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DATE: June 3, 2008

TO: David B. Mickunas, U.S. EPA/ERT Work Assignment Manager

THROUGH: Jeffrey Bradstreet, REAC Air Response Section Leader

FROM: Amy DuBois, REAC Task Leader

SUBJECT: Little Valley VI Extent Study, Little Valley, NY
WA # 0-210 - Trip Report – Event 6, March/April 2008

BACKGROUND

The Environmental Protection Agency/Environmental Response Team (EPA/ERT) issued Work Assignment (WA) Number 0-210 to Lockheed Martin under the Response, Engineering, and Analytical Contract (REAC) to perform a soil vapor intrusion extent study at the Little Valley Superfund Site (Site) in Little Valley, New York (NY).

The Site is located in the Towns of Little Valley and Salamanca in Cattaraugus County, NY. Since 1982, chemical analyses of groundwater samples collected from monitoring and private wells throughout the Little Valley study area have indicated the presence of trichloroethene (TCE). The study area overlies a plume of TCE-contaminated groundwater that extends approximately seven to eight miles from the Village of Little Valley to the northern edge of the City of Salamanca, which is part of the Allegheny Indian Reservation. There are more than 200 residential properties in the study area, situated along NY State Route 353, the main transportation route between Little Valley and Salamanca.

The scope of work for this WA included providing support to EPA Region II with a soil vapor intrusion (VI) study to delineate the extent of a subsurface gas plume and determine if indoor air has been impacted. Previously, two soil VI sampling events (Events 1 and 2) were conducted as part of WA #0-165, Little Valley Superfund Site, and three additional events (Events 3, 4 and 5) were conducted under the current WA. Events 1 (September 2005) and 3 (July/August 2006) involved sub-slab sampling only. These were the initial sampling rounds for the units involved. Events 2 (January 2006) and 4 (August 2006) involved follow-up full-column (sub-slab plus ground floor and first floor indoor air) sampling based on previous sampling results as well as some sub-slab-only sampling of new residences. Event 5 (December 2006) involved follow-up full column sampling at seven residences, two had mitigation systems installed prior to the sampling event. For all of the previous events, at the residences where follow-up sampling was conducted, trace atmospheric gas analyzer (TAGA) air monitoring utilizing the EPA/ERT's mobile laboratory triple-quadrupole mass spectrometer (MS/MS) was also conducted.

During the March/April 2008 sampling event (Event 6), SUMMA® sampling and TAGA air monitoring were conducted in six of the seven residences sampled during Event 5. Sampling and monitoring were also conducted in a new residence (Unit 136). The target compound list (TCL) for the TAGA air monitoring included TCE and tetrachloroethene (PCE). After completion of the TAGA air monitoring survey of each

unit, a one-liter (L) Tedlar® bag grab sample was collected from the sub-slab port prior to collecting the SUMMA® sample.

Full-column sampling was conducted at Units 003, 027, 041, 071, and 088. Indoor air sampling was conducted at Units 010 and 136. No sub-slab sample, Tedlar® or SUMMA®, was collected from these units because the port in Unit 010 was rusted shut and Unit 136 does not have a slab. Units 027 and 041 contain mitigation systems.

All SUMMA® canister and Tedlar® bag samples were analyzed for TCE, PCE, vinyl chloride (VCL), cis-1,2-dichloroethene (c12DCE), trans-1,2-dichloroethene (t12DCE), and 1,1-dichloroethene (11DCE). The Tedlar® bag compound list also included 1,1,1-trichloroethane and 1,1-dichloroethane. The Tedlar® bag samples were analyzed for VOCs on-site following Draft REAC SOP, *Field Analysis of VOCs in Gaseous Phase Samples by GC/MSD Loop Injection*. The SUMMA® canister sampling and analysis were conducted following EPA Compendium Method TO-15, *Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)*. Twenty-four SUMMA® samples plus a Trip Blank, and six Tedlar® bag samples were collected and analyzed.

OBSERVATIONS AND ACTIVITIES

REAC personnel mobilized to site March 31, 2008. On April 1, 2008, lifestyle chemical sources (paints, cleaners, etc.) that might potentially impact the TAGA air monitoring and/or indoor air sampling were removed from the homes. On April 2, 2008, TAGA air monitoring was conducted in all seven residences. Each room in the basement and first floor of the residences was monitored, as well as, the unopened sub-slab ports and any floor drains. Description of the actual procedure used for monitoring can be found in the Final Analytical TAGA Report (Appendix A).

Upon completion of the TAGA survey, REAC personnel collected a 1-L Tedlar® bag grab sample from the unit's sub-slab soil gas port(s). Then, 24-hour soil gas samples and/or indoor air samples were collected using 6-L SUMMA® canisters in accordance with REAC SOP #1704, *SUMMA® Canister Sampling*. A 4 to 5-L time weighted average (TWA) sample was collected during a 24-hour sampling event. In Units 003, 027, 041, 071, and 088 full-column sampling was conducted. In Units 010 and 136 only indoor air samples were collected. A 24-hour ambient air sample was collected in the vicinity of Unit 088 and another near Unit 136. The Tedlar® bag samples were properly documented and transferred under chain of custody to the mobile laboratory on-site for GC/MS Loop injection analysis. The samples collected in the SUMMA® canisters were properly documented and shipped to a subcontracted laboratory for analysis. Sub-slab, indoor and ambient air analysis was performed in accordance with a modified EPA Method TO-15. Prior to sampling, the SUMMA® canisters and orifices were certified clean to meet the reporting levels for the analysis requested.

RESULTS

Results of the Event 6, March/April 2008, SUMMA® sampling for the 6-compound TCL, presented in micrograms per cubic meter ($\mu g/m^3$), are provided in Table 1. The same results, presented in parts per billion by volume (ppbv), are provided in Table 2. A comparison of indoor air SUMMA® and TAGA data is provided in Table 3. A comparison of sub-slab SUMMA® and Tedlar® bag results is provided in Table 4. A history of the SUMMA® sampling TCE and PCE results for Units 003, 010, 027, 041, 071, 088, and 136 over the six sampling events is provided in Tables 5 (TCE) and 6 (PCE).

Trichloroethene was detected in five of the six sub-slab results ranging from 33 $\mu g/m^3$ (6.1 ppbv) in Unit 088 to 1.4 $\mu g/m^3$ (0.27 ppbv) in Unit 003. The sub-slab sample where TCE was not detected was Unit 041 Port 2.

In indoor air, TCE was not detected in either unit with a mitigation system (Units 027 and 041). TCE was detected in the indoor air in all five other units. Indoor air TCE concentrations ranged from 0.87 $\mu g/m^3$ (0.16 ppbv) in Unit 088 to 0.040 $\mu g/m^3$ (0.0074 ppbv) in Unit 010. TCE was not detected in either ambient air sample.

Tetrachloroethene was detected in all the sub-slab SUMMA® samples ranging from 120 $\mu g/m^3$ (18 ppbv) in Unit 041 to 0.33 $\mu g/m^3$ (0.048 ppbv) in Unit 088. PCE was detected in all indoor and both ambient SUMMA® samples. Indoor air PCE concentrations ranged from 4.3 $\mu g/m^3$ (0.64 ppbv) in Unit 136 to 0.059 $\mu g/m^3$ (0.0088 ppbv) in Unit 027. The ambient SUMMA® PCE concentrations were 0.14 and 0.045 $\mu g/m^3$ (0.020 and 0.0066 ppbv).

The other compounds detected in the SUMMA® samples were: c12DCE in two sub-slab (Units 003 and 041) and one indoor air sample (Unit 041), 11DCE in the sub-slab and first floor from Unit 088, and t12DCE in one sub-slab sample (Unit 041). Vinyl chloride was not detected in any of the samples. Complete analytical results for the SUMMA® canister samples are included in the Analytical Report, Appendix B.

The TAGA results provided in Table 3 represent the indoor air average concentration detected in the basement and first floor of each unit surveyed. The concentration for the flag pair in closest proximity to the SUMMA® canister location was included. Table 3 does not contain readings detected around the sealed sampling ports, drain pipes, etc. Complete TAGA results are provided in the Final Analytical TAGA Report, Appendix A.

A comparison of Tedlar® bag and sub-slab SUMMA® canister results is provided in Table 4. Complete Tedlar® bag results are provided in the Final Analytical GC/MS Report, Appendix C.

A comparison of TCE results from the six VI sampling events conducted under the two Little Valley WAs, 0-165 and 0-210, is presented in Table 5. A comparison of the PCE results from these six events is presented in Table 6. Event 6 SUMMA® and Tedlar® Sampling Worksheets are provided in Appendix D.

Future Activities

There are no additional activities scheduled at this time.

cc: Central File - WA # EAC00210 (w/attachment)
Electronic File - L:/Archive/REAC4/0210/D/TR/052808
REAC Program Manager (cover page only)

TABLES
Little Valley VI Extent Study
Little Valley, NY
June 2008

TABLE 1
Event 6 SUMMA® Sampling Results – March/April 2008 (µg/m^3)
Little Valley VI Extent Study
Little Valley, New York
June 2008

Sample Number:	0408-44319		0408-44320		0408-44321		0408-44322		0408-44323		0408-44324	
Sampling Location:	Unit 003 SS		Unit 003 Basement		Unit 003 First Floor		Unit 088 SS		Unit 088 Basement		Unit 088 First Floor	
Matrix:	Soil Gas		Air		Air		Soil Gas		Air		Air	
Units:	µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3	
Date Sampled:	4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008	
Parameter	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Trichloroethene	1.4	0.039	0.18	0.039	0.44	0.042	33	0.20	0.87	0.037	0.41	0.037
Tetrachloroethene	0.33	0.039	0.090	0.039	0.49	0.042	0.33	0.039	0.067	0.037	0.26	0.037
1,1-Dichloroethene	U	0.039	U	0.039	U	0.042	0.046	0.039	U	0.037	0.13	0.037
cis-1,2-Dichloroethene	0.041	0.039	U	0.039	U	0.042	U	0.039	U	0.037	U	0.037
trans-1,2-Dichloroethene	U	0.039	U	0.039	U	0.042	U	0.039	U	0.037	U	0.037
Vinyl Chloride	U	0.039	U	0.039	U	0.042	U	0.039	U	0.037	U	0.037

Sample Number:	0408-44325		0408-44326		0408-44327		0408-44328		0408-44329		0408-44330	
Sampling Location:	Unit 088 AMBIENT		Unit 071 SS		Unit 071 Basement		Unit 071 Basement Dup		Unit 071 First Floor		Unit 041 First Floor	
Matrix:	Air		Soil Gas		Air		Air		Air		Air	
Units:	µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3	
Date Sampled:	4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008	
Parameter	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Trichloroethene	U	0.036	24	0.040	0.22	0.038	0.23	0.037	0.15	0.040	U	0.037
Tetrachloroethene	0.045	0.036	0.40	0.040	0.061	0.038	0.066	0.037	0.064	0.040	0.24	0.037
1,1-Dichloroethene	U	0.036	U	0.040	U	0.038	U	0.037	U	0.040	U	0.037
cis-1,2-Dichloroethene	U	0.036	U	0.040	U	0.038	U	0.037	U	0.040	U	0.037
trans-1,2-Dichloroethene	U	0.036	U	0.040	U	0.038	U	0.037	U	0.040	U	0.037
Vinyl Chloride	U	0.036	U	0.040	U	0.038	U	0.037	U	0.040	U	0.037

µg/m^3 - micrograms per cubic meter
SS – Sub-slab
RL – Reporting limit
U - not detected

TABLE 1 (continued)
Event 6 SUMMA® Sampling Results – March/April 2008 (µg/m^3)
Little Valley VI Extent Study
Little Valley, New York
June 2008

Sample Number:	0408-44331		0408-44332		0408-44333		0408-44334		0408-44335		0408-44336	
	Unit 041		Unit 041		Unit 041		Unit 027		Unit 027		Unit 027	
Sampling Location:	SS		SS Dup		Basement		SS		Basement		First Floor	
Matrix:	Soil Gas		Soil Gas		Air		Soil Gas		Air		Air	
Units:	µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3	
Date Sampled:	4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008	
Parameter	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Trichloroethene	4.3	0.038	U	0.042	U	0.034	18	0.044	U	0.037	U	0.033
Tetrachloroethene	120	0.38	31	0.042	0.21	0.034	2.8	0.044	0.059	0.037	0.07	0.033
1,1-Dichloroethene	U	0.038	U	0.042	U	0.034	U	0.044	U	0.037	U	0.033
cis-1,2-Dichloroethene	3.8	0.038	U	0.042	0.055	0.034	U	0.044	U	0.037	U	0.033
trans-1,2-Dichloroethene	0.64	0.038	U	0.042	U	0.034	U	0.044	U	0.037	U	0.033
Vinyl Chloride	U	0.038	U	0.042	U	0.034	U	0.044	U	0.037	U	0.033

Sample Number:	0408-44337		0408-44338		0408-44339		0408-44340		0408-44341		0408-44342	
	Unit 010		Unit 010		Unit 010		Unit 136		Unit 136		Unit 136	
Sampling Location:	Basement		First Floor		Basement Dup		AMBIENT		First Floor		Basement	
Matrix:	Air		Air		Air		Air		Air		Air	
Units:	µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3	
Date Sampled:	4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008	
Parameter	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Trichloroethene	0.042	0.039	U	0.040	0.040	0.037	U	0.038	U	0.040	0.083	0.039
Tetrachloroethene	0.10	0.039	0.089	0.040	0.093	0.037	0.14	0.038	4.3	0.040	0.92	0.039
1,1-Dichloroethene	U	0.039	U	0.040	U	0.037	U	0.038	U	0.040	U	0.039
cis-1,2-Dichloroethene	U	0.039	U	0.040	U	0.037	U	0.038	U	0.040	U	0.039
trans-1,2-Dichloroethene	U	0.039	U	0.040	U	0.037	U	0.038	U	0.040	U	0.039
Vinyl Chloride	U	0.039	U	0.040	U	0.037	U	0.038	U	0.040	U	0.039

µg/m^3 - micrograms per cubic meter
SS – Sub-slab
RL – Reporting limit
U - not detected

TABLE 2
Event 6 SUMMA® Sampling Results – March/April 2008 (ppbv)
Little Valley VI Extent Study
Little Valley, New York
June 2008

Sample Number:	0408-44319		0408-44320		0408-44321		0408-44322		0408-44323		0408-44324	
	Unit 003		Unit 003		Unit 003		Unit 088		Unit 088		Unit 088	
Sampling Location:	SS		Basement		First Floor		SS		Basement		First Floor	
Matrix:	Soil Gas		Air		Air		Soil Gas		Air		Air	
Units:	ppbv		ppbv		ppbv		ppbv		ppbv		ppbv	
Date Sampled:	4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008	
Parameter	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Trichloroethene	0.27	0.0072	0.034	0.0073	0.082	0.0078	6.1	0.036	0.16	0.0069	0.077	0.0068
Tetrachloroethene	0.049	0.0057	0.013	0.0058	0.072	0.0062	0.048	0.0057	0.0099	0.0055	0.039	0.0054
1,1-Dichloroethene	U	0.0097	U	0.0098	U	0.011	0.012	0.0097	U	0.0094	0.033	0.0092
cis-1,2-Dichloroethene	0.010	0.0097	U	0.0098	U	0.011	U	0.0097	U	0.0094	U	0.0092
trans-1,2-Dichloroethene	U	0.0097	U	0.0098	U	0.011	U	0.0097	U	0.0094	U	0.0092
Vinyl Chloride	U	0.015	U	0.015	U	0.016	U	0.015	U	0.015	U	0.014

Sample Number:	0408-44325		0408-44326		0408-44327		0408-44328		0408-44329		0408-44330	
	Unit 088		Unit 071		Unit 071		Unit 071		Unit 071		Unit 041	
Sampling Location:	AMBIENT		SS		Basement		Basement Dup		First Floor		First Floor	
Matrix:	Air		Soil Gas		Air		Air		Air		Air	
Units:	ppbv		ppbv		ppbv		ppbv		ppbv		ppbv	
Date Sampled:	4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008	
Parameter	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Trichloroethene	U	0.0067	4.5	0.0074	0.041	0.0071	0.043	0.0069	0.028	0.0074	U	0.0068
Tetrachloroethene	0.0066	0.0053	0.059	0.0058	0.0091	0.0056	0.0097	0.0055	0.0095	0.0059	0.036	0.0054
1,1-Dichloroethene	U	0.0090	U	0.010	U	0.0097	U	0.0094	U	0.010	U	0.0092
cis-1,2-Dichloroethene	U	0.0090	U	0.010	U	0.0097	U	0.0094	U	0.010	U	0.0092
trans-1,2-Dichloroethene	U	0.0090	U	0.010	U	0.0097	U	0.0094	U	0.010	U	0.0092
Vinyl Chloride	U	0.014	U	0.015	U	0.015	U	0.015	U	0.016	U	0.014

ppbv – parts per billion by volume
SS – Sub-slab
RL – Reporting limit
U - not detected

TABLE 2 (continued)
Event 6 SUMMA® Sampling Results – March/April 2008 (ppbv)
Little Valley VI Extent Study
Little Valley, New York
June 2008

Sample Number:	0408-44331		0408-44332		0408-44333		0408-44334		0408-44335		0408-44336	
	Unit 041		Unit 041		Unit 041		Unit 027		Unit 027		Unit 027	
Sampling Location:	SS		SS Dup		Basement		SS		Basement		First Floor	
Matrix:	Soil Gas		Soil Gas		Air		Soil Gas		Air		Air	
Units:	ppbv		ppbv		ppbv		ppbv		ppbv		ppbv	
Date Sampled:	4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008	
Parameter	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Trichloroethene	0.80	0.0070	U	0.0078	U	0.0063	3.4	0.0081	U	0.0069	U	0.0061
Tetrachloroethene	18	0.056	4.5	0.0062	0.031	0.0050	0.42	0.0065	0.0088	0.0055	0.010	0.0048
1,1-Dichloroethene	U	0.0095	U	0.011	U	0.0085	U	0.011	U	0.0094	U	0.0083
cis-1,2-Dichloroethene	0.96	0.0095	U	0.011	0.014	0.0085	U	0.011	U	0.0094	U	0.0083
trans-1,2-Dichloroethene	0.16	0.0095	U	0.011	U	0.0085	U	0.011	U	0.0094	U	0.0083
Vinyl Chloride	U	0.015	U	0.016	U	0.013	U	0.017	U	0.015	U	0.013

Sample Number:	0408-44337		0408-44338		0408-44339		0408-44340		0408-44341		0408-44342	
	Unit 010		Unit 010		Unit 010		Unit 136		Unit 136		Unit 136	
Sampling Location:	Basement		First Floor		Basement Dup		AMBIENT		First Floor		Basement	
Matrix:	Air		Air		Air		Air		Air		Air	
Units:	ppbv		ppbv		ppbv		ppbv		ppbv		ppbv	
Date Sampled:	4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008		4/3/2008	
Parameter	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Trichloroethene	0.0078	0.0073	U	0.0074	0.0074	0.0068	U	0.0070	U	0.0074	0.015	0.0073
Tetrachloroethene	0.015	0.0058	0.013	0.0058	0.014	0.0054	0.020	0.0056	0.64	0.0059	0.14	0.0058
1,1-Dichloroethene	U	0.0099	U	0.010	U	0.0092	U	0.0095	U	0.010	U	0.0099
cis-1,2-Dichloroethene	U	0.0099	U	0.010	U	0.0092	U	0.0095	U	0.010	U	0.0099
trans-1,2-Dichloroethene	U	0.0099	U	0.010	U	0.0092	U	0.0095	U	0.010	U	0.0099
Vinyl Chloride	U	0.015	U	0.015	U	0.014	U	0.015	U	0.016	U	0.015

ppbv – parts per billion by volume
SS – Sub-slab
RL – Reporting limit
U - not detected

TABLE 3
Comparison of SUMMA® and TAGA Results (ppbv)
Little Valley VI Extent Study
Little Valley, NY
June 2008

Unit	Location	SUMMA®			TAGA		
		Sample #	TCE	PCE	TCE	PCE	Filename
		0408-			DL=0.027 QL=0.090	DL=0.025 QL=0.083	LV08001, LV08005
003	Sub-slab	44319	0.27	0.049	NA	NA	LV08003
003	Basement	44320	0.034	0.013	U	U	LV08003
003	First Floor	44321	0.082	0.072	0.033 J	0.067 J	LV08003
		0408-			DL=0.027 QL=0.090	DL=0.025 QL=0.083	LV08001, LV08005
088	Sub-slab	44322	6.1	0.048	NA	NA	LV08004
088	Basement	44323	0.16	0.0099	0.096	U	LV08004
088	First Floor	44324	0.077	0.039	0.16	U	LV08004
088	Ambient	44325	< 0.0067	0.0066	U	U	LV08004
		0408-			DL=0.023 QL=0.075	DL=0.027 QL=0.091	LV08005
071	Sub-slab	44326	4.5	0.059	NA	NA	LV08006
071	Basement	44327	0.041	0.0091	0.028 J	U	LV08006
071	Basement Dup	44328	0.043	0.0097	0.028 J	U	LV08006
071	First Floor	44329	0.028	0.0095	U	U	LV08006
		0408-			DL=0.039 QL=0.13	DL=0.025 QL=0.083	LV08008
041	Sub-slab	44331	0.80	18	NA	NA	LV08007
041	Sub-slab Dup	44332	< 0.0078	4.5	NA	NA	LV08007
041	Basement	44333	< 0.0063	0.031	U	U	LV08007
041	First Floor	44330	< 0.0068	0.036	U	0.032 J	LV08007
		0408-			DL=0.031 QL=0.10	DL=0.022 QL=0.073	LV08008, LV08012
027	Sub-slab	44334	3.4	0.42	NA	NA	LV08009
027	Basement	44335	< 0.0069	0.0088	U	U	LV08009
027	First Floor	44336	< 0.0061	0.010	U	U	LV08009
		0408-			DL=0.031 QL=0.10	DL=0.022 QL=0.073	LV08008, LV08012
010	Basement	44337	0.0078	0.015	U	U	LV08010
010	Basement Dup	44339	0.0074	0.014	U	U	LV08010
010	First Floor	44338	< 0.0074	0.013	U	U	LV08010
		0408-			DL=0.031 QL=0.10	DL=0.022 QL=0.073	LV08008, LV08012
136	Basement	44342	0.015	0.14	U	0.088	LV08011
136	First Floor	44341	< 0.0074	0.64	U	0.62	LV08011
136	Ambient	44340	< 0.0070	0.020	U	U	LV08011

ppbv – parts per billion by volume
TCE – Trichloroethene
PCE – Tetrachloroethene
DL – TAGA detection limit
QL – TAGA quantitaion limit
U – not detected above detection limit
J – Estimated concentration detected at or below the quantitation limit
NA – Not applicable

TABLE 4
Comparison of SUMMA® and Tedlar® Results (ppbv)
Little Valley VI Extent Study
Little Valley, NY
June 2008

Sample Number:	1001		0408-44319		1002		0408-44322	
Sampling Location:	Unit 003 T		Unit 003 SS		Unit 088 T		Unit 088 SS	
Sample Collection:	Tedlar®		SUMMA®		Tedlar®		SUMMA®	
Units:	ppbv		ppbv		ppbv		ppbv	
Date Sampled:	4/2/2008		4/3/2008		4/2/2008		4/3/2008	
Parameter	Result	RL	Result	RL	Result	RL	Result	RL
Trichloroethene	U	0.50	0.27	0.0072	8.0	0.50	6.1	0.036
Tetrachloroethene	U	0.50	0.049	0.0057	U	0.50	0.048	0.0057
1,1-Dichloroethene	U	0.50	U	0.0097	U	0.50	0.012	0.0097
cis-1,2-Dichloroethene	U	0.50	0.010	0.0097	U	0.50	U	0.0097
Trans-1,2-Dichloroethene	U	0.50	U	0.0097	U	0.50	U	0.0097
Vinyl Chloride	U	0.50	U	0.015	U	0.50	U	0.015
Sample Number:	1003		0408-44326		1004		0408-44331	
Sampling Location:	Unit 071 T		Unit 071 SS		Unit 041T-Port 1		Unit 041 SS	
Sample Collection:	Tedlar®		SUMMA®		Tedlar®		SUMMA®	
Units:	ppbv		ppbv		ppbv		ppbv	
Date Sampled:	4/2/2008		4/3/2008		4/2/2008		4/3/2008	
Parameter	Result	RL	Result	RL	Result	RL	Result	RL
Trichloroethene	0.75	0.50	4.5	0.0074	0.96	0.50	0.80	0.0070
Tetrachloroethene	U	0.50	0.059	0.0058	20	0.50	18	0.056
1,1-Dichloroethene	U	0.50	U	0.010	U	0.50	U	0.0095
cis-1,2-Dichloroethene	U	0.50	U	0.010	0.92	0.50	0.96	0.0095
Trans-1,2-Dichloroethene	U	0.50	U	0.010	U	0.50	0.16	0.0095
Vinyl Chloride	U	0.50	U	0.015	U	0.50	U	0.015
Sample Number:	1005		0408-44332		1006		0408-44334	
Sampling Location:	Unit 041T-Port 2		Unit 041 SS DUP		Unit 027 T		Unit 027	
Sample Collection:	Tedlar®		SUMMA®		Tedlar®		SUMMA®	
Units:	ppbv		ppbv		ppbv		ppbv	
Date Sampled:	4/2/2008		4/3/2008		4/2/2008		4/3/2008	
Parameter	Result	RL	Result	RL	Result	RL	Result	RL
Trichloroethene	U	0.50	U	0.0078	3.2	0.50	3.4	0.0081
Tetrachloroethene	6.6	0.50	4.5	0.0062	U	0.50	0.42	0.0065
1,1-Dichloroethene	U	0.50	U	0.011	U	0.50	U	0.011
cis-1,2-Dichloroethene	U	0.50	U	0.011	U	0.50	U	0.011
Trans-1,2-Dichloroethene	U	0.50	U	0.011	U	0.50	U	0.011
Vinyl Chloride	U	0.50	U	0.016	U	0.50	U	0.017

ppbv – parts per billion by volume
RL – Reporting limit
U - not detected
J – estimated

TABLE 5
Comparison of Trichloroethene Results from Events 1 through 6
Little Valley VI Extent Study
Little Valley, NY
June 2008

		Trichloroethene Results					
		Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
		Sub-slab September 2005	Sub-slab/ Indoor January 2006	Sub-slab July/August 2006	Sub-slab/ Indoor August 2006	Sub-slab/ Indoor December 2006	Sub-slab/ Indoor March/April 2008
Location	Sub-Location	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Unit 003	Sub-slab	1.3	0.37	NS-NSS	1.2	0.34	0.27
Unit 003	Basement	NS-SSO	9.1	NS-NSS	< 0.031	0.051	0.034
Unit 003	1st Floor	NS-SSO	0.073	NS-NSS	< 0.032	0.040	0.082
Unit 010	Sub-slab	1.3	NS[1]	NS-NSS	1.2	0.86	NS[2]
Unit 010	Basement	NS-SSO	NS[1]	NS-NSS	0.036	0.013	0.0078
Unit 010	1st Floor	NS-SSO	NS[1]	NS-NSS	< 0.029	0.0089	< 0.0074
Unit 071	Sub-slab	NS	NS	0.98	1.4	1.3	4.5
Unit 071	Basement	NS	NS	NS-SSO	0.073	0.026	0.041
Unit 071	1st Floor	NS	NS	NS-SSO	0.080	0.019	0.028
Unit 088	Sub-slab	NS	NS	1.5	0.90	8.2	6.1
Unit 088	Basement	NS	NS	NS-SSO	< 0.031	0.25	0.16
Unit 088	1st Floor	NS	NS	NS-SSO	< 0.029	0.13	0.077
Unit 136	Basement	NS	NS	NS	NS	NS	0.015
Unit 136	1st Floor	NS	NS	NS	NS	NS	< 0.0074
Units 027 and 041 had mitigation systems installed between Events 4 and 5.							
Unit 027	Sub-slab	NS	22	NS-NSS	16	NS	3.4
Unit 027	Basement	NS	NS	NS-NSS	0.27	0.0084	< 0.0069
Unit 027	1st Floor	NS	NS	NS-NSS	0.0089	< 0.0080	< 0.0061
Unit 041	Sub-slab Port 1	NS	NS	U	< 0.0077	NS	0.80
Unit 041	Sub-slab Port 2	NS	NS	2.8	2.9	NS	< 0.0078
Unit 041	Basement	NS	NS	NS-SSO	0.10	< 0.0077	< 0.0063
Unit 041	1st Floor	NS	NS	NS-SSO	0.62	0.011	< 0.0068

Events 1 and 3 involve first-time sampling events for the specified units. Events 2 and 4 include sampling new units and follow-up sampling based on results from previous events. Event 5 involves follow-up sampling only, no new units were sampled.
ppbv – parts per billion by volume
NS – Not sampled; NS-SSO – Not sampled, sub-slab event only; NS-NSS – Not sampled, new sub-slab event;
NS[1] – Resident unavailable; NS[2] – port rusted shut
Shading indicates Units that were not included during specified sampling event.

TABLE 6
Comparison of Tetrachloroethene Results from Events 1 through 6
Little Valley VI Extent Study
Little Valley, NY
June 2008

		Tetrachloroethene Results					
		Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
		Sub-slab September 2005	Sub-slab/ Indoor January 2006	Sub-slab July/August 2006	Sub-slab/ Indoor August 2006	Sub-slab/ Indoor December 2006	Sub-slab/ Indoor March/April 2008
Location	Sub-Location	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Unit 003	Sub-slab	0.19 J	0.06	NS-NSS	0.17	0.072	0.049
Unit 003	Basement	NS-SSO	0.13	NS-NSS	< 0.031	0.029	0.013
Unit 003	1st Floor	NS-SSO	0.023	NS-NSS	< 0.032	0.12	0.072
Unit 010	Sub-slab	4.0	NS[1]	NS-NSS	3.7	2.9	NS[2]
Unit 010	Basement	NS-SSO	NS[1]	NS-NSS	< 0.029	0.018	0.015
Unit 010	1st Floor	NS-SSO	NS[1]	NS-NSS	< 0.029	0.017	0.013
Unit 071	Sub-slab	NS	NS	0.063	0.070	0.063	0.059
Unit 071	Basement	NS	NS	NS-SSO	< 0.028	0.0082	0.0091
Unit 071	1st Floor	NS	NS	NS-SSO	< 0.032	0.0081	0.0095
Unit 088	Sub-slab	NS	NS	0.034	< 0.031	0.046	0.048
Unit 088	Basement	NS	NS	NS-SSO	0.032	0.016	0.0099
Unit 088	1st Floor	NS	NS	NS-SSO	< 0.029	0.020	0.039
Unit 136	Basement	NS	NS	NS	NS	NS	0.14
Unit 136	1st Floor	NS	NS	NS	NS	NS	0.64
Units 027 and 041 had mitigation systems installed between Events 4 and 5.							
Unit 027	Sub-slab	NS	2.1	NS-NSS	1.7	NS	0.42
Unit 027	Basement	NS	NS	NS-NSS	0.14	0.080	0.0088
Unit 027	1st Floor	NS	NS	NS-NSS	0.018	0.16	0.010
Unit 041	Sub-slab Port 1	NS	NS	36	33	NS	18
Unit 041	Sub-slab Port 2	NS	NS	87	94	NS	4.5
Unit 041	Basement	NS	NS	NS-SSO	0.13	0.039	0.031
Unit 041	1st Floor	NS	NS	NS-SSO	0.19	0.033	0.036

Events 1 and 3 involve first-time sampling events for the specified units. Events 2 and 4 include sampling new units and follow-up sampling based on results from previous events. Event 5 involves follow-up sampling only, no new units were sampled.
ppbv – parts per billion by volume
NS – Not sampled; NS-SSO – Not sampled, sub-slab event only; NS-NSS – Not sampled, new sub-slab event;
NS[1] – Resident unavailable; NS[2] – port rusted shut
Shading indicates Units that were not included during specified sampling event.

APPENDIX A
Final Analytical TAGA Report – April 25, 2008
Little Valley VI Extent Study
June 2008

FINAL ANALYTICAL TAGA REPORT
LITTLE VALLEY VI EXTENT STUDY
LITTLE VALLEY, NY
APRIL 2008

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1.0 INTRODUCTION

The Environmental Protection Agency (EPA)/Environmental Response Team (ERT) issued Work Assignment (WA) Number 0-210, Little Valley VI Extent Study in Little Valley, NY, to Lockheed Martin under the Response Engineering and Analytical Contract (REAC). As an element of this WA, REAC personnel were to conduct target compound monitoring using the ECA Trace Atmospheric Gas Analyzer (TAGA) IIe, to assist EPA Region II in its investigation of residential indoor air quality.

The TAGA air monitoring events conducted on 02 April 2008 were screening in nature. Air monitoring for trichloroethene (TCE) and tetrachloroethene (PCE) was performed in accordance with the REAC Draft Standard Operating Procedure (SOP) # 1711, *Trace Atmospheric Gas Analyzer (TAGA) IIe Operations*. Real-time monitoring for the target compounds was performed using a selected ion technique.

2.0 METHODOLOGY

2.1 Mass Spectrometer/Mass Spectrometer General Theory

The ECA TAGA IIe is based upon the Perkin-Elmer API 365 mass spectrometer/mass spectrometer (MS/MS) and is a direct air-monitoring instrument capable of detecting, in real time, trace levels of many organic compounds in ambient air. The technique of triple quadrupole MS/MS is used to differentiate and quantitate compounds.

The initial step in the MS/MS process involves simultaneous chemical ionization of the compounds present in a sample of ambient air. The ionization produces both positive and negative ions by donating or removing one or more electrons. The chemical ionization is a "soft" ionization technique, which allows ions to be formed with little or no structural fragmentation. These ions are called parent ions. The parent ions with different mass-to-charge (m/z) ratios are separated by the first quadrupole (the first MS of the MS/MS system). The quadrupole scans selected m/z ratios allowing only the parent ions with these ratios to pass through the quadrupole. Parent ions with m/z ratios different than those selected are discriminated electronically and fail to pass through the quadrupole.

The parent ions selected in the first quadrupole are accelerated through a collision cell containing uncharged nitrogen molecules in the second quadrupole. A portion of the parent ions entering the second quadrupole fragments as they collide with the nitrogen molecules. These fragment ions are called daughter ions. This process, in the second quadrupole, is called collision induced dissociation. The daughter ions are separated according to their m/z ratios by the third quadrupole (the second MS of the MS/MS system). The quadrupole scans selected m/z ratios, allowing only the daughter ions with these ratios to pass through the quadrupole. Daughter ions with m/z ratios different than those selected are discriminated electronically and fail to pass through the quadrupole. Daughter ions with the selected m/z ratios are then counted by an electron multiplier. The resulting signals are measured in ion counts per second (icps) for each parent/daughter ion pair selected. The intensity of the icps for each parent/daughter ion pair is directly proportional to the ambient air concentration of the inorganic or organic compound that produced the ion pair. All of the ions discussed in this report have a single charge. The m/z ratios of all of the ions discussed are equal to the ion masses in atomic mass units (amu). Therefore, the terms parent and daughter masses are synonymous with parent and daughter ion m/z ratios.

2.2 TAGA Procedure

The TAGA was used to analyze indoor air during monitoring events. Indoor monitoring utilized a 300-foot corrugated Teflon® sampling hose. The proximal end was attached to the TAGA source inlet, while the distal end was taken inside a unit. Air was continuously drawn through the hose at a set flow rate and transported to the TAGA source during the monitoring event.

2.2.1 TAGA Mass Calibration

At the beginning of the monitoring period, a gas mixture containing benzene, toluene, xylenes, tetrachloroethene, trichloroethene, 1,1-dichloroethene, and vinyl chloride was introduced by a mass flow controller (MFC) into the sample air flow (SAF). The tuning parameters for the first quadrupole at 30, 78, 106, 130, and 166 amu, and the third quadrupole at 30, 78, 105, 129, and 166 amu were optimized for sensitivity and mass assignment. The peak widths were limited between 0.55 amu and 0.85 amu. The mass assignments were set to the correct values within 0.15 amu.

2.2.2 TAGA Response Factor Measurements

The TAGA was calibrated for the target compounds four times during the day. The calibration system consisted of a regulated gas cylinder containing a gas standard mixture of the target compounds connected to an in-line MFC. The MFC was calibrated with a National Institute of Standards and Technology (NIST) traceable flow rate meter. The gas standard certification is presented in Appendix A. The gas standard containing a known mixture of target compounds, certified by the supplier, was regulated at preset flow rates, and diluted with ambient air. The dilution of the gas standard resulted in known analyte concentrations. The calibration consisted of a zero point and five known concentrations obtained by setting the MFC to 0, 10, 20, 40, 80, and 90 milliliters per minute (mL/min) with the SAF at 1,500 milliliters per second (mL/sec).

The approximate concentration range of standards introduced into the TAGA was between 1 and 25 parts per billion by volume (ppbv). Utilizing the analytes' concentrations, gas flow rates, air sampling flow rates, and atmospheric pressure, response factors (RFs), in units of ion counts per second per part per billion by volume (icps/ppbv), were calculated for each ion pair by using a least-square-fit algorithm to calculate the slope of its curve. The coefficient of correlation was checked for each ion pair's RF to ensure that it was greater than 0.90. In certain cases, the RFs of each analyte generated immediately prior to monitoring a unit were used to quantify the target compounds in ambient air. In most of the cases, the intermediate response factor (IRF) was calculated between pairs of calibrations and used to quantify target compounds in ambient air.

2.2.3 Transport Efficiency

The transport efficiency and residence time for the target compounds through the 300-foot length of corrugated Teflon® sampling hose was determined prior to and at the conclusion of indoor air monitoring activities each day. The transport efficiency was determined by introducing a known concentration of the target compounds into the proximal end and then into the distal end of the sampling hose. The signal intensity of each ion pair for each compound was measured in icps and the percent (%) transport efficiency calculated using the equation below:

$$\%\ transport\ \ efficiency\ =\ \frac{signal\ intensity\ at\ the\ distal\ end\ of\ the\ hose}{signal\ intensity\ at\ the\ proximal\ end\ of\ the\ hose}\ x\ 100$$

A transport efficiency of 85 percent is considered acceptable and results are summarized in Table 1.

The residence time is the interval, in seconds, it takes the air sample to travel the length of the sampling hose. The residence time, which reflects a time difference between the sampling and the instrument response, is incorporated in the offset. The offset, which is

the total number of sequences acquired during the residence time, is applied to the monitoring files (Figures 1b to 7b and Figures 1c to 7c). Therefore, the observations and instrument responses are temporally coordinated.

2.2.4 TAGA Air Monitoring

TAGA monitoring was performed by continuously drawing air through the Teflon® hose at a flow-rate of approximately 1,500 mL/sec. The air was then passed through a glass splitter where the pressure gradient between the mass spectrometer core and the atmosphere causes a sample flow of approximately 10 mL/min into the ionization source through a heated transfer line. The flow into the TAGA source was controlled so that the ionization source pressure was maintained at an optimum value of approximately 2.5 torr. The remaining airflow was drawn through the air pump and vented from the TAGA bus.

Monitoring was performed in the parent/daughter ion-monitoring mode. As monitoring proceeded, the operator pressed letter keys (flags), alphabetically on a computer keyboard, to denote events or locations during the monitoring event. This information was also recorded on an event log sheet. The intensity of each parent/daughter ion pair monitored by the TAGA was recorded in a permanent file on the computer's hard drive. One set of recorded measurements of all the ion pairs is called a sequence.

At the beginning of each unit survey, a one-minute pre-entry ambient data segment was collected. At the operator's signal, the sampler then entered the unit while holding the distal end of the hose at breathing height. The sampler proceeded to each room in the unit where one-minute data segments were collected. After the rooms in the unit were monitored, a one-minute post-exit ambient data segment was collected. Upon completion of the one-minute post-exit ambient data segment, the instrumentation was challenged with the calibration standard, which was introduced at 30 mL/min (approximately 7 ppbv), to verify that the system was functioning properly.

2.3 Meteorological Monitoring

United States Department of Commerce, National Oceanic and Atmospheric Administration, National Climatic Data Center provided the meteorological data for 02 April 2008. Data were collected from the airport, in Jamestown, NY. The airport is located approximately 20 miles west southwest of the Little Valley VI Extent Study. Meteorological data, such as wind speed, wind direction, and rainfall, are summarized in Table 2 for the periods during which monitoring occurred. The compiled meteorological data are presented in Appendix B. The reported data for rainfall is an average of the data recorded during the time between the time recorded in the table and the previous time recorded in the table. The reported meteorological data for wind speed and direction represent a five-minute average collected prior to the time recorded in the table. More than one set of meteorological conditions were recorded during each monitoring period, therefore, the average of those records was calculated for each of the monitoring periods. Because of the distance of the meteorological monitoring location from the study location and the short averaging period, care should be exercised in relating meteorological conditions existing at the Little Valley VI Extent Study.

3.0 TAGA AIR MONITORING RESULTS

The TAGA was used to survey indoor air in residential units in the vicinity of the Little Valley VI Extent Study.

3.1 Unit Surveys

Figures 1a through 7a, present the approximate floor plans of each unit. The SUMMA® canister sampling locations are also depicted in these floor plans. The monitoring locations marked by letters are the "flags" that the TAGA operator placed into the file. These "flags" mark events and are carried through the rest of the data presentation.

3.2 TAGA File Event Summaries

Figures 1b through 7b present the TAGA file event summaries. These are the observations made during the file acquisition by the TAGA operator, along with the times from the TAGA file and the letter "flags" used to mark the data, which are recorded by the TAGA computer.

3.3 Graphical Presentations

Figures 1c through 7c are the graphical representations of the TAGA files. A graph of each target compound concentration is presented with ppbv plotted on the vertical axis, and time into the acquisition, in minutes, on the horizontal axis. The target compound concentration was calculated by averaging the concentrations obtained from the ion pairs that were monitored for each target compound. There are two horizontal lines on each graph. The lower line is set at the detection limit (DL) for the compound. The higher line is set at the concentration equal to the quantitation limit (QL) for the target compound. When high concentrations are represented, the lower DL line may not be readily discerned. Transient, momentary spikes above the QL line are occasionally observed. These spikes, electronic in nature, do not affect average concentrations. They may be distinguished from elevated concentrations because the spikes are only present for one sequence and are often only present for one ion pair of the monitored compound.

3.4 TAGA Target Compound Summaries

Figures 1d through 7d present the TAGA target compound summaries. These figures contain the concentrations of the target compounds averaged over time, at the various locations logged into the TAGA file event summaries.

4.0 DISCUSSION OF RESULTS

The TAGA target compound summaries are represented in Figures 1d through 7d. During each survey, a one-minute average was measured in each room, or at various locations within a room. Only the highest average concentrations above the QL are listed below. In one of the units, a positive interference with two of a compound’s ion pairs was noted. In that instance, only the ion pair not subject to interference was used for the calculated result, graphic representation, detection limit, and quantitation limit for the compound.

4.1 Unit 003 Survey, File LV08003

Unit 003 was surveyed on 02 April 2008 at 08:11:53 and is represented in Figures 1a through 1d. The average wind speed and direction at the airport during the monitoring period were 11.3 miles per hour (mph) from 333 degrees. There was no precipitation during the preceding hour. The highest average concentration of trichloroethene was 0.14 ppbv at the hole in the floor, between flags B1 and C1. The highest average concentration of tetrachloroethene was 0.085 ppbv in the foyer, between flags D and E.

4.2 Unit 088 Survey, File LV08004

Unit 088 was surveyed on 02 April 2008 at 09:01:23 and is represented in Figures 2a through 2d. The average wind speed and direction at the airport during the monitoring period were 10.0 mph from 335 degrees. There was no precipitation during the preceding hour. The highest average concentration of trichloroethene was 0.17 ppbv in bedroom two, between flags J and K. The

average concentration of tetrachloroethene was not detected above its quantitation limit at any of the monitoring locations.

4.3 Unit 071 Survey, File LV08006

Unit 071 was surveyed on 02 April 2008 at 10:16:17 and is represented in Figures 3a through 3d. The average wind speed and direction at the airport during the monitoring period were 10.3 mph from 350 degrees. There were 0.24-inches of precipitation at the airport during the preceding hour. The Task Leader did not observe any precipitation at the monitoring location. The average concentrations of trichloroethene and tetrachloroethene were not detected above their quantitation limits at any of the monitoring locations.

4.4 Unit 041 Survey, File LV08007

Unit 041 was surveyed on 02 April 2008 at 11:40:46 and is represented in Figures 4a through 4d. The average wind speed and direction at the airport during the monitoring period were 10.0 mph from 350 degrees. There was no precipitation during the preceding hour. The average concentrations of trichloroethene and tetrachloroethene were not detected above their quantitation limits at any of the monitoring locations. The walls of the first floor were being painted during the monitoring period, producing significant positive interference for the 130/95 and 132/95 ion pairs for trichloroethene. Therefore, only the 132/97 ion pair was used for trichloroethene in the graphic representation and calculations for this monitoring period. The 30 mL/min spike was performed twice because it was noted that the concentration was rising throughout the first spike. The instrument was allowed a few more minutes to recover from the paint fumes, then the spike was repeated. The spike concentration was constant during the second spike period. The high levels of paint fumes present in the unit caused degradation of the instrumental response, requiring recalibration after completion of the unit survey.

4.5 Unit 027 Survey, File LV08009

Unit 027 was surveyed on 02 April 2008 at 13:24:51 and is represented in Figures 5a through 5d. The average wind speed and direction at the airport during the monitoring period were 10.0 mph from 330 degrees. There was no precipitation during the preceding hour. The average concentrations of trichloroethene and tetrachloroethene were not detected above their quantitation limits at any of the monitoring locations.

4.6 Unit 010 Survey, File LV08010

Unit 010 was surveyed on 02 April 2008 at 14:11:28 and is represented in Figures 6a through 6d. The average wind speed and direction at the airport during the monitoring period were 9.0 mph from 360 degrees. There was no precipitation during the preceding hour. The average concentrations of trichloroethene and tetrachloroethene were not detected above their quantitation limits at any of the monitoring locations.

4.7 Unit 136 Survey, File LV08011

Unit 136 was surveyed on 02 April 2008 at 16:37:09 and is represented in Figures 7a through 7d. The average wind speed and direction at the airport during the monitoring period were 7.5 mph from 5 degrees. There was no precipitation during the preceding hour. The average concentration of trichloroethene was not detected above its quantitation limit at any of the monitoring locations. The highest average concentration of tetrachloroethene was 1.1 ppbv in the bathroom, between flags L and M.

5.0 QUALITY ASSURANCE/QUALITY CONTROL

The compound parent/daughter ion pairs used are listed below.

Compound	Parent Ion Mass	Daughter Ion Mass
Trichloroethene	130	95
Trichloroethene	132	95
Trichloroethene	132	97
Tetrachloroethene	164	129
Tetrachloroethene	166	129
Tetrachloroethene	166	131

Tables 3 and 4 document the RFs and IRFs generated during the calibration procedure for the individual ion pairs. Response Factors and Intermediate Response Factors were used to quantitate the ion pair concentrations.

The summaries of detection and quantitation limit data for the monitoring periods (Section 5.3 and Table 4) document the concentration, in ppbv, required for a compound's ion pair to be considered detectable and quantifiable during the specified monitoring period. The DL is defined as three times the standard deviation of the concentration for a compound's ion pair measured in an ambient air sample. The QL is defined as 10 times the standard deviation of the concentration for the same conditions.

The summaries of the target compound detection and quantitation limits measured during the monitoring periods (Section 5.4 and Table 4) document the concentration, in ppbv, required for the compound to be considered detectable and quantifiable. The detection and quantitation limits for a compound result from averaging the appropriate detection and quantitation limits of the compound's ion pairs.

5.1 Intermediate Response Factor for Ion Pairs

Response factors for most units were generated from two calibration events, as described in the procedure (Section 2.2.2.). Table 3 contains the RFs in units of icps/ppbv. The initial and final RFs were used to calculate the IRFs, which were used to calculate the reported concentration results.

The following equation was used to calculate the IRFs found in Tables 3 and 4:

$$IRF = \frac{2(RF_1 \times RF_2)}{(RF_1 + RF_2)}$$

where:

IRF = Intermediate response factor (icps/ppbv)
RF_1 = The RF for an ion pair measured during the first calibration event (icps/ppbv)
RF_2 = The RF for the same ion pair measured during the second calibration event (icps/ppbv)

For example, the entry for the 130/95 ion pair of trichloroethene from Table 3 for files LV08003 and LV08004, 02 April 2008 is:

RF_1 = 3988.1 icps/ppbv
RF_2 = 3164.1 icps/ppbv

therefore,

$$IRF = \frac{2(3988.1 \times 3164.1)}{(3988.1 + 3164.1)} = \frac{25{,}237{,}494}{7{,}152.2} = 3{,}528.63 \ \ icps / ppbv$$

The result, 3,528.63 icps/ppbv, rounded to 3,528.6 is the IRF reported in Table 3 and used in Table 4.

5.2 Error Bars

The potential maximum concentration percent deviations for each target compound are presented in Table 3 and are called "error bars" for simplicity. They represent the potential bias in the concentration due to changes in the sensitivity of the TAGA instrument. Errors bars were calculated using the following equation:

$$\text{error bar} = \frac{\left|RF_1 - RF_2\right|}{(RF_1 + RF_2)} \times 100$$

where:

error bar = Maximum concentration percent deviation
RF_1 = The RF for an ion pair measured during the first calibration event (icps/ppbv)
RF_2 = The RF for the same ion pair measured during the second calibration event (icps/ppbv)

For example, the entry for the 130/95 ion pair of trichloroethene from Table 3 for files LV08003 and LV08004, 02 April 2008 is:

RF_1 = 3988.1 icps/ppbv
RF_2 = 3164.1 icps/ppbv

$$\text{error bar} = \frac{\left|3988.1 - 3164.1\right|}{(3988.1 + 3164.1)} \times 100 = 11.5\%$$

The % error bar calculated for the 130/95 ion pair of trichloroethene is 11.5% for files LV08003 and LV08004, 02 April 2008.

The above calculation was repeated for each ion pair. The error bars for each compound's ions were averaged to give a single value for the compound. This averaged error bar can be applied to the samples analyzed between the two calibrations of the monitoring period.

5.3 Ion Pair Detection and Quantitation Limits

The DLs and QLs were calculated using the standard deviation (SD) of the compound's ion pair intensity measured in an ambient air sample and its RF. The SD reflects the variability of the instrument's response to the ambient air sample.

The following equation was used to calculate the DLs found in Table 4:

$$DL = \frac{3 \times SD}{RF \text{ or } IRF}$$

where:

DL = Detection limit for an ion pair (ppbv)
SD = Standard deviation of the ion intensity measured in an ambient air sample (icps)
RF or IRF = Response factor or/Intermediate response factor for an ion pair (icps/ppbv)

For example, the entry for the 130/95 ion pair of trichloroethene from Table 4, files LV08003 and LV08004, 02 April 2008 is:

SD = 17.243 icps
IRF = 3528.6 icps/ppbv

$$DL = \frac{3 \times 17.243}{3528.6} = 0.0147 \text{ ppbv}$$

The following equation was used to calculate the QLs found in Table 4:

$$QL = \frac{10 \times SD}{RF \text{ or } IRF}$$

where:

QL = Quantitation limit concentration for an ion pair (ppbv)
SD = Standard deviation of the ion intensity measured in an ambient air sample (icps)
RF or IRF = Response factor or/Intermediate response factor for an ion pair (icps/ppbv)

For example, the entry for the 130/95 ion pair of trichloroethene from Table 4, files LV08003 and LV08004, 02 April 2008 is:

SD = 17.243 icps
IRF = 3528.6 icps/ppbv

$$QL = \frac{10 \times 17.243}{3528.6} = 0.0489 \text{ ppbv}$$

5.4 Compound Detection and Quantitation Limits

Averaging the respective DLs and QLs of the target compound's ion pairs found in Table 4 generated the DLs and QLs found in Table 4.

The following equation was used to calculate the compound's DL:

$$DL_c = \frac{DL_1 + DL_2 + \ldots + DL_n}{n}$$

where:

DL_c = Detection limit for a compound (ppbv)
DL_1 = Detection limit for the first ion pair (ppbv)
DL_2 = Detection limit for the second ion pair (ppbv)
DL_n = Detection limit for the n^{th} ion pair (ppbv)
n = Number of ion pairs to be averaged

For example, using the entries for the 130/95, 132/95 and 132/97 ion pairs of trichloroethene from Table 4 for files LV08003 and LV08004, 02 April 2008 is:

$$DL_c = \frac{0.0147 + 0.0498 + 0.0163}{3} = \frac{0.0808}{3} = 0.0269 \text{ ppbv}$$

This result, 0.0269 ppbv, rounded to 0.027 ppbv is the DL for trichloroethene found in Table 4.

The following equation was used to calculate the compound's QL:

$$QL_c = \frac{QL_1 + QL_2 + \ldots QL_n}{n}$$

where:

QL_c = Quantitation limit for a compound (ppbv)
QL_1 = Quantitation limit for the first ion pair (ppbv)
QL_2 = Quantitation limit for the second ion pair (ppbv)
QL_n = Quantitation limit for the n^{th} ion pair (ppbv)
n = Number of ion pairs to be averaged

For example, using the entries for the 130/95, 132/95 and 132/97 ion pairs of trichloroethene from Table 4 for files LV08003 and LV08004, 02 April 2008 is:

$$QL_c = \frac{0.0489 + 0.166 + 0.0542}{3} = \frac{0.2691}{3} = 0.0897 \text{ ppbv}$$

This result, 0.0897 ppbv, rounded to 0.090 ppbv is the QL for trichloroethene found in Table 4.

TABLES

TABLE 1
Summary of Transport Efficiencies Measured on 02 April 2008
Little Valley VI Extent Study
Little Valley, New York
April 2008

Transport Efficiency for 02 April 2008 07:48 File: LV08002				
Start Sequence:		348	697	
End Sequence:		446	833	
Compound	PM/DM	Proximal Intensity (icps)	Distal Intensity (icps)	Transport Efficiency (%)
Trichloroethene	130/95	22771.6	21199.2	93.1
Trichloroethene	132/95	7026.3	6763.7	96.3
Trichloroethene	132/97	13796.4	13322.4	96.6
Average Trichloroethene Transport Efficiency:				95.3
Tetrachloroethene	164/129	11935.3	11519.6	96.5
Tetrachloroethene	166/129	4690.2	4412.0	94.1
Tetrachloroethene	166/131	12172.5	11388.0	93.6
Average Tetrachloroethene Transport Efficiency:				94.7

Transport Efficiency for 02 April 2008 18:24 File: LV08013				
Start Sequence:		205	722	
End Sequence:		302	843	
Compound	PM/DM	Proximal Intensity (icps)	Distal Intensity (icps)	Transport Efficiency (%)
Trichloroethene	130/95	10140.9	10043.5	99.0
Trichloroethene	132/95	3745.2	3630.5	96.9
Trichloroethene	132/97	7197.4	7033.7	97.7
Average Trichloroethene Transport Efficiency:				97.9
Tetrachloroethene	164/129	7204.3	6803.8	94.4
Tetrachloroethene	166/129	2412.6	2291.2	95.0
Tetrachloroethene	166/131	6136.0	5795.8	94.5
Average Tetrachloroethene Transport Efficiency:				94.6

PM/DM = Parent Mass/Daughter Mass
icps = Ion Counts per Second
% = Percent

TABLE 2
Summary of Meteorological Conditions during Monitoring, 02 April 2008
Little Valley VI Extent Study
Little Valley, New York
April 2008

File	Unit	Date	Start Time	Wind Speed (mph)	Wind Direction (degrees)	Precipitation (inches)
LV08003	003	4/2/2008	8:11:53	11.3	333	-
LV08004	088	4/2/2008	9:01:23	10.0	335	-
LV08006	071	4/2/2008	10:16:17	10.3	350	0.24
LV08007	041	4/2/2008	11:40:46	10.0	350	-
LV08009	027	4/2/2008	13:24:51	10.0	330	-
LV08010	010	4/2/2008	14:11:28	9.0	360	-
LV08011	136	4/2/2008	16:37:09	7.5	5	-

Note: The wind direction is the direction from which the wind is blowing
mph = Miles per Hour
- = No Precipitation

TABLE 3
Response Factors and Error Bars Summary for 02 April 2008
Little Valley VI Extent Study
Little Valley, NY
2008

Calibration Files: LV08001 and LV08005 on 02 April 2008 Used for Survey Files: LV08003 and LV08004					
Compound	PM/DM	Initial Response Factor (icps/ppbv)	Final Response Factor (icps/ppbv)	Intermediate Response Factor (icps/ppbv)	Error Bar (%)
Trichloroethene	130/95	3988.1	3164.1	3528.6	11.5
Trichloroethene	132/95	1332.3	1025.9	1159.2	13.0
Trichloroethene	132/97	2600.9	2013.7	2269.9	12.7
				Average:	12
Tetrachloroethene	164/129	2659.9	1982.9	2272.1	14.6
Tetrachloroethene	166/129	970.98	743.46	842.13	13.3
Tetrachloroethene	166/131	2463.4	1904.9	2148.4	12.8
				Average:	14

Calibration Files: LV08008 and LV08012 on 02 April 2008 Used for Survey Files: LV08009, LV08010, and LV08011					
Compound	PM/DM	Initial Response Factor (icps/ppbv)	Final Response Factor (icps/ppbv)	Intermediate Response Factor (icps/ppbv)	Error Bar (%)
Trichloroethene	130/95	1862.5	2354.3	2079.7	11.7
Trichloroethene	132/95	620.90	798.46	698.58	12.5
Trichloroethene	132/97	1219.7	1554.8	1367.0	12.1
				Average:	12
Tetrachloroethene	164/129	1264.9	1661.6	1436.3	13.6
Tetrachloroethene	166/129	449.77	581.53	507.23	12.8
Tetrachloroethene	166/131	1148.7	1472.2	1290.5	12.3
				Average:	13

PM/DM = Parent Mass/Daughter Mass
icps = Ion Counts per Second
ppbv = Parts per Billion by Volume
% = Percent

TABLE 4
Summary of Detection and Quantitation Limit Data for 02 April 2008
Little Valley VI Extent Study
Little Valley, NY
2008

Calibration Files: LV08001 and LV08005 on 02 April 2008 Used for Survey Files: LV08003 and LV08004					
Compound	PM/DM	Intermediate Response Factor (icps/ppbv)	Standard Deviation (icps)	Detection Limit (ppbv)	Quantitation Limit (ppbv)
Trichloroethene	130/95	3528.6	17.243	0.0147	0.0489
Trichloroethene	132/95	1159.2	19.231	0.0498	0.166
Trichloroethene	132/97	2269.9	12.311	0.0163	0.0542
			Average:	0.027	0.090
Tetrachloroethene	164/129	2272.1	19.912	0.0263	0.0876
Tetrachloroethene	166/129	842.13	8.8686	0.0316	0.105
Tetrachloroethene	166/131	2148.4	11.831	0.0165	0.0551
			Average:	0.025	0.083

Calibration File: LV08005 at 09:52:07 on 02 April 2008 Used for Survey File: LV08006					
Compound	PM/DM	Response Factor (icps/ppbv)	Standard Deviation (icps)	Detection Limit (ppbv)	Quantitation Limit (ppbv)
Trichloroethene	130/95	3164.1	10.760	0.0102	0.0340
Trichloroethene	132/95	1025.9	15.900	0.0465	0.155
Trichloroethene	132/97	2013.7	7.5131	0.0112	0.0373
			Average:	0.023	0.075
Tetrachloroethene	164/129	1982.9	20.013	0.0303	0.101
Tetrachloroethene	166/129	743.46	8.5986	0.0347	0.116
Tetrachloroethene	166/131	1904.9	10.525	0.0166	0.0553
			Average:	0.027	0.091

PM/DM = Parent Mass/Daughter Mass
icps = Ion Counts per Second
ppbv = Parts per Billion by Volume

TABLE 4 (continued)
Summary of Detection and Quantitation Limit Data for 02 April 2008
Little Valley VI Extent Study
Little Valley, NY
2008

Calibration File: LV08008 at 12:59:44 on 02 April 2008 Used for Survey File: LV08007					
Compound	PM/DM	Response Factor (icps/ppbv)	Standard Deviation (icps)	Detection Limit (ppbv)	Quantitation Limit (ppbv)
Trichloroethene	132/97	1219.7	15.979	0.0393	0.131
			Average:	0.039	0.13
Tetrachloroethene	164/129	1264.9	10.969	0.0260	0.0867
Tetrachloroethene	166/129	449.77	4.2424	0.0283	0.0943
Tetrachloroethene	166/131	1148.7	7.7271	0.0202	0.0673
			Average:	0.025	0.083

Calibration Files: LV08008 and LV08012 on 02 April 2008 Used for Survey Files: LV08009, LV08010 and LV08011					
Compound	PM/DM	Intermediate Response Factor (icps/ppbv)	Standard Deviation (icps)	Detection Limit (ppbv)	Quantitation Limit (ppbv)
Trichloroethene	130/95	2079.7	21.993	0.0317	0.106
Trichloroethene	132/95	698.58	5.8382	0.0251	0.0836
Trichloroethene	132/97	1367.0	15.979	0.0351	0.117
			Average:	0.031	0.10
Tetrachloroethene	164/129	1436.3	10.969	0.0229	0.0764
Tetrachloroethene	166/129	507.23	4.2424	0.0251	0.0836
Tetrachloroethene	166/131	1290.5	7.7271	0.0180	0.0599
			Average:	0.022	0.073

PM/DM = Parent Mass/Daughter Mass
icps = Ion Counts per Second
ppbv = Parts per Billion by Volume

FIGURES

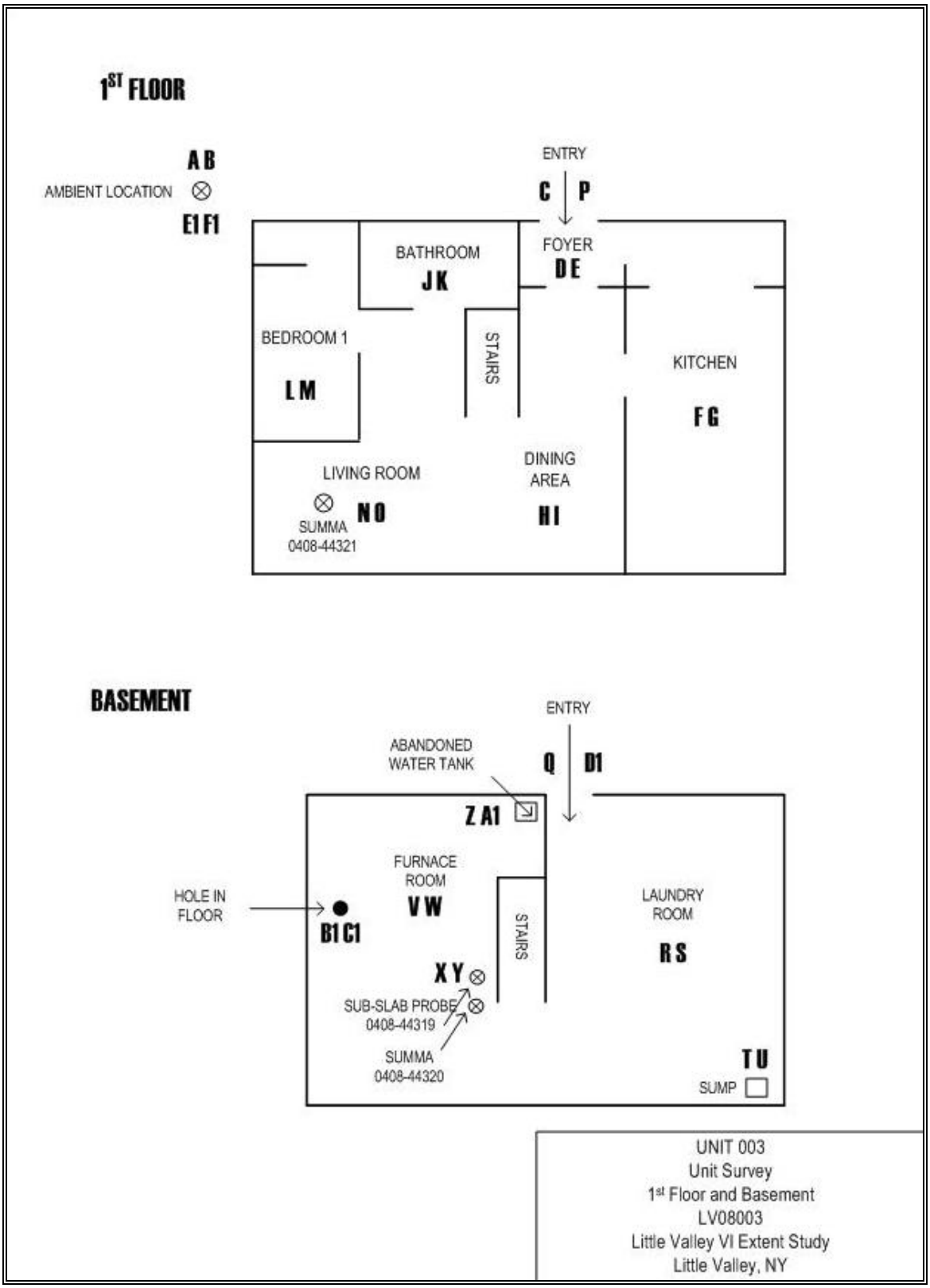

Figure 1a Unit 003 Survey Floor Plan, LV08003

Figure 1b

TAGA File Event Summary
File: LV08003 Acquired on 02 April 2008 at 08:11:53
Title: Unit 003 Survey

Flag	Offset Time	Offset Sequence	Description
A	2.0	191	Start of the pre-entry ambient
B	3.0	288	End of the pre-entry ambient
C	5.7	546	Entering the unit
D	6.9	659	Start of the foyer
E	7.9	756	End of the foyer
F	8.3	792	Start of the kitchen
G	9.3	886	End of the kitchen
H	9.7	927	Start of the dining area
I	10.8	1029	End of the dining area
J	11.3	1078	Start of the bathroom
K	12.3	1176	End of the bathroom
L	12.6	1197	Start of bedroom one
M	13.6	1294	End of bedroom one
N	13.9	1325	Start of the living room
O	15.0	1424	End of the living room
P	15.4	1465	Exiting the unit
Q	15.8	1500	Entering the basement
R	16.2	1543	Start of the laundry room
S	17.2	1640	End of the laundry room
T	17.4	1657	Start of the sump
U	18.4	1754	End of the sump
V	18.8	1793	Start of the furnace room
W	19.8	1889	End of the furnace room
X	20.0	1908	Start of the sub-slab probe
Y	21.1	2006	End of the sub-slab probe
Z	21.3	2028	Start of the abandoned water tank
A1	22.8	2168	End of the abandoned water tank
B1	23.0	2187	Start of the hole in the floor
C1	24.0	2288	End of the hole in the floor
D1	24.6	2341	Exiting the unit
E1	25.0	2382	Start of the post-exit ambient
F1	26.0	2480	End of the post-exit ambient
G1	27.5	2622	Start of the 30 mL/min spike
H1	28.5	2717	End of the 30 mL/min spike

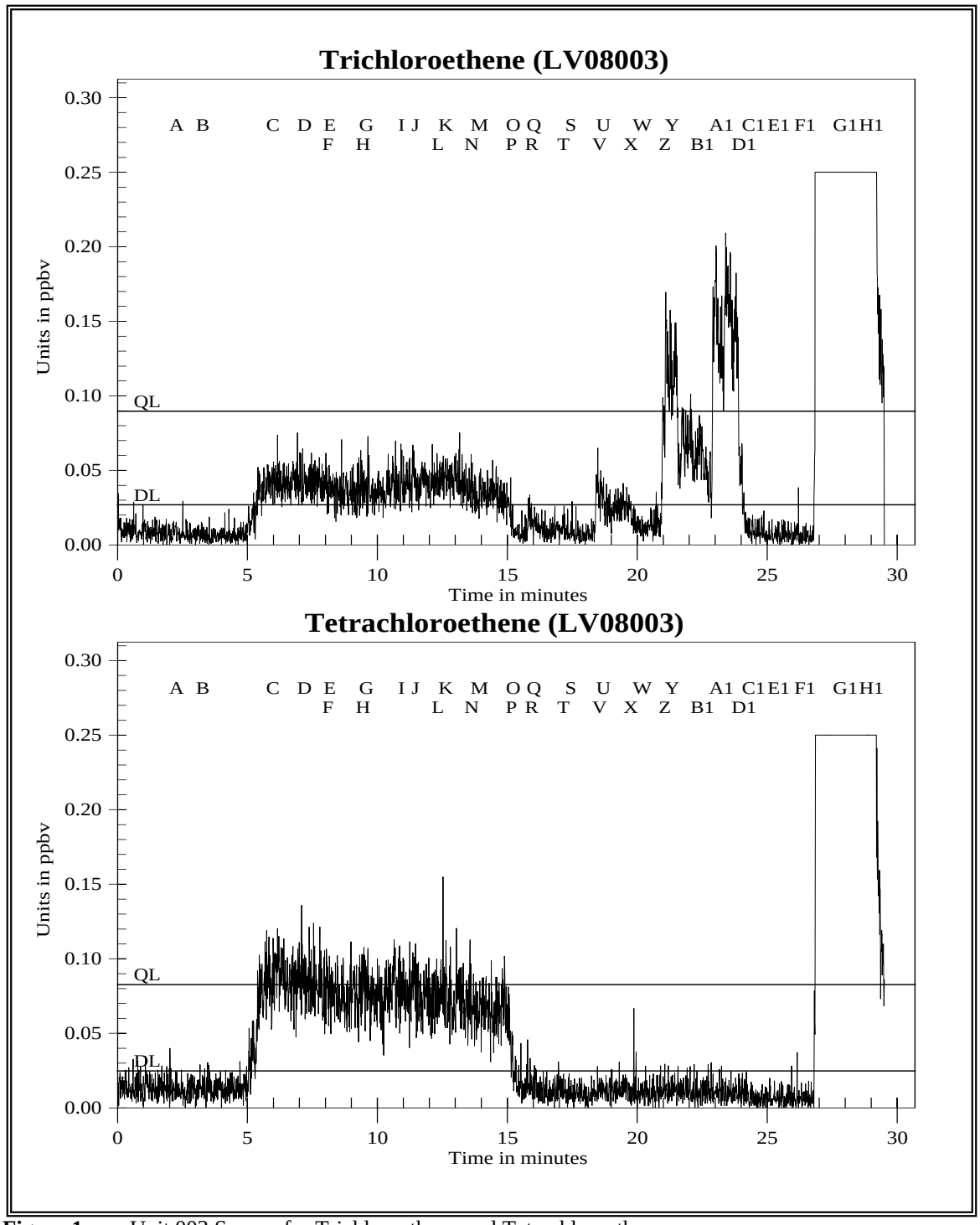

Figure 1c Unit 003 Survey for Trichloroethene and Tetrachloroethene

Figure 1d

TAGA Target Compound Summary for Unit 003 File: LV08003 Acquired on 02 April 2008 at 08:11:53			
		Trichloroethene	Tetrachloroethene
	Detection Limits - DL:	0.027	0.025
	Quantitation Limits - QL:	0.090	0.083
Flags	Description	Trichloroethene	Tetrachloroethene
A - B	Pre-entry ambient	DL=0.027	DL=0.025
D - E	Foyer	0.042J	0.085
F - G	Kitchen	0.036J	0.075J
H - I	Dining area	0.037J	0.077J
J - K	Bathroom	0.043J	0.076J
L - M	Bedroom one	0.043J	0.072J
N - O	Living room	0.033J	0.067J
R - S	Laundry room	DL=0.027	DL=0.025
T - U	Sump	DL=0.027	DL=0.025
V - W	Furnace room	DL=0.027	DL=0.025
X - Y	Sub-slab probe	DL=0.027	DL=0.025
Z - A1	Abandoned water tank	0.071J	DL=0.025
B1 - C1	Hole in the floor	0.14	DL=0.025
E1 - F1	Post-exit ambient	DL=0.027	DL=0.025
G1 - H1	30 mL/min spike	5.5	4.7

Concentrations are given in parts per billion by volume
J = Concentration detected below the quantitation limit

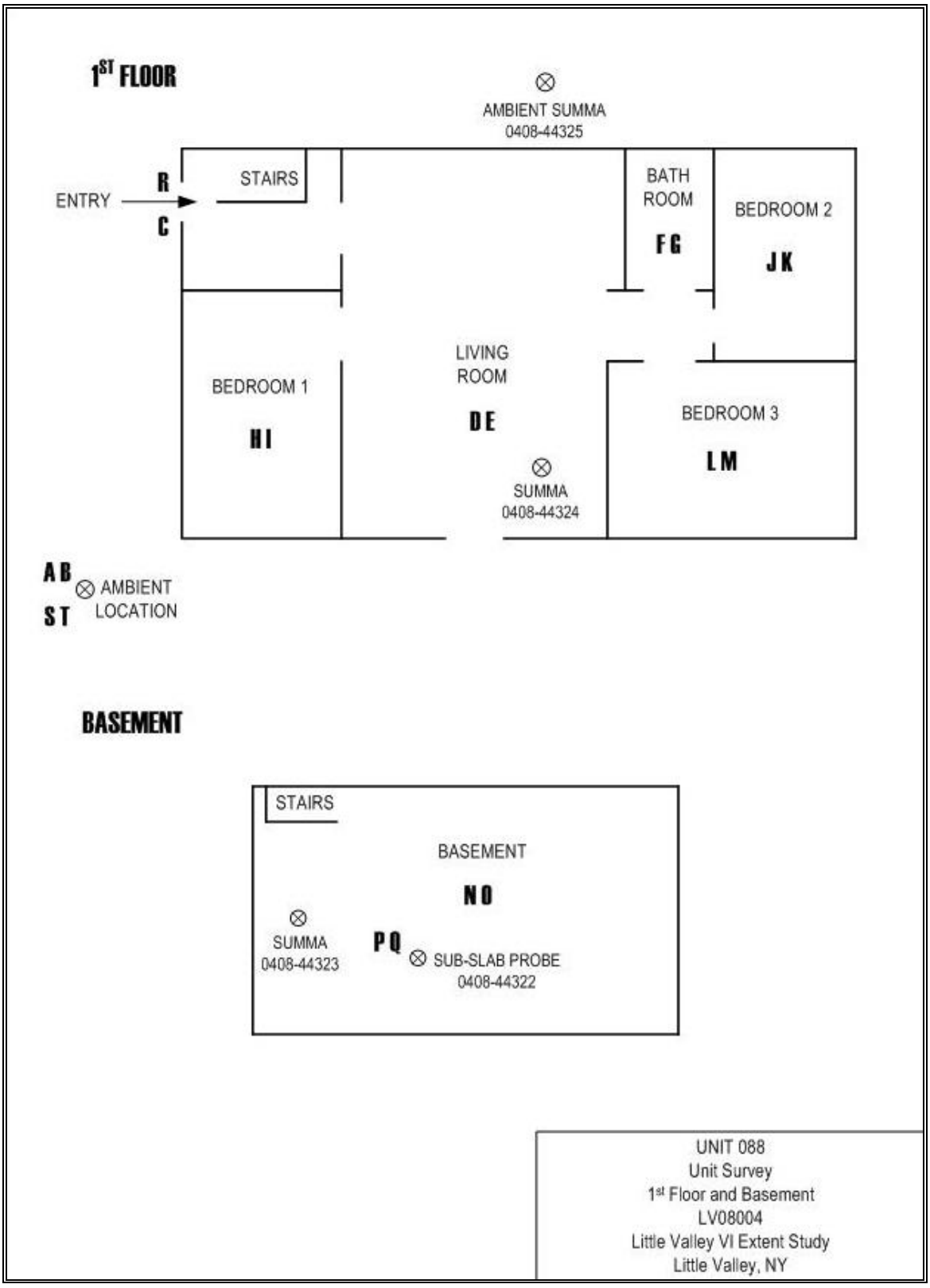

Figure 2a Unit 088 Survey Floor Plan, LV08004

Figure 2b

TAGA File Event Summary
File: LV08004 Acquired on 02 April 2008 at 09:01:23
Title: Unit 088 Survey

Flag	Offset Time	Offset Sequence	Description
A	2.4	231	Start of the pre-entry ambient
B	3.4	329	End of the pre-entry ambient
C	4.3	407	Entering the unit
D	4.9	467	Start of the living room
E	5.9	564	End of the living room
F	6.3	596	Start of the bathroom
G	7.3	692	End of the bathroom
H	7.7	737	Start of bedroom one
I	8.8	834	End of bedroom one
J	9.1	865	Start of bedroom two
K	10.2	967	End of bedroom two
L	10.4	986	Start of bedroom three
M	11.4	1083	End of bedroom three
N	12.3	1173	Start of the basement
O	13.4	1273	End of the basement
P	13.7	1306	Start of the sub-slab probe
Q	14.8	1405	End of the sub-slab probe
R	15.3	1454	Exiting the unit
S	15.6	1481	Start of the post-exit ambient
T	16.6	1581	End of the post-exit ambient
U	17.7	1686	Start of the 30 mL/min spike
V	19.1	1817	End of the 30 mL/min spike

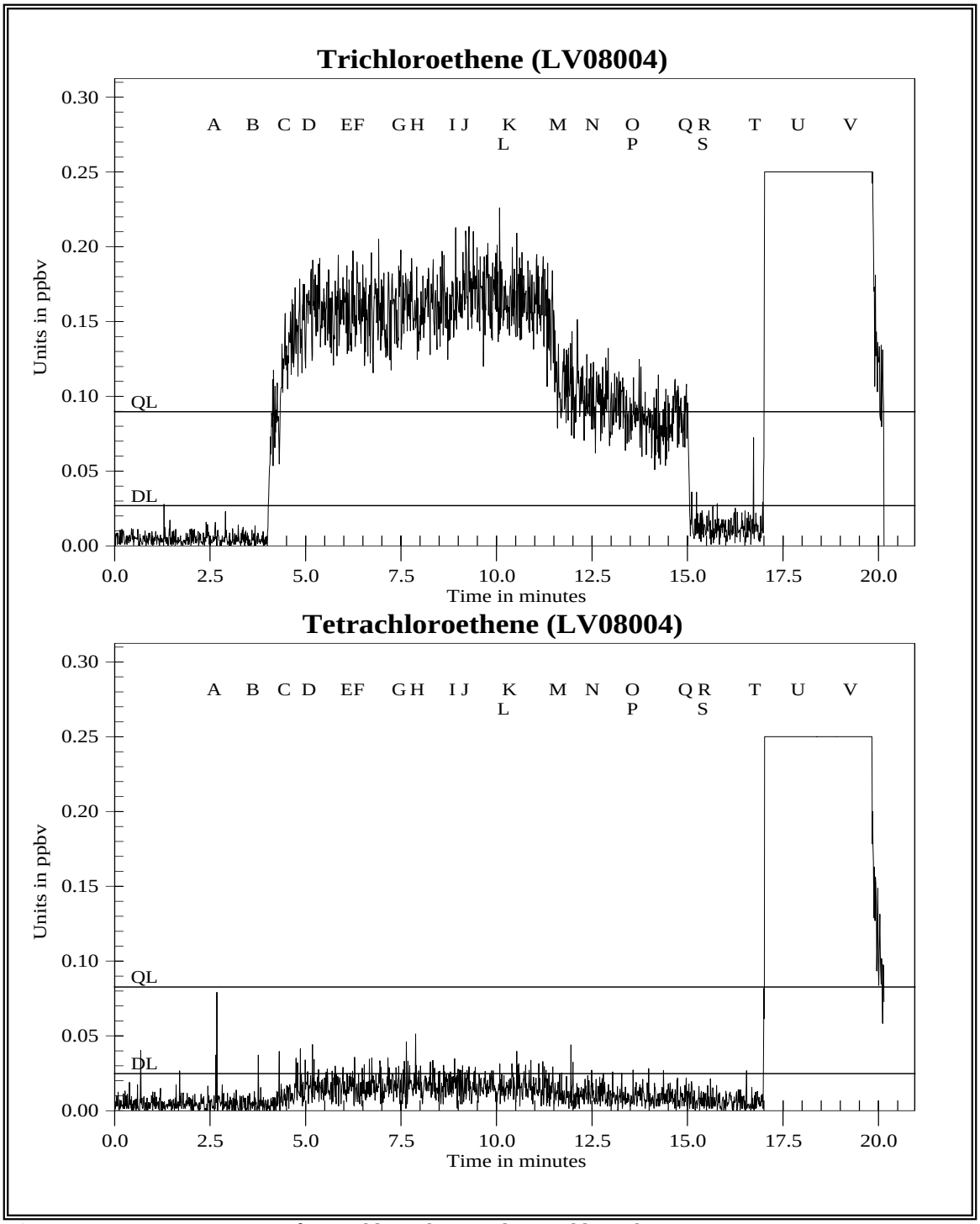

Figure 2c Unit 088 Survey for Trichloroethene and Tetrachloroethene

Figure 2d

TAGA Target Compound Summary for Unit 088 File: LV08004 Acquired on 02 April 2008 at 09:01:23			
		Trichloroethene	Tetrachloroethene
	Detection Limits - DL:	0.027	0.025
	Quantitation Limits - QL:	0.090	0.083
Flags	Description	Trichloroethene	Tetrachloroethene
A - B	Pre-entry ambient	DL=0.027	DL=0.025
D - E	Living room	0.16	DL=0.025
F - G	Bathroom	0.16	DL=0.025
H - I	Bedroom one	0.16	DL=0.025
J - K	Bedroom two	0.17	DL=0.025
L - M	Bedroom three	0.16	DL=0.025
N - O	Basement	0.096	DL=0.025
P - Q	Sub-slab probe	0.084J	DL=0.025
S - T	Post-exit ambient	DL=0.027	DL=0.025
U - V	30 mL/min spike	5.3	4.7

Concentrations are given in parts per billion by volume
J = Concentration detected below the quantitation limit

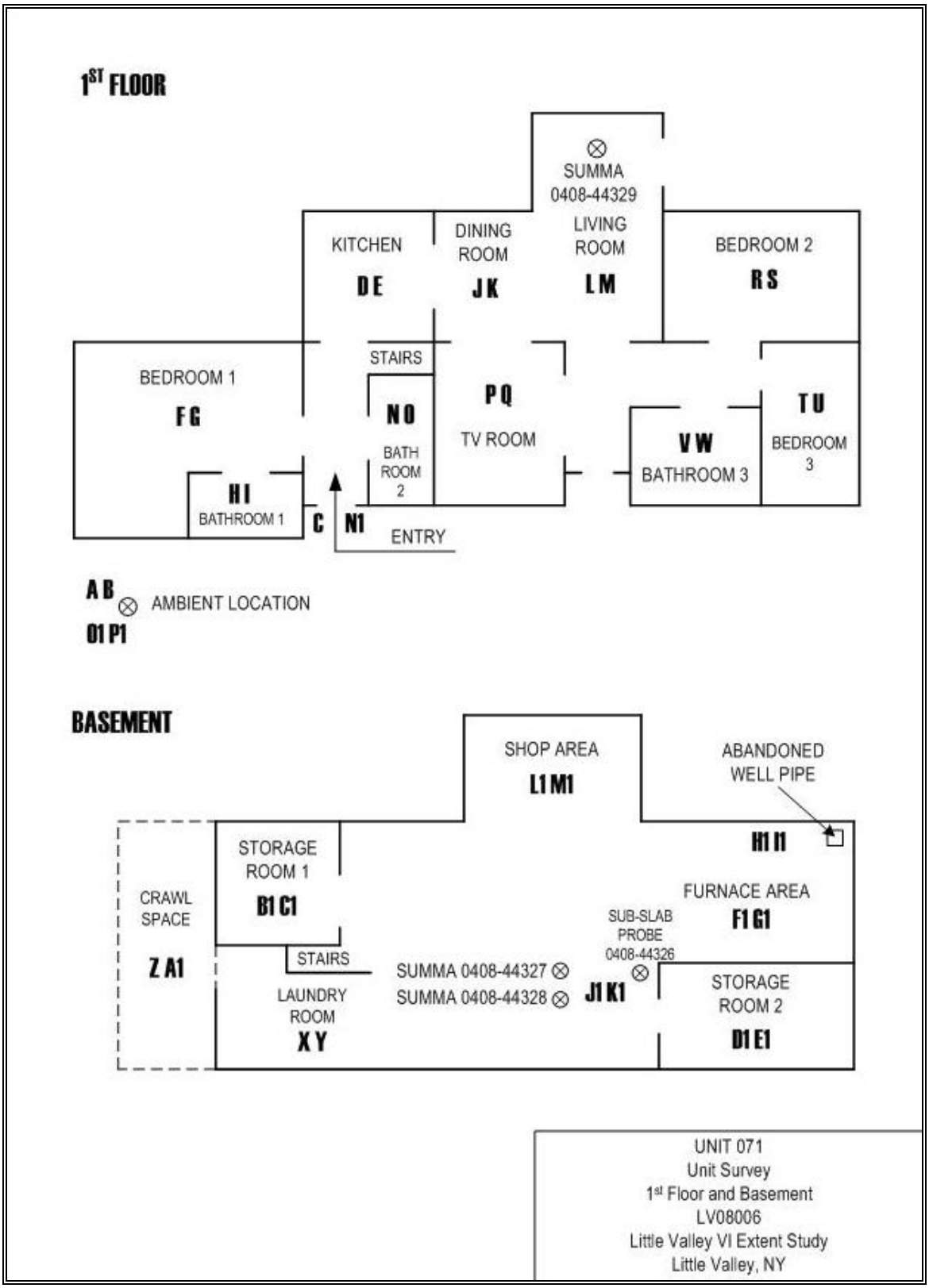

Figure 3a Unit 071 Survey Floor Plan, LV08006

Figure 3b

TAGA File Event Summary
File: LV08006 Acquired on 02 April 2008 at 10:16:17
Title: Unit 071 Survey

Flag	Offset Time	Offset Sequence	Description
A	2.1	198	Start of the pre-entry ambient
B	3.1	297	End of the pre-entry ambient
C	4.6	442	Entering the unit
D	5.1	485	Start of the kitchen
E	6.1	580	End of the kitchen
F	6.3	599	Start of bedroom one
G	7.3	694	End of bedroom one
H	7.5	712	Start of bathroom one
I	8.5	808	End of bathroom one
J	8.8	843	Start of the dining room
K	9.9	940	End of the dining room
L	10.1	959	Start of the living room
M	11.1	1056	End of the living room
N	11.5	1092	Start of bathroom two
O	12.5	1189	End of bathroom two
P	12.7	1210	Start of the TV room
Q	13.7	1308	End of the TV room
R	14.1	1343	Start of bedroom two
S	15.1	1440	End of bedroom two
T	15.4	1467	Start of bedroom three
U	16.4	1562	End of bedroom three
V	16.7	1590	Start of bathroom three
W	17.7	1687	End of bathroom three
X	19.0	1808	Start of the laundry room
Y	20.0	1905	End of the laundry room
Z	20.4	1938	Start of the crawl space
A1	21.4	2036	End of the crawl space
B1	21.7	2069	Start of storage room one
C1	22.7	2166	End of storage room one
D1	23.2	2209	Start of storage room two
E1	24.2	2301	End of storage room two
F1	24.5	2334	Start of the furnace area
G1	25.5	2426	End of the furnace area

Figure 3b (continued)

TAGA File Event Summary
File: LV08006 Acquired on 02 April 2008 at 10:16:17
Title: Unit 071 Survey

Flag	Offset Time	Offset Sequence	Description
H1	25.6	2442	Start of the abandoned well pipe
I1	26.7	2538	End of the abandoned well pipe
J1	27.0	2574	Start of the sub-slab port
K1	28.0	2666	End of the sub-slab port
L1	28.2	2687	Start of the shop area
M1	29.2	2783	End of the shop area
N1	29.9	2844	Exiting the unit
O1	30.3	2882	Start of the post-exit ambient
P1	31.2	2975	End of the post-exit ambient
Q1	32.4	3083	Start of the 30 mL/min spike
R1	33.4	3182	End of the 30 mL/min spike

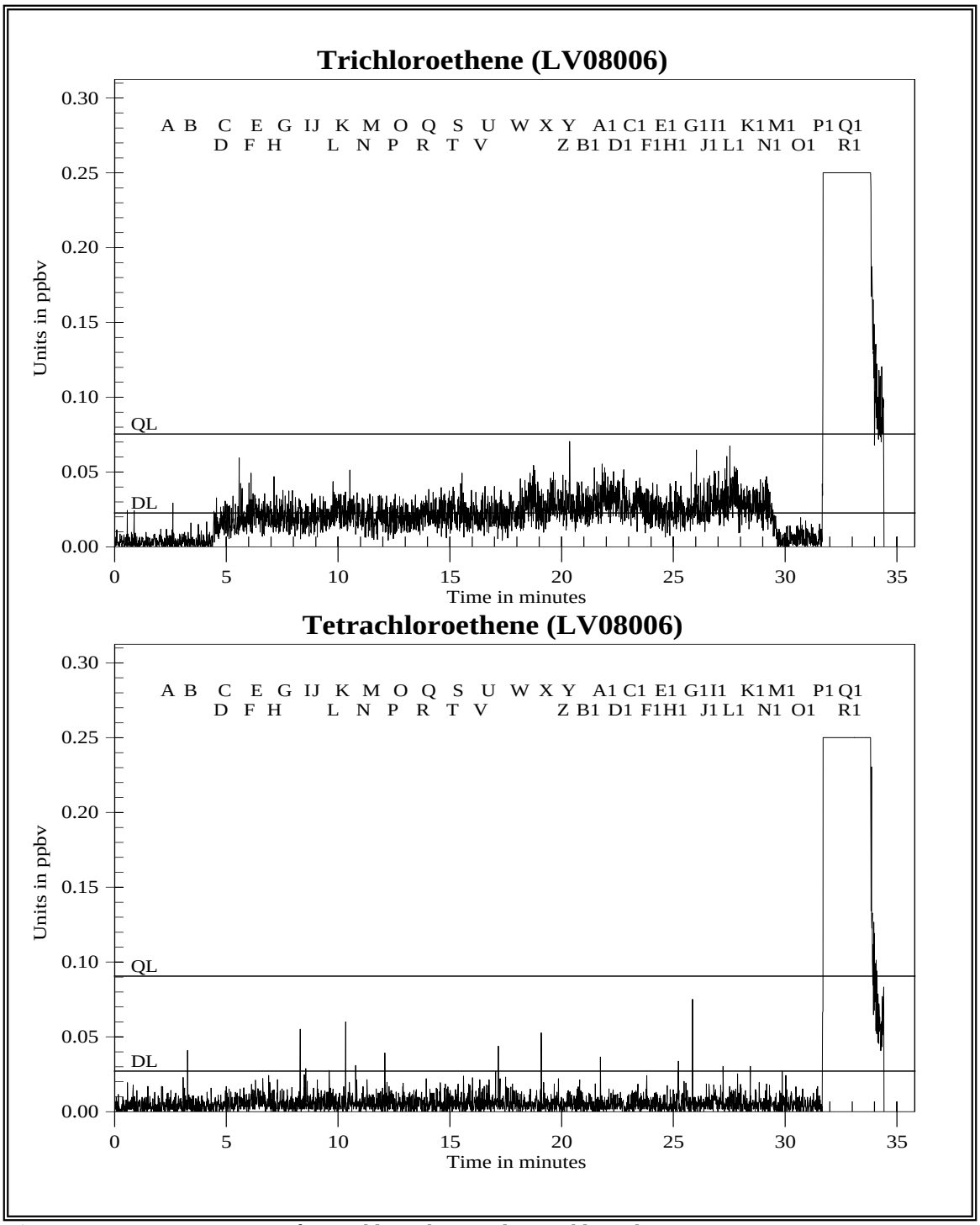

Figure 3c Unit 071 Survey for Trichloroethene and Tetrachloroethene

Figure 3d

TAGA Target Compound Summary for Unit 071 File: LV08006 Acquired on 02 April 2008 at 10:16:17			
		Trichloroethene	Tetrachloroethene
	Detection Limits - DL:	0.023	0.027
	Quantitation Limits - QL:	0.075	0.091
Flags	Description	Trichloroethene	Tetrachloroethene
A - B	Pre-entry ambient	DL=0.023	DL=0.027
D - E	Kitchen	DL=0.023	DL=0.027
F - G	Bedroom one	DL=0.023	DL=0.027
H - I	Bathroom one	DL=0.023	DL=0.027
J - K	Dining room	DL=0.023	DL=0.027
L - M	Living room	DL=0.023	DL=0.027
N - O	Bathroom two	DL=0.023	DL=0.027
P - Q	TV room	DL=0.023	DL=0.027
R - S	Bedroom two	DL=0.023	DL=0.027
T - U	Bedroom three	DL=0.023	DL=0.027
V - W	Bathroom three	DL=0.023	DL=0.027
X - Y	Laundry room	0.027J	DL=0.027
Z - A1	Crawl space	0.027J	DL=0.027
B1 - C1	Storage room one	0.033J	DL=0.027
D1 - E1	Storage room two	0.027J	DL=0.027
F1 - G1	Furnace area	0.024J	DL=0.027
H1 - I1	Abandoned well pipe	0.026J	DL=0.027
J1 - K1	Sub-slab port	0.032J	DL=0.027
L1 - M1	Shop area	0.028J	DL=0.027
O1 - P1	Post-exit ambient	DL=0.023	DL=0.027
Q1 - R1	30 mL/min spike	5.6	4.7

Concentrations are given in parts per billion by volume
J = Concentration detected below the quantitation limit

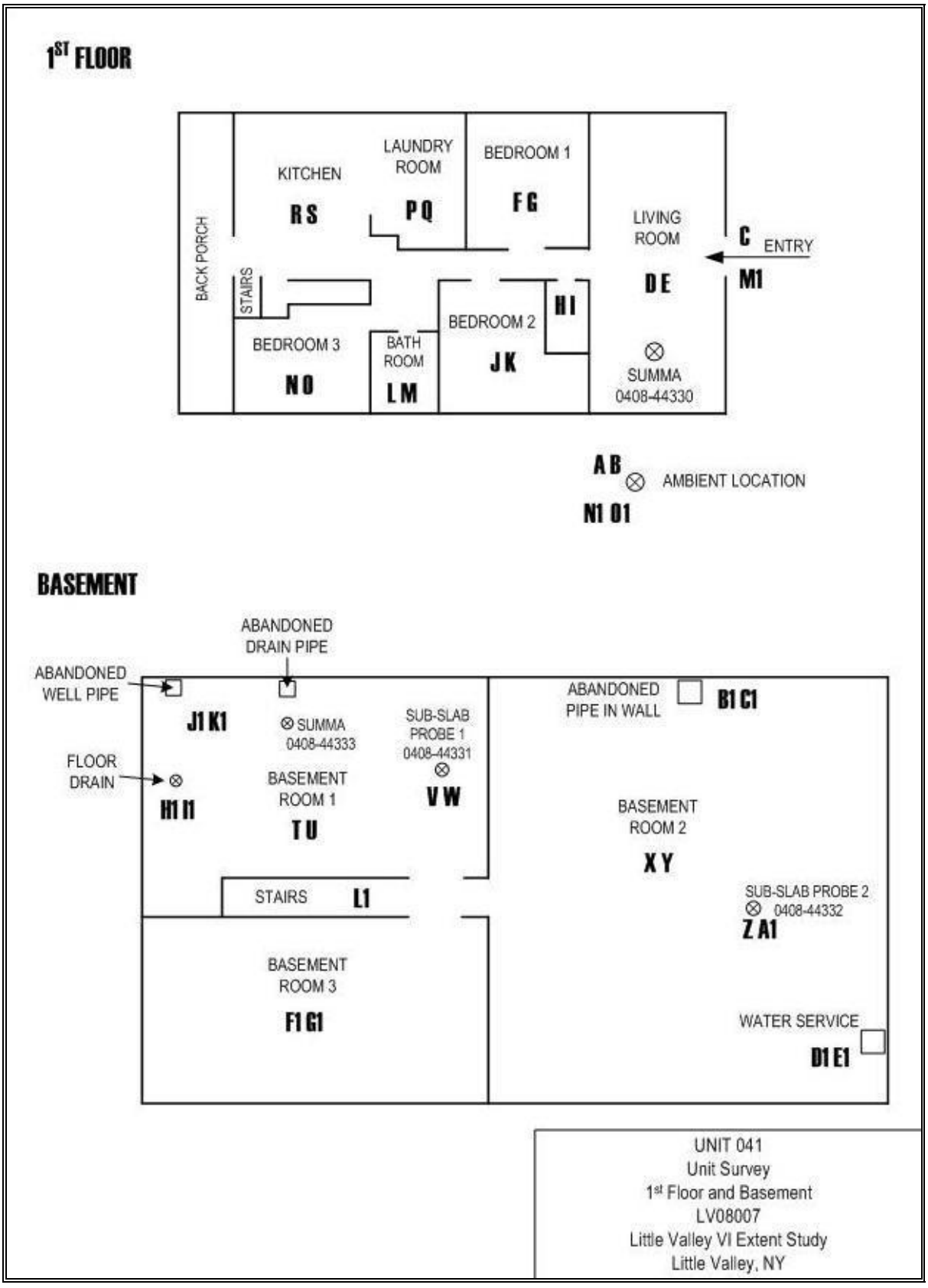

Figure 4a Unit 041 Survey Floor Plan, LV08007

Figure 4b

TAGA File Event Summary
File: LV08007 Acquired on 02 April 2008 at 11:40:46
Title: Unit 041 Survey

Flag	Offset Time	Offset Sequence	Description
A	2.2	207	Start of the pre-entry ambient
B	3.2	307	End of the pre-entry ambient
C	3.9	369	Entering the unit
D	4.1	394	Start of the living room
E	5.1	489	End of the living room
F	5.7	540	Start of bedroom one
G	6.7	642	End of bedroom one
H	6.9	661	Start of the hall closet
I	8.0	758	End of the hall closet
J	8.3	794	Start of bedroom two
K	9.4	891	End of bedroom two
L	9.8	929	Start of the bathroom
M	10.8	1026	End of the bathroom
N	11.1	1056	Start of bedroom three
O	12.1	1153	End of bedroom three
P	12.8	1219	Start of the laundry room
Q	13.8	1316	End of the laundry room
R	14.0	1332	Start of the kitchen
S	15.0	1429	End of the kitchen
T	15.8	1505	Start of basement room one
U	16.8	1602	End of basement room one
V	17.1	1625	Start of sub-slab probe one
W	18.1	1724	End of sub-slab probe one
X	18.5	1760	Start of basement room two
Y	19.5	1857	End of basement room two
Z	19.7	1879	Start of sub-slab probe two
A1	20.7	1974	End of sub-slab probe two
B1	21.0	2000	Start of the abandoned pipe in the wall
C1	22.0	2095	End of the abandoned pipe in the wall
D1	22.4	2131	Start of the water service
E1	23.4	2231	End of the water service
F1	23.8	2269	Start of basement room three
G1	24.8	2366	End of basement room three

Figure 4b (continued)

TAGA File Event Summary
File: LV08007 Acquired on 02 April 2008 at 11:40:46
Title: Unit 041 Survey

Flag	Offset Time	Offset Sequence	Description
H1	25.2	2396	Start of the floor drain
I1	26.2	2492	End of the floor drain
J1	26.4	2512	Start of the abandoned well pipe
K1	27.3	2603	End of the abandoned well pipe
L1	27.7	2634	Ascending the stairs
M1	28.5	2710	Exiting the unit
N1	28.9	2750	Start of the post-exit ambient
O1	29.9	2848	End of the post-exit ambient
P1	38.0	3616	Start of the 30 mL/min spike
Q1	38.4	3656	End of the 30 mL/min spike

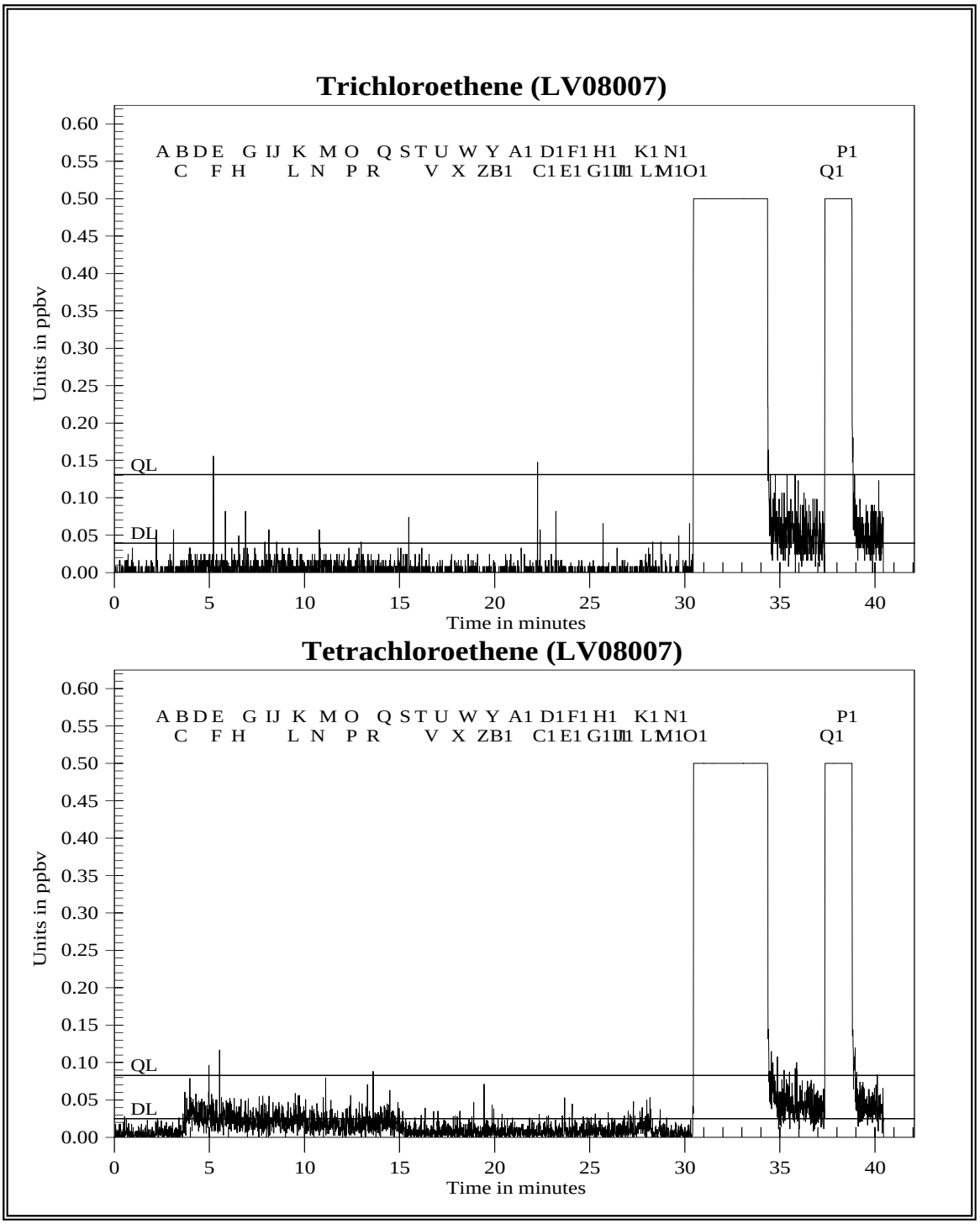

Figure 4c Unit 041 Survey for Trichloroethene and Tetrachloroethene

Figure 4d

TAGA Target Compound Summary for Unit 041 File: LV08007 Acquired on 02 April 2008 at 11:40:46			
		Trichloroethene	Tetrachloroethene
	Detection Limits - DL:	0.039	0.025
	Quantitation Limits - QL:	0.13	0.083
Flags	Description	Trichloroethene	Tetrachloroethene
A - B	Pre-entry ambient	DL=0.039	DL=0.025
D - E	Living room	DL=0.039	0.032J
F - G	Bedroom one	DL=0.039	0.026J
H - I	Hall closet	DL=0.039	DL=0.025
J - K	Bedroom two	DL=0.039	DL=0.025
L - M	Bathroom	DL=0.039	DL=0.025
N - O	Bedroom three	DL=0.039	DL=0.025
P - Q	Laundry room	DL=0.039	DL=0.025
R - S	Kitchen	DL=0.039	DL=0.025
T - U	Basement room one	DL=0.039	DL=0.025
V - W	Sub-slab probe one	DL=0.039	DL=0.025
X - Y	Basement room two	DL=0.039	DL=0.025
Z - A1	Sub-slab probe two	DL=0.039	DL=0.025
B1 - C1	Abandoned pipe in the wall	DL=0.039	DL=0.025
D1 - E1	Water service	DL=0.039	DL=0.025
F1 - G1	Basement room three	DL=0.039	DL=0.025
H1 - I1	Floor drain	DL=0.039	DL=0.025
J1 - K1	Abandoned well pipe	DL=0.039	DL=0.025
N1 - O1	Post-exit ambient	DL=0.039	DL=0.025
P1 - Q1	30 mL/min spike	3.5	3.1

Concentrations are given in parts per billion by volume
J = Concentration detected below the quantitation limit

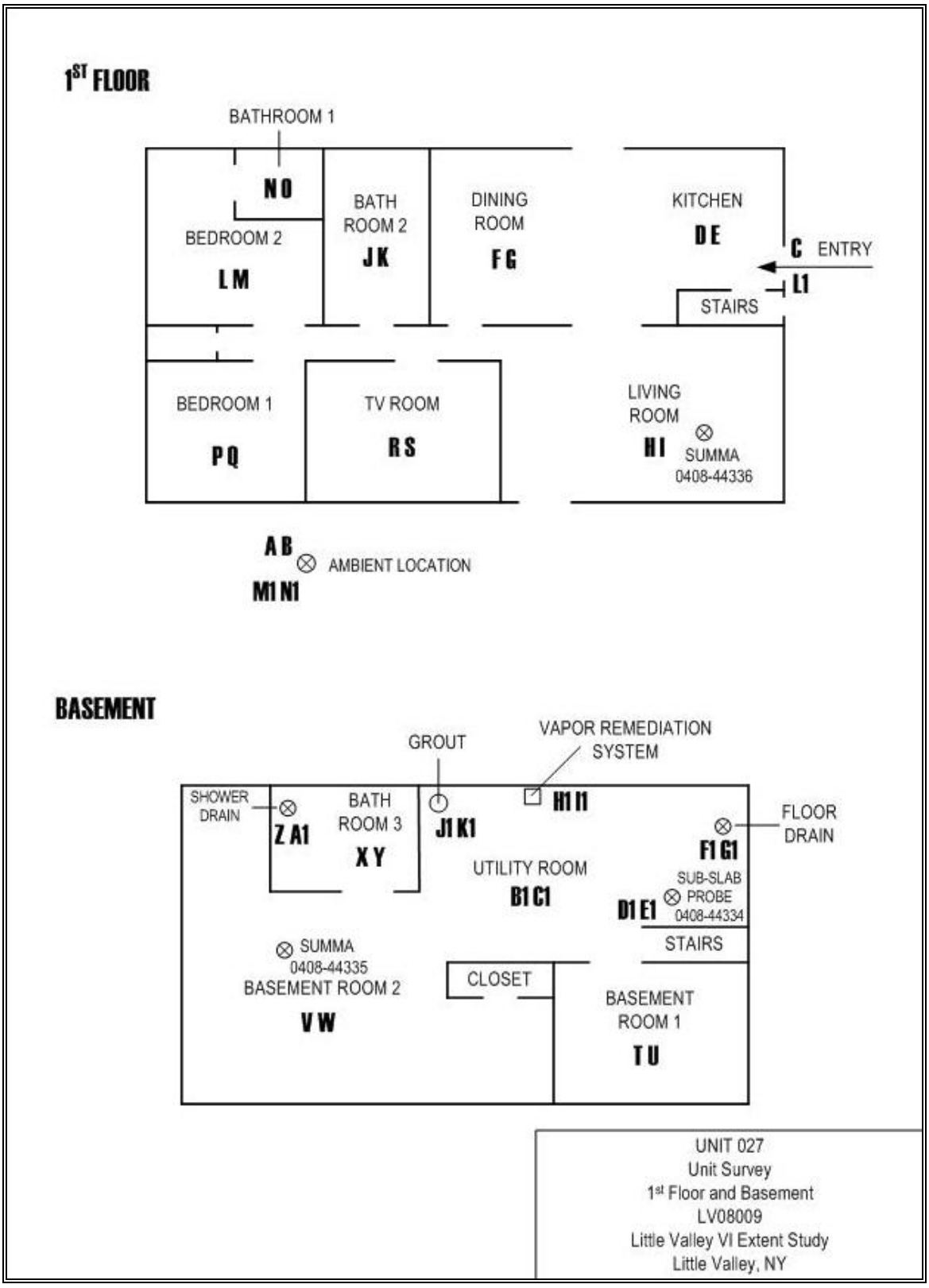

Figure 5a Unit 027 Survey Floor Plan, LV08009

Figure 5b

TAGA File Event Summary
File: LV08009 Acquired on 02 April 2008 at 13:24:51
Title: Unit 027 Survey

Flag	Offset Time	Offset Sequence	Description
A	2.5	237	Start of the pre-entry ambient
B	3.5	331	End of the pre-entry ambient
C	4.0	386	Entering the unit
D	4.2	399	Start of the kitchen
E	5.2	497	End of the kitchen
F	5.4	513	Start of the dining room
G	6.4	608	End of the dining room
H	6.6	626	Start of the living room
I	7.6	723	End of the living room
J	7.9	754	Start of bathroom two
K	8.9	851	End of bathroom two
L	9.2	872	Start of bedroom two
M	10.2	967	End of bedroom two
N	10.4	989	Start of bathroom one
O	11.4	1086	End of bathroom one
P	11.6	1108	Start of bedroom one
Q	12.6	1202	End of bedroom one
R	13.4	1276	Start of the TV room
S	14.4	1373	End of the TV room
T	16.0	1525	Start of basement room one
U	17.1	1624	End of basement room one
V	17.4	1660	Start of basement room two
W	18.5	1757	End of basement room two
X	18.8	1786	Start of bathroom three
Y	19.8	1881	End of bathroom three
Z	20.0	1901	Start of the shower drain
A1	21.0	2003	End of the shower drain
B1	21.3	2033	Start of the utility room
C1	22.4	2131	End of the utility room
D1	22.6	2154	Start of the sub-slab probe
E1	23.7	2252	End of the sub-slab probe
F1	23.9	2277	Start of the floor drain
G1	24.9	2371	End of the floor drain

Figure 5b (continued)

TAGA File Event Summary
File: LV08009 Acquired on 02 April 2008 at 13:24:51
Title: Unit 027 Survey

Flag	Offset Time	Offset Sequence	Description
H1	25.1	2392	Start of the vapor remediation system
I1	26.2	2490	End of the vapor remediation system
J1	26.4	2514	Start of the grout
K1	27.4	2609	End of the grout
L1	28.0	2669	Exiting the unit
M1	28.7	2731	Start of the post-exit ambient
N1	29.7	2828	End of the post-exit ambient
O1	31.1	2964	Start of the 30 mL/min spike
P1	32.1	3061	End of the 30 mL/min spike

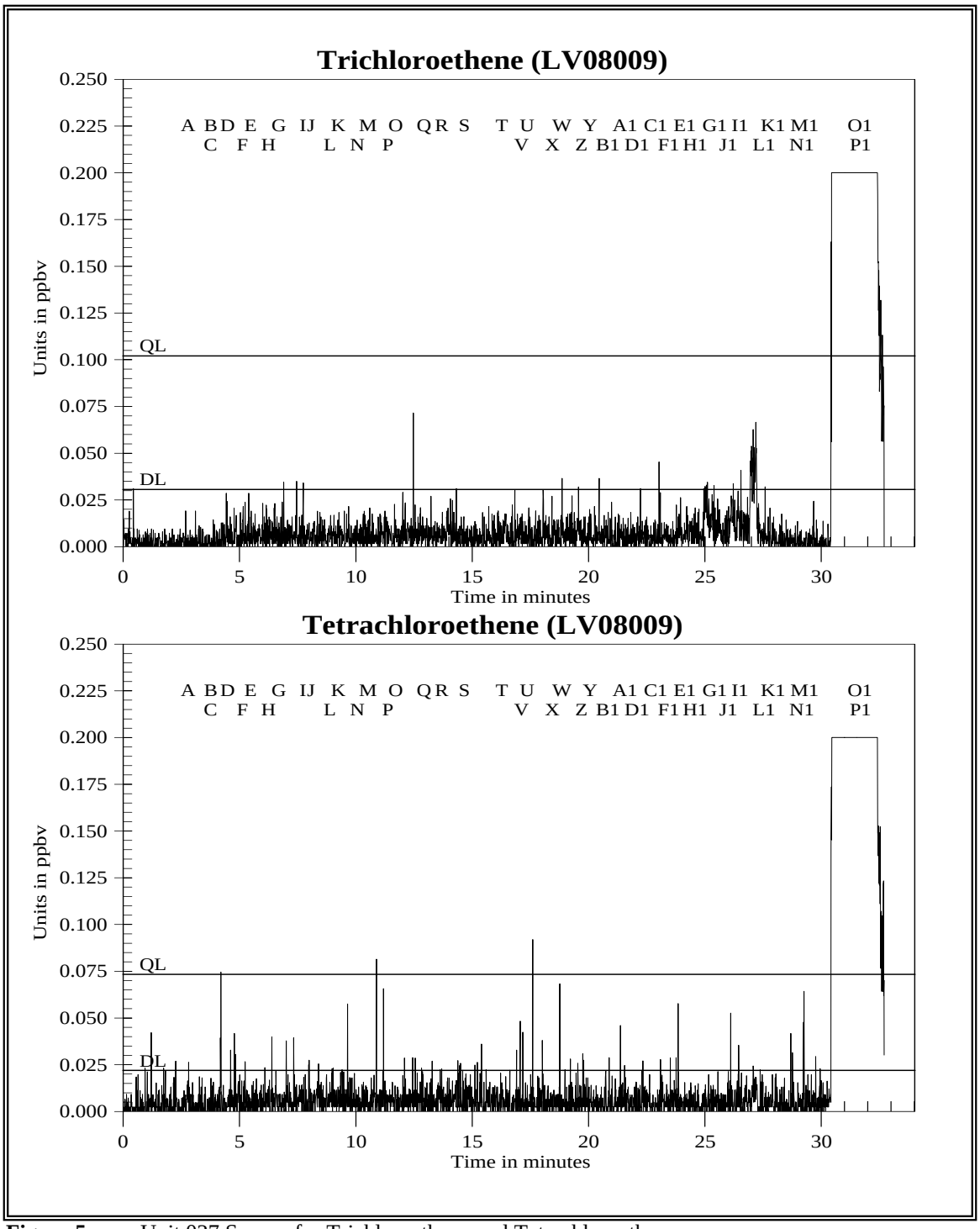

Figure 5c Unit 027 Survey for Trichloroethene and Tetrachloroethene

Figure 5d

TAGA Target Compound Summary for Unit 027 File: LV08009 Acquired on 02 April 2008 at 13:24:51			
		Trichloroethene	Tetrachloroethene
	Detection Limits - DL:	0.031	0.022
	Quantitation Limits - QL:	0.10	0.073
Flags	Description	Trichloroethene	Tetrachloroethene
A - B	Pre-entry ambient	DL=0.031	DL=0.022
D - E	Kitchen	DL=0.031	DL=0.022
F - G	Dining room	DL=0.031	DL=0.022
H - I	Living room	DL=0.031	DL=0.022
J - K	Bathroom two	DL=0.031	DL=0.022
L - M	Bedroom two	DL=0.031	DL=0.022
N - O	Bathroom one	DL=0.031	DL=0.022
P - Q	Bedroom one	DL=0.031	DL=0.022
R - S	TV room	DL=0.031	DL=0.022
T - U	Basement room one	DL=0.031	DL=0.022
V - W	Basement room two	DL=0.031	DL=0.022
X - Y	Bathroom three	DL=0.031	DL=0.022
Z - A1	Shower drain	DL=0.031	DL=0.022
B1 - C1	Utility room	DL=0.031	DL=0.022
D1 - E1	Sub-slab probe	DL=0.031	DL=0.022
F1 - G1	Floor drain	DL=0.031	DL=0.022
H1 - I1	Vapor remediation system	DL=0.031	DL=0.022
J1 - K1	Grout	DL=0.031	DL=0.022
M1 - N1	Post-exit ambient	DL=0.031	DL=0.022
O1 - P1	30 mL/min spike	5.1	4.7

Concentrations are given in parts per billion by volume
J = Concentration detected below the quantitation limit

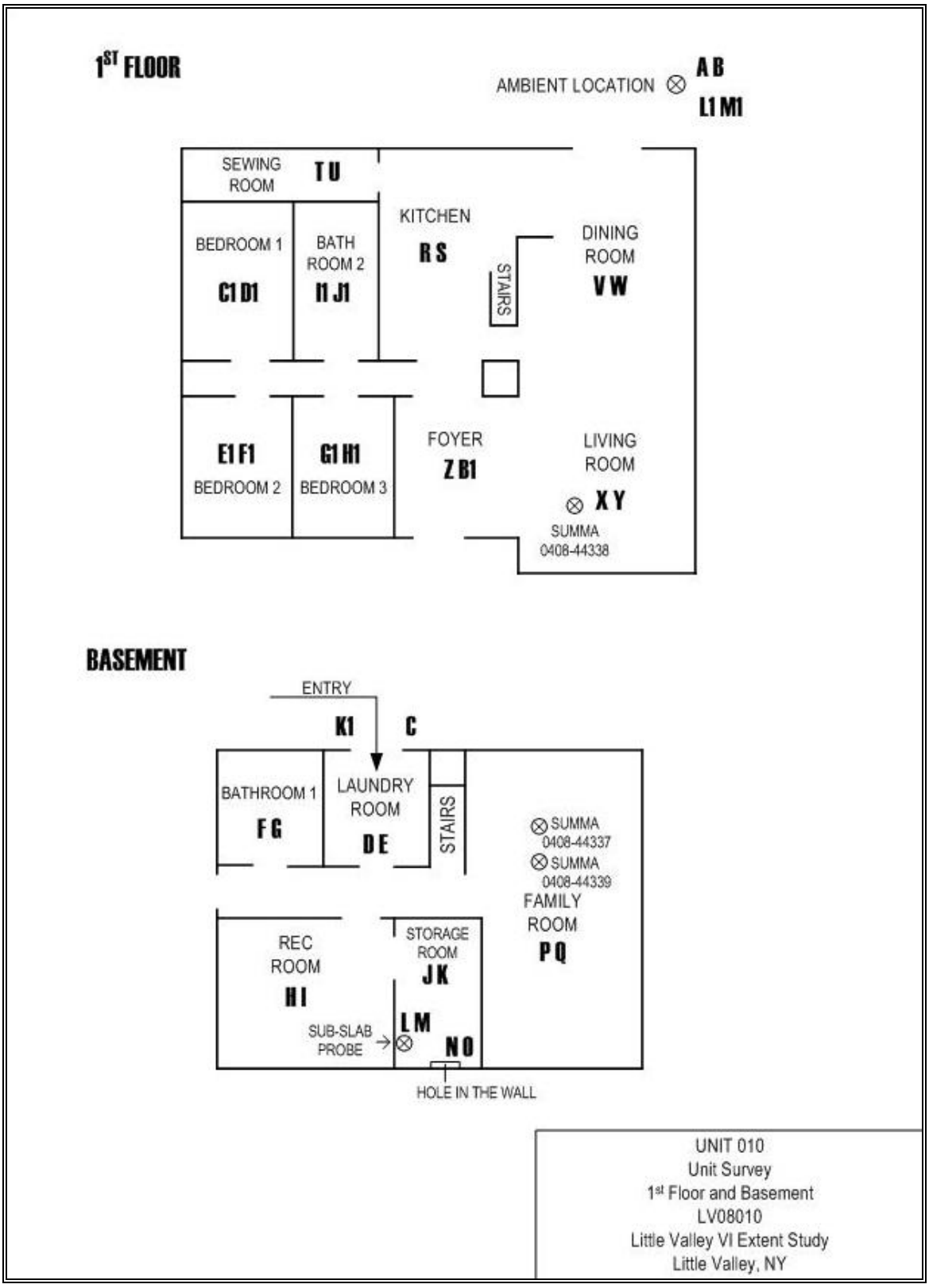

Figure 6a Unit 010 Survey Floor Plan, LV08010

Figure 6b

TAGA File Event Summary
File: LV08010 Acquired on 02 April 2008 at 14:11:28
Title: Unit 010 Survey

Flag	Offset Time	Offset Sequence	Description
A	2.4	228	Start of the pre-entry ambient
B	3.4	323	End of the pre-entry ambient
C	6.9	654	Entering the unit
D	7.7	732	Start of the laundry room
E	8.7	826	End of the laundry room
F	9.2	875	Start of bathroom one
G	10.2	972	End of bathroom one
H	10.6	1008	Start of the recreational room
I	11.6	1103	End of the recreational room
J	11.8	1127	Start of the storage room
K	12.9	1226	End of the storage room
L	18.8	1789	Start of the sub-slab probe
M	19.8	1884	End of the sub-slab probe
N	20.2	1927	Start of the hole in the wall
O	21.2	2023	End of the hole in the wall
P	22.7	2165	Start of the family room
Q	23.8	2263	End of the family room
R	24.5	2331	Start of the kitchen
S	25.5	2430	End of the kitchen
T	25.7	2447	Start of the sewing room
U	26.7	2545	End of the sewing room
V	27.2	2588	Start of the dining room
W	28.2	2687	End of the dining room
X	28.4	2707	Start of the living room
Y	29.5	2806	End of the living room
Z	30.2	2874	Start of the foyer
B1	31.2	2971	End of the foyer
C1	31.8	3026	Start of bedroom one
D1	32.8	3126	End of bedroom one
E1	33.1	3155	Start of bedroom two
F1	34.1	3251	End of bedroom two
G1	34.4	3275	Start of bedroom three
H1	35.4	3372	End of bedroom three

Figure 6b (continued)

TAGA File Event Summary
File: LV08010 Acquired on 02 April 2008 at 14:11:28
Title: Unit 010 Survey

Flag	Offset Time	Offset Sequence	Description
I1	35.6	3394	Start of bathroom two
J1	36.6	3488	End of bathroom two
K1	38.0	3616	Exiting the unit
L1	39.6	3769	Start of the post-exit ambient
M1	40.6	3870	End of the post-exit ambient
N1	42.0	4000	Start of the 30 mL/min spike
O1	43.9	4183	End of the 30 mL/min spike

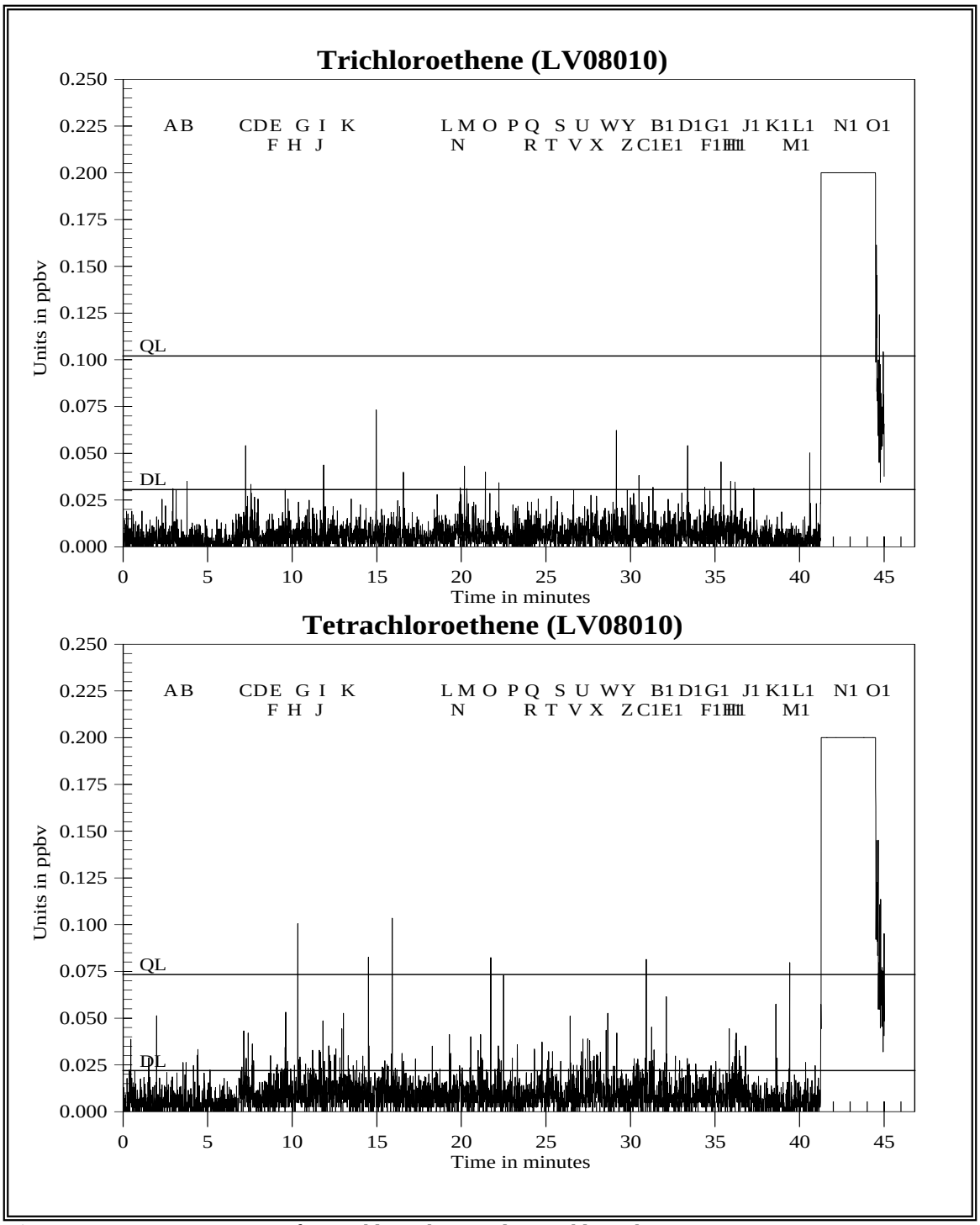

Figure 6c Unit 010 Survey for Trichloroethene and Tetrachloroethene

Figure 6d

TAGA Target Compound Summary for Unit 010 File: LV08010 Acquired on 02 April 2008 at 14:11:28			
		Trichloroethene	Tetrachloroethene
	Detection Limits - DL:	0.031	0.022
	Quantitation Limits - QL:	0.10	0.073
Flags	Description	Trichloroethene	Tetrachloroethene
A - B	Pre-entry	DL=0.031	DL=0.022
D - E	Laundry room	DL=0.031	DL=0.022
F - G	Bathroom one	DL=0.031	DL=0.022
H - I	Recreational room	DL=0.031	DL=0.022
J - K	Storage room	DL=0.031	DL=0.022
L - M	Sub-slab probe	DL=0.031	DL=0.022
N - O	Hole in the wall	DL=0.031	DL=0.022
P - Q	Family room	DL=0.031	DL=0.022
R - S	Kitchen	DL=0.031	DL=0.022
T - U	Sewing room	DL=0.031	DL=0.022
V - W	Dining room	DL=0.031	DL=0.022
X - Y	Living room	DL=0.031	DL=0.022
Z - B1	Foyer	DL=0.031	DL=0.022
C1 - D1	Bedroom one	DL=0.031	DL=0.022
E1 - F1	Bedroom two	DL=0.031	DL=0.022
G1 - H1	Bedroom three	DL=0.031	DL=0.022
I1 - J1	Bathroom two	DL=0.031	DL=0.022
L1 - M1	Post-exit ambient	DL=0.031	DL=0.022
N1 - O1	30 mL/min spike	4.7	4.3

Concentrations are given in parts per billion by volume
J = Concentration detected below the quantitation limit

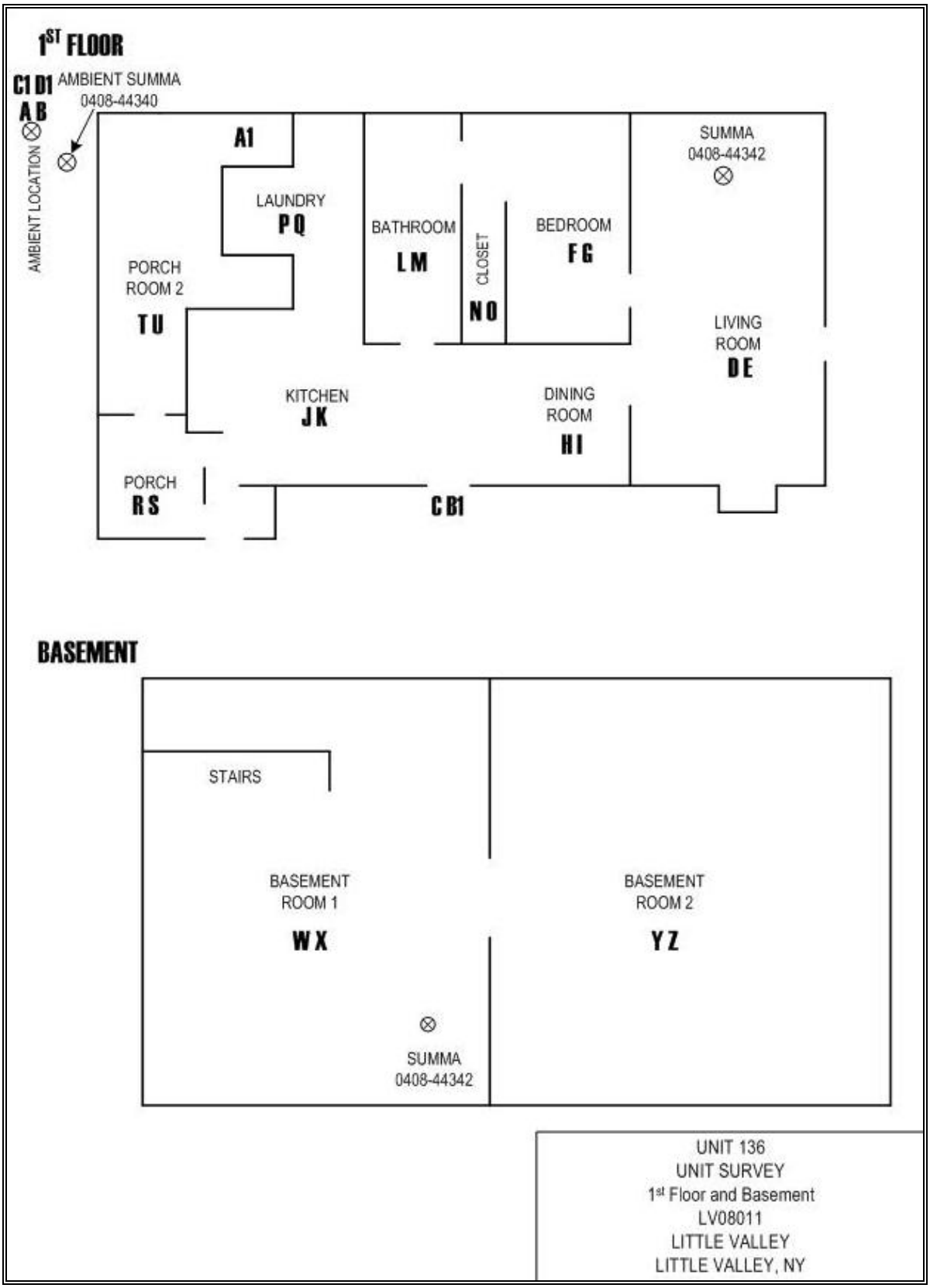

Figure 7a Unit 136 Survey Floor Plan, LV08011

Figure 7b

TAGA File Event Summary
File: LV08011 Acquired on 02 April 2008 at 16:37:09
Title: Unit 136 Survey

Flag	Offset Time	Offset Sequence	Description
A	2.0	194	Start of the pre-entry ambient
B	3.0	291	End of the pre-entry ambient
C	5.5	524	Entering the unit
D	6.0	569	Start of the living room
E	7.1	677	End of the living room
F	7.3	699	Start of the bedroom
G	8.4	796	End of the bedroom
H	8.6	818	Start of the dining room
I	9.6	916	End of the dining room
J	9.9	942	Start of the kitchen
K	10.9	1041	End of the kitchen
L	11.4	1086	Start of the bathroom
M	12.5	1189	End of the bathroom
N	12.8	1216	Start of the closet
O	13.8	1313	End of the closet
P	14.2	1351	Start of the laundry
Q	15.2	1449	End of the laundry
R	19.6	1870	Start of the porch
S	20.6	1966	End of the porch
T	21.1	2012	Start of porch room two
U	22.2	2111	End of porch room two
V	22.5	2147	Entering the basement
W	22.9	2185	Start of basement room one
X	24.0	2284	End of basement room one
Y	24.3	2312	Start of basement room two
Z	25.3	2409	End of basement room two
A1	25.8	2452	Ascending to the first floor
B1	27.1	2579	Exiting the unit
C1	28.1	2679	Start of the post-exit ambient
D1	29.2	2777	End of the post-exit ambient
E1	30.3	2888	Start of the 30 mL/min spike
F1	31.4	2985	End of the 30 mL/min spike

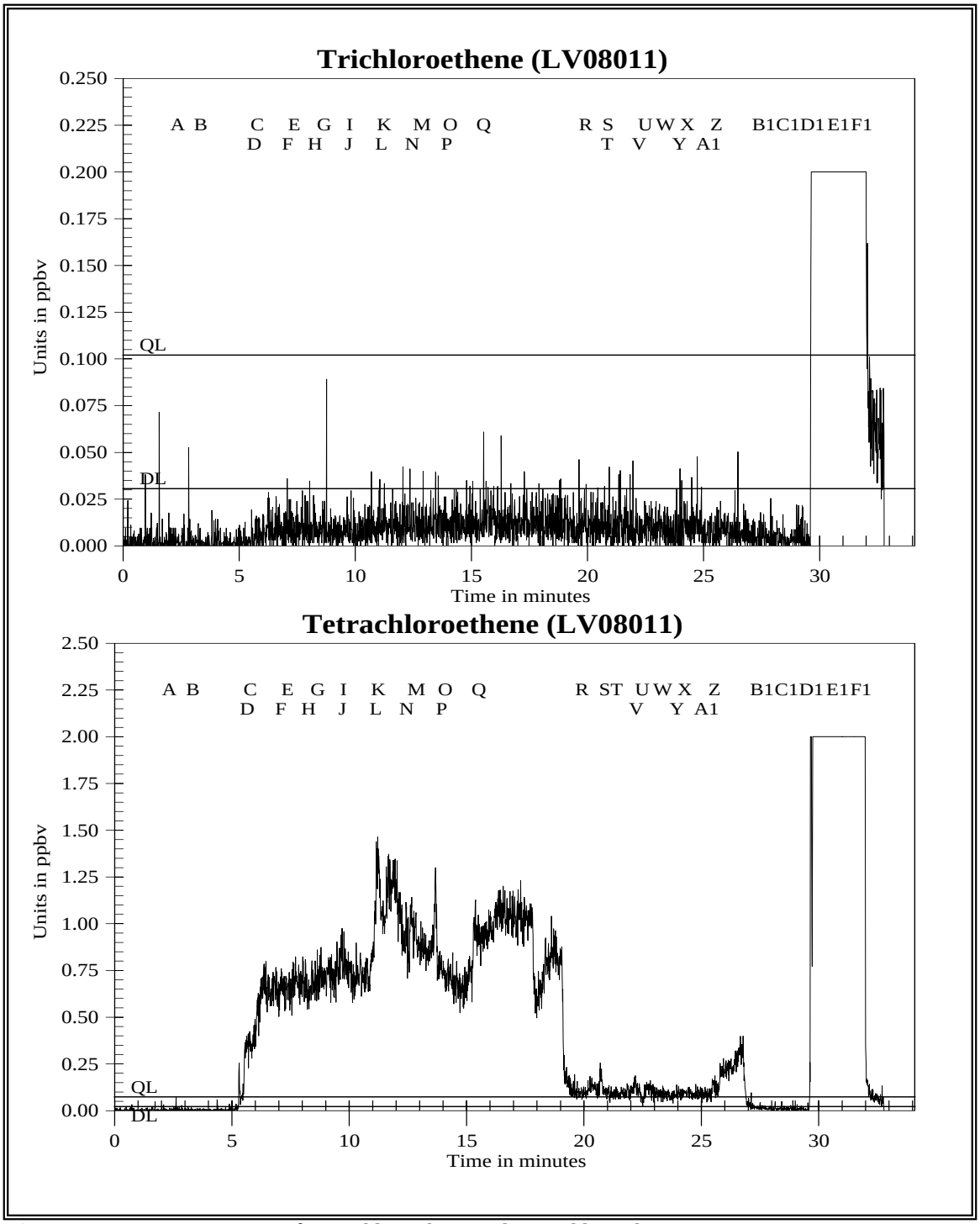

Figure 7c Unit 136 Survey for Trichloroethene and Tetrachloroethene

Figure 7d

TAGA Target Compound Summary for Unit 136 File: LV08011 Acquired on 02 April 2008 at 16:37:09			
		Trichloroethene	Tetrachloroethene
	Detection Limits - DL:	0.031	0.022
	Quantitation Limits - QL:	0.10	0.073
Flags	Description	Trichloroethene	Tetrachloroethene
A - B	Pre-entry	DL=0.031	DL=0.022
D - E	Living room	DL=0.031	0.62
F - G	Bedroom	DL=0.031	0.67
H - I	Dining room	DL=0.031	0.72
J - K	Kitchen	DL=0.031	0.73
L - M	Bathroom	DL=0.031	1.1
N - O	Closet	DL=0.031	0.90
P - Q	Laundry	DL=0.031	0.69
R - S	Porch	DL=0.031	0.11
T - U	Porch room two	DL=0.031	0.098
W - X	Basement room one	DL=0.031	0.088
Y - Z	Basement room two	DL=0.031	0.091
C1 - D1	Post-exit ambient	DL=0.031	DL=0.022
E1 - F1	30 mL/min spike	5.1	4.8

Concentrations are given in parts per billion by volume
J = Concentration detected below the quantitation limit

APPENDIX A

Standard Gas Cylinder Certification

Little Valley VI Extent Study

Final Analytical TAGA Report

April 2008

Spectra Gases, Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Lockheed Martin
2890 Woodbridge Ave.
Edison, NJ 08837-3679

CERTIFICATE OF ANALYSIS

SGI ORDER # :	121599		
ITEM# :	2	**CYLINDER # :**	CC-197362
CERTIFICATION DATE:	12/21/2007	**CYLINDER PRES:**	600 psig
P.O.# :	CC-C Shields	**CYLINDER VALVE:**	CGA 350
BLEND TYPE:	CERTIFIED	**PRODUCT EXPIRATION DATE:**	12/21/2008

ANALYTICAL ACCURACY: +/- 2%

COMPONENT	REQUESTED GAS CONC	ANALYSIS
Vinyl Chloride	20.0 ppm	20.4 ppm
1,1-Dichloroethene	20.0 ppm	20.6 ppm
Benzene	20.0 ppm	20.2 ppm
Trichloroethylene	20.0 ppm	20.2 ppm
Toluene	20.0 ppm	20.1 ppm
Tetrachloroethylene	20.0 ppm	20.1 ppm
p-Xylene	10.0 ppm	10.1 ppm
m-Xylene	10.0 ppm	10.1 ppm
o-Xylene	10.0 ppm	10.1 ppm
Nitrogen	Balance	Balance

ANALYST: Lou Lorenzetti **DATE:** 12/21/2007

Nitrogen Balance Balance

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com

APPENDIX B

Compiled Meteorological Data

Little Valley VI Extent Study

Final Analytical TAGA Report

April 2008

CHAUTAUQUA CO/JAMESTOWN AP (04720)
JAMESTOWN, NY
(04/2008)
Elevation: 1723 ft. above sea level
Latitude: 42.153
Longitude: -79.251
Data Version: VER2

Date	Time	Sky Conditions	Visibility (Miles)	Dry Bulb Temp (F)	Dew Point Temp (F)	Rel. Hum (%)	Wind Speed (mph)	Wind Direction (deg)	Station Pressure (in. Hg)	Precip Total (inches)
4/2/08	15	OVC024	10	28	19	69	11	300	28.39	
4/2/08	35	BKN024 OVC028	10	28	19	69	11	290	28.39	
4/2/08	55	OVC024	10	28	19	69	15	290	28.4	
4/2/08	115	SCT019 BKN025 OVC030	9	28	21	75	14	310	28.4	
4/2/08	135	BKN017 OVC025	10	28	21	75	13	300	28.4	
4/2/08	155	OVC015	9	28	21	75	13	310	28.41	
4/2/08	215	SCT015 SCT027 OVC033	10	28	21	75	14	300	28.41	
4/2/08	235	SCT013 BKN027 OVC033	9	27	21	78	15	320	28.42	
4/2/08	255	FEW013 SCT024 OVC032	10	27	19	72	13	320	28.43	
4/2/08	315	OVC030	10	27	18	69	15	330	28.43	
4/2/08	335	SCT026 OVC030	10	27	18	69	15	310	28.45	
4/2/08	355	OVC034	10	27	16	63	15	300	28.45	
4/2/08	415	OVC034	10	27	16	63	9	320	28.46	
4/2/08	435	BKN029 OVC034	10	27	18	69	16	300	28.46	
4/2/08	455	OVC031	10	27	18	69	11	300	28.47	
4/2/08	515	OVC033	9	27	18	69	10	290	28.48	
4/2/08	535	FEW017 OVC035	10	27	18	69	9	290	28.48	
4/2/08	555	FEW017 BKN038	10	25	18	75	11	300	28.5	
4/2/08	615	SCT016 SCT023 BKN031	10	25	18	75	9	290	28.51	
4/2/08	635	FEW021 BKN026 OVC032	6	27	18	69	10	310	28.52	
4/2/08	655	BKN022 OVC027	3	27	18	69	16	320	28.52	
4/2/08	715	SCT015 OVC024	5	27	18	69	9	310	28.54	
4/2/08	735	FEW013 BKN018 OVC027	10	25	16	69	13	330	28.55	

CHAUTAUQUA CO/JAMESTOWN AP (04720)
JAMESTOWN, NY
(04/2008)
Elevation: 1723 ft. above sea level
Latitude: 42.153
Longitude: -79.251
Data Version: VER2

Date	Time	Sky Conditions	Visibility (Miles)	Dry Bulb Temp (F)	Dew Point Temp (F)	Rel. Hum (%)	Wind Speed (mph)	Wind Direction	Station Pressure (in. Hg)	Precip Total (inches)
4/2/08	755	SCT023 OVC027	10	25	16	69	10	330	28.56	
4/2/08	815	BKN023 OVC028	10	27	16	63	10	330	28.56	
4/2/08	835	OVC023	10	27	16	63	13	350	28.56	
4/2/08	855	OVC023	10	27	16	63	11	320	28.57	
4/2/08	915	BKN023	10	27	16	63	9	350	28.58	
4/2/08	935	BKN025	10	27	16	63	11	360	28.58	
4/2/08	955	BKN027	10	28	16	61	9	340	28.59	
4/2/08	1015	SCT027	10	28	14	56	13	360	28.6	0.08
4/2/08	1035	BKN031	10	28	18	66	10	330	28.6	0.08
4/2/08	1055	BKN031	M	28	16	61	8	360	28.61	0.08
4/2/08	1115	M	10	30	16	56	5	330	28.61	
4/2/08	1135	M	10	30	16	56	9	330	28.6	
4/2/08	1155	M	10	30	16	56	10	360	28.6	
4/2/08	1215	M	10	30	16	56	11	350	28.6	
4/2/08	1235	M	10	32	16	52	10	10	28.6	
4/2/08	1255	CLR	10	32	16	52	9	350	28.6	
4/2/08	1315	CLR	10	32	14	47	9	10	28.6	
4/2/08	1335	CLR	10	34	14	44	10	320	28.59	
4/2/08	1355	M	10	34	14	44	10	340	28.59	
4/2/08	1415	M	10	34	14	44	8	10	28.59	
4/2/08	1435	M	10	34	14	44	10	350	28.58	
4/2/08	1455	M	10	34	14	44	9	350	28.58	
4/2/08	1515	M	10	34	14	44	7	330	28.58	

CHAUTAUQUA CO/JAMESTOWN AP (04720)
JAMESTOWN, NY
(04/2008)
Elevation: 1723 ft. above sea level
Latitude: 42.153
Longitude: -79.251
Data Version: VER2

Date	Time	Sky Conditions	Visibility (Miles)	Dry Bulb Temp (F)	Dew Point Temp (F)	Rel. Hum (%)	Wind Speed (mph)	Wind Direction	Station Pressure (in. Hg)	Precip Total (inches)
4/2/08	1535	M	10	34	12	40	6	350	28.58	
4/2/08	1615	M	10	34	12	40	9	330	28.58	
4/2/08	1635	M	10	36	12	37	8	360	28.58	
4/2/08	1655	M	10	34	12	40	7	10	28.58	
4/2/08	1715	M	10	34	12	40	6	10	28.58	
4/2/08	1735	M	10	34	12	40	6	360	28.58	
4/2/08	1755	M	10	34	12	40	5	350	28.58	
4/2/08	1815	M	10	34	12	40	5	360	28.58	
4/2/08	1835	M	10	34	12	40	3	340	28.58	
4/2/08	1855	M	10	32	12	43	5	340	28.58	
4/2/08	1915	M	10	30	12	47	5	340	28.57	
4/2/08	1935	M	10	30	12	47	5	350	28.58	
4/2/08	1955	M	10	30	12	47	0	0	28.58	
4/2/08	2015	M	10	30	12	47	0	0	28.58	
4/2/08	2035	M	10	30	12	47	3	350	28.59	
4/2/08	2055	M	10	30	12	47	0	0	28.59	
4/2/08	2115	M	10	30	12	47	0	0	28.6	
4/2/08	2135	M	10	28	12	51	0	0	28.59	
4/2/08	2155	M	10	28	12	51	0	0	28.59	
4/2/08	2215	M	10	27	12	53	0	0	28.58	
4/2/08	2235	CLR	10	28	10	47	3	130	28.58	
4/2/08	2255	CLR	10	28	12	51	0	0	28.58	
4/2/08	2315	M	10	27	12	53	0	0	28.58	

CHAUTAUQUA CO/JAMESTOWN AP (04720)
JAMESTOWN, NY
(04/2008)
Elevation: 1723 ft. above sea level
Latitude: 42.153
Longitude: -79.251
Data Version: VER2

Date	Time	Sky Conditions	Visibility (Miles)	Dry Bulb Temp (F)	Wet Bulb Temp (F)	Dew Point Temp (F)	Rel. Hum (%)	Wind Speed (mph)	Wind Direction	Station Pressure (in. Hg)	Precip Total (inches)
2/7/08	253	CLR	7	10	9	7	88	0	0	29.02	
2/7/08	353	CLR	6	9	8	6	87	0	0	29.01	
2/7/08	436	SCT006	5	9	8	5	84	3	220	29.03	
2/7/08	445	BKN006	5	9	8	5	84	6	240	29.02	
2/7/08	453	OVC006	4	9	8	6	87	6	240	29.02	
2/7/08	506	OVC006	2	9	9	7	91	8	240	29.02	
2/7/08	517	OVC006	4	9	9	7	91	5	240	29.01	
2/7/08	527	OVC004	3	10	10	9	96	7	240	29.02	
2/7/08	538	OVC004	2	10	10	9	96	6	220	29.01	
2/7/08	553	OVC004	2	10	10	8	92	5	230	29.02	T
2/7/08	607	OVC004	1	10	10	9	96	6	240	29.02	
2/7/08	638	OVC002	0.75	10	10	9	96	7	230	29.01	
2/7/08	651	OVC002	1.5	10	10	9	96	7	210	29.01	
2/7/08	653	OVC002	2	11	11	9	92	6	230	29.02	T
2/7/08	705	OVC004	1.5	10	10	9	96	8	200	29.01	
2/7/08	712	OVC004	1	10	10	9	96	11	210	29.01	
2/7/08	729	BKN004 OVC009	2	10	10	9	96	7	240	29.02	
2/7/08	748	OVC009	2	10	10	9	96	7	230	29.02	
2/7/08	753	OVC007	2.5	11	10	8	88	7	210	29.01	T
2/7/08	830	OVC009	3	10	10	9	96	7	220	29.01	
2/7/08	853	OVC007	3	10	10	8	92	7	230	29.01	T
2/7/08	953	OVC009	4	11	10	8	88	6	210	29	T
2/7/08	1053	OVC009	3	13	12	9	84	8	180	29	T

APPENDIX B
Analytical Report – May 16, 2008
Little Valley VI Extent Study
June 2008

Lockheed Martin
Response Engineering Analytical Contract
2890 Woodbridge Avenue Building 209 Annex
Edison, NJ 08837-3679
Telephone 732-321-4200 Facsimile 732-494-4021

LOCKHEED MARTIN

DATE: May 16, 2008

TO: R. Singhvi, EPA/ERT Work Assignment Manager

FROM: V. Kansal, REAC Analytical Section Leader

SUBJECT: DOCUMENT TRANSMITTAL UNDER WORK ASSIGNMENT # 0-210

Attached please find the following document prepared under this work assignment:

Little Valley VI Extent Study- Analytical Report

D. Mickunas	Work Assignment Manager (w/o attachment)
A. DuBois	Task Leader (w/o attachment)
J. Soroka	Data Validation and Report Writing Group Leader (w/o attachment)
Central File	WA # 0-210 (w/attachment)

ANALYTICAL REPORT

Prepared by
LOCKHEED MARTIN, Inc.

Little Valley VI Extent Study
Little Valley, NY

May 2008

EPA Work Assignment No. 0-210
LOCKHEED MARTIN Work Order EAC00210
EPA Contract No. EP-C-04-032

Submitted to
D. Mickunas
EPA-ERT

Vinod Kansal 5/15/08
V. Kansal Date
Analytical Section Leader

5/14/08
D. Killeen Date
Quality Assurance Manager

5/16/08
D. Miller Date
Program Manager

Analysis by:
Columbia
Analytical Services

Prepared by:
Y. Mehra

Reviewed by:
J. Soroka

Table of Contents

Appendix A will be furnished on request.

Introduction

REAC, in response to WA 0-210, provided analytical support for environmental samples collected from the Little Valley VI Extent Study located in Little Valley, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and the QA/QC results.

COC #	Number of Samples	Sampling Date	Date Received	Matrix	Analysis/ Method	Laboratory	Data Package
0-210-04/03/08-0052	4	04/03/08	04/07/08	Air	VOC/ TO-15 SIM	Columbia Analytical Services[1]	T 149
0-210-04/03/08-0053	4						
0-210-04/03/08-0054	4						
0-210-04/03/08-0055	4						
0-210-04/03/08-0056	2						
	1			Trip Blank			
	1			Soil Gas			
0-210-04/03/08-0057	4						
0-210-04/03/08-0058	1						

[1] Columbia Analytical Services is NELAC certified for TO-15 analysis.

Case Narrative

The laboratory reported the data to two significant figures. Any other representation of the data is the responsibility of the user. All data validation flags have been inserted into the results tables. At the request of the WAM a limited number of compounds (6 chlorinated hydrocarbons) were reported by the laboratory

VOC Package T 149

The data package was reviewed and found to be acceptable.

Summary of Abbreviations

BFB	Bromofluorobenzene
C	Centigrade
CLP	Contract Laboratory Program
COC	Chain of Custody
conc	concentration
cont	continued
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
D	(Surrogate Table) value is from a diluted sample and was not calculated
Dioxin	Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzofurans (PCDF)
DFTPP	Decafluorotriphenylphosphine
EMPC	Estimated maximum possible concentration
GC/MS	Gas Chromatography/ Mass Spectrometry
IS	Internal Standard
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MDA	Minimum Detectable Activity
MS (BS)	Matrix Spike (Blank Spike)
MSD (BSD)	Matrix Spike Duplicate (Blank Spike Duplicate)
MW	Molecular Weight
NA	Not Applicable or Not Available
NAD	Normalized Absolute Difference
NC	Not Calculated
NR	Not Requested/Not Reported
NS	Not Spiked
% D	Percent Difference
% REC	Percent Recovery
SOP	Standard Operating Procedure
ppbv	parts per billion by volume
ppm	parts per million
pptv	parts per trillion by volume
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
QL	Quantitation Limit
REAC	Response Engineering and Analytical Contract
RL	Reporting Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SIM	Selected Ion Monitoring
Sur	Surrogate
TIC	Tentatively Identified Compound
TCLP	Toxicity Characteristic Leaching Procedure
VOC	Volatile Organic Compound
*	Value exceeds the acceptable QC limits.

m^3	cubic meter	g	gram	kg	kilogram	L	liter
µg	microgram	µL	microliter	mg	milligram	mL	milliliter
ng	nanogram	pg	picogram	pCi	picocurie	s	sigma

Data Validation Flags

J	Value is estimated	R	Value is unusable
J+	Value is estimated high (metals only)	U	Not detected
J-	Value is estimated low (metals only)	UJ	Not detected and RL is estimated

Rev. 02/05/08

Table 1.1a Results of the Analysis for VOC(ppbv) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	4/10/2008		0408-44321		0408-44320		0408-44324		0408-44323	
Sample Location	Method Blank		003		003		088		088	
Sublocation			First Floor		Basement		First Floor		Basement	
Analyte	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Vinyl Chloride	U	0.0098	U	0.016	U	0.015	U	0.014	U	0.015
1,1-Dichloroethene	U	0.0063	U	0.011	U	0.0098	0.033	0.0092	U	0.0094
trans-1,2-Dichloroethene	U	0.0063	U	0.011	U	0.0098	U	0.0092	U	0.0094
cis-1,2-Dichloroethene	U	0.0063	U	0.011	U	0.0098	U	0.0092	U	0.0094
Trichloroethene	U	0.0047	0.082	0.0078	0.034	0.0073	0.077	0.0068	0.16	0.0069
Tetrachloroethene	U	0.0037	0.072	0.0062	0.013	0.0058	0.039	0.0054	0.0099	0.0055

Table 1.1a (cont) Results of the Analysis for VOC(ppbv) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	0408-44325		0408-44327		0408-44328		0408-44329		0408-44330	
Sample Location	088		Unit 71		Unit 71		Unit 71		Unit 41	
Sublocation	AMBIENT		Basement		Basement Dup		First Floor		First Floor	
Analyte	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Vinyl Chloride	U	0.014	U	0.015	U	0.015	U	0.016	U	0.014
1,1-Dichloroethene	U	0.0090	U	0.0097	U	0.0094	U	0.010	U	0.0092
trans-1,2-Dichloroethene	U	0.0090	U	0.0097	U	0.0094	U	0.010	U	0.0092
cis-1,2-Dichloroethene	U	0.0090	U	0.0097	U	0.0094	U	0.010	U	0.0092
Trichloroethene	U	0.0067	0.041	0.0071	0.043	0.0069	0.028	0.0074	U	0.0068
Tetrachloroethene	0.0066	0.0053	0.0091	0.0056	0.0097	0.0055	0.0095	0.0059	0.036	0.0054

Table 1.1a (cont) Results of the Analysis for VOC(ppbv) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	0408-44333		0408-44335		0408-44336		0408-44337		0408-44338	
Sample Location	Unit 41		Unit 27		Unit 27		Unit 10		Unit 10	
Sublocation	Basement		Basement		First Floor		Basement		First Floor	
Analyte	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Vinyl Chloride	U	0.013	U	0.015	U	0.013	U	0.015	U	0.015
1,1-Dichloroethene	U	0.0085	U	0.0094	U	0.0083	U	0.0099	U	0.010
trans-1,2-Dichloroethene	U	0.0085	U	0.0094	U	0.0083	U	0.0099	U	0.010
cis-1,2-Dichloroethene	0.014	0.0085	U	0.0094	U	0.0083	U	0.0099	U	0.010
Trichloroethene	U	0.0063	U	0.0069	U	0.0061	0.0078	0.0073	U	0.0074
Tetrachloroethene	0.031	0.0050	0.0088	0.0055	0.010	0.0048	0.015	0.0058	0.013	0.0058

Table 1.1a (cont) Results of the Analysis for VOC(ppbv) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	0408-44339		0408-44340	
Sample Location	Unit 10		Unit 136	
Sublocation	Basement Dup		AMBIENT	
Analyte	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Vinyl Chloride	U	0.014	U	0.015
1,1-Dichloroethene	U	0.0092	U	0.0095
trans-1,2-Dichloroethene	U	0.0092	U	0.0095
cis-1,2-Dichloroethene	U	0.0092	U	0.0095
Trichloroethene	0.0074	0.0068	U	0.0070
Tetrachloroethene	0.014	0.0054	0.020	0.0056

Table 1.1a (cont) Results of the Analysis for VOC(ppbv) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	04/11		0408-44343		0408-44322		0408-44326		0408-44331	
Sample Location	Method Blank		Trip Blank		088		Unit 71		Unit 41	
Sublocation					SS		SS		SS	
Analyte	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Vinyl Chloride	U	0.0098	U	0.0098	U	0.015	U	0.015	U	0.015
1,1-Dichloroethene	U	0.0063	U	0.0063	0.012	0.0097	U	0.010	U	0.0095
trans-1,2-Dichloroethene	U	0.0063	U	0.0063	U	0.0097	U	0.010	0.16	0.0095
cis-1,2-Dichloroethene	U	0.0063	U	0.0063	U	0.0097	U	0.010	0.96	0.0095
Trichloroethene	U	0.0047	U	0.0047	6.1	0.036	4.5	0.0074	0.80	0.0070
Tetrachloroethene	U	0.0037	U	0.0037	0.048	0.0057	0.059	0.0058	18	0.056

Table 1.1a (cont) Results of the Analysis for VOC(ppbv) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	0408-44341		0408-44332		0408-44334		0408-44342		0408-44319	
Sample Location	Unit 136		Unit 41		Unit 27		Unit 136		003	
Sublocation	First Floor		SS Dup		SS		Basement		SS	
Analyte	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv	Result ppbv	RL ppbv
Vinyl Chloride	U	0.016	U	0.016	U	0.017	U	0.015	U	0.015
1,1-Dichloroethene	U	0.010	U	0.011	U	0.011	U	0.0099	U	0.0097
trans-1,2-Dichloroethene	U	0.010	U	0.011	U	0.011	U	0.0099	U	0.0097
cis-1,2-Dichloroethene	U	0.010	U	0.011	U	0.011	U	0.0099	0.010	0.0097
Trichloroethene	U	0.0074	U	0.0078	3.4	0.0081	0.015	0.0073	0.27	0.0072
Tetrachloroethene	0.64	0.0059	4.5	0.0062	0.42	0.0065	0.14	0.0058	0.049	0.0057

Table 1.1b Results of the Analysis for VOC(µg/m^3) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	Method Blank		0408-44321		0408-44320		0408-44324		0408-44323	
Sample Location	04/10		003		003		088		088	
Sublocation			First Floor		Basement		First Floor		Basement	
Analyte	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3
Vinyl Chloride	U	0.025	U	0.042	U	0.039	U	0.037	U	0.037
1,1-Dichloroethene	U	0.025	U	0.042	U	0.039	0.13	0.037	U	0.037
trans-1,2-Dichloroethene	U	0.025	U	0.042	U	0.039	U	0.037	U	0.037
cis-1,2-Dichloroethene	U	0.025	U	0.042	U	0.039	U	0.037	U	0.037
Trichloroethene	U	0.025	0.44	0.042	0.18	0.039	0.41	0.037	0.87	0.037
Tetrachloroethene	U	0.025	0.49	0.042	0.090	0.039	0.26	0.037	0.067	0.037

Table 1.1b (cont) Results of the Analysis for VOC(µg/m^3) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	0408-44325		0408-44327		0408-44328		0408-44329		0408-44330	
Sample Location	088		Unit 71		Unit 71		Unit 71		Unit 41	
Sublocation	AMBIENT		Basement		Basement Dup		First Floor		First Floor	
Analyte	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3
Vinyl Chloride	U	0.036	U	0.038	U	0.037	U	0.040	U	0.037
1,1-Dichloroethene	U	0.036	U	0.038	U	0.037	U	0.040	U	0.037
trans-1,2-Dichloroethene	U	0.036	U	0.038	U	0.037	U	0.040	U	0.037
cis-1,2-Dichloroethene	U	0.036	U	0.038	U	0.037	U	0.040	U	0.037
Trichloroethene	U	0.036	0.22	0.038	0.23	0.037	0.15	0.040	U	0.037
Tetrachloroethene	0.045	0.036	0.061	0.038	0.066	0.037	0.064	0.040	0.24	0.037

Table 1.1b (cont) Results of the Analysis for VOC(µg/m^3) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	0408-44333		0408-44335		0408-44336		0408-44337		0408-44338	
Sample Location	Unit 41		Unit 27		Unit 27		Unit 10		Unit 10	
Sublocation	Basement		Basement		First Floor		Basement		First Floor	
Analyte	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3
Vinyl Chloride	U	0.034	U	0.037	U	0.033	U	0.039	U	0.040
1,1-Dichloroethene	U	0.034	U	0.037	U	0.033	U	0.039	U	0.040
trans-1,2-Dichloroethene	U	0.034	U	0.037	U	0.033	U	0.039	U	0.040
cis-1,2-Dichloroethene	0.055	0.034	U	0.037	U	0.033	U	0.039	U	0.040
Trichloroethene	U	0.034	U	0.037	U	0.033	0.042	0.039	U	0.040
Tetrachloroethene	0.21	0.034	0.059	0.037	0.070	0.033	0.10	0.039	0.089	0.040

Table 1.1b (cont) Results of the Analysis for VOC(µg/m^3) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	0408-44339		0408-44340	
Sample Location	Unit 10		Unit 136	
Sublocation	Basement Dup		AMBIENT	
Analyte	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3
Vinyl Chloride	U	0.037	U	0.038
1,1-Dichloroethene	U	0.037	U	0.038
trans-1,2-Dichloroethene	U	0.037	U	0.038
cis-1,2-Dichloroethene	U	0.037	U	0.038
Trichloroethene	0.040	0.037	U	0.038
Tetrachloroethene	0.093	0.037	0.14	0.038

Table 1.1b (cont) Results of the Analysis for VOC(µg/m^3) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	04/11		0408-44343		0408-44322		0408-44326		0408-44331	
Sample Location	Method Blank		Trip Blank		088		Unit 71		Unit 41	
Sublocation					SS		SS		SS	
Analyte	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3
Vinyl Chloride	U	0.025	U	0.025	U	0.039	U	0.040	U	0.038
1,1-Dichloroethene	U	0.025	U	0.025	0.046	0.039	U	0.040	U	0.038
trans-1,2-Dichloroethene	U	0.025	U	0.025	U	0.039	U	0.040	0.64	0.038
cis-1,2-Dichloroethene	U	0.025	U	0.025	U	0.039	U	0.040	3.8	0.038
Trichloroethene	U	0.025	U	0.025	33	0.20	24	0.040	4.3	0.038
Tetrachloroethene	U	0.025	U	0.025	0.33	0.039	0.40	0.040	120	0.38

Table 1.1b (cont) Results of the Analysis for VOC(µg/m^3) in Air
WA# 0-210 Little Valley VI Extent Study

Method TO-15 SIM

Sample Number	0408-44341		0408-44332		0408-44334		0408-44342		0408-44319	
Sample Location	Unit 136		Unit 41		Unit 27		Unit 136		003	
Sublocation	First Floor		SS Dup		SS		Basement		SS	
Analyte	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3	Result µg/m^3	RL µg/m^3
Vinyl Chloride	U	0.040	U	0.042	U	0.044	U	0.039	U	0.039
1,1-Dichloroethene	U	0.040	U	0.042	U	0.044	U	0.039	U	0.039
trans-1,2-Dichloroethene	U	0.040	U	0.042	U	0.044	U	0.039	U	0.039
cis-1,2-Dichloroethene	U	0.040	U	0.042	U	0.044	U	0.039	0.041	0.039
Trichloroethene	U	0.040	U	0.042	18	0.044	0.083	0.039	1.4	0.039
Tetrachloroethene	4.3	0.040	31	0.042	2.8	0.044	0.92	0.039	0.33	0.039

Table 2.1 Results of the LCS Analysis for VOC in Air
WA # 0-210 Little Valley VI Extent Study

Sample Number: LCS 04/10/08

Analyte	LCS Spike Added ng	LCS Recovered ng	LCS % Recovery	QC Limits % Recovery
Vinyl Chloride	0.495	0.414	84	64-125
1,1-Dichloroethene	0.555	0.519	94	68-118
trans-1,2-Dichloroethene	0.530	0.500	94	67-111
cis-1,2-Dichloroethene	0.540	0.512	95	62-121
Trichloroethene	0.545	0.524	96	67-116
Tetrachloroethene	0.520	0.551	106	56-133

Sample Number: LCS 04/11/08

Analyte	LCS Spike Added ng	LCS Recovered ng	LCS % Recovery	QC Limits % Recovery
Vinyl Chloride	0.495	0.379	77	64-125
1,1-Dichloroethene	0.555	0.485	87	68-118
trans-1,2-Dichloroethene	0.530	0.471	89	67-111
cis-1,2-Dichloroethene	0.540	0.492	91	62-121
Trichloroethene	0.545	0.504	92	67-116
Tetrachloroethene	0.520	0.520	100	56-133

Table 2.2 Results of the Duplicate Analysis for VOC in Air
WA # 0-210 Little Valley VI Extent Study

Sample Number 0408-44321

Analyte	Initial Analysis Result ppbv	Duplicate Analysis Result ppbv	RPD	QC Limits RPD
Vinyl Chloride	U	U	NC	25
1,1-Dichloroethene	U	U	NC	25
trans-1,2-Dichloroethene	U	U	NC	25
cis-1,2-Dichloroethene	U	U	NC	25
Trichloroethene	0.0816	0.0811	1	25
Tetrachloroethene	0.0723	0.0720	1	25

Sample Number 0408-44326

Analyte	Initial Analysis Result ppbv	Duplicate Analysis Result ppbv	RPD	QC Limits RPD
Vinyl Chloride	U	U	NC	25
1,1-Dichloroethene	U	U	NC	25
trans-1,2-Dichloroethene	U	U	NC	25
cis-1,2-Dichloroethene	U	U	NC	25
Trichloroethene	4.47	4.46	1	25
Tetrachloroethene	0.0592	0.0589	1	25

Lockheed Martin
Response Engineering Analytical Contract
2890 Woodbridge Avenue Building 209 Annex
Edison, NJ 08837-3679
Telephone 732-321-4200 Facsimile 732-494-4021

LOCKHEED MARTIN

Columbia Analytical Inc.
2665 Park Center Drive Suite A
Simi Valley, CA 93065

Attn: Kate Aguilera

March 14, 2008

As per Lockheed Martin / REAC Amended Purchase Order 7100038199, for Project 0-210, please analyze samples according to the following parameters:

Analysis/Method	Matrix	# of samples
VOA/TO-15 Low level See attached compound list	Summa	10
VOA/TO-15 SIM See attached compound list	Summa	25
Data package: Package with Diskette Deliverable		

Samples are expected to arrive at your laboratory the week of April 1, 2008. Preliminary sample and QC result tables plus a signed copy of our Chain of Custody must be sent to REAC 10 business days after receipt of each batch of samples. The complete data package is due 15 business days after receipt of each batch of samples. The complete data package must include all items on the deliverables checklist.
The laboratory must provide documentation for individual summa canister and flow controller certification.

All sample and QC results must be summarized in a tab delimited file diskette deliverable. Units must be in ppbv and ug/m3 in the electronic deliverable. See checklist for EDD field needed.

All summa canisters and preset orifices must arrive at REAC by March 26, 2008. All Summa Canisters rental plus orifice preset to 24 hour sampling. The flow controllers should have 1/4 inch fittings.

Please submit all reports and technical questions concerning this project to **John Johnson at (732) 321-4248 or fax to (732) 494-4020 or john.m.johnson@lmco.com** Any contractual question, please call Josh Tapkas at (301) 805-0305.

Sincerely,
Vinod Kansal

Vinod Kansal
Analytical Section Leader
Lockheed Martin / REAC Project

VK:jj Attachments

cc. R. Singhvi
D. Mickunas
0210\non\mem\0803\sub\0210Con4
V. Kansal
Subcontracting File
J. Soroka
J. Tapkas
A. DuBois

TO-15 Compound List for Project 0210
Requested Reporting Limit

Compound	SIM (ppbv)		Low Level (ppbv)
Vinyl Chloride	0.070	*	0.1*
1,1-Dichloroethene	0.070	*	0.1*
trans-1,2-Dichloroethene	0.070	*	0.1*
cis-1,2-Dichloroethene	0.070	*	0.1*
Trichloroethene	0.070	*	0.1*
Tetrachloroethene	0.070	*	0.1*

* After normal dilution rate of 1-2x

P0800946

CHAIN OF CUSTODY RECORD

No: 0-210-04/03/08-0052

REAC, Edison, NJ
EPA Contract Number: EP-C-04-032

Site #: 0-210
Contact Name: John Johnson
Contact Phone: 732-321-4248

Lab: Columbia Analytical Services - Air
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Collected	Numb Cont	Start Pressure	Stop Pressure	
1	0408-44320	003	Basement	TO15 - 6 compounds	Air	4/3/2008	1	-27	-7.5	-6.8
2	0408-44321	003	First Floor	TO15 - 6 compounds	Air	4/3/2008	1	-27	-4	-8.3
3	0408-44323	088	Basement	TO15 - 6 compounds	Air	4/3/2008	1	-26	-5	-5.8
4	0408-44324	088	First Floor	TO15 - 6 compounds	Air	4/3/2008	1	-27	-5	-5.3

Special Instructions: 0.070 ppbv reporting limit

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
2/Analysis		4/3/08		4/4/08	0440						

011

0210-DAR-051608

P0500946

CHAIN OF CUSTODY RECORD

No: 0-210-04/03/08-0053

REAC, Edison, NJ
EPA Contract Number: EP-C-04-032

Site #: 0-210
Contact Name: John Johnson
Contact Phone: 732-321-4248

Lab: Columbia Analytical Services - Air
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Collected	Numb Cont	Start Pressure	Stop Pressure	
5	0408-44325	088	AMBIENT	TO15 - 6 compounds	Air	4/3/2008	1	-29	-5	-4.6
6	0408-44327	Unit 71	Basement	TO15 - 6 compounds	Air	4/3/2008	1	-28	-6	-6.4
7	0408-44328	Unit 71	Basement Dup	TO15 - 6 compounds	Air	4/3/2008	1	-28	-6	-5.6
8	0408-44329	Unit 71	First Floor	TO15 - 6 compounds	Air	4/3/2008	1	-28	-7	-7.3

A1

Special Instructions: 0.070 ppbv reporting limit

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
4/Analysis		4/3/08		4/4/08	0940						

012

0210-DAR-051608

80800946

CHAIN OF CUSTODY RECORD

No: 0-210-04/03/08-0054

REAC, Edison, NJ
EPA Contract Number: EP-C-04-032

Site #: 0-210
Contact Name: John Johnson
Contact Phone: 732-321-4248

Lab: Columbia Analytical Services - Air
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Collected	Numb Cont	Start Pressure	Stop Pressure
(9)	0408-44330	Unit 41	First Floor	TO15 - 6 compounds	Air	4/3/2008	1	-27	-5 -5.3
(10)	0408-44333	Unit 41	Basement	TO15 - 6 compounds	Air	4/3/2008	1	-27	-3 -2.9
(11)	0408-44335	Unit 27	Basement	TO15 - 6 compounds	Air	4/3/2008	1	-28	-5 -5.6
(12)	0408-44336	Unit 27	First Floor	TO15 - 6 compounds	Air	4/3/2008	1	-28	-2 -2.3

AD

Special Instructions: 0.070 ppbv reporting limit
Note Sample 0408-44330 resident was painting

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
4/Analysis		4/3/08		4/7/08	0940						

013

0210-DAR-051608

80800946

REAC, Edison, NJ
EPA Contract Number: EP-C-04-032

CHAIN OF CUSTODY RECORD
Site #: 0-210
Contact Name: John Johnson
Contact Phone: 732-321-4248

No: 0-210-04/03/08-0055

Lab: Columbia Analytical Services - Air
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Collected	Numb Cont	Start Pressure	Stop Pressure	
13	0408-44337	Unit 10	Basement	TO15 - 6 compounds	Air	4/3/2008	1	-28	-7	-7.0
14	0408-44338	Unit 10	First Floor	TO15 - 6 compounds	Air	4/3/2008	1	-28	-6.5	-6.9
15	0408-44339	Unit 10	Basement Dup	TO15 - 6 compounds	Air	4/3/2008	1	-28	-5	-5.3
16	0408-44340	Unit 136	AMBIENT	TO15 - 6 compounds	Air	4/3/2008	1	-28	-6	-6.1

#15

014

Special Instructions: 0.070 ppbv reporting limit

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
Analysis		4/3/08	Weaver	4/4/08	0940						

0210-DAR-051608

P06000446

REAC, Edison, NJ
EPA Contract Number: EP-C-04-032

CHAIN OF CUSTODY RECORD
Site #: 0-210
Contact Name: John Johnson
Contact Phone: 732-321-4248

No: 0-210-04/03/08-0056

Lab: Columbia Analytical Services - Air
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Collected	Numb Cont	Start Pressure	Stop Pressure	
17	0408-44334	Unit 27	SS	TO15 - 6 compounds	Soil Gas	4/3/2008	1	-28	-9	-9.6
18	0408-44341	Unit 136	First Floor	TO15 - 6 compounds	Air	4/3/2008	1	-28	-7	-7.4
19	0408-44342	Unit 136	Basement	TO15 - 6 compounds	Air	4/3/2008	1	-28	-7	-6.9
20	0408-44343	Trip Blank	—	TO15 - 6 compounds	Air	4/3/2008	1	-28	-28	-29.4

Special Instructions: 0.070 ppbv reporting limit for Matrix - Air
0.10 ppbv reporting limit for Matrix - Soil Gas

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
4/Analysis		4/3/08		4/1/08	0940						

015

0210-DAR-051608

P0800 a46

REAC, Edison, NJ
EPA Contract Number: EP-C-04-032

CHAIN OF CUSTODY RECORD
Site #: 0-210
Contact Name: John Johnson
Contact Phone: 732-321-4248

No: 0-210-04/03/08-0057

Lab: Columbia Analytical Services - Air
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Collected	Numb Cont	Start Pressure	Stop Pressure	
21	0408-44322	088	SS	TO15 - 6 compounds	Soil Gas	4/3/2008	1	-28	-7	-6.5
22	0408-44326	Unit 71	SS	TO15 - 6 compounds	Soil Gas	4/3/2008	1	-27	-7.5	-7.1
23	0408-44331	Unit 41	SS	TO15 - 6 compounds	Soil Gas	4/3/2008	1	-28	-2	-6.1
24	0408-44332	Unit 41	SS Dup	TO15 - 6 compounds	Soil Gas	4/3/2008	1	-27	-10.5	-10.5

Special Instructions: 0.10 ppbv reporting limit

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
4/Analysis		4/3/08		4/3/08	0940						

016

0210-DAR-051608

P0800944

REAC, Edison, NJ
EPA Contract Number: EP-C-04-032

CHAIN OF CUSTODY RECORD
Site #: 0-210
Contact Name: John Johnson
Contact Phone: 732-321-4248

No: 0-210-04/03/08-0058

Lab: Columbia Analytical Services - Air
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Collected	Numb Cont	Start Pressure	Stop Pressure
25	0408-44319	003	SS	TO15 - 6 compounds	Soil Gas	4/3/2008	1	-27	-7 -6.6

AD

Special Instructions: 0.10 ppbv reporting limit

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
1/Analysis		4/3/08	Ultramar	4/7/08	0940						

017

0210-DAR-051608

APPENDIX C
Final Analytical GC/MS Report – April 30, 2008
Little Valley VI Extent Study
June 2008

LOCKHEED MARTIN

DATE: 30 April 2008

TO: David B. Mickunas, U.S. EPA/ERT

THROUGH: Jeffrey Bradstreet, REAC Air Response Section Leader

FROM: Amy DuBois, REAC Task Leader

SUBJECT: DOCUMENT TRANSMITTAL UNDER WORK ASSIGNMENT # 0-210

Attached please find the following document prepared under this work assignment:

GC/MS ANALYTICAL REPORT
LITTLE VALLEY VI EXTENT STUDY
LITTLE VALLEY, NEW YORK
APRIL 2008

cc: Central File - WA # 0-210 (w/attachment)
Electronic File – L:/Archive/REAC4/0-210/DFA/043008
Dennis A. Miller, REAC Program Manager (w/o attachment)

GC/MS ANALYTICAL REPORT
LITTLE VALLEY VI EXTENT STUDY
LITTLE VALLEY, NEW YORK
APRIL 2008

U.S. EPA Work Assignment No.: 0-210
LOCKHEED MARTIN Work Order No.: EAC00210
U.S. EPA Contract No.: EP-C-04-032

Submitted to:
David B. Mickunas
U.S. EPA/ERT

Prepared by:
Lockheed Martin/REAC

Amy DuBois
REAC Task Leader

4/24/08
Date

Analyzed and Prepared by:
Scott J. Thompson

Dennis A. Miller
REAC Program Manager

4/25/08
Date

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LIST OF TABLES

APPENDICES

1.0 INTRODUCTION

The Environmental Protection Agency/Environmental Response Team (EPA/ERT) issued Work Assignment # 0-210 to Lockheed Martin under the Response Engineering and Analytical Contract (REAC) to provide analytical services at the Little Valley VI Extent Site located in Little Valley, New York.

An Agilent® 6890 gas chromatograph and 5973N mass spectrometer (GC/MS) were used to perform Volatile Organic Compound (VOC) analysis of soil gas samples collected in one-Liter (L) Tedlar® bags. Eight compounds made up the target compound list (TCL) comprised of vinyl chloride, 1,1-dichloroethene, trans-1,2-dichloroethene, 1,1-dichloroethane, cis-1,2-dichloroethene, 1,1,1-trichloroethane, trichloroethene, and tetrachloroethene.

On-site GC/MS analyses occurred on 02 April 2008 on the six sub-slab soil gas samples collected by REAC personnel. Analysis was performed in accordance with REAC DRAFT Standard Operating Procedure, *Field Analysis of VOCs in Gaseous Phase Samples by GC/MS Loop Injection.* All analytical data were verified per Screening Data (SD) requirements. Table 1 details the samples by chain of custody number, number of samples, date sampled and received, matrix, and analysis. Copies of the chain of custody (COC) records are included in Appendix A.

2.0 PROCEDURES

A Tedlar® bag was attached to the sample introduction port of the heated dual loop injection apparatus. One of the loops was filled with the sample and the other with an internal standard. The contents of both loops were simultaneously injected onto the head of the column for subsequent analysis by GC/MS. When required, all sample dilutions were done in a glass syringe. The Agilent Chemstation® data system was used to evaluate and process the data. Table 2 lists the operating conditions of the dual loop injection apparatus and the GC/MS system.

2.1 Soil Gas Analysis

An aliquant of sample was directly introduced into the first loop of the injection apparatus from a Tedlar® bag using the sample introduction port. The second loop was filled from a SUMMA® canister containing the internal standard. The loops were switched in line with the carrier gas to inject the sample and internal standard into the GC/MS system.

The GC oven was temperature programmed to focus the sample on the head of the column and to achieve quick separation of the VOCs in the sample, which were then detected by the MS detector. Comparing their retention times and mass spectra to those of a 500 parts per billion by volume (ppbv) reference standard, permits identification of the VOCs in the sample.

2.2 Tuning and Calibration Standards

All certified standards were obtained from commercial vendors with certificates of analysis (COA). The standards' cylinder numbers, concentrations, and compound quantitation ions used are presented in Table 3. Vendor COA of the p-bromofluorobenzene (BFB) tuning standard, primary and secondary VOC standards, and internal standard are presented in Appendix B.

Mass spectrometer tuning was performed and checked at the beginning of each day. Five milliliters (mL) of BFB at one part per million by volume (ppmv) was analyzed to validate the mass spectrometer tuning parameters.

The primary calibration standard was based on a nominal value of 20 ppmv for all target compounds. The secondary calibration standard was based on a nominal value of 500 ppbv for all target compounds. The primary and secondary standards both contained 15 compounds in a balance of nitrogen.

The internal standard mix consisted of bromochloromethane, 1,4-difluorobenzene, and chlorobenzene-d_5 each at approximately one ppmv. Fifty microliters (μL) of internal standard, equivalent to 10 ppbv, was added to all standards, blanks, and samples.

Prior to the analysis of samples and blanks but after the instrument performance check standard criteria was met, the GC/MS was calibrated to a minimum of five concentrations that span the monitoring range of interest in an initial calibration sequence to determine sensitivity and linearity of the instrument's response for the target compounds. Samples were analyzed in the 24-hour period after meeting the acceptance criteria for the initial calibration.

After the 24-hour period expired, a new analytical sequence commenced with the analysis of the instrument performance check standard followed by the analysis of a daily continuing calibration verification standard.

2.3 Compound Identification and Quantitation

VOCs in the samples were identified and quantitated using the Agilent ChemStation® software. This software uses mass spectra reference libraries and extracted ion chromatograms matched with retention time windows to identify and quantify target compounds. The report format prints the internal standards, identified compounds, calculated concentrations, mass spectra (both raw and background subtracted), quantitation, and qualifier ion chromatograms.

The limit of quantitation (LOQ) for each compound was calculated using the following equation:

$$LOQ\,(ppbv) = Lowest\,Calibration\,Standard\ \ (ppbv) \times Dilution\ \ Factor$$

Dilution of the sample was performed when target compounds exceeded the upper range of the initial calibration. The dilution was documented in the injection logbook and the dilution factor was calculated using the following equation:

$$Dilution\ Factor = \frac{Final\ \ Sample\ Volume\ (mL)}{Initial\ \ Sample\ Volume\ (mL)}$$

The target compound results were calculated using the following equation:

$$Concentration\,(ppbv) = Analytical\,Concentration\,of\ Compound\ \ (ppbv) \times Dilution\ \ Factor$$

2.4 Quality Assurance/Quality Control

The following Quality Assurance/Quality Control (QA/QC) procedures were performed for this work assignment:

- The GC/MS system was tuned with perfluorotributylamine (PFTBA) to meet ion abundance criteria for BFB as listed on the BFB tune reports.

- Five initial calibration levels of varying concentrations were prepared and analyzed using the GC/MS operating parameters listed in Table 2. An initial calibration curve with a minimum of five calibration levels for each target compound was constructed before any samples were analyzed. The Response Factor Report for the initial calibration curve was evaluated for acceptance criteria of less than or equal to 30 percent relative standard deviation (%RSD) for all target compounds.

- Initial calibration verification (ICV) using the second source 500 ppbv VOC standard was run immediately following each initial calibration. The percent Recovery (%R) must be between 70% to 130%.

- The lowest initial calibration level used for each target compound was used for the LOQ.

- Method (Instrument) blanks were analyzed after the ICV standards and before samples were analyzed to assess possible laboratory contamination and/or carryover.

- Lot (Tedlar® Bag) blanks were analyzed after the method blank and before samples were analyzed to assess possible contaminants in the lot of Tedlar® bag being used to collect the samples.

- Internal Standard areas from all analyses were evaluated for acceptance criteria of ±40% of the most recent valid calibration standard.

- The following is a list of the QA/QC flags used in qualifying the analytical results.

  A - Assumed Volume.
  B - Concentration less than five times the reported blank result. Result is considered not detected.
  D - Result is from an analysis at a secondary dilution factor.
  E - Exceeds the calibration range. Result is considered estimated.
  J - Detected below the limit of quantitation. Result is considered estimated.
  U - None detected at or above the limit of quantitation.
  R - Result is unusable.

All applicable data qualifiers were inserted into the results tables.

3.0 RESULTS

All results are reported in ppbv and to two significant figures. Method blank, lot blank and soil gas sample results for 02 April 2008 are presented in Table 4.

The COC records are found in Appendix A. The COA for the BFB tuning standard, primary and secondary VOC standards, and internal standard are found in Appendix B. The Mass Spectrometer Tuning Reports and Initial Calibration Packages are included in Appendix C. The Initial Calibration Package includes copies of the GC/MS injection logbook # REAC-IV-L-0451, BFB Tune Report, Initial Calibration Response Factor Report, Initial Calibration Quantitation Reports and Second Source Verification Quantitation Report.

Quantitation reports for all blanks and soil gas samples are included in Appendix D. All blank and soil gas sample quantitation reports list the retention times, quantitation ions, peak area responses, and concentration of target compounds in ppbv. Calculated concentrations are generated using the average relative response factor from the initial calibration curve for each target compound.

Internal Standard QA-QC Reports are included in Appendix E.

4.0 DISCUSSION OF RESULTS

A total of six samples were collected and analyzed on-site by REAC personnel on 02 April 2008 at the Little Valley VI Extent Study. Preliminary results were reported to the Work Assignment Manager (WAM) at the end of the day.

On 02 April 2008, a BFB standard and five-point initial calibration curve were analyzed and found to be

within acceptable limits. The LOQ for all targeted compounds was 0.5 ppbv, except for vinyl chloride, which was 5 ppbv. The secondary standard used to verify the initial calibration curve was analyzed and found to be acceptable with all target compounds being reported less than thirty percent difference (< 30%). The method blank and lot (Tedlar® Bag) blank for 02 April 2008 were reviewed and found to be acceptable with no target compounds being reported.

Of the six samples collected on 02 April 2008, sample numbers 1002 and 1006 have the highest reportable results for trichloroethene at 8.0 ppbv and 3.2 ppbv, respectively. Sample numbers 1004 and 1005 have the highest reportable results for tetrachloroethene at 20 ppbv and 6.6 ppbv respectively.

The internal standard 1,4-difluorobenzene-d_5 was reported below the acceptable criteria of ±40 of the most recent valid calibration standard for samples 1001, 1002, 1005, and 1006.

TABLES

TABLE 1
Summary of Chain of Custody Records
Little Valley VI Extent Study
Little Valley, New York
April 2008

COC #	Number of Samples	Date Sampled	Date Received	Matrix	Analysis
40051	6	02 April 2008	02 April 2008	Soil Gas	VOCs by GC-MS w/ loop Injection

TABLE 2
Instrument Conditions for the Analysis of Volatile Organic Compounds in Soil Gas Samples
Little Valley VI Extent Study
Little Valley, New York
April 2008

AGILENT® 6890 GC Method

Sample Loop	
Loop Volume	5mL
Loop Temperature	60 °C
Internal Standard Loop	
Loop Volume	50µL (10ppbv)
Loop Temperature	60 °C
GC Inlet	
Gas Type	Helium
Mode	Pulsed Splitless
Temperature	190 °C
Pressure	23.0 psi
Pulsed Pressure	50.0 psi
Pulsed Time	0.50 min
Purge Flow	30.0 mL/min
Purge Time	0.00 min
Total Flow	33.7 mL/min
GC Oven	
Column	Rtx-Volatiles, 20 m x 0.18 mm ID x 2.0 μm d_f
Mode	Constant Flow
Flow rate	1.5 mL/min
Cryo (CO_2)	On
Quick Cryo Cooling	On
Initial Temperature	-10 °C
Initial Temperature Hold Time	0.50 min
Ramp Program	40 °C/min
Final Temperature	160 °C
Final Temperature Hold Time	1 min
Total Run Time	5.75 min

AGILENT® 5973N MS Method

MS Temperatures	
MS Quadrupole	150 °C
MS Ion Source	230 °C
MS Transfer Line	220 °C
MS Tune File	BFB.u
MS Acquisition Mode	SIM
Solvent Delay	0.75 min

TABLE 2 (continued)
Instrument Conditions for the Analysis of Volatile Organic Compounds in Soil Gas Samples
Little Valley VI Extent Study
Little Valley, New York
April 2008

SIM Parameters:

Group 1 Start Time	0.75 min
Ions/Dwell in Group 1	(62/85) (64/85)
Group 2 Starts Time	2.00 min
Ions/Dwell in Group 2	(61/85) (63/85) (96/85)
Group 3 Starts Time	2.50 min
Ions/Dwell in Group 3	(41/85) (43/85) (57/85) (61/85) (73/85) (96/85) (98/85)
Group 4 Starts Time	2.78 min
Ions/Dwell in Group 4	(31/85) (65/85) (83/85) (98/85)
Group 5 Starts Time	3.00 min
Ions/Dwell in Group 5	(61/85) (96/85) (98/85)
Group 6 Starts Time	3.15 min
Ions/Dwell in Group 6	(49/85) (61/85) (93/85) (97/85) (99/85) (130/85)
Group 7 Starts Time	3.35 min
Ions/Dwell in Group 7	(50/85) (63/85) (77/85) (78/85) (88/85) (114/85)
Group 8 Starts Time	3.58 min
Ions/Dwell in Group 8	(95/85) (130/85) (132/85)
Group 9 Starts Time	3.90 min
Ions/Dwell in Group 9	(91/85) (92/85)
Group 10 Starts Time	4.20 min
Ions/Dwell in Group 10	(131/85) (164/85) (166/85)
Group 11 Starts Time	4.40 min
Ions/Dwell in Group 11	(82/85) (91/85) (106/85) (117/85) (119/85)

TABLE 3
Concentrations and Quantitation Ions for BFB Tuning Standard, Primary and Secondary Volatile Organic Compound Standards and Internal Standard
Little Valley VI Extent Study
Little Valley, New York
April 2008

Scott Specialty Gases, Inc.
Cylinder Number: ALM057539
Certification Date: 07 March 2008
Expiration Date: 07 March 2009

BFB Compound	Quantitation Ion	Concentration
4-Bromofluorobenzene	N/A	1.02 ppm

Spectra Gases, Inc. Special Certified Blend
Cylinder Number: CC-256138
Certification Date: 01 October 2007
Expiration Date: 01 October 2008

Volatile Organic Compound	Quantitation Ion	Concentration
Vinyl chloride	62	20.7 ppm
1,1-Dichloroethene	61	20.4 ppm
trans-1,2-Dichloroethene	61	21.1 ppm
1,1-Dichloroethane	63	20.4 ppm
Methyl Tert Butyl Ether	73	20.5 ppm
cis-1,2-Dichloroethene	61	20.4 ppm
1,1,1-Trichloroethane	97	20.4 ppm
Benzene	78	20.2 ppm
Trichloroethene	130	20.6 ppm
Toluene	97	20.4 ppm
Tetrachloroethene	166	20.1 ppm
Ethylbenzene	91	20.0 ppm
p-Xylene	91	19.7 ppm
m-Xylene	91	19.7 ppm
o-Xylene	91	19.7 ppm

TABLE 3 (continued)
Concentrations and Quantitation Ions for BFB Tuning Standard, Primary and Secondary Volatile Organic Compound Standards and Internal Standard
Little Valley VI Extent Study
Little Valley, New York
April 2008

Spectra Gases, Inc. Special Certified Blend
Cylinder Number: CC-256175
Certification Date: 03 March 2008
Expiration Date: 03 March 2009

Volatile Organic Compound	Quantitation Ion	Concentration
Vinyl chloride	62	495 ppb
1,1-Dichloroethene	61	539 ppb
trans-1,2-Dichloroethene	61	533 ppb
1,1-Dichloroethane	63	530 ppb
Methyl Tert Butyl Ether	73	529 ppb
cis-1,2-Dichloroethene	61	516 ppb
1,1,1-Trichloroethane	97	521 ppb
Benzene	78	526 ppb
Trichloroethene	130	524 ppb
Toluene	97	535 ppb
Tetrachloroethene	166	519 ppb
Ethylbenzene	91	514 ppb
p-Xylene	91	520 ppb
m-Xylene	91	520 ppb
o-Xylene	91	512 ppb

Spectra Gases, Inc.
Cylinder Number: CC-172915
Certification Date: 04 December 2007
Expiration Date: 04 December 2008

Internal Standard	Quantitation Ion	Concentration
Bromochloromethane	49	1.03
1,4-Difluorobenzene	114	1.06
Chlorobenzene-d_5	117	1.07

Table 4
Results of Volatile Organic Compounds in Soil Gas Samples for 02 April 2008
Little Valley VI Extent Study
Little Valley, New York
April 2008

Data File:	LV033		LV034		LV035		LV036	
Sample Number:	20080402MB-1		20080402LB-1		1003		1004	
Sample Location:	Method Blank		Lot Blank		Unit 071T		Unit 041T-Port1	
Sample Volume (ml):	5		5		5		5	
Dilution multiplier:	1		1		1		1	
Date Sampled:	02 Apr 2008		02 Apr 2008		02 Apr 2008		02 Apr 2008	
Date Analyzed:	02 Apr 2008		02 Apr 2008		02 Apr 2008		02 Apr 2008	
Compound	Conc. (ppbv)	LOQ	Conc. (ppbv)	LOQ	Conc. (ppbv)	LOQ	Conc. (ppbv)	LOQ
Vinyl Chloride	U	0.50	U	0.50	U	0.50	U	0.50
1,1-Dichloroethene	U	0.50	U	0.50	U	0.50	U	0.50
trans-1,2-Dichloroethene	U	0.50	U	0.50	U	0.50	U	0.50
1,1-Dichloroethane	U	0.50	U	0.50	U	0.50	U	0.50
cis-1,2-Dichloroethene	U	0.50	U	0.50	U	0.50	0.92	0.50
1,1,1-Trichloroethane	U	0.50	U	0.50	U	0.50	U	0.50
Trichloroethene	U	0.50	U	0.50	0.75	0.50	0.96	0.50
Tetrachloroethene	U	0.50	U	0.50	U	0.50	20	0.50

Data File:	LV037		LV038		LV039		LV040	
Sample Number:	1005		1006		1001		1002	
Sample Location:	Unit 041T-Port2		Unit 027T		Unit 003T		Unit 088T	
Sample Volume (ml):	5		5		5		5	
Dilution multiplier:	1		1		1		1	
Date Sampled:	02 Apr 2008		02 Apr 2008		02 Apr 2008		02 Apr 2008	
Date Analyzed:	02 Apr 2008		02 Apr 2008		02 Apr 2008		02 Apr 2008	
Compound	Conc. (ppbv)	LOQ	Conc. (ppbv)	LOQ	Conc. (ppbv)	LOQ	Conc. (ppbv)	LOQ
Vinyl Chloride	U	0.50	U	0.50	U	0.50	U	0.50
1,1-Dichloroethene	U	0.50	U	0.50	U	0.50	U	0.50
trans-1,2-Dichloroethene	U	0.50	U	0.50	U	0.50	U	0.50
1,1-Dichloroethane	U	0.50	U	0.50	U	0.50	U	0.50
cis-1,2-Dichloroethene	U	0.50	U	0.50	U	0.50	U	0.50
1,1,1-Trichloroethane	U	0.50	U	0.50	U	0.50	U	0.50
Trichloroethene	U	0.50	3.2	0.50	U	0.50	8.0	0.50
Tetrachloroethene	6.6	0.50	U	0.50	U	0.50	U	0.50

Results are in part per billion by volume (ppbv)
U = None detected at or above the limit of quantitation

APPENDIX A

Chain of Custody Records
Little Valley VI Extent Study
Little Valley, New York
April 2008

APPENDIX B

Certificate of Analysis for BFB Tuning Standard, Primary and Secondary Volatile Organic Compound Standards and Internal Standard
Little Valley VI Extent Study
Little Valley, New York
April 2008

AIR LIQUIDE
Scott Specialty Gases
Air Liquide America Specialty Gases LLC

CUSTOM CLASS

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFICATE OF ACCURACY: Custom Class Calibration Standard

Product Information
Project No.: 01-77176-001
Item No.: 0102820127OZAL
P.O. No.: 7100037646

Cylinder Number: ALM057539
Cylinder Size: AL
Certification Date: 07Mar2008
Expiration Date: 07Mar2009

Customer

LOCKHEED MARTIN
BAY F
2890 WOODBRIDGE AVE
BUILDING 209
EDISON, NJ 08837

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)	Accuracy (+/-%)
4-BROMOFLUOROBENZENE	1.02 PPM	10
NITROGEN	BALANCE	

TRACEABILITY

Description	Traceability Type	Traceable To
ANALYTICAL TRACEABILITY	GAS STANDARDS	

APPROVED BY: GENYA KOGUT DATE: 03/07/08

Page 1 of 2

Certificate of Analysis for BFB Tuning Standard

Spectra Gases, Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA
ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Lockheed Martin / REAC
GSA Raritan Depot, Bldg. 209
2890 Woodbridge Ave.
Edison, NJ 08837

CERTIFICATE OF ANALYSIS

SGI ORDER # :	114624		
ITEM# :	1	**CYLINDER # :**	CC-256138
CERTIFICATION DATE:	10/01/2007	**CYLINDER PRES:**	355 psig
P.O.# :	CC-C Shields	**CYLINDER VALVE:**	CGA 350
BLEND TYPE:	CERTIFIED	**PRODUCT EXPIRATION DATE:**	10/01/2008

ANALYTICAL ACCURACY: +/- 5%

COMPONENT	REQUESTED GAS CONC	ANALYSIS
Vinyl Chloride	20.0 ppm	20.7 ppm
1,1-Dichloroethene	20.0 ppm	20.4 ppm
Trans-1,2-Dichloroethylene	20.0 ppm	21.1 ppm
1,1- Dichloroethane	20.0 ppm	20.4 ppm
Methyl Tert Butyl Ether	20.0 ppm	20.5 ppm
Cis-1,2-Dichloroethylene	20.0 ppm	20.4 ppm
1,1,1-Trichloroethane	20.0 ppm	20.4 ppm
Benzene	20.0 ppm	20.2 ppm
Trichloroethylene	20.0 ppm	20.6 ppm
Toluene	20.0 ppm	20.4 ppm
Tetrachloroethylene	20.0 ppm	20.1 ppm
Ethylbenzene	20.0 ppm	20.0 ppm
p-Xylene	20.0 ppm	19.7 ppm
m-Xylene	20.0 ppm	19.7 ppm
o-Xylene	20.0 ppm	19.7 ppm
Nitrogen	Balance	Balance

ANALYST: Lou Lorenzetti **DATE:** 10/01/2007

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com

Certificate of Analysis for Primary Volatile Organic Compounds Standard

Spectra Gases, Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ 08865

SHIPPED TO: Lockheed Martin
2890 Woodbridge Ave.
Edison, NJ 08837

CERTIFICATE OF ANALYSIS

SGI ORDER # :	124783		
ITEM# :	1	**CYLINDER # :**	CC-256175
CERTIFICATION DATE:	03/03/2008	**CYLINDER PRES:**	1650 psig
P.O.# :	CC-C Shields	**CYLINDER VALVE:**	CGA 350
BLEND TYPE:	CERTIFIED	**PRODUCT EXPIRATION DATE:**	03/03/2009

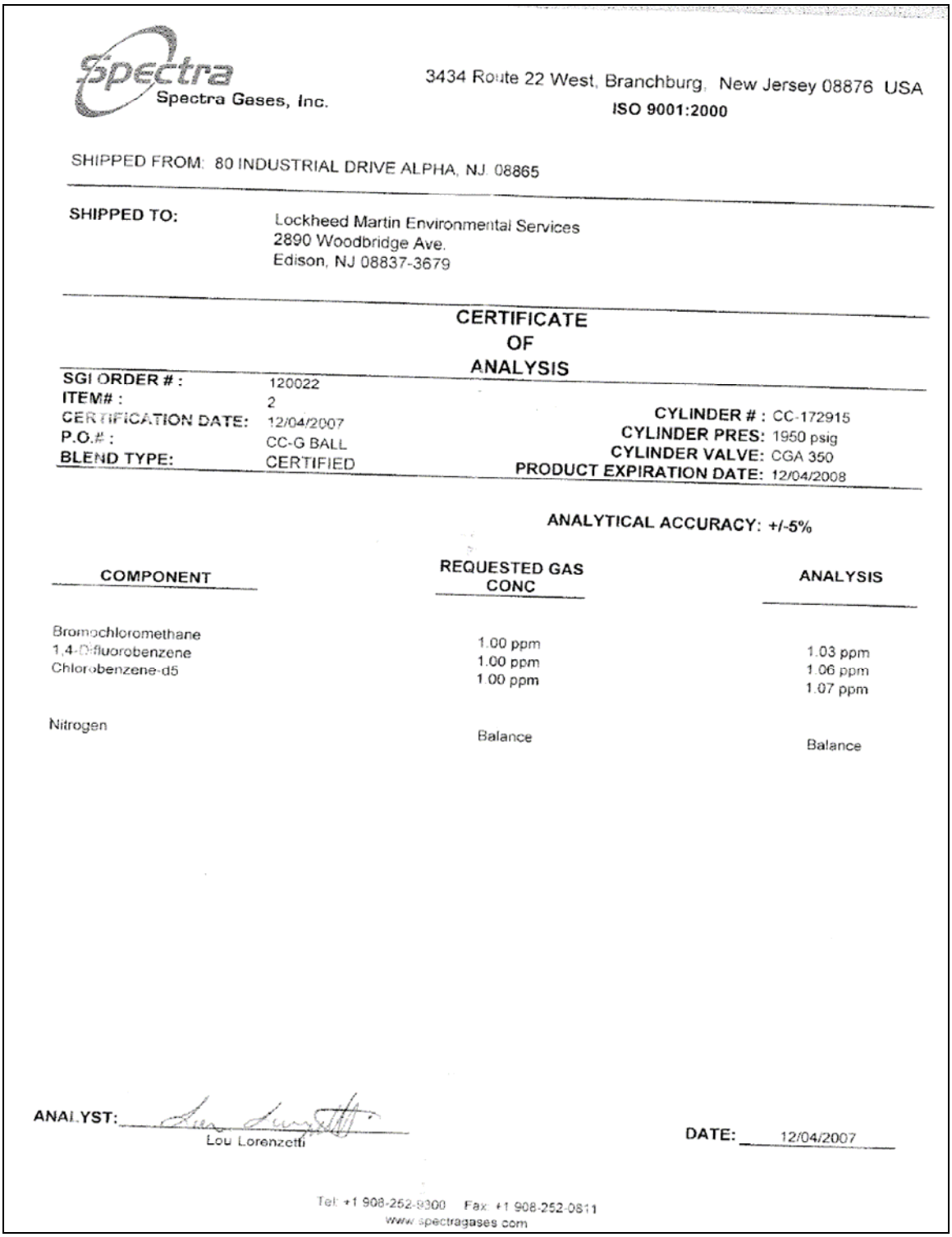
ANALYTICAL ACCURACY: +-5%

COMPONENT	REQUESTED GAS CONC	ANALYSIS
Vinyl Chloride	500 ppb	495 ppb
1,1-Dichloroethene	500 ppb	539 ppb
Trans-1,2-Dichloroethene	500 ppb	533 ppb
1,1-Dichloroethane	500 ppb	530 ppb
Methyl Tert Butyl Ether	500 ppb	529 ppb
Cis-1,2-Dichloroethene	500 ppb	516 ppb
1,1,1-Trichloroethane	500 ppb	521 ppb
Benzene	500 ppb	526 ppb
Trichloroethylene	500 ppb	524 ppb
Toluene	500 ppb	535 ppb
Tetrachloroethylene	500 ppb	519 ppb
Ethylbenzene	500 ppb	514 ppb
p-xylene	500 ppb	520 ppb
m-xylene	500 ppb	520 ppb
o-xylene	500 ppb	512 ppb
Nitrogen	Balance	Balance

ANALYST: Lou Lorenzetti **DATE:** 03/03/2008

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com

Certificate of Analysis for Secondary Volatile Organic Compounds Standard



Spectra Gases, Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA
ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Lockheed Martin Environmental Services
2890 Woodbridge Ave.
Edison, NJ 08837-3679

CERTIFICATE OF ANALYSIS

SGI ORDER # :	120022		
ITEM# :	2		
CERTIFICATION DATE:	12/04/2007	**CYLINDER # :**	CC-172915
P.O.# :	CC-G BALL	**CYLINDER PRES:**	1950 psig
BLEND TYPE:	CERTIFIED	**CYLINDER VALVE:**	CGA 350
		PRODUCT EXPIRATION DATE:	12/04/2008

ANALYTICAL ACCURACY: +/-5%

COMPONENT	REQUESTED GAS CONC	ANALYSIS
Bromochloromethane	1.00 ppm	1.03 ppm
1,4-Difluorobenzene	1.00 ppm	1.06 ppm
Chlorobenzene-d5	1.00 ppm	1.07 ppm
Nitrogen	Balance	Balance

ANALYST: Lou Lorenzetti **DATE:** 12/04/2007

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com

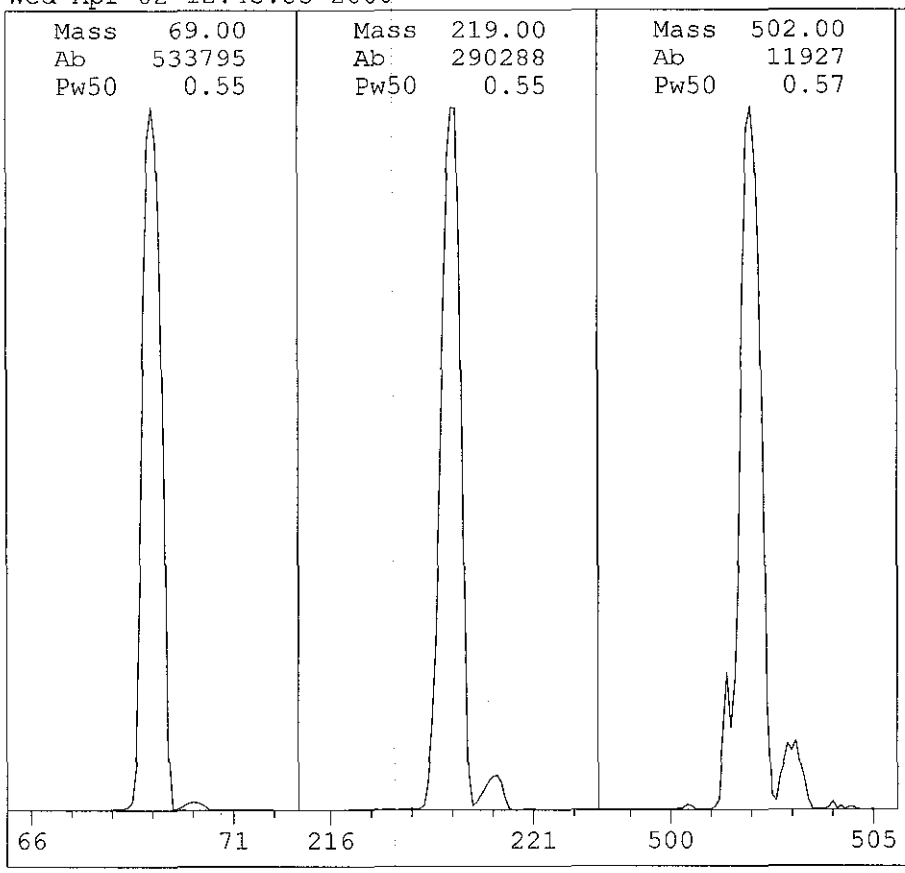
Certificate of Analysis for Internal Standard

APPENDIX C

Mass Spectrometer Tune Report, Instrument Log Book Information, Initial Calibration Data, and Second Source Confirmation Data
Little Valley VI Extent Study
Little Valley, New York
April 2008

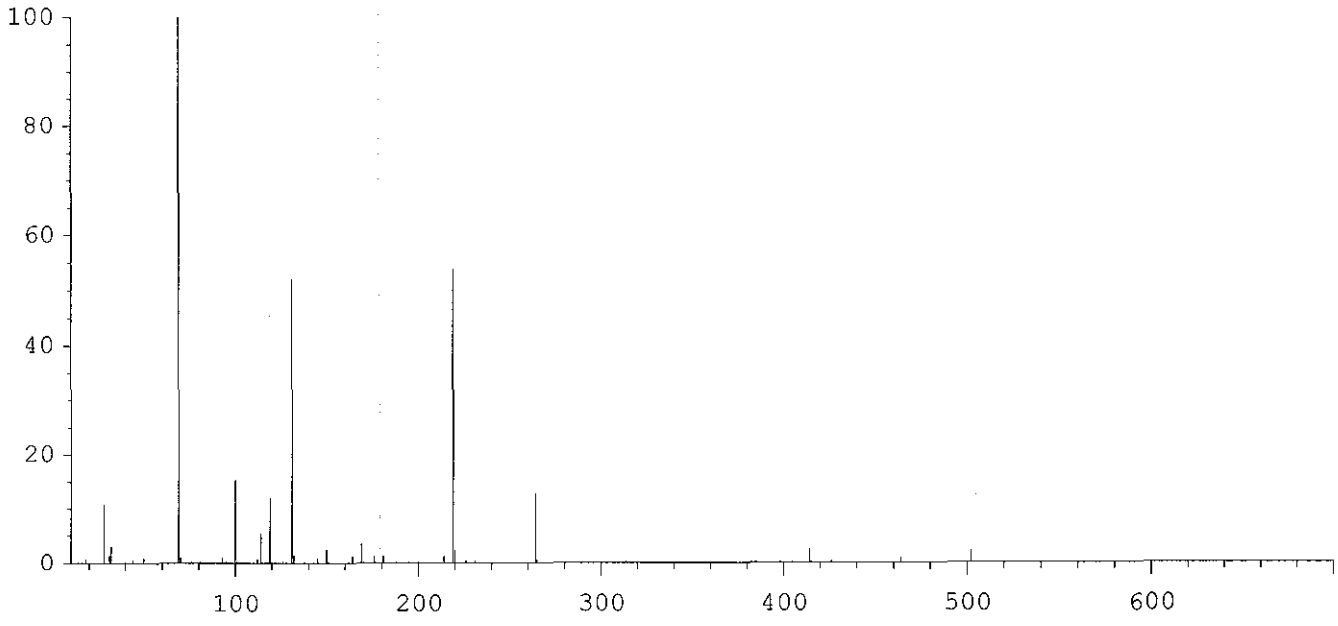
5973 BFB Dynamic Target Tune

Instrument: Instrument #1
Wed Apr 02 12:43:53 2008
C:\MSDCHEM\1\5973N\BFB.U



Ion Pol	POS	MassGain	136
		MassOffs	-13
Emission	34.6	AmuGain	2281
EleEnergy	69.9	AmuOffs	132
Filament	2	Wid219	0.026
		DC Pol	POS
Repeller	19.90		
IonFocus	69.3	HED	ON
EntLens	0.0	EMVolts	2259
EntOffs	VAR		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10
Zones:			
MS Source	230	TurboSpd	100
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
135 peaks Base: 69.00 Abundance: 476288



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	476288	100.00	70.00	5289	1.11
219.00	256000	53.75	220.00	11613	4.54
502.00	10221	2.15	503.00	932	9.12

TARGET MASS:	50	69	131	219	414	502
DYNAMIC ENT OFFSET:	11.8	10.0	11.0	11.8	13.3	14.6
TARGET ABUND(%):	1.0	100.0	52.0	55.0	2.4	2.0
ACTUAL TUNE ABUND(%):	1.0	100.0	52.1	53.7	2.5	2.1

04/01/08

- Pump Down MS After Travel to Little Valley
- Run BFB STD to Confirm ions are Present.
- Data Location: D:\ms5chem\1\data\2008\20080401\LV###.d

LV001	5mL BFB @ 1PPMV	PASS
LV002	5mL BFB @ 1PPMV	PASS
LV003	5mL BFB @ 1PPMV	PASS

- Leave @ 125°C over night

04/02/08

- Initial Calibration Standard Preparation

- STD20080402-1
  - 10PPM FCAL STD
  - 250mL - cc# 256138
  - 250mL - N_2
- STD20080402-2
  - 1PPMV ICAL STD
  - 100mL - 1
  - 900mL - N_2
- STD20080402-3
  - 500ppbv FCAL STD
  - 50mL - 1
  - 950mL - N_2
- STD20080402-4
  - 50ppbv ICAL STD
  - 100mL - 3
  - 900mL - N_2
- STD20080402-5
  - 5ppbv ICAL STD
  - 100mL - 4
  - 900mL - N_2
- STD20080402-6
  - 0.5 ppbv ICAL STD
  - 100mL - 5
  - 900mL - N_2
- STD20080402-7
  - 500ppbv 2nd Source
  - cc# 256175
  - 1000mL
- 20080402LB3-1
  - 1000mL - N_2

Continued on Page 15

Read and Understood By

Scott A. Thompson 04/02/08
Signed Date

Signed Date

04/02/08 (con't)

- BFB Method = BFB Loop.M
- GC/MS Method = Loop SIM PSALess.M
- EQuant Method = Loop 20080402.M
- Data Directory = D:\nsochem\1\data\2008\20080402\LVXXX.D

LV004	5mL BFB @ 1PPMV					PASS
LV005	STD20080402	-1	10 PPMV Ecal STD			
LV006		-2	1 PPMV Ecal STD			
LV007		-3	500 ppbv Ecal STD			
LV008	After QEditing 500ppbv Ecal STD, I saw that the RT have shifted in the SIM Method, so					
LV009	Some compounds were not Quantitated.					
LV010	- Inject 10PPMV Ecal STD to Identify RT @ Full Scan					
	- Set New RT in GC/MS Method Loop SIM PSALess.M					
	- Re-run ALL Ecal STD					
LV008	STD20080402	-1	10PPMV Ecal STD For RT Identification			
LV009	STD20080402	-3	500ppbv Ecal STD			ok
LV010		-1	10 PPMV Ecal STD			ok
LV011		-2	1 PPMV Ecal STD			ok
LV012		-4	50 ppbv Ecal STD			ok
LV013		-5	5 ppbv Ecal STD			ok
LV014		-6	0.5 ppbv Ecal STD			ok
LV015	STD20080402	-7	500ppbv 2nd Source			ok
LV016	20080402MB	-1	Method Blank			ok
LV017	20080402CB	-1	CCV Blank			ok
LV018	1001		Unit 003T	5mL	1x	ok
LV019	1002		Unit 028T	5mL	1x	ok
LV020	1003		Unit 067T	5mL	1x	ok
LV021	1003		Unit 67T	5mL	1x	Low IS
LV022	STD20080402	-7	500ppbv 2nd Source	5mL	1x	ok
LV023	1004		Unit 041T	5mL	1x	Low IS
LV024	1004		Unit 041T-2nd	5mL	1x	Low IS

Loop 20080402.M

Continued on Page 16

Read and Understood By

Signed Date Signed Date

04/02/08

PROJECT Little Valley WA# 0-210 — Notebook No. REAC IV-L-0451
Continued From Page 15

04/02/08 (con't)

- Re-Tune MS @ 125°C and recalibrate GC/MS due to [illegible]

LV025	5mL BFB @ 1ppmv					Pass
LV026	STD20080402-3		500ppbv [illegible]			[illegible]
LV027	[illegible]					
LV028	-2		1ppmv ICAL STD			
LV029	-4		50ppbv ICAL STD			ok
LV030	-5		5ppbv ICAL STD			ok
NEW TANK CO_2 LV031	-6		0.5ppbv ICAL STD			ok
LV032	STD20080402-7		500ppbv 2nd Source STD			Failure
~~LV033~~	~~20080402MB-1~~	\	~~Method Blank~~			did not Run

4/2/08
- Instrument malfunction = CO_2 regulator is not working properly. The CO_2 regulator is in the open position and will no stop @ -10°C or ramp per GC program
- heating GC oven to 180°C to see if regulator is Frozen open.
- After heating @ 180°C - regulator [illegible]

LV032	STD20080402-7		500ppbv 2nd Source STD		ok
LV033	20080402MB-1	\	Method Blank	5mL	1X ok
LV034	20080402LB-1	\	Lot Blank	5mL	[illegible]
LV035	1003	\	Unit 041T	5mL	1X
LV036	1004	\	Unit 041T - Port 1	5mL	1X
LV037	1005	\	Unit 041T - Port 2	5mL	1X
LV038	1006	\	Unit 027T	5mL	1X
LV039	1001	\	Unit 003T	5mL	1X
LV040	1002	\	Unit 088T	5mL	1X
LV041	STD20080402-7		500ppbv 2nd Source STD	5mL	1X

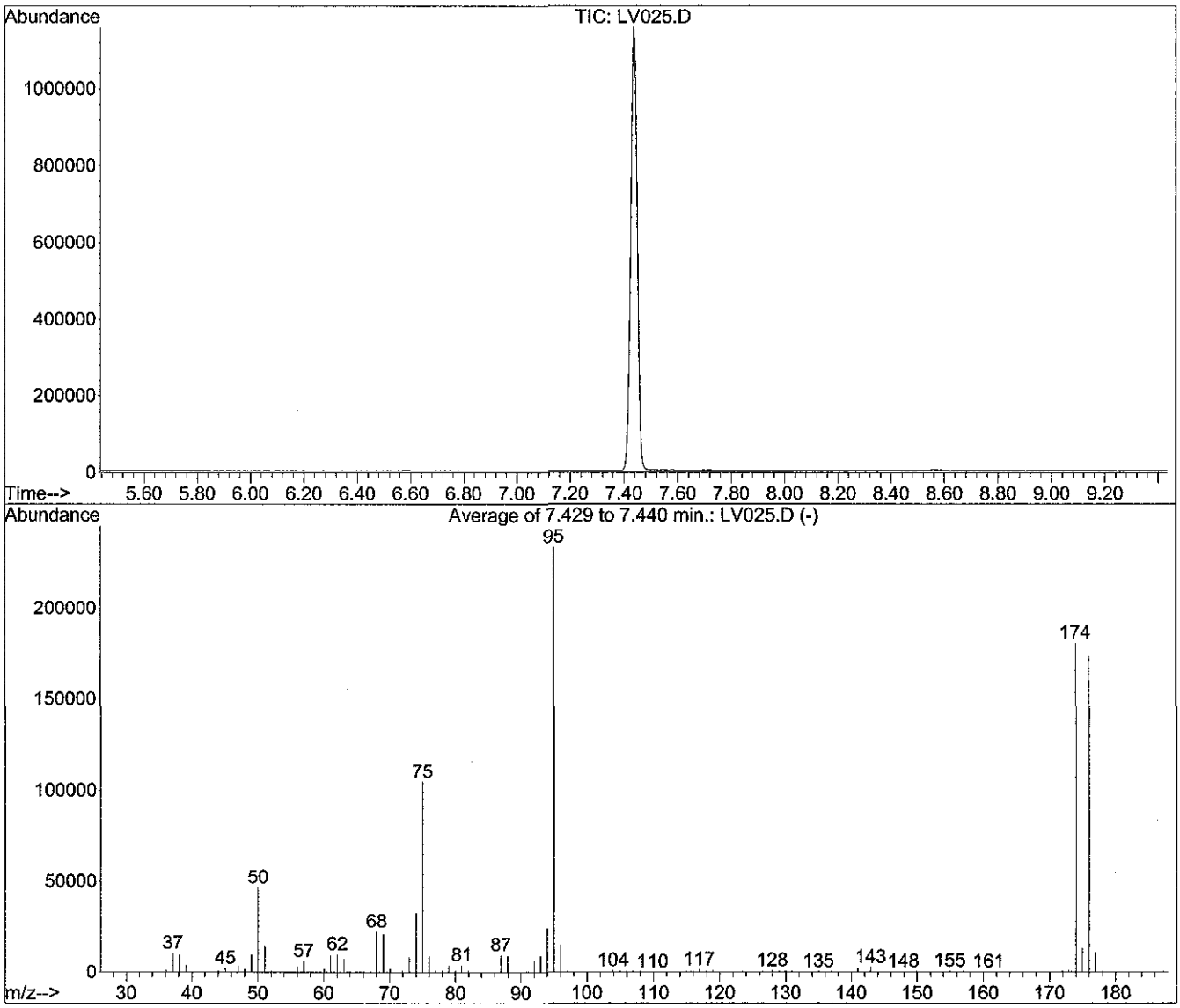
Continued on Page

Read and Understood By

Scott L. Thompson — 04/02/08
Signed — Date — Signed — Date

BFB

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV025.D Vial: 1
Acq On : 2 Apr 2008 12:49 pm Operator: SJT
Sample : 5mL BFB @ 1ppmv Inst : Instrumen
Misc : TUNE CHECK Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)



AutoFind: Scans 835, 836, 837; Background Corrected with Scan 826

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.0	46717	PASS
75	95	30	60	44.9	104720	PASS
95	95	100	100	100.0	233301	PASS
96	95	5	9	6.4	14914	PASS
173	174	0.00	2	0.6	1089	PASS
174	95	50	100	77.5	180885	PASS
175	174	5	9	7.3	13263	PASS
176	174	95	101	95.9	173546	PASS
177	176	5	9	6.4	11122	PASS

LV025.D LOOP20080402A.M Wed Apr 16 11:34:59 2008

Method : D:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:17:47 2008
Response via : Initial Calibration

Calibration Files
500 =LV026.D 100A =LV027.D 1000 =LV028.D
50 =LV029.D 5 =LV030.D 0.5 =LV031.D

		Compound	500	100A	1000	50	5	0.5	Avg	%RSD
1)	I	Bromochloromethane	----------ISTD----------							
2)		Vinyl Chloride	0.516	0.519	0.464	0.499	0.412		0.482	9.33
3)		1,1-Dichloroeth	1.106	1.115	0.955	0.990	0.827	1.578	1.095	23.67
4)		trans-1,2-Dichl	1.068	0.942	0.879	0.938	0.766	0.928	0.920	10.66
5)		1,1-Dichloroeth	1.347	1.316	1.145	1.249	1.071	1.852	1.330	20.73
6)		cis-1,2-Dichlor	0.859	0.846	0.677	0.719	0.601	0.860	0.760	14.53
7)		1,1,1-Trichloro	1.298	1.397	1.103	1.190	1.035	1.847	1.312	22.33
8)	I	1,4-Difluorobenzene	----------ISTD----------							
9)		Trichloroethene	0.363	0.344	0.272	0.369	0.329	0.381	0.343	11.49
10)	I	Chlorobenzene-d5	----------ISTD----------							
11)		Tetrachloroethe	0.449	0.441	0.305	0.429	0.456	0.492	0.428	14.97

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV026.D Vial: 1
Acq On : 2 Apr 2008 1:03 pm Operator: SJT
Sample : STD20080402-3 Inst : Instrumen
Misc : 500ppbv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 13:22:57 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 13:22:44 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

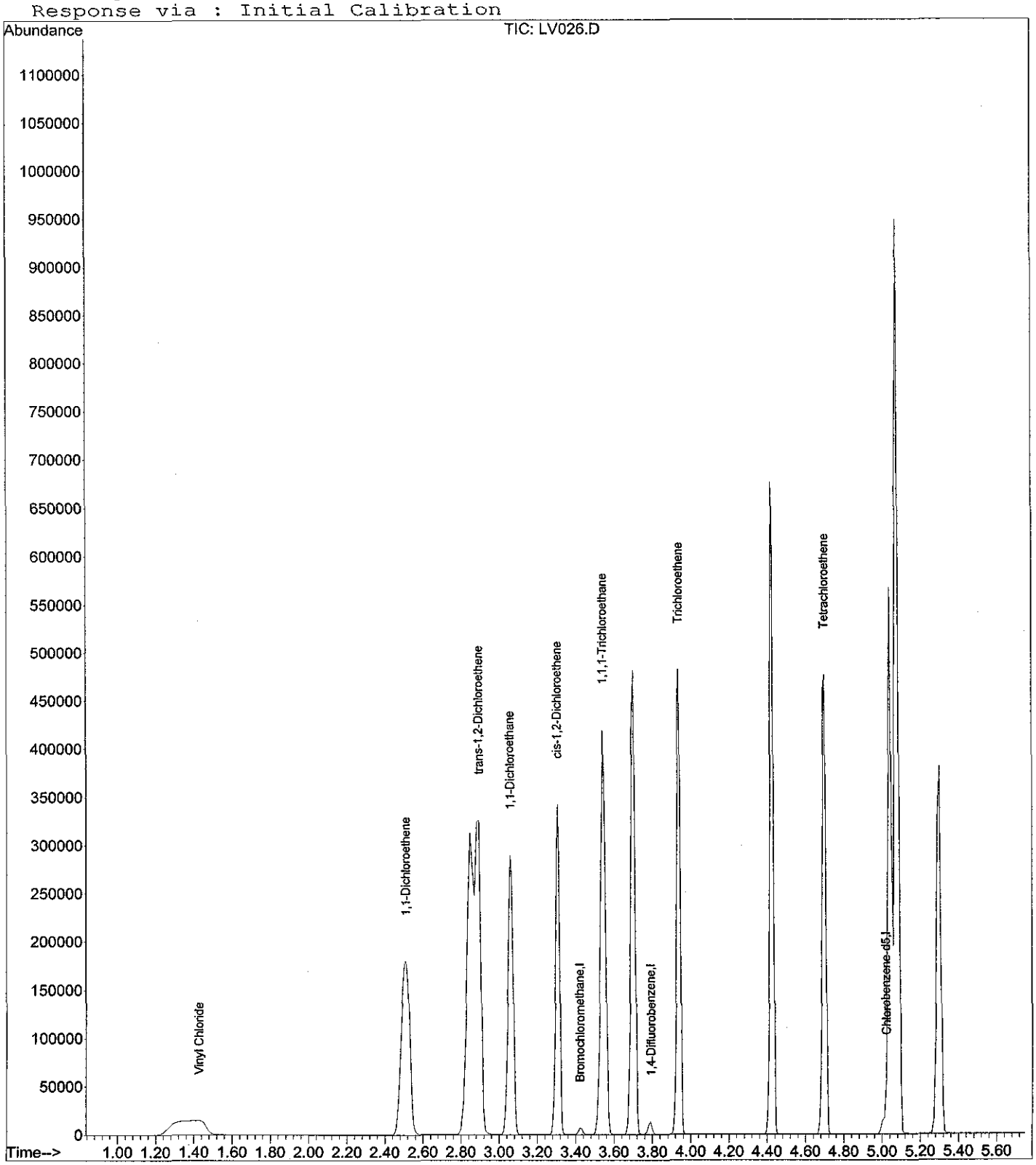
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	3.42	49	5345	10.00	ppbv		0.00
8) 1,4-Difluorobenzene	3.79	114	11695	10.00	ppbv		0.00
10) Chlorobenzene-d5	5.01	117	11143	10.00	ppbv		0.00
Target Compounds							Qvalue
2) Vinyl Chloride	1.43	62	137898m	499.96	ppbv		
3) 1,1-Dichloroethene	2.50	61	295637	500.00	ppbv	#	71
4) trans-1,2-Dichloroethene	2.89	61	294408m	515.65	ppbv		
5) 1,1-Dichloroethane	3.06	63	360079	500.00	ppbv	#	83
6) cis-1,2-Dichloroethene	3.30	61	229510m	499.88	ppbv		
7) 1,1,1-Trichloroethane	3.54	97	346761	500.00	ppbv		93
9) Trichloroethene	3.94	130	212176	500.00	ppbv	#	72
11) Tetrachloroethene	4.70	166	249936	500.00	ppbv		97

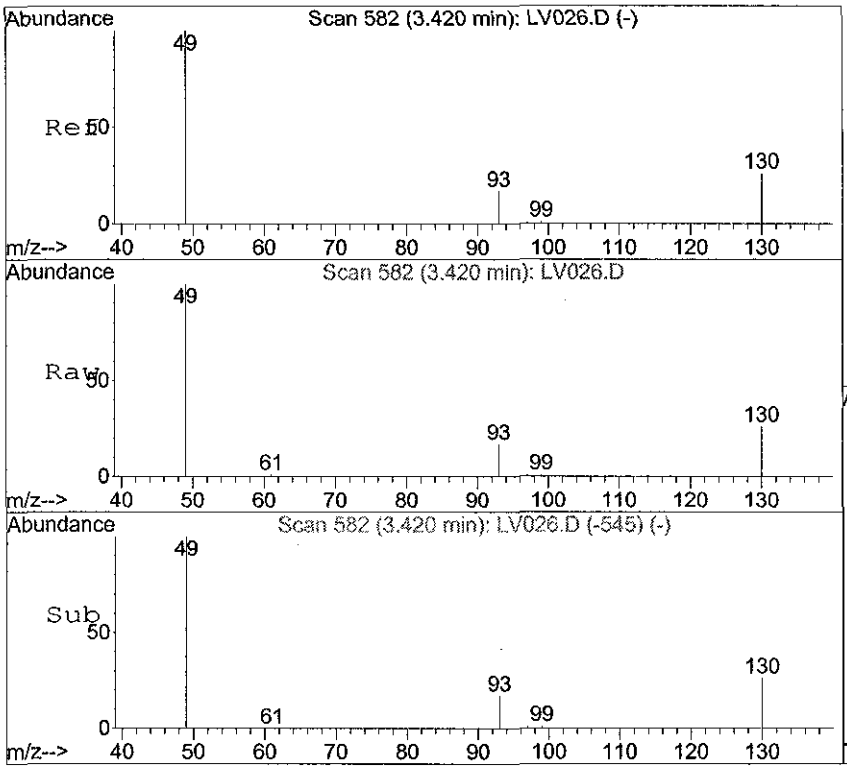
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV026.D Vial: 1
Acq On : 2 Apr 2008 1:03 pm Operator: SJT
Sample : STD20080402-3 Inst : Instrumen
Misc : 500ppbv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 14:30 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

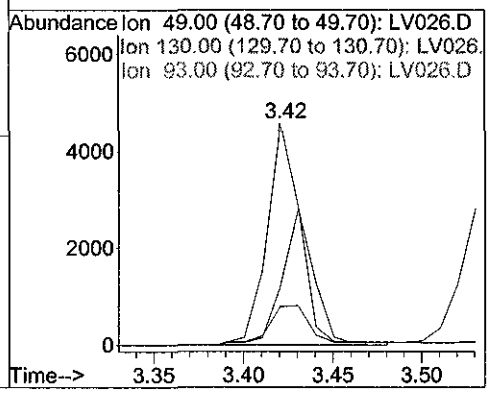


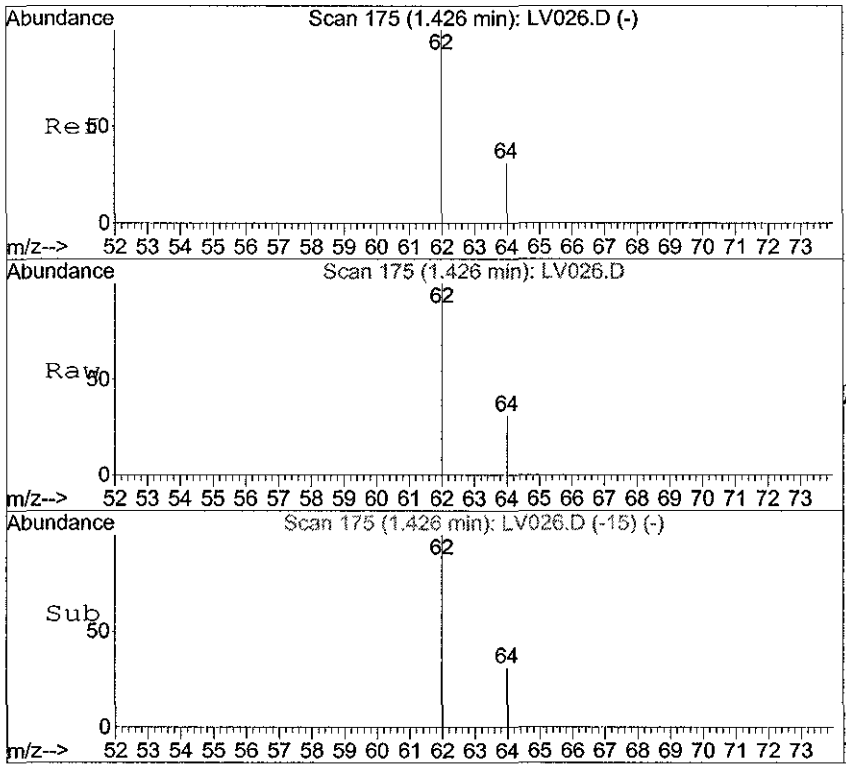


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. -0.00 min
Lab File: LV026.D
Acq: 2 Apr 2008 1:03 pm

Tgt Ion: 49 Resp: 5345

Ion	Ratio	Lower	Upper
49	100		
130	58.7	51.4	77.2
93	25.3	19.1	28.7

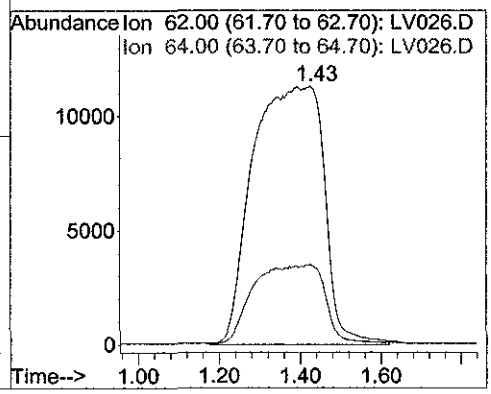


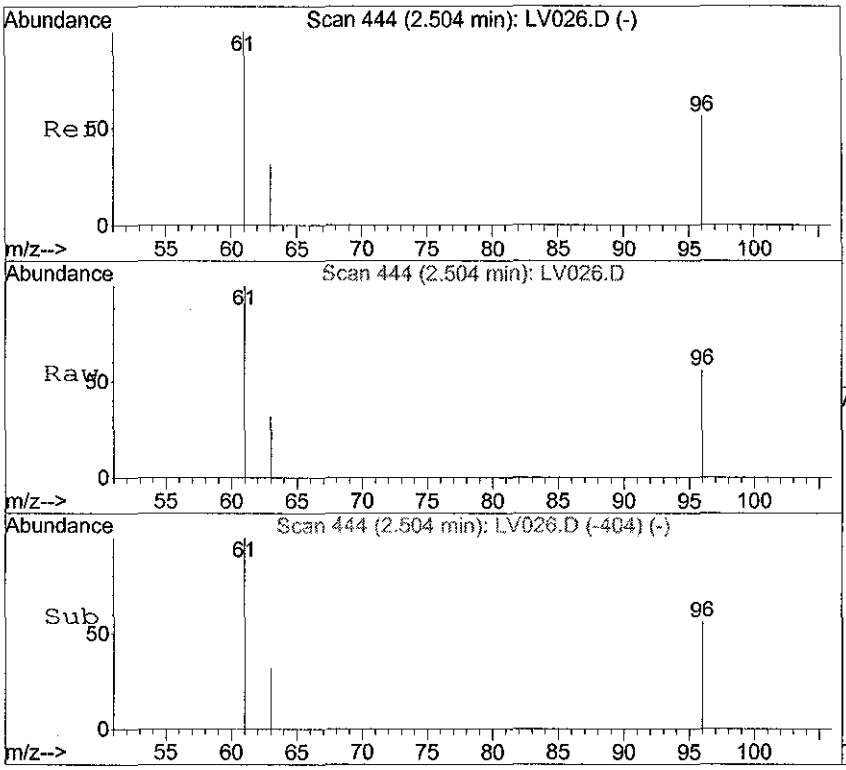


#2
Vinyl Chloride
Concen: 499.96 ppbv m
RT: 1.43 min Scan# 175
Delta R.T. 0.04 min
Lab File: LV026.D
Acq: 2 Apr 2008 1:03 pm

Tgt Ion: 62 Resp: 137898

Ion	Ratio	Lower	Upper
62	100		
64	13.4	13.1	19.7

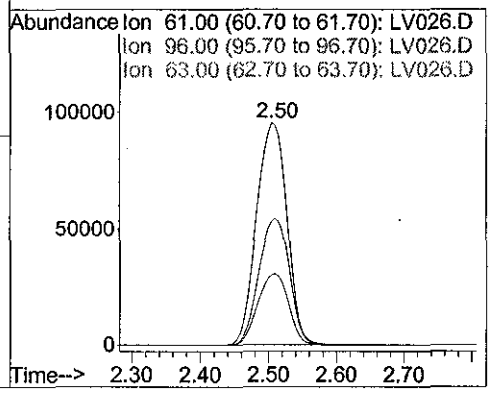


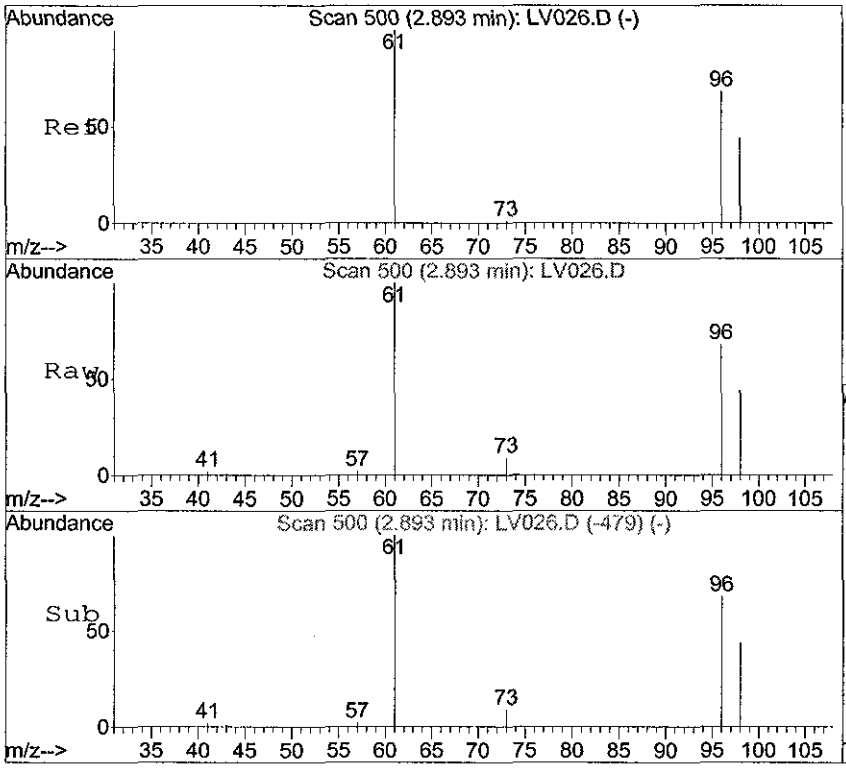


#3
1,1-Dichloroethene
Concen: 500.00 ppbv
RT: 2.50 min Scan# 444
Delta R.T. -0.00 min
Lab File: LV026.D
Acq: 2 Apr 2008 1:03 pm

Tgt Ion: 61 Resp: 295637

Ion	Ratio	Lower	Upper
61	100		
96	57.1	21.8	32.6#
63	32.0	28.8	43.2

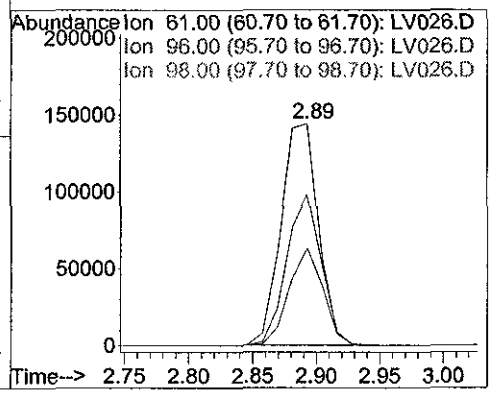


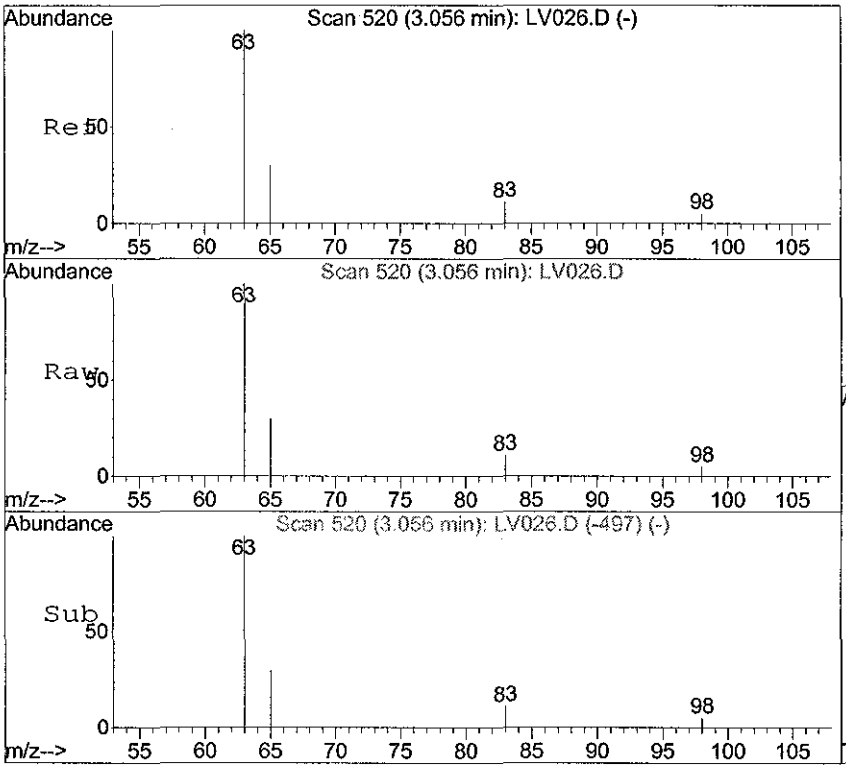


#4
trans-1,2-Dichloroethene
Concen: 515.65 ppbv m
RT: 2.89 min Scan# 500
Delta R.T. 0.01 min
Lab File: LV026.D
Acq: 2 Apr 2008 1:03 pm

Tgt Ion: 61 Resp: 294408

Ion	Ratio	Lower	Upper
61	100		
96	60.9	137.2	205.8#
98	34.2	30.7	46.1

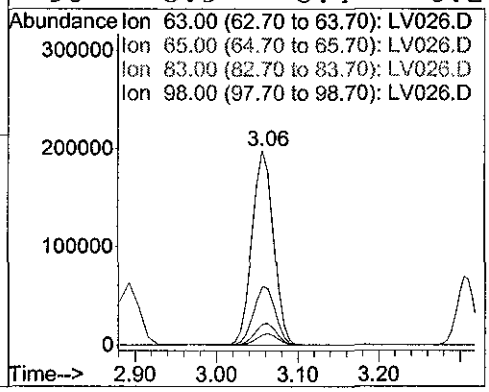


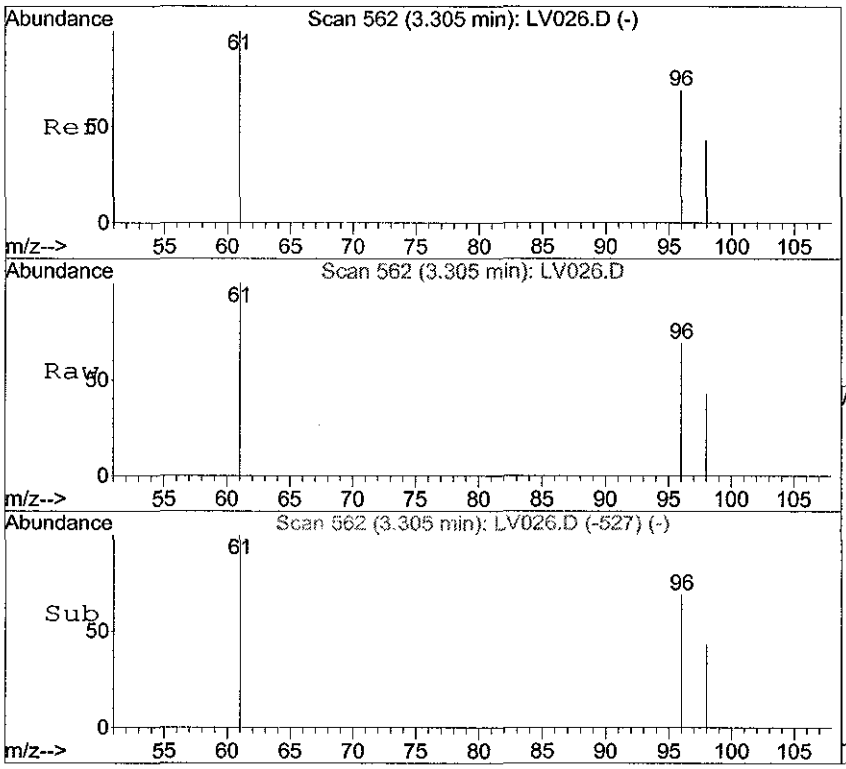


#5
1,1-Dichloroethane
Concen: 500.00 ppbv
RT: 3.06 min Scan# 520
Delta R.T. -0.00 min
Lab File: LV026.D
Acq: 2 Apr 2008 1:03 pm

Tgt Ion: 63 Resp: 360079

Ion	Ratio	Lower	Upper
63	100		
65	30.7	35.5	53.3#
83	11.3	7.4	11.0#
98	5.9	5.4	8.2

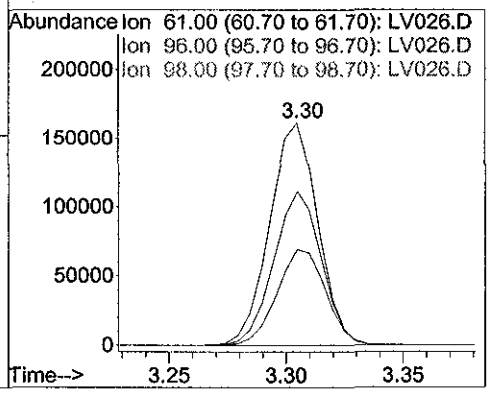


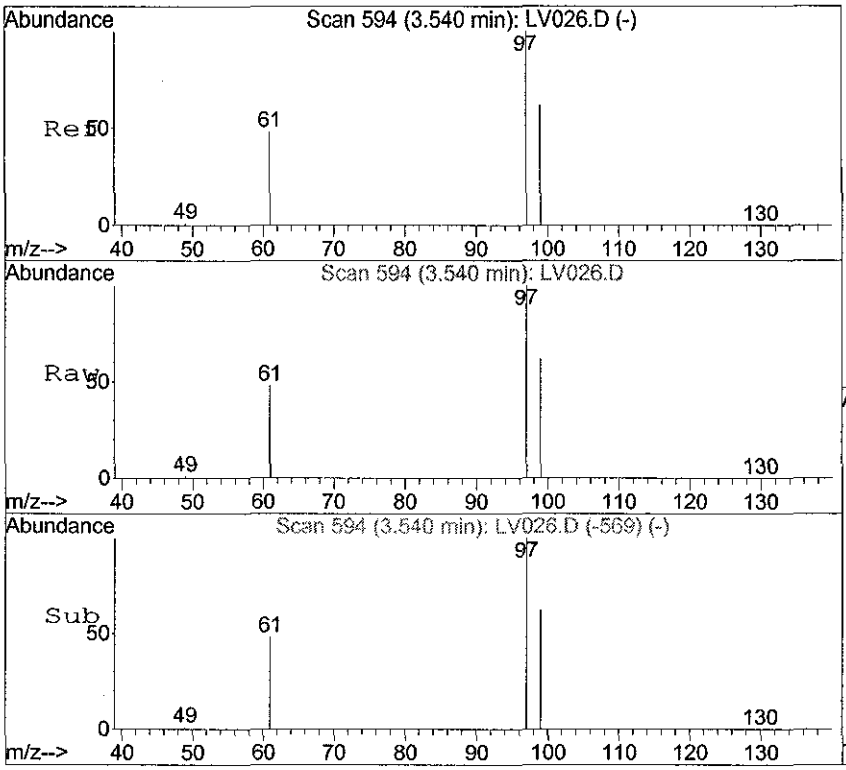


#6
cis-1,2-Dichloroethene
Concen: 499.88 ppbv m
RT: 3.30 min Scan# 562
Delta R.T. -0.00 min
Lab File: LV026.D
Acq: 2 Apr 2008 1:03 pm

Tgt Ion: 61 Resp: 229510

Ion	Ratio	Lower	Upper
61	100		
96	71.0	57.8	86.6
98	45.2	36.8	55.2

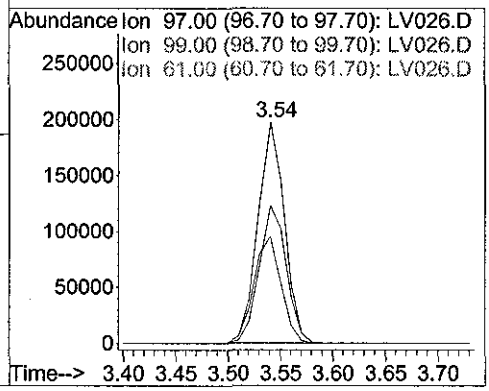


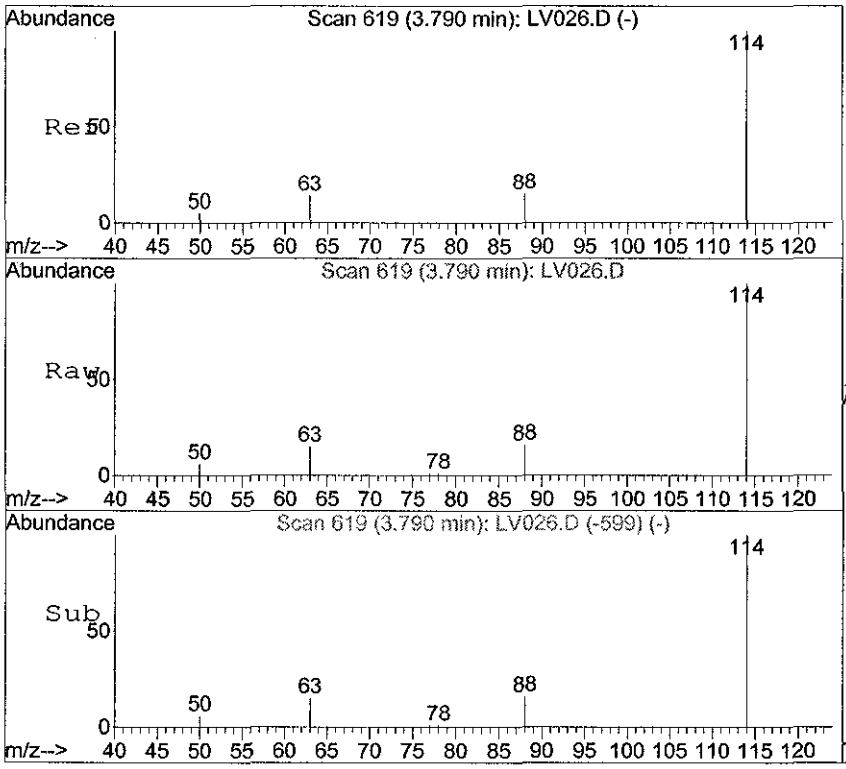


#7
1,1,1-Trichloroethane
Concen: 500.00 ppbv
RT: 3.54 min Scan# 594
Delta R.T. -0.00 min
Lab File: LV026.D
Acq: 2 Apr 2008 1:03 pm

Tgt Ion: 97 Resp: 346761

Ion	Ratio	Lower	Upper
97	100		
99	63.8	51.8	77.6
61	49.6	47.8	71.6

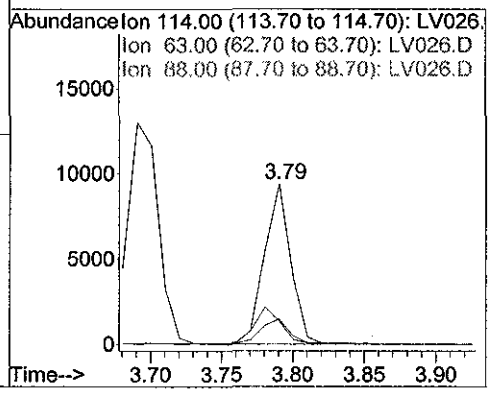


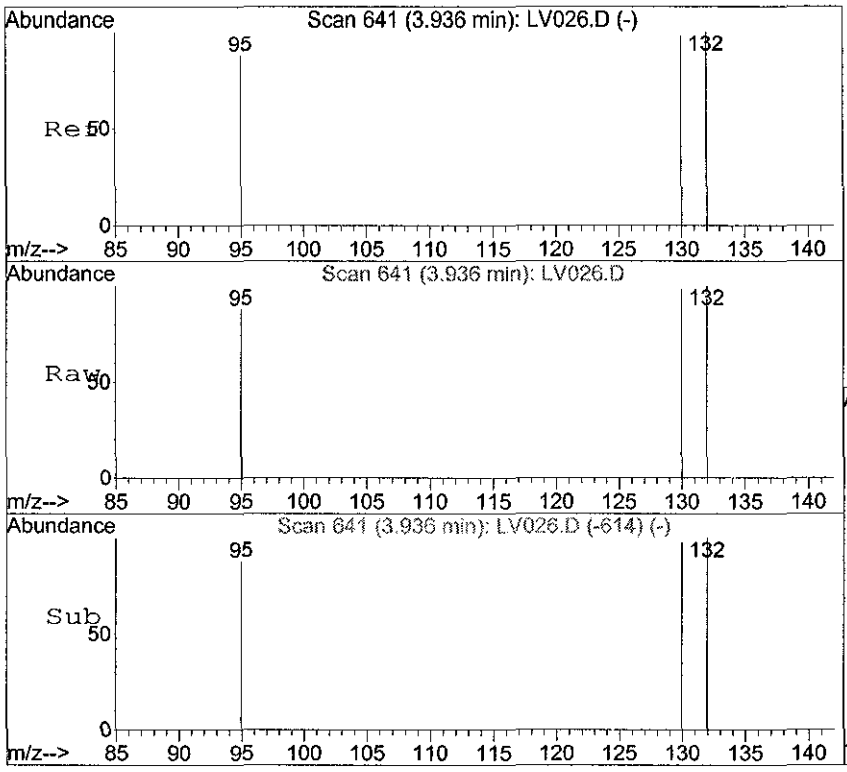


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. -0.00 min
Lab File: LV026.D
Acq: 2 Apr 2008 1:03 pm

Tgt Ion:114 Resp: 11695

Ion	Ratio	Lower	Upper
114	100		
63	24.7	19.7	29.5
88	18.2	14.4	21.6

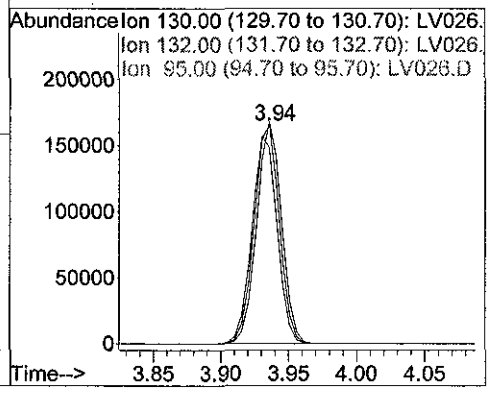


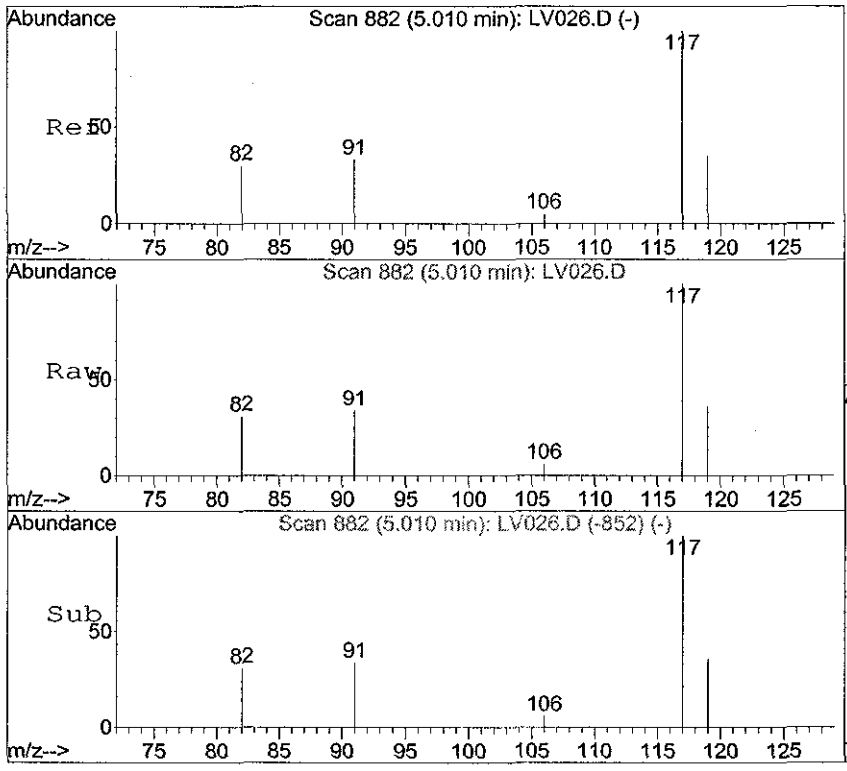


#9
Trichloroethene
Concen: 500.00 ppbv
RT: 3.94 min Scan# 641
Delta R.T. -0.00 min
Lab File: LV026.D
Acq: 2 Apr 2008 1:03 pm

Tgt Ion:130 Resp: 212176

Ion	Ratio	Lower	Upper
130	100		
132	99.9	97.0	145.4
95	95.2	110.9	166.3#

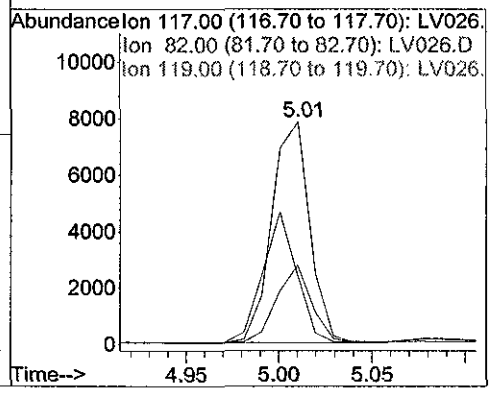


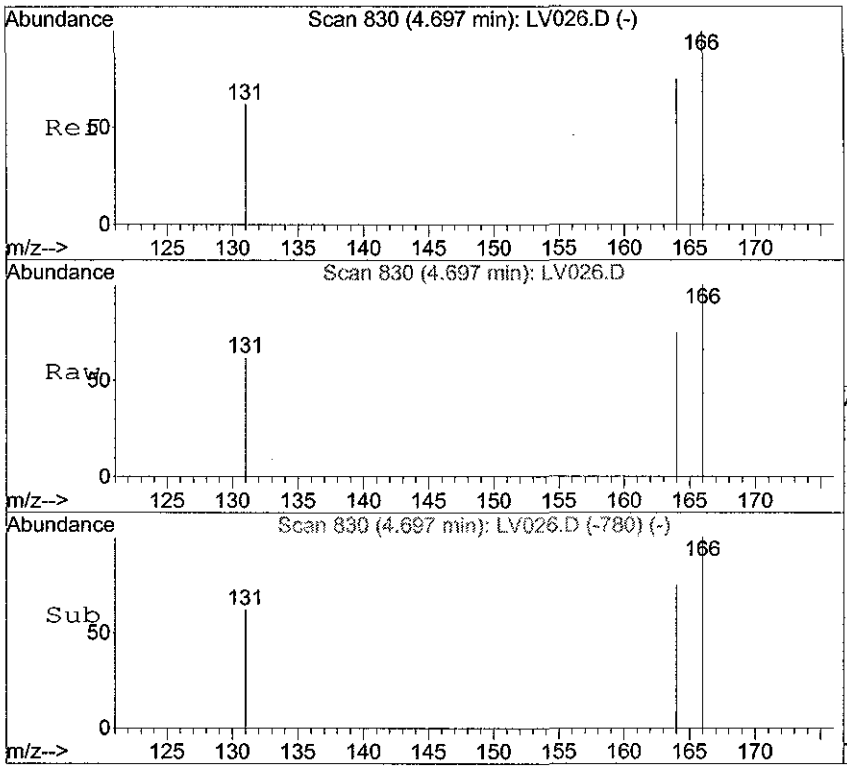


#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.01 min Scan# 882
Delta R.T. -0.00 min
Lab File: LV026.D
Acq: 2 Apr 2008 1:03 pm

Tgt Ion:117 Resp: 11143

Ion	Ratio	Lower	Upper
117	100		
82	53.9	46.0	69.0
119	33.5	29.5	44.3

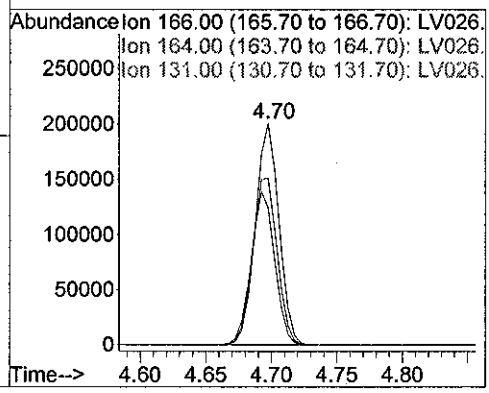




#11
Tetrachloroethene
Concen: 500.00 ppbv
RT: 4.70 min Scan# 830
Delta R.T. -0.00 min
Lab File: LV026.D
Acq: 2 Apr 2008 1:03 pm

Tgt Ion:166 Resp: 249936

Ion	Ratio	Lower	Upper
166	100		
164	78.5	63.8	95.8
131	69.5	58.6	87.8



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV027.D Vial: 1
Acq On : 2 Apr 2008 1:12 pm Operator: SJT
Sample : STD20080402-1 Inst : Instrumen
Misc : 10ppmv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 13:24:17 2008 Quant Results File: LOOP20080402A.RE

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 13:24:07 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

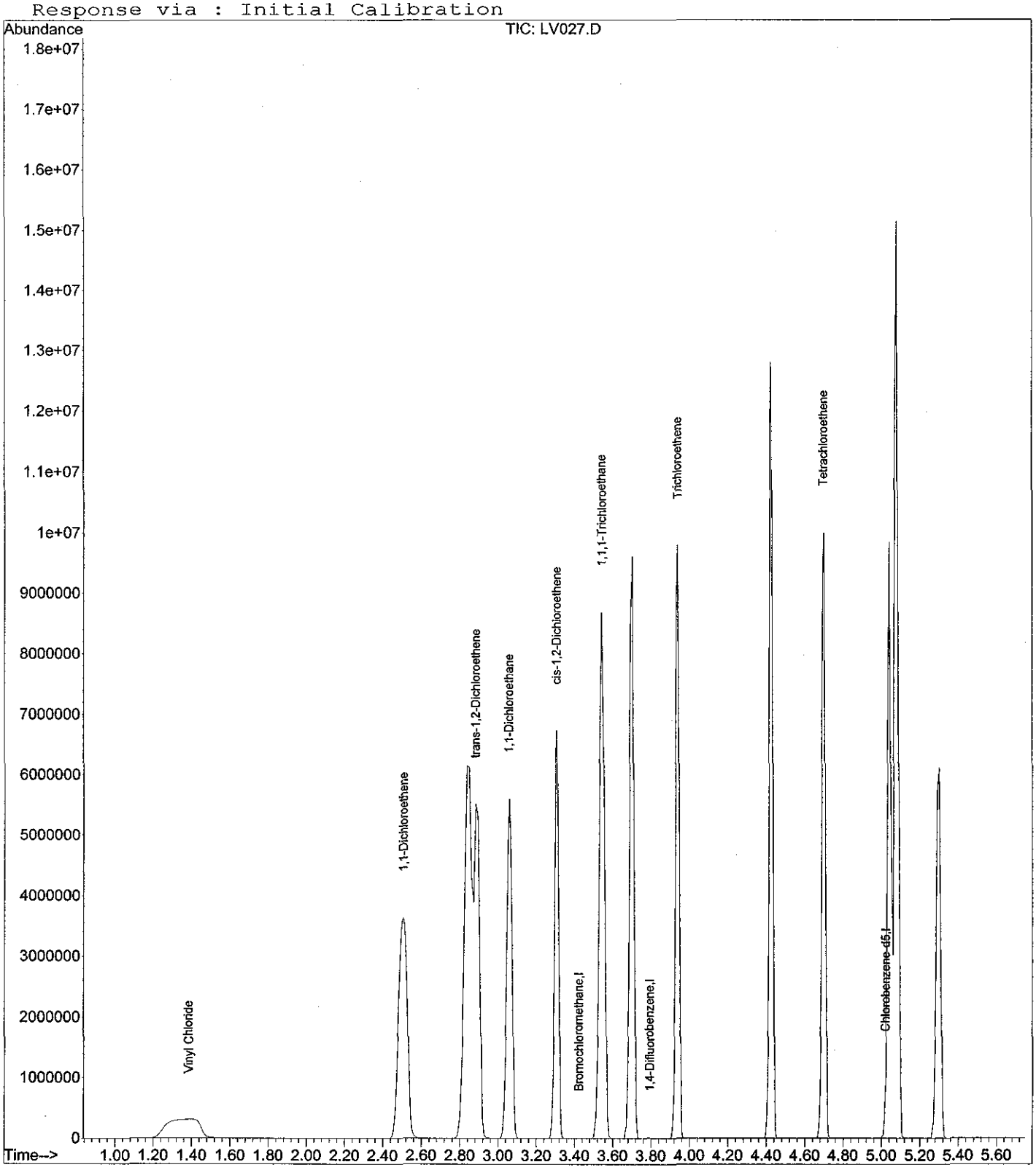
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane	3.42	49	5407	10.00 ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	12576	10.00 ppbv	0.00
10) Chlorobenzene-d5	5.01	117	11481m	10.00 ppbv	0.00
Target Compounds					Qvalue
2) Vinyl Chloride	1.39	62	2807467m	10062.78 ppbv	
3) 1,1-Dichloroethene	2.50	61	6031250	10083.47 ppbv	100
4) trans-1,2-Dichloroethene	2.88	61	5234318m	9062.64 ppbv	
5) 1,1-Dichloroethane	3.06	63	7117210	9769.52 ppbv	99
6) cis-1,2-Dichloroethene	3.30	61	4575782m	9854.28 ppbv	
7) 1,1,1-Trichloroethane	3.54	97	7553394	10766.47 ppbv	97
9) Trichloroethene	3.94	130	4329153	9487.12 ppbv	98
11) Tetrachloroethene	4.70	166	5062329	9829.10 ppbv	99

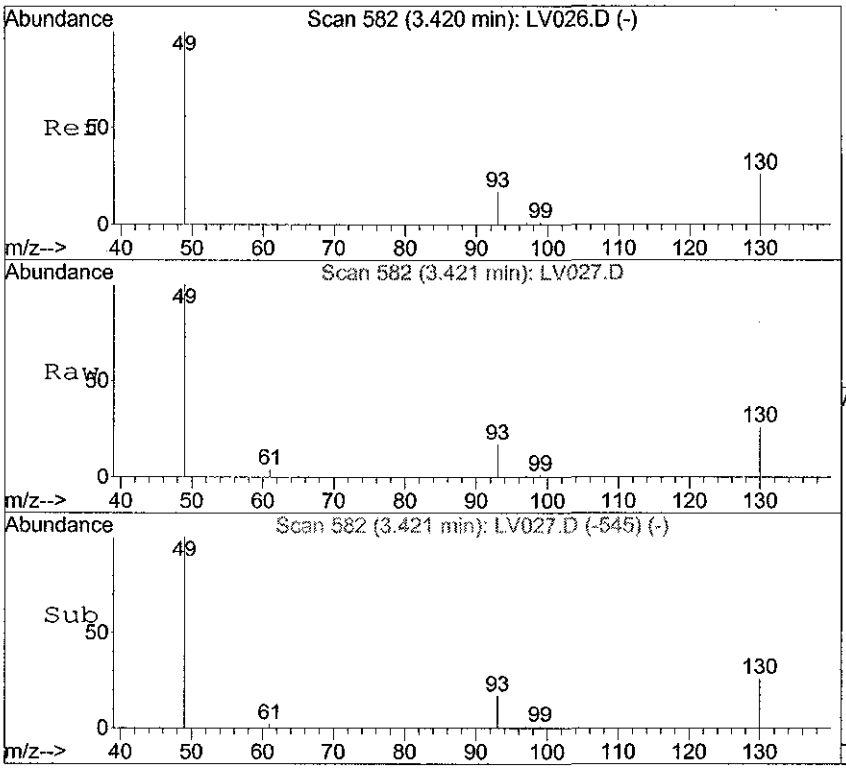
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV027.D Vial: 1
Acq On : 2 Apr 2008 1:12 pm Operator: SJT
Sample : STD20080402-1 Inst : Instrumen
Misc : 10ppmv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 14:30 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

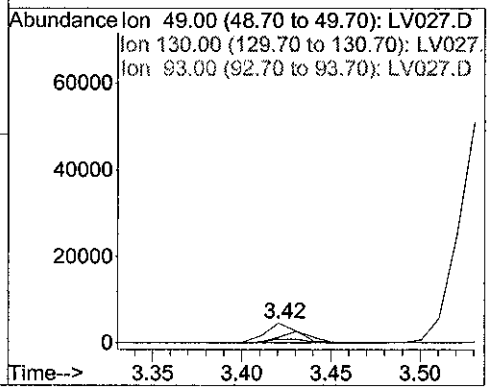


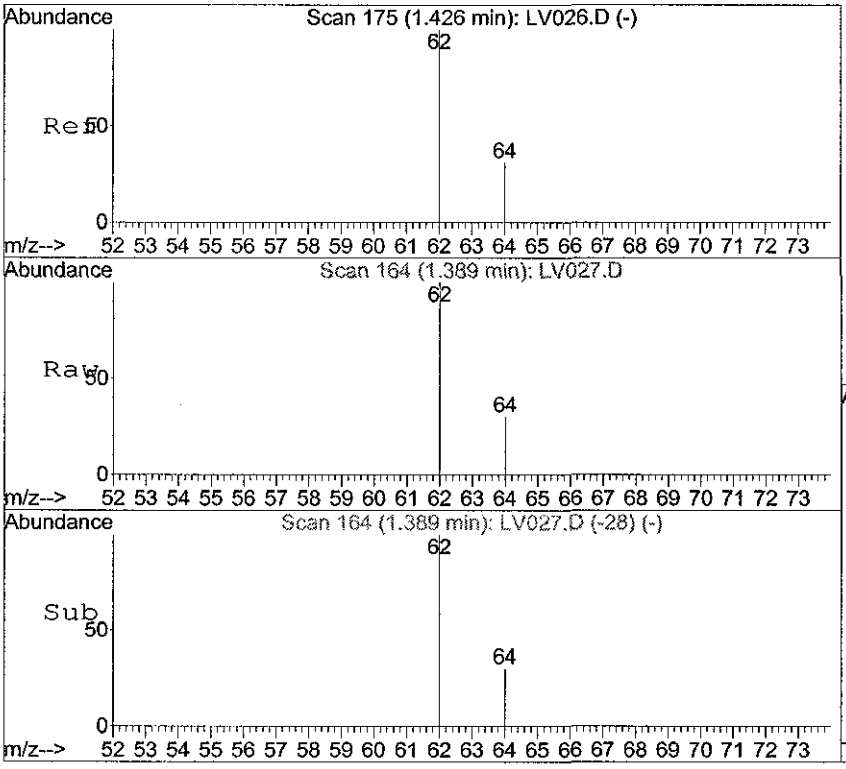


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. 0.00 min
Lab File: LV027.D
Acq: 2 Apr 2008 1:12 pm

Tgt Ion: 49 Resp: 5407

Ion	Ratio	Lower	Upper
49	100		
130	59.3	47.0	70.4
93	24.3	20.2	30.4

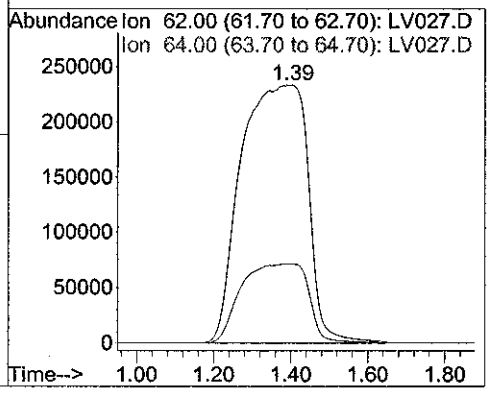


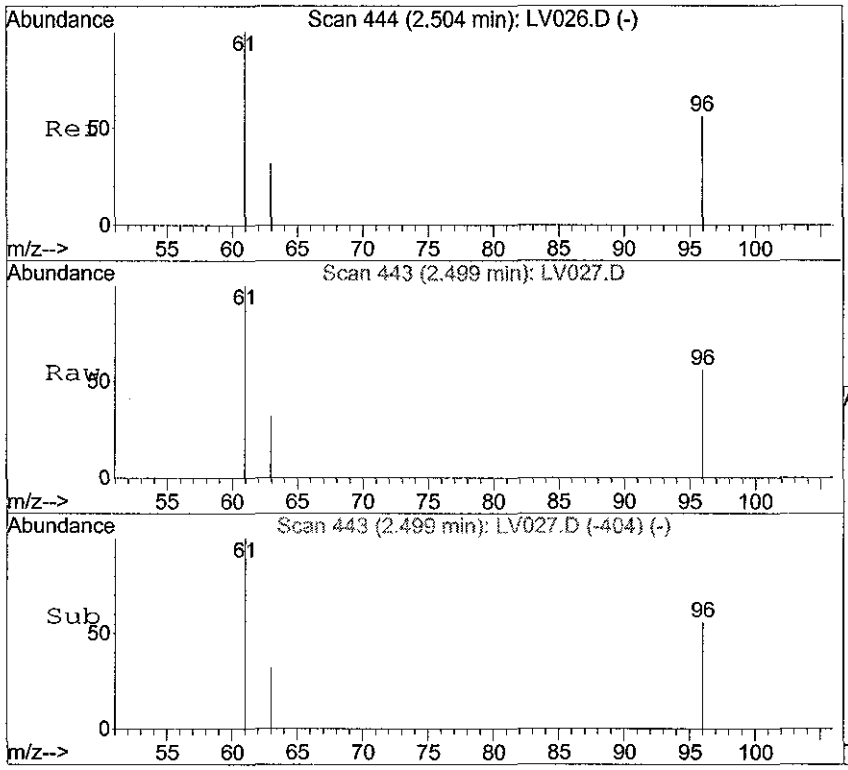


#2
Vinyl Chloride
Concen: 10062.78 ppbv m
RT: 1.39 min Scan# 164
Delta R.T. -0.04 min
Lab File: LV027.D
Acq: 2 Apr 2008 1:12 pm

Tgt Ion: 62 Resp: 2807467

Ion	Ratio	Lower	Upper
62	100		
64	15.1	10.7	16.1

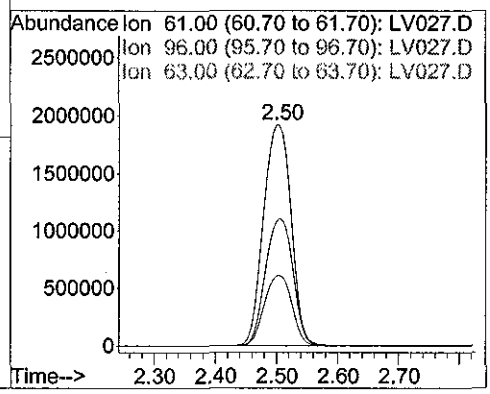


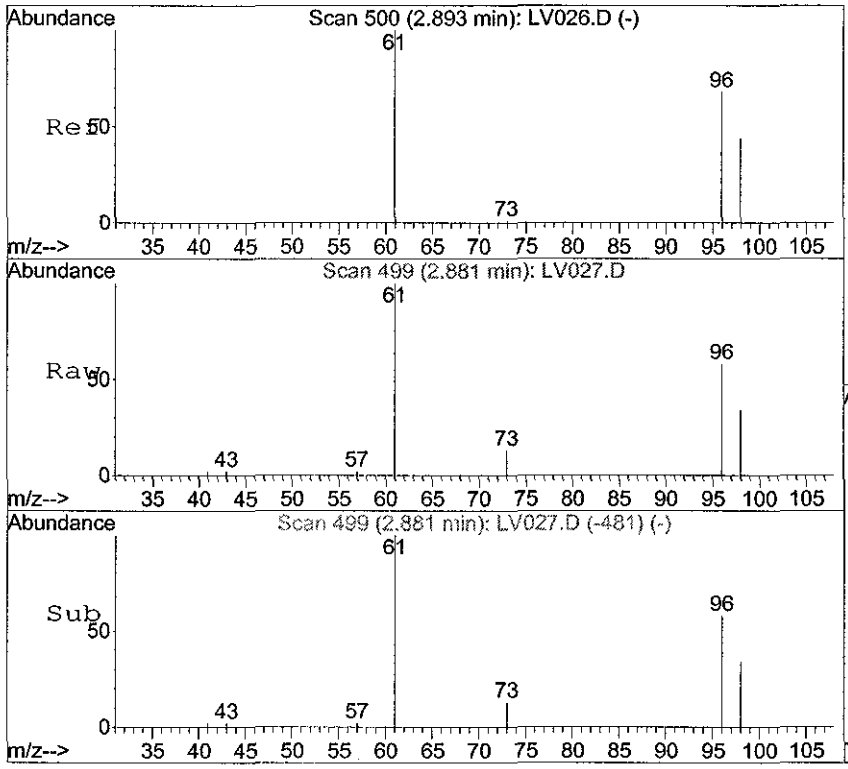


#3
1,1-Dichloroethene
Concen: 10083.47 ppbv
RT: 2.50 min Scan# 443
Delta R.T. -0.00 min
Lab File: LV027.D
Acq: 2 Apr 2008 1:12 pm

Tgt Ion: 61 Resp: 6031250

Ion	Ratio	Lower	Upper
61	100		
96	57.4	45.7	68.5
63	31.8	25.6	38.4

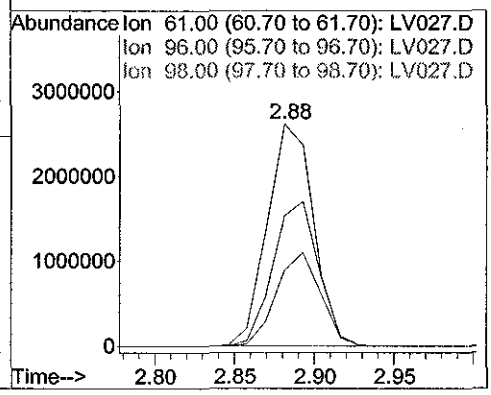


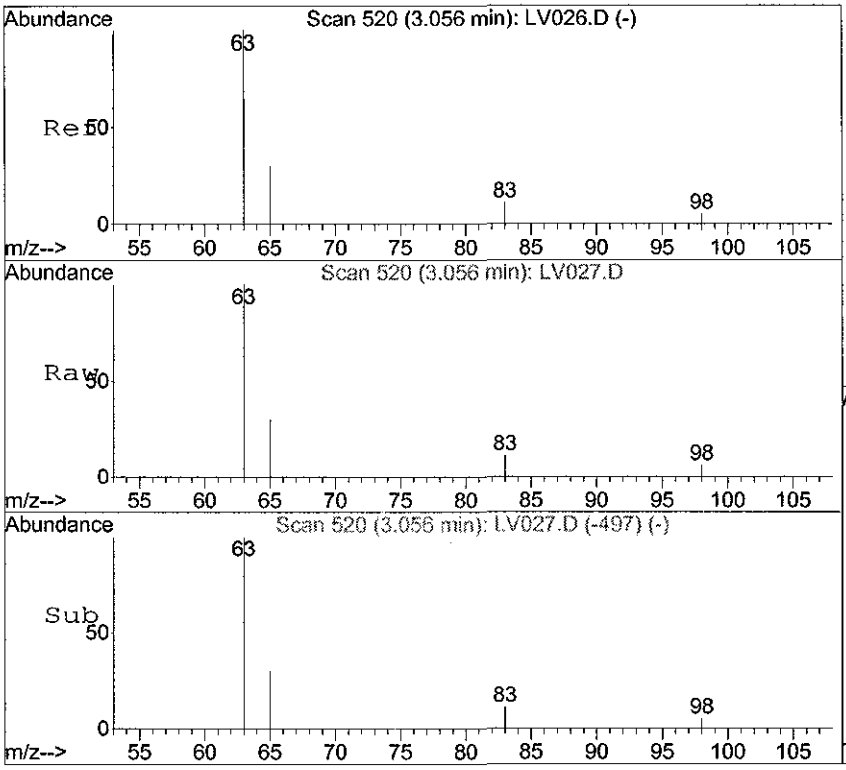


#4
trans-1,2-Dichloroethene
Concen: 9062.64 ppbv m
RT: 2.88 min Scan# 499
Delta R.T. -0.01 min
Lab File: LV027.D
Acq: 2 Apr 2008 1:12 pm

Tgt Ion: 61 Resp: 5234318

Ion	Ratio	Lower	Upper
61	100		
96	62.3	50.3	75.5
98	35.0	28.2	42.4

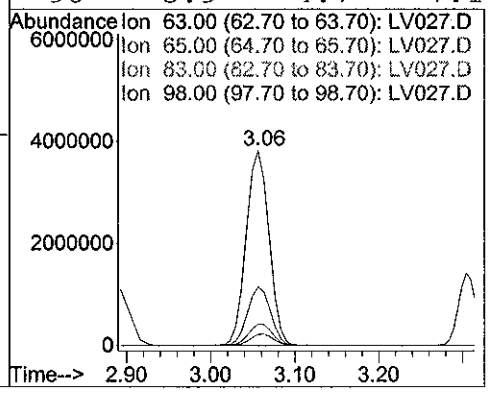


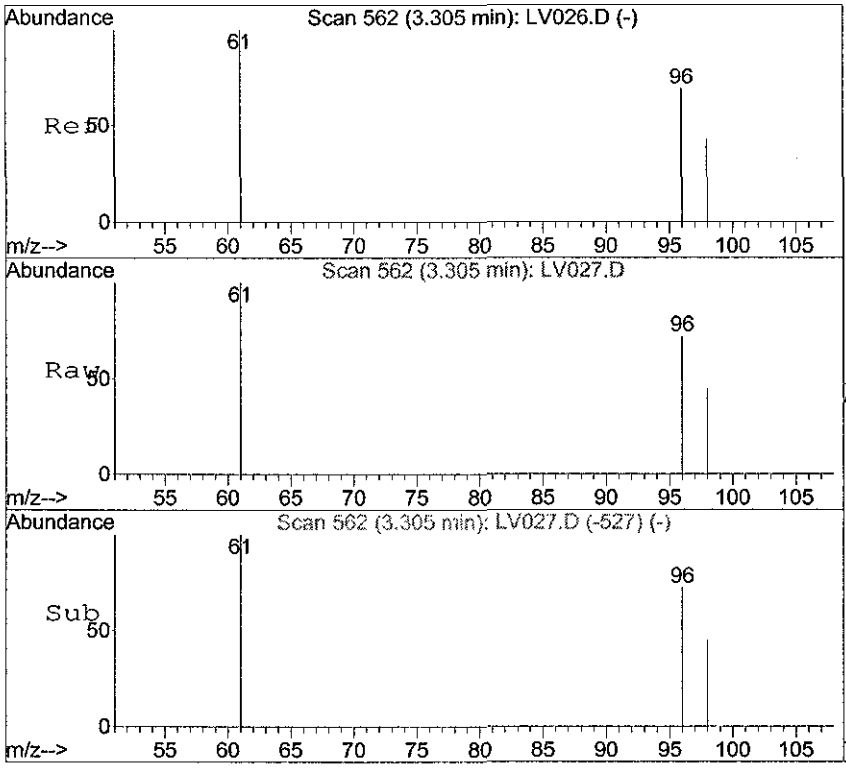


#5
1,1-Dichloroethane
Concen: 9769.52 ppbv
RT: 3.06 min Scan# 520
Delta R.T. 0.00 min
Lab File: LV027.D
Acq: 2 Apr 2008 1:12 pm

Tgt Ion: 63 Resp: 7117210

Ion	Ratio	Lower	Upper
63	100		
65	31.4	24.6	36.8
83	11.6	9.0	13.6
98	5.9	4.7	7.1

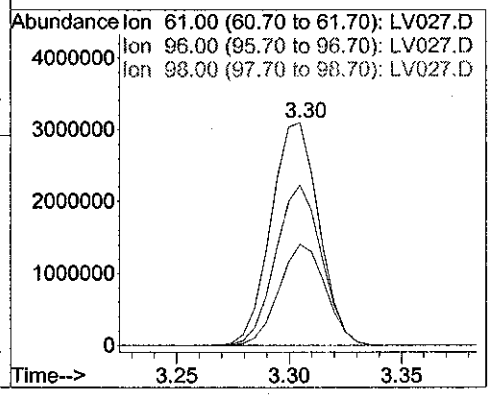


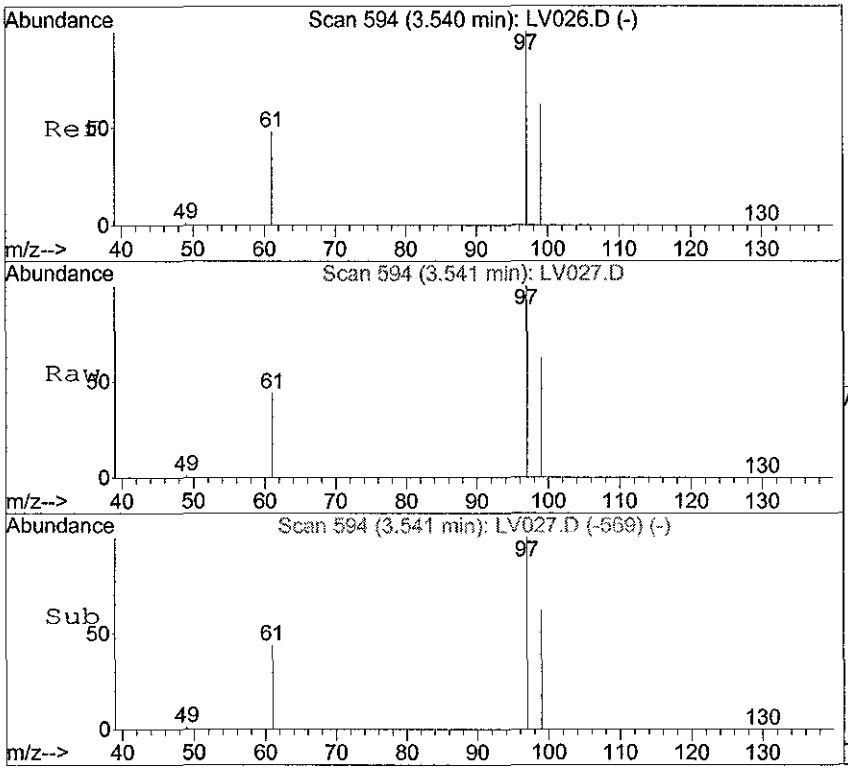


#6
cis-1,2-Dichloroethene
Concen: 9854.28 ppbv m
RT: 3.30 min Scan# 562
Delta R.T. 0.00 min
Lab File: LV027.D
Acq: 2 Apr 2008 1:12 pm

Tgt Ion: 61 Resp: 4575782

Ion	Ratio	Lower	Upper
61	100		
96	71.8	56.8	85.2
98	45.8	36.2	54.2

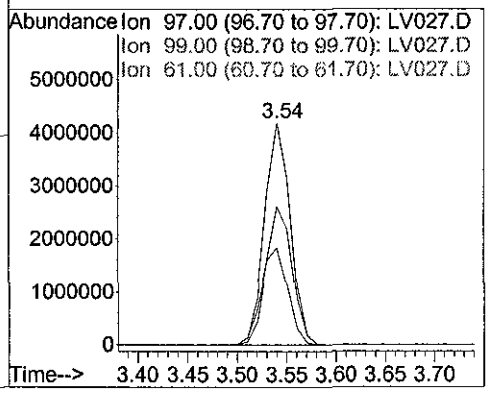


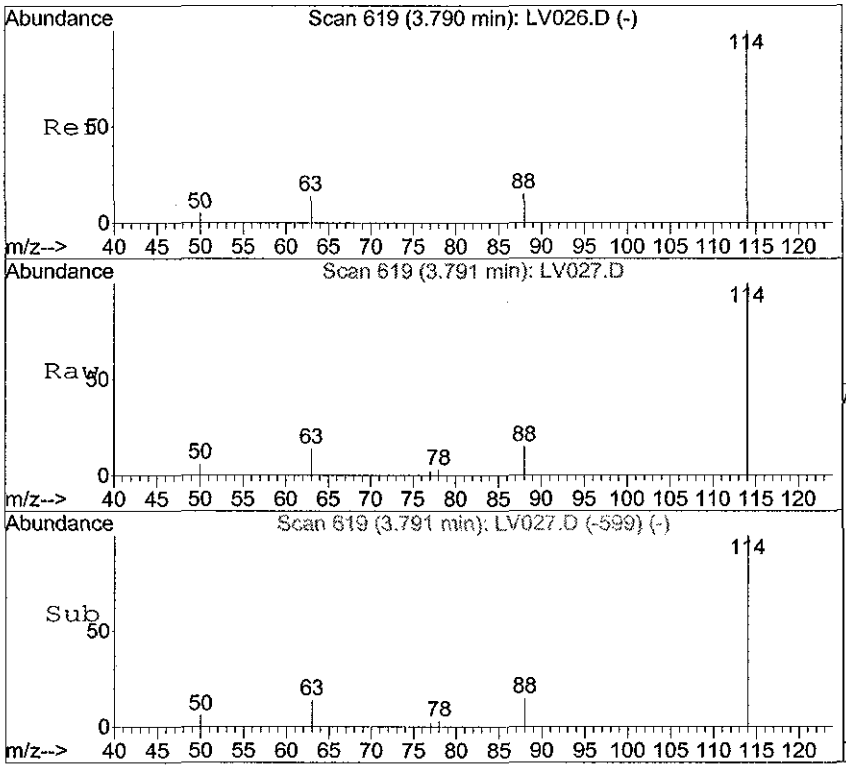


#7
1,1,1-Trichloroethane
Concen: 10766.47 ppbv
RT: 3.54 min Scan# 594
Delta R.T. 0.00 min
Lab File: LV027.D
Acq: 2 Apr 2008 1:12 pm

Tgt Ion: 97 Resp: 7553394

Ion	Ratio	Lower	Upper
97	100		
99	63.3	51.0	76.6
61	45.4	39.7	59.5

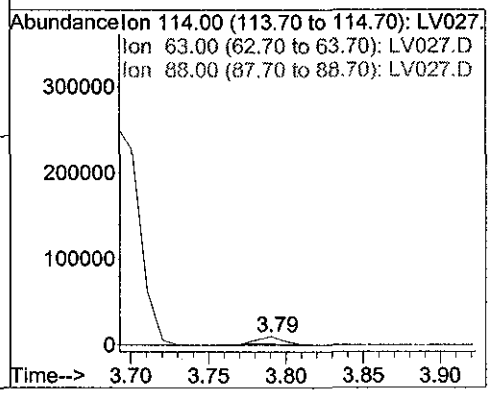


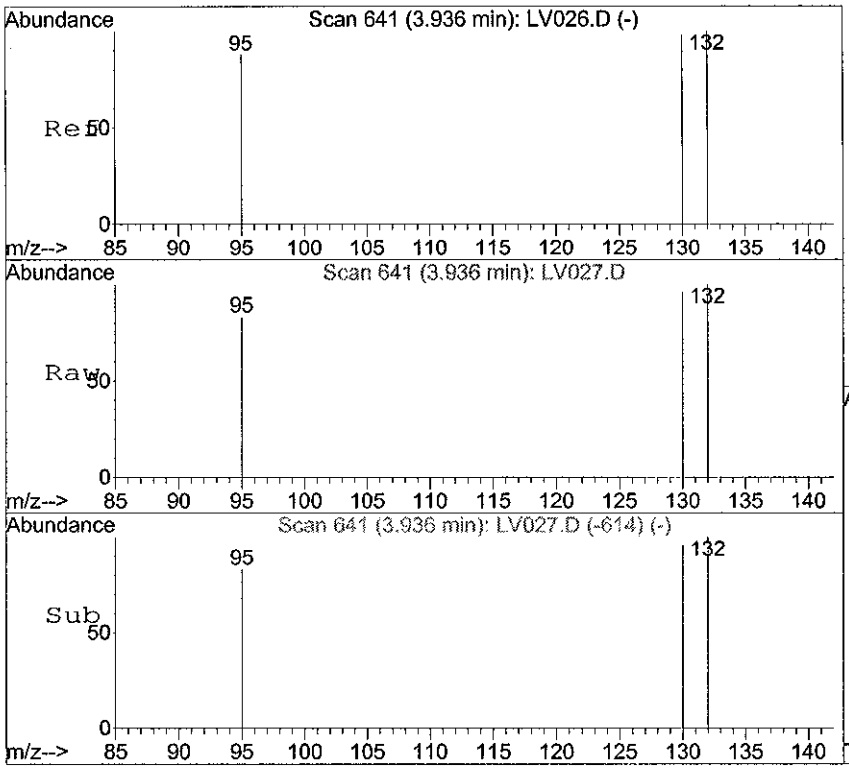


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. 0.00 min
Lab File: LV027.D
Acq: 2 Apr 2008 1:12 pm

Tgt Ion:114 Resp: 12576

Ion	Ratio	Lower	Upper
114	100		
63	0.0	19.8	29.6#
88	17.6	14.6	21.8

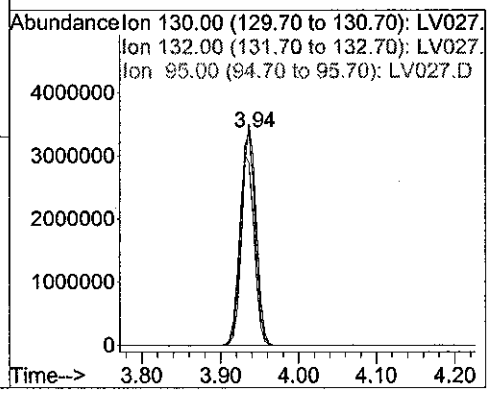


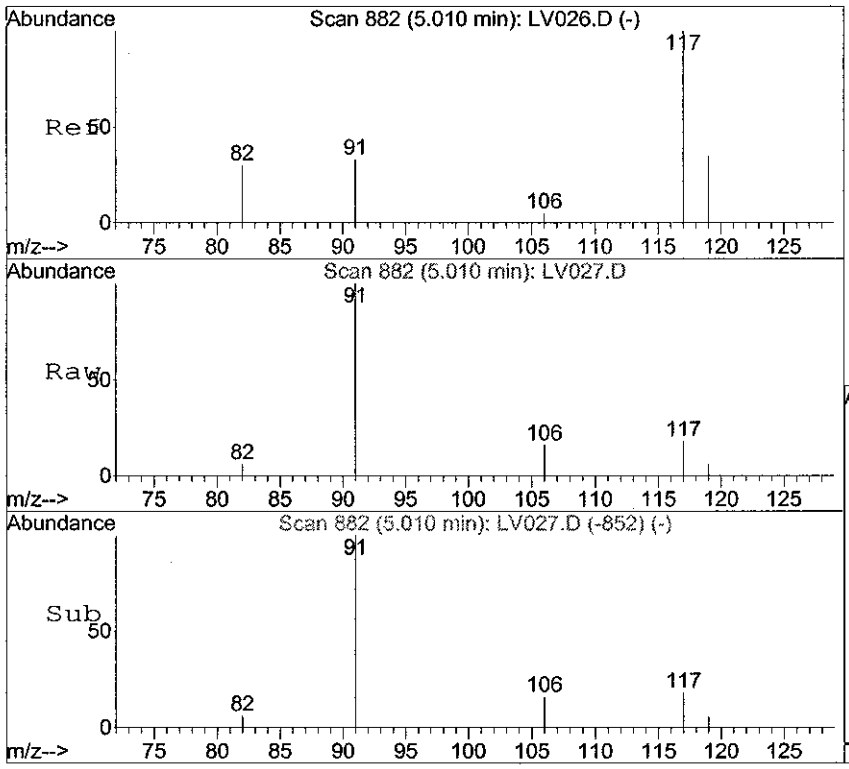


#9
Trichloroethene
Concen: 9487.12 ppbv
RT: 3.94 min Scan# 641
Delta R.T. 0.00 min
Lab File: LV027.D
Acq: 2 Apr 2008 1:12 pm

Tgt Ion:130 Resp: 4329153

Ion	Ratio	Lower	Upper
130	100		
132	101.1	79.9	119.9
95	91.7	76.2	114.2

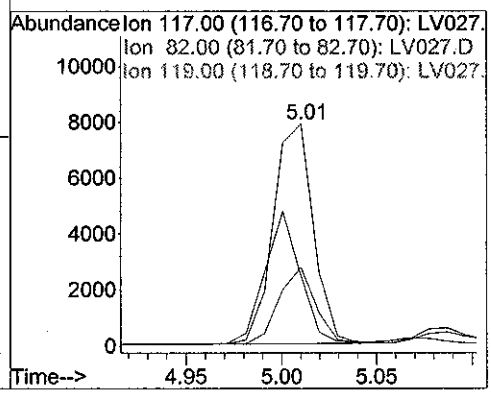


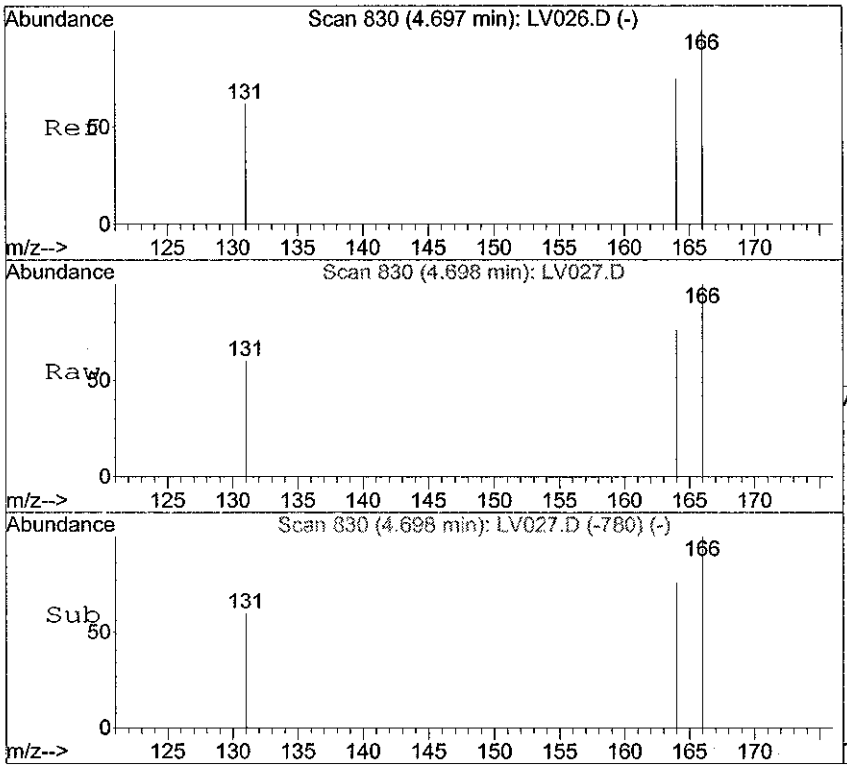


#10
Chlorobenzene-d5
Concen: 10.00 ppbv m
RT: 5.01 min Scan# 882
Delta R.T. 0.00 min
Lab File: LV027.D
Acq: 2 Apr 2008 1:12 pm

Tgt Ion:117 Resp: 11481

Ion	Ratio	Lower	Upper
117	100		
82	55.8	43.1	64.7
119	33.0	26.8	40.2

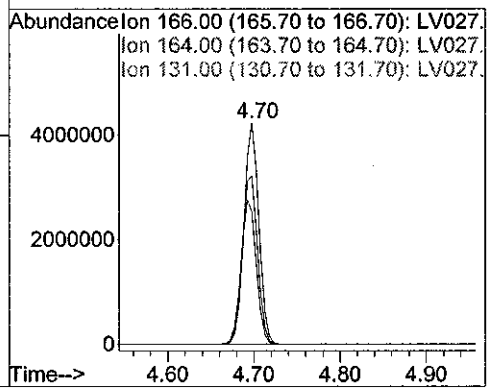




#11
Tetrachloroethene
Concen: 9829.10 ppbv
RT: 4.70 min Scan# 830
Delta R.T. 0.00 min
Lab File: LV027.D
Acq: 2 Apr 2008 1:12 pm

Tgt Ion:166 Resp: 5062329

Ion	Ratio	Lower	Upper
166	100		
164	78.6	62.8	94.2
131	67.4	55.6	83.4



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV028.D Vial: 1
Acq On : 2 Apr 2008 1:39 pm Operator: SJT
Sample : STD20080402-2 Inst : Instrumen
Misc : 1ppmv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 13:46:04 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 13:24:07 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

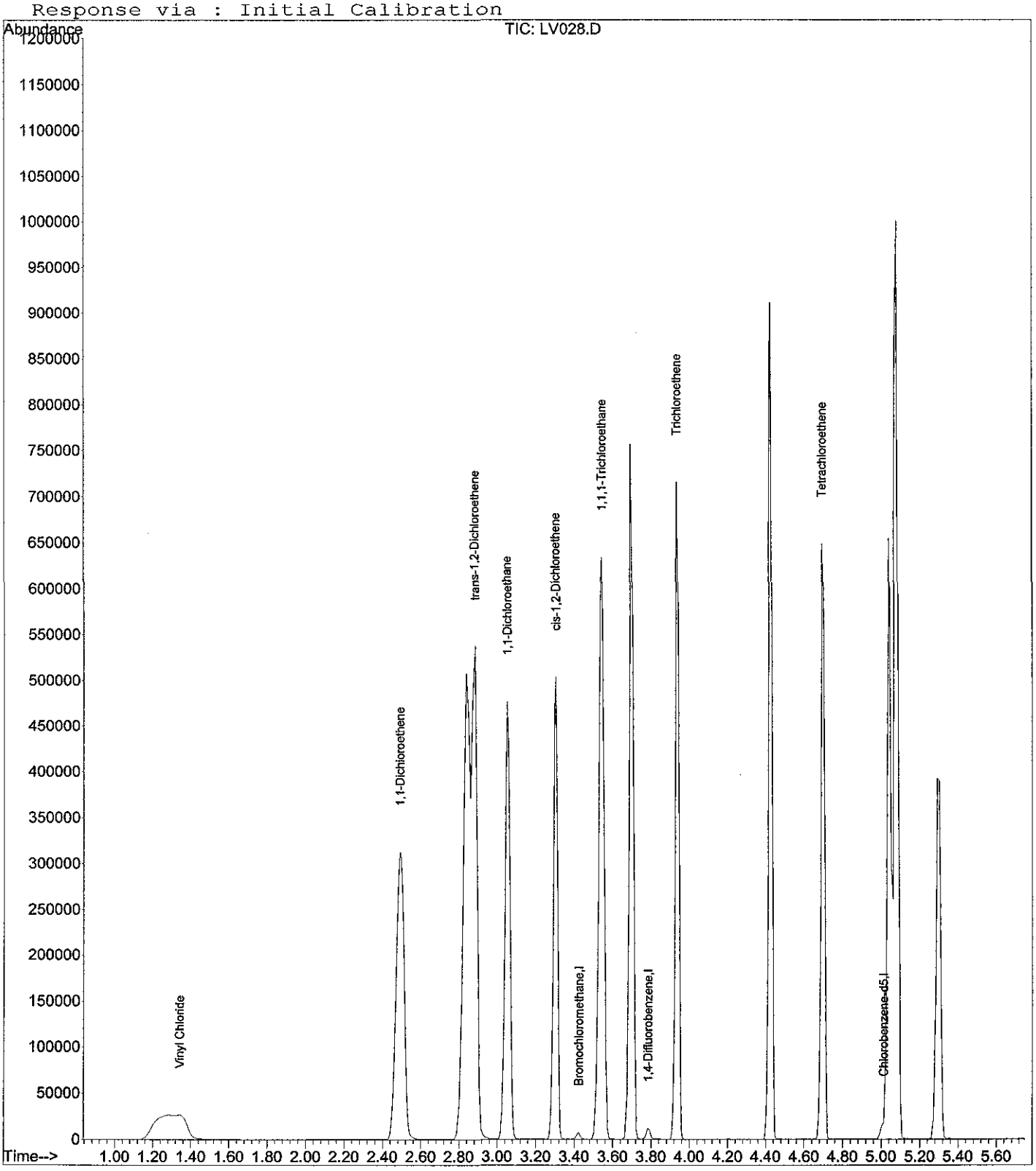
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	3.42	49	5044	10.00	ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	11220	10.00	ppbv	0.00
10) Chlorobenzene-d5	5.00	117	10898	10.00	ppbv	0.00
Target Compounds						Qvalue
2) Vinyl Chloride	1.34	62	234192m	899.82	ppbv	
3) 1,1-Dichloroethene	2.49	61	481675	863.25	ppbv	100
4) trans-1,2-Dichloroethene	2.88	61	456091m	846.50	ppbv	
5) 1,1-Dichloroethane	3.05	63	577561	849.85	ppbv	100
6) cis-1,2-Dichloroethene	3.30	61	341624m	788.66	ppbv	
7) 1,1,1-Trichloroethane	3.54	97	556267	849.95	ppbv	99
9) Trichloroethene	3.93	130	305439	750.25	ppbv	100
11) Tetrachloroethene	4.70	166	332283	679.68	ppbv	100

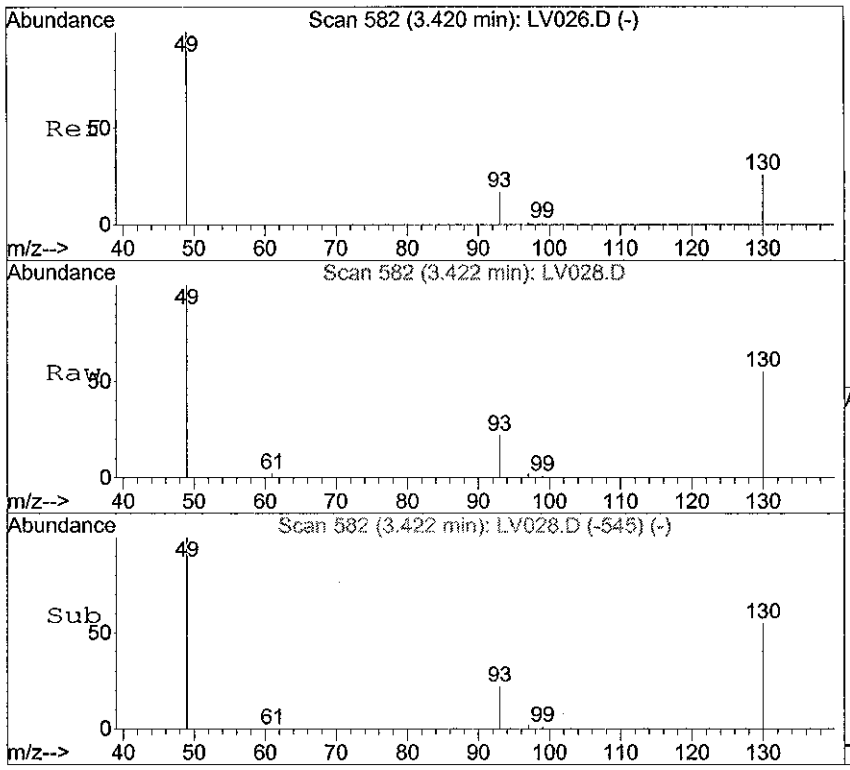
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV028.D Vial: 1
Acq On : 2 Apr 2008 1:39 pm Operator: SJT
Sample : STD20080402-2 Inst : Instrumen
Misc : 1ppmv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 14:30 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

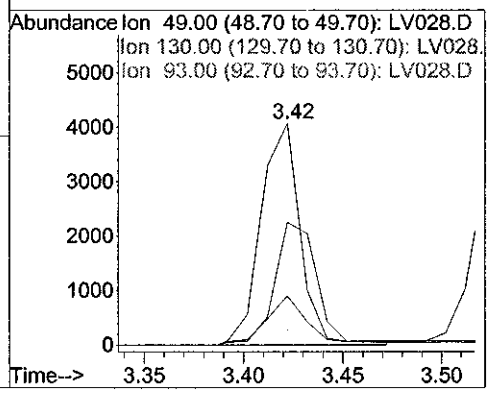


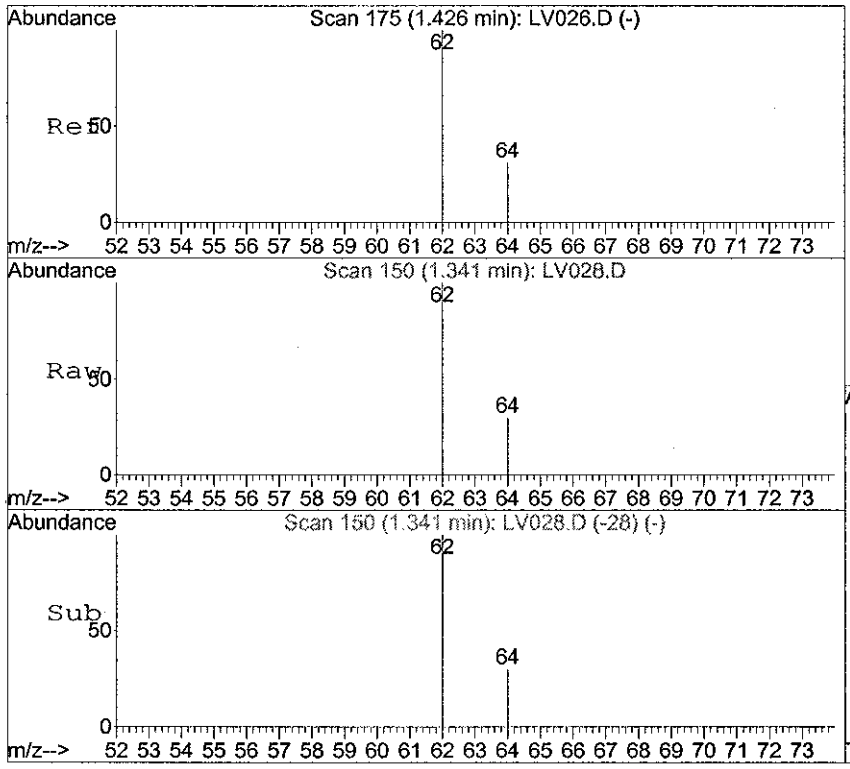


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. 0.00 min
Lab File: LV028.D
Acq: 2 Apr 2008 1:39 pm

Tgt Ion: 49 Resp: 5044

Ion	Ratio	Lower	Upper
49	100		
130	61.3	47.0	70.4
93	24.4	20.2	30.4

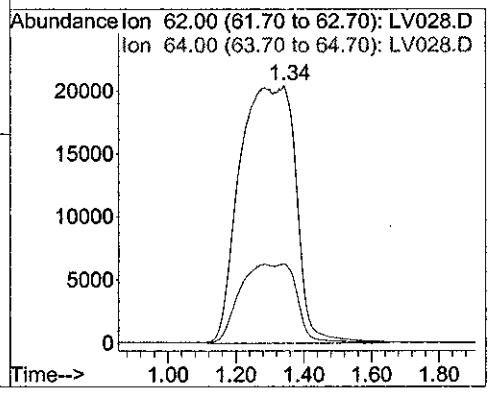


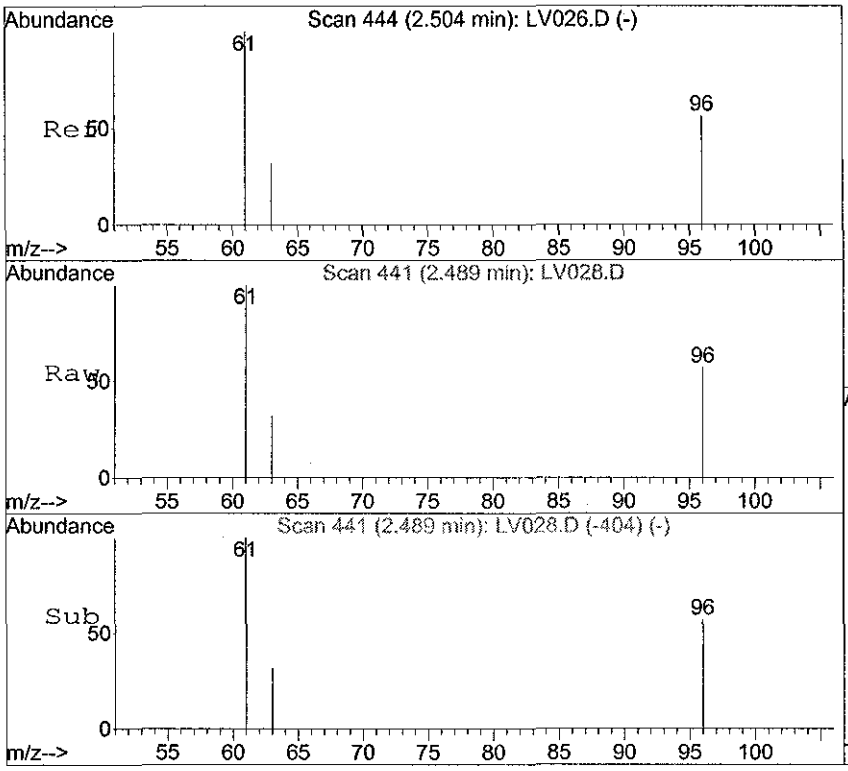


#2
Vinyl Chloride
Concen: 899.82 ppbv m
RT: 1.34 min Scan# 150
Delta R.T. -0.09 min
Lab File: LV028.D
Acq: 2 Apr 2008 1:39 pm

Tgt Ion: 62 Resp: 234192

Ion	Ratio	Lower	Upper
62	100		
64	18.9	10.7	16.1#

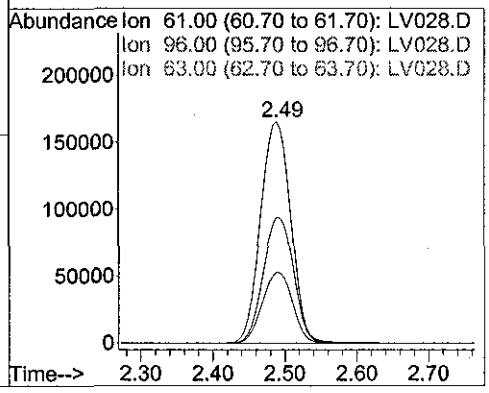


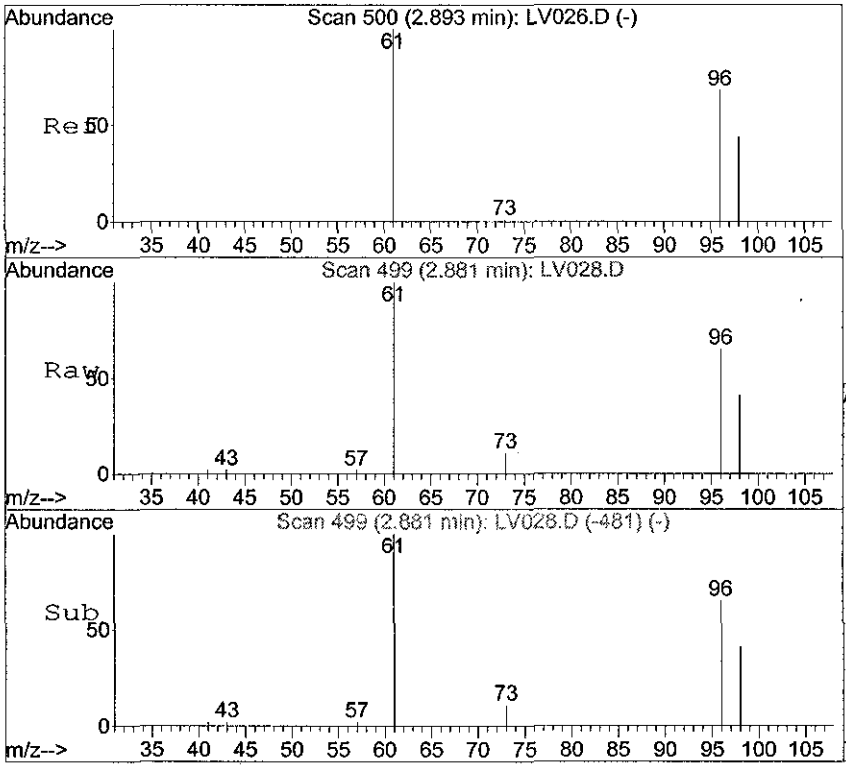


#3
1,1-Dichloroethene
Concen: 863.25 ppbv
RT: 2.49 min Scan# 441
Delta R.T. -0.02 min
Lab File: LV028.D
Acq: 2 Apr 2008 1:39 pm

Tgt Ion: 61 Resp: 481675

Ion	Ratio	Lower	Upper
61	100		
96	56.8	45.7	68.5
63	32.0	25.6	38.4

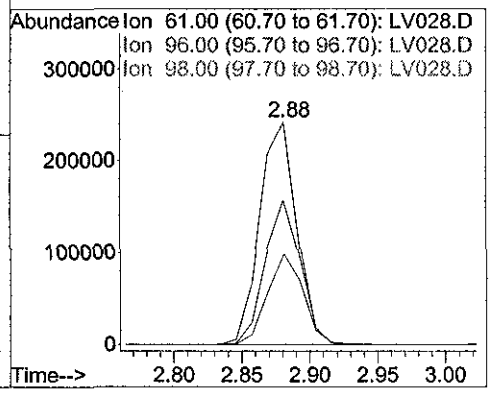


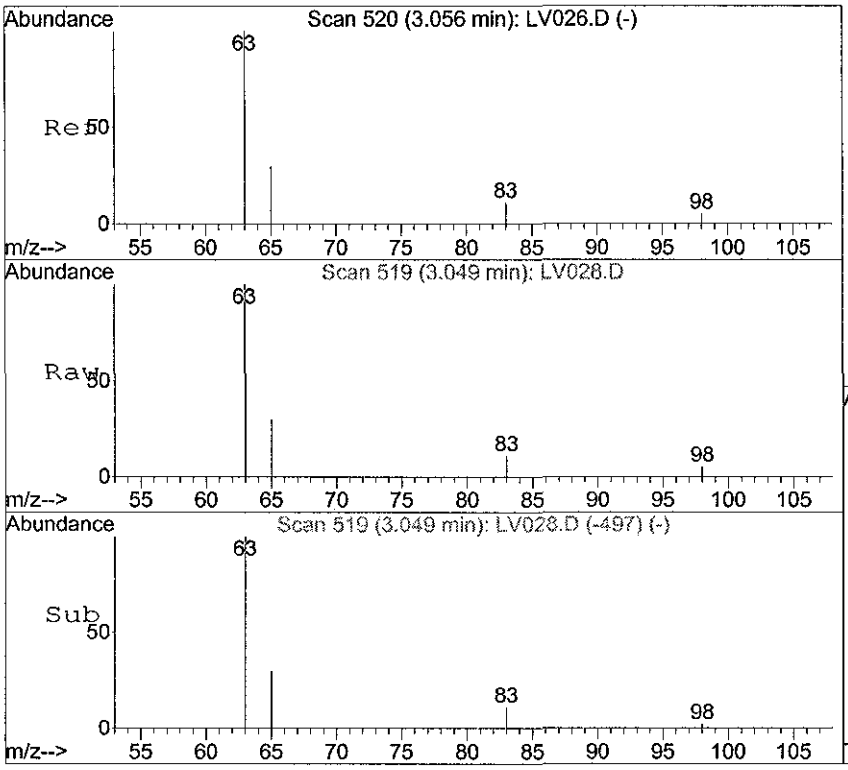


#4
trans-1,2-Dichloroethene
Concen: 846.50 ppbv m
RT: 2.88 min Scan# 499
Delta R.T. -0.01 min
Lab File: LV028.D
Acq: 2 Apr 2008 1:39 pm

Tgt Ion: 61 Resp: 456091

Ion	Ratio	Lower	Upper
61	100		
96	60.2	50.3	75.5
98	34.6	28.2	42.4

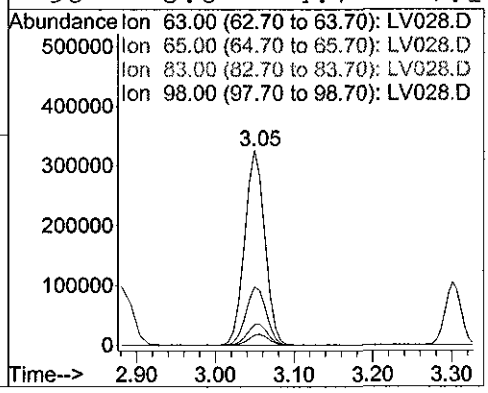


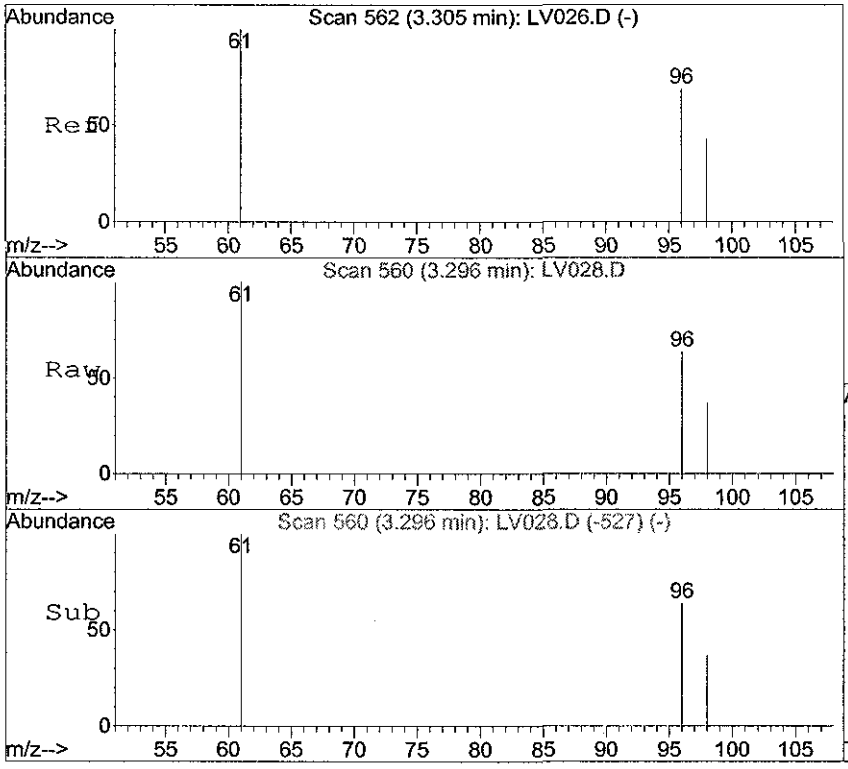


#5
1,1-Dichloroethane
Concen: 849.85 ppbv
RT: 3.05 min Scan# 519
Delta R.T. -0.01 min
Lab File: LV028.D
Acq: 2 Apr 2008 1:39 pm

Tgt Ion: 63 Resp: 577561

Ion	Ratio	Lower	Upper
63	100		
65	30.7	24.6	36.8
83	11.3	9.0	13.6
98	5.8	4.7	7.1

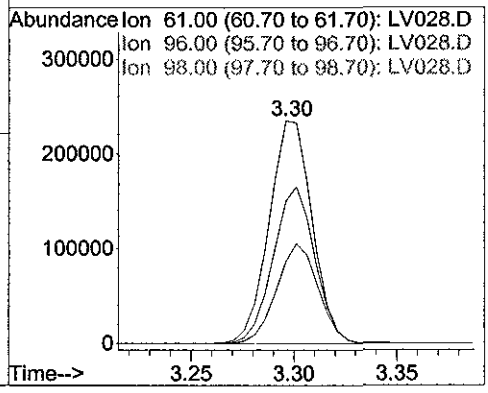


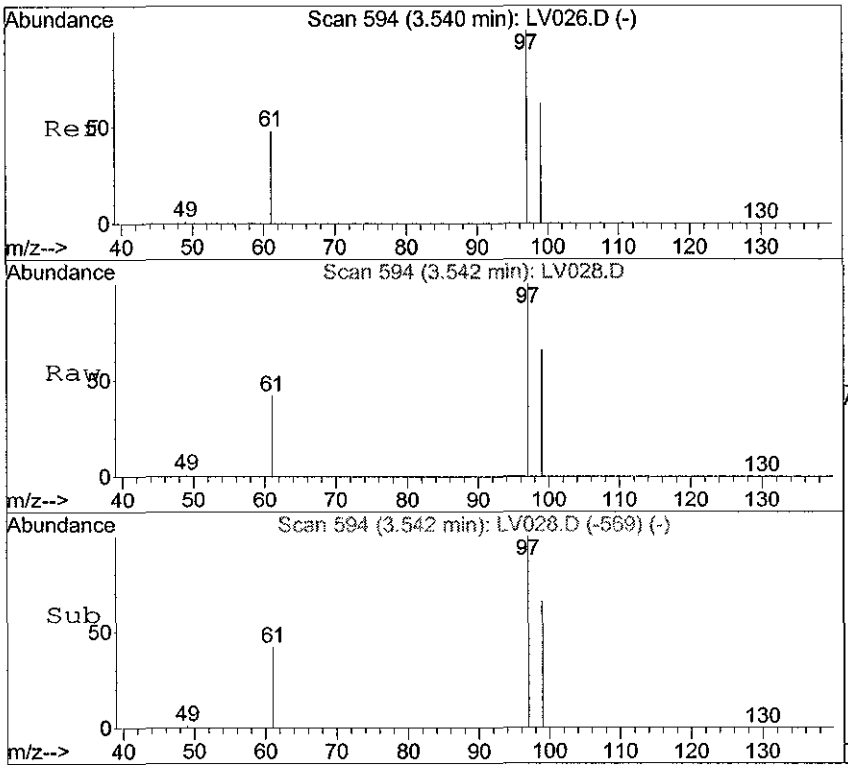


#6
cis-1,2-Dichloroethene
Concen: 788.66 ppbv m
RT: 3.30 min Scan# 560
Delta R.T. -0.01 min
Lab File: LV028.D
Acq: 2 Apr 2008 1:39 pm

Tgt Ion: 61 Resp: 341624

Ion	Ratio	Lower	Upper
61	100		
96	70.6	56.8	85.2
98	44.9	36.2	54.2

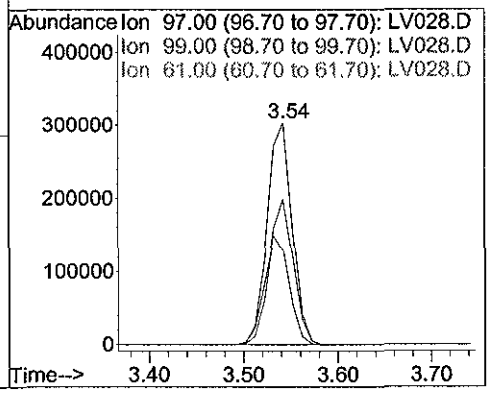


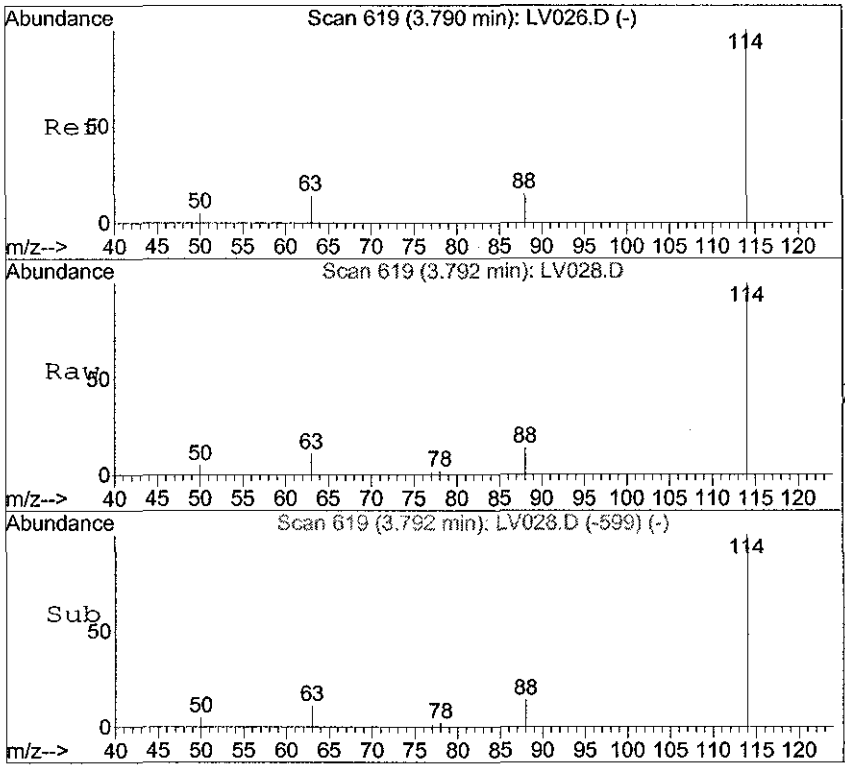


#7
1,1,1-Trichloroethane
Concen: 849.95 ppbv
RT: 3.54 min Scan# 594
Delta R.T. 0.00 min
Lab File: LV028.D
Acq: 2 Apr 2008 1:39 pm

Tgt Ion: 97 Resp: 556267

Ion	Ratio	Lower	Upper
97	100		
99	63.6	51.0	76.6
61	48.9	39.7	59.5

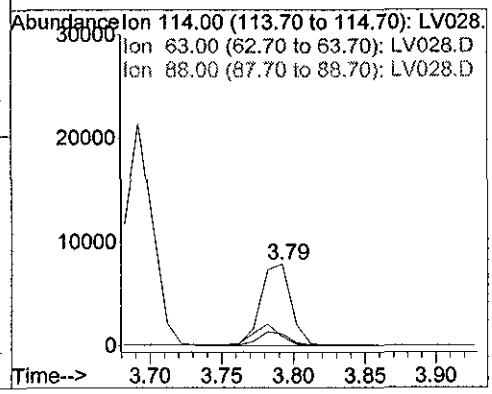


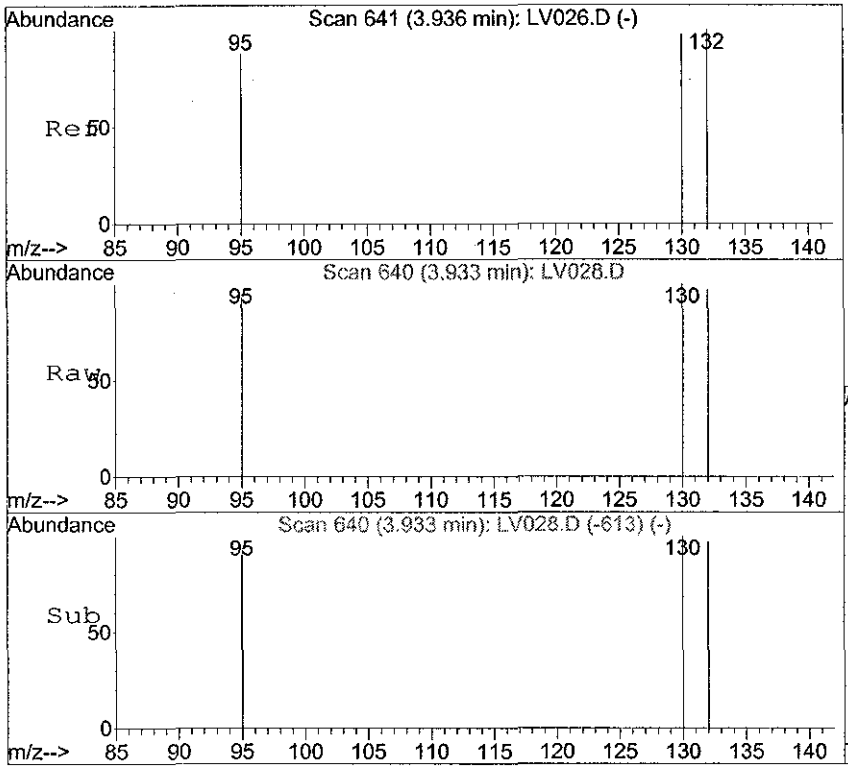


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. 0.00 min
Lab File: LV028.D
Acq: 2 Apr 2008 1:39 pm

Tgt Ion:114 Resp: 11220

Ion	Ratio	Lower	Upper
114	100		
63	25.2	19.8	29.6
88	17.7	14.6	21.8

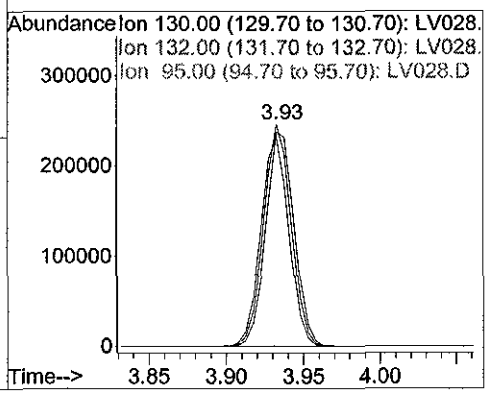


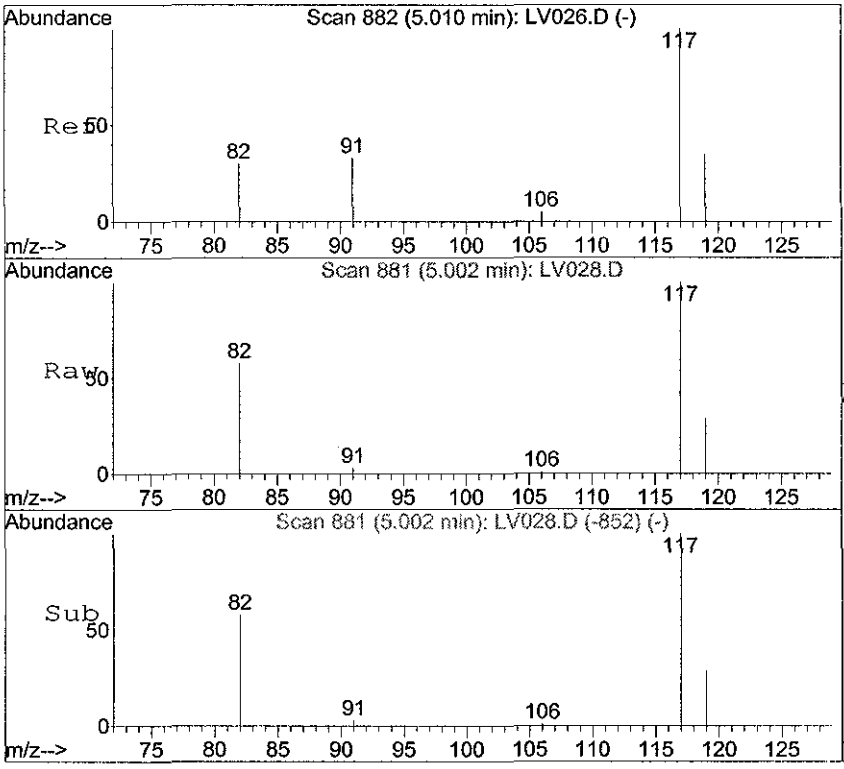


#9
Trichloroethene
Concen: 750.25 ppbv
RT: 3.93 min Scan# 640
Delta R.T. -0.00 min
Lab File: LV028.D
Acq: 2 Apr 2008 1:39 pm

Tgt Ion:130 Resp: 305439

Ion	Ratio	Lower	Upper
130	100		
132	99.8	79.9	119.9
95	95.5	76.2	114.2

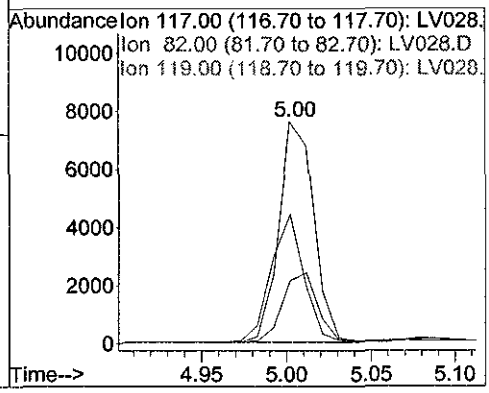


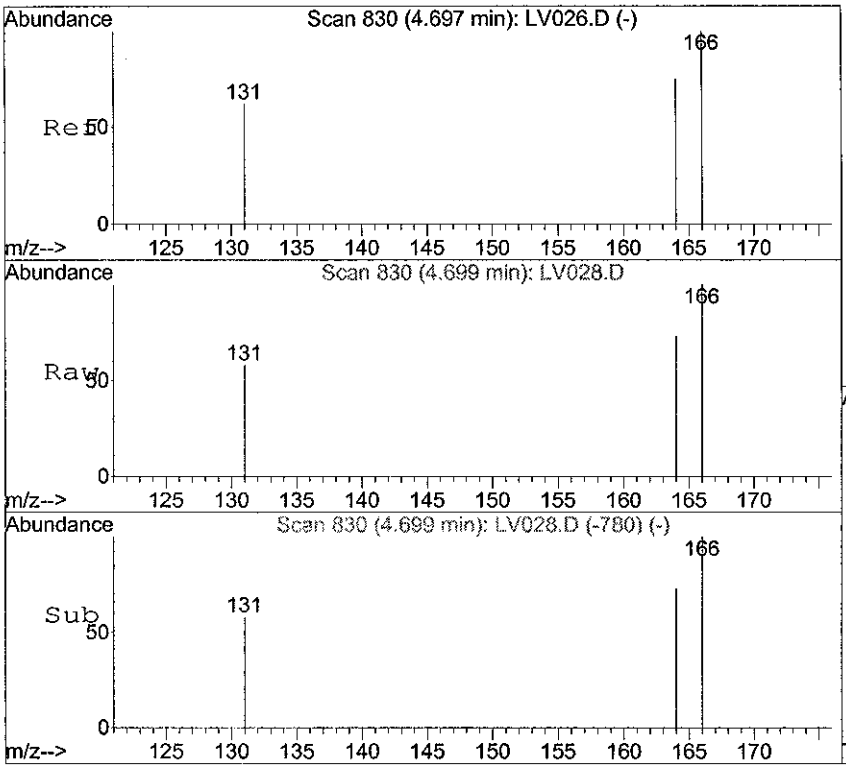


#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.00 min Scan# 881
Delta R.T. -0.01 min
Lab File: LV028.D
Acq: 2 Apr 2008 1:39 pm

Tgt Ion:117 Resp: 10898

Ion	Ratio	Lower	Upper
117	100		
82	54.9	43.1	64.7
119	32.7	26.8	40.2

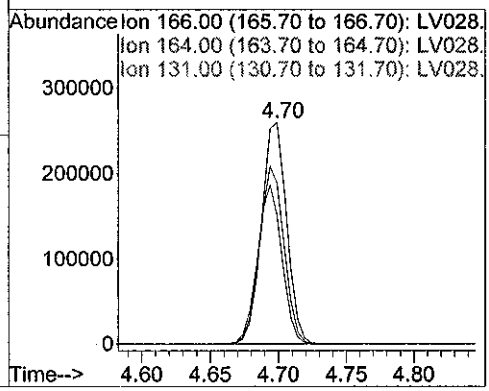




#11
Tetrachloroethene
Concen: 679.68 ppbv
RT: 4.70 min Scan# 830
Delta R.T. 0.00 min
Lab File: LV028.D
Acq: 2 Apr 2008 1:39 pm

Tgt Ion:166 Resp: 332283

Ion	Ratio	Lower	Upper
166	100		
164	78.5	62.8	94.2
131	69.7	55.6	83.4



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV029.D Vial: 1
Acq On : 2 Apr 2008 1:48 pm Operator: SJT
Sample : STD20080402-4 Inst : Instrumen
Misc : 50ppbv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 13:54:43 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 13:24:07 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

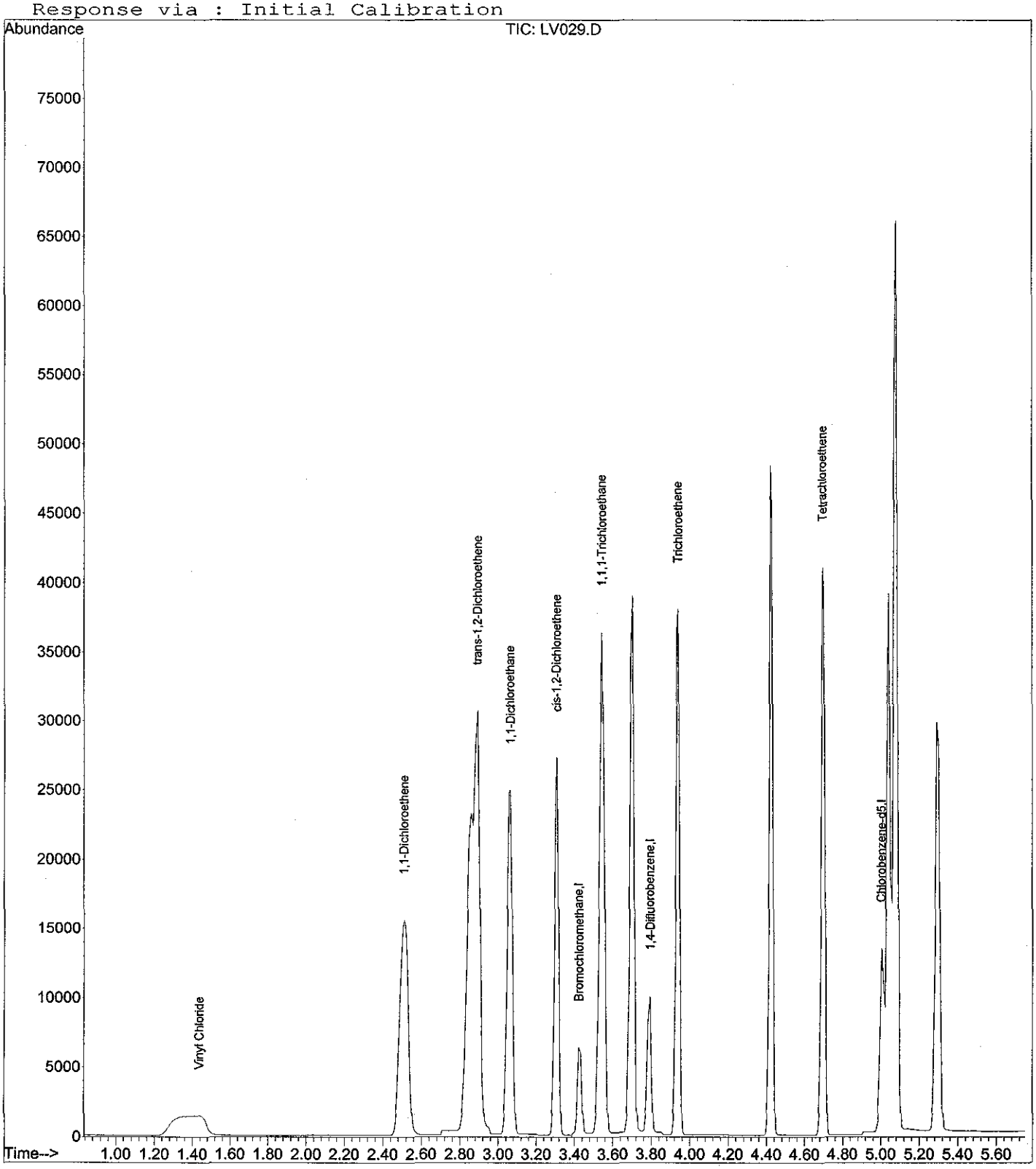
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	3.42	49	5084	10.00	ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	9241	10.00	ppbv	0.00
10) Chlorobenzene-d5	5.00	117	10101	10.00	ppbv	0.00
Target Compounds						Qvalue
2) Vinyl Chloride	1.44	62	12688m	48.37	ppbv	
3) 1,1-Dichloroethene	2.51	61	25162	44.74	ppbv	99
4) trans-1,2-Dichloroethene	2.89	61	23832	43.88	ppbv	98
5) 1,1-Dichloroethane	3.06	63	31753	46.36	ppbv	100
6) cis-1,2-Dichloroethene	3.31	61	18283	41.88	ppbv	97
7) 1,1,1-Trichloroethane	3.54	97	30260	45.87	ppbv	99
9) Trichloroethene	3.94	130	17060	50.88	ppbv	99
11) Tetrachloroethene	4.70	166	21649	47.78	ppbv	100

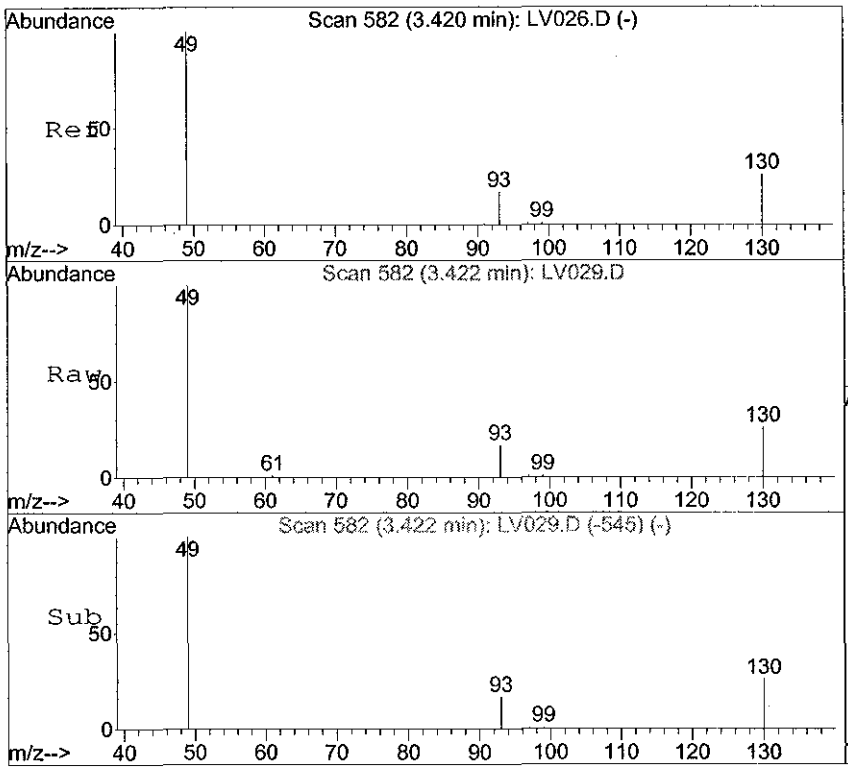
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV029.D Vial: 1
Acq On : 2 Apr 2008 1:48 pm Operator: SJT
Sample : STD20080402-4 Inst : Instrumen
Misc : 50ppbv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 13:55 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

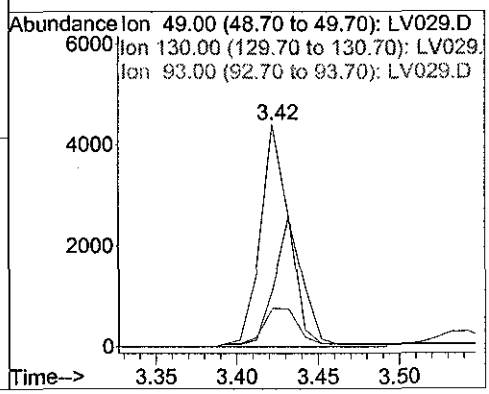


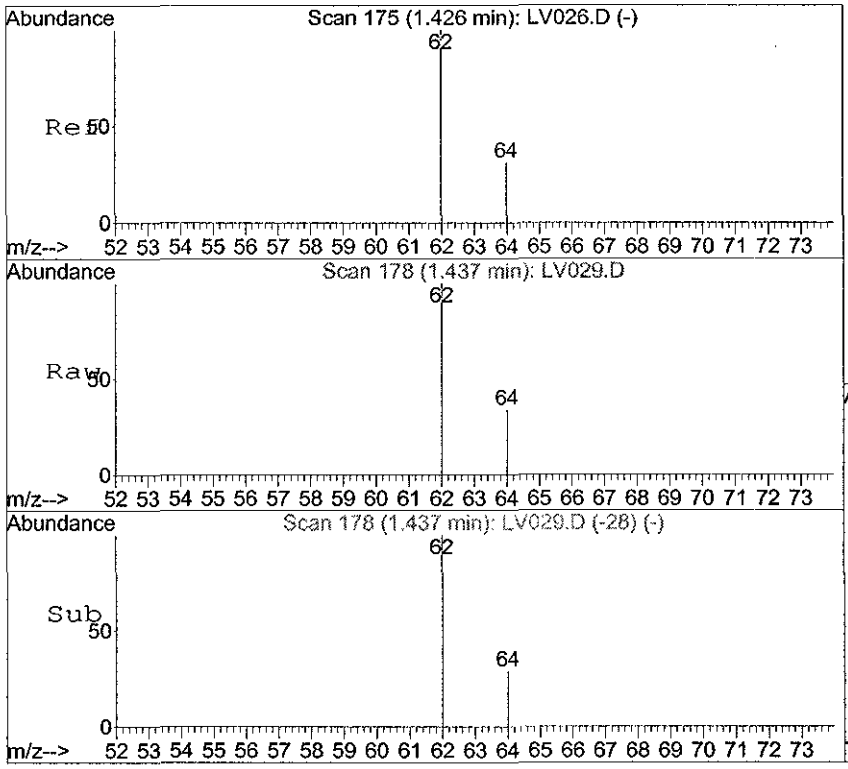


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. 0.00 min
Lab File: LV029.D
Acq: 2 Apr 2008 1:48 pm

Tgt Ion: 49 Resp: 5084

Ion	Ratio	Lower	Upper
49	100		
130	58.2	47.0	70.4
93	24.1	20.2	30.4

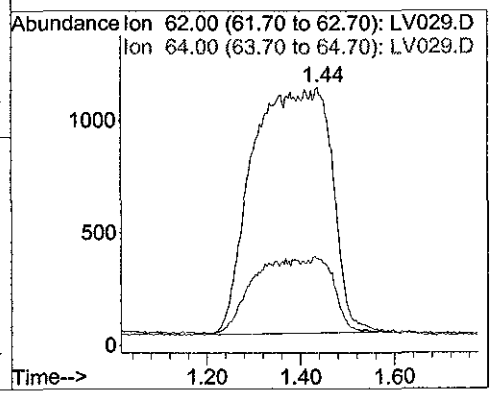


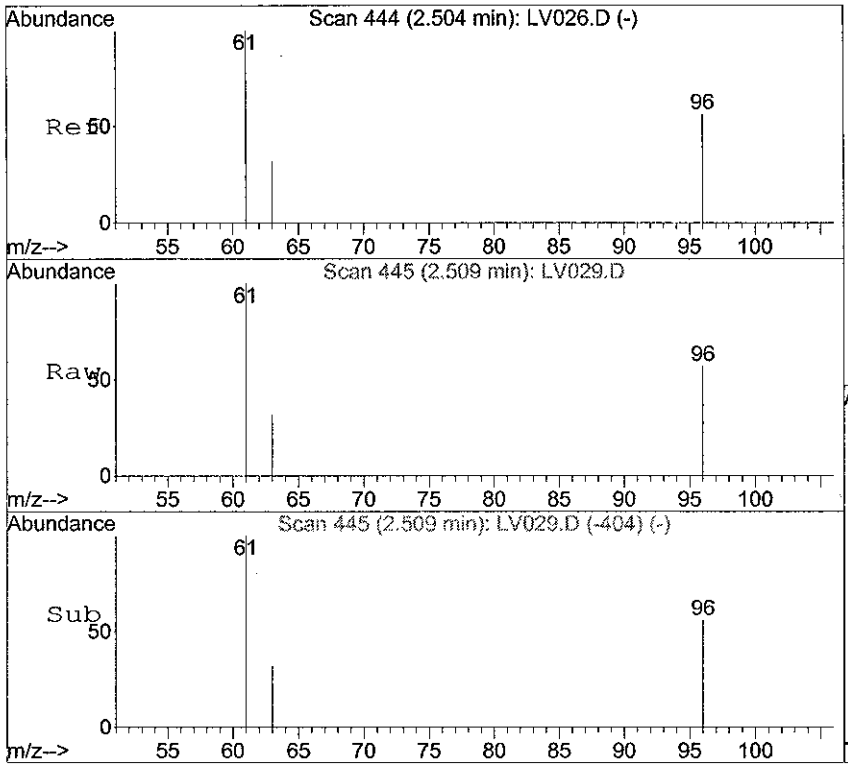


#2
Vinyl Chloride
Concen: 48.37 ppbv m
RT: 1.44 min Scan# 178
Delta R.T. 0.01 min
Lab File: LV029.D
Acq: 2 Apr 2008 1:48 pm

Tgt Ion: 62 Resp: 12688

Ion	Ratio	Lower	Upper
62	100		
64	0.0	10.7	16.1#

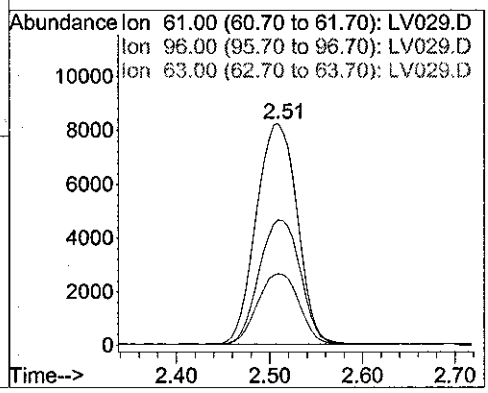


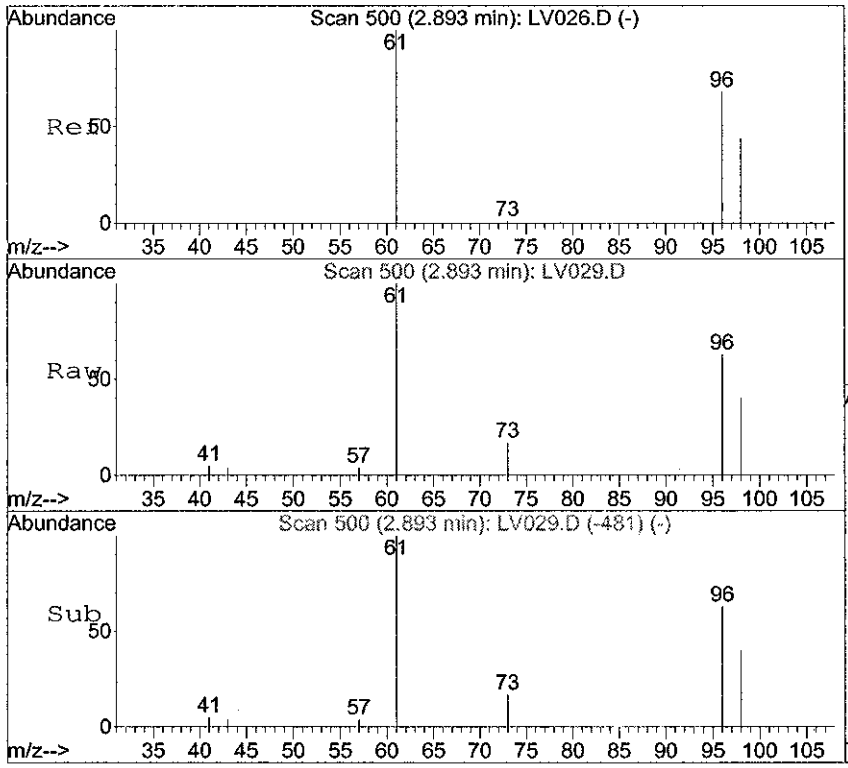


#3
1,1-Dichloroethene
Concen: 44.74 ppbv
RT: 2.51 min Scan# 445
Delta R.T. 0.00 min
Lab File: LV029.D
Acq: 2 Apr 2008 1:48 pm

Tgt Ion: 61 Resp: 25162

Ion	Ratio	Lower	Upper
61	100		
96	56.7	45.7	68.5
63	32.2	25.6	38.4

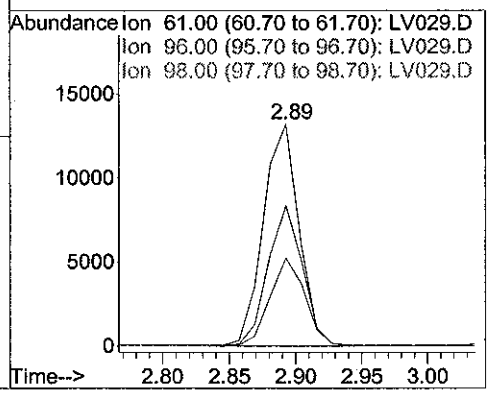


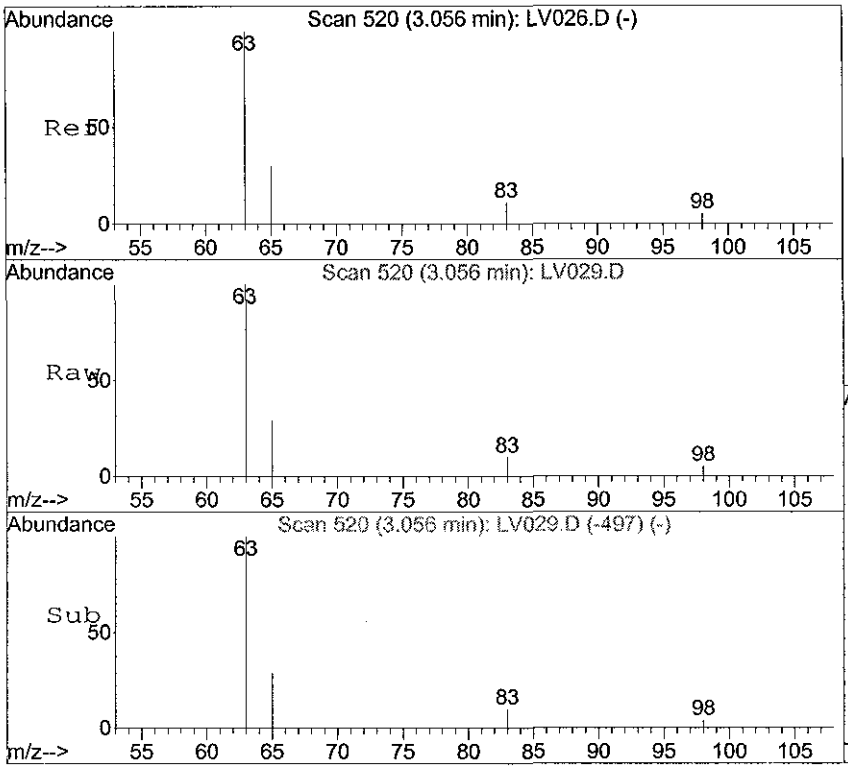


#4
trans-1,2-Dichloroethene
Concen: 43.88 ppbv
RT: 2.89 min Scan# 500
Delta R.T. -0.00 min
Lab File: LV029.D
Acq: 2 Apr 2008 1:48 pm

Tgt Ion: 61 Resp: 23832

Ion	Ratio	Lower	Upper
61	100		
96	62.1	50.3	75.5
98	38.0	28.2	42.4

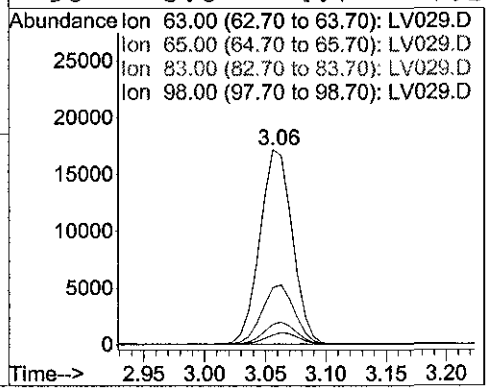


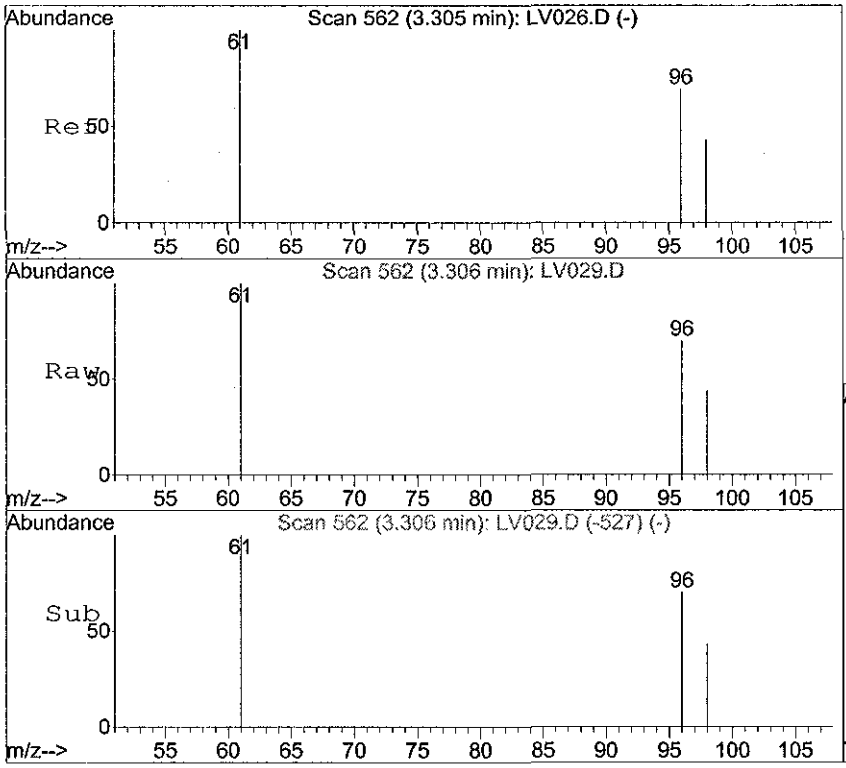


#5
1,1-Dichloroethane
Concen: 46.36 ppbv
RT: 3.06 min Scan# 520
Delta R.T. -0.00 min
Lab File: LV029.D
Acq: 2 Apr 2008 1:48 pm

Tgt Ion: 63 Resp: 31753

Ion	Ratio	Lower	Upper
63	100		
65	30.5	24.6	36.8
83	11.5	9.0	13.6
98	5.8	4.7	7.1

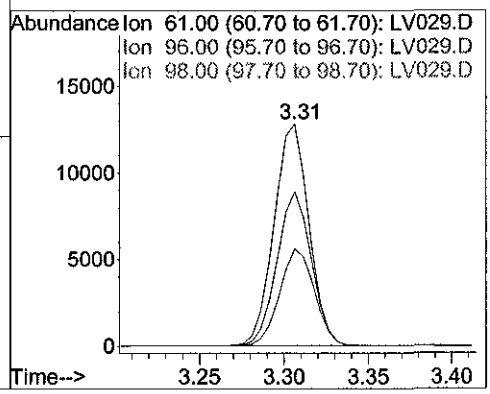


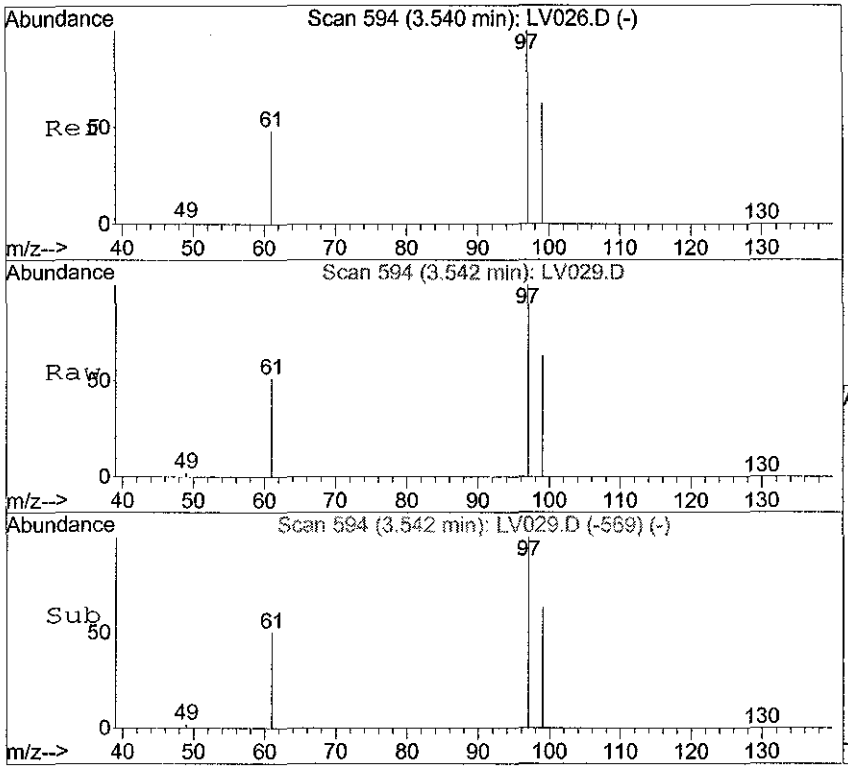


#6
cis-1,2-Dichloroethene
Concen: 41.88 ppbv
RT: 3.31 min Scan# 562
Delta R.T. 0.00 min
Lab File: LV029.D
Acq: 2 Apr 2008 1:48 pm

Tgt Ion: 61 Resp: 18283

Ion	Ratio	Lower	Upper
61	100		
96	73.1	56.8	85.2
98	43.5	36.2	54.2

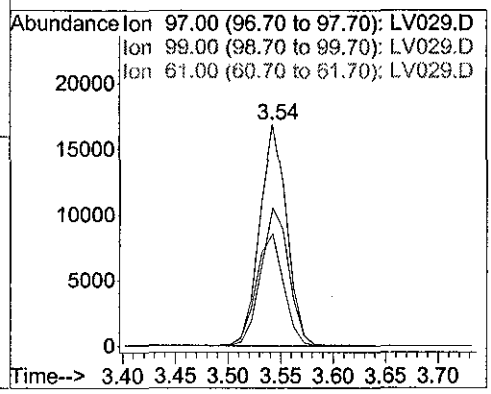


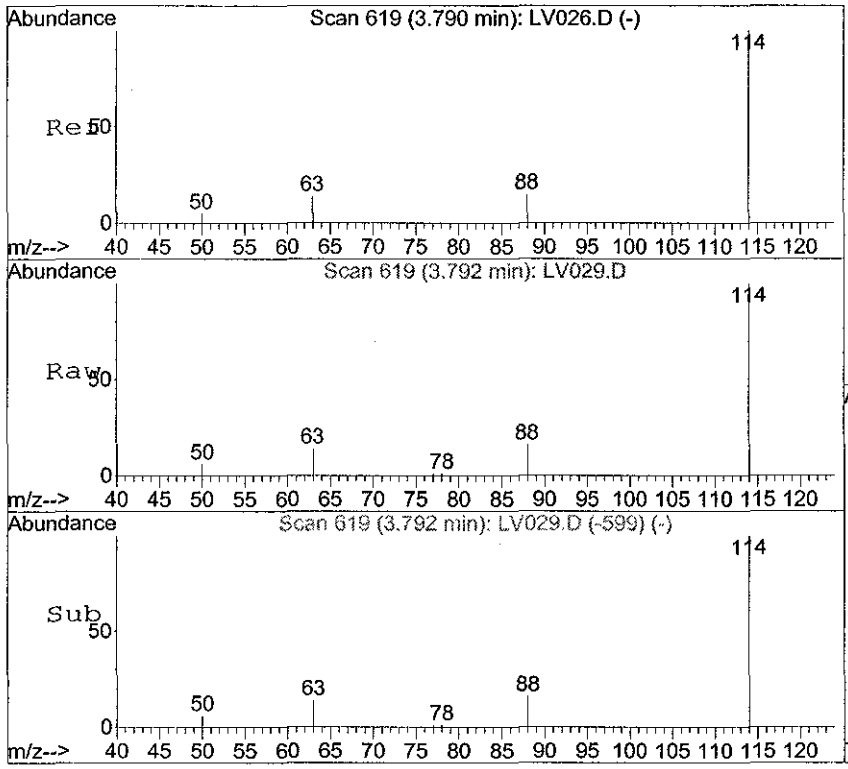


#7
1,1,1-Trichloroethane
Concen: 45.87 ppbv
RT: 3.54 min Scan# 594
Delta R.T. 0.00 min
Lab File: LV029.D
Acq: 2 Apr 2008 1:48 pm

Tgt Ion: 97 Resp: 30260

Ion	Ratio	Lower	Upper
97	100		
99	63.2	51.0	76.6
61	50.7	39.7	59.5

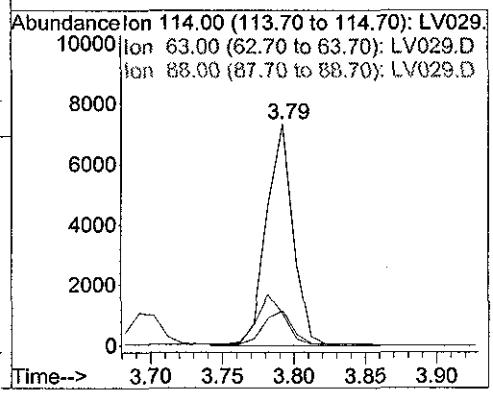


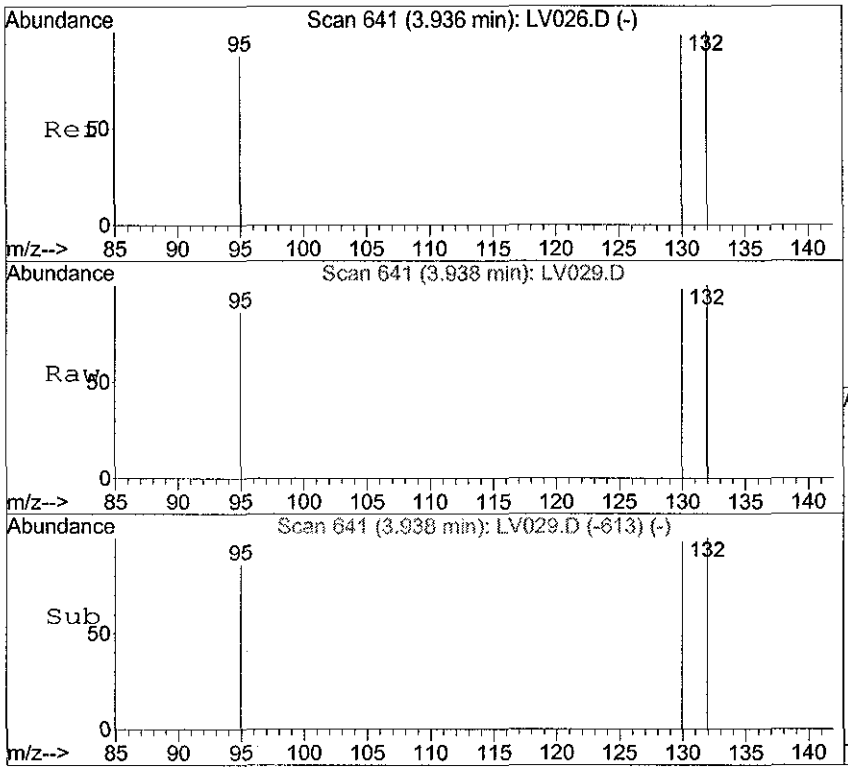


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. 0.00 min
Lab File: LV029.D
Acq: 2 Apr 2008 1:48 pm

Tgt Ion:114 Resp: 9241

Ion	Ratio	Lower	Upper
114	100		
63	25.5	19.8	29.6
88	18.4	14.6	21.8

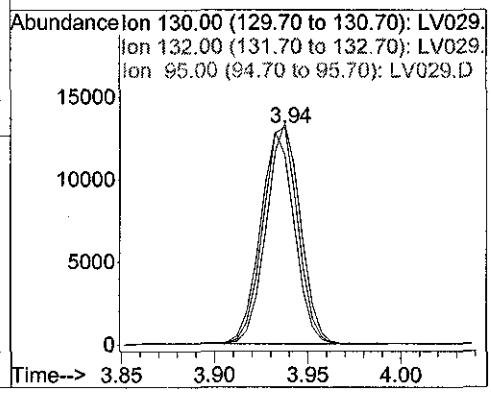


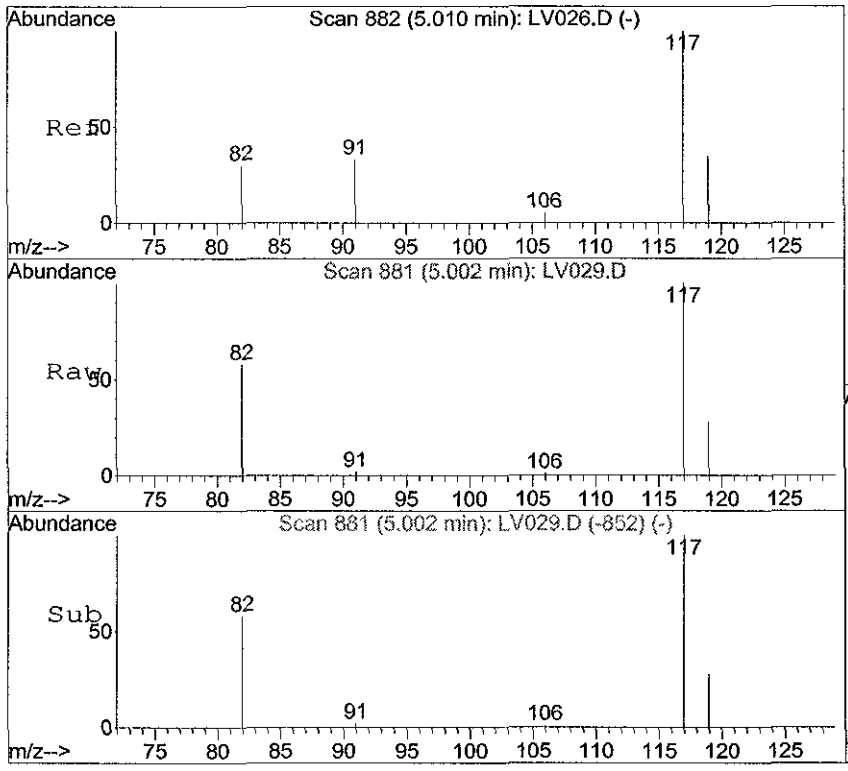


#9
Trichloroethene
Concen: 50.88 ppbv
RT: 3.94 min Scan# 641
Delta R.T. 0.00 min
Lab File: LV029.D
Acq: 2 Apr 2008 1:48 pm

Tgt Ion:130 Resp: 17060

Ion	Ratio	Lower	Upper
130	100		
132	98.9	79.9	119.9
95	94.8	76.2	114.2

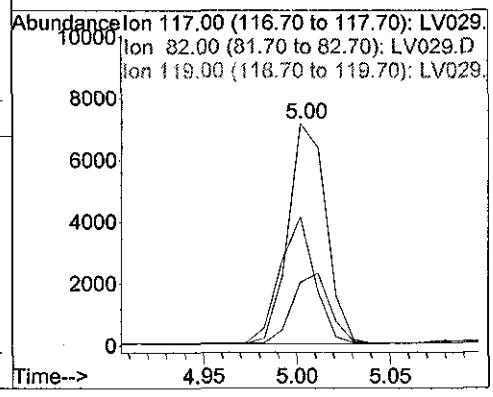


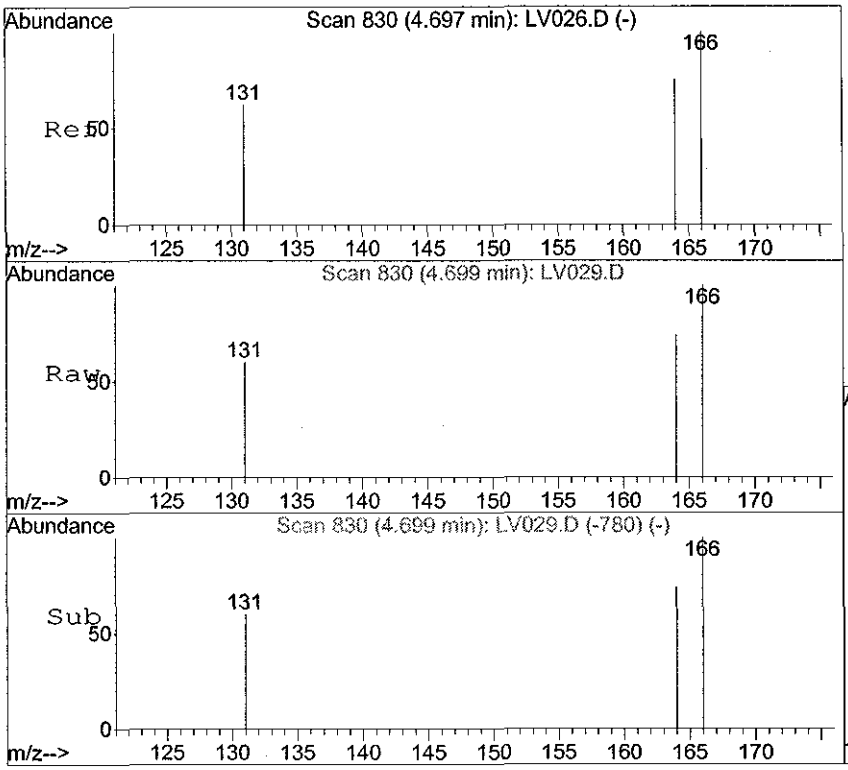


#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.00 min Scan# 881
Delta R.T. -0.01 min
Lab File: LV029.D
Acq: 2 Apr 2008 1:48 pm

Tgt Ion:117 Resp: 10101

Ion	Ratio	Lower	Upper
117	100		
82	53.9	43.1	64.7
119	35.9	26.8	40.2

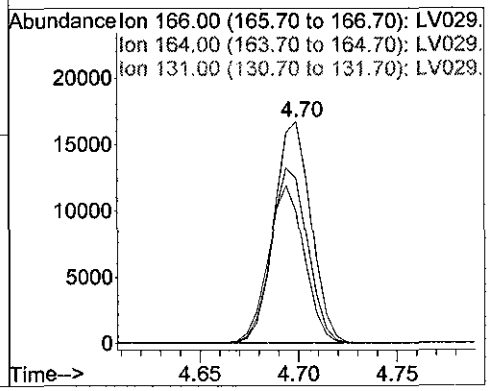




#11
Tetrachloroethene
Concen: 47.78 ppbv
RT: 4.70 min Scan# 830
Delta R.T. 0.00 min
Lab File: LV029.D
Acq: 2 Apr 2008 1:48 pm

Tgt Ion:166 Resp: 21649

Ion	Ratio	Lower	Upper
166	100		
164	78.7	62.8	94.2
131	69.5	55.6	83.4



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV030.D Vial: 1
Acq On : 2 Apr 2008 1:59 pm Operator: SJT
Sample : STD20080402-5 Inst : Instrumen
Misc : 5ppbv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 14:05:07 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 13:24:07 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

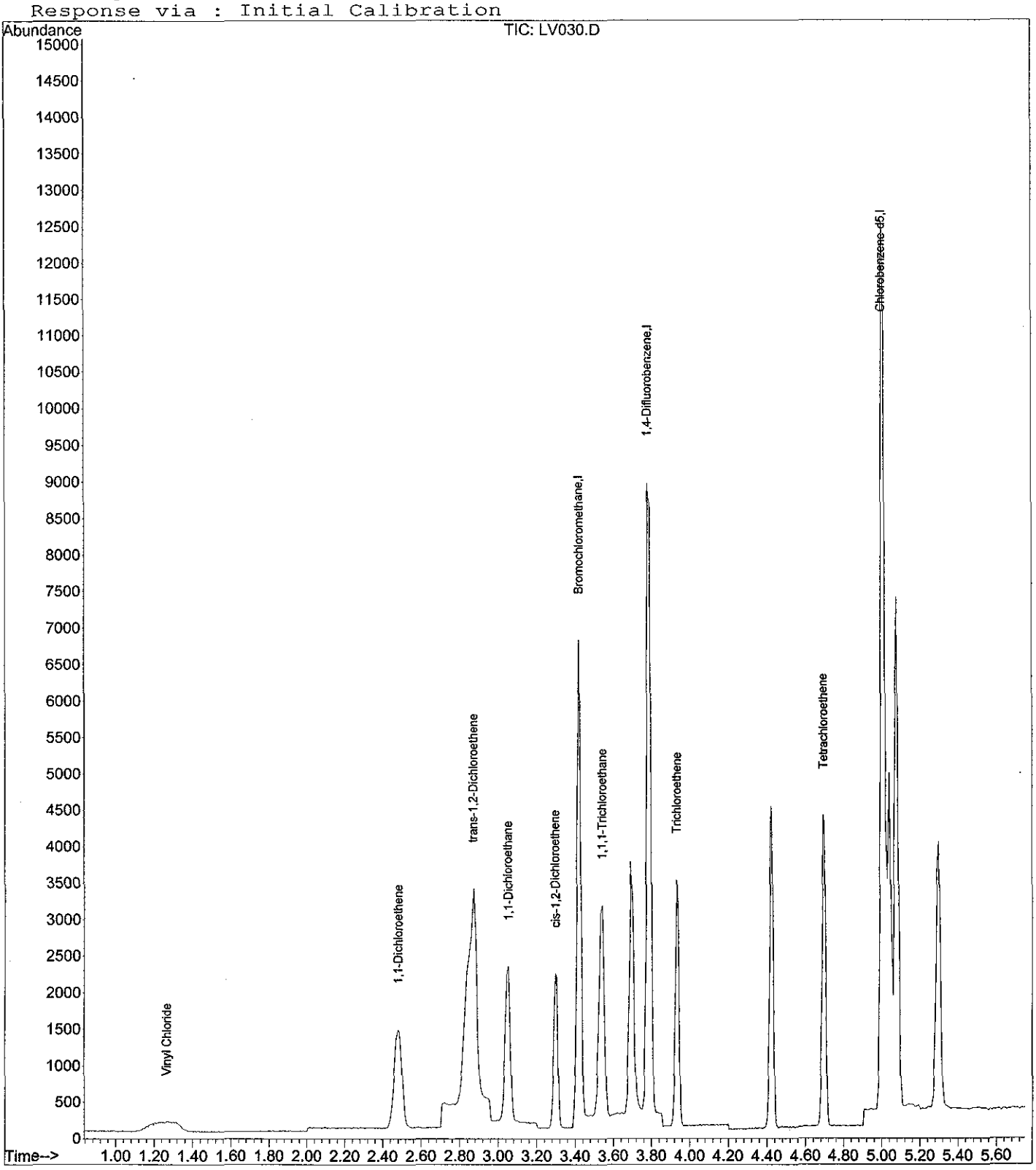
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	3.41	49	4951	10.00	ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	8959	10.00	ppbv	0.00
10) Chlorobenzene-d5	5.01	117	9976	10.00	ppbv	0.00
Target Compounds						Qvalue
2) Vinyl Chloride	1.27	62	1019m	3.99	ppbv	
3) 1,1-Dichloroethene	2.48	61	2048	3.74	ppbv	99
4) trans-1,2-Dichloroethene	2.87	61	1897m	3.59	ppbv	
5) 1,1-Dichloroethane	3.05	63	2652m	3.98	ppbv	
6) cis-1,2-Dichloroethene	3.29	61	1487	3.50	ppbv	96
7) 1,1,1-Trichloroethane	3.54	97	2563m	3.99	ppbv	
9) Trichloroethene	3.93	130	1472m	4.53	ppbv	
11) Tetrachloroethene	4.70	166	2274m	5.08	ppbv	

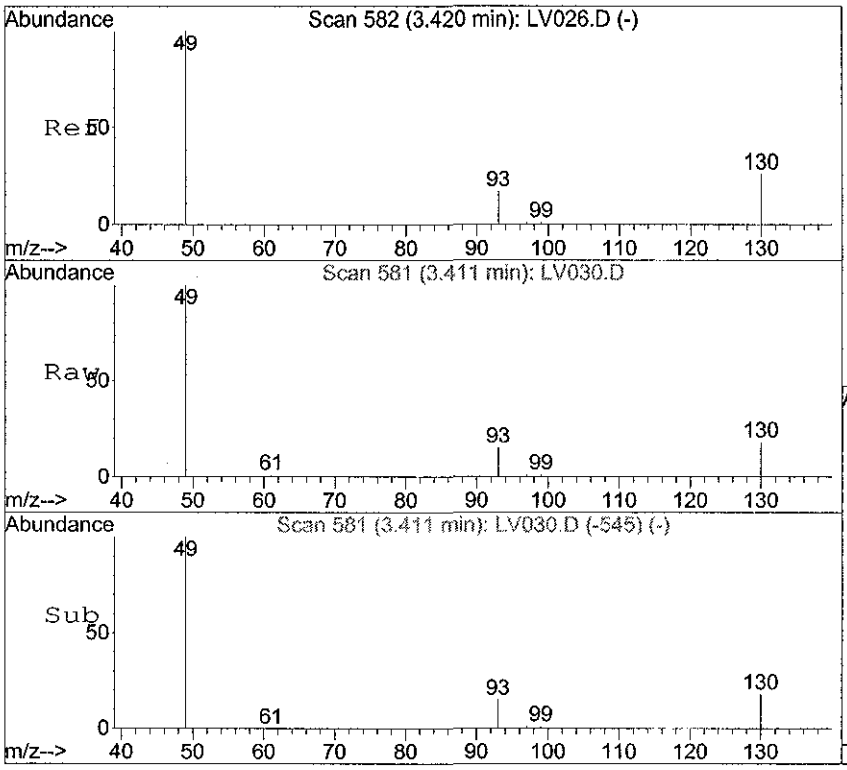
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV030.D Vial: 1
Acq On : 2 Apr 2008 1:59 pm Operator: SJT
Sample : STD20080402-5 Inst : Instrumen
Misc : 5ppbv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 14:10 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

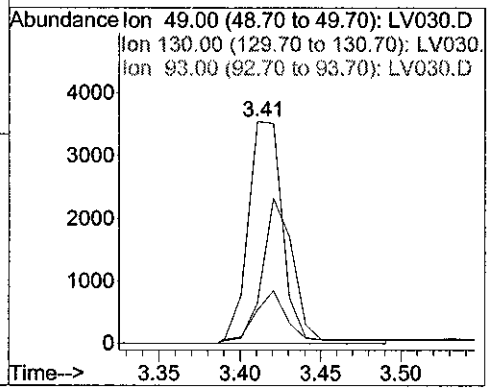


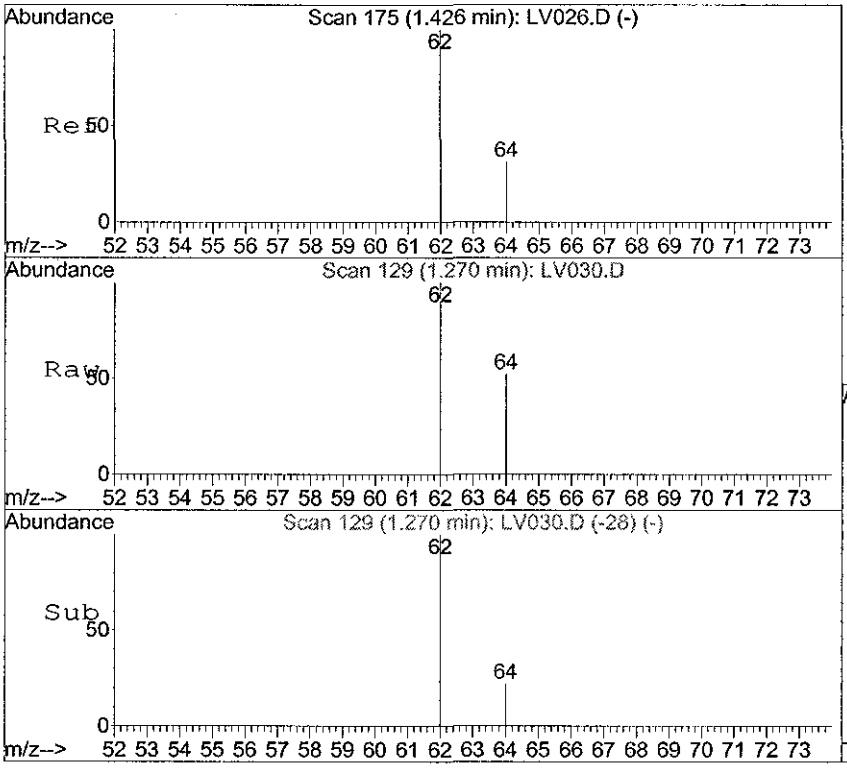


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.41 min Scan# 581
Delta R.T. -0.01 min
Lab File: LV030.D
Acq: 2 Apr 2008 1:59 pm

Tgt Ion: 49 Resp: 4951

Ion	Ratio	Lower	Upper
49	100		
130	62.3	47.0	70.4
93	22.3	20.2	30.4

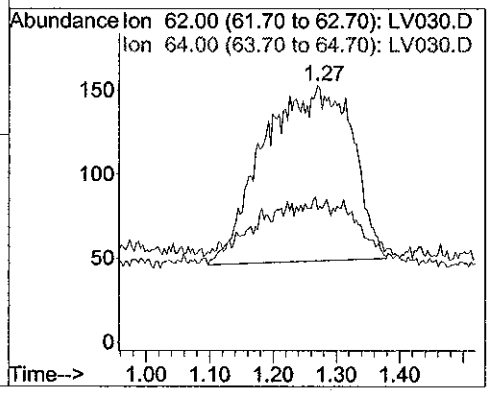


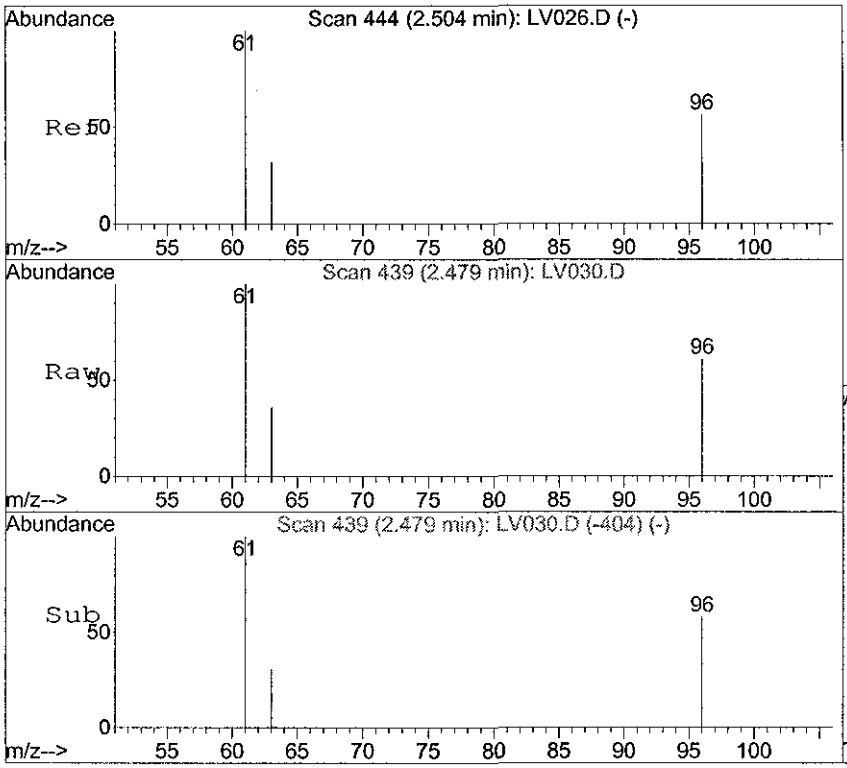


#2
Vinyl Chloride
Concen: 3.99 ppbv m
RT: 1.27 min Scan# 129
Delta R.T. -0.16 min
Lab File: LV030.D
Acq: 2 Apr 2008 1:59 pm

Tgt Ion: 62 Resp: 1019

Ion	Ratio	Lower	Upper
62	100		
64	1.5	10.7	16.1#

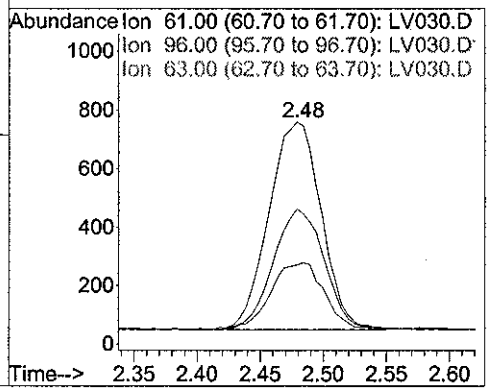


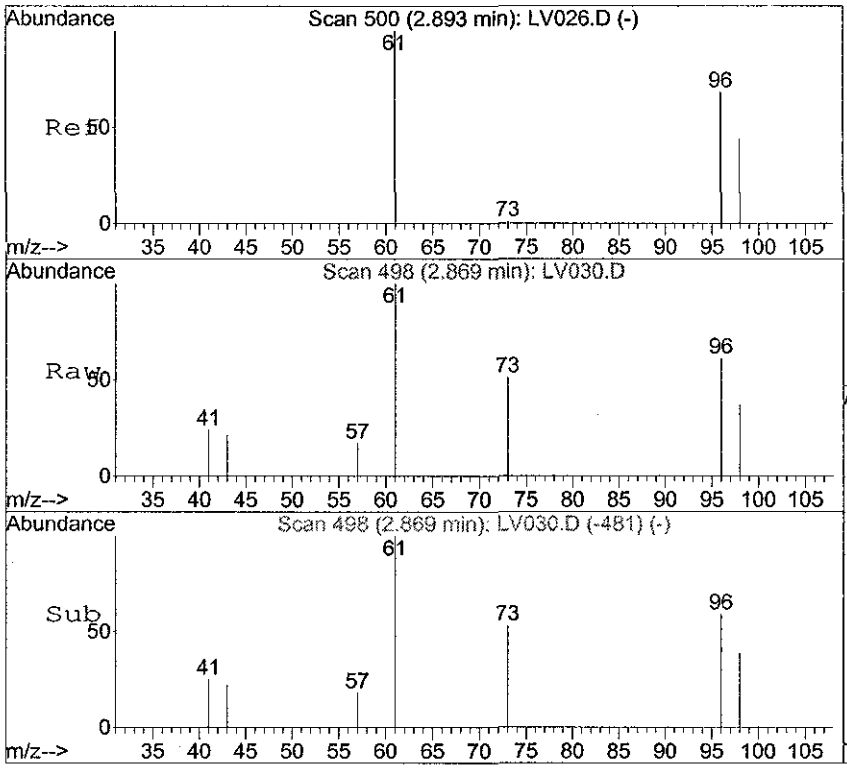


#3
1,1-Dichloroethene
Concen: 3.74 ppbv
RT: 2.48 min Scan# 439
Delta R.T. -0.03 min
Lab File: LV030.D
Acq: 2 Apr 2008 1:59 pm

Tgt Ion: 61 Resp: 2048

Ion	Ratio	Lower	Upper
61	100		
96	57.6	45.7	68.5
63	33.2	25.6	38.4

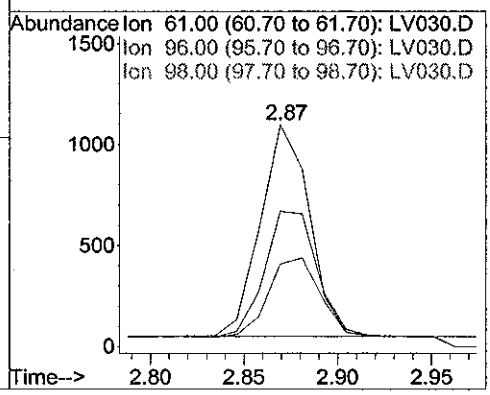


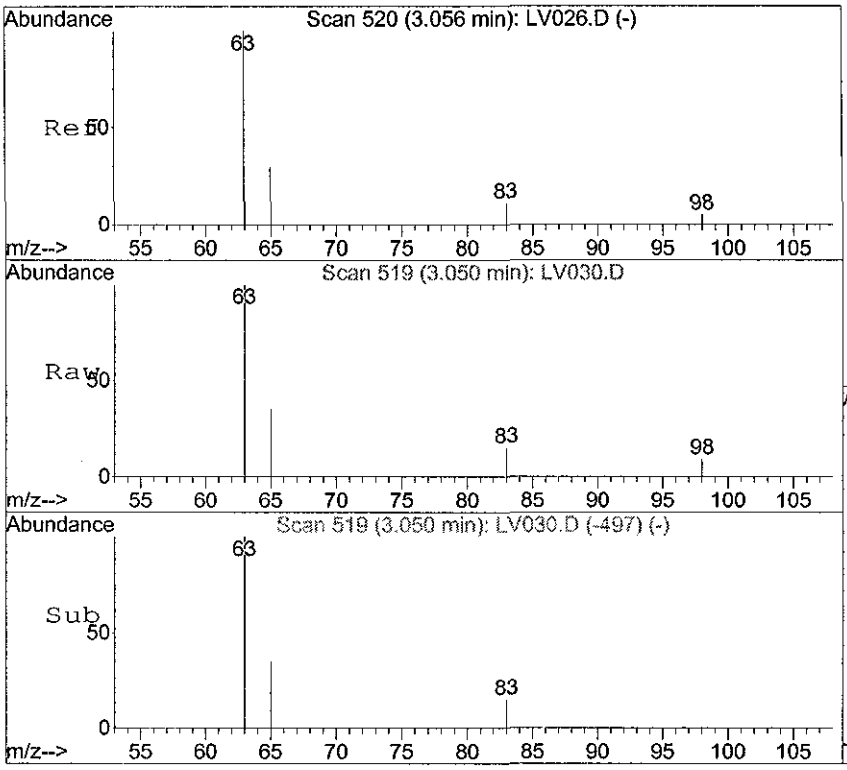


#4
trans-1,2-Dichloroethene
Concen: 3.59 ppbv m
RT: 2.87 min Scan# 498
Delta R.T. -0.02 min
Lab File: LV030.D
Acq: 2 Apr 2008 1:59 pm

Tgt Ion: 61 Resp: 1897

Ion	Ratio	Lower	Upper
61	100		
96	79.3	50.3	75.5#
98	40.1	28.2	42.4

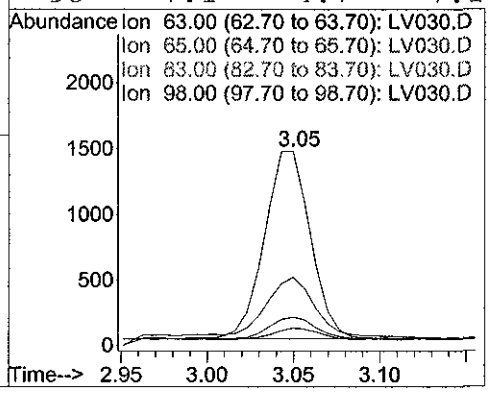


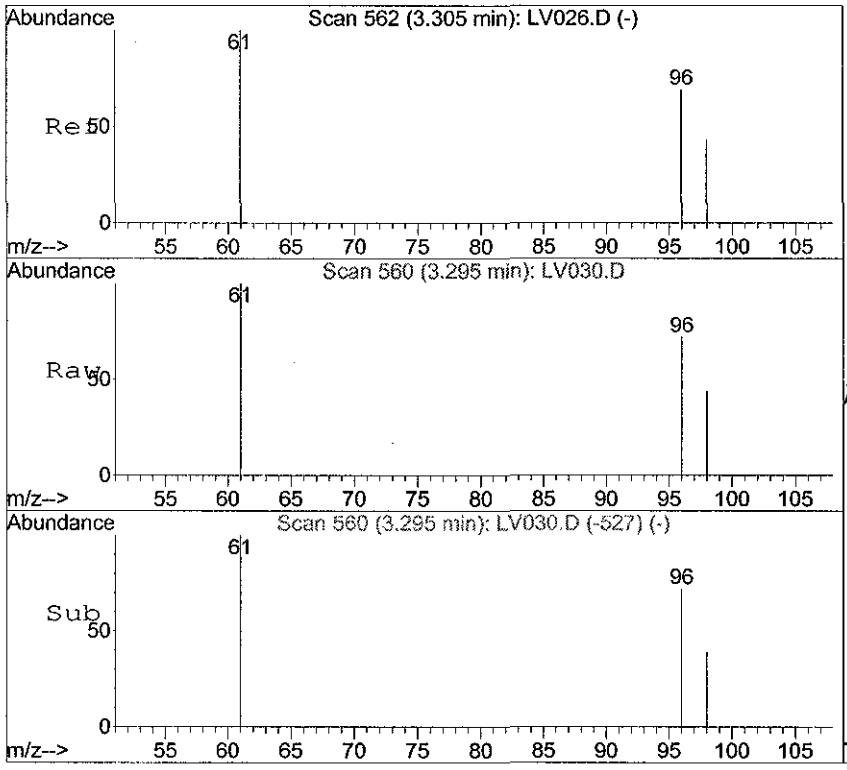


#5
1,1-Dichloroethane
Concen: 3.98 ppbv m
RT: 3.05 min Scan# 519
Delta R.T. -0.01 min
Lab File: LV030.D
Acq: 2 Apr 2008 1:59 pm

Tgt Ion: 63 Resp: 2652

Ion	Ratio	Lower	Upper
63	100		
65	40.9	24.6	36.8#
83	14.1	9.0	13.6#
98	7.1	4.7	7.1

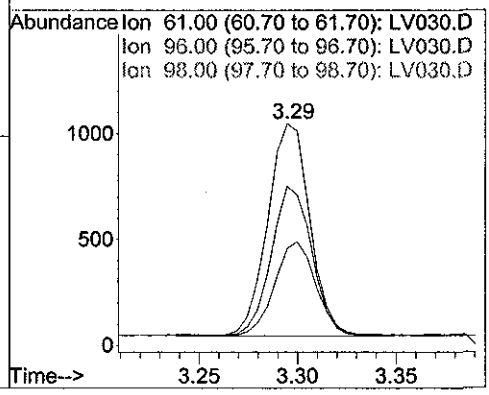


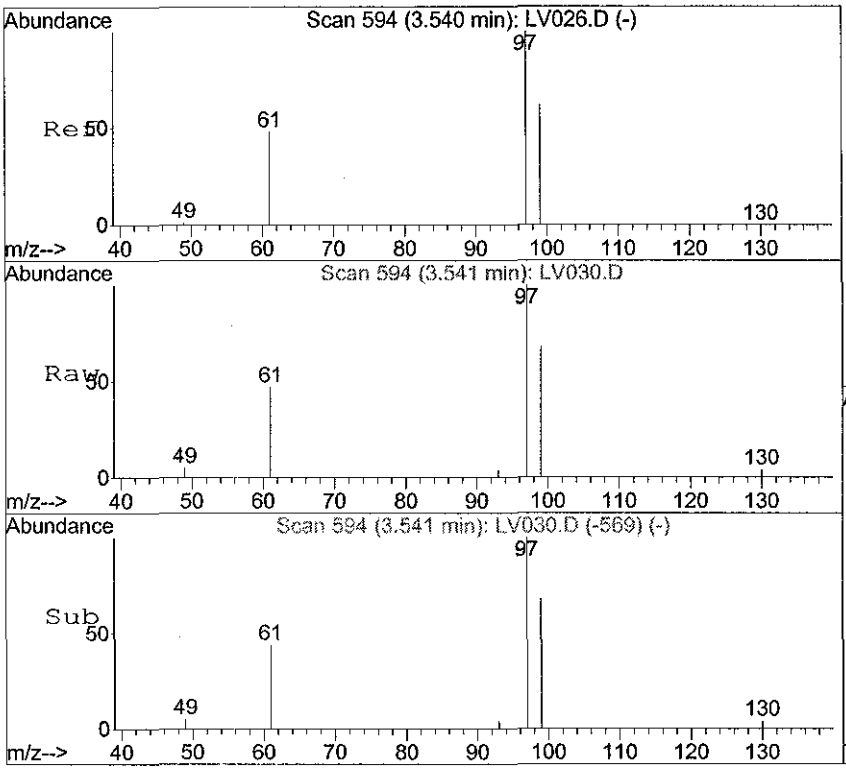


#6
cis-1,2-Dichloroethene
Concen: 3.50 ppbv
RT: 3.29 min Scan# 560
Delta R.T. -0.01 min
Lab File: LV030.D
Acq: 2 Apr 2008 1:59 pm

Tgt Ion: 61 Resp: 1487

Ion	Ratio	Lower	Upper
61	100		
96	67.1	56.8	85.2
98	43.0	36.2	54.2

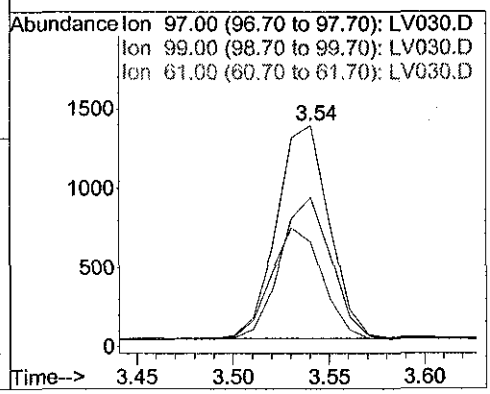


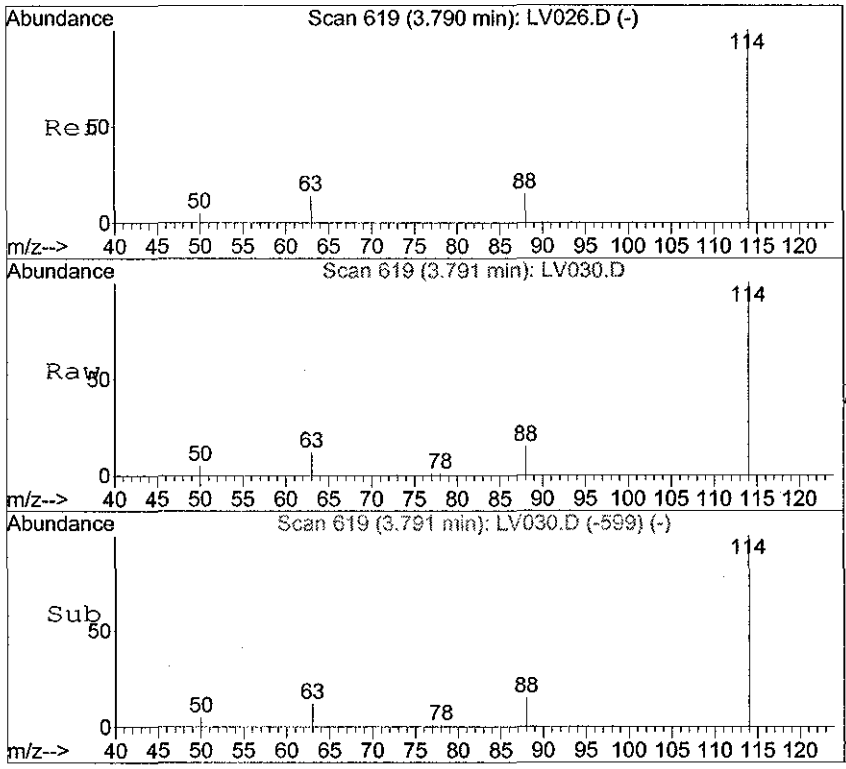


#7
1,1,1-Trichloroethane
Concen: 3.99 ppbv m
RT: 3.54 min Scan# 594
Delta R.T. 0.00 min
Lab File: LV030.D
Acq: 2 Apr 2008 1:59 pm

Tgt Ion: 97 Resp: 2563

Ion	Ratio	Lower	Upper
97	100		
99	64.8	51.0	76.6
61	68.3	39.7	59.5#

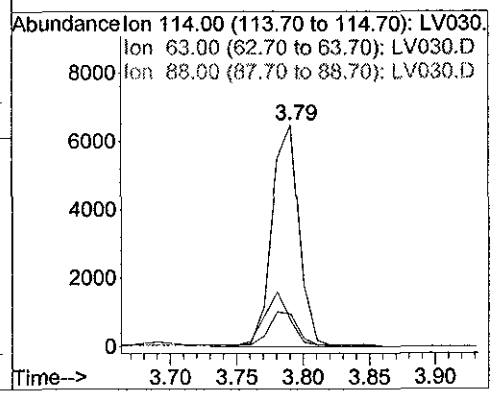


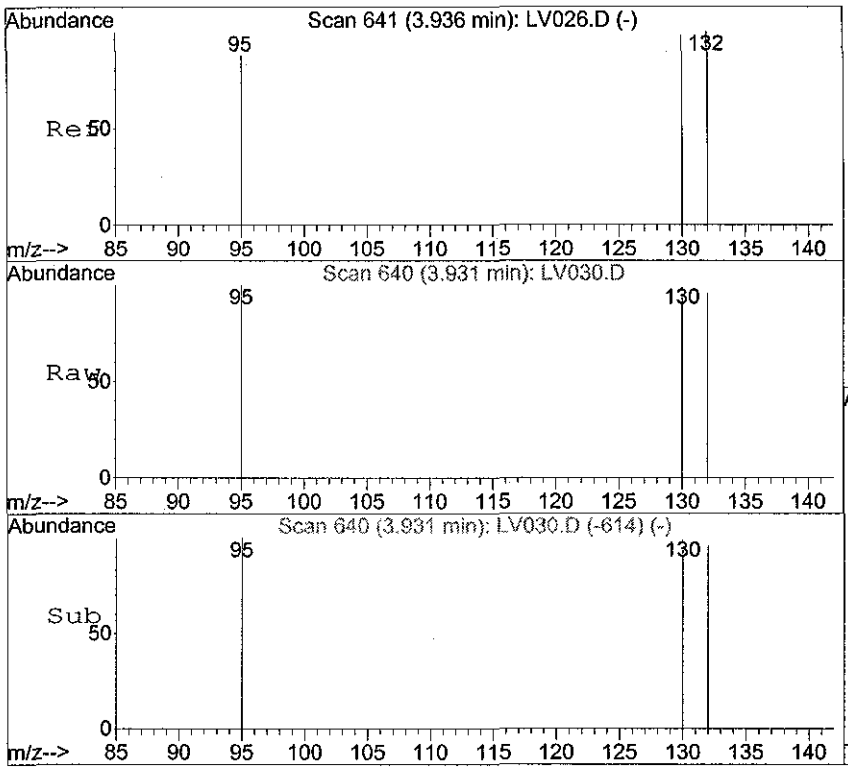


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. 0.00 min
Lab File: LV030.D
Acq: 2 Apr 2008 1:59 pm

Tgt Ion:114 Resp: 8959

Ion	Ratio	Lower	Upper
114	100		
63	24.7	19.8	29.6
88	18.4	14.6	21.8

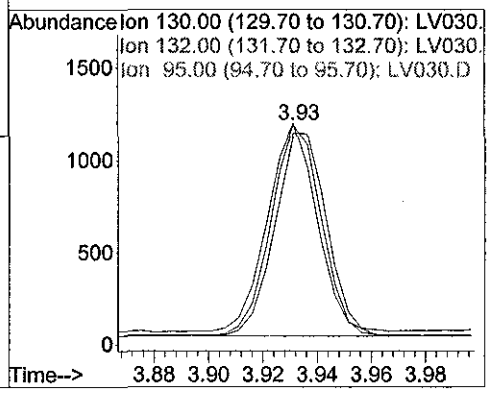


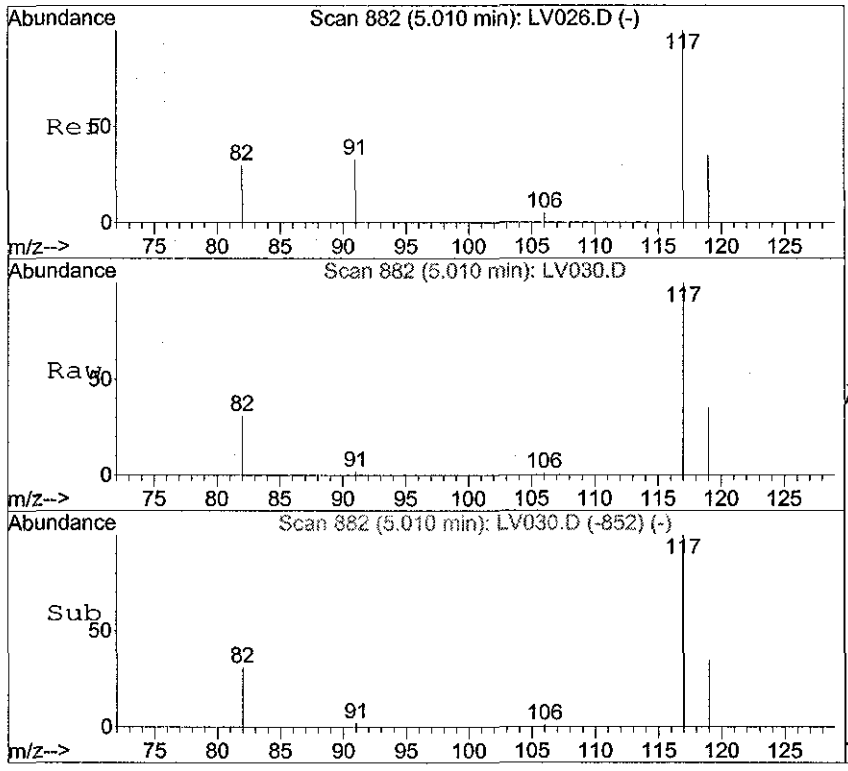


#9
Trichloroethene
Concen: 4.53 ppbv m
RT: 3.93 min Scan# 640
Delta R.T. -0.00 min
Lab File: LV030.D
Acq: 2 Apr 2008 1:59 pm

Tgt Ion:130 Resp: 1472

Ion	Ratio	Lower	Upper
130	100		
132	99.0	79.9	119.9
95	101.6	76.2	114.2

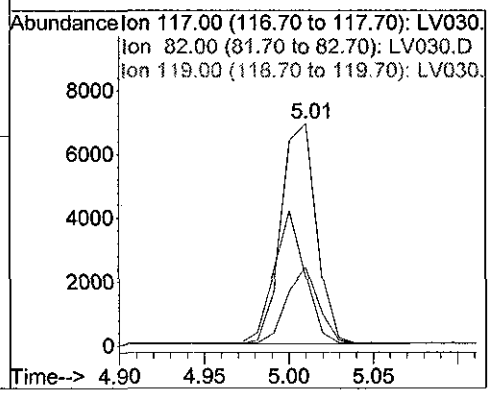


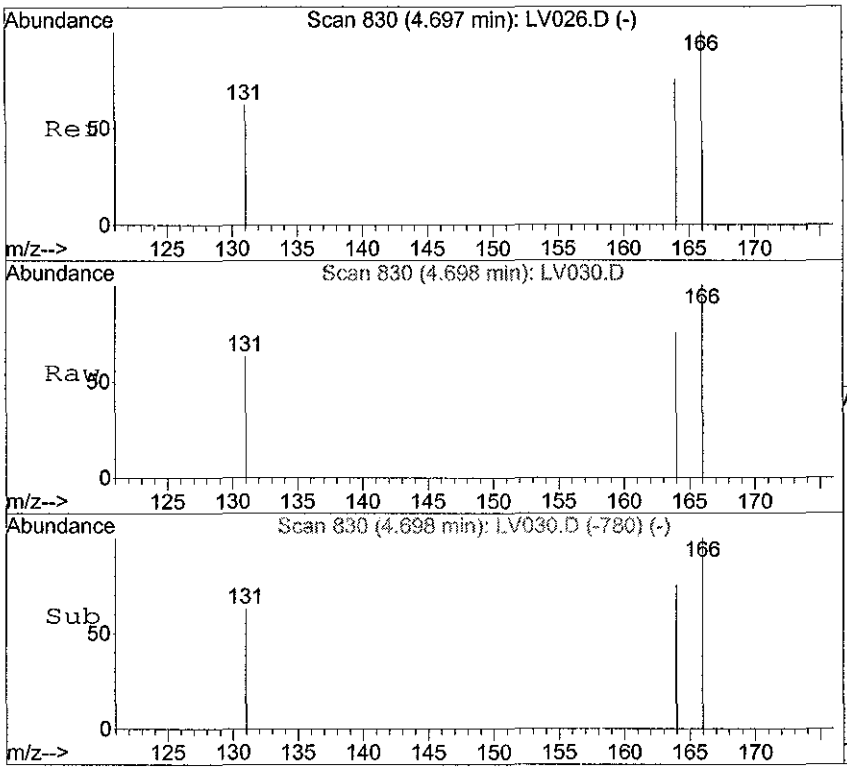


#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.01 min Scan# 882
Delta R.T. 0.00 min
Lab File: LV030.D
Acq: 2 Apr 2008 1:59 pm

Tgt Ion:117 Resp: 9976

Ion	Ratio	Lower	Upper
117	100		
82	58.2	43.1	64.7
119	32.2	26.8	40.2

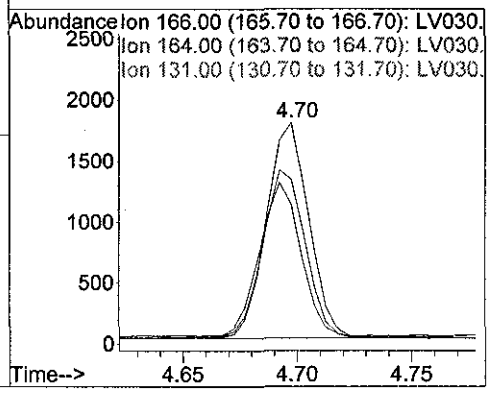




#11
Tetrachloroethene
Concen: 5.08 ppbv m
RT: 4.70 min Scan# 830
Delta R.T. 0.00 min
Lab File: LV030.D
Acq: 2 Apr 2008 1:59 pm

Tgt Ion:166 Resp: 2274

Ion	Ratio	Lower	Upper
166	100		
164	81.4	62.8	94.2
131	69.5	55.6	83.4



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV031.D Vial: 1
Acq On : 2 Apr 2008 2:09 pm Operator: SJT
Sample : STD20080402-6 Inst : Instrumen
Misc : 0.5ppbv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 14:15:18 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 13:24:07 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

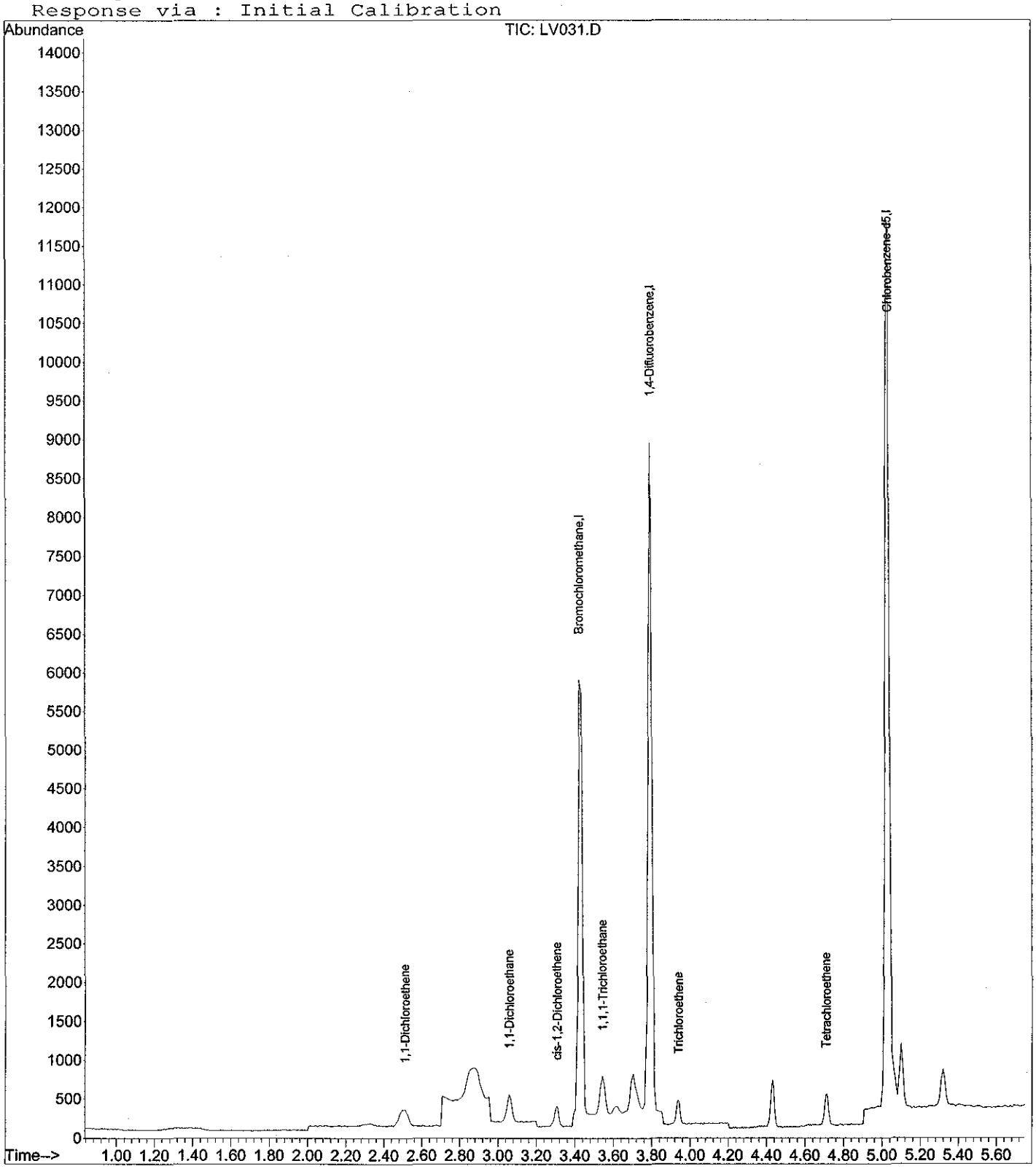
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	3.42	49	4677	10.00	ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	7919	10.00	ppbv	0.00
10) Chlorobenzene-d5	5.03	117	9478	10.00	ppbv	0.02
Target Compounds						Qvalue
3) 1,1-Dichloroethene	2.51	61	369m	0.71	ppbv	
5) 1,1-Dichloroethane	3.06	63	433m	0.69	ppbv	
6) cis-1,2-Dichloroethene	3.30	61	201	0.50	ppbv	88
7) 1,1,1-Trichloroethane	3.54	97	432m	0.71	ppbv	
9) Trichloroethene	3.94	130	151	0.53	ppbv	93
11) Tetrachloroethene	4.71	166	233	0.55	ppbv	97

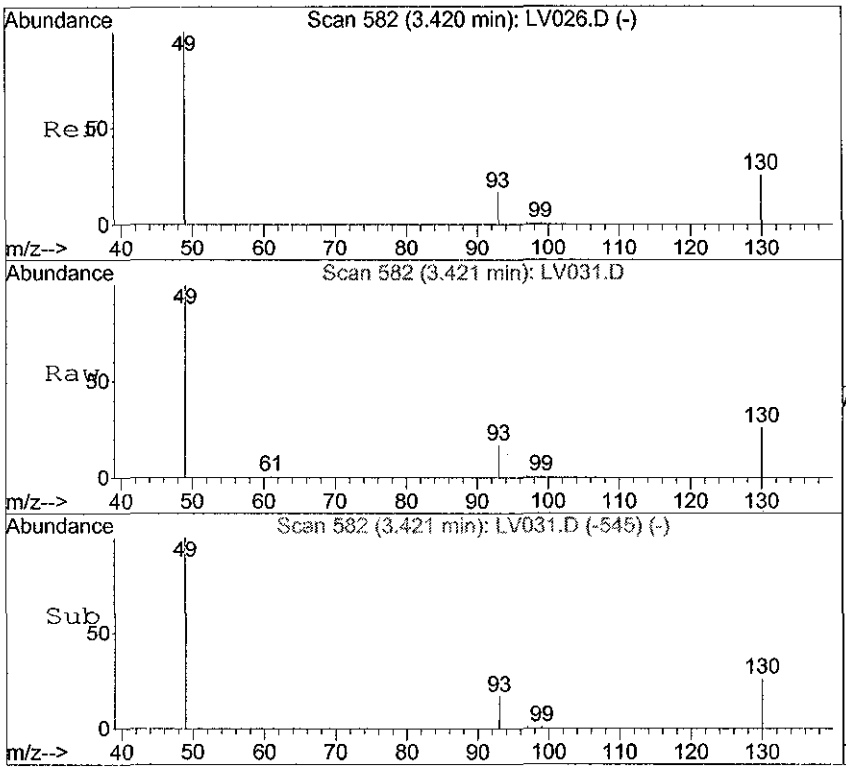
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV031.D Vial: 1
Acq On : 2 Apr 2008 2:09 pm Operator: SJT
Sample : STD20080402-6 Inst : Instrumen
Misc : 0.5ppbv ICAL STD Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 14:32 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

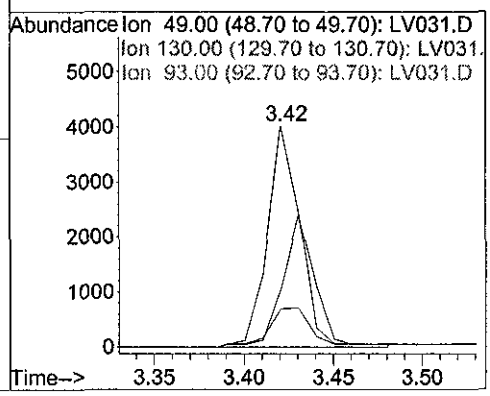


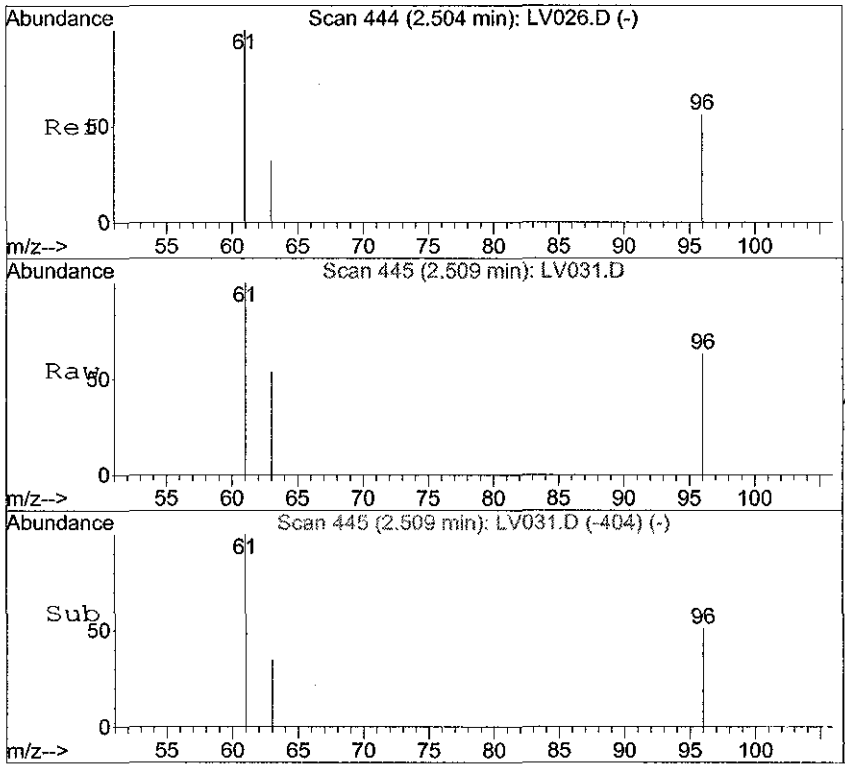


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. 0.00 min
Lab File: LV031.D
Acq: 2 Apr 2008 2:09 pm

Tgt Ion: 49 Resp: 4677

Ion	Ratio	Lower	Upper
49	100		
130	61.0	47.0	70.4
93	23.5	20.2	30.4

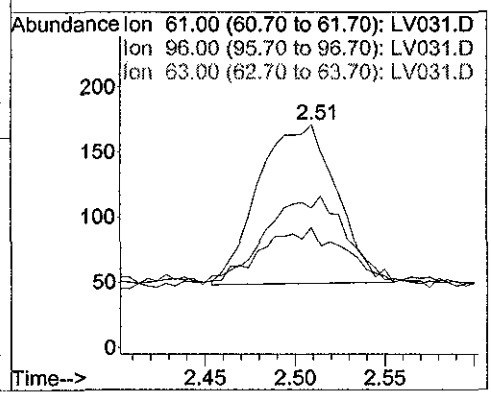


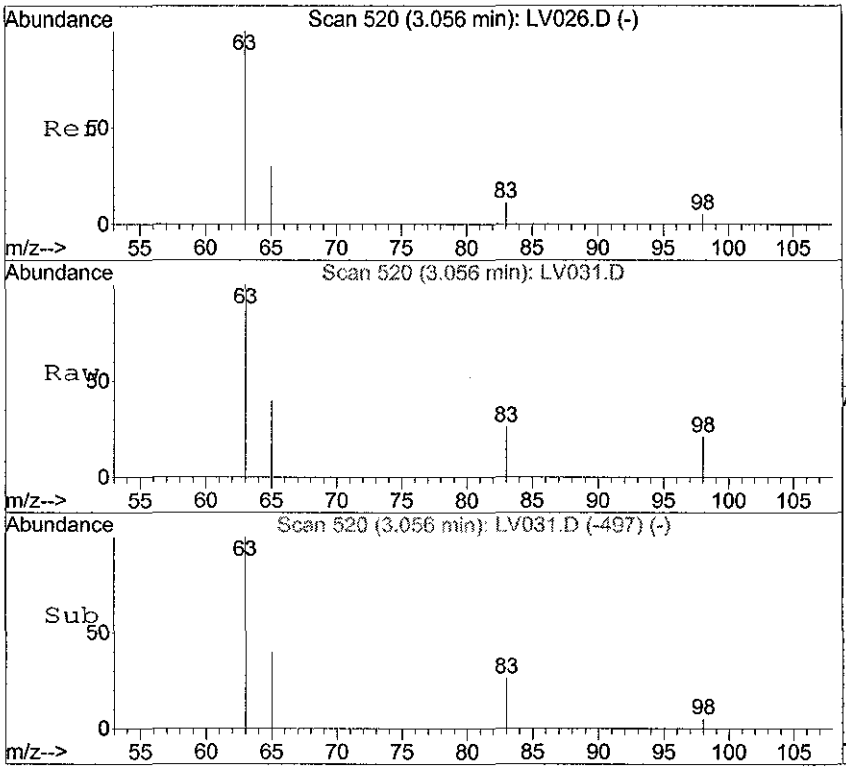


#3
1,1-Dichloroethene
Concen: 0.71 ppbv m
RT: 2.51 min Scan# 445
Delta R.T. 0.01 min
Lab File: LV031.D
Acq: 2 Apr 2008 2:09 pm

Tgt Ion: 61 Resp: 369

Ion	Ratio	Lower	Upper
61	100		
96	57.5	45.7	68.5
63	31.7	25.6	38.4

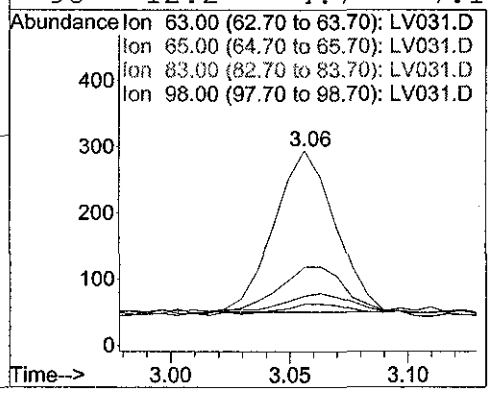


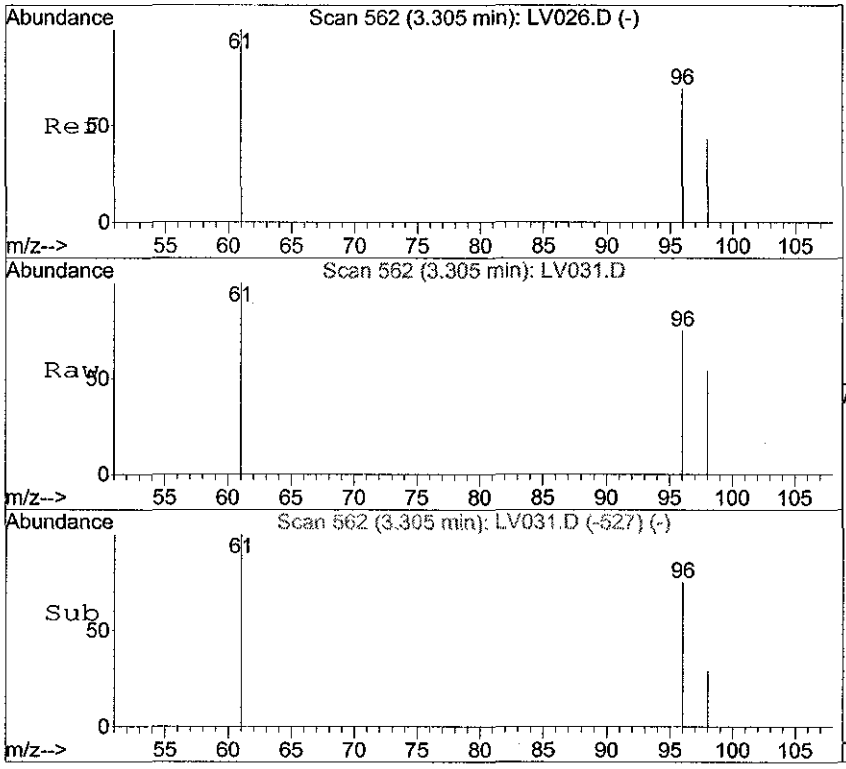


#5
1,1-Dichloroethane
Concen: 0.69 ppbv m
RT: 3.06 min Scan# 520
Delta R.T. 0.00 min
Lab File: LV031.D
Acq: 2 Apr 2008 2:09 pm

Tgt Ion: 63 Resp: 433

Ion	Ratio	Lower	Upper
63	100		
65	45.5	24.6	36.8#
83	10.4	9.0	13.6
98	12.2	4.7	7.1#

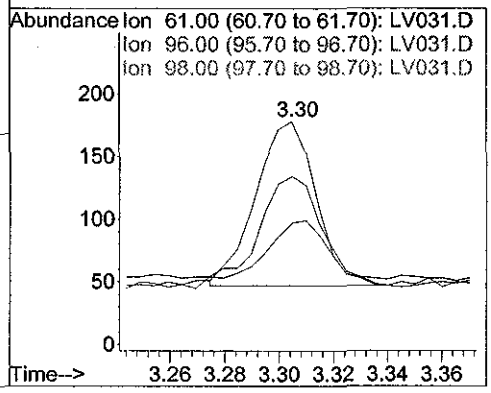


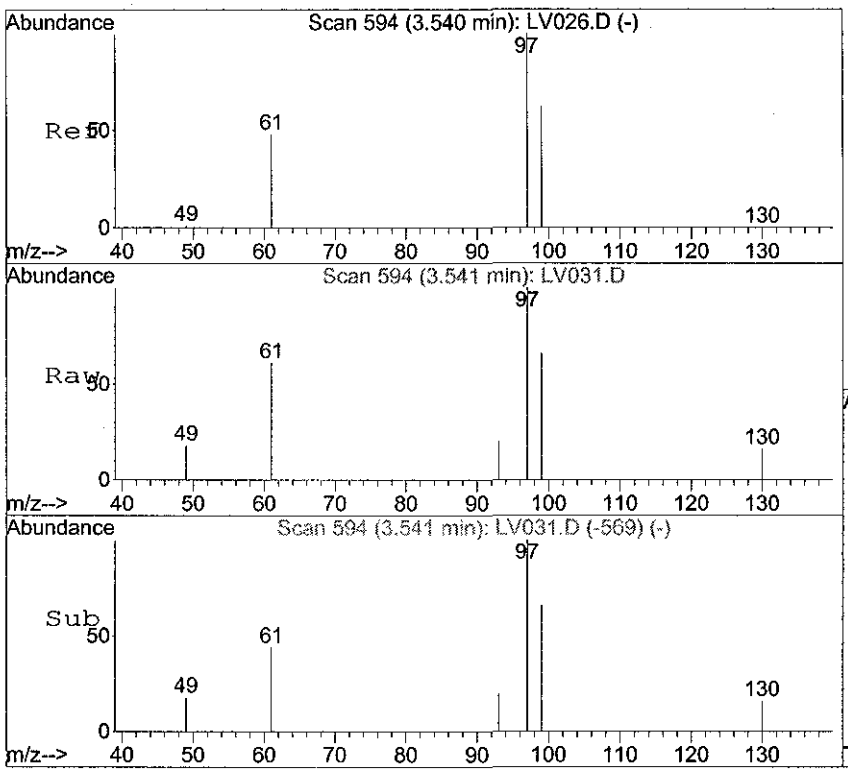


#6
cis-1,2-Dichloroethene
Concen: 0.50 ppbv
RT: 3.30 min Scan# 562
Delta R.T. 0.00 min
Lab File: LV031.D
Acq: 2 Apr 2008 2:09 pm

Tgt Ion: 61 Resp: 201

Ion	Ratio	Lower	Upper
61	100		
96	57.7	56.8	85.2
98	41.3	36.2	54.2

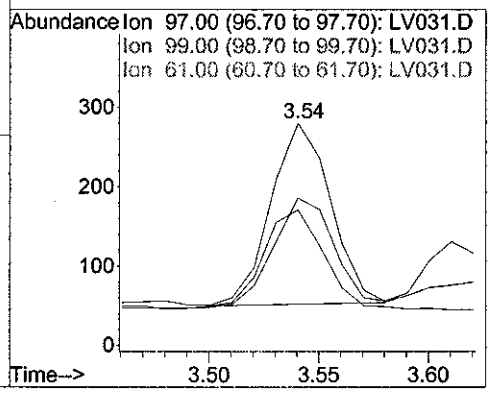


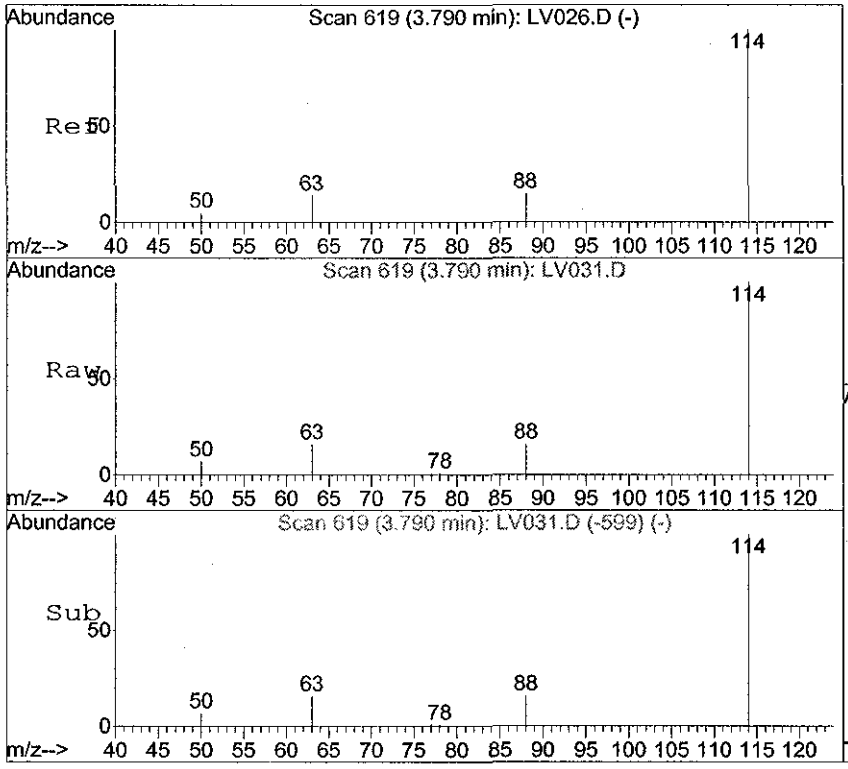


#7
1,1,1-Trichloroethane
Concen: 0.71 ppbv m
RT: 3.54 min Scan# 594
Delta R.T. 0.00 min
Lab File: LV031.D
Acq: 2 Apr 2008 2:09 pm

Tgt Ion: 97 Resp: 432

Ion	Ratio	Lower	Upper
97	100		
99	79.9	51.0	76.6#
61	144.9	39.7	59.5#

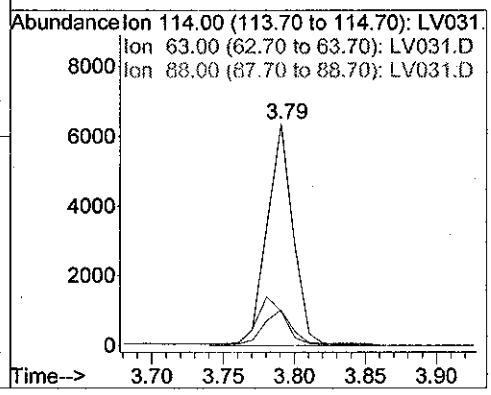


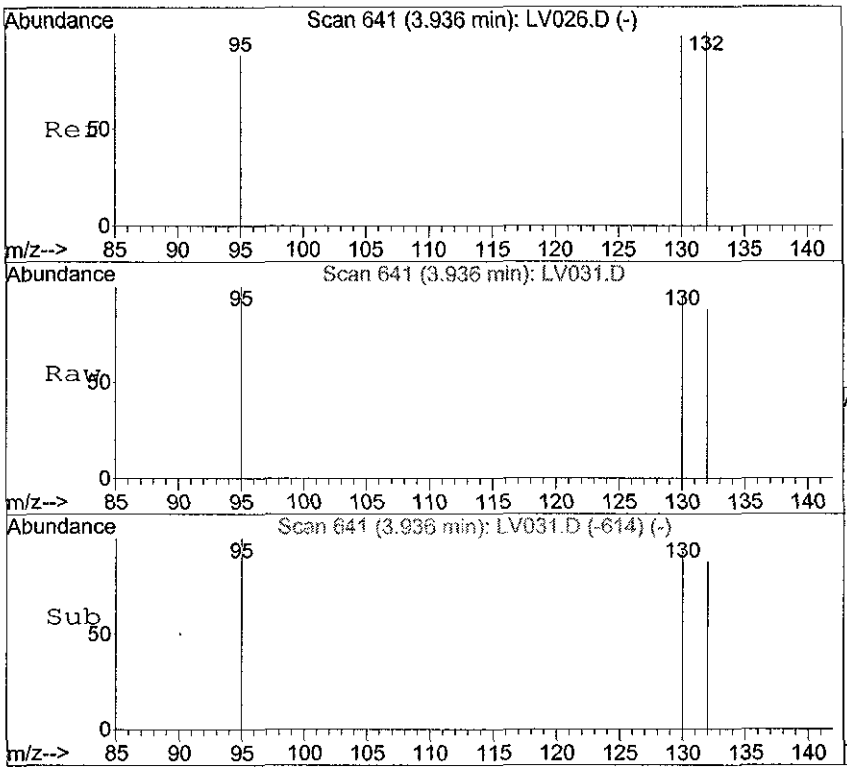


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. 0.00 min
Lab File: LV031.D
Acq: 2 Apr 2008 2:09 pm

Tgt Ion:114 Resp: 7919

Ion	Ratio	Lower	Upper
114	100		
63	26.1	19.8	29.6
88	19.0	14.6	21.8

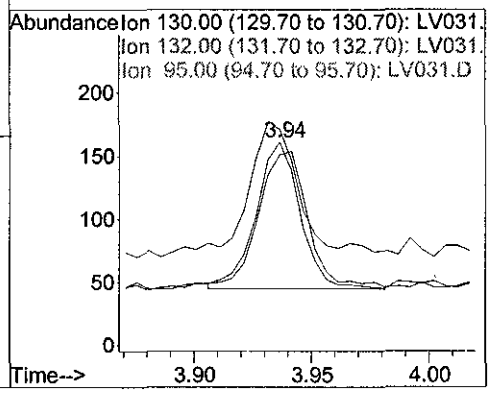


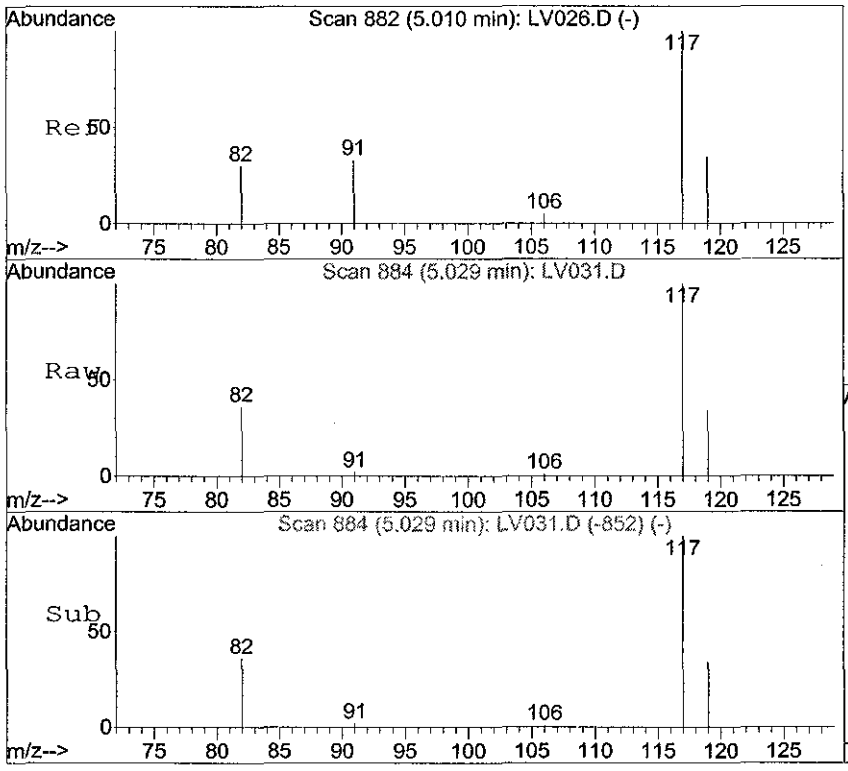


#9
Trichloroethene
Concen: 0.53 ppbv
RT: 3.94 min Scan# 641
Delta R.T. 0.00 min
Lab File: LV031.D
Acq: 2 Apr 2008 2:09 pm

Tgt Ion:130 Resp: 151

Ion	Ratio	Lower	Upper
130	100		
132	102.0	79.9	119.9
95	83.4	76.2	114.2

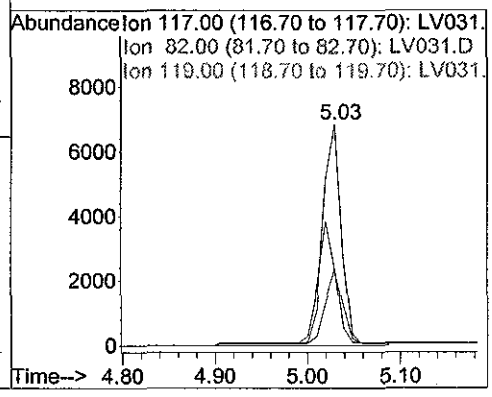


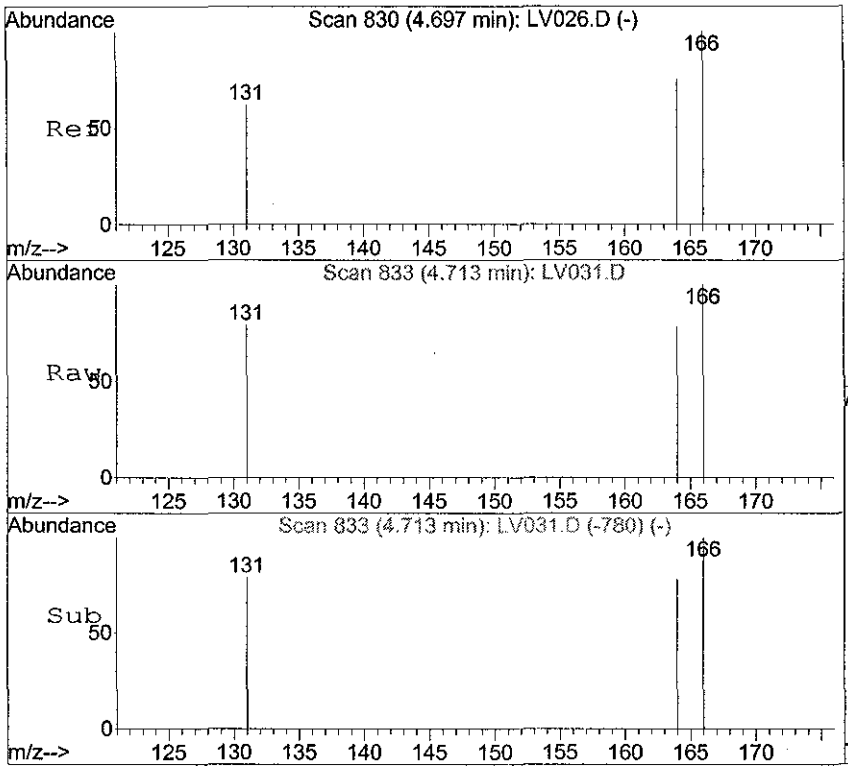


#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.03 min Scan# 884
Delta R.T. 0.02 min
Lab File: LV031.D
Acq: 2 Apr 2008 2:09 pm

Tgt Ion:117 Resp: 9478

Ion	Ratio	Lower	Upper
117	100		
82	59.3	43.1	64.7
119	31.2	26.8	40.2

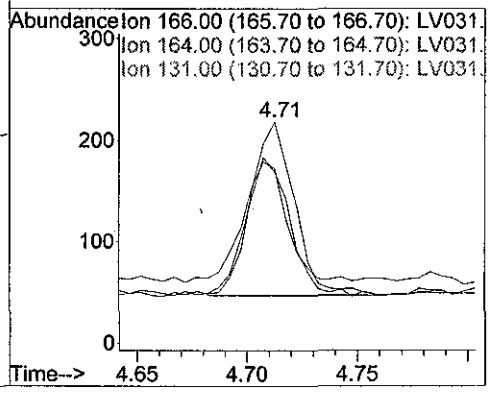




#11
Tetrachloroethene
Concen: 0.55 ppbv
RT: 4.71 min Scan# 833
Delta R.T. 0.02 min
Lab File: LV031.D
Acq: 2 Apr 2008 2:09 pm

Tgt Ion:166 Resp: 233

Ion	Ratio	Lower	Upper
166	100		
164	77.3	62.8	94.2
131	64.8	55.6	83.4



Evaluate Continuing Calibration Report

Data File : D:\MSDCHEM\1\DATA\2008\20080402\LV032.D Vial: 1
Acq On : 2 Apr 2008 15:36 Operator: SJT
Sample : STD20080402-7 Inst : Instrumen
Misc : 500ppbv 2ND SOURCE Multiplr: 1.00
MS Integration Params: rteint.p

Method : D:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 15:46:00 2008
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane	1.000	1.000	0.0	100	0.00
2		Vinyl Chloride	0.482	0.568	-17.8	110	0.00
3		1,1-Dichloroethene	1.095	1.209	-10.4	109	0.00
4		trans-1,2-Dichloroethene	0.951	1.175	-23.6	106	0.00
5		1,1-Dichloroethane	1.330	1.432	-7.7	106	0.00
6		cis-1,2-Dichloroethene	0.760	0.923	-21.4	107	0.00
7		1,1,1-Trichloroethane	1.312	1.363	-3.9	105	0.00
8	I	1,4-Difluorobenzene	1.000	1.000	0.0	96	0.00
9		Trichloroethene	0.343	0.406	-18.4	107	0.00
10	I	Chlorobenzene-d5	1.000	1.000	0.0	94	0.00
11		Tetrachloroethene	0.428	0.526	-22.9	110	0.00

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV032.D Vial: 1
Acq On : 2 Apr 2008 3:36 pm Operator: SJT
Sample : STD20080402-7 Inst : Instrumen
Misc : 500ppbv 2ND SOURCE Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 15:45:18 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

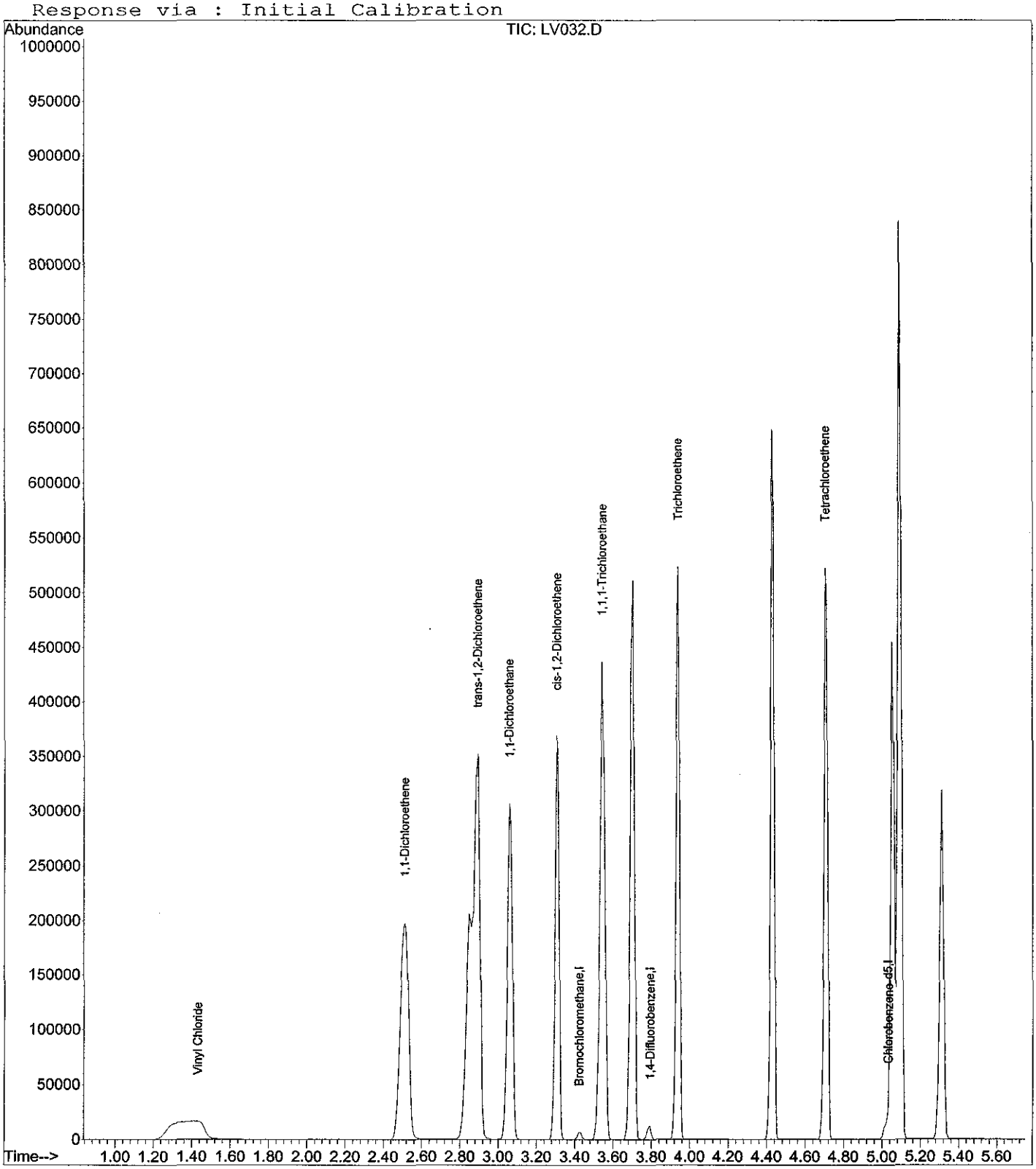
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	3.42	49	5323	10.00	ppbv		0.00
8) 1,4-Difluorobenzene	3.79	114	11186	10.00	ppbv		0.00
10) Chlorobenzene-d5	5.02	117	10482	10.00	ppbv		0.00
Target Compounds							Qvalue
2) Vinyl Chloride	1.43	62	151176m	589.15	ppbv		
3) 1,1-Dichloroethene	2.51	61	321779	551.92	ppbv		99
4) trans-1,2-Dichloroethene	2.89	61	312606	617.74	ppbv	#	29
5) 1,1-Dichloroethane	3.06	63	381222	538.43	ppbv	#	82
6) cis-1,2-Dichloroethene	3.30	61	245630m	606.93	ppbv		
7) 1,1,1-Trichloroethane	3.54	97	362758	519.54	ppbv	#	44
9) Trichloroethene	3.94	130	227068	591.67	ppbv		93
11) Tetrachloroethene	4.71	166	275600	613.68	ppbv		97

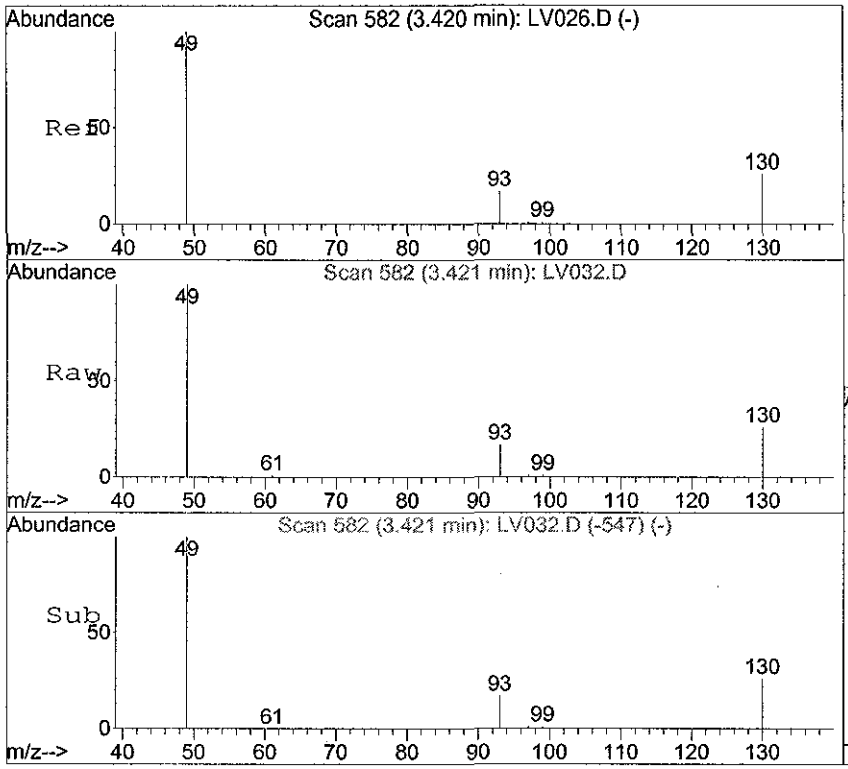
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV032.D Vial: 1
Acq On : 2 Apr 2008 3:36 pm Operator: SJT
Sample : STD20080402-7 Inst : Instrumen
Misc : 500ppbv 2ND SOURCE Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 15:45 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

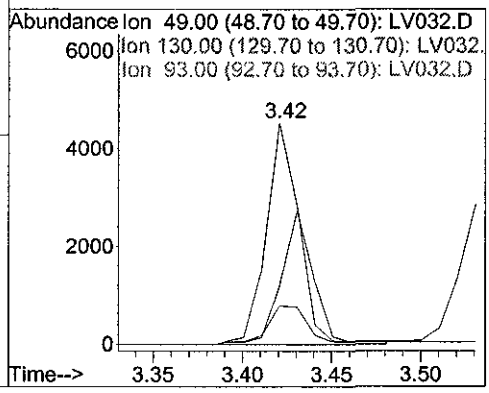


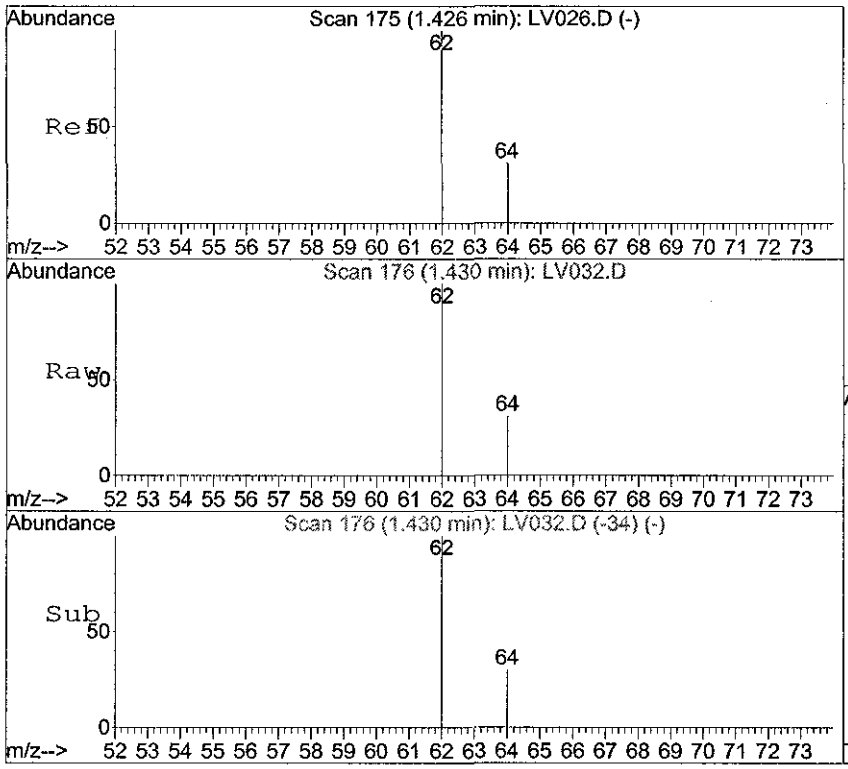


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. -0.01 min
Lab File: LV032.D
Acq: 2 Apr 2008 3:36 pm

Tgt Ion: 49 Resp: 5323

Ion	Ratio	Lower	Upper
49	100		
130	59.0	48.8	73.2
93	22.1	18.8	28.2

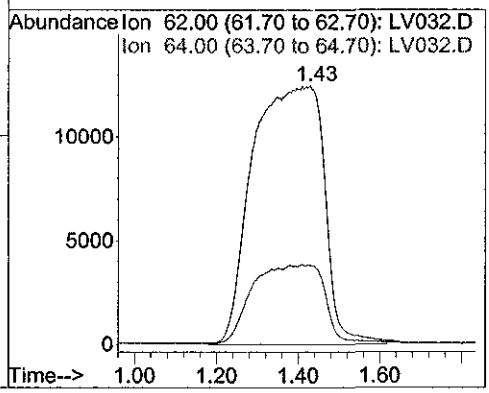


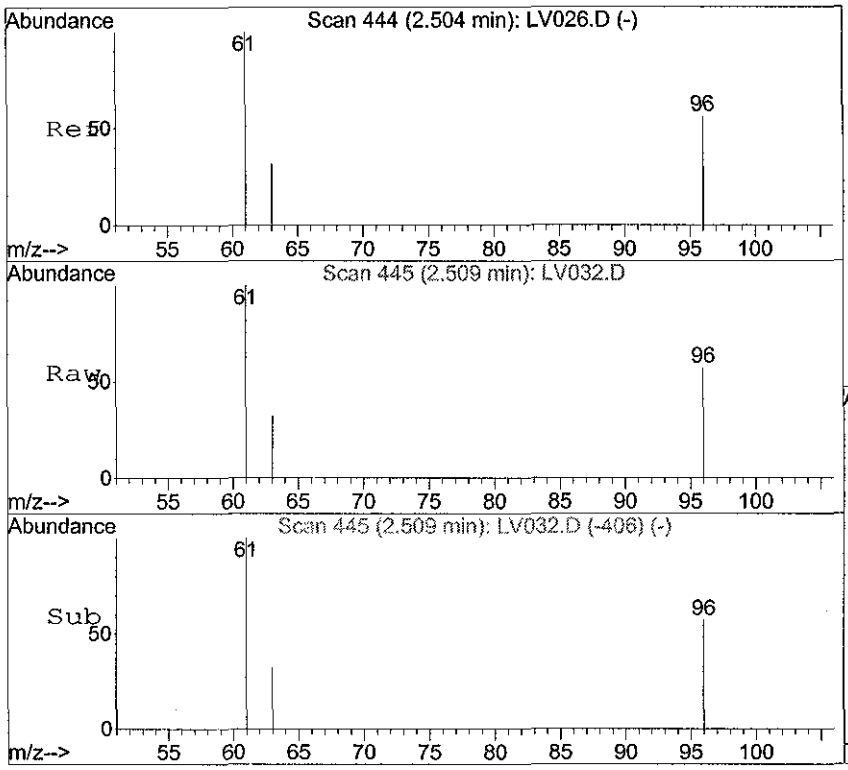


#2
Vinyl Chloride
Concen: 589.15 ppbv m
RT: 1.43 min Scan# 176
Delta R.T. -0.02 min
Lab File: LV032.D
Acq: 2 Apr 2008 3:36 pm

Tgt Ion: 62 Resp: 151176

Ion	Ratio	Lower	Upper
62	100		
64	10.6	1.2	1.8#

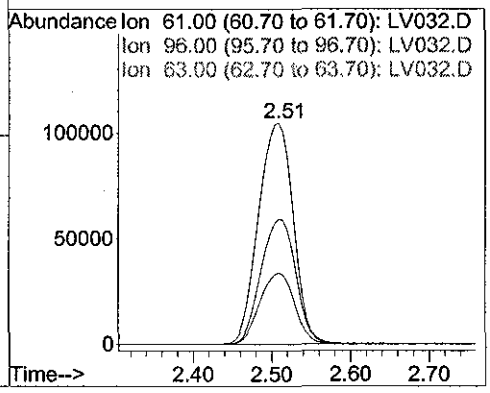


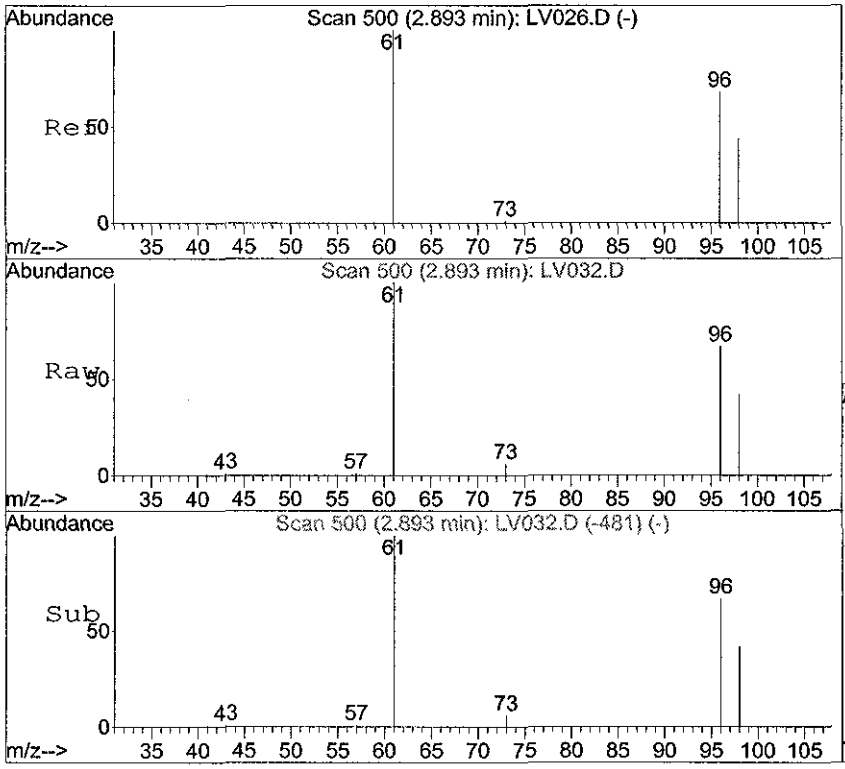


#3
1,1-Dichloroethene
Concen: 551.92 ppbv
RT: 2.51 min Scan# 445
Delta R.T. -0.00 min
Lab File: LV032.D
Acq: 2 Apr 2008 3:36 pm

Tgt Ion: 61 Resp: 321779

Ion	Ratio	Lower	Upper
61	100		
96	56.6	46.0	69.0
63	32.1	25.4	38.0

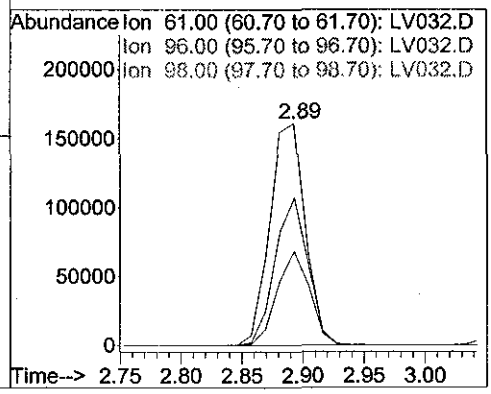


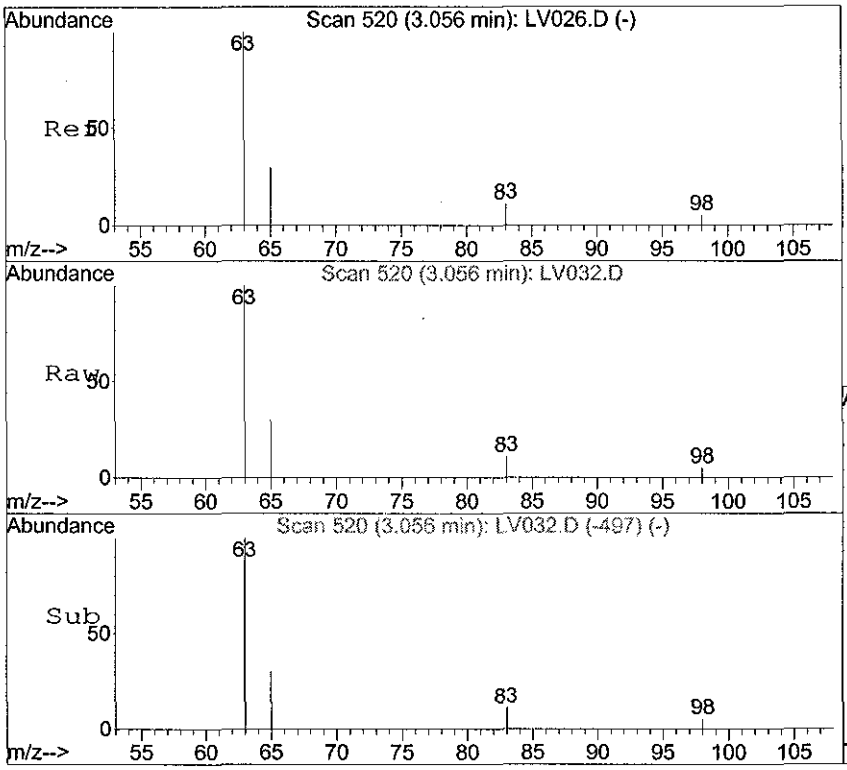


#4
trans-1,2-Dichloroethene
Concen: 617.74 ppbv
RT: 2.89 min Scan# 500
Delta R.T. 0.00 min
Lab File: LV032.D
Acq: 2 Apr 2008 3:36 pm

Tgt Ion: 61 Resp: 312606

Ion	Ratio	Lower	Upper
61	100		
96	62.1	146.0	219.0#
98	34.4	27.4	41.0

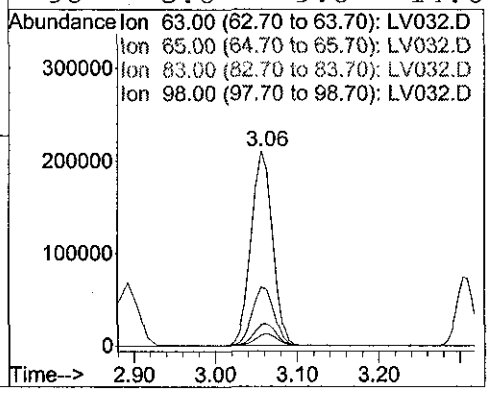


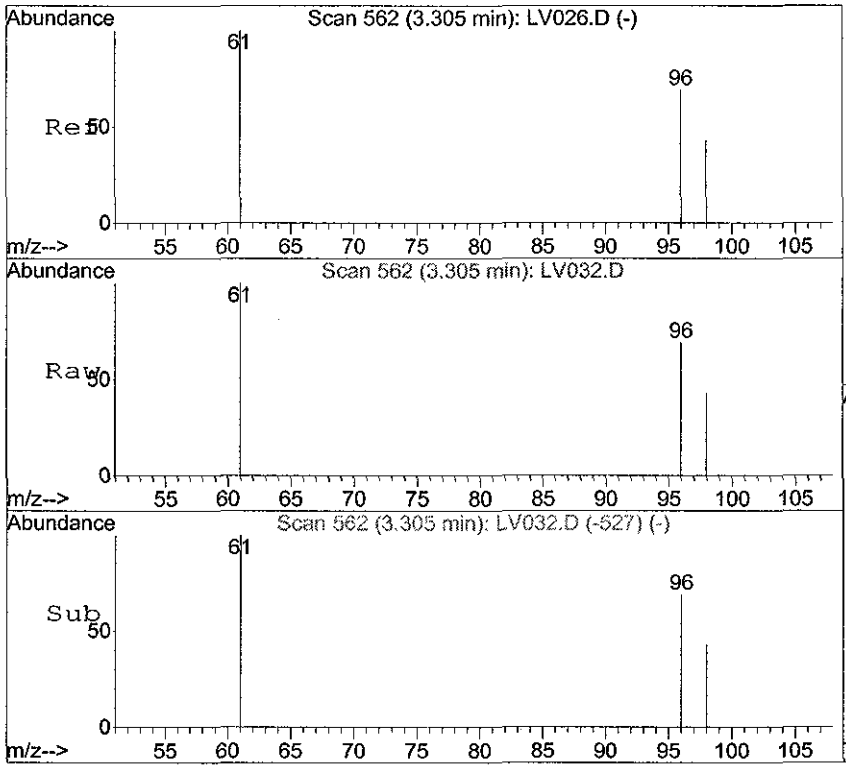


#5
1,1-Dichloroethane
Concen: 538.43 ppbv
RT: 3.06 min Scan# 520
Delta R.T. -0.01 min
Lab File: LV032.D
Acq: 2 Apr 2008 3:36 pm

Tgt Ion: 63 Resp: 381222

Ion	Ratio	Lower	Upper
63	100		
65	30.7	36.4	54.6#
83	11.2	8.3	12.5
98	5.8	9.8	14.6#

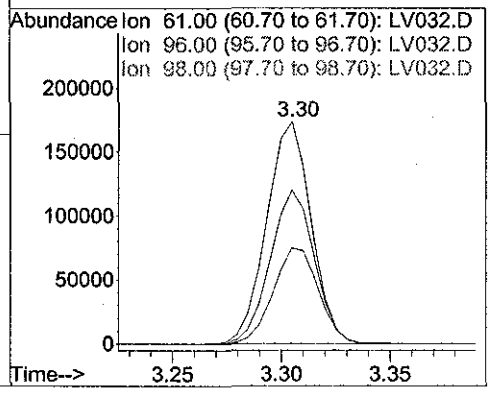


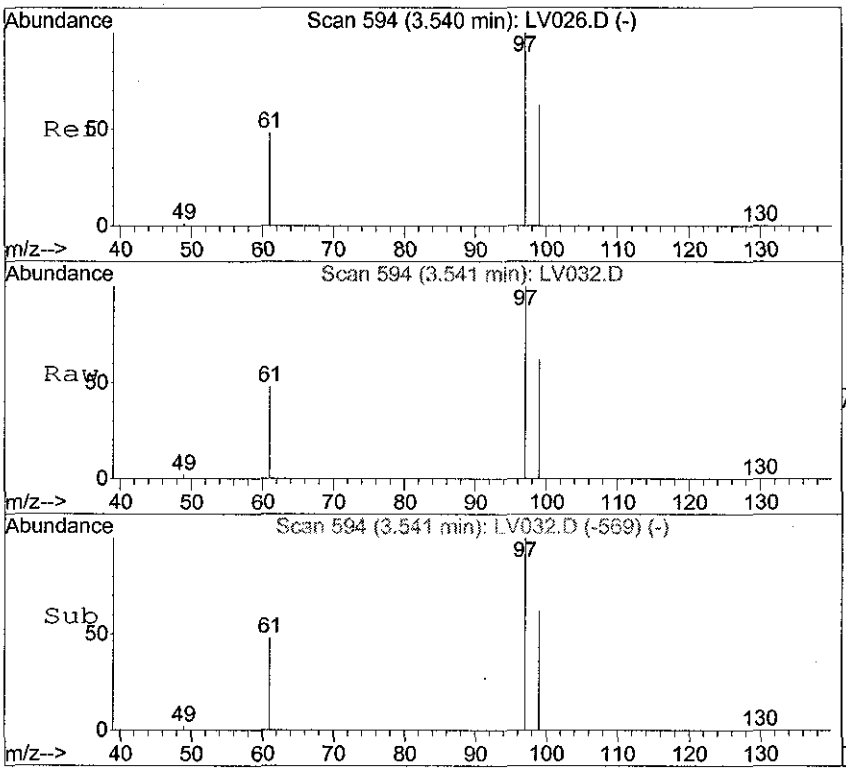


#6
cis-1,2-Dichloroethene
Concen: 606.93 ppbv m
RT: 3.30 min Scan# 562
Delta R.T. 0.00 min
Lab File: LV032.D
Acq: 2 Apr 2008 3:36 pm

Tgt Ion: 61 Resp: 245630

Ion	Ratio	Lower	Upper
61	100		
96	71.0	46.2	69.2#
98	45.4	33.0	49.6

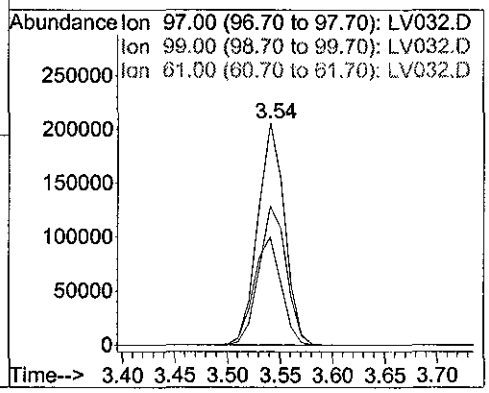


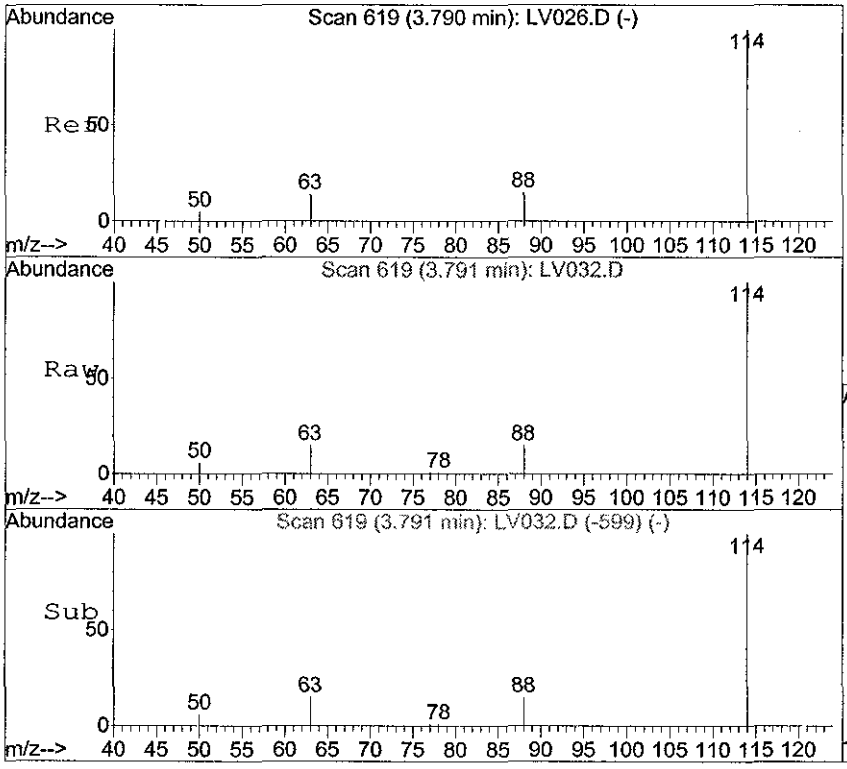


#7
1,1,1-Trichloroethane
Concen: 519.54 ppbv
RT: 3.54 min Scan# 594
Delta R.T. 0.00 min
Lab File: LV032.D
Acq: 2 Apr 2008 3:36 pm

Tgt Ion: 97 Resp: 362758

Ion	Ratio	Lower	Upper
97	100		
99	63.9	63.9	95.9#
61	49.6	115.9	173.9#

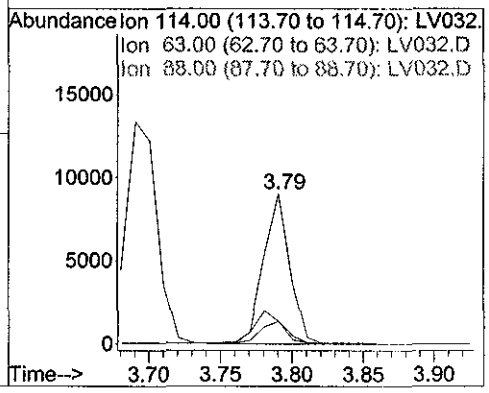


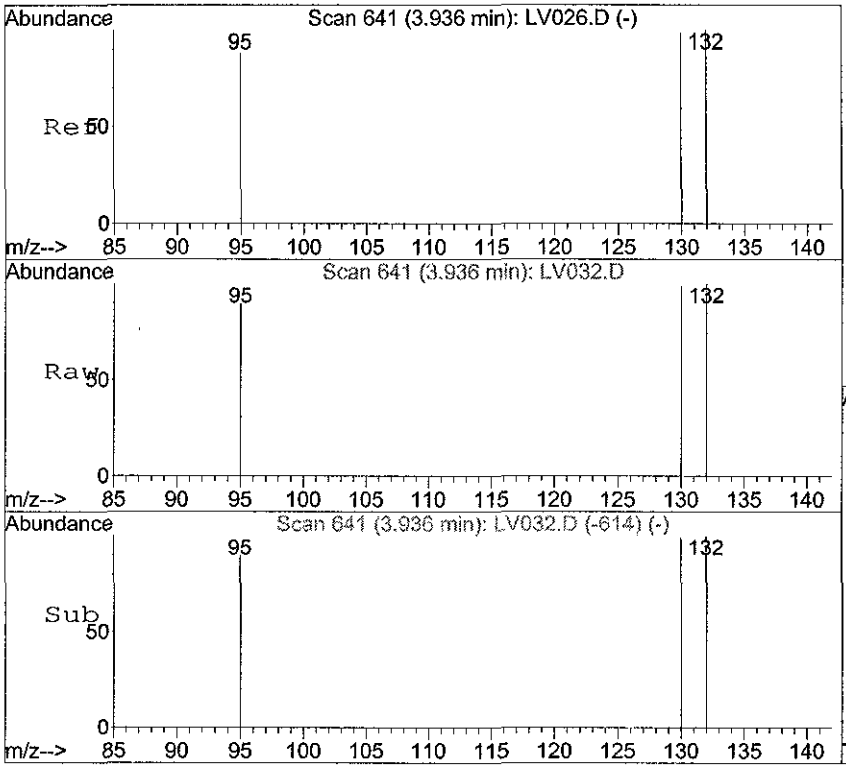


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. 0.00 min
Lab File: LV032.D
Acq: 2 Apr 2008 3:36 pm

Tgt Ion:114 Resp: 11186

Ion	Ratio	Lower	Upper
114	100		
63	24.5	20.9	31.3
88	17.7	15.2	22.8

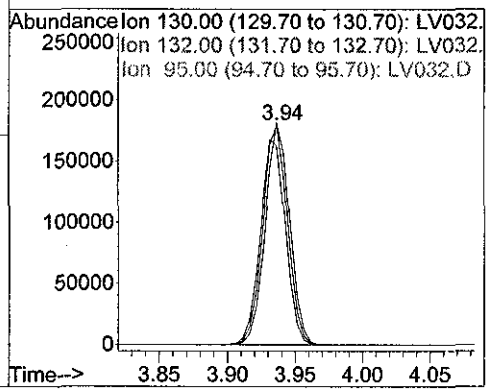


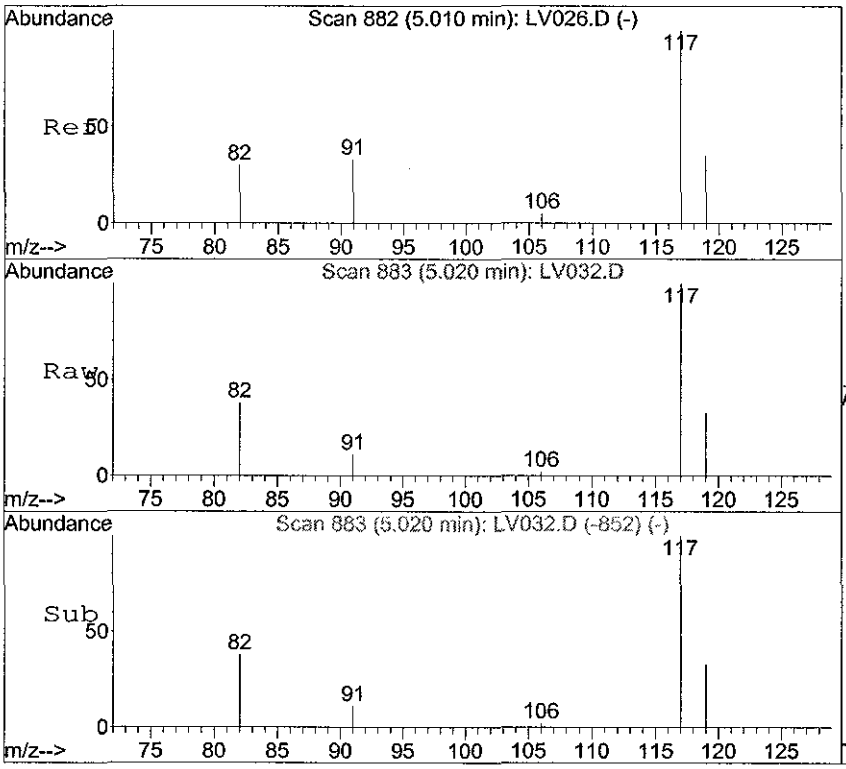


#9
Trichloroethene
Concen: 591.67 ppbv
RT: 3.94 min Scan# 641
Delta R.T. 0.00 min
Lab File: LV032.D
Acq: 2 Apr 2008 3:36 pm

Tgt Ion:130 Resp: 227068

Ion	Ratio	Lower	Upper
130	100		
132	99.8	81.6	122.4
95	95.2	66.7	100.1

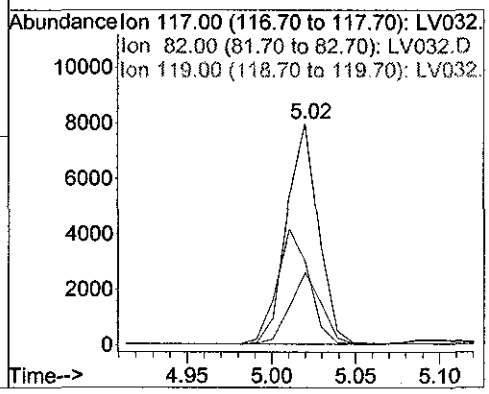


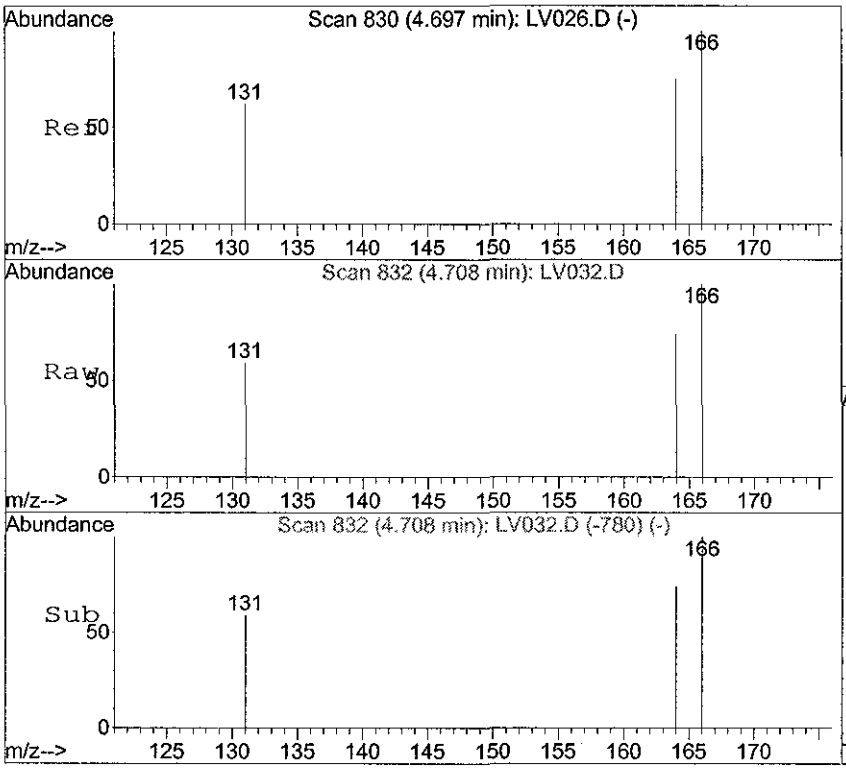


#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.02 min Scan# 883
Delta R.T. 0.01 min
Lab File: LV032.D
Acq: 2 Apr 2008 3:36 pm

Tgt Ion:117 Resp: 10482

Ion	Ratio	Lower	Upper
117	100		
82	53.4	47.4	71.2
119	32.9	25.0	37.4

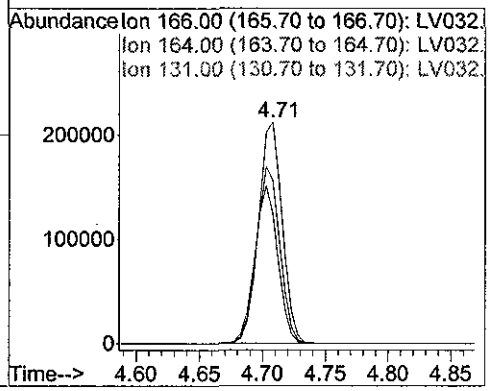




#11
Tetrachloroethene
Concen: 613.68 ppbv
RT: 4.71 min Scan# 832
Delta R.T. 0.01 min
Lab File: LV032.D
Acq: 2 Apr 2008 3:36 pm

Tgt Ion:166 Resp: 275600

Ion	Ratio	Lower	Upper
166	100		
164	78.8	61.8	92.8
131	69.2	51.8	77.8



APPENDIX D

Method Blank, Lot Blank, and Soil Gas Sample Quantitation Reports
Little Valley VI Extent Study
Little Valley, New York
April 2008

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV033.D Vial: 1
Acq On : 2 Apr 2008 3:45 pm Operator: SJT
Sample : 20080402MB-1 \ Method Blank Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 15:51:29 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 15:46:00 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	3.42	49	4856	10.00	ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	7456	10.00	ppbv	0.00
10) Chlorobenzene-d5	5.00	117	8458	10.00	ppbv	-0.02

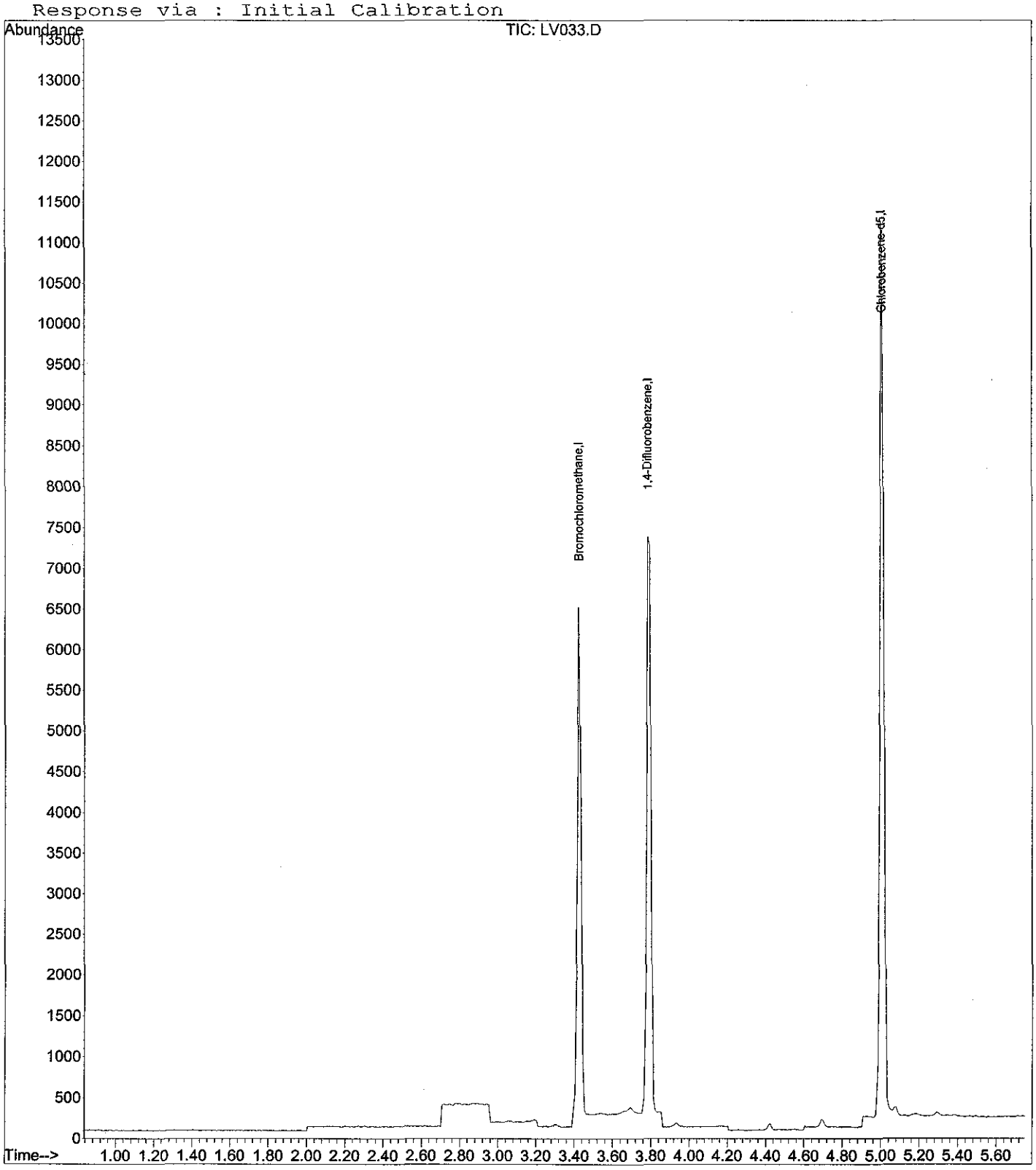
Target Compounds Qvalue

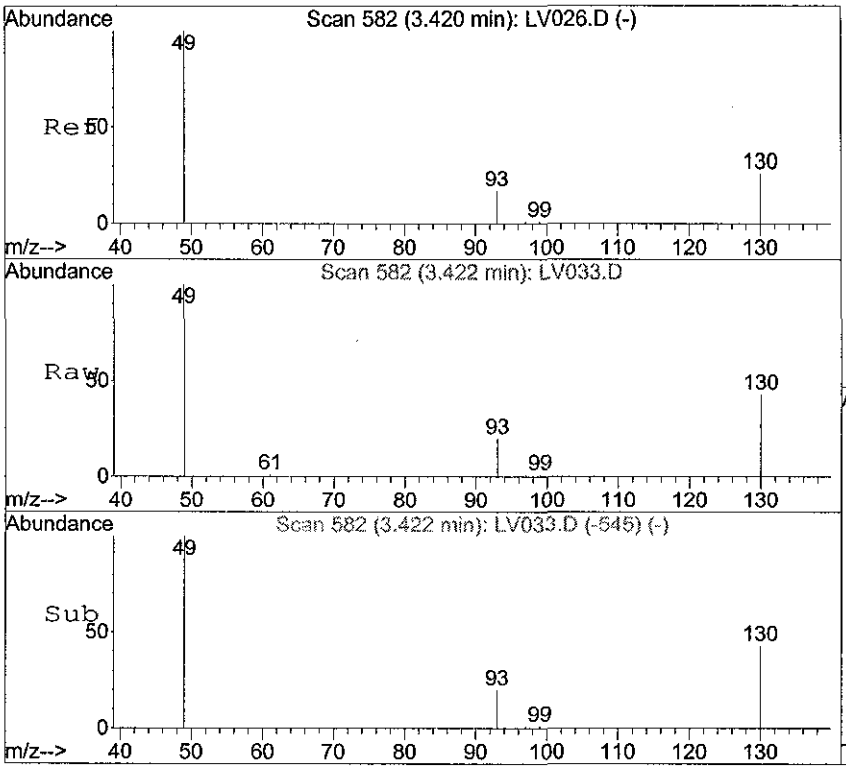
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV033.D Vial: 1
Acq On : 2 Apr 2008 3:45 pm Operator: SJT
Sample : 20080402MB-1 \ Method Blank Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 15:51 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

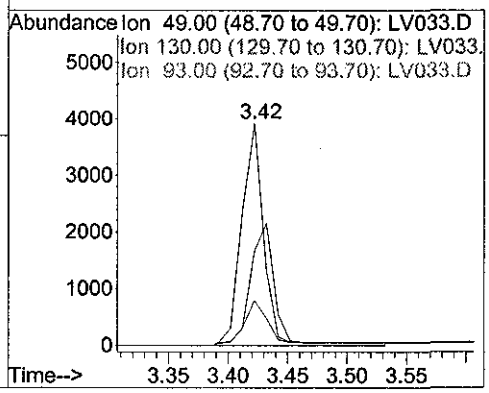


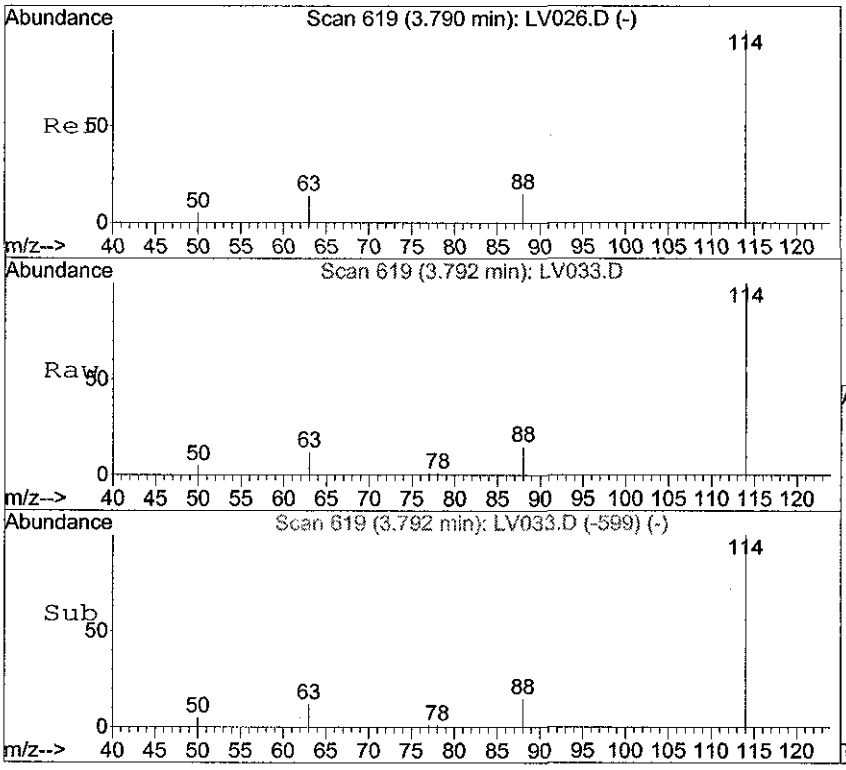


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. 0.00 min
Lab File: LV033.D
Acq: 2 Apr 2008 3:45 pm

Tgt Ion: 49 Resp: 4856

Ion	Ratio	Lower	Upper
49	100		
130	56.2	48.8	73.2
93	24.4	18.8	28.2

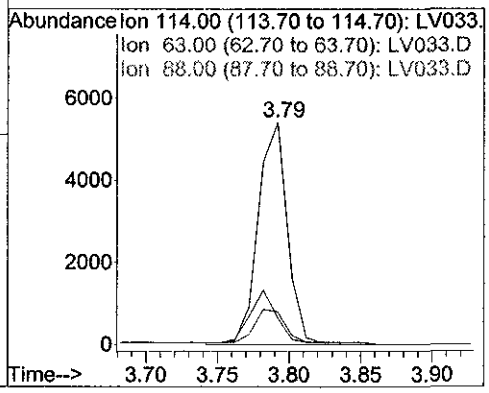


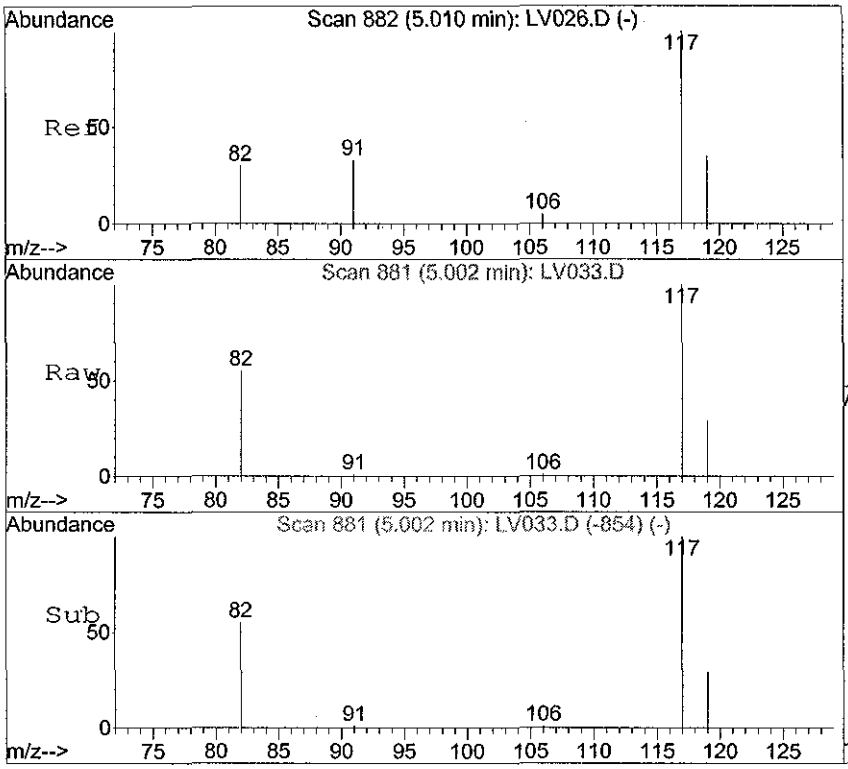


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. 0.00 min
Lab File: LV033.D
Acq: 2 Apr 2008 3:45 pm

Tgt Ion:114 Resp: 7456

Ion	Ratio	Lower	Upper
114	100		
63	25.2	20.9	31.3
88	18.8	15.2	22.8

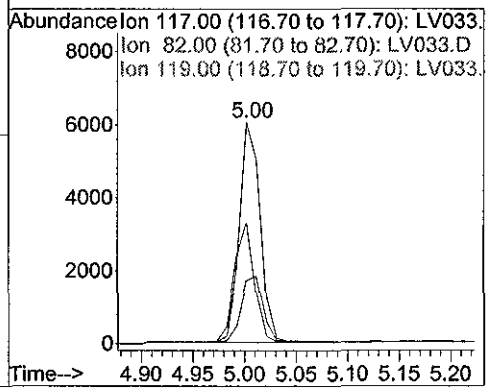




#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.00 min Scan# 881
Delta R.T. -0.02 min
Lab File: LV033.D
Acq: 2 Apr 2008 3:45 pm

Tgt Ion:117 Resp: 8458

Ion	Ratio	Lower	Upper
117	100		
82	53.5	47.4	71.2
119	32.5	25.0	37.4



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV034.D Vial: 1
Acq On : 2 Apr 2008 3:54 pm Operator: SJT
Sample : 20080402LB-1 \ Lot Blank Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 16:00:34 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 15:46:00 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	3.42	49	4959	10.00	ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	8495	10.00	ppbv	0.00
10) Chlorobenzene-d5	5.02	117	8612	10.00	ppbv	0.00

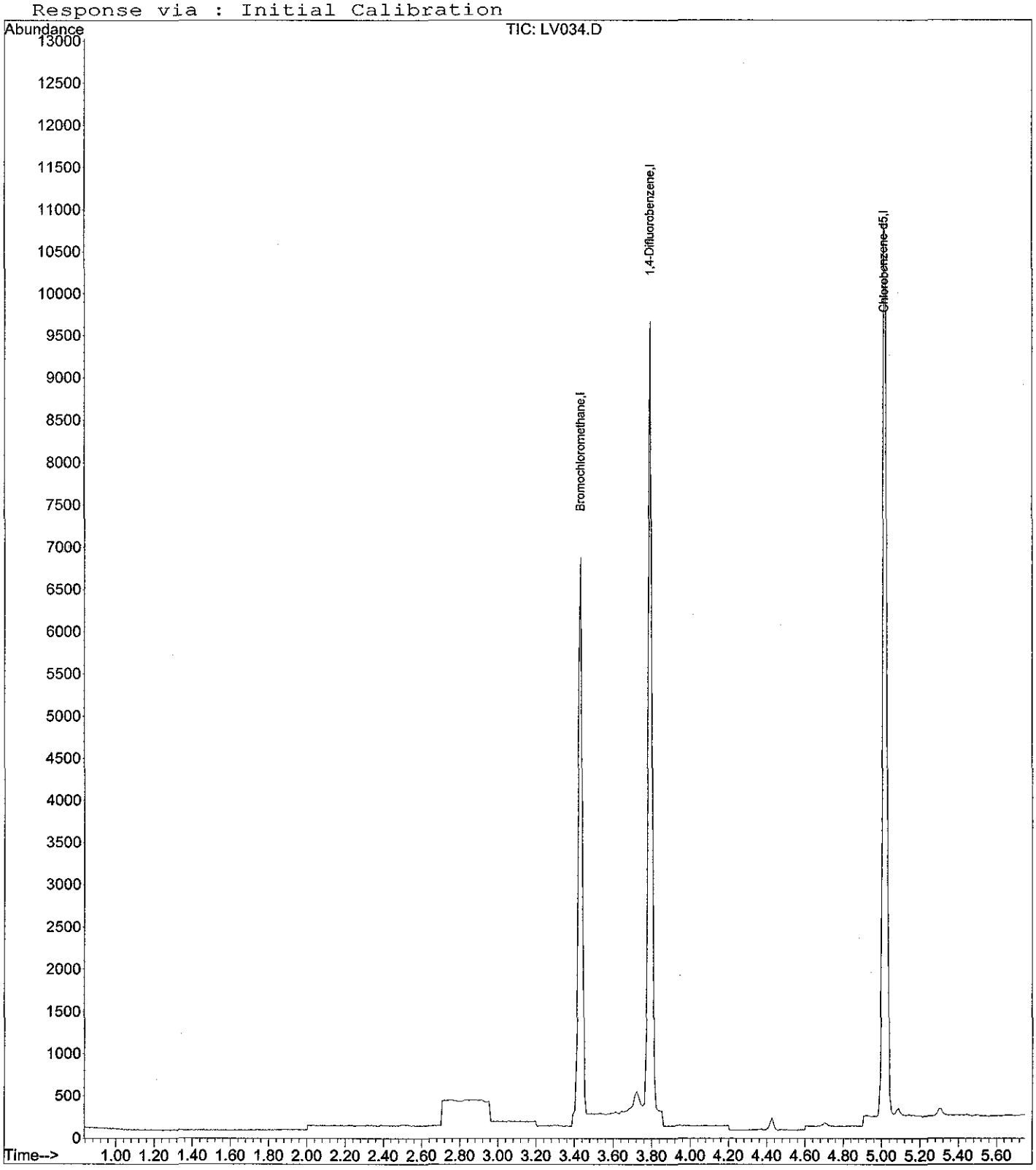
Target Compounds Qvalue

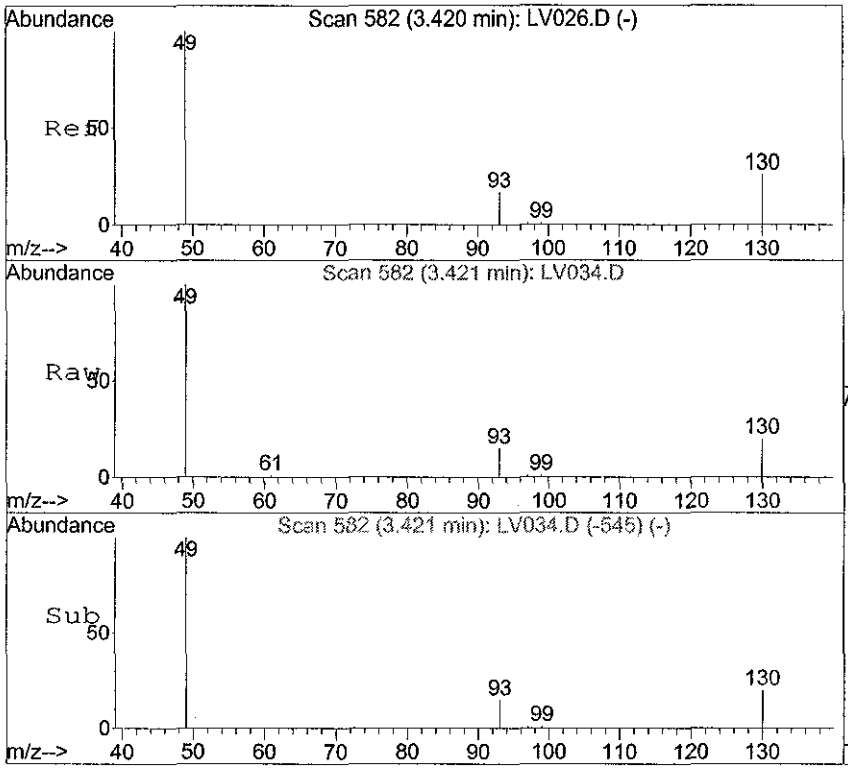
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV034.D Vial: 1
Acq On : 2 Apr 2008 3:54 pm Operator: SJT
Sample : 20080402LB-1 \ Lot Blank Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 16:00 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

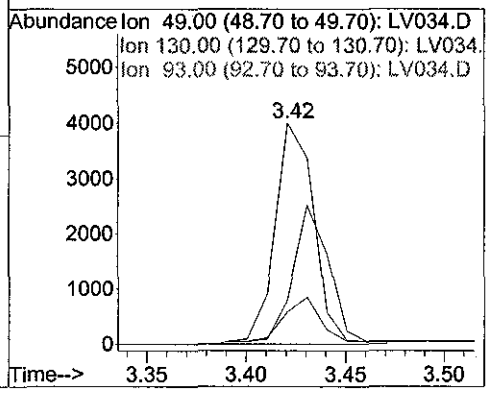


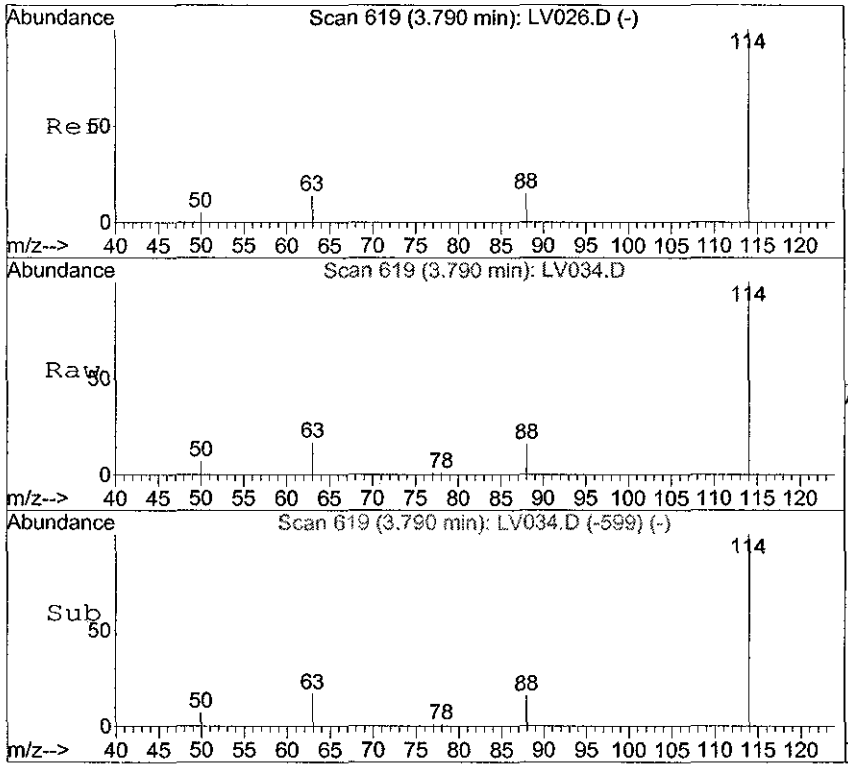


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. -0.00 min
Lab File: LV034.D
Acq: 2 Apr 2008 3:54 pm

Tgt Ion: 49 Resp: 4959

Ion	Ratio	Lower	Upper
49	100		
130	61.1	48.8	73.2
93	22.5	18.8	28.2

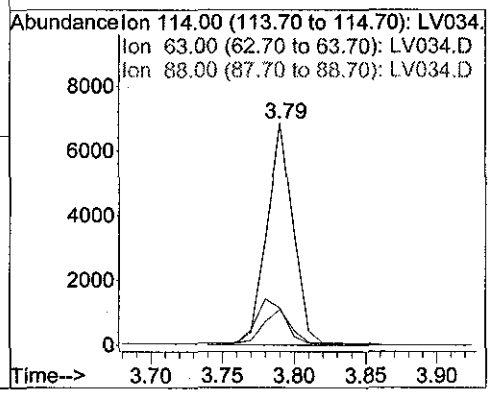


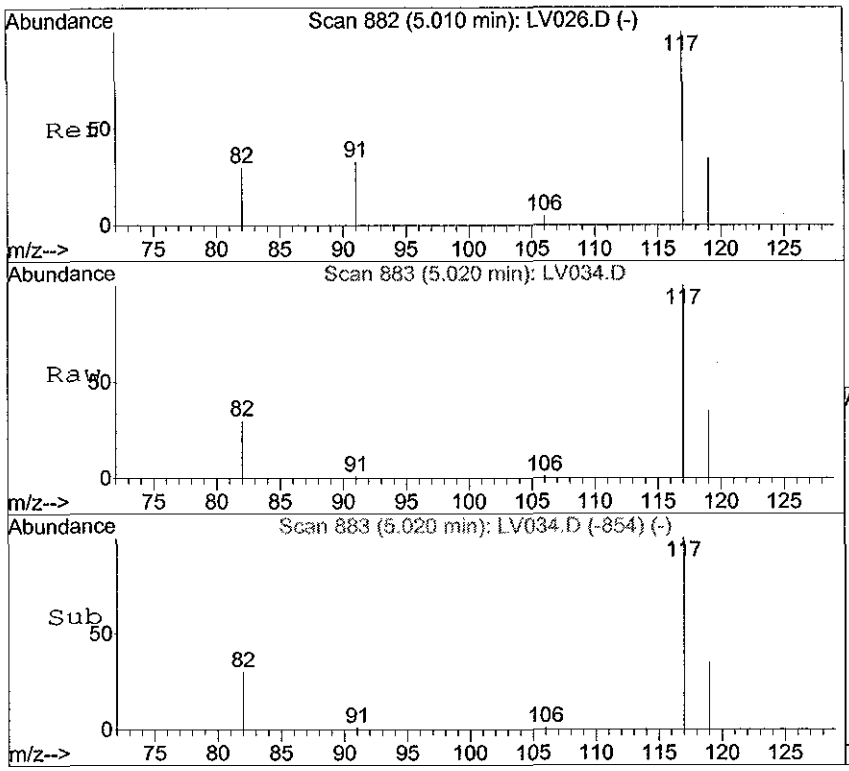


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. -0.00 min
Lab File: LV034.D
Acq: 2 Apr 2008 3:54 pm

Tgt Ion:114 Resp: 8495

Ion	Ratio	Lower	Upper
114	100		
63	24.7	20.9	31.3
88	18.4	15.2	22.8

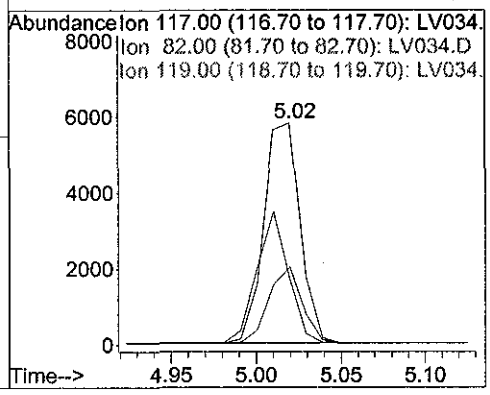




#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.02 min Scan# 883
Delta R.T. -0.00 min
Lab File: LV034.D
Acq: 2 Apr 2008 3:54 pm

Tgt Ion:117 Resp: 8612

Ion	Ratio	Lower	Upper
117	100		
82	53.0	47.4	71.2
119	32.4	25.0	37.4



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV035.D Vial: 1
Acq On : 2 Apr 2008 4:03 pm Operator: SJT
Sample : 1003 \ Unit 071T Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 16:09:23 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 15:46:00 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

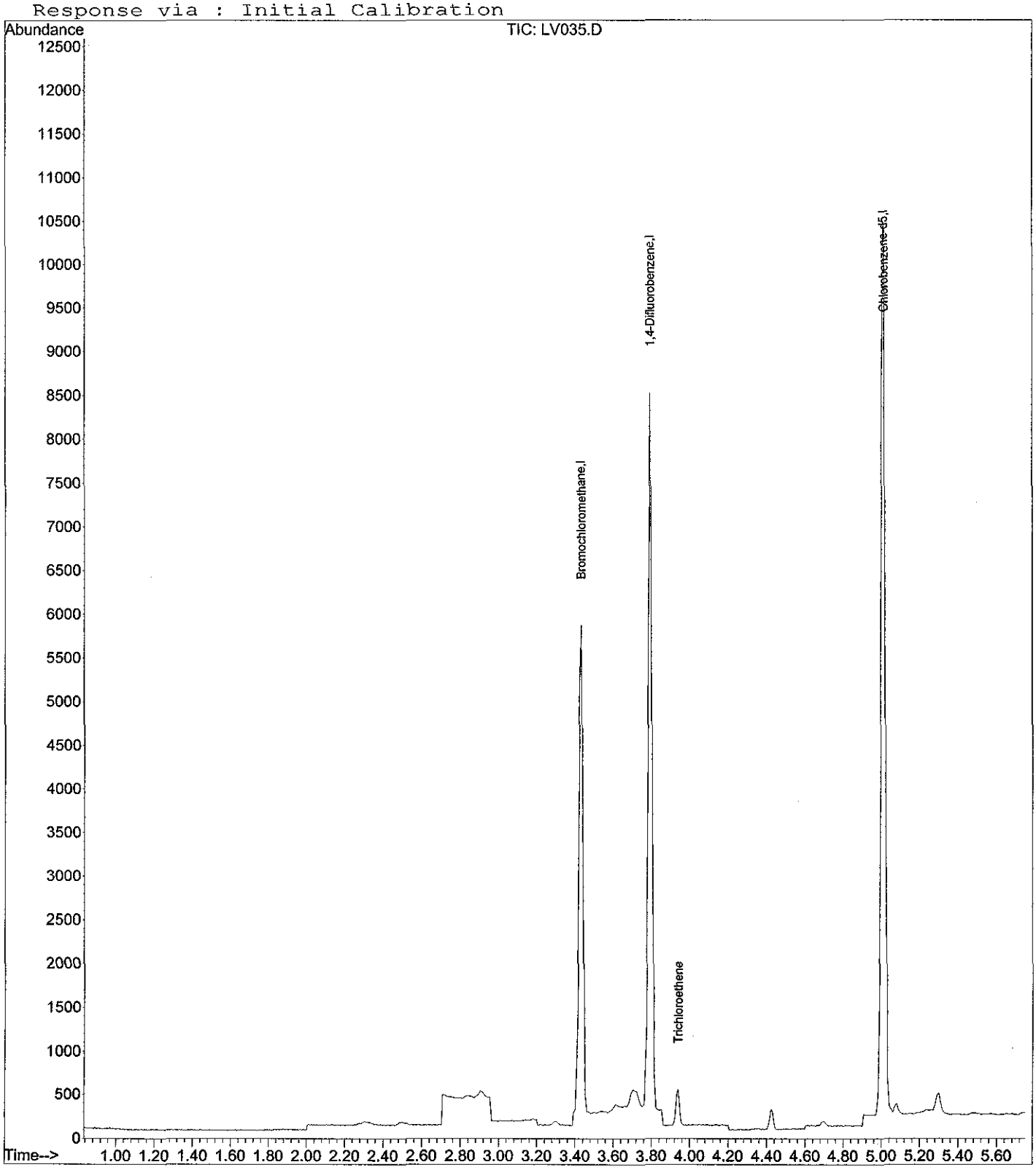
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	3.42	49	4619	10.00	ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	7333	10.00	ppbv	0.00
10) Chlorobenzene-d5	5.01	117	8062	10.00	ppbv	0.00
Target Compounds						Qvalue
9) Trichloroethene	3.94	130	188	0.75	ppbv	# 75

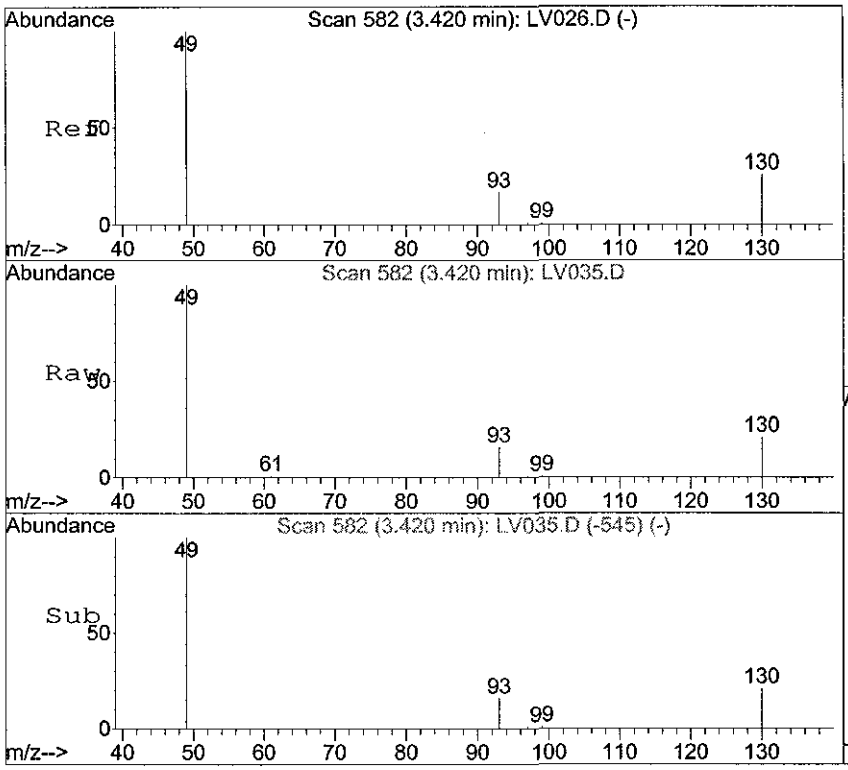
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV035.D Vial: 1
Acq On : 2 Apr 2008 4:03 pm Operator: SJT
Sample : 1003 \ Unit 071T Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 16:09 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

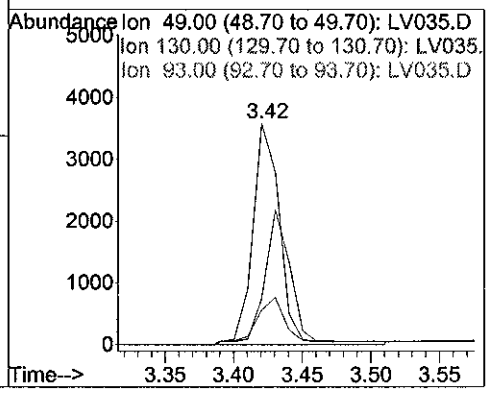


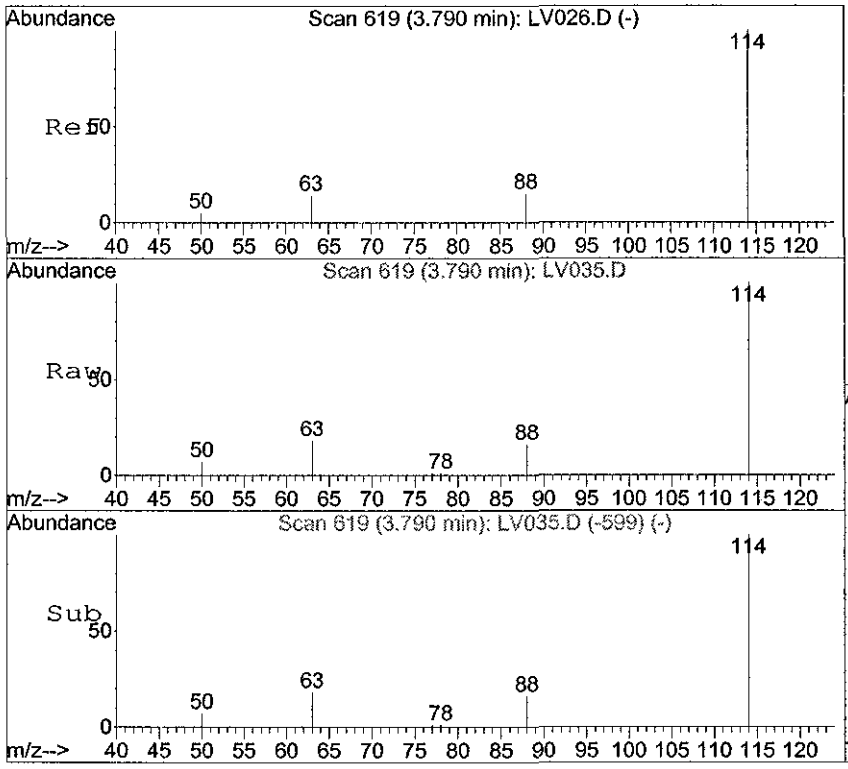


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. -0.00 min
Lab File: LV035.D
Acq: 2 Apr 2008 4:03 pm

Tgt Ion: 49 Resp: 4619

Ion	Ratio	Lower	Upper
49	100		
130	56.9	48.8	73.2
93	23.9	18.8	28.2

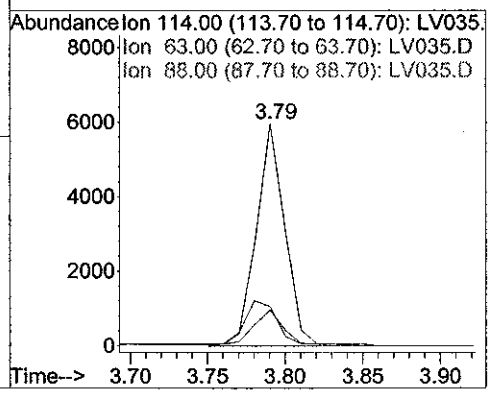


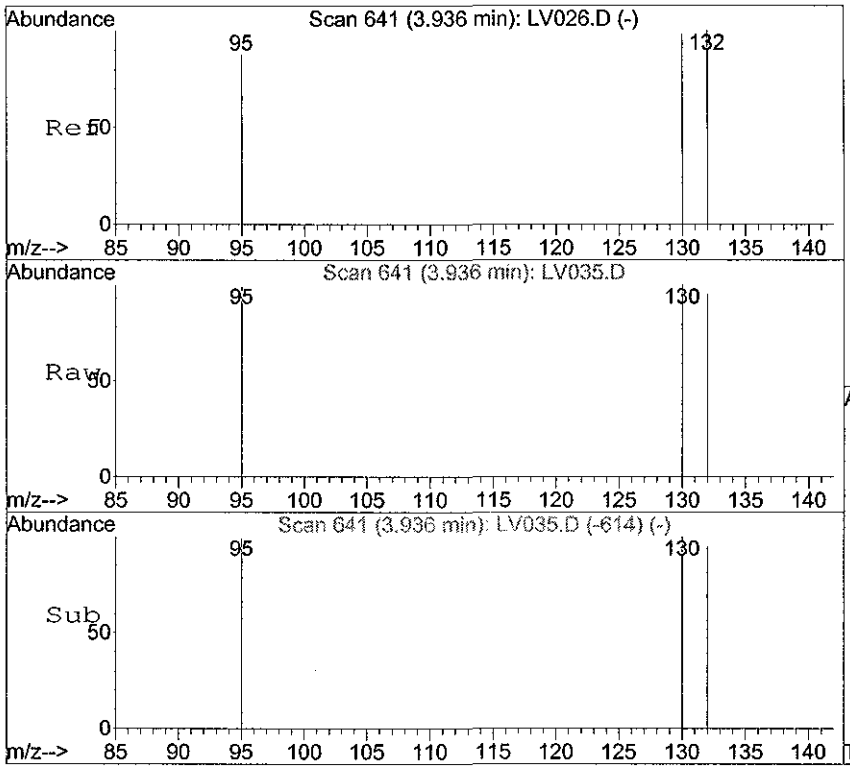


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. -0.00 min
Lab File: LV035.D
Acq: 2 Apr 2008 4:03 pm

Tgt Ion:114 Resp: 7333

Ion	Ratio	Lower	Upper
114	100		
63	25.4	20.9	31.3
88	18.8	15.2	22.8

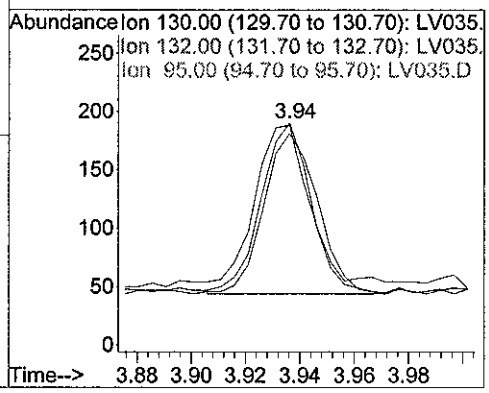


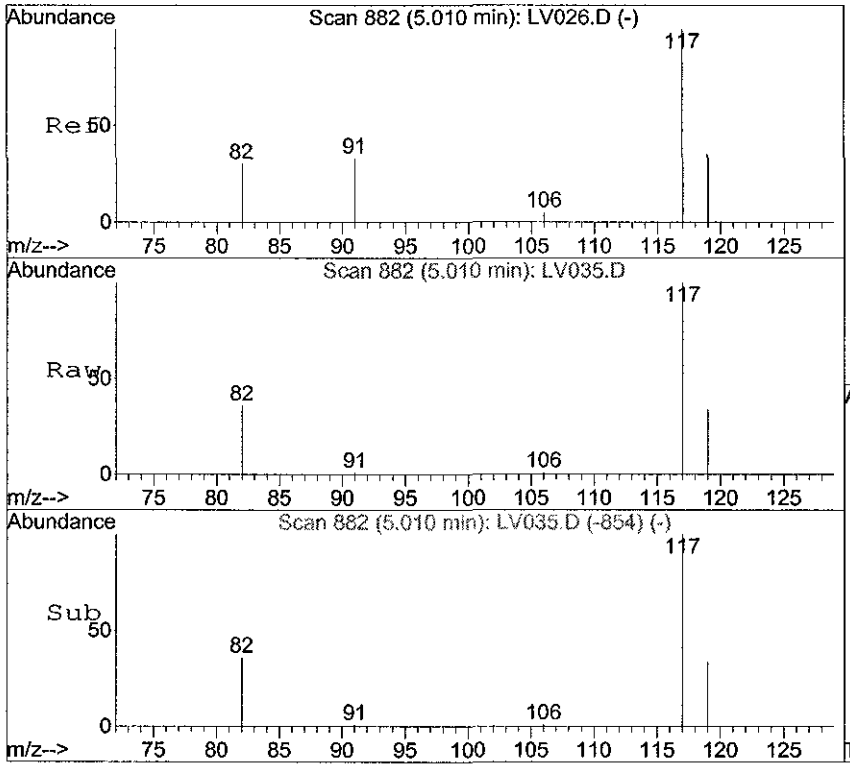


#9
Trichloroethene
Concen: 0.75 ppbv
RT: 3.94 min Scan# 641
Delta R.T. -0.00 min
Lab File: LV035.D
Acq: 2 Apr 2008 4:03 pm

Tgt Ion:130 Resp: 188

Ion	Ratio	Lower	Upper
130	100		
132	97.3	81.6	122.4
95	128.2	66.7	100.1#

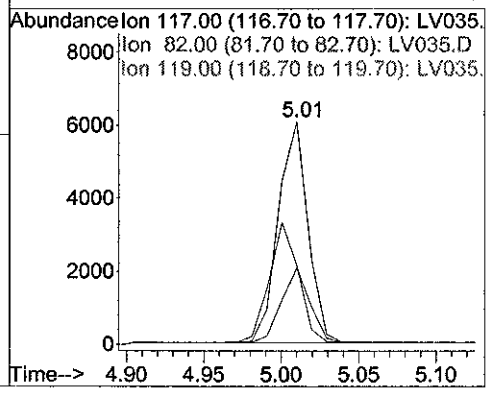




#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.01 min Scan# 882
Delta R.T. -0.01 min
Lab File: LV035.D
Acq: 2 Apr 2008 4:03 pm

Tgt Ion:117 Resp: 8062

Ion	Ratio	Lower	Upper
117	100		
82	53.3	47.4	71.2
119	33.4	25.0	37.4



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV036.D Vial: 1
Acq On : 2 Apr 2008 4:12 pm Operator: SJT
Sample : 1004 \ Unit 041T-Port1 Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 16:19:25 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 15:46:00 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

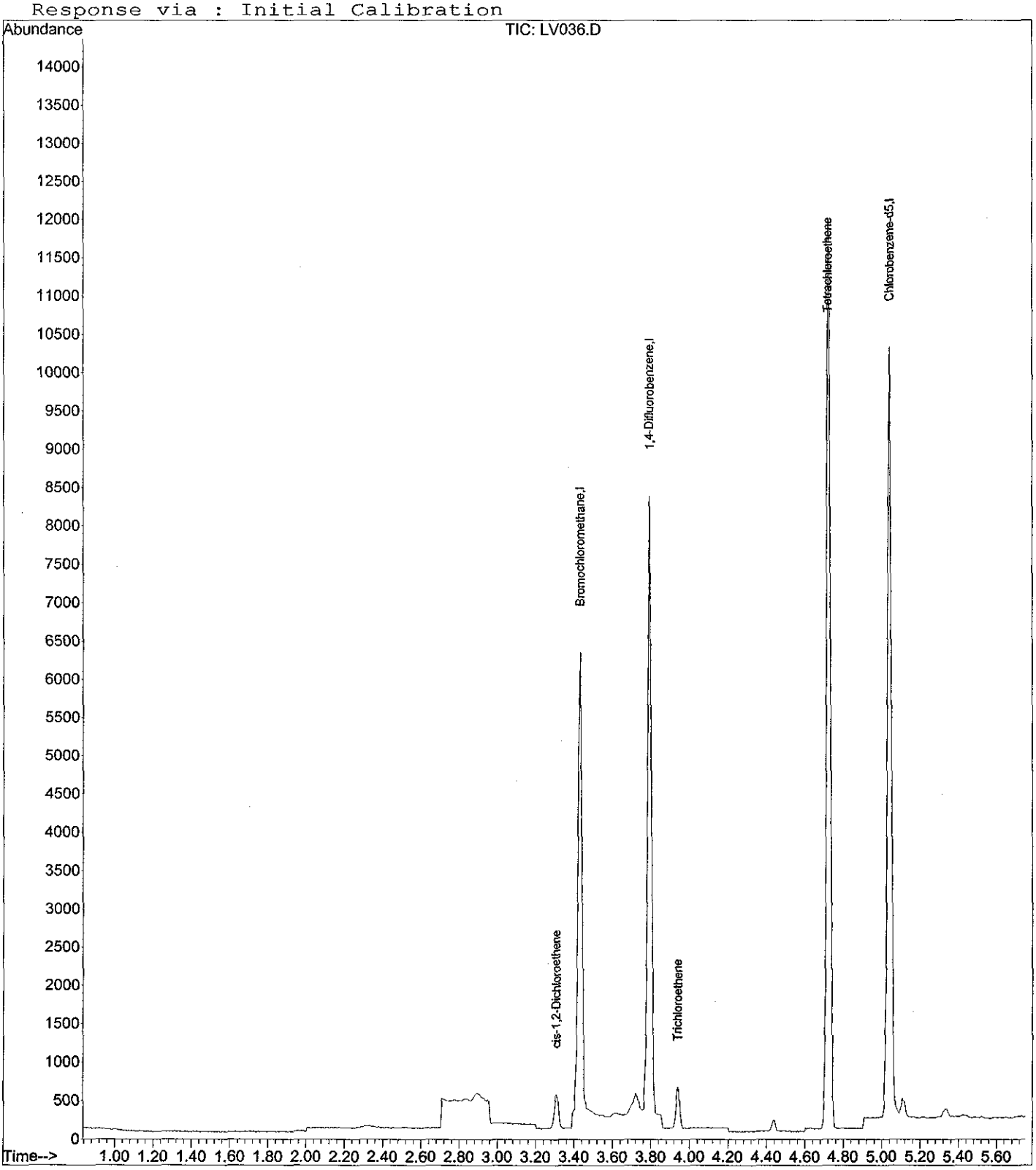
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	3.42	49	4699	10.00	ppbv		0.00
8) 1,4-Difluorobenzene	3.79	114	7189	10.00	ppbv		0.00
10) Chlorobenzene-d5	5.04	117	7728	10.00	ppbv		0.02
Target Compounds							Qvalue
6) cis-1,2-Dichloroethene	3.30	61	329	0.92	ppbv		94
9) Trichloroethene	3.94	130	236	0.96	ppbv	#	79
11) Tetrachloroethene	4.72	166	6626	20.01	ppbv		97

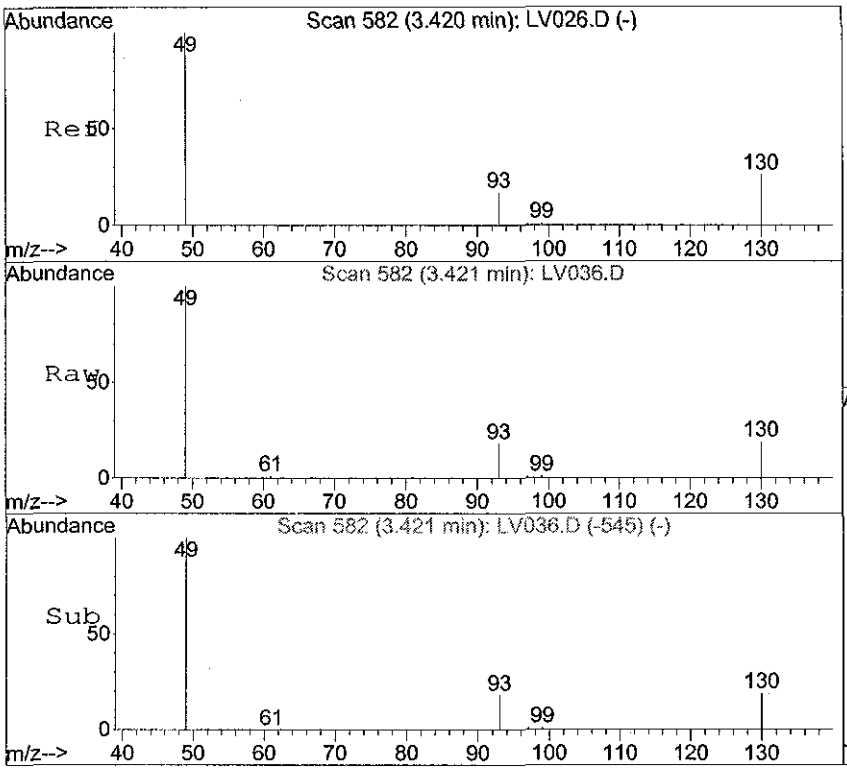
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV036.D Vial: 1
Acq On : 2 Apr 2008 4:12 pm Operator: SJT
Sample : 1004 \ Unit 041T-Port1 Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 16:19 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

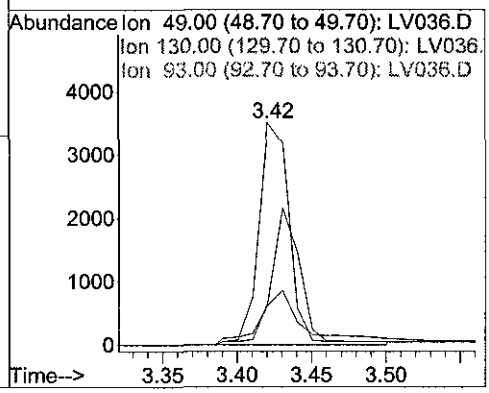


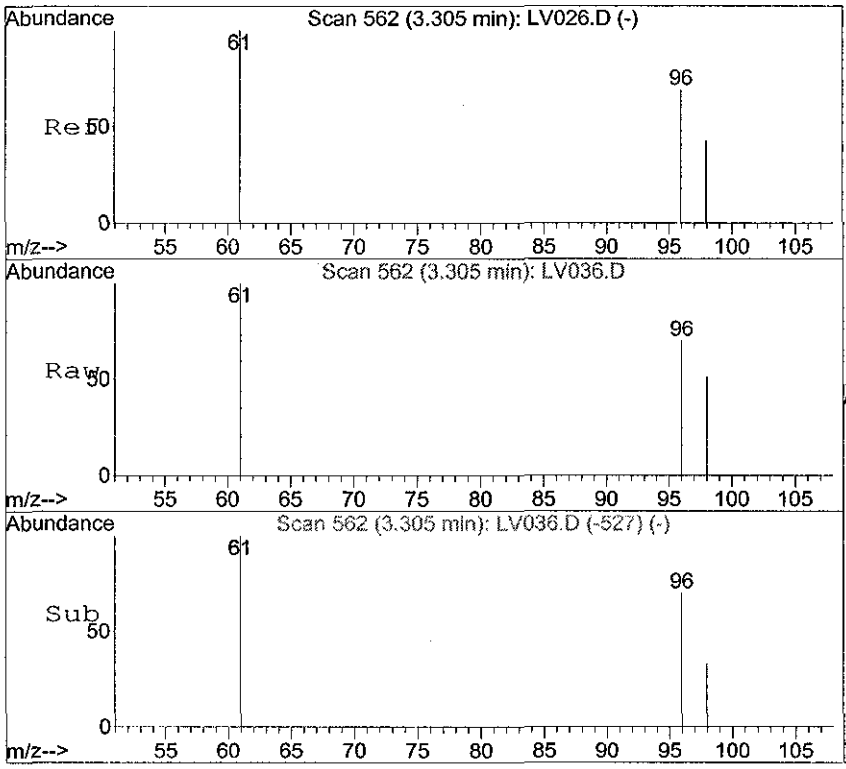


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. -0.00 min
Lab File: LV036.D
Acq: 2 Apr 2008 4:12 pm

Tgt Ion: 49 Resp: 4699

Ion	Ratio	Lower	Upper
49	100		
130	59.4	48.8	73.2
93	43.2	18.8	28.2#

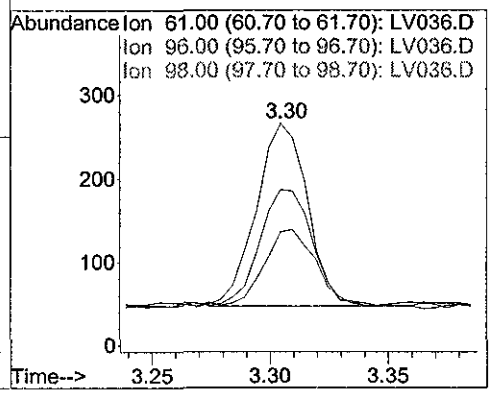


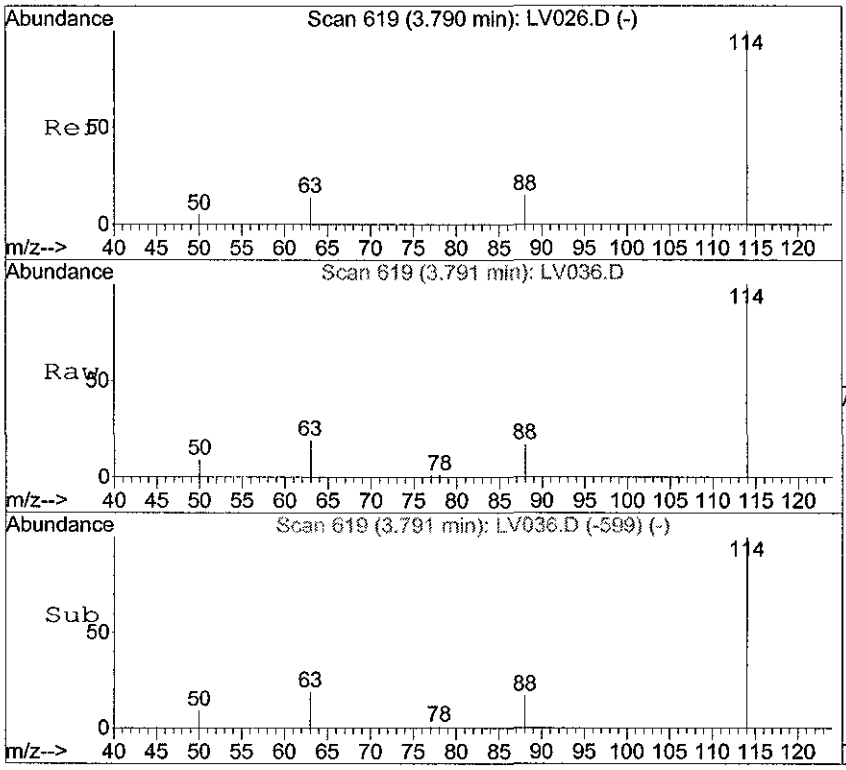


#6
cis-1,2-Dichloroethene
Concen: 0.92 ppbv
RT: 3.30 min Scan# 562
Delta R.T. -0.00 min
Lab File: LV036.D
Acq: 2 Apr 2008 4:12 pm

Tgt Ion: 61 Resp: 329

Ion	Ratio	Lower	Upper
61	100		
96	64.7	46.2	69.2
98	41.9	33.0	49.6

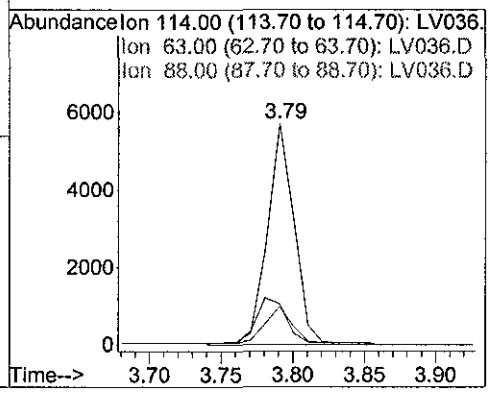


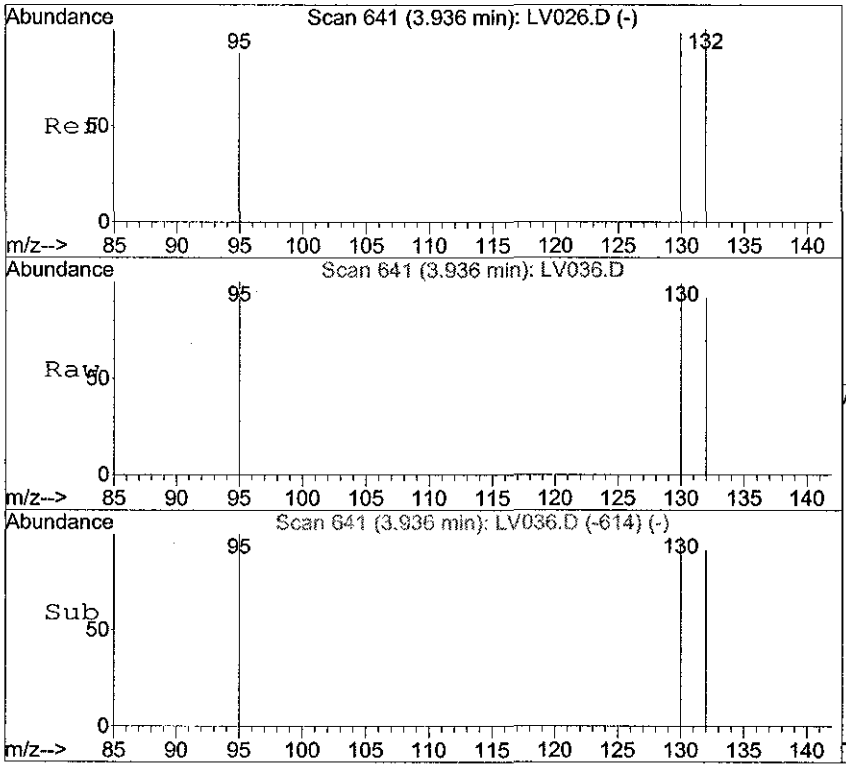


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. -0.00 min
Lab File: LV036.D
Acq: 2 Apr 2008 4:12 pm

Tgt Ion:114 Resp: 7189

Ion	Ratio	Lower	Upper
114	100		
63	26.4	20.9	31.3
88	19.7	15.2	22.8

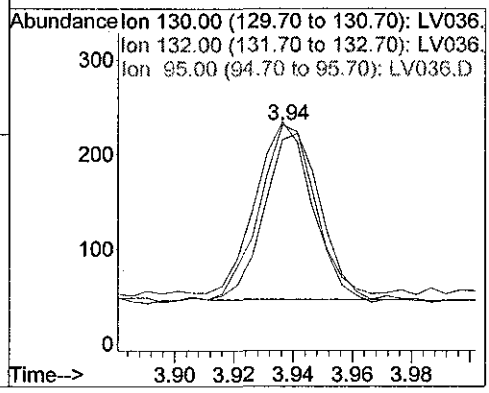


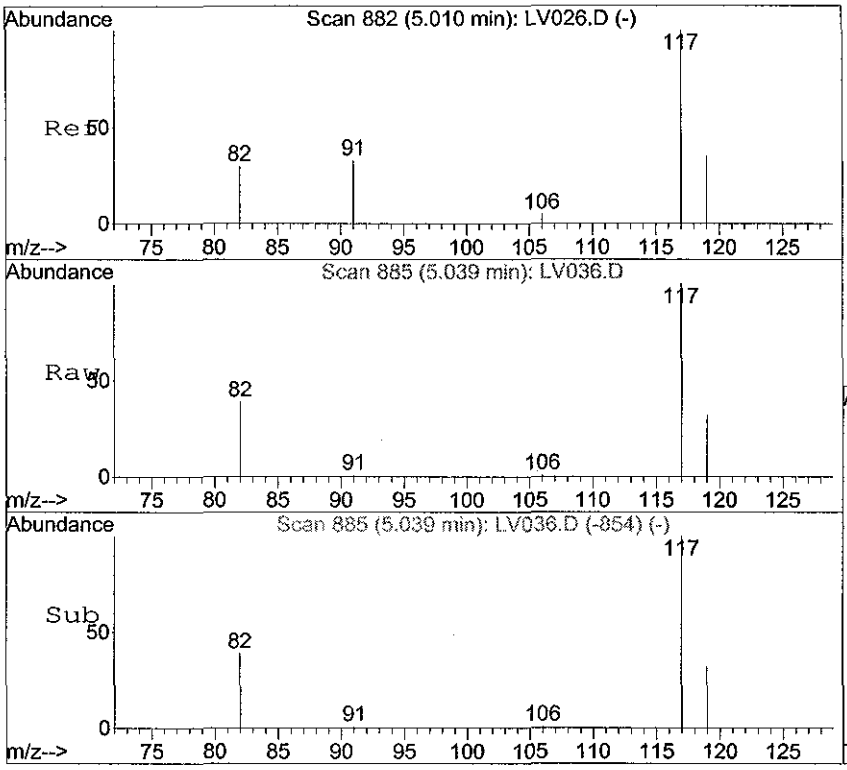


#9
Trichloroethene
Concen: 0.96 ppbv
RT: 3.94 min Scan# 641
Delta R.T. -0.00 min
Lab File: LV036.D
Acq: 2 Apr 2008 4:12 pm

Tgt Ion:130 Resp: 236

Ion	Ratio	Lower	Upper
130	100		
132	126.3	81.6	122.4#
95	98.7	66.7	100.1

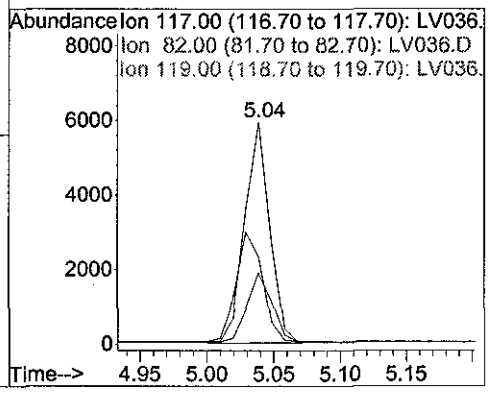


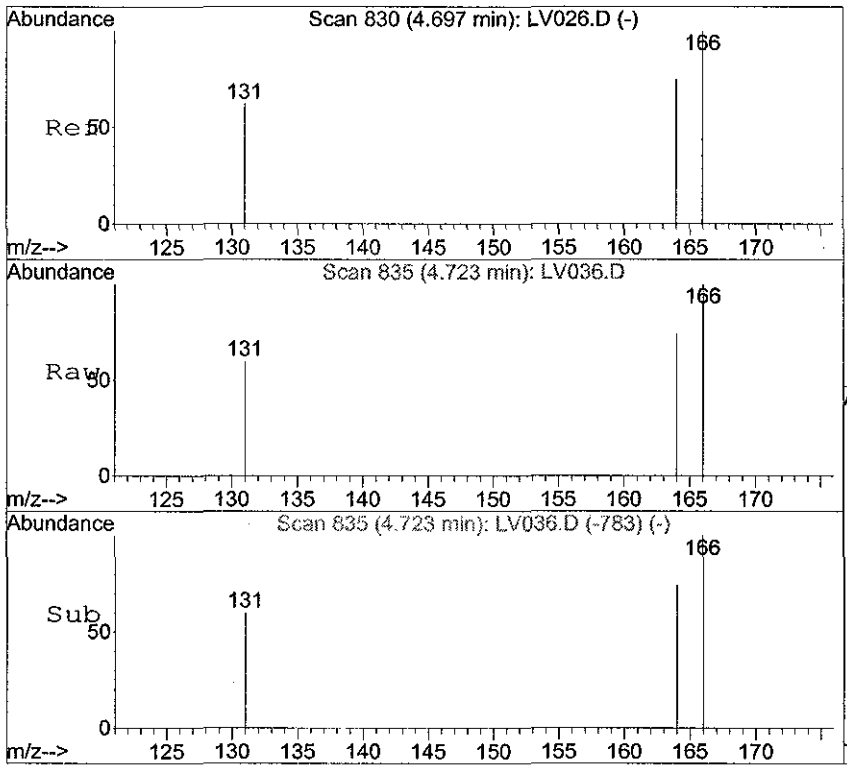


#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.04 min Scan# 885
Delta R.T. 0.02 min
Lab File: LV036.D
Acq: 2 Apr 2008 4:12 pm

Tgt Ion:117 Resp: 7728

Ion	Ratio	Lower	Upper
117	100		
82	54.6	47.4	71.2
119	31.0	25.0	37.4

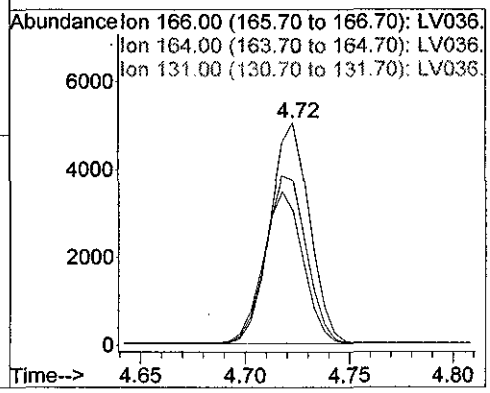




#11
Tetrachloroethene
Concen: 20.01 ppbv
RT: 4.72 min Scan# 835
Delta R.T. 0.02 min
Lab File: LV036.D
Acq: 2 Apr 2008 4:12 pm

Tgt Ion:166 Resp: 6626

Ion	Ratio	Lower	Upper
166	100		
164	78.4	61.8	92.8
131	69.1	51.8	77.8



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV037.D Vial: 1
Acq On : 2 Apr 2008 4:21 pm Operator: SJT
Sample : 1005 \ Unit 041T-Port2 Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 16:27:16 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 15:46:00 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

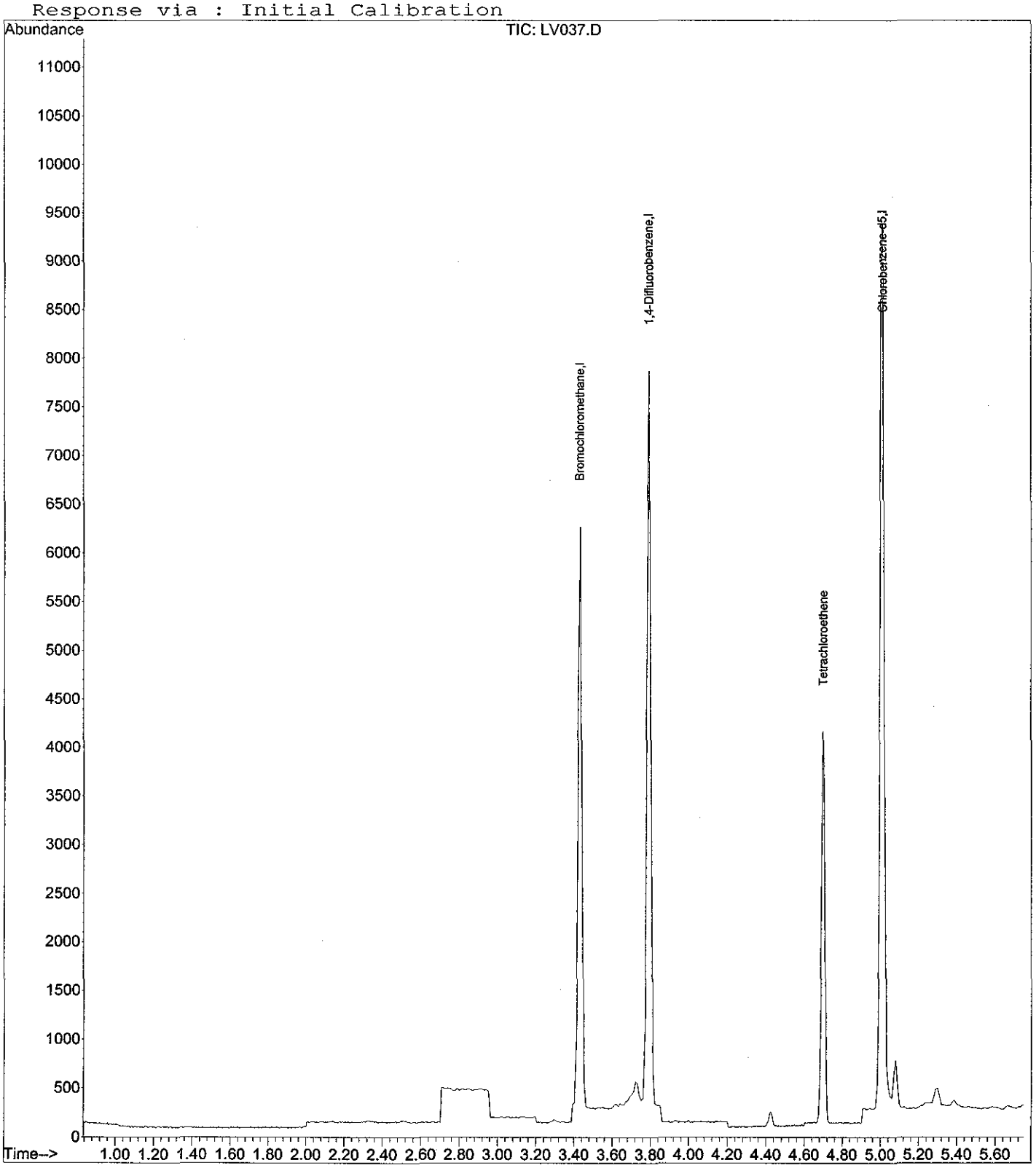
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	3.43	49	4506	10.00	ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	6722	10.00	ppbv	0.00
10) Chlorobenzene-d5	5.01	117	7394	10.00	ppbv	0.00
Target Compounds						Qvalue
11) Tetrachloroethene	4.70	166	2095m	6.61	ppbv	

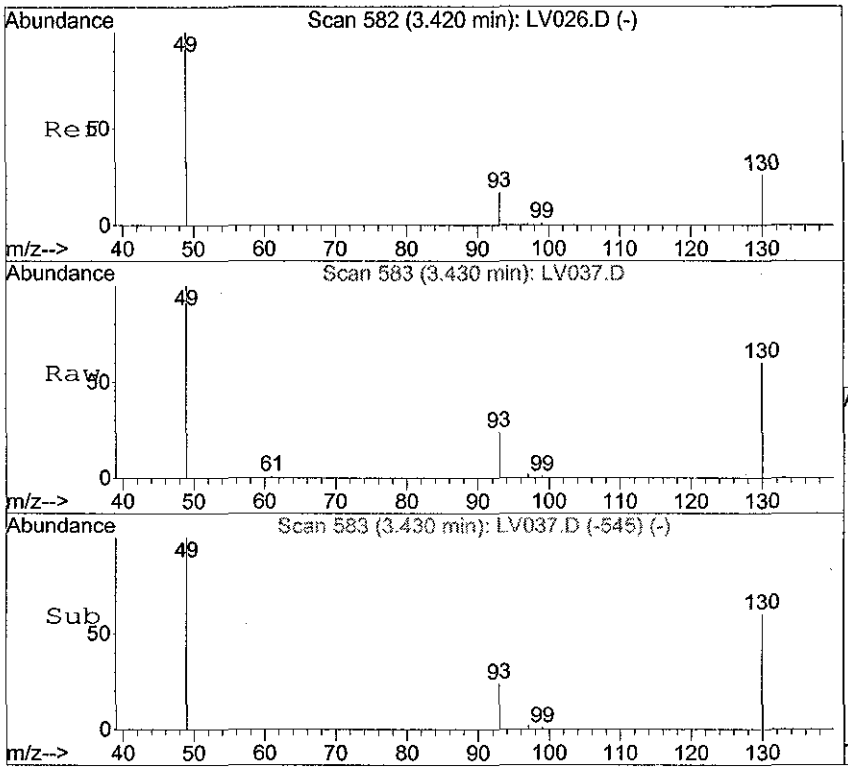
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV037.D Vial: 1
Acq On : 2 Apr 2008 4:21 pm Operator: SJT
Sample : 1005 \ Unit 041T-Port2 Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 16:27 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

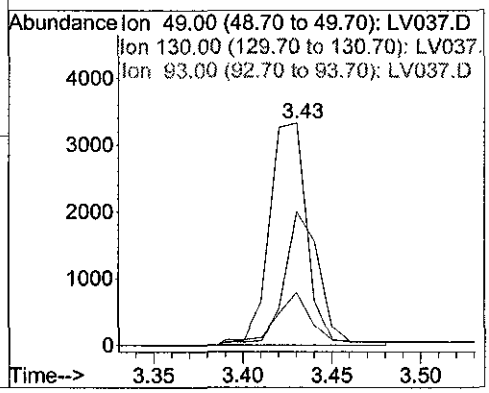


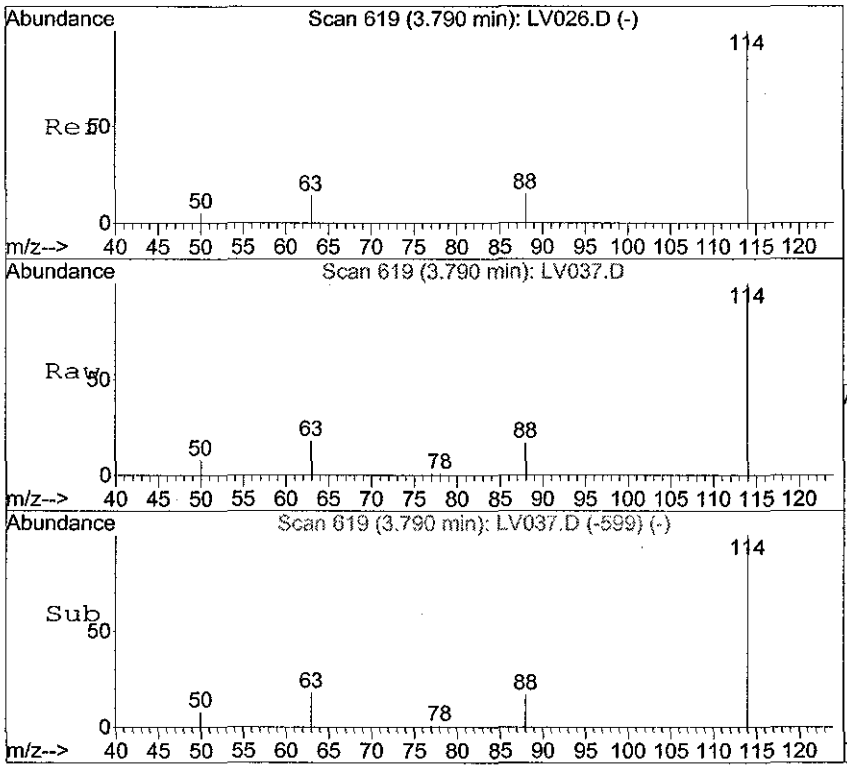


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.43 min Scan# 583
Delta R.T. 0.01 min
Lab File: LV037.D
Acq: 2 Apr 2008 4:21 pm

Tgt Ion: 49 Resp: 4506

Ion	Ratio	Lower	Upper
49	100		
130	59.7	48.8	73.2
93	28.6	18.8	28.2#

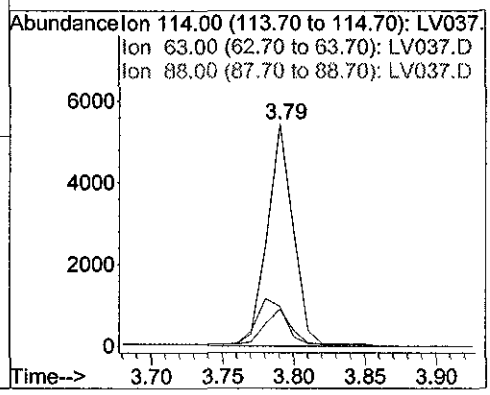


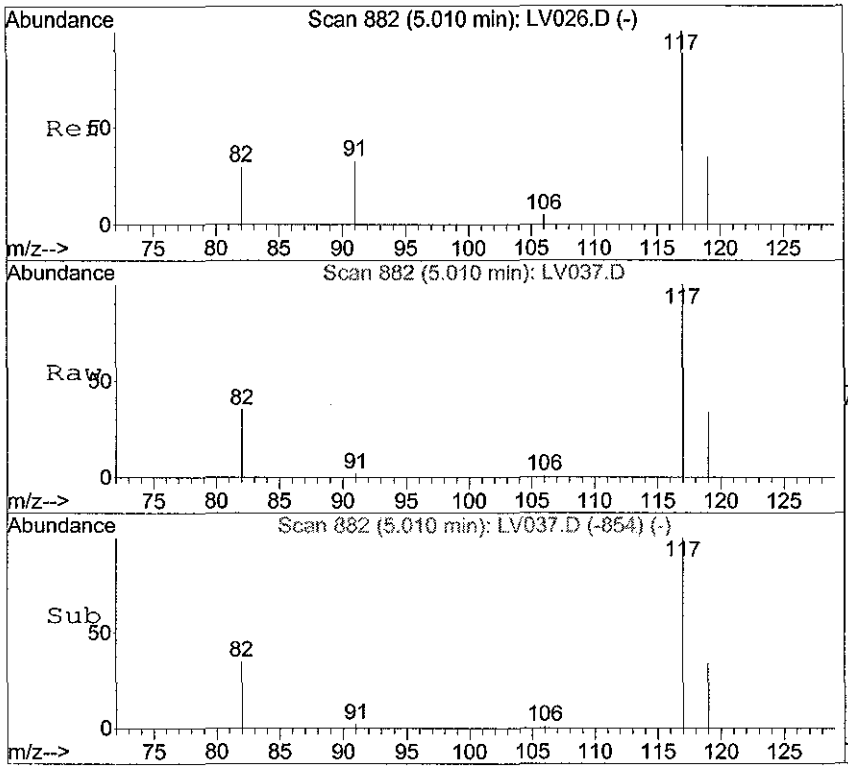


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. -0.00 min
Lab File: LV037.D
Acq: 2 Apr 2008 4:21 pm

Tgt Ion:114 Resp: 6722

Ion	Ratio	Lower	Upper
114	100		
63	26.3	20.9	31.3
88	19.3	15.2	22.8

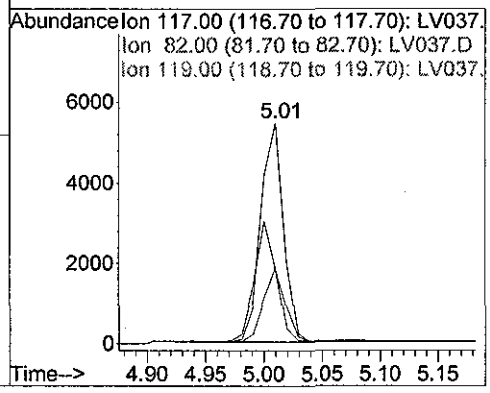


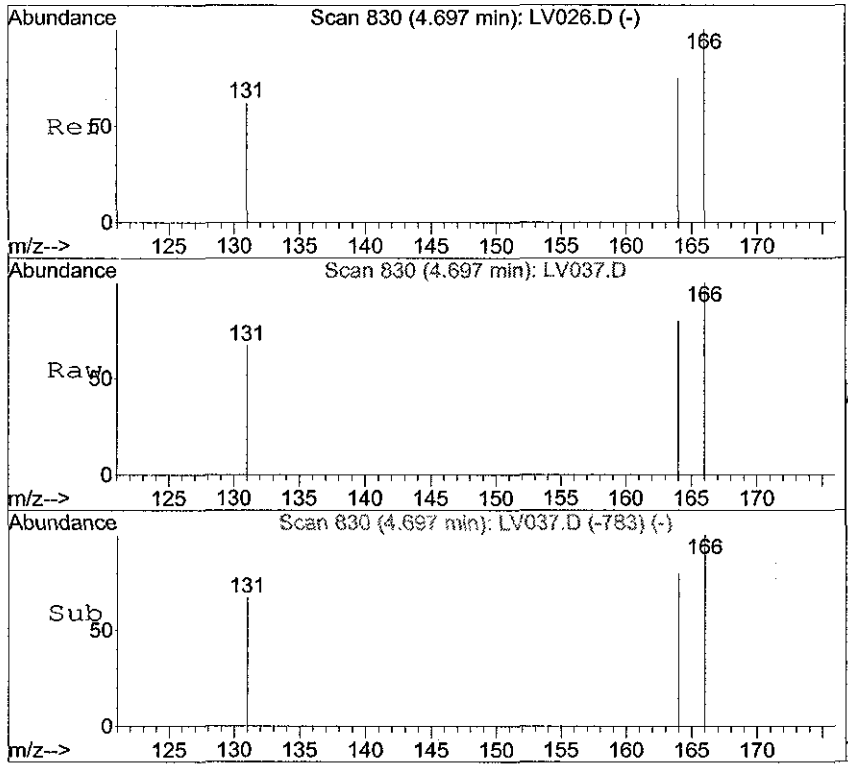


#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.01 min Scan# 882
Delta R.T. -0.01 min
Lab File: LV037.D
Acq: 2 Apr 2008 4:21 pm

Tgt Ion:117 Resp: 7394

Ion	Ratio	Lower	Upper
117	100		
82	56.6	47.4	71.2
119	33.5	25.0	37.4

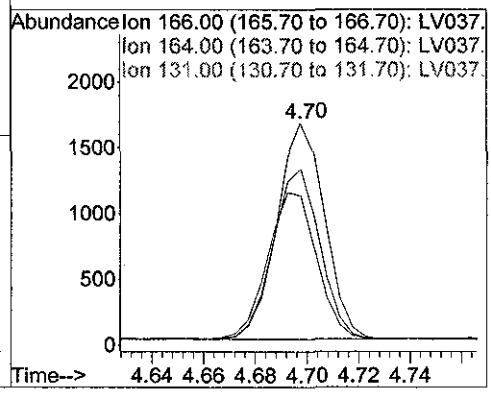




#11
Tetrachloroethene
Concen: 6.61 ppbv m
RT: 4.70 min Scan# 830
Delta R.T. -0.01 min
Lab File: LV037.D
Acq: 2 Apr 2008 4:21 pm

Tgt Ion:166 Resp: 2095

Ion	Ratio	Lower	Upper
166	100		
164	78.4	61.8	92.8
131	69.5	51.8	77.8



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV038.D Vial: 1
Acq On : 2 Apr 2008 4:30 pm Operator: SJT
Sample : 1006 \ Unit 027T Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 16:37:07 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 15:46:00 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

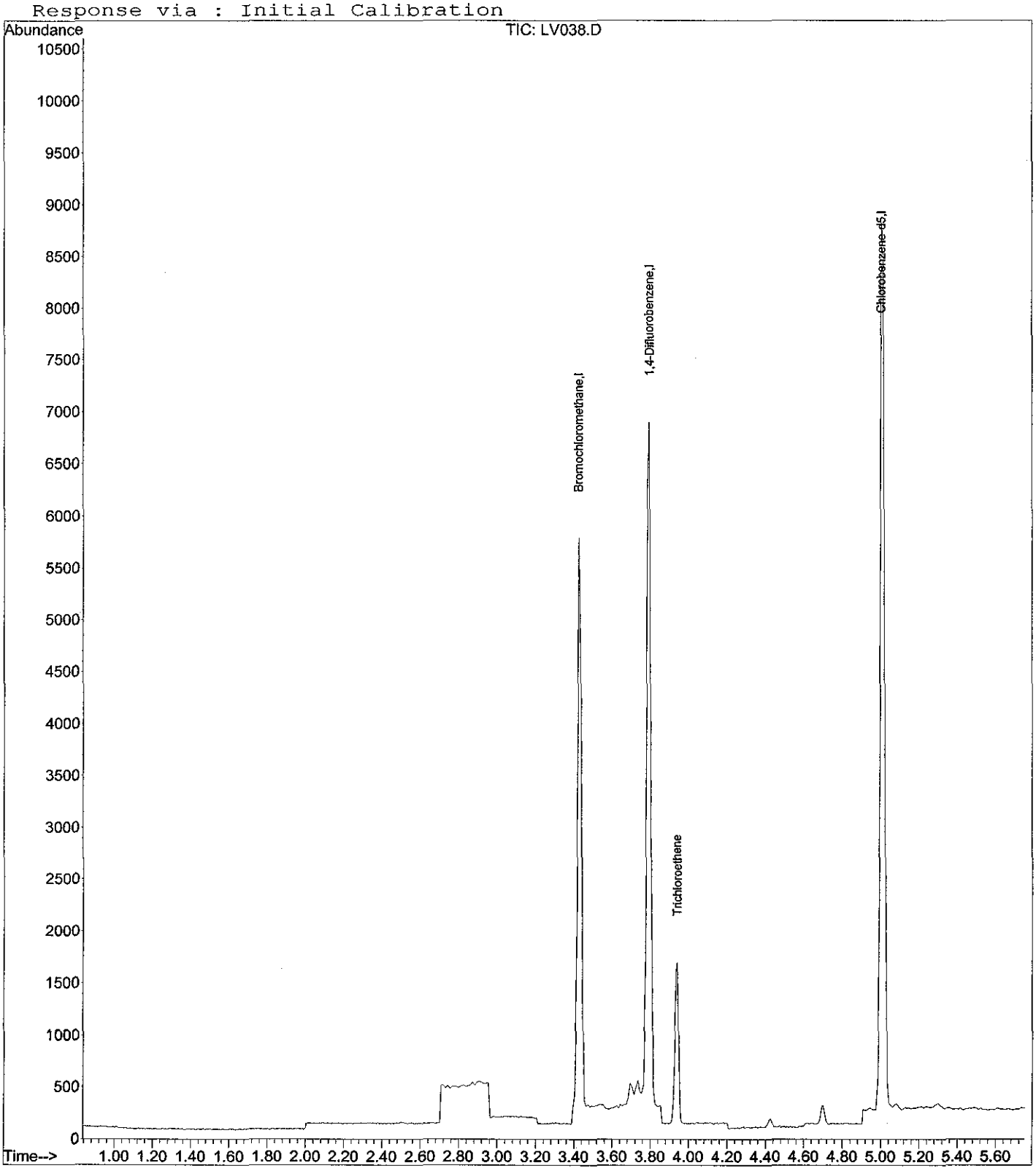
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	3.42	49	4445	10.00	ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	6535	10.00	ppbv	0.00
10) Chlorobenzene-d5	5.01	117	7207	10.00	ppbv	0.00
Target Compounds						Qvalue
9) Trichloroethene	3.94	130	720m	3.21	ppbv	

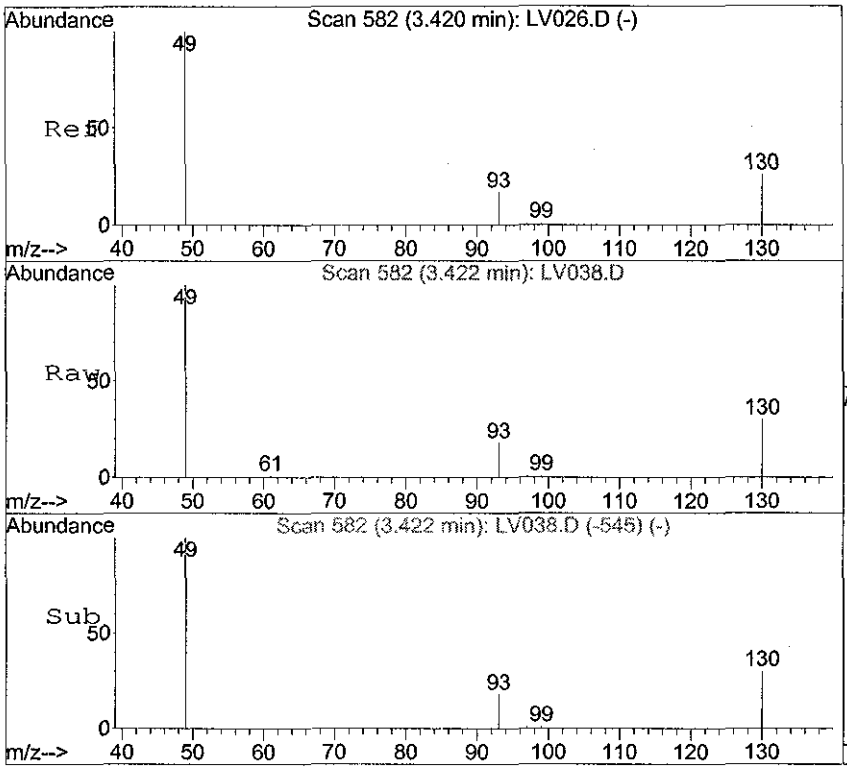
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV038.D Vial: 1
Acq On : 2 Apr 2008 4:30 pm Operator: SJT
Sample : 1006 \ Unit 027T Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 16:37 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

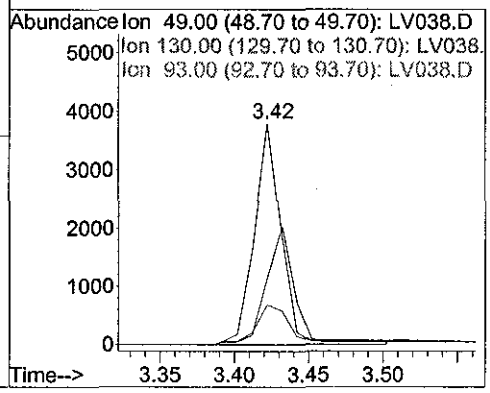


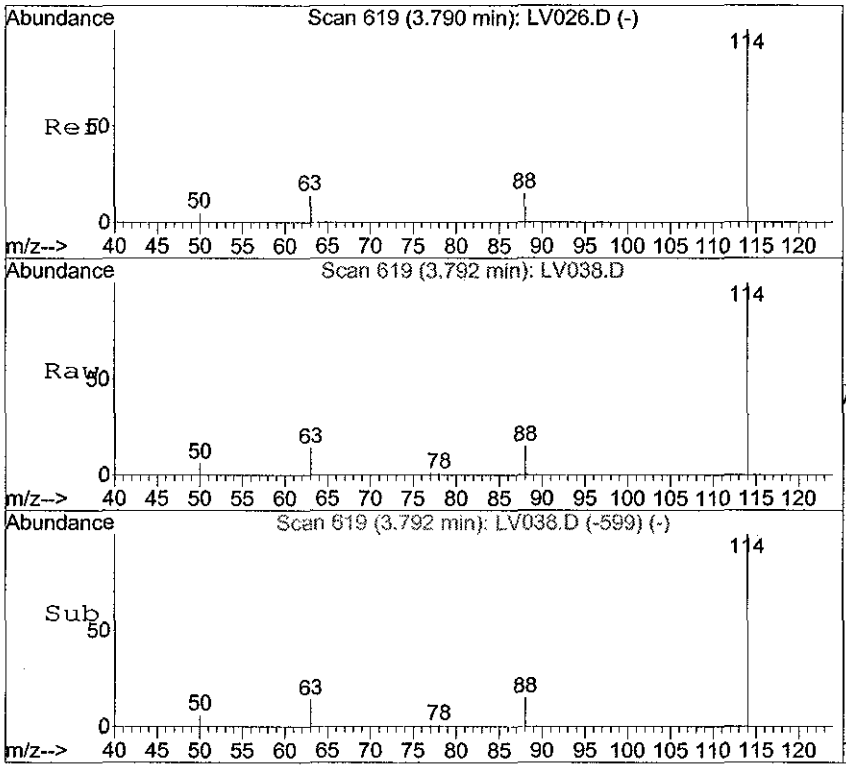


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. 0.00 min
Lab File: LV038.D
Acq: 2 Apr 2008 4:30 pm

Tgt Ion: 49 Resp: 4445

Ion	Ratio	Lower	Upper
49	100		
130	54.3	48.8	73.2
93	22.5	18.8	28.2

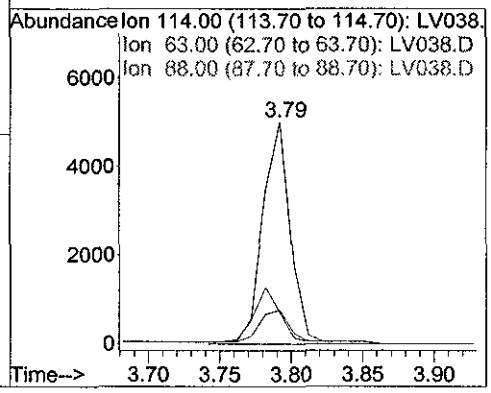


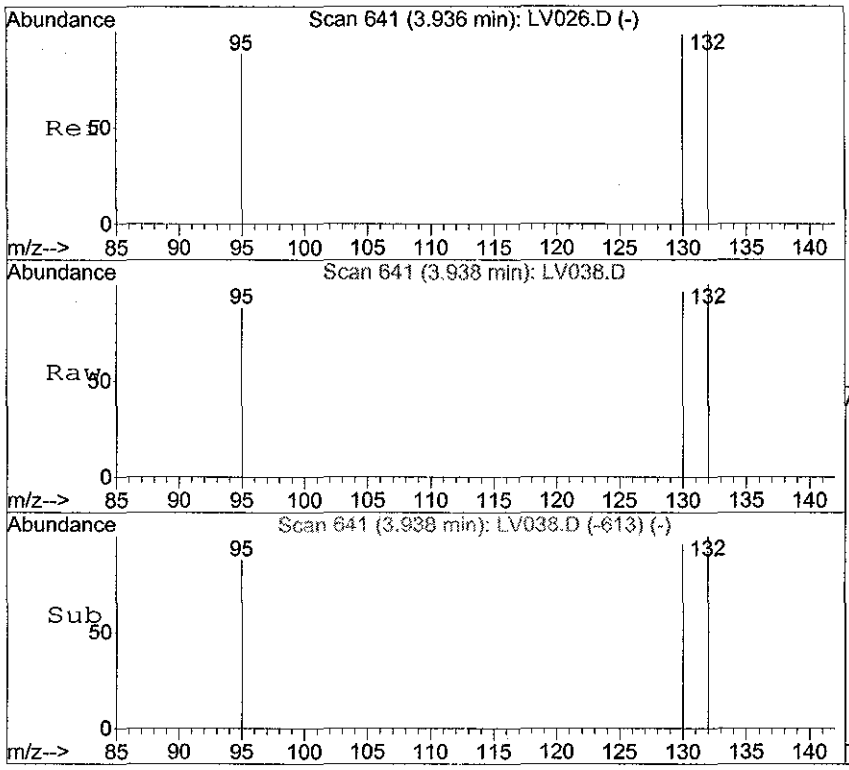


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. 0.00 min
Lab File: LV038.D
Acq: 2 Apr 2008 4:30 pm

Tgt Ion:114 Resp: 6535

Ion	Ratio	Lower	Upper
114	100		
63	27.3	20.9	31.3
88	19.6	15.2	22.8

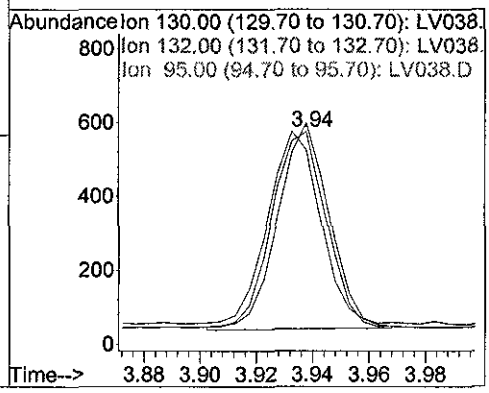


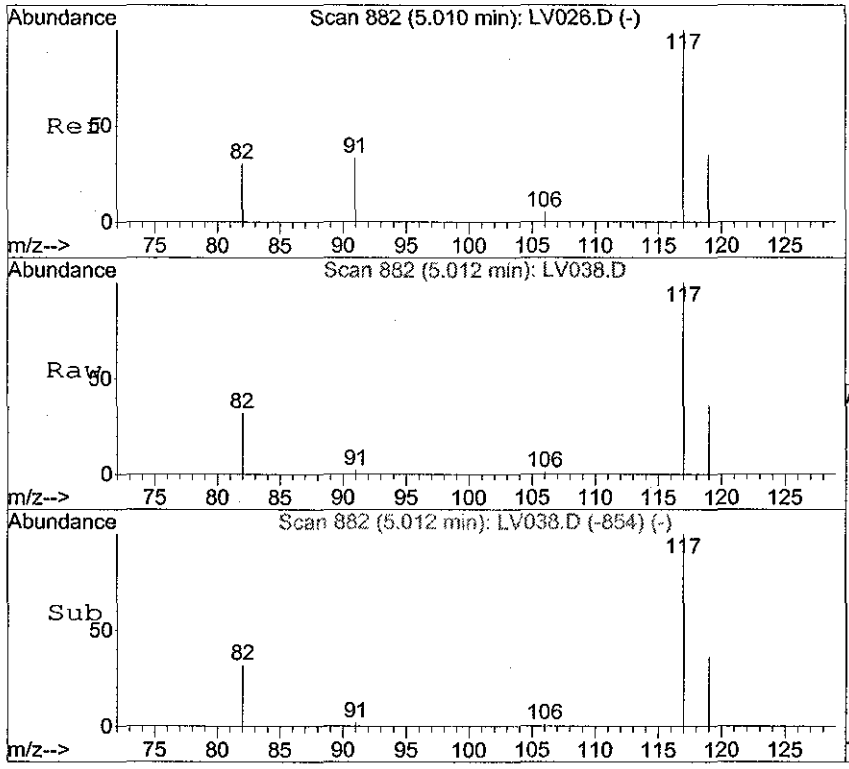


#9
Trichloroethene
Concen: 3.21 ppbv m
RT: 3.94 min Scan# 641
Delta R.T. 0.00 min
Lab File: LV038.D
Acq: 2 Apr 2008 4:30 pm

Tgt Ion:130 Resp: 720

Ion	Ratio	Lower	Upper
130	100		
132	105.8	81.6	122.4
95	103.6	66.7	100.1#

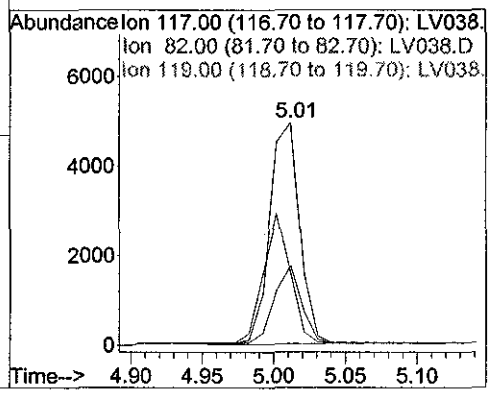




#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.01 min Scan# 882
Delta R.T. -0.01 min
Lab File: LV038.D
Acq: 2 Apr 2008 4:30 pm

Tgt Ion:117 Resp: 7207

Ion	Ratio	Lower	Upper
117	100		
82	53.3	47.4	71.2
119	32.7	25.0	37.4



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV039.D Vial: 1
Acq On : 2 Apr 2008 4:39 pm Operator: SJT
Sample : 1001 \ Unit 003T Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 16:45:33 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 15:46:00 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	3.43	49	4420	10.00	ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	6274	10.00	ppbv	0.00
10) Chlorobenzene-d5	5.01	117	7015	10.00	ppbv	0.00

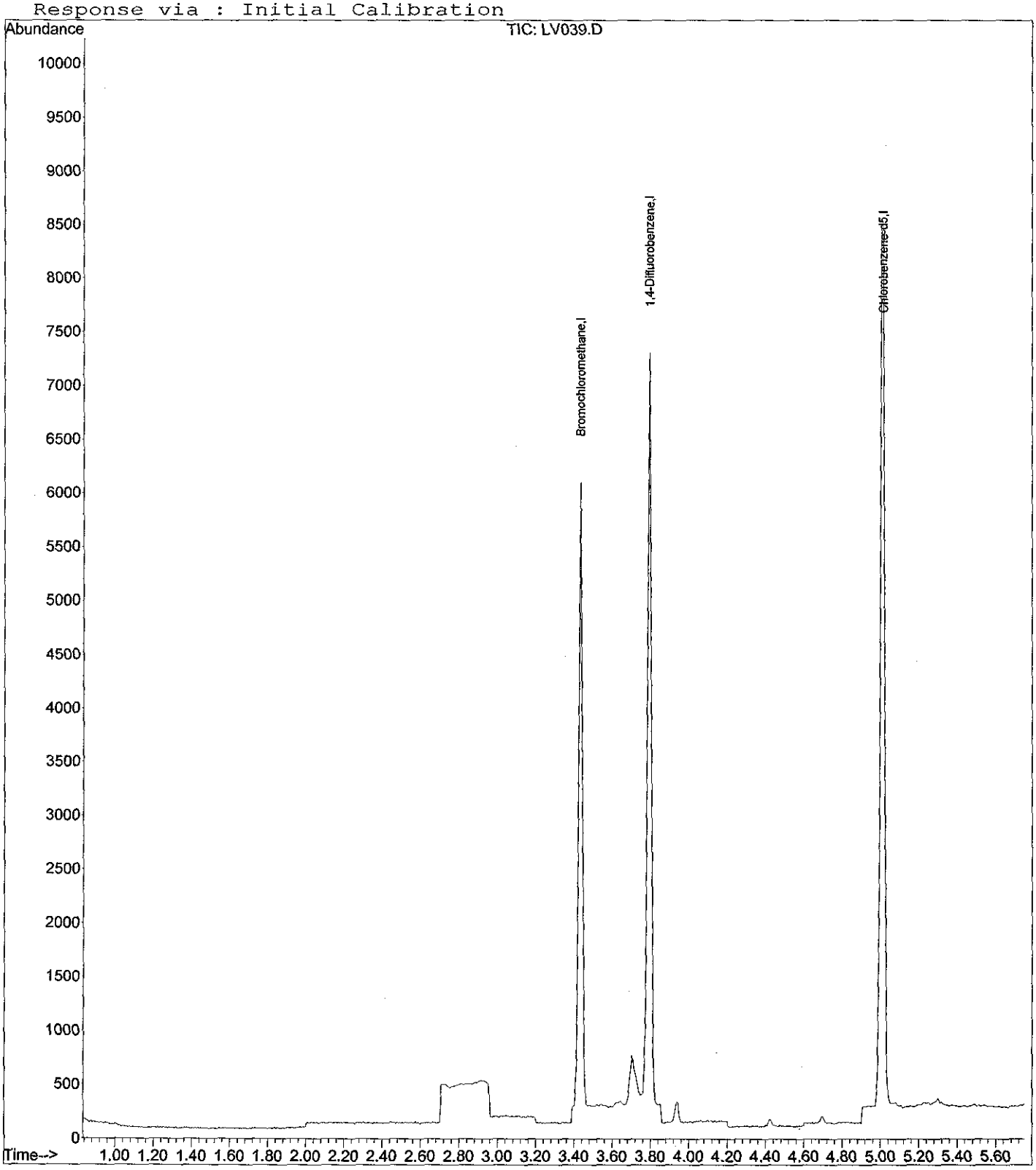
Target Compounds Qvalue

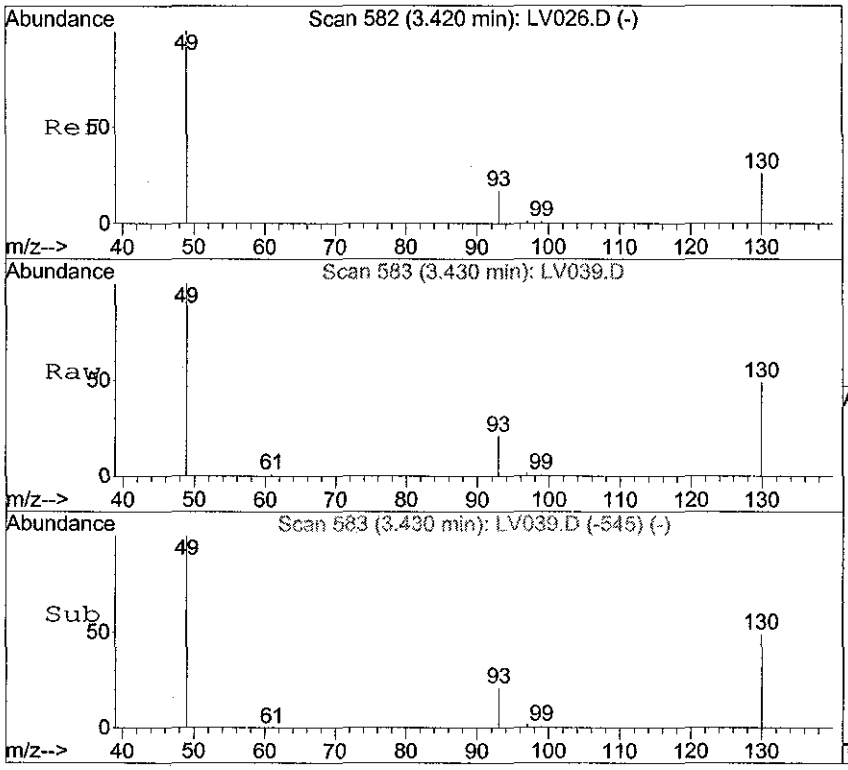
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV039.D Vial: 1
Acq On : 2 Apr 2008 4:39 pm Operator: SJT
Sample : 1001 \ Unit 003T Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 16:45 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

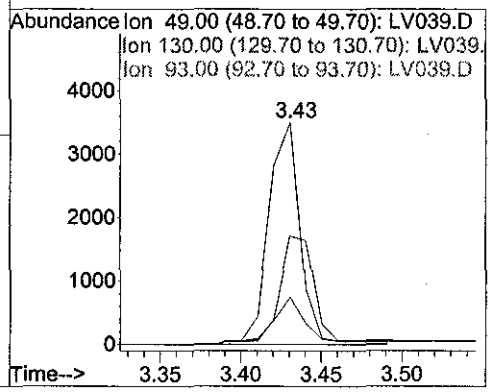


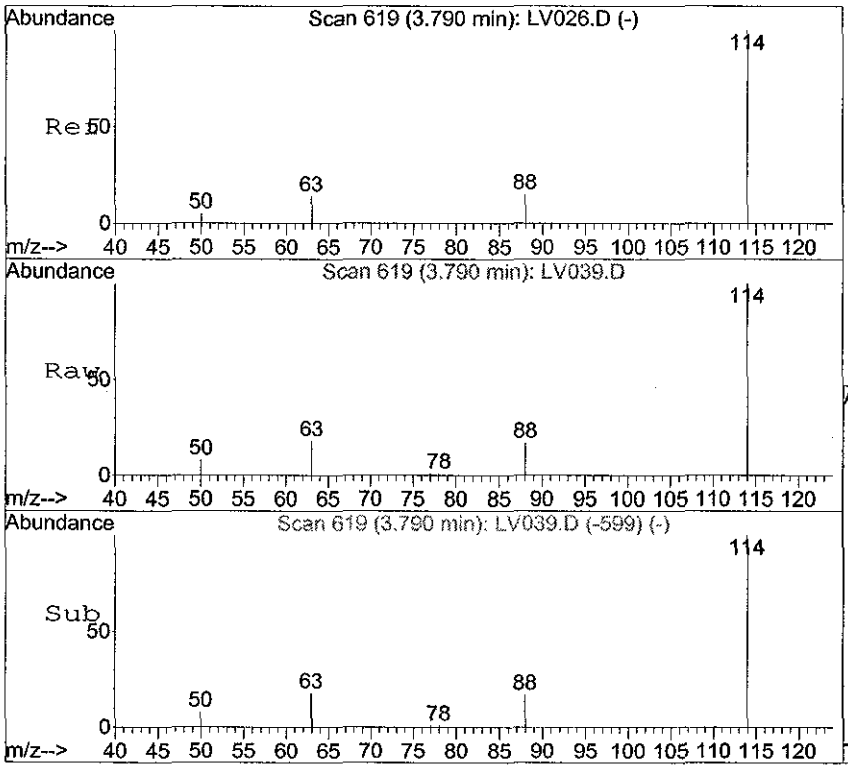


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.43 min Scan# 583
Delta R.T. 0.01 min
Lab File: LV039.D
Acq: 2 Apr 2008 4:39 pm

Tgt Ion: 49 Resp: 4420

Ion	Ratio	Lower	Upper
49	100		
130	54.8	48.8	73.2
93	22.6	18.8	28.2

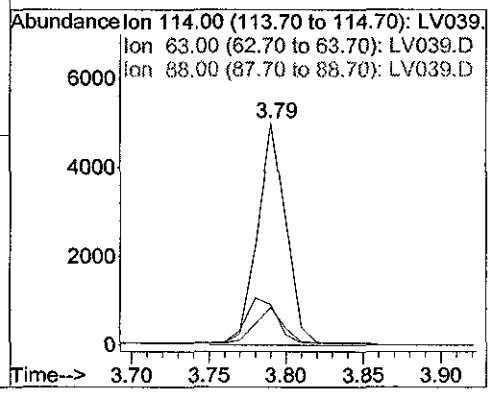


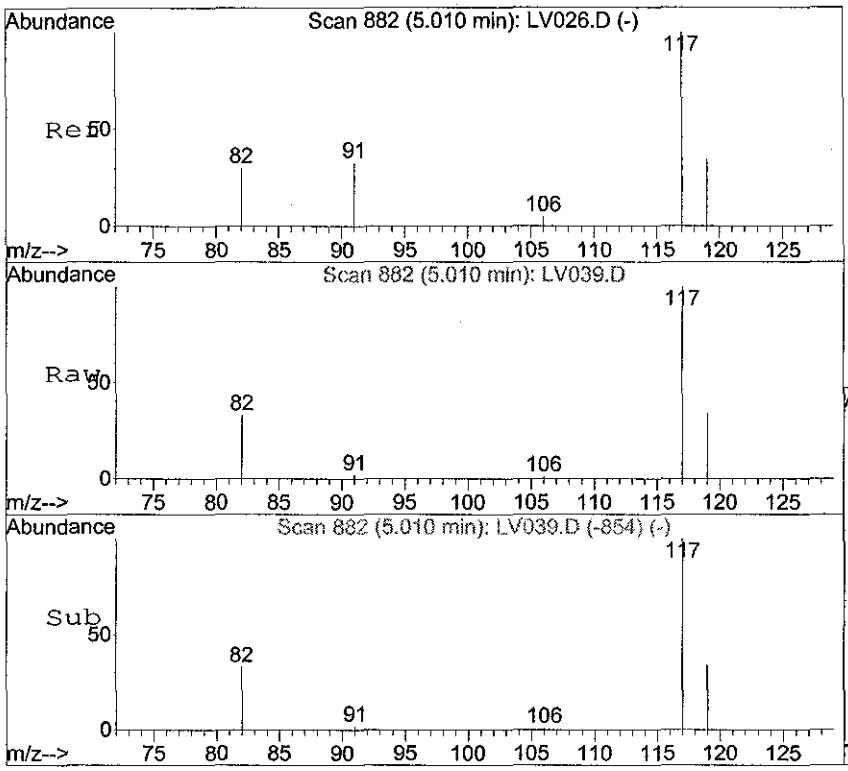


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. -0.00 min
Lab File: LV039.D
Acq: 2 Apr 2008 4:39 pm

Tgt Ion:114 Resp: 6274

Ion	Ratio	Lower	Upper
114	100		
63	26.5	20.9	31.3
88	20.1	15.2	22.8

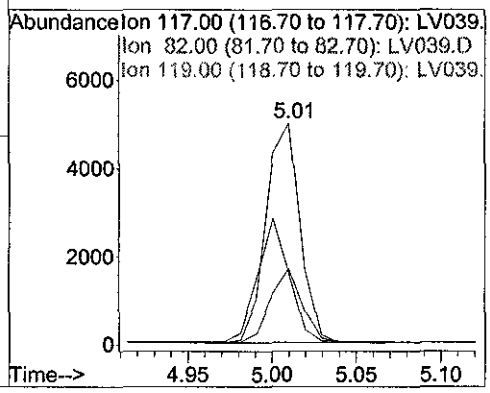




#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.01 min Scan# 882
Delta R.T. -0.01 min
Lab File: LV039.D
Acq: 2 Apr 2008 4:39 pm

Tgt Ion:117 Resp: 7015

Ion	Ratio	Lower	Upper
117	100		
82	59.0	47.4	71.2
119	33.2	25.0	37.4



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV040.D Vial: 1
Acq On : 2 Apr 2008 4:48 pm Operator: SJT
Sample : 1002 \ Unit 088T Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 02 16:55:07 2008 Quant Results File: LOOP20080402A.RES

Quant Method : D:\MSDCHEM\1...\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 15:46:00 2008
Response via : Initial Calibration
DataAcq Meth : LOOPSIMP

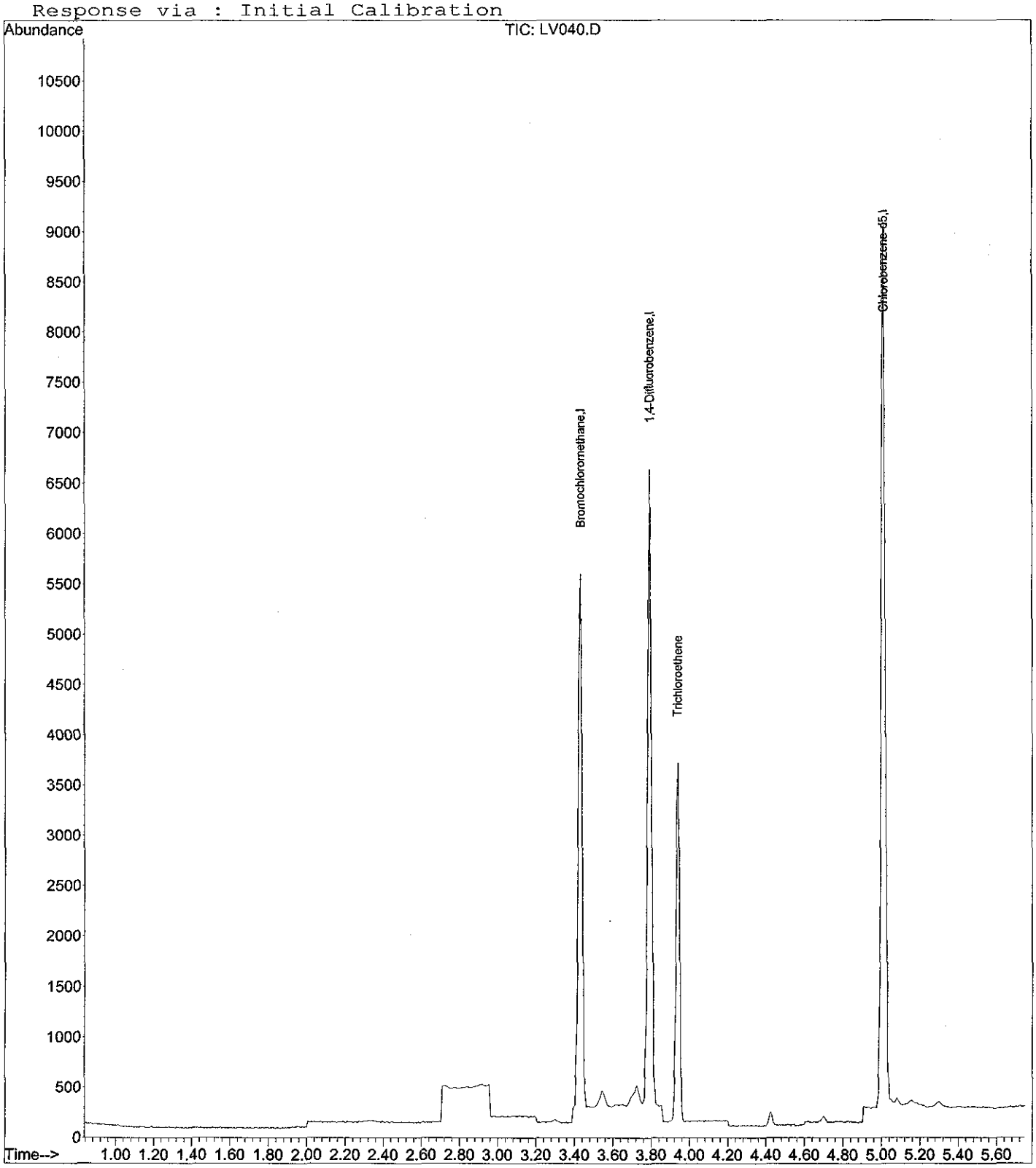
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	3.42	49	4378	10.00	ppbv	0.00
8) 1,4-Difluorobenzene	3.79	114	5735	10.00	ppbv	0.00
10) Chlorobenzene-d5	5.01	117	6913	10.00	ppbv	0.00
Target Compounds						Qvalue
9) Trichloroethene	3.94	130	1570m	7.98	ppbv	

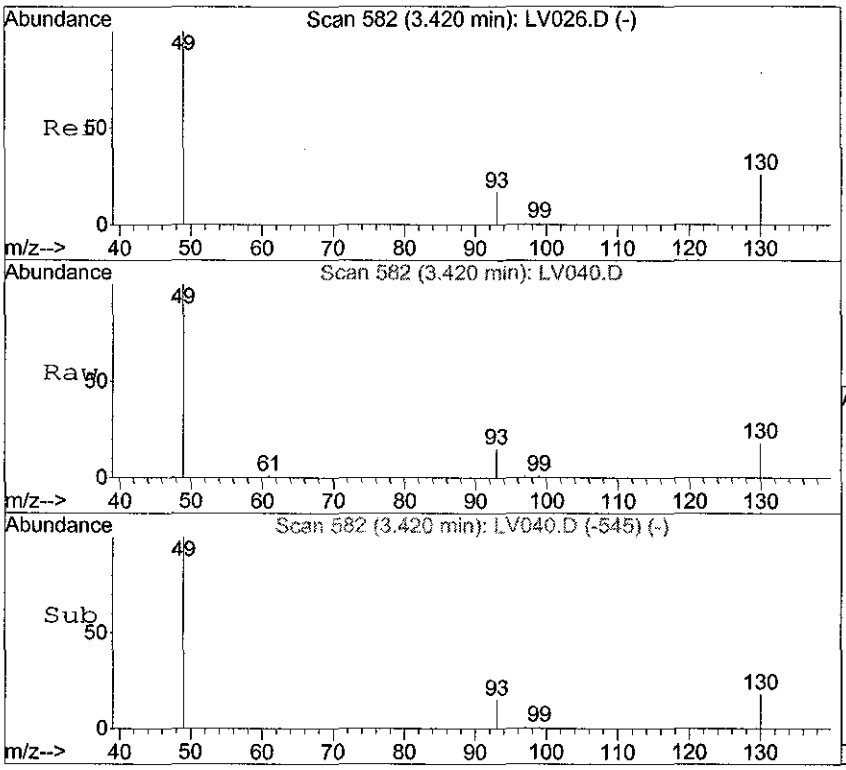
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2008\20080402\LV040.D Vial: 1
Acq On : 2 Apr 2008 4:48 pm Operator: SJT
Sample : 1002 \ Unit 088T Inst : Instrumen
Misc : 5mL \ 02 April 2008 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 2 16:55 2008 Quant Results File: LOOP20080402A

Method : C:\MSDCHEM\1\METHODS\LOOP20080402A.M (RTE Integrator)
Title : TO-15 Std. (57 compounds)
Last Update : Wed Apr 02 14:34:39 2008
Response via : Initial Calibration

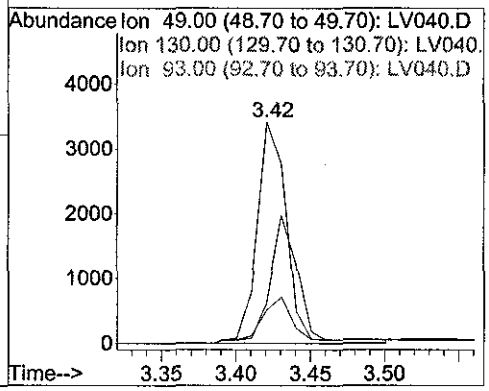


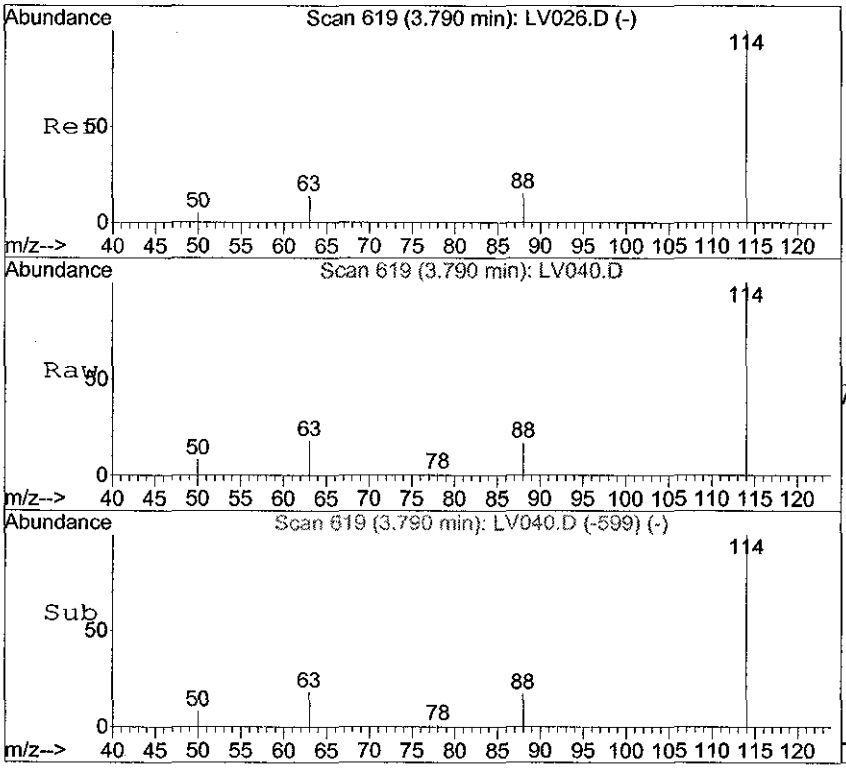


#1
Bromochloromethane
Concen: 10.00 ppbv
RT: 3.42 min Scan# 582
Delta R.T. -0.00 min
Lab File: LV040.D
Acq: 2 Apr 2008 4:48 pm

Tgt Ion: 49 Resp: 4378

Ion	Ratio	Lower	Upper
49	100		
130	54.8	48.8	73.2
93	22.7	18.8	28.2

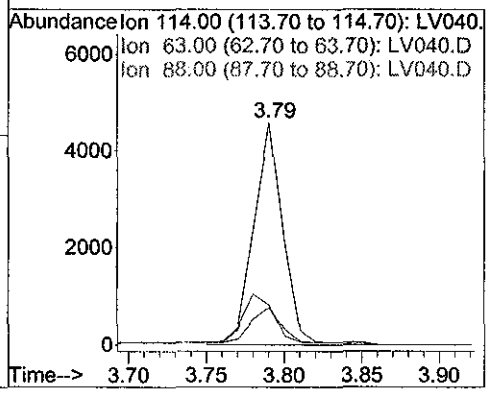


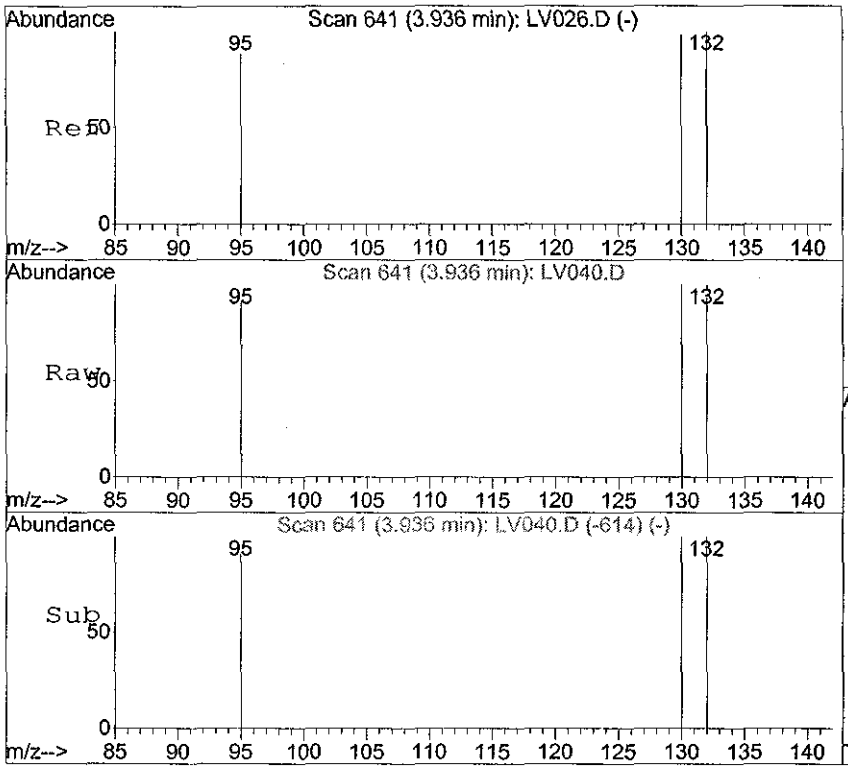


#8
1,4-Difluorobenzene
Concen: 10.00 ppbv
RT: 3.79 min Scan# 619
Delta R.T. -0.00 min
Lab File: LV040.D
Acq: 2 Apr 2008 4:48 pm

Tgt Ion:114 Resp: 5735

Ion	Ratio	Lower	Upper
114	100		
63	28.0	20.9	31.3
88	20.3	15.2	22.8

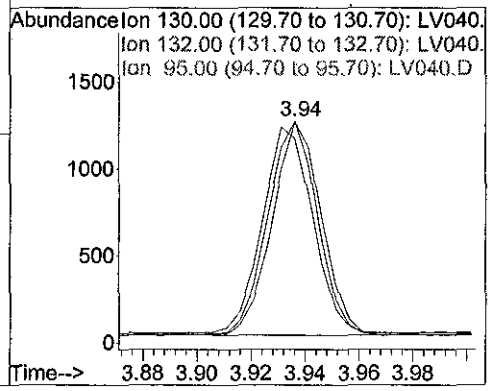


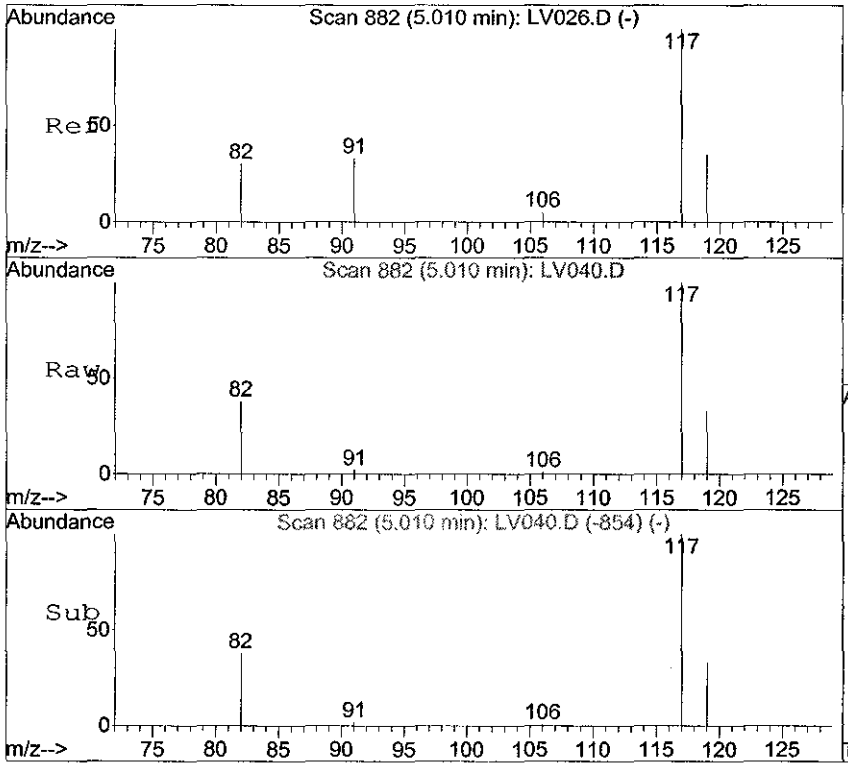


#9
Trichloroethene
Concen: 7.98 ppbv m
RT: 3.94 min Scan# 641
Delta R.T. -0.00 min
Lab File: LV040.D
Acq: 2 Apr 2008 4:48 pm

Tgt Ion:130 Resp: 1570

Ion	Ratio	Lower	Upper
130	100		
132	102.2	81.6	122.4
95	96.8	66.7	100.1

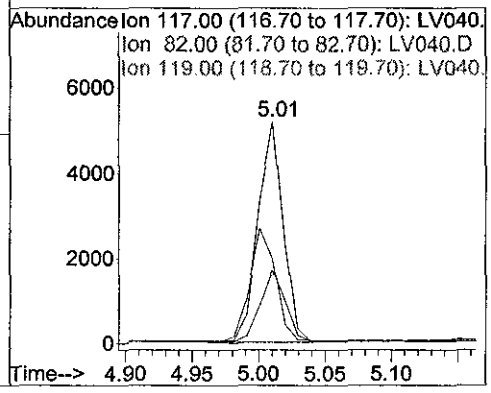




#10
Chlorobenzene-d5
Concen: 10.00 ppbv
RT: 5.01 min Scan# 882
Delta R.T. -0.01 min
Lab File: LV040.D
Acq: 2 Apr 2008 4:48 pm

Tgt Ion:117 Resp: 6913

Ion	Ratio	Lower	Upper
117	100		
82	53.6	47.4	71.2
119	32.5	25.0	37.4



APPENDIX E

Internal Standard QA-QC Report
Little Valley VI Extent Study
Little Valley, New York
April 2008

GC/MS QA-QC Check Report

Tune File : C:\MSDCHEM\1\DATA\2008\20080402\LV025.D
Tune Time : 2 Apr 2008 12:49 pm

Daily Calibration File : C:\MSDCHEM\1\DATA\2008\20080402\LV026.D

		5345	11695	11143
File	Sample	Internal Standard Responses		
LV026.D	STD20080	5345	11695	11143
LV027.D	STD20080	5407	12576	11481
LV028.D	STD20080	5044	11220	10898
LV029.D	STD20080	5084	9241	10101
LV030.D	STD20080	4951	8959	9976
LV031.D	STD20080	4677	7919	9478
LV032.D	STD20080	5323	11186	10482
LV033.D	20080402	4856	7456	8458
LV034.D	20080402	4959	8495	8612
LV035.D	1003 \ U	4619	7333	8062
LV036.D	1004 \ U	4699	7189	7728
LV037.D	1005 \ U	4506	6722*	7394
LV038.D	1006 \ U	4445	6535*	7207
LV039.D	1001 \ U	4420	6274*	7015
LV040.D	1002 \ U	4378	5735*	6913

t - fails 24hr time check * - fails criteria

Created: Wed Apr 16 11:53:25 2008 Instrumen

APPENDIX D
REAC SUMMA®/Tedlar® Sampling Worksheets
Little Valley VI Extent Study
June 2008

Air Sampling Work Sheet

Site Name: Little Valley
Little Valley, NY

Lockheed Martin
REAC, Edison NJ
EP-C-04-032

WA Number: 210
EPA Contact: David Mickunas
REAC Contact: Amy DuBois

Sample #	0408-44319	0408-44320	0408-44321	0408-44322	0408-44323
EventID	Event 6	Event 6	Event 6	Event 6	Event 6
Location	003	003	003	088	088
Sub Location	SS	Basement	First Floor	SS	Basement
Media	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister
SUMMA #	AC00407	AC00917	AC01023	AC01322	AC00985
Orifice_ID	FC00297	FC00084	FC00409	FC00602	FC00448
Pump Fault	N	N	N	N	N
Start Date	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008
Stop Date	4/3/2008	4/3/2008	4/3/2008	4/3/2008	4/3/2008
Start Time	8:58:00 AM	8:59:00 AM	9:04:00 AM	9:30:00 AM	9:34:00 AM
Stop Time	8:40:00 AM	8:40:00 AM	8:40:00 AM	9:12:00 AM	9:15:00 AM
Flow Rate (Start)	3.4	3.4	3.4	3.5	3.7
Flow Rate Units	cc/min	cc/min	cc/min	cc/min	cc/min
Volume					
Vol Units	cc	cc	cc	cc	cc
Remarks					
Start_Pressure	-27	-27	-27	-28	-28
Stop_Pressure	-7	-7.5	-8	-7	-5
Analysis	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds

Sample #	0408-44324	0408-44325	0408-44326	0408-44327	0408-44328
EventID	Event 6	Event 6	Event 6	Event 6	Event 6
Location	088	088	Unit 71	Unit 71	Unit 71
Sub Location	First Floor	AMBIENT	SS	Basement	Basement Dup
Media	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister
SUMMA #	AC01032	AC01046	AC00518	AC00590	AC01060
Orifice_ID	FC00161	FC00572	FC00460	FC00634	FC00153
Pump Fault	N	N	N	N	N
Start Date	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008
Stop Date	4/3/2008	4/3/2008	4/3/2008	4/3/2008	4/3/2008
Start Time	9:35:00 AM	9:36:00 AM	10:56:00 AM	10:59:00 AM	10:59:00 AM
Stop Time	9:16:00 AM	9:18:00 AM	9:57:00 AM	10:00:00 AM	10:00:00 AM
Flow Rate (Start)	3.6	3.4	3.2	3.5	3
Flow Rate Units	cc/min	cc/min	cc/min	cc/min	cc/min
Volume					
Vol Units	cc	cc	cc	cc	cc
Remarks					
Start_Pressure	-27	-28	-27	-28	-28
Stop_Pressure	-5	-5	-7.5	-6	-6
Analysis	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds

Air Sampling Work Sheet

Site Name: Little Valley
Little Valley, NY

Lockheed Martin
REAC, Edison NJ
EP-C-04-032

WA Number: 210
EPA Contact: David Mickunas
REAC Contact: Amy DuBois

Sample #	0408-44329	0408-44330	0408-44331	0408-44332	0408-44333
EventID	Event 6	Event 6	Event 6	Event 6	Event 6
Location	Unit 71	Unit 41	Unit 41	Unit 41	Unit 41
Sub Location	First Floor	First Floor	SS	SS Dup	Basement
Media	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister
SUMMA #	AC00967	AC00963	AC00610	AC00546	AC00665
Orifice_ID	FC00124	FC00628	FC00451	FC00630	FC00692
Pump Fault	N	N	N	N	N
Start Date	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008
Stop Date	4/3/2008	4/3/2008	4/3/2008	4/3/2008	4/3/2008
Start Time	11:03:00 AM	12:16:00 PM	12:35:00 PM	12:35:00 PM	12:36:00 PM
Stop Time	10:05:00 AM	11:12:00 AM	11:13:00 AM	11:13:00 AM	11:13:00 AM
Flow Rate (Start)	3.3	3.5	3.5	2.7	3
Flow Rate Units	cc/min	cc/min	cc/min	cc/min	cc/min
Volume					
Vol Units	cc	cc	cc	cc	cc
Remarks		resident painting one of rooms of house during start of TAGA and summa sampling period	Port 1	Port 2 hard to read numbers on fc	resident painting one of rooms of house during start of TAGA and summa sampling period
Start_Pressure	-28	-27	-28	-27	-27
Stop_Pressure	-7	-5	-6	-10.5	-3
Analysis	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds

Sample #	0408-44334	0408-44335	0408-44336	0408-44337	0408-44338
EventID	Event 6	Event 6	Event 6	Event 6	Event 6
Location	Unit 27	Unit 27	Unit 27	Unit 10	Unit 10
Sub Location	SS	Basement	First Floor	Basement	First Floor
Media	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister
SUMMA #	AC00297	AC01025	AC01477	AC00771	AC00551
Orifice_ID	FC00596	FC00320	FC00082	FC00335	FC00441
Pump Fault	N	N	N	N	N
Start Date	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008
Stop Date	4/3/2008	4/3/2008	4/3/2008	4/3/2008	4/3/2008
Start Time	2:11:00 PM	2:14:00 PM	2:18:00 PM	3:01:00 PM	3:06:00 PM
Stop Time	2:21:00 PM	2:21:00 PM	2:20:00 PM	2:35:00 PM	2:33:00 PM
Flow Rate (Start)	3	3.5	3.2	3.4	3.4
Flow Rate Units	cc/min	cc/min	cc/min	cc/min	cc/min
Volume					
Vol Units	cc	cc	cc	cc	cc
Remarks					
Start_Pressure	-28	-28	-28	-28	-28
Stop_Pressure	-9	-5	-2	-7	-6.5
Analysis	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds

Air Sampling Work Sheet

Site Name: Little Valley
Little Valley, NY

Lockheed Martin
REAC, Edison NJ
EP-C-04-032

WA Number: 210
EPA Contact: David Mickunas
REAC Contact: Amy DuBois

Sample #	0408-44339	0408-44340	0408-44341	0408-44342	0408-44343
EventID	Event 6	Event 6	Event 6	Event 6	Event 6
Location	Unit 10	Unit 136	Unit 136	Unit 136	Trip Blank
Sub Location	Basement Dup	AMBIENT	First Floor	Basement	
Media	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister
SUMMA #	AC01053	AC00942	AC00085	AC01435	AC01084
Orifice_ID	FC00689	FC00581	FC00269	FC00322	NA
Pump Fault	N	N	N	N	N
Start Date	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008
Stop Date	4/3/2008	4/3/2008	4/3/2008	4/3/2008	4/3/2008
Start Time	3:08:00 PM	5:08:00 PM	5:10:00 PM	5:12:00 PM	5:12:00 PM
Stop Time	2:35:00 PM	4:06:00 PM	4:06:00 PM	4:03:00 PM	
Flow Rate (Start)	3	3.4	3.3	3.6	
Flow Rate Units	cc/min	cc/min	cc/min	cc/min	cc/min
Volume					
Vol Units	cc	cc	cc	cc	cc
Remarks					
Start_Pressure	-28	-28	-28	-28	-28
Stop_Pressure	-5	-6	-7	-7	-28
Analysis	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds	TO15 - 6 compounds

Sample #	1001	1002	1003	1004	1005
EventID	Event 6	Event 6	Event 6	Event 6	Event 6
Location	Unit 003 Tedlar	Unit 088 Tedlar	Unit 071 Tedlar	Unit 041 Tedlar	Unit 041 Tedlar
Sub Location	SS	SS	SS	SS	SS Dup
Media	Tedlar Bag	Tedlar Bag	Tedlar Bag	Tedlar Bag	Tedlar Bag
SUMMA #					
Orifice_ID					
Pump Fault	N	N	N	N	N
Start Date	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008
Stop Date	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008
Start Time	8:44:00 AM	9:29:00 AM	10:52:00 AM	12:28:00 PM	12:29:00 PM
Stop Time	8:45:00 AM	9:30:00 AM	10:53:00 AM	12:29:00 PM	12:30:00 PM
Flow Rate (Start)					
Flow Rate Units					
Volume	1	1	1	1	1
Vol Units	Liters	Liters	Liters	Liters	Liters
Remarks				port 1	port 2
Start_Pressure					
Stop_Pressure					
Analysis	Loop GC/MS	Loop GC/MS	Loop GC/MS	Loop GC/MS	Loop GC/MS

Air Sampling Work Sheet

Site Name: Little Valley
Little Valley, NY

Lockheed Martin
REAC, Edison NJ
EP-C-04-032

WA Number: 210
EPA Contact: David Mickunas
REAC Contact: Amy DuBois

Sample #	1006				
EventID	Event 6				
Location	Unit 027 Tedlar				
Sub Location	SS				
Media	Tedlar Bag				
SUMMA #					
Orifice_ID					
Pump Fault	N				
Start Date	4/2/2008				
Stop Date	4/2/2008				
Start Time	2:09:00 PM				
Stop Time	2:10:00 PM				
Flow Rate (Start)					
Flow Rate Units					
Volume	1				
Vol Units	Liters				
Remarks					
Start_Pressure					
Stop_Pressure					
Analysis	Loop GC/MS				