



# Total Volatile Petroleum Hydrocarbons (Gasoline) Case Narrative

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## COGCC

Burkhart -- 25087038

Work Order Number: 1202226

1. This report consists of 1 water sample. The sample was received cool and intact by ALS on 02/20/2012.

The water sample was free of head space prior to analysis.

The sample had a pH < 2 at the time of analysis.

2. The sample was prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the water sample was prepared by heating and purging 5ml using purge and trap procedures based on Method 5030B. The calibration curve was also prepared using the heated purge.
3. The sample was analyzed using a GC with a DB-624 capillary column and a flame ionization detector (FID) according to Standard Operating Procedure 425 Revision 15 generally based on SW-846 Methods 8000C and 8015C. The procedures are based on these methods because SW-846 does not have a specific method for TVPH or gasoline range organics. The only true modification from these methods is that TVPH is a multicomponent mixture and is quantitated by summing the entire range, rather than individual peaks. The carbon range integrated in this test extends from C<sub>6</sub> to C<sub>10</sub>. All positive results in this range were quantitated using the responses from the initial calibration curve using the external standard technique.
4. All initial and continuing calibration criteria were met.
5. The method blank associated with this project was below the MDL for gasoline range organics.
6. All laboratory control sample and laboratory control sample duplicate recoveries and RPDs were within the acceptance criteria.



7. Per method requirements, matrix QC was performed for this analysis. Since a sample from this order number was not the selected quality control (QC) sample, matrix specific QC results are not included in this report.
8. The sample was extracted and analyzed within the established holding time.
9. All surrogate recoveries were within acceptance criteria.
10. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in Standard Operating Procedure 939 Revision 4.
11. The vial for sample -1 for this analysis was at room temperature starting the afternoon of 02/22/12 until 9:00 a.m. on 02/23/12. This amount of time is similar to the amount of time a sample can sit at room temperature while running on the instrument. We have demonstrated that the target compound remains in solution during this time period because quality control samples are in control after sitting at room temperature overnight. In addition, the samples were non-detect, contained no headspace, and were preserved with HCL. The vials used for 8260 were in control for the temperature and were non-detect for all the compounds. See NCR#13453

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Mindy Norton  
Mindy Norton  
Organics Primary Data Reviewer

0.09.12  
Date

Sunday S. Jeff  
Organics Final Data Reviewer

2-29-12  
Date



**ALS**  
**Data Qualifier Flags**  
**Fuels**

- G:** This flag indicates that a pattern resembling gasoline was detected in this sample.
- D:** This flag indicates that a pattern resembling diesel was detected in this sample.
- M:** This flag indicates that a pattern resembling motor oil was detected in this sample.
- H:** This flag indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
- L:** This flag indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
- Z:** This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:  
gasoline  
JP-4  
JP-8  
diesel  
mineral spirits  
motor oil  
Stoddard solvent  
bunker C
- Multiple flags may be used to indicate the presence of more than one product or component.



**ALS**  
**Data Qualifier Flags**  
**Chromatography and Mass Spectrometry**

- U or ND:** This flag indicates that the compound was analyzed for but not detected.
- J:** This flag indicates an estimated value. This flag is used as follows : (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the data indicate the presence of a compound that meets the identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.
- B:** This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.
- E:** This flag identifies compounds whose concentration exceeds the upper level of the calibration range.
- A:** This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.
- X:** This flag indicates that the analyte was diluted below an accurate quantitation level.
- \*:** This flag indicates that a spike recovery is outside the control criteria.
- +:** This flag indicates that the relative percent difference (RPD) exceeds the control criteria.

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

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**OrderNum:** 1202226

**Client Name:** COGCC

**Client Project Name:** Burkhart

**Client Project Number:** 25087038

**Client PO Number:**

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Burkhart 1/#200340214	1202226-1		WATER	20-Feb-12	12:00



# ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524  
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

## Chain-of-Custody

Form 202r8

WORKORDER #		1202226	
PAGE		1 of 1	
DISPOSAL		Ex Lab	
DATE		2/20/12	
TURNAROUND		5TD	
SAMPLER		Ashley K. Byrne	
SITE ID			
EDD FORMAT			
PURCHASE ORDER		COGCC	
BILL TO COMPANY		COGCC	
INVOICE ATTN TO		John Axelsson	
ADDRESS			
CITY / STATE / ZIP			
PHONE			
FAX			
E-MAIL		Jc.dellaport@terracore.com	

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC
①	Bidwell I / #200340417	GW	2/20/12	935	10	✓	✓
	Buckhart I / #20034024			1200	10	✓	✓
	Olson I / #20034017			1500	10	✓	✓

Dispersed Metals  
Anions / cations  
BTEX  
TPH - GLO & DRO  
Methane  
EC, TDS, pH

\*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:

Please include sulfate,  
nitrate/nitrite w/ Total N

Preservative Key:

1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	ASBY	Ashley K. Byrne	2/20/12	1700
RELINQUISHED BY	COGCC	COGCC	2-20-12	1700
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



## CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCCWorkorder No: 1202226Project Manager: AWInitials: CDT Date: 2-20-12

1. Does this project require any <b>special handling</b> in addition to standard Paragon procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody <b>seals</b> on <b>shipping containers</b> intact?	<input checked="" type="radio"/> NONE	YES	NO
3. Are Custody seals on <b>sample containers</b> intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a <b>COC (Chain-of-Custody)</b> present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the <b>COC and bottle labels complete and legible</b> ?		<input checked="" type="radio"/> YES	NO
6. Is the <b>COC in agreement</b> with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were <b>airbills / shipping documents</b> present and/or removable?	<input checked="" type="radio"/> DROP OFF	YES	NO
8. Are all <b>aqueous samples requiring preservation preserved correctly?</b> (excluding volatiles)	N/A	<input checked="" type="radio"/> YES	NO
9. Are all aqueous <b>non-preserved samples pH 4-9?</b>	N/A	<input checked="" type="radio"/> YES	NO
10. Is there <b>sufficient sample</b> for the requested analyses?		YES	<input checked="" type="radio"/> NO
11. Were all samples placed in the <b>proper containers</b> for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within <b>holding times</b> for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received <b>intact?</b> (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring <b>no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon)</b> headspace free? <b>Size of bubble:</b> _____ < green pea _____ > green pea	N/A	<input checked="" type="radio"/> YES	NO
15. Do perchlorate LCMS-MS samples <b>have</b> headspace? (at least 1/3 of container required)	<input checked="" type="radio"/> N/A	YES	NO
16. Were samples checked for and free from the presence of <b>residual chlorine?</b> (Applicable when PM has indicated samples are from a chlorinated water source; note if field preservation with sodium thiosulfate was not observed.)	<input checked="" type="radio"/> N/A	YES	NO
17. Were the samples <b>shipped on ice?</b>		<input checked="" type="radio"/> YES	NO
18. Were cooler temperatures measured at 0.1-6.0°C? <b>IR gun used*:</b> #2 <input checked="" type="radio"/> #4		<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.4</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>NA</u>			
Background µR/hr reading: <u>NA</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / <input checked="" type="radio"/> NA (If no, see Form 008.)			

**Additional Information:** PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

RECEIVED 6 total UOA VIALS, SO ASSIGNED 2 FOR EACH ANALYSIS.

2/22/12: cancelled NO2/NO3 by 353.2 due to samples bottles being left out of cooler overnight. Replaced analysis with 300.0 NO2 and 300.0 NO3. aw 2/22/12

If applicable, was the client contacted? ☒ YES / ☒ NO / ☒ NA Contact: John Axelson aw 2/22/12 Date/Time: 2/22/12Project Manager Signature / Date: C. Wolf 2/21/12

# Gasoline Range Organics

Method SW8015B

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1202226

Client Name: COGCC

ClientProject ID: Burkhart 25087038

Lab ID: HCG120223-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 23-Feb-12

Date Analyzed: 23-Feb-12

Prep Method: SW5030 Rev C

Prep Batch: HCG120223-1

QCBatchID: HCG120223-1-1

Run ID: HCG120223-1A

Cleanup: NONE

Basis: N/A

File Name: 06250.dat

Sample Aliquot: 5 ml

Final Volume: 5 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
8006-61-9	GASOLINE RANGE ORGANICS	1	0.1	0.1	U	

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
193533-92-5	2,3,4-TRIFLUOROTOLUENE	0.0927		0.1	93	74 - 129

Data Package ID: HCG1202226-1

Date Printed: Wednesday, February 29, 2012

ALS Environmental -- FC

LIMS Version: 6.568

Page 1 of 1

# Gasoline Range Organics

Method SW8015 Revision B

## Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1202226

Client Name: COGCC

ClientProject ID: Burkhart 25087038

Field ID:	Burkhart 1/#200340214	Sample Matrix:	WATER	Prep Batch:	HCG120223-1	Analyst:	Brendon Howard
Lab ID:	1202226-1	% Moisture:	N/A	QCBatchID:	HCG120223-1-1	Sample Aliquot:	5ML
		Date Collected:	20-Feb-12	Run ID:	HCG120223-1A	Final Volume:	5ML
		Date Extracted:	23-Feb-12	Cleanup:	NONE	Result Units:	MG/L
		Date Analyzed:	23-Feb-12	Basis:	As Received	Clean DF:	1
		Prep Method:	SW5030 Rev C	File Name:	06256.dat		

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
8006-61-9	GASOLINE RANGE ORGANICS	1	0.1	0.1	U	

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
193533-92-5	2,3,4-TRIFLUOROTOLUENE	0.096		0.1	96	74 - 129

Data Package ID: HCG1202226-1

# Gasoline Range Organics

## Method SW8015B

### Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1202226

Client Name: COGCC

ClientProject ID: Burkhart 25087038

Lab ID: HCG120223-1LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 02/23/2012

Date Analyzed: 02/23/2012

Prep Method: SW5030C

Prep Batch: HCG120223-1

QCBatchID: HCG120223-1-1

Run ID: HCG120223-1A

Cleanup: NONE

Basis: N/A

File Name: 06249.dat

Sample Aliquot: 5 ml

Final Volume: 5 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
8006-61-9	GASOLINE RANGE ORGANICS	1	1.16	0.1		116	79 - 118%

Lab ID: HCG120223-1LCSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 02/23/2012

Date Analyzed: 02/23/2012

Prep Method: SW5030C

Prep Batch: HCG120223-1

QCBatchID: HCG120223-1-1

Run ID: HCG120223-1A

Cleanup: NONE

Basis: N/A

File Name: 06263.dat

Sample Aliquot: 5 ml

Final Volume: 5 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
8006-61-9	GASOLINE RANGE ORGANICS	1	1.12	0.1		112	20	4

### Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
193533-92-5	2,3,4-TRIFLUOROTOLUENE	0.1	100		94		74 - 129

Data Package ID: HCG1202226-1



### CONTROLLED NON-CONFORMANCE REPORT

#### Non-Conformance

**Initiated By:** Dan M. Sheneman on 2/24/2012

**Event Type:** deviation from method

**Event Explanation:** Sample vials (GRO only) for W.O. 1202225-1, 1202226-1 and 1202227-1 were at room temperature starting the afternoon of 02/22/12 until 9:00 am on 02/23/12. This amount of time is similar to the amount of time a sample can sit at room temperature while running on the instrument. We have demonstrated that the target compound remains in solution during this time period because quality control samples are in control after sitting at room temperature overnight. In addition, the samples were non-detect, contained no headspace, and were preserved with HCL. The vials used for 8260 were in control for the temperature and were non-detect for all compounds.

Because individual vials were not labeled with the test and the vial amount was less than what is recommended, the vials provided were assumed to be for a different test that had already been analyzed.

**Action To**

**Prevent Recurrence:** To prevent this from happening in the future, a new refrigerator has been designated for only methane vials. All samples will be put in this unit at the time of preparation.

#### Corrective Action

**Corrective Action:** Document in Narrative

**Department Manager Approval:** Roy French

**Approval Date:** 2/24/2012

**Corrective Action Comments:**

#### Workorders Affected

**Workorder -- Procedure**

1202225 -- SW5030  
1202225 -- SW8015  
1202226 -- SW5030  
1202226 -- SW8015  
1202227 -- SW5030  
1202227 -- SW8015

No client contact information.

**Approved By**

Amy R. Wolf

**Approval Date**

2/24/2012

#### Associated Batches

The samples were originally associated with the following Batch(es):

HCG120223-1 created on 2/23/2012

All rework was completed in the following Batch(es):

Not Applicable



**NCR #:** 13453

## **CONTROLLED** NON-CONFORMANCE REPORT

### **NCR Approval**

**Project Manager Approval:** ARW on 2/24/2012

**Department Manager Approval:** Roy French on 2/24/2012

**QA Manager Approval:**