals for 350 days of exposure per year or soil leaching to groundwater goals are exceeded. However, soil will not be excavated in areas where

soil concentrations are below background levels. Excavated areas and residential hardscape would be replaced in kind with clean soils and new hardscape. Under this alternative, the upper 10 feet of excavated and filled areas would achieve all soil goals. The unexcavated soils would meet the residential human health goal (assuming infrequent exposure) and nuisance goals. Soil cleanup levels for groundwater protection (leaching to groundwater) may not be met in all the unexcavated soils. The soil vapor goals would be addressed by installation of a sub-slab depressurization system for homes where SSCGs are exceeded for sub-slab soil vapor. Assuming sources of COCs are successfully addressed through LNAPL removal, LNAPL goals would be achieved. Groundwater goals (MCLs) would be met in the long term, and background levels for groundwater would be achieved in the longer term, both through MNA. Hot-spot remediation of groundwater (e.g. where concentrations exceed 100x MCLs) would reduce the time to achieve the clean-up goals.

- a) Implementation of Alternative 3B would be very difficult. Although it would not displace the existing community, it would disrupt it in the short term to excavate landscaped areas and hardscape. Permission from property owners and tenants at approximately 210 residences would have to be obtained. Excavation would need to be conducted around public water supply lines, which are located about 3 feet inside the sidewalks in the front yards of approximately one-half of the properties in the Carousel Tract. These water pipes are of asbestos-cement (transite) construction. Implementation of excavation to depths of 5 feet or greater in the vicinity of the transite water main piping will be very difficult to achieve without damaging the pipes, potentially resulting in interruption of water supply to the community. On the order of 38,000 truckloads of impacted and non-impacted soil would be hauled to and from the Site. Sub-slab mitigation would be installed at approximately 30 homes. It is estimated that this alternative would be implemented over approximately 14 years. Institutional controls would be used to address residual COCs beneath homes, and to limit access to soils below 10 feet.
- b) In the long term, RAOs would be met for the Site. However, in the short term, air quality, noise, and traffic impacts would be anticipated. Based on pilot testing, these impacts are expected to be able to be partially mitigated.
- c) Alternative 3B would remove a moderate volume of COCs from the upper 10 feet of soils. Not all soils under residential hardscape and landscaping would be able to be removed to 10 feet due to setback and sloping requirements and the need to avoid and protect in place certain underground utilities (water mains).

COCs below 10 feet would not be removed through excavation. There would be a moderate to high reduction in the mobility of soil vapor, with VI potential reduced through sub-slab mitigation (although the data collected do not indicate a measurable impact to indoor air from sub-slab soil vapor). Depending on the use of hot spot remediation in groundwater, there would be low COC removal in groundwater.

- d) The excavation activities may have a significant impact on the community in the short term, as their driveways, sidewalks, and other hardscape would be removed. Surrounding neighborhoods would be impacted to a lesser extent by heavy truck traffic. Impacts to the community would be higher for this than for Alternatives 3 and 3A because a larger soil volume would be excavated and the remedy would take substantially longer to implement.
- e) Alternative 3B costs are anticipated to be between \$110MM and \$240MM. This is a very high cost relative to the costs of other alternatives.

Alternative 3B is not considered technologically and economically feasible due to very difficult degree of implementability, high social and environmental costs, and very high economic costs. The benefit of greater reduction in COC mass in soil throughout the Site compared to alternatives 3, 3A, 4, 4A, 4B, 5, and 6 is outweighed by the high social, environmental, and economic costs of this alternative. Consequently, this remedial alternative is not retained for additional evaluation.

9.4.5 Alternative 4

Alternative 4 would involve excavation to 2 feet bgs in open and landscaped areas where human health goals for 350 days of exposure per year or soil leaching to groundwater goals are exceeded. However, soil will not be excavated in areas where soil concentrations are below background levels. Excavated areas would be replaced in kind with clean soils and new landscaping. Under this alternative, the upper 2 feet of excavated and filled areas would achieve all soil goals. The unexcavated soils would meet the residential human health goal (assuming infrequent exposure) and nuisance goals. Soil cleanup levels for groundwater protection (leaching to groundwater) may not be met in all the unexcavated soils. The soil vapor goals would be addressed by installation of a sub-slab depressurization system for homes where SSCGs are exceeded for sub-slab soil vapor. Assuming sources of COCs are successfully addressed through LNAPL removal, LNAPL goals would be achieved. Groundwater goals (MCLs) would be met in the long term, and background levels for groundwater would be achieved in

the longer term, both through MNA. Hot-spot remediation of groundwater (e.g. where concentrations exceed 100x MCLs) would reduce the time to achieve the clean-up goals.

- a) Implementation of Alternative 4 would be moderately difficult. Although it would not displace the existing community, it would disrupt it in the short term to excavate and backfill landscaped areas. Permission from property owners and tenants at approximately 100 residences would have to be obtained to carry out excavation in their yards. On the order of 1,700 truckloads of impacted and non-impacted soil would be hauled to and from the Site. Sub-slab mitigation would be installed at approximately 30 homes. It is estimated that this alternative could be implemented over approximately 2 years. Institutional controls would be used to address residual COCs beneath homes, and to limit access to soils below 2 feet.
- b) In the long term, RAOs would be met for the Site. However, in the short term, air quality, noise, and traffic impacts would be anticipated. Based on pilot testing, these impacts are expected to be able to be mitigated.
- c) Alternative 4 would remove a moderate to high volume of COCs from the upper 2 feet of soils. COCs below 2 feet would not be removed through excavation. There would be a moderate to high reduction in the mobility of soil vapor, with VI potential reduced through sub-slab mitigation (although the data collected do not indicate a measurable impact to indoor air from sub-slab soil vapor). Depending on the use of hot spot remediation, there would be low COC removal in groundwater.
- d) The excavation activities may have a significant impact on the community in the short term due to excavation activities and truck traffic. Surrounding neighborhoods would be impacted to a lesser extent by heavy truck traffic.
- e) Alternative 4 costs are anticipated to be between \$15MM and \$32MM. This is moderate relative to the costs of other alternatives.

Alternative 4 meets the human health goal for exposure to soils for 350 days per year in the upper 2 feet. Groundwater goals (MCLs) are achievable through MNA in the long term. Background groundwater goals are achievable through MNA in the longer term. Use of hot spot remediation of groundwater will hasten the restoration of groundwater through MNA. Alternative 4 is considered potentially technologically and

economically feasible due to the moderate degree of implementability, and moderate social, environmental, and economic costs. Consequently, this remedial alternative is retained for additional evaluation.

9.4.6 Alternative 4A

Alternative 4A would involve excavation to 5 feet bgs in open and landscaped areas where human health goals for 350 days of exposure per year or soil leaching to groundwater goals are exceeded. However, soil will not be excavated in areas where soil concentrations are below background levels. Excavated areas and residential landscape would be replaced in kind with clean soils and new landscape. Under this alternative, the upper 5 feet of excavated and filled areas would achieve all soil goals. The unexcavated soils would meet the residential human health goal (assuming infrequent exposure) and nuisance goals. Soil cleanup levels for groundwater protection (leaching to groundwater) may not be met in all the unexcavated soils. The soil vapor goals would be addressed by installation of a sub-slab depressurization system for homes where screening levels are exceeded for sub-slab soil vapor. Assuming sources of COCs are successfully addressed through LNAPL removal, LNAPL goals would be achieved. Groundwater goals (MCLs) would be met in the long term, and background levels for groundwater would be achieved in the longer term, both through MNA. Hot-spot remediation of groundwater (e.g., where concentrations exceed 100x MCLs) would reduce the time to achieve the clean-up goals.

- a) Implementation of Alternative 4A would be moderately difficult to difficult. Although it would not displace the existing community, it would disrupt it in the short term to excavate and backfill landscaped areas. Permission from property owners and tenants at approximately 190 residences would have to be obtained to carry out excavation in their yards. Excavation would need to be conducted around public water supply lines, which are located about 3 feet inside the sidewalks in the front yards of approximately one-half of the properties in the Carousel Tract. These water pipes are of asbestos-cement (transite) construction. Implementation of excavation to depths of 5 feet or greater in the vicinity of the transite water main piping will be very difficult to achieve without damaging the pipes, potentially resulting in interruption of water supply to the community. On the order of 8,100 truckloads of impacted and non-impacted soil would be hauled to and from the Site. Sub-slab mitigation would be installed at approximately 30 homes. This alternative could be implemented

over 7 years. Institutional controls would be used to address residual COCs beneath homes, and to limit access to soils below 5 feet.

- b) In the long term, RAOs would be met for the Site. However, in the short term, air quality, noise, and traffic impacts would be anticipated. Based on pilot testing, these impacts are expected to be able to be mitigated.
- c) Alternative 4A would remove a moderate to high volume of COCs from the upper 5 feet of soils. COCs below 5 feet would not be removed through excavation. Not all soils would be able to be removed to 5 feet due to setback and sloping requirements and the need to avoid and protect in place certain underground utilities (water mains). There would be a moderate to high reduction in the mobility of soil vapor, with VI potential reduced through sub-slab mitigation (although the data collected do not indicate a measurable impact to indoor air from sub-slab soil vapor). Depending on the use of hot spot remediation, there would be low COC removal in groundwater.
- d) The excavation activities may have a significant impact on the community in the short term due to excavation activities and truck traffic. Surrounding neighborhoods would be impacted to a lesser extent by heavy truck traffic. Impacts to the community would be higher than for Alternative 4 because a larger soil volume would be excavated, and the remedy would take longer to implement.
- e) Alternative 4A costs are anticipated to be between \$42MM and \$90MM. This is moderate to high relative to the costs for other alternatives.

This alternative meets the human health goal for exposure to soils for 350 days per year in the upper 5 feet. Groundwater goals (MCLs) are achievable through MNA in the long term. Background groundwater goals are achievable through MNA in the longer term. Use of hot spot remediation of groundwater will hasten the restoration of groundwater through MNA. Alternative 4A is considered potentially technologically and economically feasible due to the moderately difficult degree of implementability, moderate to high social and environmental, and moderately high economic costs. Consequently, this remedial alternative is retained for additional evaluation.

9.4.7 Alternative 4B

Alternative 4B would involve excavation to 10 feet bgs in open and landscaped areas where human health goals for 350 days of exposure per year or soil leaching to groundwater goals are exceeded. However, soil will not be excavated in areas where soil concentrations are below background levels. Excavated areas and residential landscape would be replaced in kind with clean soils and new landscape. Under this alternative, the upper 10 feet of excavated and filled areas would achieve all soil goals. The unexcavated soils would meet the residential human health goal (assuming infrequent exposure) and nuisance goals. Soil cleanup levels for groundwater protection (leaching to groundwater) may not be met in all the unexcavated soils. The soil vapor goals would be addressed by installation of a sub-slab depressurization system for homes where screening levels are exceeded for sub-slab soil vapor. Assuming sources of COCs are successfully addressed through LNAPL removal, LNAPL goals would be achieved. Groundwater goals (MCLs) would be met in the long term, and background levels for groundwater would be achieved in the longer term, both through MNA. Hot-spot remediation of groundwater (e.g., where concentrations exceed 100x MCLs) could reduce the time to achieve the clean-up goals.

- a) Implementation of Alternative 4B would be very difficult. Although it would not displace the existing community, it would disrupt it in the short term to excavate and backfill landscaped areas. Permission from property owners and tenants at approximately 210 residences would have to be obtained to carry out excavation in their yards. Excavation would need to be conducted around public water supply lines, which are located about 3 feet inside the sidewalks in the front yards of approximately one-half of the properties in the Carousel Tract. These water pipes are of asbestos-cement (transite) construction. Implementation of excavation to depths of 5 feet or greater in the vicinity of the transite water main piping will be very difficult to achieve without damaging the pipes, potentially resulting in interruption of water supply to the community. On the order of 18,000 truckloads of impacted and non-impacted soil would be hauled to and from the Site. Sub-slab mitigation would be installed at approximately 30 homes. It is estimated that this alternative would be implemented over approximately 10 years. Institutional controls would be used to address residual COCs beneath homes, and to limit access to soils below 10 feet.

- b) In the long term, RAOs would be met for the Site. However, in the short term, air quality, noise, and traffic impacts would be anticipated. Based on pilot testing, these impacts are expected to be able to be partially mitigated.
- c) Alternative 4B would remove a moderate to high volume of COCs from the upper 10 feet of soils. COCs below 10 feet would not be removed through excavation. Not all soils would be able to be removed to 10 feet due to setback and sloping requirements and the need to protect in place certain underground utilities (water mains). There would be a moderate to high reduction in the mobility of soil vapor, with VI potential reduced through sub-slab mitigation (although the data collected do not indicate a measurable impact to indoor air from sub-slab soil vapor). Depending on the use of hot spot remediation, there would be low COC removal in groundwater.
- d) The excavation activities may have a significant impact on the community in the short term due to excavation activities and truck traffic. Surrounding neighborhoods would be impacted to a lesser extent by heavy truck traffic. Impacts to the community would be higher than for Alternatives 4 and 4A because a larger soil volume would be excavated, and the remedy would take longer to implement.
- e) Alternative 4B costs are anticipated to be between \$87MM and \$190MM. This is very high relative to the costs of other alternatives.

Alternative 4B is not considered technologically and economically feasible due to very difficult degree of implementability, high social and environmental costs, and very high economic costs. The benefit of greater reduction in COC mass in soil throughout the Site compared to alternatives 3, 3A, 4, 4A, 5, and 6 is outweighed by the high social, environmental, and economic costs of this alternative. Consequently, this remedial alternative is not retained for additional evaluation.

9.4.8 Alternative 5

Alternative 5 would involve the removal of all Site features, including homes, roads, and utilities, in order to cap the entire Site. This would achieve the human health goal for infrequent exposure to soils and meet nuisance goals by limiting contact with soil, but would not achieve the other soil goals. The soil vapor nuisance goal would be met, but the soil vapor goals for methane and vapor intrusion may not be met in some areas. However, the exposure pathway would be eliminated because there would be no

receptors. Assuming sources of COCs are successfully addressed through LNAPL removal and groundwater remediation, LNAPL goals would be achieved. Groundwater goals (MCLs) would be met in the long term, and background levels for groundwater would be achieved in the longer term, both through MNA. Hot-spot remediation of groundwater (e.g., where concentrations exceed 100x MCLs) would reduce the time to achieve the clean-up goals.

- a) This alternative would be very difficult to implement. Every resident would have to agree to relocate, all 285 homes would be razed, and approximately 12,500 truckloads of import fill and construction debris from the razed structures (including asbestos) would be hauled to/from the Site via Lomita Avenue. It is very unlikely that this alternative would be allowed to proceed due to anticipated public reactions, reactions from residential and commercial areas proximate to the Site, environmental effects, traffic impacts and permitting difficulties. Moreover, if some homeowners declined to move, the presence of some residents would make it potentially untenable to remove all of the surrounding homes. The active remedial action is estimated to take less than approximately 1 year. Institutional controls would be used to address residual COCs.
- b) In the long term, RAOs would be met for the Site. However, in the short term, air quality, noise, and traffic impacts would occur. It is very unlikely that this remedial action would be permitted under CEQA.
- c) Alternative 5 would result in little removal of COCs from the Site; it would only act to eliminate the exposure pathways. COCs would be less likely to leach into groundwater due to the large reduction in stormwater and irrigation water passing through the soil. The limited additional reduction in risk and minimal impact to groundwater quality when compared with other alternatives is substantially outweighed by the high additional economic and social (including environmental) costs it would impose on the City, the surrounding residents and business owners and others, as well as the difficulties associated with implementation and the substantial costs required for implementation.
- d) The removal of this housing development would have significant long-term impacts to the community. All of the current Site residents would be displaced. Residents in the surrounding neighborhoods would experience the disruption of the community and the City would experience a loss of tax revenue.

- e) The cost of Alternative 5 would be in the range of \$91MM to \$200MM, a very high cost relative to the other alternatives.

Alternative 5 is not considered technologically and economically feasible due to very difficult degree of implementability, very high social and economic costs, and moderate environmental costs. Consequently, this remedial alternative is not retained for additional evaluation.

9.4.9 Alternative 6

Alternative 6 would involve the capping of exposed soils and landscaped areas of the Site with hardscape or equivalent. This would achieve the human health goal for infrequent exposure to deep soils and for nuisance, but would not achieve the other soil goals. The soil vapor goals would be addressed by installation of a sub-slab depressurization system for homes where SSCGs are exceeded for sub-slab soil vapor. Assuming sources of COCs are successfully addressed through LNAPL removal, LNAPL goals would be achieved. Groundwater goals (MCLs) would be met in the long term, and background levels for groundwater would be achieved in the longer term, both through MNA. Hot-spot remediation of groundwater (e.g. where concentrations exceed 100x MCLs) would reduce the time to achieve the clean-up goals.

- a) Implementation of Alternative 6 would be moderately difficult. Permission from property owners and tenants at all 285 residences would have to be obtained. Sub-slab mitigation would be installed at approximately 30 homes. This alternative is estimated to take approximately 1-½ years to implement. Institutional controls would be used to address residual COCs.
- b) In the long term, RAOs would be met for the Site. However, in the short term, air quality, noise, and traffic impacts would be anticipated. Potentially significant increases in stormwater runoff could occur. This may require implementation of additional stormwater best management practices.
- c) Alternative 6 would result in little removal of COCs from the Site; it would only act to eliminate the exposure pathways. COCs would be less likely to leach into groundwater due to the large reduction in stormwater and irrigation water passing through the soil.
- d) The remedial activities may have a significant impact on the community in the short term during landscape removal and hardscape placement. Residents would

lose existing landscaping, and future landscaping would have to be done above the cap in planter boxes.

- e) Alternative 6 costs are anticipated to be between \$13MM and \$28MM. This is moderate relative to the costs of other alternatives.

Groundwater goals (MCLs) are achievable through MNA in the long term. Background groundwater goals are achievable through MNA in the longer term. Use of hot spot remediation of groundwater will hasten the restoration of groundwater through MNA. Alternative 6 is considered potentially technologically and economically feasible due to the moderately difficult degree of implementability and moderate social, environmental, and economic costs. Consequently, this remedial alternative is retained for additional evaluation.

9.4.10 Alternative 7 Addition

Alternative 7 consists of the addition of SVE systems to Alternatives 2 through 6. The following summarizes the impact of this additional technology.

- a) The implementability of SVE would depend on the number and location of extraction wells and treatment systems. Assuming one to three treatment systems would be installed, each with 5 to 25 associated extraction wells, this would be moderately difficult to difficult to implement. According to the SCAQMD, it will be difficult to obtain the necessary permits from SCAQMD in this residential area.
- b) The installation of SVE systems would assist in meeting the RAOs for the Site. There would be some additional short-term impacts to the community during system installation. There may also be long-term impacts from noise.
- c) The addition of SVE would decrease the concentrations of VOCs and more volatile fractions of TPH in soil vapor directly, and in soil and groundwater indirectly in the areas where it is applied. However, it is not likely to achieve cleanup goals, particularly for medium- and long-chain hydrocarbons. Methane concentrations would decrease slightly. The mass reduction of VOCs and TPH would reduce the time for groundwater restoration.
- d) The addition of SVE would add some short-term disruption to the community during system installation due to well drilling and trenching for pipe installation.

There would also be a need to displace residents from one to two properties for each treatment system installed for this alternative.

e) The addition of SVE would add \$7MM to \$15MM to the alternative cost.

The addition of SVE to the alternatives would result in the following ratings for implementability; reduction of toxicity, mobility, and volume; and cost. We indicate the addition of Alternative 7 to another alternative by using a “+” sign between the base alternative and Alternative 7.

Alternative	Implementability	Reduction in Toxicity, Mobility, and Volume	Cost
2+7	Very Difficult	High	Very High \$200MM to \$420MM
3+7	Moderate	High for upper 2 ft	Moderate \$29MM to \$61MM
3A+7	Moderately Difficult	Moderate for upper 5 ft	High \$67MM to \$140MM
3B+7	Very Difficult	Moderate for upper 10 ft	Very High \$120MM to \$260MM
4+7	Moderate	High for upper 2 ft	Moderate \$22MM to \$47MM
4A+7	Moderately Difficult	Moderate for upper 5 ft	High \$49MM to \$110MM
4B+7	Very Difficult	Moderate for upper 10 ft	Very High \$94MM to \$210MM
5+7	Very Difficult	Low-Moderate	Very High \$97MM to \$210MM
6+7	Moderate	Low	Moderate \$20MM to \$43MM

Alternatives 3+7, 3A+7, 4+7, 4A+7, and 6+7 were retained with moderate to moderately-difficult implementability, moderate to high costs, and moderate or low to moderate reduction in toxicity, mobility, and volume.

9.5 Comparative Evaluation of Retained Alternatives

The following alternatives were retained for comparative evaluation to determine technologically and economically feasible SSCGs:

- Alternative 3;
- Alternative 3+7;
- Alternative 4;
- Alternative 4+7;
- Alternative 4A;
- Alternative 4A+7;
- Alternative 6; and
- Alternative 6+7.

The retained alternatives, with the exception of Alternatives 6 and 6+7, meet the soil cleanup goals and soil vapor cleanup goals to some depth. Alternatives 6 and 6+7 have the lowest reduction in toxicity, mobility, and volume. They would also require the most restrictive institutional controls, which would prohibit any future landscaping at the Site. Therefore, although Alternatives 6 and 6+7 have moderate degrees of implementability and moderate costs, they are not recommended.

Alternatives 3, 3+7, 4, and 4+7 have moderate degrees of implementability, while Alternatives 3A, 3A+7, 4A, and 4A+7 have moderately difficult degrees of implementability. However, Alternatives 3+7 and 4+7 are more difficult to implement than Alternatives 3 and 4, because of the addition of SVE (including difficulties associated with AQMD permitting). If the installation of SVE were permitted, it would reduce the COC volume in the soil and soil vapor below the 2 feet of excavated soil. In contrast, Alternatives 3A, 3A+7, 4A and 4A+7 would be moderately difficult to implement due to an increase in soil excavated and replaced and increased time required to carry out the remedial action, both of which would negatively affect the community. The improvement in mass reduction for these alternatives is small and provides little additional social or environmental benefit over Alternatives 3, 3+7, 4, and 4+7. Consequently, Alternatives 3A, 3A+7, 4A and 4A+7 are not recommended.

9.6 Recommendation of Remedial Alternative that Are Technologically and Economically Feasible Alternatives

The alternatives that remain after preliminary screening are Alternatives 3, 3+7, 4, and 4+7. Each of these four alternatives meets all soil goals (i.e., HH350 and soil leaching to groundwater goals) in the upper 2 feet of soils. The unexcavated soils would meet the residential human health goal assuming infrequent exposure and nuisance goals. These alternatives meet the soil vapor goals, and the groundwater goals in the long term. Each of these alternatives scores well for the other evaluation criteria:

implementability; environmental considerations; reduction of toxicity, mobility and volume; social considerations; and cost.

Soil cleanup levels for groundwater protection (leaching to groundwater) may not be met in all the soils that remain in place. However, over time, groundwater concentrations for the petroleum-related COCs (TPH, naphthalene, benzene and to some extent arsenic) are expected to decline to levels protective of a municipal use for the water, and eventually, to background levels. This conclusion is based on the stable to declining plume already present at the Site, the age of the source materials (considerable leaching of the COCs has already occurred), and the proposed actions which include further source reduction (hot spot groundwater and deeper soil remediation with SVE). Thus, it is proposed that the SSCGs for groundwater be set at MCLs/NLs for petroleum hydrocarbons and background levels for metals. These SSCGs are considered technologically and economically feasible to achieve in the long term (70-100 years) through MNA assuming the measures noted for further source reduction are implemented (hot spot groundwater remediation – e.g. in areas where concentrations exceed 100x MCLs - and SVE in limited areas of the Site) and that off-Site sources are reduced or eliminated. It is also noted that there is no use of the impacted groundwater in the foreseeable future. SSCGs are also proposed at MCLs for other COCs in Site groundwater including CVOCs and TBA, but meeting these SSCGs will require remediation of upgradient sources.

The requirement established in the RWQCB's comment letter to identify cleanup goals that are technologically and economically feasible has been met through this evaluation process. Remedial alternatives have been identified and screened relative to both technological and economic feasibility. Alternatives 3, 3+7, 4, and 4+7 have been found to be technologically and economically feasible and, as such, these four alternatives and their associated SSCGs are recommended and will be further evaluated in the RAP. The SSCGs associated with these alternatives are detailed in Tables 9-2 through 9-4 and are the SSCGs proposed for the Site.

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TABLES

Table 4-1
 Statistical Summary of Soil Matrix Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	0 - 2 ft								> 2 to <= 6 ft							
				Number of Samples	Number of Detecls	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value	Number of Samples	Number of Detecls	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value		
Metal																			
Soil	7440-38-0	Antimony	mg/kg	4683	920	19.8%	0.149	0.306	0.161	4.82	2930	634	16.2%	0.140	0.308	0.154	0.46		
Soil	7440-38-2	Arsenic	mg/kg	4683	4684	99.8%	0.260	0.368	0.368	20	2930	2019	69.6%	0.368	0.368	0.408	60.9		
Soil	7440-39-3	Barium	mg/kg	4683	4683	100.0%	--	--	10.9	467	2930	2930	100.0%	--	--	21.3	1020		
Soil	7440-41-7	Beryllium	mg/kg	4683	4676	99.8%	0.0894	0.0894	0.102	1.17	2930	2926	99.9%	0.137	0.137	0.6906	1.19		
Soil	7440-43-9	Cadmium	mg/kg	4683	1653	35.3%	0.0084	0.135	0.0072	9.02	2930	911	20.9%	0.0084	0.135	0.007	6.85		
Soil	7440-47-3	Chromium	mg/kg	4683	4683	100.0%	--	--	2.64	74.2	2930	2930	100.0%	--	--	3.66	62.8		
Soil	CR0	Chromium, Hexavalent	mg/kg	4564	426	9.3%	0.0925	0.43	0.046	1.5	2916	394	13.6%	0.096	0.22	0.030	1		
Soil	7440-48-4	Cobalt	mg/kg	4683	4683	100.0%	--	--	1.19	24.1	2930	2930	100.0%	--	--	2.36	28		
Soil	7440-60-6	Copper	mg/kg	4683	4683	100.0%	--	--	1.91	1190	2930	2930	100.0%	--	--	2.79	168		
Soil	7439-92-1	Lead	mg/kg	4683	4681	100.0%	0.181	0.181	0.514	381	2930	2926	99.9%	0.181	0.181	0.48	350		
Soil	7429-97-6	Mercury	mg/kg	4683	4631	96.8%	0.0013	0.00588	0.004	1.33	2930	2767	94.4%	0.0013	0.00588	0.0030	0.918		
Soil	7439-98-7	Molybdenum	mg/kg	4683	2656	61.0%	0.0209	0.132	0.0469	24.1	2930	1369	47.6%	0.0209	0.132	0.0209	6.83		
Soil	7440-02-0	Nickel	mg/kg	4683	4683	100.0%	--	--	1.57	91.9	2930	2930	100.0%	--	--	4.14	43.1		
Soil	7782-49-2	Selenium	mg/kg	4683	292	6.0%	0.175	0.351	0.198	8.18	2930	146	5.1%	0.175	0.361	0.336	6.69		
Soil	7440-22-4	Silver	mg/kg	4683	64	1.4%	0.017	0.117	0.0302	3.82	2930	14	0.6%	0.017	0.117	0.147	2.65		
Soil	7440-28-0	Thallium	mg/kg	4683	176	3.7%	0.0587	0.232	0.183	3.38	2930	101	3.4%	0.0687	0.232	0.168	3.47		
Soil	7440-62-2	Vanadium	mg/kg	4683	4583	100.0%	--	--	4.16	78.4	2930	2930	100.0%	--	--	19.1	82.1		
Soil	7440-66-6	Zinc	mg/kg	4683	4833	100.0%	--	--	6.61	6770	2930	2930	100.0%	--	--	9.82	1940		
PCBs																			
Soil	12071-11-2	AROCLOR 1018	ug/kg	13	0	0.0%	10	10	--	--	16	0	0.0%	10	14	--	--		
Soil	11104-28-2	AROCLOR 1221	ug/kg	13	0	0.0%	10	10	--	--	16	0	0.0%	10	13	--	--		
Soil	11141-18-6	AROCLOR 1232	ug/kg	13	0	0.0%	10	10	--	--	16	0	0.0%	10	11	--	--		
Soil	69480-21-9	AROCLOR 1242	ug/kg	13	0	0.0%	10	10	--	--	16	0	0.0%	10	12	--	--		
Soil	12872-29-6	AROCLOR 1248	ug/kg	13	0	0.0%	10	10	--	--	16	0	0.0%	10	14	--	--		
Soil	11097-69-1	AROCLOR 1254	ug/kg	13	0	0.0%	10	10	--	--	16	0	0.0%	10	12	--	--		
Soil	11098-82-6	AROCLOR 1260	ug/kg	13	0	0.0%	11	11	--	--	16	0	0.0%	11	11	--	--		
Soil	97324-23-5	AROCLOR 1282	ug/kg	13	0	0.0%	10	10	--	--	16	0	0.0%	10	12	--	--		
BVOCs/PAHs																			
Soil	120-62-1	1,2,4-Trichlorobenzene	ug/kg	4718	3	0.1%	0.12	190	0.17	17	2961	4	0.1%	0.13	81900	0.17	33		
Soil	95-50-1	1,2-Dichlorobenzene	ug/kg	4718	8	0.2%	0.084	110	0.11	1.9	2961	7	0.2%	0.091	41000	0.26	330		
Soil	641-73-1	1,3-Dichlorobenzene	ug/kg	4718	1	0.0%	0.11	140	0.21	0.21	2961	3	0.1%	0.12	41000	0.79	30		
Soil	106-48-7	1,4-Dichlorobenzene	ug/kg	4718	64	1.4%	0.1	130	0.14	200	2961	11	0.4%	0.11	61000	0.13	170		
Soil	90-12-0	1-Methylanthracene	mg/kg	4714	1370	29.1%	0.001	48	0.001	45	2960	1562	53.6%	0.001	4	0.0011	180		
Soil	85-86-4	2,4,6-Trichlorophenol	mg/kg	4714	0	0.0%	0.013	78	--	--	2960	0	0.0%	0.0121	160	--	--		
Soil	68-08-2	2,4,6-Trichlorophenol	mg/kg	4714	0	0.0%	0.013	79	--	--	2960	1	0.0%	0.0121	160	0.14	0.14		
Soil	120-83-2	2,4-Dichlorophenol	mg/kg	4714	1	0.0%	0.013	69	0.43	0.43	2960	0	0.0%	0.0121	140	--	--		
Soil	105-67-0	2,4-Dimethylphenol	mg/kg	4714	0	0.0%	0.013	60	--	--	2960	0	0.0%	0.0121	120	--	--		

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 Carson, CA

Matrix	CAS Number	Analyte	Unit	0 - 2 ft								> 2 to <= 6 ft							
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value	Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value		
Soil	51-28-6	2,4-Dinitrophenol	mg/kg	4714	0	0.0%	0.046	380	--	--	2950	0	0.0%	0.046	720	--	--		
Soil	121-14-2	2,4-Dinitrotoluene	mg/kg	4714	6	0.1%	0.013	78	0.081	1.8	2950	2	0.1%	0.0121	160	0.082	0.07		
Soil	005-20-2	2,6-Dinitrotoluene	mg/kg	4714	0	0.0%	0.006	83	--	--	2950	2	0.1%	0.008	170	0.008	0.18		
Soil	91-59-7	2-Chlorodiphenyl ether	mg/kg	4714	2	0.0%	0.003	49	0.19	0.68	2950	0	0.0%	0.003	97	--	--		
Soil	95-57-8	2-Chlorophenol	mg/kg	4714	0	0.0%	0.013	93	--	--	2950	0	0.0%	0.0121	140	--	--		
Soil	91-67-6	2-Methylnaphthalene	mg/kg	4714	3523	74.7%	0.0006	47	0.0005	72	2950	2139	72.4%	0.0008	3.6	0.0006	290		
Soil	95-48-7	2-Methylphenol	mg/kg	4714	0	0.0%	0.013	70	--	--	2950	0	0.0%	0.0121	140	--	--		
Soil	88-74-4	2-Nitroaniline	mg/kg	4714	0	0.0%	0.049	82	--	--	2950	0	0.0%	0.046	160	--	--		
Soil	88-75-6	2-Nitrophenol	mg/kg	4714	0	0.0%	0.013	84	--	--	2950	0	0.0%	0.0121	130	--	--		
Soil	91-94-1	3,3-Dichlorodiphenyl ether	mg/kg	4714	0	0.0%	0.0063	640	--	--	2950	0	0.0%	0.0063	1100	--	--		
Soil	106-44-5	3,4-Methylenedioxy	mg/kg	4714	1	0.0%	0.0647	69	0.073	0.073	2950	0	0.0%	0.0121	140	--	--		
Soil	90-09-2	3-Nitroaniline	mg/kg	4714	0	0.0%	0.01	78	--	--	2950	0	0.0%	0.01	160	--	--		
Soil	634-52-1	4,6-Dinitro-2-Methylphenol	mg/kg	4714	0	0.0%	0.06	700	--	--	2950	0	0.0%	0.0493	1600	--	--		
Soil	101-56-3	4-Bromophenyl-Phenyl Ether	mg/kg	4714	0	0.0%	0.0087	60	--	--	2950	0	0.0%	0.0087	160	--	--		
Soil	69-60-7	4-Chloro-3-Methylphenol	mg/kg	4714	0	0.0%	0.013	76	--	--	2950	0	0.0%	0.0121	160	--	--		
Soil	106-47-8	4-Chloroaniline	mg/kg	4714	0	0.0%	0.013	62	--	--	2950	0	0.0%	0.0121	120	--	--		
Soil	7065-72-3	4-Chlorophenyl-Phenyl Ether	mg/kg	4714	0	0.0%	0.0067	62	--	--	2950	0	0.0%	0.0067	160	--	--		
Soil	MSPH4	4-Methylphenol (p-Cresol)	mg/kg	315	5	1.6%	0.019	24	0.14	0.22	174	2	1.1%	0.070	47	0.16	0.17		
Soil	109-01-8	4-Nitroaniline	mg/kg	4714	0	0.0%	0.05	70	--	--	2950	0	0.0%	0.0493	140	--	--		
Soil	109-02-7	4-Nitrophenol	mg/kg	4714	0	0.0%	0.0087	78	--	--	2950	0	0.0%	0.0087	180	--	--		
Soil	83-32-9	Acenaphthylene	mg/kg	4714	628	11.2%	0.0069	49	0.001	7.1	2950	1440	48.8%	0.0038	22	0.0011	17		
Soil	208-69-8	Azobiphenylene	mg/kg	4714	1016	21.6%	0.0005	64	0.0005	1	2950	477	16.2%	0.0008	10	0.0003	4.5		
Soil	62-53-3	Aniline	mg/kg	4714	2	0.0%	0.050	66	0.07	1.6	2950	2	0.1%	0.066	110	0.088	2.8		
Soil	120-12-7	Anthracene	mg/kg	4714	1613	34.2%	0.0004	57	0.00054	26	2950	1315	44.9%	0.0004	6.2	0.00067	16		
Soil	103-93-3	Azobenzene	mg/kg	4714	0	0.0%	0.1	64	--	--	2950	0	0.0%	0.1	110	--	--		
Soil	62-67-5	Benzidine	mg/kg	4714	0	0.0%	0.071	460	--	--	2950	0	0.0%	0.071	830	--	--		
Soil	66-55-3	Benzo (a) Anthracene	mg/kg	4714	3908	82.9%	0.00065	95	0.0007	19	2950	2048	69.5%	0.00055	1.8	0.0007	47		
Soil	50-32-8	Benzo (a) Pyrene	mg/kg	4714	3910	82.9%	0.00049	43	0.0005	9	2950	1924	65.2%	0.00046	1.2	0.0005	22		
Soil	206-00-2	Benzo (b) Fluoranthene	mg/kg	4714	3383	72.0%	0.00036	42	0.0005	6.2	2950	1650	62.2%	0.00036	4.1	0.0005	10		
Soil	191-24-2	Benzo (g,h,i) Perylene	mg/kg	4714	3939	83.8%	0.00047	45	0.00057	6.7	2950	1994	67.4%	0.00047	3.8	0.00062	13		
Soil	207-08-0	Benzo (k) Fluoranthene	mg/kg	4714	1369	28.8%	0.0007	65	0.00076	2.3	2950	528	17.0%	0.0007	17	0.00062	4.3		
Soil	66-86-0	Benzole Acid	mg/kg	4714	5	0.1%	0.04	800	0.29	1.5	2950	1	0.6%	0.04	760	0.12	0.12		
Soil	100-51-6	Benzyl Alcohol	mg/kg	4714	1	0.0%	0.064	77	1.8	1.8	2950	0	0.0%	0.064	160	--	--		
Soil	111-91-1	Bis(2-Chloroethoxy) Methane	mg/kg	4714	0	0.0%	0.012	92	--	--	2950	0	0.0%	0.012	120	--	--		
Soil	111-44-4	Bis(2-Chloroethyl) Ether	mg/kg	4714	0	0.0%	0.018	67	--	--	2950	0	0.0%	0.0121	110	--	--		
Soil	108-00-1	Bis(2-Chloroisopropyl) Ether	mg/kg	4714	0	0.0%	0.013	89	--	--	2950	0	0.0%	0.0121	120	--	--		
Soil	117-91-7	Bis(2-Ethylhexyl) Phthalate	mg/kg	4714	238	5.0%	0.030	48	0.11	0.9	2950	61	1.7%	0.039	98	0.083	22		
Soil	85-68-7	Butyl Benzyl Phthalate	mg/kg	4714	72	1.5%	0.013	50	0.12	1	2950	10	0.9%	0.0121	100	0.023	0.7		

Table 4-1
 Statistical Summary of Soil Matrix Data
 Former Keet Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	0 - 2 ft						> 2 to <= 8 ft							
				Number of Samples	Number of Detections	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value	Number of Samples	Number of Detections	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil	218-01-9	Chrysene	mg/kg	4714	4170	88.6%	0.00059	2.2	0.00068	72	2560	2236	75.9%	0.00066	1.2	0.00066	130
Soil	63-70-3	Dibenz (a,h) Anthracene	mg/kg	4714	1611	34.2%	0.00082	46	0.00084	1.6	2960	624	21.2%	0.00062	13	0.00063	3.4
Soil	132-94-0	Dibenzofuran	mg/kg	4714	2	0.0%	0.0078	66	0.16	0.23	2660	3	0.1%	0.0073	120	0.13	0.42
Soil	84-69-2	Diethyl Phthalate	mg/kg	4714	239	5.1%	0.0083	79	0.091	0.75	2950	130	4.4%	0.0063	160	0.08	3.1
Soil	131-11-3	Dimethyl Phthalate	mg/kg	4714	372	7.9%	0.006	90	0.062	2.7	2660	202	6.8%	0.006	160	0.054	2.1
Soil	84-74-2	Di-n-Butyl Phthalate	mg/kg	4714	8	0.2%	0.033	48	0.13	0.33	2950	0	0.0%	0.033	66	--	--
Soil	117-84-0	Di-n-Octyl Phthalate	mg/kg	4714	2	0.0%	0.0083	42	0.47	0.57	2960	1	0.0%	0.0083	120	0.27	0.27
Soil	208-44-0	Fluoranthene	mg/kg	4714	3749	79.6%	0.00049	64	0.0005	11	2950	2118	71.6%	0.00049	1.1	0.0005	20
Soil	86-73-7	Fluorene	mg/kg	4714	682	29.4%	0.00073	63	0.00078	23	2960	1571	63.3%	0.00073	2.9	0.0008	22
Soil	87-68-3	Hexachloro-1,3-Butadiene	ug/kg	4714	0	0.0%	0.6	60000	--	--	2960	0	0.0%	0.69	100000	--	--
Soil	118-74-1	Hexachlorobenzene	mg/kg	4714	0	0.0%	0.008	82	--	--	2960	0	0.0%	0.008	100	--	--
Soil	77-47-4	Hexachlorocyclopentadiene	mg/kg	4714	0	0.0%	0.013	360	--	--	2960	0	0.0%	0.0121	700	--	--
Soil	87-72-1	Hexachloroethane	mg/kg	4714	0	0.0%	0.0007	64	--	--	2960	0	0.0%	0.0087	110	--	--
Soil	193-39-6	Indeno (1,2,3-c,d) Pyrene	mg/kg	4714	2408	61.0%	0.00063	49	0.00084	2	2950	879	29.8%	0.00063	13	0.00068	3.2
Soil	78-59-1	Isophthalene	mg/kg	4714	0	0.0%	0.0083	69	--	--	2950	0	0.0%	0.0083	120	--	--
Soil	1319-77-3	Methyl Phenol	mg/kg	240	0	0.0%	0.013	3.2	--	--	128	0	0.0%	0.013	1.8	--	--
Soil	81-20-6	Naphthalene	ug/kg	4718	2630	63.0%	0.23	110	0.26	29000	2661	1971	68.8%	0.23	740	0.26	69000
Soil	99-05-3	Nitrobenzene	mg/kg	4714	0	0.0%	0.013	380	--	--	2960	0	0.0%	0.0121	700	--	--
Soil	82-76-0	N-Nitrosodimethylamine	mg/kg	4714	0	0.0%	0.001	66	--	--	2960	0	0.0%	0.001	120	--	--
Soil	621-84-7	N-Nitroso-di-n-propylamine	mg/kg	4714	0	0.0%	0.0067	68	--	--	2960	0	0.0%	0.0067	120	--	--
Soil	88-30-9	N-Nitrosodiphenylamine	mg/kg	4714	2	0.0%	0.0073	89	0.24	0.32	2960	1	0.0%	0.0073	120	0.61	0.61
Soil	87-86-5	Penachlorophenol	mg/kg	4714	0	0.0%	0.05	840	--	--	2960	0	0.0%	0.0483	1300	--	--
Soil	86-01-6	Phenanthrene	mg/kg	4714	4082	86.0%	0.00051	68	0.00082	100	2960	2289	77.6%	0.00051	0.88	0.00058	84
Soil	108-95-2	Phenol	mg/kg	4714	2	0.0%	0.0083	71	0.97	1.8	2660	0	0.0%	0.0053	140	--	--
Soil	129-00-0	Pyrene	mg/kg	4714	4346	92.2%	0.00049	2.1	0.0006	140	2960	2447	82.6%	0.00049	1	0.0006	180
Soil	110-86-1	Pyridine	mg/kg	4714	0	0.0%	0.082	170	--	--	2060	0	0.0%	0.082	330	--	--
TPH																	
Soil	C19C32ALIPH	Aliphatics (C19 - C32)	mg/kg	917	898	98.1%	5	10	8	7200	563	439	77.4%	5	10	5.1	32000
Soil	C9C9ALIPH	Aliphatics (C9 - C9)	mg/kg	917	373	40.7%	0.0091	0.6	0.0901	1100	566	376	66.4%	0.0091	0.6	0.0093	6800
Soil	C9C10ALIPH	Aliphatics (C9 - C10)	mg/kg	917	569	61.0%	5	10	6	5000	566	358	62.4%	5	10	5	6300
Soil	C17C32AROM	Aromatics (C17 - C32)	mg/kg	917	765	83.4%	6	10	6	8000	566	406	72.3%	6	10	6	36000
Soil	C8C8AROM	Aromatics (C8 - C8)	mg/kg	917	70	7.6%	0.0092	0.02	0.0002	80	566	197	34.8%	0.0092	0.02	0.0002	310
Soil	C9C10AROM	Aromatics (C9 - C10)	mg/kg	917	400	43.6%	6	10	6	8900	566	324	67.2%	6	10	6	41000
Soil	TPHC9C14	Total Petroleum Hydrocarbons (C9-C14)	mg/kg	4	4	100.0%	--	--	360	11000	3	3	100.0%	--	--	410	10000
Soil	66334-30-6	TPH as Diesel	mg/kg	4714	3530	63.4%	4.8	4.8	4.0	96000	2960	2076	70.3%	4.8	4.8	4.9	140000
Soil	PHCG	TPH as Gasoline	mg/kg	4718	1577	33.4%	0.0001	0.42	0.049	3700	2943	1648	56.0%	0.0001	12	0.045	7000
Soil	TPHMOIL	TPH as Motor Oil	mg/kg	4714	4047	86.0%	7	7	7	180000	2960	2120	72.2%	7	7	7.1	320000

Table 4-1
Statistical Summary of Soil Matrix Data
 Former Kasl Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	0 - 2 ft						> 2 to <= 5 ft							
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value	Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
VOCs																	
Soil	530-20-0	1,1,1,2-Tetrachloroethane	ug/kg	4718	0	0.0%	0.17	290	--	--	2948	0	0.0%	0.17	1600	--	--
Soil	71-66-6	1,1,1-Trichloroethane	ug/kg	4718	0	0.0%	0.17	220	--	--	2948	1	0.0%	0.16	1100	0.80	0.85
Soil	78-34-5	1,1,2,2-Tetrachloroethane	ug/kg	4718	8	0.2%	0.08	200	0.1	0.48	2948	18	0.6%	0.08	1000	0.1	420
Soil	78-09-5	1,1,2-Trichloroethane	ug/kg	4718	0	0.0%	0.16	210	--	--	2948	4	0.1%	0.17	1100	0.23	14
Soil	75-34-3	1,1-Dichloroethane	ug/kg	4718	1	0.0%	0.1	140	0.28	0.28	2948	0	0.0%	0.11	700	--	--
Soil	75-36-4	1,1-Dichloroethane	ug/kg	4718	1	0.0%	0.091	120	0.18	0.18	2948	0	0.0%	0.1	820	--	--
Soil	663-59-6	1,1-Dichloropropane	ug/kg	4718	0	0.0%	0.14	190	--	--	2948	0	0.0%	0.16	980	--	--
Soil	87-61-5	1,2,3-Trichlorobenzene	ug/kg	4718	7	0.1%	0.13	190	0.15	63	2948	10	0.3%	0.15	900	0.21	69
Soil	66-16-4	1,2,3-Trichloropropane	ug/kg	4718	5	0.2%	0.2	670	0.65	1.3	2948	5	0.2%	0.2	2900	0.48	130
Soil	65-03-6	1,2,4-Trichlorobenzene	ug/kg	4718	1082	22.6%	0.077	90	0.089	48000	2948	1145	38.9%	0.083	90	0.091	80000
Soil	69-12-6	1,2-Dibromo-3-Chloropropane	ug/kg	4718	0	0.0%	0.5	3200	--	--	2948	1	0.0%	0.5	16000	9.8	9.6
Soil	105-69-4	1,2-Dibromoethane (EDB)	ug/kg	4718	2	0.0%	0.19	160	0.51	950	2948	0	0.0%	0.16	2000	--	--
Soil	107-09-2	1,2-Di(i)chloroethane	ug/kg	4718	5	0.1%	0.11	160	0.2	3.7	2948	0	0.0%	0.12	750	--	--
Soil	78-87-5	1,2-Di(i)chloropropane	ug/kg	4718	2	0.0%	0.17	230	0.31	0.66	2948	2	0.1%	0.16	1200	2.8	100
Soil	108-67-8	1,3,6-Trimehylbenzene	ug/kg	4718	149	3.1%	0.065	58	0.083	12000	2948	857	22.3%	0.071	440	0.075	25000
Soil	142-28-9	1,3-Dichloropropane	ug/kg	4718	0	0.0%	0.12	160	--	--	2948	1	0.0%	0.13	780	0.19	0.19
Soil	664-20-7	2,2-Dichloropropane	ug/kg	4718	0	0.0%	0.24	400	--	--	2948	0	0.0%	0.24	2000	--	--
Soil	78-03-3	2-Butanone (Methyl Ethyl Ketone)	ug/kg	4718	804	16.7%	1.5	8300	2.7	2700	2948	180	0.1%	1.7	42000	2.5	63
Soil	85-48-8	2-Chloroethane	ug/kg	4718	4	0.1%	0.078	45	0.15	150	2948	1	0.0%	0.083	520	4.1	4.1
Soil	66-176-6	2-Hexanone	ug/kg	4718	5	0.2%	0.5	4300	2.3	31	2948	1	0.0%	0.5	25000	8.1	6.1
Soil	108-43-4	4-Chlorobutane	ug/kg	4718	0	0.0%	0.008	91	--	--	2948	0	0.0%	0.075	480	--	--
Soil	108-10-1	4-Methyl-2-Pentanone	ug/kg	4718	21	0.4%	0.6	1800	1.8	16	2948	2	0.1%	0.8	6000	1.4	2.7
Soil	67-64-1	Acetone	ug/kg	4718	4403	93.3%	4.7	5800	5	850	2948	2051	86.8%	4.8	28000	5	1400
Soil	71-43-2	Benzene	ug/kg	4718	2732	57.9%	0.095	55	0.1	13000	2948	1939	45.4%	0.095	600	0.1	24000
Soil	108-85-1	Bromobenzene	ug/kg	4718	1	0.0%	0.14	180	0.41	0.41	2948	1	0.0%	0.15	930	0.42	0.42
Soil	74-87-5	Bromochloromethane	ug/kg	4718	0	0.0%	0.51	1200	--	--	2948	0	0.0%	0.5	6100	--	--
Soil	75-27-4	Bromodichloromethane	ug/kg	4718	24	0.5%	0.08	60	0.12	650	2948	1	0.0%	0.08	650	0.13	0.13
Soil	75-25-2	Bromoform	ug/kg	4718	0	0.1%	0.3	580	0.65	2.5	2948	1	0.0%	0.3	2900	140	140
Soil	74-89-9	Bromomethane	ug/kg	4718	119	2.5%	0.5	1900	0.71	850	2948	83	2.0%	0.50	8200	0.89	900
Soil	75-15-0	Carbon Disulfide	ug/kg	4718	2858	60.3%	0.13	150	0.13	62	2948	1037	55.5%	0.13	700	0.14	110
Soil	56-23-5	Carbon Tetrachloride	ug/kg	4718	1	0.0%	0.21	280	0.3	0.3	2948	0	0.0%	0.21	1400	--	--
Soil	108-90-7	Chlorobenzene	ug/kg	4718	90	1.9%	0.095	62	0.12	160	2948	31	1.1%	0.11	860	0.12	81
Soil	75-00-3	Chloroethane	ug/kg	4718	7	0.1%	0.27	360	0.39	1.8	2948	3	0.1%	0.3	1800	0.54	1.3
Soil	87-88-3	Chloroform	ug/kg	4718	483	10.4%	0.11	150	0.14	110	2948	173	6.6%	0.12	780	0.14	30
Soil	74-87-3	Chloromethane	ug/kg	4718	36	0.7%	0.23	2500	0.27	520	2948	14	0.5%	0.22	13000	0.25	480
Soil	159-59-2	cis-1,2-Dichloroethane	ug/kg	4718	2	0.0%	0.19	260	0.33	0.58	2948	0	0.2%	0.2	1300	0.31	49
Soil	10091-01-5	trans-1,2-Dichloroethane	ug/kg	4718	0	0.0%	0.12	160	--	--	2948	0	0.0%	0.13	810	--	--

Table 4-1
Statistical Summary of Soil Matrix Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	0 - 2 ft				> 2 to <= 5 ft									
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value	Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil	98-82-6	Cumene (isopropylbenzene)	ug/kg	4716	281	5.0%	0.078	87	0.068	6900	2948	1062	37.0%	0.086	220	0.652	11000
Soil	124-46-1	Dibromochloromethane	ug/kg	4716	17	0.4%	0.08	170	0.1	6.8	2948	4	0.1%	0.08	890	0.1	0.17
Soil	74-06-3	Dibromomethane	ug/kg	4716	0	0.0%	0.2	610	--	--	2948	2	0.1%	0.2	3100	0.41	0.93
Soil	108-20-3	Diisopropyl Ether (DIPE)	ug/kg	4716	4	0.1%	0.16	220	0.21	0.3	2948	6	0.2%	0.16	1100	0.2	0.97
Soil	64-17-5	Ethanol	ug/kg	4716	637	13.5%	37	87000	50	100000	2948	236	8.0%	40	240000	45	17000
Soil	100-41-4	Ethylbenzene	ug/kg	4716	407	8.6%	0.1	19	0.12	16000	2948	1074	36.4%	0.11	25	0.12	29000
Soil	837-92-3	Ethyl-t-Butyl Ether (ETBE)	ug/kg	4716	0	0.0%	0.14	100	--	--	2948	0	0.0%	0.15	690	--	--
Soil	75-98-4	Freon 11	ug/kg	4716	3	0.1%	0.1	140	0.17	0.47	2948	0	0.0%	0.11	690	--	--
Soil	78-13-1	Freon 113	ug/kg	4716	0	0.0%	0.26	410	--	--	2948	0	0.0%	0.28	2100	--	--
Soil	75-71-8	Freon 12	ug/kg	4716	13	0.3%	0.13	170	0.10	0.68	2948	8	0.3%	0.14	890	0.17	17
Soil	75-09-2	Methylene Chloride	ug/kg	4716	18	0.4%	0.09	4500	2.8	2100	2948	17	0.6%	0.09	23000	1.4	61
Soil	1834-04-4	Methyl-t-Butyl Ether	ug/kg	4716	24	0.6%	0.087	120	0.11	1.8	2948	31	1.1%	0.086	500	0.11	140
Soil	104-61-8	n-Butylbenzene	ug/kg	4716	115	2.4%	0.11	27	0.13	8200	2648	1010	34.5%	0.11	38	0.12	11000
Soil	86-47-0	n-Xylene	ug/kg	669	8	0.9%	0.088	1.8	0.67	270	322	48	14.0%	0.082	170	0.12	18000
Soil	1330-20-7-1	p/m-Xylene	ug/kg	669	6	1.1%	0.16	2.9	1.4	10000	322	48	14.0%	0.16	280	0.22	34000
Soil	96-87-6	p-Isopropyltoluene	ug/kg	4716	803	17.0%	0.076	77	0.069	8100	2948	1068	36.3%	0.082	98	0.083	7000
Soil	103-66-1	Propylbenzene	ug/kg	4716	66	1.4%	0.14	340	0.66	8000	2948	738	25.0%	0.17	880	0.18	15000
Soil	135-98-8	sec-Butylbenzene	ug/kg	4716	167	3.5%	0.088	71	0.083	4000	2948	1248	42.2%	0.074	300	0.083	8900
Soil	100-42-6	Styrene	ug/kg	4716	4	0.1%	0.14	180	0.21	3.9	2948	4	0.1%	0.15	910	0.23	78
Soil	994-06-8	tert-Butyl Methyl Ether (TAME)	ug/kg	4716	0	0.0%	0.088	110	--	--	2948	0	0.0%	0.093	580	--	--
Soil	75-66-0	tert-Butyl Alcohol (TBA)	ug/kg	4716	29	0.6%	3.8	13000	4.1	430	2948	36	1.2%	3.8	85000	4.1	200
Soil	86-06-8	tert-Butylbenzene	ug/kg	4716	50	1.2%	0.081	110	0.11	230	2948	840	28.0%	0.088	650	0.080	360
Soil	127-18-4	Tetrachloroethene	ug/kg	4716	74	1.6%	0.11	160	0.16	18000	2948	66	1.6%	0.12	780	0.14	37
Soil	108-88-3	Toluene	ug/kg	4716	2412	51.1%	0.008	130	0.11	4900	2948	903	30.6%	0.11	680	0.11	67000
Soil	166-00-5	trans-1,2-Dichloroethane	ug/kg	4716	0	0.0%	0.47	220	--	--	2948	0	0.0%	0.18	1100	--	--
Soil	10591-02-8	trans-1,3-Dichloropropene	ug/kg	4716	0	0.0%	0.46	1700	--	--	2948	0	0.0%	0.2	8400	--	--
Soil	79-01-6	Trichloroethene	ug/kg	4716	29	0.6%	0.12	160	0.16	140	2948	14	0.6%	0.13	890	0.18	300
Soil	108-05-4	Vinyl Acetate	ug/kg	4716	0	0.0%	3.5	8500	--	--	2948	0	0.0%	3.5	23000	--	--
Soil	75-01-4	Vinyl Chloride	ug/kg	4716	8	0.2%	0.14	100	0.10	0.49	2948	4	0.1%	0.15	690	0.27	48
Soil	1330-20-7	Xylenes, Total	ug/kg	4704	643	17.5%	0.13	83	0.16	52000	2638	1024	34.8%	0.14	170	0.16	140000

Notes:
 All data through August 31, 2010
 -- Not applicable
 ft: foot
 *0" N includes samples collected above ground surface
 DL: Sample-specific detection limit
 mg/kg: milligram per kilogram; ug/kg: microgram per kilogram

Table 4-1
Statistical Summary of Soil Matrix Data
 Former Kaet Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	> 5 to <= 10 ft							0 to <= 10 ft						
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value	Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Metal																	
Soil	7440-38-0	Antimony	mg/kg	2903	445	17.1%	0.140	0.300	0.161	4.87	10216	1809	18.8%	0.140	0.300	0.151	6.46
Soil	7440-38-2	Arsenic	mg/kg	2903	2597	90.8%	0.398	0.398	0.44	62.0	10216	10180	99.6%	0.250	0.398	0.388	62.0
Soil	7440-39-3	Barium	mg/kg	2903	2903	100.0%	--	--	14.8	460	10219	10216	100.0%	--	--	10.9	1020
Soil	7449-41-7	Beryllium	mg/kg	2903	2657	98.4%	0.0037	0.137	0.0513	1.21	10216	10191	99.8%	0.0037	0.137	0.0513	1.21
Soil	7440-43-0	Cadmium	mg/kg	2903	497	17.0%	0.0064	0.136	0.011	2.88	10216	2731	26.7%	0.0064	0.136	0.007	6.02
Soil	7440-47-3	Chromium	mg/kg	2903	2903	100.0%	--	--	2.11	36.2	10216	10210	100.0%	--	--	2.11	74.2
Soil	CR6	Chromium, Hexavalent	mg/kg	2518	315	12.6%	0.038	0.43	0.04	4.8	9928	1130	11.4%	0.0026	0.43	0.039	4.8
Soil	7440-48-4	Cobalt	mg/kg	2903	2603	100.0%	--	--	1.2	31.3	10218	10216	100.0%	--	--	1.19	31.3
Soil	7440-50-8	Copper	mg/kg	2903	2903	100.0%	--	--	1.22	61.4	10216	10216	100.0%	--	--	1.01	1160
Soil	7439-62-1	Lead	mg/kg	2903	2582	90.2%	0.0527	0.181	0.231	1330	10216	10181	99.8%	0.0527	0.181	0.231	1330
Soil	7439-97-6	Mercury	mg/kg	2903	2814	98.6%	0.0013	0.00588	0.0041	0.279	10216	9812	98.0%	0.0013	0.00588	0.0036	1.33
Soil	7439-98-7	Molybdenum	mg/kg	2903	1437	65.2%	0.0206	0.132	0.0316	6.07	10210	9901	65.7%	0.0206	0.132	0.0269	24.1
Soil	7440-02-0	Nickel	mg/kg	2903	2903	100.0%	--	--	1.91	40.7	10210	10216	100.0%	--	--	1.57	43.1
Soil	7782-40-2	Selenium	mg/kg	2903	142	6.5%	0.176	0.43	0.291	4.14	10216	873	5.6%	0.176	0.43	0.159	8.99
Soil	7440-22-4	Silver	mg/kg	2903	43	1.7%	0.017	0.117	0.129	2.03	10219	121	1.2%	0.017	0.117	0.0392	3.82
Soil	7440-28-0	Thallium	mg/kg	2903	144	5.5%	0.0587	0.232	0.195	3.47	10216	420	4.1%	0.0587	0.232	0.103	3.47
Soil	7449-92-2	Vanadium	mg/kg	2903	2003	100.0%	--	--	4.74	68	10216	10216	100.0%	--	--	4.18	89
Soil	7440-86-9	Zinc	mg/kg	2903	2903	100.0%	--	--	5.87	873	10216	10216	100.0%	--	--	5.67	8770
PCBs																	
Soil	12674-11-2	AROCLOL 1010	ug/kg	18	0	0.0%	10	14	--	--	47	0	0.0%	10	14	--	--
Soil	11104-28-2	AROCLOL 1221	ug/kg	18	0	0.0%	10	13	--	--	47	0	0.0%	10	13	--	--
Soil	11141-16-5	AROCLOL 1232	ug/kg	18	0	0.0%	10	11	--	--	47	0	0.0%	10	11	--	--
Soil	63489-21-0	AROCLOL 1242	ug/kg	18	0	0.0%	10	12	--	--	47	0	0.0%	10	12	--	--
Soil	12672-28-6	AROCLOL 1249	ug/kg	18	0	0.0%	10	14	--	--	47	0	0.0%	10	14	--	--
Soil	11007-66-1	AROCLOL 1254	ug/kg	18	0	0.0%	10	12	--	--	47	0	0.0%	10	12	--	--
Soil	11009-82-5	AROCLOL 1260	ug/kg	18	0	0.0%	11	11	--	--	47	0	0.0%	11	11	--	--
Soil	37324-23-5	AROCLOL 1282	ug/kg	18	0	0.0%	10	12	--	--	47	0	0.0%	10	12	--	--
SVOCs/PAHs																	
Soil	120-82-1	1,2,4-Trichlorobenzene	ug/kg	2628	5	0.2%	0.13	1000	0.24	320	10297	12	0.1%	0.12	81000	0.17	320
Soil	95-50-1	1,2-Dichlorobenzene	ug/kg	2628	1	0.0%	0.091	620	0.55	0.55	10297	16	0.2%	0.064	41000	0.11	330
Soil	541-73-1	1,3-Dichlorobenzene	ug/kg	2628	0	0.0%	0.034	510	--	--	10297	4	0.0%	0.064	41000	0.21	50
Soil	106-46-7	1,4-Dichlorobenzene	ug/kg	2628	2	0.1%	0.11	770	0.29	440	10297	77	0.7%	0.1	61000	0.13	440
Soil	99-12-0	1-Methylpiperazine	mg/kg	2628	1663	69.5%	0.031	4.3	0.001	140	10290	4515	43.9%	0.031	48	0.001	990
Soil	96-65-4	2,4,6-Trichlorophenol	mg/kg	2627	1	0.0%	0.0116	30	0.075	0.075	10291	1	0.0%	0.0116	150	0.075	0.075
Soil	86-00-2	2,4,6-Trichlorophenol	mg/kg	2627	0	0.0%	0.0116	32	--	--	10291	1	0.0%	0.0116	180	0.14	0.14
Soil	120-83-2	2,4-Dichlorophenol	mg/kg	2627	1	0.0%	0.0110	28	0.078	0.078	10291	2	0.0%	0.0116	140	0.078	0.43
Soil	105-67-6	2,4-Dimethylphenol	mg/kg	2627	0	0.0%	0.0119	24	--	--	10291	0	0.0%	0.0110	120	--	--

Table 4-1
 Statistical Summary of Soil Matrix Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	> 5 to <= 10 ft							0 to <= 10 ft						
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value	Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil	51-28-6	2,4-Dinitrophenol	mg/kg	2827	0	0.0%	0.046	180	--	--	10201	0	0.0%	0.046	720	--	--
Soil	121-14-2	2,4-Dinitrotoluene	mg/kg	2827	8	0.3%	0.0118	30	0.088	3.1	10201	15	0.1%	0.0118	160	0.061	3.1
Soil	606-20-2	2,4-Dinitrotoluene	mg/kg	2827	0	0.0%	0.008	33	--	--	10201	2	0.0%	0.008	170	0.058	0.18
Soil	91-58-7	2-Chloronaphthalene	mg/kg	2827	1	0.0%	0.0083	20	2.6	2.8	10201	3	0.0%	0.0083	97	0.18	2.8
Soil	98-57-8	2-Chlorophenol	mg/kg	2827	0	0.0%	0.0118	27	--	--	10201	0	0.0%	0.0118	140	--	--
Soil	91-57-6	2-Methylnaphthalene	mg/kg	2827	1013	72.8%	0.0006	2.4	0.0006	280	10201	7671	73.8%	0.0006	47	0.0006	280
Soil	95-48-7	2-Methylphenol	mg/kg	2827	0	0.0%	0.0118	28	--	--	10201	0	0.0%	0.0118	140	--	--
Soil	88-74-4	2-Nitroaniline	mg/kg	2827	1	0.0%	0.048	33	0.18	0.18	10201	1	0.0%	0.048	180	0.18	0.18
Soil	99-78-9	2-Nitrophenol	mg/kg	2827	0	0.0%	0.0118	28	--	--	10201	0	0.0%	0.0118	130	--	--
Soil	01-84-1	3,3-Dichlorobenzidine	mg/kg	2827	0	0.0%	0.0003	220	--	--	10201	0	0.0%	0.0003	1100	--	--
Soil	106-44-6	3-M-Methylphenol	mg/kg	2826	0	0.0%	0.0118	27	--	--	10200	1	0.0%	0.0118	140	0.073	0.073
Soil	99-06-2	3-Nitroaniline	mg/kg	2827	0	0.0%	0.01	32	--	--	10201	0	0.0%	0.01	180	--	--
Soil	534-62-1	4,4'-Dinitro-2-Methylphenol	mg/kg	2827	0	0.0%	0.0463	320	--	--	10201	0	0.0%	0.0463	1600	--	--
Soil	101-05-0	4-Bromophenyl-Phenyl Ether	mg/kg	2827	0	0.0%	0.0067	20	--	--	10201	0	0.0%	0.0067	100	--	--
Soil	89-60-7	4-Chloro-3-Methylphenol	mg/kg	2827	1	0.0%	0.0118	30	0.087	0.087	10201	1	0.0%	0.0118	160	0.087	0.087
Soil	108-47-8	4-Chloroaniline	mg/kg	2827	0	0.0%	0.0118	25	--	--	10201	0	0.0%	0.0118	120	--	--
Soil	7005-72-9	4-Chlorophenyl-Phenyl Ether	mg/kg	2827	0	0.0%	0.0067	21	--	--	10201	0	0.0%	0.0067	100	--	--
Soil	MEPH4	4-Methylphenol (p-Cresol)	mg/kg	193	1	0.5%	0.078	24	0.14	0.14	10201	8	1.2%	0.078	47	0.14	0.22
Soil	100-01-6	4-Nitroaniline	mg/kg	2827	0	0.0%	0.0463	28	--	--	10201	0	0.0%	0.0463	140	--	--
Soil	100-02-7	4-Nitrophenol	mg/kg	2827	1	0.0%	0.0067	32	0.1	0.1	10201	1	0.0%	0.0067	180	0.1	0.1
Soil	83-32-0	Acenaphthene	mg/kg	2827	1387	62.8%	0.0000	13	0.0000	11	10201	3353	32.6%	0.0000	48	0.0000	17
Soil	208-09-6	Acenaphthylene	mg/kg	2827	430	18.7%	0.0006	3	0.0009	3	10201	1932	18.8%	0.0006	84	0.0006	4.6
Soil	62-63-3	Aniline	mg/kg	2826	2	0.1%	0.058	20	1.0	4	10200	6	0.1%	0.058	110	0.068	4
Soil	120-12-7	Anthracene	mg/kg	2827	1074	40.8%	0.0004	16	0.00083	6.7	10201	4002	39.8%	0.0004	57	0.00064	23
Soil	108-33-3	Azobenzene	mg/kg	2826	1	0.0%	0.1	21	0.24	0.24	10200	1	0.0%	0.1	110	0.24	0.24
Soil	92-87-5	Benzidine	mg/kg	2827	0	0.0%	0.071	240	--	--	10201	0	0.0%	0.071	800	--	--
Soil	85-86-3	Benzo (c) Anthracene	mg/kg	2827	1632	62.1%	0.0006	3.1	0.0007	35	10201	7589	73.7%	0.0006	95	0.0007	47
Soil	60-32-8	Benzo (a) Pyrene	mg/kg	2827	1454	65.3%	0.0049	2.3	0.0005	16	10201	7288	70.8%	0.0049	43	0.0005	22
Soil	208-69-2	Benzo (b) Fluoranthene	mg/kg	2827	1142	43.6%	0.0036	2.2	0.0005	8	10201	6074	60.0%	0.0036	42	0.0005	18
Soil	191-24-2	Benzo (g,h,i) Perylene	mg/kg	2827	1130	43.4%	0.0047	6.2	0.0007	8.3	10201	6772	65.8%	0.0047	45	0.00062	13
Soil	207-09-0	Benzo (k) Fluoranthene	mg/kg	2827	388	13.8%	0.0007	11	0.00078	2.2	10201	2263	21.9%	0.0007	65	0.00078	4.8
Soil	85-86-0	Benzole Acid	mg/kg	2827	1	0.0%	0.084	150	1.2	1.2	10201	8	0.1%	0.084	780	0.12	1.5
Soil	100-51-6	Benzyl Alcohol	mg/kg	2827	0	0.0%	0.064	31	--	--	10201	1	0.0%	0.064	160	1.6	1.8
Soil	111-01-1	Bis(2-Chloroethoxy) Methane	mg/kg	2827	0	0.0%	0.0118	26	--	--	10201	0	0.0%	0.0118	120	--	--
Soil	111-44-4	Bis(2-Chloroethyl) Ether	mg/kg	2827	0	0.0%	0.0118	23	--	--	10201	0	0.0%	0.0118	110	--	--
Soil	108-90-4	Bis(2-Chloroisopropyl) Ether	mg/kg	2827	0	0.0%	0.0118	24	--	--	10201	0	0.0%	0.0118	120	--	--
Soil	117-81-7	Bis(2-Ethylhexyl) Phthalate	mg/kg	2827	33	1.3%	0.039	93	0.098	1.4	10201	322	3.1%	0.039	98	0.089	22
Soil	85-69-7	Butyl Benzyl Phthalate	mg/kg	2827	20	1.0%	0.0110	24	0.024	3.1	10201	116	1.1%	0.0118	100	0.023	3.1

Table 4-1
 Statistical Summary of Soil Matrix Data
 Former Kasst Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	> 6 to <= 10 ft						0 to <= 10 ft							
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value	Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil	218-01-9	Chrysene	mg/kg	2827	1023	69.4%	0.00058	2.2	0.00082	88	10291	8231	80.0%	0.00058	2.2	0.00062	130
Soil	83-70-3	Dibenz (ah) Anthracene	mg/kg	2827	365	16.0%	0.00062	8.7	0.0007	0.52	10291	2830	26.8%	0.00062	46	0.00063	3.4
Soil	132-61-0	Dibenzofuran	mg/kg	2827	2	0.1%	0.0073	23	0.48	1.2	10291	7	0.1%	0.0073	120	0.13	1.2
Soil	84-98-2	Diethyl Phthalate	mg/kg	2827	126	4.8%	0.0093	31	0.08	0.65	10291	404	4.8%	0.0093	180	0.09	3.1
Soil	131-11-3	Dimethyl Phthalate	mg/kg	2827	167	6.4%	0.006	36	0.064	0.6	10291	741	7.2%	0.006	180	0.062	2.7
Soil	84-74-2	Dio-n-Butyl Phthalate	mg/kg	2827	0	0.0%	0.033	26	--	--	10291	8	0.1%	0.033	98	0.13	0.33
Soil	117-84-0	Dio-n-Octyl Phthalate	mg/kg	2827	2	0.1%	0.0383	48	0.12	0.32	10291	5	0.0%	0.0383	120	0.12	0.57
Soil	206-44-0	Fluoranthene	mg/kg	2827	1711	66.1%	0.00049	2.2	0.0005	12	10291	7578	73.8%	0.00049	64	0.0005	20
Soil	80-73-7	Fluorene	mg/kg	2827	1088	60.4%	0.00073	3.1	0.00075	20	10291	4121	60.0%	0.00073	83	0.00076	23
Soil	87-89-3	Hexachloro-1,3-Butadiene	ug/kg	2828	0	0.0%	0.0	20000	--	--	10292	0	0.0%	0.5	100000	--	--
Soil	118-74-1	Hexachlorobenzene	mg/kg	2827	0	0.0%	0.006	28	--	--	10291	0	0.0%	0.006	100	--	--
Soil	77-47-4	Hexachlorocyclopentadiene	mg/kg	2827	0	0.0%	0.0110	170	--	--	10291	0	0.0%	0.0118	700	--	--
Soil	87-72-1	Hexachlorocyclohexane	mg/kg	2827	1	0.0%	0.0067	22	8.6	8.6	10291	1	0.0%	0.0067	110	6.8	6.8
Soil	103-99-6	Indeno (1,2,3-c,d) Pyrene	mg/kg	2827	562	21.4%	0.00693	8.7	0.00070	1.8	10291	3847	37.4%	0.00693	46	0.00056	3.2
Soil	78-89-1	Isophorone	mg/kg	2827	0	0.0%	0.0093	24	--	--	10291	0	0.0%	0.0093	129	--	--
Soil	1319-77-3	Methyl Phenol	mg/kg	96	0	0.0%	0.013	1.8	--	--	433	0	0.0%	0.013	3.2	--	--
Soil	91-20-3	Naphthalene	ug/kg	2828	1006	72.5%	0.24	360	0.28	92000	10297	8403	62.2%	0.23	740	0.26	62000
Soil	98-05-3	Nitrobenzene	mg/kg	2827	0	0.0%	0.0118	160	--	--	10291	0	0.0%	0.0118	780	--	--
Soil	92-76-9	N-Nitrosodimethylamine	mg/kg	2828	0	0.0%	0.091	23	--	--	10290	0	0.0%	0.091	120	--	--
Soil	621-04-7	N-Nitroso-di-n-propylamine	mg/kg	2827	1	0.0%	0.0067	23	0.14	0.14	10291	1	0.0%	0.0067	120	0.14	0.14
Soil	86-30-6	N-Nitrosodiphenylamine	mg/kg	2827	1	0.0%	0.0073	24	6.5	5.5	10291	4	0.0%	0.0073	120	0.24	5.5
Soil	87-89-6	Pentachlorophenol	mg/kg	2827	0	0.0%	0.0403	260	--	--	10291	0	0.0%	0.0463	1300	--	--
Soil	88-01-8	Phonanthrene	mg/kg	2827	1940	74.2%	0.00061	2	0.00069	66	10291	8319	80.8%	0.00061	58	0.00068	100
Soil	108-95-2	Phenol	mg/kg	2827	0	0.0%	0.0063	28	--	--	10291	2	0.0%	0.0063	140	0.07	1.8
Soil	129-00-0	Pyrene	mg/kg	2827	2694	78.7%	0.00049	2.1	0.00050	240	10291	8896	80.3%	0.00049	2.1	0.0005	240
Soil	110-96-4	Pyridine	mg/kg	2828	0	0.0%	0.002	67	--	--	10290	0	0.0%	0.002	330	--	--
TPH																	
Soil	C16C32ALIPH	Aliphatics (C10 - C32)	mg/kg	537	389	72.4%	5	10	6.1	16000	2920	1936	80.9%	5	10	6	32000
Soil	OC6ALIPH	Aliphatics (C6 - C8)	mg/kg	537	350	68.9%	0.0091	0.6	0.002	7000	2010	1107	64.8%	0.0091	0.5	0.0091	7000
Soil	C9C18ALIPH	Aliphatics (C9 - C18)	mg/kg	537	284	49.2%	5	10	6.3	6600	2018	916	45.4%	5	10	6	6300
Soil	C17C32AROM	Aromatics (C17 - C32)	mg/kg	537	351	66.4%	5	10	6	18000	2020	1625	76.5%	5	10	6	30000
Soil	OC6BAROM	Aromatics (C6 - C8)	mg/kg	537	290	42.8%	0.0002	0.002	0.0002	180	2020	497	24.8%	0.0002	0.02	0.0002	310
Soil	C9C16AROM	Aromatics (C9 - C16)	mg/kg	537	283	62.7%	5	10	6	8400	2020	1007	49.9%	5	10	6	41000
Soil	TPHC9C14	Total Polycyclic Hydrocarbons (C9-C14)	mg/kg	5	2	40.0%	4.8	4.8	4900	22000	12	0	75.0%	4.8	4.8	350	22000
Soil	89394-30-6	TPH as Diesel	mg/kg	2827	1950	68.2%	4.8	4.8	4.8	51000	10291	7686	74.5%	4.8	4.8	4.8	140000
Soil	PHCG	TPH as Gasoline	mg/kg	2826	1658	58.7%	0.039	0.42	0.048	9000	10291	4791	48.5%	0.0001	12	0.043	6800
Soil	TPHMOL	TPH as Motor Oil	mg/kg	2827	1723	65.8%	7	7	7	78000	10291	7689	76.8%	7	7	7	320000

Table 4-1
Statistical Summary of Soil Matrix Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	> 6 to <= 10 ft								0 to <= 10 ft							
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value	Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value		
VOCs																			
Soil	630-20-6	1,1,1,2-Tetrachloroethane	ug/kg	2824	0	0.0%	0.11	610	--	--	10290	0	0.0%	0.11	1600	--	--		
Soil	71-55-6	1,1,1-Trichloroethane	ug/kg	2824	0	0.0%	0.11	490	--	--	10290	1	0.0%	0.11	1100	0.88	0.88		
Soil	78-34-5	1,1,2,2-Tetrachloroethane	ug/kg	2824	6	0.2%	0.09	420	0.1	1.8	10290	31	0.3%	0.08	1000	0.1	420		
Soil	78-00-5	1,1,2-Trichloroethane	ug/kg	2824	6	0.2%	0.17	440	0.49	69	10290	10	0.1%	0.10	1100	0.23	69		
Soil	75-34-3	1,1-Dichloroethane	ug/kg	2824	0	0.0%	0.11	420	--	--	10290	1	0.0%	0.1	700	0.20	0.20		
Soil	75-35-4	1,1-Dichloroethane	ug/kg	2824	0	0.0%	0.1	320	--	--	10290	1	0.0%	0.091	820	0.18	0.18		
Soil	593-58-6	1,1-Dichloropropane	ug/kg	2824	0	0.0%	0.16	400	--	--	10290	0	0.0%	0.14	990	--	--		
Soil	87-81-6	1,2,3-Trichlorobenzene	ug/kg	2824	10	0.4%	0.16	840	0.17	340	10290	27	0.3%	0.13	800	0.17	340		
Soil	96-48-4	1,2,3-Trichloropropane	ug/kg	2824	11	0.4%	0.2	1200	0.5	180	10290	24	0.2%	0.2	2000	0.48	180		
Soil	95-63-6	1,2,4-Trifluorobenzene	ug/kg	2824	1396	52.2%	0.084	82	0.06	84000	10290	3679	34.8%	0.077	90	0.089	84000		
Soil	96-12-6	1,2-Dibromo-3-Chloropropane	ug/kg	2824	0	0.0%	0.6	6700	--	--	10290	1	0.0%	0.5	18000	0.8	0.8		
Soil	106-93-4	1,2-Dibromochloroethane (EDB)	ug/kg	2824	0	0.0%	0.12	820	--	--	10290	2	0.0%	0.12	2000	0.61	950		
Soil	107-06-2	1,2-Dichloroethane	ug/kg	2824	2	0.1%	0.12	310	0.21	7.3	10290	7	0.1%	0.11	780	0.2	7.3		
Soil	78-37-5	1,2-Dichloropropane	ug/kg	2824	2	0.1%	0.10	490	0.45	90	10290	6	0.1%	0.17	1200	0.31	400		
Soil	106-67-8	1,3,5-Trimethylbenzene	ug/kg	2824	898	34.2%	0.072	510	0.078	31000	10290	1701	15.5%	0.066	510	0.076	31000		
Soil	142-28-9	1,3-Dichloropropane	ug/kg	2824	0	0.0%	0.12	320	--	--	10290	1	0.0%	0.12	780	0.19	0.19		
Soil	594-90-7	2,3-Dichloropropane	ug/kg	2824	0	0.0%	0.10	840	--	--	10290	0	0.0%	0.10	2000	--	--		
Soil	78-60-3	2-Butanone (Methyl Ethyl Ketone)	ug/kg	2822	131	5.0%	1.5	17000	2.1	32	10288	816	7.0%	1.5	42000	2.1	2700		
Soil	95-48-8	2-Chlorobutane	ug/kg	2824	1	0.0%	0.083	210	3.6	3.8	10290	8	0.1%	0.078	620	0.15	180		
Soil	591-78-6	2-Chlorobutane	ug/kg	2822	0	0.0%	0.8	10000	--	--	10288	9	0.1%	0.8	26000	2.3	31		
Soil	109-43-4	4-Chlorobutane	ug/kg	2824	1	0.0%	0.076	200	0.27	0.27	10290	1	0.0%	0.068	460	0.27	0.27		
Soil	108-10-1	4-Methyl-2-Pentanone	ug/kg	2822	3	0.1%	0.8	4000	1.7	2.8	10288	20	0.3%	0.8	9000	1.4	16		
Soil	67-94-1	Aceitone	ug/kg	2822	1462	66.6%	4.6	12000	4.8	1800	10288	7936	77.1%	4.6	28000	4.8	1600		
Soil	71-43-2	Benzene	ug/kg	2824	1334	60.8%	0.060	240	0.1	33000	10290	6406	62.5%	0.058	800	0.1	33000		
Soil	106-88-1	Bromobenzene	ug/kg	2824	1	0.0%	0.1	380	1.8	1.8	10290	3	0.0%	0.1	930	0.41	1.8		
Soil	74-87-6	Bromochloroethane	ug/kg	2822	0	0.0%	0.33	2500	--	--	10288	0	0.0%	0.33	6100	--	--		
Soil	76-27-4	Bromodichloroethane	ug/kg	2824	6	0.2%	0.20	270	0.14	1300	10290	31	0.3%	0.08	850	0.12	1300		
Soil	75-26-2	Bromoforn	ug/kg	2824	2	0.1%	0.3	1200	0.75	2.3	10290	9	0.1%	0.3	2900	0.85	140		
Soil	74-83-0	Bromomethane	ug/kg	2824	79	3.0%	0.6	6700	0.73	1300	10290	281	2.7%	0.5	8700	0.69	1300		
Soil	75-15-0	Carbon Disulfide	ug/kg	2822	1245	47.5%	0.13	320	0.13	120	10288	5637	63.6%	0.13	780	0.13	120		
Soil	58-23-5	Carbon Tetrachloride	ug/kg	2824	0	0.0%	0.10	680	--	--	10290	1	0.0%	0.13	1400	0.3	0.3		
Soil	108-90-7	Chlorobenzene	ug/kg	2824	20	0.6%	0.11	270	0.12	29	10290	141	1.4%	0.098	600	0.12	160		
Soil	75-00-3	Chloroethane	ug/kg	2824	3	0.1%	0.3	1400	0.32	0.80	10290	13	0.1%	0.27	1600	0.32	1.8		
Soil	67-69-3	Chloroform	ug/kg	2824	121	4.6%	0.11	320	0.13	80	10290	767	7.6%	0.11	760	0.13	110		
Soil	74-87-3	Chloromethane	ug/kg	2824	25	1.0%	0.23	6300	0.29	310	10290	74	0.7%	0.22	13000	0.26	620		
Soil	168-59-2	cis-1,2-Dichloroethane	ug/kg	2824	7	0.3%	0.13	620	0.23	440	10290	15	0.1%	0.13	1300	0.23	440		
Soil	10051-01-5	cis-1,3-Dichloropropene	ug/kg	2824	0	0.0%	0.12	530	--	--	10290	0	0.0%	0.12	810	--	--		

Table 4-1
Statistical Summary of Soil Matrix Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	> 5 to <= 10 ft						0 to <= 10 ft							
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value	Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil	98-82-8	Cumene (Isopropylbenzene)	ug/kg	2624	1284	48.9%	0.080	600	0.068	16000	10290	2657	25.8%	0.078	600	0.062	10000
Soil	124-40-1	Dibromochloromethane	ug/kg	2624	6	0.2%	0.09	630	0.1	6.2	10290	29	0.3%	0.08	860	0.1	6.8
Soil	74-05-3	Dibromomethane	ug/kg	2624	1	0.0%	0.2	1300	50	60	10290	3	0.0%	0.2	3100	0.41	60
Soil	108-20-3	Dioisopropyl Ether (DIPE)	ug/kg	2624	4	0.2%	0.18	450	0.23	1.4	10290	14	0.1%	0.19	1100	0.2	1.4
Soil	94-17-5	Ethanol	ug/kg	2622	187	6.4%	40	180000	47	21000	10288	1039	10.1%	37	240000	45	100000
Soil	100-41-4	Ethylbenzene	ug/kg	2624	1351	51.5%	0.11	48	0.12	42000	10290	2832	27.6%	0.1	45	0.12	42000
Soil	637-82-3	Ethyl-t-Butyl Ether (ETBE)	ug/kg	2624	0	0.0%	0.16	470	--	--	10290	0	0.0%	0.14	850	--	--
Soil	75-80-4	Freon 11	ug/kg	2624	0	0.0%	0.11	360	--	--	10289	3	0.0%	0.1	690	0.17	0.47
Soil	76-13-1	Freon 113	ug/kg	2622	0	0.0%	0.17	860	--	--	10288	0	0.0%	0.17	2100	--	--
Soil	76-71-8	Freon 12	ug/kg	2624	8	0.2%	0.14	410	0.16	17	10290	27	0.3%	0.13	860	0.16	17
Soil	76-09-2	Methylone Chloride	ug/kg	2624	12	0.6%	0.64	6600	2.2	29	10290	47	0.6%	0.64	23000	1.4	2160
Soil	1634-04-4	Methyl-tert-Butyl Ether	ug/kg	2624	18	0.7%	0.095	270	0.16	1.0	10290	73	0.7%	0.087	690	0.11	140
Soil	104-51-6	n-Butylbenzene	ug/kg	2624	1241	47.3%	0.12	10	0.15	13000	10290	2372	23.1%	0.11	38	0.12	13000
Soil	96-47-0	o-Xylene	ug/kg	281	40	17.1%	0.062	410	0.07	11000	1182	102	8.6%	0.068	410	0.12	16000
Soil	1330-20-7-1	p/m-Xylene	ug/kg	281	66	23.5%	0.16	260	0.34	18000	1182	120	10.3%	0.15	200	0.22	34000
Soil	96-47-8	p-Isopropyltoluene	ug/kg	2624	1255	48.2%	0.084	690	0.092	12000	10290	3137	30.5%	0.079	690	0.068	12000
Soil	109-65-1	Propylbenzene	ug/kg	2624	1048	39.9%	0.17	410	0.3	24000	10290	1854	18.0%	0.14	860	0.18	24000
Soil	135-98-8	sec-Butylbenzene	ug/kg	2624	1337	51.0%	0.075	630	0.079	8800	10290	2749	26.7%	0.068	630	0.079	8800
Soil	100-42-5	Styrene	ug/kg	2624	9	0.3%	0.16	660	0.29	36	10290	17	0.2%	0.14	910	0.21	78
Soil	694-05-9	tert-Amyl-Methyl Ether (TAME)	ug/kg	2624	0	0.0%	0.093	320	--	--	10290	0	0.0%	0.088	660	--	--
Soil	76-65-0	tert-Butyl Alcohol (TBA)	ug/kg	2624	62	2.4%	2.6	28000	4.2	120	10290	123	1.2%	2.6	69000	4.1	430
Soil	98-09-6	tert-Butylbenzene	ug/kg	2624	793	29.1%	0.072	230	0.087	420	10290	1468	14.3%	0.072	660	0.098	420
Soil	127-18-4	Tetrachloroethene	ug/kg	2624	36	1.4%	0.1	310	0.14	28	10290	105	1.0%	0.1	760	0.14	10000
Soil	106-88-3	Toluene	ug/kg	2624	1003	38.2%	0.11	470	0.11	60000	10290	4348	42.0%	0.098	660	0.11	67000
Soil	169-00-5	trans-1,2-Dichloroethene	ug/kg	2624	4	0.2%	0.16	470	0.63	1600	10290	4	0.0%	0.17	1160	0.63	1600
Soil	16081-02-8	trans-1,3-Dichloropropene	ug/kg	2622	0	0.0%	0.2	3600	--	--	10289	0	0.0%	0.18	8400	--	--
Soil	79-01-9	Trichloroethene	ug/kg	2624	6	0.3%	0.13	330	0.17	720	10290	61	0.6%	0.12	900	0.15	720
Soil	109-95-4	Vinyl Acetate	ug/kg	2622	1	0.0%	2.3	14000	8200	8200	10288	1	0.0%	2.3	33000	8200	8200
Soil	76-01-4	Vinyl Chloride	ug/kg	2624	3	0.1%	0.16	400	0.16	0.34	10290	16	0.1%	0.14	660	0.18	49
Soil	1330-20-7	Xylenes, Total	ug/kg	2816	1225	43.8%	0.16	200	0.16	140000	10287	3002	30.1%	0.13	200	0.16	140000

Notes:
 All data through August 31, 2013
 -- Not applicable
 ft: foot
 "0" (0) includes samples collected above ground surface
 DL: Sample-specific detection limit
 mg/kg: milligram per kilogram; ug/kg: microgram per kilogram

Table 4-1
Statistical Summary of Soil Matrix Data
 Former Kasl Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	> 10 R						
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Metal										
Soil	7440-38-0	Arsimony	mg/kg	204	28	13.7%	0.149	0.306	0.312	6.77
Soil	7440-38-2	Arsenic	mg/kg	204	189	91.2%	0.13	0.398	0.423	63.2
Soil	7440-39-3	Barium	mg/kg	204	204	100.0%	--	--	8.27	221
Soil	7440-41-7	Beryllium	mg/kg	204	128	62.7%	0.0037	0.137	0.0847	0.962
Soil	7440-43-9	Cadmium	mg/kg	204	40	19.6%	0.0099	0.136	0.159	1.24
Soil	7440-47-3	Chromium	mg/kg	204	204	100.0%	--	--	2.63	29.3
Soil	CRS	Chromium, Hexavalent	mg/kg	38	8	15.8%	0.038	0.22	0.092	0.33
Soil	7440-48-4	Cobalt	mg/kg	204	204	100.0%	--	--	1.46	18.3
Soil	7440-50-8	Copper	mg/kg	204	204	100.0%	--	--	0.860	60.6
Soil	7439-92-1	Lead	mg/kg	204	201	98.9%	0.0527	0.0527	0.539	16.0
Soil	7439-97-6	Mercury	mg/kg	204	105	51.5%	0.0013	0.00588	0.0049	0.124
Soil	7438-98-7	Molybdenum	mg/kg	204	31	15.2%	0.0208	0.132	0.0806	2.01
Soil	7440-02-0	Nickel	mg/kg	204	204	100.0%	--	--	1.71	28.9
Soil	7782-49-2	Selenium	mg/kg	204	2	1.0%	0.176	0.951	0.686	9.000
Soil	7440-22-4	Silver	mg/kg	204	8	2.9%	0.0209	0.117	0.12	0.841
Soil	7440-29-0	Thallium	mg/kg	204	13	6.4%	0.0987	0.232	0.249	8.21
Soil	7440-92-2	Vanadium	mg/kg	204	204	100.0%	--	--	4.08	81.9
Soil	7440-88-6	Zinc	mg/kg	204	204	100.0%	--	--	0.6	176
POBs										
Soil	12074-11-2	AROCLOR 1010	ug/kg	98	0	0.0%	10	10	--	--
Soil	11104-26-2	AROCLOR 1221	ug/kg	98	0	0.0%	10	10	--	--
Soil	11141-16-6	AROCLOR 1232	ug/kg	98	0	0.0%	10	10	--	--
Soil	63408-21-9	AROCLOR 1242	ug/kg	98	0	0.0%	10	10	--	--
Soil	12972-29-6	AROCLOR 1248	ug/kg	98	0	0.0%	10	10	--	--
Soil	11097-69-1	AROCLOR 1254	ug/kg	98	0	0.0%	10	10	--	--
Soil	11099-82-6	AROCLOR 1260	ug/kg	98	0	0.0%	11	11	--	--
Soil	37324-23-6	AROCLOR 1282	ug/kg	98	0	0.0%	10	10	--	--
SVOCs/PAHs										
Soil	120-82-1	1,2,4-Trichlorobenzene	ug/kg	249	1	0.4%	0.16	680	80	80
Soil	95-60-1	1,2-Dichlorobenzene	ug/kg	249	0	0.0%	0.1	430	--	--
Soil	94-73-1	1,3-Dichlorobenzene	ug/kg	249	0	0.0%	0.13	360	--	--
Soil	100-40-7	1,4-Dichlorobenzene	ug/kg	249	0	0.0%	0.12	420	--	--
Soil	80-42-0	1-Methylphtalene	mg/kg	249	119	47.8%	0.001	0.095	0.0611	08
Soil	95-95-4	2,4,6-Trichlorophenol	mg/kg	249	0	0.0%	0.013	3.3	--	--
Soil	88-08-2	2,4-Dichlorophenol	mg/kg	249	0	0.0%	0.013	3.2	--	--
Soil	120-93-2	2,4-Dibromophenol	mg/kg	249	0	0.0%	0.013	8.2	--	--
Soil	105-97-9	2,4-Dimethylphenol	mg/kg	249	0	0.0%	0.013	4.2	--	--

Table 4-1
Statistical Summary of Soil Matrix Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	> 10 R						
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil	61-28-6	2,4-Dinitrophenol	mg/kg	240	0	0.0%	0.05	49	--	--
Soil	121-14-2	2,4-Dinitrotoluene	mg/kg	240	0	0.0%	0.013	3	--	--
Soil	608-20-2	2,6-Dinitrotoluene	mg/kg	240	0	0.0%	0.013	3.3	--	--
Soil	91-58-7	2-Chloronaphthalene	mg/kg	240	0	0.0%	0.013	4.6	--	--
Soil	95-67-8	2-Chlorophenol	mg/kg	240	0	0.0%	0.013	6.2	--	--
Soil	91-67-6	2-Methylnaphthalene	mg/kg	240	122	48.0%	0.0008	0.1	0.0012	100
Soil	95-49-7	2-Methylphenol	mg/kg	240	0	0.0%	0.013	3.4	--	--
Soil	98-74-4	2-Nitroaniline	mg/kg	240	0	0.0%	0.047	3.3	--	--
Soil	89-75-5	2-Nitrophenol	mg/kg	240	0	0.0%	0.013	3.2	--	--
Soil	91-84-1	3,3-Dichlorobenzidine	mg/kg	240	0	0.0%	0.013	65	--	--
Soil	100-41-6	3,4-Methylphenol	mg/kg	240	0	0.0%	0.058	2.9	--	--
Soil	99-09-2	3-Nitroaniline	mg/kg	240	0	0.0%	0.05	3.2	--	--
Soil	634-62-1	4,6-Dinitro-2-Methylphenol	mg/kg	240	0	0.0%	0.05	60	--	--
Soil	101-55-3	4-Bromophenyl-Phenyl Ether	mg/kg	240	0	0.0%	0.013	4.7	--	--
Soil	59-60-7	4-Chloro-3-Methylphenol	mg/kg	240	0	0.0%	0.013	3	--	--
Soil	109-47-8	4-Chloroaniline	mg/kg	240	0	0.0%	0.013	3.1	--	--
Soil	705-72-3	4-Chlorophenyl-Phenyl Ether	mg/kg	240	0	0.0%	0.013	5	--	--
Soil	MEPH4	4-Methylphenol (p-Cresol)	mg/kg							
Soil	100-01-6	4-Nitroaniline	mg/kg	240	0	0.0%	0.05	2.9	--	--
Soil	100-02-7	4-Nitrophenol	mg/kg	240	0	0.0%	0.05	3.2	--	--
Soil	83-32-0	Acanaphthene	mg/kg	240	64	21.7%	0.0009	12	0.0017	7.7
Soil	208-09-6	Acenaphthylene	mg/kg	240	8	3.0%	0.0006	4.1	0.0007	0.02
Soil	02-63-3	Aniline	mg/kg	240	0	0.0%	0.058	2.9	--	--
Soil	120-12-7	Anthracene	mg/kg	240	21	8.4%	0.0004	5	0.00072	5
Soil	103-33-3	Azobenzene	mg/kg	240	0	0.0%	0.1	6.2	--	--
Soil	92-87-6	Benzidine	mg/kg	240	0	0.0%	0.63	60	--	--
Soil	59-56-3	Benzo (a) Anthracene	mg/kg	240	28	11.2%	0.0007	5.6	0.0007	1.3
Soil	50-32-6	Benzo (a) Pyrene	mg/kg	240	26	10.4%	0.0005	5.6	0.0005	0.78
Soil	205-69-2	Benzo (b) Fluoranthene	mg/kg	240	16	6.7%	0.0004	5.4	0.0004	0.4
Soil	191-24-2	Benzo (g,h,i) Perylene	mg/kg	240	13	5.2%	0.00047	12	0.0011	0.4
Soil	207-06-9	Benzo (k) Fluoranthene	mg/kg	240	2	0.8%	0.0007	0.5	0.0012	0.34
Soil	65-85-0	Benzole Acid	mg/kg	240	0	0.0%	0.53	28	--	--
Soil	109-51-0	Benzyl Alcohol	mg/kg	240	0	0.0%	0.054	3.1	--	--
Soil	111-01-1	Bis(2-Chloroethoxy) Methane	mg/kg	240	0	0.0%	0.019	4.1	--	--
Soil	111-44-4	Bis(2-Chloroethyl) Ether	mg/kg	240	0	0.0%	0.013	6.2	--	--
Soil	109-00-1	Bis(2-Chloroisopropyl) Ether	mg/kg	240	0	0.0%	0.013	4.8	--	--
Soil	117-81-7	Bis(2-Ethylhexyl) Phthalate	mg/kg	240	1	0.4%	0.060	8.2	1.8	1.8
Soil	85-68-7	Bulky Benzyl Phthalate	mg/kg	240	1	0.4%	0.013	8	0.17	0.17

Table 4-1
Statistical Summary of Soil Matrix Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	> 10 ft						
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil	210-01-0	Chrysene	mg/kg	249	40	16.1%	0.00068	6.8	0.00004	6.1
Soil	63-70-3	Dibenz (a,h) Anthracene	mg/kg	249	4	1.6%	0.00062	10	0.00062	0.38
Soil	102-04-0	Dibenzofuran	mg/kg	249	1	0.4%	0.013	4.8	0.067	0.097
Soil	84-69-2	Diethyl Phthalate	mg/kg	249	0	0.0%	0.013	3.1	--	--
Soil	131-11-3	Dimethyl Phthalate	mg/kg	249	17	6.8%	0.013	3.6	0.2	0.46
Soil	84-74-2	Di-n-Butyl Phthalate	mg/kg	249	0	0.0%	0.06	8.2	--	--
Soil	117-84-0	Di-n-Octyl Phthalate	mg/kg	249	0	0.0%	0.013	12	--	--
Soil	209-44-0	Fluorenone	mg/kg	249	40	16.1%	0.00049	6.6	0.0008	1
Soil	68-73-7	Fluorene	mg/kg	249	79	31.7%	0.00073	4.4	0.0011	7.8
Soil	87-68-3	Hexachloro-1,3-Butadiene	ug/kg	249	0	0.0%	0.7	1400	--	--
Soil	118-74-1	Hexachlorobenzene	mg/kg	249	0	0.0%	0.013	8.8	--	--
Soil	77-47-4	Hexachlorocyclopentadiene	mg/kg	249	0	0.0%	0.013	42	--	--
Soil	87-72-1	Hexachloroethane	mg/kg	249	0	0.0%	0.013	4.8	--	--
Soil	103-39-6	Indeno (1,2,3-c,d) Pyrene	mg/kg	249	9	3.6%	0.00063	12	0.00074	0.38
Soil	78-60-1	Isoptorone	mg/kg	249	0	0.0%	0.013	2.7	--	--
Soil	1310-77-3	Methyl Phenol	mg/kg	1	0	0.0%	0.013	0.013	--	--
Soil	91-20-3	Naphthalene	ug/kg	249	141	56.6%	0.26	110	0.4	51000
Soil	89-95-3	Nitrobenzene	mg/kg	249	0	0.0%	0.013	16	--	--
Soil	82-75-9	N-Nitrosodimethylamine	mg/kg	249	0	0.0%	0.001	4.8	--	--
Soil	621-84-7	N-Nitroso-di-n-propylamine	mg/kg	249	0	0.0%	0.013	4.1	--	--
Soil	83-30-0	N-Nitrosodiphenylamine	mg/kg	249	0	0.0%	0.013	3.7	--	--
Soil	87-89-6	Pentachlorophenol	mg/kg	249	0	0.0%	0.06	44	--	--
Soil	85-01-8	Phenanthrene	mg/kg	249	103	41.4%	0.00061	0.98	0.00078	20
Soil	106-95-2	Phenol	mg/kg	249	0	0.0%	0.013	4	--	--
Soil	129-00-0	Pyrene	mg/kg	249	80	20.1%	0.00049	6.2	0.0009	13
Soil	110-96-1	Pyridine	mg/kg	249	0	0.0%	0.082	6.7	--	--
TPH										
Soil	C19C22ALIPH	Aliphatics (C10 - C32)	mg/kg	8	8	100.0%	--	--	11	1900
Soil	C5C8ALIPH	Aliphatics (C5 - C8)	mg/kg	8	6	63.3%	0.5	0.8	16	1100
Soil	C9C16ALIPH	Aliphatics (C9 - C16)	mg/kg	8	6	63.3%	10	10	180	2100
Soil	C17C32AROM	Aromatics (C17 - C32)	mg/kg	8	8	100.0%	--	--	10	2400
Soil	C9C16AROM	Aromatics (C9 - C16)	mg/kg	8	4	66.7%	0.006	0.006	0.97	130
Soil	C5C10AROM	Aromatics (C5 - C10)	mg/kg	6	6	100.0%	--	--	10	2000
Soil	TPHOC044	Total Petroleum Hydrocarbons (C9-C14)	mg/kg	85	20	30.0%	4.8	4.8	8.6	22000
Soil	88394-30-5	TPH as Diesel	mg/kg	240	118	47.4%	4.8	4.8	6	43000
Soil	PHCG	TPH as Gasoline	mg/kg	248	137	55.0%	0.044	0.078	0.057	8800
Soil	TPHMOIL	TPH as Motor Oil	mg/kg	249	110	44.2%	7	7	8.0	38000

Table 4-1
 Statistical Summary of Soil Matrix Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	> 10 ft						
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
VOCs										
Soil	630-20-8	1,1,1,2-Tetrachloroethane	ug/kg	240	0	0.0%	0.19	1600	--	--
Soil	71-56-8	1,1,1-Trichloroethane	ug/kg	240	0	0.0%	0.16	1600	--	--
Soil	79-34-6	1,1,2,2-Tetrachloroethane	ug/kg	240	1	0.4%	0.1	1000	19000	18000
Soil	79-00-6	1,1,2-Trichloroethane	ug/kg	240	0	0.0%	0.19	1800	--	--
Soil	75-34-3	1,1-Dichloroethane	ug/kg	240	0	0.0%	0.13	1900	--	--
Soil	75-35-4	1,1-Dichloroethene	ug/kg	240	0	0.0%	0.11	990	--	--
Soil	563-68-9	1,1-Dichloropropane	ug/kg	240	0	0.0%	0.18	990	--	--
Soil	87-91-9	1,2,3-Trichloropropane	ug/kg	240	1	0.4%	0.19	1700	230	230
Soil	99-18-4	1,2,3-Trichloropropane	ug/kg	240	7	2.9%	0.3	2000	1.1	4700
Soil	95-63-9	1,2,4-Trimethylbenzene	ug/kg	240	119	47.4%	0.093	59	0.11	95000
Soil	59-12-6	1,2-Dibromo-3-Chloropropane	ug/kg	240	0	0.0%	0.0	18000	--	--
Soil	108-93-4	1,2-Dibromoethane (EDB)	ug/kg	240	0	0.0%	0.21	2000	--	--
Soil	107-06-2	1,2-Dichloroethane	ug/kg	240	0	0.0%	0.14	790	--	--
Soil	78-87-6	1,2-Dichloropropane	ug/kg	240	0	0.0%	0.21	1200	--	--
Soil	105-87-8	1,3,5-Triethylbenzene	ug/kg	240	99	39.8%	0.079	230	0.15	37000
Soil	142-28-0	1,3-Dichloropropane	ug/kg	240	0	0.0%	0.14	790	--	--
Soil	504-20-7	2,2-Dichloropropane	ug/kg	240	0	0.0%	0.27	2000	--	--
Soil	78-93-3	2-Butanone (Methyl Ethyl Ketone)	ug/kg	240	3	1.2%	2	43000	6.9	6.4
Soil	95-49-6	2-Chlorobutane	ug/kg	240	0	0.0%	0.083	520	--	--
Soil	501-78-6	2-Hexanone	ug/kg	240	0	0.0%	1	26000	--	--
Soil	108-49-4	4-Chlorobutane	ug/kg	240	0	0.0%	0.094	470	--	--
Soil	105-10-1	4-Methyl-2-Pentanone	ug/kg	240	0	0.0%	1	9100	--	--
Soil	67-84-1	Acetone	ug/kg	240	60	20.1%	4.8	29000	6.7	11900
Soil	71-43-2	Benzene	ug/kg	240	106	42.2%	0.11	280	0.13	34000
Soil	105-66-1	Bromobenzene	ug/kg	240	0	0.0%	0.17	940	--	--
Soil	74-97-6	Bromochloromethane	ug/kg	240	0	0.0%	0.66	6200	--	--
Soil	76-27-4	Bromodichloromethane	ug/kg	240	0	0.0%	0.1	690	--	--
Soil	76-25-2	Bromoform	ug/kg	240	0	0.0%	0.4	3000	--	--
Soil	74-83-9	Bromomethane	ug/kg	240	4	1.6%	0.7	18000	740	990
Soil	76-15-0	Carbon Disulfide	ug/kg	240	37	14.6%	0.15	750	0.18	140
Soil	50-23-6	Carbon Tetrachloride	ug/kg	240	0	0.0%	0.23	1400	--	--
Soil	108-90-7	Chlorobenzene	ug/kg	240	0	0.0%	0.12	670	--	--
Soil	76-03-3	Chloroethane	ug/kg	240	0	0.0%	0.33	3600	--	--
Soil	67-83-3	Chloroform	ug/kg	240	1	0.4%	0.14	770	0.38	0.38
Soil	74-87-3	Chloromethane	ug/kg	240	2	0.8%	0.4	13000	0.31	0.34
Soil	156-59-2	cis-1,2-Dichloroethane	ug/kg	240	6	2.4%	0.23	1300	0.41	6.6
Soil	10081-01-5	trans-1,2-Dichloroethane	ug/kg	240	0	0.0%	0.15	820	--	--

Table 4-1
Statistical Summary of Soil Matrix Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Analyte	Unit	> 10 ft						
				Number of Samples	Number of Detects	Percent Detected	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil	98-82-8	Cumene (isopropylbenzene)	ug/kg	249	111	44.6%	0.085	60	0.24	12000
Soil	124-48-1	Dibromochloromethane	ug/kg	249	0	0.0%	0.1	1100	--	--
Soil	74-88-3	Dibromomethane	ug/kg	249	0	0.0%	0.3	3100	--	--
Soil	108-20-3	Dikisopropyl Ether (DIPE)	ug/kg	249	0	0.0%	0.2	1100	--	--
Soil	64-17-5	Ethanol	ug/kg	249	3	1.2%	48	260000	13000	17000
Soil	100-41-4	Ethylbenzene	ug/kg	249	120	48.2%	0.12	35	0.17	36000
Soil	837-89-3	Ethyl-n-Butyl Ether (ETBE)	ug/kg	249	0	0.0%	0.17	660	--	--
Soil	76-66-4	Freon 11	ug/kg	249	0	0.0%	0.13	710	--	--
Soil	76-13-1	Freon 113	ug/kg	249	0	0.0%	0.29	2100	--	--
Soil	76-71-8	Freon 12	ug/kg	249	0	0.0%	0.16	870	--	--
Soil	76-00-2	Methylene Chloride	ug/kg	249	0	0.0%	1.1	23000	--	--
Soil	1834-04-4	Methyl-tert-Butyl Ether	ug/kg	249	0	0.0%	0.11	690	--	--
Soil	104-61-8	n-Butylbenzene	ug/kg	249	118	47.4%	0.13	13	0.18	13000
Soil	06-47-6	o-Xylene	ug/kg	1	1	100.0%	--	--	280	280
Soil	1330-20-7-1	p/n-Xylene	ug/kg	1	1	100.0%	--	--	1200	1200
Soil	98-87-8	n-Isopropyltoluene	ug/kg	249	106	42.2%	0.092	58	0.13	16000
Soil	103-05-1	Propylbenzene	ug/kg	249	102	41.0%	0.17	2100	1.1	20000
Soil	135-98-8	sec-Butylbenzene	ug/kg	249	110	44.2%	0.083	230	0.13	7700
Soil	100-42-6	Styrene	ug/kg	249	0	0.0%	0.18	1100	--	--
Soil	694-06-8	tert-Amyl Methyl Ether (TAME)	ug/kg	249	0	0.0%	0.1	670	--	--
Soil	76-66-0	tert-Butyl Alcohol (TBA)	ug/kg	249	4	1.6%	4.2	88000	6.0	46
Soil	98-08-8	tert-Butylbenzene	ug/kg	249	67	22.0%	0.009	650	0.62	440
Soil	127-18-4	Tetrachloroethene	ug/kg	249	0	0.0%	0.14	750	--	--
Soil	108-88-3	Toluene	ug/kg	249	77	30.9%	0.12	880	0.16	89000
Soil	166-90-6	trans-1,2-Dichloroethane	ug/kg	249	1	0.4%	0.2	1100	4.6	4.6
Soil	10031-02-6	trans-1,2-Dichloropropene	ug/kg	249	0	0.0%	0.21	8500	--	--
Soil	78-01-6	Trichloroethane	ug/kg	249	0	0.0%	0.16	810	--	--
Soil	105-05-4	Vinyl Acetate	ug/kg	249	0	0.0%	3.9	33000	--	--
Soil	75-01-4	Vinyl Chloride	ug/kg	249	0	0.0%	0.17	860	--	--
Soil	1330-20-7	Xylenes, Total	ug/kg	249	121	48.6%	0.16	98	0.23	280000

Notes:
 All data through August 31, 2013
 -- Not applicable
 ft: foot
 *0" ft includes samples collected above ground surface
 DL: Sample-specific detection limit
 mg/kg: milligram per kilogram; ug/kg: microgram per kilogram

Table 4-2
Statistical Summary of Soil Vapor Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil Vapor, Sub-Slab	71-55-6	1,1,1-Trichloroethane	2075	34	1.6%	ug/m3	0.21	260	1.5	100
Soil Vapor, Sub-Slab	78-34-5	1,1,2,2-Tetrachloroethane	2075	0	0.0%	ug/m3	0.12	210	--	--
Soil Vapor, Sub-Slab	79-00-5	1,1,2-Trichloroethane	2075	0	0.0%	ug/m3	0.23	460	--	--
Soil Vapor, Sub-Slab	75-34-3	1,1-Dichloroethane	2075	0	0.0%	ug/m3	0.23	230	--	--
Soil Vapor, Sub-Slab	75-35-4	1,1-Dichloroethene	2075	1	0.0%	ug/m3	0.37	370	15	18
Soil Vapor, Sub-Slab	120-82-1	1,2,4-Trichlorobenzene	2075	1	0.0%	ug/m3	0.59	1100	1300	1300
Soil Vapor, Sub-Slab	95-63-6	1,2,4-Trimethylbenzene	2075	64	3.1%	ug/m3	0.12	260	2.7	2200
Soil Vapor, Sub-Slab	106-93-4	1,2-Dibromoethane (EDB)	2075	0	0.0%	ug/m3	0.19	500	--	--
Soil Vapor, Sub-Slab	95-50-1	1,2-Dichlorobenzene	2075	8	0.4%	ug/m3	0.17	460	5.4	780
Soil Vapor, Sub-Slab	107-06-2	1,2-Dichloroethane	2075	4	0.2%	ug/m3	0.22	210	4.5	47
Soil Vapor, Sub-Slab	78-87-5	1,2-Dichloropropane	2075	5	0.2%	ug/m3	0.38	260	5.2	22
Soil Vapor, Sub-Slab	108-67-8	1,3,5-Trimethylbenzene	2075	21	1.0%	ug/m3	0.14	550	5.3	1000
Soil Vapor, Sub-Slab	106-99-0	1,3-Butadiene	2075	1	0.0%	ug/m3	0.15	360	2.2	2.2
Soil Vapor, Sub-Slab	541-73-1	1,3-Dichlorobenzene	2075	1	0.0%	ug/m3	0.085	300	36	36
Soil Vapor, Sub-Slab	106-46-7	1,4-Dichlorobenzene	2075	8	0.4%	ug/m3	0.18	160	2	110
Soil Vapor, Sub-Slab	123-91-1	1,4-Dioxane	2075	31	1.5%	ug/m3	0.25	2400	1.6	200
Soil Vapor, Sub-Slab	540-84-1	2,2,4-Trimethylpentane	2075	37	1.8%	ug/m3	0.19	87	2	140000
Soil Vapor, Sub-Slab	78-93-3	2-Butanone (Methyl Ethyl Ketone)	2075	439	21.2%	ug/m3	0.5	790	2.7	210
Soil Vapor, Sub-Slab	591-78-6	2-Hexanone	2075	22	1.1%	ug/m3	0.37	680	0.68	360
Soil Vapor, Sub-Slab	107-05-1	3-Chloropropene	2075	0	0.0%	ug/m3	0.32	990	--	--
Soil Vapor, Sub-Slab	822-98-8	4-Ethyltoluene	2075	40	1.9%	ug/m3	0.14	370	5.4	1300
Soil Vapor, Sub-Slab	108-10-1	4-Methyl-2-Pentanone	2075	4	0.2%	ug/m3	0.09	270	3.8	14
Soil Vapor, Sub-Slab	67-64-1	Acetone	2075	1224	59.0%	ug/m3	1	410	8.2	1300
Soil Vapor, Sub-Slab	BZLCL	alpha-Chlorotoluene	2075	0	0.0%	ug/m3	0.14	360	--	--
Soil Vapor, Sub-Slab	71-43-2	Benzene	2075	189	9.1%	ug/m3	0.2	72	0.53	82000
Soil Vapor, Sub-Slab	75-27-4	Bromodichloromethane	2075	32	1.5%	ug/m3	0.2	470	0.92	370
Soil Vapor, Sub-Slab	75-25-2	Bromoform	2075	2	0.1%	ug/m3	0.11	950	2.2	3.1
Soil Vapor, Sub-Slab	74-83-9	Bromomethane	2032	33	1.6%	ug/m3	0.28	860	4.5	95
Soil Vapor, Sub-Slab	C10C12ALIPH	C10-C12 Aliphatics	2069	48	2.3%	ug/m3	94	48000	110	59000
Soil Vapor, Sub-Slab	C10C12AROM	C10-C12 Aromatics	2069	16	0.8%	ug/m3	74	38000	140	3400
Soil Vapor, Sub-Slab	C5C6ALIPH	C5-C6 Aliphatics	2069	40	1.9%	ug/m3	44	1400	56	380000

Table 4-2
Statistical Summary of Soil Vapor Data
Former Kast Property
Carson, CA

Matrix	CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil Vapor, Sub-Slab	C6C8ALIPH	C6-C8 Aliphatics	2069	57	2.8%	ug/m3	55	1800	100	1600000
Soil Vapor, Sub-Slab	C8C10ALIPH	C8-C10 Aliphatics	2069	53	2.6%	ug/m3	78	2600	120	2100000
Soil Vapor, Sub-Slab	C8C10AROM	C8-C10 Aromatics	2069	23	1.1%	ug/m3	66	34000	120	18000
Soil Vapor, Sub-Slab	75-15-0	Carbon Disulfide	2075	122	5.9%	ug/m3	0.22	600	0.69	230
Soil Vapor, Sub-Slab	56-23-5	Carbon Tetrachloride	2075	7	0.3%	ug/m3	0.39	610	2.2	99
Soil Vapor, Sub-Slab	108-90-7	Chlorobenzene	2075	2	0.1%	ug/m3	0.18	280	2.4	48
Soil Vapor, Sub-Slab	75-00-3	Chloroethane	2075	3	0.1%	ug/m3	0.29	680	3.8	66
Soil Vapor, Sub-Slab	67-66-3	Chloroform	2075	339	16.3%	ug/m3	0.27	880	1.5	8400
Soil Vapor, Sub-Slab	74-87-3	Chloromethane	2075	16	0.8%	ug/m3	0.29	1300	9.7	200
Soil Vapor, Sub-Slab	168-59-2	cis-1,2-Dichloroethene	2075	9	0.4%	ug/m3	0.28	600	4.2	130
Soil Vapor, Sub-Slab	10061-01-5	cis-1,3-Dichloropropene	2075	0	0.0%	ug/m3	0.29	320	--	--
Soil Vapor, Sub-Slab	98-82-8	Cumene (Isopropylbenzene)	2075	47	2.3%	ug/m3	0.3	240	0.75	100
Soil Vapor, Sub-Slab	110-82-7	Cyclohexane	2075	42	2.0%	ug/m3	0.24	120	2.5	14000
Soil Vapor, Sub-Slab	124-48-1	Dibromochloromethane	2075	8	0.4%	ug/m3	0.15	580	0.75	110
Soil Vapor, Sub-Slab	74-84-0	Ethane	19	0	0.0%	MCL %	0.00003	0.00004	--	--
Soil Vapor, Sub-Slab	84-17-5	Ethanol	2075	467	22.6%	ug/m3	0.26	800	3	1800
Soil Vapor, Sub-Slab	C2H4	Ethane	19	0	0.0%	MCL %	0.00002	0.00002	--	--
Soil Vapor, Sub-Slab	100-41-4	Ethylbenzene	2075	47	2.3%	ug/m3	0.21	120	4.2	5300
Soil Vapor, Sub-Slab	75-69-4	Freon 11	2075	40	1.9%	ug/m3	0.16	300	1.1	72
Soil Vapor, Sub-Slab	76-13-1	Freon 113	2075	23	1.1%	ug/m3	0.3	530	1.7	150
Soil Vapor, Sub-Slab	76-14-2	Freon 114	2075	1	0.0%	ug/m3	0.29	550	27	27
Soil Vapor, Sub-Slab	76-71-6	Freon 12	2075	174	8.4%	ug/m3	0.14	240	1.8	120
Soil Vapor, Sub-Slab	142-82-5	Heptane	2075	63	3.0%	ug/m3	0.35	110	2.3	3500
Soil Vapor, Sub-Slab	87-68-3	Hexachloro-1,3-Butadiene	2075	0	0.0%	ug/m3	0.46	1300	--	--
Soil Vapor, Sub-Slab	110-54-3	Hexane	2075	91	4.4%	ug/m3	0.22	100	1.7	7600
Soil Vapor, Sub-Slab	67-63-0	Isopropanol	2075	114	5.5%	ug/m3	0.51	740	0.95	17000
Soil Vapor, Sub-Slab	74-82-8	Methane*	2072	143	6.8%	MCL %	0.00001	0.15	0.00016	23
Soil Vapor, Sub-Slab	75-09-2	Methylene Chloride	2075	39	1.9%	ug/m3	0.27	190	1.8	28000
Soil Vapor, Sub-Slab	1634-04-4	Methyl-tert-Butyl Ether	2075	6	0.3%	ug/m3	0.17	200	10	440
Soil Vapor, Sub-Slab	81-20-3	Naphthalene	2075	1105	53.3%	ug/m3	0.27	620	0.3	260
Soil Vapor, Sub-Slab	95-47-6	o-Xylene	2075	36	1.7%	ug/m3	0.11	340	4.6	180

Table 4-2
Statistical Summary of Soil Vapor Data
Former Kast Property
Carson, CA

Matrix	CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil Vapor, Sub-Slab	1330-20-7-1	p/m-Xylene	2075	78	3.8%	ug/m3	0.22	130	3.7	6200
Soil Vapor, Sub-Slab	103-85-1	Propylbenzene	2075	15	0.7%	ug/m3	0.13	230	4.5	280
Soil Vapor, Sub-Slab	100-42-5	Styrene	2075	2	0.1%	ug/m3	0.15	220	5.8	20
Soil Vapor, Sub-Slab	127-18-4	Tetrachloroethene	2075	184	8.9%	ug/m3	0.33	300	1.8	950
Soil Vapor, Sub-Slab	109-99-9	Tetrahydrofuran	2075	35	1.7%	ug/m3	0.22	240	2.2	77
Soil Vapor, Sub-Slab	108-88-3	Toluene	2075	188	9.1%	ug/m3	0.17	70	1.6	1800
Soil Vapor, Sub-Slab	156-80-5	trans-1,2-Dichloroethene	2075	2	0.1%	ug/m3	0.32	520	6.2	12
Soil Vapor, Sub-Slab	10061-02-6	trans-1,3-Dichloropropene	2075	2	0.1%	ug/m3	0.13	170	7.4	8.4
Soil Vapor, Sub-Slab	79-04-6	Trichloroethene	2075	28	1.3%	ug/m3	0.26	430	2.1	720
Soil Vapor, Sub-Slab	76-04-4	Vinyl Chloride	2075	1	0.0%	ug/m3	0.17	380	27	27
Soil Vapor, Non-Sub-Slab	71-55-6	1,1,1-Trichloroethane	164	1	0.6%	ug/m3	0.3	9800	6.2	6.2
Soil Vapor, Non-Sub-Slab	79-34-5	1,1,2,2-Tetrachloroethane	164	1	0.6%	ug/m3	0.64	13000	9000	9000
Soil Vapor, Non-Sub-Slab	79-00-5	1,1,2-Trichloroethane	164	1	0.6%	ug/m3	0.38	12000	7.1	7.1
Soil Vapor, Non-Sub-Slab	75-34-3	1,1-Dichloroethane	164	1	0.6%	ug/m3	0.26	7500	200	200
Soil Vapor, Non-Sub-Slab	75-35-4	1,1-Dichloroethene	164	1	0.6%	ug/m3	0.57	7900	1.8	1.8
Soil Vapor, Non-Sub-Slab	75-37-6	1,1-Difluoroethane	74	2	2.7%	ug/m3	2.3	27000	13	16
Soil Vapor, Non-Sub-Slab	120-82-1	1,2,4-Trichlorobenzene	164	0	0.0%	ug/m3	1.7	97000	--	--
Soil Vapor, Non-Sub-Slab	95-63-6	1,2,4-Trimethylbenzene	164	89	54.3%	ug/m3	0.46	6900	3.2	990000
Soil Vapor, Non-Sub-Slab	106-93-4	1,2-Dibromoethane (EDB)	164	0	0.0%	ug/m3	0.6	16000	--	--
Soil Vapor, Non-Sub-Slab	95-50-1	1,2-Dichlorobenzene	164	0	0.0%	ug/m3	0.55	12000	--	--
Soil Vapor, Non-Sub-Slab	107-06-2	1,2-Dichloroethane	164	6	3.7%	ug/m3	0.39	6900	1.7	1700
Soil Vapor, Non-Sub-Slab	78-87-5	1,2-Dichloropropane	164	0	0.0%	ug/m3	0.44	8500	--	--
Soil Vapor, Non-Sub-Slab	108-87-8	1,3,5-Trimethylbenzene	164	57	34.8%	ug/m3	0.44	3500	3.7	450000
Soil Vapor, Non-Sub-Slab	108-99-0	1,3-Butadiene	91	0	0.0%	ug/m3	0.26	1000	--	--
Soil Vapor, Non-Sub-Slab	541-73-1	1,3-Dichlorobenzene	164	0	0.0%	ug/m3	0.62	14000	--	--
Soil Vapor, Non-Sub-Slab	106-46-7	1,4-Dichlorobenzene	164	1	0.6%	ug/m3	0.48	15000	170	170
Soil Vapor, Non-Sub-Slab	123-91-1	1,4-Dioxane	91	0	0.0%	ug/m3	0.87	1500	--	--
Soil Vapor, Non-Sub-Slab	540-84-1	2,2,4-Trimethylpentane	91	2	2.2%	ug/m3	0.28	560	8	14
Soil Vapor, Non-Sub-Slab	78-83-3	2-Butanone (Methyl Ethyl Ketone)	164	77	47.0%	ug/m3	0.6	1600	3.2	160000
Soil Vapor, Non-Sub-Slab	691-78-6	2-Hexanone	164	10	6.1%	ug/m3	0.55	38000	3.6	16000
Soil Vapor, Non-Sub-Slab	107-05-1	3-Chloropropene	91	0	0.0%	ug/m3	0.58	3200	--	--

Table 4-2
Statistical Summary of Soil Vapor Data
Former Kast Property
Carson, CA

Matrix	CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil Vapor, Non-Sub-Slab	622-96-6	4-Ethyltoluene	164	76	46.3%	ug/m3	0.41	3800	1.9	440000
Soil Vapor, Non-Sub-Slab	108-10-1	4-Methyl-2-Pentanone	164	9	5.5%	ug/m3	0.095	11000	3.6	16
Soil Vapor, Non-Sub-Slab	67-64-1	Acetone	164	79	48.2%	ug/m3	0.9	3000	18	240000
Soil Vapor, Non-Sub-Slab	82LCL	alpha-Chlorotoluene	164	0	0.0%	ug/m3	0.24	37000	--	--
Soil Vapor, Non-Sub-Slab	71-43-2	Benzene	164	136	82.9%	ug/m3	0.29	53	3.4	3800000
Soil Vapor, Non-Sub-Slab	75-27-4	Bromodichloromethane	164	4	2.4%	ug/m3	0.46	12000	2.3	12000
Soil Vapor, Non-Sub-Slab	75-25-2	Bromoform	164	0	0.0%	ug/m3	1.2	29000	--	--
Soil Vapor, Non-Sub-Slab	74-83-9	Bromomethane	164	1	0.6%	ug/m3	0.6	6500	1.4	1.4
Soil Vapor, Non-Sub-Slab	C10C12ALIPH	C10-C12 Aliphatics	7	1	14.3%	ug/m3	160	210	360000	360000
Soil Vapor, Non-Sub-Slab	C10C12AROM	C10-C12 Aromatics	7	0	0.0%	ug/m3	120	8600	--	--
Soil Vapor, Non-Sub-Slab	C5C6ALIPH	C5-C6 Aliphatics	7	2	28.6%	ug/m3	75	78	110	560000
Soil Vapor, Non-Sub-Slab	C6C8ALIPH	C6-C8 Aliphatics	7	2	28.6%	ug/m3	95	99	1000	3500000
Soil Vapor, Non-Sub-Slab	C8C10ALIPH	C8-C10 Aliphatics	7	2	28.6%	ug/m3	130	140	400	2200000
Soil Vapor, Non-Sub-Slab	C8C10AROM	C8-C10 Aromatics	7	1	14.3%	ug/m3	110	160	88000	88000
Soil Vapor, Non-Sub-Slab	75-15-0	Carbon Disulfide	164	89	54.3%	ug/m3	0.5	1200	1.4	170000
Soil Vapor, Non-Sub-Slab	56-23-5	Carbon Tetrachloride	164	0	0.0%	ug/m3	0.46	11000	--	--
Soil Vapor, Non-Sub-Slab	108-90-7	Chlorobenzene	164	1	0.6%	ug/m3	0.18	8000	5.9	5.9
Soil Vapor, Non-Sub-Slab	75-00-3	Chloroethane	164	1	0.6%	ug/m3	0.6	7400	6.7	6.7
Soil Vapor, Non-Sub-Slab	67-68-3	Chloroform	164	12	7.3%	ug/m3	0.39	8000	3.6	370
Soil Vapor, Non-Sub-Slab	74-87-3	Chloromethane	164	12	7.3%	ug/m3	0.3	3700	1	98
Soil Vapor, Non-Sub-Slab	156-59-2	cis-1,2-Dichloroethene	164	6	3.7%	ug/m3	0.52	9500	2.7	690
Soil Vapor, Non-Sub-Slab	10061-01-5	cis-1,3-Dichloropropene	164	0	0.0%	ug/m3	0.52	11000	--	--
Soil Vapor, Non-Sub-Slab	68-82-6	Cumene (Isopropylbenzene)	91	57	62.6%	ug/m3	0.35	200	6.2	31000
Soil Vapor, Non-Sub-Slab	110-82-7	Cyclohexane	91	51	56.0%	ug/m3	0.3	220	3.9	2700000
Soil Vapor, Non-Sub-Slab	124-48-1	Dibromochloromethane	164	0	0.0%	ug/m3	0.84	17000	--	--
Soil Vapor, Non-Sub-Slab	108-20-3	Diisopropyl Ether (DIPE)	73	0	0.0%	ug/m3	0.9	10000	--	--
Soil Vapor, Non-Sub-Slab	64-17-6	Ethanol	164	53	32.3%	ug/m3	0.44	2500	1.4	54000
Soil Vapor, Non-Sub-Slab	100-41-4	Ethylbenzene	164	134	81.7%	ug/m3	0.48	160	3.2	1900000
Soil Vapor, Non-Sub-Slab	637-92-3	Ethyl-t-Butyl Ether (ETBE)	73	0	0.0%	ug/m3	2.1	25000	--	--
Soil Vapor, Non-Sub-Slab	75-69-4	Freon 11	164	3	1.8%	ug/m3	0.26	7900	2.5	19
Soil Vapor, Non-Sub-Slab	76-13-1	Freon 113	164	2	1.2%	ug/m3	0.67	14000	54	200

Table 4-2
Statistical Summary of Soil Vapor Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Soil Vapor, Non-Sub-Slab	76-14-2	Freon 114	164	0	0.0%	ug/m3	0.89	14000	--	--
Soil Vapor, Non-Sub-Slab	75-71-8	Freon 12	164	9	5.5%	ug/m3	0.23	13000	2.3	210
Soil Vapor, Non-Sub-Slab	142-82-5	Heptene	91	23	25.3%	ug/m3	0.35	1300	16	1000000
Soil Vapor, Non-Sub-Slab	87-68-3	Hexachloro-1,3-Butadiene	164	3	1.8%	ug/m3	2.2	35000	730	2000
Soil Vapor, Non-Sub-Slab	110-54-3	Hexane	91	30	33.0%	ug/m3	0.28	850	3.1	1900000
Soil Vapor, Non-Sub-Slab	67-63-0	Isopropanol	164	48	29.3%	ug/m3	0.83	960	9.8	450000
Soil Vapor, Non-Sub-Slab	74-82-8	Methane*	89	67	75.3%	MOL %	0.00001	0.00005	0.0011	74
Soil Vapor, Non-Sub-Slab	75-09-2	Methylene Chloride	164	31	18.9%	ug/m3	0.28	12000	2.3	7300
Soil Vapor, Non-Sub-Slab	1634-04-4	Methyl-tert-Butyl Ether	164	16	9.8%	ug/m3	0.23	7800	1.2	2800
Soil Vapor, Non-Sub-Slab	91-20-3	Naphthalene	163	68	41.7%	ug/m3	0.34	200000	0.5	5200
Soil Vapor, Non-Sub-Slab	95-47-6	o-Xylene	91	14	15.4%	ug/m3	0.19	1300	5	21000
Soil Vapor, Non-Sub-Slab	1330-20-7-1	p/m-Xylene	91	35	38.5%	ug/m3	0.38	820	4.4	170000
Soil Vapor, Non-Sub-Slab	103-65-1	Propylbenzene	91	54	59.3%	ug/m3	0.3	180	9.5	37000
Soil Vapor, Non-Sub-Slab	100-42-5	Styrene	164	24	14.6%	ug/m3	0.35	14000	2.1	5900
Soil Vapor, Non-Sub-Slab	994-05-8	tert-Amyl-Methyl Ether (TAME)	73	0	0.0%	ug/m3	1.2	14000	--	--
Soil Vapor, Non-Sub-Slab	75-65-0	tert-Butyl Alcohol (TBA)	73	6	8.2%	ug/m3	1.2	14000	5.4	140
Soil Vapor, Non-Sub-Slab	127-18-4	Tetrachloroethene	164	31	18.9%	ug/m3	0.42	14000	3.7	5300
Soil Vapor, Non-Sub-Slab	109-99-9	Tetrahydrofuran	91	6	6.6%	ug/m3	0.43	780	3.5	12
Soil Vapor, Non-Sub-Slab	108-88-3	Toluene	164	98	59.8%	ug/m3	0.26	710	4.8	3700000
Soil Vapor, Non-Sub-Slab	156-60-5	trans-1,2-Dichloroethene	164	5	3.0%	ug/m3	0.55	13000	4.6	6600
Soil Vapor, Non-Sub-Slab	10061-02-6	trans-1,3-Dichloropropene	164	1	0.6%	ug/m3	0.42	8400	6.5	6.5
Soil Vapor, Non-Sub-Slab	79-01-6	Trichloroethene	164	7	4.3%	ug/m3	0.5	10000	2	6800
Soil Vapor, Non-Sub-Slab	108-05-4	Vinyl Acetate	73	3	4.1%	ug/m3	2.5	29000	2.6	5.1
Soil Vapor, Non-Sub-Slab	75-01-4	Vinyl Chloride	164	0	0.0%	ug/m3	0.33	4700	--	--

Notes:

All data through August 31, 2013

-- " not available

ug/m³: microgram per cubic meter

mol %: mole percent

*: May include methane from natural gas or sewer leaks

Table 4-3
Statistical Summary of Indoor Air Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Air, Indoor	71-66-6	1,1,1-Trichloroethane	787	79	10.0%	ug/m3	0.11	0.38	0.21	7.8
Air, Indoor	79-34-5	1,1,2,2-Tetrachloroethane	787	46	5.8%	ug/m3	0.0021	0.11	0.0062	0.38
Air, Indoor	79-00-5	1,1,2-Trichloroethane	787	31	3.9%	ug/m3	0.0032	0.11	0.0057	0.38
Air, Indoor	75-34-3	1,1-Dichloroethane	787	0	0.0%	ug/m3	0.12	0.4	--	--
Air, Indoor	75-35-4	1,1-Dichloroethene	787	0	0.0%	ug/m3	0.14	0.55	--	--
Air, Indoor	95-63-6	1,2,4-Trimethylbenzene	787	747	94.9%	ug/m3	0.24	0.38	0.25	17
Air, Indoor	95-50-1	1,2-Dichlorobenzene	787	7	0.9%	ug/m3	0.14	0.45	0.28	2.5
Air, Indoor	107-06-2	1,2-Dichloroethane	787	787	100.0%	ug/m3	--	--	0.082	28
Air, Indoor	108-67-8	1,3,5-Trimethylbenzene	787	314	39.9%	ug/m3	0.17	0.4	0.19	5.4
Air, Indoor	641-73-1	1,3-Dichlorobenzene	787	1	0.1%	ug/m3	0.11	0.42	0.42	0.42
Air, Indoor	108-46-7	1,4-Dichlorobenzene	787	786	99.9%	ug/m3	0.024	0.024	0.025	670
Air, Indoor	123-91-1	1,4-Dioxane	2	0	0.0%	ug/m3	0.26	0.27	--	--
Air, Indoor	78-93-3	2-Butanone (Methyl Ethyl Ketone)	787	780	99.1%	ug/m3	0.24	0.43	0.61	28
Air, Indoor	591-78-6	2-Hexanone	787	343	43.6%	ug/m3	0.16	0.53	0.26	3
Air, Indoor	622-96-8	4-Ethyltoluene	787	286	36.3%	ug/m3	0.18	0.4	0.22	3.3
Air, Indoor	108-10-1	4-Methyl-2-Pentanone	787	577	73.3%	ug/m3	0.14	0.43	0.16	5.8
Air, Indoor	67-64-1	Acetone	787	787	100.0%	ug/m3	--	--	5	820
Air, Indoor	71-43-2	Benzene	787	787	100.0%	ug/m3	--	--	0.23	8.8
Air, Indoor	75-27-4	Bromodichloromethane	787	528	67.1%	ug/m3	0.0034	0.077	0.066	2.9
Air, Indoor	74-83-9	Bromomethane	787	52	6.6%	ug/m3	0.14	0.46	0.2	2.2
Air, Indoor	124-38-9	Carbon Dioxide	787	0	0.0%	MCL %	0.1	0.27	--	--
Air, Indoor	75-15-0	Carbon Disulfide	787	274	34.8%	ug/m3	0.18	0.44	0.19	12
Air, Indoor	56-23-5	Carbon Tetrachloride	785	785	100.0%	ug/m3	--	--	0.28	0.91
Air, Indoor	75-00-3	Chloroethane	787	4	0.5%	ug/m3	0.13	0.47	0.93	1.3
Air, Indoor	67-66-3	Chloroform	787	787	100.0%	ug/m3	--	--	0.12	13
Air, Indoor	74-87-3	Chloromethane	787	780	99.1%	ug/m3	0.2	0.35	0.27	1.5
Air, Indoor	156-59-2	cis-1,2-Dichloroethene	787	0	0.0%	ug/m3	0.14	0.44	--	--
Air, Indoor	98-82-8	Cumene (Isopropylbenzene)	787	19	2.4%	ug/m3	0.15	0.36	0.21	0.72
Air, Indoor	110-82-7	Cyclohexane	787	453	57.6%	ug/m3	0.36	0.73	0.36	8.3
Air, Indoor	64-17-5	Ethanol	787	787	100.0%	ug/m3	--	--	2.9	4600
Air, Indoor	100-41-4	Ethylbenzene	787	787	100.0%	ug/m3	--	--	0.19	13

Table 4-3
Statistical Summary of Indoor Air Data
 Former Kast Property
 Carson, CA

Matrix	CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL	Maximum DL	Minimum Detected Value	Maximum Detected Value
Air, Indoor	75-69-4	Freon 11	787	787	100.0%	ug/m3	--	--	0.76	80
Air, Indoor	78-13-1	Freon 113	787	780	99.1%	ug/m3	0.25	0.54	0.35	2.5
Air, Indoor	75-71-8	Freon 12	787	787	100.0%	ug/m3	--	--	1.4	53
Air, Indoor	142-82-5	Heptane	785	738	94.0%	ug/m3	0.25	0.43	0.22	23
Air, Indoor	87-68-3	Hexachloro-1,3-Butadiene	787	2	0.3%	ug/m3	0.19	0.53	0.47	0.51
Air, Indoor	110-54-3	Hexane	787	775	98.5%	ug/m3	0.26	0.33	0.27	12
Air, Indoor	67-63-0	Isopropanol	787	776	98.6%	ug/m3	0.49	0.85	0.57	980
Air, Indoor	74-82-8	Methane	787	0	0.0%	MOL %	0.1	0.27	--	--
Air, Indoor	75-09-2	Methylene Chloride	787	787	100.0%	ug/m3	--	--	0.21	67
Air, Indoor	1634-04-4	Methyl-tert-Butyl Ether	787	27	3.4%	ug/m3	0.14	0.43	0.32	7
Air, Indoor	81-20-3	Naphthalene	787	782	99.4%	ug/m3	0.033	0.34	0.055	7.2
Air, Indoor	OXYARGON	Oxygen/Argon	787	787	100.0%	MOL %	--	--	20.1	22.4
Air, Indoor	85-47-6	o-Xylene	787	785	97.2%	ug/m3	0.25	0.4	0.23	13
Air, Indoor	1330-20-7-1	p/m-Xylene	787	782	99.4%	ug/m3	0.46	0.59	0.54	48
Air, Indoor	103-65-1	Propylbenzene	787	184	23.4%	ug/m3	0.15	0.46	0.19	4
Air, Indoor	100-42-5	Styrene	787	750	95.3%	ug/m3	0.22	0.38	0.23	10
Air, Indoor	127-18-4	Tetrachloroethene	787	787	100.0%	ug/m3	--	--	0.03	45
Air, Indoor	109-99-9	Tetrahydrofuran	787	208	26.4%	ug/m3	0.24	0.7	0.28	11
Air, Indoor	108-88-3	Toluene	787	787	100.0%	ug/m3	--	--	0.65	91
Air, Indoor	156-60-5	trans-1,2-Dichloroethene	787	6	0.8%	ug/m3	0.13	0.48	0.4	0.93
Air, Indoor	79-01-6	Trichloroethene	785	53	6.8%	ug/m3	0.13	0.38	0.24	10
Air, Indoor	75-01-4	Vinyl Chloride	2	1	50.0%	ug/m3	0.0036	0.0036	0.0036	0.0036

Notes:

All data through August 31, 2013

-- " not available

ug/m³: microgram per cubic meter; mol %: mole percent

Table 4-4
Statistical Summary of Groundwater Data
 Former Kast Property
 Carson, CA

CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
Water Table									
Metals									
7429-90-5	Aluminum	11	11	100.0%	MG/L	--	--	0.00825	6.42
7440-38-0	Antimony	30	4	13.3%	MG/L	0.0021	0.00787	0.0095	0.0193
15584-04-0	Arsenate	11	11	100.0%	UG/L	--	--	0.16	16.9
7440-38-2	Arsenic	41	31	75.6%	MG/L	0.0031	0.0081	0.00038	0.9
15502-74-6	Arsenite	11	11	100.0%	UG/L	--	--	0.097	264
7440-39-3	Barium	30	30	100.0%	MG/L	--	--	0.048	0.839
7440-41-7	Beryllium	30	0	0.0%	MG/L	0.0002	0.0044	--	--
7440-43-9	Cadmium	30	0	0.0%	MG/L	0.0004	0.00454	--	--
7440-70-2	Calcium	30	30	100.0%	MG/L	--	--	82.1	482
7440-47-3	Chromium	41	6	14.6%	MG/L	0.0004	0.0044	0.00057	0.0126
7440-48-4	Cobalt	30	0	0.0%	MG/L	0.0007	0.00441	--	--
7440-50-8	Copper	47	14	29.8%	MG/L	0.0013	0.00382	0.00163	0.0181
7439-89-6	Iron	30	30	100.0%	MG/L	--	--	0.0643	67
7439-92-1	Lead	30	2	6.7%	MG/L	0.0024	0.00693	0.00473	0.0105
7439-95-4	Magnesium	30	30	100.0%	MG/L	--	--	22.7	139
7439-96-5	Manganese	30	29	96.7%	MG/L	0.0045	0.0045	0.00248	2.55
7439-97-6	Mercury	30	3	10.0%	MG/L	0.0003	0.0001	0.00004	0.0001
7439-98-7	Molybdenum	30	10	33.3%	MG/L	0.0008	0.0043	0.00379	0.0298
7440-02-0	Nickel	30	1	3.3%	MG/L	0.0014	0.00433	0.00396	0.00386
7440-09-7	Potassium	30	30	100.0%	MG/L	--	--	4.69	12.7
7782-49-2	Selenium	30	5	16.7%	MG/L	0.003	0.0107	0.00823	0.0242
7440-22-4	Silver	30	2	6.7%	MG/L	0.0004	0.00211	0.00144	0.00228
7440-23-5	Sodium	30	30	100.0%	MG/L	--	--	68.1	502
7440-28-0	Thallium	30	3	10.0%	MG/L	0.0023	0.0054	0.00376	0.00424
7440-62-2	Vanadium	30	0	0.0%	MG/L	0.0003	0.0045	--	--
7440-66-6	Zinc	36	11	30.6%	MG/L	0.0008	0.0067	0.00576	0.123
PCBs									
12674-11-2	AROCLOR 1016	5	0	0.0%	UG/L	0.15	0.15	--	--
11104-28-2	AROCLOR 1221	5	0	0.0%	UG/L	0.1	0.1	--	--

Table 4-4
Statistical Summary of Groundwater Data
 Former Kast Property
 Carson, CA

CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
11141-16-5	AROCLOR 1232	5	0	0.0%	UG/L	0.1	0.1	--	--
53469-21-9	AROCLOR 1242	5	0	0.0%	UG/L	0.1	0.1	--	--
12672-29-8	AROCLOR 1248	5	0	0.0%	UG/L	0.1	0.1	--	--
11097-89-1	AROCLOR 1254	5	0	0.0%	UG/L	0.1	0.1	--	--
11096-82-5	AROCLOR 1260	5	0	0.0%	UG/L	0.25	0.25	--	--
37324-23-5	AROCLOR 1262	5	0	0.0%	UG/L	0.1	0.1	--	--
SVOCs/PAHs									
120-82-1	1,2,4-Trichlorobenzene	156	0	0.0%	UG/L	0.49	2.5	--	--
95-50-1	1,2-Dichlorobenzene	156	4	2.6%	UG/L	0.27	2.3	2	4.6
541-73-1	1,3-Dichlorobenzene	156	0	0.0%	UG/L	0.28	2	--	--
106-46-7	1,4-Dichlorobenzene	156	4	2.6%	UG/L	0.21	2.2	4.7	11
80-12-0	1-Methylnaphthalene	18	7	38.9%	UG/L	0.036	1.4	0.071	1.4
95-95-4	2,4,5-Trichlorophenol	18	0	0.0%	UG/L	0.97	0.97	--	--
88-06-2	2,4,6-Trichlorophenol	18	0	0.0%	UG/L	1.2	1.2	--	--
120-83-2	2,4-Dichlorophenol	18	0	0.0%	UG/L	1.1	1.1	--	--
105-67-9	2,4-Dimethylphenol	18	2	11.1%	UG/L	1.2	1.2	7.2	11
51-28-5	2,4-Dinitrophenol	18	0	0.0%	UG/L	2.6	2.6	--	--
121-14-2	2,4-Dinitrotoluene	18	0	0.0%	UG/L	1	1	--	--
806-20-2	2,6-Dinitrotoluene	18	0	0.0%	UG/L	1.1	1.1	--	--
91-59-7	2-Chloronaphthalene	18	0	0.0%	UG/L	1.3	1.3	--	--
95-57-8	2-Chlorophenol	18	0	0.0%	UG/L	1	1	--	--
91-57-6	2-Methylnaphthalene	18	7	38.9%	UG/L	0.035	1.2	0.078	0.48
95-48-7	2-Methylphenol	18	0	0.0%	UG/L	1.1	1.1	--	--
88-74-4	2-Nitroaniline	18	0	0.0%	UG/L	1	1	--	--
88-75-5	2-Nitrophenol	18	0	0.0%	UG/L	1.2	1.2	--	--
91-94-1	3,3'-Dichlorobenzidine	18	0	0.0%	UG/L	1.3	1.3	--	--
106-44-5	3/4-Methylphenol	18	0	0.0%	UG/L	1	1	--	--
99-09-2	3-Nitroaniline	18	0	0.0%	UG/L	1.2	1.2	--	--
534-52-1	4,6-Dinitro-2-Methylphenol	18	0	0.0%	UG/L	3.4	3.4	--	--
101-55-3	4-Bromophenyl-Phenyl Ether	18	0	0.0%	UG/L	1.2	1.2	--	--
59-50-7	4-Chloro-3-Methylphenol	18	0	0.0%	UG/L	1.2	1.2	--	--

Table 4-4
Statistical Summary of Groundwater Data
 Former Kast Property
 Carson, CA

CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
106-47-8	4-Chloroaniline	18	0	0.0%	UG/L	1.3	1.3	--	--
7005-72-3	4-Chlorophenyl-Phenyl Ether	18	0	0.0%	UG/L	1.2	1.2	--	--
100-01-6	4-Nitroaniline	18	0	0.0%	UG/L	2.4	2.4	--	--
100-02-7	4-Nitrophenol	18	0	0.0%	UG/L	0.86	0.86	--	--
83-32-9	Acenaphthene	18	1	5.6%	UG/L	0.037	1.4	0.14	0.14
208-96-8	Acenaphthylene	18	2	11.1%	UG/L	0.033	1.4	0.063	0.085
82-63-3	Aniline	18	0	0.0%	UG/L	1.2	1.2	--	--
120-12-7	Anthracene	18	0	0.0%	UG/L	0.036	1.5	--	--
103-33-3	Azobenzene	18	0	0.0%	UG/L	1.7	1.7	--	--
82-87-5	Benzidine	18	0	0.0%	UG/L	0.62	0.62	--	--
56-55-3	Benzo (a) Anthracene	18	0	0.0%	UG/L	0.043	1.1	--	--
60-32-8	Benzo (a) Pyrene	18	0	0.0%	UG/L	0.035	0.88	--	--
205-99-2	Benzo (b) Fluoranthene	18	0	0.0%	UG/L	0.036	1.2	--	--
191-24-2	Benzo (g,h,i) Perylene	18	0	0.0%	UG/L	0.037	0.71	--	--
207-08-9	Benzo (k) Fluoranthene	18	0	0.0%	UG/L	0.05	1.7	--	--
65-85-0	Benzoic Acid	18	0	0.0%	UG/L	0.43	0.43	--	--
100-51-6	Benzyl Alcohol	18	0	0.0%	UG/L	1	1	--	--
111-91-1	Bis(2-Chloroethoxy) Methane	18	0	0.0%	UG/L	1.2	1.2	--	--
111-44-4	Bis(2-Chloroethyl) Ether	18	0	0.0%	UG/L	1	1	--	--
108-60-1	Bis(2-Chloroisopropyl) Ether	18	0	0.0%	UG/L	1.5	1.5	--	--
117-81-7	Bis(2-Ethylhexyl) Phthalate	18	0	0.0%	UG/L	1	1	--	--
85-68-7	Butyl Benzyl Phthalate	18	0	0.0%	UG/L	1	1	--	--
218-01-9	Chrysene	18	0	0.0%	UG/L	0.041	1.3	--	--
53-70-3	Dibenz (a,h) Anthracene	18	0	0.0%	UG/L	0.039	0.82	--	--
132-84-9	Dibenzofuran	18	0	0.0%	UG/L	1.4	1.4	--	--
84-66-2	Diethyl Phthalate	18	0	0.0%	UG/L	1.4	1.4	--	--
131-11-3	Dimethyl Phthalate	18	0	0.0%	UG/L	1.3	1.3	--	--
84-74-2	Di-n-Butyl Phthalate	18	0	0.0%	UG/L	1.5	1.5	--	--
117-84-0	Di-n-Octyl Phthalate	18	0	0.0%	UG/L	1	1	--	--
208-44-0	Fluoranthene	18	0	0.0%	UG/L	0.038	1.5	--	--
86-73-7	Fluorene	18	1	5.6%	UG/L	0.035	1.4	0.18	0.18

Table 4-4
Statistical Summary of Groundwater Data
 Former Kast Property
 Carson, CA

GAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
87-88-3	Hexachloro-1,3-Butadiene	18	0	0.0%	UG/L	1.2	1.2	--	--
118-74-1	Hexachlorobenzene	18	0	0.0%	UG/L	1.2	1.2	--	--
77-47-4	Hexachlorocyclopentadiene	18	0	0.0%	UG/L	0.44	0.44	--	--
87-72-1	Hexachloroethane	18	0	0.0%	UG/L	0.98	0.98	--	--
198-39-5	Indeno (1,2,3-c,d) Pyrene	18	0	0.0%	UG/L	0.036	0.83	--	--
78-59-1	Isophorone	18	0	0.0%	UG/L	1.2	1.2	--	--
91-20-3	Naphthalene	168	40	25.6%	UG/L	0.037	5.1	0.041	82
98-95-3	Nitrobenzene	18	0	0.0%	UG/L	1.3	1.3	--	--
82-75-9	N-Nitrosodimethylamine	18	0	0.0%	UG/L	1.1	1.1	--	--
821-64-7	N-Nitroso-di-n-propylamine	18	0	0.0%	UG/L	1.3	1.3	--	--
88-30-6	N-Nitrosodiphenylamine	18	0	0.0%	UG/L	1.4	1.4	--	--
87-88-5	Pentachlorophenol	18	0	0.0%	UG/L	0.76	0.76	--	--
85-01-8	Phenanthrene	18	0	0.0%	UG/L	0.038	1.5	--	--
108-95-2	Phenol	18	3	16.7%	UG/L	1.2	1.2	1.8	13
129-00-0	Pyrene	18	0	0.0%	UG/L	0.05	1.4	--	--
110-86-1	Pyridine	18	0	0.0%	UG/L	1.4	1.4	--	--
TPH									
TPHC11C12	Carbon Chain C11-C12	151	60	53.0%	UG/L	14	50	0.52	620
TPHC13C14	Carbon Chain C13-C14	150	67	44.7%	UG/L	16	50	1.4	600
TPHC15C16	Carbon Chain C15-C16	150	69	46.0%	UG/L	17	50	6.5	520
TPHC17C18	Carbon Chain C17-C18	151	85	56.3%	UG/L	17	50	0.94	420
TPHC19C20	Carbon Chain C19-C20	151	82	54.3%	UG/L	18	50	0.32	300
TPHC21C22	Carbon Chain C21-C22	151	86	57.0%	UG/L	18	50	4.4	230
TPHC23C24	Carbon Chain C23-C24	151	93	61.6%	UG/L	18	50	13	140
TPHC25C28	Carbon Chain C25-C28	151	98	64.9%	UG/L	16	50	5.8	140
TPHC29C32	Carbon Chain C29-C32	151	96	63.6%	UG/L	8.5	50	3.5	130
TPHC33C36	Carbon Chain C33-C36	151	58	38.4%	UG/L	7.9	50	0.019	86
TPHC37C40	Carbon Chain C37-C40	147	50	34.0%	UG/L	6.8	50	0.28	55
TPHC41C44	Carbon Chain C41-C44	146	15	10.3%	UG/L	8.6	50	6.7	22
TPHC6	Carbon Chain C6	146	77	52.7%	UG/L	1.4	50	1.6	300
TPHC7	Carbon Chain C7	147	84	57.1%	UG/L	6.1	50	4.8	100

Table 4-4
Statistical Summary of Groundwater Data
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CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
TPHCB	Carbon Chain C8	147	88	59.9%	UG/L	9.9	50	5.5	390
TPHC9C10	Carbon Chain C9-C10	149	85	57.0%	UG/L	13	60	0.9	620
TPHC8C44	Total Petroleum Hydrocarbons (C8-C44)	151	128	84.8%	UG/L	47	47	48	4000
68934-30-5	TPH as Diesel	156	153	98.1%	UG/L	33	33	33	3200
PHCG	TPH as Gasoline	156	119	76.3%	UG/L	48	48	52	3000
TPHMOIL	TPH as Motor Oil	156	66	42.3%	UG/L	210	210	210	1700
VOCs									
630-20-6	1,1,1,2-Tetrachloroethane	156	1	0.6%	UG/L	0.35	2	4	4
71-66-8	1,1,1-Trichloroethane	156	4	2.6%	UG/L	0.3	1.5	0.44	0.52
79-34-5	1,1,2,2-Tetrachloroethane	156	0	0.0%	UG/L	0.41	2	--	--
79-00-5	1,1,2-Trichloroethane	156	8	5.1%	UG/L	0.38	1.9	0.39	1.5
75-34-3	1,1-Dichloroethane	156	77	49.4%	UG/L	0.28	1.4	0.34	22
75-35-4	1,1-Dichloroethane	156	93	59.6%	UG/L	0.4	2.2	0.46	33
663-58-8	1,1-Dichloropropane	156	0	0.0%	UG/L	0.28	2.3	--	--
87-61-6	1,2,3-Trichlorobenzene	156	0	0.0%	UG/L	0.31	2.6	--	--
98-18-4	1,2,3-Trichloropropane	156	17	10.9%	UG/L	0.64	3.2	3.6	27
95-63-6	1,2,4-Trimethylbenzene	156	48	30.8%	UG/L	0.24	1.8	0.24	97
96-12-8	1,2-Dibromo-3-Chloropropane	156	0	0.0%	UG/L	1.2	6.2	--	--
106-93-4	1,2-Dibromoethane (EDB)	156	0	0.0%	UG/L	0.38	1.8	--	--
107-06-2	1,2-Dichloroethane	156	15	9.6%	UG/L	0.24	1.2	0.38	6.1
78-87-5	1,2-Dichloropropane	156	0	0.0%	UG/L	0.38	2.1	--	--
108-67-8	1,3,5-Trimethylbenzene	156	32	20.5%	UG/L	0.23	1.4	0.32	25
142-28-9	1,3-Dichloropropane	156	0	0.0%	UG/L	0.3	1.5	--	--
594-20-7	2,2-Dichloropropane	156	0	0.0%	UG/L	0.36	1.8	--	--
78-83-3	2-Butanone (Methyl Ethyl Ketone)	156	2	1.3%	UG/L	2.2	14	2.9	8.4
96-49-8	2-Chlorotoluene	156	0	0.0%	UG/L	0.24	1.2	--	--
591-78-8	2-Hexanone	156	0	0.0%	UG/L	2.1	14	--	--
106-43-4	4-Chlorotoluene	156	1	0.6%	UG/L	0.13	0.66	0.27	0.27
108-10-1	4-Methyl-2-Pentanone	156	0	0.0%	UG/L	4.4	22	--	--
87-84-1	Acetone	156	6	3.8%	UG/L	6	50	12	120
71-43-2	Benzene	156	136	87.2%	UG/L	0.14	0.57	0.14	680

Table 4-4
 Statistical Summary of Groundwater Data
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CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
108-88-1	Bromobenzene	156	0	0.0%	UG/L	0.3	1.5	--	--
74-87-5	Bromochloromethane	156	0	0.0%	UG/L	0.48	2.4	--	--
75-27-4	Bromodichloromethane	156	0	0.0%	UG/L	0.21	1	--	--
75-25-2	Bromoform	156	0	0.0%	UG/L	0.5	2.5	--	--
74-83-9	Bromomethane	156	0	0.0%	UG/L	3.9	19	--	--
75-15-0	Carbon Disulfide	156	1	0.6%	UG/L	0.41	3.8	0.84	0.84
56-23-5	Carbon Tetrachloride	156	0	0.0%	UG/L	0.23	1.1	--	--
108-90-7	Chlorobenzene	156	0	0.0%	UG/L	0.17	0.86	--	--
75-00-3	Chloroethane	156	0	0.0%	UG/L	1.3	11	--	--
87-88-3	Chloroform	156	17	10.9%	UG/L	0.33	2.3	2.2	7
74-87-3	Chloromethane	156	1	0.6%	UG/L	0.49	8.8	0.6	0.6
166-59-2	cis-1,2-Dichloroethane	156	120	76.9%	UG/L	0.48	2.4	0.5	510
10061-01-5	cis-1,3-Dichloropropene	156	0	0.0%	UG/L	0.25	1.2	--	--
88-82-8	Cumene (Isopropylbenzene)	156	57	36.5%	UG/L	0.23	1.2	0.38	25
124-48-1	Dibromochloromethane	156	0	0.0%	UG/L	0.25	1.2	--	--
74-95-3	Dibromomethane	156	0	0.0%	UG/L	0.46	2.3	--	--
108-20-3	Diiisopropyl Ether (DIPE)	156	0	0.0%	UG/L	0.31	1.7	--	--
64-17-5	Ethanol	156	0	0.0%	UG/L	43	250	--	--
100-41-4	Ethylbenzene	156	82	52.6%	UG/L	0.14	0.44	0.16	150
837-92-3	Ethyl-t-Butyl Ether (ETBE)	156	0	0.0%	UG/L	0.27	2.2	--	--
75-89-4	Freon 11	156	0	0.0%	UG/L	0.31	8.3	--	--
76-13-1	Freon 113	156	3	1.9%	UG/L	0.64	3.9	0.84	1.2
75-71-8	Freon 12	156	0	0.0%	UG/L	0.46	2.3	--	--
75-09-2	Methylene Chloride	156	1	0.6%	UG/L	0.64	5.2	0.84	0.84
1634-04-4	Methyl-tert-Butyl Ether	156	12	7.7%	UG/L	0.3	1.5	0.64	2.5
104-51-8	n-Butylbenzene	156	34	21.8%	UG/L	0.23	1.1	0.28	3.4
95-47-6	o-Xylene	11	2	18.2%	UG/L	0.23	0.46	1.4	2.1
1330-20-7-1	p/m-Xylene	11	4	36.4%	UG/L	0.24	0.49	0.27	68
99-87-6	p-Isopropyltoluene	156	38	24.4%	UG/L	0.16	0.79	0.17	4.4
103-85-1	Propylbenzene	156	56	35.9%	UG/L	0.17	1.6	0.18	25
136-98-8	sec-Butylbenzene	156	67	42.9%	UG/L	0.2	0.49	0.21	3.4

Table 4-4
Statistical Summary of Groundwater Data
 Former Kast Property
 Carson, CA

CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDe	Maximum DL of NDe	Minimum Detected Value	Maximum Detected Value
100-42-5	Styrene	156	1	0.6%	UG/L	0.17	0.96	0.2	0.2
994-05-8	tert-Amyl-Methyl Ether (TAME)	156	0	0.0%	UG/L	0.22	1.1	--	--
75-85-0	tert-Butyl Alcohol (TBA)	156	76	48.7%	UG/L	3.6	23	4.2	62
98-08-6	tert-Butylbenzene	156	3	1.9%	UG/L	0.28	1.4	0.28	0.37
127-18-4	Tetrachloroethene	156	21	13.5%	UG/L	0.39	1.9	0.88	260
108-88-3	Toluene	156	17	10.9%	UG/L	0.24	1.2	0.25	12
156-60-5	trans-1,2-Dichloroethene	156	80	51.3%	UG/L	0.37	1.8	0.37	120
10061-02-6	trans-1,3-Dichloropropene	156	0	0.0%	UG/L	0.26	1.3	--	--
79-01-6	Trichloroethene	156	77	49.4%	UG/L	0.3	1.8	0.39	400
108-05-4	Vinyl Acetate	156	0	0.0%	UG/L	2.8	14	--	--
75-01-4	Vinyl Chloride	156	11	7.1%	UG/L	0.3	1.5	0.33	0.71
1330-20-7	Xylenes, Total	156	61	39.1%	UG/L	0.23	0.91	0.27	280
Upper Gage									
Metals									
7429-90-5	Aluminum	4	4	100.0%	MG/L	--	--	0.00702	0.106
7440-36-0	Antimony	8	1	12.5%	MG/L	0.00744	0.00787	0.0101	0.0101
15584-04-0	Arsenate	4	4	100.0%	UG/L	--	--	0.3	6.61
7440-38-2	Arsenic	12	10	83.3%	MG/L	0.00438	0.00438	0.00416	0.0267
15502-74-6	Arsenite	4	4	100.0%	UG/L	--	--	0.097	16.4
7440-39-3	Barium	8	8	100.0%	MG/L	--	--	0.0142	0.134
7440-41-7	Beryllium	8	0	0.0%	MG/L	0.00056	0.00439	--	--
7440-43-9	Cadmium	8	0	0.0%	MG/L	0.00289	0.00454	--	--
7440-70-2	Calcium	8	8	100.0%	MG/L	--	--	35.8	142
7440-47-3	Chromium	12	1	8.3%	MG/L	0.0004	0.00436	0.00065	0.00065
7440-48-4	Cobalt	8	0	0.0%	MG/L	0.00295	0.00441	--	--
7440-50-8	Copper	12	6	50.0%	MG/L	0.00267	0.00392	0.00076	0.00612
7439-89-6	Iron	8	8	100.0%	MG/L	--	--	0.0592	0.287
7439-92-1	Lead	8	1	12.5%	MG/L	0.00406	0.00893	0.00748	0.00748
7439-95-4	Magnesium	8	8	100.0%	MG/L	--	--	13.2	38.3
7439-96-5	Manganese	8	8	100.0%	MG/L	--	--	0.00933	0.232
7439-97-6	Mercury	8	1	12.5%	MG/L	0.00003	0.00004	0.00004	0.00004

Table 4-4
 Statistical Summary of Groundwater Data
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CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
7439-98-7	Molybdenum	8	4	50.0%	MG/L	0.00278	0.00278	0.00748	0.0167
7440-02-0	Nickel	8	0	0.0%	MG/L	0.00298	0.00433	--	--
7440-08-7	Potassium	8	8	100.0%	MG/L	--	--	7.69	19.4
7782-49-2	Selenium	8	0	0.0%	MG/L	0.00699	0.0107	--	--
7440-22-4	Silver	8	0	0.0%	MG/L	0.00139	0.00211	--	--
7440-23-5	Sodium	8	8	100.0%	MG/L	--	--	131	338
7440-28-0	Thallium	8	2	25.0%	MG/L	0.00291	0.0054	0.00292	0.00313
7440-62-2	Vanadium	8	2	25.0%	MG/L	0.00244	0.00449	0.00708	0.0112
7440-66-6	Zinc	8	5	62.5%	MG/L	0.00352	0.00352	0.00716	0.0461
SVOCs/PAHs									
120-82-1	1,2,4-Trichlorobenzene	36	0	0.0%	UG/L	0.5	0.5	--	--
96-50-1	1,2-Dichlorobenzene	36	0	0.0%	UG/L	0.46	0.46	--	--
541-73-1	1,3-Dichlorobenzene	36	0	0.0%	UG/L	0.4	0.4	--	--
106-46-7	1,4-Dichlorobenzene	36	0	0.0%	UG/L	0.43	0.43	--	--
90-12-0	1-Methylnaphthalene	4	0	0.0%	UG/L	0.036	0.036	--	--
95-95-4	2,4,6-Trichlorophenol	4	0	0.0%	UG/L	0.97	0.97	--	--
88-08-2	2,4,6-Trichlorophenol	4	0	0.0%	UG/L	1.2	1.2	--	--
120-83-2	2,4-Dichlorophenol	4	0	0.0%	UG/L	1.1	1.1	--	--
105-87-9	2,4-Dimethylphenol	4	0	0.0%	UG/L	1.2	1.2	--	--
51-28-5	2,4-Dinitrophenol	4	0	0.0%	UG/L	2.6	2.6	--	--
121-14-2	2,4-Dinitrotoluene	4	0	0.0%	UG/L	1	1	--	--
606-20-2	2,6-Dinitrotoluene	4	0	0.0%	UG/L	1.1	1.1	--	--
91-58-7	2-Chloronaphthalene	4	0	0.0%	UG/L	1.3	1.3	--	--
95-57-8	2-Chlorophenol	4	0	0.0%	UG/L	1	1	--	--
91-57-5	2-Methylnaphthalene	4	0	0.0%	UG/L	0.035	0.035	--	--
95-48-7	2-Methylphenol	4	0	0.0%	UG/L	1.1	1.1	--	--
88-74-4	2-Nitroaniline	4	0	0.0%	UG/L	1	1	--	--
88-75-5	2-Nitrophenol	4	0	0.0%	UG/L	1.2	1.2	--	--
91-94-1	3,3'-Dichlorobenzidine	4	0	0.0%	UG/L	1.3	1.3	--	--
108-44-5	3/4-Methylphenol	4	0	0.0%	UG/L	1	1	--	--
99-09-2	3-Nitroaniline	4	0	0.0%	UG/L	1.2	1.2	--	--

Table 4-4
Statistical Summary of Groundwater Data
 Former Kast Property
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CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
634-62-1	4,6-Dinitro-2-Methylphenol	4	0	0.0%	UG/L	3.4	3.4	--	--
101-85-3	4-Bromophenyl-Phenyl Ether	4	0	0.0%	UG/L	1.2	1.2	--	--
59-50-7	4-Chloro-3-Methylphenol	4	0	0.0%	UG/L	1.2	1.2	--	--
108-47-8	4-Chloroaniline	4	0	0.0%	UG/L	1.3	1.3	--	--
7005-72-3	4-Chlorophenyl-Phenyl Ether	4	0	0.0%	UG/L	1.2	1.2	--	--
100-01-8	4-Nitroaniline	4	0	0.0%	UG/L	2.4	2.4	--	--
100-02-7	4-Nitrophenol	4	0	0.0%	UG/L	0.86	0.86	--	--
83-32-9	Acenaphthene	4	0	0.0%	UG/L	0.037	0.037	--	--
208-96-8	Acenaphthylene	4	0	0.0%	UG/L	0.033	0.033	--	--
82-53-3	Aniline	4	0	0.0%	UG/L	1.2	1.2	--	--
120-12-7	Anthracene	4	0	0.0%	UG/L	0.036	0.036	--	--
103-33-3	Azobenzene	4	0	0.0%	UG/L	1.7	1.7	--	--
92-87-5	Benzidine	4	0	0.0%	UG/L	0.62	0.62	--	--
56-55-3	Benzo (a) Anthracene	4	0	0.0%	UG/L	0.043	0.043	--	--
60-32-8	Benzo (a) Pyrene	4	0	0.0%	UG/L	0.035	0.035	--	--
205-99-2	Benzo (b) Fluoranthene	4	0	0.0%	UG/L	0.036	0.036	--	--
191-24-2	Benzo (g,h,i) Perylene	4	0	0.0%	UG/L	0.037	0.037	--	--
207-08-9	Benzo (k) Fluoranthene	4	0	0.0%	UG/L	0.05	0.05	--	--
85-85-0	Benzoic Acid	4	0	0.0%	UG/L	0.43	0.43	--	--
100-51-6	Benzyl Alcohol	4	0	0.0%	UG/L	1	1	--	--
111-91-1	Bis(2-Chloroethoxy) Methane	4	0	0.0%	UG/L	1.2	1.2	--	--
111-44-4	Bis(2-Chloroethyl) Ether	4	0	0.0%	UG/L	1	1	--	--
108-60-1	Bis(2-Chloroisopropyl) Ether	4	0	0.0%	UG/L	1.5	1.5	--	--
117-81-7	Bis(2-Ethylhexyl) Phthalate	4	0	0.0%	UG/L	1	1	--	--
85-68-7	Butyl Benzyl Phthalate	4	0	0.0%	UG/L	1	1	--	--
216-01-9	Chrysene	4	0	0.0%	UG/L	0.041	0.041	--	--
53-70-3	Dibenz (a,h) Anthracene	4	0	0.0%	UG/L	0.039	0.039	--	--
132-64-9	Dibenzofuran	4	0	0.0%	UG/L	1.4	1.4	--	--
84-66-2	Diethyl Phthalate	4	0	0.0%	UG/L	1.4	1.4	--	--
131-11-3	Dimethyl Phthalate	4	0	0.0%	UG/L	1.3	1.3	--	--
84-74-2	Di-n-Butyl Phthalate	4	0	0.0%	UG/L	1.5	1.5	--	--

Table 4-4
Statistical Summary of Groundwater Data
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CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
117-84-0	Di-n-Octyl Phthalate	4	0	0.0%	UG/L	1	1	--	--
206-44-0	Fluoranthene	4	0	0.0%	UG/L	0.038	0.038	--	--
86-73-7	Fluorene	4	0	0.0%	UG/L	0.035	0.035	--	--
67-68-3	Hexachloro-1,3-Butadiene	4	0	0.0%	UG/L	1.2	1.2	--	--
118-74-1	Hexachlorobenzene	4	0	0.0%	UG/L	1.2	1.2	--	--
77-47-4	Hexachlorocyclopentadiene	4	0	0.0%	UG/L	0.44	0.44	--	--
67-72-1	Hexachloroethane	4	0	0.0%	UG/L	0.98	0.98	--	--
193-39-5	Indeno (1,2,3-c,d) Pyrene	4	0	0.0%	UG/L	0.038	0.038	--	--
78-59-1	Isophorone	4	0	0.0%	UG/L	1.2	1.2	--	--
91-20-3	Naphthalene	36	4	11.1%	UG/L	2.5	2.5	0.047	0.4
98-95-3	Nitrobenzene	4	0	0.0%	UG/L	1.3	1.3	--	--
62-75-9	N-Nitrosodimethylamine	4	0	0.0%	UG/L	1.1	1.1	--	--
621-64-7	N-Nitroso-di-n-propylamine	4	0	0.0%	UG/L	1.3	1.3	--	--
86-30-6	N-Nitrosodiphenylamine	4	0	0.0%	UG/L	1.4	1.4	--	--
87-88-5	Pentachlorophenol	4	0	0.0%	UG/L	0.75	0.75	--	--
85-01-8	Phenanthrene	4	0	0.0%	UG/L	0.038	0.038	--	--
108-95-2	Phenol	4	0	0.0%	UG/L	1.2	1.2	--	--
129-00-0	Pyrene	4	0	0.0%	UG/L	0.05	0.05	--	--
110-86-1	Pyridine	4	0	0.0%	UG/L	1.4	1.4	--	--
TPH									
TPHC11C12	Carbon Chain C11-C12	36	8	22.2%	UG/L	14	14	15	49
TPHC13C14	Carbon Chain C13-C14	36	6	16.7%	UG/L	16	16	16	34
TPHC15C16	Carbon Chain C15-C16	36	4	11.1%	UG/L	17	17	21	24
TPHC17C18	Carbon Chain C17-C18	36	0	0.0%	UG/L	17	17	--	--
TPHC19C20	Carbon Chain C19-C20	36	0	0.0%	UG/L	18	18	--	--
TPHC21C22	Carbon Chain C21-C22	36	0	0.0%	UG/L	18	18	--	--
TPHC23C24	Carbon Chain C23-C24	36	3	8.3%	UG/L	18	18	20	28
TPHC25C28	Carbon Chain C25-C28	36	10	27.8%	UG/L	16	16	18	52
TPHC29C32	Carbon Chain C29-C32	36	6	16.7%	UG/L	8.5	8.5	8.9	32
TPHC33C36	Carbon Chain C33-C36	36	3	8.3%	UG/L	7.9	7.9	9.4	33
TPHC37C40	Carbon Chain C37-C40	36	6	16.7%	UG/L	6.8	6.8	7.4	12

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CAS Number	Chemical	Number of Samples	Number of Detections	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
TPHC41C44	Carbon Chain C41-C44	36	2	5.6%	UG/L	6.6	6.6	7.8	8
TPHC6	Carbon Chain C6	36	16	44.4%	UG/L	1.4	1.4	1.5	180
TPHC7	Carbon Chain C7	36	12	33.3%	UG/L	6.1	6.1	6.9	38
TPHC8	Carbon Chain C8	36	13	36.1%	UG/L	9.9	9.9	10	87
TPHC9C10	Carbon Chain C9-C10	36	14	38.9%	UG/L	13	13	13	120
TPHC6C44	Total Petroleum Hydrocarbons (C6-C44)	36	16	44.4%	UG/L	47	47	52	580
69334-30-5	TPH as Diesel	36	29	80.6%	UG/L	33	33	34	200
PHCG	TPH as Gasoline	36	16	44.4%	UG/L	48	48	49	710
TPHMOIL	TPH as Motor Oil	36	0	0.0%	UG/L	210	210	--	--
VOCs									
630-20-6	1,1,1,2-Tetrachloroethane	36	0	0.0%	UG/L	0.4	0.4	--	--
71-55-6	1,1,1-Trichloroethane	36	0	0.0%	UG/L	0.3	0.3	--	--
79-34-5	1,1,2,2-Tetrachloroethane	36	0	0.0%	UG/L	0.41	0.41	--	--
79-00-5	1,1,2-Trichloroethane	36	0	0.0%	UG/L	0.38	0.38	--	--
75-34-3	1,1-Dichloroethane	36	0	0.0%	UG/L	0.28	0.28	--	--
75-35-4	1,1-Dichloroethene	36	2	5.6%	UG/L	0.43	0.43	0.48	0.57
563-58-6	1,1-Dichloropropene	36	0	0.0%	UG/L	0.46	0.46	--	--
87-81-6	1,2,3-Trichlorobenzene	36	0	0.0%	UG/L	0.51	0.51	--	--
96-18-4	1,2,3-Trichloropropane	36	3	8.3%	UG/L	0.64	0.64	1.1	3.4
85-63-6	1,2,4-Trimethylbenzene	36	9	25.0%	UG/L	0.36	0.36	0.36	1.6
96-12-6	1,2-Dibromo-3-Chloropropane	36	0	0.0%	UG/L	1.2	1.2	--	--
106-93-4	1,2-Dibromoethane (EDB)	36	0	0.0%	UG/L	0.36	0.36	--	--
107-06-2	1,2-Dichloroethane	36	22	61.1%	UG/L	0.24	0.24	0.42	3.6
78-87-5	1,2-Dichloropropane	36	0	0.0%	UG/L	0.42	0.42	--	--
108-67-8	1,3,5-Trimethylbenzene	36	1	2.8%	UG/L	0.28	0.28	0.59	0.59
142-28-9	1,3-Dichloropropane	36	0	0.0%	UG/L	0.3	0.3	--	--
594-20-7	2,2-Dichloropropane	36	0	0.0%	UG/L	0.36	0.36	--	--
78-93-3	2-Butanone (Methyl Ethyl Ketone)	36	0	0.0%	UG/L	2.2	2.2	--	--
95-49-8	2-Chlorotoluene	36	0	0.0%	UG/L	0.24	0.24	--	--
591-78-6	2-Hexanone	36	0	0.0%	UG/L	2.1	2.1	--	--
106-43-4	4-Chlorotoluene	36	0	0.0%	UG/L	0.13	0.13	--	--

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CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
108-10-1	4-Methyl-2-Pentanone	36	0	0.0%	UG/L	4.4	4.4	--	--
67-64-1	Acetone	36	1	2.8%	UG/L	6	10	7	7
71-43-2	Benzene	36	26	72.2%	UG/L	0.14	0.14	0.16	370
108-86-1	Bromobenzene	36	0	0.0%	UG/L	0.3	0.3	--	--
74-97-5	Bromochloromethane	36	0	0.0%	UG/L	0.48	0.48	--	--
75-27-4	Bromodichloromethane	36	0	0.0%	UG/L	0.21	0.21	--	--
75-26-2	Bromoform	36	0	0.0%	UG/L	0.5	0.5	--	--
74-83-0	Bromomethane	36	0	0.0%	UG/L	3.9	3.9	--	--
75-15-0	Carbon Disulfide	36	10	27.8%	UG/L	0.41	0.41	0.45	4.8
56-23-5	Carbon Tetrachloride	36	0	0.0%	UG/L	0.23	0.23	--	--
108-90-7	Chlorobenzene	36	0	0.0%	UG/L	0.17	0.17	--	--
75-00-3	Chloroethane	36	0	0.0%	UG/L	2.3	2.3	--	--
67-66-3	Chloroform	36	3	8.3%	UG/L	0.46	0.46	0.5	0.59
74-87-3	Chloromethane	36	0	0.0%	UG/L	1.8	1.8	--	--
156-59-2	cis-1,2-Dichloroethene	36	22	61.1%	UG/L	0.48	0.48	0.55	71
10061-01-5	cis-1,3-Dichloropropene	36	0	0.0%	UG/L	0.25	0.25	--	--
98-82-8	Cumene (isopropylbenzene)	36	2	5.6%	UG/L	0.58	0.58	0.9	0.96
124-48-1	Dibromochloromethane	36	0	0.0%	UG/L	0.25	0.25	--	--
74-95-3	Dibromomethane	36	0	0.0%	UG/L	0.46	0.46	--	--
108-20-3	Diisopropyl Ether (DIPE)	36	15	41.7%	UG/L	0.33	0.33	0.36	1.7
64-17-5	Ethanol	36	0	0.0%	UG/L	50	50	--	--
100-41-4	Ethylbenzene	36	14	38.9%	UG/L	0.14	0.14	0.16	14
637-92-3	Ethyl-t-Butyl Ether (ETBE)	36	0	0.0%	UG/L	0.44	0.44	--	--
75-69-4	Freon 11	36	0	0.0%	UG/L	1.7	1.7	--	--
78-13-1	Freon 113	36	0	0.0%	UG/L	0.78	0.78	--	--
75-71-8	Freon 12	36	0	0.0%	UG/L	0.46	0.46	--	--
75-09-2	Methylene Chloride	36	0	0.0%	UG/L	0.64	0.64	--	--
1834-04-4	Methyl-tert-Butyl Ether	36	0	0.0%	UG/L	0.31	0.31	--	--
104-51-8	n-Butylbenzene	36	0	0.0%	UG/L	0.23	0.23	--	--
95-47-6	o-Xylene	4	0	0.0%	UG/L	0.23	0.23	--	--
1330-20-7-1	p/m-Xylene	4	1	25.0%	UG/L	0.24	0.24	0.7	0.7

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CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
99-87-6	p-Isopropyltoluene	36	0	0.0%	UG/L	0.16	0.16	--	--
103-85-1	Propylbenzene	36	4	11.1%	UG/L	0.17	0.17	0.2	0.52
135-98-8	sec-Butylbenzene	36	0	0.0%	UG/L	0.25	0.25	--	--
100-42-5	Styrene	36	0	0.0%	UG/L	0.17	0.17	--	--
994-05-8	tert-Amyl-Methyl Ether (TAME)	36	0	0.0%	UG/L	0.22	0.22	--	--
76-85-0	tert-Butyl Alcohol (TBA)	36	21	58.3%	UG/L	4.6	4.6	5.9	250
98-06-6	tert-Butylbenzene	36	0	0.0%	UG/L	0.28	0.28	--	--
127-18-4	Tetrachloroethene	36	0	0.0%	UG/L	0.39	0.39	--	--
108-88-3	Toluene	36	9	25.0%	UG/L	0.24	0.24	0.94	3.6
156-60-5	trans-1,2-Dichloroethene	36	9	25.0%	UG/L	0.37	0.37	0.81	2.6
10061-02-8	trans-1,3-Dichloropropene	36	0	0.0%	UG/L	0.25	0.25	--	--
79-01-8	Trichloroethene	36	8	22.2%	UG/L	0.37	0.37	0.42	2.2
108-05-4	Vinyl Acetate	36	0	0.0%	UG/L	2.8	2.8	--	--
76-01-4	Vinyl Chloride	36	0	0.0%	UG/L	0.3	0.3	--	--
1330-20-7	Xylenes, Total	36	10	27.8%	UG/L	0.23	0.24	0.27	8.8
Lower Gage									
Metal									
7429-90-5	Aluminum	4	4	100.0%	MG/L	--	--	0.0144	0.0466
7440-38-0	Antimony	8	1	12.5%	MG/L	0.00744	0.00787	0.00968	0.00968
15584-04-0	Arsenate	4	4	100.0%	UG/L	--	--	0.27	0.84
7440-38-2	Arsenic	12	10	83.3%	MG/L	0.00611	0.00611	0.00532	0.028
15502-74-6	Arsenite	4	4	100.0%	UG/L	--	--	4.84	7.97
7440-39-3	Barium	8	7	87.5%	MG/L	0.00296	0.00296	0.0138	0.0796
7440-41-7	Beryllium	8	0	0.0%	MG/L	0.00056	0.00439	--	--
7440-43-9	Cadmium	8	0	0.0%	MG/L	0.00269	0.00454	--	--
7440-70-2	Calcium	8	8	100.0%	MG/L	--	--	8.54	106
7440-47-3	Chromium	12	0	0.0%	MG/L	0.0004	0.00436	--	--
7440-48-4	Cobalt	8	0	0.0%	MG/L	0.00295	0.00441	--	--
7440-50-8	Copper	12	9	75.0%	MG/L	0.00392	0.00382	0.00051	0.0175
7439-89-6	Iron	8	8	100.0%	MG/L	--	--	0.0339	6
7439-92-1	Lead	8	0	0.0%	MG/L	0.00406	0.00693	--	--

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CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
7439-95-4	Magnesium	8	8	100.0%	MG/L	--	--	5.26	30.1
7439-98-5	Manganese	8	8	100.0%	MG/L	--	--	0.0061	0.177
7439-97-6	Mercury	8	2	25.0%	MG/L	0.00003	0.00004	0.00004	0.00005
7439-98-7	Molybdenum	8	4	50.0%	MG/L	0.00278	0.00278	0.00624	0.0227
7440-02-0	Nickel	8	0	0.0%	MG/L	0.00298	0.00433	--	--
7440-09-7	Potassium	8	8	100.0%	MG/L	--	--	7.65	11.4
7782-49-2	Selenium	8	0	0.0%	MG/L	0.00699	0.0107	--	--
7440-22-4	Silver	8	0	0.0%	MG/L	0.00139	0.00211	--	--
7440-23-5	Sodium	8	8	100.0%	MG/L	--	--	110	304
7440-28-0	Thallium	8	1	12.5%	MG/L	0.00291	0.0054	0.00311	0.00311
7440-62-2	Vanadium	8	2	25.0%	MG/L	0.00244	0.00449	0.00354	0.0273
7440-66-6	Zinc	8	5	62.5%	MG/L	0.00352	0.00666	0.00618	0.465
SVOCs/PAHs									
120-82-1	1,2,4-Trichlorobenzene	36	0	0.0%	UG/L	0.5	0.5	--	--
95-50-1	1,2-Dichlorobenzene	36	0	0.0%	UG/L	0.46	0.46	--	--
541-73-1	1,3-Dichlorobenzene	36	0	0.0%	UG/L	0.4	0.4	--	--
106-46-7	1,4-Dichlorobenzene	36	0	0.0%	UG/L	0.43	0.43	--	--
90-12-0	1-Methylnaphthalene	4	0	0.0%	UG/L	0.036	0.036	--	--
95-95-4	2,4,5-Trichlorophenol	4	0	0.0%	UG/L	0.97	0.97	--	--
88-06-2	2,4,6-Trichlorophenol	4	0	0.0%	UG/L	1.2	1.2	--	--
120-83-2	2,4-Dichlorophenol	4	0	0.0%	UG/L	1.1	1.1	--	--
105-67-9	2,4-Dimethylphenol	4	0	0.0%	UG/L	1.2	1.2	--	--
51-28-5	2,4-Dinitrophenol	4	0	0.0%	UG/L	2.6	2.6	--	--
121-14-2	2,4-Dinitrotoluene	4	0	0.0%	UG/L	1	1	--	--
806-20-2	2,6-Dinitrotoluene	4	0	0.0%	UG/L	1.1	1.1	--	--
91-58-7	2-Chloronaphthalene	4	0	0.0%	UG/L	1.3	1.3	--	--
95-57-8	2-Chlorophenol	4	0	0.0%	UG/L	1	1	--	--
91-57-6	2-Methylnaphthalene	4	1	25.0%	UG/L	0.035	0.035	0.037	0.037
95-48-7	2-Methylphenol	4	0	0.0%	UG/L	1.1	1.1	--	--
88-74-4	2-Nitroaniline	4	0	0.0%	UG/L	1	1	--	--
88-75-5	2-Nitrophenol	4	0	0.0%	UG/L	1.2	1.2	--	--

Table 4-4
Statistical Summary of Groundwater Data
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CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
91-94-1	3,3'-Dichlorobenzidine	4	0	0.0%	UG/L	1.3	1.3	--	--
106-44-6	3/4-Methylphenol	4	1	25.0%	UG/L	1	1	1.7	1.7
99-09-2	3-Nitroaniline	4	0	0.0%	UG/L	1.2	1.2	--	--
534-52-1	4,6-Dinitro-2-Methylphenol	4	0	0.0%	UG/L	3.4	3.4	--	--
101-55-3	4-Bromophenyl-Phenyl Ether	4	0	0.0%	UG/L	1.2	1.2	--	--
59-50-7	4-Chloro-3-Methylphenol	4	0	0.0%	UG/L	1.2	1.2	--	--
106-47-8	4-Chloroaniline	4	0	0.0%	UG/L	1.3	1.3	--	--
7005-72-3	4-Chlorophenyl-Phenyl Ether	4	0	0.0%	UG/L	1.2	1.2	--	--
100-01-6	4-Nitroaniline	4	0	0.0%	UG/L	2.4	2.4	--	--
100-02-7	4-Nitrophenol	4	0	0.0%	UG/L	0.86	0.86	--	--
83-32-9	Acenaphthene	4	0	0.0%	UG/L	0.037	0.037	--	--
208-98-8	Acenaphthylene	4	0	0.0%	UG/L	0.033	0.033	--	--
62-53-3	Aniline	4	0	0.0%	UG/L	1.2	1.2	--	--
120-12-7	Anthracene	4	0	0.0%	UG/L	0.036	0.036	--	--
103-33-3	Azobenzene	4	0	0.0%	UG/L	1.7	1.7	--	--
92-87-5	Benzidine	4	0	0.0%	UG/L	0.62	0.62	--	--
56-55-3	Benzo (a) Anthracene	4	0	0.0%	UG/L	0.043	0.043	--	--
60-32-6	Benzo (a) Pyrene	4	0	0.0%	UG/L	0.035	0.035	--	--
205-99-2	Benzo (b) Fluoranthene	4	0	0.0%	UG/L	0.036	0.036	--	--
191-24-2	Benzo (g,h,i) Perylene	4	0	0.0%	UG/L	0.037	0.037	--	--
207-08-9	Benzo (k) Fluoranthene	4	0	0.0%	UG/L	0.05	0.05	--	--
65-85-0	Benzoic Acid	4	1	25.0%	UG/L	0.43	0.43	2.6	2.6
100-51-6	Benzyl Alcohol	4	0	0.0%	UG/L	1	1	--	--
111-91-1	Bis(2-Chloroethoxy) Methane	4	0	0.0%	UG/L	1.2	1.2	--	--
111-44-4	Bis(2-Chloroethyl) Ether	4	0	0.0%	UG/L	1	1	--	--
108-60-1	Bis(2-Chloroisopropyl) Ether	4	0	0.0%	UG/L	1.5	1.5	--	--
117-81-7	Bis(2-Ethylhexyl) Phthalate	4	0	0.0%	UG/L	1	1	--	--
85-68-7	Butyl Benzyl Phthalate	4	0	0.0%	UG/L	1	1	--	--
218-01-9	Chrysene	4	0	0.0%	UG/L	0.041	0.041	--	--
53-70-3	Dibenz (a,h) Anthracene	4	0	0.0%	UG/L	0.039	0.039	--	--
132-64-9	Dibenzofuran	4	0	0.0%	UG/L	1.4	1.4	--	--

Table 4-4
Statistical Summary of Groundwater Data
 Former Kast Property
 Carson, CA

CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
84-66-2	Diethyl Phthalate	4	0	0.0%	UG/L	1.4	1.4	--	--
131-11-3	Dimethyl Phthalate	4	0	0.0%	UG/L	1.3	1.3	--	--
84-74-2	Di-n-Butyl Phthalate	4	0	0.0%	UG/L	1.5	1.5	--	--
117-84-0	Di-n-Octyl Phthalate	4	0	0.0%	UG/L	1	1	--	--
206-44-0	Fluoranthene	4	0	0.0%	UG/L	0.038	0.038	--	--
86-73-7	Fluorene	4	0	0.0%	UG/L	0.035	0.035	--	--
67-68-3	Hexachloro-1,3-Butadiene	4	0	0.0%	UG/L	1.2	1.2	--	--
118-74-1	Hexachlorobenzene	4	0	0.0%	UG/L	1.2	1.2	--	--
77-47-4	Hexachlorocyclopentadiene	4	0	0.0%	UG/L	0.44	0.44	--	--
67-72-1	Hexachloroethane	4	0	0.0%	UG/L	0.98	0.98	--	--
193-39-5	Indeno (1,2,3-c,d) Pyrene	4	0	0.0%	UG/L	0.036	0.036	--	--
78-59-1	Isophorone	4	0	0.0%	UG/L	1.2	1.2	--	--
91-20-3	Naphthalene	36	3	8.3%	UG/L	0.037	2.6	0.047	0.07
98-95-3	Nitrobenzene	4	0	0.0%	UG/L	1.3	1.3	--	--
62-75-9	N-Nitrosodimethylamine	4	0	0.0%	UG/L	1.1	1.1	--	--
621-64-7	N-Nitroso-di-n-propylamine	4	0	0.0%	UG/L	1.3	1.3	--	--
86-30-6	N-Nitrosodiphenylamine	4	0	0.0%	UG/L	1.4	1.4	--	--
87-86-6	Pentachlorophenol	4	0	0.0%	UG/L	0.75	0.75	--	--
85-01-8	Phenanthrene	4	0	0.0%	UG/L	0.038	0.038	--	--
108-95-2	Phenol	4	0	0.0%	UG/L	1.2	1.2	--	--
129-00-0	Pyrene	4	0	0.0%	UG/L	0.05	0.05	--	--
110-86-1	Pyridine	4	0	0.0%	UG/L	1.4	1.4	--	--
TPH									
TPHC11C12	Carbon Chain C11-C12	36	1	2.8%	UG/L	14	14	18	18
TPHC13C14	Carbon Chain C13-C14	36	1	2.8%	UG/L	16	16	16	16
TPHC15C16	Carbon Chain C15-C16	36	4	11.1%	UG/L	17	17	17	33
TPHC17C18	Carbon Chain C17-C18	36	1	2.8%	UG/L	17	17	37	37
TPHC19C20	Carbon Chain C19-C20	36	1	2.8%	UG/L	18	18	24	24
TPHC21C22	Carbon Chain C21-C22	36	4	11.1%	UG/L	18	18	19	34
TPHC23C24	Carbon Chain C23-C24	36	4	11.1%	UG/L	18	18	20	63
TPHC25C28	Carbon Chain C25-C28	36	11	30.6%	UG/L	16	16	17	79

Table 4-4
Statistical Summary of Groundwater Data
 Former Kast Property
 Carson, CA

CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
TPHC29C32	Carbon Chain C29-C32	36	8	22.2%	UG/L	8.5	8.5	9	46
TPHC33C36	Carbon Chain C33-C36	36	5	13.9%	UG/L	7.9	7.9	8.1	32
TPHC37C40	Carbon Chain C37-C40	36	4	11.1%	UG/L	6.8	6.8	9.2	10
TPHC41C44	Carbon Chain C41-C44	36	0	0.0%	UG/L	6.6	6.6	--	--
TPHC6	Carbon Chain C6	36	9	25.0%	UG/L	1.4	1.4	1.5	4.8
TPHC7	Carbon Chain C7	36	0	0.0%	UG/L	6.1	6.1	--	--
TPHC8	Carbon Chain C8	36	0	0.0%	UG/L	9.9	9.9	--	--
TPHC9C10	Carbon Chain C9-C10	36	7	19.4%	UG/L	13	13	14	33
TPHC6C44	Total Petroleum Hydrocarbons (C6-C44)	36	8	22.2%	UG/L	47	47	53	350
88334-30-5	TPH as Diesel	36	29	80.6%	UG/L	33	33	34	330
PHCG	TPH as Gasoline	36	0	0.0%	UG/L	48	48	--	--
TPHMOIL	TPH as Motor Oil	36	1	2.8%	UG/L	210	210	330	330
VOCs									
830-20-6	1,1,1,2-Tetrachloroethane	36	0	0.0%	UG/L	0.4	0.4	--	--
71-55-6	1,1,1-Trichloroethane	36	0	0.0%	UG/L	0.3	0.3	--	--
79-34-6	1,1,2,2-Tetrachloroethane	36	0	0.0%	UG/L	0.41	0.41	--	--
79-00-5	1,1,2-Trichloroethane	36	0	0.0%	UG/L	0.38	0.38	--	--
75-34-3	1,1-Dichloroethane	36	0	0.0%	UG/L	0.28	0.28	--	--
75-35-4	1,1-Dichloroethene	36	0	0.0%	UG/L	0.43	0.43	--	--
583-58-6	1,1-Dichloropropane	36	0	0.0%	UG/L	0.46	0.46	--	--
87-61-6	1,2,3-Trichlorobenzene	36	0	0.0%	UG/L	0.51	0.51	--	--
96-18-4	1,2,3-Trichloropropane	36	0	0.0%	UG/L	0.64	0.64	--	--
95-63-6	1,2,4-Trimethylbenzene	36	0	0.0%	UG/L	0.36	0.36	--	--
96-12-8	1,2-Dibromo-3-Chloropropane	36	0	0.0%	UG/L	1.2	1.2	--	--
106-93-4	1,2-Dibromoethane (EDB)	36	0	0.0%	UG/L	0.36	0.36	--	--
107-08-2	1,2-Dichloroethane	36	1	2.8%	UG/L	0.24	0.24	0.31	0.31
78-87-5	1,2-Dichloropropane	36	0	0.0%	UG/L	0.42	0.42	--	--
108-67-8	1,3,5-Trimethylbenzene	36	0	0.0%	UG/L	0.28	0.28	--	--
142-28-9	1,3-Dichloropropane	36	0	0.0%	UG/L	0.3	0.3	--	--
594-20-7	2,2-Dichloropropane	36	0	0.0%	UG/L	0.36	0.36	--	--
78-93-3	2-Butanone (Methyl Ethyl Ketone)	36	0	0.0%	UG/L	2.2	2.2	--	--

Table 4-4
 Statistical Summary of Groundwater Data
 Former Kast Property
 Carson, CA

CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
95-49-8	2-Chlorotoluene	36	0	0.0%	UG/L	0.24	0.24	--	--
591-78-6	2-Hexanone	36	0	0.0%	UG/L	2.1	2.1	--	--
106-43-4	4-Chlorotoluene	36	0	0.0%	UG/L	0.13	0.13	--	--
108-10-1	4-Methyl-2-Pentanone	36	0	0.0%	UG/L	4.4	4.4	--	--
67-64-1	Acetone	36	2	5.6%	UG/L	6	10	6.7	8.3
71-43-2	Benzene	36	6	16.7%	UG/L	0.14	0.14	0.15	0.89
108-96-1	Bromobenzene	36	0	0.0%	UG/L	0.3	0.3	--	--
74-97-5	Bromochloromethane	36	2	5.6%	UG/L	0.48	0.48	0.79	1.5
75-27-4	Bromodichloromethane	36	0	0.0%	UG/L	0.21	0.21	--	--
75-25-2	Bromoform	36	0	0.0%	UG/L	0.5	0.5	--	--
74-83-9	Bromomethane	36	0	0.0%	UG/L	3.9	3.9	--	--
75-15-0	Carbon Disulfide	36	15	41.7%	UG/L	0.41	0.41	0.45	9.3
56-23-5	Carbon Tetrachloride	36	0	0.0%	UG/L	0.23	0.23	--	--
108-90-7	Chlorobenzene	36	0	0.0%	UG/L	0.17	0.17	--	--
75-00-3	Chloroethane	36	0	0.0%	UG/L	2.3	2.3	--	--
67-66-3	Chloroform	36	2	5.6%	UG/L	0.46	0.46	0.5	0.67
74-87-3	Chloromethane	36	0	0.0%	UG/L	1.8	1.8	--	--
156-59-2	cis-1,2-Dichloroethane	36	7	19.4%	UG/L	0.48	0.48	0.93	11
10061-01-5	cis-1,3-Dichloropropene	36	0	0.0%	UG/L	0.25	0.25	--	--
98-82-8	Cumene (Isopropylbenzene)	36	0	0.0%	UG/L	0.58	0.58	--	--
124-48-1	Dibromochloromethane	36	0	0.0%	UG/L	0.25	0.25	--	--
74-95-3	Dibromomethane	36	3	8.3%	UG/L	0.46	0.46	0.71	2.1
106-20-3	Diisopropyl Ether (DIPE)	36	0	0.0%	UG/L	0.33	0.33	--	--
64-17-5	Ethanol	36	0	0.0%	UG/L	50	50	--	--
100-41-4	Ethylbenzene	36	0	0.0%	UG/L	0.14	0.14	--	--
637-92-3	Ethyl-t-Butyl Ether (ETBE)	36	0	0.0%	UG/L	0.44	0.44	--	--
75-69-4	Freon 11	36	0	0.0%	UG/L	1.7	1.7	--	--
76-13-1	Freon 113	36	0	0.0%	UG/L	0.78	0.78	--	--
75-71-8	Freon 12	36	0	0.0%	UG/L	0.46	0.46	--	--
75-09-2	Methylene Chloride	36	0	0.0%	UG/L	0.64	0.64	--	--
1634-04-4	Methyl-tert-Butyl Ether	36	0	0.0%	UG/L	0.31	0.31	--	--

Table 4-4
Statistical Summary of Groundwater Data
 Former Kast Property
 Carson, CA

CAS Number	Chemical	Number of Samples	Number of Detects	Percent Detected	Units	Minimum DL of NDs	Maximum DL of NDs	Minimum Detected Value	Maximum Detected Value
104-51-8	n-Butylbenzene	36	0	0.0%	UG/L	0.23	0.23	--	--
95-47-6	o-Xylene	4	0	0.0%	UG/L	0.23	0.23	--	--
1330-20-7-1	p/m-Xylene	4	0	0.0%	UG/L	0.24	0.24	--	--
98-07-6	p-Isopropyltoluene	36	0	0.0%	UG/L	0.16	0.16	--	--
103-65-1	Propylbenzene	36	0	0.0%	UG/L	0.17	0.17	--	--
135-98-8	sec-Butylbenzene	36	0	0.0%	UG/L	0.25	0.25	--	--
100-42-5	Styrene	36	0	0.0%	UG/L	0.17	0.17	--	--
994-05-8	tert-Amyl-Methyl Ether (TAME)	36	0	0.0%	UG/L	0.22	0.22	--	--
76-85-0	tert-Butyl Alcohol (TBA)	36	2	5.6%	UG/L	4.6	4.6	6.6	8.5
98-08-6	tert-Butylbenzene	36	0	0.0%	UG/L	0.28	0.28	--	--
127-18-4	Tetrachloroethene	36	0	0.0%	UG/L	0.39	0.39	--	--
106-88-3	Toluene	36	0	0.0%	UG/L	0.24	0.24	--	--
166-60-5	trans-1,2-Dichloroethene	36	0	0.0%	UG/L	0.37	0.37	--	--
10061-02-6	trans-1,3-Dichloropropene	36	0	0.0%	UG/L	0.25	0.25	--	--
79-01-6	Trichloroethene	36	0	0.0%	UG/L	0.37	0.37	--	--
108-05-4	Vinyl Acetate	36	0	0.0%	UG/L	2.8	2.8	--	--
75-01-4	Vinyl Chloride	36	0	0.0%	UG/L	0.3	0.3	--	--
1330-20-7	Xylenes, Total	36	0	0.0%	UG/L	0.23	0.24	--	--

Notes:

All data through August 31, 2013

-- " not available

"DL " detection limit; "NDs " nondetects

MG/L: milligram per liter

UG/L: microgram per liter

Table 4-5
Soil Matrix Constituent of Concern Screening
 Former Kast Property
 Carson, California

CAS Number	Chemical ¹	Maximum Concentration	Units	RBSLc	RBSLno	RBSLc x 0.1	RBSLno x 0.1	Background Concentration	COC Selection Rationale ²	COC	Site-Related COC
Metals											
7440-39-0	Antimony	6.5E+00	mg/kg	--	3.1E+01	--	3.1E+00	7.4E-01	RBSLno, background	Yes	No
7440-39-2	Arsenic	6.3E+01	mg/kg	3.9E-01	2.2E+01	3.9E-02	2.2E+00	1.2E+01	RBSLc, RBSLno, background	Yes	Yes
7440-39-3	Barium	1.0E+03	mg/kg	--	1.6E+04	--	1.6E+03	2.7E+02		No	No
7440-41-7	Beryllium	1.2E+00	mg/kg	1.2E+05	1.6E+02	1.2E+04	1.6E+01	5.6E-01		No	No
7440-49-9	Cadmium	9.0E+00	mg/kg	6.7E+04	7.0E+01	6.7E+03	7.0E+00	3.6E+00	RBSLno, background	Yes	No
7440-47-3	Chromium	7.4E+01	mg/kg	--	1.2E+05	--	1.2E+04	3.3E+01		No	No
CR6	Chromium, Hexavalent ³	4.8E+00	mg/kg	1.9E+03	2.3E+02	1.9E+02	2.3E+01	--	--	Yes	No
7440-48-4	Cobalt	3.1E+01	mg/kg	3.1E+04	2.3E+01	3.1E+03	2.3E+00	1.1E+01	RBSLno, background	Yes	No
7440-50-8	Copper	1.2E+03	mg/kg	--	3.1E+03	--	3.1E+02	5.9E+01	RBSLno, background	Yes	No
7439-92-1	Lead	1.3E+03	mg/kg	--	8.0E+01	--	8.0E+00	6.2E+01	RBSLno, background	Yes	Yes
7439-97-6	Mercury	1.3E+00	mg/kg	--	2.3E+01	--	2.3E+00	1.3E-01		No	No
7439-99-7	Molybdenum	2.4E+01	mg/kg	--	3.9E+02	--	3.9E+01	4.1E-01		No	No
7440-02-0	Nickel	4.3E+01	mg/kg	1.1E+06	1.6E+03	1.1E+05	1.6E+02	2.0E+01		No	No
7782-49-2	Selenium	9.0E+00	mg/kg	--	3.9E+02	--	3.9E+01	7.8E-01		No	No
7440-22-4	Silver	3.8E+00	mg/kg	--	3.9E+02	--	3.9E+01	1.3E+00		No	No
7440-28-0	Thallium	3.5E+00	mg/kg	--	7.6E-01	--	7.6E-02	2.3E-01	RBSLno, background	Yes	No
7440-62-2	Vanadium	8.6E+01	mg/kg	--	5.6E+02	--	5.6E+01	4.6E+01	RBSLno, background	Yes	No
7440-66-6	Zinc	5.8E+03	mg/kg	--	2.3E+04	--	2.3E+03	2.8E+02	RBSLno, background	Yes	No
PAHs											
83-32-9	Acenaphthene	1.7E+01	mg/kg	--	3.2E+03	--	3.2E+02	--		No	No
208-96-8	Acenaphthylene	4.5E+00	mg/kg	--	1.7E+04	--	1.7E+03	--		No	No
120-12-7	Anthracene	2.6E+01	mg/kg	--	1.7E+04	--	1.7E+03	--		No	No
58-55-3	Benzo (a) Anthracene	4.7E+01	mg/kg	1.6E+00	--	1.6E-01	--	--	RBSLc	Yes	Yes
50-32-8	Benzo (a) Pyrene	2.2E+01	mg/kg	1.6E-01	--	1.6E-02	--	8.0E-01	RBSLc, background	Yes	Yes
205-99-2	Benzo (b) Fluoranthene	1.6E+01	mg/kg	1.6E+00	--	1.6E-01	--	--	RBSLc	Yes	Yes
191-24-2	Benzo (g,h,i) Perylene	1.3E+01	mg/kg	--	1.7E+03	--	1.7E+02	--		No	No
207-08-9	Benzo (k) Fluoranthene	4.6E+00	mg/kg	1.6E+00	--	1.6E-01	--	--	RBSLc	Yes	Yes
218-01-9	Chrysene	1.3E+02	mg/kg	1.6E+01	--	1.6E+00	--	--	RBSLc	Yes	Yes
53-70-3	Dibenz (a,h) Anthracene	3.4E+00	mg/kg	1.1E-01	--	1.1E-02	--	--	RBSLc	Yes	Yes

Table 4-5

Soil Matrix Constituent of Concern Screening
Former Kast Property
Carson, California

CAS Number	Chemical ¹	Maximum Concentration	Units	RBSLc	RBSLnc	RBSLc x 0.1	RBSLnc x 0.1	Background Concentration	COC Selection Rationale ²	COC	Site-Related COC
206-44-0	Fluoranthene	2.9E+01	mg/kg	--	2.3E+03	--	2.3E+02	--		No	No
86-73-7	Fluorene	2.3E+01	mg/kg	--	2.2E+03	--	2.2E+02	--		No	No
193-39-5	Indeno (1,2,3-c,d) Pyrene	3.2E+00	mg/kg	1.6E+00	--	1.6E-01	--	--	RBSLc	Yes	Yes
90-12-0	1-Methylnaphthalene	1.6E+02	mg/kg	2.2E+01	5.5E+03	2.2E+00	5.5E+02	--	RBSLc	Yes	Yes
91-57-6	2-Methylnaphthalene	2.6E+02	mg/kg	--	3.1E+02	--	3.1E+01	--	RBSLnc	Yes	Yes
91-20-3	Naphthalene	9.2E+04	ug/kg	4.1E+00	3.7E+02	4.1E-01	3.7E+01	--	RBSLc, RBSLnc	Yes	Yes
85-01-8	Phenanthrene	1.0E+02	mg/kg	--	1.7E+03	--	1.7E+02	--		No	No
129-00-0	Pyrene	2.4E+02	mg/kg	--	1.7E+03	--	1.7E+02	--	RBSLnc	Yes	Yes
SVOCs											
121-14-2	2,4-Dinitrotoluene	3.1E+00	mg/kg	1.6E+00	1.2E+02	1.6E-01	1.2E+01	--	RBSLc	Yes	No
MEPH4	4-Methylphenol (p-Cresol)	2.2E-01	mg/kg	--	6.1E+03	--	6.1E+02	--		No	No
62-53-3	Aniline	4.0E+00	mg/kg	8.5E+01	4.3E+02	8.5E+00	4.3E+01	--		No	No
65-85-0	Benzole Acid	1.5E+00	mg/kg	--	2.4E+05	--	2.4E+04	--		No	No
117-91-7	Bis(2-Ethylhexyl) Phthalate	2.2E+01	mg/kg	3.6E+01	1.2E+03	3.5E+00	1.2E+02	--	RBSLc	Yes	No
85-68-7	Butyl Benzyl Phthalate	3.1E+00	mg/kg	2.6E+02	1.2E+04	2.6E+01	1.2E+03	--		No	No
132-84-9	Dibenzofuran	1.2E+00	mg/kg	--	1.5E+02	--	1.5E+01	--		No	No
84-66-2	Diethyl Phthalate	3.1E+00	mg/kg	--	4.9E+04	--	4.9E+03	--		No	No
131-11-3	Dimethyl Phthalate	2.7E+00	mg/kg	--	6.1E+05	--	6.1E+04	--		No	No
84-74-2	Di-n-Butyl Phthalate	3.3E-01	mg/kg	--	6.1E+03	--	6.1E+02	--		No	No
TPH											
68334-30-5	TPH as Diesel	1.4E+05	mg/kg	--	1.3E+03	--	1.3E+02	--	RBSLnc	Yes	Yes
PHCG	TPH as Gasoline	9.8E+03	mg/kg	--	7.6E+02	--	7.6E+01	--	RBSLnc	Yes	Yes
TPHMOL	TPH as Motor Oil	3.2E+05	mg/kg	--	3.3E+03	--	3.3E+02	--	RBSLnc	Yes	Yes
VOCs											
79-34-5	1,1,2,2-Tetrachloroethane	4.2E+02	ug/kg	4.8E+02	1.3E+05	4.8E+01	1.3E+04	--	RBSLc	Yes	No
79-00-5	1,1,2-Trichloroethane	5.9E+01	ug/kg	8.9E+02	7.4E+04	8.9E+01	7.4E+03	--		No	No
87-61-6	1,2,3-Trichlorobenzene	3.4E+02	ug/kg	--	6.3E+04	--	6.3E+03	--		No	No
96-18-4	1,2,3-Trichloropropane	1.8E+02	ug/kg	2.1E+01	2.5E+03	2.1E+00	2.5E+02	--	RBSLc	Yes	No
120-82-1	1,2,4-Trichlorobenzene	3.2E+02	ug/kg	1.8E+05	1.5E+05	1.8E+04	1.6E+04	--		No	No
95-63-6	1,2,4-Trimethylbenzene	8.4E+04	ug/kg	--	1.4E+05	--	1.4E+04	--	RBSLnc	Yes	Yes

Table 4-5
 Soil Matrix Constituent of Concern Screening
 Former Kast Property
 Carson, California

CAS Number	Chemical ¹	Maximum Concentration	Units	RBSLo	RBSLnc	RBSLo x 0.1	RBSLnc x 0.1	Background Concentration	COC Selection Rationale ²	COC	Site-Related COC
95-50-1	1,2-Dichlorobenzene	3.3E+02	ug/kg	--	2.1E+08	--	2.1E+06	--		No	No
107-06-2	1,2-Dichloroethane	7.3E+00	ug/kg	4.4E+02	8.0E+05	4.4E+01	8.0E+04	--		No	No
78-87-5	1,2-Dichloropropane	1.0E+02	ug/kg	8.0E+02	1.6E+04	8.0E+01	1.6E+03	--	RBSLo	Yes	No
108-67-8	1,3,5-Trimethylbenzene	3.1E+04	ug/kg	--	4.9E+04	--	4.9E+03	--	RBSLnc	Yes	Yes
106-46-7	1,4-Dichlorobenzene	4.4E+02	ug/kg	2.8E+03	3.6E+06	2.8E+02	3.6E+05	--	RBSLo	Yes	No
78-83-3	2-Butanone (Methyl Ethyl Ketone)	2.7E+03	ug/kg	--	2.8E+07	--	2.8E+06	--		No	No
95-49-8	2-Chlorotoluene	1.8E+02	ug/kg	--	6.1E+05	--	6.1E+04	--		No	No
591-78-6	2-Hexanone	3.1E+01	ug/kg	--	2.0E+05	--	2.0E+04	--		No	No
108-10-1	4-Methyl-2-Pentanone	1.6E+01	ug/kg	--	5.3E+06	--	5.3E+05	--		No	No
67-64-1	Acetone	1.8E+03	ug/kg	--	6.0E+07	--	6.0E+06	--		No	No
71-43-2	Benzene	3.3E+04	ug/kg	2.2E+02	1.1E+05	2.2E+01	1.1E+04	--	RBSLo, RBSLnc	Yes	Yes
75-27-4	Bromodichloromethane	1.3E+03	ug/kg	5.0E+02	4.4E+05	5.0E+01	4.4E+04	--	RBSLo	Yes	No
75-25-2	Bromoform	1.4E+02	ug/kg	2.4E+04	7.1E+05	2.4E+03	7.1E+04	--		No	No
74-83-9	Bromomethane	1.3E+03	ug/kg	--	8.9E+03	--	8.9E+02	--	RBSLnc	Yes	No
75-15-0	Carbon Disulfide	1.2E+02	ug/kg	--	8.9E+05	--	8.9E+04	--		No	No
108-90-7	Chlorobenzene	1.5E+02	ug/kg	--	1.3E+06	--	1.3E+05	--		No	No
75-00-3	Chloroethane	1.9E+00	ug/kg	--	1.4E+07	--	1.4E+06	--		No	No
67-68-3	Chloroform	1.1E+02	ug/kg	1.1E+03	4.1E+05	1.1E+02	4.1E+04	--		No	No
74-87-3	Chloromethane	5.2E+02	ug/kg	--	9.8E+04	--	9.8E+03	--		No	No
156-59-2	cis-1,2-Dichloroethene	4.4E+02	ug/kg	--	9.3E+04	--	9.3E+03	--		No	No
98-82-8	Cumene (Isopropylbenzene)	1.6E+04	ug/kg	--	4.3E+05	--	4.3E+04	--		No	No
124-48-1	Dibromochloromethane	6.8E+00	ug/kg	1.1E+03	5.9E+05	1.1E+02	5.9E+04	--		No	No
108-20-3	Diisopropyl Ether (DIPE)	1.4E+00	ug/kg	--	1.2E+06	--	1.2E+05	--		No	No
64-17-5	Ethanol	1.0E+05	ug/kg	--	2.5E+07	--	2.5E+06	--		No	No
100-41-4	Ethylbenzene	4.2E+04	ug/kg	4.9E+03	4.6E+08	4.9E+02	4.6E+05	--	RBSLo	Yes	Yes
75-71-8	Freon 12	1.7E+01	ug/kg	--	2.7E+05	--	2.7E+04	--		No	No
75-09-2	Methylene Chloride	2.1E+03	ug/kg	5.4E+03	8.6E+05	5.4E+02	8.6E+04	--	RBSLo	Yes	No
1834-04-4	Methyl-Tert-Butyl Ether	1.4E+02	ug/kg	3.5E+04	2.9E+07	3.5E+03	2.9E+06	--		No	No
104-51-8	n-Butylbenzene	1.3E+04	ug/kg	--	8.8E+05	--	8.8E+04	--		No	No
85-47-8	o-Xylene	1.5E+04	ug/kg	--	4.5E+06	--	4.5E+05	--		No	No

Table 4-5
Soil Matrix Constituent of Concern Screening
 Former Kast Property
 Carson, California

CAS Number	Chemical ¹	Maximum Concentration	Units	RBSLc	RBSLnc	RBSLc x 0.1	RBSLnc x 0.1	Background Concentration	COC Selection Rationale ²	COC	Site-Related COC
1330-20-7-1	p/m-Xylene	3.4E+04	ug/kg	--	4.0E+06	--	4.0E+05	--		No	No
98-87-6	p-Isopropyltoluene	1.2E+04	ug/kg	--	3.8E+06	--	3.8E+05	--		No	No
103-65-1	Propylbenzene	2.4E+04	ug/kg	--	7.3E+05	--	7.3E+04	--		No	No
135-98-8	sec-Butylbenzene	9.8E+03	ug/kg	--	9.9E+05	--	9.9E+04	--		No	No
100-42-5	Styrene	7.8E+01	ug/kg	--	7.1E+06	--	7.1E+05	--		No	No
75-85-0	tert-Butyl Alcohol (TBA)	4.3E+02	ug/kg	--	8.4E+06	--	8.4E+05	--		No	No
98-06-6	tert-Butylbenzene	4.2E+02	ug/kg	--	7.9E+05	--	7.9E+04	--		No	No
127-18-4	Tetrachloroethene	1.9E+04	ug/kg	5.6E+02	8.4E+04	5.6E+01	8.4E+03	--	RBSLc, RBSLnc	Yes	No
108-88-3	Toluene	5.7E+04	ug/kg	--	1.1E+06	--	1.1E+05	--		No	No
78-01-6	Trichloroethene	7.2E+02	ug/kg	3.9E+03	2.3E+04	3.9E+02	2.3E+03	--	RBSLc	Yes	No
75-01-4	Vinyl Chloride	4.9E+01	ug/kg	3.2E+01	7.4E+04	3.2E+00	7.4E+03	--	RBSLc	Yes	No
1330-20-7	Xylenes, Total	1.4E+05	ug/kg	--	3.4E+06	--	3.4E+05	--		No	No

Notes:

-- not available or not applicable

mg/kg: milligram per kilogram

ug/kg: microgram per kilogram

¹ Chemicals included if greater than 5 detects in soil from 0-10 feet below ground surface.

² COC when maximum Site-wide concentration exceeded 0.1 x Residential RBSL or background. The exceeded criterion or criteria are noted in this column. For metals and PAHs, a compound is selected as a COC only when the maximum concentration exceeds both the RBSL and the background concentration (when data available)

³ Due to change in oral cancer assessment not reflected in RBSLs from HHSRE Work Plan hexavalent chromium included as COC.

RBSLc = Risk-based Screening Level for carcinogenic effects; RBSLnc = Risk-based Screening Level for noncarcinogenic effects

Site-Related COCs may be related to site activities associated with crude oil storage prior to redevelopment

Table 4-6
Soil Vapor Constituent of Concern Screening
 Former Kast Property
 Carson, California

Matrix	Series	CAS Number	Chemical	Units	Maximum Concentration	RBSLc	RBSLnc	RBSLc x 0.1	RBSLnc x 0.1	COC Selection Rationale ²	COC	Site-Related COC
Soil Vapor	Sub-Slab	71-55-6	1,1,1-Trichloroethane	ug/m3	1.0E+02	--	1.0E+05	--	1.0E+04	--	No	No
Soil Vapor	Sub-Slab	95-83-6	1,2,4-Trimethylbenzene	ug/m3	2.2E+03	--	7.3E+02	--	7.3E+01	RBSLnc	Yes	Yes
Soil Vapor	Sub-Slab	96-50-1	1,2-Dichlorobenzene	ug/m3	7.8E+02	--	2.1E+04	--	2.1E+03	--	No	No
Soil Vapor	Sub-Slab	107-08-2	1,2-Dichloroethane	ug/m3	4.7E+01	1.2E+01	4.2E+04	1.2E+00	4.2E+03	RBSLc	Yes	No
Soil Vapor	Sub-Slab	79-87-5	1,2-Dichloropropane	ug/m3	2.2E+01	2.4E+01	4.2E+02	2.4E+00	4.2E+01	RBSLc	Yes	No
Soil Vapor	Sub-Slab	108-67-8	1,3,5-Trimethylbenzene	ug/m3	1.0E+03	--	6.3E+02	--	6.3E+01	RBSLnc	Yes	Yes
Soil Vapor	Sub-Slab	106-46-7	1,4-Dichlorobenzene	ug/m3	1.1E+02	2.2E+01	8.3E+04	2.2E+00	8.3E+03	RBSLc	Yes	No
Soil Vapor	Sub-Slab	123-01-1	1,4-Dioxane	ug/m3	2.0E+02	3.2E+01	3.1E+05	3.2E+00	3.1E+04	RBSLc	Yes	No
Soil Vapor	Sub-Slab	540-84-1	2,2,4-Trimethylpentane	ug/m3	1.4E+05	--	1.1E+05	--	1.1E+04	RBSLnc	Yes	No
Soil Vapor	Sub-Slab	79-83-3	2-Butanone (Methyl Ethyl Ketone)	ug/m3	2.1E+02	--	5.2E+05	--	5.2E+04	--	No	No
Soil Vapor	Sub-Slab	591-78-6	2-Hexanone	ug/m3	3.6E+02	--	3.1E+03	--	3.1E+02	RBSLnc	Yes	No
Soil Vapor	Sub-Slab	622-96-8	4-Ethyltoluene	ug/m3	1.3E+03	--	7.3E+04	--	7.3E+03	--	No	Yes
Soil Vapor	Sub-Slab	108-10-1	4-Methyl-2-Pentanone	ug/m3	1.4E+01	--	3.1E+05	--	3.1E+04	--	No	No
Soil Vapor	Sub-Slab	67-64-1	Acetone	ug/m3	1.3E+03	--	3.2E+08	--	3.2E+05	--	No	No
Soil Vapor	Sub-Slab	71-43-2	Benzene	ug/m3	6.2E+04	8.4E+00	6.3E+03	8.4E-01	6.3E+02	RBSLc, RBSLnc	Yes	Yes
Soil Vapor	Sub-Slab	75-27-4	Bromodichloromethane	ug/m3	3.7E+02	6.6E+00	7.3E+03	6.6E-01	7.3E+02	RBSLc	Yes	No
Soil Vapor	Sub-Slab	75-25-2	Bromoform	ug/m3	3.1E+00	2.2E+02	7.3E+03	2.2E+01	7.3E+02	--	No	No
Soil Vapor	Sub-Slab	74-83-9	Bromomethane	ug/m3	9.5E+01	--	5.2E+02	--	6.2E+01	RBSLnc	Yes	No
Soil Vapor	Sub-Slab	75-16-0	Carbon Disulfide	ug/m3	2.3E+02	--	8.3E+04	--	8.3E+03	--	No	No
Soil Vapor	Sub-Slab	56-23-5	Carbon Tetrachloride	ug/m3	9.9E+01	5.8E+00	4.2E+03	5.8E-01	4.2E+02	RBSLc	Yes	No
Soil Vapor	Sub-Slab	108-90-7	Chlorobenzene	ug/m3	4.8E+01	--	1.0E+05	--	1.0E+04	--	No	No
Soil Vapor	Sub-Slab	75-00-3	Chloroethane	ug/m3	6.6E+01	--	3.1E+06	--	3.1E+05	--	No	No
Soil Vapor	Sub-Slab	67-66-3	Chloroform	ug/m3	8.4E+03	4.6E+01	3.1E+04	4.6E+00	3.1E+03	RBSLc, RBSLnc	Yes	No
Soil Vapor	Sub-Slab	74-87-3	Chloromethane	ug/m3	2.0E+02	--	9.4E+03	--	9.4E+02	--	No	No
Soil Vapor	Sub-Slab	156-59-2	cis-1,2-Dichloroethane	ug/m3	1.3E+02	--	3.7E+03	--	3.7E+02	--	No	No
Soil Vapor	Sub-Slab	98-82-3	Cumene (Isopropylbenzene)	ug/m3	1.0E+02	--	4.2E+04	--	4.2E+03	--	No	Yes
Soil Vapor	Sub-Slab	110-82-7	Cyclohexane	ug/m3	1.4E+04	--	6.3E+05	--	6.3E+04	--	No	Yes
Soil Vapor	Sub-Slab	124-48-1	Dibromochloromethane	ug/m3	1.1E+02	9.0E+00	7.3E+03	9.0E-01	7.3E+02	RBSLc	Yes	No
Soil Vapor	Sub-Slab	64-17-5	Ethanol	ug/m3	1.6E+03	--	4.2E+05	--	4.2E+04	--	No	No
Soil Vapor	Sub-Slab	100-41-4	Ethylbenzene	ug/m3	5.3E+03	9.7E+01	2.1E+05	9.7E+00	2.1E+04	RBSLc	Yes	Yes

Table 4-6
Soil Vapor Constituent of Concern Screening
 Former Kast Property
 Carson, California

Matrix	Series	CAS Number	Chemical	Units	Maximum Concentration	RBSLc	RBSLnc	RBSLc x 0.1	RBSLnc x 0.1	COC Selection Rationale ²	COC	Site-Related COC
Soil Vapor	Sub-Slab	75-69-4	Freon 11	ug/m3	7.2E+01	--	7.3E+04	--	7.3E+03	--	No	No
Soil Vapor	Sub-Slab	76-13-1	Freon 113	ug/m3	1.5E+02	--	3.1E+08	--	3.1E+05	--	No	No
Soil Vapor	Sub-Slab	76-71-8	Freon 12	ug/m3	1.2E+02	--	2.1E+04	--	2.1E+03	--	No	No
Soil Vapor	Sub-Slab	142-82-5	Heptane	ug/m3	3.5E+03	--	7.3E+05	--	7.3E+04	--	No	Yes
Soil Vapor	Sub-Slab	110-54-3	Hexane	ug/m3	7.5E+03	--	7.3E+05	--	7.3E+04	--	No	Yes
Soil Vapor	Sub-Slab	67-63-0	Isopropanol	ug/m3	1.7E+04	--	7.3E+05	--	7.3E+04	--	No	No
Soil Vapor	Sub-Slab	75-09-2	Methylene Chloride	ug/m3	2.8E+04	2.4E+02	4.2E+04	2.4E+01	4.2E+03	RBSLc, RBSLnc	Yes	No
Soil Vapor	Sub-Slab	1634-04-4	Methyl-Tert-Butyl Ether	ug/m3	4.4E+02	9.4E+02	8.3E+05	9.4E+01	8.3E+04	RBSLc	Yes	No
Soil Vapor	Sub-Slab	91-20-3	Naphthalene	ug/m3	2.6E+02	7.2E+00	9.4E+02	7.2E-01	9.4E+01	RBSLc, RBSLnc	Yes	Yes
Soil Vapor	Sub-Slab	85-47-6	o-Xylene	ug/m3	1.9E+02	--	7.3E+04	--	7.3E+03	--	No	Yes
Soil Vapor	Sub-Slab	1330-20-7-1	p/m-Xylene	ug/m3	5.2E+03	--	7.3E+04	--	7.3E+03	--	No	Yes
Soil Vapor	Sub-Slab	103-65-1	Propylbenzene	ug/m3	2.8E+02	--	1.5E+04	--	1.5E+03	--	No	Yes
Soil Vapor	Sub-Slab	100-42-6	Styrene	ug/m3	2.0E+01	--	9.4E+04	--	9.4E+03	--	No	No
Soil Vapor	Sub-Slab	127-18-4	Tetrachloroethene	ug/m3	9.5E+02	4.1E+01	3.7E+03	4.1E+00	3.7E+02	RBSLc, RBSLnc	Yes	No
Soil Vapor	Sub-Slab	109-99-9	Tetrahydrofuran	ug/m3	7.7E+01	1.3E+02	3.1E+04	1.3E+01	3.1E+03	RBSLc	Yes	No
Soil Vapor	Sub-Slab	108-88-3	Toluene	ug/m3	1.8E+03	--	3.1E+04	--	3.1E+03	--	No	Yes
Soil Vapor	Sub-Slab	156-80-5	trans-1,2-Dichloroethene	ug/m3	1.2E+01	--	6.3E+03	--	6.3E+02	--	No	No
Soil Vapor	Sub-Slab	10061-02-6	trans-1,3-Dichloropropene	ug/m3	8.4E+00	1.5E+01	2.1E+03	1.5E+00	2.1E+02	RBSLc	Yes	No
Soil Vapor	Sub-Slab	79-01-6	Trichloroethene	ug/m3	7.2E+02	1.2E+02	6.3E+04	1.2E+01	6.3E+03	RBSLc	Yes	No
Soil Vapor	Sub-Slab	120-82-1	1,2,4-Trichlorobenzene	ug/m3	1.3E+03	--	4.2E+02	--	4.2E+01	RBSLnc	Yes	No
Soil Vapor	Sub-Slab	106-89-0	1,3-Butadiene	ug/m3	2.2E+00	1.4E+00	2.1E+03	1.4E-01	2.1E+02	RBSLc	Yes	No
Soil Vapor	Sub-Slab	75-35-4	1,1-Dichloroethene	ug/m3	1.8E+01	--	7.3E+03	--	7.3E+02	--	No	No
Soil Vapor	Sub-Slab	541-73-1	1,3-Dichlorobenzene	ug/m3	3.6E+01	--	1.1E+04	--	1.1E+03	--	No	No
Soil Vapor	Sub-Slab	76-14-2	Freon 114	ug/m3	2.7E+01	--	3.1E+06	--	3.1E+05	--	No	No
Soil Vapor	Sub-Slab	75-01-4	Vinyl Chloride	ug/m3	2.7E+01	3.1E+00	1.0E+04	3.1E-01	1.0E+03	RBSLc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	71-65-6	1,1,1-Trichloroethane	ug/m3	6.2E+00	--	1.0E+05	--	1.0E+04	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	79-34-5	1,1,2,2-Tetrachloroethane	ug/m3	9.0E+03	4.2E+00	1.6E+03	4.2E-01	1.6E+02	RBSLc, RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	79-00-5	1,1,2-Trichloroethane	ug/m3	7.1E+00	1.5E+01	1.6E+03	1.6E+00	1.6E+02	RBSLc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	76-34-3	1,1-Dichloroethane	ug/m3	2.0E+02	1.5E+02	7.3E+04	1.5E+01	7.3E+03	RBSLc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	75-35-4	1,1-Dichloroethene	ug/m3	1.8E+00	--	7.3E+03	--	7.3E+02	--	No	No

Table 4-6
Soil Vapor Constituent of Concern Screening
 Former Kast Property
 Carson, California

Matrix	Series	CAS Number	Chemical	Units	Maximum Concentration	RBSLc	RBSLnc	RBSLc x 0.1	RBSLnc x 0.1	COC Selection Rationale ²	COC	Site-Related COC
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	75-37-6	1,1-Difluoroethane	ug/m3	1.5E+01	--	--	--	--	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	95-63-6	1,2,4-Trimethylbenzene	ug/m3	9.9E+05	--	7.3E+02	--	7.3E+01	RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	107-06-2	1,2-Dichloroethane	ug/m3	1.7E+03	1.2E+01	4.2E+04	1.2E+00	4.2E+03	RBSLc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	108-87-8	1,3,5-Trimethylbenzene	ug/m3	4.5E+05	--	6.3E+02	--	6.3E+01	RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	109-46-7	1,4-Dichlorobenzene	ug/m3	1.7E+02	2.2E+01	8.3E+04	2.2E+00	8.3E+03	RBSLc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	540-84-1	2,2,4-Trimethylpentane	ug/m3	1.4E+01	--	1.1E+05	--	1.1E+04	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	78-93-3	2-Butanone (Methyl Ethyl Ketone)	ug/m3	1.6E+05	--	5.2E+05	--	5.2E+04	RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	591-78-6	2-Hexanone	ug/m3	1.6E+04	--	3.1E+03	--	3.1E+02	RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	622-89-8	4-Ethyltoluene	ug/m3	4.4E+05	--	7.3E+04	--	7.3E+03	RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	108-10-1	4-Methyl-2-Pentanone	ug/m3	1.6E+01	--	3.1E+05	--	3.1E+04	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	67-84-1	Acetone	ug/m3	2.4E+05	--	3.2E+06	--	3.2E+05	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	71-43-2	Benzene	ug/m3	3.8E+06	8.4E+00	6.3E+03	8.4E-01	6.3E+02	RBSLc, RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	76-27-4	Bromodichloromethane	ug/m3	1.2E+04	6.6E+00	7.3E+03	6.6E-01	7.3E+02	RBSLc, RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	74-83-9	Bromomethane	ug/m3	1.4E+00	--	5.2E+02	--	5.2E+01	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	75-15-0	Carbon Disulfide	ug/m3	1.7E+05	--	8.3E+04	--	8.3E+03	RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	108-90-7	Chlorobenzene	ug/m3	5.9E+00	--	1.0E+05	--	1.0E+04	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	75-00-3	Chloroethane	ug/m3	6.7E+00	--	3.1E+06	--	3.1E+05	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	67-86-3	Chloroform	ug/m3	3.7E+02	4.6E+01	3.1E+04	4.6E+00	3.1E+03	RBSLc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	74-87-3	Chloromethane	ug/m3	9.8E+01	--	9.4E+03	--	9.4E+02	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	166-59-2	cis-1,2-Dichloroethene	ug/m3	6.9E+02	--	3.7E+03	--	3.7E+02	RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	98-82-8	Cumene (Isopropylbenzene)	ug/m3	3.1E+04	--	4.2E+04	--	4.2E+03	RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	110-82-7	Cyclohexane	ug/m3	2.7E+06	--	6.3E+05	--	6.3E+04	RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	64-17-5	Ethanol	ug/m3	5.4E+04	--	4.2E+05	--	4.2E+04	RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	100-41-4	Ethylbenzene	ug/m3	1.8E+06	9.7E+01	2.1E+05	9.7E+00	2.1E+04	RBSLc, RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	76-69-4	Freon 11	ug/m3	1.9E+01	--	7.3E+04	--	7.3E+03	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	78-18-1	Freon 113	ug/m3	2.0E+02	--	3.1E+06	--	3.1E+05	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	75-71-8	Freon 12	ug/m3	2.1E+02	--	2.1E+04	--	2.1E+03	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	142-82-5	Heptane	ug/m3	1.0E+06	--	7.3E+05	--	7.3E+04	RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	87-89-3	Hexachloro-1,3-Butadiene	ug/m3	2.0E+03	1.1E+01	3.7E+02	1.1E+00	3.7E+01	RBSLc, RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	110-64-3	Hexane	ug/m3	1.9E+06	--	7.3E+05	--	7.3E+04	RBSLnc	Yes	Yes

Table 4-6
Soil Vapor Constituent of Concern Screening
 Former Kast Property
 Carson, California

Matrix	Series	CAS Number	Chemical	Units	Maximum Concentration	RBSLc	RBSLnc	RBSLc x 0.1	RBSLnc x 0.1	COC Selection Rationale ²	COC	Site-Related COC
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	67-63-0	Isopropanol	ug/m3	4.5E+05	--	7.3E+05	--	7.3E+04	RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	75-09-2	Methylene Chloride	ug/m3	7.3E+03	2.4E+02	4.2E+04	2.4E+01	4.2E+03	RBSLc, RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	1034-04-4	Methyl-tert-Butyl Ether	ug/m3	2.8E+03	9.4E+02	8.3E+05	9.4E+01	8.3E+04	RBSLc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	91-20-3	Naphthalene	ug/m3	5.2E+03	7.2E+00	9.4E+02	7.2E-01	9.4E+01	RBSLc, RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	95-47-6	o-Xylene	ug/m3	2.1E+04	--	7.3E+04	--	7.3E+03	RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	1330-20-7-1	p/m-Xylene	ug/m3	1.7E+05	--	7.3E+04	--	7.3E+03	RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	103-65-1	Propylbenzene	ug/m3	3.7E+04	--	1.5E+04	--	1.5E+03	RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	100-42-5	Styrene	ug/m3	5.9E+03	--	9.4E+04	--	9.4E+03	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	75-85-0	tert-Butyl Alcohol (TBA)	ug/m3	1.4E+02	--	1.1E+03	--	1.1E+02	RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	127-18-4	Tetrachloroethene	ug/m3	5.3E+03	4.1E+01	3.7E+03	4.1E+00	3.7E+02	RBSLc, RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	109-99-9	Tetrahydrofuran	ug/m3	1.2E+01	1.3E+02	3.1E+04	1.3E+01	3.1E+03	--	No	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	106-88-3	Toluene	ug/m3	3.7E+06	--	3.1E+04	--	3.1E+03	RBSLnc	Yes	Yes
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	156-60-5	trans-1,2-Dichloroethene	ug/m3	5.6E+03	--	6.3E+03	--	6.3E+02	RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	10061-02-6	trans-1,3-Dichloropropene	ug/m3	8.5E+00	1.5E+01	2.1E+03	1.5E+00	2.1E+02	RBSLc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	79-01-6	Trichloroethene	ug/m3	6.6E+03	1.2E+02	6.3E+04	1.2E+01	6.3E+03	RBSLc, RBSLnc	Yes	No
Soil Vapor	Non-Sub-Slab ≤10 ft bgs	108-05-4	Vinyl Acetate	ug/m3	5.1E+00	--	2.1E+04	--	2.1E+03	--	No	No

Notes:

-- not available or not applicable

ug/m3: microgram per cubic meter

COC when maximum Site-wide concentration exceeded 0.1 x Residential RBSL or background. Selection criterion or criteria are listed in this column.

Site-Related COCs may be related to site activities associated with crude oil storage prior to redevelopment

RBSLc = Risk-based Screening Level for carcinogenic effects; RBSLnc = Risk-based Screening Level for noncarcinogenic effects

Table 6-1
Site-Specific Cleanup Goals, Soil
Former Kast Property
Carson, California

CAS Number	Constituents of Concern ²	Background Threshold Value (BTV) ³ (mg/kg)	Soil Cleanup Goals ¹ (mg/kg)		
			Onsite Resident		Construction and Utility Maintenance Worker
			EF = 350 d/y	EF = 4 d/y	
	Metals				
7440-36-0	Antimony	7.4E-01	3.1E+01	2.7E+03	3.1E+03
7440-38-2	Arsenic	1.2E+01	6.1E-02	5.4E+00	1.5E+01
7440-43-9	Cadmium	3.8E+00	7.0E+01	6.1E+03	2.4E+02
18540-29-9	Chromium VI	--	1.2E+00	1.1E+02	6.7E+00
7440-48-4	Cobalt	1.1E+01	2.3E+01	2.1E+03	1.1E+02
7440-50-8	Copper	5.9E+01	3.1E+03	2.7E+05	3.1E+05
7439-92-1	Lead	6.1E+01	8.0E+01	0.0E+00	1.2E+03
7440-28-0	Thallium	2.3E-01	7.8E-01	6.8E+01	7.7E+01
7440-62-2	Vanadium	4.6E+01	3.9E+02	3.4E+04	3.3E+03
7440-66-6	Zinc	2.9E+02	2.3E+04	2.1E+06	2.3E+06
	PAHs				
56-55-3	Benz[a]anthracene	--	1.6E+00	1.4E+02	2.6E+02
50-32-8	Benzo[a]pyrene	9.0E-01	1.6E-01	1.4E+01	2.6E+01
205-99-2	Benzo[b]fluoranthene	--	1.6E+00	1.4E+02	2.6E+02
207-08-9	Benzo[k]fluoranthene	--	1.6E+00	1.4E+02	2.6E+02
218-01-9	Chrysene	--	1.6E+01	1.4E+03	2.6E+03
53-70-3	Dibenz[a,h]anthracene	--	1.1E-01	9.7E+00	1.9E+01
193-39-5	Indeno[1,2,3-cd]pyrene	--	1.6E+00	1.4E+02	2.6E+02
90-12-0	Methylnaphthalene, 1-	--	1.6E+01	1.4E+03	2.7E+03
91-57-6	Methylnaphthalene, 2-	--	2.3E+02	2.0E+04	1.1E+04
91-20-3	Naphthalene	--	4.0E+00	3.5E+02	3.9E+01
129-00-0	Pyrene	--	1.7E+03	1.5E+05	6.7E+04
	TPH				
	TPHg	--	7.6E+02	6.6E+04	8.6E+02
	TPHd	--	1.3E+03	1.1E+05	1.9E+03
	TPHmo	--	3.3E+03	2.9E+05	1.6E+05
	SVOCs				
121-14-2	2,4-Dinitrotoluene	--	1.6E+00	1.4E+02	2.8E+02
117-81-7	Bis(2-Ethylhexyl) Phthalate	--	3.5E+01	3.0E+03	6.4E+03
	VOCs				
79-34-5	1,1,2,2-Tetrachloroethane	--	4.7E-01	4.1E+01	5.7E+00
96-18-4	1,2,3-Trichloropropane	--	2.1E-02	1.9E+00	2.0E+00
95-63-6	1,2,4-Trimethylbenzene	--	8.3E+01	7.2E+03	7.5E+01
78-87-5	1,2-Dichloropropane	--	8.3E-01	7.2E+01	8.5E+00
108-67-8	1,3,5-Trimethylbenzene	--	8.5E+01	7.4E+03	7.7E+01
106-46-7	1,4-Dichlorobenzene	--	2.8E+00	2.4E+02	2.8E+01
71-43-2	Benzene	--	2.2E-01	1.9E+01	2.2E+00
75-27-4	Bromodichloromethane	--	4.9E-01	4.2E+01	5.3E+00
74-83-9	Bromomethane	--	8.8E+00	7.7E+02	7.8E+00
100-41-4	Ethylbenzene	--	4.8E+00	4.2E+02	5.1E+01

Table 6-1
Site-Specific Cleanup Goals, Soil
 Former Kast Property
 Carson, California

CAS Number	Constituents of Concern ²	Background Threshold Value (BTV) ³ (mg/kg)	Soil Cleanup Goals ¹ (mg/kg)		
			Onsite Resident		Construction and Utility Maintenance Worker
			EF = 350 d/y	EF = 4 d/y	
75-09-2	Methylene chloride	--	5.3E+00	4.7E+02	5.9E+01
127-18-4	Tetrachloroethene	--	5.5E-01	4.9E+01	1.0E+01
79-01-6	Trichloroethene	--	1.2E+00	1.0E+02	5.5E+00
75-01-4	Vinyl chloride	--	3.2E-02	2.8E+00	3.1E-01

Notes:

-- " not applicable

1 See Section 6 for how these cleanup goals were developed.

2 See Section 4 for discussion of Constituents of Concern.

3 The higher value between the health-based SSCG and BTV will be selected as the cleanup goal

TPHg = Total Petroleum Hydrocarbons- gasoline range

TPHd = Total Petroleum Hydrocarbons- diesel range

TPHmo = Total Petroleum Hydrocarbons- motor oil range

4 Values in italics are above Csat, 1E10¹⁵ or Cres

**Table 6-2
Site-Specific Cleanup Goals for Soil Leaching to Groundwater
Former Kast Property
Carson, CA**

Constituents of Concern	Site Specific Kd (L/kg)	Groundwater Quality Criterion (µg/L)	Source	Dilution Attenuation Factor (DAF)	Soil Cleanup Goals (mg/kg)
Site-related Soil COCs					
Arsenic	NM	10	MCL	6.2	1.8
Benzene	28	1.0	MCL	6.2	0.13
Naphthalene	1093	17	CDPH NL	6.2	88
TPH as Diesel	4119	200	ESL-nc	6.2	3900
TPH as Gasoline	374	410	ESL-nc	6.2	730
TPH as Motor Oil	6957	6200	ESL-nc	6.2	50,000 **
Non-site-related Soil COC					
1,2,3-Trichloropropane	NM	0.005	CDPH NL	6.2	0.000026
1,2-Dichloroethane	NM	0.5	MCL	6.2	0.0020
1,4-Dichlorobenzene	NM	5.0	MCL	6.2	0.077
Antimony	NM	6.0	MCL	6.2	1.7
cis-1,2-Dichloroethylene	NM	6	MCL	6.2	0.024
tert-Butyl Alcohol	NM	12	CDPH NL	6.2	0.049
Tetrachloroethene	NM	5.0	MCL	6.2	0.036
Thallium	NM	2.0	MCL	6.2	0.89
Trichloroethene	NM	5.0	MCL	6.2	0.020
Vinyl Chloride	NM	0.50	MCL	6.2	0.0020

Notes:

NM - Not measured

MCL - Maximum Contaminant Level.

ESL: San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Groundwater Screening Levels for Drinking Water.

ESL-nc: ESL level based on non-cancer health effect.

CDPH NL - California Department of Public Health Notification Level.

** Calculated cleanup level exceeded the maximum immobile residual NAPL phase concentration of 53,067 mg/kg ($C_{res,soil}$), therefore $C_{res,soil}$ was used. $C_{res,soil}$ obtained from: Brost, E.J. and Devauli, G.E., Non-Aqueous Phase Liquid (NAPL) Mobility Limits in Soil. American Petroleum Institute Research Bulletin No. 9. June 2000.

Table 7-1
Background Sources of Chemicals in Indoor Air
Former Kast Property
Carson, CA

Analyte	CAS Number	Common Sources ^{1,2,3}	Typical Value ⁴ (ug/m ³)	Max Value ^{5,6} (ug/m ³)
1,1,1-Trichloroethane	71-55-6	Automotive adhesive, lubricant, wood parquet adhesive, silicone lubricant, floor adhesive, furniture cleaner, horticulture spreader/sticker	1.9	150
1,1,2,2-Tetrachloroethane	79-34-5	Paint, pesticide, adhesives, lubricant	NR	NR
1,1,2-Trichloroethane	79-00-5	Electronics lubricant, automotive adhesive, glass cleaner	NR	NR
1,1-Dichloroethane	75-34-3	Air freshener	NR	0.9
1,2,4-Trimethylbenzene	95-63-6	Gasoline, paints, automotive parts cleaners, wood floor wax, pesticides	3.9	71
1,2-Dichloroethane	107-06-2	Molded plastic consumer products (e.g., toys and holiday decorations), Dorersol (Dexol Industries), home defense fogger (pepper spray)	0.04	1.1
1,3,5-Trimethylbenzene	108-67-8	Gasoline, paints, automotive parts cleaners, wood floor wax, pesticides	1.2	32
1,4-Dichlorobenzene	106-46-7	Mothballs, bathroom fresheners. A common fumigant for moths, molds and mildews; minor use for control of tree-boring insects	0.54	160
2-Butanone	78-93-3	Paint, automotive parts cleaners, adhesives	NR	NR
4-Methyl-2-Pentanone (MIBK)	108-10-1	Paint, shellac, dry erase marker	NR	NR
Acetone	67-64-1	Paints, laquers, paint thinners, adhesives, automotive parts cleaners, nail polish remover, air fresheners, super glue remover, household cleaners, pet care, foggers	36	670
Benzene	71-43-2	Gasoline, other petroleum products, natural gas, tobacco smoke, solvents	2.9	58
Bromodichloromethane ⁷	75-27-4	Byproduct of municipal water chlorination process	0.027	8.7
Bromomethane	74-83-9	Byproduct of municipal water chlorination process	NR	2.8
Carbon Tetrachloride	56-23-5	Automotive trim/detail adhesive, Radio Shack plastic bonder, adhesive remover, byproduct of chemical bleach reacting with surfactants, auto brake cleaner, Clorox cleanup, Formula 44/40, Lysol toilet bowl cleaner with bleach	0.57	1.8
Chloroform	67-66-3	Byproduct of municipal water chlorination process, solvent (adhesive remover), Fix-a-Flat, Clorox Cleanup, Lysol toilet bowl cleaner with bleach	1.1	13
Chloromethane	74-87-3	Static guard, aerosol	NR	NR
Cyclohexane	110-87-7	Adhesive/glue, laquer thinner, degreaser, paint	0.62	NR
Ethanol	64-17-5	Paints, cleaners, air fresheners, adhesives, windshield treatment/glass cleaners, soaps/detergents, aerosol sprays, personal care products, insecticides, pet care products, beverages	NR	NR
Ethylbenzene	100-41-4	Gasoline, other petroleum products, paints, degreaser, pesticides	2.3	48
Freon 11	75-69-4	Refrigerant, electronics cleaner (flux stripper)	NR	NR
Freon 113	76-13-1	Refrigerant, solvent	NR	7
Freon 12	75-71-8	Refrigerant	NR	NR

Table 7-1
Background Sources of Chemicals in Indoor Air
Former Kast Property
Carson, CA

Analyte	CAS Number	Common Sources ^{1,2,3}	Typical Value ⁴ (ug/m ³)	Max Value ^{5,6} (ug/m ³)
Heptane	142-82-5	Gasoline, other petroleum products, adhesive, laquer, automotive cleaner and lubricant, water repellent, pesticide	1.1	NR
Hexane	110-54-3	Gasoline, other petroleum products, adhesive, automotive parts cleaner, solvent, flea treatment for pets	1.8	NR
Isopropanol	67-63-0	Personal care products, paints, adhesive, cleaning products, water repellent, automotive parts cleaner, ink cartridges, household cleaning products	NR	NR
Methylene Chloride	75-09-2	Automotive cleaner/lubricant/degreaser, adhesive and paint remover, herbicide	4.9	260
Naphthalene	91-20-3	Gasoline, other petroleum products, mothballs, automotive parts cleaner, paint, herbicide, pesticide	0.47	5.0
n-Propylbenzene	103-65-1	Gasoline, other petroleum products	0.54	17
o-Xylene	95-47-6	Gasoline, other petroleum products, paint, automotive parts cleaner, adhesive, pesticide, pet care products	2.2	61
p/m-Xylene	1330-20-7-1	Gasoline, other petroleum products, paint, automotive parts cleaner, adhesive, pesticide, pet care products	5.7	290
Styrene	100-42-5	Gasoline, other petroleum products, automotive care, adhesive	0.98	23
Tetrachloroethene	127-18-4	Dry cleaner solvent, adhesive, automotive parts cleaner/degreaser/lubricant, stain remover, garage door lubricant, gutter seal, electrical parts, Gunk cleaner/lubricants, Shoo Goo, tire inflator and sealer, windshield cleaner	0.95	47
Tetrahydrofuran	109-99-9	Solvent, primer, cement,	2.1 ⁶	180
Toluene	108-88-3	Gasoline, other petroleum products, paints, adhesives, automotive parts cleaner, pesticide	12	180
Trichloroethene	79-01-6	Dry cleaner solvent, automotive parts-solvent cleaner/degreaser garage door lubricant, auto brake cleaner, fabric stain remover/cleaner, electronics cleaner, gun cleaner/lubricant, insecticide, pepper spray, rain and stain guard, rubber cement, leather finish, windshield cleaner	0.38	10

All concentrations reported in ug/m³ (micrograms per cubic meter)

NR Not reported

1. Taken from NIH Household Products Database (<http://householdproducts.nlm.nih.gov/index.htm>)
2. Taken from ATSDR Toxic Substances Database (<http://www.atsdr.cdc.gov/substances/index.asp>)
3. Gordor and Dettenmaier. Department of Defense Hill Air Force Base, Detailed Indoor Air Characterization and Interior Source Identification by Portable GC/MS. AWMA, 30 September 2010 (<http://events.awma.org/education/vapor-proceed.html>)
4. "Best Estimate" average value from Hodgson and Levin, 2003. Volatile Organic Compounds in Indoor Air: A Review of Concentrations Measured in North America Since 1990, LBNL-51715, except as noted
5. Maximum value from Hodgson and Levin, 2003. Volatile Organic Compounds in Indoor Air: A Review of Concentrations Measured in North America Since 1990, LBNL-51716. When available geometric mean of maximum values reported among studies
6. Maximum values from USEPA, 2011. Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences (1990-2005): A Compilation of Statistics for Assessing Vapor Intrusion, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, EPA 530-R-10-001. June 2011.
7. Typical and maximum value for bromodichloromethane taken from USEPA 2010 Ambient Urban Air Database.

Table 7-2
Site-Specific Cleanup Goals, Soil Vapor
Former Kast Property
Carson, California

CAS Number	Constituents of Concern ²	Soil Vapor Cleanup Goals ($\mu\text{g}/\text{m}^3$) ¹	
		Onsite Resident ³	Construction and Utility Maintenance Worker ³
71-55-6	1,1,1-Trichloroethane	5.2E+06	7.4E+09
79-34-5	1,1,2,2-Tetrachloroethane	4.2E+01	1.2E+05
79-00-5	1,1,2-Trichloroethane	1.5E+02	1.0E+05
75-34-3	1,1-Dichloroethane	1.5E+03	2.5E+07
120-82-1	1,2,4-Trichlorobenzene	2.1E+03	3.9E+05
95-63-6	1,2,4-Trimethylbenzene	7.3E+03	2.3E+06
107-06-2	1,2-Dichloroethane	1.2E+02	8.5E+05
78-87-5	1,2-Dichloropropane	2.4E+02	2.5E+06
108-67-8	1,3,5-Trimethylbenzene	7.3E+03	2.3E+06
106-99-0	1,3-Butadiene	1.4E+01	3.0E+05
106-46-7	1,4-Dichlorobenzene	2.2E+02	7.2E+05
123-91-1	1,4-Dioxane	3.2E+02	1.6E+05
540-84-1	2,2,4-Trimethylpentane	1.0E+06	6.5E+08
591-78-6	2-Hexanone	3.1E+04	7.9E+06
622-96-8	4-Ethyltoluene	1.0E+05	2.5E+07
71-43-2	Benzene	8.4E+01	1.0E+06
75-27-4	Bromodichloromethane	6.6E+01	7.8E+05
74-83-9	Bromomethane	5.2E+03	9.5E+06
75-15-0	Carbon disulfide	7.3E+05	1.4E+09
56-23-5	Carbon tetrachloride	5.8E+01	1.1E+06
67-66-3	Chloroform	4.6E+02	4.9E+06
74-87-3	Chloromethane	9.4E+04	1.7E+08
110-82-7	Cyclohexane	6.3E+06	1.8E+10
124-48-1	Dibromochloromethane	9.0E+01	8.8E+05
156-59-2	Dichloroethene, cis-1,2-	7.3E+03	8.3E+06
156-60-5	Dichloroethene, trans-1,2-	6.3E+04	9.3E+07
10061-02-6	Dichloropropene, trans-1,3-	1.5E+02	3.9E+06
64-17-5	Ethanol	4.2E+06	1.9E+08
100-41-4	Ethylbenzene	9.7E+02	7.0E+06
142-82-5	Heptane	7.3E+05	2.3E+09
87-68-3	Hexachloro-1,3-butadiene	1.1E+02	8.0E+04
110-54-3	Hexane	7.3E+05	1.7E+09
67-63-0	Isopropanol	7.3E+06	5.7E+08
98-82-8	Isopropylbenzene (cumene)	4.2E+05	1.5E+09
78-93-3	Methyl ethyl ketone (2-butanone)	5.2E+06	1.1E+09
75-09-2	Methylene chloride	2.4E+03	2.8E+07
1634-04-4	Methyl-tert-butyl ether	9.4E+03	6.5E+07
91-20-3	Naphthalene	7.2E+01	6.3E+04
103-65-1	Propylbenzene	1.0E+06	6.6E+08
75-65-0	tert-Butyl Alcohol (TBA)	1.1E+06	2.6E+08
127-18-4	Tetrachloroethene	4.1E+02	6.6E+06

Table 7-2
Site-Specific Cleanup Goals, Soil Vapor
 Former Kast Property
 Carson, California

CAS Number	Constituents of Concern ²	Soil Vapor Cleanup Goals ($\mu\text{g}/\text{m}^3$) ¹	
		Onsite Resident ³	Construction and Utility Maintenance Worker ³
109-99-9	Tetrahydrofuran	2.1E+06	4.9E+08
108-88-3	Toluene	5.2E+06	3.7E+09
79-01-6	Trichloroethene	5.9E+02	2.0E+06
75-01-4	Vinyl chloride	3.1E+01	8.3E+05
108-38-3	Xylene, m-	1.0E+05	6.0E+07
95-47-6	Xylene, o-	1.0E+05	4.8E+07
106-42-3	Xylene, p-	1.0E+05	5.9E+07
	TPH		
	Aliphatic: C5-C8	7.3E+05	1.2E+09
	Aliphatic: C9-C18	3.1E+05	1.2E+08
	Aliphatic: C19-C32	--	--
	Aromatic: C6-C8	--	--
	Aromatic: C9-C16	5.2E+04	6.7E+06
	Aromatic: C17-C32	--	--
	OTHER		
	TPH Nuisance ⁴	1.0E+02	1.0E+02

Note: "--" not applicable or not available

1 See Section 7 for discussion of how these cleanup goals were derived. Residential SV SSCGs based on a conservative upper-bound estimate for a site-specific vapor intrusion attenuation factor, calculated for corrective action planning purposes.

2 See Section 4 for discussion of Constituents of Concern.

3 Value is lowest between noncancer and cancer endpoint, see Appendix A for all SSCGs to evaluate risk.

4 Value from the San Francisco Regional Water Quality Control Board Environmental Screening Levels (SFRWQCB, May 2013)

Table 8-1
Summary of Potential SSCGs for Groundwater
 Former Kast Property
 Carson, CA

Chemical Group	Chemical	Maximum On-Site Concentration Detected (µg/L)	Primary MCL (µg/L)	Secondary MCL, NL or ESL (µg/L)	Background Concentration (µg/L)	Highest Available Upgradient Reported Concentrations ¹ (µg/L)
TPH	Benzene	680	1	--	0	4600 ² /1.4 ³
	Naphthalene	82	--	17	0	17 ²
	tert-Butyl Alcohol (TBA)	250	--	12	0	390 ² /17 ³
	TPH- Gasoline	3,200	--	410	0	190 ³
	TPH- Diesel	3,000	--	200	0	700 ³
	TPH – Motor Oil	1,700	--	6,200	0	500 ³
Chlorinated	1,1-Dichloroethane	22	5	--	0	33 ² /33 ³
	1,1-Dichloroethene	33	6	--	0	35 ² /100 ³
	1,2,3-Trichloropropane	27	--	0.005	0	6.7 ² /4 ³
	1,2-Dichloroethane	6.1	0.5	--	0	65 ² /0.63 ³
	cis-1,2-Dichloroethene	510	6	--	0	4200 ² /230 ³
	Tetrachloroethene	260	5	--	0	9,200 ² /3.3 ³
	trans-1,2-Dichloroethene	120	10	--	0	45 ²
	Trichloroethene	400	5	--	0	5,500 ² /87 ³
	Vinyl Chloride	0.71	0.5	--	0	980 ² /0.91 ³
	1,4-Dichlorobenzene	11	5	--	0	4.3 ²
Trace Metals	Antimony	19.3	6	--	?	24.8 ³
	Thallium	4,24J	2	--	?	<5.4 ³
	Arsenic	900	10	--	?	38.6 ³
General Mineral	Iron	67,000	--	300	?	15,400 ³
	Manganese	2,550	--	50	?	3,300 ³
	Chloride	1,400 mg/L	--	500 mg/L	?	4,700 mg/L ³
	Nitrate (as N)	14 mg/L	--	10 mg/L	?	3.1 mg/L ³
	Total Dissolved Solids	3,320 mg/L	--	1,000 mg/L	?	9,700 mg/L ³
	Specific Conductance	4,200 µS/cm	--	4,000 µS/cm	?	10,000 µS/cm ³

1: Highest available concentration detected in upgradient wells located immediately west of the Site. Some concentrations may pre-date start of remediation operations on Turco property.

2: Maximum reported concentration in Turco monitoring well located adjacent to Site – Turco Wells: MW-1, MW-2, MW-3, MW-8, MW-11 S/D, MW-12 S/D and MW-13 S/D (Leymaster, 2013)

3: Maximum reported concentration in upgradient Site monitoring well MW-7.

µg/L: micrograms per liter

mg/L: milligrams per liter

MCL: State of Maximum Contaminant Level for drinking water

NL: Notification Level

ESL: Environmental Screening Levels – Non Cancerous, San Francisco Regional Water Quality Control Board, Region 2

µS/cm: microsimens per centimeter

Table 6-1
 Remedial Alternative and Technological and Economic Feasibility Evaluation of Clean Up Goals
 Former Kwik Property
 Carson, CA

CRITERIA	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3A	ALTERNATIVE 3B	ALTERNATIVE 3C	ALTERNATIVE 4	ALTERNATIVE 4A	ALTERNATIVE 4B	
	<ul style="list-style-type: none"> Remove all site features. Excavate entire site to remove impacted soils (excavation may locally extend to GW). Limited removal or remediation of impacted GW. MNA remedy for remaining GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals. Remove LNAPL as feasible. 	<ul style="list-style-type: none"> Remove all site features. Excavate upper 10 feet to remove impacted soils. MNA remedy for remaining GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals. Remove LNAPL as feasible. 	<ul style="list-style-type: none"> Excavate exposed soils and soils under residential hardcape[1] to 2 feet where HHSO goals are exceeded. No excavation beneath streets, sidewalks, and driveways. Install subslab mitigation at homes where subslab VOC and methane concentrations exceed screening value. MNA remedy for GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals. Remove LNAPL as feasible. 	<ul style="list-style-type: none"> Excavate exposed soils and soils under residential hardcape[1] to 2 feet. Same as AN 3 except excavate to 5 feet. 	<ul style="list-style-type: none"> Excavate exposed soils and soils under residential hardcape[1] to 2 feet. Same as AN 3 except excavate to 10 feet. 	<ul style="list-style-type: none"> Excavate exposed soils and soils under residential hardcape[1] to 2 feet where HHSO goals are exceeded at residential properties. No excavation beneath residential hardcape[1], streets and sidewalks. Install subslab mitigation at homes where subslab VOC and methane concentrations exceed screening value. MNA remedy for GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals. Remove LNAPL as feasible. 	<ul style="list-style-type: none"> Excavate exposed soils to 5 feet. Same as AN 4 except excavate exposed soils to 10 feet. 	<ul style="list-style-type: none"> Excavate exposed soils to 5 feet. Same as AN 4 except excavate exposed soils to 10 feet. 	<ul style="list-style-type: none"> Excavate exposed soils to 10 feet. Same as AN 4 except excavate exposed soils to 10 feet. 	
Clean-up Goal Achieved ⁽¹⁾	Soil - Groundwater Protection ⁽²⁾	All soils at site	Upper 10 ft	Upper 2 ft of exposed/res. hardcape areas	Upper 5 ft (where poss.) of exposed/res. hardcape areas	Upper 10 ft (where poss.) of exposed/res. hardcape areas	Upper 2 ft of exposed areas	Upper 5 ft (where possible) of exposed areas	Upper 10 feet (where possible) of exposed areas	
	Soil - Human Health 350 d/yr or Background	All soils at site	Upper 10 ft	Upper 2 ft of exposed/res. hardcape areas	Upper 5 ft (where poss.) of exposed/res. hardcape areas	Upper 10 ft (where poss.) of exposed/res. hardcape areas	Upper 2 ft of exposed areas	Upper 5 ft (where possible) of exposed areas	Upper 10 feet (where possible) of exposed areas	
	Soil - Human Health 4 d/yr	All soils at site	All soils at site	All soils at site	All soils at site	All soils at site	All soils at site	All soils at site	All soils at site	
	Soil - nuisance	All soils at site	Upper 10 ft	Upper 2 ft of exposed/res. hardcape areas	Upper 5 ft (where poss.) of exposed/res. hardcape areas	Upper 10 ft (where poss.) of exposed/res. hardcape areas	Upper 2 ft of exposed areas	Upper 5 ft (where possible) of exposed areas	Upper 10 feet (where possible) of exposed areas	
	Soil Vapor - Vapor Intrusion	Yes	Yes	Yes through subslab mitigation	Yes through subslab mitigation	Yes through subslab mitigation	Yes through subslab mitigation	Yes through subslab mitigation	Yes through subslab mitigation	
	Soil Vapor - Nuisance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Soil Vapor - Methane	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Groundwater - Background	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	
	Groundwater - MCLs	Meets in medium to long term assuming upgradient sources addressed	Meets in medium to long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	
	LNAPL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Implementability	Very Difficult	Very Difficult	Moderate	Moderate-Difficult	Very Difficult	Moderate	Moderate-Difficult	Very Difficult	Very Difficult	
	285 homes and all roads/allies removed. Debris hauling = 1,000 trucks. Soil removal = 120,000 trucks. Import fill = 130,000 trucks. Significant engineering challenges (supporting railroad ROW, shoring, etc.). Estimated remedial implementation time = 4-12 years	285 homes and all roads/allies removed. Debris hauling = 1,000 trucks. Soil removal = 60,000 trucks. Import fill = 70,000 trucks. Significant engineering challenges (supporting railroad ROW, shoring, etc.). Estimated remedial implementation time = 2-7 years. ICs required to address residual COCs beneath homes, and/or depths > 10 feet	100 homes require excavation. Soil removal = 1,000 trucks. Import fill = 2,000 trucks. Subslab mitigation on 30 homes. Hardcape replaced "in kind". Estimated remedial implementation time = 2-7 years. ICs required to address residual COCs beneath homes, and/or depths > 10 ft. No excavation around public water supply lines.	100 homes require excavation. Soil removal = 8,000 trucks. Import fill = 10,000 trucks. Subslab mitigation on 30 homes. Hardcape replaced "in kind". Estimated remedial implementation time = 14 years. No excavation around public water supply lines. ICs required to address residual COCs beneath homes, and/or depths > 10 ft. No excavation around public water supply lines.	210 homes require excavation. Soil removal = 18,000 trucks. Import fill = 19,000 trucks. Subslab mitigation on 30 homes. Hardcape replaced "in kind". Estimated remedial implementation time = 2 years. No excavation around public water supply lines. ICs required to address residual COCs beneath homes, and/or depths > 10 ft. No excavation around public water supply lines.	100 homes require excavation. Soil removal = 100 trucks. Import fill = 100 trucks. Subslab mitigation on 30 homes. Hardcape replaced "in kind". Estimated remedial implementation time = 2 years. No excavation around public water supply lines. ICs required to address residual COCs beneath homes, and/or depths > 10 ft. No excavation around public water supply lines.	100 homes require excavation. Soil removal = 100 trucks. Import fill = 100 trucks. Subslab mitigation on 30 homes. Hardcape replaced "in kind". Estimated remedial implementation time = 2 years. No excavation around public water supply lines. ICs required to address residual COCs beneath homes, and/or depths > 10 ft. No excavation around public water supply lines.	100 homes require excavation. Soil removal = 100 trucks. Import fill = 100 trucks. Subslab mitigation on 30 homes. Hardcape replaced "in kind". Estimated remedial implementation time = 2 years. No excavation around public water supply lines. ICs required to address residual COCs beneath homes, and/or depths > 10 ft. No excavation around public water supply lines.	100 homes require excavation. Soil removal = 100 trucks. Import fill = 100 trucks. Subslab mitigation on 30 homes. Hardcape replaced "in kind". Estimated remedial implementation time = 2 years. No excavation around public water supply lines. ICs required to address residual COCs beneath homes, and/or depths > 10 ft. No excavation around public water supply lines.	100 homes require excavation. Soil removal = 100 trucks. Import fill = 100 trucks. Subslab mitigation on 30 homes. Hardcape replaced "in kind". Estimated remedial implementation time = 2 years. No excavation around public water supply lines. ICs required to address residual COCs beneath homes, and/or depths > 10 ft. No excavation around public water supply lines.
	Long Term: Meet RAGs for Site	Long Term: Meet RAGs for Site	Long Term: Meet RAGs for Site	Long Term: Meet RAGs for Site	Long Term: Meet RAGs for Site	Long Term: Meet RAGs for Site	Long Term: Meet RAGs for Site	Long Term: Meet RAGs for Site	Long Term: Meet RAGs for Site	Long Term: Meet RAGs for Site
Environmental Considerations	Short Term: Potentially significant short term impacts to community (noise, air quality, traffic, water service interruptions). Mitigable based on pilot test results.	Short Term: Potentially significant short term impacts to community (noise, air quality, traffic, water service interruptions). Mitigable based on pilot test results.	Short Term: Potentially significant short term impacts to community (noise, air quality, traffic). Mitigable based on pilot test results.	Short Term: Potentially significant short term impacts to community (noise, air quality, traffic). Mitigable based on pilot test results.	Short Term: Potentially significant short term impacts to community (noise, air quality, traffic). Mitigable based on pilot test results.	Short Term: Potentially significant short term impacts to community (noise, air quality, traffic). Mitigable based on pilot test results.	Short Term: Potentially significant short term impacts to community (noise, air quality, traffic). Mitigable based on pilot test results.	Short Term: Potentially significant short term impacts to community (noise, air quality, traffic). Mitigable based on pilot test results.	Short Term: Potentially significant short term impacts to community (noise, air quality, traffic). Mitigable based on pilot test results.	Short Term: Potentially significant short term impacts to community (noise, air quality, traffic). Mitigable based on pilot test results.
	None - Noise - Traffic Will be difficult or impossible to permit under CEQA	None - Noise - Traffic Will be difficult or impossible to permit under CEQA	None	None	None	None	None	None	None	None

Table 9-1
 Remedial Alternative and Technological and Economic Feasibility Evaluation of Clean Up Goals
 Former Keel Property
 Carson, CA

CRITERIA	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3A	ALTERNATIVE 3B	ALTERNATIVE 4	ALTERNATIVE 4A	ALTERNATIVE 4B
	<ul style="list-style-type: none"> Excavate all site features. Excavate entire site to remove impacted soils (excavation may locally extend to GW). Limited removal or remediation of impacted GW. MNA remedy for remaining GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals. Remove LNAPL as feasible. 	<ul style="list-style-type: none"> Remove all site features. Excavate upper 10 feet to remove impacted soils. MNA remedy for remaining GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals. Remove LNAPL as feasible. 	<ul style="list-style-type: none"> Excavate exposed soils and soils under residential hardscapes (A) to 2 feet where HHSO goals are exceeded. No excavation beneath streets. Install subslab mitigation at homes where subslab VOC and methane concentrations exceed screening values. MNA remedy for GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals. Remove LNAPL as feasible. 	<ul style="list-style-type: none"> Same as Alt 3 except excavate to 3 feet. 	<ul style="list-style-type: none"> Same as Alt 3 except excavate to 10 feet. 	<ul style="list-style-type: none"> Excavate exposed soils from 0 to 2 feet where HHSO goals are exceeded at residential properties. No excavation beneath residential hardscapes (A), streets and sidewalks. Install subslab mitigation at homes where subslab VOC and methane concentrations exceed screening values. MNA remedy for GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals. Remove LNAPL as feasible. 	<ul style="list-style-type: none"> Same as Alt 4 except excavate exposed soils to 3 feet. 	<ul style="list-style-type: none"> Same as Alt 4 except excavate exposed soils to 10 feet.
Reduction of Toxicity, Mobility, and Volume	High. All COCs in soil/GW vapor removed. Source removal facilitates GW restoration.	High. All COCs in soil/GW vapor removed in upper 10 feet. Source removal facilitates GW restoration.	High for exposed soils in upper 2 feet. None for remaining soils. Moderate to high reduction in mobility for potential soil vapor intrusion to indoor air. Low for GW.	Moderate to high for soils in upper 5 feet. Cannot remove all soils to 5 feet due to setback and sloping requirements. None for remaining soils. Moderate to high reduction in mobility for potential soil vapor intrusion to indoor air. Low for GW.	Moderate for soils in upper 10 feet due to limited amount of soil removal possible at depth due to setback and sloping requirements and equipment access limitations. None for remaining soils. Moderate to high reduction in mobility for potential soil vapor intrusion to indoor air.	High for soils in upper 2 feet. None for remaining soils. Moderate to high reduction in mobility for potential soil vapor intrusion to indoor air. Low for GW.	Moderate to high for exposed soils in upper 3 feet. Cannot remove all soils to 3 feet due to setback and sloping requirements. None for remaining soils. Moderate to high reduction in mobility for potential soil vapor intrusion to indoor air. Low for GW.	Low for exposed soils in upper 10 feet. Limited amount of soil removal possible at depth due to setback and sloping requirements and equipment access limitations. None for remaining soils. Moderate to high reduction in mobility for potential soil vapor intrusion to indoor air.
Social Considerations	Significant long term impact to the community and environment. <ul style="list-style-type: none"> Disruption of an existing community. Significant disruption to surrounding community. Loss of tax base in community. 	Significant long term impact to the community and environment. <ul style="list-style-type: none"> Disruption of an existing community. Significant disruption to surrounding community. Loss of tax base in community. 	Potentially significant short-term disruption to the community. Greater community short-term disruption due to removal/replacement of hardscapes. No long-term loss of tax base.	Potentially significant short-term disruption to the community. Greater community short-term disruption due to larger soil volume excavated and removal/replacement of hardscapes. No long-term loss of tax base.	Potentially significant short-term disruption to the community. Greater community short-term disruption due to larger soil volume excavated and removal/replacement of hardscapes. No long-term loss of tax base.	Potentially significant short-term disruption to the community. No long-term loss of tax base.	Potentially significant short-term disruption to the community. Greater community short-term disruption due to larger soil volume excavated. No long-term loss of tax base.	Potentially significant short-term disruption to the community. Greater community short-term disruption due to larger soil volume excavated. No long-term loss of tax base.
Other Issues	Reservoir slabs removed.	Reservoir slabs removed.	Requires soil IC. Reservoir slabs remain in place.	Requires soil IC. Reservoir slabs remain in place.	Requires soil IC. Limited reservoir slab removal.	Requires soil IC. Reservoir slabs remain in place.	Requires soil IC. Reservoir slabs remain in place.	Requires soil IC. Limited reservoir slab removal.
Cost Range	Very High. \$200M to \$650M	Very High. \$190M to \$410M	Moderate. \$20M to \$46M	High. \$20M to \$300M Higher than Alt 3	Very High. \$120M to \$220M Higher than Alt 3A	Moderate. \$50M to \$120M	Moderate-High. \$20M to \$60M Higher than Alt 4	Very High. \$37M to \$180M Higher than Alt 4A

Notes:
 A. Residential hardscapes defined as driveways, city sidewalks, patios, walkways etc. on a residential property only. Excludes city streets.
 B. Cleanup goals defined in Tables 9-1, 9-2, 9-3, and 9-4.
 C. HHSO - Frequent residential contact 350 days/year; H44 - Infrequent residential contact 4 days/year

Table 0-1
Remedial Alternative and Technological and Economic Feasibility Evaluation of Open Up Goals
Former Kest Property
Cameron, CA

CRITERIA	ALTERNATIVE 4 * Remove all site features and cap site. * Remove LNAPL as feasible. * MNA remedy for GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals.	ALTERNATIVE 6 * Cap all areas of exposed soil at the site. * Install subslab mitigation at homes where subslab VOC and methane concentrations exceed screening values. * Remove LNAPL as feasible. * MNA remedy for GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals.	ALTERNATIVE 7 Add limited SVE to reduce VOC/THM mass for Alternatives 2 through 6	
Cleanup Goal Achieved ⁽¹⁾	Soil - Groundwater Protection ⁽¹⁾	No	No	Maybe, locally
	Soil - Human Health 350 d/yr Background ⁽¹⁾	No	No	Maybe, locally
	Soil - Human Health 4 d/yr	All soils at site	All soils at site	All soils at site
	Soil - Nuisance	All soils at site	All soils at site	Not Applicable
	Soil Vapor - Vapor Intrusion ⁽¹⁾	No, but no receptors	Yes through subslab mitigation	Maybe, locally
	Soil Vapor - Nuisance ⁽¹⁾	Yes	Yes	Yes
	Soil Vapor - Methane ⁽¹⁾	No, but no receptors	Yes through subslab mitigation	Maybe, locally
	Groundwater - Background	Meets in long term assuming upgradient sources addressed	Meets in long term assuming upgradient sources addressed	Meets in medium to long term assuming upgradient sources addressed
Implementability	INA	Very Difficult	Moderate	Moderate to Very Difficult
	285 homes and all roads and most utilities removed. Engineered cap likely requires some excavation and import of material. Ditch hauling ~1,500 trucks Soil removal ~0 trucks Import fill ~11,000 trucks Estimated remedial implementation time ~1 year ICs required for soil	Replace all affected exposed areas with hardtop or equivalent. Could expand to all exposed areas of the site to address groundwater protection level for soil. Subslab mitigation on ~30 homes Estimated remedial implementation time ~ 1-1/2 years ICs required for soil	Difficulty dependent on number and location of extraction wells and treatment systems. Objective to remove VOC/THM/Methane mass from high concentration areas of site (as to be defined) Assume 1.5 blower/treatment systems required each with 5-25 scheduled extraction wells, assume cap cost home purchase to locate blowers/treatment equipment. Will require significant permitting effort with AQMS; may not be permitable in residential area.	
	Long Term: Meet RADs for Site Short Term: Potentially significant impacts: - Air quality (emissions from excavation equipment and 12,000 truck trips, greenhouse gas issues etc.) - Noise - Traffic	Long Term: Meet RADs for Site Short Term: Short-term impacts to community during implementation (noise, air quality, traffic). Potentially significant increase in runoff could result in need to upgrade stormwater system.	Long Term: Meet RADs for Site Short Term: Potentially significant short-term impacts to community from system installation (noise, air quality, traffic). Depending on length of time system operates, long-term impacts from noise.	
Environmental Considerations				

Table 8-1
Remedial Alternative and Technological and Economic Feasibility Evaluation of Cleanup Goals
 Former Kasi Property
 Carson, CA

CRITERIA	ALTERNATIVE 5	ALTERNATIVE 6	ALTERNATIVE 7
	<ul style="list-style-type: none"> Remove all site features and caps. Remove LNAPL as feasible. MNA remedy for GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals. 	<ul style="list-style-type: none"> Cap all areas of exposed soil at the site. Install subslab irrigation at homes where subslab VOC and methane concentrations exceed screening values. Remove LNAPL as feasible. MNA remedy for GW. Could add limited hot spot remediation to reduce time to achieve cleanup goals. 	<ul style="list-style-type: none"> Add limited SVE to reduce VOC/PHI mass for Alternatives 2 through 5.
Reduction of Toxicity, Mobility, and Volume	Low for HH goals in soils, however exposure pathways eliminated. Low for soil vapor. High reduction in mobility of COCs to GW (limits leaching by controlling infiltration).	Low, however exposure pathways eliminated and potential for infiltration and leaching to GW greatly reduced.	Low. Will remove VOC/PHI mass, but likely not to cleanup goals specifically for medium and long chain hydrocarbons. Some effect on methane reduction. Mass reduction hastens GW restoration.
Social Considerations	Significant long-term impact to the community and environment: <ul style="list-style-type: none"> Elimination of an existing community Significant disruption to surrounding community Loss of tax base in community. 	Potentially significant short-term impact to community during construction. Residents would lose existing landscaping; future landscaping would need to be above cap in planter boxes.	Potentially significant short-term disruption to the community during system installation (well drilling, trenching for piping). No long-term loss of tax base.
Other Issues	Requires soil IC. Reservoir slabs remain in place. Future site use limited due to need to maintain cap.	Requires soil IC and long-term soil management plan. Reservoir slabs remain in place. Future site use limited due to need to maintain cap.	No effect on reservoir slabs.
Cost Range	Very High. \$91MM to \$200MM	Moderate. \$13MM to \$28MM	Moderate. \$9MM to \$15MM (Costs additive to Alts. 2, 3, 4, 5 and 6)

Notes:
 A. Residential landscape defined as driveways, city sidewalks, patios, walkways etc. on a residential property only. Excludes city streets.
 B. Cleanup goals defined in Tables 6-1, 6-2, 7-2, and 8-1
 C. HH250 - Frequent residential contact 350 days/year; HH14 - Infrequent residential contact 4 days/year

Table 9-2
Site-Specific Cleanup Goals, Soil
Former Kast Property
Carson, California

CAS Number	Constituents of Concern ²	Soil Cleanup Goals ¹ (mg/kg)					
		Excavated Areas			Non-excavated Areas		
		EF = 350 d/y ³	Basis ⁴	Soil Leaching to GW ³	Basis ^{4,5}	EF = 4 d/y ³	Basis ^{4,5}
	Inorganics						
7440-36-0	Antimony	3.1E+01		1.7E+00		2.7E+03	
7440-38-2	Arsenic	1.2E+01	BKG	1.2E+01	BKG	1.2E+01	BKG
7440-43-9	Cadmium	7.0E+01		--		6.1E+03	
18540-29-9	Chromium VI	1.2E+00		--		1.1E+02	
7440-48-4	Cobalt	2.3E+01		--		2.1E+03	
7440-50-8	Copper	3.1E+03		--		2.7E+05	
7439-92-1	Lead	8.0E+01		--		8.0E+02	
7440-28-0	Thallium	7.8E-01		8.9E-01		6.8E+01	
7440-62-2	Vanadium	3.9E+02		--		3.4E+04	
7440-66-6	Zinc	2.3E+04		--		2.1E+06	
	PAHs						
56-55-3	Benz[a]anthracene	1.6E+00		--		1.4E+02	
50-32-8	Benzo[a]pyrene	9.0E-01	BKG	--		1.4E+01	
205-99-2	Benzo[b]fluoranthene	1.6E+00		--		1.4E+02	
207-08-9	Benzo[k]fluoranthene	1.6E+00		--		1.4E+02	
218-01-9	Chrysene	1.6E+01		--		1.4E+03	
53-70-3	Dibenz[a,h]anthracene	1.1E-01		--		9.7E+00	
193-39-5	Indeno[1,2,3-cd]pyrene	1.6E+00		--		1.4E+02	
90-12-0	Methylnaphthalene, 1-	1.6E+01		--		1.4E+03	
91-57-6	Methylnaphthalene, 2-	2.3E+02		--		2.0E+04	
91-20-3	Naphthalene	4.0E+00		8.8E+01		3.6E+02	
129-00-0	Pyrene	1.7E+03		--		1.5E+05	
	TPH						
	TPHg	7.6E+02		7.3E+02		4.1E+04	Cres
	TPHd	1.3E+03		3.9E+03		3.4E+04	Cres
	TPHmo	3.3E+03		5.0E+04	Cres	5.0E+04	Cres
	SVOCs						
121-14-2	2,4-Dinitrotoluene	1.6E+00		--		1.4E+02	
117-81-7	Bis(2-Ethylhexyl) Phthalate	3.5E+01		--		3.0E+03	
	VOCs						
79-34-5	1,1,2,2-Tetrachloroethane	4.7E-01		--		4.1E+01	
	Cis-1,2-Dichloroethene	--		2.4E-02		--	
	1,2-Dichloroethane	--		2.0E-03		--	
96-18-4	1,2,3-Trichloropropane	2.1E-02		2.6E-05		1.9E+00	
95-63-6	1,2,4-Trimethylbenzene	8.3E+01				7.2E+03	
78-87-5	1,2-Dichloropropane	8.3E-01				7.2E+01	
108-67-8	1,3,5-Trimethylbenzene	8.5E+01				7.4E+03	
106-46-7	1,4-Dichlorobenzene	2.8E+00		7.7E-02		2.4E+02	
71-43-2	Benzene	2.2E-01		1.3E-01		1.9E+01	

Table 9-2
Site-Specific Cleanup Goals, Soil
Former Kast Property
Carson, California

CAS Number	Constituents of Concern ²	Soil Cleanup Goals ¹ (mg/kg)					
		Excavated Areas			Non-excavated Areas		
		EF = 350 d/y ³	Basis ⁴	Soil Leaching to GW ³	Basis ^{4,5}	EF = 4 d/y ³	Basis ^{4,5}
75-27-4	Bromodichloromethane	4.9E-01				4.2E+01	
74-83-9	Bromomethane	8.8E+00				7.7E+02	
100-41-4	Ethylbenzene	4.8E+00				4.2E+02	
75-09-2	Methylene chloride	5.3E+00				4.7E+02	
	tert-Butyl Alcohol	--		4.9E-02		--	
127-18-4	Tetrachloroethene	5.5E-01		3.6E-02		4.9E+01	
79-01-6	Trichloroethene	1.2E+00		2.0E-02		1.5E+02	
75-01-4	Vinyl chloride	3.2E-02		2.0E-03		2.8E+00	

Notes:

" -- " not applicable

1 See Sections 6 for discussion of how these cleanup goals were derived.

2 See Section 4 for discussion of Constituents of Concern.

3 Value is lowest between noncancer and cancer endpoint or highest between background and risk-based SSCG and background and soil leaching to groundwater SSCG, see Table 6-1 for all SSCGs to evaluate risk.

4 Bkg if noted, otherwise health-based value from Table 6-1 or leaching to groundwater value from Table 6-2.

5 Cres - Value based on calculated residual concentration according to API Research Bulletin No. 9 June 2000.

TPHg = Total Petroleum Hydrocarbons- gasoline range

TPHd = Total Petroleum Hydrocarbons- diesel range

TPHmo = Total Petroleum Hydrocarbons- motor oil range

BKG - Background

Table 9-3
Site-Specific Cleanup Goals, Soil Vapor
Former Kast Property
Carson, California

CAS Number	Constituents of Concern ²	Soil Vapor Cleanup Goals ¹ (µg/m ³)
		Onsite, Resident ³
71-55-6	1,1,1-Trichloroethane	5.2E+06
79-34-5	1,1,2,2-Tetrachloroethane	4.2E+01
79-00-5	1,1,2-Trichloroethane	1.5E+02
75-34-3	1,1-Dichloroethane	1.5E+03
120-82-1	1,2,4-Trichlorobenzene	2.1E+03
95-63-6	1,2,4-Trimethylbenzene	7.3E+03
107-06-2	1,2-Dichloroethane	1.2E+02
78-87-5	1,2-Dichloropropane	2.4E+02
108-67-8	1,3,5-Trimethylbenzene	7.3E+03
106-99-0	1,3-Butadiene	1.4E+01
106-46-7	1,4-Dichlorobenzene	2.2E+02
123-91-1	1,4-Dioxane	3.2E+02
540-84-1	2,2,4-Trimethylpentane	1.0E+06
591-78-6	2-Hexanone	3.1E+04
622-96-8	4-Ethyltoluene	1.0E+05
71-43-2	Benzene	8.4E+01
75-27-4	Bromodichloromethane	6.6E+01
74-83-9	Bromomethane	5.2E+03
75-15-0	Carbon disulfide	7.3E+05
56-23-5	Carbon tetrachloride	5.8E+01
67-66-3	Chloroform	4.6E+02
74-87-3	Chloromethane	9.4E+04
110-82-7	Cyclohexane	6.3E+06
124-48-1	Dibromochloromethane	9.0E+01
156-59-2	Dichloroethene, cis-1,2-	7.3E+03
156-60-5	Dichloroethene, trans-1,2-	6.3E+04
10061-02-6	Dichloropropene, trans-1,3-	1.5E+02
64-17-5	Ethanol	4.2E+06
100-41-4	Ethylbenzene	9.7E+02
142-82-5	Heptane	7.3E+05
87-68-3	Hexachloro-1,3-butadiene	1.1E+02
110-54-3	Hexane	7.3E+05
67-63-0	Isopropanol	7.3E+06
98-82-8	Isopropylbenzene (cumene)	4.2E+05
78-93-3	Methyl ethyl ketone (2-butanone)	5.2E+06
75-09-2	Methylene chloride	2.4E+03
1634-04-4	Methyl-tert-butyl ether	9.4E+03
91-20-3	Naphthalene	7.2E+01
103-65-1	Propylbenzene	1.0E+06
75-65-0	tert-Butyl Alcohol (TBA)	1.1E+06
127-18-4	Tetrachloroethene	4.1E+02

Table 9-3
Site-Specific Cleanup Goals, Soil Vapor
 Former Kast Property
 Carson, California

CAS Number ¹	Constituents of Concern ²	Soil Vapor Cleanup Goals ¹ (µg/m ³)
		Onsite Resident ³
109-99-9	Tetrahydrofuran	2.1E+06
108-88-3	Toluene	5.2E+06
79-01-6	Trichloroethene	5.9E+02
75-01-4	Vinyl chloride	3.1E+01
108-38-3	Xylene, m-	1.0E+05
95-47-6	Xylene, o-	1.0E+05
106-42-3	Xylene, p-	1.0E+05
	TPH	
	Aliphatic: C5-C8	7.3E+05
	Aliphatic: C9-C18	3.1E+05
	Aliphatic: C19-C32	--
	Aromatic: C6-C8	--
	Aromatic: C9-C16	5.2E+04
	Aromatic: C17-C32	--
	OTHER	
	TPH Nuisance ⁴	1.0E+02

Note: "--" not applicable or not available

1 See Section 7 for discussion of how these cleanup goals were derived. Based on a conservative upper-bound estimate for a site-specific vapor intrusion attenuation factor, calculated for corrective action planning purposes.

2 See Section 4 for discussion of Constituents of Concern.

3 Value is lowest between noncancer and cancer endpoint, see Table 7-2 for all SSCGs to evaluate risk.

4 Value from the San Francisco Regional Water Quality Control Board Environmental Screening Levels (SFRWQCB, May 2013)