CHECKLIST FOR FILING A UIC PERMIT APPLICATION

Please utilize this checklist to ensure you have prepared, completed, and enclosed all required documentation and payment to ensure a timely review of your submittal.

Operator	EXCO Resources (PA), LLC		
Existing UIC Permit ID Number	2D0392419	UIC Well API Number	47-039-02419

Office of Oil and Gas Office Use Only	
Permit Reviewer	ZGS
Date Received	6/24/2014
Administratively Complete Date	6/24/2014
Approved Date	
Permit Issued	

Please check the fees and payment included.

Fees		Payment Type	
UIC Permit Fee: $500	✓	Check	✓
Groundwater Protection Plan (GPP) Fee: $50.00	✓	Electronic	
		Other	

Please check the items completed and enclosed.

- ✓ Checklist
- ✓ UIC-1
  - ✓ Section 1 – Facility Information
  - ✓ Section 2 – Operator Information
  - ✓ Section 3 – Application Information
  - ✓ Section 4 – Applicant/Activity Request and Type
  - ✓ Section 5 – Brief description of the Nature of the Business
  - ✓ CERTIFICATION
- ✓ Section 6 – Construction
  - ✓ Appendix A Injection Well Form
  - ✓ Appendix B Storage Tank Inventory
- ✓ Section 7 – Area of Review
  - ✓ Appendix C Wells Within the Area of Review

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- [x] Appendix D Public Service District Affidavit
- [x] Appendix E Water Sources
- [x] Appendix F Area Permit Wells
- [x] Section 8 – Geological Data on Injection and Confining Zones
- [x] Section 9 – Operating Requirements / Data
  - [x] Appendix G Wells Serviced by Injection Well
- [x] Section 10 – Monitoring
- [x] Section 11 – Groundwater Protection Plan (GPP)
  - [x] Appendix H Groundwater Protection Plan (GPP)
- [x] Section 12 – Plugging and Abandonment
- [x] Section 13 – Additional Bonding
- [ ] Section 14 – Financial Responsibility
  - [x] Appendix I Financial Responsibility
- [x] Section 15 – Site Security Plan
  - [x] Appendix J Site Security for Commercial Wells
- [ ] Section 16 – Additional Information
  - [ ] Appendix K Other Permit Approvals

NOTE: For all 2D wells an additional bond in the amount of $5,000 is required.

Reviewed by (Print Name): Brian E. Rushe, P.E. w/ EXCO

Reviewed by (Sign): Brian E. Rushe

Date Reviewed: 10/17/14

UIC-1
(4/25)

WEST VIRGINIA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
601 57th Street, SE
Charleston, WV 25304
(304) 926-0450
www.dep.wv.gov/oil-and-gas

UNDERGROUND INJECTION CONTROL (UIC) PERMIT APPLICATION

UIC PERMIT ID # 2D0392419 API # 47-039-02419 WELL # L.C. Wilson #4

Section I. Facility Information

Facility Name: L.C. Wilson #4

Address: P.O. Box 277

City: Pinch State: WV Zip: 25156

County: Kanawha

Location description:

On the waters of Wills Creek of the Little Sandy River in Elk District of Kanawha County. Approximate latitude 38.494024 and Longitude of -81.437139 degrees.

Location of well(s) or approximate center of field/project in UTM NAD 83 (meters):

Northing: 4260720.9 Easting: 461879.2

Environmental Contact Information:

Name: Brian E. Rushe, P.E. Title: Construction & Regulatory Manager

Phone: 724-720-2590 Email: brushe@excoresources.com

Section 2. Operator Information

Operator Name: EXCO Resources (PA), LLC

Operator ID: 285505

Address:

City: Cranberry Township State: PA Zip: 16066

County: Butler

Contact Name: Brian E. Rushe, P.E. Contact Title: Construction & Regulatory Manager

Contact Phone: 724-720-2590 Contact Email: brushe@excoresources.com

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Promoting a healthy environment.

Section 3. Applicant Information

Ownership Status: ☒ PRIVATE ☐ PUBLIC ☐ FEDERAL ☐ STATE
☐ OTHER (explain):

SIC code: ☒ 1311 (2D, 2H, 2R) ☐ 1479 (3S) ☐ OTHER (explain):

Section 4. Applicant / Activity Request and Type:

A. Apply for a new UIC Permit: ☐ 2D ☐ 2H ☐ 2R ☐ 3S
B. Reissue existing UIC Permit: ☒ 2D ☐ 2H ☐ 2R ☐ 3S
C. Modify existing UIC Permit: ☐ 2D ☐ 2H ☐ 2R ☐ 3S
(Submit only documentation pertaining to the modification request)

2D COMMERCIAL FACILITY: ☐ YES ☒ NO

Section 5. Briefly describe the nature of business and the activities to be conducted:

Renewal of an underground injection control (UIC) permit for the subsurface injection of produced fluids.

CERTIFICATION

All permit applications must be signed by a responsible corporate officer for a corporation, by a general partner for a partnership, by the proprietor of a sole proprietorship, or by a principal executive or ranking elected official for a public agency, or a [1]duly authorized representative in accordance with 47CSR13-13.11.b.

A. Name and title of person applying for permit:

Print Name: Brian E. Rushe, P.E.

Print Title: Construction & Regulatory Manager

B. Signature and Date.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Signature: Brian E. Rushe

Date: 10/17/14

[1] A person is a duly authorized representative if:

The authorization is made in writing by a person described in subdivision 47CSR13-13.11.a.

The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of the plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility.

The written authorization is submitted to the Director.

EXCO Resources (PA), LLC
260 Executive Drive • Suite 100 • Cranberry Township, PA 16066
Phone (724) 720-2500 • Fax: (724) 720-2505

October 17, 2014

West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
Attn: Mr. Zachary Stevison

RE: Response to UIC Permit Deficiency Letter
L.C. Wilson #4 Well
UIC Permit # 2D0392419

Dear Mr. Stevison:

The following are our responses to your Deficiency Letter dated September 9, 2014.

1. *Provide a completed UIC Permit Application Checklist.*

   RESPONSE: A completed checklist is attached.

2. *Section 4 – Applicant/Activity Request and Type:*
   a. *Specify the commercial status of the injection well permit application*

   RESPONSE: The L.C. Wilson #4 UIC well only accepts and injects fluids from EXCO. No other oil and gas operator injects their fluids into that well. Therefore, the L.C. Wilson #4 is NOT 2D Commercial Facility. A revised UIC Permit Application is attached.

3. *Section 6 – Construction:*
   a. *Inadequate information has been provided "An aerial map or appropriate drawing(s) of the proposed UIC injection well(s) facility/project area. This map focuses on the surface and near surface structures associated with the UIC activities. Included must be all intakes and discharge structures, storage, groundwater supply sources, pipelines, pumps, valves, tank or tank battery, secondary containment, and/or other fluid storage structures. The submitted surface map/drawing should include, but is not limited to: legend/key, scale, and orientation (i.e. north arrow, compass)." The submitted aerial UIC facility map shall include all pertinent operational surface structures that provide fluid to the injection. Appendix J states injection fluids are piped from tanks 3,000 feet from well head. Include said tank facility showing all requirements outline above, as well as secondary containment volumetric calculations (shall contain 110% of the volume of the largest tank), and all fluid unloading sites and/or pipeline supplying injection fluids.*

RESPONSE: A Detailed Map has been enclosed that shows the injection well filter station, tank pad and pipeline supplying the injection fluid to the well.

b. *Provide the elevation (feet AMSL) of the tank facility.*

RESPONSE: The tank pad elevation is 855.82 feet and is shown on the attached Detailed Map.

c. *Well schematic/cross-section of the proposed injection well including all components outline in Class 2 and 3 UIC Permit Application Package, as well as the previous "plug-back" construction of well 47-039-02419.*

RESPONSE: Attached is a revised well schematic for the L.C. Wilson #4 injection well.

4. *Section 7 – Area of Review:*

a. *Applicant failed to submit a completed Appendix C – Wells within the Area of Review. The proposed ¼ mi AOR radius contains 17 wells that require corrective action. The following wells require documentation of adequate cement casing about the Salt Sand injection zone, Affidavit of Plugging and Filling Well (must protect all USDWs), and/or alternative corrective action:*

i. 47-039-02417	*x. 47-039-02517*
ii. 47-039-04473	*xi. 47-039-04150*
iii. 47-039-02643	*xii. 47-039-02168*
iv. 47-039-04984	*xiii. 47-039-02518*
v. 47-039-05829	*xiv. 47-039-03736*
vi. 47-039-02320	*xv. 47-039-03911*
vii. 47-039-02647	*xvi. 47-039-03953*
viii. 47-039-02644	*xvii. 47-039-03954*
ix. 47-039-02418	

RESPONSE: The LC Wilson 1 (API 47-039-03911), LC Wilson 3 (API 47-039-02418), LC Wilson 5 (API 47-039-02517), LC Wilson 6 (API 47-039-02518), LC Wilson 15 (47-039-03736), LC Wilson 2 (API 47-039-03953), and LC Wilson 3 (API 47-039-03954) have all been plugged. Attached are copies of the plugging affidavits for those wells. A spreadsheet has been prepared and attached for the other 10 wells that shows adequate cement cained above the Salt Sand injection zone.

b. *Include all USDWs within the Area of Review. This shall include all subsurface water resources, unless deemed exempt by having a water quality of >10,000 mg/L TDS and/or yield <2 gallons/minute. Include all information outlined in Section 7 Area of Review - #3.*

RESPONSE: Based on telephone discussions with Zac Stevison, Brian Carr, and Jane McColloch with the WV DEP, there are no accurate aquifer maps for this area. A list of the total depths or depth to water for the water wells that were tested is summarized on the attached and revised water well map. The information was obtained from either the field measurements and/or the resident's knowledge. It should be noted that all of these wells were

located outside the ¼ mile radius but they were tested per the request of the residents.

c. *917 Willis Creek RD/RJones Sample*

i. *917 Willis Creek RD/RJones Samples' chain of custody is incomplete. The sample parameters need to be identified, receiving information needs to be completed, as well as sample temperature. Initialing the transfer of a chain of custody is acceptable.*

RESPONSE: The laboratory can list the parameters on the Chain of Custody (COC) or moving forward with the permission of the Department state "See Attached" with the parameter list added as an attachment to the COC. For the purpose of this response letter, a revised copy of the sampling results is enclosed with the parameter list provided as the last page of the report. The sample temperature was verified upon receipt and provided on the laboratory's Receiving Document which was provided to EXCO as page 11 of the final report. The laboratory has revised its procedures to include signatures for all individuals involved in sample COC.

ii. *The Chain of Custody Receiving document fails to contain a link to the sample chain of custody form. (CoC from contains 3K20025-01 while CoC receiving contains 3K2002500).*

RESPONSE: The laboratory has revised their protocol to number the COC and Receiving Document. This document is attached with each COC as part 2 of 2.

iii. *The trip blank is missing from this analysis. 47CRS32-5.1.3.e.A Trip blanks must be prepared, transported and analyzed for each batch of samples for analysis for Nonpotable Volatile Organic Chemicals.*

RESPONSE: The laboratory's procedure for trip blanks typically is to analyze one per day, not per sample as shown on other reports for this project. The trip blank was missed on November 19, 2013, however all volatiles for all samples were non-detect.

iv. *The laboratory reporting method does not satisfy the reporting limit/method of detection required in 47CSR32. Reporting a less than number does not provide the agency a value that can be assessed.*

RESPONSE: In response to a West Virginia audit of Fairway Laboratories in July 2014, all West Virginia projects were set up in the laboratory's LIMS system to report all results to the MDL. As a check to ensure all West Virginia samples are issued to the MDL, the laboratory's LIMS provider set a query that will run daily to verify all projects with the West Virginia designation are reported to the MDL. The final report for 3K20025 can be reissued reporting results to the MDL.

v. *Data submitted and qualified as being outside acceptable limits is unusable.*

RESPONSE: The data is usable and acceptable based on additional passing quality control. Included in this sequence of samples was both a low and high range continuing calibration verification sample as well as a laboratory control sample duplicate. All of these quality control samples were within the acceptable range. The method blank analyzed with this sequence of samples was non-detect, indicating that no bias was present.

vi. *It is unclear if the parameter identified as Gasoline is a GRO analysis or a gasoline sample.*

RESPONSE: The laboratory revised the naming on March 15, 2014 to clearly report GRO as Gasoline Range Organics. The final report can be reissued showing the correction.

vii. *Analytical report form for samples identifies sample 3K20025-02 was collected 16 December 2013 and received by the lab on 20 November 2013.*

RESPONSE: The GRO, DRO, and ORO were resampled on December 16, 2013. The laboratory's LIMS system will allow only one received date. The laboratory made a note in the case narrative on the report to that effect. Upon review, if the case narrative note does not adequately address the concerns of the Department, then the laboratory can put the GRO, DRO and ORO on a separate report.

d. *Sample 83 Facemyer RD/Wood W1*

i. *Analytical report form for samples identifies sample 3K20029-01 was collected 19 December 2013 and received by the lab on 20 November 2013.*

RESPONSE: Sample 3K20029-01 was collected on 11/19/13 and received on 11/20/13 as per the attached revised report.

ii. *The trip blank is missing from this analysis. 47CRS32.5.1.3.e.A Trip blanks must be prepared, transported and analyzed for each batch of samples for analysis for Nonpotable Volatile Organic Chemicals.*

RESPONSE: The laboratory's procedure for trip blanks typically is to analyze one per day, not per sample as shown on other reports for this project. The trip blank was missed on November 19, 2013, however all volatiles for all samples were non-detect.

iii. *The laboratory reporting method does not satisfy the reporting limit of detection required in 47CSR32. Reporting a less than symbol does not provide the agency a value that can be assessed.*

RESPONSE: In response to a West Virginia audit of Fairway Laboratories in July 2014, all West Virginia projects were set up in the laboratory's LIMS system to report all results to the MDL. As a check to ensure all West Virginia samples are issued to the MDL, the laboratory's LIMS provider set a query that will run daily to verify all projects with the West Virginia designation are reported to the MDL. The final report for 3K20029 can be reissued reporting results to the MDL.

iv. *Data submitted and qualified as being outside acceptable limits is unusable.*

RESPONSE: The data is usable and acceptable based on additional passing quality control. Included in this sequence of samples was both a low and high range continuing calibration verification sample as well as a laboratory control sample duplicate. All of these quality control samples were within the acceptable range. The method blank analyzed with this sequence of samples was non-detect, indicating that no bias was present.

v. *83 Facemyer RD/Wood W1 Samples' chain of custody is incomplete. The sample parameters need to be identified, receiving information needs to be completed, as well as sample temperature. Initialing the transfer of a chain of custody is in acceptable.*

RESPONSE: The laboratory can list the parameters on the Chain of Custody (COC) or moving forward with the permission of the Department state "See Attached" with the parameter list added as an attachment to the COC. For the purpose of this response letter, a revised copy of the sampling results is enclosed with the parameter list provided as the last page of the report. The sample temperature was verified upon receipt and provided on the laboratory's Receiving Document which was provided to EXCO as page 11 of the final report. The laboratory has revised its procedures to include signatures for all individuals involved in sample COC.

vi. *The Chain of Custody Receiving document fails to contain a link to the sample chain of custody form. (CoC form contains 3K20029-0 while CoC receiving contains 3K20029-02).*

RESPONSE: The laboratory has revised their protocol to number the COC and Receiving Document. This document is attached with each COC as part 2 of 2.

vii. *It is unclear if the parameter identified as Gasoline is a GRO analysis or a gasoline sample.*

RESPONSE: The laboratory revised the naming on March 15, 2014 to clearly report GRO as Gasoline Range Organics. The final report can be reissued showing the correction.

e. *Sample 1040 Little Ford RD/RStewart*

i. *Analytical report form for samples identifies sample 3K20030-03 was collected 16 December 2013 and received by the lab on 20 November 2013.*

RESPONSE: Sample 3K20030-03 was collected on 12/16/13 and received on 12/17/13 as a resample for GRO, DRO, and ORO as per the attached revised report.

ii. *Trip Blank is missing from this analysis. 47CRS32-5.1.3.e.A Trip blanks must be prepared, transported and analyzed for each batch of samples for analysis for Nonpotable Volatile Organic Chemicals.*

RESPONSE: The laboratory's procedure for trip blanks typically is to analyze one per day, not per sample as shown on other reports for this project. The trip blank was missed on November 19, 2013, however all volatiles for all samples were non-detect.

iii. *The laboratory reporting method does not satisfy the reporting method of detection required in 47CSR32. Reporting a less than symbol does not provide the agency a value that can be assessed.*

RESPONSE: In response to a West Virginia audit of Fairway Laboratories in July 2014, all West Virginia projects were set up in the laboratory's LIMS system to report all results to the MDL. As a check to ensure all West Virginia samples are issued to the MDL, the laboratory's LIMS provider set a query that will run daily to verify all projects with the West Virginia designation are reported to the MDL. The final report for 3K20030 can be reissued reporting results to the MDL.

iv. *Data submitted and qualified as being outside acceptable limits is unusable.*

RESPONSE: The data is usable and acceptable based on additional passing quality control. Included in this sequence of samples was both a low and high range continuing calibration verification sample as well as a laboratory control sample duplicate. All of these quality control samples were within the acceptable range. The method blank analyzed with this sequence of samples was non-detect, indicating that no bias was present.

v. *1040 Little Fork RD/RStewart Samples' chain of custody is incomplete. The sample parameters need to be identified, receiving information needs to be completed, as well as sample temperature. Initialing the transfer of a chain of custody is in acceptable.*

RESPONSE: The laboratory can list the parameters on the Chain of Custody (COC) or moving forward with the permission of the Department state "See Attached" with the parameter list added as an attachment to the COC. For the purpose of this response letter, a

revised copy of the sampling results is enclosed with the parameter list provided as the last page of the report. The sample temperature was verified upon receipt and provided on the laboratory's Receiving Document which was provided to EXCO as page 11 of the final report. The laboratory has revised its procedures to include signatures for all individuals involved in sample COC.

vi. *It is unclear if the parameter identified as Gasoline is a GRO analysis or a gasoline sample.*

RESPONSE: The laboratory revised the naming on March 15, 2014 to clearly report GRO as Gasoline Range Organics. The final report can be reissued showing the correction.

vii. *The Chain of Custody Receiving document failed to contain a link to the sample chain of custody form (CoC form contains 3K20030-0 while CoC receiving contains 3K20030-02).*

RESPONSE: The laboratory has revised their protocol to number the COC and Receiving Document. This document is attached with each COC as part 2 of 2.

f. *Sample 338 Mervan Dr/RJarrett W1*

i. *Analytical report form for samples identifies sample 3K21139-03 was collected 19 December 2013 and received by the lab on 21 November 2013.*

RESPONSE: Sample 3K21139-03 was collected on 12/19/13 and received on 12/20/13 as a resample for GRO, DRO, and ORO as per the attached revised report.

ii. *Analytical report for samples identifies sample 3K21139-03 Sample ID as 338 Mervan Dr/Jarrett. The Chain of Custody reports it as 338 Mervan DR/Jerrett.*

RESPONSE: As noted in the case narrative, the spelling of the sample name is incorrect on all chains of custody, site visit forms and whiteboard photographs. The naming of the sample was not revised.

iii. *The laboratory reporting method does not satisfy the reporting method of direction required in 47CSR32. Reporting a less than symbol does not provide the agency a value that can be assessed.*

RESPONSE: In response to a West Virginia audit of Fairway Laboratories in July 2014, all West Virginia projects were set up in the laboratory's LIMS system to report all results to the MDL. As a check to ensure all West Virginia samples are issued to the MDL, the laboratory's LIMS provider set a query that will run daily to verify all projects with the West Virginia designation are reported to the MDL. The final report for 3K21139 can be reissued reporting results to the MDL.

iv. *Data submitted and qualified as being outside acceptable limits is unusable.*

RESPONSE: The data is usable and acceptable based on additional passing quality control. Included in this sequence of samples was both a low and high range continuing calibration verification sample as well as a laboratory control sample duplicate. All of these quality control samples were within the acceptable range. The method blank analyzed with this sequence of samples was non-detect, indicating that no bias was present.

v. *338 Mervan Dr/RJarrett W1 Samples' chain of custody is incomplete. The sample parameters need to be identified, receiving information needs to be completed, as well as sample temperature. Initialing the transfer of a chain of command is in acceptable.*

RESPONSE: The laboratory can list the parameters on the Chain of Custody (COC) or moving forward with the permission of the Department state "See Attached" with the parameter list added as an attachment to the COC. For the purpose of this response letter, a revised copy of the sampling results is enclosed with the parameter list provided as the last page of the report. The sample temperature was verified upon receipt and provided on the laboratory's Receiving Document which was provided to EXCO as page 11 of the final report. The laboratory has revised its procedures to include signatures for all individuals involved in sample COC.

vi. *The trip blank was not recorded on the Chain of Custody.*

RESPONSE: The trip blank was recorded on the chain of custody listed under the analyses requested but was not recorded as a sample description. In response to the West Virginia audit in July 2014, the laboratory has revised its procedure in location of trip blank analyses on the chain of custody. Trip blanks are now located in the sample description section of the chain of custody.

vii. *The Chain of Custody Receiving document fails to contain a link to the sample chain of custody form (CoC form contains 3K21139-02 while CoC receiving contains 3K21139-03).*

RESPONSE: The laboratory has revised their protocol to number the COC and Receiving Document. For 3K21139, the Receiving Document would be part 3 of 3 in reference to the COC.

g. *Sample 2003 Jakes Run RD/Stucker W1*

i. *The trip blank was not recorded on the Chain of Custody.*

RESPONSE: The trip blank was recorded on the chain of custody listed under the analyses requested but was not recorded as a sample description. In response to the West Virginia audit in July 2014, the

laboratory has revised its procedure in location of trip blank analyses on the chain of custody. Trip blanks are now located in the sample description section of the chain of custody.

ii. *The laboratory reporting method does not satisfy the reporting method of detection required in 47CSR32. Reporting a less than symbol does not provide the agency a value that can be assessed.*

RESPONSE: In response to a West Virginia audit of Fairway Laboratories in July 2014, all West Virginia projects were set up in the laboratory's LIMS system to report all results to the MDL. As a check to ensure all West Virginia samples are issued to the MDL, the laboratory's LIMS provider set a query that will run daily to verify all projects with the West Virginia designation are reported to the MDL. The final report for 3K26029 can be reissued reporting results to the MDL.

iii. *Data submitted and qualified as being outside acceptable limits is unusable.*

RESPONSE: The data is usable and acceptable based on additional passing quality control. Included in this sequence of samples was both a low and high range continuing calibration verification sample as well as a laboratory control sample duplicate. All of these quality control samples were within the acceptable range. The method blank analyzed with this sequence of samples was non-detect, indicating that no bias was present.

iv. *338 Mervan Dr/RJarrett W1 Samples' chain of custody is incomplete. The sample parameters need to be identified, receiving information needs to be completed, as well as sample temperature. Initialing the transfer of a chain of command is in acceptable.*

RESPONSE: The laboratory can list the parameters on the Chain of Custody (COC) or moving forward with the permission of the Department state "See Attached" with the parameter list added as an attachment to the COC. For the purpose of this response letter, a revised copy of the sampling results is enclosed with the parameter list provided as the last page of the report. The sample temperature was verified upon receipt and provided on the laboratory's Receiving Document which was provided to EXCO as page 11 of the final report. The laboratory has revised its procedures to include signatures for all individuals involved in sample COC.

v. *The Chain of Custody Receiving document fails to contain a link to the sample chain of custody form (CoC form contains 3K26029-01 while CoC receiving contains 3K26029-02).*

RESPONSE: The laboratory has revised their protocol to number the COC and Receiving Document. This document is attached with each COC as part 2 of 2.

h. *Sample 309 KOALA LN-Injection Well fluid data is useless. Extractable Petroleum Hydrocarbons recover is outside of the QC control limits, the MDL and RL are reported to be the same, in addition to the volatile organic compounds were diluted without providing the dilution factor.*

RESPONSE: The data for the Extractable Petroleum Hydrocarbons data is usable and acceptable based on additional passing quality control. Included in this batch of samples were low and high range continuing calibration verification samples as well as a laboratory control sample. All of these quality control samples within the acceptance range. The method blank and instrument blank analyzed with this sequence of samples were non-detect, indicating that no bias was present.

The laboratory reflects the dilutions analyzed by adjustment of its reporting limits and method detection limits.

With regard to the MDL and RL being reported the same, In response to a West Virginia audit of Fairway Laboratories in July 2014, all West Virginia projects were set up in the laboratory's LIMS system to report all results to the MDL. As a check to ensure all West Virginia samples are issued to the MDL, the laboratory's LIMS provider set a query that will run daily to verify all projects with the West Virginia designation are reported to the MDL. The final report for 3K07014 can be reissued reporting results to the MDL.

i. *The Chain of Custody Receiving document fails to contain a link to the sample chain of custody form (CoC form contains 3K07014-01 while CoC receiving contains 3K07014-02).*

RESPONSE: The laboratory has revised their protocol to number the COC and Receiving Document. This document is attached with each COC as part 2 of 2.

ii. *The laboratory reporting method does not satisfy the reporting method of detection required in 47CSR32. Reporting a less than symbol does not provide the agency a value that can be assessed.*

RESPONSE: In response to a West Virginia audit of Fairway Laboratories in July 2014, all West Virginia projects were set up in the laboratory's LIMS system to report all results to the MDL. As a check to ensure all West Virginia samples are issued to the MDL, the laboratory's LIMS provider set a query that will run daily to verify all projects with the West Virginia designation are reported to the MDL. The final report for 3K07014 can be reissued reporting results to the MDL.

iii. *The trip blank was not recorded on the Chain of Custody.*

RESPONSE: The trip blank was recorded on the chain of custody listed under the analyses requested but was not recorded as a sample

description. In response to the West Virginia audit in July 2014, the laboratory has revised its procedure in location of trip blank analyses on the chain of custody. Trip blanks are now located in the sample description section of the chain of custody.

5. *Section 8 – Geological Data on the Injection and Confining Zone:*
   a. *A detailed fault and structural geological investigation shall be conducted. This should include a local scale (large scale) investigative map including all folds, faults, fractures and/or any other structurally significant features.*

      RESPONSE: EXCO was directed by James Peterson with the WV DEP to obtain the fault information from the West Virginia Geological and Economic Survey. This information was provided by J. Eric Lewis with the West Virginia Geological and Economic Survey and shown on the attached Fault Line Map.

   b. *A detailed description of the injection zone is required. This shall include all information and data outlined in the Class 2 and 3 UIC Permit Application Package. Provide appropriate maps of the injection zone (isopach and structure contour map), well logs, geophysical logs, and/or other documentation supporting the vertical and lateral continuity of the proposed injection zone.*

      RESPONSE: The injection zone in this well lies within the undifferentiated Salt Sands. The clean sandstone interval within the Salt Sands that is being injected into comes in at 1551-1695 ft in the L C Wilson # 4 well. Primary porosity derived from the nearest offset log (Wilson #3- 470392418), 700ft southwest, ranges between 8-15% with good porosity development across the entire interval (see attached log). Gross thickness of the sand remains consistent (>135ft) throughout the AOR (isopach attached). The subsurface within the AOR appears to be structurally benign with less than 60 ft of relief at the top of the injection zone and no detectable faults (structure map attached). The injection interval dips gently westward.

   c. *A description of the confining zone is required, including lithological names, thickness, and description of the confining properties and formation integrity. Also provide a structural contour and isopach map of the confining layer(s).*

      RESPONSE: Shales bound the injection interval and serve as a seal protecting aquifers above and other producing formations below. The shale package above the injection interval ranges from 30-65ft thick across the AOR, thickening in the dip direction (isopach attached). Shale directly below the injection zone varies from 25-130ft in the AOR, thinning as you move west but nearly 100ft thick in the injection well (isopach attached). Formation density logs from the L C Wilson #3 (470392418) show both bounding shale packages to be extremely tight porosity wise with inferred low permeability.

   d. *All geophysical well logs shall be submitted with appropriate log header, and delineate the upper and lower contacts of the injection and confining geologic units. Include neighboring well.*

RESPONSE: The L C Wilson #4 well and its nearest offset are attached with all recognized formation tops and confining layers labeled.

e. *Provide an injection fluid(s) and formation fluid compatibility assessment.*

RESPONSE: Judging by low resistivity values in offset logs, if formation water is present it will be brackish-brine, so if we are pumping solely brine in then they ought to be compatible. There is no resistivity log available for this well to estimate Rwa in order to compare NaCl concentrations in the formation water vs. what is being injected.

f. *Provide a groundwater use and dependence evaluation at a minimum covering the AOR.*

RESPONSE: Based on telephone discussions with Zac Stevison, Brian Carr, and Jane McColloch with the WV DEP, there are no accurate aquifer maps for this area. A list of the total depths or depth to water for the water wells that were tested is summarized on the attached and revised water well map. The information was obtained from either the field measurements and/or the resident's knowledge. It should be noted that all of these wells were located outside the ¼ mile radius but they were tested per the request of the residents.

g. *Provide the injection well hydrostatic fluid level.*

RESPONSE: After a 24-hour shut in, the hydrostatic level in the tubing was 161 feet below ground level.

6. *Section 9 – Operating Requirements/Data:*

a. *Provide an updated Appendix G Wells Serviced by Injection Wells. Our records indicate differing operator/ownership status of servicing wells than submitted information. Updating servicing well list with current information (requirement #2).*

RESPONSE: Attached is an updated list of the wells serviced by the L.C. Wilson #4 well.

b. *Provide a description of all injection fluid additives. (requirement #4).*

RESPONSE: No fluid additives to report.

c. *Provide the nature of the injection well annuli. (requirement #5).*

RESPONSE: Fresh water treated with 1% (10,000 ppm) Baker CRW123 (methanol, quaternary ammonium compounds, alkyl pyridine salts, ammonium bisulfate) in the annulus with 0 psi pressure. A copy of the MSDS is attached.

d. *Provide a contingency plan addressing issues outline in Section 9 – Operating Requirements/Data #6.*

RESPONSE: In the event of a well surface failure, EXCO would utilize the SPCC plan to contain the spill from migrating to any water source. For a subsurface failure, a number of options are available. EXCO would utilize a combination of rig equipment, non-toxic kill fluids, or plugs to isolate a failure point. Once the problem was identified and temporarily contained a more detailed plan would follow. The fluids we currently dispose of in this well could simply be hauled to another EXCO injection well or to a third party disposal well.

7. *Section 10 – Monitoring:*
   a. *Provide an explanation of how the injection will be adequately monitored addressing all concerns highlighted in Section 10 Monitoring requirement #1. This shall include how injection fluid volumes and pressures are recorded to adequately complete monthly WR-40 Report for Disposal Well documents.*

   RESPONSE: The injection well is monitored for redundancy at the wellhead as well as at the injection pump. Pressure controls are in place that will shut injection operations down if the pump crosses the set point threshold. The well itself is monitored by pressure gauges on the tubing (injection pressure) and on the annulus. Tank dispositions are tracked for in injected fluid volume measurements.

8. *Section 11 – Groundwater Protection Plan (GPP)*
   a. *Appendix H Groundwater protection Plan Section 8 fails to provide adequate explanation or detail. Appropriate inspection shall address all GPP concerns outline in Sections 1 through 7.*

   RESPONSE: A revised Groundwater Protection Plan is attached.

9. *Section 13 – Additional Bonding:*
   a. *Our records indicate that injection well 2D0392419 does not possess a $5,000 performance bond required for all Class 2D injection wells. We have no records that "A check in the amount of $5,000.00 made payable to the State of West Virginia for the Separate Bond Fee for the L.C. Wilson #4 (UIC 2D0392419)" has been submitted, provide further evidence/documentation that said injection is adequately bonded. For any bonding questions and concerns please contact Cindy Raines at Cindy.J.Raines@wv.gov or (304) 926-0499 ext. 1656.*

   RESPONSE: Attached is a copy of the correspondence letter to James Peterson with the WV DEP dated January 2, 2014 as well as a copy of the check in the amount of $5,000.00.

If you should have any questions or require additional information, please contact me at (724) 720-2590.

Sincerely,

Brian E. Rushe, P.E.
Construction & Regulatory Manager

APPENDIX A
Injection Well Form

1) GEOLOGIC TARGET FORMATION Salt Sands

Depth 1568 Feet (top) 1674 Feet (bottom)

2) Estimated Depth of Completed Well, (or actual depth of existing well): 1850 Feet

3) Approximate water strata depths: Fresh 250 Feet Salt 1100 Feet

4) Approximate coal seam depths: _____

5) Is coal being mined in the area? Yes ☐ No ☑

6) Virgin reservoir pressure in target formation NA psig Source _____

7) Estimated reservoir fracture pressure NA psig (BHFP)

8) MAXIMUM PROPOSED INJECTION OPERATIONS:

Injection rate (bbl/hour) 15

Injection volume (bbl/day) _____

Injection pressure (psig) _____

Bottom hole pressure (psig) 1163

9) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES:

Produced brines, fracturing fluids, pit fluids, 02 scavenger, bacteriacid & scale inhibitor.

Temperature of injected fluid: (°F) _____

10) FILTERS (IF ANY)

11) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

Corrosion inhibitor in annual fluid.

APPENDIX A (cont.)

12. Casing and Tubing Program

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor							
Fresh Water	8-5/8	New	H-40	24#	254'		Surface
Coal							
Intermediate 1							
Intermediate 2							
Production	4-1/2	New	J-55	13.5#	2169'		TOC 1090
Tubing	2-7/8	New	J-55	4.7#	1510		
Liners							

TYPE	Wellbore Diameter	Casing Size	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./sk)	Cement to Surface ? (Y or N)
Conductor							
Fresh Water							
Coal							
Intermediate 1							
Intermediate 2							
Production							
Tubing							
Liners							

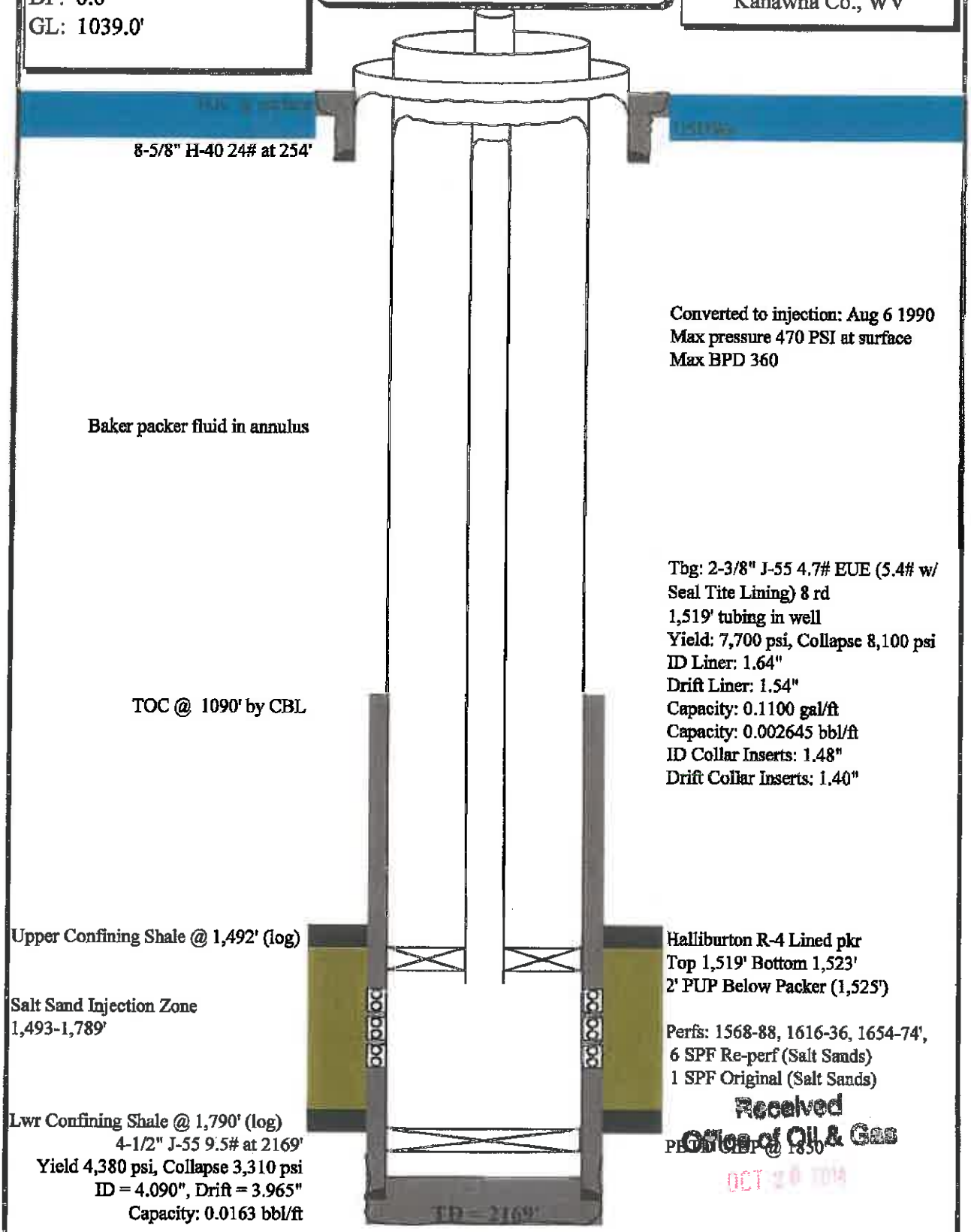
PACKERS	Packer #1	Packer #2	Packer #3	Packer #4
Kind:	Halliburton			
Sizes:	4-1/2 x 2-3/8			
Depths Set:	1510'			

Proposed WBD

KB: 1046.0'
DF: 0.0'
GL: 1039.0'

L.C. Wilson #4 SWD

Patrick Slaughter 9/24/2014
API 47-039-2419
Kanawha Co., WV



Larson Design Group

NO.	DATE	COMMENTS	BY	CHK

ISSUE / REVISIONS

LC WILSON # 4 Permit #2D0392419 DETAILED MAP

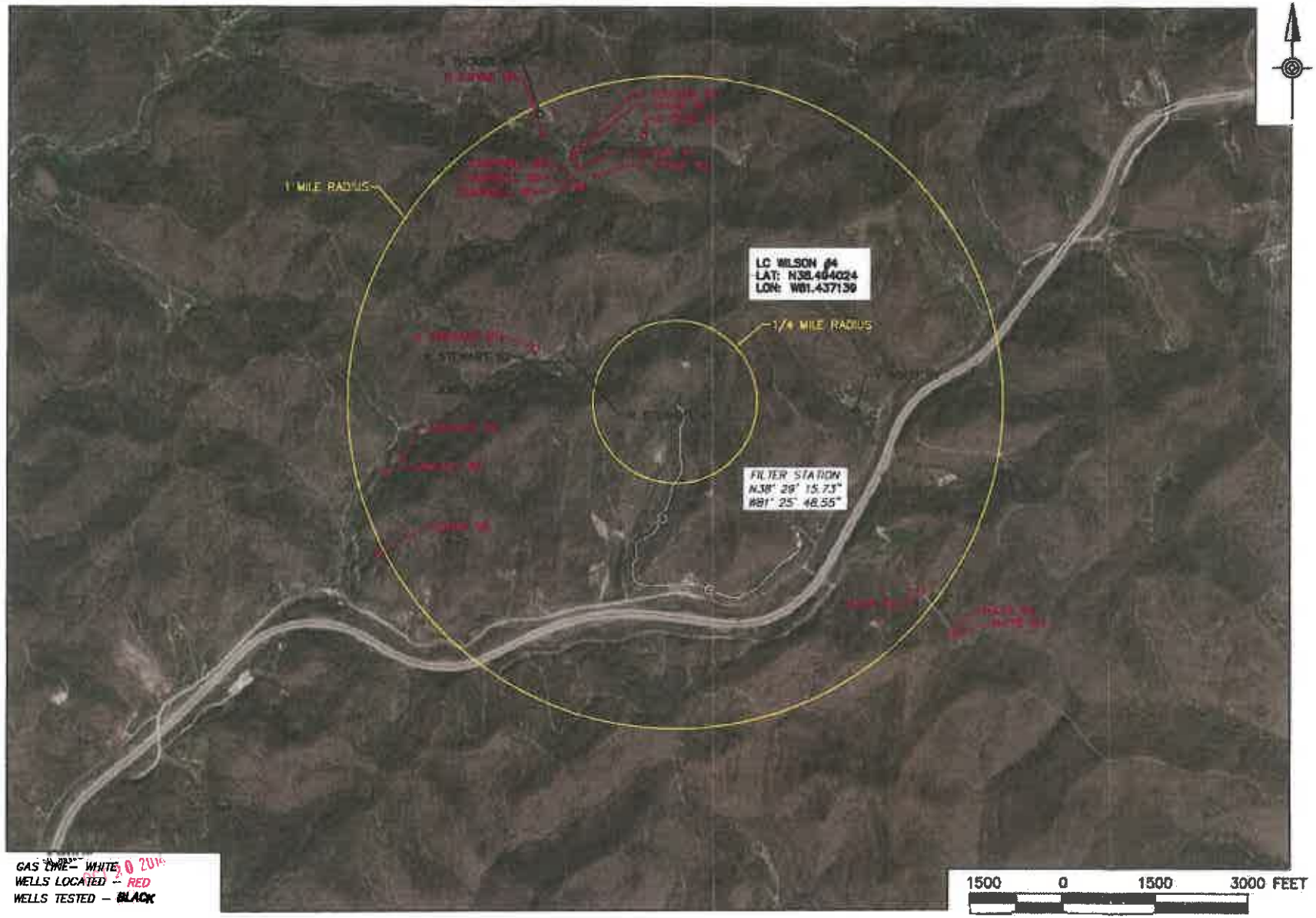
KANAWHA COUNTY, ELK DISTRICT, WEST VIRGINIA

EXCO RESOURCES (PA), LLC
260 EXECUTIVE DRIVE, SUITE 100
CRANBERRY TWP., PA 16066
PHONE (724) 720-2590

Larson Design Group • Architects Engineers Surveyors
8050 Rowan Road • Suite 504
Cranberry Township, PA 16066
PHONE 724.591.8552 TOLL FREE 877.323.6603
FAX 570.323.9802 • www.larsondesigngroup.com

SHEET NO.:

PROJECT NO.: 8013-005



GAS LINE – WHITE
WELLS LOCATED – RED
WELLS TESTED – BLACK

Larson Design Group

NO.	DATE	COMMENTS	BY	CHK
01				

ISSUE / REVISIONS

LC WILSON # 4 Permit #2D0392419 DETAILED MAP

KANAWHA COUNTY, ELK DISTRICT, WEST VIRGINIA

EXCO RESOURCES (PA), LLC
260 EXECUTIVE DRIVE, SUITE 100
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Cranberry Township, PA 16066
PHONE 724.591.8562 TOLL FREE 877.323.6603
FAX 570.323.9902 • www.larsondesigngroup.com

SHEET NO.:

PROJECT NO.: 8013-005

POINT TABLE

NO.	NORTHING	EASTING	DESCRIPTION
1	544781.67	1842217.67	Teets E 4
2	544451.63	1842696.93	Kelly L 3
3	545244.91	1842829.48	Mohler Lumber Co 2
4	544928.52	1843506.27	Kelly L 9
5	545639.01	1843432.35	Mohler Lunber Co 8
6	545351.31	1844206.58	O'Dell M 2
7	544557.72	1844139.89	O'Dell M 3
8	544170.72	1842802.06	Wilson LC 3-PLUGGED
9	543792.52	1842905.88	Wilson LC W1
10	543844.00	1843275.34	Wilson LC 3-PLUGGED
11	544054.22	1843487.55	Wilson LC 5-PLUGGED
12	544159.59	1844392.75	O'Dell M 5
13	543732.08	1844541.87	O'Dell M 1
14	543526.07	1843432.11	Wilson LC 2-PLUGGED
15	543580.87	1843010.21	Wilson LC 15-PLUGGED
16	543264.68	1842797.48	Wilson LC 6-PLUGGED

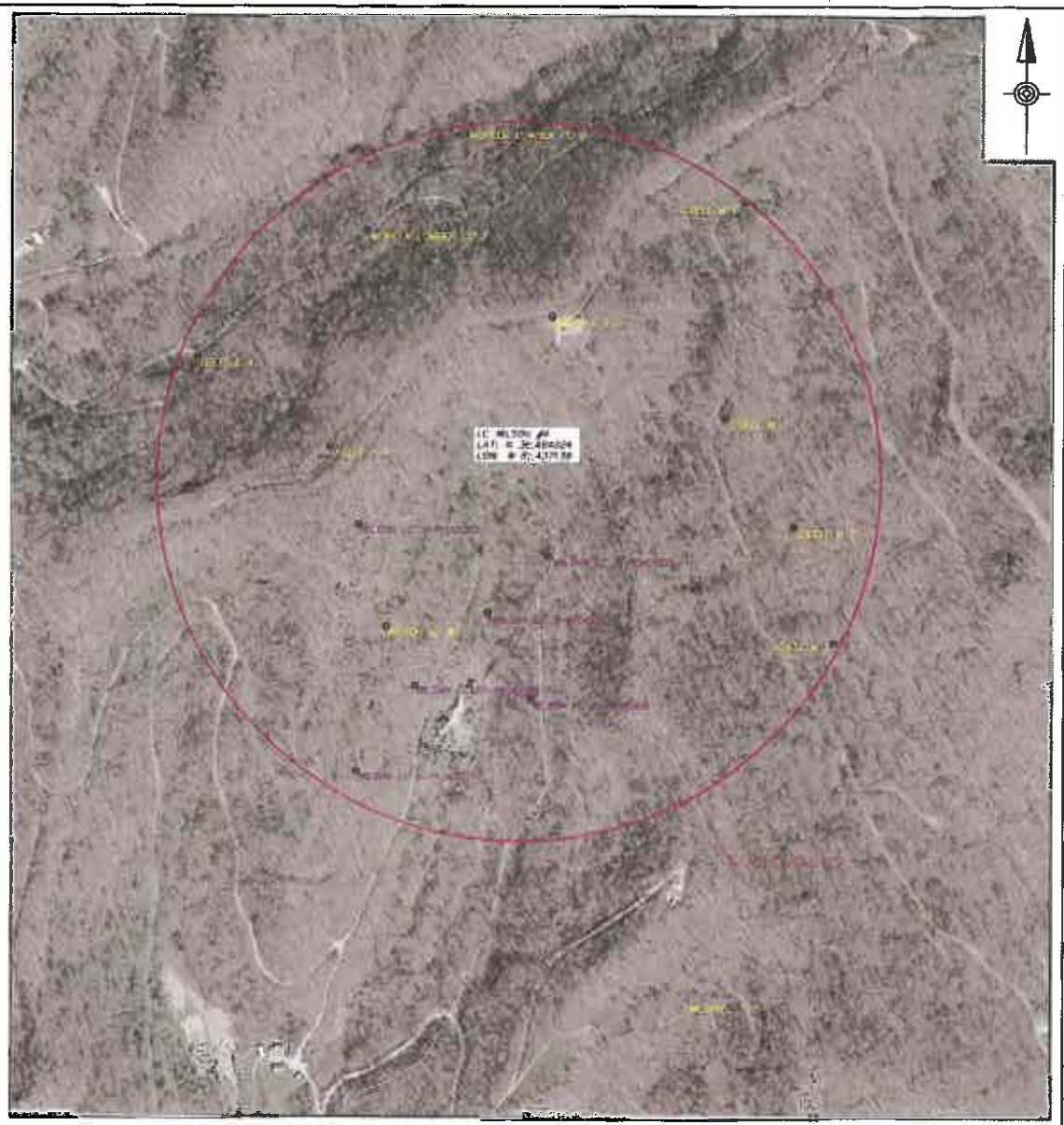
OUTSIDE 1/4 MILE RADIUS

NO.	NORTHING	EASTING	DESCRIPTION
17	542371.98	1844289.93	Wilson LC 10

Received
Office of Oil & Gas

GAS LINE– WHITE
PLUGGED WELLS – PURPLE
WELLS ACTIVE – YELLOW

400 0 400 800 FEET
SCALE



Larson Design Group

NO.	DATE	COMMENTS	BY	CHK

ISSUE / REVISIONS

LC WILSON # 4 1/4 MILE RADIUS WELL LOCATIONS

KANAWHA COUNTY, ELK DISTRICT, WEST VIRGINIA

EXCO RESOURCES (PA), LLC
260 EXECUTIVE DRIVE, SUITE 100
CRANBERRY TWP., PA 16066
PHONE (724) 720-2590

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Cranberry Township, PA 16066
PHONE 724.591.8562 TOLL FREE 877.323.6803
FAX 570.323.9902 • www.larsondesigngroup.com

SHEET NO.:

PROJECT NO.: 8013-005

****Class A cement assumed 1.18 cf/sack, which is the most conservative number to use. Cement used actually may have yield of 1.29.****

Well	API	Casing OD Inches	Hole Size Inches	Casing Depth	Sacks Cement	Volume Cement bbls	Hole volume bbls (assume 10% washout)	Calculated Cement Top ft	Salt Sand Top Driller Log	Cement Above Salt Sand
O'Dell M 1	4703902168	4.5	6.75	2054	145	30.5	55.6	927	1290	YES
Kelly L 3	4703902320	4.5	6.75	2283	110	23.1	61.8	1428	1548	YES
Mohler Lumber Co 2	4703902417	4.5	6.75	2083	150	31.5	56.3	918	1100	YES
O'Dell M 2	4703902643	4.5	6.75	2179	150	31.5	58.9	1014	1740	YES
O'Dell M 3	4703902644	4.5	6.75	2134	150	31.5	57.7	969	1814	YES
Wilson LC 10	4703902647	4.5	6.75	2229	150	31.5	60.3	1064	Not reported	YES
O'Dell M 5	4703904150	4.5	6.75	1975	145	30.5	53.4	848	Not reported	YES
Mohler Lunber Co 8	4703904473	4.5	6.75	2097	175	36.8	56.7	737	1300	YES
Kelly L 9	4703904984	4.5	6.75	2351	190	39.9	63.6	875	1520	YES
Teets E 4	4703905829	4.5	6.75	2053	110	23.1	55.5	1198	1240	YES
Wilson LC W1 - PLUGGED	4703903911									
Wilson LC 3 - PLUGGED	4703902418									
Wilson LC 5 - PLUGGED	4703902517									
Wilson LC 6 - PLUGGED	4703902518									
Wilson LC 15 - PLUGGED	4703903736									
Wilson LC 2 - PLUGGED	4703903953									
Wilson LC 3 - PLUGGED	4703903954									

Rev (8-01)
WR-38
DATE: 02/03/10

API# - 47-039-03911

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL & GAS

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Department, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: Grace Trust Operator Well No.: L.C. Wilson #1

LOCATION: Elevation: 1008' Quadrangle: Blue Creek
District: Elk County: Kanawha
Location 3000 Ft South Of 38 30 0
Location 6850 Ft West Of 81 35 0

Well Type: OIL ____ GAS x

Company: North Coast Energy, Inc. Coal Operator or Owner: April S. Kennedy
P.O. Box 8 — 669 Lanier Hamlet Rd.
Ravenswood, WV 26164 — Pink Hill, NC 28572
Coal Operator or Owner: Seth J. Shaklar
3612 Dorleas Way
Greensboro, NC 27455

Agent: Joe Ulion

Permit Issued Date: 04/09/2009

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Kanawha ss:

Joe Ulion and Terry Rayford being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well, and Carlos Hively Oil and Gas Inspector representing the Secretary, say that said work was commenced on the 28th day of January, 2010 and that the well was plugged and filled in the following manner:

TYPE	FROM	TO	PIPE REMOVED	LEFT
6% Gel	1900	1700	None	
Class A Cement	1700	1450	None	
6% Gel	1450	750	None	
Class A Cement	750	630	750' of 5-1/2" Casing	1284' of 5-1/2" Casing
6% Gel	630	410	None	
Class A Cement	410	310	None	
6% Gel	310	100	None	
Class A Cement	100	Surface	None	

Description of Monument: 4" of 7" Casing Above Ground Level With API Number. The work of plugging and filling of said well was completed on the 2nd day of February, 2010

And further deponents saith not: Terry Rayford
Joe Ulion

Sworn and subscribed before me this 12th day of February 2010
My commission expires: 8-14-15

Mary E. Merritt
Notary Public

Oil and Gas Inspector: Carlos Hively 3-22-10

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
MARY E. MERRITT
220 SIMONS DRIVE
RIPLEY, WV 25271
My commission expires August 14, 2015

RECEIVED
Office of Oil & Gas
FEB 24 2010
WV Department of
Environmental Protection

Received
Office of Oil & Gas
OCT 20 2014

18-Jun-97

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
SECTION OF OIL AND GAS
NITRO 25143
FINAL INSPECTION REPORT

Dear THOMAS S. LIBERATORE:

The FINAL INSPECTION REPORT for the permit listed below has been received in this office. Your Affidavit of Plugging was received and reclamation requirements approved. The well designated by the permit number below has been released under your bond.

Company: PEAKE ENERGY, INC.
Permit No. 47- 39-03736 P
Farm: JENNINGS, L. C. & W. P.
County: KANAWHA

Issued On: 07/12/96
Well: L. C. WILSON 15
District: ELK

Theodore M. Streit
Chief
OFFICE OF OIL AND GAS

IR-8 (8-94)
12-Jul-96

API # 47- 39-03736-P

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas

RECEIVED
OFFICE OF OIL AND GAS
JUN 16 1997
WV Division of Environmental Protection

1mWELL PLUGGING INSPECTION & RELEASE FORM22m

Farm name: JENNINGS, L.C. & W.P. Operator Well No.: L.C. JENNINGS #5

LOCATION: Elevation: 997.00 Quadrangle: BLUE CREEK
District: ELK County: KANAWHA

Company: PEAKE ENERGY, INC.
P. O. BOX 8
RAVENSWOOD, WV

PLUGGING COMMENCED 1-15-97 VERBAL PERMISSION ON _____
PLUGGING COMPLETED 1-22-97

1. IS COAL BEING MINED IN THE AREA? YES NO

2. WERE CEMENT AND GEL MIXED AND USED IN ACCORDANCE WITH ACCEPTED INDUSTRY STANDARDS?

A.	BOTTOM HOLE PLUGGED	YES	NO
B.	100' PLUGS	YES	NO
C.	LATEX PLUGS USED FOR H2S GAS	~~YES~~	~~NO~~
D.	PROPER PLUGS THROUGH COAL SEAMS	YES	NO
E.	PROPER PLUGS SET TO PROTECT FRESHWATER	YES	NO
F.	PROPER AMOUNT OF GEL USED TO DISPLACE PLUGS	YES	NO

TYPE	FROM	TO	PIPE REMOVED
Gel	2000' - 0'		
Cement	2000' - 1806'	15 sks.	
Cement	1089' - 989'	30 sks.	1089' - 4½"
Cement	318' - 218'	30 sks.	
Cement	100' - 0'	30 sks.	

3. WERE ALL CHANGES APPROVED BY INSPECTOR? YES NO

4. WAS THE EQUIPMENT USED FOR PULLING CASING PROPERLY SIZED AND RIGGED TO PULL 150% OF THE HEAVIEST STRING OF PIPE EXPECTED TO BE PULLED? YES NO

5. DID THE OPERATOR GIVE THE INSPECTOR PROPER NOTICE? YES NO

6. WERE ACCURATE PLUGGING RECORDS KEPT BY THE OPERATOR? YES NO

7. WAS A PROPER MONUMENT SET WITH API NUMBER ATTACHED? YES NO

8. DID WELL SITE AND ACCESS ROAD MEET THE FOLLOWING RECLAMATION REQUIREMENTS?

A.	RECLAIMED	YES NO	B.	FENCES REPLACED	YES NO
C.	MULCHED	YES NO	D.	PROPER DRAINAGE	YES NO
E.	SEEDED	YES NO	F.	ALL EQUIPMENT REMOVED	YES NO

Received
Office of Oil & Gas
OCT 20 2014

6-12-97
DATE RELEASED

Carlton Hill
INSPECTOR'S SIGNATURE

RECORD ALL VISITS TO THIS WELL ON BACK

IR-38
2-Jul-96

API # 47- 39-03736-P

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
SECTION OF OIL AND GAS

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Division, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: JENNINGS, L.C. & W.P. Operator Well No.: L.C. WILSON #15

LOCATION: Elevation: 997.00 Quadrangle: BLUE CREEK
District: ELK County: KANAWHA
Latitude: 3270 Feet South of 38 Deg. 30 Min. 0 Sec.
Longitude 6820 Feet West of 81 Deg. 25 Min. 0 Sec.

Well Type: OIL x GAS ____

Company: Peake Energy, Inc.
P O Box 8
Ravenswood, WV 26164

Coal Operator or Owner ____

Agent: Thomas S. Liberatore

Coal Operator or Owner ____

Permit Issued: 07/12/96

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Upshur ss:

Johny Smith and Alvin Sorcan being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well, and Carlos Hively Oil and Gas Inspector representing the Director, say that said work was commenced on the 13 day of January, 19 97, and that the well was plugged and filled in the following manner:

TYPE	FROM	TO	PIPE REMOVED	LEFT
gelled hole 6 sks			1089 4½"	1041
cement 15 sks	2000	1806		
gel 4 sks	1806	1089		
cement 30 sks	1089	989		
gel 1 sk	989	318		
cement 30 sks	318	218		
gel 1 sk	218	100		
cement 30 sks	100	surface		

Description of monument: 7" casing three feet out of ground with API
and that the work of plugging and filling said well was completed on the 22 day of January, 19 97.

And furthur deponents saith not.

Johny Smith
Alvin Sorcan

Received
Office of Oil & Gas
OCT 20 2014

Sworn and subscribe before me this 27 day of January, 19 97
My commission expires: August 4, 2003

Notary Public

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
BUCKHANNON, WV 26201
My Commission Expires AUG. 4, 2003

Oil and Gas Inspector: ____

18-Jun-97

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
SECTION OF OIL AND GAS
NITRO 25143
FINAL INSPECTION REPORT

Dear THOMAS S. LIBERATORE:

The FINAL INSPECTION REPORT for the permit listed below has been received in this office. Your Affidavit of Plugging was received and reclamation requirements approved. The well designated by the permit number below has been released under your bond.

Company: PEAKE ENERGY, INC.
Permit No. 47- 39-02518 P
Farm: JENNINGS, L. C. & W. P.
County: KANAWHA

Issued On: 07/23/96
Well: L. C. WILSON 6
District: ELK

Theodore M. Streit
Chief
OFFICE OF OIL AND GAS

IR-8 (9-94)
23-Jul-96

API # 47- 39-02518-P

RECEIVED
OFFICE OF OIL AND GAS
JUN 13 1997
WV Division of Environmental Protection

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas

WELL PLUGGING INSPECTION & RELEASE FORM

Farm name: JENNINGS, L.C. & W.P. Operator Well No.: LEWIS-JENNINGS

LOCATION: Elevation: 893.42 Quadrangle: BLUE CREEK
District: ELK County: KANAWHA

Company: PEAKE ENERGY, INC.
P. O. BOX 8
RAVENSWOOD, WV

PLUGGING COMMENCED 12-19-96 VERBAL PERMISSION ON _____
PLUGGING COMPLETED 12-23-96

1. IS COAL BEING MINED IN THE AREA? YES NO

2. WERE CEMENT AND GEL MIXED AND USED IN ACCORDANCE WITH ACCEPTED INDUSTRY STANDARDS?
   - A. BOTTOM HOLE PLUGGED YES NO
   - B. 100' PLUGS YES NO
   - C. LATEX PLUGS USED FOR H2S GAS ~~YES NO~~
   - D. PROPER PLUGS THROUGH COAL SEAMS YES NO
   - E. PROPER PLUGS SET TO PROTECT FRESHWATER YES NO
   - F. PROPER AMOUNT OF GEL USED TO DISPLACE PLUGS YES NO

TYPE	FROM	TO	PIPE REMOVED
Gel	1888' - 0'		1800' - 2⅜"
cement	1888' - 1773'	8 sks.	465' - 4½"
Cement	464' - 364'	35 sks.	
Cement	245' - 145'	30 sks.	
Cement	100' - 0'	30 sks.	

3. WERE ALL CHANGES APPROVED BY INSPECTOR? YES NO

4. WAS THE EQUIPMENT USED FOR PULLING CASING PROPERLY SIZED AND RIGGED TO PULL 150% OF THE HEAVIEST STRING OF PIPE EXPECTED TO BE PULLED? YES NO

5. DID THE OPERATOR GIVE THE INSPECTOR PROPER NOTICE? YES NO

6. WERE ACCURATE PLUGGING RECORDS KEPT BY THE OPERATOR? YES NO

7. WAS A PROPER MONUMENT SET WITH API NUMBER ATTACHED? YES NO

Received
Office of Oil & Gas
OCT 20

8. DID WELL SITE AND ACCESS ROAD MEET THE FOLLOWING RECLAMATION REQUIREMENTS?
   - A. RECLAIMED YES NO
   - B. FENCES REPLACED YES NO
   - C. MULCHED YES NO
   - D. PROPER DRAINAGE YES NO
   - E. SEEDED YES NO
   - F. ALL EQUIPMENT REMOVED YES NO

6-12-97
DATE RELEASED

Carlos W. Huffman
INSPECTOR'S SIGNATURE

RECORD ALL VISITS TO THIS WELL ON BACK

WR-38
23-Jul-96

API # 47- 39-02518-P

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
SECTION OF OIL AND GAS

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Division, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: JENNINGS, L.C. & W.P. Operator Well No.:L.C. WILSON #6

LOCATION: Elevation: 893.42 Quadrangle: BLUE CREEK
District: ELK County: KANAWHA
Latitude: 3340 Feet South of 38 Deg. 30 Min. 0 Sec.
Longitude 6530 Feet West of 81 Deg. 25 Min. 0 Sec.

Well Type: OIL x GAS ____

Company: Peake Energy, Inc
P O Box 8
Ravenswood WV 26164

Coal Operator or Owner ____

Agent: Thomas S Liberatore

Coal Operator or Owner ____

Permit Issued: 07/23/96

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Upshur ss:

Johny Smith and Alvin Sorcan being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well, and Carlos Hively Oil and Gas Inspector representing the Director, say that said work was commenced on the 18 day of December, 19 96, and that the well was plugged and filled in the following manner:

TYPE	FROM	TO	PIPE REMOVED	LEFT
gelled hole 6 sks			4½" 465	1544
cement 8 sks	1888	1774		
gel 1/2 sks				
cement 30 sks	465	365		
gel 1/2 sks				
cement 30 sks	245	145		
gel 1/2 sks				
cement 35	100	surface		

Description of monument: 7" casing 6 feet out of ground with API
and that the work of plugging and filling said well was completed on the 23 day of December, 19 96.

And furthur deponents saith not.

Johny Smith
Alvin Sorcan

Received
Office of Oil & Gas
OCT 20 2014

Sworn and subscribe before me this 24 day of December 19 96
My commission expires: August 4, 2003

Joyce Robinson
Notary Public

Oil and Gas Inspector: Carlos W. Hively

17-Sep-97

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
SECTION OF OIL AND GAS
NITRO 25143
FINAL INSPECTION REPORT

well file

Dear THOMAS S. LIBERATORE:

The FINAL INSPECTION REPORT for the permit listed below has been received in this office. Your Affidavit of Plugging was received and reclamation requirements approved. The well designated by the permit number below has been released under your bond.

Company: PEAKE ENERGY, INC.
Permit No. 47- 39-02517 P
Farm: JENNINGS, L. C. & W. P.
County: KANAWHA

Issued On: 07/23/96
Well: L. C. WILSON 5
District: ELK

Theodore M. Streit
Chief
OFFICE OF OIL AND GAS

IR-8 (9/94)
23-Jul-96

API # 47- 39-02517-P

RECEIVED
OFFICE OF OIL AND GAS
SEP 16 1997
WV Division of Environmental Protection

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas

WELL PLUGGING INSPECTION & RELEASE FORM

Farm name: JENNINGS, L.C. & W.P. Operator Well No.: L.C.WILSON #5

LOCATION: Elevation: 923.40 Quadrangle: BLUE CREEK
District: ELK County: KANAWHA

Company: PEAKE ENERGY, INC.
P. O. BOX 8
RAVENSWOOD, WV

PLUGGING COMMENCED 1-27-97 VERBAL PERMISSION ON _____
PLUGGING COMPLETED 2-3-97

1. IS COAL BEING MINED IN THE AREA? YES (NO)

2. WERE CEMENT AND GEL MIXED AND USED IN ACCORDANCE WITH ACCEPTED INDUSTRY STANDARDS?
   - A. BOTTOM HOLE PLUGGED (YES) NO
   - B. 100' PLUGS (YES) NO
   - C. LATEX PLUGS USED FOR H2S GAS ~~YES NO~~
   - D. PROPER PLUGS THROUGH COAL SEAMS (YES) NO
   - E. PROPER PLUGS SET TO PROTECT FRESHWATER (YES) NO
   - F. PROPER AMOUNT OF GEL USED TO DISPLACE PLUGS (YES) NO

TYPE	FROM	TO	PIPE REMOVED
Gel	1895' - 0'		
Cement	1895' - 1775'	10 SKS.	
Cement	650' - 550'	30 SKS.	1895' - 2 3/8'
Cement	250' - 150'	30 SKS.	650' - 4 1/2"
Cement	100' - 0'	20 SKS.	

3. WERE ALL CHANGES APPROVED BY INSPECTOR? (YES) NO

4. WAS THE EQUIPMENT USED FOR PULLING CASING PROPERLY SIZED AND RIGGED TO PULL 150% OF THE HEAVIEST STRING OF PIPE EXPECTED TO BE PULLED? (YES) NO

5. DID THE OPERATOR GIVE THE INSPECTOR PROPER NOTICE? (YES) NO

6. WERE ACCURATE PLUGGING RECORDS KEPT BY THE OPERATOR? (YES) NO

7. WAS A PROPER MONUMENT SET WITH API NUMBER ATTACHED? (YES) NO

8. DID WELL SITE AND ACCESS ROAD MEET THE FOLLOWING RECLAMATION REQUIREMENTS?
   - A. RECLAIMED (YES) NO
   - B. FENCES REPLACED (YES) NO
   - C. MULCHED (YES) NO
   - D. PROPER DRAINAGE (YES) NO
   - E. SEEDED (YES) NO
   - F. ALL EQUIPMENT REMOVED (YES) NO

9-11-97
DATE RELEASED

Carlos W. Hively
INSPECTOR'S SIGNATURE

RECORD ALL VISITS TO THIS WELL ON BACK

·38 ·
·Jul -96

API # 47- 39-02418-P

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
SECTION OF OIL AND GAS

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Division, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: JENNINGS, L.C. & W.P. Operator Well No.:L.C.WILSON #3

LOCATION: Elevation: 1,015.50 Quadrangle: BLUE CREEK
District: ELK County: KANAWHA
Latitude: 2270 Feet South of 38 Deg. 30 Min. 0 Sec.
Longitude 6540 Feet West of 81 Deg. 25 Min. 0 Sec.

Well Type: OIL x GAS _____

Company: Peake Energy, Inc.
P O Box 8
Ravenswood, WV 26164

Coal Operator or Owner _____

Agent: Thomas S Liberatore

Coal Operator or Owner _____

Permit Issued: 07/23/96

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Upshur ss:

Johny Smith and Alvin Sorcan being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well, and Carlos Hively Oil and Gas Inspector representing the Director, say that said work was commenced on the 10 day of December, 1996, and that the well was plugged and filled in the following manner:

TYPE	FROM	TO	PIPE REMOVED	LEFT
gelled hole 14 sks			4½" 745	1389
cement 18 sks	2023	1800		
cement 30 sks	745	645		
gel 1/2 sks				
cement 30 sks	300	200		
gel 1/2 sks	200	100		
cement 30	100	surface		

Description of monument: 7" casing 6 feet out of the ground with API
and that the work of plugging and filling said well was completed on the 17 day of December, 19 96.

And furthur deponents saith not.

Johny L Smith
Alvin Sorcan

Received
Office of Oil & Gas

Sworn and subscribe before me this 24 day of December 1996
My commission expires: August 4, 2003

Joice K Harlow
Notary Public

Oil and Gas Inspector: Carlos W Hively

23-Jul-96

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas
Discharge Monitoring Report
Oil and Gas General Permit

Company Name: PEAKE ENERGY, INC.
API 47- 39-02418 P County: KANAWHA District: ELK
Farm Name: JENNINGS, L.C. & W.P. Well No: L.C.WILSON #3
Pit fluid hauled to disposal well, Morgan Co., OH

Discharge Dates/s From: (MMDDYY)_____ TO: (MMDDYY)_____
Discharge Times : From_____ TO_____

Disposal Option Utilized: UIC (2):___ Permit No. 3874 Morgan CO Ohio UIC 113
Centralized Facility (5):___ Permit No. _____
Reuse (4):___ Alternate Permit Number: _____
Offsite Disposal(3):___ Site Location: _____
Land Application(1):___ (Include a topographical map of the Area.)
Other menthod(6):___ (Include an exlaination)

Follow Instructions below to determine your treatment category.

Optional Pretreatment test:_____Cl- mg/l _____ DO Mg/l

1. Do you have permission to use expedited treatment from the Director or his representative? (Y/N)_____ If yes who?_____, and place a four (4) on line 7. If not go to line 2

2. Was Frac Fluid or flowback put into the pit? (Y/N)__ If yes go to line 5 if not go to line 3

3. Do you have a chloride value pretreatment (see above)? (Y/N)__ If yes go to line 4 if not go to line 5

4. Is that chloride level less then 5000 mg/l? (Y/N)__ If yes then enter a one (1) on line 7

5 Do you have a pretreatment value for DO? (See above) (Y/N)__ If yes then go to line 6 if not enter a three (3) in line 7.

6 Is that DO greater then 2.5 mg/l?(Y/N)__ If yes then enter a two (2) on line 7 If not enter a three (3) on line 7.

7. _____ is the category of your pit. Use the Appropriate section.

Name of Principle Exec. Officer Thomas S. Liberatore
Title of Officer Vice President + General Manager
Date Completed: 11/24/96

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Signature of a Principle Exec. Officer or Authorized agent

Thomas S. Liberatore
Signature

23-Jul-96

Category 1
Sampling Results
API NO 47- 39-02418

Parameter	Predischarge Limit	Predischarge Reported	Discharge Limits	Discharge Reported	Units
pH	6-10	_____	6-10	_____	S.U
Settling Time	5	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	.5	_____	.5	_____	mg/l
Cl	5000	_____	5000	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC			Monitor	_____	mg/l
Oil and Grease			Monitor	_____	mg/l
Al***			Monitor	_____	mg/l
TSS			Monitor	_____	mg/l
Mn	Monitor	_____	Monitor	_____	mg/l
Volume			Monitor	_____	Gals.
Flow			Monitor	_____	Gals
Disposal Area			Monitor	_____	Acres

*** Al is only reported if the pH is above 9.0

Category 2
Sampling Results
API NO 47- 39-02418

Parameter	Limit	Predischarge Reported	Limits	Discharge Reported	Units
pH	6-10	_____	6-10	_____	S.U
Settling Time	10	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	.5	_____	.5	_____	mg/l
Cl*	12,500	_____	12500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**			Monitor	_____	mg/l
Oil and Grease			Monitor	_____	mg/l
Al***			Monitor	_____	mg/l
TSS			Monitor	_____	mg/l
Mn	Monitor	_____	Monitor	_____	mg/l
Volume			Monitor	_____	Gals.
Flow			Monitor	_____	Gals
Disposal Area			Monitor	_____	Acres

* Can Be 25,000 with inspectors approval,
(Inspector): _____ Date: _____
** Include a description of your aeration technique.
*** Al is only reported if the pH is above 9.0

23-Jul-96

Category 3
Sampling Results
API NO 47- 39-02418

Parameter	Predischarge Limit	Predischarge Reported	Discharge Limits	Discharge Reported	Units
pH	6-10	_____	6-10	_____	S.U
Settling Time	20	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	.5	_____	.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**			Monitor	_____	mg/l
Al***			Monitor	_____	mg/l
TSS			Monitor	_____	mg/l
Mn	Monitor	_____	Monitor	_____	mg/l
Volume			Monitor	_____	Gals.
Flow			Monitor	_____	Gals
Grease and Oil			Monitor	_____	mg/l
Disposal Area			Monitor	_____	Acres

* Can Be 25,000 with inspectors approval,
(Inspector)_____ Date:_____
** Include a description of your aeration technique.
*** Al is only reported if the pH is above 9.0

Category 4
Sampling Results
API NO 47- 39-02418

Parameter	Limit	Predischarge Reported	Limits	Discharge Reported	Units
pH	6-10	_____	6-10	_____	S.U
Settling Time	1	_____	N/A	N/A	Days
Fe	Monitor	_____	Monitor	_____	mg/l
D.O.	Monitor	_____	Monitor	_____	mg/l
Settleable Sol.	Monitor	_____	Monitor	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC			Monitor	_____	mg/l
TSS			Monitor	_____	mg/l
Oil and Grease			Monitor	_____	mg/l
Mn	Monitor	_____	Monitor	_____	mg/l
Volume			Monitor	_____	Gals.
Flow			Monitor	_____	Gals
Activated Carbon	.175	_____	N/A	N/A	lb./bl
Date Site Reclaimed	N/A	N/A	_____	10 Days from Dis.	
Disposal Area			Monitor	_____	Acres

* Can Be 25,000 with inspectors approval,
(Inspector)_____ Date:_____

Received
Office of Oil & Gas
OCT 20 1996

WR-38
22-May-92

RECEIVED
Division of Environmental Protection
DEC 14 92
Permitting Office of Oil & Gas

API # 47- 39-03953-P

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
SECTION OF OIL AND GAS

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Division, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: JENNINGS, W. P., ETAL Operator Well No.: L.C. WILSON #2

LOCATION: Elevation: 1020.00 Quadrangle: BLUE CREEK
District: ELK County: KANAWHA
Latitude: 3000 Feet South of 38 Deg. 30 Min. 0 Sec.
Longitude 6550 Feet West of 81 Deg. 25 Min. 0 Sec.

Well Type: OIL _____ GAS _____ UIC X

Company: Quaker State Corporation
P.O. Box 189
Belpre, OH 45714

Coal Operator or Owner N/A

Agent: Frank Rotunda

Coal Operator or Owner N/A

Permit Issued: 05/26/92

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Kanawha ss:

Roger Atkinson and Orville Rhodes being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well, and Carlos Hively Oil and Gas Inspector representing the Director, say that said work was commenced on the 24th day of October, 1992, and that the well was plugged and filled in the following manner:

TYPE	FROM	TO	PIPE REMOVED	LEFT
6% Gel	2160	2068		
Class A Cmt. 17 sks	2068	1868		
6% Gel	1868	1130		
Cut 4½ @ 1130'				
Class A Cmt. 47sks	1130	980	0'-1130' (4½)	~~1130-2160 4½~~
6% Gel	980	530		
Class A Cmt. 31 sks	530	430		
6% Gel	430	100		486' (8 5/8)
Class A Cmt. 35 sks	100	0		

12/16/92

Description of monument: 5½" Casing 47-39-03953-P P & A 10/24/92
and that the work of plugging and filling said well was completed on the 24th day of October, 1992.

And furthur deponents saith not.

Roger L. Cook
Orville Rhodes

Sworn and subscribe before me this 8th day of December, 1992
My commission expires: 3-14-95

Dolores L. Branch
Notary Public

Oil and Gas Inspector: Carlos W. Hively
12-7-92

Received
Office of Oil & Gas
DEC 2014

WR-38
22-May-92

RECEIVED
Division of Environmental Protection
DEC 14 92
Permitting of Oil & Gas

API # 47-. 39-03954-P

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
SECTION OF OIL AND GAS

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Division, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: JENNINGS, W. P., ETAL Operator Well No.: L.C. WILSON #3

LOCATION: Elevation: 957.00 Quadrangle: BLUE CREEK
District: ELK County: KANAWHA
Latitude: 2580 Feet South of 38 Deg. 30 Min. 0 Sec.
Longitude 6180 Feet West of 81 Deg. 25 Min. 0 Sec.

Well Type: OIL _____ GAS _____ UIC X

Company: Quaker State Corporation
P.O. Box 189
Belpre, OH 45714

Coal Operator or Owner N/A

Agent: Frank Rotunda

Coal Operator or Owner N/A

Permit Issued: 05/26/92

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Kanawha ss:

Orville Rhodes and Leroy Bush being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well, and Carlos Hively Oil and Gas Inspector representing the Director, say that said work was commenced on the 24th day of October, 19 92, and that the well was plugged and filled in the following manner:

TYPE	FROM	TO	PIPE REMOVED	LEFT
6% Gel	2103	2000		
Class A Cmt. 17 sks	2000	1800		
6% Gel	1800	1200		
Cut 4½ @ 1200'			0-1200' (4½)	1200-2103 4½
Class A Cmt. 47 sks	1200	1050		
6% Gel	1050	455		405' 8 5/8
Class A Cmt. 31 sks	455	355		
6% Gel	355	100		
Class A Cmt. 35 sks	100	0		

Description of monument: 5½" Casing 47-39-03954-P P&A 10/24/92
and that the work of plugging and filling said well was completed on the 24th day of October, 19 92.

And furthur deponents saith not.

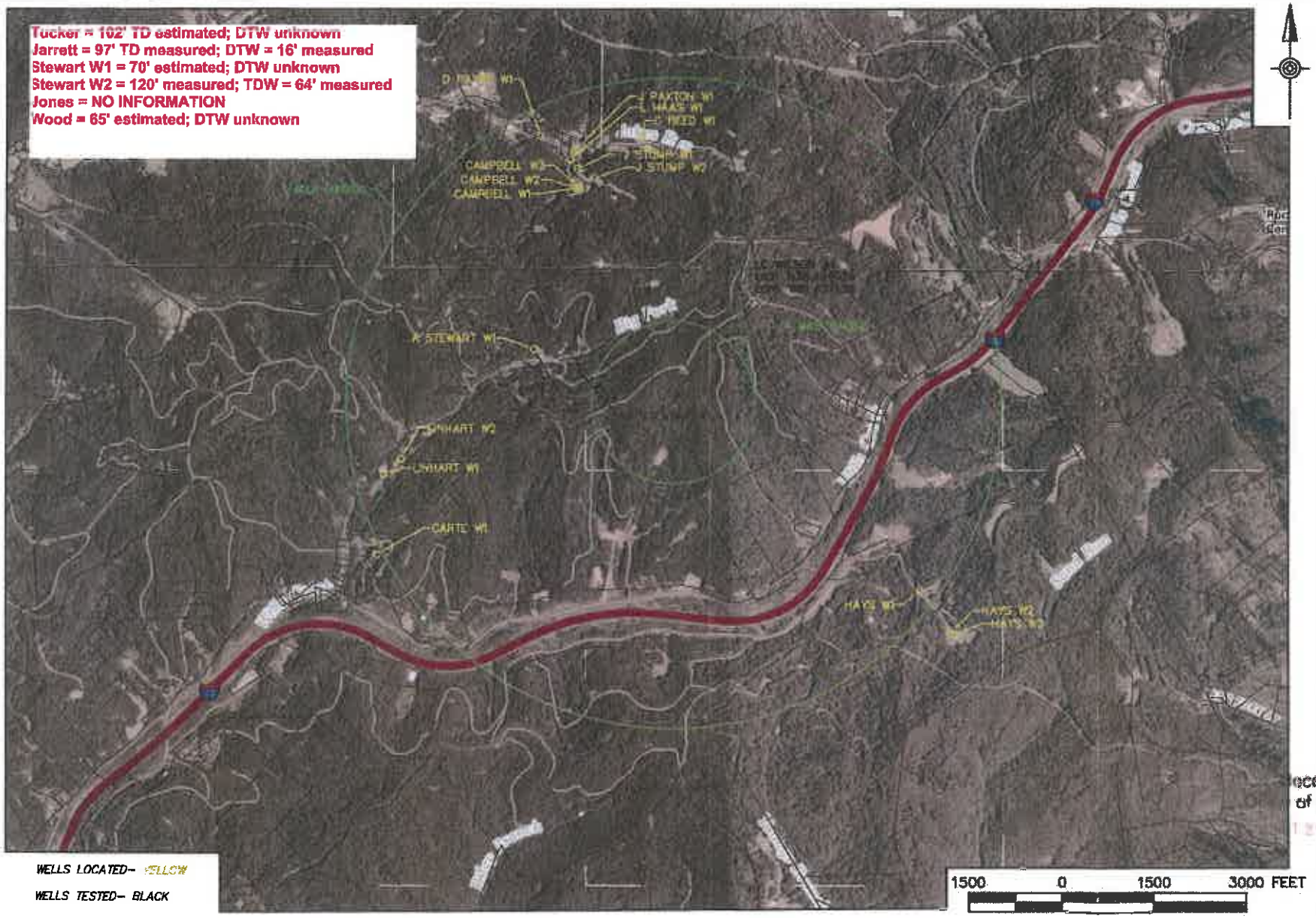
Orville Rhodes
X Leroy Bush

Received
Office of Oil & Gas
OCT 28 2014

Sworn and subscribe before me this 8th day of December, 19 92
My commission expires: 3-14-95

Dolores L. Brant
Notary Public

Oil and Gas Inspector: Carlos W. Hively



WELLS LOCATED– YELLOW

WELLS TESTED– BLACK

Larson Design Group

NO.	DATE	COMMENTS	BY	CHK
01	12/17/13	ADD WELL COORDINATES	BTE	BMY

ISSUE / REVISIONS

WILSON WATER WELL TESTING

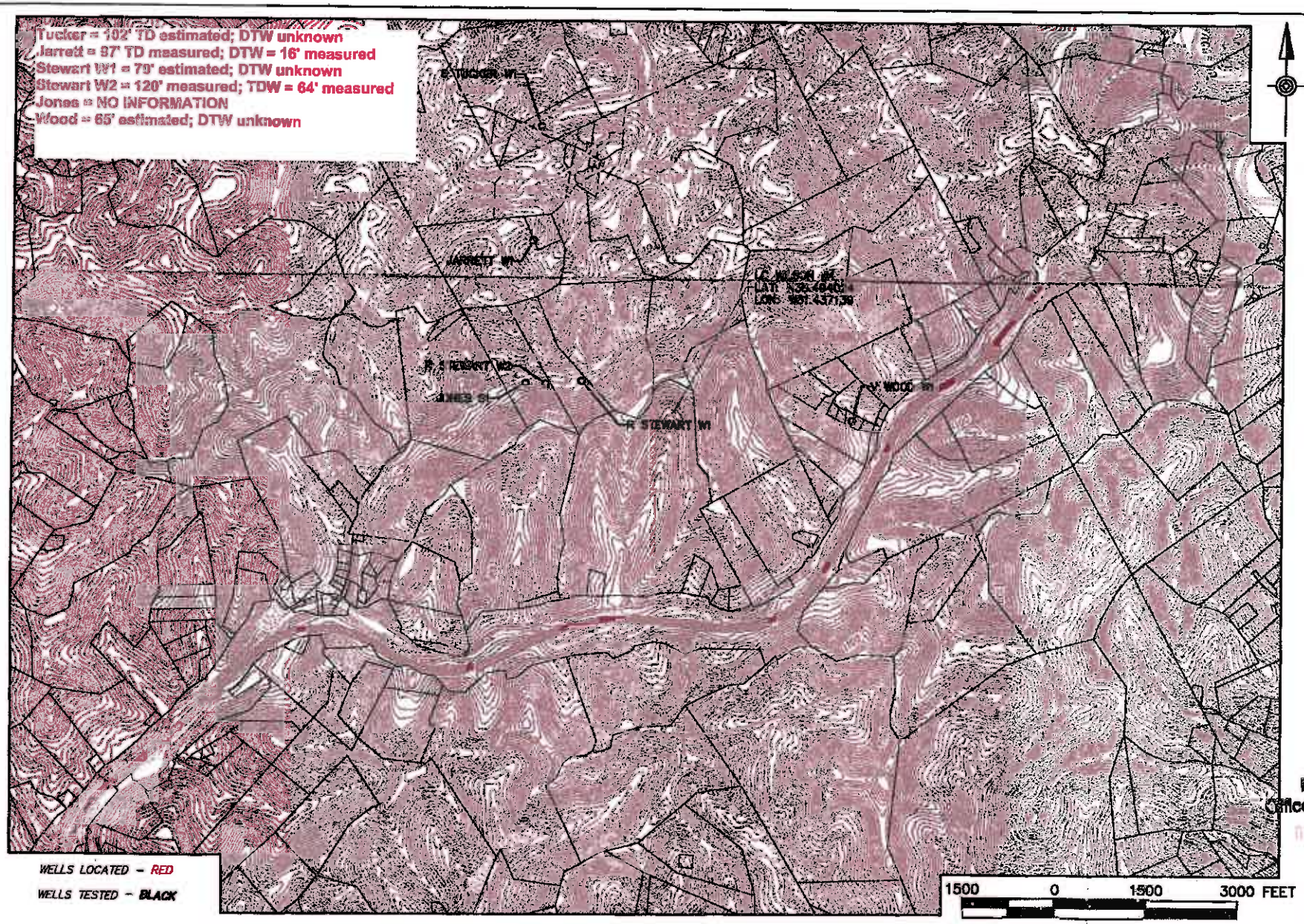
KANAWHA COUNTY, ELK DISTRICT, WEST VIRGINIA

EXCO RESOURCES (PA), LLC
280 EXECUTIVE DRIVE, SUITE 100
CRANBERRY TWP., PA 16066
PHONE (724) 720-2590

Larson Design Group • Architects Engineers Surveyors
8050 Rowan Road • Suite 504
Cranberry Township, PA 16066
PHONE 724.591.5562 TOLL FREE 877.323.6603
FAX 570.323.9902 • www.larsondesigngroup.com

SHEET NO.:

PROJECT NO.: 8013–005



Received
Office of Oil & Gas

Larson Design Group

NO.	DATE	COMMENTS	BY	CHK
01	12/17/13	ADD WELL COORDINATES	TWO	BWY

ISSUE / REVISIONS

WILSON WATER WELL TESTING

KANAWHA COUNTY, ELK DISTRICT, WEST VIRGINIA

EXCO RESOURCES (PA), LLC
260 EXECUTIVE DRIVE, SUITE 100
CRANBERRY TWP., PA 16066
PHONE (724) 720-2590

Larson Design Group • Artificial Engineers Surveyors
6050 Rowan Road • Suite 504
Cranberry Township, PA 16066
PHONE 724.591.8562 TOLL FREE 877.323.6603
FAX 570.323.8902 • www.larsondesigngroup.com

SHEET NO.:

PROJECT NO.: 6013-005

2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Jones, Robert
Collector: SS
Number of Containers: 11

Reported:
10/16/14 10:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
917 WILLIS CREEK RD/RJONES S1	3K20025-01	Water	Grab	11/19/13 16:45	11/20/13 10:09

3K20025 Parameter list attached as page 17 of final report. This report replaces the report issued 09/30/14 15:45. 10/07/14 CL

The resample for GRO/DRO/ORO was collected 12/16/13 and is reported on separate laboratory work order ID: 4J15097. 10/15/14 mlf

3K20025 Report revised. Case narrative and MDL values added. This report replaces the report printed on 12/24/13 08:41. 09/30/14 mlf

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
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FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Jones, Robert
Collector: SS
Number of Containers: 11

Reported: 10/16/14 10:37

Client Sample ID: 917 WILLIS CREEK RD/RJONES S1

Date/Time Sampled: 11/19/13 16:45

Laboratory Sample ID: 3K20025-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Calculated Analytes								
Hardness	136	0.0657	0.662	mg/l	12/02/13 11:11	SM2340B	rab	
Metals by EPA 200 Series Methods								
Aluminum	2.92	0.0149	0.0500	mg/l	12/02/13 11:11	EPA 200.7/4.4	rab	
Arsenic	<0.00202	0.00202	0.00400	mg/l	12/02/13 11:13	EPA 200.7/4.4	rab	
Barium	0.0901	0.00132	0.0100	mg/l	12/02/13 11:11	EPA 200.7/4.4	rab	
Calcium	36.2	0.0131	0.100	mg/l	12/02/13 11:11	EPA 200.7/4.4	rab	
Iron	4.03	0.00223	0.0200	mg/l	12/02/13 11:11	EPA 200.7/4.4	rab	
Manganese	0.362	0.00146	0.0100	mg/l	12/02/13 11:13	EPA 200.7/4.4	rab	
Sodium	11.8	0.0677	0.400	mg/l	12/02/13 11:11	EPA 200.7/4.4	rab	
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<0.15	0.15	1.00	ug/l	11/26/13 12:46	EPA 8260B	bag	2d
Toluene	<0.12	0.12	1.00	ug/l	11/26/13 12:46	EPA 8260B	bag	2d
Ethylbenzene	<0.08	0.08	1.00	ug/l	11/26/13 12:46	EPA 8260B	bag	
Xylenes (total)	<0.28	0.28	2.00	ug/l	11/26/13 12:46	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene		*92.5 %*	*70-130*		*11/26/13 12:46*	*EPA 8260B*	bag	
Surrogate: 1,2-Dichloroethane-d4		*96.2 %*	*70-130*		*11/26/13 12:46*	*EPA 8260B*	bag	
Surrogate: Fluorobenzene		*98.7 %*	*70-130*		*11/26/13 12:46*	*EPA 8260B*	bag	
Conventional Chemistry Parameters by SM/EPA Methods								

Received
Office of Oil & Gas

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Jones, Robert
Collector: SS
Number of Containers: 11

Reported:
10/16/14 10:37

Client Sample ID: 917 WILLIS CREEK RD/RJONES S1

Date/Time Sampled: 11/19/13 16:45

Laboratory Sample ID: 3K20025-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Conventional Chemistry Parameters by SM/EPA Methods								
Chloride	7.98	1.63	5.00	mg/l	11/20/13 22:26	EPA 300.0/2.1	bdw	
Methylene Blue Active Substances	<0.0270	0.0270	0.100	mg/l	11/20/13 09:00	SM 5540 C-2011	elb	
pH @ 17.4°C	7.70			pH Units	11/21/13 14:00	SM20-4500H + B	cmh	
Total Dissolved Solids	168	4.00	40.0	mg/l	11/22/13 16:30	SM20-2540C	arr	
Sulfate as SO4	22.9	1.40	5.00	mg/l	11/20/13 22:26	EPA 300.0/2.1	bdw	
Microbiological Parameters by APHA Standard Methods								
E. Coli	7.5	1.0	1.0	MPN/100 ml	11/20/13 10:54	SM20-9223B	jee	7d
Total Coliforms	200.5	1.0	1.0	MPN/100 ml	11/20/13 10:54	SM20-9223B	jee	7a, 7d
Field Sampled Parameters								
Specific Conductance (Field)	627	0.00	2.00	umhos/cm	11/19/13 16:45	SM20-2510B	SSS	
pH- Field @ 10.3°C	8.10			pH Units	11/19/13 16:45	SM20-4500H + B FIELD	SSS	
Temperature	10.3	0.00	0.100	degrees C	11/19/13 16:45	SM20- 2550B Field	SSS	
Dissolved Gases by RSK 175								
Butane	<0.00513	0.00513	0.0200	mg/l	11/21/13 16:43	RSK 175	bag	
Methane	<0.0200	0.00150	0.0200	mg/l	11/21/13 16:43	RSK 175	bag	

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Fairway Laboratories, Inc.

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2019 Ninth Avenue
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Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Jones, Robert
Collector: SS
Number of Containers: 11

Reported:
10/16/14 10:37

Client Sample ID: 917 WILLIS CREEK RD/RJONES S1

Date/Time Sampled: 11/19/13 16:45

Laboratory Sample ID: 3K20025-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Dissolved Gases by RSK 175								
Ethane	<0.0100	0.00227	0.0100	mg/l	11/21/13 16:43	RSK 175	bag	
Propane	<0.0150	0.00363	0.0150	mg/l	11/21/13 16:43	RSK 175	bag	

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EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Jones, Robert	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:37
Project Manager: Brian Rushe	Number of Containers:	11	

Notes

2d	The LCS spike recovery was outside acceptance limits. Data accepted based on additional batch QC.
7a	> 200 TNTC.
7d	Contaminated - Not fit for human consumption.
J	Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL); therefore, result is an estimated value.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

*	P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
<	Represents "less than" - indicates that the result was less than the reporting limit.
MDL	Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. reported result values that are less than the RL are considered estimated values.
RL	Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.
[CALC]	Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:37
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260 Executive Drive	Project Number:	Jones, Robert	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:37
Project Manager: Brian Rushe	Number of Containers:	11	

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested. [illegible] disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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CHAIN OF CUSTODY REQUEST FOR ANALYSIS

FAIRWAY LABORATORIES Environmental L

3K20025-01 K
917 WILLIS CREEK RD./RJONES S
Sampled: 11/19/13 16:45
Water-100 mL Bactl

4306
8791

Client Name: EXCO WV
Address: 917 Willis Creek Rd
Contact: Brian Rushe
Phone #:
Fax #:
Project Name: LC Wilson #4

Anaylsis Requested: Total Coliform ☒ Fecal Coliform ☐ HPC ☐
Date/time collected: 11.19.13 16.45
Sample location/description: RJones S1

	Signature	Date	Time
Sampled by:	Stephen Smith	11.19.13	16.45
Received by:			
Reliuquished by:			
Received by:			

EXCO Resources
LIMS #
File #: 1037
S1
Total coliform: >200.5/100mL
E coli: 7.5/100mL
Fecal:
HPC:
Analyst:
Analysis Started: 1056 11/20
In: 1107 Out: 1153 11/21/13

Type Treatment: UV ☐ Ozone ☐
Chlorine residual:
Number of containers:
Matrix: Water ☐ other
Comments:

White Original - FLI File Canary - Customer Mailing/Report Pink - Customer Receipt Copy
★★ Please complete all of the grayed areas. ★★

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

FAIRWAY LABORATORIES INC.

COC #3K20025-00 Page ___ of ___

Received Office of Oil & Gas OCT 2014

Client Name:	EXCO WV
Address:	
Contact:	Brian Rushe
Phone #:	
Fax #:	
Project Name:	LC Wilson # 4
Quote/PO #:	RJones S1

TAT:

Normal	
Rush	
Date Required:	

Receiving Info	Y	N
Custody Seals		
Seals Intact?		
Received on Ice?		
COC/ Labels agree?		
Correct containers?		
Correct preservation?		
VOA head space		
Sample Temp:		
Report to PADEP?		
PWSID #:		

Analyses Requested

FLI use only	Sample Description / Location	Sample Date	Sample Time	Grab or Composite	Soil	Water	Other? Explain	# of Containers	EXCO WV Parameters	Field pH	Field S.C.	Field Temp.	Trip Blank	Comments
	917 Wills Creek Rd													
1	RJones S1	11.19.13	16:45	G		X		11	X	8.10	627µS	10.3°C		
													X	Includes Bacti
													X	1 HCl Vial

	Signature	Date	Time
Sampled By:	[signature]	11.19.13	17:00
Received by:			
Relinquished by:	[signature]	11.20.13	7:40
Received by:	MSL	11-20-13	7:40
Relinquished by:	MSL	11-20-13	10:09
Received by:	[signature]	11/20/13	10:09

Remarks

Circle One : PA (WV) OH

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SOP FLI0601-002 Revision 16 Date: September 13, 2013 Page of

Receiver: JC

Chain of Custody Receiving Document

Page ___ of ___

Date/Time of this check: 11/20/13 1022 Sample Temperature: 2.6 Client: EXCO WV Lab # 3K20

Received at Lab on ICE ? Y ☐ * Sample Temperature when arrived at Lab: 2.6 Acceptable? Y ☐ * or In cool down process? ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other ☐ *	Properly Preserved ☐ *	Bacti	
1	2		1	1			WET		Y		

*** DEVIATION PRESENT:**
- ⊗ No Ice ( )
- ⊗ Not at Proper Temperature ( )
- ⊗ Wrong Container ( )
- ⊗ Missing Information: ( )

CLIENT CALLED:
YES ( )
By Whom: _____ Date: _____

CLIENT RESPONSE:
- Proceed with analysis; qualify data ( )
- Will Resample ( )
- Provided Information ( )
- No Response; Proceed and qualified ( )

Client Contact: _____ Date: _____

* Comments: _____

This is a date sensitive document and may not be current after November 5, 2013.

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

right barn.

Part A: GENERAL INFORMATION

3LJ0025-03

Water Source Sample ID: RJones S1	Well Pad Name: LC Wilson # 4	Permit No.:	Well Operator: EXCO
Coordinates: (in NAD83, in decimal degrees) Lat N38.49535	Long W-80.44553	Elevation 987 FT (msl)	
Date Sampled: 11-19-13	Time Sampled (Military): 16:45	Sampled By: SS	☐ N/A: No Sample (See Notes)
Person Interviewed (circle one): Owner Resident	Other:		

PROPERTY OWNER		RESIDENT OR OTHER	
Name:	Robert Jones	Name:	
Address:	917 Wills Creek Rd	Address:	
Address:	Elkview, WV 25071	Address:	
Phone No.:	304-932-3930	Phone No.:	

Part B: DOCUMENTATION OF SAMPLING REFUSAL

Is Person Refusing the Property Owner as Listed Above? Yes ☐ No ☐		If No, Notify Property Owner	
Refusal in person or over phone:	Date of Refusal:	Time of Refusal:	
Reason(s) for Refusal:			
Name of Company Documenting Refusal:			

Part C: WATER QUALITY

	Reported Quality			Observed Quality		
	Yes	No	N/A	Yes	No	N/A
Staining	☐	☒	☐	☒	☐	☐
Odor	☐	☒	☐	☒	☐	☐
Cloudiness	☐	☒	☐	☒	☐	☐
Sheen	☒	☐	☐	☐	☒	☐
Effervescence	☐	☒	☐	☐	☒	☐
Taste	☐	☒	☐	N/A	N/A	N/A

Treatment: ☒ None ☐ UV Light ☐ Softening ☐ pH Adjustment ☐ Chlorination ☐ Other: ☐ Iron Removal ☐ In-line Sediment Filter ☐ Charcoal Filter

* Bleach every few weeks

Yes ☐ No ☐ Functioning Properly

Pump Type: ☐ None ☐ Gas Piston ☐ Submersible ☐ Windmill ☐ Jet ☒ Other: Gravity

☐ Capacity _____ GPM

Part D: WATER SOURCE INFORMATION

Does this source supply any other properties? NO If yes, identify properties _____

Is the water source(s) located on the property: Yes ☒ No ☐ If No, please explain: _____

Number of people using this water source? 3 Gallons/day, if metered: _____

Has water source ever gone dry? Yes ☐ No ☐

Pressure Tank Yes ☒ No ☐ Size of tank _____ gallons ☐ Actual size ☐ Estimated ☐ Unknown

Water Use ☒ Domestic ☒ Husbandry ☐ Irrigation ☐ Other: Garage

Compass course from water source to dwelling N Estimated distance from water source to dwelling 75 ft. yrds

Are there any other water sources on the property? Yes ☐ No ☒ If yes, how many? Spring (1)

Provide all water source ID(s) Spring

Are you aware of any abandoned water source (s)? NO If yes, where _____, when _____

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Page 1 of 3

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

Water Source Type: ☐ Water Well

Drilled Well: Yes ☐ No ☐ Dug Well: Yes ☐ No ☐ Artesian: Yes ☐ No ☐ Other: _____

Reported total well depth: _____ FT. Well casing diameter: _____ IN. Missing/damaged pit-less adapter Yes ☐ No ☐ Unknown ☐

Reported depth of water level: _____ FT. Reported pump depth _____ FT.

Date Drilled _____ Drilling Company _____ Is the well in basement or crawlspace? _____

Driller log available Yes ☐ No ☐

Signature of owner authorizing release of water log(s) _____

Water Supply Type: ☒ Spring

Discharge Pipe Yes ☒ No ☐ Seep/Ground Surface Flow Yes ☐ No ☐ Spring House Yes ☐ No ☐ Underground Vault Yes ☐ No ☐

Water Source Type: ☐ Cistern

Size of Cistern _____ gallons ☐ Actual size ☐ Estimated ☐ Unknown

Source of water: _____ (e.g. Delivered, spring, well, gutter, etc.)

Water Source Type: ☐ Surface Water

☐ Pond ☐ Lake ☐ Creek ☐ River

Wastewater Type: Public Sewer Yes ☐ No ☒

PART E: DESCRIPTION OF WATER SOURCE (check all that apply)

- ☐ Loose, missing, or damaged cover (circle one if applicable)
- ☐ Evidence of insects, spiders, animals (circle one if applicable)
- ☐ Any cracked or damaged well casing/spring vault (circle one if applicable)
- ☒ Water source open to surface water Sample Spot
- ☐ Additional storage or holding tank/cyoote system (circle one if applicable)
- ☐ Cover flush with ground
- ☐ Evidence of erosion
- ☐ Water source secured
- ☒ Source buried
- ☐ Location unknown
- ☐ Other: _____

PART F: DESCRIPTION OF AREA SURROUNDING WATER SOURCE (check all that apply) Show locations on site sketch and provide approximate distance & compass course. Document housekeeping conditions. (Attach photos.)

- ☐ Ground sloping toward water source
- ☐ Water source downgradient of septic system
- ☐ Signs of failing septic, soggy ground, foul odor (circle all that apply)
- ☐ Close proximity to garden, agricultural field, orchard, greenhouse. (circle all that apply)
- ☐ Close proximity to junkyard, dumping area, landfill. (circle all that apply)
- ☐ Close proximity to fuel storage tanks, equipment storage or maintenance areas, garage. (circle all that apply)
- ☐ Located in field with livestock, barn, barnyard, other out building. (circle all that apply)
- ☐ Close proximity to salt storage area, salted roadway.
- ☐ Close proximity to pipeline.
- ☐ Other: _____

ADDITIONAL REMARKS & COMMENTS:

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

3K20025 04

PART G: GAS MONITORING AND SAMPLING

Dissolved Phase Gas Sample Collected?: [X] Yes [ ] No IS WELL VENTED? Yes [ ] No [ ] Unknown [ ] N/A

Gas Sample Collection Method: Water Displacement Method A (non-preserve) [ ] Yes Direct Fill Method B (preserve) [X] Yes Two Phase Method [ ] Yes

Free Phase Gas Water Well Head Space Screening Conducted? [ ] Yes [X] No Combustible Gas Meter: Bacoom-Turner Meter Calibrated? Yes [X]

Sustained Methane = N/A (% of LEL) Peak Methane = N/A (% of LEL)

(Contact EQT immediately if Sustained Methane Exceeds 25% of LEL in Water Well Headspace OR 10% of LEL in Building or Structure)

Description of Sample Screening and Collection (Location and Method):

PART H: SAMPLING

SAMPLED	SAMPLING POINT LOCATION		
[ ] Before Treatment [ ] After Treatment	[ ] Inside Faucet: _____	[ ] Pressure Tank	[X] Overflow/Discharge Pipe
[X] No Treatment [ ] Not Sure	[ ] Outside Faucet: _____	[ ] Wellhead	[ ] Other: _____
	[ ] Seep	[ ] Surface Water (sampled at coordinates in Part A)	

SAMPLING METHOD: [ ] Existing well pump [ ] Sampling pump [ ] Low flow [ ] Disposable Bailer [ ] Other: _____

Was the water source purged before sampling? Yes [ ] No [X] If yes, volume (gal.) and/or time (min) purged: _____

Is it possible to run water for 30 minutes? Yes [ ] No [ ] If no, please explain: _____

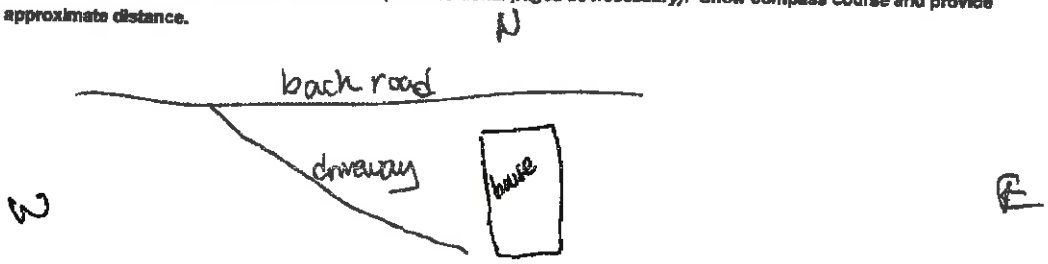
Average water usage within last 24 hours N/A

Chain of custody attached? [ ] Yes [ ] No Name of Certified Laboratory: _____

FIELD METER TYPE: Oakton Meter Calibrated? Yes [X] No [ ]

FIELD PARAMETERS: Turbidity: — pH: 8.10 Conductivity: 627.5 Temperature: 10.3°c

PART I: PLAN SKETCH and PHOTOGRAPHS *(use additional pages as necessary)*. Show compass course and provide approximate distance.



X spring

Sampler/Interviewer

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I hereby acknowledge that I have supplied the correct information to the best of my knowledge

Sign _____ Print Stephanie Singleton Date 11-19-13

Company: Fairway Laboratories Inc. Address: _____ Phone: _____

Page 3 of 3

WELL L.C. Wilson EQT
PURVEYOR Jones
ADDRESS 917 Wills Creek Rd.
SOURCE R Jones S1
DATE/TIME 11-14-13 16:45 ELEV
LAT N38.49535 887
GPS LONG W-81.4453

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EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Jones, Robert
Collector: SS
Number of Containers: 3

Reported:
10/16/14 10:43

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
917 WILLIS CREEK RD/RJONES S1	4J15097-01	Water	Grab	12/16/13 16:00	12/17/13 13:40

Laboratory ID: 4J15097 is the resample for GRO/ORO/DRO for laboratory report ID: 3K20025. 10/15/14 mlf

Client Sample ID: 917 WILLIS CREEK RD/RJONES S1 **Date/Time Sampled:** 12/16/13 16:00

Laboratory Sample ID: 4J15097-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Extractable Petroleum Hydrocarbons by 8015								
Oil Range Organics	<33.7	33.7	252	ug/l	12/21/13 01:19	EPA 8015D mod	rsr	
Diesel Range Organics	129 J	61.9	252	ug/l	12/21/13 01:19	EPA 8015D mod	rsr	
Surrogate: o-Terphenyl		*39.9 %*	*40-140*		*12/21/13 01:19*	*EPA 8015D mod*	rsr	2n
Volatile Petroleum Hydrocarbons by 8015 GRO								
Gasoline Range Organics	10.2 J	9.35	100	ug/l	12/17/13 23:22	EPA 8015D mod	bag	
Surrogate: a,a,a-Trifluorotoluene		*97.0 %*	*70-130*		*12/17/13 23:22*	*EPA 8015D mod*	bag	

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Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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EXCO Resources			
260 Executive Drive	Project:	LC WILSON #4	
Cranberry Township PA, 16066	Project Number:	Jones, Robert	**Reported:**
Project Manager: Brian Rushe	Collector:	SS	10/16/14 10:43
	Number of Containers:	3	

Notes

2n — The surrogate value is not within the indicated range, results are considered to be estimated.

J — Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL); therefore, result is an estimated value.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

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MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

* — P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< — Represents "less than" - indicates that the result was less than the reporting limit.

MDL — Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RL — Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] — Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Jones, Robert	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:43
Project Manager: Brian Rushe	Number of Containers:	3	

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

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SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

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WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its [illegible] disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

4J15097 #1

FAIRWAY LABORATORIES
Environmental Laboratory

89 Kristi Rd
Pennsdale, PA 17756
Phone: (570) 494-6380

(Re) 10-16-14 acc
~~3L20025-10~~
COC #

Page ____ of ____

Client Name: EXCO WV
Address:
Contact: Brain Bushe
Phone #:
Fax #:
Project Name: L.C. Wilson #4
Quote/PO #: Jones

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☐ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start Start Date	Composite Start Start Time	GRAB -or- Composite End End Date	GRAB -or- Composite End End Time	Matrix Solid	Matrix Water	Matrix Other	# of Containers	EXCO (Resample)	Bottle Type/Comments
917 Wills Creek Rd												Resample:
												2 HCl vials
												1L H2SO4 Amber
B Jones S1	X		SS ~~12/16/13~~		12-16-13	16:00		X		3	X	

	Date	Time		Date	Time
Sampled by: [signature]	12-16-13	16:15	Received by: [signature]	12/17/13	10:00
Relinquished by: [signature]	12-17-13	6:00	Received by:		
Relinquished by: [signature]	12/17/13	13:40	Received by:		
Relinquished by:			Received by: JS	12/17/13	13:40

Remarks

Office Use Only
Cooler Temp.

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

SOP FLI0601-002 Revision 16 Date: September 13, 2013 4J15097#2 Page of

Receiver: YNS

Chain of Custody Receiving Document

Page ___ of ___

Date/Time of this check: 12/17/13 14:07 Sample Temperature: 1.4 Client: EXCO WV (Re) 10-16-14acc

Received at Lab on ICE ? Y ☐ * Sample Temperature when arrived at Lab: 1.4 Acceptable? Y ☐ * or In cool down process? ☐ * Lab # ~~3K20025-11~~

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐* Correct containers for all the analysis requested? Y ☐ * Matrix: Water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?) HCl	Other ☐ *	Properly Preserved ☐ *	Bacti	
1				1			2		Y		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	_____ Date: _____	No Response; Proceed and qualified ( )
		Client Contact: _____ Date: _____

* Comments:

4J15097#3

W. Va. Code R. 35-8-15 Water Supply Testing.

15.3.b. **Parameters** - The operator shall analyze samples for the following parameters:

15.3.b.1. Total Petroleum Hydrocarbons (GRO, DRO, ORO)
15.3.b.2. BTEX
15.3.b.3. Chloride
15.3.b.4. Sodium
15.3.b.5. Total Dissolved Solids (TDS)
15.3.b.6. Aluminum
15.3.b.7. Arsenic
15.3.b.8. Barium
15.3.b.9. Iron
15.3.b.10. Manganese
15.3.b.11. pH
15.3.b.12. Calcium
15.3.b.13. Sulfate
15.3.b.14. Detergents (MBAS)
15.3.b.15. Dissolved Methane
15.3.b.16. Dissolved Ethane
15.3.b.17. Dissolved Butane
15.3.b.18. Dissolved Propane
15.3.b.19. Bacteria (total coliform)
15.3.b.20. Any others parameters determined by the operator or the Chief.

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EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Jarrett, Regina
Collector: SS
Number of Containers: 12

Reported:
10/17/14 08:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
338 MERVAN DR/RJARRETT W1	3K21139-01	Water	Grab	11/20/13 13:15	11/21/13 19:15
TRIP BLANK	3K21139-02	Water	Trip Blank	11/20/13 00:00	11/21/13 19:15

3K21139 Parameter list attached as page 18 of final report. This report replaces the report issued 09/30/14 13:06. 10/07/14 CL

The homeowner's last name is incorrect on all chain of custodies, site visit forms and whiteboard photos.

The resample for GRO/DRO/ORO was collected 12/19/13 and is reported on separate laboratory work order ID: 4J15100. 10/15/14 mlf

3K21139 Report revised. Case narrative and MDL values added, Sample name revised to match COC. This report replaces the report printed on 12/26/13 12:15. 09/30/14 mlf

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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Project: LC WILSON #4
Project Number: Jarrett, Regina
Collector: ss
Number of Containers: 12

Reported: 10/17/14 08:21

Client Sample ID: 338 MERVAN DR/RJARRETT W1

Date/Time Sampled: 11/20/13 13:15

Laboratory Sample ID: 3K21139-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Calculated Analytes								
Hardness	102	0.0657	0.662	mg/l	12/04/13 17:18	SM2340B	rab	
Metals by EPA 200 Series Methods								
Aluminum	<0.0500	0.0149	0.0500	mg/l	12/04/13 17:18	EPA 200.7/4.4	rab	
Arsenic	0.00240 J	0.00202	0.00400	mg/l	12/04/13 17:20	EPA 200.7/4.4	rab	
Barium	0.108	0.00132	0.0100	mg/l	12/04/13 17:18	EPA 200.7/4.4	rab	
Calcium	26.1	0.0131	0.100	mg/l	12/04/13 17:18	EPA 200.7/4.4	rab	
Iron	0.107	0.00223	0.0200	mg/l	12/04/13 17:18	EPA 200.7/4.4	rab	
Manganese	0.00582 J	0.00146	0.0100	mg/l	12/04/13 17:20	EPA 200.7/4.4	rab	
Sodium	23.0	0.0677	0.400	mg/l	12/04/13 17:18	EPA 200.7/4.4	rab	
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<0.15	0.15	1.00	ug/l	11/26/13 14:39	EPA 8260B	bag	2d
Toluene	<0.12	0.12	1.00	ug/l	11/26/13 14:39	EPA 8260B	bag	2d
Ethylbenzene	<0.08	0.08	1.00	ug/l	11/26/13 14:39	EPA 8260B	bag	
Xylenes (total)	<0.28	0.28	2.00	ug/l	11/26/13 14:39	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene		*92.1 %*	*70-130*		*11/26/13 14:39*	*EPA 8260B*	bag	
Surrogate: 1,2-Dichloroethane-d4		*98.8 %*	*70-130*		*11/26/13 14:39*	*EPA 8260B*	bag	
Surrogate: Fluorobenzene		*100 %*	*70-130*		*11/26/13 14:39*	*EPA 8260B*	bag	
Conventional Chemistry Parameters by SM/EPA Methods								

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Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Jarrett, Regina
Collector: ss
Number of Containers: 12

Reported:
10/17/14 08:21

Client Sample ID: 338 MERVAN DR/RJARRETT W1

Date/Time Sampled: 11/20/13 13:15

Laboratory Sample ID: 3K21139-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Conventional Chemistry Parameters by SM/EPA Methods								
Chloride	11.5	0.215	1.00	mg/l	11/22/13 10:46	EPA 300.0/2.1	bdw	
Methylene Blue Active Substances	<0.00675	0.00675	0.0250	mg/l	11/22/13 08:45	SM 5540 C-2011	elb	
pH @ 18.1°C	7.69			pH Units	11/22/13 16:04	SM20-4500H + B	cmh	
Total Dissolved Solids	204	2.00	20.0	mg/l	11/25/13 15:20	SM20-2540C	arr	
Sulfate as SO4	60.0	1.40	5.00	mg/l	11/26/13 22:35	EPA 300.0/2.1	bdw	
Microbiological Parameters by APHA Standard Methods								
E. Coli	<1.0	1.0	1.0	MPN/100 ml	11/21/13 11:47	SM20-9223B	blb	7c
Total Coliforms	<1.0	1.0	1.0	MPN/100 ml	11/21/13 11:47	SM20-9223B	blb	7c
Field Sampled Parameters								
Specific Conductance (Field)	260	0.00	2.00	umhos/cm	11/20/13 13:15	SM20-25[illegible]	[illegible]	
pH- Field @ 11.1°C	7.93			pH Units	11/20/13 13:15	SM[illegible]H + B FIELD	[illegible]	
Temperature	11.1	0.00	0.100	degrees C	11/20/13 13:15	SM20- 2550B Field	SSS	
Dissolved Gases by RSK 175								
Butane	<0.00513	0.00513	0.0200	mg/l	11/26/13 13:49	RSK 175	bag	
Methane	<0.0200	0.00150	0.0200	mg/l	11/26/13 13:49	RSK 175	bag	

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Reported:
10/17/14 08:21

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Date/Time Sampled: 11/20/13 13:15

Laboratory Sample ID: 3K21139-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Dissolved Gases by RSK 175								
Ethane	<0.0100	0.00227	0.0100	mg/l	11/26/13 13:49	RSK 175	bag	
Propane	<0.0150	0.00363	0.0150	mg/l	11/26/13 13:49	RSK 175	bag	

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Project: LC WILSON #4
Project Number: Jarrett, Regina
Collector: ss
Number of Containers: 12

Reported: 10/17/14 08:21

Client Sample ID: TRIP BLANK

Date/Time Sampled: 11/20/13 00:00

Laboratory Sample ID: 3K21139-02 (Water/Trip Blank)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<0.15	0.15	1.00	ug/l	11/26/13 15:06	EPA 8260B	bag	2d
Toluene	<0.12	0.12	1.00	ug/l	11/26/13 15:06	EPA 8260B	bag	2d
Ethylbenzene	<0.08	0.08	1.00	ug/l	11/26/13 15:06	EPA 8260B	bag	
Xylenes (total)	<0.28	0.28	2.00	ug/l	11/26/13 15:06	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene		*92.6 %*	*70-130*		*11/26/13 15:06*	*EPA 8260B*	bag	
Surrogate: 1,2-Dichloroethane-d4		*98.1 %*	*70-130*		*11/26/13 15:06*	*EPA 8260B*	bag	
Surrogate: Fluorobenzene		*99.4 %*	*70-130*		*11/26/13 15:06*	*EPA 8260B*	bag	

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260 Executive Drive	Project Number:	Jarrett, Regina	**Reported:**
Cranberry Township PA, 16066	Collector:	ss	10/17/14 08:21
Project Manager: Brian Rushe	Number of Containers:	12	

Notes

2d	The LCS spike recovery was outside acceptance limits. Data accepted based on additional batch QC.
7c	Potable (drinkable) - No bacteria present above reportable levels.
J	Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL); therefore, result is an estimated value.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

*	P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
<	Represents "less than" - indicates that the result was less than the reporting limit.
MDL	Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.
RL	Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.
[CALC]	Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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Fed Ex 7932 1083 5781

3.6

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

FAIRWAY LABORATORIES
Environmental Lab

3K11139-01K
338 MERVAN DR[illegible]
Sampled: 11/20/13 13:15
Water 100 ml Bag
[illegible]

Client Name: EXCO WV
Address: 338 Mervan Dr
Contact: Brian Rusk
Phone #:
Fax #:
Project Name: LC Wilso #4

File #: 1085
Total coliform: < 1 | 100 ml
E coli:
Fecal:
HPC:
Analyst: [illegible]
Analysis Started: 1144 11/21/13
In: 1203 Out: 1221 11/21/13

Anaylsis Requested: Total Coliform ☒ Fecal Coliform ☐ HPC ☐
Date/time collected: 11.20.13 13:15
Sample location/description:

Type Treatment: UV ☐ Ozone ☐
Chlorine residual:
Number of containers:
Matrix: Water ☐ other
Comments:

	Signature	Date	Time
Sampled by:	[illegible]	11.20.13	13:15
Received by:			
Relinquished by:	[illegible]	11.20.13	17:45
Received by:	CB	11/21	11:40

White Original - FLI File Canary - Customer Mailing/Report Pink - Customer Receipt Copy
★★ Please complete all of the grayed areas. ★★

Received
Office of Oil & Gas
OCT 2 9 2014

3K21139-2

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

FAIRWAY LABORATORIES INC.

COC #_____ Page _____ of _____

Client Name:	EXCO WV
Address:	
Contact:	Brian Rushe
Phone #:	
Fax #:	
Project Name:	LC Wilson # 4
Quote/PO #:	Jarred
TAT:	
Normal	
Rush	
Date Required:	

Receiving Info	Y	N
Custody Seals		
Seals Intact?		
Received on Ice?	Y	
COC/ Labels agree?		
Correct containers?		
Correct preservation?		
VOA head space		
Sample Temp:		
Report to PADEP?		
PWSID #:		

Analyses Requested

FLI use only	Sample Description / Location	Sample Date	Sample Time	Grab or Composite	Soil	Water	Other? Explain	# of Containers	EXCO WV Parameters	Field pH	Field S.C.	Field Temp.	Trip Blank	Comments
	338 Mervan Dr													
	Rjarred W1	11.20.13	13:15	G		X		11	X	7.93	260µ	11.1°C		
													X	Includes Bacti
													X	1 HCl Vial

Received Office of Oil & Gas OCT 2013

	Signature	Date	Time
Sampled By:	[signature]	11.20.13	13:25
Received by:	[signature]	11.20.13	16:46
Relinquished by:	[signature]	11.21.13	16:46
Received by:			
Relinquished by:	[signature]	11/21/13	19:15
Received by:	CR	11-21-13	19:15

Remarks

Circle One : PA (WV) OH

SOP FLI0601-002 Revision 16 Date: September 13, 2013 Page of

Chain of Custody Receiving Document

Page ___ of ___

Receiver: CA

Date/Time of this check: 11-21-13 20:25 Sample Temperature: 1.4 Client: Exxco Lab#: 3K21139-03

Received at Lab on ICE ? Y ☐ * Sample Temperature when arrived at Lab: 1.4 Acceptable? Y ☐ * or In cool down process? ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?) N	Other ☐ *	Properly Preserved ☑ *	Bacti	
1	2		1	1			6HL				
TB							1HL				

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	_____ Date: _____	No Response; Proceed and qualified ( )
		Client Contact: _____ Date: _____

* Comments: _____

This is a date sensitive document and may not be current after November 21, 2013.

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

Part A: GENERAL INFORMATION

3K2113904

Water Source Sample ID: RJarred W1	Well Pad Name: LC Wilson #4	Permit No.:	Well Operator: EXCO
Coordinates: (in NAD83, in decimal degrees) Lat N 38.50166	Long W -81.44527	Elevation 845 FT (msl)	
Date Sampled: 11-20-13	Time Sampled (Military): 13:15	Sampled By: SS	☐ N/A: No Sample (See Notes)
Person Interviewed (circle one): Owner	Resident	Other: _____	

PROPERTY OWNER		RESIDENT OR OTHER	
Name:	Ragena Jarred	Name:	
Address:	338 Marvan Rd	Address:	
Address:	Elkview, WV 25071	Address:	
Phone No.:	304-560-4128	Phone No.:	

Part B: DOCUMENTATION OF SAMPLING REFUSAL

Is Person Refusing the Property Owner as Listed Above? Yes ☐ No ☐		If No, Notify Property Owner
Refusal in person or over phone:	Date of Refusal:	Time of Refusal:
Reason(s) for Refusal:		
Name of Company Documenting Refusal:		

Part C: WATER QUALITY

	Reported Quality			Observed Quality		
	Yes	No	N/A	Yes	No	N/A
Staining	☐	☒	☐	☐	☒	☐
Odor	☐	☒	☐	☐	☒	☐
Cloudiness	☐	☒	☐	☐	☒	☐
Sheen	☐	☒	☐	☐	☒	☐
Effervescence	☐	☒	☐	☐	☒	☐
Taste	☒ good	☐	☐	N/A	N/A	N/A

Treatment		Pump Type
☒ None	☐ UV Light	☐ None
☐ Softening	☐ pH Adjustment	☐ Gas Piston
☐ Chlorination	☐ Other: _____	☐ Submersible
☐ Iron Removal		☐ Windmill
☐ In-line Sediment Filter		☒ Jet
☐ Charcoal Filter		☐ Other: _____
Yes ☐ No ☐ Functioning Properly		☐ Capacity _____ GPM

Part D: WATER SOURCE INFORMATION

Does this source supply any other properties? NO If yes, identify properties _____

Is the water source(s) located on the property: Yes ☐ No ☒ If No, please explain: _____

Number of people using this water source? 4 Gallons/day, if metered: _____

Has water source ever gone dry? Yes ☐ No ☒

Pressure Tank: Yes ☒ No ☐ Size of tank 25 gallons ☒ Actual size ☐ Estimated ☐ Unknown

Water Use ☒ Domestic ☐ Husbandry ☐ Irrigation ☐ Other: _____

Compass course from water source to dwelling E Estimated distance from water source to dwelling _____ FT.

Are there any other water sources on the property? Yes ☐ No ☐ If yes, how many? _____ Total (1) _____

Provide all water source ID(s) _____ Well: _____

Are you aware of any abandoned water source (s)? NO If yes, where _____, when _____

Received
Office of Oil & Gas
OCT 2014

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

3162139-05

Water Source Type: ☒ Water Well

Drilled Well: Yes ☒ No ☐ Dug Well: Yes ☐ No ☒ Artesian: Yes ☐ No ☒ Other: _____

Reported total well depth: ~97 FT. Well casing diameter: _____ IN. Missing/damaged pit-less adaptor Yes ☐ No ☐ Unknown ☐

Reported depth of water level: 15 ft FT. Reported pump depth _____ FT.

Date Drilled Unknown Drilling Company _____ Is the well in basement or crawlspace? _____

Driller log available Yes ☐ No ☐ → at least 25 yrs

Signature of owner authorizing release of water log(s) _____

Water Source Type: ☐ Spring

Discharge Pipe Yes ☐ No ☐ Seep/Ground Surface Flow Yes ☐ No ☐ Spring House Yes ☐ No ☐ Underground Vault Yes ☐ No ☐

Water Source Type: ☐ Cistern

Size of Cistern _____ gallons ☐ Actual size ☐ Estimated ☐ Unknown

Source of water: _____ (e.g. Delivered, spring, well, gutter, etc.)

Water Source Type: ☐ Surface Water

☐ Pond ☐ Lake ☐ Creek ☐ River

Water Source Type: Public Water Yes ☐ No ☒

PART E: DESCRIPTION OF WATER SOURCE (check all that apply)

- ☒ Loose, missing, or damaged cover (circle one if applicable)
- ☐ Evidence of insects, spiders, animals (circle one if applicable)
- ☐ Any cracked or damaged well casing/spring vault (circle one if applicable)
- ☐ Water source open to surface water
- ☐ Additional storage or holding tank/cocoto system (circle one if applicable)
- ☐ Cover flush with ground
- ☐ Evidence of erosion
- ☐ Water source secured
- ☐ Source buried
- ☐ Location unknown
- ☐ Other: _____

PART F: DESCRIPTION OF AREA SURROUNDING WATER SOURCE (check all that apply) Show locations on site sketch and provide approximate distance & compass course. Document housekeeping conditions. (Attach photos.)

- ☒ Ground sloping toward water source Slight
- ☐ Water source downgradient of septic system
- ☐ Signs of failing septic, soggy ground, foul odor (circle all that apply)
- ☐ Close proximity to garden, agricultural field, orchard, greenhouse. (circle all that apply)
- ☐ Close proximity to junkyard, dumping area, landfill. (circle all that apply)
- ☐ Close proximity to fuel storage tanks, equipment storage or maintenance areas, garage. (circle all that apply)
- ☐ Located in field with livestock, barn, barnyard, other out building. (circle all that apply)
- ☐ Close proximity to salt storage area, salted roadway.
- ☐ Close proximity to pipeline.
- ☐ Other: _____

ADDITIONAL REMARKS & COMMENTS:

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

PART G: GAS MONITORING AND SAMPLING

3K21139-06

Dissolved Phase Gas Sample Collected?: [X] Yes [ ] No — IS WELL VENTED? Yes [ ] No [X] Unknown [ ]

Gas Sample Collection Method: Water Displacement Method A (non-preserve) [ ] Yes Direct Fill Method B (preserve) [X] Yes Two Phase Method [ ] Yes

Free Phase Gas Water Well Head Space Screening Conducted? [X] Yes [ ] No Combustible Gas Meter: Radcom-Turner Meter Calibrated? Yes [X]

Sustained Methane = 0 (% of LEL) Peak Methane = 0 (% of LEL)

(Contact EQT immediately if Sustained Methane Exceeds 25% of LEL in Water Well Headspace OR 10% of LEL in Building or Structure)

Description of Sample Screening and Collection (Location and Method):

PART H: SAMPLING

SAMPLED	SAMPLING POINT LOCATION
[ ] Before Treatment [ ] After Treatment	[ ] Inside Faucet: _____ [ ] Pressure Tank [ ] Overflow/Discharge Pipe
[X] No Treatment [ ] Not Sure	[X] Outside Faucet: Side of house (N) [ ] Wellhead [ ] Other: _____
	[ ] Seep [ ] Surface Water (sampled at coordinates in Part A)

SAMPLING METHOD: [X] Existing well pump [ ] Sampling pump [ ] Low flow [ ] Disposable Bailer [ ] Other: _____

Was the water source purged before sampling? Yes [X] No [ ] If yes, volume (gal.) and/or time (min) purged: Only 5 @ request of home owner

Is it possible to run water for 30 minutes? Yes [ ] No [X] If no, please explain: _____

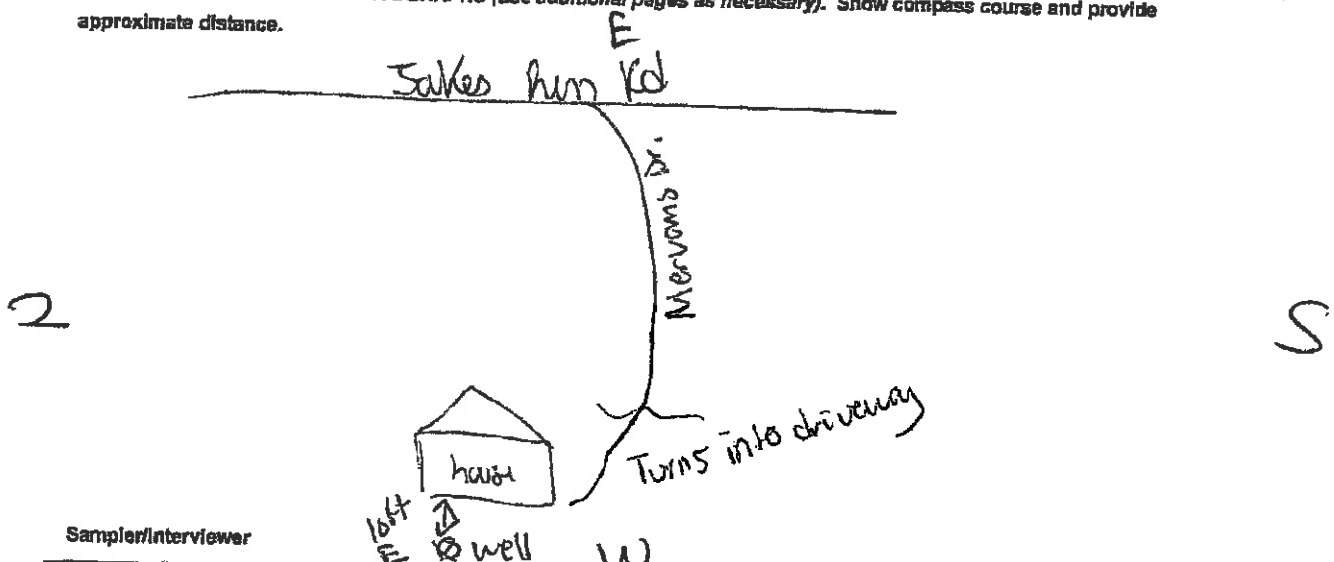
Average water usage within last 24 hours N/A

Chain of custody attached? [X] Yes [ ] No Name of Certified Laboratory: Fairway Laboratories, Inc.

FIELD METER TYPE: Oakton Meter Calibrated? Yes [ ] No [ ]

FIELD PARAMETERS: Turbidity: — pH: 7.93 Conductivity: 260 µS Temperature: 11.1°C

PART I: PLAN SKETCH and PHOTOGRAPHS *(use additional pages as necessary)*. Show compass course and provide approximate distance.

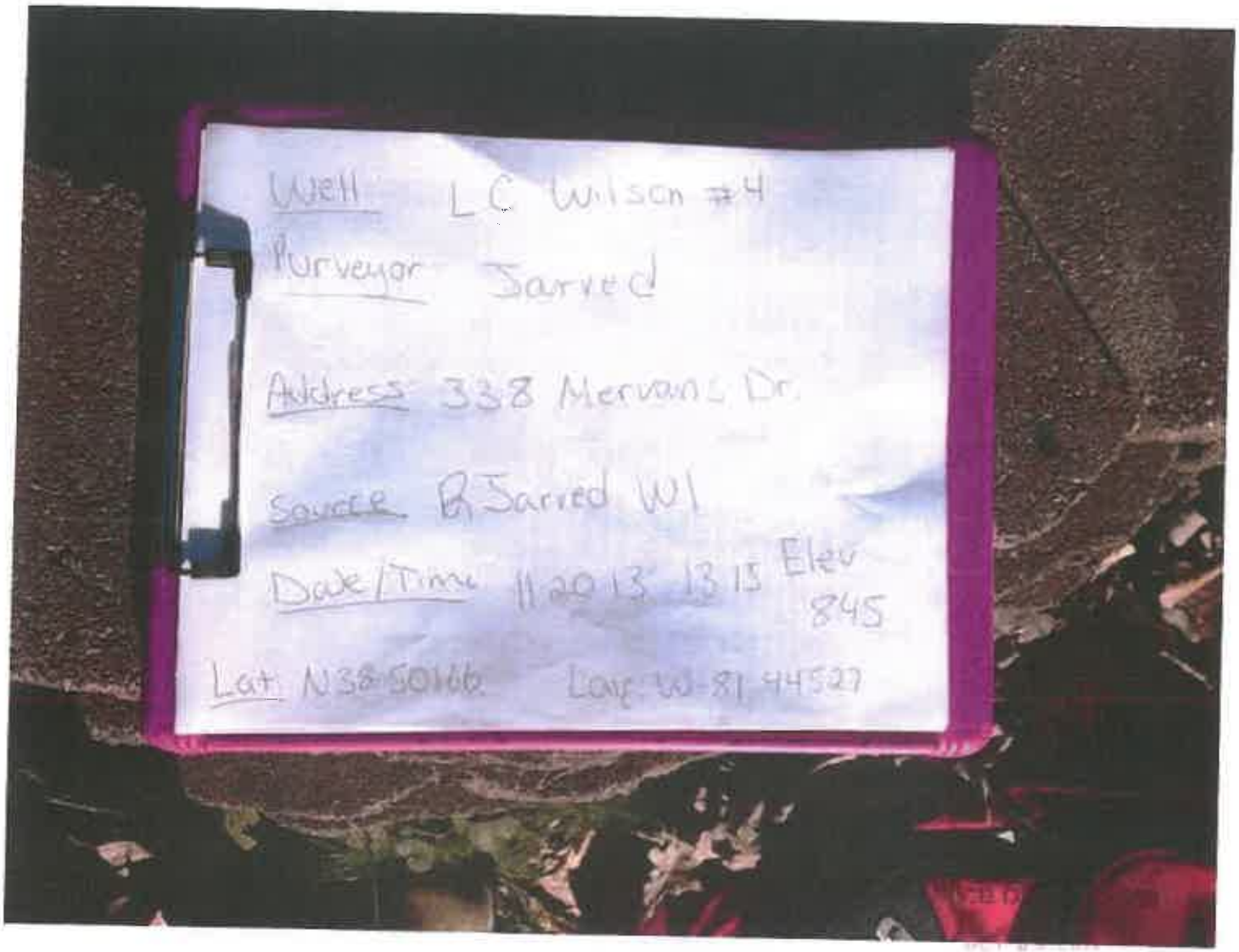


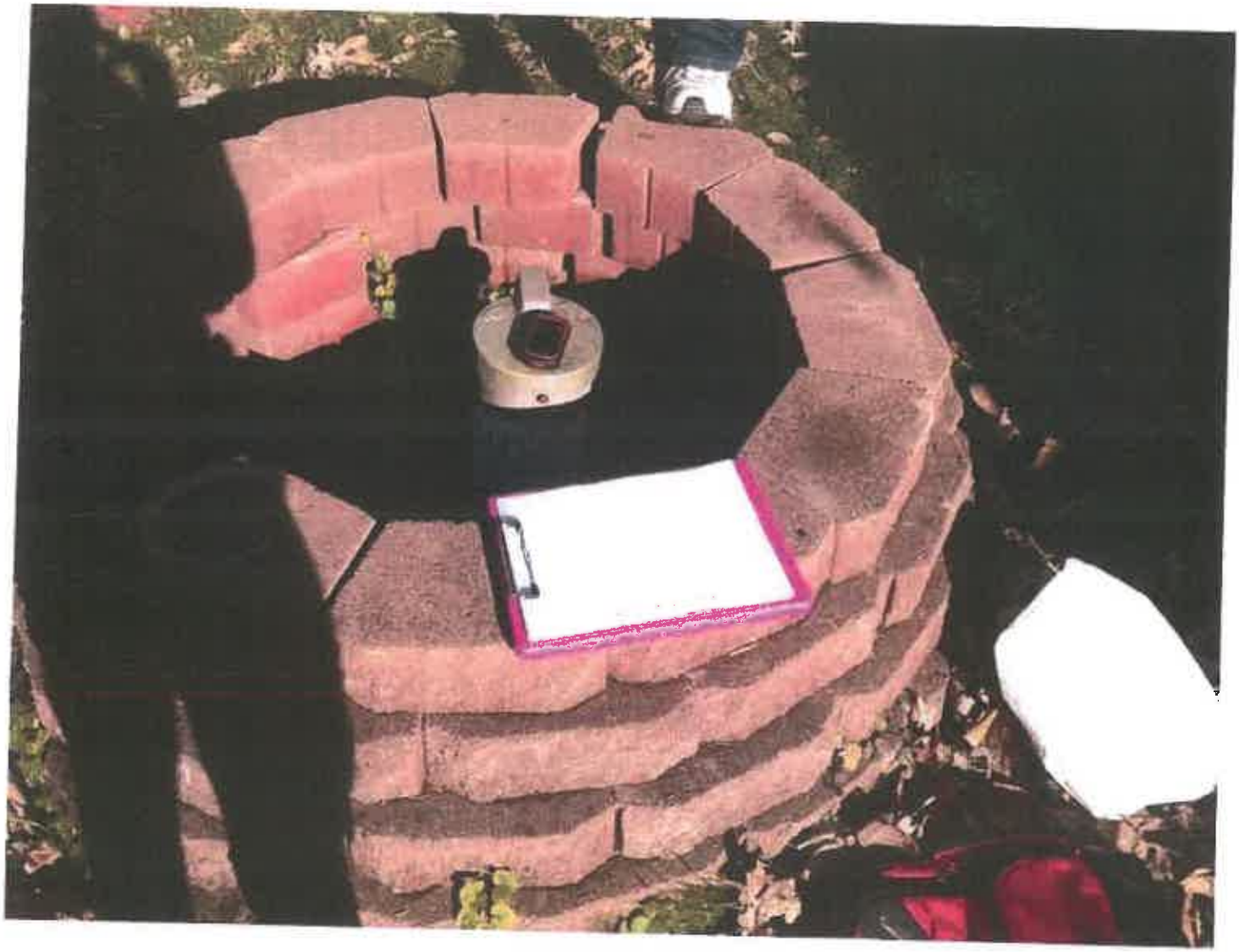
Sampler/Interviewer

I hereby acknowledge that I have supplied the correct information to the best of my knowledge

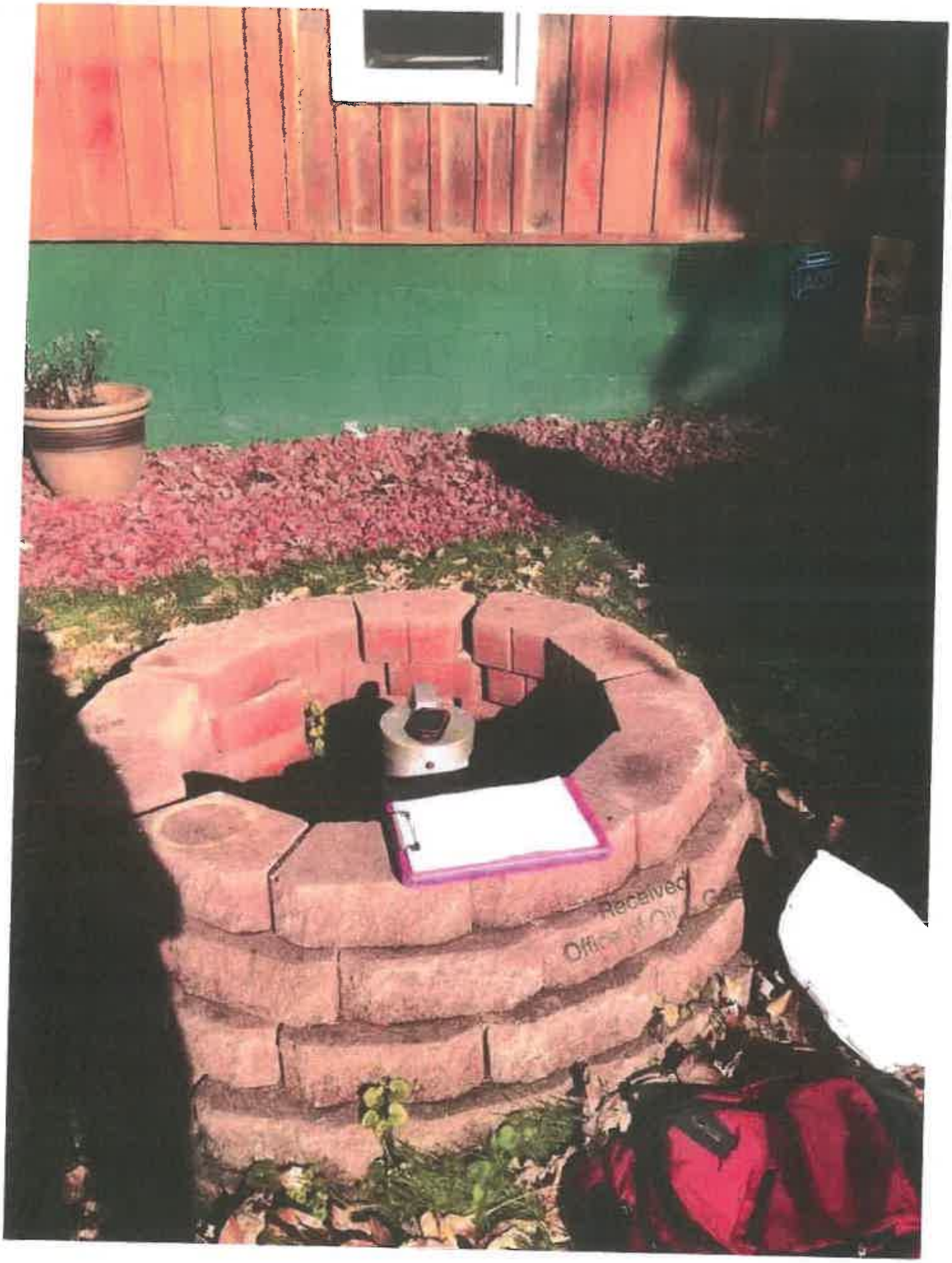
Sign [signature] Print Stephanie D Snyder Date 11.20.19

Company: Fairway Laboratories Inc. Address: _____ Phone: _____


Well L C Wilson #4
Surveyor Jarred
Address 338 Mervan L Dr.
Source R Jarred WI
Date/Time 11 20 13 13 15 Elev 845
Lat N38 50166 Long W-81 44527



Received
Office of Oil & Gas
OCT 2 [illegible]


Received

Received
Office of Oil & Gas
OCT 20 2014

3K21139-11

W. Va. Code R. 35-8-15 Water Supply Testing.

15.3.b. **Parameters** - The operator shall analyze samples for the following parameters:

15.3.b.1. Total Petroleum Hydrocarbons (GRO, DRO, ORO)

15.3.b.2. BTEX

15.3.b.3. Chloride

15.3.b.4. Sodium

15.3.b.5. Total Dissolved Solids (TDS)

15.3.b.6. Aluminum

15.3.b.7. Arsenic

15.3.b.8. Barium

15.3.b.9. Iron

15.3.b.10. Manganese

15.3.b.11. pH

15.3.b.12. Calcium

15.3.b.13. Sulfate

15.3.b.14. Detergents (MBAS)

15.3.b.15. Dissolved Methane

15.3.b.16. Dissolved Ethane

15.3.b.17. Dissolved Butane

15.3.b.18. Dissolved Propane

15.3.b.19. Bacteria (total coliform)

15.3.b.20. Any others parameters determined by the operator or the Chief.

~~3K21139-13~~ 10-10-14 acc

2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Jarrett, Regina	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:46
Project Manager: Brian Rushe	Number of Containers:	3	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
338 MERVAN DR/RJARRETT W1	4J15100-01	Water	Grab	12/19/13 14:30	12/20/13 16:30

Laboratory ID: 4J15100 is the resample for GRO/ORO/DRO for laboratory report ID: 3K21139. 10/15/14 mlf

Client Sample ID: 338 MERVAN DR/RJARRETT W1 **Date/Time Sampled:** 12/19/13 14:30

Laboratory Sample ID: 4J15100-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Extractable Petroleum Hydrocarbons by 8015								
Oil Range Organics	<36.7	36.7	275	ug/l	12/21/13 13:31	EPA 8015D mod	rsr	
Diesel Range Organics	141 J	67.4	275	ug/l	12/21/13 13:31	EPA 8015D mod	rsr	
Surrogate: o-Terphenyl		*60.0 %*	*40-140*		*12/21/13 13:31*	*EPA 8015D mod*	rsr	
Volatile Petroleum Hydrocarbons by 8015 GRO								
Gasoline Range Organics	<9.35	9.35	100	ug/l	12/23/13 11:13	EPA 8015D mod	bag	
Surrogate: a,a,a-Trifluorotoluene		*91.5 %*	*70-130*		*12/23/13 11:13*	*EPA 8015D mod*	bag	

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

EXCO Resources		Project:	LC WILSON #4	
260 Executive Drive		Project Number:	Jarrett, Regina	**Reported:**
Cranberry Township PA, 16066		Collector:	SS	10/16/14 10:46
Project Manager:	Brian Rushe	Number of Containers:	3	

Notes

J — Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL); therefore, result is an estimated value.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

* — P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< — Represents "less than" - indicates that the result was less than the reporting limit.

MDL — Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RL — Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] — Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Jarrett, Regina	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:46
Project Manager: Brian Rushe	Number of Containers:	3	

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days or receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. There are no other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

Fairway Laboratories, Inc.

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

4J15100#1

Re 10-16-14 OCC

~~342-139-11~~

COC #

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

FAIRWAY LABORATORIES
Environmental Laboratory

89 Kristi Rd
Pennsdale, PA 17756
Phone: (570) 494-6380

Page ____ of ____

Client Name: EXCO WV
Address:
Contact: Brian Bushie
Phone #:
Fax #:
Project Name: L.C. Wilson #4
Quote/PO #: Sarrett

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☐ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other ___	# of Containers	EXCO (Resample)							Bottle Type/Comments
338 Mervans Dr.																		
Sarrett WI	X				12-19-13	14:30		X		3	X							

Sampled by:	Date	Time	Received by:	Date	Time
[signature]	12-19-13	14:30	14:40 [signature]	12/20/13	13:25
Relinquished by: [signature]	12-20-13	13:25	Received by:	Date	Time
Relinquished by: [signature]	12/20/13	16:30	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: CB	Date 12/20	Time 16:30

Remarks

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

4J15100 #2
(Re) 10-16-14 OCC

Chain of Custody Receiving Document

Receiver: CB Page ___ of ___

Date/Time of this check: 12/2/3 8:45 Sample Temperature: 3 Client: EXCO Lab # ~~3K21139-12~~

Received at Lab on ICE ? Y ☐ * Sample Temperature when arrived at Lab: 3.6 Acceptable? Y ☐ * or In cool down process? ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: WATER

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other ☐ *	Properly Preserved ☐ *	Bactl	
W1				1			2		~~N/A~~ Y		
TRIP							1		N/A		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
☹ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
☹ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
☹ Wrong Container ( )		Provided Information ( )
☹ Missing Information: ( )	Date:	No Response; Proceed and qualified ( )
		Client Contact: Date:

Received Office of Oil & Gas

* Comments: SAMPLE

Chain of Custody Receiving Document

This is a date sensitive document and may not be current after December 11, 2013.

4J15100#3

W. Va. Code R. 35-8-15 Water Supply Testing.

15.3.b. **Parameters** - The operator shall analyze samples for the following parameters:

15.3.b.1. Total Petroleum Hydrocarbons (GRO, DRO, ORO)

15.3.b.2. BTEX

15.3.b.3. Chloride

15.3.b.4. Sodium

15.3.b.5. Total Dissolved Solids (TDS)

15.3.b.6. Aluminum

15.3.b.7. Arsenic

15.3.b.8. Barium

15.3.b.9. Iron

15.3.b.10. Manganese

15.3.b.11. pH

15.3.b.12. Calcium

15.3.b.13. Sulfate

15.3.b.14. Detergents (MBAS)

15.3.b.15. Dissolved Methane

15.3.b.16. Dissolved Ethane

15.3.b.17. Dissolved Butane

15.3.b.18. Dissolved Propane

15.3.b.19. Bacteria (total coliform)

15.3.b.20. Any others parameters determined by the operator or the Chief.

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(814) 946-4306
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(570) 494-6380
PaDEP: PA 41-04684

FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

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EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Stewart, Robert & Camilla	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:39
Project Manager: Brian Rushe	Number of Containers:	22	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
1040 LITTLE FORK RD/ RSTEWART W1	3K20030-01	Water	Grab	11/19/13 18:05	11/20/13 10:05
1040 LITTLE FORK RD/ RSTEWART W2	3K20030-02	Water	Grab	11/19/13 19:00	11/20/13 10:05

3K20030 Parameter list attached as page 25 of final report. This report replaces the report issued 09/30/14 12:10. 10/07/14 CL

3K20030-02: W2 Contacted property owner to collect more sample in order to complete analysis for DRO/GRO/ORO. Fairway Labs did not hear back from property owner.

The resample for GRO/DRO/ORO was collected 12/16/13 and is reported on separate laboratory work order ID: 4J15099. 10/15/14 mlf

3K20030 Report revised. Case narrative and MDL values added. This report replaces the report printed on 12/27/13 11:01. 09/30/14 mlf

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Stewart, Robert & Camilla	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:39
Project Manager: Brian Rushe	Number of Containers:	22	

Client Sample ID: 1040 LITTLE FORK RD/ RSTEWART W1 **Date/Time Sampled:** 11/19/13 18:05

Laboratory Sample ID: 3K20030-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Calculated Analytes								
Hardness	112	0.0657	0.662	mg/l	11/26/13 07:06	SM2340B	rab	
Metals by EPA 200 Series Methods								
Aluminum	<0.0500	0.0149	0.0500	mg/l	11/26/13 07:07	EPA 200.7/4.4	rab	
Arsenic	<0.00202	0.00202	0.00400	mg/l	11/26/13 07:08	EPA 200.7/4.4	rab	
Barium	0.0427	0.00132	0.0100	mg/l	11/26/13 07:07	EPA 200.7/4.4	rab	
Calcium	33.0	0.0131	0.100	mg/l	11/26/13 07:06	EPA 200.7/4.4	rab	
Iron	<0.00223	0.00223	0.0200	mg/l	11/26/13 07:07	EPA 200.7/4.4	rab	
Manganese	<0.00146	0.00146	0.0100	mg/l	11/26/13 07:08	EPA 200.7/4.4	rab	
Sodium	37.1	0.0677	0.400	mg/l	11/26/13 07:06	EPA 200.7/4.4	rab	
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<0.15	0.15	1.00	ug/l	11/26/13 13:43	EPA 8260B	bag	2d
Toluene	<0.12	0.12	1.00	ug/l	11/26/13 13:43	EPA 8260B	bag	2d
Ethylbenzene	<0.08	0.08	1.00	ug/l	11/26/13 13:43	EPA 8260B	bag	
Xylenes (total)	<0.28	0.28	2.00	ug/l	11/26/13 13:43	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene		*91.9 %*	*70-130*		*11/26/13 13:43*	*EPA 8260B*	bag	
Surrogate: 1,2-Dichloroethane-d4		*98.1 %*	*70-130*		*11/26/13 13:43*	*EPA 8260B*	bag	
Surrogate: Fluorobenzene		*99.3 %*	*70-130*		*11/26/13 13:43*	*EPA 8260B*	bag	
Conventional Chemistry Parameters by SM/EPA Methods								

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EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Stewart, Robert & Camilla	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:39
Project Manager: Brian Rushe	Number of Containers:	22	

Client Sample ID: **1040 LITTLE FORK RD/ RSTEWART W1** **Date/Time Sampled:** 11/19/13 18:05

Laboratory Sample ID: **3K20030-01 (Water/Grab)**

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst*	Note
Conventional Chemistry Parameters by SM/EPA Methods								
Chloride	14.2	0.325	1.00	mg/l	11/20/13 23:32	EPA 300.0/2.1	bdw	
Methylene Blue Active Substances	<0.00675	0.00675	0.0250	mg/l	11/20/13 09:00	SM 5540 C-2011	elb	
pH @ 16.8°C	7.63			pH Units	11/21/13 14:00	SM20-4500H + B	cmh	
Total Dissolved Solids	136	4.00	40.0	mg/l	11/22/13 16:30	SM20-2540C	arr	
Sulfate as SO4	13.9	0.279	1.00	mg/l	11/20/13 23:32	EPA 300.0/2.1	bdw	
Microbiological Parameters by APHA Standard Methods								
E. Coli	<1.0	1.0	1.0	MPN/100 ml	11/20/13 10:54	SM20-9223B	jee	7c
Total Coliforms	<1.0	1.0	1.0	MPN/100 ml	11/20/13 10:54	SM20-9223B	jee	7c
Field Sampled Parameters								
Specific Conductance (Field)	511	0.00	2.00	umhos/cm	11/19/13 18:05	SM20-2510B	SSS	
pH- Field @ 14.2°C	7.83			pH Units	11/19/13 18:05	SM20-4500H + B FIELD	SSS	
Temperature	14.2	0.00	0.100	degrees C	11/19/13 18:05	SM20- 2550B Field	SSS	
Dissolved Gases by RSK 175								
Butane	<0.00513	0.00513	0.0200	mg/l	11/21/13 18:01	RSK 175	bag	
Methane	<0.0200	0.00150	0.0200	mg/l	11/21/13 18:01	RSK 175	bag	

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EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Stewart, Robert & Camilla	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:39
Project Manager: Brian Rushe	Number of Containers:	22	

Client Sample ID: **1040 LITTLE FORK RD/ RSTEWART W1** **Date/Time Sampled:** 11/19/13 18:05

Laboratory Sample ID: **3K20030-01 (Water/Grab)**

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Dissolved Gases by RSK 175								
Ethane	<0.0100	0.00227	0.0100	mg/l	11/21/13 18:01	RSK 175	bag	
Propane	<0.0150	0.00363	0.0150	mg/l	11/21/13 18:01	RSK 175	bag	

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EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Stewart, Robert & Camilla
Collector: SS
Number of Containers: 22
Reported: 10/16/14 10:39

Client Sample ID: 1040 LITTLE FORK RD/ RSTEWART W2 **Date/Time Sampled: 11/19/13 19:00**

Laboratory Sample ID: 3K20030-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Calculated Analytes								
Hardness	26.7	0.0657	0.662	mg/l	11/26/13 07:26	SM2340B	rab	
Metals by EPA 200 Series Methods								
Aluminum	<0.0500	0.0149	0.0500	mg/l	11/26/13 07:26	EPA 200.7/4.4	rab	
Arsenic	0.00791	0.00202	0.00400	mg/l	11/26/13 07:28	EPA 200.7/4.4	rab	
Barium	0.0597	0.00132	0.0100	mg/l	11/26/13 07:26	EPA 200.7/4.4	rab	
Calcium	7.64	0.0131	0.100	mg/l	11/26/13 07:26	EPA 200.7/4.4	rab	
Iron	0.00594 J	0.00223	0.0200	mg/l	11/26/13 07:26	EPA 200.7/4.4	rab	
Manganese	0.00244 J	0.00146	0.0100	mg/l	11/26/13 07:28	EPA 200.7/4.4	rab	
Sodium	116	0.0677	0.400	mg/l	11/26/13 07:26	EPA 200.7/4.4	rab	
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<0.15	0.15	1.00	ug/l	11/26/13 14:11	EPA 8260B	bag	2d
Toluene	<0.12	0.12	1.00	ug/l	11/26/13 14:11	EPA 8260B	bag	2d
Ethylbenzene	<0.08	0.08	1.00	ug/l	11/26/13 14:11	EPA 8260B	bag	
Xylenes (total)	<0.28	0.28	2.00	ug/l	11/26/13 14:11	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene		*92.4 %*	*70-130*		*11/26/13 14:11*	*EPA 8260B*	bag	
Surrogate: 1,2-Dichloroethane-d4		*98.2 %*	*70-130*		*11/26/13 14:11*	*EPA 8260B*	bag	
Surrogate: Fluorobenzene		*99.0 %*	*70-130*		*11/26/13 14:11*	*EPA 8260B*	bag	
Conventional Chemistry Parameters by SM/EPA Methods								

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EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Stewart, Robert & Camilla	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:39
Project Manager: Brian Rushe	Number of Containers:	22	

Client Sample ID: **1040 LITTLE FORK RD/ RSTEWART W2** **Date/Time Sampled:** 11/19/13 19:00

Laboratory Sample ID: **3K20030-02 (Water/Grab)**

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Conventional Chemistry Parameters by SM/EPA Methods								
Chloride	3.15	0.325	1.00	mg/l	11/21/13 01:10	EPA 300.0/2.1	bdw	
Methylene Blue Active Substances	<0.00675	0.00675	0.0250	mg/l	11/20/13 09:00	SM 5540 C-2011	elb	
pH @ 17.6°C	8.32			pH Units	11/21/13 14:00	SM20-4500H + B	cmh	
Total Dissolved Solids	208	4.00	40.0	mg/l	11/22/13 16:30	SM20-2540C	arr	
Sulfate as SO4	7.88	0.279	1.00	mg/l	11/21/13 01:10	EPA 300.0/2.1	bdw	
Microbiological Parameters by APHA Standard Methods								
E. Coli	<1.0	1.0	1.0	MPN/100 ml	11/20/13 10:54	SM20-9223B	jee	
Total Coliforms	3.1	1.0	1.0	MPN/100 ml	11/20/13 10:54	SM20-9223B	jee	7d
Field Sampled Parameters								
Specific Conductance (Field)	401	0.00	2.00	umhos/cm	11/19/13 19:00	SM20-2510B	SSS	
pH- Field @ 15.3°C	7.61			pH Units	11/19/13 19:00	SM20-4500H + B FIELD	SSS	
Temperature	15.3	0.00	0.100	degrees C	11/19/13 19:00	SM20- 2550B Field	SSS	
Dissolved Gases by RSK 175								
Butane	<0.00513	0.00513	0.0200	mg/l	11/21/13 18:20	RSK 175	ag	
Methane	<0.0200	0.00150	0.0200	mg/l	11/21/13 18:20	RSK 175	ag	

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260 Executive Drive	Project Number:	Stewart, Robert & Camilla	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:39
Project Manager: Brian Rushe	Number of Containers:	22	

Client Sample ID: 1040 LITTLE FORK RD/ RSTEWART W2 **Date/Time Sampled: 11/19/13 19:00**

Laboratory Sample ID: 3K20030-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Dissolved Gases by RSK 175								
Ethane	<0.0100	0.00227	0.0100	mg/l	11/21/13 18:20	RSK 175	bag	
Propane	<0.0150	0.00363	0.0150	mg/l	11/21/13 18:20	RSK 175	bag	

Received
Office of Oil & Gas

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260 Executive Drive	Project Number:	Stewart, Robert & Camilla	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:39
Project Manager: Brian Rushe	Number of Containers:	22	

Notes

2d	The LCS spike recovery was outside acceptance limits. Data accepted based on additional batch QC.
7c	Potable (drinkable) - No bacteria present above reportable levels.
7d	Contaminated - Not fit for human consumption.
J	Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL); therefore, result is an estimated value.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

*	P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
<	Represents "less than" - indicates that the result was less than the reporting limit.
MDL	Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.
RL	Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.
[CALC]	Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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EXCO Resources		Project:	LC WILSON #4
260 Executive Drive		Project Number:	Stewart, Robert & Camilla **Reported:**
Cranberry Township PA, 16066		Collector:	SS 10/16/14 10:39
Project Manager:	Brian Rushe	Number of Containers:	22

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EXCO Resources		Project:	LC WILSON #4
260 Executive Drive		Project Number:	Stewart, Robert & Camilla **Reported:**
Cranberry Township PA, 16066		Collector:	SS 10/16/14 10:39
Project Manager:	Brian Rushe	Number of Containers:	22

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all partics acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print.

FAIRWAY LABORATORIES
Environmental La

3K20030-01 K
1040 LITTLE FORK RD./ RSTEWAI
Sampled: 11/19/13 18:05
Water-100 mL Bacti
EXCO Resources

Client Name: EXCO WV
Address: 1040 Little Forks Rd
Contact: Brian Rustie
Phone #: Fax #:
Project Name: L.C Wilson #4

Analysis Requested: Total Coliform ☒ Fecal Coliform ☐ HPC ☐
Date/time collected: 11-19-13 18:05
Sample location/description: R.Stewart WV

	Signature	Date	Time
Sampled by:			
Received by:		11-19-13	18:00
Relinquished by:			
Received by:			

LIMS #
File #: 638
Total coliform: 2 in 100 ml
E coli:
Fecal:
HPC:
Analyst: CE
Analysis Started: 1056 11/20
In: 1107 Out: 1155 11/21/13
Type Treatment: UV ☐ Ozone ☐
Chlorine residual:
Number of containers:
Matrix: Water ☐ other
Comments:

White Original - FLI File Canary - Customer Mailing/Report Pink - Customer Receipt Copy
★★ Please complete all of the grayed areas. ★★

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

FAIRWAY LABORATORIES
Environmental L

3K20030-02-K
1040 LITTLE FORK RD / RSTEWAI 1306
Sampled: 11/19/13 19:00 3791
Water-100 mL Bacti
EXCO Resources

Please print.

Client Name: EXCO WV
Address: 1040 Little Fork Rd
Contact: Brian Rashe
Phone #: Fax #:
Project Name: L.C. Wilson #4
Analysis Requested: Total Coliform ☑ Fecal Coliform ☐ HPC ☐
Date/time collected: 11-19-13 19:00
Sample location/description: Well

	Signature	Date	Time
Sampled by:	[illegible]	11-19-13	19:00
Received by:			
Relinquished by:			
Received by:			

LIMS # 699
File #:
Total coliform: 3.1 / 100 ml
E coli: < 1 / 100 ml
Fecal:
HPC:
Analyst: CE
Analysis Started: 1096 11/20
In: 1107 Out: 1153 11/20/13
Type Treatment: UV ☐ Ozone ☐
Chlorine residual:
Number of containers:
Matrix: Water ☐ other
Comments:

White Original - FLI File Canary - Customer Mailing/Report Pink - Customer Receipt Copy
★★ Please complete all of the grayed areas. ★★

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

FAIRWAY LABORATORIES INC.

COC # 3K20030-01 Page ____

Client Name:	~~EQPWV~~ EXCO WV
Address:	
Contact:	Brian Rushe
Phone #:	
Fax #:	
Project Name:	LC Wilson # 4
Quote/PO #:	Stewart
TAT:	
Normal	
Rush	
Date Required:	

Receiving Info	Y	N
Custody Seals		
Seals Intact?		
Received on ice?		
COC/ Labels agree?		
Correct containers?		
Correct preservation?		
VOA head space		
Sample Temp: ____		
Report to PADEP?		
PWSID #:		

Analyses Requested

FLI use only	Sample Description / Location	Sample Date	Sample Time	Grab or Composite	Soil	Water	Other? Explain	# of Containers	EXCO WV Parameters	Field pH	Field S.C.	Field Temp.	Trip Blank	Comments
	1040 Little Fork Rd													
	Rstewart W1	11·19·13	18:05	G		X		11		7.83	511µ	14.2°C		
	Rstewart W2	11·19·13	19:00	G		X		11	X	7.61	401µ	15.3°C		
													X	Includes Bacti
													X	1 HCl Vial

	Signature	Date	Time
Sampled By:	[signature]	11·19·13	19:15
Received by:			
Relinquished by:	[signature]	11-20-13	7:40
Received by:	MSL	11-20-13	7:40
Relinquished by:	MSL	11-20-13	10:05
Received by:	CD	11/20	10:05

Remarks

Circle One : PA (WV) OH

Received Office of Oil & Gas

2019 9th Avenue, P.O. Box 1925, Altoona, PA 16602 • P: 814-946-4306/F: 814-946-8791 • www.fairwaylaboratories.com

SOP FLI0601-002 Revision 16 Date: September 13, 2013 Page of

Chain of Custody Receiving Document

Receiver: CB

Page ___ of ___

Date/Time of this check: 11/20 10:30 Sample Temperature: 2.6 Client: EXCO WV Lab # 3K280330-02

Received at Lab on ICE ? Y ☐ * Sample Temperature when arrived at Lab: 2.6 Acceptable? Y ☐ * or In cool down process? ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: Water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other ☐ *	Properly Preserved ☐ *	Bacti	
W1	2		1	1			6HCl		Y		
W2	2		1	1			6HCl		Y		
* TRIP							1HCl				

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	_____ Date: _____	No Response; Proceed and qualified ( )
		Client Contact: _____ Date: _____

* Comments: TRIP BLANK IS EMPTY

This is a date sensitive document and may not be current after November 5, 2013.

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

Part A: GENERAL INFORMATION

In Church

Water Source Sample ID: RStewart W1	Well Pad Name: LC Wilson # 4	Permit No.:	Well Operator: EXCO
Coordinates: (in NAD83, in decimal degrees) Lat N38.49532	Long W-80.44249	Elevation 934 FT (msl)	
Date Sampled: 11-19-13	Time Sampled (Military): 18:05	Sampled By: SS	☐ N/A: No Sample (See Notes)
Person Interviewed (circle one): Owner Resident	Other: _____		

PROPERTY OWNER		RESIDENT OR OTHER	
Name:	Robert & Camilla Stewart	Name:	
Address:	1040 Little Fork Rd	Address:	
Address:	Elkview, WV 25071	Address:	
Phone No.:	304-965-3912	Phone No.:	

Part B: DOCUMENTATION OF SAMPLING REFUSAL

Is Person Refusing the Property Owner as Listed Above? Yes ☐ No ☐		If No, Notify Property Owner
Refusal in person or over phone:	Date of Refusal:	Time of Refusal:
Reason(s) for Refusal:		
Name of Company Documenting Refusal:		

Part C: WATER QUALITY

	Reported Quality			Observed Quality			Treatment		Pump Type
	Yes	No	N/A	Yes	No	N/A	☒ None	☐ UV Light	☐ None
Staining	☒	☐	☐	☐	☒	☐	☐ Softening	☐ pH Adjustment	☐ Gas Piston
Odor	☐	☒	☐	☒	☐	☐	☐ Chlorination	☐ Other: _____	☒ Submersible
Cloudiness	☒	☐	☐	☐	☒	☐	☐ Iron Removal		☐ Windmill
Sheen	☐	☒	☐	☐	☒	☐	☐ In-line Sediment Filter		☐ Jet
Effervescence	☐	☒	☐	☐	☒	☐	☐ Charcoal Filter		☐ Other: _____
Taste	☒	☐	☐	N/A	N/A	N/A			
	After drilling						Yes ☐ No ☐ Functioning Properly		☐ Capacity _____ GPM

Part D: WATER SOURCE INFORMATION

Does this source supply any other properties? NO If yes, identify properties _____

Is the water source(s) located on the property: Yes ☒ No ☐ If No, please explain: _____

Number of people using this water source? ~25 Gallons/day, if metered: _____

Has water source ever gone dry? Yes ☒ No ☐

Pressure Tank Yes ☒ No ☐ Size of tank _____ gallons ☐ Actual size ☐ Estimated ☐ Unknown

Water Use ☒ Domestic ☐ Husbandry ☐ Irrigation ☐ Other: _____

Compass course from water source to dwelling NA Estimated distance from water source to dwelling very far

Are there any other water sources on the property? Yes ☐ No ☐ If yes, how many? _____ Total (2) _____

Provide all water source ID(s) well 1, well 2

Are you aware of any abandoned water source (s)? NO If yes, where _____, when _____

Received
Office of Oil & Gas
OCT

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

Water Source Type: ☒ Water Well

Drilled Well: Yes ☒ No ☐ Dug Well: Yes ☐ No ☐ Artesian: Yes ☐ No ☐ Other: _____

Reported total well depth: 70 FT. Well casing diameter: _____ IN. Missing/damaged pit-less adaptor Yes ☐ No ☐ Unknown ☐

Reported depth of water level: _____ FT. Reported pump depth _____ FT.

Date Drilled 36 yrs ago Drilling Company _____ Is the well in basement or crawlspace? _____

Driller log available Yes ☐ No ☐

Signature of owner authorizing release of water log(s) _____

Water Source Type: ☐ Spring

Discharge Pipe Yes ☐ No ☐ Seep/Ground Surface Flow Yes ☐ No ☐ Spring House Yes ☐ No ☐ Underground Vault Yes ☐ No ☐

Water Source Type: ☐ Cistern

Size of Cistern _____ gallons ☐ Actual size ☐ Estimated ☐ Unknown

Source of water: _____ (e.g. Delivered, spring, well, gutter, etc.)

Water Source Type: ☐ Surface Water

☐ Pond ☐ Lake ☐ Creek ☐ River

Water Source Type: Public Water Yes ☒ No ☐ In house

PART E: DESCRIPTION OF WATER SOURCE (check all that apply)

- ☐ Loose, missing, or damaged cover (circle one if applicable)
- ☐ Evidence of insects, spiders, animals (circle one if applicable)
- ☐ Any cracked or damaged well casing/spring vault (circle one if applicable)
- ☐ Water source open to surface water
- ☐ Additional storage or holding tank/cycle system (circle one if applicable)
- ☐ Cover flush with ground
- ☐ Evidence of erosion
- ☐ Water source secured
- ☐ Source buried
- ☐ Location unknown
- ☐ Other: _____

PART F: DESCRIPTION OF AREA SURROUNDING WATER SOURCE (check all that apply) Show locations on site sketch and provide approximate distance & compass course. Document housekeeping conditions. (Attach photos.)

- ☐ Ground sloping toward water source
- ☐ Water source downgradient of septic system
- ☐ Signs of failing septic, soggy ground, foul odor (circle all that apply)
- ☐ Close proximity to garden, agricultural field, orchard, greenhouse. (circle all that apply)
- ☐ Close proximity to junkyard, dumping area, landfill. (circle all that apply)
- ☐ Close proximity to fuel storage tanks, equipment storage or maintenance areas, garage. (circle all that apply)
- ☐ Located in field with livestock, barn, barnyard, other out building. (circle all that apply)
- ☐ Close proximity to salt storage area, salted roadway.
- ☐ Close proximity to pipeline.
- ☐ Other: _____

ADDITIONAL REMARKS & COMMENTS: * Only sink was in the bathroom - bacti might have reading.

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

PART G: GAS MONITORING AND SAMPLING

Dissolved Phase Gas Sample Collected?: [X] Yes [ ] No IS WELL VENTED? Yes [ ] No [ ] Unknown [X]

Gas Sample Collection Method: Water Displacement Method A (non-preserve) [ ] Yes Direct Fill Method B (preserve) [X] Yes Two Phase Method [ ] Yes

Free Phase Gas Water Well Head Space Screening Conducted? [ ] Yes [X] No Combustible Gas Meter: Bacharach - Turner Meter Calibrated? Yes [X]

Sustained Methane = N/A (% of LEL) Peak Methane = N/A (% of LEL)

(Contact EQT Immediately if Sustained Methane Exceeds 25% of LEL in Water Well Headspace OR 10% of LEL in Building or Structure)

Description of Sample Screening and Collection (Location and Method):

PART H: SAMPLING

SAMPLED	SAMPLING POINT LOCATION
[ ] Before Treatment [ ] After Treatment	[X] Inside Faucet: bathroom only spot [ ] Pressure Tank [ ] Overflow/Discharge Pipe
[X] No Treatment [ ] Not Sure	[ ] Outside Faucet: _____ [ ] Wellhead [ ] Other: _____
	[ ] Seep [ ] Surface Water (sampled at coordinates in Part A)

SAMPLING METHOD: [X] Existing well pump [ ] Sampling pump [ ] Low flow [ ] Disposable Bailer [ ] Other: _____

Was the water source purged before sampling? Yes [X] No [ ] If yes, volume (gal.) and/or time (min) purged: 15 mins

Is it possible to run water for 30 minutes? Yes [ ] No [X] If no, please explain: _____

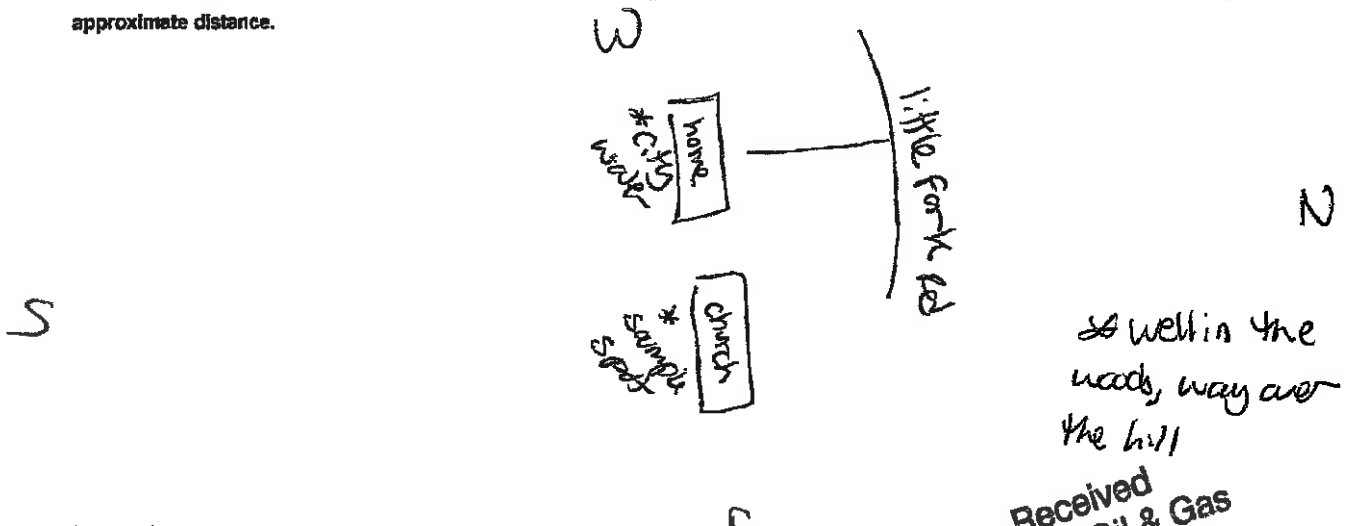
Average water usage within last 24 hours N/A

Chain of custody attached? [X] Yes [ ] No Name of Certified Laboratory: Fairway Laboratories, Inc.

FIELD METER TYPE: Oakton Meter Calibrated? Yes [X] No [ ]

FIELD PARAMETERS: Turbidity: _____ pH: 7.83 Conductivity: 511 µ Temperature: 14.2°C

PART I: PLAN SKETCH and PHOTOGRAPHS *(use additional pages as necessary)*. Show compass course and provide approximate distance.

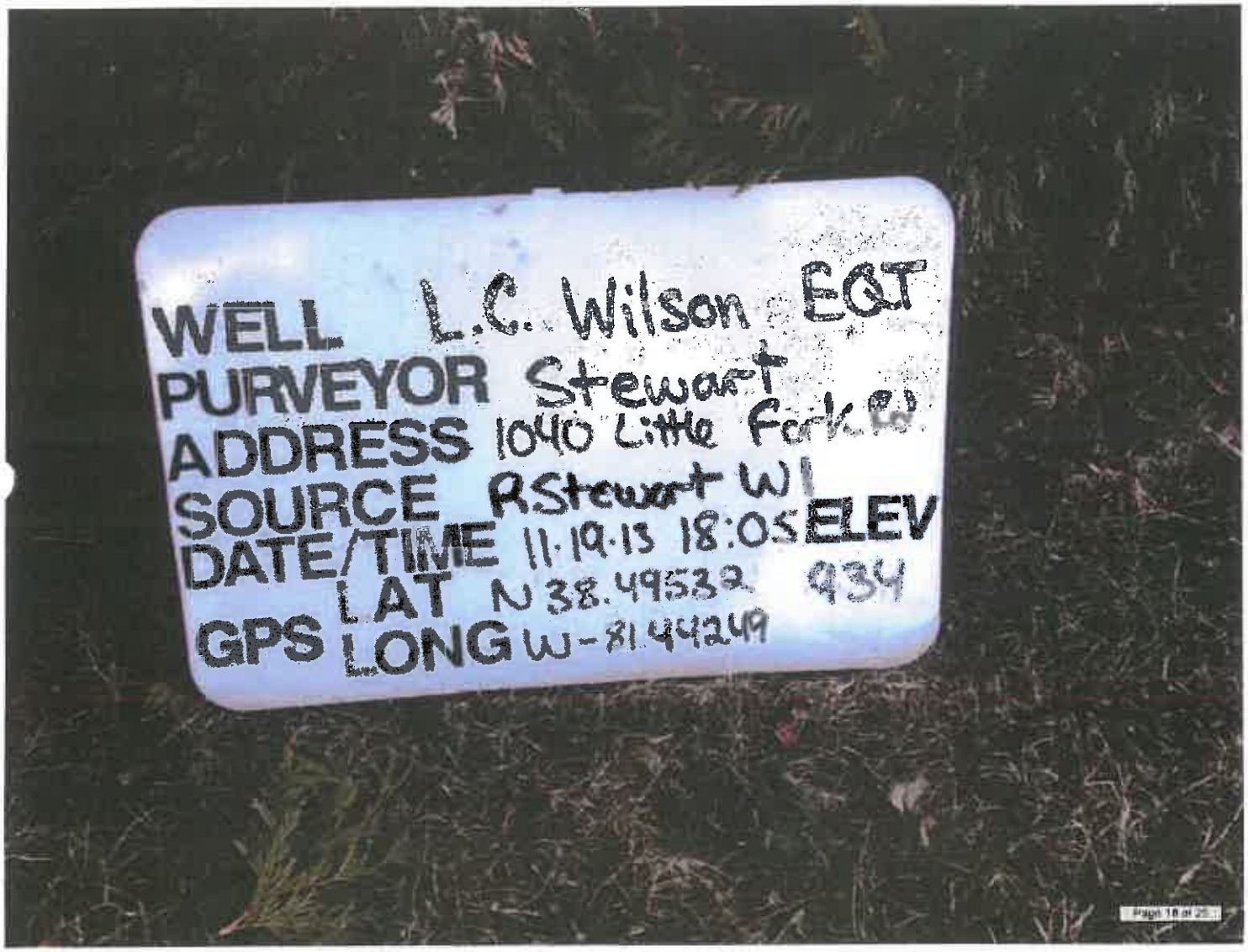


Sampler/Interviewer

I hereby acknowledge that I have supplied the correct information to the best of my knowledge

Sign [signature] Print Stephanie Snyder Date 11-19-17

Company: Fairway Laboratories Inc. Address: _____ Phone: _____



SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

Part A: GENERAL INFORMATION

Daughter's house

Water Source Sample ID: RStewart W2	Well Pad Name: LC Wilson # 4	Permit No.:	Well Operator: EXCO
Coordinates: (in NAD83, in decimal degrees) Lat N 38.49519	Long W-81.44449	Elevation 855 FT (msl)	
Date Sampled: 11-19-13	Time Sampled (Military): 19:00	Sampled By: SS	☐ N/A: No Sample (See Notes)
Person Interviewed (circle one): ~~Owner~~	Resident	Other: _____	

PROPERTY OWNER		RESIDENT OR OTHER	
Name:	Robert & Camilla Stewart	Name:	
Address:	1040 Little Fork Rd	Address:	
Address:	Elkview, WV 25071	Address:	
Phone No.:	304-965-3912	Phone No.:	

Part B: DOCUMENTATION OF SAMPLING REFUSAL

Is Person Refusing the Property Owner as Listed Above? Yes ☐ No ☐		If No, Notify Property Owner
Refusal in person or over phone:	Date of Refusal:	Time of Refusal:
Reason(s) for Refusal:		
Name of Company Documenting Refusal:		

Part C: WATER QUALITY

	Reported Quality			Observed Quality			Treatment		Pump Type
	Yes	No	N/A	Yes	No	N/A	☒ None	☐ UV Light	☐ None
Staining	☐	☒	☐	☐	☒	☐	☐ Softening	☐ pH Adjustment	☐ Gas Piston
Odor	☐	☒	☐	☒	☐	☐	☐ Chlorination	☐ Other: _____	☒ Submersible
Cloudiness	☒ a little	☐	☐	☐	☒	☐	☐ Iron Removal		☐ Windmill
Sheen	☐	☒	☐	☐	☒	☐	☐ In-line Sediment Filter		☐ Jet
Effervescence	☐	☒	☐	☐	☒	☐	☐ Charcoal Filter		☐ Other: _____
Taste	☒ good	☐	☐	N/A	N/A	N/A			
							Yes ☐ No ☐	Functioning Properly	☐ Capacity _____ GPM

Part D: WATER SOURCE INFORMATION

Does this source supply any other properties? NO If yes, identify properties _____

Is the water source(s) located on the property: Yes ☒ No ☐ If No, please explain: _____

Number of people using this water source? 3 Gallons/day, if metered: _____

Has water source ever gone dry? Yes ☐ No ☒

Pressure Tank Yes ☒ No ☐ Size of tank _____ gallons ☐ Actual size ☐ Estimated ☐ Unknown

Water Use ☒ Domestic ☐ Husbandry ☐ Irrigation ☐ Other: _____

Compass course from water source to dwelling NW Estimated distance from water source to dwelling 50 FT.

Are there any other water sources on the property? Yes ☐ No ☐ If yes, how many? _____ Total (2) _____

Provide all water source ID(s) well 1, well 2

Are you aware of any abandoned water source (s)? NO If yes, where _____, when _____

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

Water Source Type: ☒ Water Well

Drilled Well: Yes ☒ No ☐ Dug Well: Yes ☐ No ☐ Artesian: Yes ☐ No ☐ Other: _____

Reported total well depth: ~120 FT. Well casing diameter: _____ IN. Missing/damaged pit-less adaptor Yes ☐ No ☐ Unknown ☐

Reported depth of water level: 64 FT. Reported pump depth _____ FT.

Date Drilled 2004 Drilling Company _____ Is the well in basement or crawlspace? _____

Driller log available Yes ☐ No ☐

Signature of owner authorizing release of water log(s) _____

Water Source Type: ☐ Spring

Discharge Pipe Yes ☐ No ☐ Seep/Ground Surface Flow Yes ☐ No ☐ Spring House Yes ☐ No ☐ Underground Vault Yes ☐ No ☐

Water Source Type: ☐ Cistern

Size of Cistern _____ gallons ☐ Actual size ☐ Estimated ☐ Unknown

Source of water: _____ (e.g. Delivered, spring, well, gutter, etc.)

Water Source Type: ☐ Surface Water

☐ Pond ☐ Lake ☐ Creek ☐ River

Water Source Type: Public Water Yes ☒ No ☒

PART E: DESCRIPTION OF WATER SOURCE (check all that apply)

- ☐ Loose, missing, or damaged cover (circle one if applicable)
- ☒ Evidence of insects, spiders, animals (circle one if applicable)
- ☐ Any cracked or damaged well casing/sealing vault (circle one if applicable)
- ☐ Water source open to surface water
- ☐ Additional storage or holding tank/cover/a system (circle one if applicable)
- ☐ Cover flush with ground
- ☐ Evidence of erosion
- ☐ Water source secured
- ☐ Source buried
- ☐ Location unknown
- ☐ Other: _____

PART F: DESCRIPTION OF AREA SURROUNDING WATER SOURCE (check all that apply) Show locations on site sketch and provide approximate distance & compass course. Document housekeeping conditions. (Attach photos.)

- ☐ Ground sloping toward water source
- ☐ Water source downgradient of septic system
- ☐ Signs of failing septic, soggy ground, foul odor (circle all that apply)
- ☐ Close proximity to garden, agricultural field, orchard, greenhouse. (circle all that apply)
- ☐ Close proximity to junkyard, dumping area, landfill. (circle all that apply)
- ☐ Close proximity to fuel storage tanks, equipment storage or maintenance areas, garage. (circle all that apply)
- ☐ Located in field with livestock, barn, barnyard, other out building. (circle all that apply)
- ☐ Close proximity to salt storage area, salted roadway.
- ☐ Close proximity to pipeline.
- ☐ Other: _____

ADDITIONAL REMARKS & COMMENTS:

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

PART G: GAS MONITORING AND SAMPLING

Dissolved Phase Gas Sample Collected?: [X] Yes [ ] No IS WELL VENTED? Yes [ ] No [X] Unknown [ ]

Gas Sample Collection Method: Water Displacement Method A (non-preserve) [ ] Yes Direct Fill Method B (preserve) [X] Yes Two Phase Method [ ] Yes

Free Phase Gas Water Well Head Space Screening Conducted? [X] Yes [ ] No Combustible Gas Meter: Bacom - Turner Meter Calibrated? Yes [X]

Sustained Methane = 0 (% of LEL) Peak Methane = 0 (% of LEL)

(Contact EQT Immediately if Sustained Methane Exceeds 25% of LEL in Water Well Headspace OR 10% of LEL in Building or Structure)

Description of Sample Screening and Collection (Location and Method):

PART H: SAMPLING

→ Kitchen Sink was "full". She asked me to take in bathroom

SAMPLED	SAMPLING POINT LOCATION
[ ] Before Treatment [ ] After Treatment	[X] Inside Faucet: In Bathroom [ ] Pressure Tank [ ] Overflow/Discharge Pipe
[X] No Treatment [ ] Not Sure	[ ] Outside Faucet: ____ [ ] Wellhead [ ] Other: ____
	[ ] Seep [ ] Surface Water (sampled at coordinates in Part A)

SAMPLING METHOD: [X] Existing well pump [ ] Sampling pump [ ] Low flow [ ] Disposable Bailer [ ] Other: ____

Was the water source purged before sampling? Yes [X] No [ ] If yes, volume (gal.) and/or time (min) purged: 15 min 105

Is it possible to run water for 30 minutes? Yes [X] No [ ] If no, please explain: ____

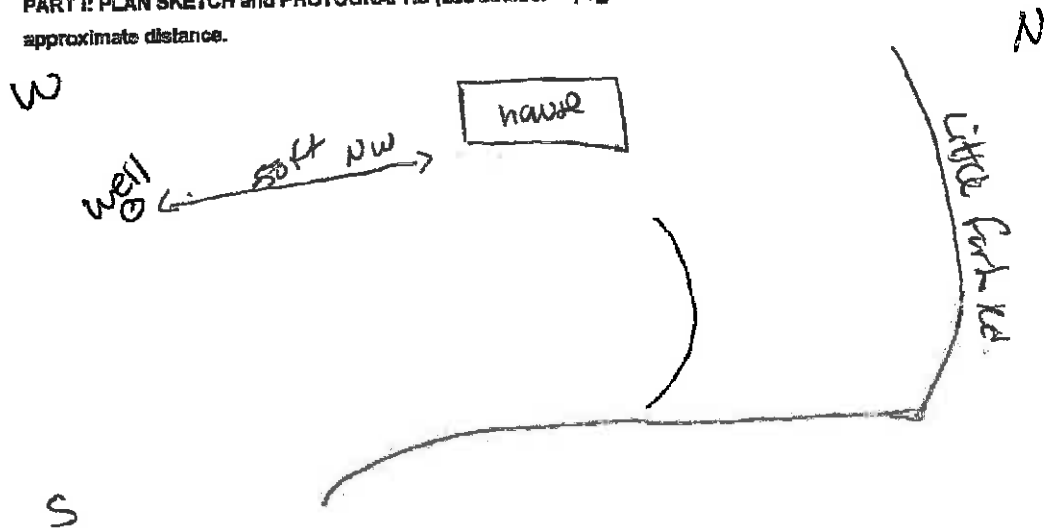
Average water usage within last 24 hours N/A

Chain of custody attached? [X] Yes [ ] No Name of Certified Laboratory: Fairway Laboratories, Inc.

FIELD METER TYPE: Oakton Meter Calibrated? Yes [ ] No [ ]

FIELD PARAMETERS: Turbidity: ____ pH: 7.61 Conductivity: 401 µS Temperature: 15.3°C

PART I: PLAN SKETCH and PHOTOGRAPHS *(use additional pages as necessary)*. Show compass course and provide approximate distance.



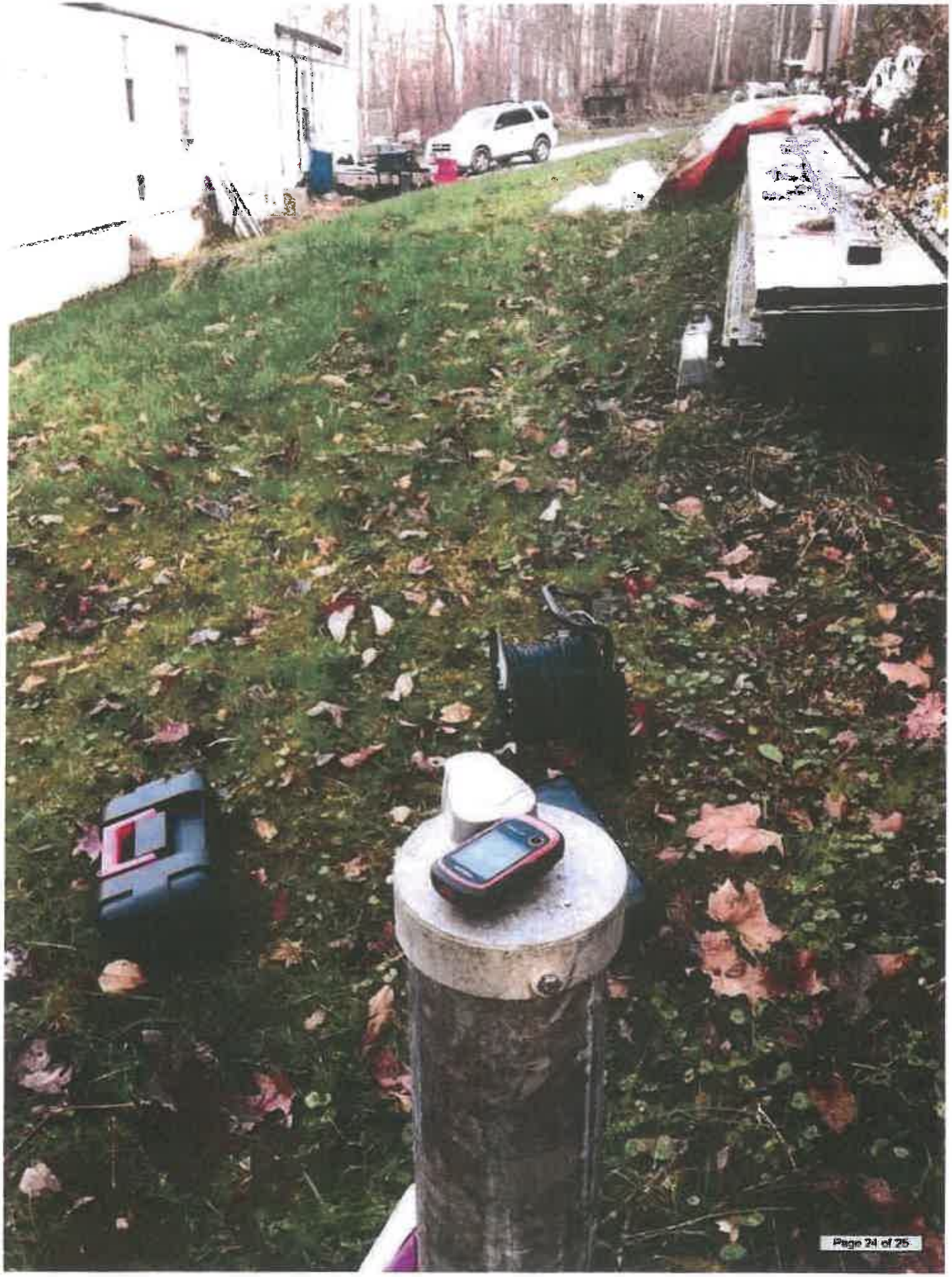
Sampler/Interviewer

I hereby acknowledge that I have supplied the correct information to the best of my knowledge

Sign [signature] Print Stephanie Slatefelter Date 11-21-13

Company: Fairway Laboratories Inc. Address: ____ Phone: ____

WELL L.C. Wilson EQT
PURVEYOR Stewart
ADDRESS 1040 Little Fork Rd.
SOURCE R.Stewart W2
DATE/TIME 11.19.13 19:00 ELEV
GPS LAT N38.49519 855
LONG W-81.44449



3K2003D-15

W. Va. Code R. 35-8-15 Water Supply Testing.

15.3.b. **Parameters** - The operator shall analyze samples for the following parameters:

15.3.b.1. Total Petroleum Hydrocarbons (GRO, DRO, ORO)

15.3.b.2. BTEX

15.3.b.3. Chloride

15.3.b.4. Sodium

15.3.b.5. Total Dissolved Solids (TDS)

15.3.b.6. Aluminum

15.3.b.7. Arsenic

15.3.b.8. Barium

15.3.b.9. Iron

15.3.b.10. Manganese

15.3.b.11. pH

15.3.b.12. Calcium

15.3.b.13. Sulfate

15.3.b.14. Detergents (MBAS)

15.3.b.15. Dissolved Methane

15.3.b.16. Dissolved Ethane

15.3.b.17. Dissolved Butane

15.3.b.18. Dissolved Propane

15.3.b.19. Bacteria (total coliform)

15.3.b.20. Any others parameters determined by the operator or the Chief.

RE 10-10-14 acc

2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Stewart, Robert & Camilla	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:45
Project Manager: Brian Rushe	Number of Containers:	3	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
1040 LITTLE FORK RD/ RSTEWART W1	4J15099-01	Water	Grab	12/16/13 17:00	12/17/13 13:40

Laboratory ID: 4J15099 is the resample for GRO/ORO/DRO for laboratory report ID: 3K20030. 10/15/14 mlf

Client Sample ID: 1040 LITTLE FORK RD/ RSTEWART W1 **Date/Time Sampled:** 12/16/13 17:00

Laboratory Sample ID: 4J15099-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Extractable Petroleum Hydrocarbons by 8015								
Oil Range Organics	<33.3	33.3	250	ug/l	12/21/13 02:35	EPA 8015D mod	rsr	
Diesel Range Organics	<61.3	61.3	250	ug/l	12/21/13 02:35	EPA 8015D mod	rsr	
Surrogate: o-Terphenyl		*38.6 %*	*40-140*		*12/21/13 02:35*	*EPA 8015D mod*	rsr	2n
Volatile Petroleum Hydrocarbons by 8015 GRO								
Gasoline Range Organics	<9.35	9.35	100	ug/l	12/17/13 23:58	EPA 8015D mod	bag	
Surrogate: a,a,a-Trifluorotoluene		*98.4 %*	*70-130*		*12/17/13 23:58*	*EPA 8015D*	bag	

Received
Office of Oil & Gas
OCT 20 2014

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Stewart, Robert & Camilla	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:45
Project Manager: Brian Rushe	Number of Containers:	3	

Notes

2n The surrogate value is not within the indicated range, results are considered to be estimated.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

* P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than the reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

2019 Ninth Avenue
PO Box 1925
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(814) 946-4306
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PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Stewart, Robert & Camilla	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:45
Project Manager: Brian Rushe	Number of Containers:	3	

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgement and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. Fairway disclaims any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

Fairway Laboratories, Inc.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

FAIRWAY LABORATORIES
Environmental Laboratory

89 Kristi Rd
Pennsdale, PA 17756
Phone: (570) 494-6380

4J15099 #1

(Re) 10-16-14 QCC

~~3420030-15~~

COC #

Page _____ of _____

Client Name: EXCO WV
Address:
Contact: Brian Rushe
Phone #:
Fax #:
Project Name: L.C. Wilson #4
Quote/PO #: Stewart

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☐ Rush ☐
Rush TAT subject to pre-approval and surcharge
Date Required: ___/___/___

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other ___	# of Containers	Analyses Requested: EXCO (Resample)							Bottle Type/Comments
1040 Little Fork Rd																		
1 B Stewart WI	X				12-16-13	17:00		X		3	X							

Sampled by:	Date	Time	Received by:	Date	Time
[signature]	12-16-13	17:00	[signature]	12/17/13	10:00
Relinquished by: [signature]	12-17-13	6:00	Received by:	Date	Time
Relinquished by: [signature]	12/17/13	13:40	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: YMS	12/17/13	13:40

Remarks

Received Office 2013

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

SOP FLI0601-002 Revision 16 Date: September 13, 2013

Pages of 4J15099 #2

Receiver: YNS

Chain of Custody Receiving Document

Page ___ of ___

(Re) 10-16-14 acc

Date/Time of this check: 12/17/13 14:07 Sample Temperature: 1.4 Client: Exco WV Lab # ~~3K20030~~ -16

Received at Lab on ICE ? Y ☐ * Sample Temperature when arrived at Lab: 1.4 Acceptable? Y ☐ * or In cool down process? ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐* Correct containers for all the analysis requested? Y ☐ * Matrix: water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?) HCl	Other ☐*	Properly Preserved ☐*	Bacti	
1				1			2		Y		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	Date:	No Response; Proceed and qualified ( )
		Client Contact: Date:

Received Office of Oil & Gas

* Comments:

4J15099 #3

W. Va. Code R. 35-8-15 Water Supply Testing.

15.3.b. **Parameters** - The operator shall analyze samples for the following parameters:

15.3.b.1. Total Petroleum Hydrocarbons (GRO, DRO, ORO)

15.3.b.2. BTEX

15.3.b.3. Chloride

15.3.b.4. Sodium

15.3.b.5. Total Dissolved Solids (TDS)

15.3.b.6. Aluminum

15.3.b.7. Arsenic

15.3.b.8. Barium

15.3.b.9. Iron

15.3.b.10. Manganese

15.3.b.11. pH

15.3.b.12. Calcium

15.3.b.13. Sulfate

15.3.b.14. Detergents (MBAS)

15.3.b.15. Dissolved Methane

15.3.b.16. Dissolved Ethane

15.3.b.17. Dissolved Butane

15.3.b.18. Dissolved Propane

15.3.b.19. Bacteria (total coliform)

15.3.b.20. Any others parameters determined by the operator or the Chief.

dep

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PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources		Project:	LC WILSON #4	
260 Executive Drive		Project Number:	Wood Jr., Virgil	**Reported:**
Cranberry Township PA, 16066		Collector:	SS	10/16/14 10:44
Project Manager:	Brian Rushe	Number of Containers:	3	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
83 FACEMYER RD/VWOOD W1	4J15098-01	Water	Grab	12/19/13 14:00	12/20/13 16:30

Laboratory ID: 4J15098 is the resample for GRO/ORO/DRO for laboratory report ID: 3K20029. 10/15/14 mlf

Client Sample ID: **83 FACEMYER RD/VWOOD W1** **Date/Time Sampled:** 12/19/13 14:00

Laboratory Sample ID: **4J15098-01 (Water/Grab)**

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Extractable Petroleum Hydrocarbons by 8015								
Oil Range Organics	105 J	34.7	260	ug/l	12/21/13 12:21	EPA 8015D mod	rsr	
Diesel Range Organics	<63.7	63.7	260	ug/l	12/21/13 12:21	EPA 8015D mod	rsr	
Surrogate: o-Terphenyl		*61.4 %*	*40-140*		*12/21/13 12:21*	*EPA 8015D mod*	rsr	
Volatile Petroleum Hydrocarbons by 8015 GRO								
Gasoline Range Organics	9.76 J	9.35	100	ug/l	12/23/13 10:37	EPA 8015D mod	bag	
Surrogate: a,a,a-Trifluorotoluene		*91.5 %*	*70-130*		*12/23/13 10:37*	*EPA 8015D mod*	bag	

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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260 Executive Drive	Project Number:	Wood Jr., Virgil	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:44
Project Manager: Brian Rushe	Number of Containers:	3	

Notes

J Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL); therefore, result is an estimated value.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

* P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than the reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Wood Jr., Virgil	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:44
Project Manager: Brian Rushe	Number of Containers:	3	

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LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly fees for the operations involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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4J15098 #1

(Re) 10-16-14 acc

~~3120029-16~~

COC #

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

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Fax: (814) 946-8791

FAIRWAY LABORATORIES
Environmental Laboratory

89 Kristi Rd
Pennsdale, PA 17756
Phone: (570) 494-6380

Page ____ of ____

Client Name: EXCO WV
Address:
Contact: Brian Rushio
Phone #:
Fax #:
Project Name: L.C. Wilson #4
Quote/PO #: Wood

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☐ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: / /

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start Date	Composite Start Time	GRAB -or- Composite End Date	GRAB -or- Composite End Time	Matrix: Solid	Matrix: Water	Matrix: Other ____	# of Containers	Analyses Requested: EXCO (Presample)							Bottle Type/Comments
83 Facemyer Rd.																		
VWood WI	X				12:19:13	14:00		X		3	X							

	Date	Time		Date	Time
Sampled by:	12:19:13	14:00	Received by: D Anderson	12/20/13	13:25
Relinquished by:	12/20/13	13:25	Received by:	Date	Time
Relinquished by: D Anderson	12/20/13	16:30	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: CB	12/20	16:30

Remarks

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

SOP FLI0601-002 Revision 16 Date: September 13, 2013 HJ15098#2 Page of (Re) 10-16-14 QCC

Chain of Custody Receiving Document

Page ___ of ___

~~3K20029-11~~

Receiver: CB

Date/Time of this check: 12/23 8:45 Sample Temperature: 3 Client: EXCO Lab # ~~3K20029~~-11 RC

Received at Lab on ICE ? Y ☐ * Sample Temperature when arrived at Lab: 3.6 Acceptable? Y ☐ * or In cool down process? ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐* Correct containers for all the analysis requested? Y ☐ * Matrix: WATER

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other ☐ *	Properly Preserved ☐ *	Bacti	
W1				1			2		~~N~~ Y		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	___ Date: ___	No Response; Proceed and qualified ( )
		Client Contact: ___ Date: ___

* Comments: RESAMPLE

Received Office of Oil & Gas

Chain of Custody Receiving Document

This is a date sensitive document and may not be current after December 11, 2013.

HJ15098#3

W. Va. Code R. 35-8-15 Water Supply Testing.

15.3.b. **Parameters** - The operator shall analyze samples for the following parameters:

15.3.b.1. Total Petroleum Hydrocarbons (GRO, DRO, ORO)

15.3.b.2. BTEX

15.3.b.3. Chloride

15.3.b.4. Sodium

15.3.b.5. Total Dissolved Solids (TDS)

15.3.b.6. Aluminum

15.3.b.7. Arsenic

15.3.b.8. Barium

15.3.b.9. Iron

15.3.b.10. Manganese

15.3.b.11. pH

15.3.b.12. Calcium

15.3.b.13. Sulfate

15.3.b.14. Detergents (MBAS)

15.3.b.15. Dissolved Methane

15.3.b.16. Dissolved Ethane

15.3.b.17. Dissolved Butane

15.3.b.18. Dissolved Propane

15.3.b.19. Bacteria (total coliform)

15.3.b.20. Any others parameters determined by the operator or the Chief.

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www.fairwaylaboratories.com

EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Tucker, Shelba	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:46
Project Manager: Brian Rushe	Number of Containers:	3	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
2003 JAKES RUN RD/STUCKER W1	4J15102-01	Water	Grab	12/16/13 14:45	12/17/13 13:40

Laboratory ID: 4J15102 is the resample for GRO/ORO/DRO for laboratory report ID: 3K26029. 10/15/14 mlf

Client Sample ID: 2003 JAKES RUN RD/STUCKER W1 **Date/Time Sampled:** 12/16/13 14:45

Laboratory Sample ID: 4J15102-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Extractable Petroleum Hydrocarbons by 8015								
Oil Range Organics	<33.3	33.3	250	ug/l	12/21/13 07:40	EPA 8015D mod	rsr	
Diesel Range Organics	<61.3	61.3	250	ug/l	12/21/13 07:40	EPA 8015D mod	rsr	
Surrogate: o-Terphenyl		*37.7 %*	*40-140*		*12/21/13 07:40*	*EPA 8015D mod*	rsr	2n
Volatile Petroleum Hydrocarbons by 8015 GRO								
Gasoline Range Organics	<9.35	9.35	100	ug/l	12/18/13 02:24	EPA 8015D mod	bag	
Surrogate: a,a,a-Trifluorotoluene		*97.1 %*	*70-130*		*12/18/13 02:24*	*EPA 8015D mod*	bag	

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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Cranberry Township PA, 16066		Collector:	SS	10/16/14 10:46
Project Manager:	Brian Rushe	Number of Containers:	3	

Notes

2n The surrogate value is not within the indicated range, results are considered to be estimated.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

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MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

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Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:46
Project Manager: Brian Rushe	Number of Containers:	3	

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SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly rates for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

Fairway Laboratories, Inc.

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4J15102#1

(Re) 10-16-14 OCC

~~3K26029-10~~

COC #

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

FAIRWAY LABORATORIES
Environmental Laboratory

89 Kristi Rd
Pennsdale, PA 17756
Phone: (570) 494-6380

Page ____ of ____

Client Name: EXCO WV
Address:
Contact: Brian Rushe
Phone #:
Fax #:
Project Name: L.C. Wilson #4
Quote/PO #: B Tucker

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☐ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

Analyses Requested: EXCO (Rasample)

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other ____	# of Containers	EXCO (Rasample)						Bottle Type/Comments
2003 Sykes Run Rd																	
STucker W1	X				12-11-13	1445		X		3	X						

	Date	Time		Date	Time
Sampled by:	12-18-13	15:00	Received by:	12/17/13	10:00
Relinquished by:	12-17-13	6:00	Received by:	Date	Time
Relinquished by:	12/17/13	13:40	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: NS	12/17/13	1340

Remarks

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

SOP FLI0601-002 Revision 16 Date: September 13, 2013

Page of 4J15102 #2

Chain of Custody Receiving Document

Page ___ of ___

Receiver: 475

Date/Time of this check: 12/17/13 14:07 Sample Temperature: 1.4 Client: Exco WV Lab # ~~3426629-11~~ (Re) 10-16-14 acc

Received at Lab on ICE ? Y ☐ * Sample Temperature when arrived at Lab: 1.4 Acceptable? Y ☐ * or In cool down process? ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐* Correct containers for all the analysis requested? Y ☐ * Matrix: Water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?) HCL	Other ☐ *	Properly Preserved ☐ *	Bacti	
1				1			2		Y		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	_____ Date: _____	No Response; Proceed and qualified ( )
		Client Contact: _____ Date: _____

Received Office of Oil & Gas

* Comments: _____

Chain of Custody Receiving Document

This is a date sensitive document and may not be current after December 11, 2013.

4J15102 #3

W. Va. Code R. 35-8-15 Water Supply Testing.

15.3.b. **Parameters** - The operator shall analyze samples for the following parameters:

15.3.b.1. Total Petroleum Hydrocarbons (GRO, DRO, ORO)

15.3.b.2. BTEX

15.3.b.3. Chloride

15.3.b.4. Sodium

15.3.b.5. Total Dissolved Solids (TDS)

15.3.b.6. Aluminum

15.3.b.7. Arsenic

15.3.b.8. Barium

15.3.b.9. Iron

15.3.b.10. Manganese

15.3.b.11. pH

15.3.b.12. Calcium

15.3.b.13. Sulfate

15.3.b.14. Detergents (MBAS)

15.3.b.15. Dissolved Methane

15.3.b.16. Dissolved Ethane

15.3.b.17. Dissolved Butane

15.3.b.18. Dissolved Propane

15.3.b.19. Bacteria (total coliform)

15.3.b.20. Any others parameters determined by the operator or the Chief.

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PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources		Project:	LC WILSON #4	
260 Executive Drive		Project Number:	Tucker, Shelba	**Reported:**
Cranberry Township PA, 16066		Collector:	SS	10/16/14 10:42
Project Manager:	Brian Rushe	Number of Containers:	12	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
2003 JAKES RUN RD/STUCKER W1	3K26029-01	Water	Grab	11/25/13 15:00	11/26/13 12:45
TRIP BLANK	3K26029-02	Water	Trip Blank	11/25/13 00:00	11/26/13 12:45

3K26029 Parameter list attached as page 17 of final report. This report replaces the report issued 09/30/14 12:24. 10/07/14 CL

3K26029 Report revised. MDL values added. This report replaces the report printed on 12/24/13 08:38. 09/30/14 mlf

The resample for GRO/DRO/ORO was collected 12/16/13 and is reported on separate laboratory work order ID: 4J15102. 10/15/14 mlf

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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EXCO Resources		Project:	LC WILSON #4	
260 Executive Drive		Project Number:	Tucker, Shelba	**Reported:**
Cranberry Township PA, 16066		Collector:	SS	10/16/14 10:42
Project Manager:	Brian Rushe	Number of Containers:	12	

Client Sample ID: **2003 JAKES RUN RD/STUCKER W1** **Date/Time Sampled:** 11/25/13 15:00

Laboratory Sample ID: **3K26029-01 (Water/Grab)**

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Calculated Analytes								
Hardness	73.8	0.0657	0.662	mg/l	12/06/13 08:41	SM2340B	rab	
Metals by EPA 200 Series Methods								
Aluminum	<0.0500	0.0149	0.0500	mg/l	12/06/13 08:41	EPA 200.7/4.4	rab	
Arsenic	0.00411	0.00202	0.00400	mg/l	12/06/13 08:43	EPA 200.7/4.4	rab	
Barium	0.285	0.00132	0.0100	mg/l	12/06/13 08:41	EPA 200.7/4.4	rab	
Calcium	20.0	0.0131	0.100	mg/l	12/06/13 08:41	EPA 200.7/4.4	rab	
Iron	0.0997	0.00223	0.0200	mg/l	12/06/13 08:41	EPA 200.7/4.4	rab	
Manganese	0.213	0.00146	0.0100	mg/l	12/06/13 08:43	EPA 200.7/4.4	rab	
Sodium	108	0.0677	0.400	mg/l	12/06/13 08:41	EPA 200.7/4.4	rab	
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<0.15	0.15	1.00	ug/l	12/04/13 05:13	EPA 8260B	wlm	
Toluene	<0.12	0.12	1.00	ug/l	12/04/13 05:13	EPA 8260B	wlm	
Ethylbenzene	<0.08	0.08	1.00	ug/l	12/04/13 05:13	EPA 8260B	wlm	
Xylenes (total)	<0.28	0.28	2.00	ug/l	12/04/13 05:13	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*96.5 %*	*70-130*		*12/04/13 05:13*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*70-130*		*12/04/13 05:13*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*101 %*	*70-130*		*12/04/13 05:13*	*EPA 8260B*	wlm	
Conventional Chemistry Parameters by SM/EPA Methods								

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EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Tucker, Shelba
Collector: SS
Number of Containers: 12

Reported:
10/16/14 10:42

Client Sample ID: 2003 JAKES RUN RD/STUCKER W1

Date/Time Sampled: 11/25/13 15:00

Laboratory Sample ID: 3K26029-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Conventional Chemistry Parameters by SM/EPA Methods								
Chloride	2.78	0.325	1.00	mg/l	11/26/13 17:56	EPA 300.0/2.1	bdw	
Methylene Blue Active Substances	0.0140 J	0.00675	0.0250	mg/l	11/26/13 15:30	SM 5540 C-2011	elb	
pH @ 17.4°C	7.89			pH Units	11/26/13 20:32	SM20-4500H + B	cmh	
Total Dissolved Solids	338	2.00	20.0	mg/l	11/29/13 16:50	SM20-2540C	arr	
Sulfate as SO4	9.84	0.279	1.00	mg/l	11/26/13 17:56	EPA 300.0/2.1	bdw	
Microbiological Parameters by APHA Standard Methods								
E. Coli	<1.0	1.0	1.0	MPN/100 ml	11/26/13 13:50	SM20-9223B	blb	
Total Coliforms	200.5	1.0	1.0	MPN/100 ml	11/26/13 13:50	SM20-9223B	blb	7a, 7d
Field Sampled Parameters								
Specific Conductance (Field)	236	0.00	2.00	umhos/cm	11/25/13 15:00	SM20-2510B	SSS	
pH- Field @ 11.6°C	7.86			pH Units	11/25/13 15:00	SM20-4500H + B FIELD	SSS	
Temperature	11.6	0.00	0.100	degrees C	11/25/13 15:00	SM20- 2550B Field	SSS	
Dissolved Gases by RSK 175								
Butane	<0.00513	0.00513	0.0200	mg/l	11/27/13 15:21	RSK 175	bag	
Methane	<0.0200	0.00150	0.0200	mg/l	11/27/13 15:21	RSK 175	bag	

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260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Tucker, Shelba
Collector: SS
Number of Containers: 12

Reported:
10/16/14 10:42

Client Sample ID: **2003 JAKES RUN RD/STUCKER W1** **Date/Time Sampled:** 11/25/13 15:00

Laboratory Sample ID: **3K26029-01 (Water/Grab)**

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Dissolved Gases by RSK 175								
Ethane	<0.0100	0.00227	0.0100	mg/l	11/27/13 15:21	RSK 175	bag	
Propane	<0.0150	0.00363	0.0150	mg/l	11/27/13 15:21	RSK 175	bag	

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Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Tucker, Shelba
Collector: SS
Number of Containers: 12

Reported: 10/16/14 10:42

Client Sample ID: TRIP BLANK

Date/Time Sampled: 11/25/13 00:00

Laboratory Sample ID: 3K26029-02 (Water/Trip Blank)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<0.15	0.15	1.00	ug/l	12/04/13 05:41	EPA 8260B	wlm	
Toluene	<0.12	0.12	1.00	ug/l	12/04/13 05:41	EPA 8260B	wlm	
Ethylbenzene	<0.08	0.08	1.00	ug/l	12/04/13 05:41	EPA 8260B	wlm	
Xylenes (total)	<0.28	0.28	2.00	ug/l	12/04/13 05:41	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*111 %*	*70-130*		*12/04/13 05:41*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*		*12/04/13 05:41*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*101 %*	*70-130*		*12/04/13 05:41*	*EPA 8260B*	wlm	

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EXCO Resources		Project:	LC WILSON #4	
260 Executive Drive		Project Number:	Tucker, Shelba	**Reported:**
Cranberry Township PA, 16066		Collector:	SS	10/16/14 10:42
Project Manager:	Brian Rushe	Number of Containers:	12	

Notes

7a	> 200 TNTC.
7d	Contaminated - Not fit for human consumption.
J	Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL); therefore, result is an estimated value.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

*	P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
<	Represents "less than" - indicates that the result was less than the reporting limit.
MDL	Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.
RL	Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.
[CALC]	Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Tucker, Shelba	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:42
Project Manager: Brian Rushe	Number of Containers:	12	

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

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WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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2.4

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

FAIRWAY LABORATORIES
Environmental Labora

3K26029-01 K
2003 JAKES RUN RD/STUCKER W
Sampled: 11/25/13 15:00
Water-100 mL Bacti
EXCO Resources

Please print.

Client Name: EXCO WV
Address: 2003 Jakes Run Rd.
Contact: Brian Rusche
Phone #: Fax #:
Project Name: LC Wilson #4
Anaylsis Requested: ~~Total Coliform~~ ☑ Fecal Coliform ☐ HPC ☐
Date/time collected: 11-25-13 15:00
Sample location/description: STucker WV

	Signature	Date	Time
Sampled by:	[signature]	11-25-13	15:00
Received by:			
Relinquished by:	[signature]	11-25-13	
Received by:	CB	11/26	12:45

File #: 784
Total coliform: 2 200.5 | 100 ml
E coli: < 1 | 100 ml
Fecal:
HPC:
Analyst: DOB
Analysis Started: 1352 11/26/13
In: 1409 Out: 1118 11/27/13
Type Treatment: UV ☐ Ozone ☐
Chlorine residual:
Number of containers:
Matrix: Water ☐ other
Comments:

White Original - FLI File Canary - Customer Mailing/Report Pink - Customer Receipt Copy
** Please complete all of the grayed areas. **

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

FAIRWAY LABORATORIES INC.

COC # 3K26029-U Page ___ of ___

Client Name:	EXCO WV
Address:	
Contact:	Brian Rushe
Phone #:	
Fax #:	
Project Name:	LC Wilson #4
Quote/PO #:	Tucker
TAT:	
Normal	
Rush	
Date Required:	

Receiving Info	Y	N
Custody Seals		
Seals Intact?		
Received on Ice?	X	
COC/ Labels agree?		
Correct containers?		
Correct preservation?		
VOA head space		
Sample Temp: 2.4		
Report to PADEP?		
PWSID #:		

Analyses Requested

FLI use only	Sample Description / Location	Sample Date	Sample Time	Grab or Composite	Soil	Water	Other? Explain	# of Containers	EXCO WV Parameters	Field pH	Field S.C.	Field Temp.	Trip Blank	Comments
	2003 Jakes Run Rd													
	Stucker W1	11-25-13	15:00	G		X		11	X	7.86	236 µS	11.6°C		
													X	Includes Bacti
													X	1 HCl Vial

	Signature	Date	Time
Sampled By:	Stephen Snyder	11-25-13	15:20
Received by:	Stephen Snyder	11-25-13	18:00
Relinquished by:			
Received by:	CB	11/26	12:45

Remarks

Circle One : PA WV OH

FED EX 7972 3490 9520

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SOP FL10601-002

Revision 16

Date: September 13, 2013

Page of

Chain of Custody Receiving Document

Receiver: CB

Page ___ of ___

Date/Time of this check: 11/26 12:56 Sample Temperature: 2.4 Client: Exxo WV Lab # 3K26628-02

Received at Lab on ICE ? Y ☐ * Sample Temperature when arrived at Lab: 2.4 Acceptable? Y ☐ * or In cool down process ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐* Correct containers for all the analysis requested? Y ☐ * Matrix: WATER

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other ☐ *	Properly Preserved ☐ *	Bacti	
W1	2		1	1			Gas		Y		
TRIP											
							Lab		N/A		

*** DEVIATION PRESENT:**
- ⊗ No Ice ( )
- ⊗ Not at Proper Temperature ( )
- ⊗ Wrong Container ( )
- ⊗ Missing Information: ( )

CLIENT CALLED:
YES ( )
By Whom: _____ Date: _____

CLIENT RESPONSE:
- Proceed with analysis; qualify data ( )
- Will Resample ( )
- Provided Information ( )
- No Response; Proceed and qualified ( )

Client Contact: _____ Date: _____

* Comments: _____

This is a date sensitive document and may not be current after November 21, 2013.

3K26029-03

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

Part A: GENERAL INFORMATION

Water Source Sample ID:	STucker W1	Well Pad Name:	LC Wilson # 4	Permit No.:	Well Operator: EXCO WV
Coordinates: (in NAD83, in decimal degrees)	Lat N38.50677	Long W-81.44490	Elevation 848	FT (msl)	
Date Sampled: 11-25-13	Time Sampled (Military): 15:00	Sampled By: SS	☐ N/A: No Sample (See Notes)		
Person Interviewed (circle one):	Owner	Resident	Other: _____		

PROPERTY OWNER		RESIDENT OR OTHER
Name:	Shelba Tucker	Name:
Address:	2003 Jakes Run Rd	Address:
Address:	Elkview, WV 25071	Address:
Phone No.:	304-542-0120	Phone No.:

Part B: DOCUMENTATION OF SAMPLING REFUSAL

Is Person Refusing the Property Owner as Listed Above? Yes ☐ No ☐		If No, Notify Property Owner
Refusal in person or over phone:	Date of Refusal:	Time of Refusal:
Reason(s) for Refusal:		
Name of Company Documenting Refusal:		

Part C: WATER QUALITY

	Reported Quality			Observed Quality			Treatment		Pump Type
	Yes	No	N/A	Yes	No	N/A	☒ None	☐ UV Light	☐ None
Staining	☐	☒	☐	☐	☒	☐	☐ Softening	☐ pH Adjustment	☐ Gas Piston
Odor	☐	☒	☐	☐	☒	☐	☐ Chlorination	☐ Other: _____	☒ Submersible
Cloudiness	☐	☒	☐	☐	☒	☐	☐ Iron Removal		☐ Windmill
Sheen	☐	☒	☐	☐	☒	☐	☐ In-line Sediment Filter		☐ Jet
Effervescence	☐	☒	☐	☐	☒	☐	☐ Charcoal Filter		☐ Other: _____
Taste	☐	☒	☐	N/A	N/A	N/A			
				Good Water			Yes ☐ No ☐	Functioning Properly	☐ Capacity _____ GPM

Part D: WATER SOURCE INFORMATION

Does this source supply any other properties? NO If yes, identify properties _____

Is the water source(s) located on the property: Yes ☒ No ☐ If No, please explain: _____

Number of people using this water source? 2 Gallons/day, if metered: _____

Has water source ever gone dry? Yes ☒ No ☐

Pressure Tank Yes ☒ No ☐ Size of tank _____ gallons ☐ Actual size ☐ Estimated ☐ Unknown

Water Use ☒ Domestic ☐ Husbandry ☐ Irrigation ☐ Other: _____

Compass course from water source to dwelling NW Estimated distance from water source to dwelling _____ FT.

Are there any other water sources on the property? Yes ☐ No ☒ If yes, how many? _____ Total (1) _____

Provide all water source ID(s) well

Are you aware of any abandoned water source (s)? NO If yes, where _____, when _____

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3626629-04

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

Water Well ☒

Drilled Well: Yes ☒ No ☐ Dug Well: Yes ☐ No ☐ Artesian: Yes ☐ No ☐ Other: _____

Reported total well depth: 102 FT. Well casing diameter: 7 IN. Missing/damaged pit-less adaptor Yes ☐ No ☐ Unknown ☐

Reported depth of water level: * FT. Reported pump depth: * FT. * Did not take this, top sealed

Date Drilled 1996 Drilling Company _____ Is the well in basement or crawlspace? _____

Driller log available Yes ☐ No ☐

Signature of owner authorizing release of water log(s) _____

Water Source Type: Spring

Discharge Pipe Yes ☐ No ☐ Seep/Ground Surface Flow Yes ☐ No ☐ Spring House Yes ☐ No ☐ Underground Vault Yes ☐ No ☐

Water Source Type: Cistern

Size of Cistern _____ gallons ☐ Actual size ☐ Estimated ☐ Unknown

Source of water: _____ (e.g. Delivered, spring, well, gutter, etc.)

Water Source Type: Surface Water

☐ Pond ☐ Lake ☐ Creek ☐ River

Water Source Type: Pet or Wildlife Use ☐ No ☐

PART E: DESCRIPTION OF WATER SOURCE (check all that apply)

- ☒ Loose, missing, or damaged cover (circle one if applicable) to screw broke off
- ☐ Evidence of insects, spiders, animals (circle one if applicable)
- ☐ Any cracked or damaged well casing/spring vault (circle one if applicable)
- ☐ Water source open to surface water
- ☐ Additional storage or holding tank/coyote system (circle one if applicable)
- ☐ Cover flush with ground
- ☐ Evidence of erosion
- ☐ Water source secured
- ☐ Source buried
- ☐ Location unknown
- ☐ Other: _____

PART F: DESCRIPTION OF AREA SURROUNDING WATER SOURCE (check all that apply) Show locations on site sketch and provide approximate distance & compass course. Document housekeeping conditions. (Attach photos.)

- ☒ Ground sloping toward water source Slight
- ☐ Water source downgradient of septic system
- ☐ Signs of failing septic, soggy ground, foul odor (circle all that apply)
- ☐ Close proximity to garden, agricultural field, orchard, greenhouse. (circle all that apply)
- ☐ Close proximity to junkyard, dumping area, landfill. (circle all that apply)
- ☐ Close proximity to fuel storage tanks, equipment storage or maintenance areas, garage. (circle all that apply)
- ☐ Located in field with livestock, barn, barnyard, other out building. (circle all that apply)
- ☐ Close proximity to salt storage area, salted roadway.
- ☐ Close proximity to pipeline.
- ☐ Other: _____

ADDITIONAL REMARKS & COMMENTS:

3426029-05

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

PART G: GAS MONITORING AND SAMPLING

Dissolved Phase Gas Sample Collected?: ☒ Yes ☐ No IS WELL VENTED? Yes ☐ No ☒ Unknown ☐

Gas Sample Collection Method: Water Displacement Method A (non-preserve) ☐ Yes Direct Fill Method B (preserve) ☒ Yes Two Phase Method ☐ Yes

Free Phase Gas Water Well Head Space Screening Conducted? ☒ Yes ☐ No Combustible Gas Meter: Bacharach Turner Meter Calibrated? Yes ☐

Sustained Methane = 0 (% of LEL) Peak Methane = 0 (% of LEL)

(Contact EQT Immediately if Sustained Methane Exceeds 25% of LEL in Water Well Headspace OR 10% of LEL in Building or Structure)

Description of Sample Screening and Collection (Location and Method):

PART H: SAMPLING

SAMPLED	SAMPLING POINT LOCATION
☐ Before Treatment ☐ After Treatment	☐ Inside Faucet: _____ ☐ Pressure Tank ☐ Overflow/Discharge Pipe
☒ No Treatment ☐ Not Sure	☒ Outside Faucet: Side of house ☐ Wellhead ☐ Other: _____
	☐ Sump ☐ Surface Water (sampled at coordinates in Part A)

SAMPLING METHOD: ☒ Existing well pump ☐ Sampling pump ☐ Low flow ☐ Disposable Bailer ☐ Other: _____

Was the water source purged before sampling? Yes ☒ No ☐ If yes, volume (gal.) and/or time (min) purged: ~10 mins

Is it possible to run water for 30 minutes? Yes ☐ No ☒ If no, please explain: _____

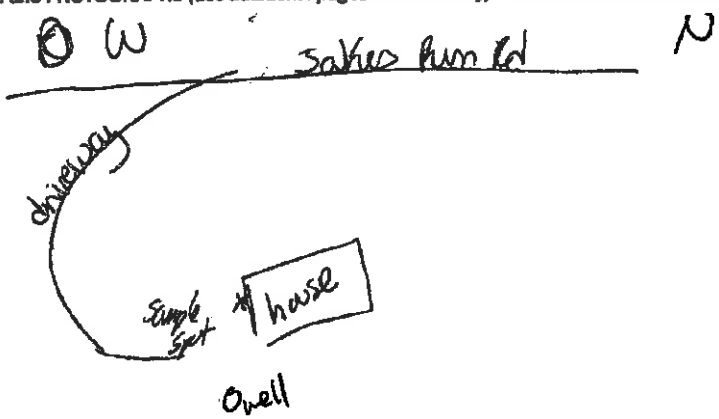
Average water usage within last 24 hours N/A

Chain of custody attached? ☒ Yes ☐ No Name of Certified Laboratory: Fairway Laboratories, Inc.

FIELD METER TYPE: _____ Meter Calibrated? Yes ☐ No ☐

FIELD PARAMETERS: Turbidity: — pH: 7.86 Conductivity: 236 µS Temperature: 11.6 °C

PART I: PLAN SKETCH and PHOTOGRAPHS *(use additional pages as necessary)*. Show compass course and provide approximate distance.



Sampler/Interviewer

I hereby acknowledge that I have supplied the correct information to the best of my knowledge

Sign Stephanie Snyder Print Stephanie Snyder Date 11.25.13

Company: Fairway Laboratories Inc. Address: _____ Phone: _____

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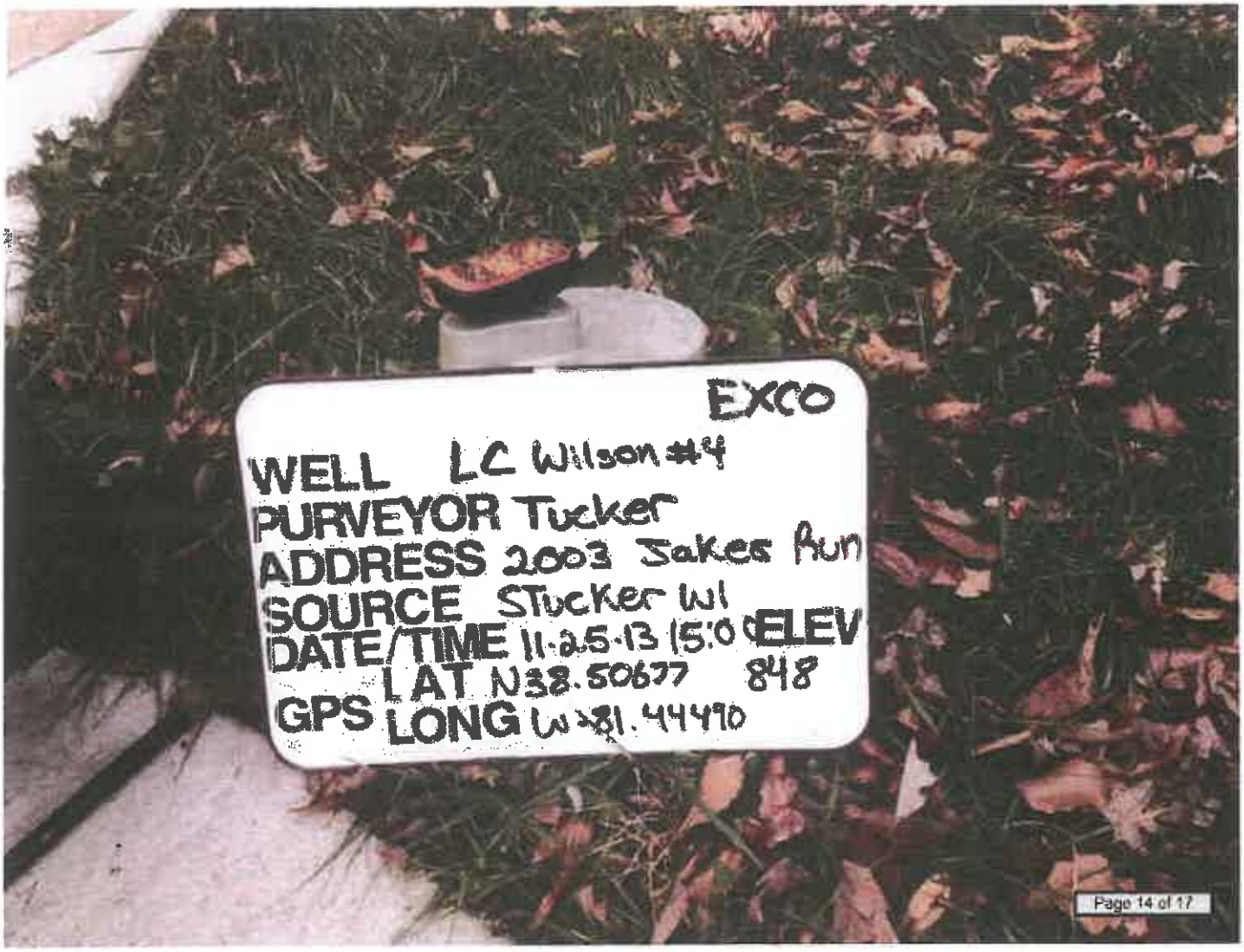
Page 3 of 3



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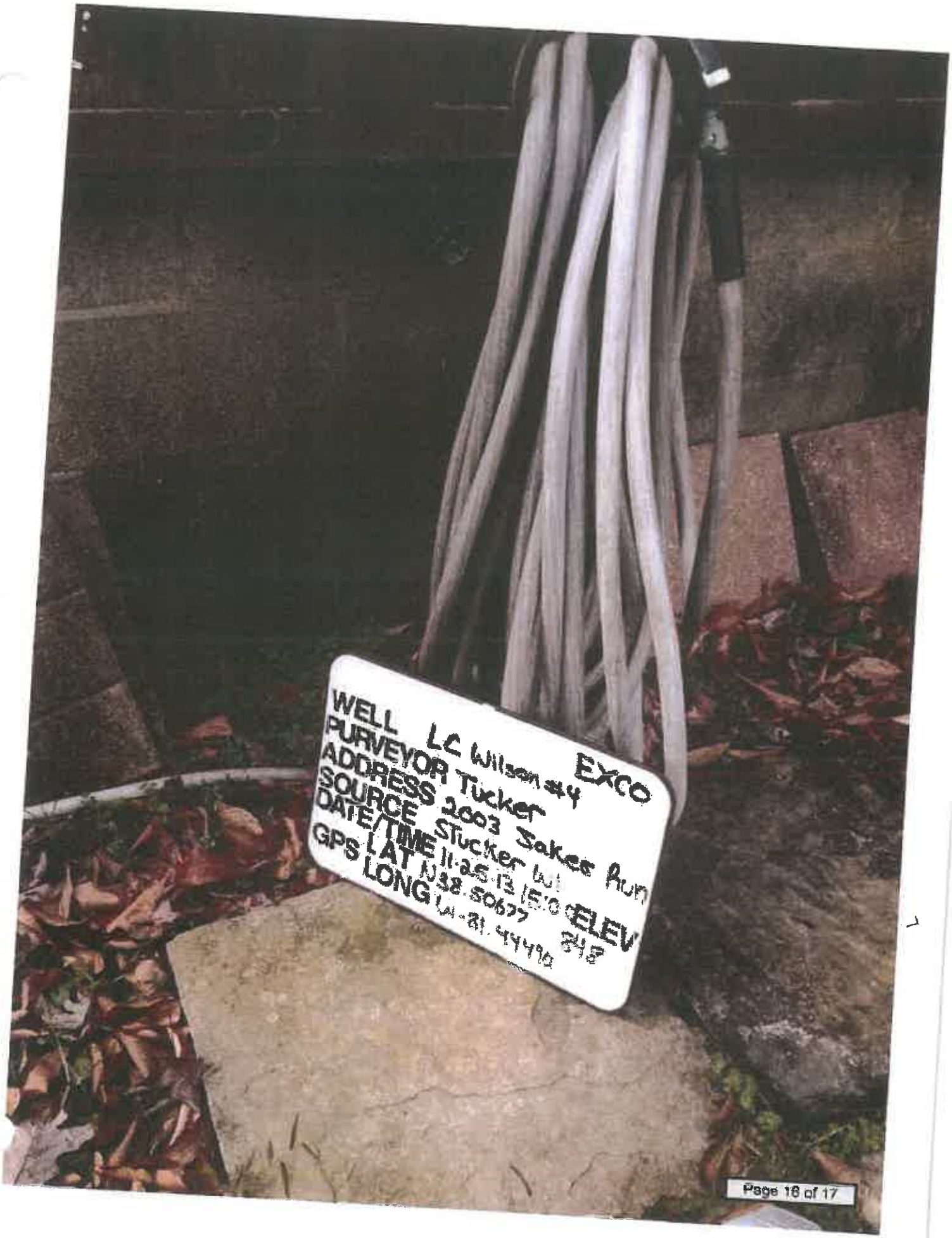
EXCO
WELL LC Wilson #4
PURVEYOR Tucker
ADDRESS 2003 Bakes Run
SOURCE Stucker W
DATE/TIME 11-25-13 15:0
ELEV
GPS LAT N32.60677
LONG W-81.1447
848


WELL LC Wilson #4
EXCO
PURVEYOR Tucker
ADDRESS 2003 Sakee Run
SOURCE Stucker Wi
DATE/TIME 11-25-13 15:10
ELEV
GPS LAT N38.50677
GPS LONG W-81.44490
248

W. Va. Code R. 35-8-15 Water Supply Testing.

15.3.b. **Parameters** - The operator shall analyze samples for the following parameters:

15.3.b.1. Total Petroleum Hydrocarbons (GRO, DRO, ORO)
15.3.b.2. BTEX
15.3.b.3. Chloride
15.3.b.4. Sodium
15.3.b.5. Total Dissolved Solids (TDS)
15.3.b.6. Aluminum
15.3.b.7. Arsenic
15.3.b.8. Barium
15.3.b.9. Iron
15.3.b.10. Manganese
15.3.b.11. pH
15.3.b.12. Calcium
15.3.b.13. Sulfate
15.3.b.14. Detergents (MBAS)
15.3.b.15. Dissolved Methane
15.3.b.16. Dissolved Ethane
15.3.b.17. Dissolved Butane
15.3.b.18. Dissolved Propane
15.3.b.19. Bacteria (total coliform)
15.3.b.20. Any others parameters determined by the operator or the Chief.

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(570) 494-6380
PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Injection Well
Collector: SS
Number of Containers: 14

Reported:
10/07/14 11:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
309 KOALA LN.-INJECTION WELL FLUID	3K07014-01	Water	Grab	11/06/13 10:35	11/07/13 09:20
TRIP BLANK	3K07014-02	Water	Trip Blank	11/06/13 00:00	11/07/13 09:20

3K07014 Parameter list attached as page 11 of final report. This report replaces the report issued 09/30/14 12:30. 10/07/14 CL

3K07014 Report revised. MDL values added and GRO analysis name revised. This report replaces the report printed on 12/27/13 16:10. 09/30/14 mlf

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OCT 20 2014

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Injection Well
Collector: FLI
Number of Containers: 14

Reported: 10/07/14 11:15

Client Sample ID: 309 KOALA LN.-INJECTION WELL FLUID **Date/Time Sampled:** 11/06/13 10:35

Laboratory Sample ID: 3K07014-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Extractable Petroleum Hydrocarbons by 8015								
Oil Range Organics	54000	3330	25000	ug/l	11/12/13 16:03	EPA 8015D mod	rsr	2a
Diesel Range Organics	106000	6130	25000	ug/l	11/12/13 16:03	EPA 8015D mod	rsr	2a, 2b
Surrogate: o-Terphenyl		*193 %*	*40-140*		*11/12/13 16:03*	*EPA 8015D mod*	rsr	
Metals by EPA 200 Series Methods								
Barium	470	0.132	1.00	mg/l	11/15/13 20:53	EPA 200.7/4.4	rab	
Iron	367	0.223	2.00	mg/l	11/15/13 20:53	EPA 200.7/4.4	rab	
Manganese	4.86	0.146	1.00	mg/l	11/15/13 20:54	EPA 200.7/4.4	rab	
Volatile Organic Compounds by EPA Method 8260B								
Benzene	70.0	12.0	12.0	ug/l	11/09/13 00:21	EPA 8260B	MTC	2j
Toluene	75.0 J	39.0	100	ug/l	11/09/13 00:21	EPA 8260B	MTC	2m
Ethylbenzene	<18.0	18.0	100	ug/l	11/09/13 00:21	EPA 8260B	MTC	
Xylenes (total)	<35.0	35.0	200	ug/l	11/09/13 00:21	EPA 8260B	MTC	
Surrogate: 4-Bromofluorobenzene		*101 %*	*70-130*		*11/09/13 00:21*	*EPA 8260B*	MTC	
Surrogate: 1,2-Dichloroethane-d4		*109 %*	*70-130*		*11/09/13 00:21*	*EPA 8260B*	MTC	
Surrogate: Fluorobenzene		*98.6 %*	*70-130*		*11/09/13 00:21*	*EPA 8260B*	MTC	
Conventional Chemistry Parameters by SM/EPA Methods								

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EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Injection Well
Collector: FLI
Number of Containers: 14

Reported: 10/07/14 11:15

Client Sample ID: 309 KOALA LN.-INJECTION WELL FLUID **Date/Time Sampled:** 11/06/13 10:35

Laboratory Sample ID: 3K07014-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Conventional Chemistry Parameters by SM/EPA Methods								
Bromide	1660	2.06	20.0	mg/l	11/11/13 13:12	EPA 300.0/2.1	bdw	
Chloride	159000	5360	25000	mg/l	11/12/13 04:47	EPA 300.0/2.1	bdw	
Specific Conductance (EC)	220000		2.00	umhos/cm	11/07/13 19:32	SM20-2510B	cmh	
pH @ 16.2°C	5.57			pH Units	11/07/13 19:32	SM20-4500H + B	cmh	
Total Dissolved Solids	210000	4.00	40.0	mg/l	11/08/13 16:30	SM20-2540C	arr	
Total Suspended Solids	456	4.00	16.0	mg/l	11/11/13 09:28	SM20-2540D	arr	2a
Sulfate as SO4	44.2 J	19.1	100	mg/l	11/11/13 13:12	EPA 300.0/2.1	bdw	
Volatile Petroleum Hydrocarbons by 8015 GRO								
Gasoline Range Organics	3290 J	935	10000	ug/l	11/08/13 22:16	EPA 8015D mod	bag	2j, J
Surrogate: a,a,a-Trifluorotoluene		*94.4 %*	*70-130*		*11/08/13 22:16*	*EPA 8015D mod*	bag	

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EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Injection Well
Collector: FLI
Number of Containers: 14

Reported: 10/07/14 11:15

Client Sample ID: TRIP BLANK

Date/Time Sampled: 11/06/13 00:00

Laboratory Sample ID: 3K07014-02 (Water/Trip Blank)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<0.15	0.15	1.00	ug/l	11/08/13 11:35	EPA 8260B	bag	
Toluene	<0.12	0.12	1.00	ug/l	11/08/13 11:35	EPA 8260B	bag	
Ethylbenzene	<0.08	0.08	1.00	ug/l	11/08/13 11:35	EPA 8260B	bag	
Xylenes (total)	<0.28	0.28	2.00	ug/l	11/08/13 11:35	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene	*99.8 %*		*70-130*		*11/08/13 11:35*	*EPA 8260B*	bag	
Surrogate: 1,2-Dichloroethane-d4	*101 %*		*70-130*		*11/08/13 11:35*	*EPA 8260B*	bag	
Surrogate: Fluorobenzene	*96.2 %*		*70-130*		*11/08/13 11:35*	*EPA 8260B*	bag	

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EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Injection Well	**Reported:**
Cranberry Township PA, 16066	Collector:	FLI	10/07/14 11:15
Project Manager: Brian Rushe	Number of Containers:	14	

Notes

2a	The RPD result exceeded the QC control limits for the duplicate, LCSD or MSD sample analyzed.
2b	The spike recovery was outside acceptance limits for the MS and/or MSD. Data accepted based on acceptable LCS recovery.
2j	Sample was analyzed at a dilution due to the matrix.
2m	This analysis has been reported to the MDL; therefore it is an estimated value.
J	Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL); therefore, result is an estimated value.

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EXCO Resources			
260 Executive Drive	Project:	LC WILSON #4	
Cranberry Township PA, 16066	Project Number:	Injection Well	**Reported:**
Project Manager: Brian Rushe	Collector:	FLI	10/07/14 11:15
	Number of Containers:	14	

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than the reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Injection Well	**Reported:**
Cranberry Township PA, 16066	Collector:	FLI	10/07/14 11:15
Project Manager: Brian Rushe	Number of Containers:	14	

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

Fairway Laboratories, Inc.

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CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

FAIRWAY LABORATORIES *Environmental*

3K0701-01 K

302 KOSLA 101 INJECTION WELL
Sampled: 11/06/13 10:35
Water 100 mL Bottle
EXCO Resources

6-4306
6-8701

Client Name: EXCO WV

Address:

Contact: Brian Bushe

Phone #:

Fax #:

Project Name: LC Wilson #4

Anaylsis Requested: Total Coliform ☒ Fecal Coliform ☐ HPC ☐

Date/time collected: 11-6-13 10:35

Sample location/description: Injection Well

	Signature	Date	Time
Sampled by:	Stephen Smith	11-6-13	10:35
Received by:			
Relinquished by:			
Received by:			

LIMS #

File #: 224

Total coliform: 175 / 100 mL
E coli: < 1 / 100 mL

Fecal:

HPC:

Analyst: JSB

Analysis Started: 1004 11/7/13

In: 1010 Out: 1030

Type Treatment: UV ☐ Ozone ☐

Chlorine residual:

Number of containers:

Matrix: Water ☐ other

Comments: Brown 24hr
Tested [illegible] Had odor

White Original - FLI File Canary - Customer Mailing/Report Pink - Customer Receipt Copy

★★ Please complete all of the grayed areas. ★★

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

FAIRWAY LABORATORIES
Environmental Laboratory

89 Kristi Rd
Pennsdale, PA 17756
Phone: (570) 494-6380

COC # 3K07014-01

Page ____ of ____

Client Name: EXCO WV
Address:
Contact: Bryan Rushe
Phone #:
Fax #:
Project Name: L.C. Wilson #4
Quote/PO #: Injection Well

TAT: Normal ☐ Rush ☐
Rush TAT subject to pre-approval and surcharge
Date Required: __/__/__

Received on ice? (Y) N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Analyses Requested

Sample Description/Location	GRAB	Composite	Composite Start Date	Composite Start Time	GRAB -or- Composite End Date	GRAB -or- Composite End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	EXCO WV Parameters		Field pH	Field S.C.	Field Temp.	Bacti	Trip Blank	Bottle Type/Comments
309 Koala Ln																		2 poly NP (L)
																		1 Amber H_2SO_4 (L)
																		1 HNO_3
Injection Well Fluid	X				11-6-13	10:35		X		11	X		5.90	5.21	16.4			6 HCl vials
																		1 Bacti
																X	X	1 HCl vial

	Date	Time
Sampled by: Stephen Lafferty	11-6-13	11:15
Relinquished by: Stephen Lafferty	11-6-13	14:35
Relinquished by: Ry Hebe	11-8-13	1815
Relinquished by:		

	Date	Time
Received by: Ry Hebe	11-8-13	14:35
Received by:		
Received by:		
Received by:		

Remarks
Sunny - light breeze, High 50's
WV
W VA Samples Rec

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

SOP FLI0601-002 Revision 16 Date: September 13, 2013

Page of

Receiver: YC

Chain of Custody Receiving Document

Page ___ of ___

Date/Time of this check: 11/7/13 9:30 Sample Temperature: 5.4 Client: EXCO-WV Lab # 3K07014

Received at Lab on ICE ? Y ☐ * Sample Temperature when arrived at Lab: 5.4 Acceptable? Y ☐ * or In cool down process ☐ *

Custody Seals? N Intact? N

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: Water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other ☐ *	Properly Preserved ☐ *	Bacti	
	2		1	1							
TB							6 HCl				
							6 HCl				

*** DEVIATION PRESENT:**
- ☹ No Ice ( )
- ☹ Not at Proper Temperature ( )
- ☹ Wrong Container ( )
- ☹ Missing Information: ( )

CLIENT CALLED: YES ( )
By Whom: _____ Date: _____

CLIENT RESPONSE:
- Proceed with analysis; qualify data ( )
- Will Resample ( )
- Provided Information ( )
- No Response; Proceed and qualified ( )

Client Contact: _____ Date: _____

* Comments: ~~FedEx~~ 799094077831 11/7/13 @ 9:20, NO COC

This is a date sensitive document and may not be current after November 5, 2013.

W. Va. Code R. 35-8-15 Water Supply Testing.

15.3.b. **Parameters** - The operator shall analyze samples for the following parameters:

15.3.b.1. Total Petroleum Hydrocarbons (GRO, DRO, ORO)
15.3.b.2. BTEX
15.3.b.3. Chloride
15.3.b.4. Sodium
15.3.b.5. Total Dissolved Solids (TDS)
15.3.b.6. Aluminum
15.3.b.7. Arsenic
15.3.b.8. Barium
15.3.b.9. Iron
15.3.b.10. Manganese
15.3.b.11. pH
15.3.b.12. Calcium
15.3.b.13. Sulfate
15.3.b.14. Detergents (MBAS)
15.3.b.15. Dissolved Methane
15.3.b.16. Dissolved Ethane
15.3.b.17. Dissolved Butane
15.3.b.18. Dissolved Propane
15.3.b.19. Bacteria (total coliform)
15.3.b.20. Any others parameters determined by the operator or the Chief.

3K07014-04

2019 Ninth Avenue
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Altoona, PA 16603
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89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

EXCO Resources
260 Executive Drive
Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Wood Jr., Virgil
Collector: SS
Number of Containers: 11

Reported:
10/16/14 10:38

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
83 FACEMYER RD/VWOOD W1	3K20029-01	Water	Grab	11/19/13 15:15	11/20/13 10:05

3K20029 Parameter list attached as page 16 of final report. This report replaces the report issued 09/30/14 12:03. 10/07/14 CL

The homeowner's correct last name is "Wood."

The resample for GRO/DRO/ORO was collected 12/19/13 and is reported on separate laboratory work order ID: 4J15098. 10/15/14 mlf

3K20029 Report revised. Case narrative and MDL values added. This report replaces the report printed on 12/26/13 12:14. 09/30/14 mlf

Received
Office of Oil & Gas
OCT 2 [illegible] 2014

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Wood Jr., Virgil
Collector: SS
Number of Containers: 11

Reported: 10/16/14 10:38

Client Sample ID: 83 FACEMYER RD/VWOOD W1

Date/Time Sampled: 11/19/13 15:15

Laboratory Sample ID: 3K20029-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Calculated Analytes								
Hardness	5.87	0.0657	0.662	mg/l	12/02/13 12:12	SM2340B	rab	
Metals by EPA 200 Series Methods								
Aluminum	0.163	0.0149	0.0500	mg/l	12/02/13 12:12	EPA 200.7/4.4	rab	
Arsenic	0.00327 J	0.00202	0.00400	mg/l	12/02/13 12:14	EPA 200.7/4.4	rab	
Barium	0.0964	0.00132	0.0100	mg/l	12/02/13 12:12	EPA 200.7/4.4	rab	
Calcium	1.78	0.0131	0.100	mg/l	12/02/13 12:12	EPA 200.7/4.4	rab	
Iron	1.09	0.00223	0.0200	mg/l	12/02/13 12:12	EPA 200.7/4.4	rab	
Manganese	0.0584	0.00146	0.0100	mg/l	12/02/13 12:13	EPA 200.7/4.4	rab	
Sodium	156	0.0677	0.400	mg/l	12/02/13 12:11	EPA 200.7/4.4	rab	
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<0.15	0.15	1.00	ug/l	11/26/13 13:15	EPA 8260B	bag	2d
Toluene	<0.12	0.12	1.00	ug/l	11/26/13 13:15	EPA 8260B	bag	2d
Ethylbenzene	<0.08	0.08	1.00	ug/l	11/26/13 13:15	EPA 8260B	bag	
Xylenes (total)	<0.28	0.28	2.00	ug/l	11/26/13 13:15	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene	*92.7 %*		*70-130*		*11/26/13 13:15*	*EPA 8260B*	bag	
Surrogate: 1,2-Dichloroethane-d4	*98.2 %*		*70-130*		*11/26/13 13:15*	*EPA 8260B*	bag	
Surrogate: Fluorobenzene	*99.2 %*		*70-130*		*11/26/13 13:15*	*EPA 8260B*	bag	
Conventional Chemistry Parameters by SM/EPA Methods								

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Cranberry Township PA, 16066
Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Wood Jr., Virgil
Collector: SS
Number of Containers: 11

Reported: 10/16/14 10:38

Client Sample ID: 83 FACEMYER RD/VWOOD W1

Date/Time Sampled: 11/19/13 15:15

Laboratory Sample ID: 3K20029-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Conventional Chemistry Parameters by SM/EPA Methods								
Chloride	5.37	0.325	1.00	mg/l	11/20/13 23:16	EPA 300.0/2.1	bdw	
Methylene Blue Active Substances	0.00700 J	0.00675	0.0250	mg/l	11/20/13 09:00	SM 5540 C-2011	clb	
pH @ 16°C	8.11			pH Units	11/21/13 14:00	SM20-4500H + B	cmh	
Total Dissolved Solids	340	4.00	40.0	mg/l	11/22/13 16:30	SM20-2540C	arr	
Sulfate as SO4	8.36	0.279	1.00	mg/l	11/20/13 23:16	EPA 300.0/2.1	bdw	
Microbiological Parameters by APHA Standard Methods								
E. Coli	<1.0	1.0	1.0	MPN/100 ml	11/20/13 10:54	SM20-9223B	jee	7c
Total Coliforms	<1.0	1.0	1.0	MPN/100 ml	11/20/13 10:54	SM20-9223B	jee	7c
Field Sampled Parameters								
Specific Conductance (Field)	392	0.00	2.00	umhos/cm	11/19/13 15:15	SM20-2510B	SSS	
pH- Field @ 11.3°C	7.84			pH Units	11/19/13 15:15	SM20-4500H + B FIELD	SSS	
Temperature	11.3	0.00	0.100	degrees C	11/19/13 15:15	SM20- 2550B Field	SSS	
Dissolved Gases by RSK 175								
Butane	<0.00513	0.00513	0.0200	mg/l	11/21/13 17:41	RSK 175	bag	
Methane	<0.0200	0.00150	0.0200	mg/l	11/21/13 17:41	RSK 175	bag	

Received
Office of Oil & Gas
OCT 2014

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Project Manager: Brian Rushe

Project: LC WILSON #4
Project Number: Wood Jr., Virgil
Collector: SS
Number of Containers: 11

Reported:
10/16/14 10:38

Client Sample ID: 83 FACEMYER RD/VWOOD W1

Date/Time Sampled: 11/19/13 15:15

Laboratory Sample ID: 3K20029-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Dissolved Gases by RSK 175								
Ethane	<0.0100	0.00227	0.0100	mg/l	11/21/13 17:41	RSK 175	bag	
Propane	<0.0150	0.00363	0.0150	mg/l	11/21/13 17:41	RSK 175	bag	

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EXCO Resources		Project:	LC WILSON #4
260 Executive Drive		Project Number:	Wood Jr., Virgil
Cranberry Township PA, 16066		Collector:	SS
Project Manager:	Brian Rushe	Number of Containers:	11

Reported:
10/16/14 10:38

Notes

2d	The LCS spike recovery was outside acceptance limits. Data accepted based on additional batch QC.
7c	Potable (drinkable) - No bacteria present above reportable levels.
J	Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL); therefore, result is an estimated value.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

*	P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
<	Represents "less than" - indicates that the result was less than the reporting limit.
MDL	Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.
RL	Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.
[CALC]	Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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EXCO Resources	Project:	LC WILSON #4	
260 Executive Drive	Project Number:	Wood Jr., Virgil	**Reported:**
Cranberry Township PA, 16066	Collector:	SS	10/16/14 10:38
Project Manager: Brian Rushe	Number of Containers:	11	

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

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HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly rates for all persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

FAIRWAY LABORATORIES
Environmental La

Please print.

Client Name: EXCO WV

Address: 83 Facemyer Rd.

Contact: Brain Rushe

Phone #:

Fax #:

Project Name: LC Wilson #4

Analysis Requested: Total Coliform ☑ Fecal Coliform ☐ HPC ☐

Date/time collected: 11.19.13

Sample location/description: VWoods WI

	Signature	Date	Time
Sampled by:	Stephen Masters	11.19.13	
Received by:			
Relinquished by:	[illegible]	11/20	1010
Received by:			

3K20029-01 K
83 PACEMYER RD / VWOODSW1 306
Sampled: 11/19/13 15:15 791
Water-100 mL Bacti
EXCO Resources

LIMS #: 136
File #:
Total coliform: 2 Hours
E coli:
Fecal:
HPC:
Analyst: [illegible]
Analysis Started: 1095 11/20
In: 1107 Out: 1153 11/20/13 [illegible]
Type Treatment: UV ☐ Ozone ☐
Chlorine residual:
Number of containers:
Matrix: Water ☐ other
Comments:

White Original - FLI File Canary - Customer Mailing/Report Pink - Customer Receipt Copy
★★ Please complete all of the grayed areas. ★★

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

FAIRWAY LABORATORIES INC.

COC# 3K20029-G Page ___ of ___

Client Name:	EXCO WV
Address:	
Contact:	Brian Rushe
Phone #:	
Fax #:	
Project Name:	LC Wilson # 4
Quote/PO #:	Woods

TAT:

Normal	
Rush	
Date Required:	

Receiving Info	Y	N
Custody Seals		
Seals Intact?		
Received on Ice?		
COC/ Labels agree?		
Correct containers?		
Correct preservation?		
VOA head space		
Sample Temp:		
Report to PADEP?		
PWSID #:		

Analyses Requested

FLI use only	Sample Description / Location	Sample Date	Sample Time	Grab or Composite	Soil	Water	Other? Explain	# of Containers	EXCO WV Parameters	Field pH	Field S.C.	Field Temp.	Trip Blank	Comments
	83 Facemyer Rd													
	VwoodsW1	11-19-13	15:15	G		X		11	X	7.84	592 us	11.3°C		
													X	Includes Bactl
													X	1 HCl Vial

	Signature	Date	Time
Sampled By:	Stephen Snyder	11-19-13	15:30
Received by:	MSL	~~11-20-13~~	~~7:~~
Relinquished by:	Stephen Snyder MSL	11-20-13	7:40
Received by:	MSL	11-20-13	7:40
Relinquished by:	MSL	11-20-13	10:05
Received by:	CB	11/20	10:05

Remarks

Circle One : PA WV OH

2019 9th Avenue, P.O. Box 1925, Altoona, PA 16602 • P: 814-946-4306/F: 814-946-8791 • www.fairwaylaboratories.com

SOP FLI0601-002 Revision 16 Date: September 13, 2013

Receiver: CB

Chain of Custody Receiving Document

Page ___ of ___

Date/Time of this check: 11/20 10:46 Sample Temperature: 1.8 Client: EXCO WV Lab # 3K2029-02

Received at Lab on ICE ? Y ☐ * Sample Temperature when arrived at Lab: 1.8 Acceptable? Y ☐ * or In cool down process? ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: WATER

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other ☐ *	Properly Preserved ☐ *	Bacti	
W1	2		1	1			GHA		Y		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	_____ Date: _____	No Response; Proceed and qualified ( )
		Client Contact: _____ Date: _____

* Comments: _____

This is a date sensitive document and may not be current after November 5, 2013.

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

Part A: GENERAL INFORMATION

Water Source Sample ID: VWood3W1	Well Pad Name: LC Wilson # 4	Permit No.:	Well Operator: EXCO
Coordinates: (in NAD83, in decimal degree) Lat N38.49376	Long W-80.42667	Elevation 849 FT (msl)	
Date Sampled: 11-19-13	Time Sampled (Military): 15:15	Sampled By: SS	☐ N/A: No Sample (See Notes)
Person Interviewed (circle one): Owner Resident	Other:		

PROPERTY OWNER		RESIDENT OR OTHER
Name:	Virgil Wood	Name:
Address:	83 Facemyer Rd	Address:
Address:	Elkview, WV 25071	Address:
Phone No.:	304-642-9591	Phone No.:

Part B: DOCUMENTATION OF SAMPLING REFUSAL

Is Person Refusing the Property Owner as Listed Above? Yes ☐ No ☐ If No, Notify Property Owner

Refusal in person or over phone: Date of Refusal: Time of Refusal:

Reason(s) for Refusal:

Name of Company Documenting Refusal:

Part C: WATER QUALITY

	Reported Quality			Observed Quality			Treatment		Pump Type
	Yes	No	N/A	Yes	No	N/A			
Staining	☐	☐	☒	☐	☒	☐	☒ None	☐ UV Light	☐ None
Odor	☐	☐	☒	☐	☒	☐	☐ Softening	☐ pH Adjustment	☐ Gas Piston
Cloudiness	☐	☐	☒	☐	☒	☐	☐ Chlorination	☐ Other:	☒ Submersible
Sheen	☐	☐	☒	☐	☒	☐	☐ Iron Removal		☐ Windmill
Effervescence	☐	☐	☒	☐	☒	☐	☐ In-line Sediment Filter		☐ Jet
Taste	☐	☐	☒	N/A	N/A	N/A	☐ Charcoal Filter		☐ Other:
	Never Used						Yes ☐ No ☐ Functioning Properly		☐ Capacity ____ GPM

Part D: WATER SOURCE INFORMATION

Does this source supply any other properties? No If yes, identify properties

Is the water source(s) located on the property: Yes ☒ No ☐ If No, please explain:

Number of people using this water source? 0 Gallons/day, if metered:

Has water source ever gone dry? Yes ☐ No ☐ Unknown

Pressure Tank Yes ☒ No ☐ Size of tank ____ gallons ☐ Actual size ☐ Estimated ☐ Unknown

Water Use ☒ Domestic ☐ Husbandry ☐ Irrigation ☐ Other:

Compass course from water source to dwelling Under house Estimated distance from water source to dwelling Under house

Are there any other water sources on the property? Yes ☐ No ☒ If yes, how many? Total 1

Provide all water source ID(s) Well

Are you aware of any abandoned water source (s)? yes If yes, where well, when

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OCT 2014
WV Dept. of Environmental Protection

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SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

Water Source Type: ☒ Water Well

Drilled Well: Yes ☒ No ☐ Dug Well: Yes ☐ No ☒ Artesian: Yes ☐ No ☒ Other: _____

Reported total well depth: 60-65 estimate FT. Well casing diameter: N/A IN. Missing/damaged pit-less adaptor Yes ☐ No ☐ Unknown ☒

Reported depth of water level: N/A* FT. Reported pump depth _____ FT. *Unable to obtain - buried

Date Drilled ~30 yrs ago Drilling Company _____ Is the well in basement or crawlspace? _____

Driller log available Yes ☐ No ☐

Signature of owner authorizing release of water log(s) _____

Water Source Type: ☐ Spring

Discharge Pipe Yes ☐ No ☐ Seep/Ground Surface Flow Yes ☐ No ☐ Spring House Yes ☐ No ☐ Underground Vault Yes ☐ No ☐

Water Source Type: ☐ Cistern

Size of Cistern _____ gallons ☐ Actual size ☐ Estimated ☐ Unknown

Source of water: _____ (e.g. Delivered, spring, well, gutter, etc.)

Water Source Type: ☐ Surface Water

☐ Pond ☐ Lake ☐ Creek ☐ River

Water Source Type: Public Water Yes ☒ No ☐

PART E: DESCRIPTION OF WATER SOURCE (check all that apply)

- ☐ Loose, missing, or damaged cover (circle one if applicable)
- ☒ Evidence of insects, spiders, animals (circle one if applicable)
- ☐ Any cracked or damaged well casing/spring vault (circle one if applicable)
- ☐ Water source open to surface water
- ☐ Additional storage or holding tank/cycle system (circle one if applicable)
- ☐ Cover flush with ground
- ☐ Evidence of erosion
- ☐ Water source secured
- ☒ Source buried
- ☐ Location unknown
- ☐ Other: _____

PART F: DESCRIPTION OF AREA SURROUNDING WATER SOURCE (check all that apply) Show locations on site sketch and provide approximate distance & compass course. Document housekeeping conditions. (Attach photos.)

- ☐ Ground sloping toward water source
- ☐ Water source downgradient of septic system
- ☐ Signs of failing septic, soggy ground, foul odor (circle all that apply)
- ☐ Close proximity to garden, agricultural field, orchard, greenhouse. (circle all that apply)
- ☐ Close proximity to junkyard, dumping area, landfill. (circle all that apply)
- ☐ Close proximity to fuel storage tanks, equipment storage or maintenance areas, garage. (circle all that apply)
- ☐ Located in field with livestock, barn, barnyard, other out building. (circle all that apply)
- ☐ Close proximity to salt storage area, salted roadway.
- ☐ Close proximity to pipeline.
- ☐ Other: _____

ADDITIONAL REMARKS & COMMENTS: Well buried under home; only ~~pipes~~ able to see out of a discharge pipe under the house

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3K29 029-04

SITE VISIT FORM
ONE FORM FOR EACH WATER SOURCE

PART G: GAS MONITORING AND SAMPLING

Dissolved Phase Gas Sample Collected?: ☒ Yes ☐ No

IS WELL VENTED? Yes ☐ No ☐ Unknown ☒

Gas Sample Collection Method: Water Displacement Method A (non-preserve) ☒ Yes Direct Fill Method B (preserve) ☐ Yes Two Phase Method ☐ Yes

Free Phase Gas Water Well Head Space Screening Conducted? ☐ Yes ☒ No Combustible Gas Meter: Bacom-Turner Meter Calibrated? Yes ☒

Sustained Methane = N/A (% of LEL) Peak Methane = N/A (% of LEL)

(Contact EQT immediately if Sustained Methane Exceeds 25% of LEL in Water Well Headspace OR 10% of LEL in Building or Structure)

Unable to obtain; buried & vent location unknown

Description of Sample Screening and Collection (Location and Method):

PART H: SAMPLING

SAMPLED	SAMPLING POINT LOCATION
☐ Before Treatment ☐ After Treatment	*front of house ☐ Inside Faucet: _____ ☐ Pressure Tank ☐ Overflow/Discharge Pipe
☒ No Treatment ☐ Not Sure	☒ Outside ~~Faucet~~: pipe valve? ☐ Wellhead ☐ Other: _____
	☐ Seep see pics. ☐ Surface Water (sampled at coordinates in Part A)

*Under house

SAMPLING METHOD: ☒ Existing well pump ☐ Sampling pump ☐ Low flow ☐ Disposable Bailer ☐ Other: _____

Was the water source purged before sampling? Yes ☒ No ☐ If yes, volume (gal.) and/or time (min) purged: 15 mins

Is it possible to run water for 30 minutes? Yes ☒ No ☐ If no, please explain: _____

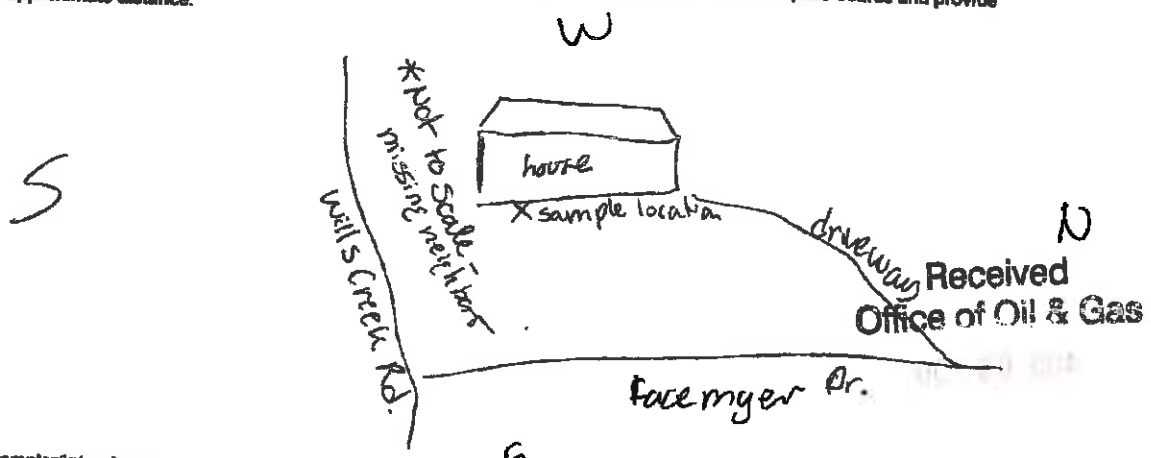
Average water usage within last 24 hours N/A

Chain of custody attached? ☒ Yes ☐ No Name of Certified Laboratory: Fairway Laboratories Inc.

FIELD METER TYPE: Oakton Meter Calibrated? Yes ☒ No ☐

FIELD PARAMETERS: Turbidity: — pH: 7.84 Conductivity: 392 µS Temperature: 11.3°C

PART I: PLAN SKETCH and PHOTOGRAPHS *(use additional pages as necessary)*. Show compass course and provide approximate distance.



Sampler/Interviewer

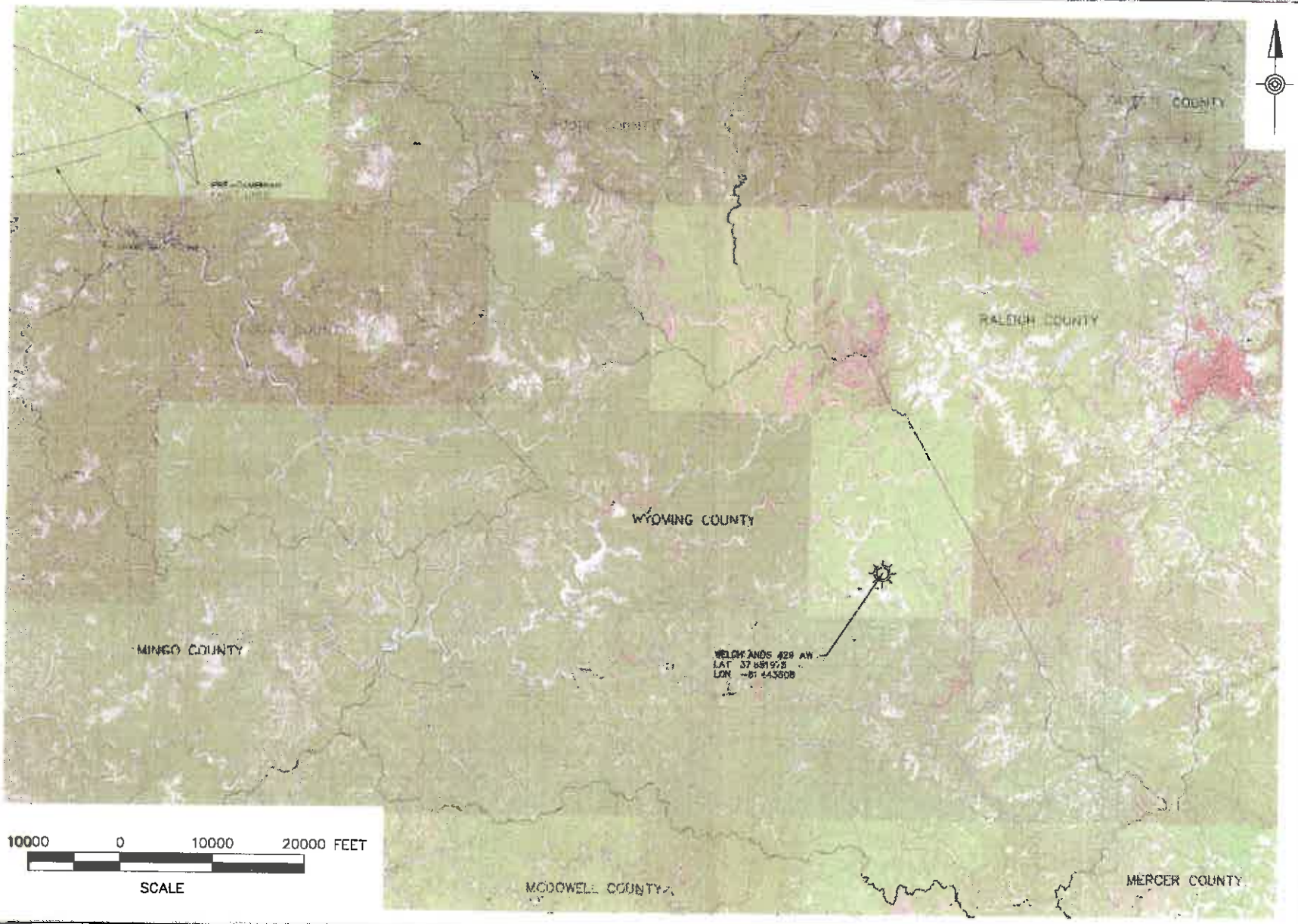
I hereby acknowledge that I have supplied the correct information to the best of my knowledge

Sign [signature] Print Stephanie Singleton Date 11-19-13

Company: _____ Address: _____ Phone: _____

3K29069-05


WELL LC Wilson #4
PURVEYOR woods
ADDRESS 83 Facemyer Dr.
SOURCE Wood WI
DATE/TIME 11-19-13 15:15 ELEV
GPS LAT N38.49376 849
LONG W-80.42667



LDG
Larson Design Group

NO.	DATE	COMMENTS	ISSUE / REVISIONS
01	10/08/13	FAULT LINE DISPLAY	

FAULT LINE MAP

KANAWHA COUNTY, ELK DISTRICT, WEST VIRGINIA

EXCO RESOURCES (PA) LLC
3000 ERICSSON DRIVE, SUITE 200
WARRENDALE, PA 15086
PHONE (724) 720-2560

Larson Design Group • Architects Engineers Surveyors
8050 Rowan Road • Suite 504
Cranberry Township, PA 16066
PHONE 724.591.8562 TOLL FREE 877.323.6603
FAX 570.323.8902 • www.larsondesigngroup.com

SHEET NO.:

PROJECT NO.:

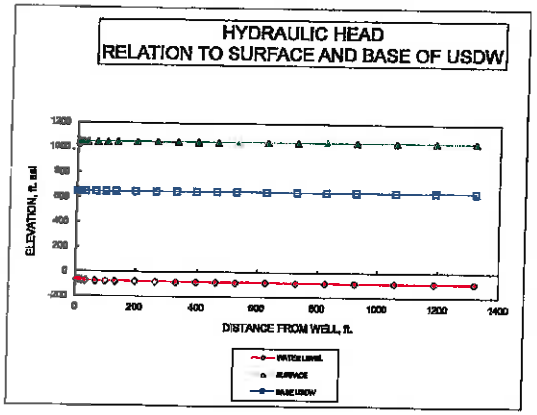
WELL NAME ——— Wilson 4
OPERATOR ——— Exco Resources
PERMIT NUMBER ——— 47-039-02419
DATE OF ANALYSIS — 10/28/2013
ANALYST ——— Patrick Slaughter

WELL AND FORMATION PARAMETERS

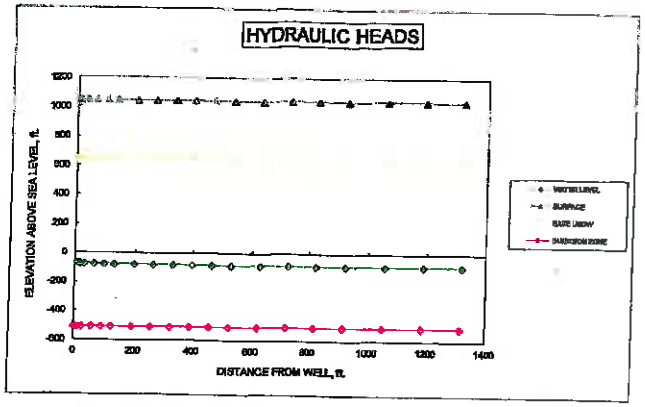
initial pressure at the top of the injection formation, p(i) (psia)	188.448	Note: add 14.7 to psig for psia
injection rate, q (bwpd)	-100	Note: avg injection is negative
length of injection time, (months)	278	From 1st injection to now
viscosity, mu (cp.)	1	
specific gravity of liquid	1.08	
formation volume factor, beta (1 for aqueous liquids)	1	
permeability, k (md.)	60	
reservoir thickness, h (ft.)	150	
compressibility, c(t) 1/psi)	3.00E-06	
porosity, phi, ratio	0.1	
surface elevation KB, (ft.)	1046	
depth to injection zone, (ft)	1556	
end of cross-section, (ft.)	1320	1/4 mile

CALCULATION OF CRITICAL PRESSURE RISE

depth of concern, feet below KB (ft.)	400	Deepest fresh/groundwater
critical pressure rise to lift liquid to depth of concern, (psi)	362.14384	

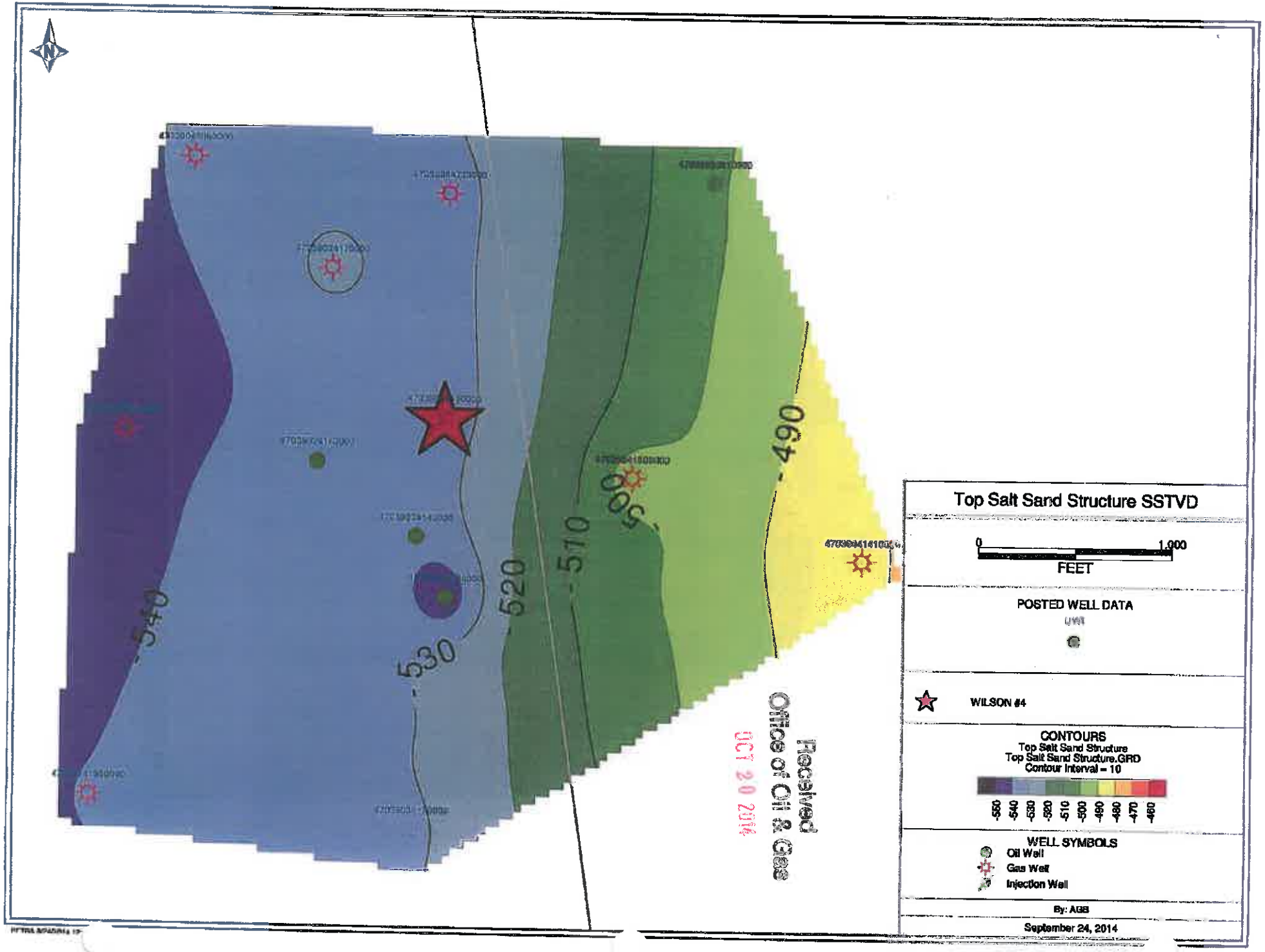


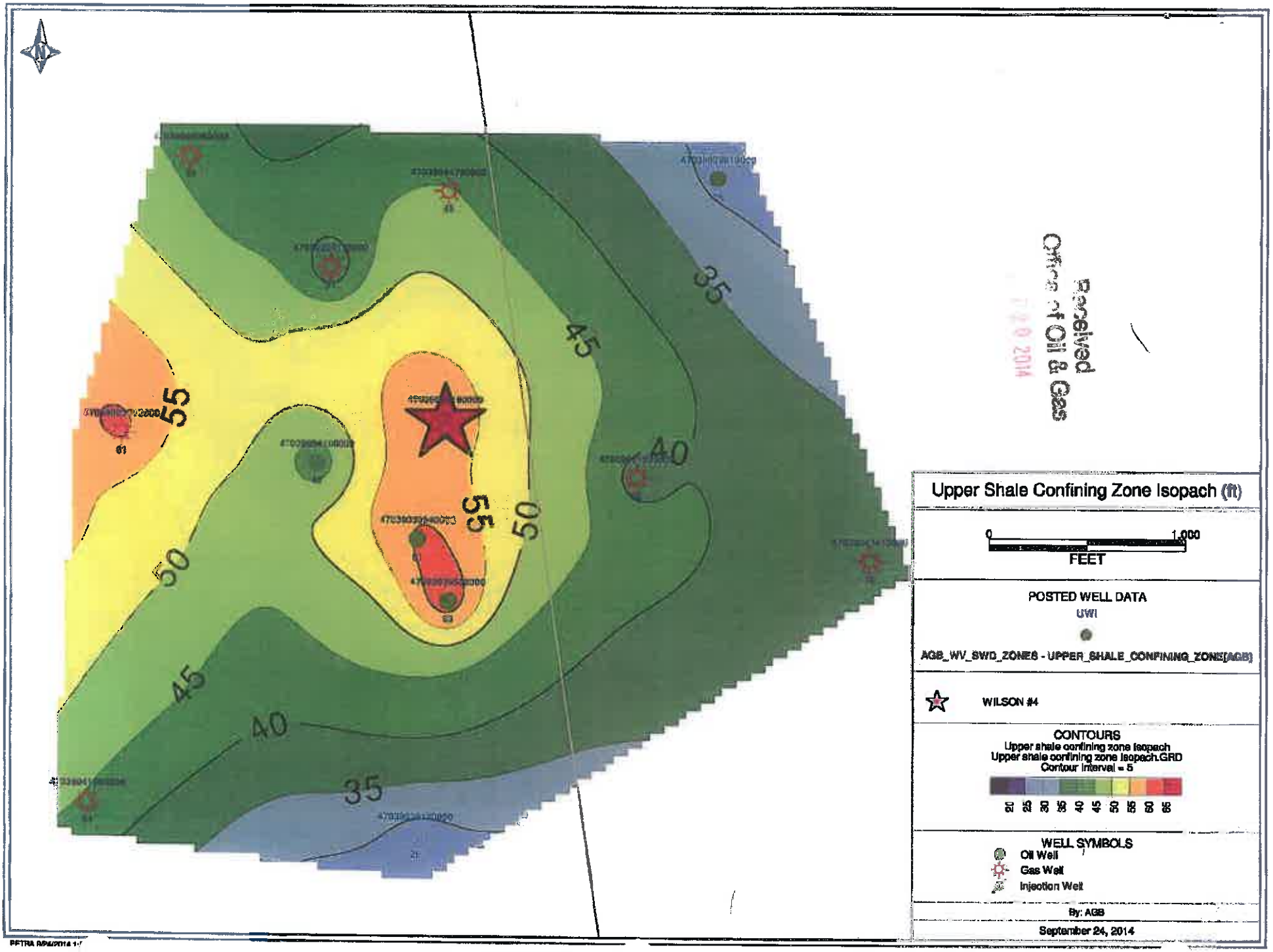
DISTANCE	pressure	WATER LE	SURFACE	BASE USDW	INJECTION ZONE
6	207.39076	-68.51621	1046	646	-510
13.2	205.90636	-69.69045	1046	646	-510
19.8	205.143	-71.32281	1046	646	-510
33	204.18129	-73.37934	1046	646	-510
66	202.87632	-76.16987	1046	646	-510
99	202.11297	-77.80223	1046	646	-510
132	201.57136	-78.9604	1046	646	-510
198	200.806	-80.59276	1046	646	-510
264	200.26639	-81.75094	1046	646	-510
330	199.84629	-82.64929	1046	646	-510
396	199.50904	-83.3833	1046	646	-510
462	199.21282	-84.00389	1046	646	-510
528	198.96143	-84.54147	1046	646	-510
627	198.63789	-85.23332	1046	646	-510
726	198.36188	-85.82353	1046	646	-510
825	198.12122	-86.33617	1046	646	-510
924	197.90788	-86.79442	1046	646	-510
1056	197.65646	-87.332	1046	646	-510
1188	197.43472	-87.80619	1046	646	-510
1320	197.23636	-88.23036	1046	646	-510

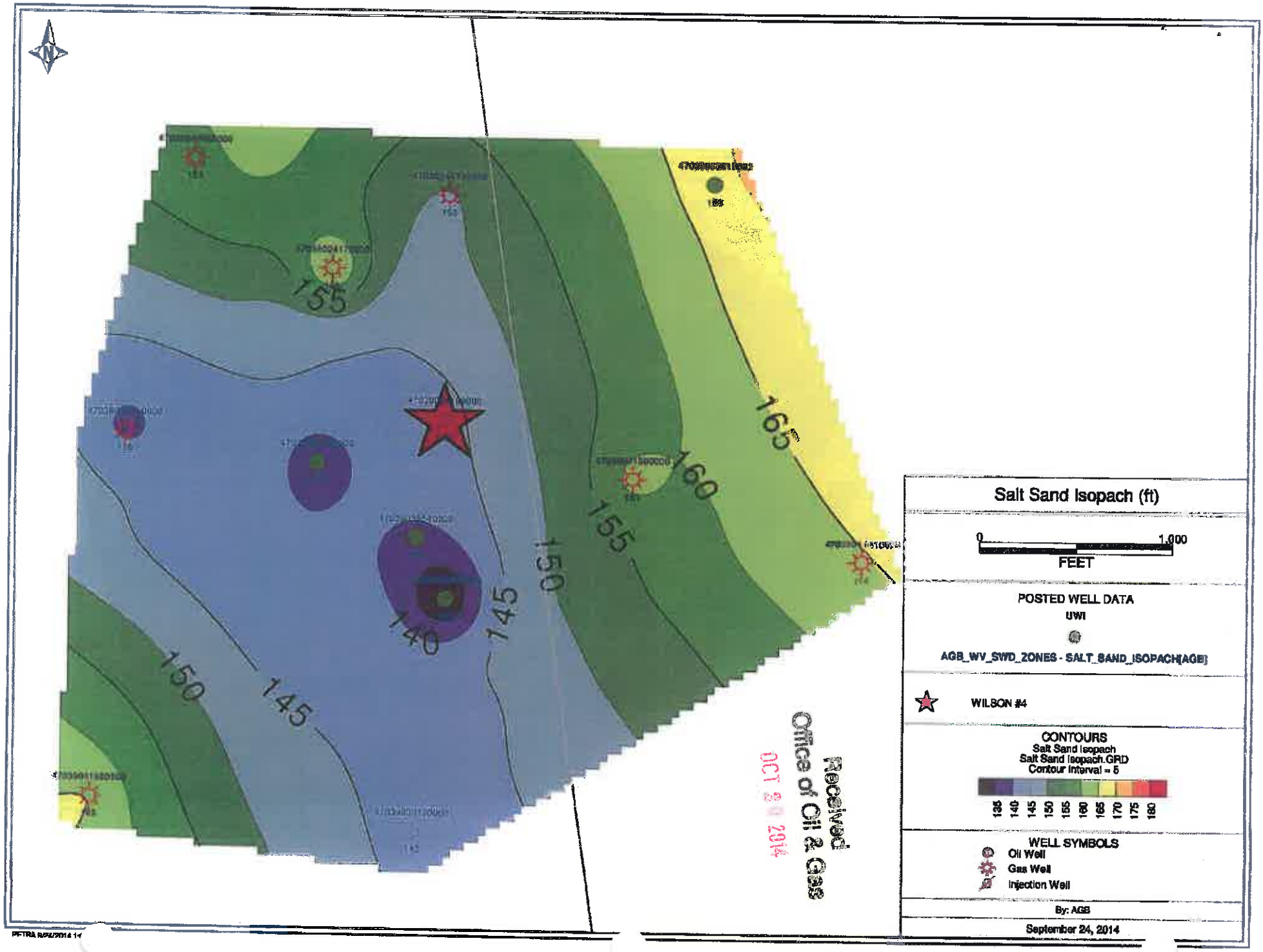


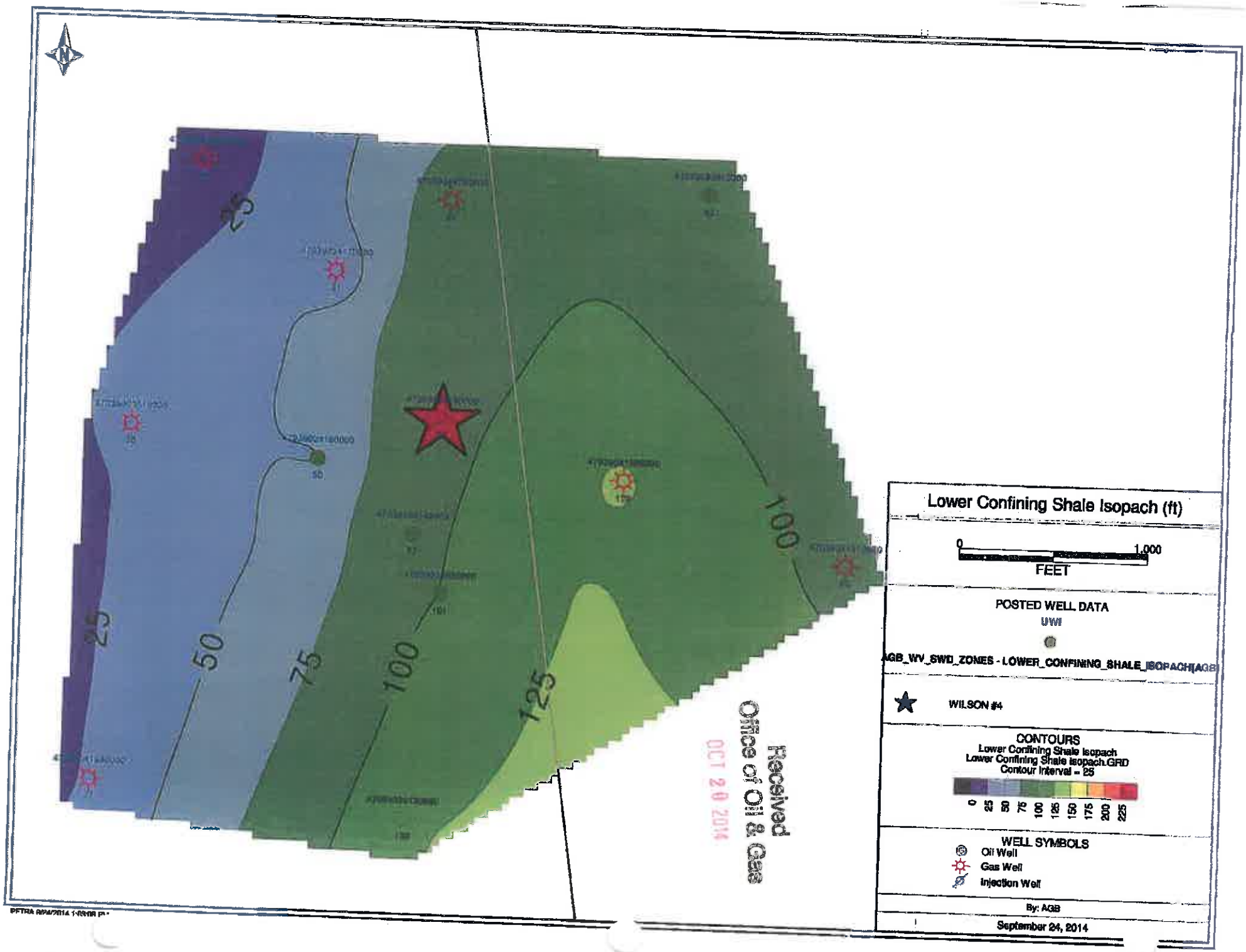
RADIAL DISTRIBUTION OF PRESSURE AROUND WELL OF CONCERN

linear term ——— -0.941333
E(i) term ——— 2.842E-11


Top Salt Sand Structure SSTVD
0
1,000
FEET
POSTED WELL DATA
OWI
WILSON #4
CONTOURS
Top Salt Sand Structure
Top Salt Sand Structure.GRD
Contour Interval = 10
-550
-540
-530
-520
-510
-500
-490
-480
-470
-460
WELL SYMBOLS
Oil Well
Gas Well
Injection Well
By: AGS
September 24, 2014
-540
530
-520
-510
-500
-490
Received
Office of Oil & Gas
OCT 20 2014







Production Team Name	Area Name	Route Name	AccountingID	Merrick ID	API Well Number	Well Plus Completion Name	Drilling Team Name	Active Flag	County Name	Lease Name	Producing Description	Producing Methods Description	EXCO Gas NRI
West Virginia	Blue Creek	BLU02	250*205859	1959	4703904178	BLOSS, PJ 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU02	250*205860	2144	4703904735	BLOSS, PJ 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU03	250*205861	2322	4703904647	BOOKER, WC 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.49%
West Virginia	Blue Creek	BLU03	250*205862	2501	4703904731	BOOKER, WC 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.49%
West Virginia	Blue Creek	BLU04	250*205863	2678	4703902765	CARNES SALISBURY 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU04	250*205864	2860	4703903606	CARNES SALISBURY 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU04	250*205865	3038	4703904263	CARNES SALISBURY 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU04	250*205866	124	4703904490	CARNES SALISBURY 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU05	250*205867	309	4703902761	CARNES, L 01 [LTSI]	Conventional	Active	Kanawha	W-BLUE CREEK	SI - Long Term_LTSI	Not producing	42.17%
West Virginia	Blue Creek	BLU05	250*205868	612	4703902766	CARTE G 02	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.87%
West Virginia	Blue Creek	BLU04	250*205869	803	4703904661	CARTE G 03	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.87%
West Virginia	Blue Creek	BLU06	250*205870	351	4703902132	CARTE JH 01	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205871	1054	4703902500	CARTE JH 02	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205872	1230	4703902501	CARTE JH 03	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205873	1417	4703902530	CARTE JH 04	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205874	1596	4703902634	CARTE JH 05	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205875	1782	4703902635	CARTE JH 06	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205876	1960	4703902636	CARTE JH 07	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205877	2145	4703902637	CARTE JH 08	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU04	250*205878	2323	4703902638	CARTE JH 09	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205879	2502	4703903483	CARTE JH 10	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205880	2679	4703903602	CARTE JH 11	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205881	2861	4703903811	CARTE JH 12	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205882	3039	4703903812	CARTE JH 13	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pump - other	39.45%
West Virginia	Blue Creek	BLU04	250*205883	125	4703903944	CARTE JH 14	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205884	310	4703904246	CARTE JH 15	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205885	613	4703904257	CARTE JH 16	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205886	804	4703904475	CARTE JH 17	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*205887	352	4703902360	CARTE SB 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205888	1055	4703903852	CASTO 01	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU02	250*205889	1231	4703903939	CHANDLER C 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205890	1418	4703904283	CHANDLER C 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205891	1597	4703904282	CHANDLER C 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205892	1783	4703904491	CHANDLER C 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205893	1961	4703904646	CHANDLER C 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205894	2146	4703904732	CHANDLER C 6	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*205895	2324	4703902332	CHENOWETH DP 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*205896	2503	4703902514	CHENOWETH DP 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.61%
West Virginia	Blue Creek	BLU05	250*205897	2680	4703904025	CHENOWETH DP 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.61%
West Virginia	Blue Creek	BLU06	250*205898	2862	4703902126	COPENHAVER JH 01	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.61%
West Virginia	Blue Creek	BLU06	250*205899	3040	4703903382	COPENHAVER JH 02	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%

Production Team Name	Area Name	Route Name	Accountrow2	Merrick ID	API Well Number	Well Plus Completion Name	Drilling Team Name	Active Flag	County Name	Lease Name	Producing Description	Producing Methods Description	EXCO Gas NRI
West Virginia	Blue Creek	BLU06	250*205900	126	4703902148	COPENHAVER JH 03	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205901	311	4703902247	COPENHAVER JH 04	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205902	614	4703902281	COPENHAVER JH 05	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205903	805	4703902490	COPENHAVER JH 06	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205904	353	4703902491	COPENHAVER JH 07	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205905	1056	4703902492	COPENHAVER JH 08	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205906	1232	4703902494	COPENHAVER JH 09	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205907	1419	4703903394	COPENHAVER JH 10	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205908	1598	4703903395	COPENHAVER JH 11	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205909	1784	4703903478	COPENHAVER JH 12	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205910	1962	4703903479	COPENHAVER JH 13	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205911	2147	4703903582	COPENHAVER JH 14	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205912	2325	4703903583	COPENHAVER JH 15	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205913	2504	4703903584	COPENHAVER JH 16	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205914	2681	4703903813	COPENHAVER JH 17	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205915	2863	4703903814	COPENHAVER JH 18	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205916	3041	4703903815	COPENHAVER JH 19	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205917	127	4703904024	COPENHAVER JH 20	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205918	312	4703904286	COPENHAVER JH 21	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205919	615	4703904287	COPENHAVER JH 22	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205920	806	4703904599	COPENHAVER JH 23	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205921	354	4703904587	COPENHAVER JH 24	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205922	1057	4703904604	COPENHAVER JH 25	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205923	1233	4703905003	COPENHAVER JH 26	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205924	1420	4703902153	CULPEPPER O 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205925	1599	4703904584	CULPEPPER O 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205926	1785	4703903847	DICK O 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*205927	1963	4703903848	DICK O 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU02	250*205928	2148	4703904219	DICK O 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205929	2326	4703902239	DODD CC 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205930	2505	4703904480	DODD CC 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*205931	2682	4703904594	DODD CC 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*205932	2864	4703903940	DOUGLAS CL 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*205933	3042	4703902300	DOUGLAS E 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU03	250*205934	128	4703902633	DOUGLAS E 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*205935	313	4703902824	DOUGLAS E 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*205936	616	4703904862	DOUGLAS E 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU05	250*205937	807	4703902361	DOUGLAS V 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*205938	355	4703903587	DOUGLAS V 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.49%
West Virginia	Blue Creek	BLU05	250*205939	1058	4703904586	DOUGLAS V 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.49%
West Virginia	Blue Creek	BLU05	250*205940	1234	4703902170	DRAKE O 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.49%
													40.81%

Production Team Name	Area Name	Range Name	AccountingID	Merrick ID	Api Well Number	Well Plus Completion Name	Drilling Team Name	Active Flag	County Name	Lease Name	Producing Description	Producing Methods Description	EXCO Gas NRI
West Virginia	Blue Creek	BLU05	250*205941	1421	4703903383	DRAKE O 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205942	1600	4703902171	DUNBAR AL 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205943	1786	4703903384	DUNBAR AL 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205944	1964	4703904517	DUNBAR AL 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205945	2149	4703904748	DUNBAR AL 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205946	2327	4703905075	DUNBAR AL 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU04	250*205947	2506	4703902136	EWING WH 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*205948	2683	4703903607	EWING WH 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU04	250*205949	2865	4703903816	EWING WH 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205950	3055	4703902104	FACEMYER D 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205951	129	4703903381	FACEMYER D 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205952	314	4703903480	FACEMYER D 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205953	629	4703903482	FACEMYER D 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205954	808	4703904004	FACEMYER D 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205955	356	4703905073	FACEMYER D 6	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*207085	6746	4703905826	FACEMYER D 7	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU05	250*205956	1059	4703903396	FISHER M 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU05	250*205957	1246	4703902367	FISHER M 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU05	250*205958	1422	4703902476	FISHER M 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU05	250*205959	1601	4703904006	FISHER M 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*205960	1799	4703904168	FISHER M 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*205961	1976	4703902388	FOSTER JV 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205962	2150	4703903945	FOSTER JV 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205963	2328	4703902389	FRENCH R 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205964	2507	4703902165	GILBERT O 01	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205965	2684	4703902630	GILBERT O 02	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205966	2866	4703902435	GILBERT O 03	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205967	3067	4703902436	GILBERT O 04	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205968	142	4703902628	GILBERT O 05	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205969	327	4703902629	GILBERT O 06	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205970	641	4703902819	GILBERT O 07	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205971	821	4703902820	GILBERT O 08	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205972	369	4703902828	GILBERT O 09	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205973	1071	4703903490	GILBERT O 10	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205974	1258	4703903491	GILBERT O 11	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205975	1434	4703903589	GILBERT O 12	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205976	1613	4703903588	GILBERT O 13	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205977	1809	4703903818	GILBERT O 14	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205978	1988	4703903819	GILBERT O 15	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205979	2163	4703903820	GILBERT O 16	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205980	2340	4703904026	GILBERT O 17	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%

Production Team Name	Area Name	Newg Name	Accounting ID	Merrick ID	Api Well Number	Well Plus Completion Name	Drilling Team Name	Active Flag	County Name	Lease Name	Producing Description	Producing Methods Description	EXCO Gas NRI
West Virginia	Blue Creek	BLU03	250*205981	2519	4703904027	GILBERT O 18	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*205982	2697	4703904327	GILBERT O 19	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205983	2878	4703902368	HAGER I 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*205984	3078	4703902149	HOLDREN WW 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU05	250*205985	154	4703903385	HOLDREN WW 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU05	250*205986	458	4703903386	HOLDREN WW 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU05	250*205987	653	4703904527	HOLDREN WW 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU03	250*205988	833	4703903863	HOLT JA 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU03	250*205989	381	4703904207	HOLT JA 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU02	250*205990	1082	4703902158	HUFFMAN A 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205991	1269	4703904023	HUFFMAN A 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205992	1446	4703904733	HUFFMAN A 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205993	1625	4703904734	HUFFMAN A 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*205994	1821	4703904649	HUFFMAN A 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*205995	1999	4703902317	HUFFMAN D 1 [LTSI] Oil Invtry	Conventional	Active	Kanawha	W-BLUE CREEK	SI - Long Term_LTSI	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205996	2174	4703902150	HUFFMAN LV 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205997	2353	4703902632	HUFFMAN LV 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205998	2531	4703903488	HUFFMAN LV 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*205999	2709	4703904659	HUFFMAN LV 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU02	250*206000	2889	4703902138	HUFFMAN P 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206001	3043	4703904011	HUFFMAN P 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206002	166	4703902147	HUMPHREYS L 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206003	470	4703902240	HUMPHREYS L 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206004	617	4703902478	HUMPHREYS L 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206005	845	4703902525	HUMPHREYS L 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206006	392	4703904147	HUMPHREYS L 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206007	1094	4703902403	HUMPHREYS W 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206008	1235	4703903387	HUMPHREYS W 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206009	1458	4703903857	IVANA CO 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU05	250*206010	1637	4703904588	IVANA TR 2 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU05	250*206011	1787	4703902292	JAMES B 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.05%
West Virginia	Blue Creek	BLU05	250*206012	1965	4703903397	JAMES B 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.05%
West Virginia	Blue Creek	BLU05	250*206013	2185	4703904481	JAMES B 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.05%
West Virginia	Blue Creek	BLU03	250*206014	2364	4703904664	JAMES B 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.05%
West Virginia	Blue Creek	BLU05	250*206015	2543	4703904817	JAMES B 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.05%
West Virginia	Blue Creek	BLU05	250*206017	2900	4703902245	JONES B 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.93%
West Virginia	Blue Creek	BLU03	250*206018	3044	4703903856	KAY C 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU02	250*206019	130	4703902280	KELLY L 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU02	250*206020	315	4703902838	KELLY L 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU02	250*206021	618	4703902320	KELLY L 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU02	250*206022	809	4703902825	KELLY L 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%

Production Team Name	Area Name	Route Name	AccountingID	Merrick ID	API Well Number	Well Plus Completion Name	Drilling Team Name	Active Flag	County Name	Lease Name	Producing Description	Producing Methods Description	EXCO Gas NRI
West Virginia	Blue Creek	BLU02	250*206023	357	4703903585	KELLY L 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU02	250*206024	1060	4703903586	KELLY L 6	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU02	250*206025	1236	4703904198	KELLY L 7	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU02	250*206026	1423	4703904984	KELLY L 9	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206027	1602	4703902139	LARCH HM 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206028	1788	4703903604	LARCH JC 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	38.86%
West Virginia	Blue Creek	BLU02	250*206029	6747	4703903849	LARCH JC 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	38.86%
West Virginia	Blue Creek	BLU02	250*206030	2151	4703904518	LARCH JC 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	38.86%
West Virginia	Blue Creek	BLU02	250*206031	2329	4703904648	LARCH JC 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	38.86%
West Virginia	Blue Creek	BLU04	250*206033	2685	4703902350	MARLOWE BF 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206034	2867	4703902529	MARLOWE BF 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206035	3045	4703903961	MASON UNIT 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU02	250*206036	131	4703902236	MCCABE B 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206037	316	4703903734	MCCABE B 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206038	619	4703904519	MCCABE B 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206039	810	4703904585	MCCABE B 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206040	358	4703904662	MCCABE B 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*206041	1061	4703904657	MCELWEE 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206042	1237	4703902238	MILLS S 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206043	1424	4703902479	MILLS S 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206044	1603	4703902511	MILLS S 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206045	1789	4703904804	MILLS S 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU06	250*206046	1966	4703904986	MILLS S 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206047	2152	4703905074	MILLS S 7	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206048	2330	4703902142	MOHLER LMBR 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*207086	6749	4703905827	MOHLER LMBR 10	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206049	2508	4703902417	MOHLER LMBR 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206050	2686	4703902480	MOHLER LMBR 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU02	250*206051	2868	4703902642	MOHLER LMBR 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206052	3046	4703903388	MOHLER LMBR 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206053	132	4703903477	MOHLER LMBR 6	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206054	317	4703903489	MOHLER LMBR 7	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206055	620	4703904473	MOHLER LMBR 8	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206056	811	4703904806	MOHLER LMBR 9	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*206057	359	4703902404	MOLES E 1 [LTSI] OII	Conventional	Active	Kanawha	W-BLUE CREEK	SI - Long Term_LTSI	Not producing	42.17%
West Virginia	Blue Creek	BLU05	250*206058	1062	4703902177	NEWHOUSE AE 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU04	250*206059	1238	4703902524	NEWHOUSE AE 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU04	250*206060	1425	4703902526	NEWHOUSE AE 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU04	250*206061	1604	4703904865	NEWHOUSE AE 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU03	250*206062	1790	4703902631	NUNLEY W 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU09	250*206063	1967	4703902822	NUNLEY W 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%

Production Region Name	Area Name	Route Name	AccountingID	Merrick ID	Api Well Number	Well Plus Completion Name	Drilling Team Name	Active Flag	County Name	Lease Name	Producing Description	Producing Methods Description	ENGO Gas NRI
West Virginia	Blue Creek	BLU04	250*206064	2153	4703902833	NUNLEY W 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU03	250*206065	2331	4703902834	NUNLEY W 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	43.53%
West Virginia	Blue Creek	BLU03	250*206066	2509	4703904489	NUNLEY W 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*206067	2687	4703904868	NUNLEY W 6	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206068	2869	4703902168	O DELL M 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU04	250*206069	3047	4703902643	O DELL M 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU04	250*206070	133	4703902644	O DELL M 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU04	250*206071	318	4703902645	O DELL M 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU04	250*206072	621	4703904150	O DELL M 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU04	250*206073	812	4703904863	O DELL M 6	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU04	250*206074	360	4703902381	O DELL WH 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU04	250*206075	1063	4703903590	O DELL WH 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206076	1239	4703902496	OSBORNE B 02	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pump - other	39.45%
West Virginia	Blue Creek	BLU06	250*206077	1426	4703902497	OSBORNE B 03	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206078	1605	4703902498	OSBORNE B 04	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206079	1791	4703902499	OSBORNE B 05	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206080	1968	4703902826	OSBORNE B 06	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206081	2154	4703902827	OSBORNE B 07	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206082	2332	4703903485	OSBORNE B 08	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206083	2510	4703904660	OSBORNE B 09	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206084	2688	4703904702	OSBORNE B 10	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206085	2870	4703902288	PAULEY WL 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*206086	3048	4703903850	PAXTON HL 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.58%
West Virginia	Blue Creek	BLU03	250*206087	134	4703902353	PETERS L 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU03	250*206088	319	4703904589	PETERS L 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU06	250*206089	622	4703902305	PRICE AS 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU06	250*206090	813	4703903481	PRICE AS 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206091	361	4703904012	PRICE AS 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206092	1064	4703902763	PRICE L 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206093	1240	4703904600	PRICE L 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU05	250*206094	1427	4703904002	QUAKER STATE OIL REF 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU04	250*206095	1606	4703903389	RAY J 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	48.38%
West Virginia	Blue Creek	BLU04	250*206096	1792	4703903581	RAY J 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.00%
West Virginia	Blue Creek	BLU04	250*206097	1969	4703903821	RAY J 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.00%
West Virginia	Blue Creek	BLU04	250*206098	2155	4703904240	RAY J 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.00%
West Virginia	Blue Creek	BLU04	250*206099	2333	4703902119	RAY J 6	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.00%
West Virginia	Blue Creek	BLU04	250*206100	2511	4703904206	RAY J 7	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.00%
West Virginia	Blue Creek	BLU04	250*206101	2689	4703902140	RENNICK D 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.00%
West Virginia	Blue Creek	BLU04	250*206102	2871	4703903390	RENNICK D 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206103	3049	4703902256	REXROAD W 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206104	135	4703902398	REXROAD W 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%

Production Team Name	Area Name	Route Name	AccountingID	Merrick ID	Api Well Number	Well Plus Completion Name	Drilling Team Name	Active Flag	County Name	Lease Name	Producing Description	Producing Methods Description	EXCO Gas NRI
West Virginia	Blue Creek	BLU05	250*206105	320	4703902527	REXROAD W 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206106	623	4703903486	REXROAD W 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206107	814	4703904492	REXROAD W 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206108	362	4703904591	REXROAD W 6	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206109	1065	4703904830	REXROAD W 7	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*206110	1241	4703904073	REYNOLDS CG 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206111	1428	4703904035	ROBERTSON U 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.85%
West Virginia	Blue Creek	BLU04	250*206112	1607	4703904141	ROBERTSON U 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	27.66%
West Virginia	Blue Creek	BLU04	250*206113	1793	4703903603	RUNYON I 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	27.66%
West Virginia	Blue Creek	BLU03	250*206114	1970	4703902402	SALISBURY C 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	41.97%
West Virginia	Blue Creek	BLU03	250*206115	2156	4703902406	SALISBURY C 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*206116	2334	4703903605	SALISBURY CG 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*206117	2512	4703904013	SALISBURY CG 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	41.97%
West Virginia	Blue Creek	BLU03	250*206118	2690	4703904139	SALISBURY CG 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	41.97%
West Virginia	Blue Creek	BLU03	250*206119	2872	4703904239	SALISBURY CG 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	41.97%
West Virginia	Blue Creek	BLU04	250*206120	3050	4703903730	SAMPSON SD 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	41.97%
West Virginia	Blue Creek	BLU05	250*206121	136	4703902432	SHAFFER CARTE DODD 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU06	250*206122	321	4703902312	SHAFFER E 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	40.13%
West Virginia	Blue Creek	BLU06	250*206123	624	4703902145	SIDERS N 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*206124	815	4703902382	SLACK C 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU05	250*206125	363	4703902383	SMITH D 1 [LTSI_LHG only]	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.75%
West Virginia	Blue Creek	BLU02	250*206126	1065	4703903941	STOUT BJ 1	Conventional	Active	Kanawha	W-BLUE CREEK	Sales_House Gas	Pumping unit	42.17%
West Virginia	Blue Creek	BLU02	250*206127	1242	4703904005	STOUT BJ 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	44.46%
West Virginia	Blue Creek	BLU03	250*206128	1429	4703902363	STRICKLAND A 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	44.46%
West Virginia	Blue Creek	BLU02	250*206129	1608	4703903942	STRICKLAND C 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU02	250*206130	1794	4703904020	STRICKLAND C 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206131	1971	4703904021	STRICKLAND C 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU02	250*206132	2157	4703904243	STRICKLAND C 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206133	2335	4703904169	STRICKLAND C 5	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	39.45%
West Virginia	Blue Creek	BLU03	250*206134	2513	4703902380	SUTTON H 1 [LTSI] Oil Invtry	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*206136	2873	4703902817	SUTTON H 3 [LTSI] Oil Invtry	Conventional	Active	Kanawha	W-BLUE CREEK	SI - Long Term_LTSI	Pumping unit	41.20%
West Virginia	Blue Creek	BLU03	250*206137	3051	4703902818	SUTTON H 4 [LTSI] Oil Invtry	Conventional	Active	Kanawha	W-BLUE CREEK	SI - Long Term_LTSI	Pumping unit	41.20%
West Virginia	Blue Creek	BLU02	250*206138	137	4703904032	TAWNEY JE 1	Conventional	Active	Kanawha	W-BLUE CREEK	SI - Long Term_LTSI	Pump - other	41.20%
West Virginia	Blue Creek	BLU06	250*206139	322	4703902351	TEETS E 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.94%
West Virginia	Blue Creek	BLU06	250*206140	625	4703902493	TEETS E 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU06	250*206141	816	4703904138	TEETS E 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU06	250*207087	6944	4703905829	TEETS, E 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*206142	364	4703902329	THAXTON H 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU03	250*206143	1067	4703904479	THAXTON H 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.85%
West Virginia	Blue Creek	BLU03	250*206144	1243	4703904597	THAXTON H 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.85%
West Virginia	Blue Creek	BLU05	250*206145	1430	4703903946	TICKLE B 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Flowing	42.17%

Production Taxes Name	Area Name	Route Name	AccountingID	Merrick ID	API Well Number	Well Plus Completion Name	Drilling Team Name	Active Flag	County Name	Lease Name	Producing Description	Producing Methods Description	EXCO Gas NRI
West Virginia	Blue Creek	BLU02	250*206146	1609	4703904145	TRUMAN JP U 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU02	250*206147	1795	4703904275	TRUMAN JP U 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU02	250*206148	1972	4703904736	TRUMAN JP U 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	42.17%
West Virginia	Blue Creek	BLU05	250*206149	2158	4703902157	WALKER B 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*206150	2336	4703903484	WALKER B 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU05	250*206151	2514	4703904273	WALKER B 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU06	250*206152	2692	4703902237	WEBB E 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206153	2874	4703902503	WEBB E 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206154	3052	4703903391	WEBB E 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU06	250*206155	138	4703904753	WEBB E 4	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206157	626	4703902124	WILSON LC 02	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206159	365	4703902647	WILSON LC 10	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206160	1068	4703902648	WILSON LC 11	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*206161	1244	4703902649	WILSON LC 12	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206162	1431	4703902650	WILSON LC 13	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206163	1610	4703902829	WILSON LC 14	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206164	1796	4703904140	WILSON LC 17	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206165	1973	4703904476	WILSON LC 18	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU04	250*206166	2159	4703904598	WILSON LC 19	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU02	250*207088	6748		WILSON LC 21	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.45%
West Virginia	Blue Creek	BLU03	250*206168	2515	4703902760	WITHROW C 01	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.80%
West Virginia	Blue Creek	BLU03	250*206169	2693	4703904014	WITHROW C 02	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.80%
West Virginia	Blue Creek	BLU03	250*206170	2875	4703902365	WOODALL AE 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	39.46%
West Virginia	Blue Creek	BLU02	250*206171	3053	4703903851	YOUNG WT HRS 1	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU02	250*206172	139	4703904016	YOUNG WT HRS 2	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%
West Virginia	Blue Creek	BLU02	250*206173	324	4703904015	YOUNG WT HRS 3	Conventional	Active	Kanawha	W-BLUE CREEK	Producing	Pumping unit	40.81%

3K20029-10

W. Va. Code R. 35-8-15 Water Supply Testing.

15.3.b. **Parameters** - The operator shall analyze samples for the following parameters:

15.3.b.1. Total Petroleum Hydrocarbons (GRO, DRO, ORO)
15.3.b.2. BTEX
15.3.b.3. Chloride
15.3.b.4. Sodium
15.3.b.5. Total Dissolved Solids (TDS)
15.3.b.6. Aluminum
15.3.b.7. Arsenic
15.3.b.8. Barium
15.3.b.9. Iron
15.3.b.10. Manganese
15.3.b.11. pH
15.3.b.12. Calcium
15.3.b.13. Sulfate
15.3.b.14. Detergents (MBAS)
15.3.b.15. Dissolved Methane
15.3.b.16. Dissolved Ethane
15.3.b.17. Dissolved Butane
15.3.b.18. Dissolved Propane
15.3.b.19. Bacteria (total coliform)
15.3.b.20. Any others parameters determined by the operator or the Chief.

Re 10-16-14 ncc 3K20029

9 . Physical and chemical properties

Solubility (Water)	: Soluble
Vapor pressure	: 11.7 kPa (87.9 mm Hg) at 37.8°C (Reid)
Pour Point	: -40°C (-40°F)
Partition coefficient (LogKow)	: Not available.

10 . Stability and Reactivity

Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Materials to avoid	: Reactive or incompatible with the following materials: oxidizing materials and reducing materials. Methanol is incompatible and may react with acetyl bromide, alkyl aluminum solutions, beryllium hydride, boron trichloride, nitric acid, cyanuric chloride, dichloromethane, diethylzinc, metals (granulated forms of aluminum and magnesium – including aluminum and zinc salts), phosphorus III oxide, and potassium tert-butoxide.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Conditions of reactivity	: Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Methanol	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rabbit	14200 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
	LC50 Inhalation Vapor	Mouse	50000 ppm	4 hours

Chronic toxicity Remarks

1) Methanol

Methanol is a component of this product. Because methanol is eliminated from the body more slowly than ethanol, it can have cumulative toxicity with repeated exposures (ACGIH, 1992).

Acute dermal, oral, and inhalation exposure to methanol can cause Central Nervous System effects, optic nerve effects, diminished vision, and brain effects (necrosis and hemorrhaging). (Bennett, I.L. et al, 1953)

Ingestion of methanol can cause Central Nervous System depression, metabolic acidosis, blurred vision and blindness, gastrointestinal effects, and coma and death. (Clayton, G.D. and Clayton, F.E., 1982, Patty's Industrial Hygiene and Toxicology, Vol2C) Dermal exposure to methanol can cause Central Nervous System depression, blurred vision, and gastrointestinal effects. (Downie, A et al, 1992, Occupational Medicine, 42, pp 47-9) Chronic inhalation of methanol can cause Central Nervous System depression, blurred vision, and gastrointestinal effects. (Frederick, L.J. et al, 1984, Clinic Journal, 45, pp 51-5) Chronic inhalation of methanol has caused liver effects in laboratory animals. (Poon, R et al, 1994, Toxocology and Industrial Health 10: 231-245) Chronic oral exposure has caused Central Nervous System effects and eye effects in laboratory animals. [Youssef, A. F. et al (1993) Neurotoxicology and Teratology 15: 223-227; Baumbach, G.L. et al (1977) Archives of Ophthalmology 95: 1859-1865; Hayreh, M.S. et al (1977) Archives of Ophthalmology 95: 1851-1858; Hayreh, M.S. et al (1980) Ocular toxicity of methanol: An experimental study – Raven Press, New York, pages 35-53; and Martin-Amat, G. et al (1977) Archives of Ophthalmology 95: 1847-1850]

11 . Toxicological information

Methanol has produced in vivo mutagenicity in animal studies. (Pereira, M.A. et al, 1982) and (Ward, J. B. et al, 1983)

Methanol was mutagenic in yeast (RTECS). Methanol has caused chromosome aberrations in yeast (RTECS) and grasshoppers (Saha & Khudabaksh, 1974).

Methanol has caused birth defects in rats exposed by the oral (Infurna et al, 1981) and inhalation (Nelson et al, 1984; Nelson et al, 1985) routes. Exencephaly (a defect in the skull bone structure that leaves the brain exposed) and cleft palate (a fissure or unformed bone structure in the roof of the mouth (palate), lip, or facial area, occurring during the embryonic stage of development) were increased in fetal mice exposed to methanol at an airborne concentration of 5,000 ppm or higher for 7 hours/day on days 6 to 15 of gestation.

Embryotoxicity and fetotoxicity were seen with maternal exposure to airborne concentrations of 7,500 ppm and above, and reduced fetal weights with concentrations of 10,000 ppm or greater. The NOAEL was 1,000 ppm. Effects similar to those seen in the 10,000 ppm dosage group were also seen in offspring of mice given a dose of 4 g/kg orally (Rogers et al, 1993).

2) Quaternary ammonium compounds

Not available.

3) Alkylpyridine salts

Not available.

4) Ammonium bisulfite

Ammonium bisulfite is a component of this product. Prolonged contact can produce corrosion of the skin and permanent damage to the eye. Under acidic conditions, sulfur dioxide may be formed. Inhalation of sulfur dioxide can cause stricture of the esophagus, acute pulmonary edema, and respiratory failure. Sulfur dioxide has been linked to miscarriages, gynecological disease, and abnormal pregnancies (Reprotext).

The ACGIH exposure limits for sulfur dioxide are TWA of 2 ppm and STEL of 5 ppm. The OSHA exposure limit for sulfur dioxide is a TWA of 5 ppm.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
CRW132 CORROSION INHIBITOR	Acute LC50 2.61 mg/L	Daphnia - Daphnia magna	48 hours
	Acute LC50 2.3 mg/L	Fish - Sheepshead minnow	96 hours
	Acute LC50 2.3 mg/L	Fish - Fathead minnow	96 hours
	Acute LC50 3 ppm	Daphnia - Daphnia pulex	48 hours

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Additional information

An EcoTox™ Report, and/or the material's environmental fate is available upon request at the following number: 1-800-235-4249, then press 4.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Methanol)	3	III		-
TDG Classification	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Methanol)	3	III		-
IMDG Class	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Methanol)	3	III		**Emergency schedules (EmS)** F-E S-D

PG* : Packing group

DOT Reportable Quantity Methanol, 2082 gal of this product.
Ammonium bisulfite, 24220 gal of this product.

Marine pollutant Not applicable.

North-America NAERG : 128

15 . Regulatory information

HCS Classification : Flammable liquid
Irritating material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b):** All components are listed or exempted.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: methanol; ammonium hydrogensulphite
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: CRW132 CORROSION INHIBITOR: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

CERCLA: Hazardous substances.: methanol: 5000 lbs. (2270 kg); ammonium hydrogensulphite: 5000 lbs. (2270 kg);
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: ammonium hydrogensulphite
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

15 . Regulatory information

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Not listed

SARA 313

Supplier notification

Product name	CAS number	Concentration
Methanol	67-56-1	10 - 30
Ammonium bisulfite	10192-30-0	1 - 5

United States Inventory (TSCA 8b) : All components are listed or exempted.

Canada

WHMIS (Canada) : Class B-2: Flammable liquid
Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).
Class E: Corrosive material

Canada (CEPA DSL): : All components are listed or exempted.

16 . Other information

Label requirements : ▼FLAMMABLE LIQUID AND VAPOR. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE BLINDNESS IF SWALLOWED. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

National Fire Protection Association (U.S.A.) :

Date of printing : 12/12/2009.

▼ Indicates information that has changed from previously issued version.

Notice to reader

NOTE: The information on this MSDS is based on data which is considered to be accurate. Baker Hughes, however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This MSDS was prepared and is to be used for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

L.C. WILSON #4 – UIC 2D0392419

MONITORING PLAN

EXCO's Monitoring Plan for the L.C. Wilson #4 Injection Well shall consist of the following:

1. The approved UIC permit will be circulated amongst the Production and Regulatory Managers in West Virginia, Pennsylvania, and Texas. The maximum pressure will be duly noted and highlighted.

2. The Murphy Gauge at the pump station, which will shut down the well on high and low pressures, will have the maximum pressure setting clearly marked on the gauge.

3. A weatherproof sign will be installed at the pump station and well head that indicates the maximum operating pressure so it is clear to the operator.

4. The maximum permitted injection pressure will be indicated on the WR-40 Form, which will also summarize the recording of pressure and be submitted on a monthly basis to the West Virginia Department of Environmental Protection.

APPENDIX H

GROUNDWATER PROTECTION PLAN

Facility Name: L.C. Wilson #4

County: Kanawha

Facility Location:

Postal Service Address:		
Latitude and Longitude:	38.494024; -81.437139	

Contact Information:

Person:	Brian E. Rushe, P.E. w/ EXCO Resources (PA), LLC
Phone Number:	724-720-2590
E-mail Address:	brushe@excoresources.com

Date: 06/20/14

1. A list of all operations that may contaminate the groundwater.

Production water tanks
Underground piping to production water injection well
Injection well

2. A description of procedures and facilities used to protect groundwater quality from the list of potential contaminant sources above.

Secondary containment structures for tanks; tank inspection conducted in accordance with SPCC Plan
Pipe line inspection
Tubing, packer & multiple casing strings in place for wellbore

3. List procedures to be used when designing and adding new equipment or operations.

When adding additional tanks, secondary containment will be modified to handle additional storage capacity.

4. Summarize all activities at your facility that are already regulated for groundwater protection.

Not applicable.

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

Not applicable.

6. Provide a statement that no waste material will be used for deicing or fill material on the property unless allowed by another rule.

EXCO does not utilize produced water for any kind of onsite deicing activities.

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

All field employees will be trained annually during one of EXCO's monthly safety meetings. This training will also coincide with EXCO's SPCC insepction training, which shall include the following:

Dike Integrity Inspection
Piping Inspections
Housekeeping Procedures
Location of spill response materials and inventory

8. Include provisions for inspections of all GPP elements and equipment. Inspections must be made quarterly at a minimum.

EXCO personnel shall complete quarterly inspections at a minimum for all production tanks in accordance with the SPCC Plan; all secondary containment; all underground piping; and the injection well head for evidence of leakage and integrity issues.

Signature: Brian E. Rusch

Date: 10/17/14

Received
Office of Oil & Gas
OCT 24 2014

Material Safety Data Sheet

1. Product and company identification

Product name : CRW132 CORROSION INHIBITOR

Supplier : Baker Petrolite
A Baker Hughes Company
12645 W. Airport Blvd.
Sugar Land, TX 77478
For Product Information/MSDSs Call: 800-231-3606
(8:00 a.m. - 5:00 p.m. cst, Monday - Friday) 281-276-5400

Material Uses : Special: Corrosion Inhibitor.

Code : CRW132

Validation date : 12/12/2009.

Print date : 12/12/2009.

Version : 5.01

Responsible name : Global Regulatory Affairs - Telephone 281-276-5400 or 800-231-3606

In case of emergency : CHEMTREC: 800-424-9300 (U.S. 24 hour)
Baker Petrolite: 800-231-3606
(001)281-276-5400
CANUTEC: 613-996-6666 (Canada 24 hours)
CHEMTREC Int'l 01-703-527-3887 (International 24 hour)

2. Hazards identification

Physical state : Liquid.

Odor : Pungent. Amine-like.

Color : Amber. [Dark].

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : WARNING!

FLAMMABLE LIQUID AND VAPOR. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE BLINDNESS IF SWALLOWED. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Keep away from heat, sparks and flame. Do not breathe vapor or mist. Do not get in eyes. Avoid contact with skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flashback. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Routes of entry : Dermal contact. Eye contact. Inhalation.

Potential acute health effects

Inhalation : Can cause central nervous system (CNS) depression. Irritating to respiratory system.

Ingestion : Can cause central nervous system (CNS) depression. May cause blindness if swallowed.

Skin : Irritating to skin.

Eyes : Severely irritating to eyes. Risk of serious damage to eyes.

Potential chronic health effects

Chronic effects : Contains material that may cause target organ damage, based on animal data. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

2. Hazards identification

Target organs : Contains material which may cause damage to the following organs: the nervous system, gastrointestinal tract, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Over-exposure signs/symptoms

Inhalation : respiratory tract irritation, nausea or vomiting, coughing, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness

Ingestion : None known.

Skin : irritation, redness, dryness, cracking

Eyes : pain or irritation, watering, redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3. Composition/Information on ingredients

Name	CAS number	%
Methanol	67-56-1	10 - 30
Quaternary ammonium compounds	Trade secret.	5 - 10
Alkylpyridine salts	Trade secret.	5 - 10
Ammonium bisulfite	10192-30-0	1 - 5

4. First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

5. Fire-fighting measures

Flammability of the product : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

5. Fire-fighting measures

Hazardous thermal decomposition products : carbon dioxide,carbon monoxide,nitrogen oxides,sulfur oxides,halogenated compounds

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Absorb with an inert material. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Dike spill area and do not allow product to reach sewage system or surface or ground water. Notify any reportable spill to authorities. (See section 12 for environmental risks and 13 for disposal information.) Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see section 10). Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredients:	List name	ppm	mg/m³	Other	ppm	mg/m³	Other	ppm	mg/m³	Other	Notations
Methanol	US ACGIH	200	262	-	250	328	-	-	-	-	[1]
	OSHA PEL	200	260	-	-	-	-	-	-	-	
	OSHA PEL 1989	200	260	-	250	325	-	-	-	-	[1]

[1]Absorbed through skin.

Consult local authorities for acceptable exposure limits.

Only components of this product with established exposure limits appear in the box above.

If OSHA permissible exposure levels are shown above they are the OSHA 1989 levels or are from subsequent OSHA regulatory actions. Although the 1989 levels have been vacated the 11th Circuit Court of Appeals, Baker Hughes recommends that these lower exposure levels be observed as reasonable worker protection.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location. Take off contaminated clothing and wash before re-use.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant gloves: Nitrile or Neoprene gloves. 4H gloves.

Eyes : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles.

Skin : Wear long sleeves and other protective clothing to prevent repeated or prolonged skin contact.

9. Physical and chemical properties

Physical state : Liquid.

Flash point : Closed cup: 31.1°C (88°F) [PMCC]

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : Amber. [Dark]

Odor : Pungent. Amine-like.

pH : [illegible] to 5

: Neat - without dilution.

Boiling/condensation point : Not available.

Initial Boiling Point : Not available.

Melting/freezing point : Not available.

Relative density : 0.97 (15.6°C)

Density : 8.08 (lbs/gal)

Vapor density : >1 [Air = 1]

Odor threshold : Not available.

Evaporation rate : Not available.

OC : Not available.

Viscosity : Dynamic (15.6°C): 8 cP

L.C. WILSON #4 – UIC 2D0392419

PLUGGING & ABANDONMENT PLAN

EXCO's plan to plug and abandon the L.C. Wilson #4 Injection Well shall consist of the following:

1. Set a cast iron bridge plug above the perforations for the injection zone.
2. Set a cement plug on top of the cast iron bridge plug.
3. Follow all West Virginia DEP Plug 7 Abandon rules and regulations from that point as to further plugs and retrieval of casing from the hole.

APPENDIX I

Requirement for Financial Responsibility to Plug/Abandon an Injection Well

To: WV Department of Environmental Protection
Office of Oil and Gas
601 57th Street, SE
Charleston, West Virginia 25304-2345
ATTN: Underground Injection Control Program

From: EXCO Resources (PA), LLC
Brian E. Rushe, P.E.
260 Executive Drive, Suite 100
Cranberry Township, PA 16066

Date: June 20, 2014

Subject: Underground Injection Control (UIC) Permit Application
UIC2D0392419
Requirement for Financial Responsibility

I, Brian E. Rushe, verify in accordance with 47CSR13-13.7.g., that I will maintain financial responsibility and resources to close, plug, and abandon underground injection wells(s) in a manner prescribed by the Chief of the Office of Oil and Gas.

Name: Brian E. Rushe, P.E.

Signature: Brian E. Rushe

Date: 6/20/14

APPENDIX J

Site Security for Commercial Facilities

Provide a detailed description of the method(s) utilized at the facility to restrict or prohibit illegal dumping of unauthorized waste or vandalism at the facility.

1. Complete enclosure of all wells, holding tank/pits and manifold assemblies within a chain link or other suitable fencing; and

2. Require that all gates and other entry points be locked when the facility is unattended; or

3. Providing tamper-proof seals for the master valve on each well (a "lock-out" or chain & padlock system would be more secure; however, these devices could create a potential safety hazard if the well needed to be quickly shut in due to an emergency); and

4. Installing locking caps on all valves and connections on holding tanks, unloading racks, and headers.

For the L.C. Wilson #4 UIC well, there are locking caps on the valves and tanks. As far as facilities, there is nothing at the site except the well head. The tanks are located at the pump station facility, which is located approximately 3000 feet from the well head. This associated pump station facility does have a locking gate across the access road.

APPENDIX K

Identify permit or construction approvals received or applied for under the following programs:

Permit/approvals	ID Number
Hazardous Waste Management Program under RCRA	
NPDES Program	
Prevention of Significant Deterioration (PSD)	
Nonattainment Program	
Dredge or Fill	
NPDES/NPDES – Stormwater	
WVDEP – Office of Waste Management (OWM) – Solid Waste Facility	
WVDEP – OWM – RCRA (Hazardous Waste TSD or Transporter)	
WVDEP – OWM – UST	
CERCLA – Superfund	
WV Voluntary Remediation – Brownfields	
FIFRA – Federal Insecticide, Fungicide and Rodenticide Act	
Well Head Protection Program (WHPP)	
Underground Injection Control (UIC)	UIC 2D0392419
Toxic Substances Control Act (TSCA)	
Best Management Plans	
Management of Used Oil	
Other Relevant Permits (Specify):	