Appendix E
Details of Soil Gas Sampling

Table E-1: Details of Shallow Soil Gas Sampling – RSE Investigation

Location ID	Sample ID	Earth Tech ID	Date of Sample Collection	Depth of sample Collection (feet)	Sample Type	Laboratory Type	Analysis Type
HA01	LK018	AA 3-HA01SG-S01-D005'	10/9/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA02	LK021	AA 3-HA02SG-S01-D005'	10/9/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA03	LK024	AA 3-HA03SG-S01-D005'	10/9/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA04	LK027	AA 3-HA04SG-S01-D005'	10/9/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA05	LK030	AA 3-HA05SG-S01-D005'	10/9/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA06	LK033	AA 3-HA06SG-S01-D005'	10/9/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA07	LK036	AA 3-HA07SG-S01-D005'	10/10/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA08	LK039	AA 3-HA08SG-S01-D005'	10/10/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA09	LK042	AA 3-HA09SG-S01-D005'	10/10/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA10	LK045	AA 3-HA10SG-S01-D005'	10/10/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA11	LK048	AA 3-HA11SG-S01-D005'	10/10/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA12	LK051	AA 3-HA12SG-S01-D005'	10/11/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA13	LK054	AA 3-HA13SG-S01-D005'	10/10/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA14	LK057	AA 3-HA14SG-S01-D005'	10/11/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA15	LK060	AA 3-HA15SG-S01-D005'	10/11/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA16	LK063	AA 3-HA16SG-S01-D005'	10/11/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA17	LK066	AA 3-HA17SG-S01-D005'	10/11/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA18	LK069	AA 3-HA18SG-S01-D005'	10/11/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA19	LK072	AA 3-HA19SG-S01-D005'	10/11/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA20	LK075	AA 3-HA20SG-S01-D005'	10/14/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA21	LK078	AA 3-HA21SG-S01-D005'	10/14/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA22	LK081	AA 3-HA22SG-S01-D005'	10/14/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA23	LK084	AA 3-HA23SG-S01-D005'	10/14/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA24	LK087	AA 3-HA24SG-S01-D005'	10/14/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA25	LK090	AA 3-HA25SG-S01-D005'	10/14/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA26	LK093	AA 3-HA26SG-S01-D005'	10/14/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA27	LK096	AA 3-HA27SG-S01-D005'	10/14/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA28	LK099	AA 3-HA28SG-S01-D005'	10/15/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA29	LK102	AA 3-HA29SG-S01-D005'	10/15/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA30	LK105	AA 3-HA30SG-S01-D005'	10/15/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA31	LK108	AA 3-HA31SG-S01-D005'	10/15/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA32	LK111	AA 3-HA32SG-S01-D005'	10/15/2002	5	Regular	Mobile	EPA Method 8260 (VOC)
HA33	LK114	AA 3-HA33SG-S01-D005'	10/15/2002	5	Regular	Mobile	EPA Method 8260 (VOC)

Table E-3: Details of Subsurface Soil Gas Sampling – RSE Investigation

Location ID	Sample ID	Earth Tech ID	Date of Sample Collection	Depth of sample Collection (feet)	Sample Type	Laboratory Type	Analysis Type
HA01	LK019	AA 3-HA01SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA02	LK022	AA 3-HA02SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA03	LK025	AA 3-HA03SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA04	LK028	AA 3-HA04SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA05	LK031	AA 3-HA05SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA06	LK034	AA 3-HA06SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA07	LK037	AA 3-HA07SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
HA08	LK040	AA 3-HA08SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA09	LK043	AA 3-HA09SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA10	LK046	AA 3-HA10SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA11	LK049	AA 3-HA11SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
	LK129	AA 3-HA11SG-S03-D025'	10/10/2002	25	Regular	Mobile	EPA Method 8260 (VOC)
HA12	LK052	AA 3-HA12SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK121	AA 3-HA12SG-D03-D015'	10/11/2002	15	Duplicate of LK052	Mobile	EPA Method 8260 (VOC)
HA13	LK055	AA 3-HA13SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK120	AA 3-HA13SG-D03-D015'	10/10/2002	15	Duplicate of LK055	Mobile	EPA Method 8260 (VOC)
HA14	LK058	AA 3-HA14SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA15	LK061	AA 3-HA15SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA16	LK064	AA 3-HA16SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA17	LK067	AA 3-HA17SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA18	LK070	AA 3-HA18SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK122	AA 3-HA18SG-D03-D015'	10/11/2002	15	Duplicate of LK070	Mobile	EPA Method 8260 (VOC)
HA19	LK073	AA 3-HA19SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA20	LK076	AA 3-HA20SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA21	LK079	AA 3-HA21SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
HA22	LK082	AA 3-HA22SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA23	LK085	AA 3-HA23SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK123	AA 3-HA23SG-D03-D015'	10/14/2002	15	Duplicate of LK085	Mobile	EPA Method 8260 (VOC)
HA24	LK088	AA 3-HA24SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA25	LK091	AA 3-HA25SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
	LK125	AA 3-HA25SG-D03-D015'	10/14/2002	15	Duplicate of LK091	Mobile	EPA Method 8260 (VOC)
HA26	LK094	AA 3-HA26SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
	LK138	AA 3-HA26SG-S03-D015'	10/14/2002	15	Duplicate of LK094	Fixed	ASTM D1946 (methane)
HA27	LK097	AA 3-HA27SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK124	AA 3-HA27SG-D03-D015'	10/14/2002	15	Duplicate of LK097	Mobile	EPA Method 8260 (VOC)
HA28	LK100	AA 3-HA28SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)

Table E-3: Details of Subsurface Soil Gas Sampling – RSE Investigation

Location ID	Sample ID	Earth Tech ID	Date of Sample Collection	Depth of sample Collection (feet)	Sample Type	Laboratory Type	Analysis Type
HA29	LK103	AA 3-HA29SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
HA30	LK106	AA 3-HA30SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
HA31	LK109	AA 3-HA31SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK126	AA 3-HA31SG-D03-D015'	10/15/2002	15	Duplicate of LK109	Mobile	EPA Method 8260 (VOC)
HA32	LK112	AA 3-HA32SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
HA33	LK115	AA 3-HA33SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK127	AA 3-HA33SG-D03-D015'	10/15/2002	15	Duplicate of LK115	Mobile	EPA Method 8260 (VOC)

Table E-3: Details of Subsurface Soil Gas Sampling – RSE Investigation

Location ID	Sample ID	Earth Tech ID	Date of Sample Collection	Depth of sample Collection (feet)	Sample Type	Laboratory Type	Analysis Type
HA01	LK019	AA 3-HA01SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA02	LK022	AA 3-HA02SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA03	LK025	AA 3-HA03SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA04	LK028	AA 3-HA04SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA05	LK031	AA 3-HA05SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA06	LK034	AA 3-HA06SG-S02-D015'	10/9/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA07	LK037	AA 3-HA07SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
HA08	LK040	AA 3-HA08SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA09	LK043	AA 3-HA09SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA10	LK046	AA 3-HA10SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA11	LK049	AA 3-HA11SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
	LK129	AA 3-HA11SG-S03-D025'	10/10/2002	25	Regular	Mobile	EPA Method 8260 (VOC)
HA12	LK052	AA 3-HA12SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK121	AA 3-HA12SG-D03-D015'	10/11/2002	15	Duplicate of LK052	Mobile	EPA Method 8260 (VOC)
HA13	LK055	AA 3-HA13SG-S02-D015'	10/10/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK120	AA 3-HA13SG-D03-D015'	10/10/2002	15	Duplicate of LK055	Mobile	EPA Method 8260 (VOC)
HA14	LK058	AA 3-HA14SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA15	LK061	AA 3-HA15SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA16	LK064	AA 3-HA16SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA17	LK067	AA 3-HA17SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA18	LK070	AA 3-HA18SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK122	AA 3-HA18SG-D03-D015'	10/11/2002	15	Duplicate of LK070	Mobile	EPA Method 8260 (VOC)
HA19	LK073	AA 3-HA19SG-S02-D015'	10/11/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA20	LK076	AA 3-HA20SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA21	LK079	AA 3-HA21SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
HA22	LK082	AA 3-HA22SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA23	LK085	AA 3-HA23SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK123	AA 3-HA23SG-D03-D015'	10/14/2002	15	Duplicate of LK085	Mobile	EPA Method 8260 (VOC)
HA24	LK088	AA 3-HA24SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
HA25	LK091	AA 3-HA25SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
	LK125	AA 3-HA25SG-D03-D015'	10/14/2002	15	Duplicate of LK091	Mobile	EPA Method 8260 (VOC)
HA26	LK094	AA 3-HA26SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
	LK138	AA 3-HA26SG-S03-D015'	10/14/2002	15	Duplicate of LK094	Fixed	ASTM D1946 (methane)
HA27	LK097	AA 3-HA27SG-S02-D015'	10/14/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK124	AA 3-HA27SG-D03-D015'	10/14/2002	15	Duplicate of LK097	Mobile	EPA Method 8260 (VOC)
HA28	LK100	AA 3-HA28SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)

Table E-3: Details of Subsurface Soil Gas Sampling – RSE Investigation

Location ID	Sample ID	Earth Tech ID	Date of Sample Collection	Depth of sample Collection (feet)	Sample Type	Laboratory Type	Analysis Type
HA29	LK103	AA 3-HA29SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
HA30	LK106	AA 3-HA30SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
HA31	LK109	AA 3-HA31SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK126	AA 3-HA31SG-D03-D015'	10/15/2002	15	Duplicate of LK109	Mobile	EPA Method 8260 (VOC)
HA32	LK112	AA 3-HA32SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
						Fixed	ASTM D1946 (methane)
HA33	LK115	AA 3-HA33SG-S02-D015'	10/15/2002	15	Regular	Mobile	EPA Method 8260 (VOC)
	LK127	AA 3-HA33SG-D03-D015'	10/15/2002	15	Duplicate of LK115	Mobile	EPA Method 8260 (VOC)

Table E-4: Subsurface Soil Gas Survey Analytical Results - RSE Investigation

	Sample ID:	LK019	LK022	LK025	LK028	LK031	LK034	LK037	LK040	LK043	LK046	LK049	LK052	LK121	LK055	LK120	LK058	LK061	LK064	LK067	LK070	LK122
	Location ID:	AA3-HA01	AA3-HA02	AA3-HA03	AA3-HA04	AA3-HA05	AA3-HA06	AA3-HA07	AA3-HA08	AA3-HA09	AA3-HA10	AA3-HA11	AA3-HA12	AA3-HA12	AA3-HA13	AA3-HA13	AA3-HA14	AA3-HA15	AA3-HA16	AA3-HA17	AA3-HA18	AA3-HA18
	Sample Type:	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Duplicate
	Sample Date:	10/9/2002	10/9/2002	10/9/2002	10/9/2002	10/9/2002	10/9/2002	10/10/2002	10/10/2002	10/10/2002	10/10/2002	10/10/2002	10/11/2002	10/11/2002	10/10/2002	0/10/2002	10/11/2002	10/11/2002	10/11/2002	10/11/2002	10/11/2002	10/11/2002
Parameter	Sample Depth:	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'
VOCs (8260B Modified)	Units																					
1,1,1,2-Tetrachloroethane	µg/L	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	1 U	1 U	1 U
1,1,1-Trichloroethane	µg/L	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	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	µg/L	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	1 U	1 U	1 U
1,1,2-Trichloroethane	µg/L	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	1 U	1 U	1 U
1,1,2-Trichloro-trifluoroethane	µg/L	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	1 U	1 U	1 U
1,1-Dichloroethane	µg/L	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	1 U	1 U	1 U
1,1-Dichloroethene	µg/L	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	1 U	1 U	1 U
1,2,4-Trichlorobenzene	µg/L	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	1 U	1 U	1 U
1,2-Dichlorobenzene	µg/L	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	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	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	1 U	1 U	1 U
1,2-Dichloropropane	µg/L	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	1 U	1 U	1 U
1,2-Dichlorotetrafluoroethane	µg/L	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	1 U	1 U	1 U
1,3-Dichlorobenzene	µg/L	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	1 U	1 U	1 U
1,4-Dichlorobenzene	µg/L	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	1 U	1 U	1 U
2-Butanone (MEK)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-ethoxy-2-methyl propane (ETBE)	µg/L	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	1 U	1 U	1 U
2-Hexanone	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone (MIBK)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	µg/L	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	1 U	1 U	1 U
Bromodichloromethane	µg/L	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	1 U	1 U	1 U
Bromoform	µg/L	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	1 U	1 U	1 U
Bromomethane	µg/L	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	1 U	1 U	1 U
Carbon disulfide	µg/L	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	1 U	1 U	1 U
Carbon tetrachloride	µg/L	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	1 U	1 U	1 U
Chlorobenzene	µg/L	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	1 U	1 U	1 U
Chloroethane	µg/L	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	1 U	1 U	1 U
Chloroform	µg/L	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	1 U	1 U	1 U
Choromethane	µg/L	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	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	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	1 U	1 U	1 U
cis-1,3-Dichloropropene	µg/L	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	1 U	1 U	1 U
Dibromochloromethane	µg/L	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	1 U	1 U	1 U
Dichlorodifluoromethane	µg/L	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	1 U	1 U	1 U
Diisopropyl ether (DIPE)	µg/L	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	1 U	1 U	1 U
Ethylbenzene	µg/L	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	1 U	1 U	1 U
Hexachlorobutadiene	µg/L	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	1 U	1 U	1 U
meta- and para-Xylenes	µg/L	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	1 U	1 U	1 U
Methyl tert-butyl ether (MtBE)	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Methylene chloride	µg/L	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	1 U	1 U	1 U
ortho-Xylene	µg/L	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	1 U	1 U	1 U
Styrene	µg/L	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	1 U	1 U	1 U
tert-Amyl methyl ether (TAME)	µg/L	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	1 U	1 U	1 U
tert-Butanol (TBA)	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	µg/L	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	1 U	1 U	1 U
Toluene	µg/L	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	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	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	1 U	1 U	1 U
trans-1,3-Dichloropropene	µg/L	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	1 U	1 U	1 U
Trichloroethene	µg/L	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	1 U	1 U	1 U
Trichlorofluoromethane	µg/L	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	1 U	1 U	1 U
Vinyl chloride	µg/L	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	1 U	1 U	1 U
Fixed Gases (ASTM D-1946)																						
Carbon Dioxide	%	NA	NA	NA	NA	NA	NA	17	NA	NA	NA	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Monoxide	%	NA	NA	NA	NA	NA	NA	0.0022	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	%	NA	NA	NA	NA	NA	NA	0.0068	NA	NA	NA	1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	%	NA	NA	NA	NA	NA	NA	82	NA	NA	NA	70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	%	NA	NA	NA	NA	NA	NA	2.3	NA	NA	NA	3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E-4: Subsurface Soil Gas Survey Analytical Results - RSE Investigation

	Sample ID:	LK073	LK076	LK079	LK082	LK085	LK123	LK088	LK091	LK125	LK094	LK138	LK097	LK100	LK103	LK106	LK109	LK126	LK112	LK115	LK127	LK129
	Location ID:	AA3-HA19	AA3-HA20	AA3-HA21	AA3-HA22	AA3-HA23	AA3-HA23	AA3-HA24	AA3-HA25	AA3-HA25	AA3-HA26	AA3-HA26	AA3-HA27	AA3-HA28	AA3-HA29	AA3-HA30	AA3-HA31	AA3-HA31	AA3-HA32	AA3-HA33	AA3-HA33	AA3-HA11
	Sample Type:	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Duplicate	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Duplicate	Regular
	Sample Date:	10/11/2002	10/14/2002	10/14/2002	10/14/2002	10/14/2002	10/14/2002	10/14/2002	10/14/2002	10/14/2002	10/14/2002	10/14/2002	10/14/2002	10/15/2002	10/15/2002	10/15/2002	10/15/2002	10/15/2002	10/15/2002	10/15/2002	10/9/2002	0/10/2002
Parameter	Sample Depth:	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	25'
VOCs (8260B Modified)	Units																					
1,1,1,2-Tetrachloroethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloro-trifluoroethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorotetrafluoroethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone (MEK)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-ethoxy-2-methyl propane (ETBE)	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Hexanone	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone (MIBK)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Choromethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Diisopropyl ether (DIPE)	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Hexachlorobutadiene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
meta- and para-Xylenes	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl tert-butyl ether (MtBE)	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Methylene chloride	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ortho-Xylene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
tert-Amyl methyl ether (TAME)	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
tert-Butanol (TBA)	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Fixed Gases (ASTM D-1946)																						
Carbon Dioxide	%	NA	NA	13	NA	NA	NA	NA	4.8	NA	1.7	2.9	NA	NA	10	5.5	NA	NA	16	NA	NA	NA
Carbon Monoxide	%	NA	NA	0.001 U	NA	NA	NA	NA	0.001 U	NA	0.001 U	0.001 U	NA	NA	0.001 U	0.001 U	NA	NA	0.001 U	NA	NA	NA
Methane	%	NA	NA	13	NA	NA	NA	NA	1.7	NA	0.56	1.2	NA	NA	1	1.3	NA	NA	0.00083	NA	NA	NA
Nitrogen	%	NA	NA	63	NA	NA	NA	NA	82	NA	77	85	NA	NA	86	89	NA	NA	78	NA	NA	NA
Oxygen	%	NA	NA	1.7	NA	NA	NA	NA	1.5	NA	12	1.4	NA	NA	1.6	3.2	NA	NA	3.9	NA	NA	NA

NOTES:
µg/L = micrograms per liter
% = percent
VOCs = volatile organic compounds
AA3 = Anomaly Area 3
RSE = Removal Site Evaluation
NA = not analyzed; Only 10% of soil gas samples were proposed to be analyzed for fixed gas based on the field screening results of the gas monitor.
Nine subsurface soil gas samples were sent to the laboratory based on the field screening results.
U = indicates the analyte was not detected at or above the stated limit.

November 12, 2002

EST2091

Mr. Christopher Barr
Earth Tech, Inc.
9675 Business Park Avenue
San Diego, California 92131

Subject: Soil Gas Survey Report
CTO 78 – Anomaly Area 3
Former MCAS El Toro
Orange County, California

Dear Mr. Barr:

Environmental Support Technologies, Inc. (EST) is pleased to submit the results of the soil gas survey conducted at former MCAS El Toro, CTO 78 – Anomaly Area 3 in Orange County, California. On October 10, 11, 14, and 15, 2002, EST received soil gas samples in Tedlar™ bags together with chain-of-custody documentation from Earth Tech, Inc. personnel. The soil gas samples were analyzed on-site for a list of fifty-one (51) volatile organic compounds (VOCs) using gas chromatograph/mass spectrometer (GC/MS) analytical methods. The analytical testing was performed in general accordance with EPA Method 8260 as described in U.S. EPA Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846). The following references and guidance were also applicable:

- Los Angeles Regional Water Quality Control Board (LARWQCB) "Interim Guidance for Active Soil Gas Investigation" dated February 25, 1997.
- Naval Facilities Engineering Service Command (NFESC) "Installation Restoration Chemical Data Quality Manual, Port Hueneme, CA" dated October 1999.

Project quality control criteria for the analyses performed at this site are presented in Appendix A. Factors that may affect the distribution of VOCs in the subsurface are presented in Appendix B. Field analytical reports and chain-of-custody documentation are provided in Appendix C. EST's methods and procedures for the analysis of soil gas samples are provided in Appendix D.

EST appreciates the opportunity to assist Earth Tech, Inc. on this project. Should you have any questions or require additional information, please contact me at (949) 679-9500.

Sincerely,
Environmental Support Technologies, Inc.

Kevin B. Aardahl

Kevin B. Aardahl
Project Manager

360 Goddard • Irvine, California 92618-4601 • (949) 679-9500 • Fax (949) 679-9501

LIMITATIONS AND WARRANTIES

This letter report titled "Soil Gas Survey Report – CTO 78 – Anomaly Area 3 – Former MCAS El Toro, Orange County, California," has been prepared for the exclusive use of Earth Tech, Inc. and assigned interested parties. The report has been prepared in accordance with generally accepted environmental assessment practices. No other warranty, expressed or implied, is made. The information provided in this report is based on measurements performed in specific areas during a specific limited period of time.

Soil gas sample analyses were conducted using gas chromatography/mass spectrometer (GC/MS). Soil gas survey data should be used in conjunction with other site-specific data.

Kevin B. Aardahl
Project Manager

Ragi Abraham
Laboratory Manager

November 12, 2002

APPENDICES

Appendix A

PROJECT QUALITY CONTROL CRITERIA
(Included For Both Earth Tech and EST)

Earth Tech's Project Quality Control Criteria for Soil Vapor/Ambient Air Samples

Analyte	Project Decision Threshold[a]	Reporting Limit Required	Precision (RPD)	Accuracy (%R)[b]	
				MS/MSD	LCS
Volatile Organic Compounds (modified SW8260 or TO-14) (µg/L)					
1,1,1,2-Tetrachloroethane	1	1	20	n.a	75–125
1,1,1-Trichloroethane	1	1	40	n.a	60–140
1,1,2,2-Tetrachloroethane	1	1	20	n.a	75–125
1,1,2-Trichloroethane	1	1	20	n.a	75–125
1,1,2-trichlorofluoroethane (F113)	1	1	20	n.a	75–125
1,1-Dichloroethane	1	1	20	n.a	75–125
1,1-Dichloroethene	1	1	20	n.a	75–125
1,2-dichlorotetrafluoroethane (F114)	1	1	20	n.a	75–125
1,2-Dichloroethane	1	1	40	n.a	60–140
1,2-Dichloropropane	1	1	20	n.a	75–125
2-Butanone (MEK)	1	1	20	n.a	75–125
2-Hexanone	1	1	20	n.a	75–125
4-Methyl-2-Pentanone (MIBK)	1	1	20	n.a	75–125
Acetone	1	1	20	n.a	75–125
Benzene	1	1	20	n.a	75–125
Bromodichloromethane	1	1	20	n.a	75–125
Bromoform	1	1	20	n.a	75–125
Bromomethane	1	1	20	n.a	75–125
Carbon disulfide	1	1	20	n.a	75–125
Carbon Tetrachloride	1	1	20	n.a	75–125
Chlorobenzene	1	1	20	n.a	75–125
Chloroethane	1	1	20	n.a	75–125
Chloroform	1	1	20	n.a	75–125
Chloromethane	1	1	20	n.a	75–125
cis-1,2-Dichloroethene	1	1	40	n.a	60–140
cis-1,3-Dichloropropene	1	1	20	n.a	75–125
Dibromochloromethane	1	1	20	n.a	75–125
Dichlorodifluoromethane (F12)	1	1	20	n.a	75-125
di-Isopropyl ether	1	1	20	n.a	75-125
Ethyl tert-butyl ether	1	1	20	n.a	75-125
Ethylbenzene	1	1	20	n.a	75–125
Methyl tertiary butyl ether	1	1	20	n.a	75–125
Methylene chloride	1	1	20	n.a	75–125
Styrene	1	1	20	n.a	75–125
Tertiary amyl ether	1	1	20	n.a	75–125
Tertiary butyl alcohol	1	1	20	n.a	75–125

Earth Tech's Project Quality Control Criteria for Soil Vapor/Ambient Air Samples

Analyte	Project Decision Threshold[a]	Reporting Limit Required	Precision (RPD)	Accuracy (%R)[b]	
				MS/MSD	LCS
Tetrachloroethene	1	1	20	n.a	75–125
Toluene	1	1	20	n.a	75–125
trans-1,2-Dichloroethene	1	1	40	n.a	60–140
trans-1,3-Dichloropropene	1	1	20	n.a	75–125
Trichlorofluoromethane (F11)	1	1	20	n.a	75–125
Trichloroethene	1	1	20	n.a	75–125
Vinyl chloride	1	1	20	n.a	75–125
m-xylene	1	1	20	n.a	75–125
o-xylene	1	1	20	n.a	75–125
p-xylene	1	1	20	n.a	75–125
1,2,4-Trichlorobenzene	1	1	20	n.a	75–125
1,2-Dichlorobenzene	1	1	20	n.a	75–125
1,3-Dichlorobenzene	1	1	20	n.a	75–125
1,4-Dichlorobenzene	1	1	20	n.a	75–125
Hexachlorobutadiene	1	1	20	n.a	75–125
Atmospheric Gases (ASTM-1946) (ppmv)					
Oxygen	1000	1000	20	n.a	75–125
Nitrogen	1000	1000	20	n.a	75–125
Carbon dioxide	10	10	20	n.a	75–125
Carbon monoxide	10	10	20	n.a	75–125
Methane	1	1	20	n.a	75–125

Notes:

µg/L = micrograms per liter
LCS = laboratory control sample
EPA = U.S. Environmental Protection Agency
MS = matrix spike
ppmv = parts per million, volume
n.a. = not applicable
RPD = relative percentage of difference
% R = percent recovery
MSD = matrix spike duplicate

[a] Project Decision Threshold is equal to the Reporting Limit. Decision Threshold for the hot spot determination is 300 µg/L total VOC concentration.

[b] Laboratory-specific performance criteria.

[c] Target analytes for TO-14 only.

EST's Project Quality Control Criteria for Soil Vapor/Ambient Air Samples

Analyte	Project Decision Threshold[a]	Reporting Limit Required	Precision (RPD)	Accuracy (%R)[b]	
				MS/MSD	LCS
Volatile Organic Compounds (modified SW8260 or TO-14) (µg/L)					
1,1,1,2-Tetrachloroethane	1	1	20	n.a	75–125
1,1,1-Trichloroethane	1	1	40	n.a	60–140
1,1,2,2-Tetrachloroethane	1	1	20	n.a	75–125
1,1,2-Trichloroethane	1	1	20	n.a	75–125
1,1,2-trichlorofluoroethane (F113)	1	1	20	n.a	75–125
1,1-Dichloroethane	1	1	20	n.a	75–125
1,1-Dichloroethene	1	1	20	n.a	75–125
1,2-dichlorotetrafluoroethane (F114)	1	1	20	n.a	75–125
1,2-Dichloroethane	1	1	40	n.a	60–140
1,2-Dichloropropane	1	1	20	n.a	75–125
2-Butanone (MEK)	1	5	40	n.a	60–140
2-Hexanone	1	5	40	n.a	60–140
4-Methyl-2-Pentanone (MIBK)	1	5	40	n.a	60–140
Acetone	1	5	40	n.a	60–140
Benzene	1	1	20	n.a	75–125
Bromodichloromethane	1	1	20	n.a	75–125
Bromoform	1	1	20	n.a	75–125
Bromomethane	1	1	20	n.a	75–125
Carbon disulfide	1	1	30	n.a	70–130
Carbon Tetrachloride	1	1	20	n.a	75–125
Chlorobenzene	1	1	20	n.a	75–125
Chloroethane	1	1	20	n.a	75–125
Chloroform	1	1	20	n.a	75–125
Chloromethane	1	1	20	n.a	75–125
cis-1,2-Dichloroethene	1	1	40	n.a	60–140
cis-1,3-Dichloropropene	1	1	20	n.a	75–125
Dibromochloromethane	1	1	20	n.a	75–125
Dichlorodifluoromethane (F12)	1	1	20	n.a	75-125
di-Isopropyl ether	1	1	20	n.a	75-125
Ethyl tert-butyl ether	1	1	20	n.a	75-125
Ethylbenzene	1	1	20	n.a	75–125
Methyl tertiary butyl ether	1	2	30	n.a	70–130
Methylene chloride	1	1	20	n.a	75–125
Styrene	1	1	20	n.a	75–125
Tertiary amyl ether	1	1	30	n.a	70–130
Tertiary butyl alcohol	1	10	40	n.a	60–140

EST's Project Quality Control Criteria for Soil Vapor/Ambient Air Samples

Analyte	Project Decision Threshold[a]	Reporting Limit Required	Precision (RPD)	Accuracy (%R)[b]	
				MS/MSD	LCS
Tetrachloroethene	1	1	20	n.a	75–125
Toluene	1	1	20	n.a	75–125
trans-1,2-Dichloroethene	1	1	40	n.a	60–140
trans-1,3-Dichloropropene	1	1	20	n.a	75–125
Trichlorofluoromethane (F11)	1	1	20	n.a	75–125
Trichloroethene	1	1	20	n.a	75–125
Vinyl chloride	1	1	20	n.a	75–125
m-xylene	1	1	20	n.a	75–125
o-xylene	1	1	20	n.a	75–125
p-xylene	1	1	20	n.a	75–125
1,2,4-Trichlorobenzene	1	1	20	n.a	75–125
1,2-Dichlorobenzene	1	1	20	n.a	75–125
1,3-Dichlorobenzene	1	1	20	n.a	75–125
1,4-Dichlorobenzene	1	1	20	n.a	75–125
Hexachlorobutadiene	1	1	20	n.a	75–125
Atmospheric Gases (ASTM-1946) (ppmv)					
Oxygen	1000	1000	20	n.a	75–125
Nitrogen	1000	1000	20	n.a	75–125
Carbon dioxide	10	10	20	n.a	75–125
Carbon monoxide	10	10	20	n.a	75–125
Methane	1	1	20	n.a	75–125

Notes:

µg/L = micrograms per liter
LCS = laboratory control sample
EPA = U.S. Environmental Protection Agency
MS = matrix spike
ppmv = parts per million, volume
n.a. = not applicable
RPD = relative percentage of difference
% R = percent recovery
MSD = matrix spike duplicate

[a] Project Decision Threshold is equal to the Reporting Limit. Decision Threshold for the hot spot determination is 300 µg/L total VOC concentration.

[b] Laboratory-specific performance criteria.

[c] Target analytes for TO-14 only.

Analytes that are in bold type have modified LCS Percent Recovery values that were approved by the Earth Tech, Inc. Project Manager prior to the beginning of the project.

Appendix B

FACTORS AFFECTING THE GAS-PHASE DISTRIBUTION OF VOCs IN THE SUBSURFACE

Appendix B

FACTORS AFFECTING THE GAS-PHASE DISTRIBUTION OF VOCs IN THE SUBSURFACE

Soil and groundwater contamination by volatile organic compounds (VOCs) can often be detected by analyzing trace gases in soil just below ground surface. This technique is possible because many VOCs will volatilize and move by molecular diffusion away from source areas toward regions of lower concentrations. A gas phase concentration gradient from the source to adjacent areas is established.

The following factors affect the transport and gas phase distribution of VOCs in the subsurface.

1. The liquid-gas partitioning coefficient of the compounds of interest (the "volatility" of the compound).

2. The vapor diffusivity, which is a measure of how quickly an individual compound "spreads out" within a volume of gas.

3. Retardation of the individual compounds as they migrate in the soil gas. Retardation may be due to degradation, adsorption on the soil matrix, tortuosity of the soil profile, or entrapment in unconnected pores.

4. The presence of impeding layers, wetting fronts of freshwater, or perched water tables, between the regional water table and ground surface.

5. The presence of soil moisture around man-made structures such as clarifiers and sumps may suppress volatilization and diffusion of VOCs resulting in false negative or low soil gas concentrations.

6. The presence of contaminants from localized spills or in the ambient air.

7. Movement of soil gas in response to barometric pressure changes.

8. The preferential migration of gas through zones of greater permeability (e.g. natural lithologic variation or back-fill of underground utilities).

9. Soil temperature.

At most sites, many of these factors are unknown or poorly understood. Because of this uncertainty, soil gas sampling should be used in conjunction with other site-specific data.

Appendix C

ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS AND CHAIN-OF-CUSTODY DOCUMENTATION

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST

GC/MS # 2 — 2091-2-101002

Sample ID	Ambient Air	LK027	LK028	LK024	LK025	LK021	LK022	LK018
Date Analyzed	10/10/02	10/10/02	10/10/02	10/10/02	10/10/02	10/10/02	10/10/02	10/10/02
Time Analyzed	8:22	9:17	9:44	10:10	10:37	11:03	11:30	11:57
Sample Amount (ml)	10	10	10	10	10	10	10	10
Purge Volume (ml)	NA	NA	NA	NA	NA	NA	NA	NA
Vacuum (in. H_2O)	NA	NA	NA	NA	NA	NA	NA	NA
Dilution Factor	1	1	1	1	1	1	1	1
COMMENTS								
tert-Butanol (TBA)	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10
Dichlorodifluoromethane (Freon®-12)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorotetrafluoroethane (Freon®-114)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Vinyl Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromomethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichlorofluoromethane (Freon®-11)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichlorotrifluoroethane (Freon®-113)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Acetone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Carbon Disulfide	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methylene Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methyl tert-butyl ether (MtBE)	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2
trans-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-Butanone (MEK)	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC
Diisopropyl Ether (DIPE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-ethoxy-2-methyl propane (ETBE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
tert-Amyl methyl ether (TAME)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Carbon tetrachloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Benzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloropropane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromodichloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
4-Methyl-2-Pentanone (MIBK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Toluene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
trans-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Tetrachloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1

Continued on next page

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST
(CONTINUED)

GC/MS # 2

2091-2-101002

Sample ID	Ambient Air	LK027	LK028	LK024	LK025	LK021	LK022	LK018
Sample Amount (ml)	10	10	10	10	10	10	10	10
Dilution Factor	1	1	1	1	1	1	1	1
2-Hexanone	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P
Dibromochloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Ethylbenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
meta- and para-Xylenes	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
ortho-Xylene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Styrene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromoform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,3-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,4-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2,4-Trichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Hexachlorobutadiene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
SURROGATES								
Dibromofluoromethane (Surrogate 1)	99%	123%	103%	110%	106%	115%	114%	116%
Toluene-d8 (Surrogate 2)	98%	101%	98%	101%	98%	102%	102%	105%
4-Bromofluorobenzene (Surrogate 3)	100%	110%	103%	105%	111%	105%	108%	112%

ml = milliliter
µg/L = microgram per liter
Concentrations reported in micrograms per liter (µg/L)
ND< = Not detected above the reported limit of quantitation
NA = Not Applicable

* = Exceeds quantitation range
B = Compound detected in blank
P = Precision out of Earth Tech Limits but within EST limits
QC = LCS out of Earth Tech limits but within EST limits
LCS = Laboratory Control Sample

ANALYST: Art Perez

REVIEWED BY: Ragi Abraham RA

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST

GC/MS # 2 | 2091-2-101C02

Sample ID	LK019	LK049	LK030	LK031	LK033	LK034	LK036	LK037
Date Analyzed	10/10/02	10/10/02	10/10/02	10/10/02	10/10/02	10/10/02	10/10/02	10/10/02
Time Analyzed	12:24	12:51	13:19	13:46	14:13	14:40	15:08	15:35
Sample Amount (ml)	10	10	10	10	10	10	10	10
Purge Volume (ml)	NA	NA	NA	NA	NA	NA	NA	NA
Vacuum (in. H_2O)	NA	NA	NA	NA	NA	NA	NA	NA
Dilution Factor	1	1	1	1	1	1	1	1
COMMENTS								
tert-Butanol (TBA)	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10
Dichlorodifluoromethane (Freon®-12)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorotetrafluoroethane (Freon®-114)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Vinyl Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromomethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichlorofluoromethane (Freon®-11)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichlorotrifluoroethane (Freon®-113)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Acetone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Carbon Disulfide	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methylene Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methyl tert-butyl ether (MtBE)	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2
trans-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-Butanone (MEK)	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	ND<5, P QC	ND<5, P, QC	ND<5 P, QC	ND<5, P, QC
Diisopropyl Ether (DIPE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-ethoxy-2-methyl propane (ETBE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
tert-Amyl methyl ether (TAME)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Carbon tetrachloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Benzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloropropane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromodichloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
4-Methyl-2-Pentanone (MIBK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Toluene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
trans-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Tetrachloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1

Continued on next page

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST
(CONTINUED)

GC/MS # 2

2091-2-101002

Sample ID	LK019	LK049	LK030	LK031	LK033	LK034	LK036	LK037
Sample Amount (ml)	10	10	10	10	10	10	10	10
Dilution Factor	1	1	1	1	1	1	1	1
2-Hexanone	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P
Dibromochloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Ethylbenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
meta- and para-Xylenes	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
ortho-Xylene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Styrene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromoform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,3-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,4-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2,4-Trichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Hexachlorobutadiene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
SURROGATES								
Dibromofluoromethane (Surrogate 1)	114%	109%	116%	112%	120%	118%	110%	117%
Toluene-d8 (Surrogate 2)	104%	104%	105%	103%	105%	105%	103%	104%
4-Bromofluorobenzene (Surrogate 3)	111%	109%	116%	110%	108%	114%	109%	112%

ml = milliliter
µg/L = microgram per liter
Concentrations reported in micrograms per liter (µg/L)
ND< = Not detected above the reported limit of quantitation
NA = Not Applicable

* = Exceeds quantitation range
B = Compound detected in blank
P = Precision out of Earth Tech Limits but within EST limits
QC = LCS out of Earth Tech limits but within EST limits
LCS = Laboratory Control Sample

ANALYST: Art Perez

REVIEWED BY: Ragi Abraham RA

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST

GC/MS # 2 2091-2-101002

Sample ID	LK039	LK040	LK129	LK045	LK046	LK027	LK049	NA
Date Analyzed	10/10/02	10/10/02	10/10/02	10/10/02	10/10/02	10/10/02	10/10/02	NA
Time Analyzed	16:02	16:29	16:56	17:22	17:50	18:36	19:04	NA
Sample Amount (ml)	10	10	10	10	10	10	10	NA
Purge Volume (ml)	NA	NA	NA	NA	NA	NA	NA	NA
Vacuum (in. H_2O)	NA	NA	NA	NA	NA	NA	NA	NA
Dilution Factor	1	1	1	1	1	1	1	NA
COMMENTS						Re-analysis	Duplicate	
tert-Butanol (TBA)	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	NA
Dichlorodifluoromethane (Freon®-12)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichlorotetrafluoroethane (Freon®-114)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Vinyl Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Bromomethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Trichlorofluoromethane (Freon®-11)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,2-Trichlorotrifluoroethane (Freon®-113)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Acetone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	NA
Carbon Disulfide	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Methylene Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Methyl tert-butyl ether (MtBE)	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	NA
trans-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
cis-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
2-Butanone (MEK)	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	ND<5, P, QC	NA
Diisopropyl Ether (DIPE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chloroform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
2-ethoxy-2-methyl propane (ETBE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,1-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
tert-Amyl methyl ether (TAME)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Carbon tetrachloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Benzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Trichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichloropropane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Bromodichloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
cis-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
4-Methyl-2-Pentanone (MIBK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	NA
Toluene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
trans-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,2-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Tetrachloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA

Continued on next page

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST
(CONTINUED)

GC/MS # 2 — 2091-2-101002

Sample ID	LK039	LK040	LK129	LK045	LK046	LK027	LK049	NA
Sample Amount (ml)	10	10	10	10	10	10	10	NA
Dilution Factor	1	1	1	1	1	1	1	NA
2-Hexanone	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	NA
Dibromochloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,1,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Ethylbenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
meta- and para-Xylenes	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
ortho-Xylene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Styrene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Bromoform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,2,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,3-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,4-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2,4-Trichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Hexachlorobutadiene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
SURROGATES								
Dibromofluoromethane (Surrogate 1)	115%	120%	124%	118%	122%	120%	114%	NA
Toluene-d8 (Surrogate 2)	101%	102%	104%	102%	104%	106%	100%	NA
4-Bromofluorobenzene (Surrogate 3)	112%	112%	113%	115%	108%	108%	111%	NA

ml = milliliter
µg/L = microgram per liter
Concentrations reported in micrograms per liter (µg/L)
ND< = Not detected above the reported limit of quantitation
NA = Not Applicable

* = Exceeds quantitation range
B = Compound detected in blank
P = Precision out of Earth Tech Limits but within EST limits
QC = LCS out of Earth Tech limits but within EST limits
LCS = Laboratory Control Sample

ANALYST: Art Perez

REVIEWED BY: Ragi Abraham RA

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST

GC/MS # 2 — 2091-2-101102

Sample ID	Ambient Air	LK048	LK042	LK043	LK054	LK055	LK120	LK057
Date Analyzed	10/11/02	10/11/02	10/11/02	10/11/02	10/11/02	10/11/02	10/11/02	10/11/02
Time Analyzed	8:21	8:47	9:14	9:40	10:07	10:33	10:59	11:26
Sample Amount (ml)	10	10	10	10	10	10	10	10
Purge Volume (ml)	NA	NA	NA	NA	NA	NA	NA	NA
Vacuum (in. H_2O)	NA	NA	NA	NA	NA	NA	NA	NA
Dilution Factor	1	1	1	1	1	1	1	1
COMMENTS								
tert-Butanol (TBA)	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10
Dichlorodifluoromethane (Freon®-12)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorotetrafluoroethane (Freon®-114)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Vinyl Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromomethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroethane	ND<1, P	ND<1, P	ND<1, P	ND<1, P	ND<1, P	ND<1, P	ND<1, P	ND<1, P
Trichlorofluoromethane (Freon®-11)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichlorotrifluoroethane (Freon®-113)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Acetone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Carbon Disulfide	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methylene Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methyl tert-butyl ether (MtBE)	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2
trans-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-Butanone (MEK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Diisopropyl Ether (DIPE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-ethoxy-2-methyl propane (ETBE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
tert-Amyl methyl ether (TAME)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Carbon tetrachloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Benzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloropropane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromodichloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
4-Methyl-2-Pentanone (MIBK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Toluene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
trans-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Tetrachloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1

Continued on next page

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST
(CONTINUED)

GC/MS # 2

2091-2-101102

Sample ID	Ambient Air	LK048	LK042	LK043	LK054	LK055	LK120	LK057
Sample Amount (ml)	10	10	10	10	10	10	10	10
Dilution Factor	1	1	1	1	1	1	1	1
2-Hexanone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Dibromochloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Ethylbenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
meta- and para-Xylenes	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
ortho-Xylene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Styrene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromoform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,3-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,4-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2,4-Trichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Hexachlorobutadiene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
SURROGATES								
Dibromofluoromethane (Surrogate 1)	106%	101%	108%	114%	109%	113%	115%	114%
Toluene-d8 (Surrogate 2)	100%	102%	102%	101%	101%	101%	103%	104%
4-Bromofluorobenzene (Surrogate 3)	105%	107%	107%	108%	108%	107%	107%	110%

ml = milliliter
µg/L = microgram per liter
Concentrations reported in micrograms per liter (µg/L)
ND< = Not detected above the reported limit of quantitation
NA = Not Applicable

* = Exceeds quantitation range
B = Compound detected in blank
P = Precision out of Earth Tech Limits but within EST limits
QC = LCS out of Earth Tech limits but within EST limits
LCS = Laboratory Control Sample

ANALYST: Art Perez

REVIEWED BY: Ragi Abraham RA

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST

GCMS # 2 | 2091-2-101102

Sample ID	LK058	LK060	LK061	LK051	LK052	LK121	LK072	LK073
Date Analyzed	10/11/02	10/11/02	10/11/02	10/11/02	10/11/02	10/11/02	10/11/02	10/11/02
Time Analyzed	11:53	12:20	12:47	13:14	13:40	14:07	14:34	15:01
Sample Amount (ml)	10	10	10	10	10	10	10	10
Purge Volume (ml)	NA	NA	NA	NA	NA	NA	NA	NA
Vacuum (in. H_2O)	NA	NA	NA	NA	NA	NA	NA	NA
Dilution Factor	1	1	1	1	1	1	1	1
COMMENTS								
tert-Butanol (TBA)	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10
Dichlorodifluoromethane (Freon®-12)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorotetrafluoroethane (Freon®-114)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Vinyl Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromomethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroethane	ND<1, P	ND<1, P	ND<1, P	ND<1, P	ND<1, P	ND<1, P	ND<1, P	ND<1, P
Trichlorofluoromethane (Freon®-11)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichlorotrifluoroethane (Freon®-113)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Acetone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Carbon Disulfide	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methylene Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methyl tert-butyl ether (MtBE)	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2
trans-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-Butanone (MEK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Diisopropyl Ether (DIPE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-ethoxy-2-methyl propane (ETBE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
tert-Amyl methyl ether (TAME)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Carbon tetrachloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Benzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloropropane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromodichloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
4-Methyl-2-Pentanone (MIBK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Toluene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
trans-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Tetrachloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1

Continued on next page

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST
(CONTINUED)

GC/MS # 2

2091-2-101102

Sample ID	LK058	LK060	LK061	LK051	LK052	LK121	LK072	LK073
Sample Amount (ml)	10	10	10	10	10	10	10	10
Dilution Factor	1	1	1	1	1	1	1	1
2-Hexanone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Dibromochloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Ethylbenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
meta- and para-Xylenes	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
ortho-Xylene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Styrene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromoform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,3-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,4-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2,4-Trichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Hexachlorobutadiene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
SURROGATES								
Dibromofluoromethane (Surrogate 1)	118%	117%	119%	121%	119%	114%	121%	119%
Toluene-d8 (Surrogate 2)	103%	103%	102%	104%	101%	100%	103%	100%
4-Bromofluorobenzene (Surrogate 3)	109%	113%	115%	114%	113%	112%	114%	114%

ml = milliliter
µg/L = microgram per liter
Concentrations reported in micrograms per liter (µg/L)
ND< = Not detected above the reported limit of quantitation
NA = Not Applicable

* = Exceeds quantitation range
B = Compound detected in blank
P = Precision out of Earth Tech Limits but within EST limits
QC = LCS out of Earth Tech limits but within EST limits
LCS = Laboratory Control Sample

ANALYST: Art Perez

REVIEWED BY: Ragi Abraham RA

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST

GC/MS # 2

2091-2-101102

Sample ID	LK069	LK070	LK122	LK066	LK067	LK063	LK067	NA
Date Analyzed	10/11/02	10/11/02	10/11/02	10/11/02	10/11/02	10/11/02	10/11/02	NA
Time Analyzed	15:27	15:54	16:55	17:21	17:48	18:43	19:10	NA
Sample Amount (ml)	10	10	10	10	10	10	10	NA
Purge Volume (ml)	NA	NA	NA	NA	NA	NA	NA	NA
Vacuum (in. H_2O)	NA	NA	NA	NA	NA	NA	NA	NA
Dilution Factor	1	1	1	1	1	1	1	NA
COMMENTS							Duplicate	
tert-Butanol (TBA)	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	NA
Dichlorodifluoromethane (Freon®-12)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichlorotetrafluoroethane (Freon®-114)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Vinyl Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Bromomethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chloroethane	ND<1, P	ND<1, P	ND<1, P	ND<1, P	ND<1, P	ND<1, P	ND<1, P	NA
Trichlorofluoromethane (Freon®-11)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,2-Trichlorotrifluoroethane (Freon®-113)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Acetone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	NA
Carbon Disulfide	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Methylene Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Methyl tert-butyl ether (MtBE)	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	NA
trans-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
cis-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
2-Butanone (MEK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	NA
Diisopropyl Ether (DIPE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chloroform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
2-ethoxy-2-methyl propane (ETBE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,1-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
tert-Amyl methyl ether (TAME)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Carbon tetrachloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Benzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Trichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichloropropane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Bromodichloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
cis-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
4-Methyl-2-Pentanone (MIBK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	NA
Toluene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
trans-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,2-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Tetrachloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA

Continued on next page

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST
(CONTINUED)

GC/MS # 2 | 2091-2-101102

Sample ID	LK069	LK070	LK122	LK066	LK067	LK063	LK067	NA
Sample Amount (ml)	10	10	10	10	10	10	10	NA
Dilution Factor	1	1	1	1	1	1	1	NA
2-Hexanone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	NA
Dibromochloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,1,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Ethylbenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
meta- and para-Xylenes	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
ortho-Xylene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Styrene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Bromoform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,2,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,3-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,4-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2,4-Trichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Hexachlorobutadiene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
SURROGATES								
Dibromofluoromethane (Surrogate 1)	120%	124%	111%	112%	125%	118%	118%	NA
Toluene-d8 (Surrogate 2)	103%	106%	103%	104%	103%	104%	104%	NA
4-Bromofluorobenzene (Surrogate 3)	120%	107%	112%	102%	117%	110%	122%	NA

ml = milliliter
µg/L = microgram per liter
Concentrations reported in micrograms per liter (µg/L)
ND< = Not detected above the reported limit of quantitation
NA = Not Applicable

* = Exceeds quantitation range
B = Compound detected in blank
P = Precision out of Earth Tech Limits but within EST limits
QC = LCS out of Earth Tech limits but within EST limits
LCS = Laboratory Control Sample

ANALYST: Art Perez

REVIEWED BY: Ragi Abraham RA

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST

GC/MS # 2

2091-2-101402

Sample ID	Ambient Air	LK064	LK075	LK076	LK078	LK079	LK082	LK081
Date Analyzed	10/14/02	10/14/02	10/14/02	10/14/02	10/14/02	10/14/02	10/14/02	10/14/02
Time Analyzed	8:52	11:28	11:54	12:21	12:48	13:15	13:41	14:06
Sample Amount (ml)	10	10	10	10	10	10	10	10
Purge Volume (ml)	NA	NA	NA	NA	NA	NA	NA	NA
Vacuum (in. H_2O)	NA	NA	NA	NA	NA	NA	NA	NA
Dilution Factor	1	1	1	1	1	1	1	1
COMMENTS								
tert-Butanol (TBA)	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10
Dichlorodifluoromethane (Freon®-12)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorotetrafluoroethane (Freon®-114)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Vinyl Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromomethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichlorofluoromethane (Freon®-11)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichlorotrifluoroethane (Freon®-113)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Acetone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Carbon Disulfide	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methylene Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methyl tert-butyl ether (MtBE)	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2
trans-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-Butanone (MEK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Diisopropyl Ether (DIPE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-ethoxy-2-methyl propane (ETBE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
tert-Amyl methyl ether (TAME)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Carbon tetrachloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Benzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloropropane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromodichloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
4-Methyl-2-Pentanone (MIBK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Toluene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
trans-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Tetrachloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1

Continued on next page

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST
(CONTINUED)

GC/MS # 2

2091-Z-101402

Sample ID	Ambient Air	LK064	LK075	LK076	LK078	LK079	LK082	LK081
Sample Amount (ml)	10	10	10	10	10	10	10	10
Dilution Factor	1	1	1	1	1	1	1	1
2-Hexanone	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5. P	ND<5, P
Dibromochloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Ethylbenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
meta- and para-Xylenes	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
ortho-Xylene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Styrene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromoform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,3-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,4-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2,4-Trichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Hexachlorobutadiene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
SURROGATES								
Dibromofluoromethane (Surrogate 1)	103%	111%	112%	105%	117%	117%	110%	113%
Toluene-d8 (Surrogate 2)	102%	102%	105%	102%	103%	105%	103%	102%
4-Bromofluorobenzene (Surrogate 3)	101%	102%	101%	103%	106%	109%	103%	106%

ml = milliliter
µg/L = microgram per liter
Concentrations reported in micrograms per liter (µg/L)
ND< = Not detected above the reported limit of quantitation
NA = Not Applicable

* = Exceeds quantitation range
B = Compound detected in blank
P = Precision out of Earth Tech Limits but within EST limits
QC = LCS out of Earth Tech limits but within EST limits
LCS = Laboratory Control Sample

ANALYST: Art Perez

REVIEWED BY: Ragi Abraham RA

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST

GC/MS # 2

2091-2-101402

Sample ID	LK084	LK085	LK096	LK097	LK093	LK094	LK123	LK124
Date Analyzed	10/14/02	10/14/02	10/14/02	10/14/02	10/14/02	10/14/02	10/14/02	10/14/02
Time Analyzed	14:32	15:03	15:30	15:57	16:23	16:49	17:14	17:41
Sample Amount (ml)	10	10	10	10	10	10	10	10
Purge Volume (ml)	NA	NA	NA	NA	NA	NA	NA	NA
Vacuum (in. H_2O)	NA	NA	NA	NA	NA	NA	NA	NA
Dilution Factor	1	1	1	1	1	1	1	1
COMMENTS								
tert-Butanol (TBA)	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10
Dichlorodifluoromethane (Freon®-12)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorotetrafluoroethane (Freon®-114)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Vinyl Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromomethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichlorofluoromethane (Freon®-11)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichlorotrifluoroethane (Freon®-113)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Acetone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Carbon Disulfide	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methylene Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methyl tert-butyl ether (MtBE)	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2
trans-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-Butanone (MEK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Diisopropyl Ether (DIPE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-ethoxy-2-methyl propane (ETBE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
tert-Amyl methyl ether (TAME)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Carbon tetrachloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Benzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloropropane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromodichloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
4-Methyl-2-Pentanone (MIBK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Toluene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
trans-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Tetrachloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1

Continued on next page

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST
(CONTINUED)

GC/MS # 2 | 2091-2-101402

Sample ID	LK084	LK085	LK096	LK097	LK093	LK094	LK123	LK124
Sample Amount (ml)	10	10	10	10	10	10	10	10
Dilution Factor	1	1	1	1	1	1	1	1
2-Hexanone	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P
Dibromochloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Ethylbenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
meta- and para-Xylenes	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
ortho-Xylene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Styrene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromoform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,3-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,4-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2,4-Trichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Hexachlorobutadiene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
SURROGATES								
Dibromofluoromethane (Surrogate 1)	119%	115%	117%	121%	119%	125%	118%	119%
Toluene-d8 (Surrogate 2)	104%	104%	106%	105%	105%	109%	101%	105%
4-Bromofluorobenzene (Surrogate 3)	110%	107%	106%	105%	106%	109%	112%	116%

ml = milliliter
µg/L = microgram per liter
Concentrations reported in micrograms per liter (ug/L)
ND< = Not detected above the reported limit of quantitation
NA = Not Applicable

* = Exceeds quantitation range
B = Compound detected in blank
P = Precision out of Earth Tech Limits but within EST limits
QC = LCS out of Earth Tech limits but within EST limits
LCS = Laboratory Control Sample

ANALYST: Art Perez

REVIEWED BY: Ragi Abraham RA

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST

GC/MS # 2

2091-2-101402

Sample ID	LK094	LK090	LK091	LK125	LK087	LK088	LK088	NA
Date Analyzed	10/14/02	10/14/02	10/14/02	10/14/02	10/14/02	10/14/02	10/14/02	NA
Time Analyzed	18:26	18:53	19:20	19:46	20:13	20:40	21:06	NA
Sample Amount (ml)	10	10	10	10	10	10	10	NA
Purge Volume (ml)	NA	NA	NA	NA	NA	NA	NA	NA
Vacuum (in. H_2O)	NA	NA	NA	NA	NA	NA	NA	NA
Dilution Factor	1	1	1	1	1	1	1	NA
COMMENTS	Duplicate						Duplicate	
tert-Butanol (TBA)	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	NA
Dichlorodifluoromethane (Freon®-12)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichlorotetrafluoroethane (Freon®-114)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Vinyl Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Bromomethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Trichlorofluoromethane (Freon®-11)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,2-Trichlorotrifluoroethane (Freon®-113)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Acetone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	NA
Carbon Disulfide	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Methylene Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Methyl tert-butyl ether (MtBE)	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	NA
trans-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
cis-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
2-Butanone (MEK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	NA
Diisopropyl Ether (DIPE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chloroform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
2-ethoxy-2-methyl propane (ETBE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,1-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
tert-Amyl methyl ether (TAME)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Carbon tetrachloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Benzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Trichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichloropropane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Bromodichloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
cis-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
4-Methyl-2-Pentanone (MIBK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	NA
Toluene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
trans-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,2-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Tetrachloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA

Continued on next page

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST
(CONTINUED)

GC/MS # 2 | 2091-2-101402

Sample ID	LK094	LK090	LK091	LK125	LK087	LK088	LK088	NA
Sample Amount (ml)	10	10	10	10	10	10	10	NA
Dilution Factor	1	1	1	1	1	1	1	NA
2-Hexanone	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	NA
Dibromochloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Chlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,1,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Ethylbenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
meta- and para-Xylenes	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
ortho-Xylene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Styrene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Bromoform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,1,2,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,3-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,4-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
1,2,4-Trichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
Hexachlorobutadiene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	NA
SURROGATES								
Dibromofluoromethane (Surrogate 1)	113%	114%	117%	116%	120%	119%	115%	NA
Toluene-d8 (Surrogate 2)	104%	103%	107%	100%	105%	105%	105%	NA
4-Bromofluorobenzene (Surrogate 3)	107%	106%	110%	104%	111%	110%	105%	NA

ml = milliliter
µg/L = microgram per liter
Concentrations reported in micrograms per liter (µg/L)
ND< = Not detected above the reported limit of quantitation
NA = Not Applicable

* = Exceeds quantitation range
B = Compound detected in blank
P = Precision out of Earth Tech Limits but within EST limits
QC = LCS out of Earth Tech limits but within EST limits
LCS = Laboratory Control Sample

ANALYST: Art Perez

REVIEWED BY: Ragi Abraham RA

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST

GC/MS # 2

2091-2-101502

Sample ID	Ambient Air	LK099	LK100	LK102	LK103	LK105	LK106	LK108
Date Analyzed	10/15/02	10/15/02	10/15/02	10/15/02	10/15/02	10/15/02	10/15/02	10/15/02
Time Analyzed	7:48	10:46	11:11	11:35	11:58	12:22	12:45	13:09
Sample Amount (ml)	10	10	10	10	10	10	10	10
Purge Volume (ml)	NA	NA	NA	NA	NA	NA	NA	NA
Vacuum (in. H_2O)	NA	NA	NA	NA	NA	NA	NA	NA
Dilution Factor	1	1	1	1	1	1	1	1
COMMENTS								
tert-Butanol (TBA)	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10
Dichlorodifluoromethane (Freon®-12)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorotetrafluoroethane (Freon®-114)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Vinyl Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromomethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichlorofluoromethane (Freon®-11)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichlorotrifluoroethane (Freon®-113)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Acetone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Carbon Disulfide	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methylene Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methyl tert-butyl ether (MtBE)	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2
trans-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-Butanone (MEK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Diisopropyl Ether (DIPE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-ethoxy-2-methyl propane (ETBE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
tert-Amyl methyl ether (TAME)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Carbon tetrachloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Benzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloropropane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromodichloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
4-Methyl-2-Pentanone (MIBK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Toluene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
trans-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Tetrachloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1

Continued on next page

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST
(CONTINUED)

GC/MS # 2 | 2091-2-101502

Sample ID	Ambient Air	LK099	LK100	LK102	LK103	LK105	LK106	LK108
Sample Amount (ml)	10	10	10	10	10	10	10	10
Dilution Factor	1	1	1	1	1	1	1	1
2-Hexanone	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P
Dibromochloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Ethylbenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
meta- and para-Xylenes	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
ortho-Xylene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Styrene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromoform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,3-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,4-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2,4-Trichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Hexachlorobutadiene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
SURROGATES								
Dibromofluoromethane (Surrogate 1)	106%	110%	112%	106%	112%	115%	108%	113%
Toluene-d8 (Surrogate 2)	101%	101%	108%	106%	104%	105%	102%	104%
4-Bromofluorobenzene (Surrogate 3)	105%	107%	107%	106%	107%	106%	108%	104%

ml = milliliter
µg/L = microgram per liter
Concentrations reported in micrograms per liter (µg/L)
ND< = Not detected above the reported limit of quantitation
NA = Not Applicable

* = Exceeds quantitation range
B = Compound detected in blank
P = Precision out of Earth Tech Limits but within EST limits
QC = LCS out of Earth Tech limits but within EST limits
LCS = Laboratory Control Sample

ANALYST: Art Perez

REVIEWED BY: Ragi Abraham RA

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST

GC/MS # 2 — 2091-2-101502

Sample ID	LK109	LK126	LK114	LK115	LK127	LK111	LK112	LK112
Date Analyzed	10/15/02	10/15/02	10/15/02	10/15/02	10/15/02	10/15/02	10/15/02	10/15/02
Time Analyzed	13:33	13:57	14:21	14:46	15:11	15:35	16:01	16:25
Sample Amount (ml)	10	10	10	10	10	10	10	10
Purge Volume (ml)	NA	NA	NA	NA	NA	NA	NA	NA
Vacuum (in. H_2O)	NA	NA	NA	NA	NA	NA	NA	NA
Dilution Factor	1	1	1	1	1	1	1	1
COMMENTS								Duplicate
tert-Butanol (TBA)	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10	ND<10
Dichlorodifluoromethane (Freon®-12)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorotetrafluoroethane (Freon®-114)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Vinyl Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromomethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichlorofluoromethane (Freon®-11)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichlorotrifluoroethane (Freon®-113)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Acetone	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Carbon Disulfide	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methylene Chloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Methyl tert-butyl ether (MtBE)	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2
trans-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,2-Dichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-Butanone (MEK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Diisopropyl Ether (DIPE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chloroform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
2-ethoxy-2-methyl propane (ETBE)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
tert-Amyl methyl ether (TAME)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Carbon tetrachloride	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Benzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Trichloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichloropropane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromodichloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
cis-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
4-Methyl-2-Pentanone (MIBK)	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5	ND<5
Toluene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
trans-1,3-Dichloropropene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2-Trichloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Tetrachloroethene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1

Continued on next page

TABLE C-1

VOLATILE ORGANIC COMPOUNDS
FIELD ANALYTICAL RESULTS FOR SOIL GAS SAMPLES
CTO 78 - ANOMALY AREA 3, FORMER MCAS EL TORO, ORANGE COUNTY, CALIFORNIA
51-TARGET COMPOUND LIST
(CONTINUED)

GC/MS # 2 — 2091-2-101502

Sample ID	LK109	LK126	LK114	LK115	LK127	LK111	LK112	LK112
Sample Amount (ml)	10	10	10	10	10	10	10	10
Dilution Factor	1	1	1	1	1	1	1	1
2-Hexanone	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P	ND<5, P
Dibromochloromethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Chlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,1,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Ethylbenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
meta- and para-Xylenes	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
ortho-Xylene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Styrene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Bromoform	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,1,2,2-Tetrachloroethane	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,3-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,4-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2-Dichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
1,2,4-Trichlorobenzene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
Hexachlorobutadiene	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
SURROGATES								
Dibromofluoromethane (Surrogate 1)	123%	118%	119%	119%	121%	116%	120%	118%
Toluene-d8 (Surrogate 2)	107%	104%	102%	104%	106%	104%	104%	102%
4-Bromofluorobenzene (Surrogate 3)	110%	107%	111%	110%	111%	110%	114%	110%

ml = milliliter
µg/L = microgram per liter
Concentrations reported in micrograms per liter (µg/L)
ND< = Not detected above the reported limit of quantitation
NA = Not Applicable

* = Exceeds quantitation range
B = Compound detected in blank
P = Precision out of Earth Tech Limits but within EST limits
QC = LCS out of Earth Tech limits but within EST limits
LCS = Laboratory Control Sample

ANALYST: Art Perez

REVIEWED BY: Ragi Abraham RA

EARTH TECH

Chain of Custody Record

Lab job no.: _____
Date _____
Page 1 of _____

Laboratory ~~AIR TOXICS~~ EST
Address ~~180 BLUE RAVINE ROAD~~
~~SUITE B~~
~~FOLSOM, CA 95630~~
Client EARTH TECH
Address 100 WEST BROADWAY STE 240
~~FOLSOM~~, LONG BEACH, CA 90802
Project Name EL TORO ANOMALY AREA 3
Project Number 37380.01.30.02

Method of Shipment _____
Shipment No. _____
Airbill No. _____
Cooler No. 1
Project Manager CRISPIN WANYOIKE
Telephone No. (562) 951-2057
Fax. No. (562) 951-2086
Samplers: (Signature) Christopher Wong

Field Sample ID	Matrix	Sample Depth Interval	Sampling Date	Sampling Time	Type/Size of Container	Preservation Temp.	Preservation Chemical	Filtered	No. of Containers	VOCs (8260)													Remarks
LK027	SG	5 /	10/09/02	0925	1L TEDLAR				1	X													
LK028		15 /		0955					1	X													
LK024		5 /		1030					1	X													
LK025		15 /		1100					1	X													
LK021		5 /		1230					1	X													
LK022		15 /		1325					1	X													
LK018		5 /		1400					1	X													
LK019		15 /		1425					1	X													
LK030		5 /		1500					1	X													
LK031		15 /		1525					1	X													
LK033		5 /		1600					1	X													
LK034		15 /		1700					1	X													

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature Christopher Wong	10/10	Signature Art Perez	10/10	Signature		Signature	
Printed CHRISTOPHER WONG	Time 0800	Printed Art Perez	Time 0855	Printed	Time	Printed	Time
Company EARTH TECH		Company EST		Company		Company	
Reason				Reason			

Comments: SG = SOIL GAS

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Laboratory EST
Address _____

Method of Shipment _____
Shipment No. _____
Airbill No. _____
Cooler No. _____

Client EARTH TECH
Address 100 WEST BROADWAY STE 240
LONG BEACH, CA 90802
Project Name MCAS EL TORO ANNUALY AREA 3
Project Number 37380 01.30.02

Project Manager CRISPIN WANYOIKE
Telephone No. (562) 951-2057
Fax. No. (562) 951-2086
Samplers: (Signature) Christopher Wong

Analysis Required

Field Sample ID	Matrix	Sample Depth Interval	Sampling Date	Sampling Time	Type/Size of Container	Preservation Temp	Preservation Chemical	Filtered	No. of Containers	VOCs (8260)												Remarks
LK036	SG	5'	10/10/02	0815	1L TEDLAR				1	X												
LK037		15'		0925					1	X												
LK039		5'		0952					1	X												
LK040		15'		1057					1	X												
LK048		5'		1140					1	X												
LK049		15'		1205					1	X												
LK129		25'		1415					1	X												
LK045		5'		1510					1	X												
LK046		15'		1520					1	X												
LK042		5'		1600					1	X												
LK043		15'		1612					1	X												
LK054		5'		1700					1	X												

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature Christopher Wong	10/10	Signature Art Perez	10/10	Signature		Signature	
Printed CHRISTOPHER WONG	Time	Printed Art Perez	Time	Printed	Time	Printed	Time
Company EARTH TECH		Company EST		Company		Company	
Reason				Reason			

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EARTH TECH
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Laboratory EST
Address
Client EARTH TECH
Address 100 WEST BROADWAY STE 240
LONG BEACH, CA 90802
Project Name MCAS EL TORO, ANOMALY AREA 3
Project Number 37380.01.30.02

Method of Shipment
Shipment No.
Airbill No.
Cooler No.
Project Manager CRISPIN WANYOIKE
Telephone No. (562) 951-2057
Fax. No. (562) 951-2086
Samplers: (Signature) Christopher Wong

Lab job no.:
Date
Page of

Field Sample ID	Matrix	Sample Depth Interval	Sampling Date	Sampling Time	Type/Size of Container	Preservation Temp	Preservation Chemical	Filtered Y	No. of Containers	VOC (8260)	Remarks
LK055	SG	15'	10/10/02	1707	1L TEDLAR				1	X	
LK120	SG	15'	↓	1710					1	X	
LK057		5'	10/11/02	0815					1	X	
LK058		15'		0825					1	X	
LK060		5'		0945					1	X	
LK061		15'		1000					1	X	
LK051		5'		1045					1	X	
LK052		15'		1050					1	X	
LK121		15'		1052					1	X	
LK072		5'		1130					1	X	
LK073		15'		1137					1	X	
LK069		5'		1320					1	X	

Analysis Required

Relinquished by:	Date	Received by:	Date
Signature Christopher Wong	10/11/02	Signature Art Perez	10-11
Printed CHRISTOPHER WONG	Time	Printed Art Perez	Time
Company EARTH TECH	1355	Company EST	
Reason			

Relinquished by:	Date	Received by:	Date
Signature		Signature	
Printed	Time	Printed	Time
Company		Company	
Reason			

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Signature		Signature	
Printed	Time	Printed	Time
Company		Company	
Reason			

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EARTH TECH

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Date _____
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Laboratory EST
Address _____

Client EARTH TECH
Address 100 WEST BROADWAY STE 240
LONG BEACH, CA 90802
Project Name MCAS EL TORO, ANOMALY AREA 3
Project Number 37380.01.3002

Method of Shipment _____
Shipment No. _____
Airbill No. _____
Cooler No. _____
Project Manager CRISPIN WANYOIKE
Telephone No. (562) 951-2057
Fax. No. (562) 951-2086
Samplers: (Signature) Christopher Wong

Field Sample ID	Matrix	Sample Depth Interval	Sampling Date	Sampling Time	Type/Size of Container	Preservation Temp	Preservation Chemical		Filtered Y	No. of Containers	VOCs (8260B)												Remarks
LK070	SG	15'	10/11/02	1340	1L TEDLAR					1	X												
LK122		15'		1345						1	X												
LK066		5'		1420						1	X												
LK067		15'		1430						1	X												
LK063		5'		1505						1	X												
LK064		15'		1512						1	X												
		/																					
		/																					
		/																					
		/																					
		/																					
		/																					

Analysis Required

Relinquished by:	Date	Received by:	Date
Signature: Christopher Wong	10/11/02	Signature: Art Perez	10-11
Printed: CHRISTOPHER WONG	Time 1550	Printed: Art Perez	Time
Company: EARTH TECH		Company: EST	
Reason:			

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Signature:		Signature:	
Printed:	Time	Printed:	Time
Company:		Company:	
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EARTH TECH

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Laboratory EST
Address
Client EARTH TECH
Address 100 WEST BROADWAY SUITE 240 LONG BEACH, CA 90802
Project Name EL TORO ANOMALY AREA 3
Project Number 37380 01.30.02

Method of Shipment
Shipment No.
Airbill No.
Cooler No.
Project Manager CRISPIN WALLYOIKE
Telephone No. (562) 951-2057
Fax No. (562) 951-2086
Samplers: (Signature) Christopher Wong

Lab job no.:
Date
Page of

Field Sample ID	Matrix	Sample Depth Interval	Sampling Date	Sampling Time	Type/Size of Container	Preservation Temp	Preservation Chemical	Filtered:	No. of Containers	VOCs (E260B)	Remarks
LK075	SG	5 /	10/14/02	0810	1L TEDLAR				1	X	
LK076		15 /		0819					1	X	
LK078		5 /		0922					1	X	
LK079		15 /		0955					1	X	
LK081		5 /		635					1	X	
LK082		15 /		1105					1	X	
LK084		5 /		1130					1	X	
LK085		15 /		1145					1	X	
LK123		15 /		1147					1	X	
LK096		5 /		1305					1	X	
LK097		15 /		1310					1	X	
LK124		15 /		1312					1	X	

Analysis Required

Relinquished by:	Date	Received by:	Date
Signature Christopher Wong	10/14/02	Signature Art Perez	10-14-02
Printed CHRISTOPHER WONG	Time 1330	Printed Art Perez	Time
Company EARTH TECH		Company EST	
Reason			

Relinquished by:	Date	Received by:	Date
Signature		Signature	
Printed	Time	Printed	Time
Company		Company	
Reason			

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Signature		Signature	
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Reason			

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Date _____
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Laboratory: EST
Address: _____
Client: EARTH TECH
Address: 100 WEST BROADWAY SUITE 240
LONG BEACH, CA 90802
Project Name: MCAS EL TORO ANOMALY AREA 3
Project Number: _____

Method of Shipment: _____
Shipment No.: _____
Airbill No.: _____
Cooler No.: _____
Project Manager: CRISPIN WANYOIKE
Telephone No.: (562) 951-2057
Fax. No.: (562) 951-2086
Samplers: (Signature) Christopher Wong

Analysis Required: VOCs (8260B)

Field Sample ID	Matrix	Sample Depth Interval	Sampling Date	Sampling Time	Type/Size of Container	Preservation Temp	Preservation Chemical	Filtered Y/N	No. of Containers	VOCs (8260B)	Remarks
LK093	SG	5'	10/14/02	1345	1L TEDLAR				1	X	
LK094		15'		1355					1	X	
LK090		5'		1450					1	X	
LK091		15'		1615					1	X	
LK125		15'		1617					1	X	
LK087		5'		1655					1	X	
LK088		15'		1700					1	X	
LK099		5'	10/15/02	0812					1	X	
LK100		15'		0820					1	X	
LK102		5'		0850					1	X	
LK103		15'		0900					1	X	
LK105		5'		0930					1	X	

Relinquished by:	Date	Received by:	Date
Signature: Christopher Wong	10/16/02	Signature: Art Perez	11/15
Printed: CHRISTOPHER WONG	Time	Printed: Art Perez	Time
Company: EARTH TECH	1045	Company: EST	
Reason:			

Relinquished by:	Date	Received by:	Date
Signature:		Signature:	
Printed:	Time	Printed:	Time
Company:		Company:	
Reason:			

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Signature:		Signature:	
Printed:	Time	Printed:	Time
Company:		Company:	
Reason:			

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EARTH TECH

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Laboratory: EST
Address:

Client: EARTH TECH
Address: 100 WEST BROADWAY, SUITE 240
LONG BEACH, CA 90802
Project Name: MCAS EL TORO, ANOMALY AREA 3
Project Number: 37380.02.30.02

Method of Shipment:
Shipment No.:
Airbill No.:
Cooler No.:
Project Manager: CRISPIN WANYOIKE
Telephone No.: (562) 951-2057
Fax. No.: (562) 951-2086
Samplers: (Signature) Christopher Wong

Lab job no.:
Date:
Page ___ of ___

Analysis Required: VOCs (8260B)

Field Sample ID	Matrix	Sample Depth Interval	Sampling Date	Sampling Time	Type/Size of Container	Preservation Temp	Preservation Chemical	Filtered	No. of Containers	VOCs (8260B)	Remarks
LK 106	SG	15' /	10/15/02	0938	1L TEDLAR				1	X	
LK 108		5' /		1012					1	X	
LK 109		12' /		1045					1	X	
LK 126		12' /		1047					1	X	
LK 114		5' /		1133					1	X	
LK 115		15' /		1140					1	X	
LK 127		15' /		1142					1	X	
LK 111		5' /		1315					1	X	
LK 112		15' /		1330					1	X	
		/									
		/									
		/									

Relinquished by:	Date	Received by:	Date
Signature: Christopher Wong	10/15/02	Signature: Art Perez	11/15
Printed: CHRISTOPHER WONG	Time: 1355	Printed: Art Perez	Time
Company: EARTH TECH		Company: EST	
Reason:			

Relinquished by:	Date	Received by:	Date
Signature:		Signature:	
Printed:	Time	Printed:	Time
Company:		Company:	
Reason:			

Relinquished by:	Date	Received by:	Date
Signature:		Signature:	
Printed:	Time	Printed:	Time
Company:		Company:	
Reason:			

Comments: SG = SOIL GAS

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Appendix D

METHODS AND PROCEDURES FOR THE ANALYSIS OF SOIL GAS SAMPLES FOR VOLATILE ORGANIC COMPOUNDS

METHODS AND PROCEDURES FOR THE ANALYSIS OF SOIL GAS SAMPLES FOR VOLATILE ORGANIC COMPOUNDS

ENVIRONMENTAL SUPPORT TECHNOLOGIES, INC.
360 Goddard
Irvine, California 92618-4601
(949) 679-9500
Fax (949) 679-9501

2002

METHODS AND PROCEDURES FOR THE ANALYSIS OF SOIL GAS SAMPLES FOR VOLATILE ORGANIC COMPOUNDS

Soil gas samples were collected from Tedlar™ bags using a glass syringe fitted with a disposable needle and a gas-tight valve. Immediately following collection, the samples were introduced into a purge and trap autosampler and then automatically transferred into a gas chromatograph/mass spectrometer (GCMS) for analysis. Soil gas samples were analyzed for fifty-one (51) volatile organic compounds (VOCs).

Reporting limits for the target compounds are listed in Earth Tech's Project Quality Control Criteria for Soil Vapor/Ambient Air Samples (Table 1). A series of quality assurance/quality control (QA/QC) analyses were performed prior to, during, and following the analysis of the soil gas samples.

SURROGATE COMPOUNDS

Three (3) surrogate compounds were added to all analyzed samples. Surrogate compound concentrations were within the calibration range. The percent recovery of the surrogate compounds was calculated and reported with soil gas sample results. The acceptance goal for surrogate recovery is ±25 percent difference from the true concentration of the surrogate compounds. Surrogate compounds added to each sample analysis run included dibromofluoromethane, toluene-d8, and 4-bromofluorobenaene, each at a concentration of 25 µg/L.

INITIAL MULTI-POINT EQUIPMENT CALIBRATION

The GC/MS used for soil gas analysis was calibrated using high-purity solvent-based standards obtained from certified vendors. Standards were typically prepared in high-purity methanol or dodecane solvent. Calibration was performed using solvent-based standards at varying concentration levels. When necessary, stock solvent-based standards were diluted to an appropriate concentration. Diluted standards were prepared by introducing a known volume of stock solvent-based standard into a known volume of high-purity solvent.

Initial GC/MS calibration was performed for the target compounds. The GC/MS was calibrated using a minimum of five standard injections to establish a multi-point calibration curve. The lowest standard was not higher than five times the method detection limit. The percent relative standard deviation (%RSD) of the response factor (RF) for each target compound did not exceed the criteria specified in the EPA Method 8260B and the LARWQCB guidelines. Identification and quantitation of compounds in the field was conducted under the same analytical conditions as for the initial calibration.

LABORATORY CONTROL SAMPLE

A laboratory control sample (LCS) from a source or a lot number other than the initial calibration standard was analyzed to verify the true concentration of the initial calibration standard. The percent difference for each compound is listed in EST's Project Quality Control Criteria for Soil Vapor/Ambient Air Samples (Table D-2). Items listed in bold type were modified from the proposed original listed in Table D-1. The Earth Tech Project Manager approved these changes prior to the

TABLE D-1

Earth Tech's Project Quality Control Criteria for Soil Vapor/Ambient Air Samples

Analyte	Project Decision Threshold[a]	Reporting Limit Required	Precision (RPD)	Accuracy (%R)[b]	
				MS/MSD	LCS
Volatile Organic Compounds (modified SW8260 or TO-14) (µg/L)					
1,1,1,2-Tetrachloroethane	1	1	20	n.a	75–125
1,1,1-Trichloroethane	1	1	40	n.a	60–140
1,1,2,2-Tetrachloroethane	1	1	20	n.a	75–125
1,1,2-Trichloroethane	1	1	20	n.a	75–125
1,1,2-trichlorofluoroethane (F113)	1	1	20	n.a	75–125
1,1-Dichloroethane	1	1	20	n.a	75–125
1,1-Dichloroethene	1	1	20	n.a	75–125
1,2-dichlorotetrafluoroethane (F114)	1	1	20	n.a	75–125
1,2-Dichloroethane	1	1	40	n.a	60–140
1,2-Dichloropropane	1	1	20	n.a	75–125
2-Butanone (MEK)	1	1	20	n.a	75–125
2-Hexanone	1	1	20	n.a	75–125
4-Methyl-2-Pentanone (MIBK)	1	1	20	n.a	75–125
Acetone	1	1	20	n.a	75–125
Benzene	1	1	20	n.a	75–125
Bromodichloromethane	1	1	20	n.a	75–125
Bromoform	1	1	20	n.a	75–125
Bromomethane	1	1	20	n.a	75–125
Carbon disulfide	1	1	20	n.a	75–125
Carbon Tetrachloride	1	1	20	n.a	75–125
Chlorobenzene	1	1	20	n.a	75–125
Chloroethane	1	1	20	n.a	75–125
Chloroform	1	1	20	n.a	75–125
Chloromethane	1	1	20	n.a	75–125
cis-1,2-Dichloroethene	1	1	40	n.a	60–140
cis-1,3-Dichloropropene	1	1	20	n.a	75–125
Dibromochloromethane	1	1	20	n.a	75–125
Dichlorodifluoromethane (F12)	1	1	20	n.a	75-125
di-Isopropyl ether	1	1	20	n.a	75-125
Ethyl tert-butyl ether	1	1	20	n.a	75-125
Ethylbenzene	1	1	20	n.a	75–125
Methyl tertiary butyl ether	1	1	20	n.a	75–125
Methylene chloride	1	1	20	n.a	75–125
Styrene	1	1	20	n.a	75–125
Tertiary amyl ether	1	1	20	n.a	75–125
Tertiary butyl alcohol	1	1	20	n.a	75–125

TABLE D-1

Earth Tech's Project Quality Control Criteria for Soil Vapor/Ambient Air Samples

Analyte	Project Decision Threshold[a]	Reporting Limit Required	Precision (RPD)	Accuracy (%R)[b]	
				MS/MSD	LCS
Tetrachloroethene	1	1	20	n.a	75–125
Toluene	1	1	20	n.a	75–125
trans-1,2-Dichloroethene	1	1	40	n.a	60–140
trans-1,3-Dichloropropene	1	1	20	n.a	75–125
Trichlorofluoromethane (F11)	1	1	20	n.a	75–125
Trichloroethene	1	1	20	n.a	75–125
Vinyl chloride	1	1	20	n.a	75–125
m-xylene	1	1	20	n.a	75–125
o-xylene	1	1	20	n.a	75–125
p-xylene	1	1	20	n.a	75–125
1,2,4-Trichlorobenzene	1	1	20	n.a	75–125
1,2-Dichlorobenzene	1	1	20	n.a	75–125
1,3-Dichlorobenzene	1	1	20	n.a	75–125
1,4-Dichlorobenzene	1	1	20	n.a	75–125
Hexachlorobutadiene	1	1	20	n.a	75–125
Atmospheric Gases (ASTM-1946) (ppmv)					
Oxygen	1000	1000	20	n.a	75–125
Nitrogen	1000	1000	20	n.a	75–125
Carbon dioxide	10	10	20	n.a	75–125
Carbon monoxide	10	10	20	n.a	75–125
Methane	1	1	20	n.a	75–125

Notes:

µg/L = micrograms per liter
LCS = laboratory control sample
EPA = U.S. Environmental Protection Agency
MS = matrix spike
ppmv = parts per million, volume
n.a. = not applicable
RPD = relative percentage of difference
% R = percent recovery
MSD = matrix spike duplicate

[a] Project Decision Threshold is equal to the Reporting Limit. Decision Threshold for the hot spot determination is 300 µg/L total VOC concentration.

[b] Laboratory-specific performance criteria.

[c] Target analytes for TO-14 only.

TABLE D-2

EST's Project Quality Control Criteria for Soil Vapor/Ambient Air Samples

Analyte	Project Decision Threshold[a]	Reporting Limit Required	Precision (RPD)	Accuracy (%R)[b]	
				MS/MSD	LCS
Volatile Organic Compounds (modified SW8260 or TO-14) (µg/L)					
1,1,1,2-Tetrachloroethane	1	1	20	n.a	75–125
1,1,1-Trichloroethane	1	1	40	n.a	60–140
1,1,2,2-Tetrachloroethane	1	1	20	n.a	75–125
1,1,2-Trichloroethane	1	1	20	n.a	75–125
1,1,2-trichlorofluoroethane (F113)	1	1	20	n.a	75–125
1,1-Dichloroethane	1	1	20	n.a	75–125
1,1-Dichloroethene	1	1	20	n.a	75–125
1,2-dichlorotetrafluoroethane (F114)	1	1	20	n.a	75–125
1,2-Dichloroethane	1	1	40	n.a	60–140
1,2-Dichloropropane	1	1	20	n.a	75–125
2-Butanone (MEK)	1	5	40	n.a	60–140
2-Hexanone	1	5	40	n.a	60–140
4-Methyl-2-Pentanone (MIBK)	1	5	40	n.a	60–140
Acetone	1	5	40	n.a	60–140
Benzene	1	1	20	n.a	75–125
Bromodichloromethane	1	1	20	n.a	75–125
Bromoform	1	1	20	n.a	75–125
Bromomethane	1	1	20	n.a	75–125
Carbon disulfide	1	1	30	n.a	70–130
Carbon Tetrachloride	1	1	20	n.a	75–125
Chlorobenzene	1	1	20	n.a	75–125
Chloroethane	1	1	20	n.a	75–125
Chloroform	1	1	20	n.a	75–125
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Ethyl tert-butyl ether	1	1	20	n.a	75-125
Ethylbenzene	1	1	20	n.a	75–125
Methyl tertiary butyl ether	1	2	30	n.a	70–130
Methylene chloride	1	1	20	n.a	75–125
Styrene	1	1	20	n.a	75–125
Tertiary amyl ether	1	1	30	n.a	70–130
Tertiary butyl alcohol	1	10	40	n.a	60–140

TABLE D-2

EST's Project Quality Control Criteria for Soil Vapor/Ambient Air Samples

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				MS/MSD	LCS
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trans-1,2-Dichloroethene	1	1	40	n.a	60–140
trans-1,3-Dichloropropene	1	1	20	n.a	75–125
Trichlorofluoromethane (F11)	1	1	20	n.a	75–125
Trichloroethene	1	1	20	n.a	75–125
Vinyl chloride	1	1	20	n.a	75–125
m-xylene	1	1	20	n.a	75–125
o-xylene	1	1	20	n.a	75–125
p-xylene	1	1	20	n.a	75–125
1,2,4-Trichlorobenzene	1	1	20	n.a	75–125
1,2-Dichlorobenzene	1	1	20	n.a	75–125
1,3-Dichlorobenzene	1	1	20	n.a	75–125
1,4-Dichlorobenzene	1	1	20	n.a	75–125
Hexachlorobutadiene	1	1	20	n.a	75–125
Atmospheric Gases (ASTM-1946) (ppmv)					
Oxygen	1000	1000	20	n.a	75–125
Nitrogen	1000	1000	20	n.a	75–125
Carbon dioxide	10	10	20	n.a	75–125
Carbon monoxide	10	10	20	n.a	75–125
Methane	1	1	20	n.a	75–125

Notes:

µg/L = micrograms per liter
LCS = laboratory control sample
EPA = U.S. Environmental Protection Agency
MS = matrix spike
ppmv = parts per million, volume
n.a. = not applicable
RPD = relative percentage of difference
% R = percent recovery
MSD = matrix spike duplicate

[a] Project Decision Threshold is equal to the Reporting Limit. Decision Threshold for the hot spot determination is 300 µg/L total VOC concentration.

[b] Laboratory-specific performance criteria.

[c] Target analytes for TO-14 only.

Analytes that are in bold type have modified LCS Percent Recovery values that were approved by the Earth Tech, Inc. Project Manager prior to the beginning of the project.

beginning of the project. Values that were outside of Earth Tech's Project Quality Control Crite (Table D-1) but were within EST's Project Quality Control Criteria (Table D-2) were noted with the appropriate qualifier.

INITIAL CALIBRATION VERIFICATION

A daily Initial Calibration Verification (ICV) analysis was performed, which consisted of a sample at the mid-point concentration of the initial calibration using the calibration standard solution. The Relative Percent Difference (RPD) for each compound is listed in the Project Quality Control Criteria for Soil Vapor/Ambient Air Samples provided in Appendix A. Daily ICV was performed prior to the first sample analysis of the day.

END OF DAY GC TEST RUN

A LCS was analyzed at the detection limit concentration when the soil gas samples showed no detectable concentrations of volatile organic compounds. The recovery for each compound was at least 50 percent of the true concentration of that LCS. If these criteria were not met, an additional LCS was analyzed to satisfy these criteria.

BLANK INJECTIONS

The syringes used for soil gas sample collection were filled with ambient air or high-purity carrier grade gas from a compressed gas cylinder. The ambient air or high-purity gas was analyzed dai before running samples. The blank injection served to detect contamination of the syringe to be used for sampling and verified the effectiveness of equipment decontamination procedures.

DECONTAMINATION PROCEDURES

Syringes used for sampling were decontaminated prior to initiation of sampling. Decontamination of the syringes was conducted by baking in the gas chromatograph oven. Baked syringes were allowed cool down to ambient temperature before further sampling.