Summary of Internal Audit of TCEQ Automated Gas Chromatograph (AutoGC) Monitors

November 12, 2010

Background

Performance evaluations of AutoGCs are conducted at least twice per year starting in Spring and lasting through the Summer and then again in the Fall before annual maintenance is performed. These evaluations consist of introducing control samples prepared from standards that are different from those used to calibrate the equipment. The results are used to identify instrument, operation, and validation issues.

In March 2010, a cylinder gas standard (ID# AAL073480) was obtained from a commercial gas vendor for use as a performance evaluation (PE) or control sample. The contents of this cylinder were then transferred into two smaller canisters that were subsequently analyzed in the TCEQ Austin Air Laboratory. Following this analysis, the canisters were distributed to a network of TCEQ air quality monitors also known as AutoGCs. Canister ID QC-2 was delivered to AutoGC sites in TCEQ Region 4 including the DISH and Eagle Mountain Lake (EML) sites.

The PE sample contained eight (8) compounds whose identity and concentration were unknown to the instrument operator at the time of analysis and reporting. While values were unknown to analysts in the field, a "Quick Response Report" was issued to site operations after analysis. This preliminary report was a listing of compounds in the sample and indentified compounds that were potentially outside of the 70-130 percent acceptance limit with a "Pass" or "Fail" statement. This report was developed to quickly address any discrepancies and allow for prompt corrective action without revealing the expected values to site operations.

Additionally, six of the eight compounds were selected based on the results of a previous PE sample where differences between the TCEQ Austin Air Lab and the AutoGC network, as compared to other reported compounds, were noted. The previous PE sample was prepared from a cylinder gas (ID# 230155) historically used as a qualitative standard. The six compounds were acetylene, n-heptane, methycyclohexane, 2-methylheptane, 3-methylheptane, and n-octane. Propane and benzene were present in the sample since these compounds are used to calibrate the system and are key indicators of system performance.

Differences between gas vendor propane concentrations and TCEQ Air Lab results were immediately noted. Propane results were consistently higher than vendor assigned values. The TCEQ Air Lab results averaged 5.4 ppbv compared to 3.6 ppbv stated by the vendor. Additionally, all 16 AutoGC sites reported higher than expected values for propane and averaged 5.1 ppbv.

As a result, the "Quick Response Report" prompted site operations to repeat the analysis of the PE sample based on propane results. For this report, results are presented using both the vendor's assigned values and average TCEQ Air Lab results.

Analytical Instrumentation

Each AutoGC system utilizes two "columns" (i.e., plot and boiling point) to separate hydrocarbons of interest.

-Compounds associated with the "plot" column are associated with "lighter" compounds that have two to six carbon atoms and include ethane, propane, n-butane, n-pentane, and 2,2-dimethylbutane.

-Compounds associated with the "boiling point" column are associated with "heavier" compounds that have six to ten carbon atoms and include benzene, n-heptane, n-octane, n-nonane, and n-decane.

Propane and benzene are primary calibration compounds that determine the validity of all other compounds. Propane is used to calibrate the "plot" column while benzene is used to calibrate the "boiling point" column. If an instrument response fails to meet an established recovery limit for propane then all compounds for the "plot" column are invalidated. The same holds true for benzene and the "boiling point" column.

Summary of Results

DISH:

Benzene results on 5/18/10 were within 2 percent of the vendor's values, an absolute difference of 0.1 ppbv (5.8 ppbv vendor vs. 5.9 ppbv observed). The analysis on 5/25/10 showed no difference with vendor values (5.8 ppbv vendor vs. 5.8 ppbv observed).

Benzene results on 5/18/10 were within 17 percent of the TCEQ Air Lab values, an absolute difference of 1.2 ppbv (7.1 ppbv TCEQ Air Lab vs. 5.9 ppbv observed). Similar results were obtained on 5/25/10 with a difference of 18 percent or an absolute difference of 1.3 ppbv (7.1 ppbv TCEQ Air Lab vs. 5.8 ppbv observed).

Using the vendor's assigned values, the DISH AutoGC results were within 30 percent for 7 of the 8 compounds present, excluding propane. Propane values assigned by the vendor were 50 percent lower than TCEQ Air Lab results. Overall, an average absolute difference of 9 percent (and 0.5 ppbv) was achieved, excluding propane, for the analysis conducted on 5/18/10. An average absolute difference of 9 percent (and 0.4 ppbv) was achieved, excluding propane, for the analysis conducted on 5/25/10.

DISH AutoGC results were within 30 percent of the TCEQ Air Lab values for all 8 compounds contained in the control sample. An average absolute difference of 10 percent (and 0.6 ppbv) was achieved for the analyses conducted on 5/18/10 and 5/25/10. Furthermore, quality control data was found to be within specified limits. No changes to site operation or equipment were initiated as a result of the audit.

EML:

Using the vendor's value for benzene, results on 5/20/10 were within 12 percent, an absolute difference of 0.7 ppbv (5.8 ppbv vendor vs. 5.1 ppbv observed). The analysis conducted on 5/25/10 resulted in a benzene difference of 17 percent, an absolute difference of 1.0 ppbv (5.8 ppbv vendor vs. 4.8 ppbv observed).

Benzene results on 5/20/10 were within 28 percent of the TCEQ Air Lab analysis results, an absolute difference of 2.0 ppbv (7.1 ppbv TCEQ Air Lab vs. 5.1 ppbv observed). The analysis conducted on 5/25/10 resulted in a benzene difference of 32 percent (4.8 ppbv). It should be noted that corrective action was taken by site operations on 5/25/10 in response to low recoveries of 1,2,4-trimethylbenzene. A new calibration curve was established and implemented resulting in increased recoveries, including benzene.

Overall, EML AutoGC results on 5/20/10 were within 30 percent of the vendor's values for 6 of the 8 compounds present, excluding propane and acetylene, and resulted in an average absolute difference of 12 percent (and 0.7 ppbv), excluding propane and acetylene. An average absolute difference of 13 percent (and 0.7 ppbv) was achieved, excluding propane and acetylene, for the analysis conducted on 5/25/10.

EML AutoGC results on 5/20/10 were within 30 percent of the TCEQ Air Lab values for 7 of the 8 compounds present, excluding acetylene. Low recovery of acetylene was directly correlated to quality control data for the monitor. An average absolute difference of 10 percent (and 0.6 ppbv) was achieved, excluding acetylene, for the analysis conducted on 5/20/10. An average absolute difference of 11 percent (and 0.7 ppbv) was achieved, excluding acetylene, for the analysis conducted on 5/25/10.

Remaining TCEQ AutoGC Network:

Benzene results at fourteen AutoGC sites across the state were within 30 percent of the vendor's assigned value of 5.8 ppbv. Benzene differences ranged from 0 percent (5.8 ppbv) to 16 percent (6.7 ppbv) and averaged 5 percent (5.7 ppbv).

Benzene results at fourteen AutoGC sites were within 30 percent of the TCEQ Air Lab value of 7.1 ppbv. Benzene differences ranged from 6 percent (6.7 ppbv) to 28 percent (5.1 ppbv) and averaged 19 percent (5.7 ppbv).

Propane results at fourteen AutoGC sites were higher than the vendor's assigned value of 3.6 ppbv. Propane differences ranged from 28 percent (4.6 ppbv) to 69 percent (6.1 ppbv) and averaged 41 percent (5.1 ppbv) for the remaining sites in the network.

Propane values at fourteen AutoGC sites were within 30 percent of the TCEQ Air Lab value of 5.4 ppbv. Propane differences ranged from 0 percent (5.4 ppbv) to 15 percent (4.6 ppbv) and averaged 8 percent (5.1 ppbv) for the remaining sites in the network.

Conclusion

The vendor assigned propane value was 50 percent lower than the analysis results obtained from the TCEQ Air Lab and 42 percent lower than the average of the AutoGC network and strongly suggests that the vendor's assigned propane value is in error. The vendor that provided the standard is working with TCEQ to confirm the propane values as well as the other compounds in the cylinder.

Due to the unexpected differences observed with the vendor's propane values combined with the manufacturer's advertised uncertainty of the cylinder gas standard (ID# AAL073480) used for this PE sample, corrective actions were not taken as a result of differences that were greater than 30% from the vendor's assigned values. If AutoGC results for benzene and propane were greater than 30 percent from the average TCEQ Air Lab analytical result further investigation was conducted.

The EML and Odessa sites achieved the lowest benzene recoveries of 72% and 76% on 5/25/10 and 6/18/10 respectively that sampled canister ID QC-2. The EML site achieved a benzene recovery of 68% when repeat analysis was conducted 5/25/10 and appropriate corrective action was taken by site operations the same day in response to low recoveries of 1,2,4-trimethylbenzene. A new calibration curve was established and implemented resulting in increased recoveries, including benzene. The benzene quality control data at EML, while within limits, was lower than all other sites in the network.

Corrective actions were initiated by site operations at the Odessa site beginning 6/20/10 in response to reduced propane and benzene recoveries in routine quality control samples. Adjustments were made to hydrogen pressure settings, affecting flow rates which resulted in improved flame characteristics. Hydrogen flow rate problems continued and the flow controllers were replaced on 6/25/10. The benzene quality control data for the Odessa site was the next lowest recovery compared to other sites that sampled canister ID QC-2.

Operations of the AutoGC network were consistent and produced analytical results that closely agreed across the network and with the TCEQ Air Lab. Quality control data at each site closely mirrored the performance of the control sample. Furthermore, results of this assessment compare well with historical performance evaluations of these monitors. Additionally, the six compounds selected as a follow up study to a previous PE sample did not exhibit notable differences between the TCEQ Austin Air Lab and the network of AutoGCs.

Tabular Summaries of Results

Propane (Canister QC-2)		TCEQ Air Lab Average Result (ppbv)	Result (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	Analysis Date (mm/dd/yy)	AutoGC LCS Recovery (%)
PROPANE (Can QC-2)	R4-Hinton	5.4	6.1	113%	13%	0.7	5/11/2010	116.1%
	R4-Meacham	5.4	5.2	96%	4%	0.2	5/13/2010	89.9%
	R4-DISH (Run #1)	5.4	5.2	96%	4%	0.2	5/18/2010	91.4%
	R4-DISH 2 (Run #2)	5.4	5.2	96%	4%	0.2	5/25/2010	91.3%
	R4-Eagle Mountain (Run #1)	5.4	5.5	102%	2%	0.1	5/20/2010	100.1%
	R4-Eagle Mountain (Run #2)	5.4	5.6	104%	4%	0.2	5/25/2010	101.2%
	R6-Chamizal	5.4	4.8	89%	11%	0.6	6/10/2010	87.3%
	R7-Odessa	5.4	4.6	85%	15%	0.8	6/18/2010	85.3%
		Averages:	**5.3**	**98%**	**7%**	**0.4**		

Benzene (Canister QC-2)		TCEQ Air Lab Average Result (ppbv)	Result (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	Analysis Date (mm/dd/yy)	AutoGC LCS Recovery (%)
BENZENE (Can QC-2)	R4-Hinton	7.1	6.7	94%	6%	0.4	5/11/2010	102.6%
	R4-Meacham	7.1	5.5	77%	23%	1.6	5/13/2010	88.1%
	R4-DISH (Run #1)	7.1	5.9	83%	17%	1.2	5/18/2010	90.6%
	R4-DISH 2 (Run #2)	7.1	5.8	82%	18%	1.3	5/25/2010	91.7%
	R4-Eagle Mountain (Run #1)	7.1	5.1	72%	28%	2.0	5/20/2010	79.2%
	R4-Eagle Mountain (Run #2)	7.1	4.8	68%	32%	2.3	5/25/2010	80.5%
	R6-Chamizal	7.1	5.6	79%	21%	1.5	6/10/2010	89.7%
	R7-Odessa	7.1	5.4	76%	24%	1.7	6/18/2010	85.2%
		Averages:	**5.6**	**79%**	**21%**	**1.5**		

Propane (Canister 12293)		TCEQ Air Lab Average Result (ppbv)	Result (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	Analysis Date (mm/dd/yy)	AutoGC LCS Recovery (%)
PROPANE (Can 12293)	R12-Deer Park	5.4	5.4	100%	0%	0.0	5/25/2010	95.3%
	R12-Milby Park (Run #1)	5.4	4.6	85%	15%	0.8	5/25/2010	81.8%
	R12-Milby Park (Run #2)	5.4	5.0	93%	7%	0.4	6/2/2010	92.2%
	R12-Cesar Chavez	5.4	4.8	89%	11%	0.6	5/25/2010	88.0%
	R10-Nederland (Run #1)	5.4	5.2	96%	4%	0.2	5/27/2010	93.2%
	R10-Nederland (Run #2)	5.4	5.1	94%	6%	0.3	6/1/2010	94.3%
	R10-Lamar	5.4	4.8	89%	11%	0.6	5/27/2010	85.0%
	R12-Clinton	5.4	4.9	91%	9%	0.5	5/28/2010	88.6%
	R12-Channelview	5.4	5.6	104%	4%	0.2	5/28/2010	100.5%
	R14-Corpus Christi Palm	5.4	5.4	100%	0%	0.0	6/17/2010	95.0%
	R14-Oak Park	5.4	5.0	93%	7%	0.4	6/16/2010	89.8%
	R14-Solar Estates	5.4	4.6	85%	15%	0.8	6/16/2010	89.6%
		Averages:	**5.0**	**93%**	**7%**	**0.4**		

Benzene (Canister 12293)		TCEQ Air Lab Average Result (ppbv)	Result (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	Analysis Date (mm/dd/yy)	AutoGC LCS Recovery (%)
BENZENE (Can 12293)	R12-Deer Park	7.1	5.8	82%	18%	1.3	5/25/2010	88.3%
	R12-Milby Park (Run #1)	7.1	5.4	76%	24%	1.7	5/25/2010	81.2%
	R12-Milby Park (Run #2)	7.1	5.8	82%	18%	1.3	6/2/2010	89.6%
	R12-Cesar Chavez	7.1	5.5	77%	23%	1.6	5/25/2010	86.5%
	R10-Nederland (Run #1)	7.1	5.8	82%	18%	1.3	5/27/2010	91.7%
	R10-Nederland (Run #2)	7.1	5.6	79%	21%	1.5	6/1/2010	91.2%
	R10-Lamar	7.1	5.4	76%	24%	1.7	5/27/2010	85.8%
	R12-Clinton	7.1	5.9	83%	17%	1.2	5/28/2010	92.0%
	R12-Channelview	7.1	6.4	90%	10%	0.7	5/28/2010	95.6%
	R14-Corpus Christi Palm	7.1	6.0	85%	15%	1.1	6/17/2010	93.0%
	R14-Oak Park	7.1	5.6	79%	21%	1.5	6/16/2010	88.8%
	R14-Solar Estates	7.1	5.1	72%	28%	2.0	6/16/2010	91.9%
		Averages:	**5.7**	**80%**	**20%**	**1.4**		

DISH (5/18/10)		TCEQ Air Lab Average Results (ppbv)	DISH Result on 5/18/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	5.4	5.2	96%	4%	0.2	91.4%
	ACETYLENE	5.7	4.9	86%	14%	0.8	68.6%
	BENZENE	7.1	5.9	83%	17%	1.2	90.6%
	N-HEPTANE	5.0	5.5	110%	10%	0.5	NA
	METHYLCYCLOHEXANE	5.3	5.6	106%	6%	0.3	NA
	2-METHYLHEPTANE	5.1	5.7	112%	12%	0.6	NA
	3-METHYLHEPTANE	5.8	4.9	84%	16%	0.9	NA
	N-OCTANE	4.9	4.8	98%	2%	0.1	NA
			Averages:	**97%**	**10%**	**0.6**	

DISH (5/25/10)		TCEQ Air Lab Average Results (ppbv)	DISH Result on 5/25/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	5.4	5.2	96%	4%	0.2	91.3%
	ACETYLENE	5.7	4.9	86%	14%	0.8	67.9%
	BENZENE	7.1	5.8	82%	18%	1.3	91.7%
	N-HEPTANE	5.0	5.4	108%	8%	0.4	NA
	METHYLCYCLOHEXANE	5.3	5.5	104%	4%	0.2	NA
	2-METHYLHEPTANE	5.1	5.7	112%	12%	0.6	NA
	3-METHYLHEPTANE	5.8	4.9	84%	16%	0.9	NA
	N-OCTANE	4.9	4.7	96%	4%	0.2	NA
			Averages:	**96%**	**10%**	**0.6**	

EML (5/20/10)		TCEQ Air Lab Average Results (ppbv)	EML Result on 5/20/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	5.4	5.5	102%	2%	0.1	100.3%
	ACETYLENE	5.7	2.9	51%	49%	2.8	41.5%
	BENZENE	7.1	5.1	72%	28%	2.0	79.2%
	N-HEPTANE	5.0	4.7	94%	6%	0.3	NA
	METHYLCYCLOHEXANE	5.3	5.2	98%	2%	0.1	NA
	2-METHYLHEPTANE	5.1	5.2	102%	2%	0.1	NA
	3-METHYLHEPTANE	5.8	4.7	81%	19%	1.1	NA
	N-OCTANE	4.9	4.4	90%	10%	0.5	NA
			Averages:	**86%**	**15%**	**0.9**	

EML (5/25/10)		TCEQ Air Lab Average Results (ppbv)	EML Result on 5/25/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	5.4	5.6	104%	4%	0.2	101.2%
	ACETYLENE	5.7	3.0	53%	47%	2.7	41.0%
	BENZENE	7.1	4.8	68%	32%	2.3	80.5%
	N-HEPTANE	5.0	4.7	94%	6%	0.3	NA
	METHYLCYCLOHEXANE	5.3	5.2	98%	2%	0.1	NA
	2-METHYLHEPTANE	5.1	5.2	102%	2%	0.1	NA
	3-METHYLHEPTANE	5.8	4.7	81%	19%	1.1	NA
	N-OCTANE	4.9	4.4	90%	10%	0.5	NA
			Averages:	**86%**	**15%**	**0.9**	

Hinton		TCEQ Air Lab Average Results (ppbv)	Hinton Result on 5/11/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	5.4	6.1	113%	13%	0.7	116.1%
	ACETYLENE	5.7	4.7	82%	18%	1.0	52.2%
	BENZENE	7.1	6.7	94%	6%	0.4	102.6%
	N-HEPTANE	5.0	6.3	126%	26%	1.3	NA
	METHYLCYCLOHEXANE	5.3	6.6	125%	25%	1.3	NA
	2-METHYLHEPTANE	5.1	6.7	131%	31%	1.6	NA
	3-METHYLHEPTANE	5.8	5.9	102%	2%	0.1	NA
	N-OCTANE	4.9	5.5	112%	12%	0.6	NA
			Averages:	**111%**	**17%**	**0.9**	

Meacham		TCEQ Air Lab Average Results (ppbv)	Meacham Result on 5/13/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	5.4	5.2	96%	4%	0.2	89.9%
	ACETYLENE	5.7	3.8	67%	33%	1.9	55.9%
	BENZENE	7.1	5.5	77%	23%	1.6	88.1%
	N-HEPTANE	5.0	5.3	106%	6%	0.3	NA
	METHYLCYCLOHEXANE	5.3	5.5	104%	4%	0.2	NA
	2-METHYLHEPTANE	5.1	5.4	106%	6%	0.3	NA
	3-METHYLHEPTANE	5.8	4.8	83%	17%	1.0	NA
	N-OCTANE	4.9	4.6	94%	6%	0.3	NA
			Averages:	**92%**	**12%**	**0.7**	

Chamizal		TCEQ Air Lab Average Results (ppbv)	Chamizal Result on 6/10/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	5.4	4.8	89%	11%	0.6	87.3%
	ACETYLENE	5.7	4.1	72%	28%	1.6	61.0%
	BENZENE	7.1	5.6	79%	21%	1.5	89.7%
	N-HEPTANE	5.0	5.4	108%	8%	0.4	NA
	METHYLCYCLOHEXANE	5.3	5.5	104%	4%	0.2	NA
	2-METHYLHEPTANE	5.1	5.7	112%	12%	0.6	NA
	3-METHYLHEPTANE	5.8	5.0	86%	14%	0.8	NA
	N-OCTANE	4.9	4.8	98%	2%	0.1	NA
			Averages:	**93%**	**12%**	**0.7**	

Odessa		TCEQ Air Lab Average Results (ppbv)	Odessa Result on 6/18/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	5.4	4.6	85%	15%	0.8	85.3%
	ACETYLENE	5.7	4.2	74%	26%	1.5	65.2%
	BENZENE	7.1	5.4	76%	24%	1.7	85.2%
	N-HEPTANE	5.0	5.1	102%	2%	0.1	NA
	METHYLCYCLOHEXANE	5.3	5.2	98%	2%	0.1	NA
	2-METHYLHEPTANE	5.1	5.4	106%	6%	0.3	NA
	3-METHYLHEPTANE	5.8	4.7	81%	19%	1.1	NA
	N-OCTANE	4.9	4.6	94%	6%	0.3	NA
			Averages:	**89%**	**12%**	**0.7**	

Deer Park		TCEQ Air Lab Average Results (ppbv)	Deer Park Result on 5/25/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	5.4	100%	0%	0.0	95.3%
	ACETYLENE	6.1	4.2	69%	31%	1.9	56.6%
	BENZENE	7.1	5.8	82%	18%	1.3	88.3%
	N-HEPTANE	4.8	5.6	117%	17%	0.8	NA
	METHYLCYCLOHEXANE	4.8	5.8	121%	21%	1.0	NA
	2-METHYLHEPTANE	4.6	6.0	130%	30%	1.4	NA
	3-METHYLHEPTANE	5.1	5.3	104%	4%	0.2	NA
	N-OCTANE	5.2	5.0	96%	4%	0.2	NA
			Averages:	**102%**	**16%**	**0.9**	

Milby Park (5/25/10)		TCEQ Air Lab Average Results (ppbv)	Milby Park Result on 5/25/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	4.6	85%	15%	0.8	81.8%
	ACETYLENE	6.1	4.2	69%	31%	1.9	47.0%
	BENZENE	7.1	5.4	76%	24%	1.7	81.2%
	N-HEPTANE	4.8	4.7	98%	2%	0.1	NA
	METHYLCYCLOHEXANE	4.8	5.1	106%	6%	0.3	NA
	2-METHYLHEPTANE	4.6	4.9	107%	7%	0.3	NA
	3-METHYLHEPTANE	5.1	4.3	84%	16%	0.8	NA
	N-OCTANE	5.2	4.1	79%	21%	1.1	NA
			Averages:	**88%**	**15%**	**0.9**	

Milby Park (6/2/10)		TCEQ Air Lab Average Results (ppbv)	Milby Park Result on 6/2/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	5.0	93%	7%	0.4	92.2%
	ACETYLENE	6.1	4.5	74%	26%	1.6	70.9%
	BENZENE	7.1	5.8	82%	18%	1.3	89.6%
	N-HEPTANE	4.8	5.0	104%	4%	0.2	NA
	METHYLCYCLOHEXANE	4.8	5.4	113%	13%	0.6	NA
	2-METHYLHEPTANE	4.6	5.3	115%	15%	0.7	NA
	3-METHYLHEPTANE	5.1	4.6	90%	10%	0.5	NA
	N-OCTANE	5.2	4.4	85%	15%	0.8	NA
			Averages:	**94%**	**14%**	**0.8**	

Cesar Chavez		TCEQ Air Lab Average Results (ppbv)	Cesar Chavez Result on 5/25/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	4.8	89%	11%	0.6	88.0%
	ACETYLENE	6.1	4.1	67%	33%	2.0	62.7%
	BENZENE	7.1	5.5	77%	23%	1.6	86.5%
	N-HEPTANE	4.8	4.9	102%	2%	0.1	NA
	METHYLCYCLOHEXANE	4.8	5.3	110%	10%	0.5	NA
	2-METHYLHEPTANE	4.6	5.3	115%	15%	0.7	NA
	3-METHYLHEPTANE	5.1	4.6	90%	10%	0.5	NA
	N-OCTANE	5.2	4.5	87%	13%	0.7	NA
			Averages:	**92%**	**15%**	**0.8**	

Clinton		TCEQ Air Lab Average Results (ppbv)	Clinton Result on 5/28/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	4.9	91%	9%	0.5	88.6%
	ACETYLENE	6.1	4.4	72%	28%	1.7	58.4%
	BENZENE	7.1	5.9	83%	17%	1.2	92.0%
	N-HEPTANE	4.8	5.4	113%	13%	0.6	NA
	METHYLCYCLOHEXANE	4.8	5.5	115%	15%	0.7	NA
	2-METHYLHEPTANE	4.6	5.6	122%	22%	1.0	NA
	3-METHYLHEPTANE	5.1	4.9	96%	4%	0.2	NA
	N-OCTANE	5.2	5.1	98%	2%	0.1	NA
			Averages:	**99%**	**14%**	**0.8**	

Channelview		TCEQ Air Lab Average Results (ppbv)	Channelview Result on 5/28/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	5.6	104%	4%	0.2	100.5%
	ACETYLENE	6.1	5.1	84%	16%	1.0	81.2%
	BENZENE	7.1	6.4	90%	10%	0.7	95.6%
	N-HEPTANE	4.8	5.9	123%	23%	1.1	NA
	METHYLCYCLOHEXANE	4.8	6.2	129%	29%	1.4	NA
	2-METHYLHEPTANE	4.6	6.3	137%	37%	1.7	NA
	3-METHYLHEPTANE	5.1	5.4	106%	6%	0.3	NA
	N-OCTANE	5.2	5.3	102%	2%	0.1	NA
			Averages:	**109%**	**16%**	**0.8**	

Nederland (5/27/10)		TCEQ Air Lab Average Results (ppbv)	Nederland Result on 5/27/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	5.2	96%	4%	0.2	93.2%
	ACETYLENE	6.1	4.5	74%	26%	1.6	73.1%
	BENZENE	7.1	5.8	82%	18%	1.3	91.7%
	N-HEPTANE	4.8	5.5	115%	15%	0.7	NA
	METHYLCYCLOHEXANE	4.8	5.6	117%	17%	0.8	NA
	2-METHYLHEPTANE	4.6	5.9	128%	28%	1.3	NA
	3-METHYLHEPTANE	5.1	5.1	100%	0%	0.0	NA
	N-OCTANE	5.2	5.0	96%	4%	0.2	NA
			Averages:	**101%**	**14%**	**0.8**	

Nederland (6/1/10)		TCEQ Air Lab Average Results (ppbv)	Nederland Result on 6/1/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	5.1	94%	6%	0.3	94.3%
	ACETYLENE	6.1	4.5	74%	26%	1.6	74.0%
	BENZENE	7.1	5.6	79%	21%	1.5	91.2%
	N-HEPTANE	4.8	5.4	113%	13%	0.6	NA
	METHYLCYCLOHEXANE	4.8	5.6	117%	17%	0.8	NA
	2-METHYLHEPTANE	4.6	5.8	126%	26%	1.2	NA
	3-METHYLHEPTANE	5.1	4.9	96%	4%	0.2	NA
	N-OCTANE	5.2	4.9	94%	6%	0.3	NA
			Averages:	**99%**	**15%**	**0.8**	

Lamar		TCEQ Air Lab Average Results (ppbv)	Lamar Result on 5/27/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	4.8	89%	11%	0.6	85.0%
	ACETYLENE	6.1	4.1	67%	33%	2.0	58.6%
	BENZENE	7.1	5.4	76%	24%	1.7	85.8%
	N-HEPTANE	4.8	5.2	108%	8%	0.4	NA
	METHYLCYCLOHEXANE	4.8	5.5	115%	15%	0.7	NA
	2-METHYLHEPTANE	4.6	5.6	122%	22%	1.0	NA
	3-METHYLHEPTANE	5.1	4.9	96%	4%	0.2	NA
	N-OCTANE	5.2	4.6	88%	12%	0.6	NA
			Averages:	**95%**	**16%**	**0.9**	

Corpus Christi Palm		TCEQ Air Lab Average Results (ppbv)	Corpus Christi Palm Result on 6/17/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	5.4	100%	0%	0.0	95.0%
	ACETYLENE	6.1	4.9	80%	20%	1.2	77.9%
	BENZENE	7.1	6.0	85%	15%	1.1	93.0%
	N-HEPTANE	4.8	5.4	113%	13%	0.6	NA
	METHYLCYCLOHEXANE	4.8	5.7	119%	19%	0.9	NA
	2-METHYLHEPTANE	4.6	5.7	124%	24%	1.1	NA
	3-METHYLHEPTANE	5.1	4.9	96%	4%	0.2	NA
	N-OCTANE	5.2	4.8	92%	8%	0.4	NA
			Averages:	**101%**	**13%**	**0.7**	

Corpus Christi Oak Park		TCEQ Air Lab Average Results (ppbv)	Corpus Christi Oak Park Result on 6/16/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	5.0	93%	7%	0.4	89.8%
	ACETYLENE	6.1	3.8	62%	38%	2.3	58.5%
	BENZENE	7.1	5.6	79%	21%	1.5	88.8%
	N-HEPTANE	4.8	5.2	108%	8%	0.4	NA
	METHYLCYCLOHEXANE	4.8	5.6	117%	17%	0.8	NA
	2-METHYLHEPTANE	4.6	5.5	120%	20%	0.9	NA
	3-METHYLHEPTANE	5.1	5.0	98%	2%	0.1	NA
	N-OCTANE	5.2	4.6	88%	12%	0.6	NA
			Averages:	**96%**	**16%**	**0.9**	

Corpus Solar Estates		TCEQ Air Lab Average Results (ppbv)	Corpus Solar Estates Result on 6/16/10 (ppbv)	Recovery (%)	Absolute Difference from TCEQ Air Lab (%)	Absolute Difference from TCEQ Air Lab (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	5.4	4.6	85%	15%	0.8	89.6%
	ACETYLENE	6.1	3.5	57%	43%	2.6	58.3%
	BENZENE	7.1	5.1	72%	28%	2.0	91.9%
	N-HEPTANE	4.8	4.7	98%	2%	0.1	NA
	METHYLCYCLOHEXANE	4.8	4.9	102%	2%	0.1	NA
	2-METHYLHEPTANE	4.6	4.8	104%	4%	0.2	NA
	3-METHYLHEPTANE	5.1	4.2	82%	18%	0.9	NA
	N-OCTANE	5.2	4.0	77%	23%	1.2	NA
			Averages:	**85%**	**17%**	**1.0**	

Propane (Canister QC-2)		Vendor Values (ppbv)	Result (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	Analysis Date (mm/dd/yy)	AutoGC LCS Recovery (%)
PROPANE (Can QC-2)	R4-Hinton	3.6	6.1	169%	69%	2.5	5/11/2010	116.1%
	R4-Meacham	3.6	5.2	144%	44%	1.6	5/13/2010	89.9%
	R4-DISH (Run #1)	3.6	5.2	144%	44%	1.6	5/18/2010	91.4%
	R4-DISH 2 (Run #2)	3.6	5.2	144%	44%	1.6	5/25/2010	91.3%
	R4-Eagle Mountain (Run #1)	3.6	5.5	153%	53%	1.9	5/20/2010	100.1%
	R4-Eagle Mountain (Run #2)	3.6	5.6	156%	56%	2.0	5/25/2010	101.2%
	R6-Chamizal	3.6	4.8	133%	33%	1.2	6/10/2010	87.3%
	R7-Odessa	3.6	4.6	128%	28%	1.0	6/18/2010	85.3%
		Averages:	**5.3**	**147%**	**47%**	**1.7**		

Benzene (Canister QC-2)		Vendor Values (ppbv)	Result (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	Analysis Date (mm/dd/yy)	AutoGC LCS Recovery (%)
BENZENE (Can QC-2)	R4-Hinton	5.8	6.7	116%	16%	0.9	5/11/2010	102.6%
	R4-Meacham	5.8	5.5	95%	5%	0.3	5/13/2010	88.1%
	R4-DISH (Run #1)	5.8	5.9	102%	2%	0.1	5/18/2010	90.6%
	R4-DISH 2 (Run #2)	5.8	5.8	100%	0%	0.0	5/25/2010	91.7%
	R4-Eagle Mountain (Run #1)	5.8	5.1	88%	12%	0.7	5/20/2010	79.2%
	R4-Eagle Mountain (Run #2)	5.8	4.8	83%	17%	1.0	5/25/2010	80.5%
	R6-Chamizal	5.8	5.6	97%	3%	0.2	6/10/2010	89.7%
	R7-Odessa	5.8	5.4	93%	7%	0.4	6/18/2010	85.2%
		Averages:	**5.6**	**97%**	**8%**	**0.5**		

Propane (Canister 12293)		Vendor Values (ppbv)	Result (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	Analysis Date (mm/dd/yy)	AutoGC LCS Recovery (%)
PROPANE (Can 12293)	R12-Deer Park	3.6	5.4	150%	50%	1.8	5/25/2010	95.3%
	R12-Milby Park (Run #1)	3.6	4.6	128%	28%	1.0	5/25/2010	81.8%
	R12-Milby Park (Run #2)	3.6	5.0	139%	39%	1.4	6/2/2010	92.2%
	R12-Cesar Chavez	3.6	4.8	133%	33%	1.2	5/25/2010	88.0%
	R10-Nederland (Run #1)	3.6	5.2	144%	44%	1.6	5/27/2010	93.2%
	R10-Nederland (Run #2)	3.6	5.1	142%	42%	1.5	6/1/2010	94.3%
	R10-Lamar	3.6	4.8	133%	33%	1.2	5/27/2010	85.0%
	R12-Clinton	3.6	4.9	136%	36%	1.3	5/28/2010	88.6%
	R12-Channelview	3.6	5.6	156%	56%	2.0	5/28/2010	100.5%
	R14-Corpus Christi Palm	3.6	5.4	150%	50%	1.8	6/17/2010	95.0%
	R14-Oak Park	3.6	5.0	139%	39%	1.4	6/16/2010	89.8%
	R14-Solar Estates	3.6	4.6	128%	28%	1.0	6/16/2010	89.6%
		Averages:	**5.0**	**140%**	**40%**	**1.4**		

Benzene (Canister 12293)		Vendor Values (ppbv)	Result (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	Analysis Date (mm/dd/yy)	AutoGC LCS Recovery (%)
BENZENE (Can 12293)	R12-Deer Park	5.8	5.8	100%	0%	0.0	5/25/2010	88.3%
	R12-Milby Park (Run #1)	5.8	5.4	93%	7%	0.4	5/25/2010	81.2%
	R12-Milby Park (Run #2)	5.8	5.8	100%	0%	0.0	6/2/2010	89.6%
	R12-Cesar Chavez	5.8	5.5	95%	5%	0.3	5/25/2010	86.5%
	R10-Nederland (Run #1)	5.8	5.8	100%	0%	0.0	5/27/2010	91.7%
	R10-Nederland (Run #2)	5.8	5.6	97%	3%	0.2	6/1/2010	91.2%
	R10-Lamar	5.8	5.4	93%	7%	0.4	5/27/2010	85.8%
	R12-Clinton	5.8	5.9	102%	2%	0.1	5/28/2010	92.0%
	R12-Channelview	5.8	6.4	110%	10%	0.6	5/28/2010	95.6%
	R14-Corpus Christi Palm	5.8	6.0	103%	3%	0.2	6/17/2010	93.0%
	R14-Oak Park	5.8	5.6	97%	3%	0.2	6/16/2010	88.8%
	R14-Solar Estates	5.8	5.1	88%	12%	0.7	6/16/2010	91.9%
		Averages:	**5.7**	**98%**	**4%**	**0.3**		

DISH (5/18/10)		Vendor Values (ppbv)	DISH Result on 5/18/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	3.6	5.2	144%	44%	1.6	91.4%
	ACETYLENE	5.4	4.9	91%	9%	0.5	68.6%
	BENZENE	5.8	5.9	102%	2%	0.1	90.6%
	N-HEPTANE	5.4	5.5	102%	2%	0.1	NA
	METHYLCYCLOHEXANE	5.5	5.6	102%	2%	0.1	NA
	2-METHYLHEPTANE	5.1	5.7	112%	12%	0.6	NA
	3-METHYLHEPTANE	4.1	4.9	120%	20%	0.8	NA
	N-OCTANE	5.9	4.8	81%	19%	1.1	NA
			Averages:	**107%**	**14%**	**0.6**	

DISH (5/25/10)		Vendor Values (ppbv)	DISH Result on 5/25/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	3.6	5.2	144%	44%	1.6	91.3%
	ACETYLENE	5.4	4.9	91%	9%	0.5	67.9%
	BENZENE	5.8	5.8	100%	0%	0.0	91.7%
	N-HEPTANE	5.4	5.4	100%	0%	0.0	NA
	METHYLCYCLOHEXANE	5.5	5.5	100%	0%	0.0	NA
	2-METHYLHEPTANE	5.1	5.7	112%	12%	0.6	NA
	3-METHYLHEPTANE	4.1	4.9	120%	20%	0.8	NA
	N-OCTANE	5.9	4.7	80%	20%	1.2	NA
			Averages:	**106%**	**13%**	**0.6**	

EML (5/20/10)		Vendor Values (ppbv)	EML Result on 5/20/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	3.6	5.5	153%	53%	1.9	100.3%
	ACETYLENE	5.4	2.9	54%	46%	2.5	41.5%
	BENZENE	5.8	5.1	88%	12%	0.7	79.2%
	N-HEPTANE	5.4	4.7	87%	13%	0.7	NA
	METHYLCYCLOHEXANE	5.5	5.2	95%	5%	0.3	NA
	2-METHYLHEPTANE	5.1	5.2	102%	2%	0.1	NA
	3-METHYLHEPTANE	4.1	4.7	115%	15%	0.6	NA
	N-OCTANE	5.9	4.4	75%	25%	1.5	NA
			Averages:	**96%**	**21%**	**1.0**	

EML (5/25/10)		Vendor Values (ppbv)	EML Result on 5/25/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	3.6	5.6	156%	56%	2.0	101.2%
	ACETYLENE	5.4	3.0	56%	44%	2.4	41.0%
	BENZENE	5.8	4.8	83%	17%	1.0	80.5%
	N-HEPTANE	5.4	4.7	87%	13%	0.7	NA
	METHYLCYCLOHEXANE	5.5	5.2	95%	5%	0.3	NA
	2-METHYLHEPTANE	5.1	5.2	102%	2%	0.1	NA
	3-METHYLHEPTANE	4.1	4.7	115%	15%	0.6	NA
	N-OCTANE	5.9	4.4	75%	25%	1.5	NA
			Averages:	**96%**	**22%**	**1.1**	

Hinton		Vendor Values (ppbv)	Hinton Result on 5/11/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	3.6	6.1	169%	69%	2.5	116.1%
	ACETYLENE	5.4	4.7	87%	13%	0.7	52.2%
	BENZENE	5.8	6.7	116%	16%	0.9	102.6%
	N-HEPTANE	5.4	6.3	117%	17%	0.9	NA
	METHYLCYCLOHEXANE	5.5	6.6	120%	20%	1.1	NA
	2-METHYLHEPTANE	5.1	6.7	131%	31%	1.6	NA
	3-METHYLHEPTANE	4.1	5.9	144%	44%	1.8	NA
	N-OCTANE	5.9	5.5	93%	7%	0.4	NA
			Averages:	**122%**	**27%**	**1.2**	

Meacham		Vendor Values (ppbv)	Meacham Result on 5/13/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	3.6	5.2	144%	44%	1.6	89.9%
	ACETYLENE	5.4	3.8	70%	30%	1.6	55.9%
	BENZENE	5.8	5.5	95%	5%	0.3	88.1%
	N-HEPTANE	5.4	5.3	98%	2%	0.1	NA
	METHYLCYCLOHEXANE	5.5	5.5	100%	0%	0.0	NA
	2-METHYLHEPTANE	5.1	5.4	106%	6%	0.3	NA
	3-METHYLHEPTANE	4.1	4.8	117%	17%	0.7	NA
	N-OCTANE	5.9	4.6	78%	22%	1.3	NA
			Averages:	**101%**	**16%**	**0.7**	

Chamizal		Vendor Values (ppbv)	Chamizal Result on 6/10/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	3.6	4.8	133%	33%	1.2	87.3%
	ACETYLENE	5.4	4.1	76%	24%	1.3	61.0%
	BENZENE	5.8	5.6	97%	3%	0.2	89.7%
	N-HEPTANE	5.4	5.4	100%	0%	0.0	NA
	METHYLCYCLOHEXANE	5.5	5.5	100%	0%	0.0	NA
	2-METHYLHEPTANE	5.1	5.7	112%	12%	0.6	NA
	3-METHYLHEPTANE	4.1	5.0	122%	22%	0.9	NA
	N-OCTANE	5.9	4.8	81%	19%	1.1	NA
			Averages:	**103%**	**14%**	**0.7**	

Odessa		Vendor Values (ppbv)	Odessa Result on 6/18/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can QC-2	PROPANE	3.6	4.6	128%	28%	1.0	85.3%
	ACETYLENE	5.4	4.2	78%	22%	1.2	65.2%
	BENZENE	5.8	5.4	93%	7%	0.4	85.2%
	N-HEPTANE	5.4	5.1	94%	6%	0.3	NA
	METHYLCYCLOHEXANE	5.5	5.2	95%	5%	0.3	NA
	2-METHYLHEPTANE	5.1	5.4	106%	6%	0.3	NA
	3-METHYLHEPTANE	4.1	4.7	115%	15%	0.6	NA
	N-OCTANE	5.9	4.6	78%	22%	1.3	NA
			Averages:	**98%**	**14%**	**0.7**	

Deer Park		Vendor Values (ppbv)	Deer Park Result on 5/25/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	5.4	150%	50%	1.8	95.3%
	ACETYLENE	5.4	4.2	78%	22%	1.2	56.6%
	BENZENE	5.8	5.8	100%	0%	0.0	88.3%
	N-HEPTANE	5.4	5.6	104%	4%	0.2	NA
	METHYLCYCLOHEXANE	5.5	5.8	105%	5%	0.3	NA
	2-METHYLHEPTANE	5.1	6.0	118%	18%	0.9	NA
	3-METHYLHEPTANE	4.1	5.3	129%	29%	1.2	NA
	N-OCTANE	5.9	5.0	85%	15%	0.9	NA
			Averages:	**109%**	**18%**	**0.8**	

Milby Park (5/25/10)		Vendor Values (ppbv)	Milby Park Result on 5/25/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	4.6	128%	28%	1.0	81.8%
	ACETYLENE	5.4	4.2	78%	22%	1.2	47.0%
	BENZENE	5.8	5.4	93%	7%	0.4	81.2%
	N-HEPTANE	5.4	4.7	87%	13%	0.7	NA
	METHYLCYCLOHEXANE	5.5	5.1	93%	7%	0.4	NA
	2-METHYLHEPTANE	5.1	4.9	96%	4%	0.2	NA
	3-METHYLHEPTANE	4.1	4.3	105%	5%	0.2	NA
	N-OCTANE	5.9	4.1	69%	31%	1.8	NA
			Averages:	**94%**	**15%**	**0.7**	

Milby Park (6/2/10)		Vendor Values (ppbv)	Milby Park Result on 6/2/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	5.0	139%	39%	1.4	92.2%
	ACETYLENE	5.4	4.5	83%	17%	0.9	70.9%
	BENZENE	5.8	5.8	100%	0%	0.0	89.6%
	N-HEPTANE	5.4	5.0	93%	7%	0.4	NA
	METHYLCYCLOHEXANE	5.5	5.4	98%	2%	0.1	NA
	2-METHYLHEPTANE	5.1	5.3	104%	4%	0.2	NA
	3-METHYLHEPTANE	4.1	4.6	112%	12%	0.5	NA
	N-OCTANE	5.9	4.4	75%	25%	1.5	NA
			Averages:	**100%**	**13%**	**0.6**	

Cesar Chavez		Vendor Values (ppbv)	Cesar Chavez Result on 5/25/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	4.8	133%	33%	1.2	88.0%
	ACETYLENE	5.4	4.1	76%	24%	1.3	62.7%
	BENZENE	5.8	5.5	95%	5%	0.3	86.5%
	N-HEPTANE	5.4	4.9	91%	9%	0.5	NA
	METHYLCYCLOHEXANE	5.5	5.3	96%	4%	0.2	NA
	2-METHYLHEPTANE	5.1	5.3	104%	4%	0.2	NA
	3-METHYLHEPTANE	4.1	4.6	112%	12%	0.5	NA
	N-OCTANE	5.9	4.5	76%	24%	1.4	NA
			Averages:	**98%**	**14%**	**0.7**	

Clinton		Vendor Values (ppbv)	Clinton Result on 5/28/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	4.9	136%	36%	1.3	88.6%
	ACETYLENE	5.4	4.4	81%	19%	1.0	58.4%
	BENZENE	5.8	5.9	102%	2%	0.1	92.0%
	N-HEPTANE	5.4	5.4	100%	0%	0.0	NA
	METHYLCYCLOHEXANE	5.5	5.5	100%	0%	0.0	NA
	2-METHYLHEPTANE	5.1	5.6	110%	10%	0.5	NA
	3-METHYLHEPTANE	4.1	4.9	120%	20%	0.8	NA
	N-OCTANE	5.9	5.1	86%	14%	0.8	NA
			Averages:	**104%**	**12%**	**0.6**	

Channelview		Vendor Values (ppbv)	Channelview Result on 5/28/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	5.6	156%	56%	2.0	100.5%
	ACETYLENE	5.4	5.1	94%	6%	0.3	81.2%
	BENZENE	5.8	6.4	110%	10%	0.6	95.6%
	N-HEPTANE	5.4	5.9	109%	9%	0.5	NA
	METHYLCYCLOHEXANE	5.5	6.2	113%	13%	0.7	NA
	2-METHYLHEPTANE	5.1	6.3	124%	24%	1.2	NA
	3-METHYLHEPTANE	4.1	5.4	132%	32%	1.3	NA
	N-OCTANE	5.9	5.3	90%	10%	0.6	NA
			Averages:	**116%**	**20%**	**0.9**	

Nederland (5/27/10)		Vendor Values (ppbv)	Nederland Result on 5/27/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	5.2	144%	44%	1.6	93.2%
	ACETYLENE	5.4	4.5	83%	17%	0.9	73.1%
	BENZENE	5.8	5.8	100%	0%	0.0	91.7%
	N-HEPTANE	5.4	5.5	102%	2%	0.1	NA
	METHYLCYCLOHEXANE	5.5	5.6	102%	2%	0.1	NA
	2-METHYLHEPTANE	5.1	5.9	116%	16%	0.8	NA
	3-METHYLHEPTANE	4.1	5.1	124%	24%	1.0	NA
	N-OCTANE	5.9	5.0	85%	15%	0.9	NA
			Averages:	**107%**	**15%**	**0.7**	

Nederland (6/1/10)		Vendor Values (ppbv)	Nederland Result on 6/1/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	5.1	142%	42%	1.5	94.3%
	ACETYLENE	5.4	4.5	83%	17%	0.9	74.0%
	BENZENE	5.8	5.6	97%	3%	0.2	91.2%
	N-HEPTANE	5.4	5.4	100%	0%	0.0	NA
	METHYLCYCLOHEXANE	5.5	5.6	102%	2%	0.1	NA
	2-METHYLHEPTANE	5.1	5.8	114%	14%	0.7	NA
	3-METHYLHEPTANE	4.1	4.9	120%	20%	0.8	NA
	N-OCTANE	5.9	4.9	83%	17%	1.0	NA
			Averages:	**105%**	**14%**	**0.7**	

Lamar		Vendor Values (ppbv)	Lamar Result on 5/27/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	4.8	133%	33%	1.2	85.0%
	ACETYLENE	5.4	4.1	76%	24%	1.3	58.6%
	BENZENE	5.8	5.4	93%	7%	0.4	85.8%
	N-HEPTANE	5.4	5.2	96%	4%	0.2	NA
	METHYLCYCLOHEXANE	5.5	5.5	100%	0%	0.0	NA
	2-METHYLHEPTANE	5.1	5.6	110%	10%	0.5	NA
	3-METHYLHEPTANE	4.1	4.9	120%	20%	0.8	NA
	N-OCTANE	5.9	4.6	78%	22%	1.3	NA
			Averages:	**101%**	**15%**	**0.7**	

Corpus Christi Palm		Vendor Values (ppbv)	Corpus Christi Palm Result on 6/17/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	5.4	150%	50%	1.8	95.0%
	ACETYLENE	5.4	4.9	91%	9%	0.5	77.9%
	BENZENE	5.8	6.0	103%	3%	0.2	93.0%
	N-HEPTANE	5.4	5.4	100%	0%	0.0	NA
	METHYLCYCLOHEXANE	5.5	5.7	104%	4%	0.2	NA
	2-METHYLHEPTANE	5.1	5.7	112%	12%	0.6	NA
	3-METHYLHEPTANE	4.1	4.9	120%	20%	0.8	NA
	N-OCTANE	5.9	4.8	81%	19%	1.1	NA
			Averages:	**108%**	**15%**	**0.7**	

Corpus Christi Oak Park		Vendor Values (ppbv)	Corpus Christi Oak Park Result on 6/16/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	5.0	139%	39%	1.4	89.8%
	ACETYLENE	5.4	3.8	70%	30%	1.6	58.5%
	BENZENE	5.8	5.6	97%	3%	0.2	88.8%
	N-HEPTANE	5.4	5.2	96%	4%	0.2	NA
	METHYLCYCLOHEXANE	5.5	5.6	102%	2%	0.1	NA
	2-METHYLHEPTANE	5.1	5.5	108%	8%	0.4	NA
	3-METHYLHEPTANE	4.1	5.0	122%	22%	0.9	NA
	N-OCTANE	5.9	4.6	78%	22%	1.3	NA
			Averages:	**101%**	**16%**	**0.8**	

Corpus Solar Estates		Vendor Values (ppbv)	Corpus Solar Estates Result on 6/16/10 (ppbv)	Recovery (%)	Absolute Difference from Vendor Values (%)	Absolute Difference from Vendor Values (ppbv)	AutoGC LCS Recovery (%)
Can 12293	PROPANE	3.6	4.6	128%	28%	1.0	89.6%
	ACETYLENE	5.4	3.5	65%	35%	1.9	58.3%
	BENZENE	5.8	5.1	88%	12%	0.7	91.9%
	N-HEPTANE	5.4	4.7	87%	13%	0.7	NA
	METHYLCYCLOHEXANE	5.5	4.9	89%	11%	0.6	NA
	2-METHYLHEPTANE	5.1	4.8	94%	6%	0.3	NA
	3-METHYLHEPTANE	4.1	4.2	102%	2%	0.1	NA
	N-OCTANE	5.9	4.0	68%	32%	1.9	NA
			Averages:	**90%**	**17%**	**0.9**	