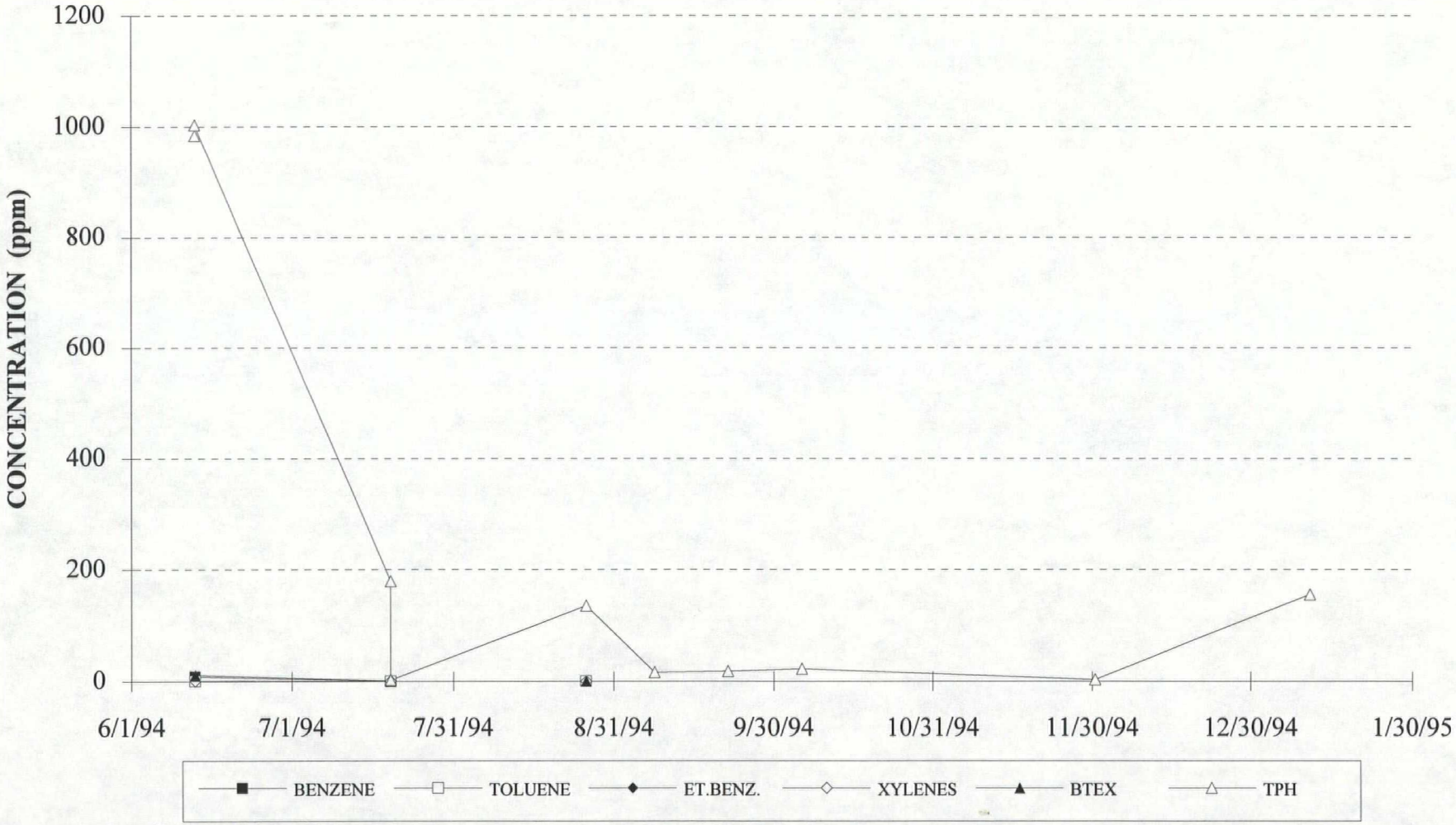
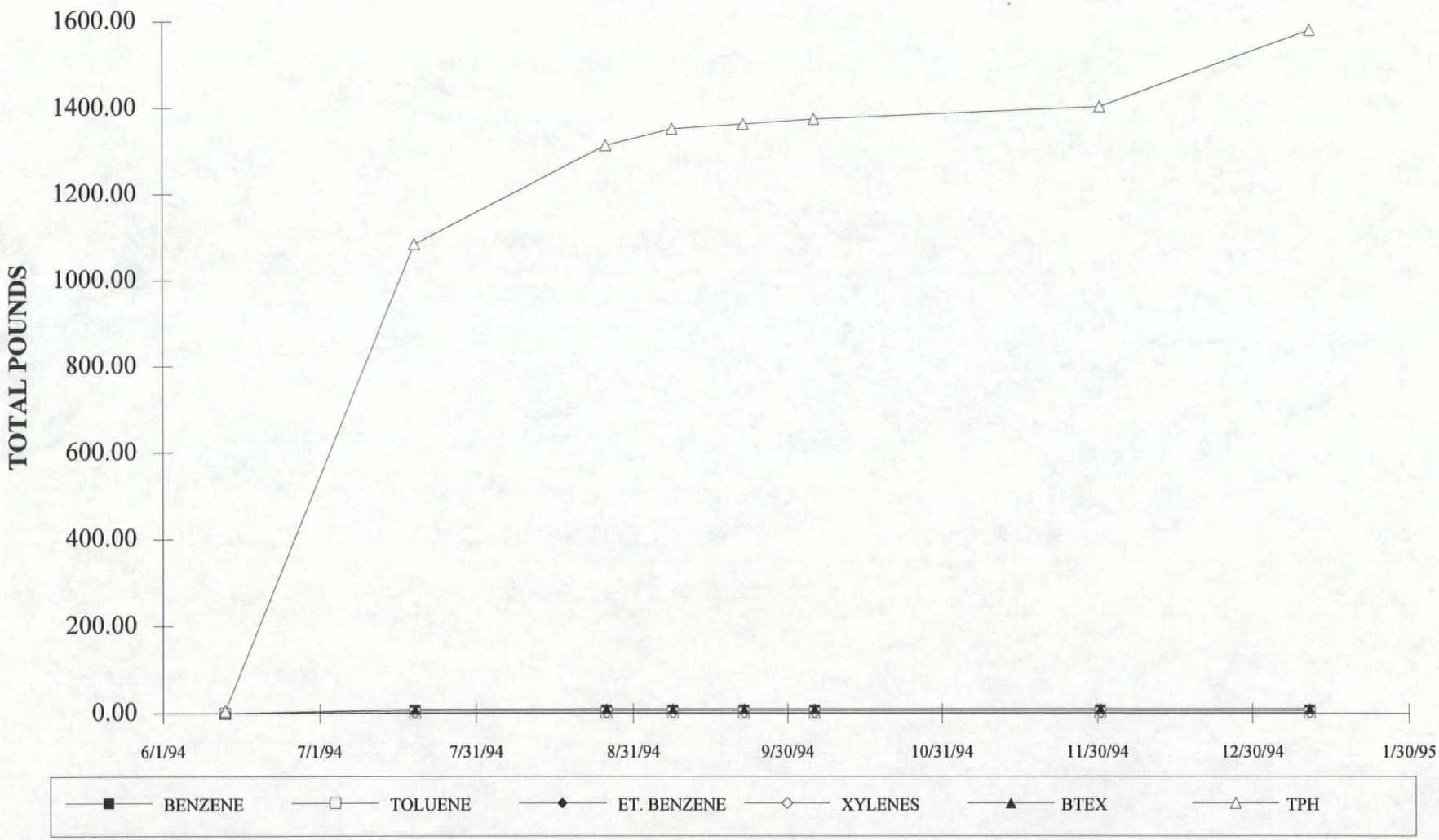
Figure 2
OFF - GAS CONCENTRATION OF CONTAMINANTS
COMPOSITE SAMPLE
G. E. CELL 46 : CINCINNATI, OHIO



TPH detection limit = 1 ppm
BTEX detection limit = .05 ppm

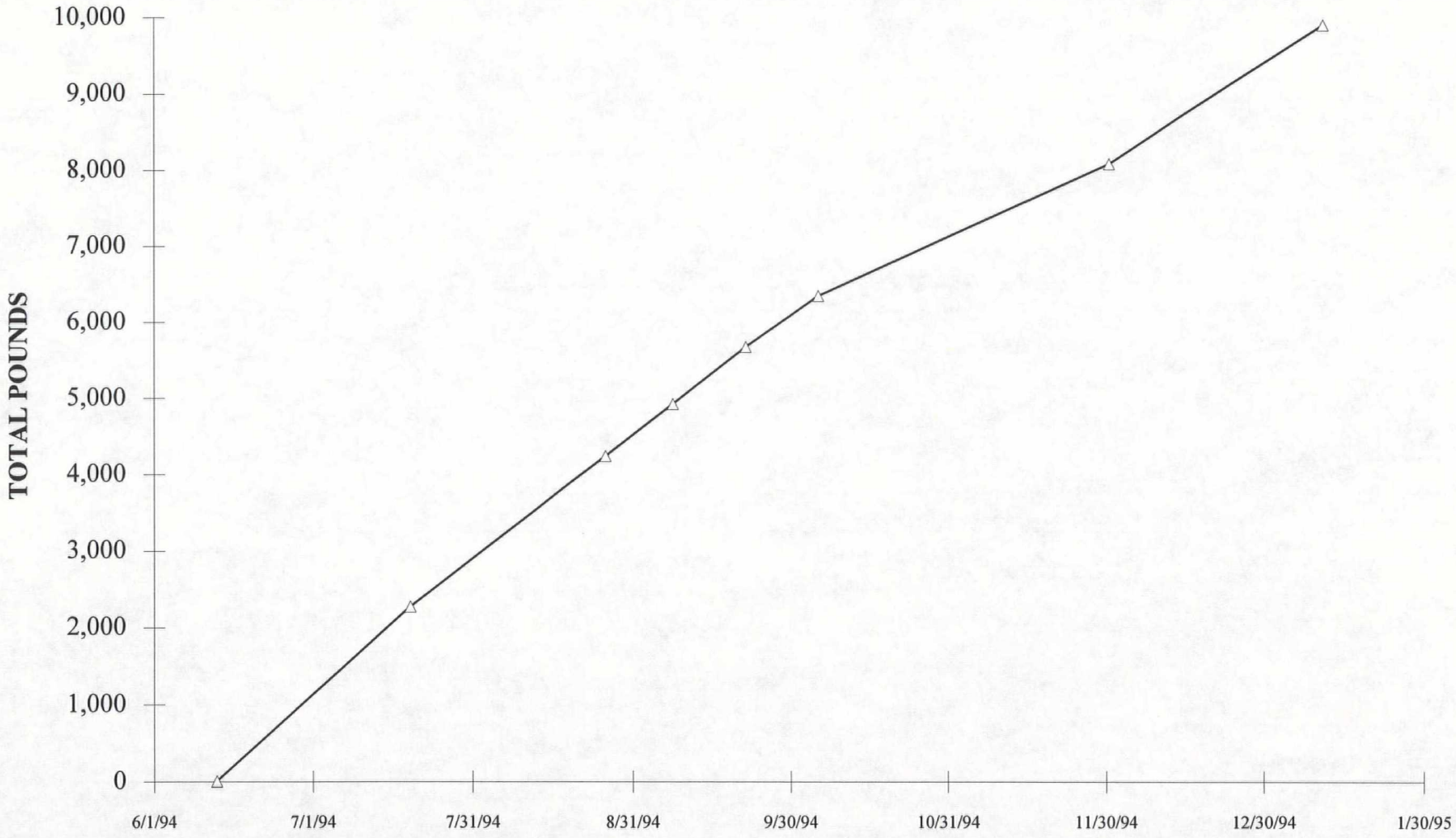
Figure 3
CUMULATIVE YIELD OF CONTAMINANTS
COMPOSITE SAMPLE
G.E. CELL 46: CINCINNATI, OHIO



Note: 6/23/95 sample was calculated from well samples.

4/12/95

Figure 4
CUMULATIVE YIELD OF HYDROCARBON BIODEGRADATION
COMPOSITE SAMPLE
GE CELL 46: CINCINNATI, OHIO



Note: 6/23/95 sample was calculated for well samples.

4/12/95

Table 1: OFF - GAS CONCENTRATIONS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA					*LAB DATA (ppm)*				
SAMPLE DATE	SAMPLE #	WELL #	FLOW (CFM)	C02 (PPM)	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
6/13/94	CELL 46 12:15	9	11	10,000	1.98	0.10	0.08	0.15	94.40
6/13/94	CELL 46 12:15	10	9	10,000	15.90	0.82	0.26	0.90	1140.00
6/13/94	CELL 46 12:15	11	12	10,000	2.29	0.16	0.12	0.16	822.00
6/13/94	CELL 46 12:15	14	9	10,000	16.60	2.03	0.72	1.38	1199.10
6/13/94	CELL 46 12:15	15	3	10,000	0.89	0.10	0.19	0.22	282.10
6/13/94	CELL 46 12:15	16	9	10,000	7.20	0.29	0.25	0.39	579.30
6/13/94	CELL 46 12:15	17	11	10,000	0.94	0.12	0.19	0.22	234.40
6/13/94	CELL 46 12:15	18	6	10,000	0.30	0.15	0.45	0.41	745.90
6/13/94	CELL 46 12:15	19	11	10,000	0.21	0.18	0.57	0.55	745.20
6/13/94	CELL 46 12:15	20	5	10,000	0.20	0.05	0.14	0.15	786.90
6/13/94	CELL 46 12:15	30	13	10,000	0.20			0.15	645.10
6/13/94	CELL 46 12:15	31	12	10,000	0.52	0.33	0.93	0.59	290.50
6/13/94	CELL 46 12:15	32	13	10,000	0.62	0.09	0.24	0.30	194.20
6/13/94	CELL 46 12:15	33	10	10,000	3.38	0.11	0.19	0.34	269.40
6/13/94	CELL 46 12:15	34	11	10,000	10.10	0.24	0.48	0.20	538.60
6/13/94	CELL 46 12:15	COMP	145	10,000	8.00	0.73	0.82	1.06	984.40
6/13/94	CELL 46 2:15	9	12	10,000	2.10	0.08	0.07	0.16	99.10
6/13/94	CELL 46 2:15	10	9	10,000	16.90	1.04	0.38	0.94	1135.00
6/13/94	CELL 46 2:15	11	12	10,000	1.56	0.12	0.07	0.10	725.30
6/13/94	CELL 46 2:15	14	9	10,000	13.00	1.83	0.67	1.44	819.00
6/13/94	CELL 46 2:15	15	3	10,000	0.27	0.07	0.09	0.11	238.70
6/13/94	CELL 46 2:15	16	8	10,000	7.43	0.33	0.29	0.51	804.80
6/13/94	CELL 46 2:15	17	10	10,000	0.83	0.15	0.24	0.18	374.60
6/13/94	CELL 46 2:15	18	8	10,000	0.39	0.18	0.45	0.54	775.00
6/13/94	CELL 46 2:15	19	10	10,000	0.21	0.17	0.47	0.58	723.70
6/13/94	CELL 46 2:15	20	5	10,000	0.17	0.05	0.10	0.13	764.80
6/13/94	CELL 46 2:15	30	12	10,000	0.25	0.06	0.14	0.24	555.10
6/13/94	CELL 46 2:15	31	12	10,000	0.47	0.40	1.16	0.93	227.80
6/13/94	CELL 46 2:15	32	11	10,000	0.32	0.11	0.36	0.37	168.00
6/13/94	CELL 46 2:15	33	10	10,000	1.70	0.14	0.20	0.69	347.10
6/13/94	CELL 46 2:15	34	9	10,000	* 12.10	0.44	0.36	0.39	539.00
6/13/94	CELL 46 2:15	COMP	140	10000	8.41	0.75	0.86	1.16	1003.40

* Blank cells represent BQL results. (<0.05 ppm for Benezene, Toluene, Ethylbenzene, and Xylenes.)
NA = Not analyzed
NS = Not Sampled

2/14/95

Table 2 : OFF- GAS CONCENTRATIONS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA					*LAB DATA (ppm)*				
SAMPLE DATE	SAMPLE #	WELL #	FLOW (CFM)	C02 (PPM)	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
7/20/94	9	9	9.5	1,000		0.60		0.14	8.20
7/20/94	10	10	8.5	4,000		0.25	0.31	0.38	37.00
7/20/94	11	11	10	1,650		0.15		0.10	6.40
7/20/94	14	14	7	2,650		0.23	0.30	0.33	18.90
7/20/94	15	15	0.5	3,650		0.23		0.19	14.10
7/20/94	16	16	6	3,300		0.14		0.06	2.80
7/20/94	17	17	8.5	10,000		0.15		0.30	5.80
7/20/94	18	18	7	10,000		0.21	0.29	0.61	75.20
7/20/94	19	19	8	2,600		0.12		0.08	3.50
7/20/94	20	20	4	1,950		0.15	0.06	0.12	2.50
7/20/94	30	30	9	550				0.05	6.60
7/20/94	31	31	9	1,300		0.13	0.09	0.15	6.60
7/20/94	32	32	7	3,500		0.14	0.08	0.12	34.80
7/20/94	33	33	7.5	3,500					4.10
7/20/94	34	34	7	1,650	0.06			0.17	9.60
7/20/94	COMP	COMP	108.5	10,000	0.20	0.13	0.15	0.28	179.00
7/20/94	9X	9X	2.5	10,000		0.06	0.05	0.09	21.60
7/20/94	57	57	0.5	10,000	0.13			0.09	14.20
7/20/94	61	61	0.5	450					11.40
7/20/94	52	52	1	10,000	0.44	0.77	0.33	0.35	868.40
7/20/94	64	64	2.5	350				0.11	9.80
7/20/94	50	50	7	10,000	0.77	1.29	0.52	0.53	1035.00
7/20/94	56	56	7.5	10,000		0.06		0.12	31.20
7/20/94	51	51	0.5	450				0.06	4.70
7/20/94	54	54	1	10,000		0.19	0.41	0.57	59.70
7/20/94	63	63	0.5	300				0.30	45.80
7/20/94	59	59	5.5	10,000		0.17	0.29	0.24	796.60
7/20/94	55	55	0.5	10,000					5.60
7/20/94	60	60	0.5	10,000	0.12	0.10	0.27	0.15	25.60
7/20/94	53	53	7	10,000		0.26	0.46	0.37	63.10
7/20/94	58	58	4	10,000		0.06	0.08	0.16	11.50
7/20/94	COMPX	COMPX	41	2700					2.50

* Blank cells represent BQL results. (<0.05 for Benzene, Toluene, Ethylbenzene, and Xylenes.)
NA = Not analyzed
NS = Not Sampled

2/14/95

Table 3: OFF - GAS CONCENTRATIONS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA					*LAB DATA (ppm)*				
SAMPLE DATE	SAMPLE #	WELL #	FLOW (CFM)	C02 (PPM)	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
8/26/94	9	9	9.5	1,000				0.09	4.50
8/26/94	10	10	8.5	5,050	0.21		0.07	0.10	17.40
8/26/94	11	11	10	1,900				0.08	15.50
8/26/94	14	14	7	2,700			0.06	0.12	9.00
8/26/94	15	15	0.5	7,700				0.10	5.50
8/26/94	16	16	6	3,400		0.07	0.05	0.09	6.60
8/26/94	17	17	8.5	7,550		0.08	0.06	0.21	8.30
8/26/94	18	18	7	9,500		0.12	0.12	0.17	120.90
8/26/94	19	19	8	1,750		0.08	0.06	0.08	16.20
8/26/94	20	20	4	2,050				0.10	12.10
8/26/94	30	30	9	500			0.06	0.11	13.30
8/26/94	31	31	9	2,000			0.06	0.11	13.30
8/26/94	32	32	7	9,100			0.05	0.12	9.10
8/26/94	33	33	7.5	3,050				0.07	7.50
8/26/94	34	34	7	1,900				0.09	7.70
8/26/94	COMP	COMP	108.5	9,850	0.07	0.07	0.09	0.11	135.00
8/26/94	62	62	2.5	9,950				0.10	5.10
8/26/94	57	57	0.5	5,550				0.08	15.50
8/26/94	61	61	0.5	7,000	0.11	0.31	0.15	0.12	470.60
8/26/94	52	52	1	9,850	0.18	0.57	0.27	0.23	723.30
8/26/94	64	64	2.5	3,550				0.05	6.20
8/26/94	50	50	7	7,350	0.46	1.50	0.48	0.33	1586.00
8/26/94	56	56	7.5	10,000		0.15	0.16	0.15	17.40
8/26/94	51	51	0.5	7,850		0.05	0.23	0.23	36.50
8/26/94	54	54	1	6,350		0.09	0.40	0.40	50.90
8/26/94	63	63	0.5	5,200				0.11	69.50
8/26/94	59	59	5.5	5,200		0.11	0.20	0.33	21.60
8/26/94	55	55	0.5	7,700				0.10	5.60
8/26/94	60	60	0.5	7,450	0.20	0.21	0.28	0.49	43.60
8/26/94	53	53	7	8,550		0.08	0.18	0.30	18.10
8/26/94	58	58	4	9,850 *				0.11	6.00
8/26/94	COMPX	COMPX	41	NA	NS	NS	NS	NS	NS

* Blank cells represent BQL results. (<0.05 ppm for Benzene, Toluene, Ethylbenzene, and Xylenes.)
NA = Not analyzed
NS = Not Sampled

2/14/95

Table 4: OFF - GAS CONCENTRATIONS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA					*LAB DATA (ppm)*				
SAMPLE DATE	SAMPLE #	WELL #	FLOW (CFM)	C02 (PPM)	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
9/8/94	COMP	COMP	135	8,750					16.40
9/22/94	9	9	9.5	1,000				0.09	<1.0
9/22/94	10	10	8.5	5,050					4.90
9/22/94	11	11	10	1,900				0.06	3.80
9/22/94	14	14	7	2,700					1.80
9/22/94	15	15	0.5	7,700					<1.0
9/22/94	16	16	6	3,400	0.05				2.10
9/22/94	17	17	8.5	7,550					<1.0
9/22/94	18	18	7	9,500					2.50
9/22/94	19	19	8	1,750					<1.0
9/22/94	20	20	4	2,050					<1.0
9/22/94	30	30	9	500					<1.0
9/22/94	31	31	9	2,000					1.20
9/22/94	32	32	7	9,100					1.70
9/22/94	33	33	7.5	3,050					<1.0
9/22/94	34	34	7	1,900	0.06				3.90
9/22/94	COMP	COMP	108.5	8,750					18.30
9/22/94	62	62	2.5	NS	NS	NS	NS	NS	NS
9/22/94	57	57	0.5	5,550					2.30
9/22/94	61	61	0.5	7,000					198.20
9/22/94	52	52	1	9,850					255.50
9/22/94	64	64	2.5	3,550					3.80
9/22/94	50	50	7	7,350	0.06	0.21	0.05		798.30
9/22/94	56	56	7.5	10,000					<1.0
9/22/94	51	51	0.5	7,850				0.07	13.20
9/22/94	54	54	1	6,350					24.10
9/22/94	63	63	0.5	5,200					4.80
9/22/94	59	59	5.5	5,200					91.70
9/22/94	55	55	0.5	NS	NS	NS	NS	NS	NS
9/22/94	60	60	0.5	7,450					8.70
9/22/94	53	53	7	8,550					3.40
9/22/94	58	58	4	NS	NS	NS	NS	NS	NS
10/6/94	COMP	COMP	108.5	8750					22.40

* Blank cells represent BQL results.(<0.05 ppm for Benzene, Toluene, Ethylbenzene, and Xylenes
NA = Not analyzed
NS = Not Sampled

2/14/95

Table 5: OFF - GAS CONCENTRATIONS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA					*LAB DATA (ppm)*				
SAMPLE DATE	SAMPLE #	WELL #	FLOW (CFM)	C02 (PPM)	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
11/3/94	30	30							3.70
11/3/94	34	34							6.30
12/1/94	9	9	9.5	600					<1.0
12/1/94	10	10	8.5	NA					2.00
12/1/94	11	11	10	NA		0.06			1.60
12/1/94	14	14	7	10,000					4.80
12/1/94	15	15	0.5	450					<1.0
12/1/94	16	16	6	4,400					<1.0
12/1/94	17	17	8.5	900					<1.0
12/1/94	18	18	7	NA					2.30
12/1/94	19	19	8	10,000					7.40
12/1/94	20	20	4	10,000					6.70
12/1/94	30	30	9	1,100					<1.0
12/1/94	31	31	9	NA					2.70
12/1/94	32	32	7	NA					<1 0
12/1/94	33	33	7.5	4,600					<1.0
12/1/94	34	34	7	2,500					2.20
12/1/94	COMP	COMP	108.5	3,000					3.30
12/1/94	62	62	2.5	NA	NS	NS	NS	NS	NS
12/1/94	57	57	0.5	10,000					11.50.
12/1/94	61	61	0.5	600					<1.0
12/1/94	52	52	1	400		0.06		0.05	1.10
12/1/94	64	64	2.5	350					<1.0
12/1/94	50	50	7	350					<1.0
12/1/94	56	56	7.5	NA	NS	NS	NS	NS	NS
12/1/94	51	51	0.5	NA		0.07		0.06	8.80
12/1/94	54	54	1	NA					<1.0
12/1/94	63	63	0.5	NA	NS	NS	NS	NS	NS
12/1/94	59	59	5.5	1,250					<1.0
12/1/94	55	55	0.5	NA					<1.0
12/1/94	60	60	0.5	1,100					<1.0
12/1/94	53	53	7	1,050					2.30
12/1/94	58	58	4	NA	NS	NS	NS	NS	NS

* Blank cells represent BQL results.(<0.05 ppm for Benzene, Toluene, Ehlylbenzene, and Xylenes.)
NA = Not analyzed
NS = Not Sampled

2/14/95

Table 6: OFF - GAS CONCENTRATIONS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA					*LAB DATA (ppm)*				
SAMPLE DATE	SAMPLE #	WELL #	FLOW (CFM)	C02 (PPM)	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
1/11/95	9	9	9.5	400					1.60
1/18/95	10	10	8.5	1,500		0.16			3.30
1/18/95	11	11	10	700					8.70
1/18/95	14	14	7	350					2.60
1/11/95	15	15	0.5	300					1.20
1/11/95	16	16	6	2,250					1.40
1/11/95	17	17	8.5	550					9.80
1/11/95	18	18	7	1,300					21.10
1/11/95	19	19	8	2,000					44.20
1/11/95	20	20	4	4,850					344.50
1/11/95	30	30	9	1,700					14.40
1/11/95	31	31	9	1,300					2.10
1/11/95	32	32	7	2,450					127.90
1/18/95	33	33	7.5	2,650		0.08			<1.0
1/11/95	34	34	7	950					1.60
1/11/95	COMP	COMP	108.5	10,000					155.40
1/11/95	62	62	2.5	NA	NA	NA	NA	NA	NA
1/11/95	57	57	0.5	10,000	0.05				397.50
1/11/95	61	61	0.5	400					6.40
1/11/95	52	52	1	300					1.80
1/11/95	64	64	2.5	350					1.50
1/18/95	50	50	7	3,440					5.20
1/11/95	56	56	7.5	NA					1.20
1/18/95	51	51	0.5	2,550		0.16			12.60
1/11/95	54	54	1	2,770					6 00
1/11/95	63	63	0.5	10,000					726.20
1/11/95	59	59	5.5	10,000					3.00
1/11/95	55	55	0.5	NA	NA	NA	NA	NA	NA
1/11/95	60	60	0.5	10,000					196.20
1/11/95	53	53	7	NS					360.30
1/11/95	58	58	4	NS	NA	NA	NA	NA	NA

* Blank cells represent BQL results. (<0.05 ppm for Benzene, Toluene, Ethylbenzene, and Xylenes.)
NA = Not analyzed
NS = Not Sampled

2/14/95

Table 7: YIELD CALCULATION RESULTS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA		*POUNDS OF CONTAMINANTS PER DAY*					
SAMPLE DATE	WELL #	Hydrocarbon Biodegradation	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
6/13/94	9	5.578	0.006	0.000	0.000	0.001	0.389
6/13/94	10	4.564	0.042	0.003	0.001	0.003	3.844
6/13/94	11	6.085	0.008	0.001	0.001	0.001	3.696
6/13/94	14	4.564	0.044	0.006	0.003	0.005	4.044
6/13/94	15	1.521	0.001	0.000	0.000	0.000	0.317
6/13/94	16	4.564	0.019	0.001	0.001	0.001	1.954
6/13/94	17	5.578	0.003	0.000	0.001	0.001	0.966
6/13/94	18	3.042	0.001	0.000	0.001	0.001	1.677
6/13/94	19	5.578	0.001	0.001	0.002	0.002	3.071
6/13/94	20	2.535	0.000	0.000	0.000	0.000	1.474
6/13/94	30	6.592	0.001			0.001	3.142
6/13/94	31	6.085	0.002	0.001	0.004	0.003	1.306
6/13/94	32	6.592	0.002	0.000	0.001	0.002	0.946
6/13/94	33	5.071	0.010	0.000	0.001	0.001	1.009
6/13/94	34	5.578	0.032	0.001	0.002	0.001	2.220
6/13/94	COMP	73.524	0.339	0.036	0.047	0.061	53.484
6/13/94	9	6.085	0.007	0.000	0.000	0.001	0.446
6/13/94	10	4.564	0.044	0.003	0.001	0.003	3.828
6/13/94	11	6.085	0.005	0.000	0.000	0.000	3.261
6/13/94	14	4.564	0.034	0.006	0.002	0.005	2.762
6/13/94	15	1.521	0.000	0.000	0.000	0.000	0.268
6/13/94	16	4.056	0.017	0.001	0.001	0.002	2.412
6/13/94	17	5.071	0.002	0.001	0.001	0.001	1.404
6/13/94	18	4.056	0.001	0.000	0.001	0.002	2.323
6/13/94	19	5.071	0.001	0.001	0.002	0.002	2.712
6/13/94	20	2.535	0.000	0.000	0.000	0.000	1.433
6/13/94	30	6.085	0.001	0.000	0.001	0.001	2.496
6/13/94	31	6.085	0.002	0.002	0.006	0.004	1.024
6/13/94	32	5.578	0.001	0.000	0.002	0.002	0.692
6/13/94	33	5.071	0.005	0.000	0.001	0.003	1.301
6/13/94	34	4.564	0.032	0.001	0.001	0.001	1.818
6/13/94	COMP	70.988	0.344	0.036	0.048	0.064	52.636

* Blank cells represent BQL results. (<0.05 ppm for Benezene, Toluene, Ethylbenzene, and Xylenes.)
NA = Not analyzed
NS = Not Sampled

Table 8: YIELD CALCULATION RESULTS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA		*POUNDS OF CONTAMINANTS PER DAY*					
SAMPLE DATE	WELL #	Hydrocarbon Biodegradation	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
7/20/94	9	0.348		0.002		0.001	0.029
7/20/94	10	1.644		0.001	0.001	0.001	0.118
7/20/94	11	0.706		0.001		0.000	0.024
7/20/94	14	0.860		0.001	0.001	0.001	0.050
7/20/94	15	0.088		0.000		0.000	0.003
7/20/94	16	0.941		0.000		0.000	0.006
7/20/94	17	4.310		0.000		0.001	0.018
7/20/94	18	3.549		0.001	0.001	0.002	0.197
7/20/94	19	0.962		0.000		0.000	0.010
7/20/94	20	0.345		0.000	0.000	0.000	0.004
7/20/94	30	0.118				0.000	0.022
7/20/94	31	0.470		0.000	0.000	0.001	0.022
7/20/94	32	1.171		0.000	0.000	0.000	0.091
7/20/94	33	1.255					0.012
7/20/94	34	0.494	0.000			0.000	0.025
7/20/94	COMP	55.016	0.006	0.005	0.006	0.012	7.277
7/20/94	9X	1.268		0.000	0.000	0.000	0.020
7/20/94	57	0.254	0.000			0.000	0.003
7/20/94	61	0.004					0.002
7/20/94	52	0.507	0.000	0.000	0.000	0.000	0.325
7/20/94	64	0.007				0.000	0.009
7/20/94	50	3.549	0.002	0.003	0.001	0.001	2.715
7/20/94	56	3.803		0.000		0.000	0.088
7/20/94	51	0.004				0.000	0.001
7/20/94	54	0.507		0.000	0.000	0.000	0.022
7/20/94	63					0.000	0.009
7/20/94	59	2.789		0.000	0.001	0.001	1.642
7/20/94	55	0.254					0.001
7/20/94	60	0.254	0.000	0.000	0.000	0.000	0.005
7/20/94	53	3.549		0.001	0.001	0.001	0.166
7/20/94	58	2.028		0.000	0.000	0.000	0.017
7/20/94	COMPX	5.144					0.038

* Blank cells represent BQL results. (<0.05 for Benzene, Toluene, Ethylbenzene, and Xylenes.)
NA = Not analyzed
NS = Not Sampled

Table 9: YIELD CALCULATION RESULTS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA		*POUNDS OF CONTAMINANTS PER DAY*					
SAMPLE DATE	WELL #	Hydrocarbon Biodegradation	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
8/26/94	9	0.348				0.000	0.016
8/26/94	10	2.111	0.001		0.000	0.000	0.055
8/26/94	11	0.836				0.000	0.058
8/26/94	14	0.878			0.000	0.000	0.024
8/26/94	15	0.193				0.000	0.001
8/26/94	16	0.972		0.000	0.000	0.000	0.015
8/26/94	17	3.221		0.000	0.000	0.001	0.026
8/26/94	18	3.366		0.000	0.000	0.000	0.317
8/26/94	19	0.606		0.000	0.000	0.000	0.049
8/26/94	20	0.366				0.000	0.018
8/26/94	30	0.094			0.000	0.000	0.045
8/26/94	31	0.800			0.000	0.000	0.045
8/26/94	32	3.220			0.000	0.000	0.024
8/26/94	33	1.078				0.000	0.021
8/26/94	34	0.585				0.000	0.020
8/26/94	COMP	54.165	0.002	0.003	0.004	0.005	5.488
8/26/94	62	1.261				0.000	0.005
8/26/94	57	0.137				0.000	0.003
8/26/94	61	0.175	0.000	0.000	0.000	0.000	0.088
8/26/94	52	0.499	0.000	0.000	0.000	0.000	0.271
8/26/94	64	0.425				0.000	0.006
8/26/94	50	2.580	0.001	0.004	0.001	0.001	4.160
8/26/94	56	3.803		0.000	0.000	0.000	0.049
8/26/94	51	0.197		0.000	0.000	0.000	0.007
8/26/94	54	0.316		0.000	0.000	0.000	0.019
8/26/94	63	0.128				0.000	0.013
8/26/94	59	1.409		0.000	0.000	0.001	0.045
8/26/94	55	0.193				0.000	0.001
8/26/94	60	0.187	0.000	0.000	0.000	0.000	0.008
8/26/94	53	3.019		0.000	0.001	0.001	0.047
8/26/94	58	1.997				0.000	0.009
8/26/94	COMPX						

* Blank cells represent BQL results. (<0.05 ppm for Benzene, Toluene, Ethylbenzene, and Xylenes.)
NA = Not analyzed
NS = Not Sampled

Table 10: YIELD CALCULATION RESULTS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA		*POUNDS OF CONTAMINANTS PER DAY*					
SAMPLE DATE	WELL #	Hydrocarbon Biodegradation	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
9/8/94	COMP	59.632					0.830
9/22/94	9	0.348				0.000	
9/22/94	10	2.111					0.016
9/22/94	11	0.836				0.000	0.014
9/22/94	14	0.878					0.005
9/22/94	15	0.193					
9/22/94	16	0.972	0.000				0.005
9/22/94	17	3.221					
9/22/94	18	3.366					0.007
9/22/94	19	0.606					
9/22/94	20	0.366					
9/22/94	30	0.094					
9/22/94	31	0.800					0.004
9/22/94	32	3.220					0.004
9/22/94	33	1.078					
9/22/94	34	0.585	0.000				0.010
9/22/94	COMP	47.926					0.744
9/22/94	62						
9/22/94	57	0.137					0.000
9/22/94	61	0.175					0.037
9/22/94	52	0.499					0.096
9/22/94	64	0.425					0.004
9/22/94	50	2.580	0.000	0.001	0.000		2.094
9/22/94	56	3.803					
9/22/94	51	0.197				0.000	0.002
9/22/94	54	0.316					0.009
9/22/94	63	0.128					0.001
9/22/94	59	1.409					0.189
9/22/94	55						
9/22/94	60	0.187					0.002
9/22/94	53	3.019					0.009
9/22/94	58						
10/6/94	COMP	47.926					0.911

* Blank cells represent BQL results.(<0.05 ppm for Benzene, Toluene, Ethylbenzene, and Xylenes
NA = Not analyzed
NS = Not Sampled

Table 11: YIELD CALCULATION RESULTS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA		*POUNDS OF CONTAMINANTS PER DAY*					
SAMPLE DATE	WELL #	Hydrocarbon Biodegradation	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
11/3/94	30						
11/3/94	34						
12/1/94	9	0.149					
12/1/94	10						0.006
12/1/94	11	–		0.000			0.006
12/1/94	14	3.549					0.013
12/1/94	15	0.004					
12/1/94	16	1.286					
12/1/94	17	0.267					
12/1/94	18						0.006
12/1/94	19	4.056					0.022
12/1/94	20	2.028					0.010
12/1/94	30	0.376					
12/1/94	31						0.009
12/1/94	32						
12/1/94	33	1.686					
12/1/94	34	0.805					0.006
12/1/94	COMP	15.314					0.134
12/1/94	62						
12/1/94	57	0.254					0.002
12/1/94	61	0.008					
12/1/94	52	0.005		0.000		0.000	0.000
12/1/94	64	0.007					
12/1/94	50	0.018					
12/1/94	56						
12/1/94	51			0.000		0.000	0.002
12/1/94	54						
12/1/94	63						
12/1/94	59	0.273					
12/1/94	55						
12/1/94	60	0.021					
12/1/94	53	0.274					0.006
12/1/94	58						

* Blank cells represent BQL results.(<0.05 ppm for Benzene, Toluene, Ehlylbenzene, and Xylenes.)
NA = Not analyzed
NS = Not Sampled

2/14/95

Table 12: YIELD CALCULATION RESULTS

CLIENT: G. E. CELL 46 CLIENT CODE: 2002

ANALYST: T. LONIEWSKI PROJECT MANGER: J. SCHAEFFER

FIELD DATA		*POUNDS OF CONTAMINANTS PER DAY*					
SAMPLE DATE	WELL #	Hydrocarbon Biodegradation	BENZENE	TOLUENE	ET.BENZ.	XYLENES	TPH
1/11/95	9	0.050					0.006
1/18/95	10	0.533		0.000			0.011
1/18/95	11	0.209					0.033
1/18/95	14	0.018					0.007
1/11/95	15						0.000
1/11/95	16	0.612					0.003
1/11/95	17	0.111					0.031
1/11/95	18	0.366					0.055
1/11/95	19	0.711					0.132
1/11/95	20	0.951					0.516
1/11/95	30	0.659					0.049
1/11/95	31	0.470					0.007
1/11/95	32	0.787					0.335
1/18/95	33	0.921		0.000			
1/11/95	34	0.238					0.004
1/11/95	COMP	55.016					6.318
1/11/95	62						
1/11/95	57	0.254	0.000				0.074
1/11/95	61	0.003					0.001
1/11/95	52						0.001
1/11/95	64	0.007					0.001
1/18/95	50	1.149					0.014
1/11/95	56						0.003
1/18/95	51	0.059		0.000			0.002
1/11/95	54	0.129					0.002
1/11/95	63	0.254					0.136
1/11/95	59	2.789					0.006
1/11/95	55						
1/11/95	60	0.254					0.037
1/11/95	53						0.945
1/11/95	58						

* Blank cells represent BQL results. (<0.05 ppm for Benzene, Toluene, Ethylbenzene, and Xylenes.)
NA = Not analyzed
NS = Not Sampled

Table 13
CUMULATIVE YIELD OF CONTAMINANTS
COMPOSITE SAMPLE
G.E. CELL 46: CINCINNATI, OHIO

SAMPLE DATE	BENZENE	TOLUENE	ET. BENZENE	XYLENES	BTEX	TPH	HYDROCARBON BIODEGRADATION
6/13/94	0.00	0.00	0.00	0.00	0.00	0	0
6/13/94	0.01	0.00	0.00	0.00	0.01	1	2
6/13/94	0.04	0.00	0.00	0.01	0.05	6	8
7/20/94	6.34	0.74	0.98	1.38	9.45	1,084	2,276
8/26/94	6.49	0.88	1.17	1.69	10.23	1,314	4,241
9/8/94	6.51	0.89	1.19	1.71	10.31	1,352	4,924
9/22/94	6.51	0.89	1.19	1.71	10.31	1,363	5,677
10/6/94	6.51	0.89	1.19	1.71	10.31	1,374	6,348
12/1/94	6.51	0.89	1.19	1.71	10.31	1,403	8,087
1/11/95	6.51	0.89	1.19	1.71	10.31	1,580	9,909

All results are reported in pounds

4/12/95

ATTACHMENT A

CONTAMINANT YIELD CALCULATION FOR SOIL VAPOR EXTRACTION SYSTEM

Step 1 : Use the Ideal gas law to determine the number of moles in the contaminant.

$$PV = nRT$$

Where:

$P =$ absolute pressure of off - gas (1.0 atm)

$V =$ volume of off - gas (1×10^{-6} of contaminant) $\frac{\mu L}{L_{air}}$

$n =$ number of moles in off - gas

$R =$ universal gas constant $\left(0.08205 \frac{L\ atm}{mole\ K}\right)$

$T =$ absolute temperature K° (20°c = 293.19° K)

Calculate the number of moles per μL at one atm

$$n = \frac{PV}{RT}$$

$$n = 1.0 atm \times \frac{1.0 \times 10^{-6} \frac{\mu L}{L_{air}}}{0.08205 \frac{L\ atm}{mole\ K} \times 293.16\ K}$$

$$n = 4.16 \times 10^{-8} \frac{moles}{L_{air}} @\ 1\ ppm$$

Note: at 1ppm$_v$ contaminant volume is μL per Liter of air

Step 2 : Calculate pounds per day of contaminant

First: Convert The number of moles per liter to pounds per cubic feet.

$$4.16 \times 10^{-8} \frac{moles}{L_{air}} \times 28.3 \frac{Liters}{ft^3} \times M_w \frac{grams}{mole} \times \frac{1\ pound}{453.6\ grams}$$

$$= \left(2.60 \times 10^{-9} \times M_w\right) \frac{pounds}{ft^3} @\ 1ppm$$

Where: M_w = *Molecular weight of contaminant*

Second: Convert $\frac{pounds}{ft^3}$ *to* $\frac{pounds}{day}$ *of contaminant*

$$C_{ppm} \times F_{cfm} \frac{ft^3}{minutes} \times \frac{1440\ minutes}{day} \times \left(2.60 \times 10^{-9} \times M_w\right) \frac{pounds}{ft^3}$$

$$= C_{ppm} \times F_{cfm} \times M_w \times 3.74 \times 10^{-6} \frac{pounds}{day}$$

Where:

C_{ppm} = *Concentration of contaminant (ppm)*

F_{cfm} = *Flow* $\frac{ft^3}{minute}$

ATTACHMENT B

CONTAMINANT YIELD CALCULATION FOR HYDROCARBON BIODEGRADATION

Bacterical action in the soil will consume petroleum hydrocarbons, producing carbon dioxide (CO_2) and water (H_2O).

$$CH_2 + 1.5\,O_2 = CO_2 + H_2O$$

Where: CH_2 repersents a basic unit of a hydrocarbon molecule.

Assumption: For every CO_2 molecule produced (above ambient conditions) a single CH_2 unit is degradated by soil bateria.

Known parameters:

Ambient Carbon dioxide concentration = 300 ppm

Moleculer weight of CH_2 = $14\ \frac{grams}{mole}$

1 pound = 454 grams

1 day = 1440 minutes

1 Liter of gas = $1 \times 10^6\ \mu$ Liter

1 ft^3 = 28.3 Liters

Step 1: Calculate the number of moles per μL at one atm

Ideal Gas Law: $n = \frac{PV}{RT}$

$$n = 1.0atm \times \frac{1.0 \times 10^{-6}\ \frac{\mu L}{L_{air}}}{0.08205\ \frac{L\ atm}{mole\ K} \times 293.16\ K}$$

$$= 4.16 \times 10^{-8}\ \frac{moles}{L_{air}} @\ 1\ ppm$$

Note: at $1ppm_v$ contaminant volume is μL per Liter of air

Step 2: Calculate pounds per day of hydrocarbon Biodegradation

First: Calculate the concentration of carbon dioxide above ambient conditions

$$\Delta CO_2 = (CO_2 - 300\ ppm)$$

Where:

CO_2 = *Measured carbon dioxide concentration in ppm*

Second: Convert number of moles "n" into pounds of contaminant per cubic feet.

$$\left[4.16 \times 10^{-8} \frac{moles}{L_{air}} @\ 1\ ppm\right] \times 14 \frac{grams}{mole} \times 28.3 \frac{Liters}{ft^3} \times \frac{1\ pound}{453.6\ grams}$$

$$3.63 \times 10^{-8} \frac{pounds}{ft^3} @\ 1ppm$$

Third : Convert $\frac{pounds}{ft^3}$ *to* $\frac{pounds}{day}$

$$Flow \frac{ft^3}{minute} \times \Delta CO_2\ ppm \times \left[3.63 \times 10^{-8} \frac{pounds}{ft^3} @\ 1ppm\right] \times \frac{1440\ minutes}{day}$$

$$= f_{cfm} \times \Delta CO_2 \times 5.22 \times 10^{-5} \frac{pounds}{day}$$

Where:

f_{cfm} = $Flow \frac{ft^3}{minute}$

ΔCO_2 = *Concentration of Carbon Dioxide above ambient conditions (ppm)*

CUMULATIVE YIELD CALCULATIONS

Step one:

Determine the number of days the system ran between sampling events

$TI = (SHM_t - SHM_{t-1}) / 24 \text{ hours}$

Where:

SHM_t = *Station hour meter reading taken during this sampling period*

SHM_{t-1} = *Station hour meter reading taken during the previous sampling period*

Step two:

Calculate the removal rate of contaminant for this time period (t) and the previous time period (t - 1). This calculation is located in contaminant yield calculations for Soil Vapor Extraction Systems.

Step three:

Calculate cumulative yield for this time period by using the following equation

$$CY_t = \left[\left(\frac{(RRC_{t-1} + RRC_t)}{2} \right) \times TI \right] + CY_{t-1}$$

Where:

CY_t = *Cumulative yield of contaminant for this time period (pounds)*

CY_{t-1} = *Cumulative yield of contaminants for the previous time period (pounds)*

RRC_t = *Removal rate of contaminants during this time period* $\left(\frac{pounds}{day} \right)$

RRC_{t-1} = *Removal rate of contaminants during the previous time period* $\left(\frac{pounds}{day} \right)$

TI = *The number of days the system ran between off - gas sampling events (days)*

PROGRESS REPORT

Progress Report
December 7, 1993 through July 21, 1994
CLIENT: G.E. Aircraft Engines
SITE: Building 306, RECO #90076
Evendale, OH

SUBMITTED TO:

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DATE 2/12/20
RIN # 2019-09 9175
INITIALS

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August, 1994

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APPENDICES

Appendix A Off-gas Analytical Results
Appendix B CO_2 Measurements

1.0 Purpose

This report is an update of the operations of the Soil Vapor Extraction (SVE) system installed by ETG Environmental (ETG) at Building 306 (Bldg 306) at the General Electric Aircraft Engine Facility in Evendale, OH, RECO Project No. 90076/A. The system is operating under the Ohio Environmental Protection Agency Permit to Install Application #14-2544. The report covers the period between December 7, 1993, and July 21, 1994.

2.0 Operational Setup

From startup on February 23, 1993 to April 26, 1994 the wells connected to the withdrawal blower on the pump station were oriented along rows labeled A-F on Figure 1. The remaining rows of wells were connected to the injection blower. Each row of wells shown on Figure 1 are connected together by two manifold pipes. The manifolds are then connected to the pump station on either the injection or the withdrawal side. The location on the pump station where off-gas samples are collected are referred to a "taps". The rows of wells connected to the withdrawal side of the pump station from February 23, 1993 to April 26, 1994 were:

Tap 1 = Row F
Tap 2A = Row C
Tap 2B = Row D
Tap 3 = Row E
Tap 4 = Row A
Tap 5 = Row B

On April 26, 1994 the well configuration was changed so that air flows were rotated to treat areas that received little or no air flow under the original configuration. The wells currently connected to the withdrawal blower are labeled Tap 1, Tap 2A, Tap 2A, Tap 3, Tap 4, and Tap 5 on Figure 1.

3.0 System Operation

A total of 12,864.65 pounds of hydrocarbons have been removed from the subsurface soils. Of the total pounds, 350.48 pounds have been removed as volatile compounds and 12,514.17 pounds have been destroyed by bacterial action.

The system was started up on February 23, 1993. Off-gas samples are collected approximately every month. Composite off-gas samples are collected every two weeks. Samples are analyzed at the ETG laboratory in Lansing, MI for benzene, toluene, ethylbenzene and xylene (BTEX) and total petroleum hydrocarbons (TPH).

Carbon dioxide levels in off-gas samples are measured to track biodegradation of fuels. Normal CO_2 levels in off-gas, prior to remediation, start out above atmospheric background levels of 300 ppm and represent CO_2 generated during biodegradation of naturally occurring bacteria. The CO_2 levels initially dropped off as soil air was withdrawn during remediation. Within 4 weeks, oxygen supplied to the bacteria promoted degradation of fuels which is represented by an increase in CO_2 levels in the soil gas.

Table 1 lists the results of BTEX and TPH analysis on system off-gas samples. Copies of the analytical results since December 7, 1993, are included in Appendix A.

BTEX compounds were detected in Tap 1 (row F) on 12/6/93 (1.12 ppm total BTEX), on 2/8/94 (0.26 ppm total BTEX), and on 3/16/94 (0.16 ppm total BTEX). BTEX compounds were detected in Tap 3 (row E) on 12/6/93 (0.13 ppm benzene) and 2/8/94 (0.18 ppm toluene). BTEX compounds were detected in Tap 5 (row B) on 2/8/94 (0.3 ppm total BTEX).

TPH concentrations from 12/6/93 to the present are listed below.

		1994								
Tap	12/6/93	2/8	2/23	3/16	4/19	4/27	5/20	6/17	7/5	7/21
1	80.3	41.2	9.2	1.5	1.1	NS	1	22.1	17	NS
2A	3.1	<1	<1	<1	1.1	NS	<1	16	2	NS
2B	1.5	1.2	<1	<1	<1	NS	<1	8.1	<1	NS
3	22.8	18.4	4.4	2	<1	NS	1.6	11	29.1	NS
4	<1	<1	<1	<1	<1	NS	<1	6.9	<1	NS
5	<1	18.7	<1	<1	<1	NS	<1	5.4	<1	NS
Comp	14.5	6.3	2	1.1	<1	<1	<1	27.9	6.2	2.5

NS - not sampled
All concentrations in ppm

TPH concentrations generally declined from 12/6/94 to 4/27/94. The well configuration was switched on 4/26/94. TPH concentrations rose in tap samples from 4/27/94 to 7/5/94. Composite TPH concentrations rose from 4/27/94 to 6/17/94, and have declined to a concentration of 2.5 ppm.

Table 2 lists the CO_2 concentrations above the atmospheric level of 300 ppm in off-gas samples. Figure 2 shows the changes in CO_2 concentrations for the composite offgas samples. Copies of the CO_2 measurements are included in Appendix B. Carbon dioxide concentrations in the composite sample, shown in Figure 2, dropped off significantly for the November 1993 sampling when the system was shut down due to water yield, and then rebounded to 3000 ppm in December when the system was in continuous operation. CO_2

concentrations were 3,000 ppm in February 1994 and declined through April 1994 to 1,100 ppm. CO_2 concentrations have risen since April to a concentration of 2450 ppm on 7/21/94.

Table 3 lists the monthly composite sample concentrations for BTEX, TPH, and CO2. Composite cumulative pounds of BTEX removed through May 20, 1994 are shown in Figure 3, composite pounds of TPH through May 20, 1994 are shown in Figure 4. Figure 5 shows the cumulative pounds of hydrocarbons destroyed by bacterial action.

The pounds of compounds recovered are calculated by first computing the flow rate of a given contaminant, using the contaminant concentration and air flow in cubic feet per minute of the pump station. The concentration used is the average between concentrations measured on the two separate sampling dates. The rate of flow of moles is then calculated using the Ideal Gas Law. The rate of flow of moles is then converted to rate of flow of pounds using the molecular weight of the compound. The total pounds yielded is calculated by multiplying the rate of flow of pounds by time of operation. The time of operation is the time between the two sampling events.

Pounds of contaminants destroyed by bacterial action are calculated as described above for BTEX and TPH, except that the molecular weight of carbon dioxide is used. Bacteria in soil consume petroleum hydrocarbons in the soil, producing carbon dioxide and water following the reaction listed below.

$$CH_2 + 1.5\ O_2 = CO_2 + H_2O$$

Where CH_2 represents the most basic portion of the petroleum molecule.

4.0 Site Activities

Site visits are made every two weeks to collect samples and to perform preventative maintenance. Off-gas samples are collected from each withdrawal tap once a month. Composite samples are collected twice a month.

Table 1
Off-Gas Sampling Results, Bldg 306, GE Aircraft Engines.
All concentrations in ppm

Date	Tap	Benzene	Tolulene	Et. Benz.	Xylene	BTEX	TPH
2/23/93	1	32.40	9.93	5.56	3.20	51.09	397.00
15 minutes	2	84.60	12.00	6.25	4.85	107.70	655.00
	3	18.90	4.62	1.40	3.13	28.05	301.30
	4	37.10	0.59	<0.05	0.34	0.00	224.80
	5	18.90	0.65	0.05	<0.05	0.00	115.70
2/23/93	1	48.50	14.50	7.39	5.01	75.40	500.10
2 hours	2	83.70	13.70	10.80	5.21	113.41	637.60
	3	38.30	10.40	3.16	4.14	56.00	370.60
	4	28.00	0.50	0.07	0.17	28.74	214.00
	5	16.80	0.71	0.33	0.31	18.15	136.40
	Comp	35.10	5.00	3.52	1.86	45.48	335.50
2/25/93	1	1.40	0.41	0.44	<0.05	0.00	10.00
	2A	0.39	0.20	0.23	<0.05	0.00	4.30
	2B	0.10	0.08	0.17	<0.05	0.00	1.90
	3	0.76	0.38	0.15	<0.05	0.00	7.80
	4	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	Comp	0.51	0.21	0.23	<0.05	0.00	4.60
3/1/93	1	25.10	12.70	8.31	6.09	52.20	255.50
	2A	0.86	2.37	2.74	2.29	8.26	35.20
	2B	2.11	1.31	1.36	1.73	6.51	30.30
	3	10.60	13.40	7.42	7.83	39.25	203.80
	4	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	Comp	6.69	4.70	3.34	3.05	17.78	85.80
3/5/93	1	2.28	1.11	0.51	0.58	4.48	31.20
	2A	0.11	0.24	0.21	<0.05	0.00	4.00
	2B	0.28	0.24	0.26	0.14	0.92	5.10
	3	1.96	2.52	1.69	1.74	7.91	51.90
	4	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	Comp	0.98	0.62	0.51	0.51	2.62	16.40
3/15/93	1	<0.05	0.08	0.05	0.16	0.00	1.30
	2A	<0.05	0.06	0.16	<0.05	0.00	<1.0
	2B	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	3	3.03	1.57	0.90	1.53	7.03	35.90
	4	<0.05	0.07	<0.05	<0.05	0.00	1.00
	5	<0.05	<0.05	0.14	0.20	0.00	1.00
	Comp	0.32	0.26	0.15	0.33	1.06	5.70
3/18/93	1	<0.05	0.07	<0.05	<0.05	0.00	<1.0
	2A	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	2B	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	3	1.39	0.94	0.70	0.95	3.98	28.20
	4	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	Comp	0.19	0.16	0.20	<0.05	0.00	4.60

Tap 1=Row F
Tap 2A=Row c
Tap 2B=Row D
Tap 3=Row E
Tap 4=Row A
Tap 5=Row B

Table 1
Off-Gas Sampling Results, Bldg 306, GE Aircraft Engines.
All concentrations in ppm

Date	Tap	Benzene	Tolulene	Et. Benz.	Xylene	BTEX	TPH
3/30/93	1	<0.05	0.05	<0.05	0.19	0.00	<1.0
	2A	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	2B	<0.05	0.10	<0.05	<0.05	0.00	2.40
	3	0.08	3.09	2.20	5.52	10.89	63.60
	4	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	Comp	0.47	0.08	0.15	0.13	0.83	5.10
4/14/93	1	<0.05	0.08	<0.05	0.43	0.00	2.20
	2A	<0.05	0.05	<0.05	<0.05	0.00	<1.0
	2B	<0.05	0.11	<0.05	0.90	0.00	2.70
	3	<0.05	2.05	1.61	4.20	0.00	37.20
	4	<0.05	0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	0.05	<0.05	<0.05	0.00	<1.0
	Comp	<0.05	0.16	<0.05	0.34	0.00	2.30
4/29/93	Comp	<0.05	0.22	0.17	0.56	0.00	3.50
5/11/93	1	0.05	1.83	1.68	1.54	5.10	31.30
	2A	<0.05	0.11	0.08	0.20	0.00	1.50
	2B	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	3	0.08	1.27	1.33	2.17	4.85	25.30
	4	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	Comp	<0.05	0.30	0.46	0.46	0.00	5.40
6/2/93	Comp	<0.05	<0.05	0.12	0.54	0.00	3.30
6/17/93	1	<0.05	0.60	0.36	3.24	0.00	17.80
	2A	0.33	0.06	0.05	0.41	0.85	4.30
	2B	<0.05	0.11	<0.05	0.47	0.00	4.50
	3	<0.05	0.19	0.05	0.87	0.00	4.60
	4	<0.05	<0.05	<0.05	<0.05	0.00	1.60
	5	<0.05	<0.05	<0.05	<0.05	0.00	1.30
	Comp	<0.05	0.44	<0.05	0.09	0.00	5.40
7/10/93	Comp	<0.05	<0.05	<0.05	0.10	0.00	1.60
8/26/93	1	<0.05	<0.05	<0.05	0.15	0.00	2.20
	2A	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	2B	<0.05	<0.05	<0.05	<0.05	0.00	2.20
	3	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	4	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	Comp	0.05	0.09	0.05	0.19	0.38	2.80

Tap 1=Row F
Tap 2A=Row c
Tap 2B=Row D
Tap 3=Row E
Tap 4=Row A
Tap 5=Row B

Table 1
Off-Gas Sampling Results, Bldg 306, GE Aircraft Engines.
All concentrations in ppm

Date	Tap	Benzene	Tolulene	Et. Benz.	Xylene	BTEX	TPH
9/22/93	1	0.12	0.17	<0.05	0.13	0.42	38.40
	2A	<0.05	<0.05	<0.05	<0.05	0.00	1.90
	2B	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	3	<0.05	<0.05	<0.05	<0.05	0.00	8.50
	4	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	COMP	<0.05	<0.05	<0.05	<0.05	0.00	7.00
10/26/93	1	2.13	2.11	2.08	3.98	10.30	252.00
	2A	<0.05	<0.05	<0.05	<0.05	0.00	2.20
	2B	<0.05	<0.05	<0.05	0.10	0.10	2.40
	3	0.20	0.23	0.09	0.45	0.97	69.20
	4	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	COMP	0.45	0.36	0.18	1.09	2.08	90.40
11/15/93	1	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	2A	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	2B	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	3	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	4	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	COMP	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
12/6/93	1	0.58	0.10	0.16	0.28	1.12	80.30
	2A	<0.05	<0.05	<0.05	<0.05	0.00	3.10
	2B	<0.05	<0.05	<0.05	<0.05	0.00	1.50
	3	0.13	<0.05	<0.05	<0.05	0.13	22.80
	4	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	5	<0.05	<0.05	<0.05	<0.05	0.00	<1.0
	COMP	0.06	<0.05	<0.05	<0.05	0.06	14.50
2/8/94	1	0.14	0.06	0.11	0.26	0.57	41.20
	2A	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	2B	<0.05	<0.05	<0.05	<0.05	<0.05	1.20
	3	<0.05	0.18	<0.05	<0.05	0.18	18.40
	4	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	5	0.07	0.05	0.05	0.13	0.30	18.70
	COMP	<0.05	<0.05	<0.05	<0.05	<0.05	6.30
2/23/94	1	0.08	<0.05	<0.05	0.18	0.26	9.20
	2A	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	2B	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	3	<0.05	<0.05	<0.05	<0.05	<0.05	4.40
	4	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	5	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	COMP	<0.05	<0.05	<0.05	<0.05	<0.05	2.00

Tap 1=Row F
Tap 2A=Row c
Tap 2B=Row D
Tap 3=Row E
Tap 4=Row A
Tap 5=Row B

Table 1
Off-Gas Sampling Results, Bldg 306, GE Aircraft Engines.
All concentrations in ppm

Date	Tap	Benzene	Tolulene	Et. Benz.	Xylene	BTEX	TPH
3/16/94	1	<0.05	<0.05	<0.05	0.16	0.16	1.50
	2A	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	2B	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	3	<0.05	<0.05	<0.05	<0.05	<0.05	2.00
	4	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	5	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	COMP	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
4/19/94	1	<0.05	<0.05	<0.05	<0.05	<0.05	1.1
	2A	<0.05	<0.05	<0.05	<0.05	<0.05	1.1
	2B	<0.05	<0.05	<0.05	<0.05	<0.05	1
	3	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	4	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	5	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	COMP	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
4/27/94	COMP	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
5/20/94 new configuration	1	<0.05	<0.05	<0.05	<0.05	<0.05	1.00
	2A	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	2B	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	3	<0.05	<0.05	<0.05	<0.05	<0.05	1.60
	4	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	5	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
	COMP	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0
6/17/94 new configuration	1	<0.05	<0.05	<0.05	<0.05	<0.05	22.10
	2A	<0.05	<0.05	<0.05	<0.05	<0.05	16.00
	2B	<0.05	<0.05	<0.05	<0.05	<0.05	8.10
	3	<0.05	<0.05	<0.05	<0.05	<0.05	11.00
	4	<0.05	<0.05	<0.05	<0.05	<0.05	6.90
	5	<0.05	<0.05	<0.05	<0.05	<0.05	5.40
	COMP	<0.05	<0.05	<0.05	<0.05	<0.05	27.90
7/5/94 new configuration	1	<0.05	<0.05	<0.05	<0.05	<0.05	17.00
	2A	<0.05	<0.05	<0.05	<0.05	<0.05	2.00
	2B	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	3	<0.05	<0.05	<0.05	<0.05	<0.05	29.10
	4	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	5	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	COMP	<0.05	<0.05	<0.05	<0.05	<0.05	6.20
7/21/94	COMP	<0.05	<0.05	<0.05	<0.05	<0.05	2.50

Tap 1=Row F
Tap 2A=Row c
Tap 2B=Row D
Tap 3=Row E
Tap 4=Row A
Tap 5=Row B

Table 2. CO2 Sampling Results, Bldg 306
G.E. Aircraft Engines
Units: ppm
All CO2 concentrations reported as concentrations above background (300 ppm)

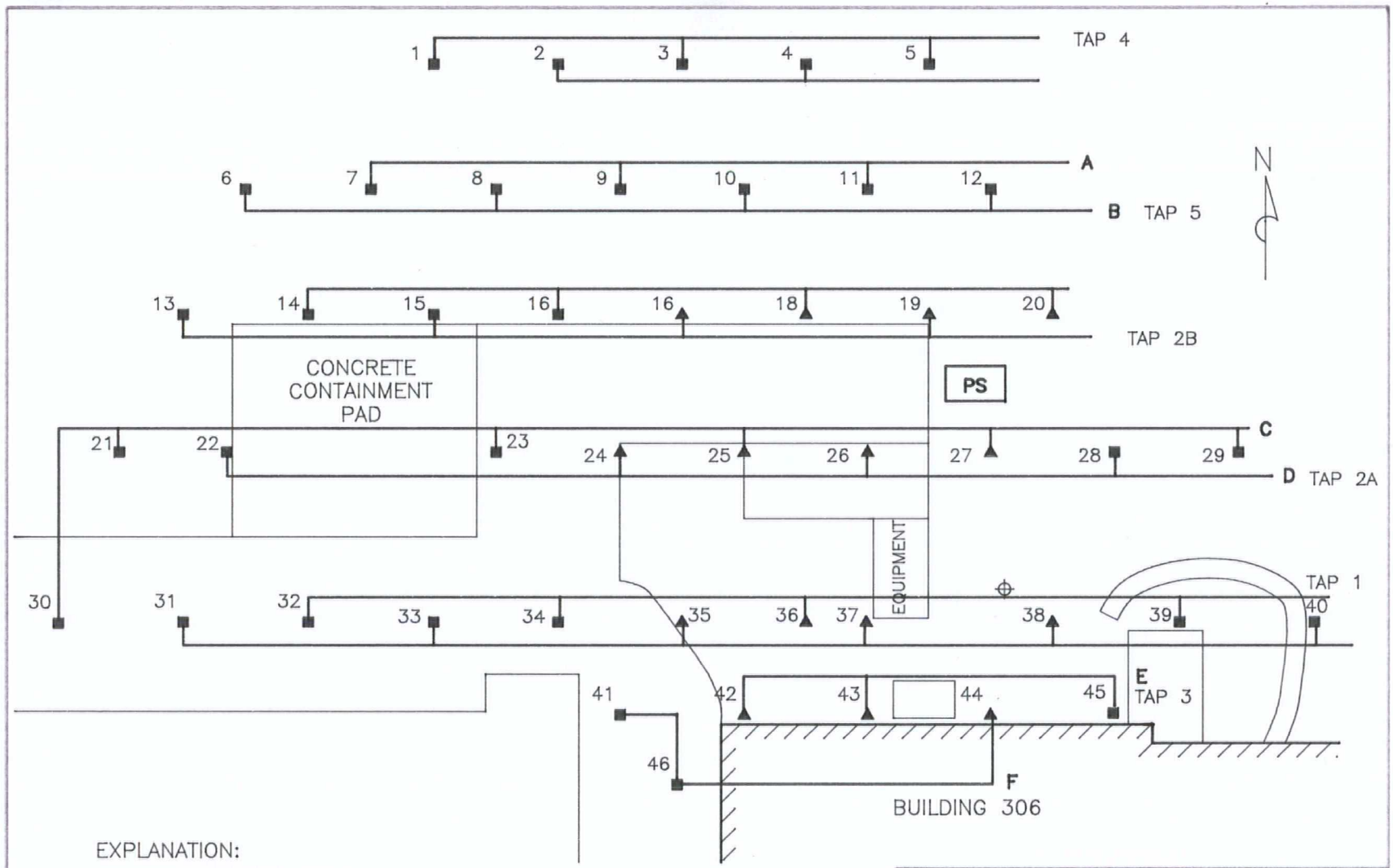
Tap	2/23/93 15 minutes	2/23/93 2 hours	2/25/93	3/1/93	3/5/93	3/15/93
1	>10,000	>10,000	100	100	50	100
2A	>10,000	>10,000	50	100	100	250
2B	>10,000	>10,000	50	50	50	150
3	>10,000	>10,000	100	50	50	350
4	>10,000	>10,000	100	100	50	50
5	>10,000	>10,000	50	50	50	50
COMP	NS	>10,000	0	50	100	100

Tap	3/18/93	4/14/93	5/11/93	6/17/93	7/10/93	8/26/93
1	400	100	3500	4100	3400	1450
.2A	50	200	1000	1150	1050	300
2B	350	100	1000	1800	1900	800
3	1200	100	3000	2900	2450	700
4	50	50	750	100	100	250
5	50	100	500	100	150	300
COMP	350	150	1250	1550	1850	1850

Tap	9/22/93	10/26/93	11/15/93	12/6/93	2/23/94	3/16/94
1	4150	>10000	-150	>10000	>10000	>10000
2A	1100	7950	-150	3350	3350	2100
2B	700	5700	-150	2050	2050	1200
2	NS	NS	NS	2600	NS	NS
3	3200	>10,000	-50	7700	7700	6600
4	150	350	-150	250	250	100
5	150	400	-50	150	150	0
COMP	1350	>10,000	-50	3000	3000	1850

Tap	4/19/94	4/26/94	5/20/94	6/17/94	7/5/94	7/21/94
1	2500	2,950	1400	4650	4050	4900
2A	2450	750	1200	2200	1950	2450
2B	2250	300	750	450	600	950
2	NS	NS	NS	NS	NS	NS
3	1700	2050	1600	>10000	>10000	8050
4	50	200	400	250	300	650
5	50	250	600	100	150	400
COMP	1150	1100	1450	2200	2200	2450

Configuration changed on 4/26/94



EXPLANATION:

- ⊕ MONITORING WELL
- ▲ ORIGINAL MWR/ETG SVE LOCATION
- ■ MWR/ETG SVE WELL
- **PS** PUMP STATION

Scale In Feet

0 25 50

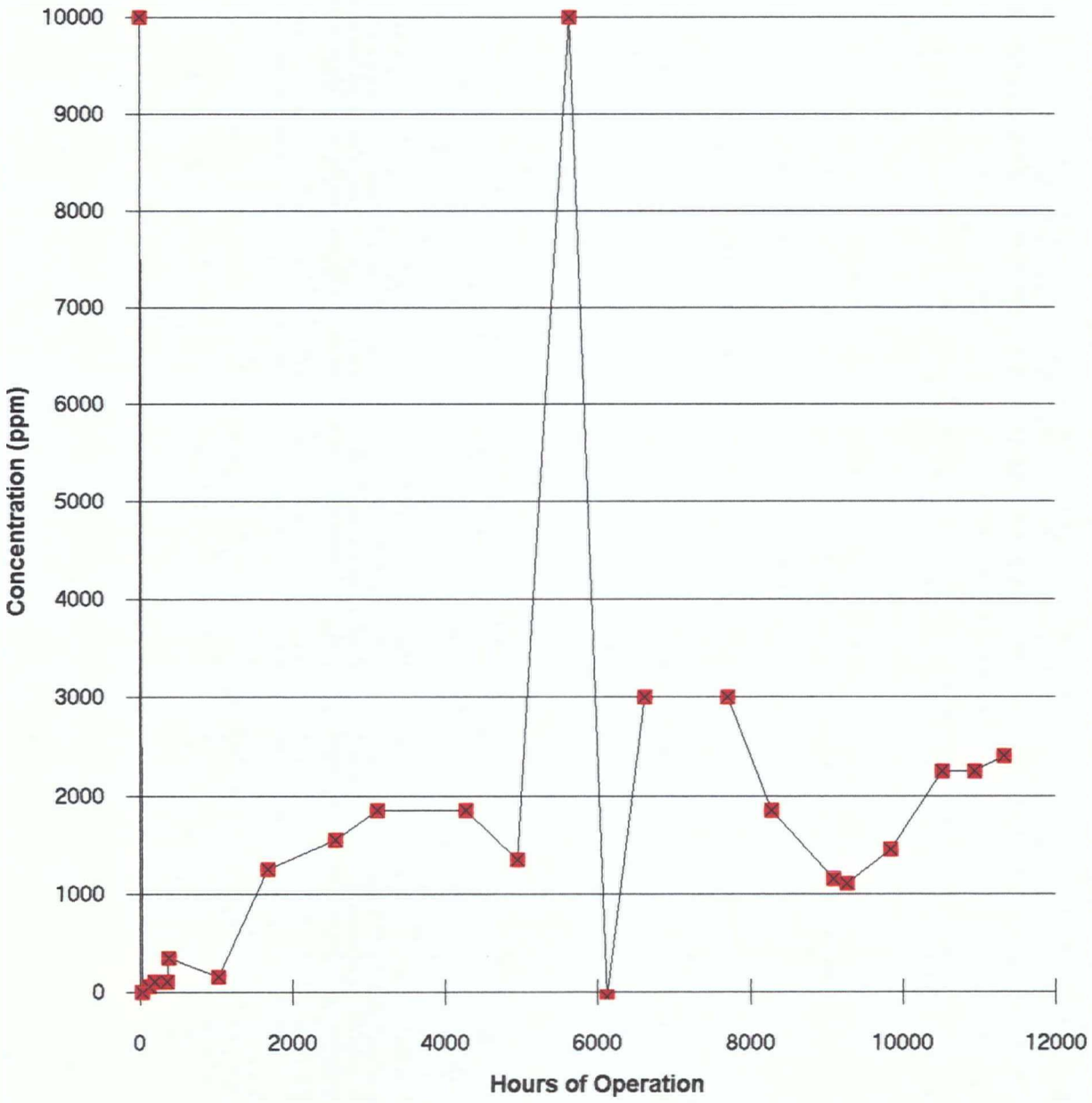
ETG ENVIRONMENTAL, INC.

GE, EVENDALE, OH BLD. 306

SITE LAYOUT

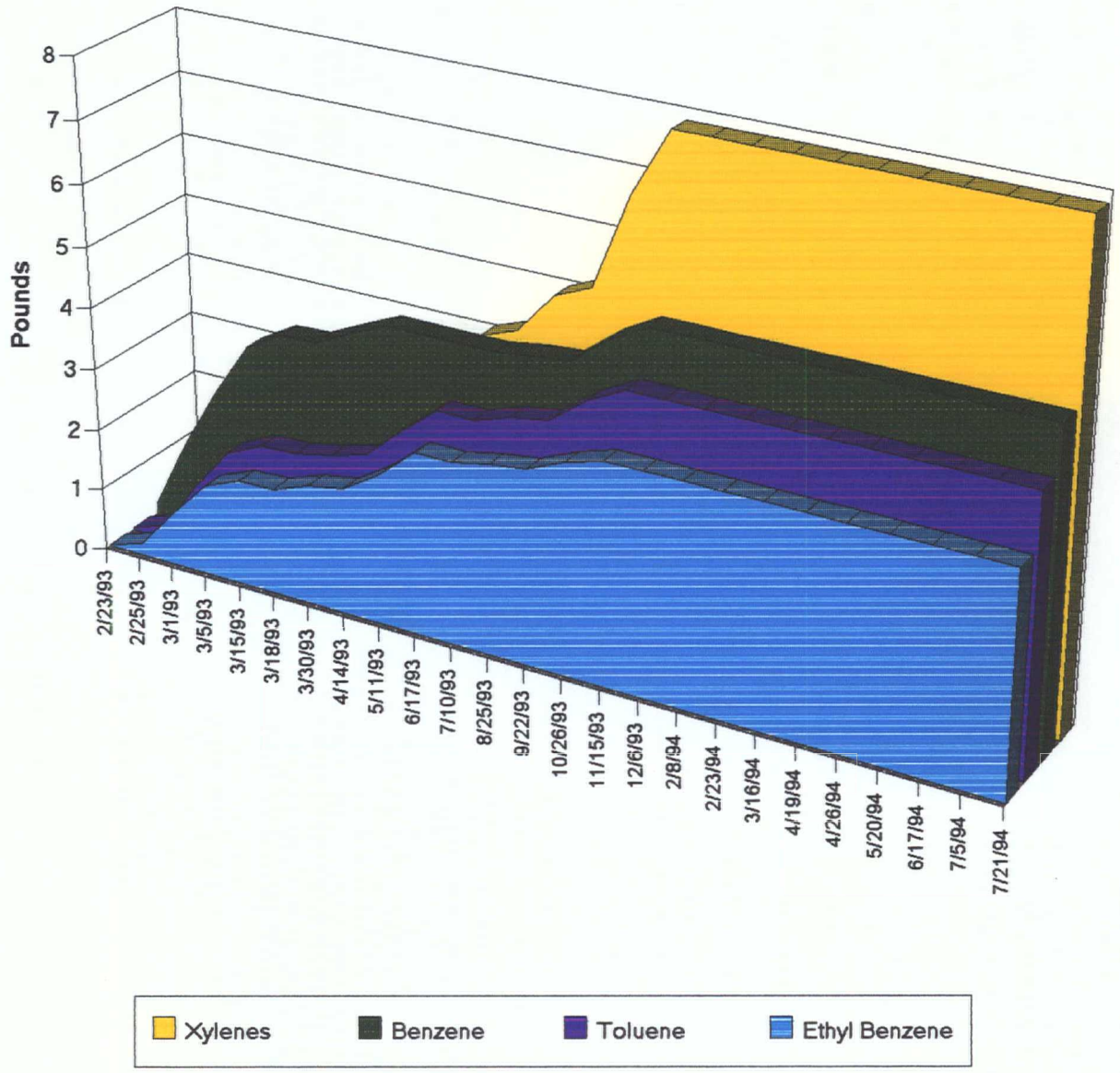
Rev. # 1	Drawn By: M. Brocker	Date: 8/17/94
Geologist: J. Erickson	Dwg. # GE	FIGURE 1

Figure 2.
Carbon Dioxide Concentration Trend
In Composite Off-gas Samples
Building 306, GE Aircraft Engines



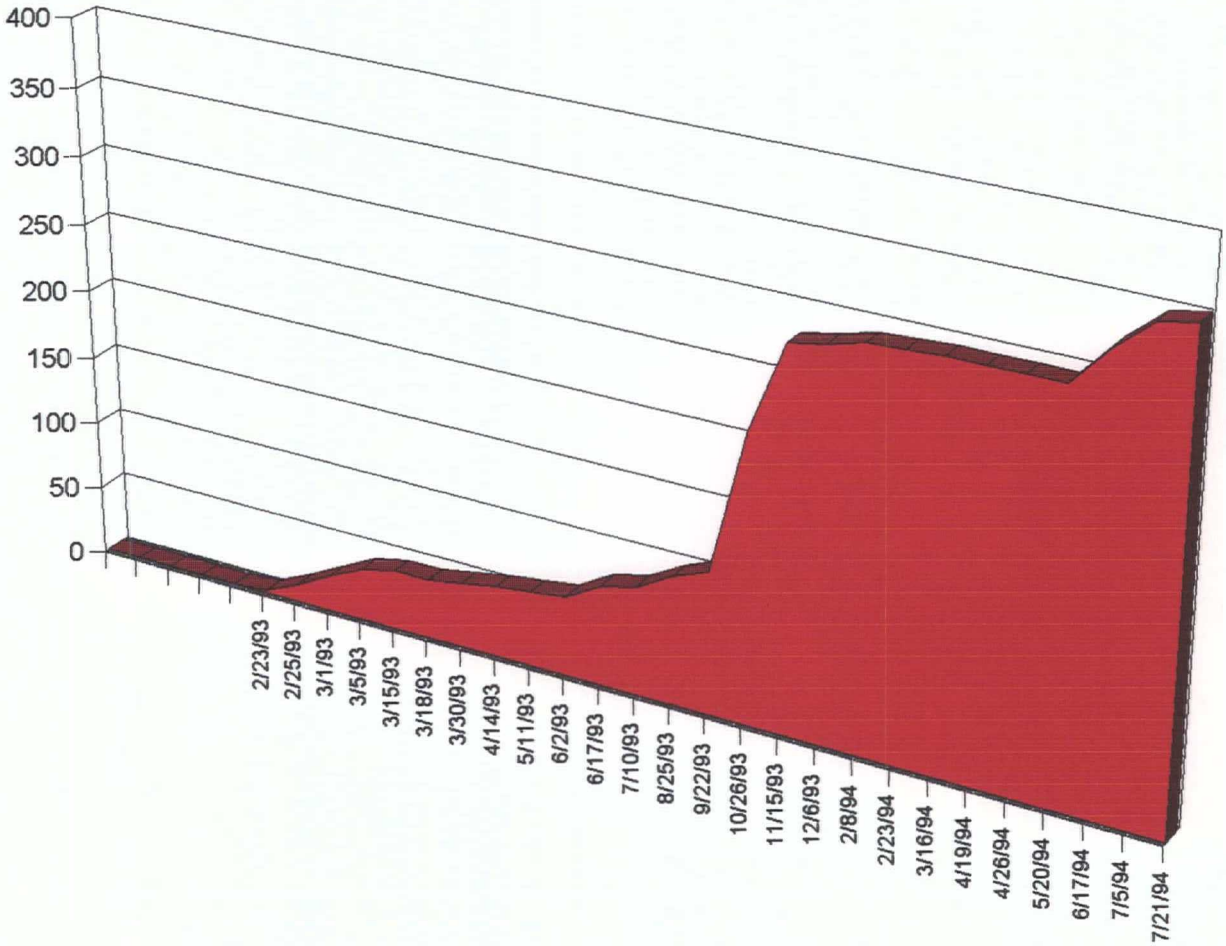
CO2TRND.XLC

Figure 3.
Cumulative Pounds of Benzene, Toluene, Ethyl Benzene and Xylenes Removed during SVE Remediation Bldg. 306, GE Aircraft Engines



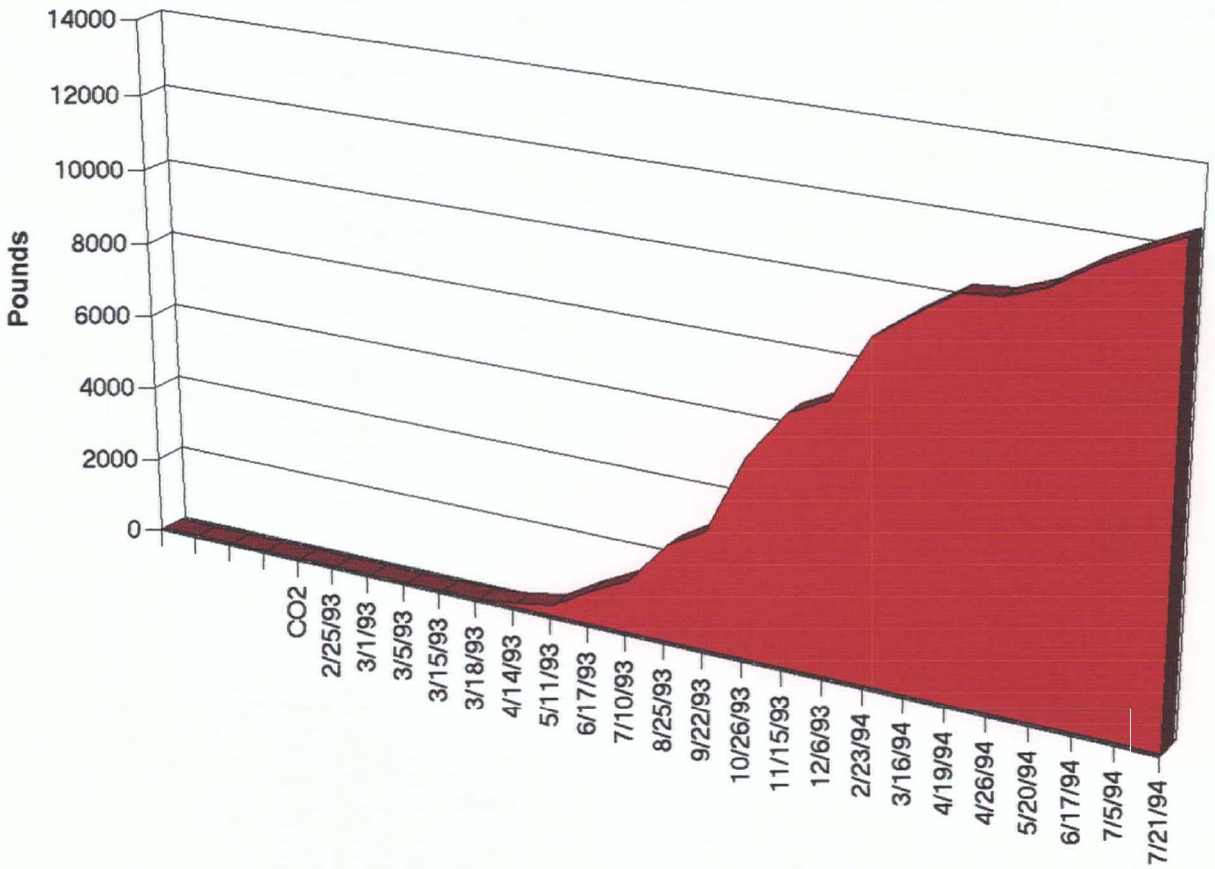
CUMBTEX.XLC

Figure 4.
Cumulative Pounds of
Total Petroleum Hydrocarbons
Removed During SVE Remediation
Bldg. 306, GE Aircraft Engines



CUMTPH.XLC

Figure 5.
Cumulative Pounds of Hydrocarbons Destroyed by Bacterial Action Based on Carbon Dioxide Concentrations in System Off-gas
Bldg. 306, GE Aircraft Engines



CUMCO2.XLC

Appendix A

Off-gas Analytical Results

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 07/22/94

Sample Date: 07/21/94

Units: ppm

Detection Limit: 0.05

Analyst: YL

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
COMP	BQL	BQL	BQL	BQL	2.5

Notes:

[1] Estimated value. TPH was calculated by the average response factor of BTEX.

[2] The sample was labeled "306 COMP" on the sample bag.

CHAIN OF CUSTODY FOR AIR SAMPLES

Station Hour Meter: NA

Flow Meter: NA

Vacuum (Hg.): NA

Air Temp. (ground): 75°F

Client: GE

Site Address: Evendale Plant

Client Code: 2002

Project Manager: J Erickson

	Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1	Comp	7-21-94	10:00	NA	2700	BTEX, TPH	
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

Collected By: J.r Geiger Date: 10:00 Time: 7-21-94

Delivered By: Date: Time:

Received By: CR. Date: 7/22/94 Time: 8:45

Remarks:

ETG Environmental, Inc.

Providing creative environmental solutions

7707 Rickle Road, Lansing, Michigan. 48917

Phone # : (517) 322-9311 Fax #: (517) 322-2936

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 07/06/94

Sample Date: 07/05/94

Units: ppm

Detection Limit: 0.05

Analyst: YL

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG306 #1	BQL	BQL	BQL	BQL	17.0
BLDG306 #2A	BQL	BQL	BQL	BQL	2.0
BLDG306 #2B	BQL	BQL	BQL	BQL	<1.0
BLDG306 #3	BQL	BQL	BQL	BQL	29.1
BLDG306 #4	BQL	BQL	BQL	BQL	<1.0
BLDG306 #5	BQL	BQL	BQL	BQL	<1.0
BLDG306 COMP	BQL	BQL	BQL	BQL	6.2

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 06/20/94

Sample Date: 06/17/94

Units: ppm

Detection Limit: 0.05

Analyst: JP

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
1	BQL	BQL	BQL	BQL	22.1
2A	BQL	BQL	BQL	BQL	16.0
2B	BQL	BQL	BQL	BQL	8.1
3	BQL	BQL	BQL	BQL	11.0
4	BQL	BQL	BQL	BQL	6.9
5	BQL	BQL	BQL	BQL	5.4
COMP	BQL	BQL	BQL	BQL	27.9

Post-it™ brand fax transmittal memo 7671 # of pages ▸ 4

To Jay Erickson	From Yixin Li
Co.	Co.
Dept.	Phone #
Fax #	Fax #

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

CHAIN OF CUSTODY FOR AIR SAMPLES

Station Hour Meter: NA

Flow Meter:

Vacuum (Hg.): 2.5

Air Temp. (ground): 90

Client: GENERAL ELECTRIC

Site Address: Cindi Oil.

Client Code: 2002 (306)

Project Manager: JAY ERICKSON

	Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1	1	6/17-94	10:30	NA	4950		
2	2A	↓	↓	↓	2500		
3	2B				750		
4	3				05		
5	4				550		
6	5				400		
7	COMP	"	"	"	2500		
8							
9							
10							
11							
12							
13							
14							

Collected By: [signature] Date: 6-17-94 Time: 10:30

Delivered By: [signature] Date: 6-17-94 Time:

Received By: [signature] Date: 6/20/94 Time: 9 AM

Remarks:

ETG Environmental, Inc.

Providing creative environmental solutions

7707 Rickle Road, Lansing, Michigan. 48917

Phone # : (517) 322-9311 Fax #: (517) 322-2936

FROM :ETG ENVIRONMENTAL 517 322 2936 19 96-21 08:32 #742 P.03/04

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 05/23/94

Sample Date: 05/20/94

Units: ppm

Detection Limit: 0.05

Analyst: YL

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG306 #1	BQL	BQL	BQL	BQL	1.0
BLDG306 #2A	BQL	BQL	BQL	BQL	<1.0
BLDG306 #2B	BQL	BQL	BQL	BQL	<1.0
BLDG306 #3	BQL	BQL	BQL	BQL	1.6
BLDG306 #4	BQL	BQL	BQL	BQL	<1.0
BLDG306 #5	BQL	BQL	BQL	BQL	<1.0
BLDG306 COMP	BQL	BQL	BQL	BQL	<1.0

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

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To Jay Erickson	From Yixin Li
Co.	Co.
Dept.	Phone #
Fax #	Fax #

ETG Lab Analytical Results

Client: G.E.

Analysis Date: 04/27/94

Units: ppm

Analyst: YL

Client Code: 2002

Sample Date: 04/26/94

Detection Limit: 0.05

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG306 COMP	BQL	BQL	BQL	BQL	<1.0

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

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ERLANGER, KY 41018
(606) 282-6137 (ph) / 282-6378 (fax)

CHAIN OF CUSTODY

Lab: ETG INC.
Client: G.E.
Address: Cinti: OH

Contact Person: JAY ERICKSON
Phone #: (606) 282-6137
PO#:
Project Code: 2002 (306)

Sample ID	TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
COMP			4-26-94	12:00		JP			

Collected By: R Sey Date: 4-26-94 Time: 12:00
Delivered By: Date: Time:
Received By: [illegible] Date: 4/27/94 Time: 12:30 Seal Intact Y/N
Remarks:

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [ ] Other

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 04/20-21/94

Sample Date: 04/19/94

Units: ppm

Detection Limit: 0.05

Analyst: YL

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG306 #1	BQL	BQL	BQL	BQL	1.1
BLDG306 #2A	BQL	BQL	BQL	BQL	1.1
BLDG306 #2B	BQL	BQL	BQL	BQL	1.0
BLDG306 #3	BQL	BQL	BQL	BQL	<1.0
BLDG306 #4	BQL	BQL	BQL	BQL	<1.0
BLDG306 #5	BQL	BQL	BQL	BQL	<1.0
BLDG306 COMP	BQL	BQL	BQL	BQL	<1.0

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

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CHAIN OF CUSTODY

Lab: ETG Inc.
Client: G Electric
Address: Cind. OH.

Contact Person: Jay Erickson
Phone #: (606) 282-6137
PO#:
Project Code: 2002 (306)

Sample ID	TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
1			4-19-94	11:30		JR			
2A			↓	↓		↓			
2B									
3									
4									
5									
Comp									

Collected By: [illegible] Date: 4-19-94 Time: 11:30
Delivered By: Date: Time:
Received By: [illegible] Date: 4/20/94 Time: 12:40 p Seal Intact Y/N
Remarks:

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [✓] Other

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 03/18/94

Sample Date: 03/16/94

Units: ppm

Detection Limit: 0.05

Analyst: YL

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG306 #1	BQL	BQL	BQL	0.16	1.5
BLDG306 #2A	BQL	BQL	BQL	BQL	<1.0
BLDG306 #2B	BQL	BQL	BQL	BQL	<1.0
BLDG306 #3	BQL	BQL	BQL	BQL	2.0
BLDG306 #4	BQL	BQL	BQL	BQL	<1.0
BLDG306 #5	BQL	BQL	BQL	BQL	<1.0
BLDG306 COMP	BQL	BQL	BQL	BQL	<1.0

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

ETG Lab Analytical Results

Client: G.E.
Client Code: 2002
Analysis Date: 02/25/94
Sample Date: 02/23/94
Units: ppm
Detection Limit: 0.05
Analyst: YL
Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG301 #1A	BQL	BQL	BQL	BQL	<1.0
BLDG301 #1B	BQL	BQL	BQL	BQL	<1.0
BLDG301 #2	BQL	BQL	BQL	BQL	<1.0
BLDG301 #3	BQL	BQL	BQL	BQL	<1.0
BLDG301 #4	BQL	BQL	BQL	BQL	<1.0
BLDG301 #5	BQL	BQL	BQL	BQL	<1.0
BLDG301 COMP	BQL	BQL	BQL	BQL	<1.0
BLDG306 #1	0.08	BQL	BQL	0.18	9.2
BLDG306 #2A	BQL	BQL	BQL	BQL	<1.0
BLDG306 #2B	BQL	BQL	BQL	BQL	<1.0
BLDG306 #3	BQL	BQL	BQL	BQL	4.4
BLDG306 #4	BQL	BQL	BQL	BQL	<1.0
BLDG306 #5	BQL	BQL	BQL	BQL	<1.0
BLDG306 COMP	BQL	BQL	BQL	BQL	2.0

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To Jay Erickson	From Yixin Li
Co.	Co.
Dept.	Phone #
Fax #	Fax #

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

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CHAIN OF CUSTODY

Lab: E.T.G. Hansing, Michigan
Client: General Electric
Address: Evendale, Ohio

Contact Person: Ray Erickson
Phone #: 606-282-6137
PO#:
Project Code: 2002

Sample ID	TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
#301	1A		2/23/94	12:45p	Air	R.H.	1	None	
	1B		↓	↓	↓	↓	1	↓	
	2		↓	↓	↓	↓	1	↓	
	3		↓	↓	↓	↓	1	↓	
	4		↓	↓	↓	↓	1	↓	
	5		↓	↓	↓	↓	1	↓	
	Composite		↓	↓	↓	↓	1	↓	

Collected By: [signature] Date: 2-23-94 Time: 12:45pm
Delivered By: [signature] Date: 2-23-94 Time:
Received By: [signature] Date: 2/25/94 Time: 9:00 Seal Intact Y/N
Remarks:

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [x] Other

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 05/23/94

Sample Date: 05/20/94

Units: ppm

Detection Limit: 0.05

Analyst: YL

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG306 #1	BQL	BQL	BQL	BQL	1.0
BLDG306 #2A	BQL	BQL	BQL	BQL	<1.0
BLDG306 #2B	BQL	BQL	BQL	BQL	<1.0
BLDG306 #3	BQL	BQL	BQL	BQL	1.6
BLDG306 #4	BQL	BQL	BQL	BQL	<1.0
BLDG306 #5	BQL	BQL	BQL	BQL	<1.0
BLDG306 COMP	BQL	BQL	BQL	BQL	<1.0

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

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To Jay Erickson	From Yixin Li
Co.	Co.
Dept.	Phone #
Fax #	Fax #

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 04/27/94

Sample Date: 04/26/94

Units: ppm

Detection Limit: 0.05

Analyst: YL

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG306 COMP	BQL	BQL	BQL	BQL	<1.0

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

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CHAIN OF CUSTODY

Lab: ETG Inc.
Client: G.E.
Address: Cinti. OH

Contact Person: Jay Erickson
Phone #: (606) 282-6137
PO#:
Project Code: 2002 (306)

Sample ID	TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
Comp			4-26-94	12:00		JP			

Collected By: R Sey Date: 4-26-94 Time: 12:00
Delivered By: Date: Time:
Received By: [illegible] Date: 4/27/94 Time: 12:30 Seal Intact Y/N
Remarks:

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [ ] Other

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ERLANGER, KY 41018
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CHAIN OF CUSTODY

Lab: ETG INC.
Client: G.E.
Address: Cinti. OH

Contact Person: JAY ERICKSON
Phone #: (606) 282-6137
PO#:
Project Code: 2002 (306)

Sample ID	TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
COMP			4-26-94	12:00		JR			

Collected By: R. Day Date: 4-26-94 Time: 12:00
Delivered By: Date: Time:
Received By: [illegible] Date: 4/27/94 Time: 12:30 Seal Intact Y/N
Remarks:

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [ ] Other

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 04/20-21/94

Sample Date: 04/19/94

Units: ppm

Detection Limit: 0.05

Analyst: YL

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG306 #1	BQL	BQL	BQL	BQL	1.1
BLDG306 #2A	BQL	BQL	BQL	BQL	1.1
BLDG306 #2B	BQL	BQL	BQL	BQL	1.0
BLDG306 #3	BQL	BQL	BQL	BQL	<1.0
BLDG306 #4	BQL	BQL	BQL	BQL	<1.0
BLDG306 #5	BQL	BQL	BQL	BQL	<1.0
BLDG306 COMP	BQL	BQL	BQL	BQL	<1.0

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

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CHAIN OF CUSTODY

Lab: ETG Inc.
Client: G Electric
Address: Cinn. OH.

Contact Person: Jay Erickson
Phone #: (606) 282-6137
PO#:
Project Code: 2002 (306)

Sample ID	TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
1			4-19-94	11:30		JE			
2A			↓	↓		↓			
2B									
3									
4									
5									
Comp									

Collected By: [signature] Date: 4-19-94 Time: 11:30
Delivered By: Date: Time:
Received By: [signature] Date: 4/20/94 Time: 12:40 p Seal Intact Y/N
Remarks:

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [✓] Other

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 04/20-21/94

Sample Date: 04/19/94

Units: ppm

Detection Limit: 0.05

Analyst: YL

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG306 #1	BQL	BQL	BQL	BQL	1.1
BLDG306 #2A	BQL	BQL	BQL	BQL	1.1
BLDG306 #2B	BQL	BQL	BQL	BQL	1.0
BLDG306 #3	BQL	BQL	BQL	BQL	<1.0
BLDG306 #4	BQL	BQL	BQL	BQL	<1.0
BLDG306 #5	BQL	BQL	BQL	BQL	<1.0
BLDG306 COMP	BQL	BQL	BQL	BQL	<1.0

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

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To Jay Erickson	From Yixin Li
Co.	Co.
Dept.	Phone #
Fax #	Fax #

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ERLANGER, KY 41018
(606) 282-6137 (ph) / 282-6378 (fax)

CHAIN OF CUSTODY

Lab: ETG Inc.
Client: G Electric
Address: Cin: OH.

Contact Person: Jay Erickson
Phone #: (606) 282-6137
PO#:
Project Code: 2002 (306)

Sample ID	TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
1			4-19-94	11:30		JR			
2A			↓	↓		↓			
2B									
3									
4									
5									
Comp			↓	↓		↓			

Collected By: [signature] Date: 4-19-94 Time: 11:30
Delivered By: Date: Time:
Received By: [signature] Date: 4/20/94 Time: 12:40 p Seal Intact Y/N
Remarks:

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [x] Other

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 03/18/94

Sample Date: 03/16/94

Units: ppm

Detection Limit: 0.05

Analyst: YL

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG306 #1	BQL	BQL	BQL	0.16	1.5
BLDG306 #2A	BQL	BQL	BQL	BQL	<1.0
BLDG306 #2B	BQL	BQL	BQL	BQL	<1.0
BLDG306 #3	BQL	BQL	BQL	BQL	2.0
BLDG306 #4	BQL	BQL	BQL	BQL	<1.0
BLDG306 #5	BQL	BQL	BQL	BQL	<1.0
BLDG306 COMP	BQL	BQL	BQL	BQL	<1.0

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

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(606) 282-6137 (ph) / 282-6378 (fax)

CHAIN OF CUSTODY

Lab: MWR Lab
Client: General Electric
Address: Evendale Ohio

Contact Person: Jay Erickson
Phone #: 606-282-6137
PO#:
Project Code: 2002

3/16

Sample ID	TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
306	1		2-16-94	2:30p	Air	R.H	1	None	
	2A						1		
	2B						1		
	3						1		
	4						1		
	5						1		
	Composite						1		

3/16

Collected By: [signature] Date: 2-16-94 Time: 2:30p
Delivered By: [signature] Date: 2-16-94 Time:
Received By: [signature] Date: 3/18/94 Time: 8:30 Seal Intact Y/N
Remarks:

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [x] Other:

ETG Lab Analytical Results

Client: G.E.
Client Code: 2002
Analysis Date: 02/25/94
Sample Date: 02/23/94
Units: ppm
Detection Limit: 0.05
Analyst: YL
Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG301 #1A	BQL	BQL	BQL	BQL	<1.0
BLDG301 #1B	BQL	BQL	BQL	BQL	<1.0
BLDG301 #2	BQL	BQL	BQL	BQL	<1.0
BLDG301 #3	BQL	BQL	BQL	BQL	<1.0
BLDG301 #4	BQL	BQL	BQL	BQL	<1.0
BLDG301 #5	BQL	BQL	BQL	BQL	<1.0
BLDG301 COMP	BQL	BQL	BQL	BQL	<1.0
BLDG306 #1	0.08	BQL	BQL	0.18	9.2
BLDG306 #2A	BQL	BQL	BQL	BQL	<1.0
BLDG306 #2B	BQL	BQL	BQL	BQL	<1.0
BLDG306 #3	BQL	BQL	BQL	BQL	4.4
BLDG306 #4	BQL	BQL	BQL	BQL	<1.0
BLDG306 #5	BQL	BQL	BQL	BQL	<1.0
BLDG306 COMP	BQL	BQL	BQL	BQL	2.0

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To Jay Erickson	From Yixin Li
Co.	Co.
Dept.	Phone #
Fax #	Fax #

Notes:
[1] Estimated value. TPH was calculated by the average response factor of BTEX.

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CHAIN OF CUSTODY

Lab: E.T.G. Housing, Michigan.
Client: General Electric
Address: E. Fairdale, Ohio

Contact Person: Jay Erickson
Phone #: 606-282-6137
PO#:
Project Code: 2002

Sample ID	TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
#301	1A		2/25/94	12:45p	Air	R.H.	1	None	
	1B		↓	↓	↓	↓	1	↓	
	2		↓	↓	↓	↓	1	↓	
	3		↓	↓	↓	↓	1	↓	
	4		↓	↓	↓	↓	1	↓	
	5		↓	↓	↓	↓	1	↓	
	Composite		↓	↓	↓	↓	1	↓	

Collected By: [signature] Date: 2-28-94 Time: 12:45pm
Delivered By: [signature] Date: 3-23-94 Time:
Received By: [signature] Date: 3/25/94 Time: 9:00 Seal Intact Y/N
Remarks:

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [x] Other

FEB 28 '94 02:10PM ETG ENVIRONMENVAL

ETG
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4900 OLYMPIC BLVD.
ERLANGER, KY 41018
(606) 282-6137 (ph) / 282-6378 (fax)

CHAIN OF CUSTODY

Lab: E.T.G. Lansing, Michigan
Client: General Electric
Address: Evendale, Ohio

Contact Person: Jay Erickson
Phone #: 606-282-6137
PO#:
Project Code: 2002

Sample ID	TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
#306	#1		2-23-94	12:00p	Air	RJH	1	None	
	#2A		↓	↓	↓	↓	1	↓	
	#2B						1		
	#3						1		
	#4						1		
	#5						1		
	Composite								

Collected By: [signature] Date: 2-23-94 Time: 12:00p
Delivered By: [signature] Date: 2-23-94 Time:
Received By: [signature] Date: 2/25/94 Time: 9:00 Seal Intact Y/N
Remarks:

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [ ] Other

ETG Lab Analytical Results

Client: G.E.

Client Code: 2002

Analysis Date: 02/09/94

Sample Date: 02/08/94

Units: ppm

Detection Limit: 0.05

Analyst: YL

Project Manager: Erickson

Sample	Benzene	Toluene	Et.Benz	Xylenes	TPH[1]
BLDG301 #1A	BQL	BQL	BQL	BQL	<1.0
BLDG301 #1B	0.05	BQL	BQL	BQL	4.2
BLDG301 #2	BQL	BQL	BQL	BQL	1.9
BLDG301 #3	BQL	BQL	BQL	BQL	2.5
BLDG301 #4	BQL	BQL	BQL	BQL	<1.0
BLDG301 #5	BQL	BQL	BQL	BQL	<1.0
BLDG301 COMP	BQL	BQL	BQL	BQL	1.7
BLDG306 #1	0.14	0.06	0.11	0.26	41.2
BLDG306 #2A	BQL	BQL	BQL	BQL	<1.0
BLDG306 #2B	BQL	BQL	BQL	BQL	1.2
BLDG306 #3	BQL	0.18	BQL	BQL	18.4
BLDG306 #4	BQL	BQL	BQL	BQL	<1.0
BLDG306 #5	0.07	0.05	0.05	0.13	18.7
BLDG306 COMP	BQL	BQL	BQL	BQL	6.3

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To Jay Erickson	From Yixin Li
Co.	Co.
Dept.	Phone #
Fax #	Fax #

Notes:
[1] Estimated value. TPH was calculated by the average response
ctor of BTEX.

ETG ENVIRONMENTAL, INC.
4900 OLYMPIC BLVD.
ERLANGER, KY 41018.
(606) 282-6137 (ph) / 282-6378 (fax)

CHAIN OF CUSTODY

E.T.G. Inc. Phasing Milligan
General Electric
Evendale, Ohio

Contact Person: Jay Erickson
Phone #: 606-282-6137
PO#:
Project Code: 2002

ple ID	TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
	2A		2-8-94	1:30p	Air	Ron H	1	None	
	2B		↓	↓	↓	↓	1	↓	
	1						1		
	3						1		
	4						1		
	5						1		
	Composite						1		

d By: Date: 2-8-94 Time: 1:30p
d By: Date: 2-8-94 Time: 5:30p
d By: Date: 2/9/94 Time: 9:40A Seal Intact Y/N
Samples taken from unit at 306

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [x] Other

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ETG ENVIRONMENTAL, INC.
4900 OLYMPIC BLVD.
ERLANGER, KY 41018
(606) 282-6137 (ph) / 282-6378 (fax)

CHAIN OF CUSTODY

T.S. Gas Planning Michigan
eneral Electric
ondale Ohio

Contact Person: Ray Erickson
Phone #: 606-282-6157
PO#:
Project Code: 2002

TAG	LAB#	Date	Time	Type	Sampler	#Containers	Preservation	Analysis
A		2-8-94	2:00p	Air	Ron H	1	None	
B		↓	↓	↓	↓	1	↓	
C						1		
						1		
						1		
						1		
						1		
omite						1		

Date: 2-8-94 Time: 2:00pm
Date: 2-8-94 Time: 5:30pm
Date: 2/9/94 Time: 9:40A
Seal Intact Y/N
otes: Taken from unit at 1:30P

Special Requests
- [ ] Rush Results
- [ ] Verbal Results
- [x] Other

Environm

Lab:
Client:
Address:

Sample ID

Collected By:
Delivered By:
Received By:
Remarks:

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ETG

Environmental, Inc

Lab:

Client:

Address:

Sample ID	TAG
	1A
	1B
	2
	3
	4
	5
	Composite

Collected By:

Delivered By:

Received By:

Remarks:

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Appendix B

CO_2 Measurements

ETG
Environmental, Inc.
P.O. Box 75220, Cincinnati, Ohio 45275-0220
Phone (606) 282-6137 • Fax (606) 282-6378

OPERATIONS REPORT

DATE _____

DAY	S	M	T	W	TH	F	S

Location _____
Job No. _____
Client _____
Station # _____
Technician _____

Weather	Sunny	Clear	Overcast	Rain	Snow
Temp	<32	32-50	50-70	70-85	>85
Wind	Still	Mod	High	Report No.	
Humidity	Dry	Mod	Humid		

CO_2 Cont PPM = 250

1 = 5150
2A = 2750
2B = 1200
3 = 8300
4 = 900
5 = 650
COMP = 2700

7-21-94

GE.

Page _____

By _____ Title _____

ETG
Environmental, Inc.
P.O. Box 75220, Cincinnati, Ohio 45275-0220
Phone (606) 282-6137 • Fax (606) 282-6378

OPERATIONS REPORT

DATE 7-5-94

DAY	S	M	T	W	TH	F	S

Location G.E.
Job No.
Client
Station #
Technician

Weather	Sunny	Clear	Overcast	Rain	Snow
Temp	<32	32-50	50-70	70-85	>85
Wind	Still	Mod	High	Report No.	
Humidity	Dry	Mod	Humid		

Air Flow
1=55
2=75
3=30
4=50
5=57

CO_2 Conf PPM =
1 = 4350
2A = 2250
2B = 900
3 = 05
4 = 600
5 = 450
COMP = 2500

VAC Inlet 1.5 Outlet 1
IMS Inlet .5 outlet

DD
385-7780

Teresen
385-1414

Quality
385-3974

Page

By Title

CHAIN OF CUSTODY FOR AIR SAMPLES

Station Hour Meter: NA

Flow Meter: 2" Fedco 15 To 150

Vacuum (Hg.): 25

Air Temp. (ground): 90

Client: GE.

Site Address: Cirt. Ott.

Client Code: 2002 (306)

Project Manager: Jay Erickson

	Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1	Comp	7-5-91	2:00	NA	2500		
2	1	↓	↓	55	11350		
3	2A			75	2250		
4	2B			75	900		
5	3			30	05		
6	4			50	600		
7	5			57	1150		
8							
9							
10							
11							
12							
13							
14							

Collected By: [signature] Date: 7-5-91 Time: 2:00

Delivered By: Date: Time:

Received By: Date: Time:

Remarks:

ETG Environmental, Inc.

Providing creative environmental solutions

7707 Rickle Road, Lansing, Michigan. 48917

Phone # : (517) 322-9311 Fax #: (517) 322-2936