Gulf Coast ACCUTEST LABORATORIES

05/23/12

# Technical Report for

## EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8540

Sampling Date: 05/12/12

Report to:

EarthCon Consultants
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Stafford, TX 77477
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mcpatton@rangeresources.com; escott@earthcon.com;
ATTN: Gabriela Floreslovo

Total number of pages in report: 25

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul K Canevaro

Paul Canevaro
Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366)
LA (85695/04004) OK (211-035)

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Test results relate only to samples analyzed.



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# Sample Summary

EarthCon Consultants

**Job No:** TC8540

First Quarterly Well Sampling, Parker County, Texas

| Sample Number | Collected Date | Time | By | Received | Matrix Code | Type | Client Sample ID |
|---|---|---|---|---|---|---|---|
| TC8540-1 | 05/12/12 | 16:40 | | 05/15/12 | AQ | Ground Water | WWW10-HAY-051212 |

# SAMPLE DELIVERY GROUP CASE NARRATIVE

| | | | |
|---|---|---|---|
| **Client:** | EarthCon Consultants | **Job No** | TC8540 |
| **Site:** | First Quarterly Well Sampling, Parker County, Texas | **Report Date** | 5/23/2012 4:35:36 PM |

1 Sample was collected on 05/12/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8540. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

## Volatiles by GCMS By Method SW846 8260B

**Matrix** AQ **Batch ID:** VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

## Volatiles by GC By Method RSKSOP-147/175

**Matrix** AQ **Batch ID:** GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

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## Sample Results

Report of Analysis

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | WWW10-HAY-051212 | | |
| **Lab Sample ID:** | TC8540-1 | **Date Sampled:** | 05/12/12 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/15/12 |
| **Method:** | SW846 8260B | **Percent Solids:** | n/a |
| **Project:** | First Quarterly Well Sampling, Parker County, Texas | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | E0017770.D | 1 | 05/17/12 | MH | n/a | n/a | VE812 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Purgeable Aromatics**

| CAS No. | Compound | Result | MQL | SDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | 0.00049 | 0.0010 | 0.00025 | mg/l | J |
| 108-88-3 | Toluene | 0.00026 U | 0.0010 | 0.00026 | mg/l | |
| 100-41-4 | Ethylbenzene | 0.00025 U | 0.0010 | 0.00025 | mg/l | |
| 1330-20-7 | Xylene (total) | 0.00071 U | 0.0030 | 0.00071 | mg/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 94% | | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 99% | | 75-121% |
| 2037-26-5 | Toluene-D8 | 98% | | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 97% | | 80-133% |

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | WWW10-HAY-051212 | | |
| **Lab Sample ID:** | TC8540-1 | **Date Sampled:** | 05/12/12 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/15/12 |
| **Method:** | RSKSOP-147/175 | **Percent Solids:** | n/a |
| **Project:** | First Quarterly Well Sampling, Parker County, Texas | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | SS002614.D | 1 | 05/22/12 | FI | n/a | n/a | GSS132 |
| Run #2 | SS002615.D | 5 | 05/22/12 | FI | n/a | n/a | GSS132 |

| CAS No. | Compound | Result | MQL | SDL | Units | Q |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 0.486 [a] | 0.0025 | 0.0015 | mg/l | |
| 74-85-1 | Ethene | 0.00050 U | 0.0010 | 0.00050 | mg/l | |
| 74-84-0 | Ethane | 0.0938 | 0.0010 | 0.00050 | mg/l | |
| 74-98-6 | Propane | 0.0340 | 0.0015 | 0.00075 | mg/l | |
| 75-28-5 | Isobutane | 0.0033 | 0.0015 | 0.00075 | mg/l | |
| 106-97-8 | Butane | 0.00713 | 0.0015 | 0.00075 | mg/l | |

(a) Result is from Run# 2

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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## Misc. Forms

### Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form

# CHAIN OF CUSTODY

PAGE ___ OF ___

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| | |
|---|---|
| FED-EX Tracking # | Bottle Order Control # TC8540 |
| Accutest Quote # | Accutest Job # |

**Client / Reporting Information**

Company Name: EarthCon Consultants, Inc.
Street Address: 4800 Sugar Grove Blvd., Suite 390
City / State / Zip: Stafford TX 77477
Project Contact: Gabriela Floreslovo
E-mail:
Phone #: 281-201-3513
Fax #:
Sampler(s) Name(s): Kathleen Buxton
Phone #: 281-240-5200

**Project Information**

Project Name: First Quarterly Well Sampling, Parker County, Texas
Street:
City / State:
Project #:
Client Purchase Order #:
Project Manager:

**Billing Information ( if different from Report to)**

Company Name:
Street Address:
City / State / Zip:
Attention:

**Requested Analyses**

**Matrix Codes**: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank

| Accutest Sample # | Field ID / Point of Collection | Collection Date | Collection Time | Sampled By | Matrix | # of bottles | HCl | NaOH | ZA/NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | TSP | NaHSO4 | ENCORE | OTHER | BTEX 8260B | Butane, Ethane, Ethene, Isobutane, Methane, Propane by RSK-175 | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | WWW10-HAY-051212 | 5/12/12 | 16:40 | KB | W | 6 | X | | | | | | | | | | | | X | X | |

**Turnaround Time ( Business days)**

- [X] Standard
- [ ] 5 Day *RUSH*
- [ ] 4 Day *RUSH*
- [ ] 3 Day *RUSH*
- [ ] 2 Day *RUSH*
- [ ] 1 Day *EMERGENCY*

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" ( Level 2)
- [ ] FULT1 ( Level 3+4 )
- [ ] REDT1 ( Level 3+4 )
- [ ] Commercial "C"
- [X] TRRP
- [ ] EDD Format
- [ ] Other _____

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC & Surrogate Summary

**Comments / Special Instructions**

**Sample Custody must be documented below each time samples change possession, including courier delivery.**

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 [signature] | 5/14/12 1300 | 1 Fedex | 2 [signature] | 5/15/12 9:45 | 2 [signature] |
| Relinquished by Sampler: 3 | Date Time: | Received By: 3 | Relinquished By: 4 | Date Time: | Received By: 4 |
| Relinquished by: 5 | Date Time: | Received By: 5 | Custody Seal # | [ ] Intact [ ] Not intact | Preserved where applicable [ ] |

On Ice: [X] Cooler Temp: 2.8

4.1

4

**TC8540: Chain of Custody**
**Page 1 of 4**

# Accutest Laboratories Sample Receipt Summary



**Accutest Job Number:** TC8540 **Client:** EARTHCON **Project:** FIRST QUARTERLY WELL SAMPLING PARKER

**Date / Time Received:** 5/15/2012 **Delivery Method:** FedEx **Airbill #'s:** 800040672089

**No. Coolers:** 1 **Therm ID:** IRGUN5 **Temp Adjustment Factor:** -0.5

**Cooler Temps (Initial/Adjusted):** #1: (3.3/2.8)

| Cooler Security | Y | or N | | Y | or N |
|---|---|---|---|---|---|
| 1. Custody Seals Present: | ☑ | ☐ | 3. COC Present: | ☑ | ☐ |
| 2. Custody Seals Intact: | ☑ | ☐ | 4. Smpl Dates/Time OK | ☑ | ☐ |

| Cooler Temperature | Y | or N |
|---|---|---|
| 1. Temp criteria achieved: | ☑ | ☐ |
| 2. Cooler temp verification: | Infared Gun | |
| 3. Cooler media: | Ice (Bag) | |

| Quality Control Preservatio | Y | or N | N/A | WTB | STB |
|---|---|---|---|---|---|
| 1. Trip Blank present / cooler: | ☑ | ☐ | ☐ | ☑ | ☐ |
| 2. Trip Blank listed on COC: | ☐ | ☑ | ☐ | | |
| 3. Samples preserved properly: | ☑ | ☐ | | | |
| 4. VOCs headspace free: | ☑ | ☐ | ☐ | | |

| Sample Integrity - Documentation | Y | or N |
|---|---|---|
| 1. Sample labels present on bottles: | ☑ | ☐ |
| 2. Container labeling complete: | ☑ | ☐ |
| 3. Sample container label / COC agree: | ☑ | ☐ |

| Sample Integrity - Condition | Y | or N |
|---|---|---|
| 1. Sample recvd within HT: | ☑ | ☐ |
| 2. All containers accounted for: | ☑ | ☐ |
| 3. Condition of sample: | Intact | |

| Sample Integrity - Instructions | Y | or N | N/A |
|---|---|---|---|
| 1. Analysis requested is clear: | ☑ | ☐ | |
| 2. Bottles received for unspecified tests | ☐ | ☑ | |
| 3. Sufficient volume recvd for analysis: | ☑ | ☐ | |
| 4. Compositing instructions clear: | ☐ | ☐ | ☑ |
| 5. Filtering instructions clear: | ☐ | ☐ | ☑ |

Comments Trip blank is reported in job TC8536.

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**TC8540: Chain of Custody**
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# Problem Resolution

**Accutest Job Number:** TC8540

**CSR:** Elessa Sommers

**Response Date:** 5/16/2012

**Response:** Trip blank is reported in job TC8536.

# Sample Receipt Log

**Job #:** TC8540 **Date / Time Received:** 5/15/2012 **Initials:** BG

**Client:** EARTHCON

| Cooler # | Sample ID: | Vol | Bot # | Location | Pres | pH | Therm ID | Initial Temp | Therm CF | Corrected Temp |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | TC8540-1 | 40ml | 1 | VR | HCL | Note #1 - Preservative to be checked by analyst at the instrument. | IRGUN5 | 3.3 | -0.5 | 2.8 |
| 1 | TC8540-1 | 40ml | 2 | VR | HCL | Note #1 - Preservative to be checked by analyst at the instrument. | IRGUN5 | 3.3 | -0.5 | 2.8 |
| 1 | TC8540-1 | 40ml | 3 | VR | HCL | Note #1 - Preservative to be checked by analyst at the instrument. | IRGUN5 | 3.3 | -0.5 | 2.8 |
| 1 | TC8540-1 | 40ml | 4 | VR | HCL | Note #1 - Preservative to be checked by analyst at the instrument. | IRGUN5 | 3.3 | -0.5 | 2.8 |
| 1 | TC8540-1 | 40ml | 5 | VR | HCL | Note #1 - Preservative to be checked by analyst at the instrument. | IRGUN5 | 3.3 | -0.5 | 2.8 |
| 1 | TC8540-1 | 40ml | 6 | VR | HCL | Note #1 - Preservative to be checked by analyst at the instrument. | IRGUN5 | 3.3 | -0.5 | 2.8 |



**TC8540: Chain of Custody**
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# Appendix A Laboratory Data Package Cover Page

TC8540 This data package consists of

- ☐ This signature page, the laboratory review checklist, and the following reportable data:
- ☐ R1 Field chain-of-custody documentation;
- ☐ R2 Sample identification cross-reference;
- ☐ R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☐ R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☐ R5 Test reports/summary forms for blank samples;
- ☐ R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- ☐ R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☐ R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- ☐ R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each
- ☐ R10 Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

**Release Statement:** I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Report. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld.

**Check, if applicable:** This laboratory meets an exception under 30 TAC&25.6 and was last inspection by

[ ] [X ] TCEQ or [ ] _____ on April 2011. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

**QA Manager**

| Name (Printed) | Signature | Official Title (printed) | Date |
|---|---|---|---|
| Paul Canevaro | Paul K Canevaro | Laboratory Director | 5/23/2012 |

# LABORATORY REVIEW CHECKLIST: REPORTABLE DATA

| | | | |
|---|---|---|---|
| Laboratory Name: | **Accutest Gulf Coast** | LRC Date: | **5/23/2012** |
| Project Name: | **First Quarterly Well Sampling, Parker County, Texas** | Laboratory Project Number: | **TC8540** |
| Reviewer Name: | **Elessa Sommers** | Prep Batch Number(s): | **GSS132, VE812** |

| #[1] | A[2] | DESCRIPTION | YES | NO | NA[3] | NR[4] | ER #[5] |
|---|---|---|---|---|---|---|---|
| **R1** | **OI** | **CHAIN-OF-CUSTODY (C-O-C):** | | | | | |
| | | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | X | | | | |
| | | Were all departures from standard conditions described in an exception report? | X | | | | |
| **R2** | **OI** | **Sample and quality control (QC) identification** | | | | | |
| | | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | X | | | | |
| | | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | X | | | | |
| **R3** | **OI** | **Test reports** | | | | | |
| | | Were samples prepared and analyzed within holding times? | X | | | | |
| | | Other than those results <MQL, were all other raw values bracketed by calibration standards? | X | | | | |
| | | Were calculations checked by a peer or supervisor? | X | | | | |
| | | Were all analyte identifications checked by a peer or supervisor? | X | | | | |
| | | Were sample detection limits reported for all analytes not detected? | X | | | | |
| | | Were all results for soil and sediment samples reported on a dry weight basis? | | | X | | |
| | | Were % moisture (or solids) reported for all soil and sediment samples? | | | X | | |
| | | Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035? | | | X | | |
| | | If required for the project, are TIC's reported? | | | X | | |
| **R4** | **O** | **Surrogate recovery data** | | | | | |
| | | Were surrogates added prior to extraction? | X | | | | |
| | | Were surrogate percent recoveries in all samples within the laboratory QC limits? | X | | | | |
| **R5** | **OI** | **Test reports/summary forms for blank samples** | | | | | |
| | | Were appropriate type(s) of blanks analyzed? | X | | | | |
| | | Were blanks analyzed at the appropriate frequency? | X | | | | |
| | | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | X | | | | |
| | | Were blank concentrations <MQL? | X | | | | |
| **R6** | **OI** | **Laboratory control samples (LCS):** | | | | | |
| | | Were all COCs included in the LCS? | X | | | | |
| | | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | X | | | | |
| | | Were LCSs analyzed at required frequency? | X | | | | |
| | | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | X | | | | |
| | | Does the detectablility check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs? | X | | | | **2** |
| | | Was the LCSD RPD within QC limits? | | | X | | |
| **R7** | **OI** | **Matrix spike (MS) and matrix spike duplicate (MSD) data** | | | | | |
| | | Were the project/method specified analytes included in the MS and MSD? | X | | | | |
| | | Were MS/MSD analyzed at the appropriate frequency? | X | | | | |
| | | Were MS (and MSD, if applicable) %Rs within the laboratory QC Limits? | | X | | | **1** |
| | | Were the MS/MSD RPDs within laboratory QC limits? | X | | | | |
| **R8** | **OI** | **Analytical duplicate data** | | | | | |
| | | Were appropriate analytical duplicates analyzed for each matrix? | X | | | | |
| | | Were analytical duplicates analyzed at the appropriate frequency? | X | | | | |
| | | Were RPDs or relative standard deviations within the laboratory QC limits? | | X | | | **1** |
| **R9** | **OI** | **Method quantitation limits (MQLs):** | | | | | |
| | | Are the MQLs for each method analyte included in the laboratory data package? | X | | | | |
| | | Do the MQLs correspond to the concentration of the lowest non-zero calibration | X | | | | |
| | | Are unadjusted MQLs and DCSs included in the laboratory data package? | | X | | | **3** |
| **R10** | **OI** | **Other problems/anomalies** | | | | | |
| | | Are all known problems/anomalies/special conditions noted in this LRC and ER? | X | | | | |
| | | Was applicable and available technology used to lower the SDL to minimize the | X | | | | |
| | | Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices, and methods associated with this laboratory data package? | X | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Laboratory Name: | | **Accutest Gulf Coast** | LRC Date: | **5/23/2012** | | | | |
| Project Name: | | **First Quarterly Well Sampling, Pa** | Laboratory Project Number: | **TC8540** | | | | |
| Reviewer Name: | | **Elessa Sommers** | Prep Batch Number(s): | **GSS132, VE812** | | | | |
| #[1] | A[2] | DESCRIPTION | | YES | NO | NA[3] | NR[4] | ER #[5] |
| **S1** | **OI** | **Initial calibration (ICAL)** | | | | | | |
| | | Were response factors and/or relative response factors for each analyte within QC limits? | | X | | | | |
| | | Were percent RSDs or correlation coefficient criteria met? | | X | | | | |
| | | Was the number of standards recommended in the method used for all analytes? | | X | | | | |
| | | Were all points generated between the lowest and highest standard used to calculate the curve? | | X | | | | |
| | | Are ICAL data available for all instruments used? | | X | | | | |
| | | Has the initial calibration curve been verified using an appropriate second source standard? | | X | | | | |
| **S2** | **OI** | **Initial and continuing calibration verification (ICCV AND CCV) and continuing** | | | | | | |
| | | Was the CCV analyzed at the method-required frequency? | | X | | | | |
| | | Were percent differences for each analyte within the method-required QC limits? | | X | | | | |
| | | Was the ICAL curve verified for each analyte? | | X | | | | |
| | | Was the absolute value of the analyte concentration in the inorganic CCB<MDL? | | | | X | | |
| **S3** | **O** | **Mass spectral tuning** | | | | | | |
| | | Was the appropriate compound for the method used for tuning? | | X | | | | |
| | | Were ion abundance data within the method-required QC limits? | | X | | | | |
| **S4** | **O** | **Internal standards (IS)** | | | | | | |
| | | Were IS area counts and retention times within the method-required QC limits? | | X | | | | |
| **S5** | **OI** | **Raw data (NELAC Section 5.5.10)** | | | | | | |
| | | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | | X | | | | |
| | | Were data associated with manual integrations flagged on the raw data? | | X | | | | |
| **S6** | **O** | **Dual column confirmation** | | | | | | |
| | | Did dual column confirmation results meet the method-required QC? | | | | X | | |
| **S7** | **O** | **Tentatively identified compounds (TICs):** | | | | | | |
| | | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | | | | X | | |
| **S8** | **I** | **Interference Check Sample (ICS) results** | | | | | | |
| | | Were percent recoveries within method QC limits? | | | | X | | |
| **S9** | **I** | **Serial dilutions, post digestion spikes, and method of standard additions** | | | | | | |
| | | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | | | | X | | |
| **S10** | **OI** | **Method detection limit (MDL) studies** | | | | | | |
| | | Was a MDL study performed for each reported analyte? | | X | | | | |
| | | Is the MDL either adjusted or supported by the analysis of DCSs? | | X | | | | **2** |
| **S11** | **OI** | **Proficiency test reports** | | | | | | |
| | | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | | X | | | | |
| **S12** | **OI** | **Standards documentation** | | | | | | |
| | | Are all standards used in the analyses NIST-traceable or obtained from other appropriate source? | | X | | | | |
| **S13** | **OI** | **Compound/analyte identification procedures** | | | | | | |
| | | Are the procedures for compound/analyte identification documented? | | X | | | | |
| **S14** | **OI** | **Demonstration of analyst competency (DOC)** | | | | | | |
| | | Was DOC conducted consistent with NELAC Chapter 5? | | X | | | | |
| | | Is documentation of the analyst's competency up-to-date and on file? | | X | | | | |
| **S15** | **OI** | **Verification/validation documentation for methods (NELAC Chapter 5)** | | | | | | |
| | | Are all the methods used to generate the data documentated, verified, and validated, where applicable? | | X | | | | |
| **S16** | **OI** | **Laboratory standard operating procedures (SOPs)** | | | | | | |
| | | Are laboratory SOPs current and on file for each method performed? | | X | | | | |

# LABORATORY REVIEW CHECKLIST (continued): Exception Reports

| | | | |
|---|---|---|---|
| Laboratory Name: | **Accutest Gulf Coast** | LRC Date: | **5/23/2012** |
| Project Name: | **First Quarterly Well Sampling, Pa** | Laboratory Project Number: | **TC8540** |
| Reviewer Name: | **Elessa Sommers** | Prep Batch Number(s): | **GSS132, VE812** |

| ER#[1] | Description |
|---|---|
| 1 | All anomalies are discussed in the case narrative. |
| 2 | The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables. |
| 3 | For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package. |
| 4 | For reporting purposes, the MQL is defined in the report as the RL. The unadjusted MQL/RL is reported in the method blank. The SDL is defined in the report as the MDL. |
| | |
| | |
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| | |
| | |
| | |

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on

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# GC/MS Volatiles

## QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

# Method Blank Summary



**Job Number:** TC8540
**Account:** PESTXST EarthCon Consultants
**Project:** First Quarterly Well Sampling, Parker County, Texas

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| VE812-MB | E0017766.D | 1 | 05/17/12 | MH | n/a | n/a | VE812 |



**The QC reported here applies to the following samples:** **Method:** SW846 8260B

TC8540-1

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 1.0 | 0.25 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.25 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.26 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 3.0 | 0.71 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 94% | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 101% | 75-121% |
| 2037-26-5 | Toluene-D8 | 99% | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 97% | 80-133% |

# Blank Spike Summary



**Job Number:** TC8540
**Account:** PESTXST EarthCon Consultants
**Project:** First Quarterly Well Sampling, Parker County, Texas

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| VE812-BS | E0017764.D | 1 | 05/17/12 | MH | n/a | n/a | VE812 |



**The QC reported here applies to the following samples:** **Method:** SW846 8260B

TC8540-1

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 71-43-2 | Benzene | 25 | 24.4 | 98 | 76-118 |
| 100-41-4 | Ethylbenzene | 25 | 24.7 | 99 | 75-112 |
| 108-88-3 | Toluene | 25 | 23.7 | 95 | 77-114 |
| 1330-20-7 | Xylene (total) | 75 | 72.4 | 97 | 75-111 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 97% | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 103% | 75-121% |
| 2037-26-5 | Toluene-D8 | 100% | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 97% | 80-133% |

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** TC8540
**Account:** PESTXST EarthCon Consultants
**Project:** First Quarterly Well Sampling, Parker County, Texas

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| TC8215-7MS | E0017783.D | 10 | 05/17/12 | MH | n/a | n/a | VE812 |
| TC8215-7MSD | E0017784.D | 10 | 05/17/12 | MH | n/a | n/a | VE812 |
| TC8215-7 | E0017782.D | 10 | 05/17/12 | MH | n/a | n/a | VE812 |

**The QC reported here applies to the following samples:** **Method:** SW846 8260B

TC8540-1

| CAS No. | Compound | TC8215-7 ug/l | Q | Spike ug/l | MS ug/l | MS % | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | 1030 | | 250 | 1260 | 92 | 1280 | 100 | 2 | 76-118/16 |
| 100-41-4 | Ethylbenzene | 26.7 | | 250 | 272 | 98 | 267 | 96 | 2 | 75-112/12 |
| 108-88-3 | Toluene | ND | | 250 | 246 | 98 | 240 | 96 | 2 | 77-114/12 |
| 1330-20-7 | Xylene (total) | 70.6 | | 750 | 809 | 98 | 794 | 96 | 2 | 75-111/12 |

| CAS No. | Surrogate Recoveries | MS | MSD | TC8215-7 | Limits |
|---|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 92% | 94% | 92% | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 98% | 100% | 99% | 75-121% |
| 2037-26-5 | Toluene-D8 | 98% | 97% | 96% | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 99% | 95% | 98% | 80-133% |

Gulf Coast ACCUTEST LABORATORIES



## GC Volatiles

## QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

# Method Blank Summary



**Job Number:** TC8540
**Account:** PESTXST EarthCon Consultants
**Project:** First Quarterly Well Sampling, Parker County, Texas

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| GSS132-MB | SS002610.D | 1 | 05/22/12 | FI | n/a | n/a | GSS132 |

**The QC reported here applies to the following samples:** **Method:** RSKSOP-147/175

TC8540-1

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | ND | 0.50 | 0.30 | ug/l | |
| 74-85-1 | Ethene | ND | 1.0 | 0.50 | ug/l | |
| 74-84-0 | Ethane | ND | 1.0 | 0.50 | ug/l | |
| 74-98-6 | Propane | ND | 1.5 | 0.75 | ug/l | |
| 75-28-5 | Isobutane | ND | 1.5 | 0.75 | ug/l | |
| 106-97-8 | Butane | ND | 1.5 | 0.75 | ug/l | |

# Blank Spike Summary



**Job Number:** TC8540
**Account:** PESTXST EarthCon Consultants
**Project:** First Quarterly Well Sampling, Parker County, Texas

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| GSS132-BS | SS002611.D | 1 | 05/22/12 | FI | n/a | n/a | GSS132 |

**The QC reported here applies to the following samples:** **Method:** RSKSOP-147/175

TC8540-1

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 74-82-8 | Methane | 21.5 | 20.9 | 97 | 70-130 |
| 74-85-1 | Ethene | 57.4 | 60.1 | 105 | 70-130 |
| 74-84-0 | Ethane | 43.3 | 43.5 | 100 | 70-130 |
| 74-98-6 | Propane | 60.6 | 60.3 | 100 | 70-130 |
| 75-28-5 | Isobutane | 72.5 | 70.2 | 97 | 70-130 |
| 106-97-8 | Butane | 76.6 | 69.0 | 90 | 70-130 |

# Matrix Spike Summary



**Job Number:** TC8540
**Account:** PESTXST EarthCon Consultants
**Project:** First Quarterly Well Sampling, Parker County, Texas

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| TC8541-1MS | SS002618.D | 1 | 05/22/12 | FI | n/a | n/a | GSS132 |
| TC8541-1 | SS002616.D | 1 | 05/22/12 | FI | n/a | n/a | GSS132 |
| TC8541-1 | SS002617.D | 5 | 05/22/12 | FI | n/a | n/a | GSS132 |

**The QC reported here applies to the following samples:** **Method:** RSKSOP-147/175

TC8540-1

| CAS No. | Compound | TC8541-1 ug/l | Q | Spike ug/l | MS ug/l | MS % | Limits |
|---|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 357 [b] | | 21.5 | 487 | 605* [a] | 60-140 |
| 74-85-1 | Ethene | 1.0 U | | 57.4 | 46.1 | 80 | 60-140 |
| 74-84-0 | Ethane | 3.27 | | 43.3 | 42.8 | 91 | 60-140 |
| 74-98-6 | Propane | 1.5 U | | 60.6 | 54.6 | 90 | 60-140 |
| 75-28-5 | Isobutane | 1.5 U | | 72.5 | 64.2 | 88 | 60-140 |
| 106-97-8 | Butane | 1.5 U | | 76.6 | 62.0 | 81 | 60-140 |

(a) Outside control limits due to high level in sample relative to spike amount.
(b) Result is from Run #2.

# Duplicate Summary



**Job Number:** TC8540
**Account:** PESTXST EarthCon Consultants
**Project:** First Quarterly Well Sampling, Parker County, Texas

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| TC8546-1DUP | SS002628.D | 1 | 05/22/12 | FI | n/a | n/a | GSS132 |
| TC8546-1 | SS002627.D | 1 | 05/22/12 | FI | n/a | n/a | GSS132 |

**The QC reported here applies to the following samples:** **Method:** RSKSOP-147/175

TC8540-1

| CAS No. | Compound | TC8546-1 ug/l | Q | DUP ug/l | Q | RPD | Limits |
|---|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 140 | | 0.184 | | 199* | 30 |
| 74-85-1 | Ethene | 1.0 U | | ND | | nc | 30 |
| 74-84-0 | Ethane | 8.04 | | 0.0100 | | 200* | 30 |
| 74-98-6 | Propane | 1.5 U | | ND | | nc | 30 |
| 75-28-5 | Isobutane | 1.5 U | | ND | | nc | 30 |
| 106-97-8 | Butane | 1.5 U | | ND | | nc | 30 |