HG Energy, LLC
5260 Dupont Road
Parkersburg, WV 26101
(304) 420-1100 - Office
(304) 863-3172 - Fax

3/20/17

West Virginia Department of Environmental Protection
Office of Oil & Gas
601 57th Street
Charleston, WV 25304
Mr. Andrew L Lockwood
RE: NOD Griffithsville Unit No 2 (2R04302 AP)

Dear Andy,

We are in receipt of your letter dated 3/8/17 regarding the deficiencies for the submitted permit 2R04302 AP. Please see explanations below as well as the attached Fig No's 1- 6. Your prompt attention to this matter is greatly appreciated. If you should need additional information or have additional questions please feel free to call.

1.

a. Please find two hard copies of all the logs available within the AOR for the proposed UIC Permit 2R04302AP. One copy has formations marked as requested. The enclosed flash drive contains a digital copy of these logs.

b. The results of the water analysis gathered for this permit were sent to the appropriate landowners.

2.

a. The Lincoln PSD was contacted regarding publically recorded drinking wells in this area. The Appendix D form was mailed to the Lincoln PSD. As of this date it has not been returned.

3.

a. Two copies each of a thickness isopach map for the Berea and thickness isopach and structural maps for the Pocono Shale are enclosed. These are the attached Fig Numbers 1, 2, & 3.

The attached Fig No 4 is a log section from Thomas Fowler 250 (47-043-03500) the Pocono and Coffee Shales are in excess of 400' thick with no porosity development. Well records though out the Griffithsville Filed as well as Emmons (to the East) and Yawkey Freeman (to the South) show this interval to be a very uniform thickness. Pennzoil, a predecessor to HG Energy in the Griffithsville Field,

completed several Berea and Big Injun wells in the Emmons and Yawkey Freeman Fields with fairly large volume foam fracs. There was no evidence that any of these Berea stimulations communicated through the Shales with the Big Injun. The offset Griffithsville Unit No 1 (2R04301 AP) has been in operation for approximately 10 years with no suspected communication issues.

4.

a. There are Five Temporarily Abandoned wells within this waterflood unit. As the unit is developed and water injection is initiated near these wells they will be either worked over for production or plugged and abandoned. If they are worked over for production the wells will be cleaned out, new 4 ½" casing run to near the top of the shothole, and cemented in place. In the event they are plugged (most likely event) they will be plugged in a manner that meets the requirements of the West Virginia Department of Environmental Protection. If the wells are found to be in sound mechanical condition, but not placed appropriately in the pattern for a waterflood producer, they may be utilized as observation wells until an increase in fluid level is observed. At that point they will be plugged and abandoned. There are currently no plans to drill additional Observation wells in this development. As the waterflood unit is developed there are domestic water wells that will require testing under the terms of this permit and/or drilling permits that will be repeatedly tested. From that analysis any change in water quality should be observed.

5.

a. The injection wells planned for this waterflood unit will have the 4 ½" long string casing cemented to surface or near surface. The planned injection string is 2 3/8" tubing on a packer set approximately 100' above the Berea perforations. The tubing / casing annulus will be loaded with fresh water with corrosion inhibitor added. The initial mechanical integrity test will be performed by pressuring up the annulus to approximately 1600 psig for at least 20 minutes and recording the information on a chart. The pressure may vary slightly from well to well. The results will be submitted to the WVDEP on form WR 37. At the end of five years when the tests are again required this pressure test procedure will be repeated. In the event that it is necessary to workover one of the injection wells or if the tubing and packer is removed the mechanical integrity test will be repeated prior to resuming injection.

In addition to the individual well meter and pressure readings the total water injected as well as the injection pressure for the field are recorded at the injection facility. These volumes fluctuate slightly from day to day. In the event of a mechanical integrity failure on an individual well or an injection line leak the event would show up on the daily volume and /or pressure chart.

In the event of a suspected pipeline mechanical integrity failure the entire line will be patrolled to confirm or deny the leak. There are valves located at strategic points in the injection line system. If necessary sections of the injection lines can be isolated and pressure tested to pinpoint any suspected leak. The injection pipelines and production pipelines in this field are a composite plastic material that is not subject to corrosion. After 2 ½ years of operation of this facility with these lines there have been no leaks recorded.

6.

a. Very limited public data is available for USDWs in this area. A check with the Health Department in Lincoln County, the State Health Department, and the WV Geological Survey confirmed this. The United States Geological Survey (USGS) has limited data available. There was one point within one mile of the southwest edge of Unit No 2 and 12 move available within three miles of the same point. All of the analytical results were similar, for the common parameters tested, to those obtained by the testing done by HG as a requirement for this proposed permit. A copy of this USGS data is enclosed (Fig No 5).

There were 33 residences contacted within the AOR that were utilizing USDWs. The majority of the residences in this area are served by the Lincoln PSD. Approximately 65% of the residences knew the depth of their water well. These depths varied from 15'- 325' with 1/3 being less than 100' deep. Only three of these wells were over 200' in depth. Over 50% of the water wells tested had Bacteria (Total Coliform) present. Chlorides varied from 1 mg/l to 153 mg/L. The majority were 50 mg/l or less. TDS varied from 38 mg/l -608 mg/l. Iron varied from below the detection level to 277 mg/l with the majority at 5 mg/l or less. BTEX results showed two wells with a slight level of Toluene (1.07 - 1.7 ug/l) present. The other samples were below detection level. A drilling program was conducted in this field from 2013 to early 2017. Of 53 wells drilled only 20 recorded any fresh water show prior to setting surface casing. The wells were drilled on air so any water shows are fairly easily detected. Of those that recorded water shows the depths varied from 60' to 430'.

One landowner (McClure) has been tested numerous times. Their water wells, spring, and pond as well as the stream running through the property have been tested. A copy of these test results are enclosed (Fig No 6). There has been no change in the test results over this two year period.

The water quality (other than bacteria present) seems to be fairly good for a rural area with a majority of old shallow wells.

Sincerely,

Roger Heldman

91 7199 9991 7035 6655 8564

west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
dep.wv.gov

March 08, 2017

HG Energy, LLC
5260 Dupont Road
Parkersburg, WV 26101

Notice of Deficiency

Re: Underground Injection Control Permit Application for
2R04302AP Enhanced Oil Recovery Field,
Operator Field Name "Griffithsville Unit No.2"

Dear HG Energy, LLC:

Upon completion of the Technical Review of the UIC Permit Application submitted June 1, 2015, the following deficiencies have been identified and must be addressed for continued UIC Permit consideration for permit application 2R04302AP.

1. Section 6 – Area of Review

   a. Provide all e-logs that are available, complete with headers. Please submit two hard copies and a digital copy of all logs. (As noted in Section 8) One set of the logs (hard copy), that are submitted must have the injection formation(s), confining layer(s), perforations, saltwater zone(s) and USDWs clearly labeled.

   b. Please verify that the results of the all water well analyses were provided to each of the water well owners that were sampled.

2. Section 7 – Area of Review

   a. To ensure all publicly recorded drinking water wells are represented in the Area Map, the respective County Health Department should be contacted. If no public water wells are present within a one (1) mile extent of the proposed injection facility, a written affidavit should be supplied by the Public Service District as

ample verification. The Office of Oil and Gas also recommends that the applicant perform a thorough surface investigation to ensure no other avenues of contamination exist that may adversely affect the waters of the state. Reference APPENDIX D.

3. Section 8 – Geological Data on Injection and Confining Zone:

    a. A structure contour map was submitted for the Berea Sandstone (injection zone). Please provide a thickness isopach map of the Berea Sandstone and a structure and thickness isopach map for the confining zone. The confining zone's physical characteristics such as porosity and permeability should be addressed in the narrative as well as the thickness and lateral extent. The required formation maps, structure contour and isopach shall at a minimum cover the AOR. The information used to develop said maps shall be developed using neighboring well data (if available), historical documentation and geologic literature.

4. Section 9 – Operating Requirements/Data:

    a. Provide a narrative concerning the disposition of the "Temporally Abandoned" (TA) wells. If these wells are to be used for observation, please provide a narrative describing the observation process including measurement methods, frequency of observation, and plans for installation of additional observation wells as the field expands.

5. Section 10 – Monitoring:

    a. Provide a written narrative explaining details of the pressure test procedure that will be utilized to perform Mechanical Integrity Testing on the well bore and packer.

    b. Provide a written narrative explaining details of the pressure test procedure that will be utilized to perform Mechanical Integrity Testing on the pipeline (from the pump(s) to the wellhead(s)).

6. Section 11 – Groundwater Protection Plan (GPP):
    a. Appendix H (GPP): Groundwater Quality: Please include a discussion of all available groundwater quality data that exists for the facility. (Pre-drill sampling and UIC Permit application data will qualify). Attach a summary table of data for the last year if sampling has been conducted for more than a year. This section should also contain any other information that is readily available such as soil type, geologic formation, and depth to groundwater. Analyses of drinking water wells, springs or seeps should also be included if they have been sampled. Well locations or other sampling points should be identified on the facility map.

Satisfactory corrective response to the above listed deficiencies is required to continue the review of your application 2R Enhanced Recovery UIC Permit. Please complete the requirements and submit to the Office of WVDEP - Oil and Gas within fifteen (15) days of receipt of this letter to avoid denial of permit request. If you need clarification regarding this matter then please feel free to contact me at Andrew.L.Lockwood@WV.gov of call (304) 926-0499 ext. 1830.

Respectfully,

Andrew L. Lockwood
Geologist III
WVDEP Office of Oil & Gas

2R043-00002-AP

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	HG Energy, LLC		
Existing UIC Permit ID Number		UIC Well API Number	

Office of Oil and Gas Office Use Only	
Permit Reviewer	
Date Received	
Administratively Complete Date	
Approved Date	
Permit Issued	

Please check the fees and payment included.

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

Please check the items completed and enclosed.

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

CK 3013
$ 550.00

dep

- [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
- [x] Section 14 – Financial Responsibility
- [x] Appendix I Financial Responsibility
- [x] Section 15 – Site Security Plan
- [x] Appendix J Site Security for Commercial Wells
- [x] Section 16 – Additional Information
- [x] 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): Ryan Holdman

Reviewed by (Sign): Ryan Holdman

Date Reviewed: 5/21/15

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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 # _____ API # _____ WELL # _____

Section I. Facility Information

Facility Name: Griffithsville Unit No. 2

Address: 4908 Straight Fork Road

City: Yawkey State: WV Zip: 25573

County: Lincoln

Location description: Duval District, Lincoln County, West Virginia

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

Northing: 4,233,577 Easting: 416,479

Environmental Contact Information:

Name: Matt McGuire Title: Health, Safety, Environmental Manager

Phone: 304-420-1116 Email: mmcguire@hgenergyllc.com

Section 2. Operator Information

Operator Name: HG Energy, LLC

Operator ID: 494497948

Address: 5260 Dupont Road

City: Parkersburg State: WV Zip: 26101

County: Wood

Contact Name: Roger Heldman Contact Title: Operations Manager

Contact Phone: 304-420-1107 Contact Email: rheldman@hgenergyllc.com

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:

Secondary recovery project to recover oil from Berea Sand. Water will be injected into several injection wells and oil pumped from offset producers. The Griffithsville Unit No. 2 is currently being formed. The proposed unit is located adjacent to Griffithsville Unit No. 1 and will share water source(s) and injection facility. The production facility for proposed Unit No. 2 has not been constructed.

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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: Eric Grayson

Print Title: Vice President

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: Eric Grayson

Date: 5/26/15

[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.

SECTION 6

1

The attached Figure No. 1 is a map of the Griffithsville Field with pipe lines (injection and production) shown for Unit No. 1. The production and injection facilities are also shown for Unit No. 1. A copy of the SPCC plan depicting the production and injection facilities is also shown (Fig No. 1 A). There are no known intake and or discharge structures within this area. Fresh injection water for this project is supplied from the Austin Griffith Water Supply Well (WSW). The water produced with the oil is gathered at the Injection facility, treated as necessary, mixed with fresh water from A Griffith WSW and re-injected into the Berea Sand . No injection wells or facilities currently exist in the proposed Griffithsville Unit No. 2. Current plans are to utilize the same source water and injection facilities for the proposed Unit No. 2 as are utilized for the existing Unit No. 1.

2.

Attached as part of Appendix A is a cross sectional schematic of the typical well construction in this field. The known sources of drinking water range from less than 20' to approximately 100'.

3.

There are currently no above ground storage tanks or facilities associated with this proposed UIC permit.

4.

All new wells drilled in this field are logged with Gamma Ray, Compensated Density, and Caliper logs at a minimum. There are currently no injection wells in this proposed unit. The open hole logs from the adjacent Griffithsville Unit No 1 indicate a fairly homogeneous Berea Sand with approx. 350' of impermeable shale above and 2000' of impermeable shale below the Berea. Once the formation of Griffithsville Unit No. 2 is approved and the UIC permit approved there are several new wells planned for this field. The proposed wells will utilize some pad drilling with multiple wells drilled from one location. One or more of the proposed wells from each pad will be drilled directionally. Directional surveys will be run as part of this drilling process.

Section 7

2.

The attached Fig No. 2 is a topographic map of the Griffithsville Field with a 1/4mile AOR marked around the proposed Unit No 2. The various categories of existing wells are shown along with API numbers where available. A listing of these wells is shown in Appendix C. The available records of these wells are attached in Fig No. 3.

The USDWs were identified and sampled. The well's locations were GPS'd and the locations spotted on Fig No. 4. Several landowners / tenants refused sampling of their water. A large portion of this area is served by the Lincoln PSD. Those households served by the PSD were not sampled unless they also utilized a well as a water source and desired to have it sample.

3.

The USDW's in use in this area range from less than 20' to approximately 100'. TDS data is provided as part of the water sampling requirement in Section 7.4

4.

Known USDs are shown on the attached map (Fig No. 4). The results of the analysis of the sampled sources is shown in Appendix E.

5.

Those water samples were collected and analyzed in accordance 40 CFR 136.

6.

There are no wells known to HG Energy in the AOR that fit the criteria to warrant corrective action.

7.

There are no wells currently existing that would be covered by this permit. The few remaining Berea wells will be worked over or plugged and abandoned as part of the waterflood development. There are a number of existing Devonian Shale wells within the boundaries of the proposed Unit No. 2. The Berea is sealed off in these wells.

Section 8

The Griffithsville Berea Oil Field is uniform tight grained, well cemented Sandstone reservoir with little dip across the field, as evidenced by the attached Structure map, Fig No. 5. This field was developed for primary production approximately 100 years ago. Based on the primary production performance of these wells it is evident that the oil production is from primary porosity development within the Berea Sand. There has been no evidence of faulting or communication between wells to date. There is an active waterflood (Griffithsville Unit No. 1 (UIC 2R04301AP)) adjacent to the proposed Griffithsville Unit No. 2 which to date has also exhibited no indication of faulting or communication between wells. The Berea Sand is sandwiched between layers of Shale. Approximately 350' of shale overlays the Berea and approximately 2000' underlays the Berea Sand.

The Berea Sand at Griffithsville can be characterized as follows:

Gross sand thickness	20'-25'
Pay thickness	10'-20'
Permeability	1-23 md
Porosity	10%-15%

The full core report from Austin Griffith 28 and open hole log section of the Berea Sand from Austin Griffith 100 are attached in Figure No. 6.

A search of the West Virginia Geologic and Economic Survey web site revealed data on earthquakes from 1824-2014. There were two events recorded in Lincoln County during this time period. A magnitude 2.8 was recorded in 1970 and a magnitude 2.4 was recorded in 2010. These events were located approximately 5 miles and 11miles from the Griffithsville Field. A copy of this data is included in Fig No. 7.

Historically the shallow USDWs in the area were of limited quantity and mediocre quality. The Lincoln Public Service District serves this area and it is believed that most if not all of those residences that have the PSD as an option utilize them for their water needs.

Section 9

1.

Based on the existing UIC Permit for Griffithsville Unit No. 1 the following have been the historical operating criteria:

Max injection volume (per well): 500 bbls/ d

Average Daily volume (per well): 45 bbls/d (Feb 2015)

Max Bottom Hole Pressure: 2100 psig

Maximum wellhead Injection pressure: 799 psig based on A Griffith 100's surface elevation

Average Injection pressure: 680 psig Unit 1 (Feb 2015)

Based on over 20 years operating this project by HG Energy and predecessors there have been no known instances of communication with USDWs or other oil & gas producing zones.

2.

There will be no brine disposal wells serviced by this permit. Some water will be produced along with the oil from this project. That water will be separated from the oil, filtered, and injected into the Berea Sand.

3.

The injection waters (fresh and produced) were sampled for analysis and results reported in Figure No 8.

4.

Currently Baker Petrolite's (a division of Baker Hughes) X-CIDE 107W is used to control bacteria. The bactericide is introduced at a concentration of 250 PPM over a 4 hour period once a day. The water quality is monitored frequently and it may be necessary in the future to utilize a different or additional compounds.

The MSDS Sheet is attached for this product in Fig No. 9.

5.

There are currently no injection wells in this proposed Unit. The injection wells in the offset Griffithsville Unit No 1 have fresh water with corrosion inhibitor between the tubing / casing annulus. The annuli are left open and observed for signs of mechanical integrity failure. The MSDS sheet for this corrosion inhibitor is attached in Fig No. 10.

6.

These injection wells will have surface casing set below the USDWs and that casing annulus filled with cement to surface. The long string (injection or production) casing will be cemented in place. Injection into the Berea will be via tubing set on a packer approx. 100' above the top of the Berea Sand. The wells will be monitored for indications of mechanical integrity failure. In the event of a mechanical Integrity failure the injection well will be shut in until the problem is repaired.

All the Berea Sand producing wells within the proposed Griffithsville Unit No. 2 will be served by these injection wells.

Section 10

1.

The proposed injection wells covered by this proposed permit will be visited by HG Energy employees several times weekly. A water meter and pressure ports will be installed on all wellheads. The annuli of the 4 ½" casing and 2 3/8" tubing (injection string) will be left open for observation of mechanical integrity failure. This injection volume and pressure data will be collected and submitted to WVDEP on form WR 40.

2.

Oil and water produced as a result of this secondary recovery project will be separated at surface, measured, and the water injected to enhance oil production. Records will be maintained of these fluid volumes

Section 11

A Groundwater Protection Plan is attached in Appendix H.

Section 12

As these wells become uneconomical they will be plugged in a manner that meets the requirements of the WVDEP. A cement plug will be set above the Berea Sand (injection zone), at the cut for removal of the long sting of casing, across the base of the surface casing, and at the top of the surface casing on newer style wells. For those older wells additional plugs will be set as necessary to protect the USDWs and satisfy the regulations of the WVDEP.

Section 13

The requirement for additional bonding is not applicable to this project.

Section 14

See Appendix I

Section 15

The injection facilities are locked and the access road is gated and locked during non-work hours. Key valves are secured to prevent illegal dumping or vandalism.

Section 16

See Appendix K

APPENDIX A
Injection Well Form

1) GEOLOGIC TARGET FORMATION Berea

Depth 2280 Feet (top) 2300 Feet (bottom) (average)

2) Estimated Depth of Completed Well, (or actual depth of existing well): 2450 Feet

3) Approximate water strata depths: Fresh 65 Feet Salt 1000 Feet

4) Approximate coal seam depths: None

5) Is coal being mined in the area? Yes [ ] No [X]

6) Virgin reservoir pressure in target formation 50 psig Source Estimated

7) Estimated reservoir fracture pressure 2500 psig (BHFP)

8) MAXIMUM PROPOSED INJECTION OPERATIONS:

Injection rate (bbl/hour) 25

Injection volume (bbl/day) 600

Injection pressure (psig) 799

Bottom hole pressure (psig) 1740

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

Fresh water, produced water, bactericides and other chemicals as needed to maintain water quality and improve oil recovery.

Temperature of injected fluid: (°F) 60° F

10) FILTERS (IF ANY)

Cartridge filters at injection facility and wellhead.

11) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

None planned at this time.

APPENDIX A (cont.)

12. Casing and Tubing Program (Typical)

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	9-5/8	U	LS	32	20		None
Fresh Water	7"	N	LS	17	400	400	CTS
Coal							
Intermediate 1							
Intermediate 2							
Production	4-1/2	N	J-55	10.5	2450	2450	150 ft.^{3}
Tubing	2-3/8	N	J-55	4.6		2200	
Liners							

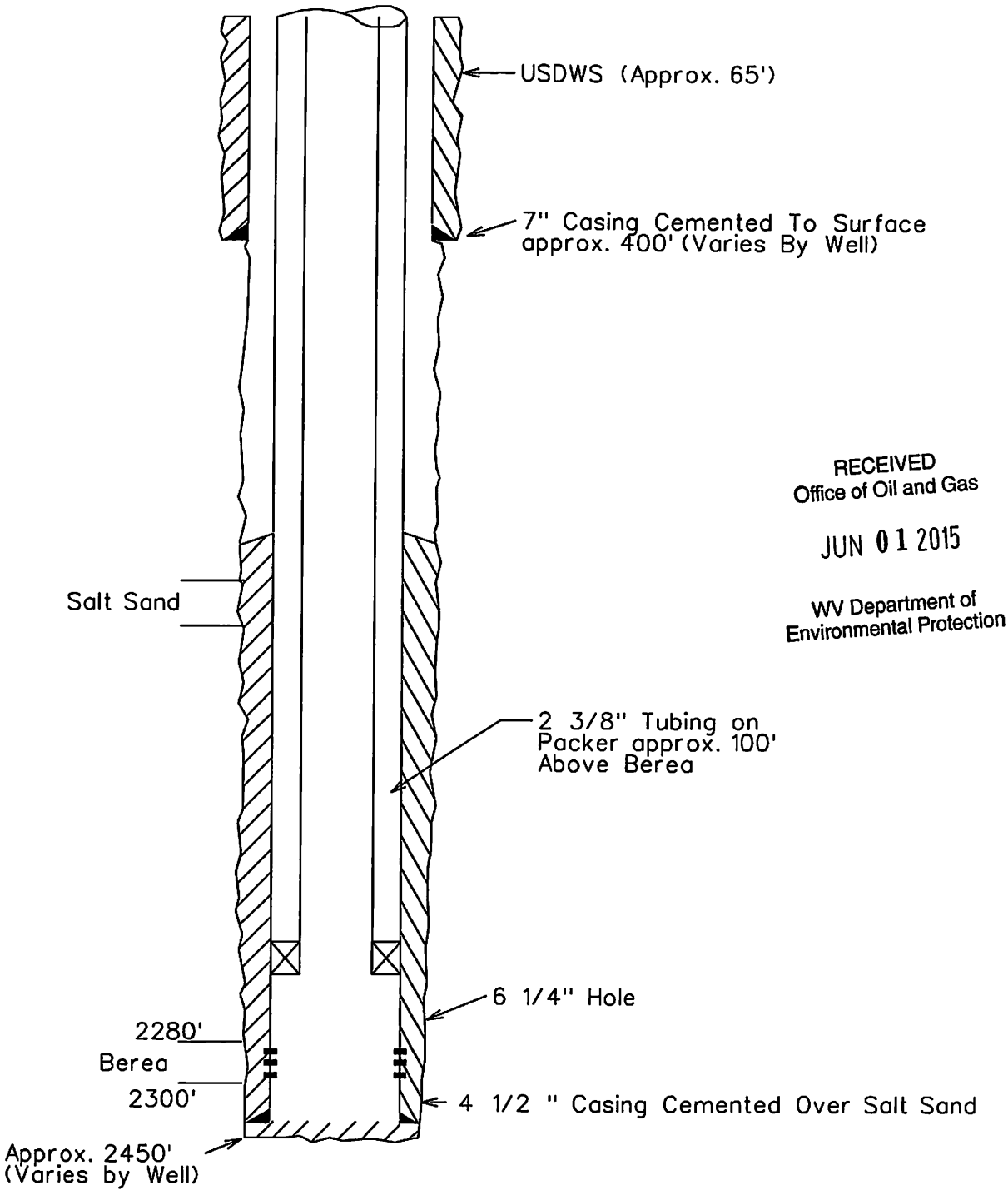
TYPE	Wellbore Diameter	Casing Size	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./sk)	Cement to Surface ? (Y or N)
Conductor							
Fresh Water	8-3/4	7"			Reg Neat	1.18	Y
Coal							
Intermediate 1							
Intermediate 2							
Production	6-1/4	4-1/2			50/50 Pozmix	1.21	N
Tubing							
Liners							

PACKERS	Packer #1	Packer #2	Packer #3	Packer #4
Kind:	Tension			
Sizes:	4" x 2"			
Depths Set:	2200'			

GRIFFITHSVILLE

Typical Injector Completion

(May be directionally drilled)



2/17/15

Appendix B

There are no storage tanks associated with this UIC permit.

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Appendix C

POOL	FIELD	FARM	NO.	API	STATUS	NORTHING	EASTING	ELEV.	well Rcd	Plug Aff	COMMENTS		CLASS
3974	Giffithsville	ALFORD, JONAS V.	1	47-043-2202	PLUG	13,898,240.7	1,372,577.6	744	X	X	Completion card	1	1
3974	Giffithsville	ALFORD, JONAS V.	2	47-043-00231	TA	13,897,685.7	1,372,416.5	772	X		TA - casing leak/Completion card		1
3974	Giffithsville	ALFORD, JONAS V.	3	47-043-00396	Active	13,897,431.7	1,371,340.5	913	X		Completion card		1
3974	Giffithsville	ALFORD, JONAS V.	4	47-043-00397	PLUG	13,897,038.4	1,371,999.4	871	X	X	Completion card	2	1
3974	Giffithsville	ALFORD, JONAS V.	5	47-043-00474	Active	13,898,309.4	1,372,030.0	895	X		Completion card		1
3974	Giffithsville	ALFORD, JONAS V.	6	47-043-00476	PLUG	13,898,030.1	1,373,335.4	820	X	X	Completion card	3	1
3974	Giffithsville	ALFORD, LAFAYETTE	1	47-043-02203	PLUG	13,896,014.2	1,371,953.9	807	X	X	Completion card	4	1
3974	Giffithsville	ALFORD, LAFAYETTE	2	47-043-02204	PLUG	13,895,189.1	1,370,067.6	1,059	X	X	Completion card	5	1
3974	Giffithsville	ALFORD, LAFAYETTE	3	47-043-02205	PLUG	13,895,839.9	1,369,963.3	1,037	X		Completion card/Plug permit release	6	1
3974	Giffithsville	ALFORD, LAFAYETTE	4	47-043-02206	PLUG	13,894,691.7	1,370,559.0	985	X	X	Completion card	7	1
3974	Giffithsville	BELL O.F.	1	NA	PLUG	13,894,205.6	1,366,111.9	1,016			Completion card	8	2
3974	Giffithsville	BELL O.F.	2	47-043-02211	PLUG	13,893,790.2	1,365,665.6	874	X	X	Completion card	9	1
3974	Giffithsville	BELL O.F.	3	47-043-31024	PLUG	13,893,618.8	1,366,390.9	1,027		X	Completion card	10	2
3974	Giffithsville	BELL O.F.	4	47-043-30225	PLUG	13,894,467.3	1,365,494.0	999		X	Completion card	11	1
3974	Giffithsville	BELL O.F.	5	47-043-31301	PLUG	13,894,529.3	1,364,881.3	862		X	Completion card	12	1
3974	Giffithsville	BELL O.F.	6	47-043-02212	PLUG	13,895,021.5	1,365,162.3	1,057	X	X	Completion card	13	1
3974	Giffithsville	BELL O.F.	7	NA	PLUG	13,895,245.1	1,364,581.1	1,048			Completion card	14	1
3974	Giffithsville	BELL, E. P.	1	47-043-31057	PLUG	13,879,965.1	1,368,196.2	874	X	X		15	3
3974	Giffithsville	BELL, E. P.	2	47-043-30477	PLUG	13,880,429.7	1,368,721.0	891	X	X		16	2
3974	Giffithsville	BELL, E. P.	3	47-043-31058	PLUG	13,880,596.2	1,369,307.1	1,001	X	X		17	2
3974	Giffithsville	BELL, E. P.	4	47-043-31059	PLUG	13,880,392.9	1,367,541.3	950	X	X		18	2
3974	Giffithsville	BELL, E. P.	5	47-043-30476	PLUG	13,880,815.4	1,367,977.7	1,008	X	X		19	1
3974	Giffithsville	BELL, E. P.	6	47-043-31060	PLUG	13,880,922.2	1,368,516.9	963	X	X		20	2
3974	Giffithsville	BELL, E. P.	7	47-043-30482	PLUG	13,881,375.7	1,368,956.4	1,016	X		Notice of intention to P&A	21	1
3974	Giffithsville	BELL, E. P.	8	47-043-31061	PLUG	13,881,876.9	1,369,308.6	1,013	X	X		22	1
3974	Giffithsville	BELL, E. P.	9	NA	PLUG	13,881,686.7	1,370,401.0	1,108	X			23	2
3974	Giffithsville	BELL, E. P.	10	47-043-31062	PLUG	13,881,156.4	1,369,784.7	1,026	X	X		24	2
3974	Giffithsville	BELL, E. P.	11	47-043-30269	PLUG	13,882,667.9	1,370,230.5	1,127	X	X		25	1
3974	Giffithsville	BELL, E. P.	12	47-043-02210	PLUG	13,882,441.6	1,369,625.5	947	X			26	1
3974	Giffithsville	BELL, E. P.	13	47-043-30961	PLUG	13,881,579.1	1,369,850.2	947	X	X		27	1
3974	Giffithsville	BELL, E. P.	14	47-043-30248	PLUG	13,882,115.4	1,370,021.1	1,010	X	X		28	1
3974	Giffithsville	BELL, FANNIE J.	1	47-043-30247	PLUG	13,893,204.4	1,366,011.1	1,019	X	X	Completion card	29	2
3974	Giffithsville	BELL, FANNIE J.	2	NA	PLUG	13,893,248.9	1,366,430.0	1,043	X		Completion card	30	2
3974	Giffithsville	BELL, FANNIE J.	3	NA	PLUG	13,892,562.9	1,365,955.2	1,005	X		Completion card	31	2
3974	Giffithsville	BELL, FANNIE J.	4	47-043-30448	PLUG	13,892,498.9	1,366,398.5	1,151	X	X	Completion card	32	2
3974	Giffithsville	BELL, W.T.	1	47-043-30218	PLUG	13,879,115.2	1,371,285.4	743	X		Completion card	33	3
3974	Giffithsville	BELL, W.T.	2	47-043-02220	PLUG	13,879,576.3	1,371,162.2	863	X	X	Completion card	34	1
3974	Giffithsville	BELL, W.T.	3	47-043-30857	PLUG	13,880,262.8	1,369,798.8	1,018		X	Completion card	35	1
3974	Giffithsville	BELL, W.T.	4	47-043-30616	PLUG	13,879,749.3	1,369,990.3	981	X	X	Completion card	36	2
3974	Giffithsville	BELL, W.T.	5	47-043-31090	PLUG	13,878,880.7	1,370,614.2	736	X	X	Completion card	37	1
3974	Giffithsville	BELL, W.T.	6	47-043-30617	PLUG	13,879,292.2	1,370,307.9	839	X	X	Completion card	38	2

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3974	Giffithsville	MAY, J. E	1	47-043-30444	PLUG	13,888,269.7	1,365,818.1	767	X		39	2
3974	Giffithsville	MAY, J. E	2	47-043-30445	PLUG	13,888,534.9	1,365,388.7	920	X		40	1
3974	Giffithsville	MAY, J. E	3	47-043-30449	PLUG	13,887,785.0	1,365,909.8	782	X		41	2
3974	Giffithsville	MAY, J. E	4	47-043-30228	PLUG	13,887,221.1	1,365,476.6	822	X		42	2
3974	Giffithsville	MAY, J. E	5	47-043-30450	PLUG	13,888,949.3	1,365,734.3	1,032	X		43	1
3974	Giffithsville	MAY, J. E	6	NA	PLUG	13,887,666.6	1,366,555.8	941	X		44	2
3974	Giffithsville	MAY, J. E	7	47-043-30451	PLUG	13,889,529.5	1,366,607.9	837	X		45	2
3974	Giffithsville	MAY, J. E	8	47-043-30256	PLUG	13,888,553.0	1,366,220.7	828	X		46	1
3974	Giffithsville	BOLLING, FAY (Well ??)	9	NA	PLUG	13,889,184.1	1,366,337.2	807			47	3
3974	Giffithsville	BURDETTE, J. S.	1	47-043-02224	PLUG	13,897,913.1	1,368,197.6	839		X	Completion card 48	1
3974	Giffithsville	BURDETTE, J. S.	2	47-043-02225	Active	13,897,708.9	1,367,237.2	879	X		Dev Shale- Berea sealed off/Compl. Card 49	1
3974	Giffithsville	COON, MAHALA	1	47-043-02227	PLUG	13,896,908.4	1,368,033.1	787	X	X	Completion card 50	1
3974	Giffithsville	COON, MAHALA	2	47-043-02228	Active	13,897,805.5	1,369,228.4	866	X		all water/Completion card	1
3974	Giffithsville	COON, MAHALA	3	47-043-02229	Active	13,896,569.2	1,368,521.0	916	X		all water/Completion card	1
3974	Giffithsville	COON, MAHALA	4	47-043-02230	Active	13,896,686.6	1,369,006.8	1,032	X		Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	COOPER, THOMAS	1	47-043-02231	PLUG	13,885,164.0	1,367,305.8	843	X	X	Completion card 50	1
3974	Giffithsville	COOPER, THOMAS	2	47-043-30647	PLUG	13,884,673.9	1,367,699.6	886	X	X	Completion card 51	1
3974	Giffithsville	COOPER, THOMAS	3	47-043-31048	PLUG	13,884,122.3	1,367,746.7	971	X	X	Completion card 52	1
3974	Giffithsville	COOPER, THOMAS	4	47-043-31047	PLUG	13,883,894.4	1,368,611.0	1,029	X	X	Completion card 53	1
3974	Giffithsville	COOPER, THOMAS	5	47-043-30609	PLUG	13,884,556.7	1,368,684.1	998	X	X	Completion card 54	3
3977	Giffithsville	CURNES, B. F.	1	47-043-02213	PLUG	13,891,818.0	1,368,258.0	1,000	X	X	Completion card 55	1
3977	Giffithsville	CURNES, B. F.	2	47-043-30635	PLUG	13,891,001.6	1,368,401.6	1,104	X	X	Completion card 57	1
3977	Giffithsville	CURNES, B. F.	3	47-043-30407	PLUG	13,891,701.2	1,367,138.2	1,027	X	X	Completion card 58	1
3977	Giffithsville	CURNES, B. F.	4	47-043-31267	PLUG	13,891,729.2	1,367,721.0	936	X	X	Completion card 59	1
3977	Giffithsville	CURNES, B. F.	5	47-043-30757	PLUG	13,889,370.5	1,367,039.2	760	X	X	Completion card 60	2
3977	Giffithsville	CURNES, B. F.	6	47-043-30937	PLUG	13,889,891.4	1,366,957.1	930	X	X	Completion card 61	2
3977	Giffithsville	CURNES, B. F.	7	47-043-30733	PLUG	13,889,304.3	1,367,805.6	968	X	X	Completion card 62	2
3977	Giffithsville	CURNES, B. F.	8	47-043-30678	PLUG		WIP		X	X	Completion card 63	3
3977	Giffithsville	CURNES, B. F.	9	47-043-30741	PLUG		WIP		X	X	Completion card 64	2
3977	Giffithsville	CURNES, B. F.	10	47-043-30664	PLUG	13,890,594.6	1,368,032.6	950	X	X	Completion card 65	2
3977	Giffithsville	CURNES, B. F.	11	47-043-02214	Active	13,891,197.4	1,367,844.4	914	X		Dev Shale- Berea sealed off/Compl. Card 66	1
3977	Giffithsville	CURNES, B. F.	12	47-043-30665	PLUG		WIP		X	X	Completion card	2
3977	Giffithsville	CURNES, B. F.	13	47-043-30669	PLUG	13,890,462.5	1,366,869.2	960	X	X	Completion card 67	2
3974	Giffithsville	CURNES, J. W.	1	47-043-31268	PLUG	13,892,409.0	1,368,118.5	1,104	X	X	Completion card 68	2
3974	Giffithsville	CURNES, J. W.	2	47-043-30635	PLUG	13,893,056.0	1,367,968.7	955	X	X	Completion card 69	2
3974	Giffithsville	CURNES, J. W.	3	47-043-02215	PLUG	13,893,411.9	1,367,735.2	1,093	X	X	Completion card 70	1
3974	Giffithsville	CURNES, J. W.	4	47-043-30579	PLUG	13,893,358.6	1,367,099.9	1,138	X	X	Completion card 71	2
3974	Giffithsville	CURNES, J. W.	5	47-043-30219	PLUG	13,891,982.7	1,365,904.5	996	X	X	Completion card 72	1
3974	Giffithsville	CURNES, J. W.	6	47-043-30384	PLUG	13,892,291.9	1,367,450.4	1,152	X	X	Completion card 73	1
3974	Giffithsville	CURNES, J. W.	7	47-043-30385	PLUG	13,892,150.0	1,366,645.6	1,102	X	X	Completion card 74	1
3974	Giffithsville	CURNES, J. W.	8	47-043-30002	PLUG	13,892,693.6	1,366,753.2	1,085	X	X	Completion card 75	3

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3974	Giffithsville	FOWLER, MAGGIE	1	47-043-31054	PLUG	13,883,731.3	1,369,246.6	1,017		X	Completion card 76	2
3974	Giffithsville	FOWLER, MAGGIE	2	47-043-31053	PLUG		WIP		X	X	Completion card 77	2
3974	Giffithsville	FOWLER, MAGGIE	3	47-043-02233	PLUG	13,883,019.0	1,369,539.1	1,109	X	X	Completion card 78	1
3974	Giffithsville	FOWLER, MAGGIE	4	47-043-30249	PLUG	13,884,043.5	1,369,943.0	887	X	X	Completion card 79	3
3974	Giffithsville	FOWLER, MAGGIE	5	47-043-31055	PLUG	13,883,988.6	1,370,292.6	983	X	X	Completion card 80	2
3974	Giffithsville	FOWLER, MAGGIE	6	47-043-30610	PLUG	13,883,711.1	1,369,725.2	932	X	X	Completion card 81	1
3974	Giffithsville	FOWLER, MAGGIE	7	47-043-31056	PLUG		WIP		X	X	Completion card 82	
3974	Giffithsville	FOWLER, ROBERT	1	47-043-70250	PLUG	13,883,200.8	1,368,398.3	1,007	X		Completion card 83	2
3974	Giffithsville	FOWLER, ROBERT	2	47-043-70251	PLUG	13,883,231.5	1,368,999.7	1,028	X		Completion card 84	2
3974	Giffithsville	FOWLER, ROBERT	3	NA	PLUG	13,881,360.7	1,367,870.2	1,034	X		Completion card 85	2
3974	Giffithsville	FOWLER, ROBERT	4	47-043-31035	PLUG	13,881,624.1	1,368,416.7	1,029	X	X	Completion card 86	1
3974	Giffithsville	FOWLER, ROBERT	5	47-043-02234	PLUG	13,881,659.8	1,367,484.9	808	X	X	Completion card 87	2
3974	Giffithsville	FOWLER, ROBERT	6	47-043-31044	PLUG	13,882,328.6	1,368,877.0	1,000	X	X	Completion card 88	1
3974	Giffithsville	FOWLER, ROBERT	7	47-043-31046	PLUG	13,882,762.6	1,367,968.5	977	X	X	Completion card 89	2
3974	Giffithsville	FOWLER, ROBERT	8	47-043-31045	PLUG		WIP		X	X	Completion card 90	
3974	Giffithsville	FOWLER, ROBERT	9	NA	PLUG	13,882,116.3	1,367,872.0	860	X		91	
3974	Giffithsville	FOWLER, THOMAS	1	47-043-30467	PLUG	13,883,679.2	1,366,111.2	1,060	X	X	Completion card 92	2
3974	Giffithsville	FOWLER, THOMAS	2	47-043-30953	PLUG	13,882,709.1	1,366,274.3	1,045	X	X	Completion card 93	2
3974	Giffithsville	FOWLER, THOMAS	3	47-043-30954	PLUG	13,883,608.2	1,366,565.9	981	X	X	Completion card 94	2
3974	Giffithsville	FOWLER, THOMAS	4	47-043-70049	PLUG	13,883,600.1	1,367,061.9	952	X		Completion card 95	2
3974	Giffithsville	FOWLER, THOMAS	5	47-043-30465	PLUG	13,883,775.9	1,367,485.3	1,005	X	X	Completion card 96	2
3974	Giffithsville	FOWLER, THOMAS	6	47-043-02235	PLUG	13,883,349.6	1,367,807.9	1,002	X	X	Completion card 97	1
3974	Giffithsville	FOWLER, THOMAS	7	NA	PLUG	13,883,030.4	1,366,710.5	938	X		Completion card 98	2
3974	Giffithsville	FOWLER, THOMAS	8	NA	PLUG	13,882,522.7	1,366,807.0	868	X		Completion card 99	2
3974	Giffithsville	FOWLER, THOMAS	9	NA	PLUG	13,882,340.6	1,367,172.5	839	X		Completion card 100	2
3974	Giffithsville	FOWLER, THOMAS	10	47-043-02236	PLUG	13,882,580.9	1,367,522.7	953	X	X	Completion card 101	1
3974	Giffithsville	FOWLER, THOMAS	11	47-043-30474	PLUG	13,883,106.9	1,367,331.3	891	X		Completion card 102	1
3974	Giffithsville	GOODE, W. M.	1	47-043-02237	PLUG	13,894,393.8	1,366,647.8	1,063	X	X	Completion card 103	1
3974	Giffithsville	GOODE, W. M.	2	47-043-02238	TA	13,893,808.7	1,367,174.1	1,081	X		TA /Completion card	1
3974	Giffithsville	GOODE, W. M.	3	47-043-02239	Active	13,893,947.1	1,367,694.4	1,065	X		Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	GOODE, W. M.	4	47-043-02240	Active	13,895,129.1	1,366,768.2	1,045	X		Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	GOODE, W. M.	5	47-043-30694	PLUG	13,895,632.1	1,367,293.3	1,013	X		Completion card 104	1
3974	Giffithsville	GOODE, W. M.	6	47-043-30636	PLUG	13,894,510.5	1,367,787.9	1,141	X	X	Completion card 105	1
3974	Giffithsville	GOODE, W. M.	7	47-043-02241	TA	13,894,981.5	1,368,312.5	1,051	X		TA /Completion card	1
3974	Giffithsville	GOODE, W. M.	8	47-043-02242	Active	13,895,044.6	1,368,982.7	1,031	X		Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	GOODE, W. M.	9	47-043-02243	Active	13,896,150.7	1,367,723.6	935	X		Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	GOODE, W. M.	10	47-043-02244	PLUG	13,895,331.6	1,367,746.5	890	X	X	Completion card 106	1
3974	Giffithsville	GOODE, W. M.	11	47-043-02245	TA	13,896,075.7	1,368,376.7	885	X		TA /Completion card	1
3974	Giffithsville	GOODE, W. M.	12	47-043-02246	PLUG	13,896,095.2	1,368,977.9	973	X.	X	107	1
3974	Giffithsville	GRIFFITH, T.A.	1	47-043-30283	PLUG	13,878,369.0	1,367,743.0	776	X		Notice of intention to P&A & Work Order 108	1
3974	Giffithsville	GRIFFITH, T.A.	2	47-043-30597	PLUG	13,878,971.2	1,367,937.1	804	X	X	109	1

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3974	Giffithsville	GRIFFITH, T.A.	3	47-043-70063	PLUG	13,877,994.5	1,367,719.6	893			110	3
3974	Giffithsville	GRIFFITH, T.A.	4	47-043-70064	PLUG	13,877,195.7	1,367,693.0	1,071			111	2
3974	Giffithsville	GRIFFITH, T.A.	5	47-043-30294	PLUG	13,879,369.6	1,368,241.1	919	X	X	112	2
3974	Giffithsville	GRIFFITH, T.A.	6	NA	PLUG	13,879,613.9	1,368,805.1	947			113	2
3974	Giffithsville	GRIFFITH, T.A.	7	NA	PLUG	13,879,999.4	1,369,313.8	1,004			114	2
3974	Giffithsville	GRIFFITH, T.A.	8	47-043-30295	PLUG	13,877,079.0	1,368,158.5	1,063	X	X	115	1
3974	Giffithsville	GRIFFITH, T.A.	9	47-043-30284	PLUG	13,879,382.4	1,369,636.6	928	X	X	116	1
3974	Giffithsville	GRIFFITH, T.A.	10	47-043-30601	PLUG	13,878,880.6	1,369,927.6	801	X	X	117	3
3974	Giffithsville	GRIFFITH, T.A.	11	NA	PLUG	13,878,866.5	1,369,393.7	730			118	3
3974	Giffithsville	GRIFFITH, T.A.	12	47-043-30300	PLUG	13,877,005.5	1,368,850.3	948	X	X	119	1
3974	Giffithsville	GRIFFITH, T.A.	13	NA	PLUG	13,877,767.6	1,369,231.0	960	X		120	1
3974	Giffithsville	GRIFFITH, T.A.	14	NA	PLUG	13,878,328.1	1,369,205.5	853	X	X	121	1
3974	Giffithsville	GRIFFITH, T.A.	15	NA	PLUG	13,877,112.1	1,369,414.5	1,132	X		122	1
3974	Giffithsville	GRIFFITH, T.A.	16	NA	PLUG	13,877,720.3	1,368,313.9	908	X		123	1
3974	Giffithsville	GRIFFITH, T.A.	17	47-043-30612	PLUG	13,878,780.1	1,368,625.2	764	X		124	1
3974	Giffithsville	GRIFFITH, T.A.	18	NA	PLUG		WIP		X		125	1
3974	Giffithsville	GRIFFITH, TA (Stickler)	1	47-043-2762	Active	13,877,875.4	1,368,562.0	832			CONSOL -Active —	1
3974	Giffithsville	GRIFFITH, TA (Stickler)	2	47-043-02791	Active	13,879,262.9	1,369,737.0	927	X		CONSOL -Active —	1
3974	Giffithsville	HAGER & McCLURE	1	47-043-30992	PLUG	13,889,991.1	1,370,135.6	1,053		X	Completion card 126	2
3974	Giffithsville	HAGER & McCLURE	2	47-043-30963	PLUG	13,889,136.9	1,369,347.8	998		X	Completion card 127	2
3974	Giffithsville	HAGER & McCLURE	3	47-043-02272	Active	13,890,159.0	1,370,719.8	1,055	X		Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	HAGER & McCLURE	4	47-043-02273	PLUG	13,889,870.6	1,371,115.2	956	X	X	Completion card 128	1
3974	Giffithsville	HAGER, ADDISON	1	47-043-70309	PLUG	13,891,134.9	1,363,632.6	965			Completion card 129	1
3974	Giffithsville	HAGER, ADDISON	2	47-043-02268	PLUG	13,891,946.0	1,363,012.1	1,003	X	X	Completion card 130	1
3974	Giffithsville	HAGER, ADDISON	3	47-043-30900	PLUG	13,891,363.8	1,362,363.7	901		X	Completion card 131	3
3974	Giffithsville	HAGER, ADDISON	4	47-043-30901	PLUG	13,891,640.1	1,363,986.7	1,001		X	Completion card 132	2
3974	Giffithsville	HAGER, ADDISON	5	NA	PLUG	13,890,915.4	1,362,989.1	1,133			Completion card 133	2
3977	Giffithsville	HILL, IRA M.	1	47-043-30995	PLUG	13,883,810.7	1,372,648.6	1,087	X	X	Completion card 134	2
3977	Giffithsville	HILL, IRA M.	2	47-043-02039	Active	13,883,748.3	1,373,467.4	914	X		Dev Shale- Berea sealed off/Compl. Card	1
3977	Giffithsville	HILL, IRA M.	3	47-043-30996	PLUG	13,882,671.1	1,373,172.8	1,069	X	X	Completion card 135	2
3977	Giffithsville	HILL, JULIAN	1	NA	PLUG	13,882,278.3	1,372,644.5	1,003			136	1
3977	Giffithsville	HILL, JULIAN	2	NA	PLUG	13,882,851.7	1,372,619.7	1,016			137	1
3977	Giffithsville	HILL, JULIAN	3	NA	PLUG	13,883,460.5	1,372,483.2	1,026			138	3
3977	Giffithsville	HILL, OLIVER	1	47-043-31029	PLUG	13,885,779.1	1,367,429.5	727	X	X	Completion card 139	1
3977	Giffithsville	HILL, OLIVER	2	47-043-02040	Active	13,885,583.4	1,366,720.1	718	X		Dev Shale- Berea sealed off/Compl. Card	1
3977	Giffithsville	HILL, OLIVER	3	47-043-31036	PLUG	13,886,271.8	1,366,757.5	909	X	X	Completion card 140	2
3977	Giffithsville	HILL, OLIVER	4	47-043-31037	PLUG	13,886,012.8	1,369,644.3	1,028	X	X	Completion card 141	2
3977	Giffithsville	HILL, OLIVER	5	47-043-31038	PLUG	13,885,086.2	1,367,931.3	861	X	X	Completion card 142	2
3977	Giffithsville	HILL, OLIVER	6	NA	PLUG	13,885,946.9	1,369,267.6	924	X		Completion card 143	2
3977	Giffithsville	HILL, OLIVER	7	47-043-30573	PLUG	13,886,944.2	1,366,304.4	1,066	X	X	Completion card 144	1
3977	Giffithsville	HILL, OLIVER	8	47-043-30583	PLUG	13,887,348.5	1,367,251.0	959	X	X	Completion card 145	1

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3977	Giffithsville	HILL, OLIVER	9	NA	PLUG	13,885,101.4	1,368,811.3	904	X		Completion card 146	2
3977	Giffithsville	HILL, OLIVER	10	47-043-30392	PLUG	13,885,334.4	1,369,795.1	891	X	X	Completion card 147	2
3977	Giffithsville	HILL, OLIVER	11	47-043-31040	PLUG	13,887,142.8	1,367,978.1	898	X	X	Completion card 148	2
3977	Giffithsville	HILL, OLIVER	12	47-043-30960	PLUG	13,886,070.5	1,368,423.9	888	X	X	Completion card 149	1
3977	Giffithsville	HILL, OLIVER	13	47-043-31041	PLUG	13,886,668.7	1,368,151.5	854	X	X	Completion card 150	2
3977	Giffithsville	HILL, OLIVER	14	47-043-30568	PLUG	13,885,607.7	1,368,717.8	755	X	X	Completion card 151	3
3977	Giffithsville	HILL, OLIVER	15	47-043-30569	PLUG	13,886,160.4	1,367,808.8	841	X	X	Completion card 152	1
3977	Giffithsville	HILL, OLIVER	16	47-043-30574	PLUG	13,885,612.4	1,368,040.2	802	X		Notice of intention to P&A & Work Order/Card 153	1
3977	Giffithsville	HILL, OLIVER	17	47-043-30564	PLUG	13,886,235.8	1,367,227.2	808	X	X	Completion card 154	2
3977	Giffithsville	HILL, OLIVER	18	47-043-31042	PLUG	13,886,818.0	1,366,861.8	904	X	X	Completion card 155	3
3977	Giffithsville	HILL, OLIVER	19	47-043-31043	PLUG	13,886,904.5	1,367,498.8	910	X	X	Completion card 156	3
3977	Giffithsville	HOLTON, CORDELIA	1	47-043-30446	PLUG	13,890,766.0	1,368,535.0	1,078	X		Notice of intention to P&A & Work Order/Card 157	2
3977	Giffithsville	HOLTON, CORDELIA	2	47-043-30192	PLUG	13,891,430.0	1,368,390.5	1,058	X	X	Completion card 158	1
3977	Giffithsville	HOLTON, CORDELIA	3	47-043-30447	PLUG	13,891,717.4	1,369,232.5	961	X	X	Completion card 159	1
3977	Giffithsville	HUFFMAN, R. L.	1	NA	PLUG	13,888,566.8	1,367,182.9	754			Completion card 160	1
3977	Giffithsville	HUFFMAN, R. L.	2	47-043-30743	PLUG	13,888,376.9	1,369,109.2	1,023		X	Completion card 161	1
3974	Giffithsville	HUFFMAN, R. L.	3	47-043-30945	PLUG	13,888,230.5	1,366,706.8	826		X	Completion card 162	2
3977	Giffithsville	HUFFMAN, R. L.	4	47-043-30464	PLUG	13,888,771.9	1,366,827.6	738		X	Completion card 163	3
3974	Giffithsville	HUFFMAN, R. L.	5	47-043-30722	PLUG	13,888,055.7	1,367,239.0	928	X	X	Completion card 164	2
3974	Giffithsville	HUFFMAN, R. L.	6	47-043-02126	TA	13,888,160.7	1,368,131.2	937	X		TA /Completion card —	1
3974	Giffithsville	HUFFMAN, R. L.	7	47-043-31269	PLUG	13,888,748.5	1,367,752.5	885	X	X	Completion card 165	1
3974	Giffithsville	HUFFMAN, R. L.	8	47-043-30742	PLUG	13,888,916.6	1,368,774.5	977	X	X	Completion card 166	2
3974	Giffithsville	HUFFMAN, R. L.	9	47-043-30744	PLUG	13,888,795.3	1,368,283.8	926		X	Completion card 167	1
3977	Giffithsville	KEELING, W. S.	1	47-043-30971	PLUG	13,884,697.0	1,371,809.9	1,117	X	X	Completion card 168	1
3977	Giffithsville	KEELING, W. S.	2	47-043-31034	PLUG	13,884,677.1	1,371,218.5	1,092	X	X	Completion card 169	2
3977	Giffithsville	KEELING, W. S.	3	47-043-30584	PLUG	13,885,862.6	1,371,269.3	1,026	X	X	Completion card 170	2
3977	Giffithsville	KEELING, W. S.	4	47-043-02131	PLUG	13,886,381.1	1,371,182.6	1,006	X	X	Completion card 171	1
3974	Giffithsville	KEELING, W. S.	5	47-043-02132	Active	13,887,092.4	1,371,250.7	918	X		Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	KINGERY, CREED (W.C.)	1	47-043-30837	PLUG	13,882,149.7	1,372,370.6	913	X		172	2
3974	Giffithsville	KINGERY, CREED (W.C.)	2	47-043-30596	PLUG	13,882,896.9	1,372,215.5	889	X		173	3
3974	Giffithsville	KINGERY, CREED (W.C.)	3	47-043-30838	PLUG	13,883,517.9	1,372,006.0	933	X		174	3
3974	Giffithsville	KINGERY, CREED (W.C.)	4	47-043-30839	PLUG	13,882,095.1	1,371,699.7	868	X		175	3
3974	Giffithsville	KINGERY, CREED (W.C.)	5	47-043-30618	PLUG	13,881,918.6	1,370,958.7	1,068	X		176	2
3974	Giffithsville	KINGERY, CREED (W.C.)	6	47-043-30619	PLUG	13,882,345.6	1,370,848.3	1,101	X		177	2
3974	Giffithsville	KINGERY, CREED (W.C.)	7	47-043-30840	PLUG	13,884,129.1	1,371,514.4	1,057	X		178	2
3974	Giffithsville	KINGERY, CREED (W.C.)	8	47-043-30841	PLUG	13,884,114.3	1,371,904.3	1,090	X		179	1
3974	Giffithsville	KINGERY, CREED (W.C.)	9	47-043-30895	PLUG	13,883,839.8	1,370,698.5	1,144	X		180	3
3974	Giffithsville	KINGERY, CREED (W.C.)	10	47-043-30261	PLUG	13,883,262.2	1,370,707.7	1,221	X		181	3
3974	Giffithsville	KINGERY, CREED (W.C.)	11	47-043-30842	PLUG	13,883,613.2	1,371,416.2	968	X		182	3
3974	Giffithsville	KINGERY, CREED (W.C.)	12	47-043-30843	PLUG	13,883,176.3	1,371,505.1	1,046	X		183	3
3974	Giffithsville	KINGERY, CREED (W.C.)	13	47-043-30844	PLUG	13,882,451.4	1,371,445.3	971	X		184	3

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3974	Giffithsville	KINGERY, J.B.	1	47-043-30270	PLUG	13,889,625.9	1,365,662.3	953	X	X	Completion card 185	2
3974	Giffithsville	KINGERY, J.B.	2	47-043-30994	PLUG	13,890,184.6	1,365,531.3	913	X	X	Completion card 186	1
3974	Giffithsville	KINGERY, J.B.	3	47-043-30946	PLUG	13,890,829.2	1,365,525.8	886	X	X	Completion card 187	2
3974	Giffithsville	KINGERY, J.B.	4	47-043-30947	PLUG	13,891,422.9	1,365,715.5	820	X	X	Completion card 188	2
3974	Giffithsville	KINGERY, J.B.	5	47-043-30668	PLUG	13,891,548.3	1,366,467.6	998	X	X	Completion card 189	2
3974	Giffithsville	KINGERY, J.B.	6	47-043-30939	PLUG	13,890,109.3	1,366,385.4	919	X	X	Completion card 190	2
3974	Giffithsville	KINGERY, J.B.	7	47-043-30680	PLUG	13,891,077.2	1,366,359.6	1,012	X	X	Completion card 191	2
3974	Giffithsville	KINGERY, J.B.	8	47-043-30948	PLUG	13,890,593.1	1,366,320.7	1,000	X	X	Completion card 192	2
3974	Giffithsville	LAWRENCE, A.G.	1	47-043-30882	PLUG	13,893,494.7	1,365,160.7	978			Completion card 193	1
3974	Giffithsville	LAWRENCE, A.G.	2	47-043-30883	PLUG	13,893,547.7	1,364,636.5	993			Completion card 194	1
3974	Giffithsville	LAWRENCE, A.G.	3	47-043-30997	PLUG	13,894,205.9	1,364,539.1	832			Completion card 195	2
3974	Giffithsville	LAWRENCE, A.G.	4	47-043-30884	PLUG	13,894,187.3	1,365,234.0	876			Completion card 196	3
3974	Giffithsville	LAWRENCE, A.G.	5	47-043-02133	PLUG	13,893,881.9	1,364,099.2	868	X	X	Completion card 197	1
3974	Giffithsville	LAWRENCE, G.T.	1	47-043-30885	PLUG	13,892,532.2	1,363,216.3	988		X	Completion card 198	2
3974	Giffithsville	LAWRENCE, G.T.	2	47-043-30886	PLUG	13,892,103.0	1,362,709.0	1,075		X	Completion card 199	3
3974	Giffithsville	LAWRENCE, G.T.	3	47-043-30887	PLUG	13,893,077.7	1,363,121.4	864		X	Completion card 200	3
3974	Giffithsville	LAWRENCE, G.T.	4	47-043-30993	PLUG	13,892,838.8	1,362,532.5	946		X	Completion card 201	2
3974	Giffithsville	LAWRENCE, G.T.	5	47-043-30888	PLUG	13,893,716.2	1,363,114.1	734		X	Completion card 202	3
3974	Giffithsville	LAWRENCE, G.T.	6	47-043-02134	PLUG	13,894,070.8	1,363,555.6	760	X		Completion card 203	1
3974	Giffithsville	LAWRENCE, J.T.	1	47-043-30798	PLUG	13,897,166.5	1,366,764.3	918		X	Completion card 204	2
3974	Giffithsville	LAWRENCE, M.A.	1	47-043-30144	PLUG	13,891,107.2	1,364,244.5	1,134		X	Completion card 205	2
3974	Giffithsville	LAWRENCE, M.A.	2	NA	PLUG	13,890,999.3	1,364,959.9	1,087			Completion card 206	1
3974	Giffithsville	LAWRENCE, M.A.	3	47-043-30905	PLUG	13,892,745.0	1,365,289.3	1,058		X	Completion card 207	2
3974	Giffithsville	LAWRENCE, M.A.	4	47-043-30408	PLUG	13,892,425.3	1,365,000.1	1,004	X		Notice of intention to P&A & Work Order/Card 208	3
3974	Giffithsville	LAWRENCE, M.A.	5	47-043-30906	PLUG	13,892,163.6	1,364,326.0	1,148		X	Completion card 209	2
3974	Giffithsville	LAWRENCE, M.A.	6	47-043-30998	PLUG	13,892,084.9	1,363,580.7	1,022		X	Completion card 210	2
3974	Giffithsville	LAWRENCE, M.A.	7	NA	PLUG	13,891,666.8	1,365,191.1	919			Completion card 211	2
3974	Giffithsville	LAWRENCE, M.A.	8	47-043-30907	PLUG	13,891,629.3	1,363,348.5	951		X	Completion card 212	2
3974	Giffithsville	LAWRENCE, M.A.	9	47-043-30535	PLUG	13,891,530.1	1,364,632.9	1,113		X	Completion card 213	1
3974	Giffithsville	LAWSON, JAMES	1	47-043-02135	PLUG	13,892,220.2	1,370,980.9	801	X	X	Completion card/Plug permit release 214	1
3974	Giffithsville	LAWSON, JAMES	2	47-043-02136	PLUG	13,892,127.3	1,368,369.5	1,055	X	X	Completion card 215	1
3974	Giffithsville	LAWSON, JAMES	3	47-043-02137	PLUG	13,892,726.0	1,368,366.2	979	X	X	Completion card 216	1
3974	Giffithsville	LAWSON, JAMES	4	47-043-02138	PLUG	13,893,375.6	1,368,366.3	970	X	X	Completion card 217	1
3974	Giffithsville	LAWSON, JAMES	5	47-043-02139	Active	13,892,322.6	1,368,990.0	1,078	X		Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	LAWSON, JAMES	6	47-043-02140	PLUG	13,893,176.3	1,369,237.6	913	X	X	Completion card/Plug permit release 218	1
3974	Giffithsville	LAWSON, JAMES	7	47-043-02141	PLUG	13,893,964.0	1,368,298.6	1,049	X	X	Completion card 219	1
3974	Giffithsville	LAWSON, JAMES	8	47-043-02142	PLUG	13,894,467.9	1,368,860.5	1,022	X	X	Completion card 220	1
3974	Giffithsville	LAWSON, JAMES	9	47-043-02143	PLUG	13,894,420.4	1,369,492.0	1,039	X	X	Completion card 221	1
3974	Giffithsville	LAWSON, JAMES	10	47-043-02144	Active	13,893,873.8	1,369,079.2	904	X		Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	LAWSON, JAMES	11	47-043-02145	Active	13,894,357.2	1,370,168.0	994	X		Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	LAWSON, M. G.	1	47-043-02146	PLUG	13,896,334.8	1,371,604.1	881	X	X	Completion card 222	1

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3974	Giffithsville	MASON & TACKETT	1	47-043-70148	PLUG	13,886,347.1	1,363,744.3	805	X		Completion card 222	2
3974	Giffithsville	MASON & TACKETT	2	47-043-30271	PLUG	13,886,712.5	1,362,748.4	828	X	X	Completion card 223	2
3977	Giffithsville	MASON & TACKETT	3	47-043-30731	PLUG	13,887,989.3	1,362,923.9	1,094	X	X	Completion card 224	2
3977	Giffithsville	MASON & TACKETT	4	47-043-30984	PLUG	13,886,976.5	1,363,548.6	900	X	X	Completion card 225	2
3974	Giffithsville	MASON & TACKETT	5	47-043-30738	PLUG	13,887,434.5	1,363,203.3	919	X	X	Completion card 226	1
3974	Giffithsville	MASON & TACKETT	6	47-043-02283	PLUG	13,886,578.8	1,362,237.5	997	X	X	Completion card 227	1
3974	Giffithsville	MASON & TACKETT	7	47-043-30719	PLUG	13,886,966.3	1,361,881.9	980	X	X	Completion card 228	3
3974	Giffithsville	MASON & TACKETT	8	47-043-30728	PLUG	13,887,651.6	1,362,426.3	1,025	X	X	Completion card 229	1
3974	Giffithsville	MAY, W.S.	1	47-043-30334	PLUG	13,885,360.7	1,366,743.0	762	X	X	Completion card 230	3
3974	Giffithsville	MAY, W.S.	2	47-043-02285	PLUG	13,885,607.1	1,366,031.6	716	X	X	Card - not filled out 231	1
3974	Giffithsville	MAY, W.S.	3	47-043-30362	PLUG	13,884,196.3	1,366,155.7	1,014	X	X	232	1
3974	Giffithsville	MAY, W.S.	4	47-043-30366	PLUG	13,886,289.7	1,366,050.1	934	X	X	233	1
3974	Giffithsville	MAY, W.S.	5	47-043-30595	PLUG	13,884,258.2	1,367,159.8	942	X	X	234	1
3974	Giffithsville	MAY, W.S.	6	47-043-30335	PLUG	13,884,775.6	1,366,014.3	978	X	X	Completion card 235	2
3974	Giffithsville	MAY, W.S.	7	47-043-30365	PLUG	13,884,782.9	1,366,957.7	818	X	X	236	1
3974	Giffithsville	MAY, W.S.	8	47-043-30363	PLUG	13,884,240.7	1,366,642.4	961	X	X	237	2
3974	Giffithsville	MCCALLISTER, ELIZABETH	1	NA		13,890,960.9	1,369,495.2	938			—	1
3974	Giffithsville	MCCALLISTER, ELIZABETH	2	NA		13,890,571.1	1,370,025.2	956			—	2
3977	Giffithsville	McCORMICK, JOEL	1	47-043-02159	PLUG				X	X	238	
3974	Giffithsville	McDOWELL, THOMAS	1	NA	PLUG	13,894,679.2	1,366,190.7	1,073	X	X	Completion card 239	2
3974	Giffithsville	McDOWELL, THOMAS	2	47-043-02161	PLUG	13,894,971.0	1,365,710.1	1,011	X	X	Completion card 240	1
3974	Giffithsville	McDOWELL, THOMAS	3	47-043-02162	Active	13,895,505.9	1,365,474.4	1,026	X		Active? J Petty- Dev Shale/Comp. card	1
3974	Giffithsville	McDOWELL, THOMAS	4	47-043-02163	PLUG	13,895,476.0	1,366,316.1	1,015	X	X	Completion card 241	1
3974	Giffithsville	McDOWELL, THOMAS	5	47-043-02164	PLUG	13,895,913.3	1,364,836.2	1,026	X	X	Completion card 242	1
3974	Giffithsville	McDOWELL, THOMAS	6	47-043-31302	PLUG	13,895,933.5	1,366,880.7	1,011	X		Completion card 243	1
3974	Giffithsville	McDOWELL, THOMAS	7	47-043-02165	PLUG	13,896,444.1	1,367,181.8	940	X	X	Completion card 244	1
3974	Giffithsville	McDOWELL, THOMAS (77 AC	1	47-043-30881	PLUG	13,896,804.4	1,366,167.3	933			Completion card 245	2
3974	Giffithsville	MIDKIFF, F. M.	1	47-043-30847	PLUG	13,880,318.7	1,372,025.7	778	X	X	Completion card 246	1
3974	Giffithsville	MIDKIFF, F. M.	2	47-043-30848	PLUG	13,880,135.7	1,372,608.6	909	X	X	Completion card 247	2
3974	Giffithsville	MIDKIFF, F. M.	3	47-043-70165	PLUG	13,880,260.9	1,371,509.0	945	X		Completion card 248	2
3974	Giffithsville	MIDKIFF, F. M.	4	47-043-70166	PLUG	13,880,210.2	1,371,025.1	904	X		Completion card 249	2
3974	Giffithsville	MIDKIFF, F. M.	5	47-043-30849	PLUG	13,880,090.1	1,370,507.1	964	X	X	Completion card 250	2
3974	Giffithsville	MIDKIFF, F. M.	6	47-043-30344	PLUG	13,880,796.3	1,372,456.5	872	X	X	Completion card 251	2
3974	Giffithsville	MIDKIFF, F. M.	7	47-043-30850	PLUG	13,881,492.8	1,372,363.8	867	X	X	Completion card 252	2
3974	Giffithsville	MIDKIFF, F. M.	8	47-043-30851	PLUG	13,881,360.4	1,371,713.1	976	X	X	Completion card 253	2
3974	Giffithsville	MIDKIFF, F. M.	9	47-043-30615	PLUG	13,881,209.3	1,370,876.7	1,141	X	X	Completion card 254	2
3974	Giffithsville	MIDKIFF, F. M.	10	47-043-30186	PLUG	13,881,093.9	1,370,344.4	1,160	X	X	Completion card 255	1
3974	Giffithsville	MIDKIFF, F. M.	11	NA	PLUG	13,880,885.4	1,371,589.1	981	X		Completion card 256	3
3974	Giffithsville	MIDKIFF, F. M.	12	47-043-02286	Active	13,880,665.2	1,371,048.9	986	X		Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	MIDKIFF, F. M.	13	47-043-30852	PLUG	13,880,554.0	1,370,404.0	1,063	X	X	Completion card 257	1
3977	Giffithsville	MORRISON, EMILY	1	47-043-30453	PLUG	13,888,169.3	1,365,206.1	875	X		258	2

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POOL	FIELD	FARM	NO.	API	STATUS	NORTHING	EASTING	ELEV.	well Rcd	Plug Aff	COMMENTS	CLASS
3977	Giffithsville	MORRISON, EMILY	2	47-043-30454	PLUG	13,886,761.5	1,364,156.8	924	X	X	251	1
3977	Giffithsville	MORRISON, EMILY	3	47-043-30370	PLUG		WIP		X	X	Completion card	
3977	Giffithsville	MORRISON, EMILY	4	47-043-30311	PLUG	13,887,858.2	1,363,661.2	952	X	X		1
3977	Giffithsville	MORRISON, EMILY	5	47-043-30310	PLUG	13,888,347.7	1,363,355.7	963	X	X		1
3977	Giffithsville	MORRISON, EMILY	6	47-043-30456	PLUG	13,888,865.7	1,363,553.6	1,008	X	X		1
3977	Giffithsville	MORRISON, EMILY	7	47-043-30312	PLUG	13,889,404.1	1,363,700.3	1,013	X	X		1
3977	Giffithsville	MORRISON, EMILY	8	47-043-30340	PLUG	13,888,754.2	1,364,898.5	909	X	X	Completion card	1
3977	Giffithsville	MORRISON, EMILY	9	47-043-30307	PLUG	13,889,856.9	1,364,115.4	1,079	X	X		3
3977	Giffithsville	MORRISON, EMILY	10	47-043-30341	PLUG	13,887,861.4	1,364,839.4	817	X	X	Completion card	3
3977	Giffithsville	MORRISON, EMILY	11	47-043-30457	PLUG		WIP		X	X		
3977	Giffithsville	MORRISON, EMILY	12	47-043-30306	PLUG		WIP		X	X		
3977	Giffithsville	MORRISON, EMILY	13	47-043-30458	PLUG		WIP		X	X		
3977	Giffithsville	MORRISON, EMILY	14	47-043-30459	PLUG		WIP		X	X		
3977	Giffithsville	MORRISON, JOHN	1	47-043-70243	PLUG	13,887,768.8	1,365,422.0	721				2
3977	Giffithsville	MORRISON, JOHN	2	47-043-30690	PLUG	13,887,273.1	1,365,116.8	705				3
3974	Giffithsville	NELSON, THOMAS	1	47-043-02168	PLUG	13,891,918.8	1,370,045.3	1,050	X	X	Completion card	1
3974	Giffithsville	NELSON, THOMAS	2	47-043-30703	PLUG	13,890,706.8	1,370,583.7	968	X	X	Completion card	2
3974	Giffithsville	NELSON, THOMAS	3	47-043-02169	PLUG	13,891,180.3	1,370,939.8	847	X	X	Completion card	1
3974	Giffithsville	OXLEY A.P.	1	47-043-30845	PLUG	13,878,599.5	1,371,163.7	850	X	X	Completion card	2
3974	Giffithsville	OXLEY A.P.	2	47-043-30401	PLUG	13,878,185.8	1,370,372.2	784	X	X	Completion card	2
3974	Giffithsville	OXLEY A.P.	3	47-043-30028	PLUG	13,878,266.6	1,369,797.9	889	X	X	Completion card	1
3974	Giffithsville	OXLEY A.P.	4	47-043-30846	PLUG	13,877,731.6	1,369,753.2	994	X	X	Completion card	2
3974	Giffithsville	OXLEY A.P.	5	47-043-70262	PLUG	13,876,954.0	1,369,867.4	1,224	X		Completion card	2
3974	Giffithsville	OXLEY A.P.	6	NA	PLUG	13,876,468.6	1,370,129.1	1,232			Possible Well	3
3974	Giffithsville	OXLEY, B. S.	1	47-043-02170	PLUG	13,888,776.8	1,369,492.9	1,035	X	X	Completion card	1
3974	Giffithsville	OXLEY, B. S.	2	47-043-31303	PLUG	13,888,624.4	1,371,278.9	835	X		Completion card	2
3974	Giffithsville	OXLEY, LEONARD	1	47-043-30756	PLUG	13,888,604.9	1,362,727.6	1,007	X	X	Completion card	2
3974	Giffithsville	OXLEY, LEONARD	2	47-043-30758	PLUG	13,889,214.3	1,363,056.1	924	X	X	Completion card	1
3974	Giffithsville	OXLEY, LEONARD	3	47-043-30526	PLUG	13,889,932.5	1,363,286.8	864	X	X	Completion card	1
3974	Giffithsville	OXLEY, LEONARD	4	47-043-02171	PLUG	13,890,507.9	1,363,463.5	991	X	X	Completion card	1
3974	Giffithsville	OXLEY, LEONARD	5	47-043-30892	PLUG	13,892,046.2	1,362,274.5	1,057	X	X	Completion card	1
3974	Giffithsville	OXLEY, LEONARD	6	47-043-30762	PLUG	13,888,985.3	1,362,270.3	818	X	X	Completion card 708	1
3974	Giffithsville	OXLEY, LEONARD	7	47-043-30770	PLUG	13,889,366.7	1,361,809.8	768	X	X	Completion card	1
3974	Giffithsville	OXLEY, LEONARD	8	47-043-30876	PLUG	13,889,741.9	1,361,332.3	950	X	X	Completion card	1
3974	Giffithsville	OXLEY, LEONARD	9	47-043-30241	PLUG	13,890,366.3	1,362,815.0	978	X	X	Completion card	1
3974	Giffithsville	OXLEY, LEONARD	10	47-043-30771	PLUG	13,889,489.7	1,362,637.6	863	X	X	Completion card	2
3974	Giffithsville	OXLEY, LEONARD	11	NA	PLUG		WIP		X		Completion card	
3974	Giffithsville	OXLEY, LEONARD	12	47-043-30528	PLUG	13,890,142.3	1,361,829.2	808	X	X	Completion card	1
3974	Giffithsville	OXLEY, LEONARD	13	NA	PLUG	13,890,142.8	1,360,903.3	1,032	X		Completion card	1
3974	Giffithsville	OXLEY, LEONARD	14	NA	PLUG	13,891,568.8	1,361,928.0	1,047	X		Completion card	1
3974	Giffithsville	OXLEY, LEONARD	15	47-043-30893	PLUG	13,891,017.4	1,361,665.3	952	X	X	Completion card	2

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3974	Giffithsville	OXLEY, LEONARD	16	47-043-30795	PLUG	13,890,544.4	1,361,338.8	965	X	X	Completion card 3 of 4	1
3974	Giffithsville	OXLEY, LEONARD	17	47-043-30796	PLUG	13,890,868.0	1,362,136.1	802	X	X	Completion card	2
3974	Giffithsville	OXLEY, LEONARD	M-6	47-043-3425	Active	13,890,188.7	1,362,446.5	1,027	X		Shale Berea sealed off	1
3974	Giffithsville	RANSON, Z. A.	1	47-043-00451	PLUG	13,897,312.3	1,373,061.6	899	X	X	Completion card/Plug permit release	1
3974	Giffithsville	RIDENOUR, H. E.	1	47-043-30563	PLUG	13,886,283.1	1,369,646.8	1,064	X	X	Completion card	2
3974	Giffithsville	RIDENOUR, H. E.	2	47-043-70222	Active	13,887,897.5	1,369,124.8	1,013	X		free consumer/Completion card	1
3974	Giffithsville	RIDENOUR, H. E.	3	47-043-02292	PLUG	13,887,251.2	1,369,620.8	918	X	X	Completion card	1
3974	Giffithsville	RIDENOUR, H. E.	4	47-043-31028	PLUG	13,887,661.1	1,368,384.2	952	X		Completion card	2
3974	Giffithsville	RIDENOUR, H. E.	5	NA	PLUG	13,886,916.3	1,368,545.1	858	X		Completion card	2
3974	Giffithsville	RIDENOUR, H. E.	6	47-043-30580	PLUG	13,886,457.0	1,369,018.0	1,021	X	X	Completion card	1
3974	Giffithsville	SCHILLING, EMMA	1	47-043-2296	PLUG	13,896,421.4	1,372,690.1	799				1
3974	Giffithsville	SCHMIDT & KREMER	1	47-043-30727	PLUG	13,890,696.3	1,368,808.5	1,032	X		Completion card	2
3974	Giffithsville	SCHMIDT & KREMER	2	47-043-02294	PLUG	13,890,427.6	1,369,199.2	954	X	X	Completion card	1
3974	Giffithsville	SCHMIDT & KREMER	3	47-043-02295	PLUG	13,890,144.1	1,369,603.4	1,008	X	X	Completion card	1
3974	Giffithsville	SCHMIDT & KREMER	4	47-043-30700	PLUG	13,889,623.4	1,368,956.6	958	X	X	Completion card	2
3974	Giffithsville	SCHMIDT & KREMER	5	47-043-30343	PLUG	13,889,422.1	1,368,377.7	954	X		Completion card	1
3974	Giffithsville	SCHMIDT & KREMER	6	47-043-30701	PLUG	13,890,275.2	1,368,568.5	925	X	X	Completion card	3
3974	Giffithsville	SETTLE, J.G.	1	47-043-30871	PLUG	13,892,552.3	1,361,984.1	996	X		Notice of intention to P&A & Work Order	1
3974	Giffithsville	SETTLE, J.G.	2	47-043-30514	PLUG	13,890,358.8	1,360,383.5	1,076	X		Completion card	1
3974	Giffithsville	SETTLE, J.G.	3	47-043-30872	PLUG	13,891,666.6	1,361,315.2	1,010	X			2
3974	Giffithsville	SETTLE, J.G.	4	47-043-30873	PLUG	13,891,189.9	1,360,984.9	879	X	X		2
3974	Giffithsville	SETTLE, J.G.	5	47-043-30869	PLUG	13,891,946.1	1,361,559.1	1,018	X	X	Completion card	2
3974	Giffithsville	SETTLE, J.G.	6	47-043-30391	PLUG	13,891,010.6	1,360,412.7	874	X	X	Completion card	1
3974	Giffithsville	SPURLOCK, MATTHEW	1	47-043-30772	PLUG	13,888,241.5	1,362,264.7	914	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	2	47-043-30688	PLUG	13,886,460.4	1,361,659.4	988	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	3	47-043-30694	PLUG	13,887,071.8	1,359,904.7	779	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	4	47-043-30721	PLUG	13,886,379.5	1,359,731.5	926	X	X	Completion card	1
3974	Giffithsville	SPURLOCK, MATTHEW	5	47-043-30393	PLUG	13,887,510.0	1,359,627.7	800	X	X	Completion card	1
3974	Giffithsville	SPURLOCK, MATTHEW	6	47-043-02188	PLUG	13,886,139.2	1,358,952.6	849	X	X	Completion card	1
3974	Giffithsville	SPURLOCK, MATTHEW	7	47-043-30975	PLUG	13,885,602.0	1,359,375.1	961	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	8	47-043-30794	PLUG	13,888,685.2	1,361,676.6	783	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	9	47-043-30802	PLUG	13,889,114.8	1,361,147.3	899	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	10	47-043-02189	PLUG	13,885,020.3	1,359,711.9	928	X	X	Completion card	1
3974	Giffithsville	SPURLOCK, MATTHEW	11	47-043-30696	PLUG	13,885,733.7	1,359,995.6	1,041	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	12	47-043-30732	PLUG	13,886,085.9	1,360,484.0	995	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	13	47-043-30395	PLUG	13,886,319.7	1,361,058.8	843	X	X	Completion card	1
3974	Giffithsville	SPURLOCK, MATTHEW	14	NA	PLUG	13,888,007.7	1,359,364.6	925	X		Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	15	47-043-30891	PLUG	13,888,495.1	1,359,825.1	945	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	16	47-043-30530	PLUG	13,888,908.9	1,360,411.6	1,041	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	17	47-043-30889	PLUG	13,889,625.2	1,360,579.3	1,045	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	18	47-043-30981	PLUG	13,887,786.0	1,360,064.1	770	X	X	Completion card	2

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3974	Giffithsville	SPURLOCK, MATTHEW	19	47-043-30765	PLUG	13,887,298.3	1,360,455.3	838	X	X	Completion card 348	2
3974	Giffithsville	SPURLOCK, MATTHEW	20	47-043-30531	PLUG	13,886,699.6	1,360,251.0	986	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	21	47-043-30739	PLUG	13,886,760.5	1,360,782.1	1,028	X	X	Completion card	1
3974	Giffithsville	SPURLOCK, MATTHEW	22	47-043-30697	PLUG	13,887,003.2	1,361,445.0	985	X	X	Completion card	1
3974	Giffithsville	SPURLOCK, MATTHEW	23	47-043-30396	PLUG	13,887,547.7	1,361,128.9	976	X	X	Completion card	1
3974	Giffithsville	SPURLOCK, MATTHEW	24	47-043-30532	PLUG	13,887,865.8	1,361,799.0	974	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	25	47-043-30786	PLUG	13,888,250.4	1,361,339.6	837	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	26	47-043-30890	PLUG	13,888,615.2	1,360,921.2	829	X	X	Completion card	2
3974	Giffithsville	SPURLOCK, MATTHEW	27	47-043-30533	PLUG	13,888,117.6	1,360,723.3	726	X	X	Completion card	2
3974	Giffithsville	STEPHENSON, ET AL	1	47-043-02193	PLUG	13,896,399.3	1,369,566.1	1,013	X	X	Completion card	1
3974	Giffithsville	STEPHENSON, ET AL	2	47-043-00232	PLUG	13,896,922.3	1,369,849.3	1,015	X	X	Completion card	1
3974	Giffithsville	STEPHENSON, ET AL	3	47-043-00333	PLUG	13,896,720.0	1,370,401.7	883	X	X	Completion card	1
3974	Giffithsville	STEPHENSON, ET AL	4	47-043-00354	Active	13,896,380.6	1,370,800.4	1,017	X	Release	Dev Shale- Berea sealed off/Compl. Card	1
3974	Giffithsville	STEPHENSON, ET AL	5	47-043-00355	PLUG	13,896,096.0	1,370,421.1	1,020	X	X	Completion card	1
3974	Giffithsville	STICKLER & MORRISON (JAM	1	47-043-30349	PLUG	13,889,343.7	1,365,120.8	953	X			1
3974	Giffithsville	STICKLER & MORRISON (JAM	2	47-043-30351	PLUG	13,890,486.2	1,364,115.4	1,169	X	X		1
3974	Giffithsville	STICKLER & MORRISON (JAM	3	47-043-30352	PLUG	13,890,411.3	1,364,879.4	957	X	X		1
3974	Giffithsville	STICKLER & MORRISON (JAM	4	47-043-30350	PLUG	13,889,942.5	1,365,080.9	917	X	X		2
3974	Giffithsville	STICKLER & MORRISON (JAM	5	47-043-30455	PLUG	13,889,741.9	1,364,580.9	926	X	X		1
3974	Giffithsville	VICKERS, WALTER	1	47-043-30388	PLUG	13,884,875.1	1,369,409.0	846	X	X	Completion card	2
3974	Giffithsville	VICKERS, WALTER	2	47-043-30594	PLUG	13,885,143.6	1,370,344.0	846	X	X	Completion card	2
3974	Giffithsville	VICKERS, WALTER	3	47-043-30258	PLUG	13,885,250.6	1,370,986.8	979	X	X	Completion card	1
3974	Giffithsville	VICKERS, WALTER	4	47-043-02198	PLUG	13,884,704.9	1,369,952.4	856	X	X	Completion card	2
3974	Giffithsville	VICKERS, WALTER	5	47-043-31049	PLUG	13,884,537.3	1,370,486.8	1,015	X		Completion card	3
3974	Giffithsville	VICKERS, WALTER	6	47-043-30259	PLUG	13,885,811.6	1,370,644.1	981	X	X	Completion card	1
3977	Giffithsville	WARTH, M.C.	1	47-043-30560	PLUG	13,893,223.2	1,365,309.5	1,080			A.G. LAWRENCE?	2
3977	Giffithsville	WARTH, M.C.	2	47-043-30354	PLUG	13,893,131.1	1,364,773.0	1,124				1
3977	Giffithsville	WARTH, M.C.	3	47-043-30355	PLUG	13,892,762.8	1,364,267.9	1,022				1
3977	Giffithsville	WARTH, M.C.	4	47-043-30572	PLUG	13,892,659.9	1,363,649.6	1,070				2
3977	Giffithsville	WARTH, M.C.	5	47-043-30356	PLUG	13,893,228.5	1,363,596.2	923				2
3977	Giffithsville	WARTH, M.C.	6	47-043-30534	PLUG	13,893,421.7	1,364,052.2	872				2
3977	Giffithsville	WARTH, M.C.	7	47-043-30571	PLUG	13,893,655.7	1,363,517.2	790				3
3974	Giffithsville	WHITE, JAMES A.	1	47-043-30745	PLUG	13,886,651.1	1,370,040.0	955	X	X	Completion card	3
3974	Giffithsville	WHITE, JAMES A.	2	47-043-02199	PLUG	13,887,952.0	1,370,229.5	871	X	X	Completion card	1
3974	Giffithsville	WHITE, JAMES A.	3	47-043-30677	PLUG	13,888,197.2	1,369,522.7	1,041		X	Completion card	2
3974	Giffithsville	WHITE, JAMES A.	4	47-043-30649	PLUG	13,886,153.0	1,369,832.0	1,065	X	X	Completion card	3
3974	Giffithsville	WHITE, JAMES A.	5	47-043-30670	PLUG	13,887,212.9	1,370,194.6	936	X	X	Completion card	2
3974	Giffithsville	WHITE, JAMES A.	6	47-043-30766	PLUG	13,886,171.5	1,370,426.7	1,024	X	X	Completion card	2
3974	Giffithsville	WHITE, JAMES A.	7	47-043-30985	PLUG	13,887,034.6	1,370,696.5	956	X	X	Completion card 385	3

Appendix D

Not applicable – see Appendix E

Appendix E

Source #	Source Name	Address	Phone	Lat	Long	Degrees Y	Minutes Y	Seconds Y	Degrees X	Minutes X	Seconds X	DDX	DDY
1	Rick Wade	51 Coon Whistle Hollow,		38º 13' 22.4"	81º 57' 18.3"	38	13	22.4	-81	57	18.3	-81.9551	38.22289
2	Andy McClure House Well	109 Coon Whistle	304-524-2963	38º 13' 30.2"	81º 57' 10.7"	38	13	30.2	-81	57	10.7	-81.953	38.22506
3	Andy McClure Drilled House Well	109 Coon Whistle	304-524-2963	38º 13' 30.2"	81º 57' 10.7"	38	13	30.2	-81	57	10.7	-81.953	38.22506
4	Andy McClure Field Well	109 Coon Whistle	304-524-2963	38º 13' 27.9"	81º 57' 12.2"	38	13	27.9	-81	57	12.2	-81.9534	38.22442
5	Andy McClure Bell Dug Well	109 Coon Whistle	304-524-2963	38º 13' 34.7"	81º 57' 5.9"	38	13	34.7	-81	57	5.9	-81.9516	38.22631
6	Andy McClure Shanty D.W.	109 Coon Whistle	304-524-2963	38º 13' 34.0"	81º 57' 4.0"	38	13	34.0	-81	57	4.0	-81.9511	38.22611
7	Jimmy Rymer	4254 Midway Road, Yawkey, WV 25573	304-524-2606	38º 13' 09.1"	81º 56' 11.8"	38	13	5.6	-81	56	11.8	-81.9366	38.21822
8	James McClure	4705 Midway Road, Yawkey, WV 25573	304-524-2350	38º 13' 05.6"	81º 57' 03.0"	38	13	5.6	-81	57	3.0	-81.9508	38.21822
9	Ed Myers	633 Bear Fork Road	304-524-2959	38º 14' 59.0"	81º 55' 55.1"	38	14	59.0	-81	55	55.1	-81.932	38.24972
10	Whitney Hager	581 Bear Fork Road	304-524-9340	38º 14' 49.9"	81º 56' 06.8"	38	14	49.9	-81	56	6.8	-81.9352	38.24719
11	Charles Snodgrass	559 Bear Fork Road	304-524-7507	38º 14' 45.7"	81º 56' 11.6"	38	14	45.7	-81	56	11.6	-81.9366	38.24603
12	Willow Snodgrass	452 Bear Fork Road	304-524-2980	38º 14' 29.0"	81º 56' 10.0"	38	14	29.0	-81	56	10.0	-81.9361	38.24139
13	Raymond Daniels	612 Bear Fork Road	304-524-2506	38º 14' 53.5"	81º 56' 01.3"	38	14	53.5	-81	56	1.3	-81.9337	38.24819
14	Lewis Montcastle	585 Bear Fork Road	304-524-2379	38º 14' 50.2"	81º 56' 06.0"	38	14	50.2	-81	56	6.0	-81.935	38.24728
15	Nada Stanley	369 & 372 Bear Fork Road	304-524-2052	38º 14' 33.2"	81º 56' 34.6"	38	14	33.2	-81	56	34.6	-81.9429	38.24256
16	David Pauley	38 Silent Rebel Road	304-524-2206	38º 14' 22.5"	81º 57' 35.0"	38	14	22.5	-81	57	35.0	-81.9597	38.23958
17	Greg Cooper	10888 Bear Fork Road	304-524-7243	38º 14' 25.1"	81º 57' 33.4"	38	14	25.1	-81	57	33.4	-81.9593	38.24031
18	Tammy Cooper	42 Sarahs Lane, Yawkey, WV 25573	304-524-7977	38º 14' 38.8"	81º 57' 42.1"	38	14	38.8	-81	57	42.1	-81.9617	38.24411
19	Frank Adkins	132 Silent Rebel Road & 128 Silent Rebel Rd	304-524-2699	38º 14' 39.0"	81º 57' 23.0"	38	14	39.0	-81	57	23.0	-81.9564	38.24417
20	Pamela Cooper	46 Torque Drive	304-524-7352	38º 14' 21.5"	81º 57' 29.8"	38	14	21.5	-81	57	29.8	-81.9583	38.23931
21	Dave Litz	241 Silent Rebel Road, Yawkey, WV 25573		38º 14' 57.2"	81º 57' 01.2"	38	14	57.2	-81	57	1.2	-81.9503	38.24922
22	Cynthia Swann	38 red Tool House Road, Yawkey, WV 25573	304-524-2833	38º 15' 11.5"	81º 55' 43.9"	38	15	11.5	-81	55	43.9	-81.9289	38.25319
23	Maryann Krawynanski	88 Red Toolhouse Road, Yawkey, WV 25573	304-524-2219	38º 15' 14.2"	81º 55' 52.1"	38	15	14.2	-81	55	52.1	-81.9311	38.25394
24	Adam Collins	28 Upper Road, Griffithsville, WV 25521	304-524-9197	38º 16' 29.1"	81º 55' 40.2"	38	16	29.1	-81	55	40.2	-81.9278	38.27475
25	Wattie McCallister	304 Garretts Bend Road, Griffithsville, WV 25521	304-524-2715	38º 16' 35.3"	81º 56' 02.0"	38	16	35.3	-81	56	2.0	-81.9339	38.27647
26	Gary McClure	937 Garretts Bend Road, Griffithsville, WV 25521	304-524-7113	38º 16' 33.2"	81º 56' 15.8"	38	16	33.2	-81	56	15.8	-81.9377	38.27589
27	Alisha Kitchen	25 Dry Branch Road, Griffithsville, WV 25521	304-524-7904	38º 16' 31.6"	81º 56' 30.8"	38	16	31.6	-81	56	30.8	-81.9419	38.27544
28	Melissa French	256 Dry Branch Road, Griffithsville, WV 25521	304-982-0500	38º 16' 43.2"	81º 57' 16.3"	38	16	43.2	81	57	16.3	80.04547	38.27867
29	Dennis Mosteller	815 Garretts Bend Road, Griffithsville, WV 25521	304-524-2914	38º 16' 16.4"	81º 56' 49.1"	38	16	16.4	-81	56	49.1	-81.947	38.27122
30	Daniel Keeling	768 Garretts Bend Road, Griffithsville, WV 25521	304-524-2957	38º 16' 06.8"	81º 56' 55.2"	38	16	6.8	-81	56	55.2	-81.9487	38.26856
31	Mona Woodrum	33 Walnut Drive, Yawkey, WV 25573	304-524-7375	38º 13' 35.2"	81º 57' 37.9"	38	13	35.2	-81	57	37.9	-81.9605	38.22644
32	Ricky Bragg	72 Rockhouse Branch Road	304-524-9909	38º 16' 55.7"	81º 55' 51.6"	38	16	55.7	-81	55	51.6	-81.931	38.28214
33	Brent McCormick	4365 Midway Road	304-524-9418	38º 12' 59.2"	81º 56' 19.1"	38	12	59.2	-81	56	19.1	-81.9386	38.21644
34	Kenneth Mitchell	4474 Midway Road	304-524-7804	38º 13' 05.6"	81º 56' 41.2"	38	13	5.6	-81	56	41.2	-81.9448	38.21822
35	Mason Kitchen	4529 Midway Road	304-524-2181	38º 13' 03.8"	81º 56' 46.0"	38	13	3.8	-81	56	46.0	-81.9461	38.21772
36	Albert Midkiff	4589 Midway Road	304-524-2818	38º 13' 04.9"	81º 56' 52.4"	38	13	4.9	-81	56	52.4	-81.9479	38.21803
37	Bethany Dodson	4701 Midway Road, Yawkey, WV 25573	304-989-7971	38º 13' 04.4"	81º 57' 03.3"	38	13	4.4	-81	57	3.3	-81.9509	38.21789

APPENDIX E

Water Sources

Operator: EHG Energy, LLC Year 2015 UIC Permit #

		Source # 1	Source # 2	Source # 3	Source # 4
Water Source Name		Rick Wade	A.McClure House Well	A.McClure Drld Hs Well	A.McClure Field Well
Northing Easting		-81.9551 38.22289	-81.953 38.22506	-81.953 38.22506	-81.9534 38.22442
Parameter	Units				
TPH - GRO	mg/L	NA	NA	NA	NA
TPH - DRO	mg/L	NA	NA	NA	NA
TPH - ORO	mg/L	NA	NA	NA	NA
BTEX	mg/L	NA	NA	NA	NA
Chloride	mg/L	23.7	9.80	39.9	0.87
Soidum	mg/L				
Total Dissolved Solids (TDS)	mg/L	176	69	288	38
Aluminum	mg/L	0.04	0.76	0.04	0.44
Arsenic	mg/L	0.0571	<.0005	<.0005	<.0005
Barium	mg/L	1.01	0.053	0.917	0.038
Iron	mg/L	4.14	0.59	277	0.24
Manganese	mg/L	0.913	0.011	0.425	0.009
pH	SU	7.1	5.8	7.1	5.5
Calcium	mg/L	24.8	7.48	52.5	3.24
Sulfate	mg/L	1.59	9.80	<1.00	9.04
MBAS	mg/L	0.06	0.06	0.01	0.01
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100ml	Absent	Present	Present	Present

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

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COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: RICK WADE GRIFFITHSVILLE UIC 2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-24-15 1155
DATE/TIME RECEIVED: 03-24-15 1715
LABORATORY ID: HGE 150324-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-24-15 1155	CR
FIELD pH	7.40	units			03-24-15 1155	CR
FIELD COND	345	µmhos			03-24-15 1155	CR
FIELD TEMP	13	°C			03-24-15 1155	CR
LATTITUDE	38°13'22.4N				03-24-15 1155	CR
LONGITUDE	81°57'18.3W				03-24-15 1155	CR
pH	7.1	units	SM 22nd 4500 H B	.1	03-25-15 1425	KH
Fe	4.14	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-30-15 2001	MM
Mn	.913	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
TSS	14	mg/L	SM22nd 2540 D	4	03-25-15 1535	EK
TDS	176	mg/L	SM22nd 2540 C	4	03-25-15 1535	EK
MBAS	.06	mg/L	SM22nd 5540C	.01	03-24-15 2328	SW
TOC	2.3	mg/L	SM22nd 5310B	1.0	03-27-15 1153	MW
SO_4	1.59	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-31-15 0545	DC
Cl^-	23.7	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-31-15 0545	DC
Al	.04	mg/L	EPA 200.7 Rev 4.4-1994	.02	04-01-15 2242	SB
As	.0571	mg/L	SM22nd 3113 B	.0005	04-07-15 1414	RC
Ba	1.01	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
Ca	24.8	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-30-15 2001	MM

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Dwight H Bunto

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: SB/MW

METHOD: 3

DATE & TIME SAMPLED: 03-24-15 1155

DATE & TIME RECEIVED: 03-24-15 1715

DATE & TIME ANALYZED: 03-24-15 1734

LABORATORY ID: HGE 150324-1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
RICK WADE	ABSENT	ABSENT	03-24-15 1155	HGE 150324-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF) 9222 D
2 – Coliform, Fecal (MPN) COLILERT 18
3 – Coliform, Total (MPN) COLILERT
4 – Coliform, Total (P/A) 9223 B
5 – Hetertrophic Plate Count (HPC) 9215 B

Douglas W Bunto

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503W55

Date Reported: 4/8/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/24/2015 11:55:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/26/2015
Lab ID:	1503W55-03A	**Matrix:**	Liquid
Client Sample ID:	15061 RICK WADE	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**
TPH (Diesel Range)	ND	NA	0.11	NA	mg/L	03/27/15 11:21AM	03/28/15 4:47AM	
TPH (Oil Range)	ND	NA	0.27	NA	mg/L	03/27/15 11:21AM	03/28/15 4:47AM	
Surr: o-Terphenyl	82.7	NA	28.3-152	NA	%REC	03/27/15 11:21AM	03/28/15 4:47AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**
Methane	272	NA	50.0	NA	µg/L		04/06/15 12:00AM	
Ethane	ND	NA	75.0	NA	µg/L		04/06/15 12:00AM	
Propane	ND	NA	100	NA	µg/L		04/06/15 12:00AM	
Butane	ND	NA	125	NA	µg/L		04/06/15 12:00AM	

Notes:

Elevated PQLs are due to matrix interference.

VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	03/27/15 10:16AM	04/01/15 10:45PM	
Surr: 2,5-Dibromotoluene	69.9	NA	37.2-152	NA	%REC	03/27/15 10:16AM	04/01/15 10:45PM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**
Benzene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/01/15 10:45PM	
Toluene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/01/15 10:45PM	
Ethylbenzene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/01/15 10:45PM	
m,p-Xylene	ND	NA	2.00	NA	µg/L	03/27/15 10:16AM	04/01/15 10:45PM	
o-Xylene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/01/15 10:45PM	
Surr: 1,1,1-Trifluorotoluene	87.1	NA	61.2-135	NA	%REC	03/27/15 10:16AM	04/01/15 10:45PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Rick Wade

Address 51 Coon Whistle Hollow

Phone ~~Set~~

Depth of well (if known- estimate if not) 70

GPS Coordinates

Lat 38° 13' 22.4"

Long 81° 57' 18.3"

Provide sketch below of approximate location of dwelling(s) and water wells(s)

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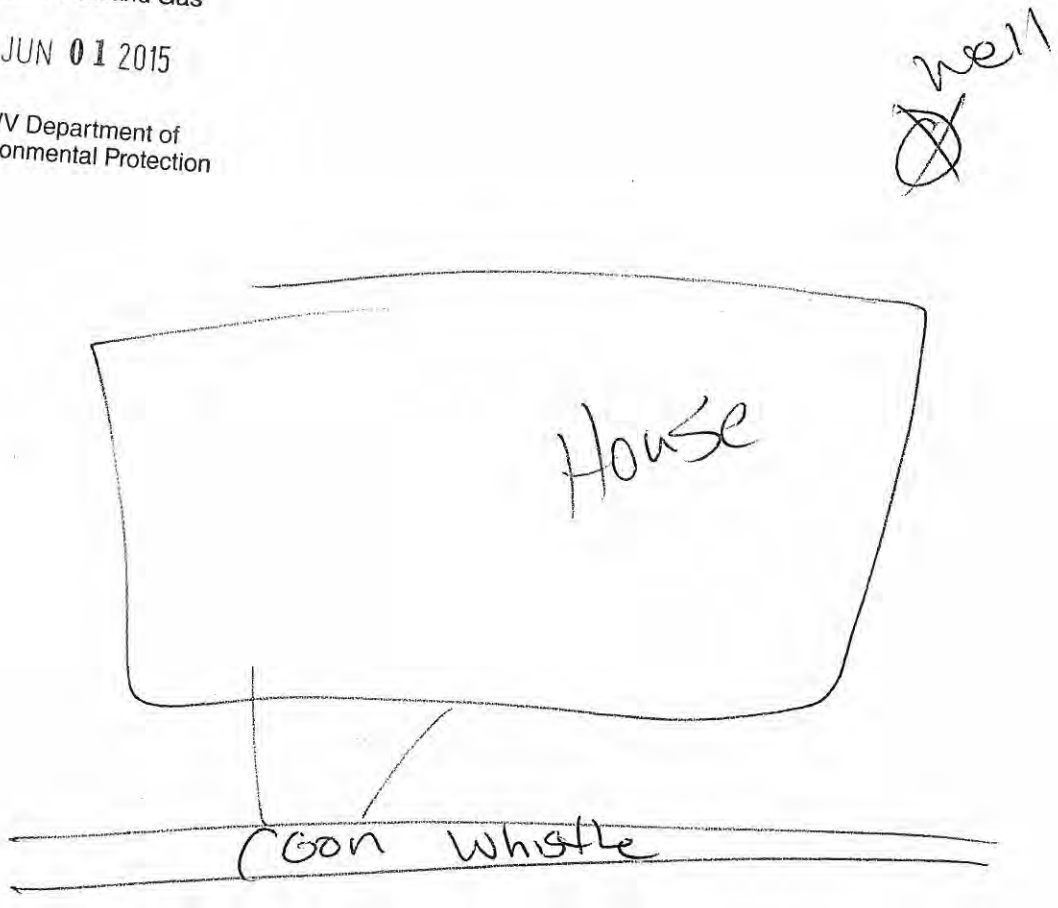

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Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: ANDY M^{C}CLURE HOUSE WELL
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-24-15 1215

DATE/TIME RECEIVED: 03-24-15 1715

LABORATORY ID: HGE 150324-2

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-24-15 1215	CR
FIELD pH	6.20	units			03-24-15 1215	CR
FIELD COND	90	µmhos			03-24-15 1215	CR
FIELD TEMP	8.5	°C			03-24-15 1215	CR
LATTITUDE	38°13'30.2N				03-24-15 1215	CR
LONGITUDE	81°57'10.7W				03-24-15 1215	CR
pH	5.8	units	SM 22nd 4500 H B	.1	03-25-15 1425	KH
Fe	.59	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-30-15 2001	MM
Mn	.011	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
TSS	<4	mg/L	SM22nd 2540 D	4	03-25-15 1535	EK
TDS	69	mg/L	SM22nd 2540 C	4	03-25-15 1535	EK
MBAS	.06	mg/L	SM22nd 5540C	.01	03-24-15 2328	SW
TOC	2.1	mg/L	SM22nd 5310B	1.0	03-27-15 1153	MW
SO_4	9.80	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-31-15 0545	DC
Cl^-	9.80	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-31-15 0545	DC
Al	.76	mg/L	EPA 200.7 Rev 4.4-1994	.02	04-01-15 2242	SB
As	<.0005	mg/L	SM22nd 3113 B	.0005	04-07-15 1414	RC
Ba	.053	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
Ca	7.48	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-30-15 2001	MM

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas W Bunto

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: SB/MW

METHOD: 3

DATE & TIME SAMPLED: 03-24-15 1215

DATE & TIME RECEIVED: 03-24-15 1715

DATE & TIME ANALYZED: 03-24-15 1734

LABORATORY ID: HGE 150324-2

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
ANDY M^{C}CLURE HOUSE WELL	PRESENT	ABSENT	03-24-15 1215	HGE 150324-2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Douglas A Bruce

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503W55

Date Reported: 4/8/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/24/2015 12:15:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/26/2015
Lab ID:	1503W55-04A	**Matrix:**	Liquid
Client Sample ID:	15062 ANDY McCLURE HOUSE WELL	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**
TPH (Diesel Range)	ND	NA	0.11	NA	mg/L	03/27/15 11:21AM	03/28/15 5:20AM	
TPH (Oil Range)	ND	NA	0.28	NA	mg/L	03/27/15 11:21AM	03/28/15 5:20AM	
Surr: o-Terphenyl	76.1	NA	28.3-152	NA	%REC	03/27/15 11:21AM	03/28/15 5:20AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**
Methane	ND	NA	10.0	NA	µg/L		04/06/15 12:00AM	
Ethane	ND	NA	15.0	NA	µg/L		04/06/15 12:00AM	
Propane	ND	NA	20.0	NA	µg/L		04/06/15 12:00AM	
Butane	ND	NA	25.0	NA	µg/L		04/06/15 12:00AM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	03/27/15 10:16AM	04/01/15 11:18PM	
Surr: 2,5-Dibromotoluene	70.1	NA	37.2-152	NA	%REC	03/27/15 10:16AM	04/01/15 11:18PM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**
Benzene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/01/15 11:18PM	
Toluene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/01/15 11:18PM	
Ethylbenzene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/01/15 11:18PM	
m,p-Xylene	ND	NA	2.00	NA	µg/L	03/27/15 10:16AM	04/01/15 11:18PM	
o-Xylene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/01/15 11:18PM	
Surr: 1,1,1-Trifluorotoluene	86.0	NA	61.2-135	NA	%REC	03/27/15 10:16AM	04/01/15 11:18PM	

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Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: ANDY M^{C}CLURE DRILLED HOUSE WELL
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-24-15 1235

DATE/TIME RECEIVED: 03-24-15 1715

LABORATORY ID: HGE 150324-3

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-24-15 1235	CR
FIELD pH	7.30	units			03-24-15 1235	CR
FIELD COND	525	µmhos			03-24-15 1235	CR
FIELD TEMP	12.5	°C			03-24-15 1235	CR
LATTITUDE	38°13'30.2N				03-24-15 1235	CR
LONGITUDE	81°57'10.7W				03-24-15 1235	CR
pH	7.1	units	SM 22nd 4500 H B	.1	03-25-15 1425	KH
Fe	277	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-30-15 2001	MM
Mn	.425	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
TSS	<4	mg/L	SM22nd 2540 D	4	03-25-15 1535	EK
TDS	288	mg/L	SM22nd 2540 C	4	03-25-15 1535	EK
MBAS	.01	mg/L	SM22nd 5540C	.01	03-24-15 2328	SW
TOC	1.9	mg/L	SM22nd 5310B	1.0	03-27-15 1153	MW
SO_4	<1.00	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-31-15 0545	DC
Cl^-	39.9	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-31-15 0545	DC
Al	.04	mg/L	EPA 200.7 Rev 4.4-1994	.02	04-01-15 2242	SB
As	<.0005	mg/L	SM22nd 3113 B	.0005	04-07-15 1414	RC
Ba	.917	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
Ca	52.5	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-30-15 2001	MM

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas W Bunto

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

DATE & TIME SAMPLED: 03-24-15 1235

SAMPLED BY: C. ROSS

DATE & TIME RECEIVED: 03-24-15 1715

ANALYST: SB/MW

DATE & TIME ANALYZED: 03-24-15 1734

METHOD: 3

LABORATORY ID: HGE 150324-2

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
ANDY M^{C}CLURE DRILLED HOUSE WELL	PRESENT	ABSENT	03-24-15 1235	HGE 150324-3

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Douglas H Bunto

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503W55

Date Reported: 4/8/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/24/2015 12:35:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/26/2015
Lab ID:	1503W55-05A ANDY McCLURE	**Matrix:**	Liquid
Client Sample ID:	15063 DRILLED HOUSE WELL	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**					**Analyst: CL**
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	03/27/15 11:21AM	03/28/15 5:53AM	
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	03/27/15 11:21AM	03/28/15 5:53AM	
Surr: o-Terphenyl	89.8	NA	28.3-152	NA		%REC	03/27/15 11:21AM	03/28/15 5:53AM	
DISSOLVED GASES				**Method: GC-FID**					**Analyst: JC**
Methane	2,890	NA	200	NA	E	µg/L		04/06/15 12:00AM	
Ethane	ND	NA	300	NA		µg/L		04/06/15 12:00AM	
Propane	ND	NA	400	NA		µg/L		04/06/15 12:00AM	
Butane	ND	NA	500	NA		µg/L		04/06/15 12:00AM	

Notes:

Elevated PQLs are due to matrix interference.

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**					**Analyst: CB**
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	03/27/15 10:16AM	04/01/15 11:51PM	
Surr: 2,5-Dibromotoluene	72.2	NA	37.2-152	NA		%REC	03/27/15 10:16AM	04/01/15 11:51PM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**					**Analyst: CB**
Benzene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 11:51PM	
Toluene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 11:51PM	
Ethylbenzene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 11:51PM	
m,p-Xylene	ND	NA	2.00	NA		µg/L	03/27/15 10:16AM	04/01/15 11:51PM	
o-Xylene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 11:51PM	
Surr: 1,1,1-Trifluorotoluene	84.5	NA	61.2-135	NA		%REC	03/27/15 10:16AM	04/01/15 11:51PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Andy McClure House Well

Address 109 Coon Whistle

Phone 304 524 2963

1/3 Drilled House well

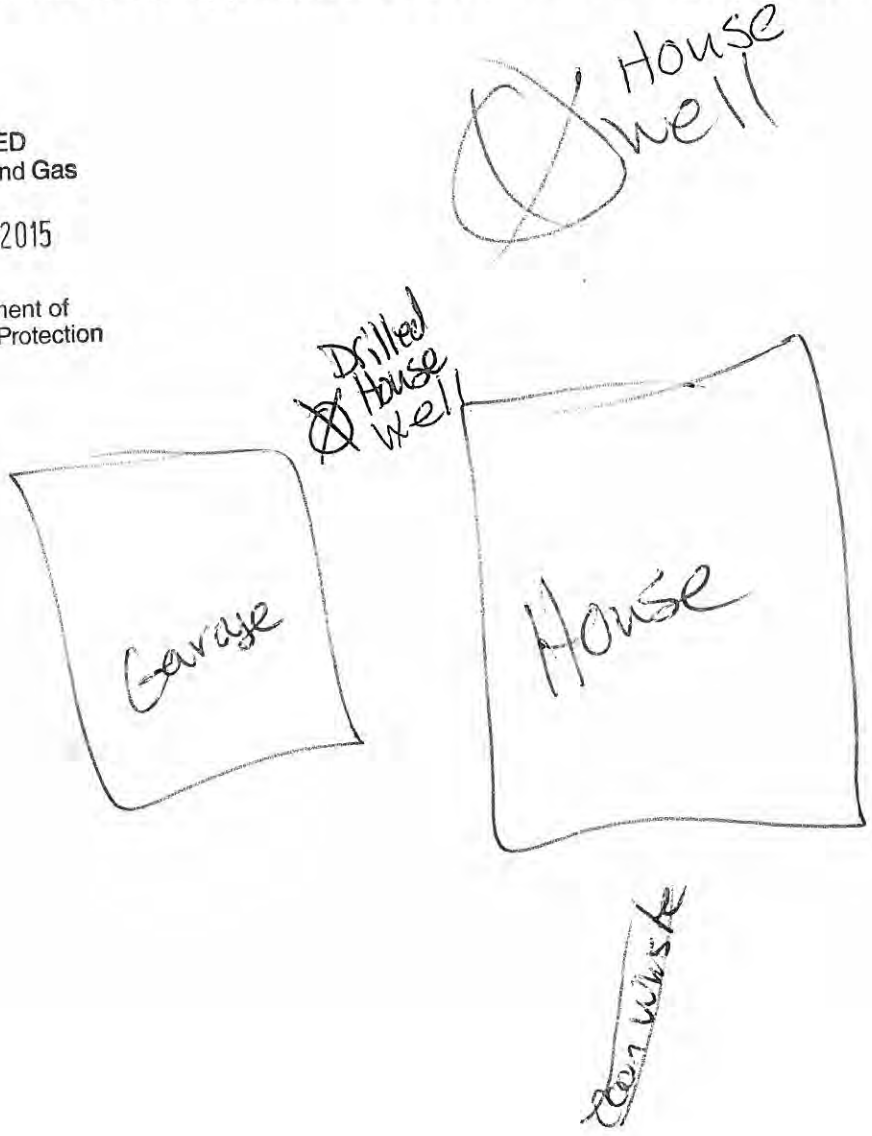
Depth of well (if known- estimate if not)_____

GPS Coordinates

Lat 38° 13' 30.2"

Long 81° 57' 10.7"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



Sturm Environmental Services

JOHN W. STURM, PRESIDENT

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JUN 01 2015

WV Department of
Environmental Protection

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: ANDY M^CCLURE FIELD WELL
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-24-15 1305

DATE/TIME RECEIVED: 03-24-15 1715

LABORATORY ID: HGE 150324-4

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-24-15 1305	CR
FIELD pH	5.90	units			03-24-15 1305	CR
FIELD COND	50	µmhos			03-24-15 1305	CR
FIELD TEMP	8.5	°C			03-24-15 1305	CR
LATTITUDE	38°13'27.9N				03-24-15 1305	CR
LONGITUDE	81°57'12.2W				03-24-15 1305	CR
pH	5.5	units	SM 22nd 4500 H B	.1	03-25-15 1425	KH
Fe	.24	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-30-15 2001	MM
In	.009	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
TSS	<4	mg/L	SM22nd 2540 D	4	03-25-15 1535	EK
TDS	38	mg/L	SM22nd 2540 C	4	03-25-15 1535	EK
MBAS	.01	mg/L	SM22nd 5540C	.01	03-24-15 2328	SW
TOC	<1.0	mg/L	SM22nd 5310B	1.0	03-27-15 1153	MW
SO_4	9.04	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-31-15 0545	DC
Cl^-	.87	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-31-15 0545	DC
Al	.44	mg/L	EPA 200.7 Rev 4.4-1994	.02	04-01-15 2242	SB
As	<.0005	mg/L	SM22nd 3113 B	.0005	04-07-15 1414	RC
Ba	.038	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
Ca	3.24	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-30-15 2001	MM

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved _____

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: SB/MW

METHOD: 3

DATE & TIME SAMPLED: 03-24-15 1305

DATE & TIME RECEIVED: 03-24-15 1715

DATE & TIME ANALYZED: 03-24-15 1734

LABORATORY ID: HGE 150324-4

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
ANDY M^{C}CLURE FIELD WELL	PRESENT	ABSENT	03-24-15 1305	HGE 150324-4

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Doyle W Bunto

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503W55

Date Reported: 4/8/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/24/2015 1:05:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/26/2015
Lab ID:	1503W55-06A ANDY McCLURE	**Matrix:**	Liquid
Client Sample ID:	15064 FIELD WELL	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**
TPH (Diesel Range)	ND	NA	0.11	NA	mg/L	03/27/15 11:21AM	03/28/15 6:26AM	
TPH (Oil Range)	ND	NA	0.27	NA	mg/L	03/27/15 11:21AM	03/28/15 6:26AM	
Surr: o-Terphenyl	89.1	NA	28.3-152	NA	%REC	03/27/15 11:21AM	03/28/15 6:26AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**
Methane	ND	NA	10.0	NA	µg/L		04/06/15 12:00AM	
Ethane	ND	NA	15.0	NA	µg/L		04/06/15 12:00AM	
Propane	ND	NA	20.0	NA	µg/L		04/06/15 12:00AM	
Butane	ND	NA	25.0	NA	µg/L		04/06/15 12:00AM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	03/27/15 10:16AM	04/02/15 12:24AM	
Surr: 2,5-Dibromotoluene	51.1	NA	37.2-152	NA	%REC	03/27/15 10:16AM	04/02/15 12:24AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**
Benzene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/02/15 12:24AM	
Toluene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/02/15 12:24AM	
Ethylbenzene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/02/15 12:24AM	
m,p-Xylene	ND	NA	2.00	NA	µg/L	03/27/15 10:16AM	04/02/15 12:24AM	
o-Xylene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/02/15 12:24AM	
Surr: 1,1,1-Trifluorotoluene	85.6	NA	61.2-135	NA	%REC	03/27/15 10:16AM	04/02/15 12:24AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Andy McClure Field Well

Address 109 Coon Whistle

Phone 304 524 ~~69~~ 2963

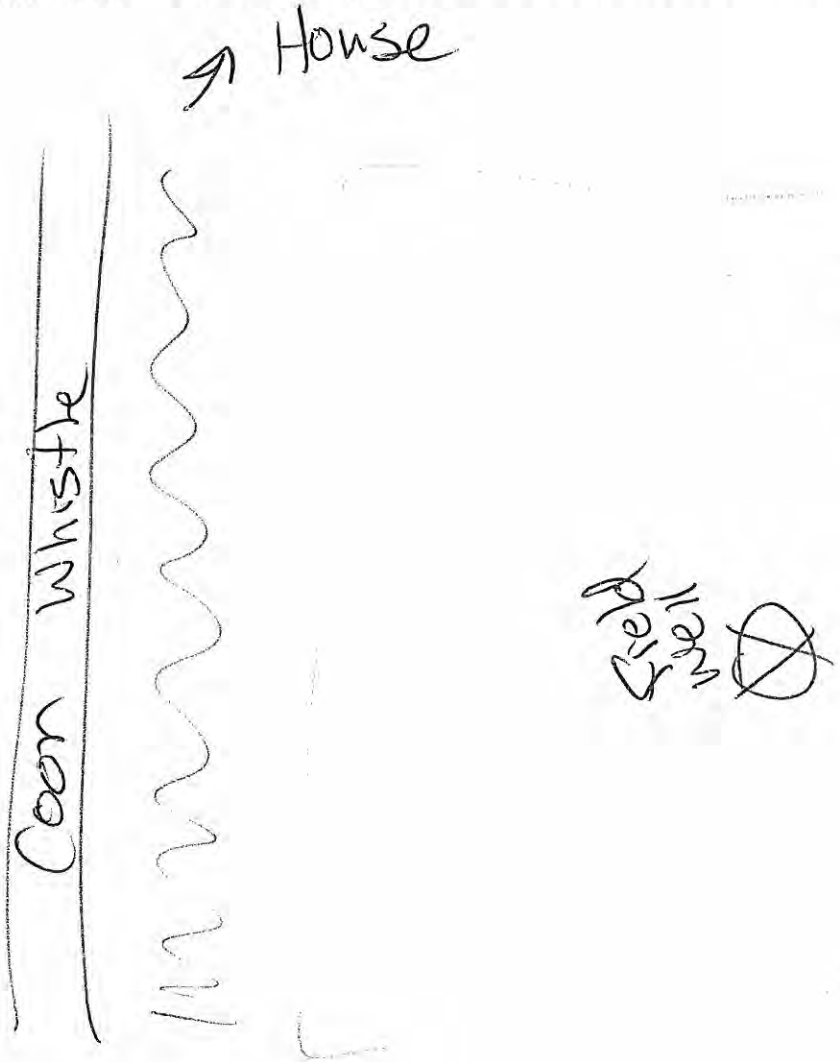
Depth of well (if known- estimate if not) 15-20'

GPS Coordinates

Lat 38 13' 27.9"

Long 81 57' 12.2"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



APPENDIX E
Water Sources

Operator: HG Energy, LLC Year 2015 UIC Permit #

		Source # 5	Source # 6	Source # 7	Source # 8
Water Source Name		A.McClure Bell Dug W	A.McClure Shanty DW	Jimmy Rymer	Jams McClure
Northing Easting		-81.9516 38.22631	-81.9511 38.22611	-81.9366 38.21822	-81.9508 38.21822
Parameter	Units				
TPH - GRO	mg/L	NA	NA	NA	NA
TPH - DRO	mg/L	NA	NA	NA	NA
TPH - ORO	mg/L	NA	NA	NA	NA
BTEX	mg/L	NA	NA	NA	NA
Chloride	mg/L	0.72	8.75	43.2	61.5
Soidum	mg/L				
Total Dissolved Solids (TDS)	mg/L	55	480	343 J	318 J
Aluminum	mg/L	1.12	1.90	.02 J	.02 J
Arsenic	mg/L	<.0005	<.0005	U	U
Barium	mg/L	0.038	0.0637	0.287	0.05
Iron	mg/L	1.38	3.47	.06 J	.19 J
Manganese	mg/L	0.052	0.037	.011 J	.007 J
pH	SU	7.0	6.5	8.2	7.9
Calcium	mg/L	8.11	0.780	10.4	1.34
Sulfate	mg/L	12.2	1.75	U	U
MBAS	mg/L	0.12	0.10	U	U
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100ml	Present	Present	Present	Present

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WV Department of
Environmental Protection

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: ANDY M^CCLURE BELL DUG WELL
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-24-15 1335

DATE/TIME RECEIVED: 03-24-15 1715

LABORATORY ID: HGE 150324-5

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-24-15 1335	CR
FIELD pH	6.60	units			03-24-15 1335	CR
FIELD COND	70	µmhos			03-24-15 1335	CR
FIELD TEMP	7.5	°C			03-24-15 1335	CR
LATTITUDE	38°13'34.7N				03-24-15 1335	CR
LONGITUDE	81°57'5.9W				03-24-15 1335	CR
pH	7.0	units	SM 22nd 4500 H B	.1	03-25-15 1425	KH
Fe	1.38	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-30-15 2001	MM
Mn	.052	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
TSS	40	mg/L	SM22nd 2540 D	4	03-25-15 1535	EK
TDS	55	mg/L	SM22nd 2540 C	4	03-25-15 1535	EK
MBAS	.12	mg/L	SM22nd 5540C	.01	03-24-15 2328	SW
TOC	2.1	mg/L	SM22nd 5310B	1.0	03-27-15 1153	MW
SO_4	12.2	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-31-15 0545	DC
Cl^-	.72	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-31-15 0545	DC
Al	1.12	mg/L	EPA 200.7 Rev 4.4-1994	.02	04-01-15 2242	SB
As	<.0005	mg/L	SM22nd 3113 B	.0005	04-07-15 1414	RC
Ba	.038	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
Ca	8.11	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-30-15 2001	MM

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas H Bentz

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: SB/MW

METHOD: 3

DATE & TIME SAMPLED: 03-24-15 1335

DATE & TIME RECEIVED: 03-24-15 1715

DATE & TIME ANALYZED: 03-24-15 1734

LABORATORY ID: HGE 150324-5

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
ANDY M^{C}CLURE BELL DUG WELL	PRESENT	PRESENT	03-24-15 1335	HGE 150324-5

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Doyle W Bunto
Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503W55

Date Reported: 4/8/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/24/2015 1:35:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/26/2015
Lab ID:	1503W55-07A ANDY McCLURE	**Matrix:**	Liquid
Client Sample ID:	15065 BELL DUG WELL	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**
TPH (Diesel Range)	ND	NA	0.11	NA	mg/L	03/27/15 11:21AM	03/28/15 6:59AM	
TPH (Oil Range)	ND	NA	0.28	NA	mg/L	03/27/15 11:21AM	03/28/15 6:59AM	
Surr: o-Terphenyl	91.2	NA	28.3-152	NA	%REC	03/27/15 11:21AM	03/28/15 6:59AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**
Methane	ND	NA	10.0	NA	µg/L		04/06/15 12:00AM	
Ethane	ND	NA	15.0	NA	µg/L		04/06/15 12:00AM	
Propane	ND	NA	20.0	NA	µg/L		04/06/15 12:00AM	
Butane	ND	NA	25.0	NA	µg/L		04/06/15 12:00AM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	03/27/15 10:16AM	04/02/15 12:56AM	
Surr: 2,5-Dibromotoluene	63.6	NA	37.2-152	NA	%REC	03/27/15 10:16AM	04/02/15 12:56AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**
Benzene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/02/15 12:56AM	
Toluene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/02/15 12:56AM	
Ethylbenzene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/02/15 12:56AM	
m,p-Xylene	ND	NA	2.00	NA	µg/L	03/27/15 10:16AM	04/02/15 12:56AM	
o-Xylene	ND	NA	1.00	NA	µg/L	03/27/15 10:16AM	04/02/15 12:56AM	
Surr: 1,1,1-Trifluorotoluene	88.0	NA	61.2-135	NA	%REC	03/27/15 10:16AM	04/02/15 12:56AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Andy McClure Bell Dug Well

Address 109 Coon Whisted

Phone 304 524 2963

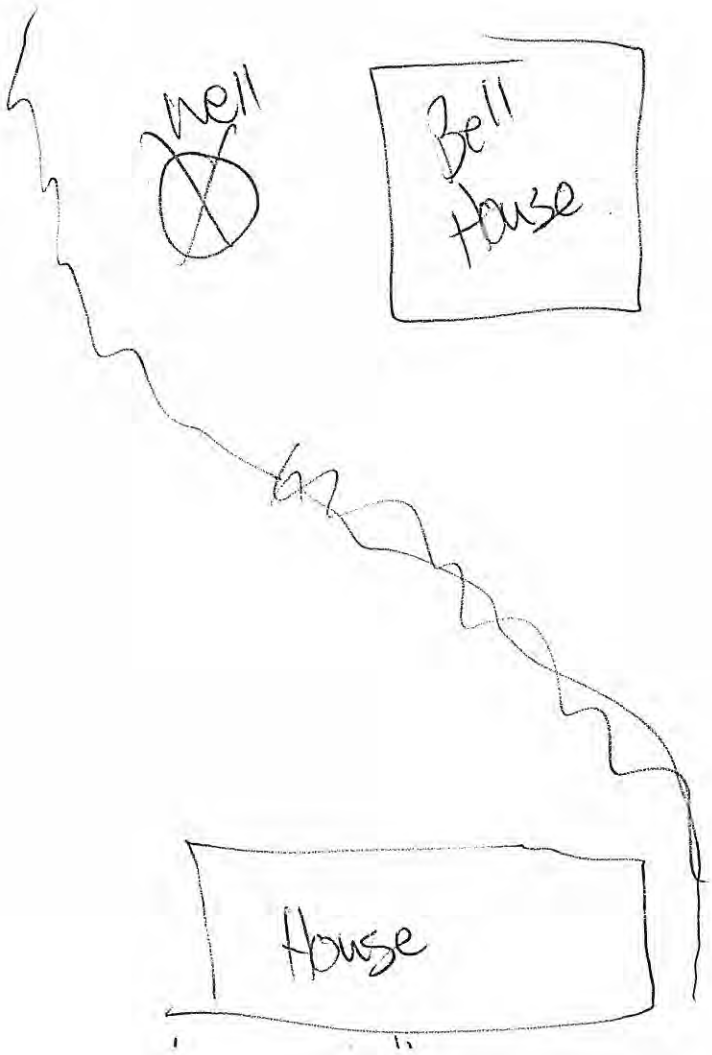
Depth of well (if known- estimate if not) 15-20

GPS Coordinates

Lat 38° 13' 34.7"

Long 81° 57' 5.9"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



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JUN 01 2015

WV Department of
Environmental Protection

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: ANDY M^CCLURE SHANTY DRILLED WELL
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-24-15 1355

DATE/TIME RECEIVED: 03-24-15 1715

LABORATORY ID: HGE 150324-6

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-24-15 1355	CR
FIELD pH	9.10	units			03-24-15 1355	CR
FIELD COND	750	µmhos			03-24-15 1355	CR
FIELD TEMP	13	°C			03-24-15 1355	CR
LATTITUDE	38°13'34.0N				03-24-15 1355	CR
LONGITUDE	81°57'4.0W				03-24-15 1355	CR
pH	6.5	units	SM 22nd 4500 H B	.1	03-25-15 1425	KH
Fe	3.47	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-30-15 2001	MM
Mn	.037	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
TSS	84	mg/L	SM22nd 2540 D	4	03-25-15 1535	EK
TDS	480	mg/L	SM22nd 2540 C	4	03-25-15 1535	EK
MBAS	.10	mg/L	SM22nd 5540C	.01	03-24-15 2328	SW
TOC	7.2	mg/L	SM22nd 5310B	1.0	03-27-15 1153	MW
SO_4	1.75	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-31-15 0545	DC
Cl^-	8.75	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-31-15 0545	DC
Al	1.90	mg/L	EPA 200.7 Rev 4.4-1994	.02	04-01-15 2242	SB
As	<.0005	mg/L	SM22nd 3113 B	.0005	04-07-15 1414	RC
Ba	.067	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-30-15 2001	MM
Ca	.780	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-30-15 2001	MM

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas W Bennett

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: SB/MW

METHOD: 3

DATE & TIME SAMPLED: 03-24-15 1355

DATE & TIME RECEIVED: 03-24-15 1715

DATE & TIME ANALYZED: 03-24-15 1734

LABORATORY ID: HGE 150324-6

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
ANDY M^{C}CLURE SHANTY DRILLED WELL	PRESENT	ABSENT	03-24-15 1355	HGE 150324-6

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Douglas A. Bruton
Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503W55

Date Reported: 4/8/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/24/2015 1:55:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/26/2015
Lab ID:	1503W55-08A ANDY McCLURE	**Matrix:**	Liquid
Client Sample ID:	15066 SHANTY DRILLED WELL	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**						**Analyst: CL**
TPH (Diesel Range)	ND	NA	0.16	NA		mg/L	03/27/15 11:21AM	03/28/15 7:32AM	
TPH (Oil Range)	ND	NA	0.40	NA		mg/L	03/27/15 11:21AM	03/28/15 7:32AM	
Surr: o-Terphenyl	45.9	NA	28.3-152	NA		%REC	03/27/15 11:21AM	03/28/15 7:32AM	
DISSOLVED GASES			**Method: GC-FID**						**Analyst: JC**
Methane	8,070	NA	200	NA	E	µg/L		04/06/15 12:00AM	
Ethane	ND	NA	300	NA		µg/L		04/06/15 12:00AM	
Propane	ND	NA	400	NA		µg/L		04/06/15 12:00AM	
Butane	ND	NA	500	NA		µg/L		04/06/15 12:00AM	

Notes:

Elevated PQLs are due to matrix interference.

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**						**Analyst: CB**
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	03/27/15 10:16AM	04/02/15 1:29AM	
Surr: 2,5-Dibromotoluene	72.2	NA	37.2-152	NA		%REC	03/27/15 10:16AM	04/02/15 1:29AM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**						**Analyst: CB**
Benzene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/02/15 1:29AM	
Toluene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/02/15 1:29AM	
Ethylbenzene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/02/15 1:29AM	
m,p-Xylene	ND	NA	2.00	NA		µg/L	03/27/15 10:16AM	04/02/15 1:29AM	
o-Xylene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/02/15 1:29AM	
Surr: 1,1,1-Trifluorotoluene	85.4	NA	61.2-135	NA		%REC	03/27/15 10:16AM	04/02/15 1:29AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Andy McClure Shanty Drilled well

Address 109 Coon Whistle Hollow

Phone 304 524 2963

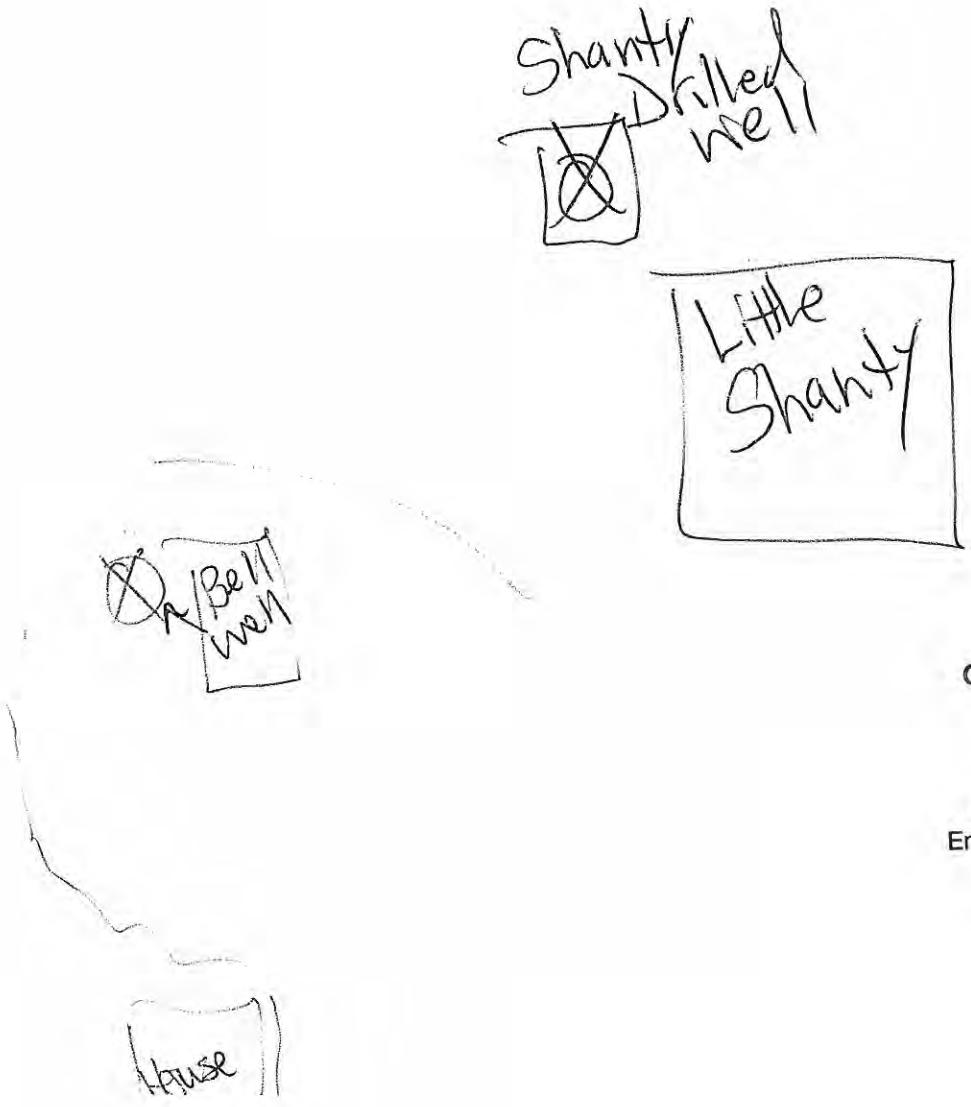
Depth of well (if known- estimate if not) 210

GPS Coordinates

Lat 38° 13' 34.0"

Long 81° 57' 4.0"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Greenhaven UIC 2
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY
☐	☐	☐

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Rick Wade (5[illegible] Coon Whistle)					3/24/15	1155	X							X								12	7.40	Pooled 35'	345			13
Andy McClure House Well						1215								X								10	6.20	Pooled 12'	90			8.5
Drilled House Well						1235								X								10	7.30	Pooled	525			12.5
Field Well						1305								X								10	5.90	Pooled 18'	50			8.5
Bell Dug Well						1335								X								10	6.60	Pooled 6'	70			7.5
Shanty Drilled Well (109 Coon Whistle)						1355								X								10	9.10	Pooled	750			13
					✓																	~~10~~						

Comments

Laboratory Comments:
Temperature Upon Receipt: (.04°C)
Bottles Preserved? Y N
Temp upon Receipt:

Records retained for 5 years

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	3/24/15	1715	[signature]	3/24/15	17:15
Relinquished by:	Date	Time	Received by:	Date	Time

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: JIMMY RYMER
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-30-15 0845

DATE/TIME RECEIVED: 03-30-15 1330

LABORATORY ID: HGE 150330-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-30-15 0845	CR
FIELD pH	8.70	units			03-30-15 0845	CR
FIELD COND	610	µmhos			03-30-15 0845	CR
FIELD TEMP	13.5	°C			03-30-15 0845	CR
LATTITUDE	38°13'09.1N				03-30-15 0845	CR
LONGITUDE	81°56'11.8W				03-30-15 0845	CR
pH	8.2	units	SM 22nd 4500 H B	.1	03-30-15 1806	KH
Fe	.06 J	mg/L	EPA 200.7 Rev 4.4-1994	.02	04-11-15 1000	MM
In	.011 J	mg/L	EPA 200.7 Rev 4.4-1994	.002	04-11-15 1000	MM
TSS	U	mg/L	SM22nd 2540 D	4	03-31-15 0905	BB/EK
TDS	343 J	mg/L	SM22nd 2540 C	4	03-31-15 0905	BB/EK
MBAS	U	mg/L	SM22nd 5540C	.01	03-31-15 2125	SW
TOC	1.3 J	mg/L	SM22nd 5310B	1.0	03-31-15 1219	MW
SO_4	U	mg/L	EPA 300.0 Rev 2.1-1993	1.0	04-02-15 0615	DC
Cl^-	43.2	mg/L	EPA 300.0 Rev 2.1-1993	.50	04-03-15 0430	DC
Al	.02 J	mg/L	EPA 200.7 Rev 4.4-1994	.02	04-11-15 1000	MM
As	U	mg/L	SM22nd 3113 B	.0005	04-07-15 1434	RC
Ba	.287	mg/L	EPA 200.7 Rev 4.4-1994	.002	04-11-15 1000	MM
Ca	10.4	mg/L	EPA 200.7 Rev 4.4-1994	.10	04-11-15 1000	MM

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Data Qualifiers

B Analyte found in reagent blank. Indicates possible reagent or background contamination.

E Estimated Reported value exceeded calibration range.

J Reported value is an estimate because concentration is less than reporting limit.

N Organic constituents tentatively identified. Confirmation is needed.

PND Precision not determined.

R Sample results rejected because of gross deficiencies in QC or method performance. Re-sampling and/or re-analysis is necessary.

RND Recovery not determined.

U Compound was analyzed for, but not detected.

Approved Douglas H Bennett

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 03-30-15 0845

DATE & TIME RECEIVED: 03-30-15 1330

DATE & TIME ANALYZED: 03-30-15 1447

LABORATORY ID: HGE 150330-1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
JIMMY RYMER	PRESENT	ABSENT	03-23-15 1115	HGE 150330-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Douglas H Bennett

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503ZG9

Date Reported: 4/8/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/30/2015 9:45:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/31/2015
Lab ID:	1503ZG9-01A	**Matrix:**	Liquid
Client Sample ID:	15069 JIMMY RYMER	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	03/31/15 11:23AM	04/01/15 8:42PM	
TPH (Oil Range)	ND	NA	0.28	NA		mg/L	03/31/15 11:23AM	04/01/15 8:42PM	
Surr: o-Terphenyl	88.5	NA	28.3-152	NA		%REC	03/31/15 11:23AM	04/01/15 8:42PM	
DISSOLVED GASES			**Method: GC-FID**					**Analyst: JC**	
Methane	9,080	NA	200	NA	E	µg/L		04/07/15 12:00AM	
Ethane	ND	NA	300	NA		µg/L		04/07/15 12:00AM	
Propane	ND	NA	400	NA		µg/L		04/07/15 12:00AM	
Butane	ND	NA	500	NA		µg/L		04/07/15 12:00AM	

Notes:

Elevated PQLs are due to matrix interference.

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	04/01/15 9:53AM	04/07/15 2:40AM	
Surr: 2,5-Dibromotoluene	95.4	NA	37.2-152	NA		%REC	04/01/15 9:53AM	04/07/15 2:40AM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**					**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	04/01/15 9:53AM	04/07/15 2:40AM	
Toluene	ND	NA	1.00	NA		µg/L	04/01/15 9:53AM	04/07/15 2:40AM	
Ethylbenzene	ND	NA	1.00	NA		µg/L	04/01/15 9:53AM	04/07/15 2:40AM	
m,p-Xylene	ND	NA	2.00	NA		µg/L	04/01/15 9:53AM	04/07/15 2:40AM	
o-Xylene	ND	NA	1.00	NA		µg/L	04/01/15 9:53AM	04/07/15 2:40AM	
Surr: 1,1,1-Trifluorotoluene	105	NA	61.2-135	NA		%REC	04/01/15 9:53AM	04/07/15 2:40AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Jimmy Rymer

Address 4254 Midway Rd Yawkey

Phone 304 524 2606

Depth of well (if known- estimate if not) 140'±

GPS Coordinates

Lat 38° 13' 09.1"

Long 81° 56' 11.8"

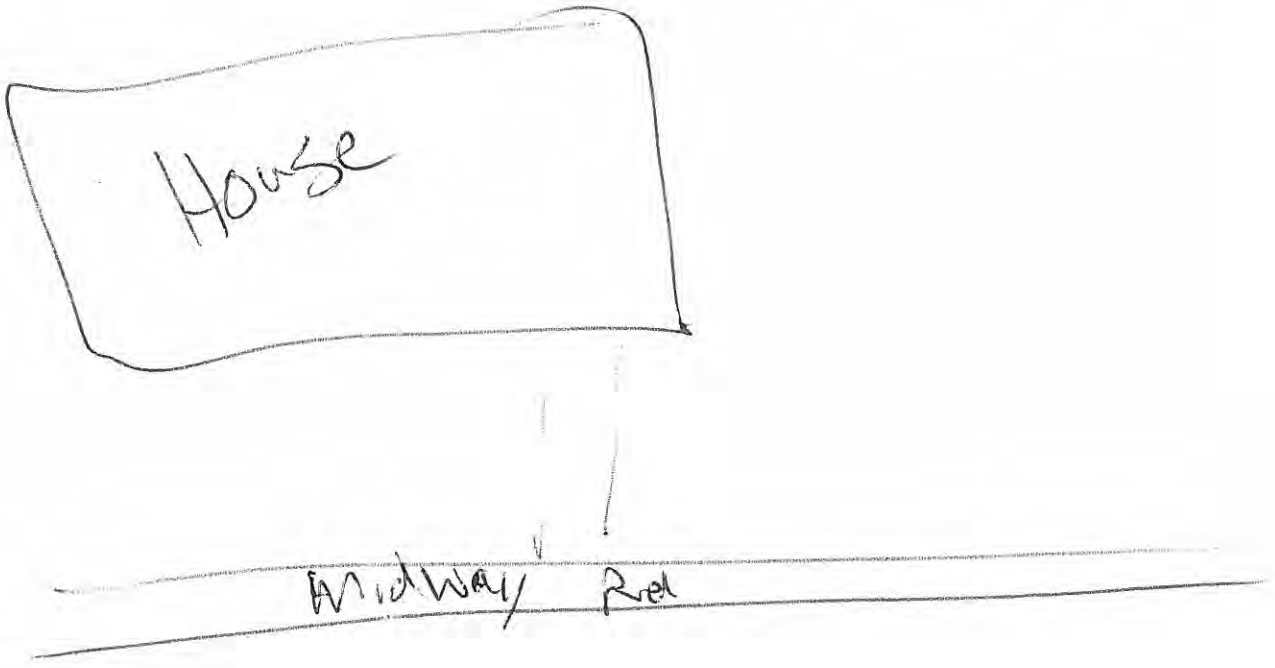
Provide sketch below of approximate location of dwelling(s) and water wells(s)

well

RECEIVED
Office of Oil and Gas

JUN 01 2015

WV Department of
Environmental Protection



Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: JAMES M^{C}CLURE GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-30-15 0920

DATE/TIME RECEIVED: 03-30-15 1330

LABORATORY ID: HGE 150330-2

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-30-15 0920	CR
FIELD pH	8.20	units			03-30-15 0920	CR
FIELD COND	565	µmhos			03-30-15 0920	CR
FIELD TEMP	15	°C			03-30-15 0920	CR
LATTITUDE	38°13'05.6N				03-30-15 0920	CR
LONGITUDE	81°57'03.0W				03-30-15 0920	CR
pH	7.9	units	SM 22nd 4500 H B	.1	03-30-15 1806	KH
Fe	.19 J	mg/L	EPA 200.7 Rev 4.4-1994	.02	04-11-15 1000	MM
Mn	.007 J	mg/L	EPA 200.7 Rev 4.4-1994	.002	04-11-15 1000	MM
TSS	U	mg/L	SM22nd 2540 D	4	03-31-15 0905	BB/EK
TDS	318 J	mg/L	SM22nd 2540 C	4	03-31-15 0905	BB/EK
MBAS	U	mg/L	SM22nd 5540C	.01	03-31-15 2125	SW
TOC	1.2 J	mg/L	SM22nd 5310B	1.0	03-31-15 1219	MW
SO_4	U	mg/L	EPA 300.0 Rev 2.1-1993	1.0	04-02-15 0615	DC
Cl^-	61.5	mg/L	EPA 300.0 Rev 2.1-1993	.50	04-03-15 0430	DC
Al	.02 J	mg/L	EPA 200.7 Rev 4.4-1994	.02	04-11-15 1000	MM
As	U	mg/L	SM22nd 3113 B	.0005	04-07-15 1434	RC
Ba	.050	mg/L	EPA 200.7 Rev 4.4-1994	.002	04-11-15 1000	MM
Ca	1.34	mg/L	EPA 200.7 Rev 4.4-1994	.10	04-11-15 1000	MM

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Data Qualifiers

B Analyte found in reagent blank. Indicates possible reagent or background contamination.

E Estimated Reported value exceeded calibration range.

J Reported value is an estimate because concentration is less than reporting limit.

N Organic constituents tentatively identified. Confirmation is needed.

PND Precision not determined.

R Sample results rejected because of gross deficiencies in QC or method performance. Re-sampling and/or re-analysis is necessary.

RND Recovery not determined.

U Compound was analyzed for, but not detected.

Approved Douglas H Bantz

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 03-30-15 0920

DATE & TIME RECEIVED: 03-30-15 1330

DATE & TIME ANALYZED: 03-30-15 1447

LABORATORY ID: HGE 150330-2

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
JAMES McCLURE	PRESENT	ABSENT	03-23-15 0920	HGE 150330-2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Douglas A Bruton

Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503ZG9

Date Reported: 4/8/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/30/2015 9:20:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/31/2015
Lab ID:	1503ZG9-02A	**Matrix:**	Liquid
Client Sample ID:	15070 JAMES McCLURE	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	03/31/15 11:23AM	04/01/15 9:14PM	
TPH (Oil Range)	ND	NA	0.28	NA		mg/L	03/31/15 11:23AM	04/01/15 9:14PM	
Surr: o-Terphenyl	77.5	NA	28.3-152	NA		%REC	03/31/15 11:23AM	04/01/15 9:14PM	
DISSOLVED GASES			**Method: GC-FID**					**Analyst: JC**	
Methane	33,300	NA	200	NA	E	µg/L		04/07/15 12:00AM	
Ethane	ND	NA	300	NA		µg/L		04/07/15 12:00AM	
Propane	ND	NA	400	NA		µg/L		04/07/15 12:00AM	
Butane	ND	NA	500	NA		µg/L		04/07/15 12:00AM	

Notes:

Elevated PQLs are due to matrix interference.

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	04/01/15 9:53AM	04/07/15 3:11AM	
Surr: 2,5-Dibromotoluene	126	NA	37.2-152	NA		%REC	04/01/15 9:53AM	04/07/15 3:11AM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**					**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	04/01/15 9:53AM	04/07/15 3:11AM	
Toluene	ND	NA	1.00	NA		µg/L	04/01/15 9:53AM	04/07/15 3:11AM	
Ethylbenzene	ND	NA	1.00	NA		µg/L	04/01/15 9:53AM	04/07/15 3:11AM	
m,p-Xylene	ND	NA	2.00	NA		µg/L	04/01/15 9:53AM	04/07/15 3:11AM	
o-Xylene	ND	NA	1.00	NA		µg/L	04/01/15 9:53AM	04/07/15 3:11AM	
Surr: 1,1,1-Trifluorotoluene	104	NA	61.2-135	NA		%REC	04/01/15 9:53AM	04/07/15 3:11AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name James McClure

Address 4705 Midway Rd

Phone 304 524 2350

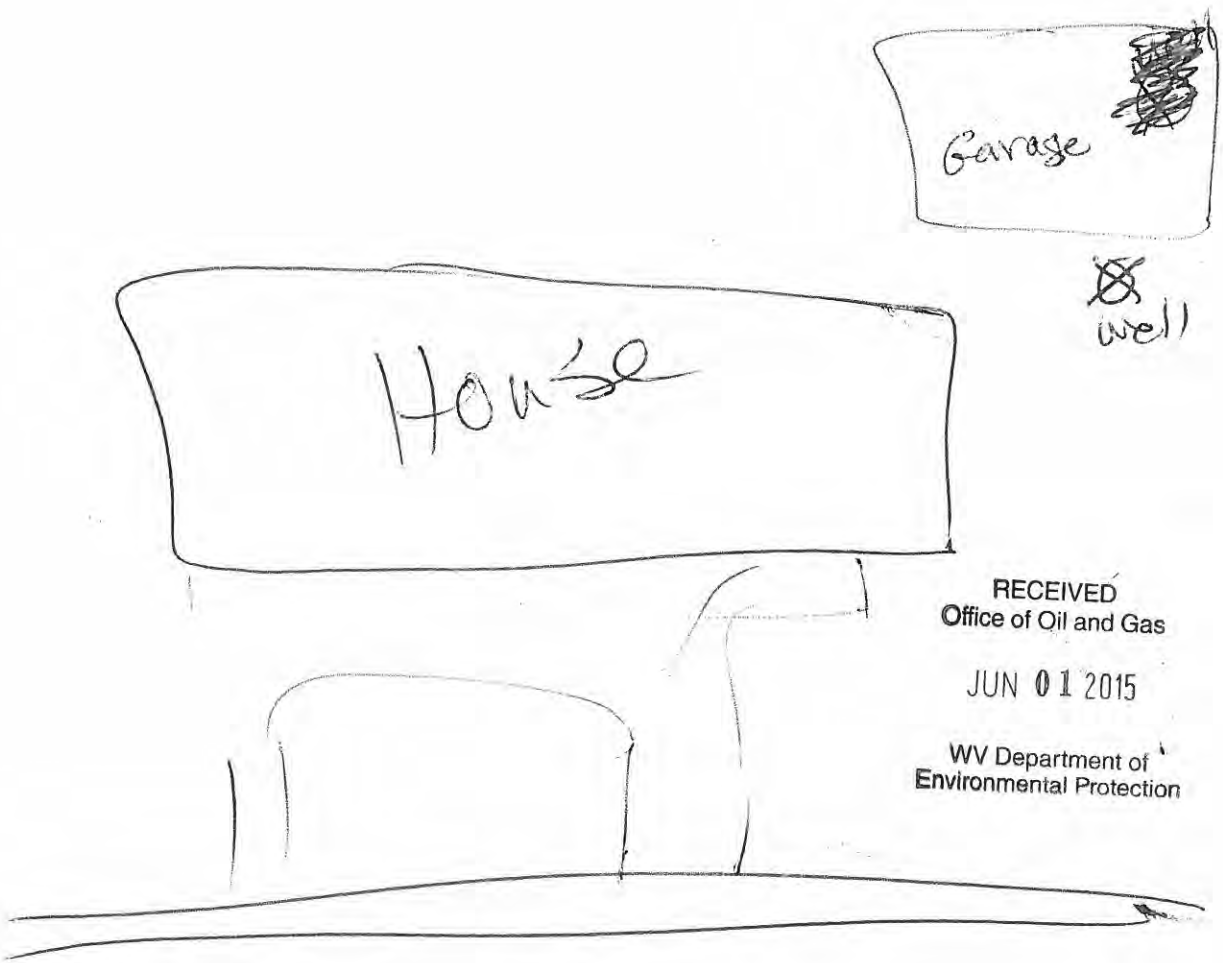
Depth of well (if known- estimate if not) ??

GPS Coordinates

Lat 38° 13' 05.6"

Long 81° 57' 03.0"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of Environmental Protection

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Griffithsville UIC2
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Jimmy Rymer (1) (4254 Midway Rd)					3/30/15	845	X								X							12	8.70	Pooled	610			13.5
James McClure (2) (4705 Midway Rd)						920	X								X							10	8.20	Pooled	565			15
Colilert #'s																												

Comments (1) 071 15 (2) 081 15

Records retained for 5 years

Laboratory Comments:
Temperature Upon Receipt: <6
Bottles Preserved? Y N
Temp upon Receipt: 4.9

Relinquished by:	Date	Time	Received by:	Date	Time
	3/30/15	1015		3/30/15	1015
Relinquished by:	Date	Time	Received by:	Date	Time
	3/30/15	1330		3/30/15	1330

CHAIN OF CUSTODY RECORD

REIC
Research Environmental & Industrial Consultants, Inc.
MAIN LABORATORY & CORPORATE HEADQUARTERS:
P.O. Box 268 • 225 Industrial Park Rd, Beaver, WV 25813
800-999-8101 • 304-255-2500 • www.reic.com

MID OHIO VALLEY Service Center
101 17th Street
Ashland, KY 41101
606-344-5027

SHENANDOAH Service Center
1557 Commerce Rd, Ste 101
Verona, VA 24482
540-248-8100

ROANOKE Service Center
5637 Peters Creek Road
Roanoke, VA 24019
540-777-1276

MORGANTOWN Service Center
46 Commerce Drive
Westover, WV 26505
304-241-3901

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME	RUSH TURNAROUND*			
NORMAL	5 DAY	3 DAY	2 DAY	1 DAY

*Rush work needs prior laboratory approval and will incur additional charges

ANALYSIS & METHOD REQUESTED

Preservative Codes:
0 None
1 Hydrochloric Acid
2 Nitric Acid
3 Sulfuric Acid
4 Sodium Bisulfate
5 Sodium Hydroxide/Sodium Ascorbate
6 Sodium Hydroxide
7 Zinc Acetate
8 Sodium Bisulfate/Methanol
9 Ammonium Chloride

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/Grab

ENTER PRESERVATIVE CODE

COMMENTS:

All analytical requests are subject to REIC's standard terms and conditions.

Temperature at arrival: °C | pH

Containers provided by: REIC | Client

1 | 2

FAX RESULTS | EMAIL RESULTS

APPENDIX E

Water Sources

Operator: HG Energy, LLC Year 2015 Erc Permit #

		Source # 9	Source # 10	Source # 11	Source # 12
Water Source Name		Ed Myers	Whitney Hager	Charles Snodgrass	Willow Snodgrass
Northing Easting		-81.932 38.24972	-81.9352 38.24719	-81.9366 38.24603	-81.9361 38.24139
Parameter	Units				
TPH - GRO	mg/L	NA	NA	NA	NA
TPH - DRO	mg/L	NA	NA	NA	NA
TPH - ORO	mg/L	NA	NA	NA	NA
BTEX	mg/L	NA	NA	NA	NA
Chloride	mg/L	22.2	14.1	9.48	15.2
Soidum	mg/L				
Total Dissolved Solids (TDS)	mg/L	277	271	275	318
Aluminum	mg/L	<.02	<.02	<.02	<.02
Arsenic	mg/L	0.0010	0.0006	0.0005	0.0008
Barium	mg/L	0.002	0.468	0.566	0.108
Iron	mg/L	0.22	0.89	1.57	1.23
Manganese	mg/L	0.003	0.116	0.137	0.330
pH	SU	7.3	7.2	7.4	6.9
Calcium	mg/L	0.40	53.3	48.4	78.9
Sulfate	mg/L	27.1	22.0	17.6	40.8
MBAS	mg/L	0.01	<.01	1.1	<.01
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100ml	Absent	Present	Present	Present

Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-14-15 0800
DATE/TIME RECEIVED: 01-14-15 1340
LABORATORY ID: HGE 150114-1

SAMPLE ID	FIELD pH units	FIELD COND µmhos	FIELD TEMP °C	LATITUDE	LONGITUDE	pH units	Fe mg/L	Mn mg/L	TSS mg/L
ED MYERS	7.70	475	13.5	38°14'59.0N	81°55'55.1W	7.3	.22	.003	<4

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

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CHARLESTON BRANCH—POST OFFICE BOX 8337 • SOUTH CHARLESTON, WEST VIRGINIA 25303-0337 • (304) 744-9864

Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-14-15 0800
DATE/TIME RECEIVED: 01-14-15 1340
LABORATORY ID: HGE 150114-1

SAMPLE ID	TDS mg/L	MBAS mg/L	TOC mg/L	SO_4 mg/L	Cl^- mg/L	Al mg/L	As mg/L	Ba mg/L	Ca mg/L
ED MYERS	277	.01	1.5	27.1	22.2	<.02	.0010	.002	.40

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

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Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 01-14-15 0800

DATE & TIME RECEIVED: 01-14-15 1340

DATE & TIME ANALYZED: 01-14-15 1355

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
ED MYERS	ABSENT	ABSENT	01-14-14 0800	HGE 150114-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

D Bu

Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501F02

Date Reported: 1/21/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/14/2015 8:00:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/15/2015
Lab ID:	1501F02-01A	**Matrix:**	Liquid
Client Sample ID:	15007 ED MYERS	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.12	NA	mg/L	01/19/15 10:10AM	01/20/15 8:27AM	PA/VA
TPH (Oil Range)	ND	NA	0.29	NA	mg/L	01/19/15 10:10AM	01/20/15 8:27AM	
Surr: o-Terphenyl	81.3	NA	28.3-152	NA	%REC	01/19/15 10:10AM	01/20/15 8:27AM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	28.0	NA	10.0	NA	µg/L		01/19/15 2:49PM	
Ethane	ND	NA	15.0	NA	µg/L		01/19/15 2:49PM	
Propane	ND	NA	20.0	NA	µg/L		01/19/15 2:49PM	
Butane	ND	NA	25.0	NA	µg/L		01/19/15 2:49PM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	01/19/15 7:00AM	01/20/15 2:52AM	PA/VA
Surr: 2,5-Dibromotoluene	99.2	NA	37.2-152	NA	%REC	01/19/15 7:00AM	01/20/15 2:52AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 2:52AM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 2:52AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 2:52AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	01/19/15 7:00AM	01/20/15 2:52AM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 2:52AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	89.6	NA	61.2-135	NA	%REC	01/19/15 7:00AM	01/20/15 2:52AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Ed Myers

Address 633 Bear Fk Rd

Phone 304 524 2959

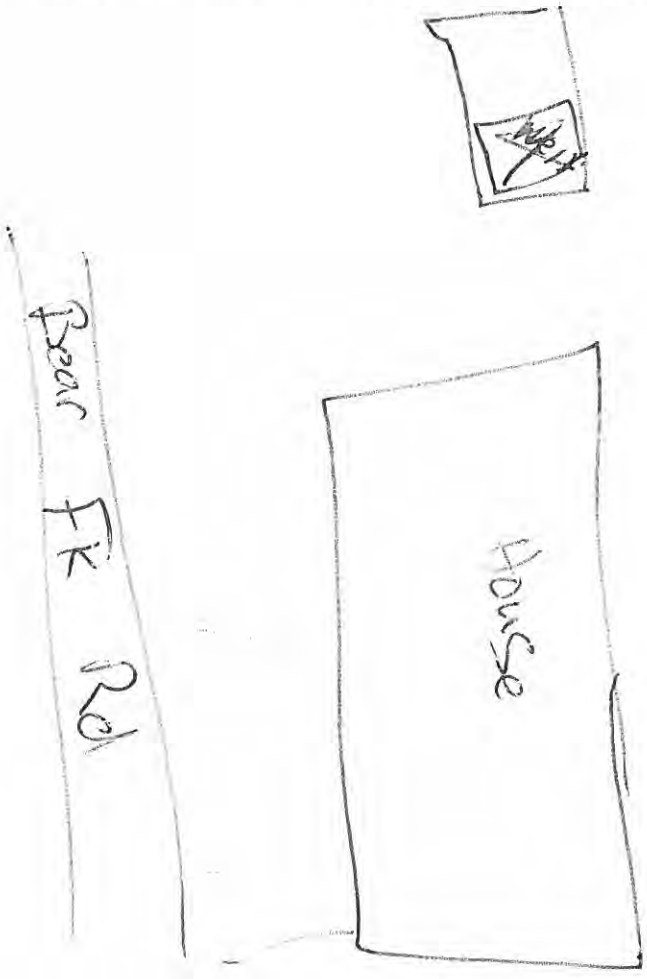
Depth of well (if known- estimate if not) 48'

GPS Coordinates

Lat 38° 14' 59.08"

Long 81° 55' 55.1"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-14-15 0830
DATE/TIME RECEIVED: 01-14-15 1340
LABORATORY ID: HGE 150114-2

SAMPLE ID	FIELD pH units	FIELD COND µmhos	FIELD TEMP °C	LATITUDE	LONGITUDE	pH units	Fe mg/L	Mn mg/L	TSS mg/L
WHITNEY HAGER	7.60	475	10.5	38°14'49.9N	81°56'06.8W	7.2	.89	.116	4

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

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Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-14-15 0830
DATE/TIME RECEIVED: 01-14-15 1340
LABORATORY ID: HGE 150114-2

SAMPLE ID	TDS mg/L	MBAS mg/L	TOC mg/L	SO_4 mg/L	Cl^- mg/L	Al mg/L	As mg/L	Ba mg/L	Ca mg/L
WHITNEY HAGER	271	<.01	1.1	22.0	14.1	<.02	.0006	.468	53.3

*Client Provided
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Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 01-14-15 0830

DATE & TIME RECEIVED: 01-14-15 1340

DATE & TIME ANALYZED: 01-14-15 1355

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
WHITNEY HAGER	PRESENT	ABSENT	01-14-14 0830	HGE 150114-2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501F02

Date Reported: 1/21/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/14/2015 8:30:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/15/2015
Lab ID:	1501F02-02A	**Matrix:**	Liquid
Client Sample ID:	15008 WHITNEY HAGER	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**				**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.12	NA	mg/L	01/19/15 10:10AM	01/20/15 9:00AM	PA/VA
TPH (Oil Range)	ND	NA	0.31	NA	mg/L	01/19/15 10:10AM	01/20/15 9:00AM	
Surr: o-Terphenyl	63.3	NA	28.3-152	NA	%REC	01/19/15 10:10AM	01/20/15 9:00AM	
DISSOLVED GASES			**Method: GC-FID**				**Analyst: JC**	
Methane	29.2	NA	10.0	NA	µg/L		01/19/15 2:59PM	
Ethane	ND	NA	15.0	NA	µg/L		01/19/15 2:59PM	
Propane	ND	NA	20.0	NA	µg/L		01/19/15 2:59PM	
Butane	ND	NA	25.0	NA	µg/L		01/19/15 2:59PM	
VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**				**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	01/19/15 7:00AM	01/20/15 3:26AM	PA/VA
Surr: 2,5-Dibromotoluene	97.3	NA	37.2-152	NA	%REC	01/19/15 7:00AM	01/20/15 3:26AM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**				**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 3:26AM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 3:26AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 3:26AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	01/19/15 7:00AM	01/20/15 3:26AM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 3:26AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	91.7	NA	61.2-135	NA	%REC	01/19/15 7:00AM	01/20/15 3:26AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Whitney Hager

Address 581 Bear Fork Rd

Phone 304 524 9340

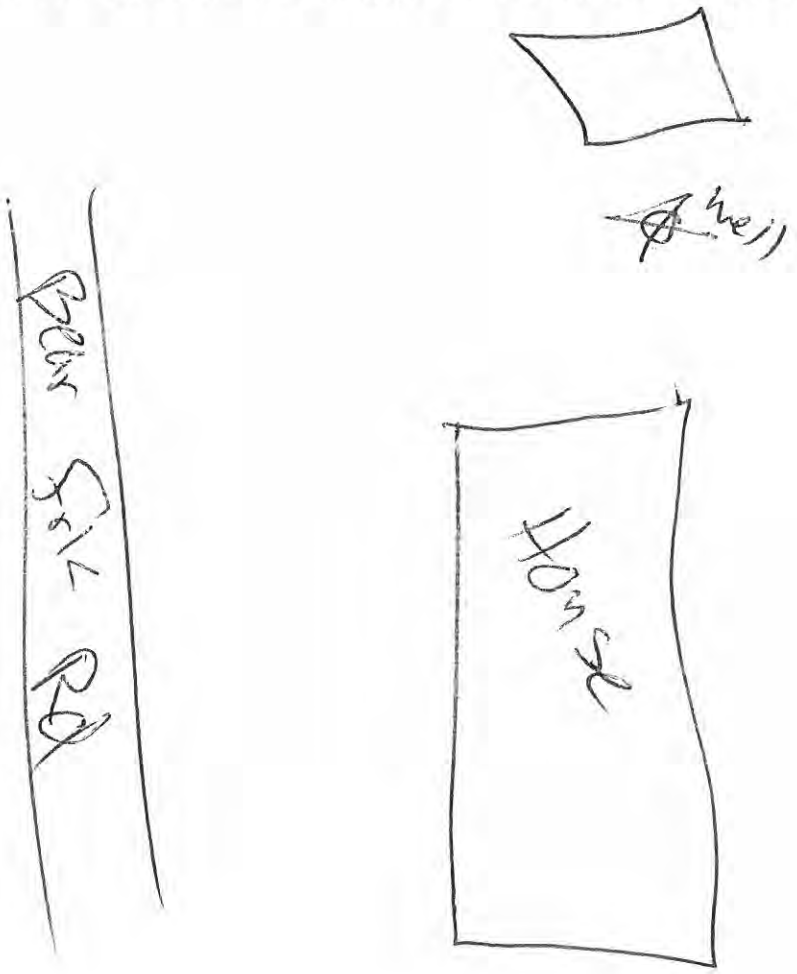
Depth of well (if known- estimate if not)_____

GPS Coordinates

Lat 38° 14' 49.9"

Long 81° 56' 06.8"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-14-15 0900
DATE/TIME RECEIVED: 01-14-15 1340
LABORATORY ID: HGE 150114-3

SAMPLE ID	FIELD pH units	FIELD COND µmhos	FIELD TEMP °C	LATITUDE	LONGITUDE	pH units	Fe mg/L	Mn mg/L	TSS mg/L
CHARLES SNODGRASS	7.90	495	8.5	38°14'45.7N	81°56'11.6W	7.4	1.57	.137	<4

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

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Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-14-15 0900
DATE/TIME RECEIVED: 01-14-15 1340
LABORATORY ID: HGE 150114-3

SAMPLE ID	TDS mg/L	MBAS mg/L	TOC mg/L	SO_4 mg/L	Cl^- mg/L	Al mg/L	As mg/L	Ba mg/L	Ca mg/L
CHARLES SNODGRASS	275	<.01	1.1	17.6	9.48	<.02	.0005	.566	48.4

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

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JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 01-14-15 0900

DATE & TIME RECEIVED: 01-14-15 1340

DATE & TIME ANALYZED: 01-14-15 1355

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
CHARLES SNODGRASS	PRESENT	ABSENT	01-14-14 0900	HGE 150114-3

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501F02

Date Reported: 1/21/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/14/2015 9:00:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/15/2015
Lab ID:	1501F02-03A	**Matrix:**	Liquid
Client Sample ID:	15009 CHARLES SNODGRASS	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.12	NA	mg/L	01/19/15 10:10AM	01/20/15 9:34AM	PA/VA
TPH (Oil Range)	ND	NA	0.30	NA	mg/L	01/19/15 10:10AM	01/20/15 9:34AM	
Surr: o-Terphenyl	83.8	NA	28.3-152	NA	%REC	01/19/15 10:10AM	01/20/15 9:34AM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	94.2	NA	10.0	NA	µg/L		01/19/15 3:06PM	
Ethane	ND	NA	15.0	NA	µg/L		01/19/15 3:06PM	
Propane	ND	NA	20.0	NA	µg/L		01/19/15 3:06PM	
Butane	ND	NA	25.0	NA	µg/L		01/19/15 3:06PM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	01/19/15 7:00AM	01/20/15 3:59AM	PA/VA
Surr: 2,5-Dibromotoluene	99.5	NA	37.2-152	NA	%REC	01/19/15 7:00AM	01/20/15 3:59AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 3:59AM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 3:59AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 3:59AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	01/19/15 7:00AM	01/20/15 3:59AM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 3:59AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	91.8	NA	61.2-135	NA	%REC	01/19/15 7:00AM	01/20/15 3:59AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Charles Snodgrass

Address 559 Bear Frk Rd

Phone 304 524 7507

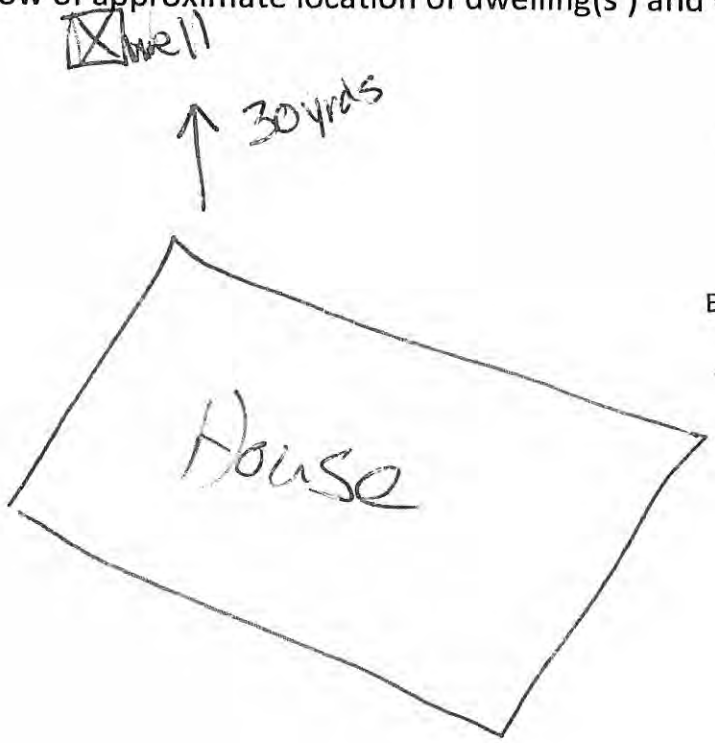
Depth of well (if known- estimate if not) 110'

GPS Coordinates

Lat 38° 14' 45.7'

Long 81° 56 11.6"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



Bear Frk Rd

Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-14-15 0930
DATE/TIME RECEIVED: 01-14-15 1340
LABORATORY ID: HGE 150114-4

SAMPLE ID	FIELD pH units	FIELD COND µmhos	FIELD TEMP °C	LATITUDE	LONGITUDE	pH units	Fe mg/L	Mn mg/L	TSS mg/L
WILLOW SNODGRASS	7.70	575	6	38°14'29.0N	81°56'10.0W	6.9	1.23	.330	5

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

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Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-14-15 0930
DATE/TIME RECEIVED: 01-14-15 1340
LABORATORY ID: HGE 150114-4

SAMPLE ID	TDS mg/L	MBAS mg/L	TOC mg/L	SO_4 mg/L	Cl^- mg/L	Al mg/L	As mg/L	Ba mg/L	Ca mg/L
WILLOW SNODGRASS	318	<.01	<1.0	40.8	15.2	<.02	.0008	.108	78.9

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

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Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 01-14-15 0930

DATE & TIME RECEIVED: 01-14-15 1340

DATE & TIME ANALYZED: 01-14-15 1355

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
WILLOW SNODGRASS	PRESENT	ABSENT	01-14-14 0930	HGE 150114-4

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501F02

Date Reported: 1/21/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/14/2015 9:30:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/15/2015
Lab ID:	1501F02-04A	**Matrix:**	Liquid
Client Sample ID:	15010 WILLOW SNODGRASS	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.12	NA	mg/L	01/19/15 10:10AM	01/20/15 10:07AM	PA/VA
TPH (Oil Range)	ND	NA	0.31	NA	mg/L	01/19/15 10:10AM	01/20/15 10:07AM	
Surr: o-Terphenyl	80.2	NA	28.3-152	NA	%REC	01/19/15 10:10AM	01/20/15 10:07AM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	ND	NA	10.0	NA	µg/L		01/19/15 3:12PM	
Ethane	ND	NA	15.0	NA	µg/L		01/19/15 3:12PM	
Propane	ND	NA	20.0	NA	µg/L		01/19/15 3:12PM	
Butane	ND	NA	25.0	NA	µg/L		01/19/15 3:12PM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	01/19/15 7:00AM	01/20/15 4:33AM	PA/VA
Surr: 2,5-Dibromotoluene	106	NA	37.2-152	NA	%REC	01/19/15 7:00AM	01/20/15 4:33AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 4:33AM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 4:33AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 4:33AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	01/19/15 7:00AM	01/20/15 4:33AM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	01/19/15 7:00AM	01/20/15 4:33AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	91.9	NA	61.2-135	NA	%REC	01/19/15 7:00AM	01/20/15 4:33AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Willow Shadgrass

Address 452 Bear Frk Rd

Phone 304 524 2980

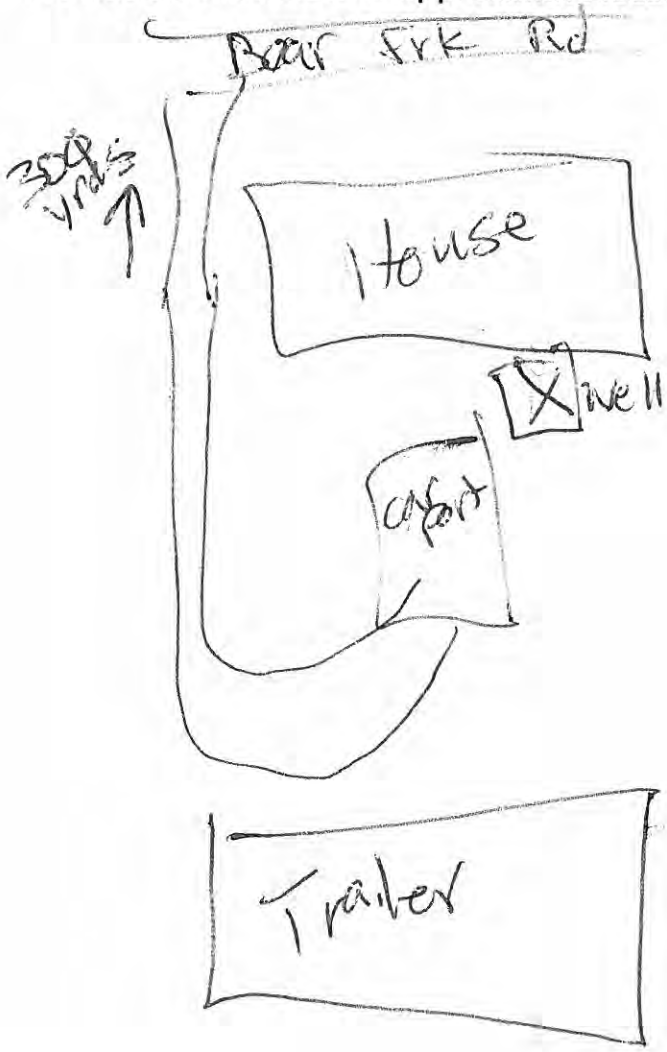
Depth of well (if known- estimate if not) 120'

GPS Coordinates

Lat 38° 14' 29.0"

Long 81° 56' 10.0"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

PARAMETER	DATE ANALYZED	ANALYST INITIALS	METHOD	UNITS	MRL	MDL
pH	1.14.15	KH	SM22nd 4500 HB	S.U	2.0 – 10.0	.1
Hot Acid			SM22nd 2310 B (4a)	mg/L	20.	1
Mineral Acid			SM22nd 2310, Titrimetric	mg/L		1
Alkalinity			SM22nd 2320 B	mg/L	20.	1
NH_3N			SM22nd 4500NH_3B + SM22th 4500 NH_3C	mg/L	10.	.10
Settleable Solids			SM 22nd 2540 F	ml/L		.1
Turbidity			SM22nd 2130 B	NTU	1.	.05
Conductivity			EPA 120.1 Rev-1982	µmhos	20.	1
TKN			SM22nd 4500 N org + SM22nd 4500 NH_3C	mg/L	10.	.10
TSS – Total Suspended Solids	1.15.15	SH	SM22nd 2540 D	mg/L	50.	4
TDS – Total Dissolved Solids			SM22nd 2540 C	mg/L	450.	4
Sulfate	1-16-15	DC	EPA 300.0 Rev 2.1-1993	mg/L	1.0 / 10.	1.0
Chloride	1-16-15	DC	EPA 300.0 Rev 2.1-1993	mg/L	.50	.50
Nitrate			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Nitrite			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Fluoride			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Nitrate-Nitrite			EPA 300.0 Rev 2.1-1993+Calc	mg/L		.01
Ortho-Phosphate			EPA 300.0 Rev 2.1-1993	mg/L	.05	.05
Aluminum	1/16/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Aluminum			EPA 200.7 Rev.4.4-1994	mg/L	.25	.02
Calcium	1/16/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.50	.10
Dissolved Calcium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.10
Chromium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Dissolved Chromium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Hardness (calc)			SM22nd 2340B+EPA 200.7 Rev 4.4-1994	mg/L		1
Iron	1/16/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Iron			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Magnesium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Dissolved Magnesium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Manganese	1/16/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.25	.002
Dissolved Manganese			EPA 200.7 Rev 4.4-1994	mg/L	.25	.002
Sodium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.03
Zinc (ICP)			EPA 200.7 Rev 4.4-1994	mg/L	.05	.004
MBAS	1-14-15	TW	SM22nd 5540C	mg/L	.01	.01
Cyanide			EPA 335.4 Rev 1.0-1993	mg/L	.005	.002
Ortho-Phosphate			SM22nd 4500P B.5 + 4500PE	mg/L	.02	.01
Phenol			EPA 420.4 1983	mg/L	.010	.004
Sulfide			SM22nd 4500 S2 F	mg/L	5.0	.50
Hexavalent Chromium			SM22nd 3500 – Cr-B	mg/L	.02	.007
TPO_4			SM22nd 4500 P E + SM22th 4500 P B.5	mg/L	.02	.010
Oil & Grease			EPA 1664A Gravimetric Extraction	mg/L	5.0	3.0
BOD			SM22nd 5210B	mg/L	3.0	2.0
COD			SM22nd 5220D	mg/L	20	6.0
TOC	1-15-15 (1755)	MW	SM22nd 5310B	mg/L	5.0	1.0
Dissolved Selenium			SM22nd 3113 B	mg/L	.005	.0006
Total Selenium			SM22nd 3113 B	mg/L	.005	.0006
Total Recoverable Selenium			SM22nd 3113 B	mg/L	.005	.0006
Chromium			SM22nd 3113 B	mg/L	.001	.0002
Dissolved Chromium			SM22nd 3113 B	mg/L	.001	.0002
Total Selenium (AFS)			SM22nd 3114B	mg/L	.001	.0006
Total Recoverable Selenium			SM22nd 3114B	mg/L	.001	.0006
Dissolved Selenium			SM22nd 3114B	mg/L	.001	.0006

EPA-United States Environmental Protection Agency, "Method for the Chemical Analysis of Water and Waste," EPA 600/4-79-020, March 1983.
SM-Standard Methods for the Examination of Water and Wastewater, 22nd Edition. MRL-Minimum Reporting Level, MDL-Method Detection Level

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Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

PARAMETER	DATE ANALYZED	ANALYST INITIALS	METHOD	UNITS	MRL	MDL
Antimony			SM22nd 3113 B	mg/L	.0025	.0004
Arsenic	1-20-15	RC	SM22nd 3113 B	mg/L	.005	.0005
Beryllium			SM22nd 3113 B	mg/L	.0005	.0001
Dissolved Beryllium			SM22nd 3113 B	mg/L	.0005	.0001
Cadmium			SM22nd 3113 B	mg/L	.0005	.0001
Dissolved Cadmium			SM22nd 3113 B	mg/L	.0005	.0001
Copper			SM22nd 3113 B	mg/L	.002	.0006
Dissolved Copper			SM22nd 3113 B	mg/L	.002	.0006
Lead			SM22nd 3113 B	mg/L	.005	.0005
Dissolved Lead			SM22nd 3113 B	mg/L	.005	.0005
Silver			SM22nd 3113 B	mg/L	.001	.0002
Dissolved Silver			SM22nd 3113 B	mg/L	.001	.0002
Thallium			SM22nd 3113 B	mg/L	.0025	.0003
Dissolved Thallium			SM22nd 3113 B	mg/L	.0025	.0003
Mercury			EPA 245.1 Rev 3.0-1994	mg/L	.001	.0002
Barium	1/16/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.05	.002
Beryllium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Dissolved Beryllium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Boron			EPA 200.7 Rev 4.4-1994	mg/L	.05	.03
Cadmium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Dissolved Cadmium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Cobalt			EPA 200.7 Rev 4.4-1994	mg/L	.05	.01
Copper			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Dissolved Copper			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Molybdenum			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Nickel			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Potassium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Dissolved Potassium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Silica			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Silicon			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Silver			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Dissolved Silver			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Strontium			EPA 200.7 Rev 4.4-1994	mg/L	.01	.001
Tin			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Titanium			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Vanadium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Bromide			EPA 300.0 Rev 2.1-1993	mg/L	.25	.10
Chlorine Residual (AT LAB)			SM22nd 4500CL G	mg/L	1.0	.01
Dissolved Oxygen			SM22nd 4500 O G	mg/L		1
Volatile Suspended Solids			EPA 160.4	mg/L		1
Total Solids			SM22nd 2540 B	mg/L		.01
% Solids			EPA 160.3	mg/L		1.0
Ferrous Iron			SM22 3500 Fe-D	mg/L	.60	.02
Ferric Iron			Calculation	mg/L		.05
Chloride			SM22nd 4500-Cl-E	mg/L	1.0	.25
Nitrite			EPA 353.2 Rev 2.0-1993	mg/L	.05	.004
Nitrate			EPA 353.2 Rev 2.0-1993	mg/L	.05	
Nitrite-Nitrate			EPA 353.2 Rev 2.0-1993	mg/L	.05	.02
Specific Gravity			Calculation	mg/L		
Total Nitrogen			Calculation	mg/L		

EPA-United States Environmental Protection Agency, "Method for the Chemical Analysis of Water and Waste," EPA 600/4-79-020, March 1983.
SM-Standard Methods for the Examination of Water and Wastewater, 22nd Edition. MRL-Minimum Reporting Level, MDL-Method Detection Level

CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

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Environmental Protection

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Griffithsville UIC #2
Special Reporting: [ ] Email Results [ ] Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (°F or °C) circle one
1) Ed Myers ~~Soker~~					1/14/15	800	X								X							12	7.70	Pooled	475			13.5
2) Whitney Hager						830	X								X							10	7.60	Pooled	475			10.5
3) Charles Snodgrass						900	X								X							10	7.90	Pooled	495			8.5
4) Willow Snodgrass						930	X								X							10	7.70	Pooled	575			6

Comments Colilert #'s (1)- 904 14 (3)- 758 14
(2)- 760 14 (4)- 776 14
Records retained for 5 years

Laboratory Comments:
Temperature Upon Receipt: 1.6
Bottles Preserved? Y N

Relinquished by:	Date	Time	Received by:	Date	Time
	1/14/15	1030		1/14/15	1030
Relinquished by:	Date	Time	Received by:	Date	Time
	1/14/15	1340		1/14/15	1340

Temp upon Receipt: 5.4

CHAIN OF CUSTODY RECORD

REIC
Research Environmental & Industrial Consultants, Inc.
MAIN LABORATORY & CORPORATE HEADQUARTERS:
[illegible] • 304-255-2500 • www.reic.com

MID-OHIO VALLEY Service Center
[illegible]
740-423-3029

SHENANDOAH Service Center
[illegible]

ROANOKE Service Center
3070-C Peters Creek Rd
Roanoke, VA 24019
540-777-1371

MORGANTOWN Service Center
16 Commerce Drive
Westover, WV 26501
304 241-5761

Client: [illegible] Fax: [illegible]
Contact Person: [illegible] Phone: [illegible]
Quote #: [illegible] Email: [illegible]
Address: [illegible] City: [illegible] State: [illegible] Zip: [illegible]
Billing address (if different): [illegible]
City: [illegible] State: [illegible] Zip: [illegible]
PWS ID # State: [illegible] Project ID: [illegible] Sampler: [illegible]

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME

NORMAL	RUSH TURNAROUND 5 DAY	3 DAY	2 DAY	1 DAY
X				

*Rush Turnaround Fees and Laboratory Approval required and Additional Charges

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/ Grab	ANALYSIS & METHOD REQUESTED
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Preservative Codes:
A None
B Sodium Bisulfate (NaHSO4)
C Zinc Acetate + NaOH
D Nitric Acid (HNO3)
E Sodium Thiosulfate (Na2S2O3)
F Sulfuric Acid (H2SO4) or Sodium Bisulfate (NaHSO4)
G Sodium Hydroxide (NaOH)
H Ascorbic Acid
I [illegible]
J [illegible]
*Laboratory Approval Required if preservative not listed

ENTER PRESERVATIVE CODE

COMMENTS:

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All analytical results are subject to REIC's standard terms and conditions

Temperature at arrival [illegible] °C | ICED? Y N | Containers provided by REIC / Client

FAX RESULTS [illegible] | MAIL RESULTS [illegible]

[illegible]

COC-NOA-111315

APPENDIX E
Water Sources

Operator: HG Energy, LLC Year 2015 UIC Permit #

		Source # 13	Source # 14	Source # 15	Source # 16
Water Source Name		Raymond Daniels	Lewis Montcastle	Nada Stanley	David Pauley
Northing Easting		-81.9337 38.24819	-81.935 38.24728	-80.05706 38.24256	-81.9597 38.23958
Parameter	Units				
TPH - GRO	mg/L	NA	NA	NA	NA
TPH - DRO	mg/L	NA	NA	NA	NA
TPH - ORO	mg/L	NA	NA	NA	NA
BTEX	mg/L	NA	NA	NA	NA
Chloride	mg/L	18.6	5.69	9.11	64.5
Soidum	mg/L				
Total Dissolved Solids (TDS)	mg/L	236	180	499	341
Aluminum	mg/L	<.02	<.02	0.03	<.02
Arsenic	mg/L	<.0005	0.0007	<.0005	0.0064
Barium	mg/L	0.363	0.105	0.176	0.502
Iron	mg/L	6.15	3.24	0.06	0.45
Manganese	mg/L	0.550	0.450	<.002	0.034
pH	SU	7.0	7.0	7.5	7.7
Calcium	mg/L	58.7	28.3	20.4	11.3
Sulfate	mg/L	23.0	23.3	7.40	<1.0
MBAS	mg/L	0.05	<.01	<.01	0.02
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100ml	Absent	Present	Absent	Present

Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-13-15 0910
DATE/TIME RECEIVED: 01-13-15 1355
LABORATORY ID: HGE 150113-1

SAMPLE ID	FIELD pH units	FIELD COND µmhos	FIELD TEMP °C	LATITUDE	LONGITUDE	pH units	Fe mg/L	Mn mg/L	TSS mg/L
RAYMOND DANIELS	7.50	450	10	38°14'53.5N	81°56'01.3W	7.0	6.15	.550	8

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

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CHARLESTON BRANCH—POST OFFICE BOX 8337 • SOUTH CHARLESTON, WEST VIRGINIA 25303-0337 • (304) 744-9864

Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-13-15 0910
DATE/TIME RECEIVED: 01-13-15 1355
LABORATORY ID: HGE 150113-1

SAMPLE ID	TDS mg/L	MBAS mg/L	TOC mg/L	SO_4 mg/L	Cl^- mg/L	Al mg/L	As mg/L	Ba mg/L	Ca mg/L
RAYMOND DANIELS	236	.05	1.4	23.0	18.6	<.02	<.0005	.363	58.7

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

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Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

DATE & TIME SAMPLED: 01-13-15 0910

SAMPLED BY: C. ROSS

DATE & TIME RECEIVED: 01-13-15 1355

ANALYST: MW

DATE & TIME ANALYZED: 01-13-15 1427

METHOD: 3

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
RAYMOND DANIELS	ABSENT	ABSENT	01-13-15 0910	HGE 150113-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

* Client provided

Approved

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501D49

Date Reported: 1/21/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/13/2015 9:10:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/14/2015
Lab ID:	1501D49-01A	**Matrix:**	Liquid
Client Sample ID:	15004 RAYMOND DANIELS	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.12	NA	mg/L	01/16/15 9:47AM	01/16/15 10:36PM	PA/VA
TPH (Oil Range)	ND	NA	0.29	NA	mg/L	01/16/15 9:47AM	01/16/15 10:36PM	
Surr: o-Terphenyl	95.0	NA	28.3-152	NA	%REC	01/16/15 9:47AM	01/16/15 10:36PM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	17.3	NA	10.0	NA	µg/L		01/19/15 2:35PM	
Ethane	ND	NA	15.0	NA	µg/L		01/19/15 2:35PM	
Propane	ND	NA	20.0	NA	µg/L		01/19/15 2:35PM	
Butane	ND	NA	25.0	NA	µg/L		01/19/15 2:35PM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	01/15/15 12:49PM	01/19/15 5:22PM	PA/VA
Surr: 2,5-Dibromotoluene	101	NA	37.2-152	NA	%REC	01/15/15 12:49PM	01/19/15 5:22PM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	01/15/15 12:49PM	01/19/15 5:22PM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	01/15/15 12:49PM	01/19/15 5:22PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	01/15/15 12:49PM	01/19/15 5:22PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	01/15/15 12:49PM	01/19/15 5:22PM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	01/15/15 12:49PM	01/19/15 5:22PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	93.3	NA	61.2-135	NA	%REC	01/15/15 12:49PM	01/19/15 5:22PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Raymond Daniels

Address 612 Bear Fork Rd

Phone 304 524 2506

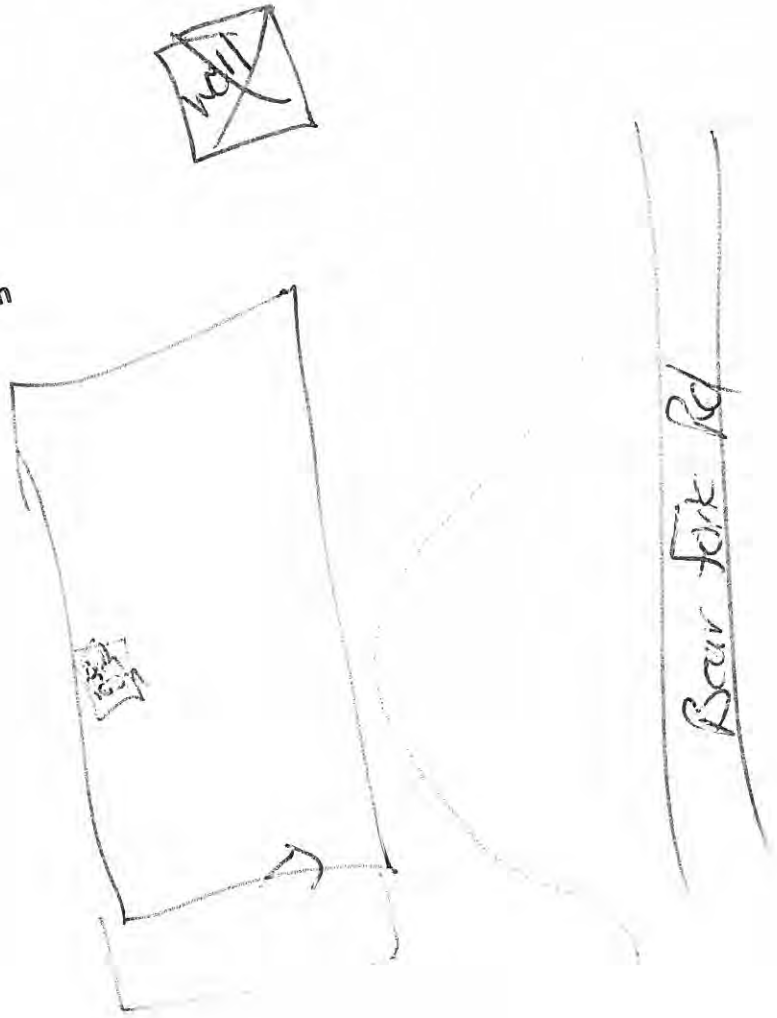
Depth of well (if known- estimate if not) 50 ft

GPS Coordinates

Lat 38° 14' 53.5"

Long 81° 56' 01.3"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-13-15 0930
DATE/TIME RECEIVED: 01-13-15 1355
LABORATORY ID: HGE 150113-2

SAMPLE ID	FIELD pH units	FIELD COND µmhos	FIELD TEMP °C	LATITUDE	LONGITUDE	pH units	Fe mg/L	Mn mg/L	TSS mg/L
LEWIS MONTCASTLE	7.40	335	10	38°14'50.2N	81°56'06.0W	7.0	3.24	.450	5

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

APPROVED D Bu

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Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

MAIN OFFICE—POST OFFICE BOX 650 • BRIDGEPORT, WEST VIRGINIA 26330 • (304) 623-6549
CHARLESTON BRANCH—POST OFFICE BOX 8337 • SOUTH CHARLESTON, WEST VIRGINIA 25303-0337 • (304) 744-9864

Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-13-15 0930
DATE/TIME RECEIVED: 01-13-15 1355
LABORATORY ID: HGE 150113-2

SAMPLE ID	TDS mg/L	MBAS mg/L	TOC mg/L	SO_4 mg/L	Cl^- mg/L	Al mg/L	As mg/L	Ba mg/L	Ca mg/L
LEWIS MONTCASTLE	180	<.01	1.4	23.3	5.69	<.02	.0007	.105	28.3

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

APPROVED

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 01-13-15 0930

DATE & TIME RECEIVED: 01-13-15 1355

DATE & TIME ANALYZED: 01-13-15 1427

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
LEWIS MONTCASTLE	PRESENT	ABSENT	01-13-15 0930	HGE 150113-2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501D49

Date Reported: 1/21/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/13/2015 9:30:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/14/2015
Lab ID:	1501D49-02A	**Matrix:**	Liquid
Client Sample ID:	15005 LEWIS MONTCASTLE	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	0.50	NA	0.12	NA	mg/L	01/16/15 9:47AM	01/16/15 11:09PM	PA/VA
TPH (Oil Range)	ND	NA	0.30	NA	mg/L	01/16/15 9:47AM	01/16/15 11:09PM	
Surr: o-Terphenyl	84.8	NA	28.3-152	NA	%REC	01/16/15 9:47AM	01/16/15 11:09PM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	42.8	NA	10.0	NA	µg/L		01/19/15 2:41PM	
Ethane	ND	NA	15.0	NA	µg/L		01/19/15 2:41PM	
Propane	ND	NA	20.0	NA	µg/L		01/19/15 2:41PM	
Butane	ND	NA	25.0	NA	µg/L		01/19/15 2:41PM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	01/15/15 12:49PM	01/19/15 5:55PM	PA/VA
Surr: 2,5-Dibromotoluene	97.5	NA	37.2-152	NA	%REC	01/15/15 12:49PM	01/19/15 5:55PM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	01/15/15 12:49PM	01/19/15 5:55PM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	01/15/15 12:49PM	01/19/15 5:55PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	01/15/15 12:49PM	01/19/15 5:55PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	01/15/15 12:49PM	01/19/15 5:55PM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	01/15/15 12:49PM	01/19/15 5:55PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	95.8	NA	61.2-135	NA	%REC	01/15/15 12:49PM	01/19/15 5:55PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Lewis Montcastle

Address 585 Bear Fork Rd

Phone 304 524 2379

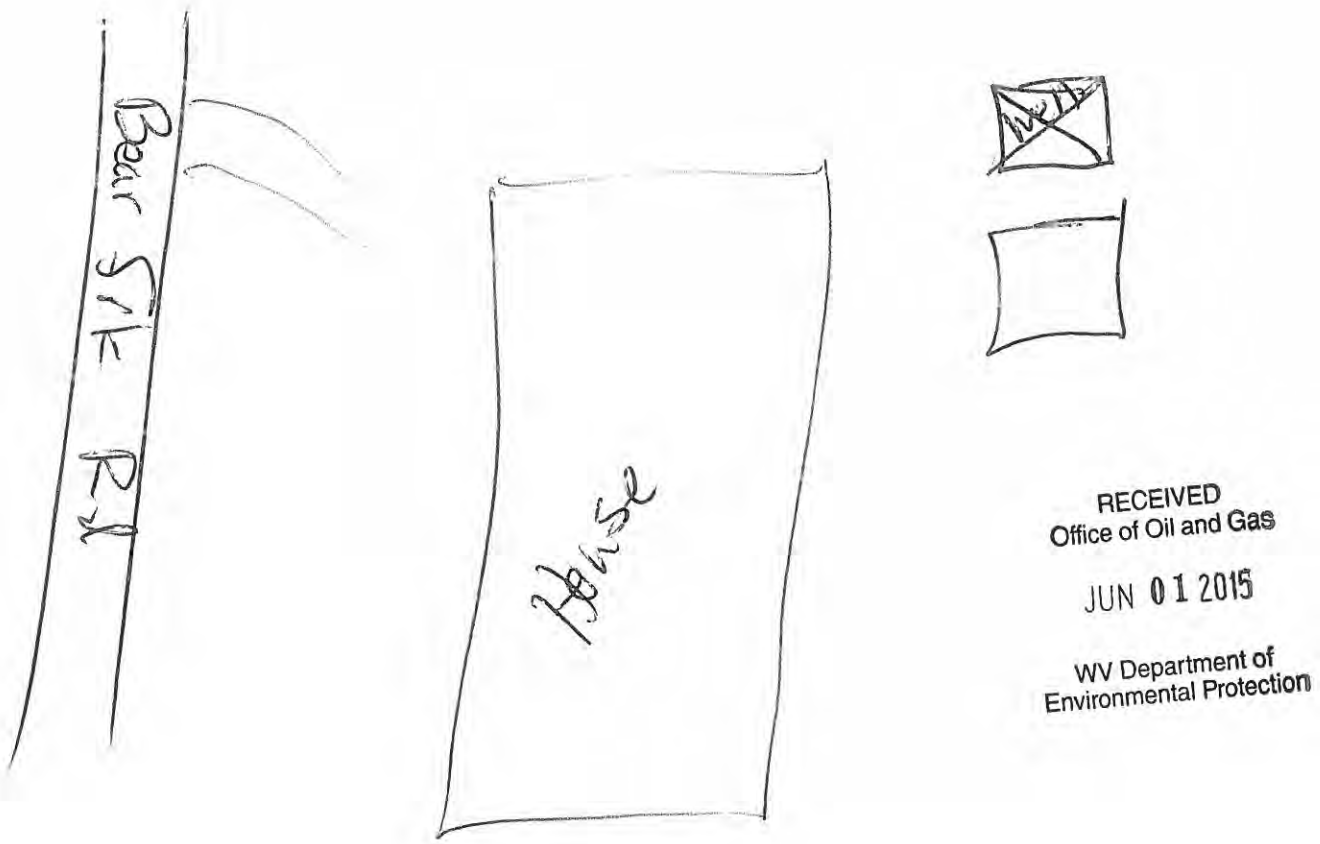
Depth of well (if known- estimate if not) 25'

GPS Coordinates

Lat 38° 14' 50.2"

Long 81° 56' 06.0"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



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Office of Oil and Gas

JUN 01 2015

WV Department of
Environmental Protection

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

PARAMETER	DATE ANALYZED	ANALYST INITIALS	METHOD	UNITS	MRL	MDL
pH	1.14.15	KH	SM22nd 4500 HB	S.U	2.0 – 10.0	.1
Hot Acid			SM22nd 2310 B (4a)	mg/L	20.	1
Mineral Acid			SM22nd 2310, Titrimetric	mg/L		1
Alkalinity			SM22nd 2320 B	mg/L	20.	1
NH_3N			SM22nd 4500NH_3B + SM22th 4500 NH_3C	mg/L	10.	.10
Settleable Solids			SM 22nd 2540 F	ml/L		.1
Turbidity			SM22nd 2130 B	NTU	1.	.05
Conductivity			EPA 120.1 Rev-1982	µmhos	20.	1
TKN			SM22nd 4500 N org + SM22nd 4500 NH_3C	mg/L	10.	.10
TSS – Total Suspended Solids	1.14.15	BDL	SM22nd 2540 D	mg/L	50.	4
TDS – Total Dissolved Solids			SM22nd 2540 C	mg/L	450.	4
Sulfate	1-15-15	DC	EPA 300.0 Rev 2.1-1993	mg/L	1.0 / 10.	1.0
Chloride	1-15-15	DC	EPA 300.0 Rev 2.1-1993	mg/L	.50	.50
Nitrate			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Nitrite			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Fluoride			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Nitrate-Nitrite			EPA 300.0 Rev 2.1-1993+Calc	mg/L		.01
Ortho-Phosphate			EPA 300.0 Rev 2.1-1993	mg/L	.05	.05
Aluminum	1/16/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Aluminum			EPA 200.7 Rev.4.4-1994	mg/L	.25	.02
Calcium	1/16/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.50	.10
Dissolved Calcium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.10
Chromium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Dissolved Chromium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Hardness (calc)			SM22nd 2340B+EPA 200.7 Rev 4.4-1994	mg/L		1
Iron	1/16/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Iron			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Magnesium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Dissolved Magnesium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Manganese	1/16/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.25	.002
Dissolved Manganese			EPA 200.7 Rev 4.4-1994	mg/L	.25	.002
Sodium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.03
Zinc (ICP)			EPA 200.7 Rev 4.4-1994	mg/L	.05	.004
MBAS	1-13-15	JW	SM22nd 5540C	mg/L	.01	.01
Cyanide			EPA 335.4 Rev 1.0-1993	mg/L	.005	.002
Ortho-Phosphate			SM22nd 4500P B.5 + 4500PE	mg/L	.02	.01
Phenol			EPA 420.4 1983	mg/L	.010	.004
Sulfide			SM22nd 4500 S2 F	mg/L	5.0	.50
Hexavalent Chromium			SM22nd 3500 – Cr-B	mg/L	.02	.007
TPO_4			SM22nd 4500 P E + SM22th 4500 P B.5	mg/L	.02	.010
Oil & Grease			EPA 1664A Gravimetric Extraction	mg/L	5.0	3.0
BOD			SM22nd 5210B	mg/L	3.0	2.0
COD			SM22nd 5220D	mg/L	20	6.0
TOC	1-15-15 (1706)	MW	SM22nd 5310B	mg/L	5.0	1.0
Dissolved Selenium			SM22nd 3113 B	mg/L	.005	.0006
Total Selenium			SM22nd 3113 B	mg/L	.005	.0006
Total Recoverable Selenium			SM22nd 3113 B	mg/L	.005	.0006
Chromium			SM22nd 3113 B	mg/L	.001	.0002
Dissolved Chromium			SM22nd 3113 B	mg/L	.001	.0002
Total Selenium (AFS)			SM22nd 3114B	mg/L	.001	.0006
Total Recoverable Selenium			SM22nd 3114B	mg/L	.001	.0006
Dissolved Selenium			SM22nd 3114B	mg/L	.001	.0006

EPA-United States Environmental Protection Agency, "Method for the Chemical Analysis of Water and Waste," EPA 600/4-79-020, March 1983.
SM-Standard Methods for the Examination of Water and Wastewater, 22nd Edition. MRL-Minimum Reporting Level, MDL-Method Detection Level

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

PARAMETER	DATE ANALYZED	ANALYST INITIALS	METHOD	UNITS	MRL	MDL
Antimony			SM22nd 3113 B	mg/L	.0025	.0004
Arsenic	1-20 15	PC	SM22nd 3113 B	mg/L	.005	.0005
Beryllium			SM22nd 3113 B	mg/L	.0005	.0001
Dissolved Beryllium			SM22nd 3113 B	mg/L	.0005	.0001
Cadmium			SM22nd 3113 B	mg/L	.0005	.0001
Dissolved Cadmium			SM22nd 3113 B	mg/L	.0005	.0001
Copper			SM22nd 3113 B	mg/L	.002	.0006
Dissolved Copper			SM22nd 3113 B	mg/L	.002	.0006
Lead			SM22nd 3113 B	mg/L	.005	.0005
Dissolved Lead			SM22nd 3113 B	mg/L	.005	.0005
Silver			SM22nd 3113 B	mg/L	.001	.0002
Dissolved Silver			SM22nd 3113 B	mg/L	.001	.0002
Thallium			SM22nd 3113 B	mg/L	.0025	.0003
Dissolved Thallium			SM22nd 3113 B	mg/L	.0025	.0003
Mercury			EPA 245.1 Rev 3.0-1994	mg/L	.001	.0002
Barium	1/16/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.05	.002
Beryllium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Dissolved Beryllium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Boron			EPA 200.7 Rev 4.4-1994	mg/L	.05	.03
Cadmium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Dissolved Cadmium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Cobalt			EPA 200.7 Rev 4.4-1994	mg/L	.05	.01
›pper			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
›issolved Copper			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Molybdenum			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Nickel			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Potassium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Dissolved Potassium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Silica			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Silicon			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Silver			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Dissolved Silver			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Strontium			EPA 200.7 Rev 4.4-1994	mg/L	.01	.001
Tin			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Titanium			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Vanadium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Bromide			EPA 300.0 Rev 2.1-1993	mg/L	.25	.10
Chlorine Residual (AT LAB)			SM22nd 4500CL G	mg/L	1.0	.01
Dissolved Oxygen			SM22nd 4500 O G	mg/L		1
Volatile Suspended Solids			EPA 160.4	mg/L		1
Total Solids			SM22nd 2540 B	mg/L		.01
% Solids			EPA 160.3	mg/L		1.0
Ferrous Iron			SM22 3500 Fe-D	mg/L	.60	.02
Ferric Iron			Calculation	mg/L		.05
Chloride			SM22nd 4500-Cl-E	mg/L	1.0	.25
Nitrite			EPA 353.2 Rev 2.0-1993	mg/L	.05	.004
Nitrate			EPA 353.2 Rev 2.0-1993	mg/L	.05	
Nitrite-Nitrate			EPA 353.2 Rev 2.0-1993	mg/L	.05	.02
Specific Gravity			Calculation	mg/L		
Total Nitrogen			Calculation	mg/L		

EPA-United States Environmental Protection Agency, "Method for the Chemical Analysis of Water and Waste," EPA 600/4-79-020, March 1983.
SM-Standard Methods for the Examination of Water and Wastewater, 22nd Edition. MRL-Minimum Reporting Level, MDL-Method Detection Level

CHAIN OF CUS Y RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Griffithsville Unit 2 UIC
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
___ Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Raymond Daniels					1/13/15	910	X														12	7.50	Failed	450			10
Colilert #911 14					↓																						
Lewis Montcastle						9:30	X														10	7.40	Failed	335			10
Colilert #910 14																											

Comments

Records retained for 5 years

Laboratory Comments:
Temperature Upon Receipt: 1.6
Bottles Preserved? Y N
Temp upon Receipt: 5.9

Relinquished by:	Date	Time	Received by:	Date	Time
	1/13/15	1030		1/13/15	1030
Relinquished by:	Date	Time	Received by:	Date	Time
	1/13/15	1353		1/13/15	1355

CHAIN OF CUSTODY RECORD

REIC
Research Environmental & Industrial Consultants, Inc.
MAIN LABORATORY & CORPORATE HEADQUARTERS
P.O. Box 288 • 220 Industrial Park Rd. Beckley, WV 25801
800-966-5100 • 304-255-5476 • www.reiclabs.com

Phone: [illegible]
Contact Person: [illegible]
Phone: [illegible]
Company: [illegible] Fax: [illegible] Permit: [illegible]
Address: [illegible] City: [illegible] State: [illegible] Zip: [illegible]
Billing Address (if different): [illegible]
City: [illegible] State: [illegible] Zip: [illegible]
Site ID # / State: [illegible] Project ID: [illegible] Sampler: [illegible]

MID OHIO VALLEY
Service Center
[illegible]
Ashland, KY 41101
[illegible]

SHENANDOAH
Service Center
[illegible]
Victoria VA 24482
[illegible]

ROANOKE
Service Center
[illegible]
Roanoke, VA 24019
[illegible]

MORGANTOWN
Service Center
[illegible]
Westover, WV 26501
[illegible]

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME: NORMAL (X) | RUSH TURNAROUND: 5 DAY | 3 DAY | 2 DAY | 1 DAY
[illegible]

ANALYSIS & METHOD REQUESTED
[illegible]

Preservative Codes:
0. None
1. Hydrochloric Acid
2. Nitric Acid
3. Sulfuric Acid
4. Sodium Thiosulfate
5. Sodium Hydroxide + Sodium Ascorbate
6. Sodium Bisulfate
7. Ascorbic Acid
8. [illegible]
(Use blank area if using preservatives not listed)

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/ Grab	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

ENTER PRESERVATIVE CODE

COMMENTS:

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

Temperature of arrival: [illegible] °C | ICE? Y (X) N | Containers provided by: (X) REIC ( ) Client

Relinquished by: [illegible] Date/Time: [illegible] Received by: [illegible] Date/Time: [illegible]

FAX RESULTS ( ) EMAIL RESULTS ( )

COC-INFR 111311

Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-15-15 0900
DATE/TIME RECEIVED: 01-15-15 1330
LABORATORY ID: HGE 150115-1

SAMPLE ID	FIELD pH units	FIELD COND µmhos	FIELD TEMP °C	LATITUDE	LONGITUDE	pH units	Fe mg/L	Mn mg/L	TSS mg/L
NADA STANLEY	8.20	945	3.5	38°14'33.2N	81°56'34.6W	7.5	.06	<.002	<4

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

APPROVED

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

Sturm Environmental Services

COMPANY: H.G. ENERGY, LLC.
SAMPLE ID: GRIFFITHSVILLE UIC #2
SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-15-15 0900
DATE/TIME RECEIVED: 01-15-15 1330
LABORATORY ID: HGE 150115-1

SAMPLE ID	TDS mg/L	MBAS mg/L	TOC mg/L	SO_4 mg/L	Cl^- mg/L	Al mg/L	As mg/L	Ba mg/L	Ca mg/L
NADA STANLEY	499	<.01	1.1	7.40	9.11	.03	<.0005	.176	20.4

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of Environmental Protection

APPROVED

MAIN OFFICE—POST OFFICE BOX 650 • BRIDGEPORT, WEST VIRGINIA 26330 • (304) 623-6549
CHARLESTON BRANCH—POST OFFICE BOX 8337 • SOUTH CHARLESTON, WEST VIRGINIA 25303-0337 • (304) 744-9864

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 01-15-15 0900

DATE & TIME RECEIVED: 01-15-15 1330

DATE & TIME ANALYZED: 01-15-15 1352

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
NADA STANLEY	ABSENT	ABSENT	01-15-15 0900	HGE 150115-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501K32

Date Reported: 2/3/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/15/2015 9:00:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/21/2015
Lab ID:	1501K32-01A	**Matrix:**	Liquid
Client Sample ID:	15011 NADA STANLEY	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.14	NA	mg/L	01/22/15 9:36AM	01/23/15 7:23AM	PA/VA
TPH (Oil Range)	ND	NA	0.34	NA	mg/L	01/22/15 9:36AM	01/23/15 7:23AM	
Surr: o-Terphenyl	74.7	NA	28.3-152	NA	%REC	01/22/15 9:36AM	01/23/15 7:23AM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	ND	NA	10.0	NA	µg/L		01/29/15 4:49PM	
Ethane	ND	NA	15.0	NA	µg/L		01/29/15 4:49PM	
Propane	ND	NA	20.0	NA	µg/L		01/29/15 4:49PM	
Butane	ND	NA	25.0	NA	µg/L		01/29/15 4:49PM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	01/22/15 9:51AM	01/27/15 2:28PM	PA/VA
Surr: 2,5-Dibromotoluene	110	NA	37.2-152	NA	%REC	01/22/15 9:51AM	01/27/15 2:28PM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	01/22/15 9:51AM	01/27/15 2:28PM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	01/22/15 9:51AM	01/27/15 2:28PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	01/22/15 9:51AM	01/27/15 2:28PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	01/22/15 9:51AM	01/27/15 2:28PM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	01/22/15 9:51AM	01/27/15 2:28PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	88.2	NA	61.2-135	NA	%REC	01/22/15 9:51AM	01/27/15 2:28PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Nada Stanley

Address 369372 Bear Fork Rd

Phone 304 524 2052

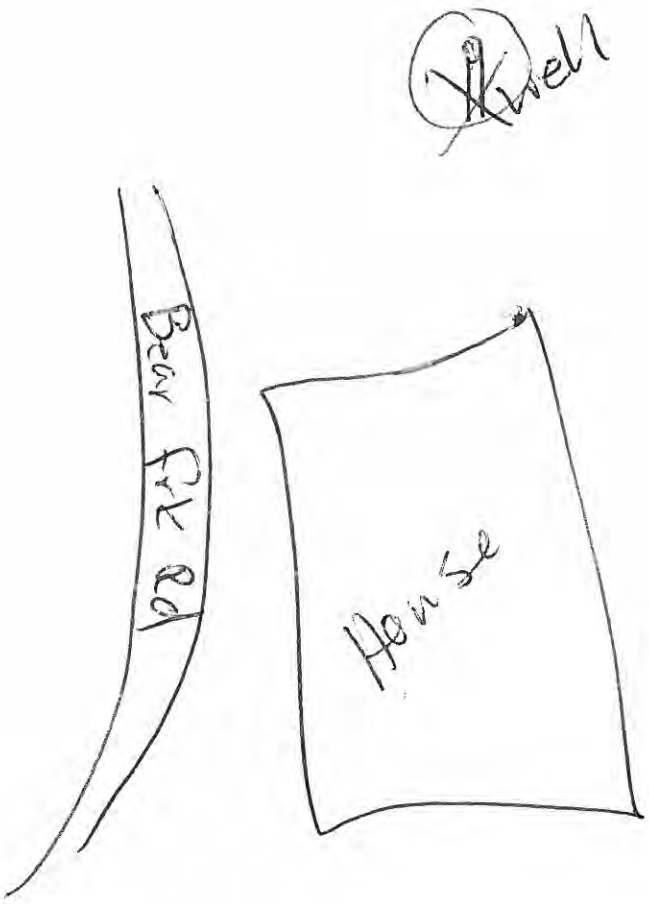
Depth of well (if known- estimate if not) 325'

GPS Coordinates

Lat 38° 14' 33.2"

Long 81° 50' 34.6"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



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WV Department of
Environmental Protection

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

PARAMETER	DATE ANALYZED	ANALYST INITIALS	METHOD	UNITS	MRL	MDL
pH	1.15.15	KH/SW	SM22nd 4500 HB	S.U	2.0 – 10.0	.1
Hot Acid			SM22nd 2310 B (4a)	mg/L	20.	1
Mineral Acid			SM22nd 2310, Titrimetric	mg/L		1
Alkalinity			SM22nd 2320 B	mg/L	20.	1
NH_3N			SM22nd 4500NH_3B + SM22th 4500 NH_3C	mg/L	10.	.10
Settleable Solids			SM 22nd 2540 F	ml/L		.1
Turbidity			SM22nd 2130 B	NTU	1.	.05
Conductivity			EPA 120.1 Rev-1982	µmhos	20.	1
TKN			SM22nd 4500 N org + SM22nd 4500 NH_3C	mg/L	10.	.10
TSS – Total Suspended Solids	1-16-15	DC	SM22nd 2540 D	mg/L	50.	4
TDS – Total Dissolved Solids			SM22nd 2540 C	mg/L	450.	4
Sulfate	1-16-15	DC	EPA 300.0 Rev 2.1-1993	mg/L	1.0 / 10.	1.0
Chloride	1-16-15	DC	EPA 300.0 Rev 2.1-1993	mg/L	.50	.50
Nitrate			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Nitrite			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Fluoride			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Nitrate-Nitrite			EPA 300.0 Rev 2.1-1993+Calc	mg/L		.01
Ortho-Phosphate			EPA 300.0 Rev 2.1-1993	mg/L	.05	.05
Aluminum	1/19/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Aluminum			EPA 200.7 Rev.4.4-1994	mg/L	.25	.02
Calcium	1/19/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.50	.10
Dissolved Calcium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.10
Chromium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Dissolved Chromium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Hardness (calc)			SM22nd 2340B+EPA 200.7 Rev 4.4-1994	mg/L		1
Iron	1/19/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Iron			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Magnesium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Dissolved Magnesium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Manganese	1/19/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.25	.002
Dissolved Manganese			EPA 200.7 Rev 4.4-1994	mg/L	.25	.002
Sodium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.03
Zinc (ICP)			EPA 200.7 Rev 4.4-1994	mg/L	.05	.004
MBAS	1-16-15	SW	SM22nd 5540C	mg/L	.01	.01
Cyanide			EPA 335.4 Rev 1.0-1993	mg/L	.005	.002
Ortho-Phosphate			SM22nd 4500P B.5 + 4500PE	mg/L	.02	.01
Phenol			EPA 420.4 1983	mg/L	.010	.004
Sulfide			SM22nd 4500 S2 F	mg/L	5.0	.50
Hexavalent Chromium			SM22nd 3500 – Cr-B	mg/L	.02	.007
TPO_4			SM22nd 4500 P E + SM22th 4500 P B.5	mg/L	.02	.010
Oil & Grease			EPA 1664A Gravimetric Extraction	mg/L	5.0	3.0
BOD			SM22nd 5210B	mg/L	3.0	2.0
COD			SM22nd 5220D	mg/L	20	6.0
TOC	1-20-15 (1440)	MW	SM22nd 5310B	mg/L	5.0	1.0
Dissolved Selenium			SM22nd 3113 B	mg/L	.005	.0006
Total Selenium			SM22nd 3113 B	mg/L	.005	.0006
Total Recoverable Selenium			SM22nd 3113 B	mg/L	.005	.0006
Chromium			SM22nd 3113 B	mg/L	.001	.0002
Dissolved Chromium			SM22nd 3113 B	mg/L	.001	.0002
Total Selenium (AFS)			SM22nd 3114B	mg/L	.001	.0006
Total Recoverable Selenium			SM22nd 3114B	mg/L	.001	.0006
Dissolved Selenium			SM22nd 3114B	mg/L	.001	.0006

EPA-United States Environmental Protection Agency, "Method for the Chemical Analysis of Water and Waste," EPA 600/4-79-020, March 1983.
SM-Standard Methods for the Examination of Water and Wastewater, 22nd Edition. MRL-Minimum Reporting Level, MDL-Method Detection Level

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WV Department of
Environmental Protection

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

PARAMETER	DATE ANALYZED	ANALYST INITIALS	METHOD	UNITS	MRL	MDL
Antimony			SM22nd 3113 B	mg/L	.0025	.0004
Arsenic	1.20.15	RE	SM22nd 3113 B	mg/L	.005	.0005
Beryllium			SM22nd 3113 B	mg/L	.0005	.0001
Dissolved Beryllium			SM22nd 3113 B	mg/L	.0005	.0001
Cadmium			SM22nd 3113 B	mg/L	.0005	.0001
Dissolved Cadmium			SM22nd 3113 B	mg/L	.0005	.0001
Copper			SM22nd 3113 B	mg/L	.002	.0006
Dissolved Copper			SM22nd 3113 B	mg/L	.002	.0006
Lead			SM22nd 3113 B	mg/L	.005	.0005
Dissolved Lead			SM22nd 3113 B	mg/L	.005	.0005
Silver			SM22nd 3113 B	mg/L	.001	.0002
Dissolved Silver			SM22nd 3113 B	mg/L	.001	.0002
Thallium			SM22nd 3113 B	mg/L	.0025	.0003
Dissolved Thallium			SM22nd 3113 B	mg/L	.0025	.0003
Mercury			EPA 245.1 Rev 3.0-1994	mg/L	.001	.0002
Barium	1/19/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.05	.002
Beryllium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Dissolved Beryllium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Boron			EPA 200.7 Rev 4.4-1994	mg/L	.05	.03
Cadmium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Dissolved Cadmium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Cobalt			EPA 200.7 Rev 4.4-1994	mg/L	.05	.01
Copper			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Dissolved Copper			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Molybdenum			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Nickel			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Potassium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Dissolved Potassium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Silica			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Silicon			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Silver			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Dissolved Silver			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Strontium			EPA 200.7 Rev 4.4-1994	mg/L	.01	.001
Tin			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Titanium			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Vanadium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Bromide			EPA 300.0 Rev 2.1-1993	mg/L	.25	.10
Chlorine Residual (AT LAB)			SM22nd 4500CL G	mg/L	1.0	.01
Dissolved Oxygen			SM22nd 4500 O G	mg/L		1
Volatile Suspended Solids			EPA 160.4	mg/L		1
Total Solids			SM22nd 2540 B	mg/L		.01
% Solids			EPA 160.3	mg/L		1.0
Ferrous Iron			SM22 3500 Fe-D	mg/L	.60	.02
Ferric Iron			Calculation	mg/L		.05
Chloride			SM22nd 4500-Cl-E	mg/L	1.0	.25
Nitrite			EPA 353.2 Rev 2.0-1993	mg/L	.05	.004
Nitrate			EPA 353.2 Rev 2.0-1993	mg/L	.05	
Nitrite-Nitrate			EPA 353.2 Rev 2.0-1993	mg/L	.05	.02
Specific Gravity			Calculation	mg/L		
Total Nitrogen			Calculation	mg/L		

EPA-United States Environmental Protection Agency, "Method for the Chemical Analysis of Water and Waste," EPA 600/4-79-020, March 1983.
SM-Standard Methods for the Examination of Water and Wastewater, 22nd Edition. MRL-Minimum Reporting Level, MDL-Method Detection Level

CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

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WV Department of
Environmental Protection

REPORT TO: Client Name: HG Energy II
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Griffithsville UIC 2
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Nada Stanley					1/15/15	900	X	X			X	X	X	X	X							12	8.20	Pooled	945			3.5

Comments: Colilert # 753 14

Records retained for 5 years

Laboratory Comments:
Temperature Upon Receipt: 1.2
Bottles Preserved? Y N

Relinquished by:	Date	Time	Received by:	Date	Time
	1/15/15	1330		1/15/15	1330
Relinquished by:	Date	Time	Received by:	Date	Time

Temp upon Receipt:

AIN OF CUSTODY RECORD

REIC
esearch Environmental & Industrial Consultants, Inc.
IAIN LABORATORY & CORPORATE HEADQUARTERS:
PO Box 286 • 225 Industrial Park Rd • Beaver, WV 25813
800-999-0105 • 304-255-2500 • www.reic.com

)-OHIO VALLEY
ervice Center
01 17th Street
ıland, KY 41101
06 393 5027

SHENANDOAH
Service Center
1537 Commerce Rd Ste 201
Verona, VA 24482
540 248-0103

ROANOKE
Service Center
3029 C Peters Creek Rd
Roanoke VA 24019
540 /97 1276

MORGANTOWN
Service Center
16 Commerce Drive
Westover, WV 26501
304 /41 58o

Client: PO #:

Contact Person: Phone:

Address: City: State: Zip:

Billing Address (if different)

City: State: Zip:

Site ID & State: Project ID: Sampler:

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME	RUSH TURNAROUND			
NORMAL	5 DAY	3 DAY	2 DAY	1 DAY

Rush work needs prior laboratory approval and will incur additional charges

ANALYSIS & METHOD REQUESTED

BTEX

Preservative Codes:

0 None
1 Hydrochloric Acid
2 Nitric Acid
3 Sulfuric Acid
4 Sodium Bisulfate
5 Sodium Hydroxide/ Sodium Acetate
6 Sodium Hydroxide
7 Ascorbic Acid
8
9

*(Use blank lines if using preservatives not listed)

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/ Grab								

ENTER PRESERVATIVE CODE

COMMENTS:

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WV Department of
Environmental Protection

alytical requests are subject to REIC's standard terms and conditions

Temperature at arrival: °C ICED? Y N

Containers provided by: REIC Client

FAX RESULTS EMAIL RESULTS

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: DAVID PAULEY
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-27-15 0945

DATE/TIME RECEIVED: 01-27-15 1045

LABORATORY ID: HGE 150127-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE ANALYZED	ANALYST
FIELD pH	8.30	units			01-27-15	CR
FIELD TEMP	13	°C			01-27-15	CR
FIELD COND	625	µmhos			01-27-15	CR
LATTITUDE	38°14'22.5N				01-27-15	CR
LONGITUDE	81°57'35.0W				01-27-15	CR
pH	7.7	units	SM 22nd 4500 H B	.1	01-27-15	KH
Fe	.45	mg/L	EPA 200.7 Rev 4.4-1994	.02	01-29-15	TW
Mn	.034	mg/L	EPA 200.7 Rev 4.4-1994	.002	01-29-15	TW
ɜS	4	mg/L	SM22nd 2540 D	4	01-28-15	BB/EK
TDS	341	mg/L	SM22nd 2540 C	4	01-28-15	BB/EK
MBAS	.02	mg/L	SM22nd 5540C	.01	01-28-15	SW
TOC	1.6	mg/L	SM22nd 5310B	1.0	01-28-15	MW
SO_4	<1.0	mg/L	EPA 300.0 Rev 2.1-1993	1.0	02-02-15	DC
Cl^-	64.5	mg/L	EPA 300.0 Rev 2.1-1993	.50	01-29-15	DC
Al	<.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	01-29-15	TW
As	.0064	mg/L	SM22nd 3113 B	.0005	01-28-15	RC
Ba	.502	mg/L	EPA 200.7 Rev 4.4-1994	.002	01-29-15	TW
Ca	11.3	mg/L	EPA 200.7 Rev 4.4-1994	.10	01-29-15	TW

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved D Bland

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: TW/MW

METHOD: 3

DATE & TIME SAMPLED: 01-27-15 0945

DATE & TIME RECEIVED: 01-27-15 1045

DATE & TIME ANALYZED: 01-27-15 1412

LABORATORY ID: HGE 150127-1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
~~GREG~~ DAVID PAULEY	PRESENT	ABSENT	01-27-15 0945	HGE 150127-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501U00

Date Reported: 2/11/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/27/2015 9:45:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/29/2015
Lab ID:	1501U00-01A	**Matrix:**	Liquid
Client Sample ID:	15012 DAVID PAULEY	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**	
TPH (Diesel Range)	8.70	NA	0.10	NA		mg/L	01/30/15 2:21PM	02/04/15 12:00PM	PA/VA
TPH (Oil Range)	7.38	NA	0.26	NA		mg/L	01/30/15 2:21PM	02/04/15 12:00PM	
Surr: o-Terphenyl	101	NA	28.3-152	NA		%REC	01/30/15 2:21PM	02/04/15 12:00PM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	34,100	NA	100	NA	E	µg/L		02/10/15 3:33PM	
Ethane	ND	NA	150	NA		µg/L		02/10/15 3:33PM	
Propane	ND	NA	200	NA		µg/L		02/10/15 3:33PM	
Butane	ND	NA	250	NA		µg/L		02/10/15 3:33PM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	01/30/15 9:55AM	02/08/15 3:58PM	PA/VA
Surr: 2,5-Dibromotoluene	105	NA	37.2-152	NA		%REC	01/30/15 9:55AM	02/08/15 3:58PM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 3:58PM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 3:58PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 3:58PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	01/30/15 9:55AM	02/08/15 3:58PM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 3:58PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	90.0	NA	61.2-135	NA		%REC	01/30/15 9:55AM	02/08/15 3:58PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name David Panley

Address 38 Silent Rebel Rd

Phone 304 524 2206

Depth of well (if known- estimate if not) 93'

GPS Coordinates

Lat 38° 14' 22.5"

Long 81° 57' 35.0"

Provide sketch below of approximate location of dwelling(s) and water wells(s)

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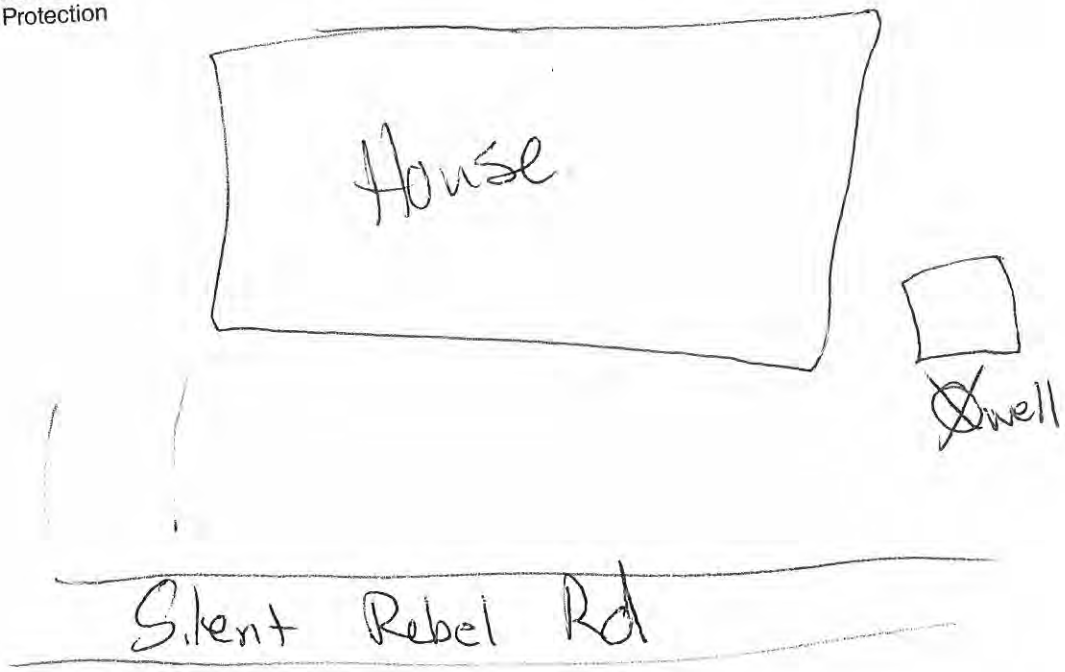
Environmental Protection



CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

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Office of Oil and Gas
JUN 01 2015
WV Department of Environmental Protection

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Griffithsville UIC 2
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY
☐	☐	☐

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
David Pawley					1/27/15	945	X				X		XX		X						X on file	12	8.30	Pooled	625			13
38 Silent Rebel Rd																												
Collect #																												
014 15																												

Comments

Records retained for 5 years

Relinquished by:	Date	Time	Received by:	Date	Time
	1/27/15	1045		1/27/15	1045
Relinquished by:	Date	Time	Received by:	Date	Time
	1/27/15	1340		1/27/15	1340

Laboratory Comments:
Temperature Upon Receipt: 1.1
Bottles Preserved? Y N
Temp upon Receipt: 5.1

APPENDIX E
Water Sources

Operator: HG Energy, LLC Year 2015 UIC Permit #

		Source # 17	Source # 18	Source # 19	Source # 20
Water Source Name		Greg Cooper	Tammy Cooper	Frank Adkins	Pamela Cooper
Northing Easting		-81.9593 38.24031	-81.9617 38.24411	-81.9564 38.24417	-81.9583 38.23931
Parameter	Units				
TPH - GRO	mg/L	NA	NA	NA	NA
TPH - DRO	mg/L	NA	NA	NA	NA
TPH - ORO	mg/L	NA	NA	NA	NA
BTEX	mg/L	NA	NA	NA	NA
Chloride	mg/L	50.2	64.9	77.5	97.0
Soidum	mg/L				
Total Dissolved Solids (TDS)	mg/L	346	330	422	490
Aluminum	mg/L	0.02	0.05	<.02	0.06
Arsenic	mg/L	0.0020	<.0005	0.0015	0.0015
Barium	mg/L	0.028	0.726	0.389	0.089
Iron	mg/L	0.03	5.34	0.12	0.08
Manganese	mg/L	0.002	0.437	0.019	0.005
pH	SU	8.3	7.1	8.5	8.6
Calcium	mg/L	0.26	48.2	8.45	1.19
Sulfate	mg/L	<1.0	<1.0	1.25	2.92
MBAS	mg/L	0.01	0.15	<.01	0.01
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100mL	Present	Present	Present	Absent

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: GREG COOPER
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-28-15 0845

DATE/TIME RECEIVED: 01-28-15 1348

LABORATORY ID: HGE 150128-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FIELD pH	8.90	units			01-28-15 0845	CR
FIELD TEMP	625	°C			01-28-15 0845	CR
FIELD COND	7.5	µmhos			01-28-15 0845	CR
LATTITUDE	38°14'25.1N				01-28-15 0845	CR
LONGITUDE	81°57'33.4W				01-28-15 0845	CR
pH	8.3	units	SM 22nd 4500 H B	.1	01-29-15	KHKH
Fe	.03	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-03-15	TW
Mn	.002	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-03-15	TW
TSS	<4	mg/L	SM22nd 2540 D	4	01-29-15	BB/EK
TDS	346	mg/L	SM22nd 2540 C	4	01-29-15	BB/EK
MBAS	.01	mg/L	SM22nd 5540C	.01	01-28-15	SW
TOC	1.6	mg/L	SM22nd 5310B	1.0	02-04-15 1740	MW
SO_4	<1.0	mg/L	EPA 300.0 Rev 2.1-1993	1.0	02-02-15	DC
Cl^-	50.2	mg/L	EPA 300.0 Rev 2.1-1993	.50	02-03-15	DC
Al	.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-03-15	TW
As	.0020	mg/L	SM22nd 3113 B	.0005	01-30-15	SB
Ba	.028	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-03-15	TW
Ca	.26	mg/L	EPA 200.7 Rev 4.4-1994	.10	02-03-15	TW

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved D Bruce

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW/TW

METHOD: 3

DATE & TIME SAMPLED: 01-28-15 0845

DATE & TIME RECEIVED: 01-28-15 1348

DATE & TIME ANALYZED: 01-28-15 1438

LABORATORY ID: HGE 150128-1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
GREG COOPER	PRESENT	ABSENT	01-28-15 0845	HGE 150128-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF) 9222 D
2 – Coliform, Fecal (MPN) COLILERT 18
3 – Coliform, Total (MPN) COLILERT
4 – Coliform, Total (P/A) 9223 B
5 – Hetertrophic Plate Count (HPC) 9215 B

Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501U00

Date Reported: 2/11/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/28/2015 8:45:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/29/2015
Lab ID:	1501U00-02A	**Matrix:**	Liquid
Client Sample ID:	15013 GREG COOPER	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	02/03/15 3:44PM	02/05/15 8:48AM	PA/VA
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	02/03/15 3:44PM	02/05/15 8:48AM	
Surr: o-Terphenyl	98.8	NA	28.3-152	NA		%REC	02/03/15 3:44PM	02/05/15 8:48AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	40,900	NA	100	NA	E	µg/L		02/10/15 3:51PM	
Ethane	ND	NA	150	NA		µg/L		02/10/15 3:51PM	
Propane	ND	NA	200	NA		µg/L		02/10/15 3:51PM	
Butane	ND	NA	250	NA		µg/L		02/10/15 3:51PM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	01/30/15 9:55AM	02/08/15 4:32PM	PA/VA
Surr: 2,5-Dibromotoluene	91.9	NA	37.2-152	NA		%REC	01/30/15 9:55AM	02/08/15 4:32PM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**					**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 4:32PM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 4:32PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 4:32PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	01/30/15 9:55AM	02/08/15 4:32PM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 4:32PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	89.8	NA	61.2-135	NA		%REC	01/30/15 9:55AM	02/08/15 4:32PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Greg Cooper

Address 10888 Bear Fork Rd Yawkey

Phone 304 524 7243

Depth of well (if known- estimate if not) 75'

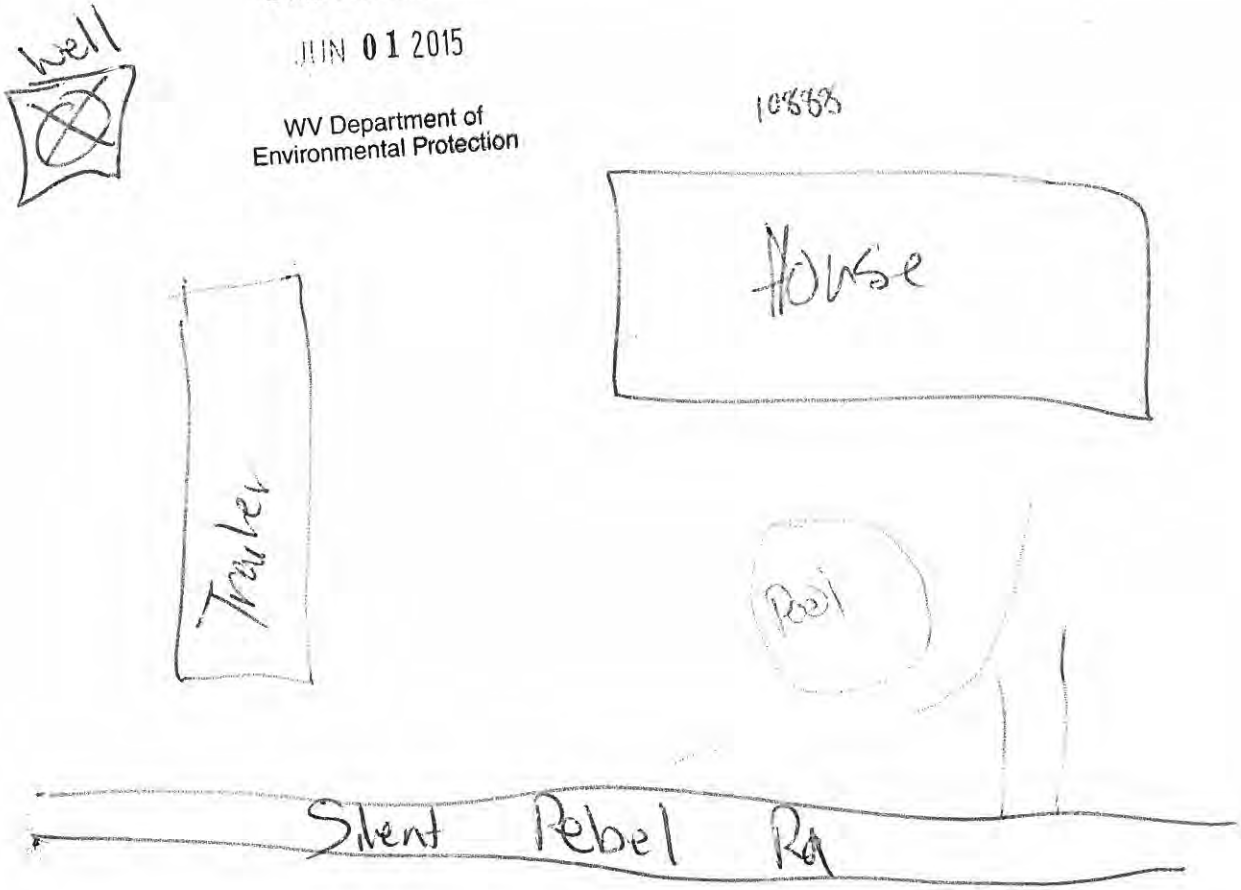
GPS Coordinates

Lat 38° 14' 25.1"

Long 81° 57' 33.4"

Provide sketch below of approximate location of dwelling(s) and water wells(s)

Both House & Trailer are on the same well



Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: TAMMY COOPER
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-28-15 0930

DATE/TIME RECEIVED: 01-28-15 1348

LABORATORY ID: HGE 150128-2

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FIELD pH	7.60	units			01-28-15 0930	CR
FIELD TEMP	650	°C			01-28-15 0930	CR
FIELD COND	9.5	µmhos			01-28-15 0930	CR
LATTITUDE	38°14'38.8N				01-28-15 0930	CR
LONGITUDE	81°57'42.1W				01-28-15 0930	CR
pH	7.1	units	SM 22nd 4500 H B	.1	01-29-15	KHKH
Fe	5.34	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-03-15	TW
Mn	.437	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-03-15	TW
TSS	7	mg/L	SM22nd 2540 D	4	01-29-15	BB/EK
TDS	330	mg/L	SM22nd 2540 C	4	01-29-15	BB/EK
MBAS	.15	mg/L	SM22nd 5540C	.01	01-28-15	SW
TOC	1.6	mg/L	SM22nd 5310B	1.0	02-04-15 1740	MW
SO_4	<1.0	mg/L	EPA 300.0 Rev 2.1-1993	1.0	02-02-15	DC
Cl^-	64.9	mg/L	EPA 300.0 Rev 2.1-1993	.50	02-03-15	DC
Al	.05	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-03-15	TW
As	<.0005	mg/L	SM22nd 3113 B	.0005	01-30-15	SB
Ba	.726	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-03-15	TW
Ca	48.2	mg/L	EPA 200.7 Rev 4.4-1994	.10	02-03-15	TW

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW/TW

METHOD: 3

DATE & TIME SAMPLED: 01-28-15 0930

DATE & TIME RECEIVED: 01-28-15 1348

DATE & TIME ANALYZED: 01-28-15 1438

LABORATORY ID: HGE 150128-2

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
TAMMY COOPER	PRESENT	ABSENT	01-28-15 0930	HGE 150128-2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF) 9222 D
2 – Coliform, Fecal (MPN) COLILERT 18
3 – Coliform, Total (MPN) COLILERT
4 – Coliform, Total (P/A) 9223 B
5 – Hetertrophic Plate Count (HPC) 9215 B

Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501U00

Date Reported: 2/11/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/28/2015 9:30:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/29/2015
Lab ID:	1501U00-03A	**Matrix:**	Liquid
Client Sample ID:	15014 TAMMY COOPER	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	02/03/15 3:44PM	02/05/15 9:21AM	PA/VA
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	02/03/15 3:44PM	02/05/15 9:21AM	
Surr: o-Terphenyl	36.4	NA	28.3-152	NA		%REC	02/03/15 3:44PM	02/05/15 9:21AM	
DISSOLVED GASES			**Method: GC-FID**					**Analyst: JC**	
Methane	10,700	NA	100	NA	E	µg/L		02/10/15 4:05PM	
Ethane	ND	NA	150	NA		µg/L		02/10/15 4:05PM	
Propane	ND	NA	200	NA		µg/L		02/10/15 4:05PM	
Butane	ND	NA	250	NA		µg/L		02/10/15 4:05PM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	01/30/15 9:55AM	02/08/15 5:05PM	PA/VA
Surr: 2,5-Dibromotoluene	91.8	NA	37.2-152	NA		%REC	01/30/15 9:55AM	02/08/15 5:05PM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**					**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 5:05PM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 5:05PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 5:05PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	01/30/15 9:55AM	02/08/15 5:05PM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	01/30/15 9:55AM	02/08/15 5:05PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	90.5	NA	61.2-135	NA		%REC	01/30/15 9:55AM	02/08/15 5:05PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Tammy Cooper

Address 42 Sarahs Ln Yawkey

Phone 304 524 7977

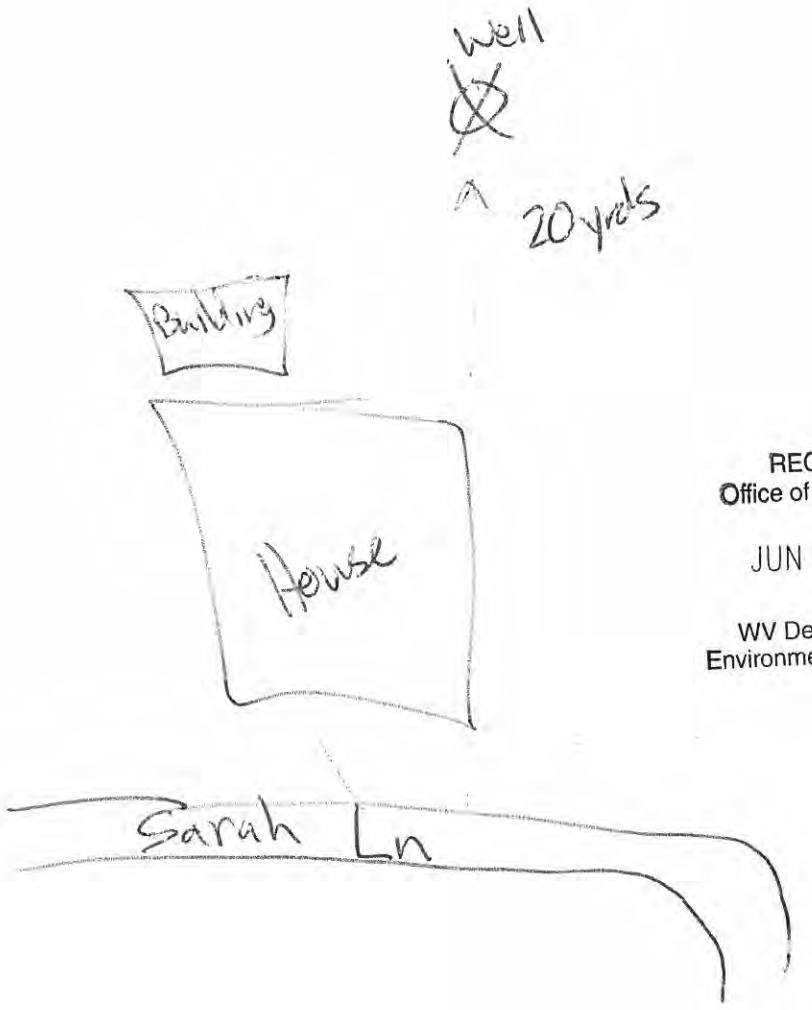
Depth of well (if known- estimate if not) 150'

GPS Coordinates

Lat 38° ~~43~~ 14' 38.8"

Long 81 57' 42.1"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Griffithsville UIC2
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ____ Standard
____ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
____ Date Needed

1 DAY	2 DAY	3 DAY
☐	☐	☐

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Greg Cooper (10888 Bear Fork)	COC#	0035	15		1/28/15	845	X								X							12	8.90	Pooled	625			7.5
Jammy Cooper (42 Sarahs Ln)	COC#	1019	15		↓	930	X								X							10	7.60	Pooled	650			9.5

Comments

Records retained for 5 years

Laboratory Comments: -9 < 0°C
Temperature Upon Receipt:
Bottles Preserved?

Relinquished by:	Date	Time	Received by:	Date	Time	Temp upon Receipt:
	1/28/15	1030		1/28/15	1030	5.4
	1/28/15	1348		1-28-15	1348	

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

CHAIN OF CUSTODY RECORD

REIC
Research Environmental & Industrial Consultants, Inc.
MAIN LABORATORY & CORPORATE HEADQUARTERS:
P.O. Box 786 • 225 Industrial Park Rd. Beaver, WV 25813
800-999-9105 • 304-255-2500 • www.reiclabs.com

MID-OHIO VALLEY Service Center
501 17th Street
Ashland, KY 41101
606-395-5007

SHENANDOAH Service Center
3537 Commerce Rd. Ste. 201
Moorefield, WV 26836
540-244-0183

ROANOKE Service Center
3029 C Peters Creek Rd.
Roanoke, VA 24019
540-777-1276

MORGANTOWN Service Center
16 Commerce Drive
Cheat Lake, WV 26591
304-241-3667

Client:
Contact Person:
QUOTE #:
Address:
Billing Address (if different):
Site ID & State:
PO #:
Phone:
Email:
City:
State:
Zip
Project ID:
Sampler:

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME	RUSH TURNAROUND			
X NORMAL	5 DAY	3 DAY	2 DAY	1 DAY

*Rush work needs prior laboratory approval and will incur additional charges.

ANALYSIS & METHOD REQUESTED

Preservative Codes:
0. None
1. Hydrochloric Acid
2. Nitric acid
3. Sulfuric Acid
4. Sodium thiosulfate
5. Sodium hydroxide and zinc acetate
6. Sodium hydroxide
7. Ascorbic Acid
8.
9.
*Use blank rows if using preservatives not listed.

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/ Grab

ENTER PRESERVATIVE CODE

COMMENTS:

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of Environmental Protection

All analytical requests are subject to REIC's Standard Terms and Conditions

Temperature at arrival: °C | ICED? Y N

Containers provided by: REIC Client

1 | 2

FAX RESULTS | EMAIL RESULTS

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: FRANK ADKINS
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-29-15 0900

DATE/TIME RECEIVED: 01-29-15 1345

LABORATORY ID: HGE 150129-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE ANALYZED	ANALYST
FIELD pH	8.90	units			01-29-15	CR
FIELD TEMP	770	°C			01-29-15	CR
FIELD COND	11	µmhos			01-29-15	CR
LATTITUDE	38°14'39.0N				01-29-15	CR
LONGITUDE	81°57'23.0W				01-29-15	CR
pH	8.5	units	SM 22nd 4500 H B	.1	01-29-15	KH
Fe	.12	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-03-15	TW
Mn	.019	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-03-15	TW
TSS	<4	mg/L	SM22nd 2540 D	4	01-30-15	BB/EK
TDS	422	mg/L	SM22nd 2540 C	4	01-30-15	BB/EK
MBAS	<.01	mg/L	SM22nd 5540C	.01	01-30-15	SW
TOC	1.2	mg/L	SM22nd 5310B	1.0	02-04-15	MW
SO_4	1.25	mg/L	EPA 300.0 Rev 2.1-1993	1.0	02-03-15	DC
Cl^-	77.5	mg/L	EPA 300.0 Rev 2.1-1993	.50	02-02-15	DC
Al	<.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-03-15	TW
As	.0015	mg/L	SM22nd 3113 B	.0005	01-30-15	SB
Ba	.389	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-03-15	TW
Ca	8.45	mg/L	EPA 200.7 Rev 4.4-1994	.10	02-03-15	TW

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

Approved D Bennett

MAIN OFFICE—POST OFFICE BOX 650 • BRIDGEPORT, WEST VIRGINIA 26330 • (304) 623-6549
CHARLESTON BRANCH—POST OFFICE BOX 8337 • SOUTH CHARLESTON, WEST VIRGINIA 25303-0337 • (304) 744-9864

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 01-29-15 0900

DATE & TIME RECEIVED: 01-29-15 1345

DATE & TIME ANALYZED: 01-29-15 1420

LABORATORY ID: HGE 150129-1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
FRANK ADKINS	PRESENT	ABSENT	01-29-15 0900	HGE 150129-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

D Burns

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501U81

Date Reported: 2/11/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/29/2015 9:00:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/30/2015
Lab ID:	1501U81-01A	**Matrix:**	Liquid
Client Sample ID:	15015 FRANK ADKINS	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	02/03/15 3:44PM	02/05/15 10:26AM	PA/VA
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	02/03/15 3:44PM	02/05/15 10:26AM	
Surr: o-Terphenyl	89.2	NA	28.3-152	NA		%REC	02/03/15 3:44PM	02/05/15 10:26AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	36,900	NA	100	NA	E	µg/L		02/10/15 4:10PM	
Ethane	ND	NA	150	NA		µg/L		02/10/15 4:10PM	
Propane	ND	NA	200	NA		µg/L		02/10/15 4:10PM	
Butane	ND	NA	250	NA		µg/L		02/10/15 4:10PM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	02/02/15 10:21AM	02/10/15 5:45PM	PA/VA
Surr: 2,5-Dibromotoluene	68.9	NA	37.2-152	NA		%REC	02/02/15 10:21AM	02/10/15 5:45PM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**					**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	02/02/15 10:21AM	02/10/15 5:45PM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	02/02/15 10:21AM	02/10/15 5:45PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	02/02/15 10:21AM	02/10/15 5:45PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	02/02/15 10:21AM	02/10/15 5:45PM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	02/02/15 10:21AM	02/10/15 5:45PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	130	NA	61.2-135	NA		%REC	02/02/15 10:21AM	02/10/15 5:45PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Frank Adkins

Address 132 Silent Rebel Rd 3128 Silent Rebel Same well

Phone 304 524 2699

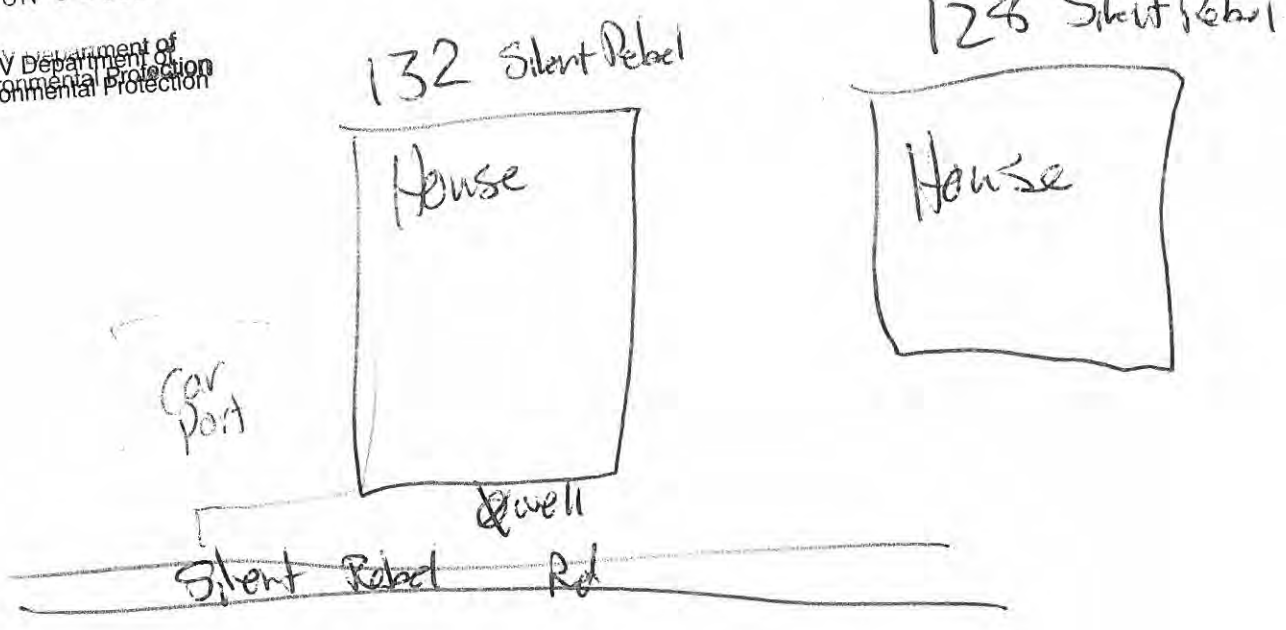
Depth of well (if known- estimate if not) 180'

GPS Coordinates

Lat 38° 14' 39.0"

Long 81° 57' 23.0"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: PAMELA COOPER GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 01-29-15 0945

DATE/TIME RECEIVED: 01-29-15 1345

LABORATORY ID: HGE 150129-2

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE ANALYZED	ANALYST
FIELD pH	9.10	units			01-29-15	CR
FIELD TEMP	940	°C			01-29-15	CR
FIELD COND	12	µmhos			01-29-15	CR
LATTITUDE	38°14'21.5N				01-29-15	CR
LONGITUDE	81°57'29.8W				01-29-15	CR
pH	8.6	units	SM 22nd 4500 H B	.1	01-29-15	KH
Fe	.08	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-03-15	TW
Mn	.005	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-03-15	TW
TSS	9	mg/L	SM22nd 2540 D	4	01-30-15	BB/EK
TDS	490	mg/L	SM22nd 2540 C	4	01-30-15	BB/EK
MBAS	.01	mg/L	SM22nd 5540C	.01	01-30-15	SW
TOC	2.3	mg/L	SM22nd 5310B	1.0	02-04-15	MW
SO_4	2.92	mg/L	EPA 300.0 Rev 2.1-1993	1.0	02-03-15	DC
Cl^-	97.0	mg/L	EPA 300.0 Rev 2.1-1993	.50	02-02-15	DC
Al	.06	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-03-15	TW
As	.0015	mg/L	SM22nd 3113 B	.0005	01-30-15	SB
Ba	.089	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-03-15	TW
Ca	1.19	mg/L	EPA 200.7 Rev 4.4-1994	.10	02-03-15	TW

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved D Bu

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 01-29-15 0945

DATE & TIME RECEIVED: 01-29-15 1345

DATE & TIME ANALYZED: 01-29-15 1420

LABORATORY ID: HGE 150129-2

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
PAMELA COOPER	ABSENT	ABSENT	01-29-15 0945	HGE 150129-2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1501U81

Date Reported: 2/11/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/29/2015 9:45:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	1/30/2015
Lab ID:	1501U81-02A	**Matrix:**	Liquid
Client Sample ID:	15016 PAMELA COOPER	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	02/03/15 3:44PM	02/05/15 10:59AM	PA/VA
TPH (Oil Range)	ND	NA	0.28	NA		mg/L	02/03/15 3:44PM	02/05/15 10:59AM	
Surr: o-Terphenyl	81.4	NA	28.3-152	NA		%REC	02/03/15 3:44PM	02/05/15 10:59AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	30,400	NA	100	NA	E	µg/L		02/10/15 4:18PM	
Ethane	ND	NA	150	NA		µg/L		02/10/15 4:18PM	
Propane	ND	NA	200	NA		µg/L		02/10/15 4:18PM	
Butane	ND	NA	250	NA		µg/L		02/10/15 4:18PM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	02/02/15 10:21AM	02/09/15 3:01AM	PA/VA
Surr: 2,5-Dibromotoluene	91.8	NA	37.2-152	NA		%REC	02/02/15 10:21AM	02/09/15 3:01AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	02/02/15 10:21AM	02/09/15 3:01AM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	02/02/15 10:21AM	02/09/15 3:01AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	02/02/15 10:21AM	02/09/15 3:01AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	02/02/15 10:21AM	02/09/15 3:01AM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	02/02/15 10:21AM	02/09/15 3:01AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	88.4	NA	61.2-135	NA		%REC	02/02/15 10:21AM	02/09/15 3:01AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Pamela Cooper

Address 46 Torque Dr

Phone 304 524 7352

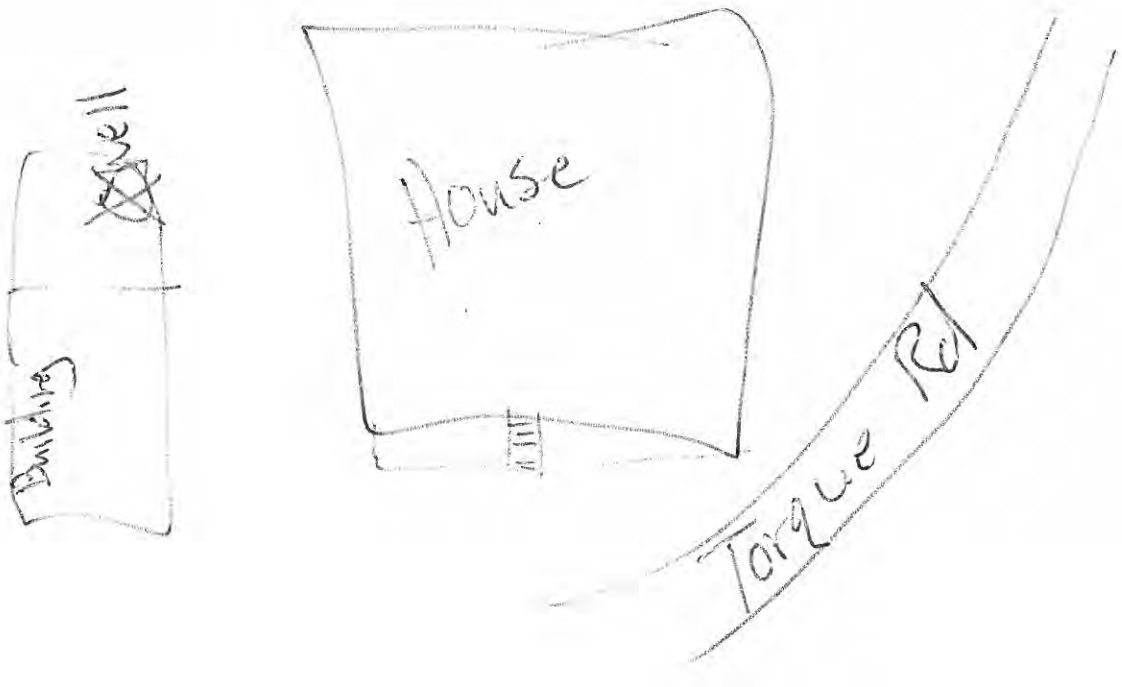
Depth of well (if known- estimate if not) 200'

GPS Coordinates

Lat 38° 14' 21.5"

Long 81° 57' 29.8"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of Environmental Protection

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature: CRT
Project Name: Griffithsville UIC 2
Special Reporting: [ ] Email Results [ ] Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Frank Adkins 132 Silent Rebel Rd Colert Collier					1/29/15	900	X								X							12	8.90	Pooled	770			11
Pamela Cooper 46 Torque Rd Collier		1022		14		945	X								X							10	9.10	Pooled	940			12
		1021		14																								

Comments

Records retained for 5 years

Laboratory Comments:
Temperature Upon Receipt: <6 (.6)
Bottles Preserved? Y N

Relinquished by:	Date	Time	Received by:	Date	Time	Temp upon Receipt:
CRT	1/29/15	1035	Brenda L	1/29/15	1035	3.0
Brenda L	1/29/15	1345	LLC	1-29-15	1345	

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Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: h.g. energy llc

PARAMETER	DATE ANALYZED	ANALYST INITIALS	METHOD	UNITS	MRL	MDL
pH	1.29.15	KH	SM22nd 4500 HB	S.U	2.0 – 10.0	.1
Hot Acid			SM22nd 2310 B (4a)	mg/L	20.	1
Mineral Acid			SM22nd 2310, Titrimetric	mg/L		1
Alkalinity			SM22nd 2320 B	mg/L	20.	1
NH_3N			SM22nd 4500NH_3B + SM22th 4500 NH_3C	mg/L	10.	.10
Settleable Solids			SM 22nd 2540 F	ml/L		.1
Turbidity			SM22nd 2130 B	NTU	1.	.05
Conductivity			EPA 120.1 Rev-1982	µmhos	20.	1
TKN			SM22nd 4500 N org + SM22nd 4500 NH_3C	mg/L	10.	.10
TSS – Total Suspended Solids	1.30.15	DB/BV	SM22nd 2540 D	mg/L	50.	4
TDS – Total Dissolved Solids			SM22nd 2540 C	mg/L	450.	4
Sulfate	2-3-15	DC	EPA 300.0 Rev 2.1-1993	mg/L	1.0 / 10.	1.0
Chloride	2-2-15	DC	EPA 300.0 Rev 2.1-1993	mg/L	.50	.50
Nitrate			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Nitrite			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Fluoride			EPA 300.0 Rev 2.1-1993	mg/L	.05	.01
Nitrate-Nitrite			EPA 300.0 Rev 2.1-1993+Calc	mg/L		.01
Ortho-Phosphate			EPA 300.0 Rev 2.1-1993	mg/L	.05	.05
Aluminum	2/3/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Aluminum			EPA 200.7 Rev.4.4-1994	mg/L	.25	.02
Calcium	2/3/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.50	.10
Dissolved Calcium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.10
Chromium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Dissolved Chromium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Hardness (calc)			SM22nd 2340B+EPA 200.7 Rev 4.4-1994	mg/L		1
Iron	2/3/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Iron			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Magnesium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Dissolved Magnesium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Manganese			EPA 200.7 Rev 4.4-1994	mg/L	.25	.002
Dissolved Manganese			EPA 200.7 Rev 4.4-1994	mg/L	.25	.002
Sodium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.03
Zinc (ICP)			EPA 200.7 Rev 4.4-1994	mg/L	.05	.004
MBAS	1.29.15	KH	SM22nd 5540C	mg/L	.01	.01
Cyanide			EPA 335.4 Rev 1.0-1993	mg/L	.005	.002
Ortho-Phosphate			SM22nd 4500P B.5 + 4500PE	mg/L	.02	.01
Phenol			EPA 420.4 1983	mg/L	.010	.004
Sulfide			SM22nd 4500 S2 F	mg/L	5.0	.50
Hexavalent Chromium			SM22nd 3500 – Cr-B	mg/L	.02	.007
TPO_4			SM22nd 4500 P E + SM22th 4500 P B.5	mg/L	.02	.010
Oil & Grease			EPA 1664A Gravimetric Extraction	mg/L	5.0	3.0
BOD			SM22nd 5210B	mg/L	3.0	2.0
COD			SM22nd 5220D	mg/L	20	6.0
TOC	2-4-15 (TSS)	MW	SM22nd 5310B	mg/L	5.0	1.0
Dissolved Selenium			SM22nd 3113 B	mg/L	.005	.0006
Total Selenium			SM22nd 3113 B	mg/L	.005	.0006
Total Recoverable Selenium			SM22nd 3113 B	mg/L	.005	.0006
Chromium			SM22nd 3113 B	mg/L	.001	.0002
Dissolved Chromium			SM22nd 3113 B	mg/L	.001	.0002
Total Selenium (AFS)			SM22nd 3114B	mg/L	.001	.0006
Total Recoverable Selenium			SM22nd 3114B	mg/L	.001	.0006
Dissolved Selenium			SM22nd 3114B	mg/L	.001	.0006

EPA-United States Environmental Protection Agency, "Method for the Chemical Analysis of Water and Waste," EPA 600/4-79-020, March 1983.
SM-Standard Methods for the Examination of Water and Wastewater, 22nd Edition. MRL-Minimum Reporting Level, MDL-Method Detection Level

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

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Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

COMPANY: h.g. energy llc

PARAMETER	DATE ANALYZED	ANALYST INITIALS	METHOD	UNITS	MRL	MDL
Antimony			SM22nd 3113 B	mg/L	.0025	.0004
Arsenic	1-30-15	SD	SM22nd 3113 B	mg/L	.005	.0005
Beryllium			SM22nd 3113 B	mg/L	.0005	.0001
Dissolved Beryllium			SM22nd 3113 B	mg/L	.0005	.0001
Cadmium			SM22nd 3113 B	mg/L	.0005	.0001
Dissolved Cadmium			SM22nd 3113 B	mg/L	.0005	.0001
Copper			SM22nd 3113 B	mg/L	.002	.0006
Dissolved Copper			SM22nd 3113 B	mg/L	.002	.0006
Lead			SM22nd 3113 B	mg/L	.005	.0005
Dissolved Lead			SM22nd 3113 B	mg/L	.005	.0005
Silver			SM22nd 3113 B	mg/L	.001	.0002
Dissolved Silver			SM22nd 3113 B	mg/L	.001	.0002
Thallium			SM22nd 3113 B	mg/L	.0025	.0003
Dissolved Thallium			SM22nd 3113 B	mg/L	.0025	.0003
Mercury			EPA 245.1 Rev 3.0-1994	mg/L	.001	.0002
Barium	2/3/15	TW	EPA 200.7 Rev 4.4-1994	mg/L	.05	.002
Beryllium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Dissolved Beryllium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Boron			EPA 200.7 Rev 4.4-1994	mg/L	.05	.03
Cadmium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
Dissolved Cadmium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.001
ɔbalt			EPA 200.7 Rev 4.4-1994	mg/L	.05	.01
ɔpper			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Dissolved Copper			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Molybdenum			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Nickel			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Potassium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Dissolved Potassium			EPA 200.7 Rev 4.4-1994	mg/L	.50	.01
Silica			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Dissolved Silicon			EPA 200.7 Rev 4.4-1994	mg/L	.25	.02
Silver			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Dissolved Silver			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Strontium			EPA 200.7 Rev 4.4-1994	mg/L	.01	.001
Tin			EPA 200.7 Rev 4.4-1994	mg/L	.05	.005
Titanium			EPA 200.7 Rev 4.4-1994	mg/L	.02	.001
Vanadium			EPA 200.7 Rev 4.4-1994	mg/L	.05	.003
Bromide			EPA 300.0 Rev 2.1-1993	mg/L	.25	.10
Chlorine Residual (AT LAB)			SM22nd 4500CL G	mg/L	1.0	.01
Dissolved Oxygen			SM22nd 4500 O G	mg/L		1
Volatile Suspended Solids			EPA 160.4	mg/L		1
Total Solids			SM22nd 2540 B	mg/L		.01
% Solids			EPA 160.3	mg/L		1.0
Ferrous Iron			SM22 3500 Fe-D	mg/L	.60	.02
Ferric Iron			Calculation	mg/L		.05
Chloride			SM22nd 4500-Cl-E	mg/L	1.0	.25
Nitrite			EPA 353.2 Rev 2.0-1993	mg/L	.05	.004
Nitrate			EPA 353.2 Rev 2.0-1993	mg/L	.05	
Nitrite-Nitrate			EPA 353.2 Rev 2.0-1993	mg/L	.05	.02
Specific Gravity			Calculation	mg/L		
Total Nitrogen			Calculation	mg/L		

EPA-United States Environmental Protection Agency, "Method for the Chemical Analysis of Water and Waste," EPA 600/4-79-020, March 1983.
SM-Standard Methods for the Examination of Water and Wastewater, 22nd Edition. MRL-Minimum Reporting Level, MDL-Method Detection Level

CHAIN OF CUSTODY RECORD

REIC
Research Environmental & Industrial Consultants, Inc.
MAIN LABORATORY & CORPORATE HEADQUARTERS:
PO Box 286 • 225 Industrial Park Rd. Beaver, WV 25813
800-969-7109 • 304-255-2500 • www.reicusa.com

MID-OHIO VALLEY Service Center
1011 17th Street
Ashland, KY 41101
866-392-5627

SHENANDOAH Service Center
1537 Commerce Dr., Ste. 201
Verona, VA 24482
540-248-0183

ROANOKE Service Center
5109 C Peters Creek Rd.
Roanoke VA 24019
540-777-1276

MORGANTOWN Service Center
81 Commerce Drive
Westover WV 26501
304-241-8861

Client
Project Manager
Phone
QUOTE #
Email
Address
City
State
Zip
Billing Address (if different)
City
State
Zip
Site ID & State
Project ID
Sampler

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME	RUSH TURNAROUND			
NORMAL	5 DAY	3 DAY	2 DAY	1 DAY

*Rush work needs prior laboratory approval and will incur additional charges

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/ Grab	ANALYSIS & METHOD REQUESTED						

Preservative Codes:
1 Ferric Hydrochloric Acid
2 Ferric Acid
3 Sulfuric Acid
4 Sodium Thiosulfate
5 Sodium Hydroxide/ Sodium Arsenate
6 Sodium Hydroxide
7 Ascorbic Acid
8
9
*Use blank spaces if more preservatives are used

ENTER PRESERVATIVE CODE

COMMENTS:

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of Environmental Protection

All analytical requests are subject to REIC's standard terms and conditions.

Temperature at arrival °C | ICED? Y N | Containers provided by: REIC Client

1 | 2

FAX RESULTS | EMAIL RESULTS

APPENDIX E
Water Sources

Operator: HG Energy, LLC Year 2015 UIC Permit #

		Source # 21	Source # 22	Source # 23	Source # 24
Water Source Name		Dave Litz	Cynthia Swann	Maryann Krawynanski	Adam Collins
Northing Easting		-81.9503 38.24922	-81.9289 38.25319	-81.9311 38.25394	-81.9278 38.27475
Parameter	Units				
TPH - GRO	mg/L	NA	NA	NA	NA
TPH - DRO	mg/L	NA	NA	NA	NA
TPH - ORO	mg/L	NA	NA	NA	NA
BTEX	mg/L	NA	NA	NA	NA
Chloride	mg/L	25.6	25.9	9.89	21.0
Soidum	mg/L				
Total Dissolved Solids (TDS)	mg/L	281	335	324	337
Aluminum	mg/L	<.02	0.05	0.02	0.32
Arsenic	mg/L	<.0005	<.005	<.0005	<.0005
Barium	mg/L	0.335	0.049	0.061	0.217
Iron	mg/L	0.45	0.06	0.02	0.15
Manganese	mg/L	0.408	0.041	0.002	0.028
pH	SU	7.4	8.8	9.0	7.9
Calcium	mg/L	50.3	0.40	0.52	7.94
Sulfate	mg/L	15.0	1.39	2.91	1.30
MBAS	mg/L	0.01	0.02	0.02	0.01
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100ml	Absent	Absent	Absent	Present

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: DAVE LITZ
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 02-10-15 0940

DATE/TIME RECEIVED: 02-10-15 1345

LABORATORY ID: HGE 150210-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FIELD pH	7.80	units			02-10-15 0940	CR
FIELD TEMP	530	°C			02-10-15 0940	CR
FIELD COND	14.5	µmhos			02-10-15 0940	CR
LATTITUDE	38°14'57.2N				02-10-15 0940	CR
LONGITUDE	81°57'01.2W				02-10-15 0940	CR
pH	7.4	units	SM 22nd 4500 H B	.1	02-10-15 1754	KH
Fe	.45	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-12-15 1524	TW
Mn	.408	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-12-15 1524	TW
TSS	5	mg/L	SM22nd 2540 D	4	02-11-15 1130	BB/EK
TDS	281	mg/L	SM22nd 2540 C	4	02-11-15 1130	BB/EK
MBAS	.01	mg/L	SM22nd 5540C	.01	02-11-15 2031	SW
TOC	1.8	mg/L	SM22nd 5310B	1.0	02-18-15 1637	KC/MW
SO_4	15.0	mg/L	EPA 300.0 Rev 2.1-1993	1.0	02-13-15 0745	DC
Cl^-	25.6	mg/L	EPA 300.0 Rev 2.1-1993	.50	02-13-15 0745	DC
Al	<.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-12-15 1524	TW
As	<.0005	mg/L	SM22nd 3113 B	.0005	02-16-15 1136	RC
Ba	.335	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-13-15 1524	TW
Ca	50.3	mg/L	EPA 200.7 Rev 4.4-1994	.10	02-12-15 1524	TW

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved D B

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

DATE & TIME SAMPLED: 02-10-15 0940

SAMPLED BY: C. ROSS

DATE & TIME RECEIVED: 02-10-15 1345

ANALYST: TW

DATE & TIME ANALYZED: 02-10-15 1450

METHOD: 3

LABORATORY ID: HGE 150210-1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
DAVE LITZ	ABSENT	ABSENT	02-10-15 0940	HGE 150210-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1502E14

Date Reported: 2/24/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	2/10/2015 9:40:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	2/11/2015
Lab ID:	1502E14-01A	**Matrix:**	Liquid
Client Sample ID:	15021 DAVE LITZ	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.12	NA	mg/L	02/16/15 12:18PM	02/19/15 10:20PM	PA/VA
TPH (Oil Range)	ND	NA	0.29	NA	mg/L	02/16/15 12:18PM	02/19/15 10:20PM	
Surr: o-Terphenyl	107	NA	28.3-152	NA	%REC	02/16/15 12:18PM	02/19/15 10:20PM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	958	NA	200	NA	µg/L		02/19/15 3:51PM	
Ethane	ND	NA	300	NA	µg/L		02/19/15 3:51PM	
Propane	ND	NA	400	NA	µg/L		02/19/15 3:51PM	
Butane	ND	NA	500	NA	µg/L		02/19/15 3:51PM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	02/12/15 2:22PM	02/17/15 2:19PM	PA/VA
Surr: 2,5-Dibromotoluene	109	NA	37.2-152	NA	%REC	02/12/15 2:22PM	02/17/15 2:19PM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	02/12/15 2:22PM	02/17/15 2:19PM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	02/12/15 2:22PM	02/17/15 2:19PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	02/12/15 2:22PM	02/17/15 2:19PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	02/12/15 2:22PM	02/17/15 2:19PM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	02/12/15 2:22PM	02/17/15 2:19PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	80.3	NA	61.2-135	NA	%REC	02/12/15 2:22PM	02/17/15 2:19PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Dave Litz

Address 241 Silent Rebel Rd Yawkey

Phone

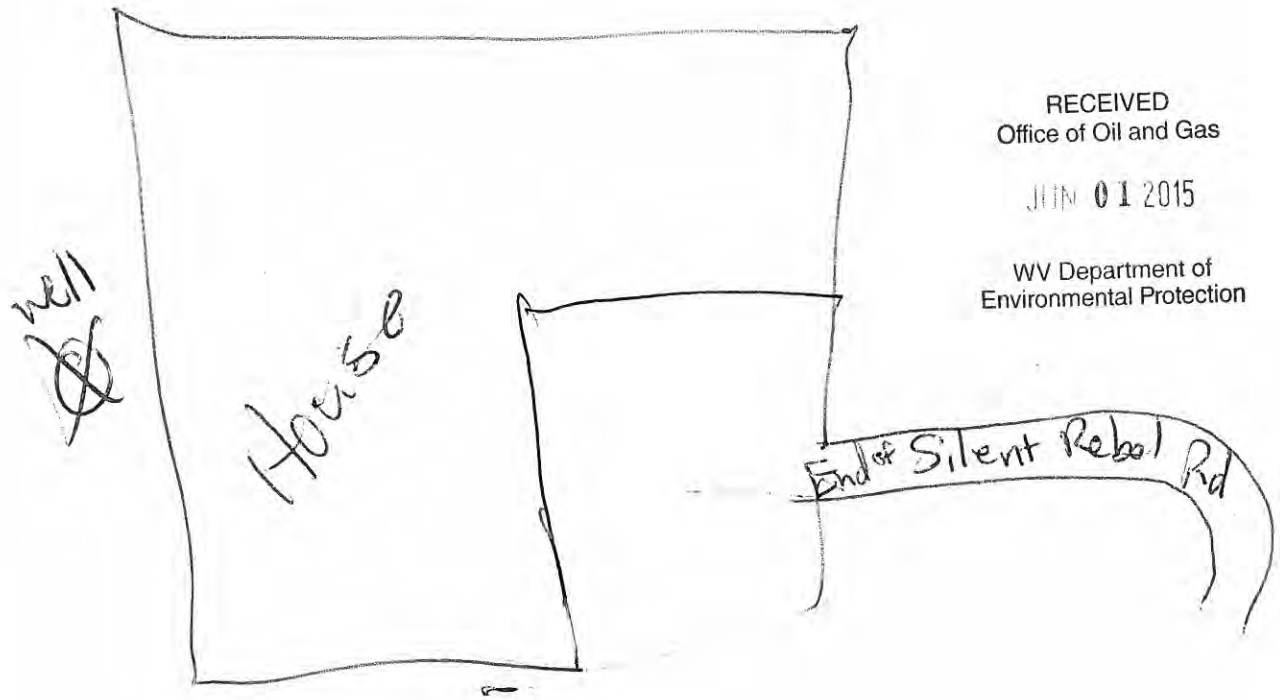
Depth of well (if known- estimate if not) 50

GPS Coordinates

Lat 38° 14' 57.2"

Long 81° 57' 01.2"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature: CRT
Project Name: Graftonsville VIC 2
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Dave Litz (241 Silent Rebel)					2/10/15	940	X															12	7.80	Pooled	530			14.5

Comments
Caliber # 1017 14

Records retained for 5 years

Laboratory Comments:
Temperature Upon Receipt: 2.3
Bottles Preserved? Y N

Relinquished by:	Date	Time	Received by:	Date	Time	Temp upon Receipt:
CRT	2/10/15	1045	[signature]	2/10/15	1045	4.1
[signature]	2/10/15	1345	n/a	2/10/15	1345	

CHAIN OF CUSTODY RECORD

REIC
Research Environmental & Industrial Consultants, Inc.
MAIN LABORATORY & CORPORATE HEADQUARTERS:
P.O. Box 796 • 215 Industrial Park Rd. Beckley, WV 25801
800-999-0738 • 304-255-3486 • www.reic-labs.com

MID OHIO VALLEY Service Center
101 [illegible]
Ashland, KY 41101
606-[illegible]

SHENANDOAH Service Center
1637 Evansham Rd, Ste 201
Verona, VA 24482
540-248-0741

ROANOKE Service Center
5616 Peters Creek Rd
Roanoke, VA 24019
540-777-1276

MORGANTOWN Service Center
55 Commerce Drive
Glenmoore, PA 19343
304-241-4851

Client: [illegible] PO#: [illegible]
Contact Person: [illegible] Phone: [illegible]
Email: [illegible] Fax: [illegible] Email: [illegible]
Address: [illegible] City: [illegible] State: [illegible] Zip: [illegible]
Billing Address (if different): [illegible]
City: [illegible] State: [illegible] Zip: [illegible]
Site ID/ST State: [illegible] Project ID: [illegible] Sampler: [illegible]

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME	RUSH TURNAROUND			
☑ NORMAL	5 DAY	3 DAY	2 DAY	1 DAY

*Days must be pre-approved and will incur additional charges

ANALYSIS & METHOD REQUESTED

Preservative Codes:
0 None
1 Hydrochloric Acid
2 Nitric Acid
3 Sulfuric Acid
4 Sodium Thiosulfate
5 Sodium Hydroxide/Sodium Ascorbate
6 Sodium Hydroxide
7 Ascorbic Acid
8 [illegible]
9 [illegible]
*If a Rush has been allowed, [illegible]

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/Grab
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	[illegible]	[illegible]	[illegible]

ENTER PRESERVATIVE CODE

COMMENTS:

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of Environmental Protection

All analytical requests are subject to REIC's standard [illegible]

Temperature at Arrival: [illegible] °C | ICED? Y N | Containers provided by: REIC Client

1 [illegible] 2 [illegible]

FAX RESULTS | EMAIL RESULTS

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: CYNTHIA SWANN
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 02-12-15 0845

DATE/TIME RECEIVED: 02-12-15 1315

LABORATORY ID: HG 150212-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			02-12-15 0845	CR
FIELD pH	9.50	units			02-12-15 0845	CR
FIELD TEMP	8	°C			02-12-15 0845	CR
FIELD COND	610	µmhos			02-12-15 0845	CR
LATTITUDE	38°15'11.5N				02-12-15 0845	CR
LONGITUDE	81°55'43.9W				02-12-15 0845	CR
pH	8.8	units	SM 22nd 4500 H B	.1	02-12-15 1959	KH
Fe	.06	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-18-15 0757	TW
Mn	.041	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-18-15 0757	TW
TSS	5	mg/L	SM22nd 2540 D	4	02-13-15 1110	BB/EK
TDS	335	mg/L	SM22nd 2540 C	4	02-13-15 1110	BB/EK
MBAS	.02	mg/L	SM22nd 5540C	.01	02-13-15 2208	SW
TOC	1.1	mg/L	SM22nd 5310B	1.0	02-18-15 1709	KC/MW
SO_4	1.39	mg/L	EPA 300.0 Rev 2.1-1993	1.0	02-18-15 0830	DC
Cl^-	25.9	mg/L	EPA 300.0 Rev 2.1-1993	.50	02-18-15 0830	DC
Al	.05	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-18-15 0757	TW
As	<.0005	mg/L	SM22nd 3113 B	.0005	02-16-15 1410	RC
Ba	.049	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-18-15 0757	TW
Ca	.40	mg/L	EPA 200.7 Rev 4.4-1994	.10	02-18-15 0757	TW

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 02-12-15 0845

DATE & TIME RECEIVED: 02-12-15 1315

DATE & TIME ANALYZED: 02-12-15 1339

LABORATORY ID: HG 150212-1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
CYNTHIA SWANN	ABSENT	ABSENT	02-12-15 0845	HG 150212-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF) 9222 D
2 – Coliform, Fecal (MPN) COLILERT 18
3 – Coliform, Total (MPN) COLILERT
4 – Coliform, Total (P/A) 9223 B
5 – Hetertrophic Plate Count (HPC) 9215 B

Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1502H55

Date Reported: 2/24/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	2/12/2015 8:45:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	2/13/2015
Lab ID:	1502H55-01A	**Matrix:**	Liquid
Client Sample ID:	15025 CYNTHIA SWANN	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	02/19/15 2:04PM	02/20/15 3:11AM	PA/VA
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	02/19/15 2:04PM	02/20/15 3:11AM	
Surr: o-Terphenyl	93.9	NA	28.3-152	NA		%REC	02/19/15 2:04PM	02/20/15 3:11AM	
DISSOLVED GASES			**Method: GC-FID**					**Analyst: JC**	
Methane	4,830	NA	200	NA	E	µg/L		02/19/15 4:05PM	
Ethane	ND	NA	300	NA		µg/L		02/19/15 4:05PM	
Propane	ND	NA	400	NA		µg/L		02/19/15 4:05PM	
Butane	ND	NA	500	NA		µg/L		02/19/15 4:05PM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	02/16/15 10:46AM	02/18/15 2:23PM	PA/VA
Surr: 2,5-Dibromotoluene	112	NA	37.2-152	NA		%REC	02/16/15 10:46AM	02/18/15 2:23PM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**					**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 2:23PM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 2:23PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 2:23PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	02/16/15 10:46AM	02/18/15 2:23PM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 2:23PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	98.7	NA	61.2-135	NA		%REC	02/16/15 10:46AM	02/18/15 2:23PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Cynthia Swann

Address 38 Red Tool House Rd Yawkey

Phone 304 524 2833

Depth of well (if known- estimate if not)_____

GPS Coordinates

Lat 38° 15' 11.5"

Long 81° 55'43.9"

Provide sketch below of approximate location of dwelling(s) and water wells(s)

RECEIVED
Office of Oil and Gas

JUN 01 2015

WV Department of
Environmental Protection

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: MARYANN KRAWYNANSKI
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 02-12-15 0925

DATE/TIME RECEIVED: 02-12-15 1315

LABORATORY ID: HG 150212-2

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			02-12-15 0925	CR
FIELD pH	9.70	units			02-12-15 0925	CR
FIELD TEMP	11.5	°C			02-12-15 0925	CR
FIELD COND	580	µmhos			02-12-15 0925	CR
LATTITUDE	38°15'14.2N				02-12-15 0925	CR
LONGITUDE	81°55'52.1W				02-12-15 0925	CR
pH	9.0	units	SM 22nd 4500 H B	.1	02-12-15 1959	KH
Fe	.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-18-15 0757	TW
Mn	.002	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-18-15 0757	TW
TSS	6	mg/L	SM22nd 2540 D	4	02-13-15 1110	BB/EK
TDS	324	mg/L	SM22nd 2540 C	4	02-13-15 1110	BB/EK
MBAS	.02	mg/L	SM22nd 5540C	.01	02-13-15 2208	SW
TOC	1.6	mg/L	SM22nd 5310B	1.0	02-18-15 1709	KC/MW
SO_4	2.91	mg/L	EPA 300.0 Rev 2.1-1993	1.0	02-18-15 0830	DC
Cl^-	9.89	mg/L	EPA 300.0 Rev 2.1-1993	.50	02-18-15 0830	DC
Al	.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-18-15 0757	TW
As	<.0005	mg/L	SM22nd 3113 B	.0005	02-16-15 1410	RC
Ba	.061	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-18-15 0757	TW
Ca	.52	mg/L	EPA 200.7 Rev 4.4-1994	.10	02-18-15 0757	TW

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 02-12-15 0925

DATE & TIME RECEIVED: 02-12-15 1315

DATE & TIME ANALYZED: 02-12-15 1339

LABORATORY ID: HG 150212-2

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
MARYANN KRAWYNANSKI	ABSENT	ABSENT	02-12-15 0925	HG 150212-2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

D Bu

Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1502H55

Date Reported: 2/24/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	2/12/2015 9:25:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	2/13/2015
Lab ID:	1502H55-02A	**Matrix:**	Liquid
Client Sample ID:	15026 MARYANN KRAWYNANSKI	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	02/19/15 2:04PM	02/20/15 3:43AM	PA/VA
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	02/19/15 2:04PM	02/20/15 3:43AM	
Surr: o-Terphenyl	89.7	NA	28.3-152	NA		%REC	02/19/15 2:04PM	02/20/15 3:43AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	5,970	NA	200	NA	E	µg/L		02/19/15 4:16PM	
Ethane	ND	NA	300	NA		µg/L		02/19/15 4:16PM	
Propane	ND	NA	400	NA		µg/L		02/19/15 4:16PM	
Butane	ND	NA	500	NA		µg/L		02/19/15 4:16PM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	02/16/15 10:46AM	02/18/15 2:55PM	PA/VA
Surr: 2,5-Dibromotoluene	114	NA	37.2-152	NA		%REC	02/16/15 10:46AM	02/18/15 2:55PM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**					**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 2:55PM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 2:55PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 2:55PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	02/16/15 10:46AM	02/18/15 2:55PM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 2:55PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	99.6	NA	61.2-135	NA		%REC	02/16/15 10:46AM	02/18/15 2:55PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Maryann Krawynanski

Address 88 Red Toolhouse Rd Yawkey

Phone 304 524 2219

Depth of well (if known- estimate if not) 60

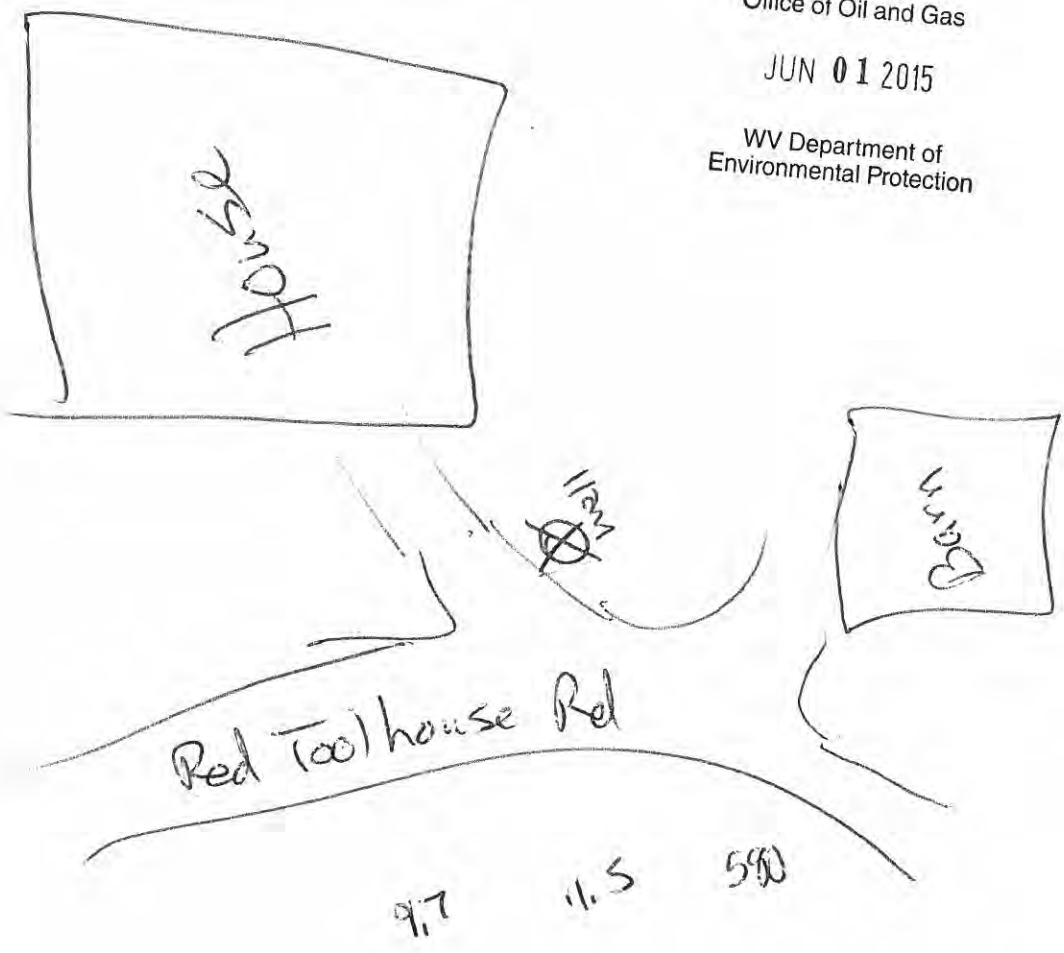
GPS Coordinates

Lat 38° 15' 14.2"

Long 81° 55' ~~52.1~~ 52.1"

Provide sketch below of approximate location of dwelling(s) and water wells(s)

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection



CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of Environmental Protection

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Griffithsville UIC 2
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Cynthia Swann (38 Red Toolhouse Rd)					2/12/15	845	X								X							12	9.50	Pooled	610			8
collect # 049	15																											
MaryAnn Krawynarski (886 Red Toolhouse Rd)						925	X								X							10	9.70	Pooled	580			11.5
collect # 10	30	14																										

Comments

Records retained for 5 years

Laboratory Comments:
Temperature Upon Receipt: C6 (.8)
Bottles Preserved? Y N
Temp upon Receipt: 3.1

Relinquished by:	Date	Time	Received by:	Date	Time
	2/12/15	1045		2/12/15	1045
Relinquished by:	Date	Time	Received by:	Date	Time
	2/12/15	1315		2/12/15	1315

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: ADAM COLLINS
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 02-12-15 1230

DATE/TIME RECEIVED: 02-12-15 1725

LABORATORY ID: HG 150212-A1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			02-12-15 1230	CR
FIELD pH	8.50	units			02-12-15 1230	CR
FIELD TEMP	8	°C			02-12-15 1230	CR
FIELD COND	595	µmhos			02-12-15 1230	CR
LATTITUDE	38°16'29.1N				02-12-15 1230	CR
LONGITUDE	81°55'40.2W				02-12-15 1230	CR
pH	7.9	units	SM 22nd 4500 H B	.1	02-13-15 1545	SW
Fe	.15	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-18-15 1106	TW
Mn	.028	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-18-15 1106	TW
TSS	6	mg/L	SM22nd 2540 D	4	02-13-15 1355	BB/EK
TDS	337	mg/L	SM22nd 2540 C	4	02-13-15 1355	BB/EK
MBAS	.01	mg/L	SM22nd 5540C	.01	02-13-15 2208	SW
TOC	1.3	mg/L	SM22nd 5310B	1.0	02-18-15 1731	KC/MW
SO_4	1.30	mg/L	EPA 300.0 Rev 2.1-1993	1.0	02-20-15 0700	DC
Cl^-	21.0	mg/L	EPA 300.0 Rev 2.1-1993	.50	02-19-15 0832	DC
Al	.32	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-18-15 1106	TW
As	<.0005	mg/L	SM22nd 3113 B	.0005	02-16-15 1420	RC
Ba	.217	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-18-15 1106	TW
Ca	7.94	mg/L	EPA 200.7 Rev 4.4-1994	.10	02-18-15 1106	TW

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved D Bu

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

DATE & TIME SAMPLED: 02-12-15 1230

SAMPLED BY: C. ROSS

DATE & TIME RECEIVED: 02-12-15 1725

ANALYST: MW/SB

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JUN 01 2015
WV Department of
Environmental Protection

DATE & TIME ANALYZED: 02-13-15 1827

METHOD: 3

LABORATORY ID: HG 150212-A1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
ADAM COLLINS	PRESENT	ABSENT	02-12-15 1230	HG 150212-A1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

D Bum

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1502H55

Date Reported: 2/24/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	2/12/2015 12:30:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	2/13/2015
Lab ID:	1502H55-03A	**Matrix:**	Liquid
Client Sample ID:	15027 ADAM COLLINS	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA	mg/L	02/19/15 2:04PM	02/20/15 4:15AM	PA/VA
TPH (Oil Range)	ND	NA	0.27	NA	mg/L	02/19/15 2:04PM	02/20/15 4:15AM	
Surr: o-Terphenyl	93.9	NA	28.3-152	NA	%REC	02/19/15 2:04PM	02/20/15 4:15AM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	1,920	NA	200	NA	µg/L		02/19/15 4:20PM	
Ethane	ND	NA	300	NA	µg/L		02/19/15 4:20PM	
Propane	ND	NA	400	NA	µg/L		02/19/15 4:20PM	
Butane	ND	NA	500	NA	µg/L		02/19/15 4:20PM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	02/16/15 10:46AM	02/18/15 3:27PM	PA/VA
Surr: 2,5-Dibromotoluene	112	NA	37.2-152	NA	%REC	02/16/15 10:46AM	02/18/15 3:27PM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	02/16/15 10:46AM	02/18/15 3:27PM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	02/16/15 10:46AM	02/18/15 3:27PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	02/16/15 10:46AM	02/18/15 3:27PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	02/16/15 10:46AM	02/18/15 3:27PM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	02/16/15 10:46AM	02/18/15 3:27PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	101	NA	61.2-135	NA	%REC	02/16/15 10:46AM	02/18/15 3:27PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Adam Collins

Address 28 Upper Rd Griffithsville

Phone 25521 (304) 524 9197

Depth of well (if known- estimate if not) 100+

GPS Coordinates

Lat 38° 16 29.1

Long 81° 55 40.2

Provide sketch below of approximate location of dwelling(s) and water wells(s)

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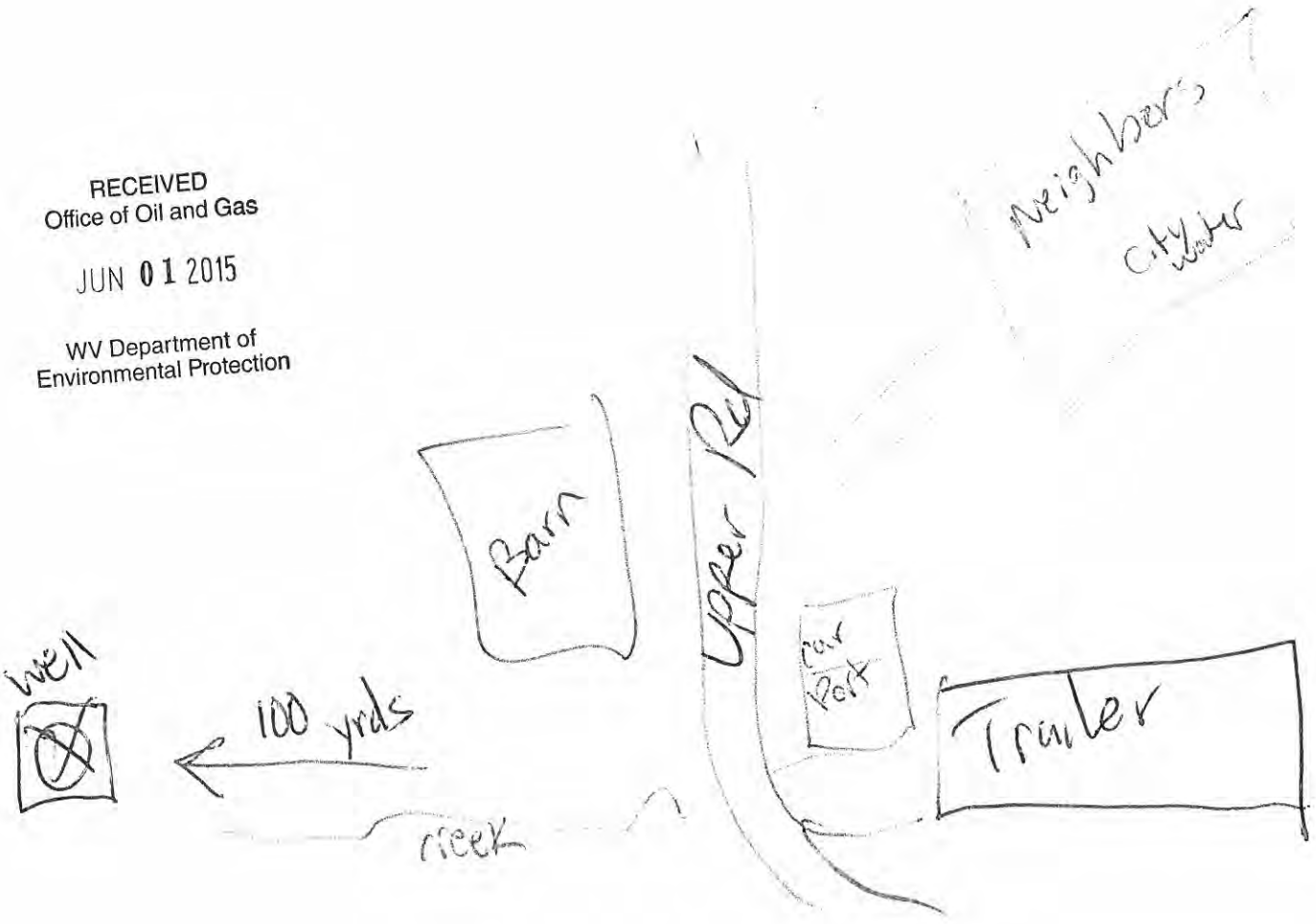
Office of Oil and Gas

JUN 01 2015

WV Department of
Environmental Protection



APPENDIX E

Water Sources

Operator: HG Energy, LLC Year 2015 UIC Permit #

		Source # 25	Source # 26	Source # 27	Source # 28
Water Source Name		Wattie McCallister	Gary McClure	Alisha Kitchen	Melissa French
Northing Easting		-81.9339 38.27647	-81.9377 38.27589	-81.9419 38.27544	-80.04547 38.27867
Parameter	Units				
TPH - GRO	mg/L	NA	NA	NA	NA
TPH - DRO	mg/L	NA	NA	NA	NA
TPH - ORO	mg/L	NA	NA	NA	NA
BTEX	mg/L	NA	NA	NA	NA
Chloride	mg/L	26.4	87.0	133	3.57
Soidum	mg/L				
Total Dissolved Solids (TDS)	mg/L	315	574	608	318
Aluminum	mg/L	<.02	<.02	0.04	<.02
Arsenic	mg/L	0.0057	<.0005	<.0005	0.0052
Barium	mg/L	81.5	0.064	0.136	0.071
Iron	mg/L	0.44	0.29	0.06	<.02
Manganese	mg/L	0.032	0.003	0.005	0.003
pH	SU	7.6	8.8	8.6	9.0
Calcium	mg/L	33.7	1.28	3.82	2.81
Sulfate	mg/L	<1.00	<1.00	1.59	14.7
MBAS	mg/L	0.01	<.01	0.01	<.01
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100ml	Absent	Absent	Absent	Absent

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: WATTIE McCALLISTER
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 02-12-15 1320

DATE/TIME RECEIVED: 02-12-15 1725

LABORATORY ID: HG 150212-A2

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			02-12-15 1320	CR
FIELD pH	8.20	units			02-12-15 1320	CR
FIELD TEMP	9	°C			02-12-15 1320	CR
FIELD COND	565	µmhos			02-12-15 1320	CR
LATTITUDE	38°16'35.3N				02-12-15 1320	CR
LONGITUDE	81°56'02.0W				02-12-15 1320	CR
pH	7.6	units	SM 22nd 4500 H B	.1	02-13-15 1545	SW
Fe	.44	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-18-15 1106	TW
Mn	.032	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-18-15 1106	TW
TSS	5	mg/L	SM22nd 2540 D	4	02-13-15 1355	BB/EK
TDS	315	mg/L	SM22nd 2540 C	4	02-13-15 1355	BB/EK
MBAS	.01	mg/L	SM22nd 5540C	.01	02-13-15 2208	SW
TOC	1.4	mg/L	SM22nd 5310B	1.0	02-18-15 1731	KC/MW
SO_4	<1.00	mg/L	EPA 300.0 Rev 2.1-1993	1.0	02-20-15 0700	DC
Cl^-	26.4	mg/L	EPA 300.0 Rev 2.1-1993	.50	02-19-15 0832	DC
Al	<.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-18-15 1106	TW
As	.0057	mg/L	SM22nd 3113 B	.0005	02-16-15 1420	RC
Ba	81.5	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-18-15 1106	TW
Ca	33.7	mg/L	EPA 200.7 Rev 4.4-1994	.10	02-18-15 1106	TW

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW/SB

METHOD: 3

DATE & TIME SAMPLED: 02-12-15 1320

DATE & TIME RECEIVED: 02-12-15 1725

DATE & TIME ANALYZED: 02-13-15 1827

LABORATORY ID: HG 150212-A2

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
WATTIE McCALLISTER	ABSENT	ABSENT	02-12-15 1320	HG 150212-A2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

* Client provided

Approved

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1502H55

Date Reported: 2/24/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	2/12/2015 1:20:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	2/13/2015
Lab ID:	1502H55-04A	**Matrix:**	Liquid
Client Sample ID:	15028 WATTIE McCALLISTER	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.10	NA		mg/L	02/19/15 2:04PM	02/20/15 4:48AM	PA/VA
TPH (Oil Range)	ND	NA	0.26	NA		mg/L	02/19/15 2:04PM	02/20/15 4:48AM	
Surr: o-Terphenyl	75.4	NA	28.3-152	NA		%REC	02/19/15 2:04PM	02/20/15 4:48AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	3,100	NA	200	NA	E	µg/L		02/19/15 4:31PM	
Ethane	ND	NA	300	NA		µg/L		02/19/15 4:31PM	
Propane	ND	NA	400	NA		µg/L		02/19/15 4:31PM	
Butane	ND	NA	500	NA		µg/L		02/19/15 4:31PM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	02/16/15 10:46AM	02/18/15 3:59PM	PA/VA
Surr: 2,5-Dibromotoluene	110	NA	37.2-152	NA		%REC	02/16/15 10:46AM	02/18/15 3:59PM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 3:59PM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 3:59PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 3:59PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	02/16/15 10:46AM	02/18/15 3:59PM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 3:59PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	99.8	NA	61.2-135	NA		%REC	02/16/15 10:46AM	02/18/15 3:59PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Wattie McCallister

Address 304 Garretts Bend Rd Griffithsville

Phone 304 524 2715

Depth of well (if known- estimate if not) 40'

GPS Coordinates

Lat 38 16 35.3

Long 81 56 02.0

Provide sketch below of approximate location of dwelling(s) and water wells(s)

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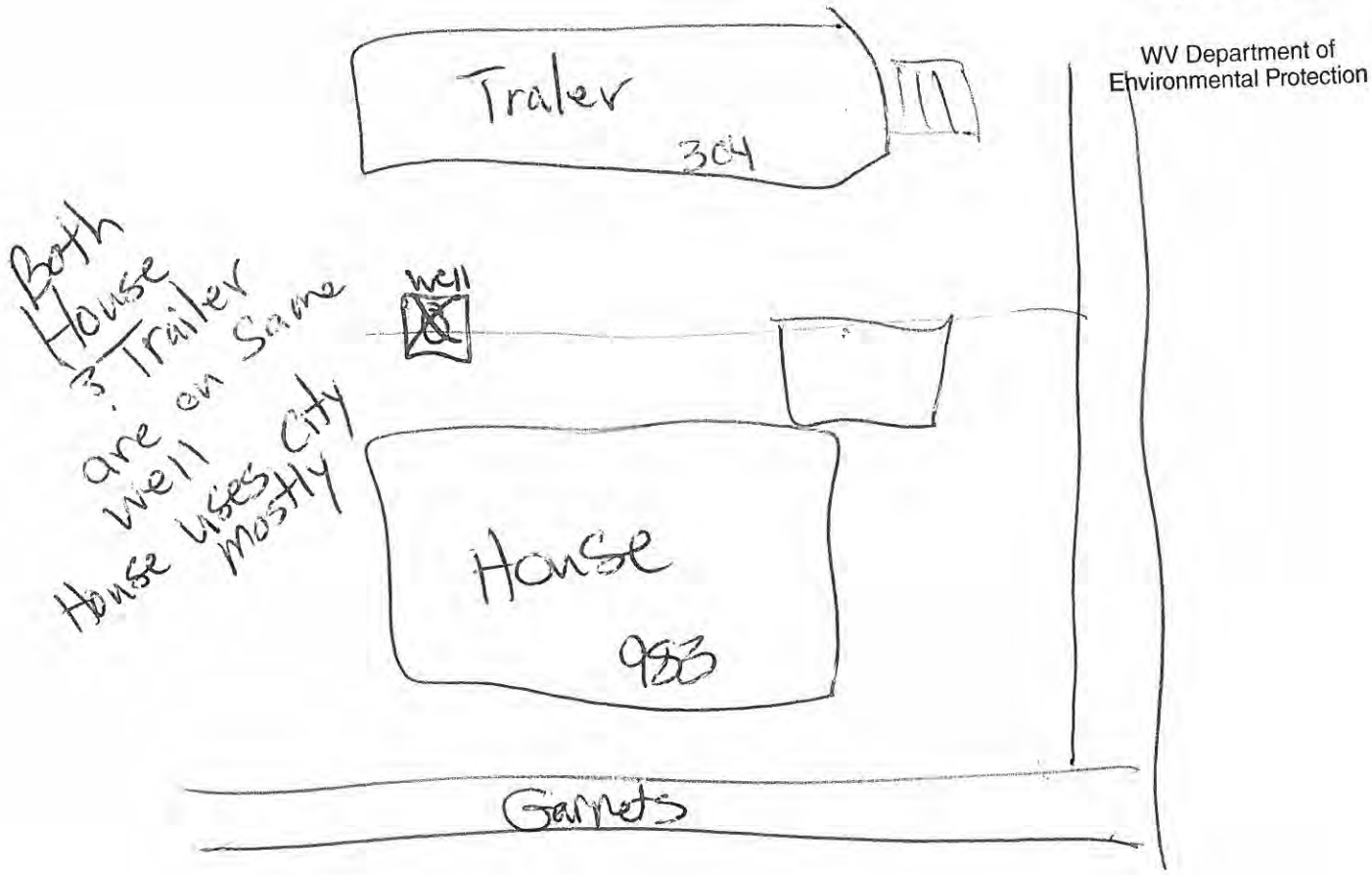
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection



Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: GARY McCLURE
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 02-12-15 1415

DATE/TIME RECEIVED: 02-12-15 1725

LABORATORY ID: HG 150212-A3

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			02-12-15 1415	CR
FIELD pH	9.40	units			02-12-15 1415	CR
FIELD TEMP	13.5	°C			02-12-15 1415	CR
FIELD COND	1030	µmhos			02-12-15 1415	CR
LATTITUDE	38°16'33.2N				02-12-15 1415	CR
LONGITUDE	81°56'15.8W				02-12-15 1415	CR
pH	8.8	units	SM 22nd 4500 H B	.1	02-13-15 1545	SW
Fe	.29	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-18-15 1106	TW
Mn	.003	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-18-15 1106	TW
TSS	6	mg/L	SM22nd 2540 D	4	02-13-15 1355	BB/EK
TDS	574	mg/L	SM22nd 2540 C	4	02-13-15 1355	BB/EK
MBAS	<.01	mg/L	SM22nd 5540C	.01	02-13-15 2208	SW
TOC	1.2	mg/L	SM22nd 5310B	1.0	02-18-15 1731	KC/MW
SO_4	<1.00	mg/L	EPA 300.0 Rev 2.1-1993	1.0	02-20-15 0700	DC
Cl^-	87.0	mg/L	EPA 300.0 Rev 2.1-1993	.50	02-19-15 0832	DC
Al	<.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	02-18-15 1106	TW
As	<.0005	mg/L	SM22nd 3113 B	.0005	02-16-15 1420	RC
Ba	.064	mg/L	EPA 200.7 Rev 4.4-1994	.002	02-18-15 1106	TW
Ca	1.28	mg/L	EPA 200.7 Rev 4.4-1994	.10	02-18-15 1106	TW

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved D B

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW/SB

METHOD: 3

DATE & TIME SAMPLED: 02-12-15 1415

DATE & TIME RECEIVED: 02-12-15 1725

DATE & TIME ANALYZED: 02-13-15 1827

LABORATORY ID: HG 150212-A3

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
GARY McCLURE	ABSENT	ABSENT	02-12-15 1415	HG 150212-A3

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1502H55

Date Reported: 2/24/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	2/12/2015 2:15:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	2/13/2015
Lab ID:	1502H55-05A	**Matrix:**	Liquid
Client Sample ID:	15029 GARY McCLURE	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	02/19/15 2:04PM	02/20/15 4:48AM	PA/VA
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	02/19/15 2:04PM	02/20/15 4:48AM	
Surr: o-Terphenyl	80.4	NA	28.3-152	NA		%REC	02/19/15 2:04PM	02/20/15 4:48AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	8,120	NA	200	NA	E	µg/L		02/19/15 4:39PM	
Ethane	ND	NA	300	NA		µg/L		02/19/15 4:39PM	
Propane	ND	NA	400	NA		µg/L		02/19/15 4:39PM	
Butane	ND	NA	500	NA		µg/L		02/19/15 4:39PM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	02/16/15 10:46AM	02/18/15 4:31PM	PA/VA
Surr: 2,5-Dibromotoluene	109	NA	37.2-152	NA		%REC	02/16/15 10:46AM	02/18/15 4:31PM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**					**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 4:31PM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 4:31PM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 4:31PM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	02/16/15 10:46AM	02/18/15 4:31PM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	02/16/15 10:46AM	02/18/15 4:31PM	PA/VA
Surr: 1,1,1-Trifluorotoluene	103	NA	61.2-135	NA		%REC	02/16/15 10:46AM	02/18/15 4:31PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Gary McClure

Address 937 Garrets Bnd Rd Griffithsville

Phone 304 524 7113

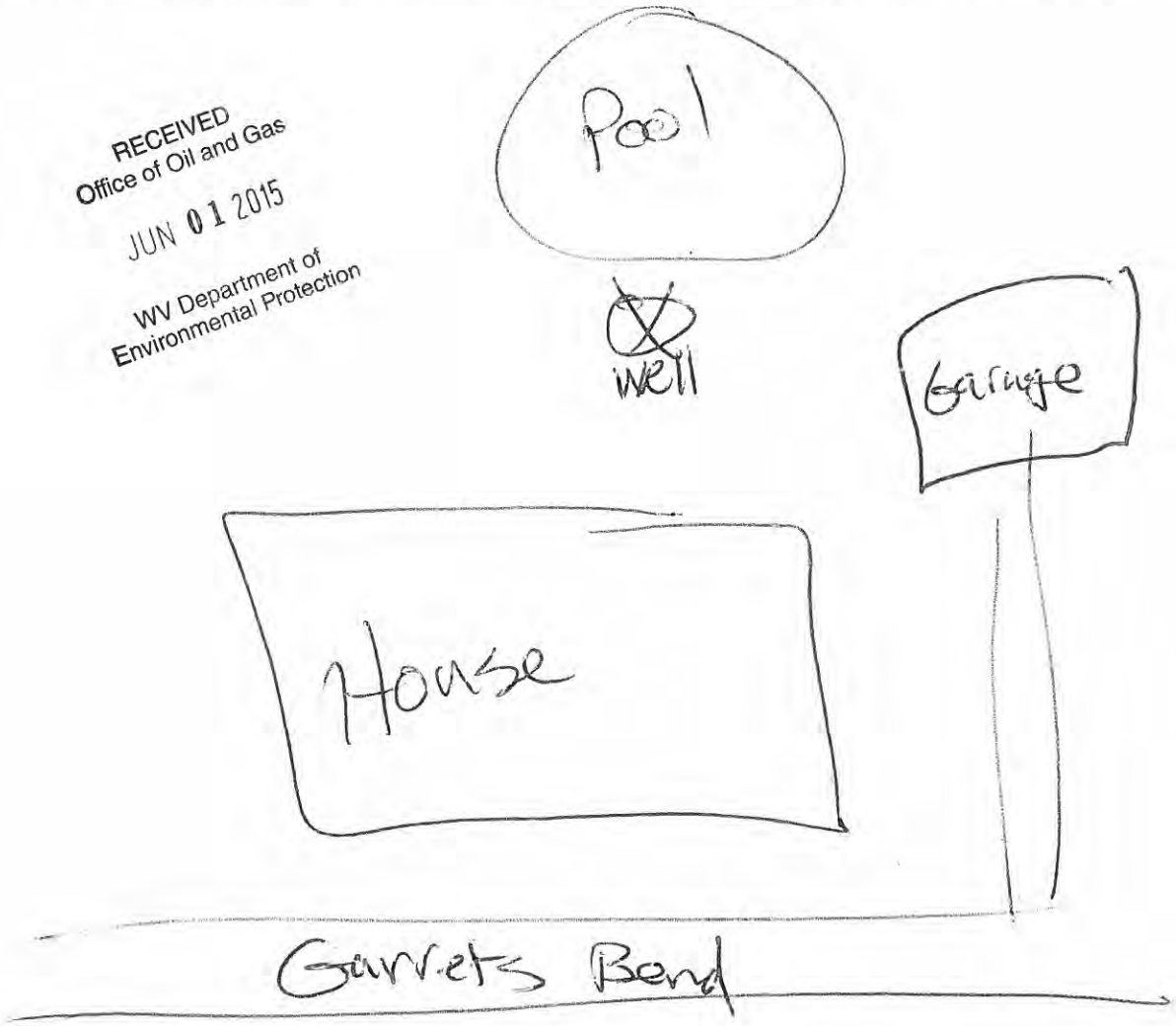
Depth of well (if known- estimate if not) 117'

GPS Coordinates

Lat 38° 16' 33.2"

Long 81° 56' 15.8"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



CHAIN OF CUST( )ECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

REPORT TO: Client Name: HG Energy

Address:

City/State/Zip:

Contact Person:

Telephone Number: Fax No.

Email Address:

Sampler Name: (Print) Chris Ross

Sampler Signature:

Project Name: Griffithsville VIC2

Special Reporting: [ ] Email Results [ ] Fax Results

BILL TO: Client Name:

Address:

City/State/Zip:

Contact Person:

Telephone Number: Fax No.

Email Address:

Purchase Order #:

TURN AROUND TIME: ___ Standard

___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*

Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Adam Collins (28 Upper Rd)					2/12/15	1230	X								X							10	8.50	Pooled	595			8
Collier + #	043	15																										
Walter McCallister (304 Garrets Bend)						1320	X								X							10	8.20	Pooled	565			9
Collier + #	048	15																										
Gary McClure (937 Garrets Bend)						1415	X								X							10	9.40	Pooled	1030			13.5
Collier + #	025	14																										

Comments

Records retained for 5 years

Laboratory Comments:
Temperature Upon Receipt
Bottles Preserved? Y N

Relinquished by:	Date	Time	Received by:	Date	Time	Temp upon Receipt:
	2/12/15	1725	Stephen W. Johnson	2-12	1725	1.4 °C
Relinquished by:	Date	Time	Received by:	Date	Time	

451929

CHAIN OF CUSTODY RECORD

REIC
Research Environmental & Industrial Consultants, Inc.

MAIN LABORATORY & CORPORATE HEADQUARTERS:
P.O. Box 286 • 225 Industrial Park Rd, Beaver, WV 25813
800-999-0105 • 304-255-2500 • www.reiclabs.com

Client: Storm Environmental PO # 6873
Contact Person Kim / Laurie Phone 623-6549
QUOTE # Fax: Email:
Address on file City State Zip
Billing Address (if different)
City State Zip
Site ID & State Project ID Sampler C. Ross

MID-OHIO VALLEY Service Center
101 17th Street
Ashland, KY 41101
606-393-5027

SHENANDOAH Service Center
1557 Commerce Rd., Ste 201
Verona, VA 24482
540-248-0183

ROANOKE Service Center
3029-C Peters Creek Rd
Roanoke, VA 24019
540-777-1276

MORGANTOWN Service Center
16 Commerce Drive
Westover, WV 26501
304-241-5861

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME
[X] NORMAL
RUSH TURNAROUND
[ ] 5 DAY [ ] 3 DAY [ ] 2 DAY [ ] 1 DAY
*Rush work needs prior laboratory approval and will incur additional charges

ANALYSIS & METHOD REQUESTED
TPH - DRO, GRO, ORO
BTEX
Dissolved: methane
" propane
" Butane
" Ethane

Preservative Codes:
0 None
1 Hydrochloric Acid
2 Nitric Acid
3 Sulfuric Acid
4 Sodium Thiosulfate
5 Sodium Hydroxide/ Sodium Arsenate
6 Sodium Hydroxide
7 Ascorbic Acid
8 _____*
9 _____*
*(Use blank lines if using preservatives not listed.)

ENTER PRESERVATIVE CODE

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/ Grab
15025	3-Glass Liters 4-vials	2-12-15 0845		
15026	1-Glass Liter 4-vials	" 0925		
15027		" 1230		
15028		" 1320		
15029		" 1415		

COMMENTS:

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

All analytical requests are subject to REIC's Standard Terms and Conditions.

Temperature at arrival: ° C ICED? Y___ N___

Containers provided by: [ ] REIC [ ] Client

1 K. Thibel Relinquished by (signature)	2-13-15 Date/Time 13:11	2 Relinquished by (signature)	Date/Time
Received by (signature)	2-13-15 Date/Time 13:11	Received by (signature)	Date/Time

FAX RESULTS [ ] EMAIL RESULTS [ ]

SHIPMENT ___ Hand Delivered ___ Courier ___ UPS ___ FEDEX ___ USPS ___ OTHER

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: ALISHA KITCHEN 25 DRY BRANCH RD GRIFFITHSVILLE

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-11-15 0840

DATE/TIME RECEIVED: 03-11-15 1345

LABORATORY ID: HGE 150311-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-11-15 0840	CR
FIELD pH	9.10	units			03-11-15 0840	CR
FIELD TEMP	1115	°C			03-11-15 0840	CR
FIELD COND	10.5	µmhos			03-11-15 0840	CR
LATTITUDE	38°16'31.6N				03-11-15 0840	CR
LONGITUDE	81°56'30.8W				03-11-15 0840	CR
pH	8.6	units	SM 22nd 4500 H B	.1	03-12-15 1348	KH
Fe	.06	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-16-15 0850	MM
Mn	.005	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-16-15 0850	MM
TSS	4	mg/L	SM22nd 2540 D	4	03-13-15 1210	EK
TDS	608	mg/L	SM22nd 2540 C	4	03-13-15 1210	EK
MBAS	.01	mg/L	SM22nd 5540C	.01	03-12-15 2038	SW
TOC	1.0	mg/L	SM22nd 5310B	1.0	03-13-15 1145	MW
SO_4	1.59	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-19-15 0700	DC
Cl^-	133.	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-19-15 0700	DC
Al	.04	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-16-15 0850	MM
As	<.0005	mg/L	SM22nd 3113 B	.0005	03-18-15 1511	SB
Ba	.136	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-16-15 0850	MM
Ca	3.82	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-16-15 0850	MM

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas W Bunto

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 03-11-15 0840

DATE & TIME RECEIVED: 03-11-15 1345

DATE & TIME ANALYZED: 03-11-15 1354

LABORATORY ID: HGE 150311-1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
ALISHA KITCHEN 25 DRY BRANCH RD.	ABSENT	ABSENT	03-11-15 0840	HGE 150311-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Douglas W Bunto

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503G75

Date Reported: 3/26/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/11/2015 8:40:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/13/2015
Lab ID:	1503G75-01A	**Matrix:**	Liquid
Client Sample ID:	15044 ALISHA KITCHEN 25 DRY BRANCH RD	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.12	NA		mg/L	03/16/15 8:15AM	03/16/15 11:24PM	PA/VA
TPH (Oil Range)	ND	NA	0.29	NA		mg/L	03/16/15 8:15AM	03/16/15 11:24PM	
Surr: o-Terphenyl	93.8	NA	28.3-152	NA		%REC	03/16/15 8:15AM	03/16/15 11:24PM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	20,800	NA	200	NA	E	µg/L		03/25/15 12:00AM	
Ethane	ND	NA	300	NA		µg/L		03/25/15 12:00AM	
Propane	ND	NA	400	NA		µg/L		03/25/15 12:00AM	
Butane	ND	NA	500	NA		µg/L		03/25/15 12:00AM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	03/16/15 2:00PM	03/24/15 2:17AM	PA/VA
Surr: 2,5-Dibromotoluene	132	NA	37.2-152	NA		%REC	03/16/15 2:00PM	03/24/15 2:17AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	03/16/15 2:00PM	03/24/15 2:17AM	PA/VA
Toluene	1.78	NA	1.00	NA		µg/L	03/16/15 2:00PM	03/24/15 2:17AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	03/16/15 2:00PM	03/24/15 2:17AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	03/16/15 2:00PM	03/24/15 2:17AM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	03/16/15 2:00PM	03/24/15 2:17AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	87.4	NA	61.2-135	NA		%REC	03/16/15 2:00PM	03/24/15 2:17AM	

Notes:

Target analytes were confirmed by GC/MS.

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Alisha Kitchen

Address 25 Dry Branch Rd Griffithsville

Phone 304 524 7904

Depth of well (if known- estimate if not) ?? Hand dug well

GPS Coordinates

Lat 38° 16' 31.6"

Long 81° 56' 30.8"

Provide sketch below of approximate location of dwelling(s) and water wells(s)

CHAIN OF CUSTC ECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Griffithsville UNCZ
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ____ Standard
____ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Alsha Kitchen (25 Dry Branch Rd)					3/11/15	9:40	X								X							12	9.10	Pooled	1115			10.5

Comments: Colilert # 10271 14 *Records retained for 5 years*

Laboratory Comments:
Temperature Upon Receipt: 1.2
Bottles Preserved? Y N

Relinquished by:	Date	Time	Received by:	Date	Time	Temp upon Receipt:
	3/11/15	1045		3/11/15	1045	2.1
Relinquished by:	Date	Time	Received by:	Date	Time	
	3/11/15	1345		3-11-15	1345	

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

DATE/TIME SAMPLED: 03-11-15 1240

SAMPLE ID: MELISSA FRENCH 256 DRY BRANCH GRIFFITHSVILLE UIC 2

DATE/TIME RECEIVED: 03-11-15 1815

SAMPLED BY: C. ROSS

LABORATORY ID: HGE 150311-A1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-11-15 1240	CR
FIELD pH	9.60	units			03-11-15 1240	CR
FIELD TEMP	575	°C			03-11-15 1240	CR
FIELD COND	7	µmhos			03-11-15 1240	CR
LATTITUDE	38°16'43.2N				03-11-15 1240	CR
LONGITUDE	81°57'16.3W				03-11-15 1240	CR
pH	9.0	units	SM 22nd 4500 H B	.1	03-12-15 1343	KH
Fe	<.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-22-15 1229	SB
Mn	.003	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-22-15 1229	SB
TSS	<4	mg/L	SM22nd 2540 D	4	03-13-15 1210	EK
TDS	318	mg/L	SM22nd 2540 C	4	03-13-15 1210	EK
MBAS	<.01	mg/L	SM22nd 5540C	.01	03-12-15 2038	SW
TOC	<1.0	mg/L	SM22nd 5310B	1.0	03-13-15 1220	MW
SO_4	14.7	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-19-15 0700	DC
Cl^-	3.57	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-19-15 0700	DC
Al	<.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-22-15 1229	SB
As	.0052	mg/L	SM22nd 3113 B	.0005	03-18-15 1528	SB
Ba	.071	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-22-15 1229	SB
Ca	2.81	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-22-15 1229	SB

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas W Bantz

MAIN OFFICE—POST OFFICE BOX 650 • BRIDGEPORT, WEST VIRGINIA 26330 • (304) 623-6549
CHARLESTON BRANCH—POST OFFICE BOX 8337 • SOUTH CHARLESTON, WEST VIRGINIA 25303-0337 • (304) 744-9864

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: SB/ML

METHOD: 3

DATE & TIME SAMPLED: 03-11-15 1240

DATE & TIME RECEIVED: 03-11-15 1815

DATE & TIME ANALYZED: 03-11-15 1825

LABORATORY ID: HGE 150311-A1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
MELISSA FRENCH 256 DRY BRANCH	ABSENT	ABSENT	03-11-15 1240	HGE 150311-A1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Douglas A Bruce

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503G75

Date Reported: 3/26/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/11/2015 12:40:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/13/2015
Lab ID:	1503G75-02A	**Matrix:**	Liquid
Client Sample ID:	15045 MELISSA FRENCH 256 DRY BRANCH	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	0.15	NA	0.11	NA	mg/L	03/16/15 8:15AM	03/16/15 11:57PM	PA/VA
TPH (Oil Range)	ND	NA	0.28	NA	mg/L	03/16/15 8:15AM	03/16/15 11:57PM	
Surr: o-Terphenyl	87.7	NA	28.3-152	NA	%REC	03/16/15 8:15AM	03/16/15 11:57PM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	22.8	NA	10.0	NA	µg/L		03/25/15 12:00AM	
Ethane	ND	NA	15.0	NA	µg/L		03/25/15 12:00AM	
Propane	ND	NA	20.0	NA	µg/L		03/25/15 12:00AM	
Butane	ND	NA	25.0	NA	µg/L		03/25/15 12:00AM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	03/16/15 2:00PM	03/24/15 2:50AM	PA/VA
Surr: 2,5-Dibromotoluene	118	NA	37.2-152	NA	%REC	03/16/15 2:00PM	03/24/15 2:50AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	03/16/15 2:00PM	03/24/15 2:50AM	PA/VA
Toluene	1.07	NA	1.00	NA	µg/L	03/16/15 2:00PM	03/24/15 2:50AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	03/16/15 2:00PM	03/24/15 2:50AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	03/16/15 2:00PM	03/24/15 2:50AM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	03/16/15 2:00PM	03/24/15 2:50AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	85.0	NA	61.2-135	NA	%REC	03/16/15 2:00PM	03/24/15 2:50AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Melissa French

Address 256 Dry Branch Rd

Phone 304 982 0500

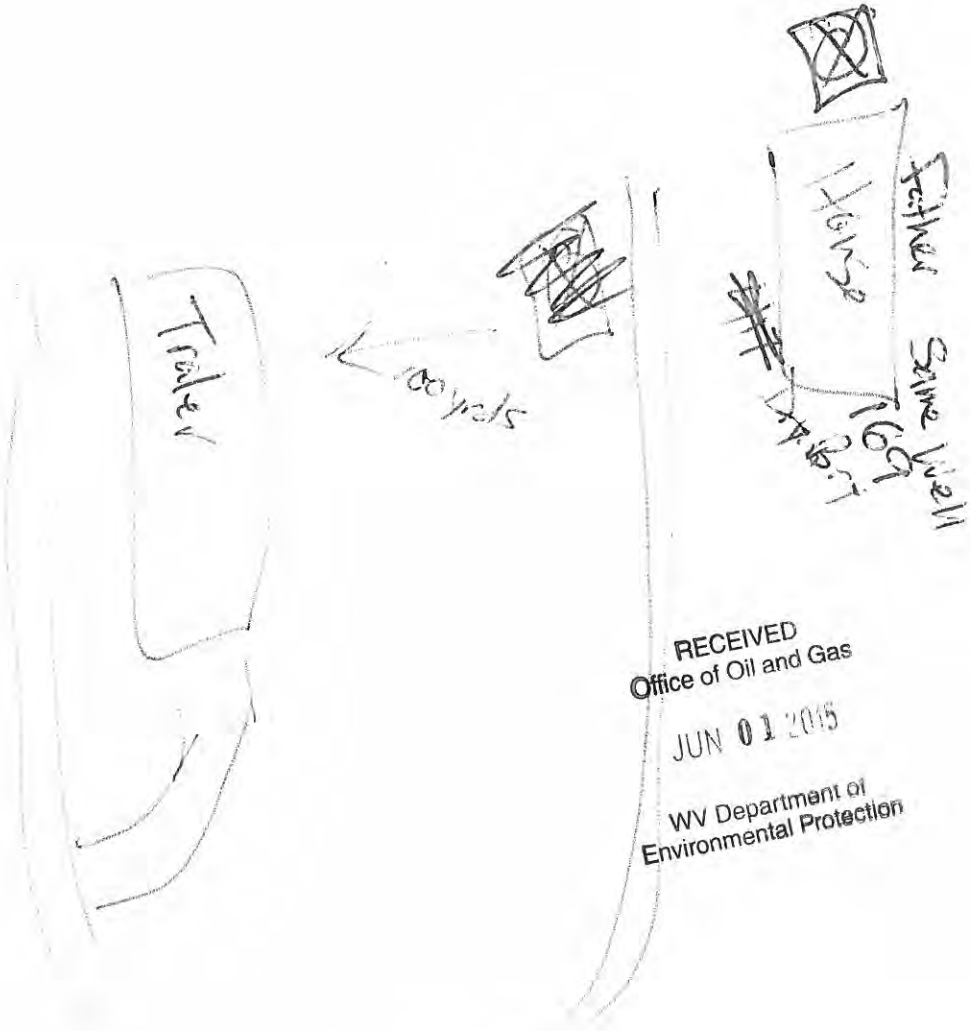
Depth of well (if known- estimate if not) ?

GPS Coordinates

Lat ~~38° 16' 45.2"~~ 38° 16' 43.2"

Long ~~81° 57' 13.7"~~ 81° 57' 16.3"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



APPENDIX E

Water Sources

Operator: HG Energy, LLC Year 2015 UIC Permit #

		Source # 29	Source # 30	Source # 31	Source # 32
Water Source Name		Dennis Mosteller	Daniel Keeling	Mona Woodrum	Ricky Bragg
Northing Easting		-81.947 38.27122	-81.9487 38.26856	-81.9605 38.22644	-81.931 38.28214
Parameter	Units				
TPH - GRO	mg/L	NA	NA	NA	NA
TPH - DRO	mg/L	NA	NA	NA	NA
TPH - ORO	mg/L	NA	NA	NA	NA
BTEX	mg/L	NA	NA	NA	NA
Chloride	mg/L	153	65.0	11.1	11.7
Soidum	mg/L				
Total Dissolved Solids (TDS)	mg/L	362	525	221	403
Aluminum	mg/L	<.02	<.02	0.02	<.02
Arsenic	mg/L	0.0006	0.0200	0.0333	<.0005
Barium	mg/L	0.003	1.10	0.392	0.066
Iron	mg/L	0.55	0.44	5.49	<.02
Manganese	mg/L	0.052	0.104	0.147	0.003
pH	SU	7.6	7.8	7.2	9.1
Calcium	mg/L	0.17	36.0	23.9	1.98
Sulfate	mg/L	4.44	1.83	27.6	11.8
MBAS	mg/L	0.02	0.02	<.01	<.01
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100ml	Absent	Absent	Present	Present

RECEIVED
Office of Oil and Gas
JUL 01 2015
WV Department of
Environmental Protection

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: DENNIS MOSTELLER 815 GARRETS BEND GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-11-15 1330

DATE/TIME RECEIVED: 03-11-15 1815

LABORATORY ID: HGE 150311-A2

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-11-15 1330	CR
FIELD pH	7.60	units			03-11-15 1330	CR
FIELD TEMP	980	°C			03-11-15 1330	CR
FIELD COND	10.5	µmhos			03-11-15 1330	CR
LATTITUDE	38°16'16.4N				03-11-15 1330	CR
LONGITUDE	81°56'49.1W				03-11-15 1330	CR
pH	7.6	units	SM 22nd 4500 H B	.1	03-12-15 1343	KH
Fe	.55	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-22-15 1229	SB
Mn	.052	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-22-15 1229	SB
TSS	<4	mg/L	SM22nd 2540 D	4	03-13-15 1210	EK
TDS	362	mg/L	SM22nd 2540 C	4	03-13-15 1210	EK
MBAS	.02	mg/L	SM22nd 5540C	.01	03-12-15 2018	SW
TOC	1.2	mg/L	SM22nd 5310B	1.0	03-13-15 1220	MW
SO_4	4.44	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-19-15 0700	DC
Cl^-	153.	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-19-15 0700	DC
Al	<.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-22-15 1229	SB
As	.0006	mg/L	SM22nd 3113 B	.0005	03-18-15 1528	SB
Ba	.003	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-22-15 1229	SB
Ca	.17	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-22-15 1229	SB

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas W Bunto

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: SB/ML

METHOD: 3

DATE & TIME SAMPLED: 03-11-15 1330

DATE & TIME RECEIVED: 03-11-15 1815

DATE & TIME ANALYZED: 03-11-15 1829

LABORATORY ID: HGE 150311-A2

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
DENNIS MOSTELLER 815 GARRETS BEND	ABSENT	ABSENT	03-11-15 1330	HGE 150311-A2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Douglas A Bruce

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503G75

Date Reported: 3/26/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/11/2015 1:30:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/13/2015
Lab ID:	1503G75-03A	**Matrix:**	Liquid
Client Sample ID:	15046 DENNIS MOSTELLER 815 GARRETS BEND	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA	mg/L	03/16/15 8:15AM	03/17/15 12:29AM	PA/VA
TPH (Oil Range)	ND	NA	0.28	NA	mg/L	03/16/15 8:15AM	03/17/15 12:29AM	
Surr: o-Terphenyl	103	NA	28.3-152	NA	%REC	03/16/15 8:15AM	03/17/15 12:29AM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	248	NA	50.0	NA	µg/L		03/25/15 12:00AM	
Ethane	ND	NA	75.0	NA	µg/L		03/25/15 12:00AM	
Propane	ND	NA	100	NA	µg/L		03/25/15 12:00AM	
Butane	ND	NA	125	NA	µg/L		03/25/15 12:00AM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	03/16/15 2:00PM	03/24/15 3:23AM	PA/VA
Surr: 2,5-Dibromotoluene	106	NA	37.2-152	NA	%REC	03/16/15 2:00PM	03/24/15 3:23AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	03/16/15 2:00PM	03/24/15 3:23AM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	03/16/15 2:00PM	03/24/15 3:23AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	03/16/15 2:00PM	03/24/15 3:23AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	03/16/15 2:00PM	03/24/15 3:23AM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	03/16/15 2:00PM	03/24/15 3:23AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	87.2	NA	61.2-135	NA	%REC	03/16/15 2:00PM	03/24/15 3:23AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Dennis Mosteller

Address 815 Garrets Bend Rd Griffithsville

Phone 304 524 2914

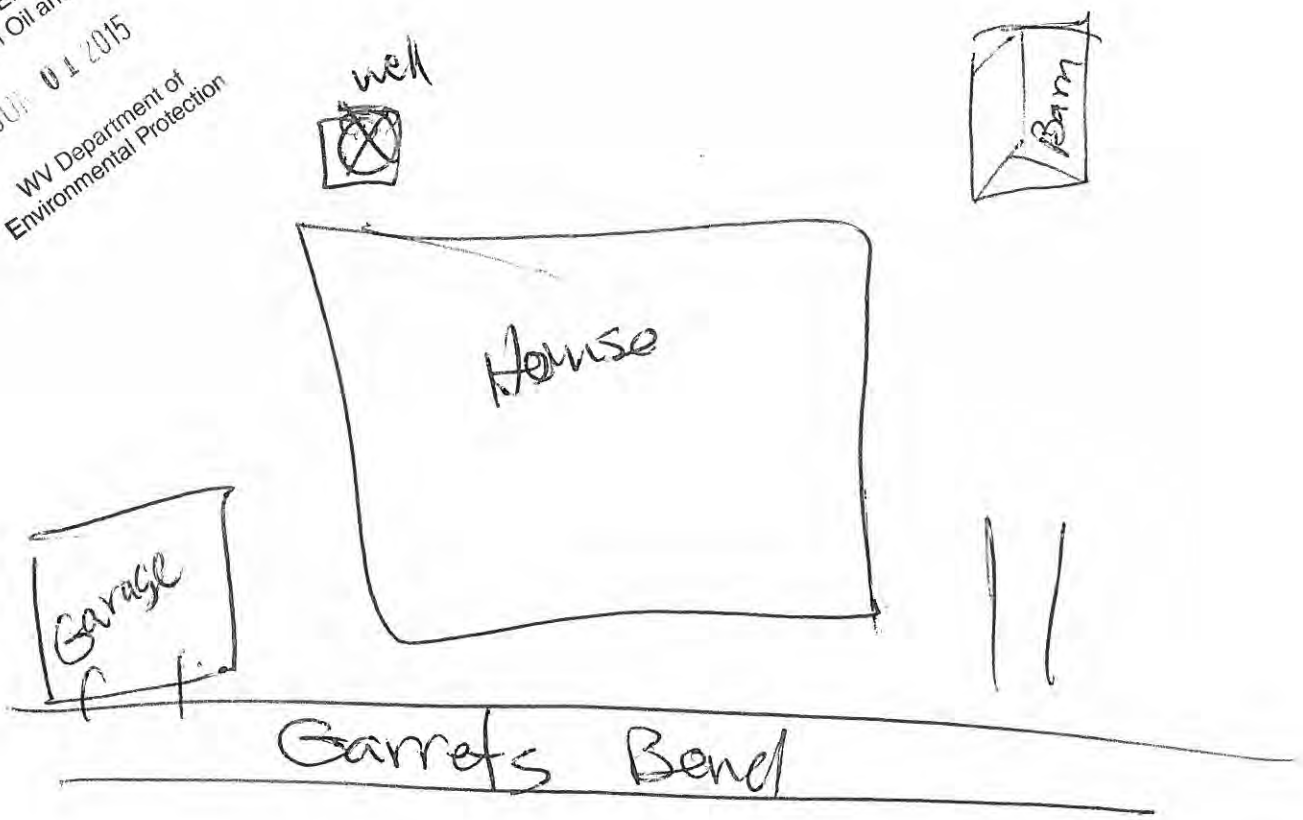
Depth of well (if known- estimate if not) 58'

GPS Coordinates

Lat 38° 16' 16.4"

Long 81° 56' 49.1"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



Sturm Environmental Services

JOHN W. STURM, PRESIDENT

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: DANIEL KEELING 768 GARRETS BEND GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-11-15 1400

DATE/TIME RECEIVED: 03-11-15 1815

LABORATORY ID: HGE 150311-A3

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-11-15 1400	CR
FIELD pH	8.10	units			03-11-15 1400	CR
FIELD TEMP	675	°C			03-11-15 1400	CR
FIELD COND	13.5	µmhos			03-11-15 1400	CR
LATTITUDE	38°16'06.8N				03-11-15 1400	CR
LONGITUDE	81°56'55.2W				03-11-15 1400	CR
pH	7.8	units	SM 22nd 4500 H B	.1	03-12-15 1343	KH
Fe	.44	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-22-15 1229	SB
Mn	.104	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-22-15 1229	SB
TSS	<4	mg/L	SM22nd 2540 D	4	03-13-15 1210	EK
TDS	525	mg/L	SM22nd 2540 C	4	03-13-15 1210	EK
MBAS	.02	mg/L	SM22nd 5540C	.01	03-12-15 2038	SW
TOC	1.2	mg/L	SM22nd 5310B	1.0	03-13-15 1220	MW
SO_4	1.83	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-19-15 0700	DC
Cl^-	65.0	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-19-15 0700	DC
Al	<.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-22-15 1229	SB
As	.0200	mg/L	SM22nd 3113 B	.0005	03-18-15 1528	SB
Ba	1.10	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-22-15 1229	SB
Ca	36.0	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-22-15 1229	SB

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas W Bantz

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: SB/ML

METHOD: 3

DATE & TIME SAMPLED: 03-11-15 1400

DATE & TIME RECEIVED: 03-11-15 1815

DATE & TIME ANALYZED: 03-11-15 1829

LABORATORY ID: HGE 150311-A3

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
DANIEL KEELING 768 GARRETS BEND	ABSENT	ABSENT	03-11-15 1400	HGE 150311-A3

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Douglas A Bruton

Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503G75

Date Reported: 3/26/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/11/2015 2:00:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/13/2015
Lab ID:	1503G75-04A	**Matrix:**	Liquid
Client Sample ID:	15047 DANIEL KEELING 768 GARRETS BEND	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	03/16/15 8:15AM	03/17/15 1:02AM	PA/VA
TPH (Oil Range)	ND	NA	0.29	NA		mg/L	03/16/15 8:15AM	03/17/15 1:02AM	
Surr: o-Terphenyl	93.7	NA	28.3-152	NA		%REC	03/16/15 8:15AM	03/17/15 1:02AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	6,350	NA	200	NA	E	µg/L		03/25/15 12:00AM	
Ethane	ND	NA	300	NA		µg/L		03/25/15 12:00AM	
Propane	ND	NA	400	NA		µg/L		03/25/15 12:00AM	
Butane	ND	NA	500	NA		µg/L		03/25/15 12:00AM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	03/16/15 2:00PM	03/24/15 3:57AM	PA/VA
Surr: 2,5-Dibromotoluene	113	NA	37.2-152	NA		%REC	03/16/15 2:00PM	03/24/15 3:57AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	03/16/15 2:00PM	03/24/15 3:57AM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	03/16/15 2:00PM	03/24/15 3:57AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	03/16/15 2:00PM	03/24/15 3:57AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	03/16/15 2:00PM	03/24/15 3:57AM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	03/16/15 2:00PM	03/24/15 3:57AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	85.2	NA	61.2-135	NA		%REC	03/16/15 2:00PM	03/24/15 3:57AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Daniel Keeling

Address 768 Garrets Bend

Phone 304 524 2957

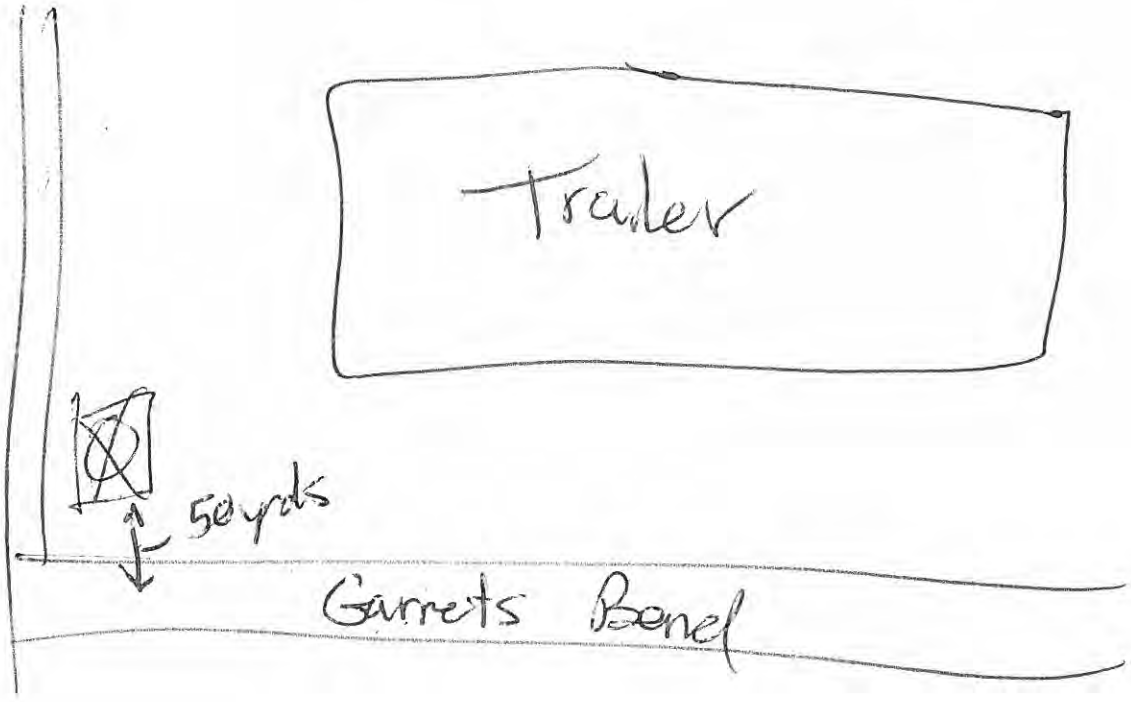
Depth of well (if known- estimate if not) 78'

GPS Coordinates

Lat 38° 16' 06.8"

Long 81° 56' 55.2"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature: CDR
Project Name: Griffithsville UIC2
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY
☐	☐	☐

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	Ice	PRESERVATIVE: OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
(1) Melissa French (256 Dry Branch)					3/11/15	1240	X								X							12	9.60	Pooled	575			7
(2) Dennis Mosteller (815 Garrets Bend)						1330	X								X							10	7.60	Pooled	980			10.5
(3) Darrel Keeling (768 Garrets Bend)						1400	X								X							10	8.10	Pooled	675			13.5

Comments: Caliber + #'s - (1) 055 15 (2) rubbed off (3) 057 15

Records retained for 5 years

Relinquished by:	Date	Time	Received by:	Date	Time
CDR	3/11/15	1615	Michael D. Lipscomb	3/11/15	1815
Relinquished by:	Date	Time	Received by:	Date	Time

Laboratory Comments:
Temperature Upon Receipt: 2.1 °C
Bottles Preserved? Y N
Temp upon Receipt:

CHAIN OF CUSTODY RECORD

REIC
Research Environmental & Industrial Consultants, Inc.
MAIN LABORATORY & CORPORATE HEADQUARTERS:
P.O. Box 286 • 225 Industrial Park Rd, Beaver WV 25813
304 929 0305 • 800 256 2686 • www.reicinc.com

MID-OHIO VALLEY Service Center
1611 29th Street
Ashland, KY 41101
606 393 3926

SHENANDOAH Service Center
1167 Commerce Rd., Ste 20
Verona VA 24482
540 248-4283

ROANOKE Service Center
1100-C Tower Circle Dr
Roanoke VA 24019
540 777 1376

MORGANTOWN Service Center
[illegible]
Westover WV 26501
304 241 3961

Client
Contact Person
Address
Address (if different)
Date Rec'd & Made
Project ID
Date
PWSID
State
Zip
Sampler (print & sign)

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME

NORMAL	RUSH TURNAROUND*			
X	5 DAY	3 DAY	2 DAY	1 DAY

*Rush work needs prior laboratory approval and will incur additional charges

ANALYSIS & METHOD REQUESTED

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/Grab

ENTER PRESERVATIVE CODE

Preservative Codes:

COMMENTS:

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

All analytical requests are subject to REIC's Standard Terms and Conditions

Temperature at arrival: [illegible] °C | ICE? Y | N

Containers provided by: REIC | Client

1 [illegible]

2

FAX RESULTS

EMAIL RESULTS

COC-MCR-0[illegible]

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: MONA WOODRUM
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-19-15 0815

DATE/TIME RECEIVED: 03-19-15 1310

LABORATORY ID: HGE 150319-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-19-15 0815	CR
FIELD pH	7.5	units			03-19-15 0815	CR
FIELD TEMP	420	°C			03-19-15 0815	CR
FIELD COND	8	µmhos			03-19-15 0815	CR
LATTITUDE	38°13'35.2N				03-19-15 0815	CR
LONGITUDE	81°57'37.9W				03-19-15 0815	CR
pH	7.2	units	SM 22nd 4500 H B	.1	03-19-15 1427	KH
Fe	5.49	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-24-15 2022	SB
Mn	.147	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-24-15 2022	SB
TSS	8	mg/L	SM22nd 2540 D	4	03-20-15 1015	BB/EK
TDS	221	mg/L	SM22nd 2540 C	4	03-20-15 1015	BB/EK
MBAS	<.01	mg/L	SM22nd 5540C	.01	03-20-15 1452	DB
TOC	1.7	mg/L	SM22nd 5310B	1.0	03-20-15 1756	MW
SO_4	27.6	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-26-15 0730	DC
Cl^-	11.1	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-25-15 0500	DC
Al	.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-24-15 2022	SB
As	.0333	mg/L	SM22nd 3113 B	.0005	03-27-15 1624	RC
Ba	.392	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-24-15 2022	SB
Ca	23.9	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-24-15 2022	SB

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas W Bantz

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 03-19-15 0815

DATE & TIME RECEIVED: 03-19-15 1310

DATE & TIME ANALYZED: 03-19-15 1329

LABORATORY ID: HGE 150319-1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
MONA WOODRUM	PRESENT	ABSENT	03-19-15 0815	HGE 150319-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Doug W Bennett

Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503Q96

Date Reported: 3/27/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/19/2015 8:15:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/23/2015
Lab ID:	1503Q96-01A	**Matrix:**	Liquid
Client Sample ID:	15054 MONA WOODRUM	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA	mg/L	03/24/15 8:54AM	03/25/15 12:47AM	PA/VA
TPH (Oil Range)	ND	NA	0.28	NA	mg/L	03/24/15 8:54AM	03/25/15 12:47AM	
Surr: o-Terphenyl	99.4	NA	28.3-152	NA	%REC	03/24/15 8:54AM	03/25/15 12:47AM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	ND	NA	10.0	NA	µg/L		03/25/15 12:00AM	
Ethane	ND	NA	15.0	NA	µg/L		03/25/15 12:00AM	
Propane	ND	NA	20.0	NA	µg/L		03/25/15 12:00AM	
Butane	ND	NA	25.0	NA	µg/L		03/25/15 12:00AM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	03/24/15 7:16AM	03/26/15 12:18AM	PA/VA
Surr: 2,5-Dibromotoluene	121	NA	37.2-152	NA	%REC	03/24/15 7:16AM	03/26/15 12:18AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	03/24/15 7:16AM	03/26/15 12:18AM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	03/24/15 7:16AM	03/26/15 12:18AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	03/24/15 7:16AM	03/26/15 12:18AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	03/24/15 7:16AM	03/26/15 12:18AM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	03/24/15 7:16AM	03/26/15 12:18AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	91.3	NA	61.2-135	NA	%REC	03/24/15 7:16AM	03/26/15 12:18AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Mona Woodrum

Address 33 Walnut Dr Hawks

Phone 304 524 7375

Depth of well (if known- estimate if not) 80 ft

GPS Coordinates

Lat 38° 13' 35.2"

Long 81° 57' 37.9"

Provide sketch below of approximate location of dwelling(s) and water wells(s)

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: RICKY BRAGG
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-19-15 0915

DATE/TIME RECEIVED: 03-19-15 1310

LABORATORY ID: HGE 150319-2

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-19-15 0915	CR
FIELD pH	9.5	units			03-19-15 0915	CR
FIELD TEMP	700	°C			03-19-15 0915	CR
FIELD COND	8	µmhos			03-19-15 0915	CR
LATTITUDE	38°16'55.7N				03-19-15 0915	CR
LONGITUDE	81°55'51.6W				03-19-15 0915	CR
pH	9.1	units	SM 22nd 4500 H B	.1	03-19-15 1427	KH
Fe	<.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-24-15 2022	SB
Mn	.003	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-24-15 2022	SB
TSS	<4	mg/L	SM22nd 2540 D	4	03-20-15 1015	BB/EK
TDS	403	mg/L	SM22nd 2540 C	4	03-20-15 1015	BB/EK
MBAS	<.01	mg/L	SM22nd 5540C	.01	03-20-15 1452	DB
TOC	<1.0	mg/L	SM22nd 5310B	1.0	03-20-15 1756	MW
SO_4	11.8	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-26-15 0730	DC
Cl^-	11.7	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-25-15 0500	DC
Al	<.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-24-15 2022	SB
As	<.0005	mg/L	SM22nd 3113 B	.0005	03-27-15 1624	RC
Ba	.066	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-24-15 2022	SB
Ca	1.98	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-24-15 2022	SB

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Dwight H Bonto

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 03-19-15 0915

DATE & TIME RECEIVED: 03-19-15 1310

DATE & TIME ANALYZED: 03-19-15 1329

LABORATORY ID: HGE 150319-2

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
RICKY BRAGG	PRESENT	ABSENT	03-19-15 0915	HGE 150319-2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Douglas H Bantz

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503Q96

Date Reported: 3/27/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/19/2015 9:15:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/23/2015
Lab ID:	1503Q96-02A	**Matrix:**	Liquid
Client Sample ID:	15055 RICKY BRAGG	**Site ID:**	

Analysis	Result	MDL	PQL	MCL Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA	mg/L	03/24/15 8:54AM	03/25/15 1:20AM	PA/VA
TPH (Oil Range)	ND	NA	0.27	NA	mg/L	03/24/15 8:54AM	03/25/15 1:20AM	
Surr: o-Terphenyl	98.6	NA	28.3-152	NA	%REC	03/24/15 8:54AM	03/25/15 1:20AM	
DISSOLVED GASES				**Method: GC-FID**			**Analyst: JC**	
Methane	ND	NA	10.0	NA	µg/L		03/25/15 12:00AM	
Ethane	ND	NA	15.0	NA	µg/L		03/25/15 12:00AM	
Propane	ND	NA	20.0	NA	µg/L		03/25/15 12:00AM	
Butane	ND	NA	25.0	NA	µg/L		03/25/15 12:00AM	
VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**			**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA	mg/L	03/24/15 7:16AM	03/26/15 12:50AM	PA/VA
Surr: 2,5-Dibromotoluene	126	NA	37.2-152	NA	%REC	03/24/15 7:16AM	03/26/15 12:50AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**			**Analyst: CB**	
Benzene	ND	NA	1.00	NA	µg/L	03/24/15 7:16AM	03/26/15 12:50AM	PA/VA
Toluene	ND	NA	1.00	NA	µg/L	03/24/15 7:16AM	03/26/15 12:50AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA	µg/L	03/24/15 7:16AM	03/26/15 12:50AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA	µg/L	03/24/15 7:16AM	03/26/15 12:50AM	PA/VA
o-Xylene	ND	NA	1.00	NA	µg/L	03/24/15 7:16AM	03/26/15 12:50AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	85.9	NA	61.2-135	NA	%REC	03/24/15 7:16AM	03/26/15 12:50AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Ricky Bragg

Address 72 Rockhouse Branch Rd

Phone 304 529 9909

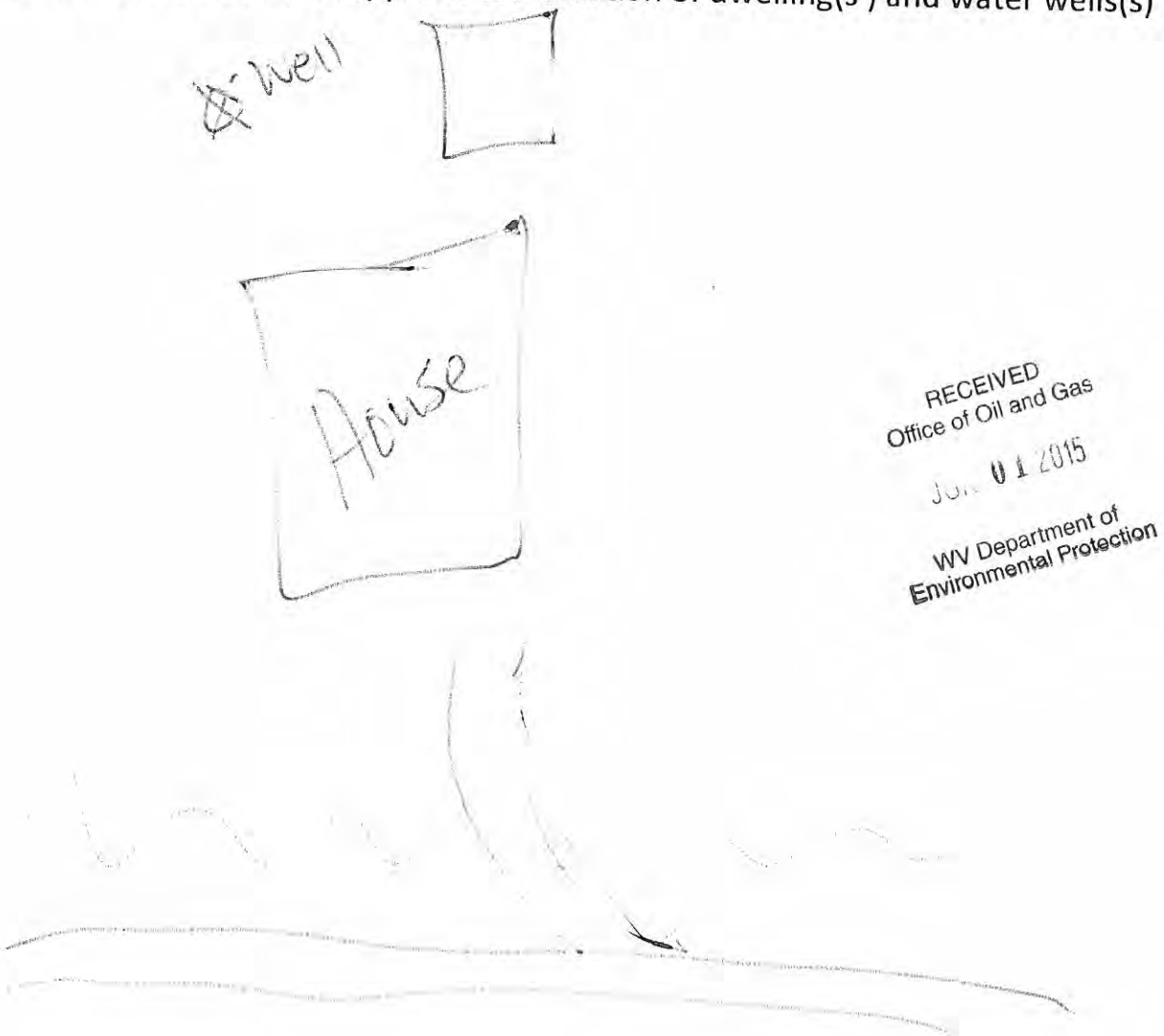
Depth of well (if known- estimate if not) ?

GPS Coordinates

Lat 38° 16' 55.7"

Long 81° 55' 51.6"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Griffithsville UIC2
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY ☐ 2 DAY ☐ 3 DAY ☐

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Mona Woodrum (33 Walnut Dr) Colilert# 045	15				3/19/15	815	X								X							12	7.50	Pooled	420			8
Ricky Bragg (72 Rockhouse Br) Colilert# 040 15					3/19/15	915	X								X							10	9.50	Pooled	700			8

Comments

Records retained for 5 years

Relinquished by:	Date	Time	Received by:	Date	Time
	3/19/15	1015		3/19/15	1015
Relinquished by:	Date	Time	Received by:	Date	Time
	3/19/15	1310		3/19/15	1310

Laboratory Comments:
Temperature Upon Receipt: <6 (.8)
Bottles Preserved? Y N
Temp upon Receipt: 5.1

APPENDIX E

Water Sources

Operator: HG Energy, LLC Year 2015 UIC Permit #

		Source # 33	Source # 34	Source # 35	Source # 36
Water Source Name		Brent McCormick	Kenneth Mitchell	Mason Kitchen	Albert Midkiff
Northing Easting		-81.9386 38.21644	-81.9448 38.21822	-81.9461 38.21772	-81.9479 38.21803
Parameter	Units				
TPH - GRO	mg/L	NA	NA	NA	NA
TPH - DRO	mg/L	NA	NA	NA	NA
TPH - ORO	mg/L	NA	NA	NA	NA
BTEX	mg/L	NA	NA	NA	NA
Chloride	mg/L	30.6	34.0	38.4	56.0
Soidum	mg/L				
Total Dissolved Solids (TDS)	mg/L	354	215	180	314
Aluminum	mg/L	0.13	0.02	0.02	0.03
Arsenic	mg/L	<.0005	0.0022	0.0006	<.0005
Barium	mg/L	0.045	0.507	0.327	0.048
Iron	mg/L	0.14	9.70	1.40	0.18
Manganese	mg/L	0.016	0.452	0.481	0.006
pH	SU	8.4	7.3	6.9	7.7
Calcium	mg/L	2.08	24.6	24.1	0.91
Sulfate	mg/L	1.79	4.96	1.33	<1.0
MBAS	mg/L	<.01	<.01	<.01	0.01
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100mL	Present	Present	Absent	Absent

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: BRENT M^CCORMICK
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-19-15 1330

DATE/TIME RECEIVED: 03-19-15 1800

LABORATORY ID: HGE 150319-A1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-19-15 1330	CR
FIELD pH	8.90	units			03-19-15 1330	CR
FIELD TEMP	635	°C			03-19-15 1330	CR
FIELD COND	8.5	µmhos			03-19-15 1330	CR
LATTITUDE	38°12'59.2N				03-19-15 1330	CR
LONGITUDE	81°56'19.1W				03-19-15 1330	CR
pH	8.4	units	SM 22nd 4500 H B	.1	03-20-15 1357	KH
Fe	.14	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-26-15 1141	MM
Mn	.016	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-26-15 1141	MM
TSS	<4	mg/L	SM22nd 2540 D	4	03-20-15 1300	BB
TDS	354	mg/L	SM22nd 2540 C	4	03-20-15 1300	BB
MBAS	<.01	mg/L	SM22nd 5540C	.01	03-20-15 1452	DB
TOC	1.2	mg/L	SM22nd 5310B	1.0	03-20-15 1732	MW
SO_4	1.79	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-25-15 0500	DC
Cl^-	30.6	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-26-15 0730	DC
Al	.13	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-26-15 1141	MM
As	<.0005	mg/L	SM22nd 3113 B	.0005	03-27-15 1446	RC
Ba	.045	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-27-15 1107	MM
Ca	2.08	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-27-15 1107	MM

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas A Bentz

MAIN OFFICE—POST OFFICE BOX 650 • BRIDGEPORT, WEST VIRGINIA 26330 • (304) 623-6549
CHARLESTON BRANCH—POST OFFICE BOX 8337 • SOUTH CHARLESTON, WEST VIRGINIA 25303-0337 • (304) 744-9864

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: SB

METHOD: 3

DATE & TIME SAMPLED: 03-19-15 1330

DATE & TIME RECEIVED: 03-19-15 1800

DATE & TIME ANALYZED: 03-19-15 1800

LABORATORY ID: HGE 150319-A1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
BRENT M^{C}CORMICK	PRESENT	ABSENT	03-19-15 1330	HGE 150319-A1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Doug H Bunto

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503Q96

Date Reported: 3/27/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/19/2015 1:30:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/23/2015
Lab ID:	1503Q96-03A	**Matrix:**	Liquid
Client Sample ID:	15056 BRENT McCORMIC	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	03/24/15 8:54AM	03/25/15 1:53AM	PA/VA
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	03/24/15 8:54AM	03/25/15 1:53AM	
Surr: o-Terphenyl	100	NA	28.3-152	NA		%REC	03/24/15 8:54AM	03/25/15 1:53AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	69,900	NA	200	NA	E	µg/L		03/25/15 12:00AM	
Ethane	ND	NA	300	NA		µg/L		03/25/15 12:00AM	
Propane	ND	NA	400	NA		µg/L		03/25/15 12:00AM	
Butane	ND	NA	500	NA		µg/L		03/25/15 12:00AM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	03/24/15 7:16AM	03/26/15 1:21AM	PA/VA
Surr: 2,5-Dibromotoluene	121	NA	37.2-152	NA		%REC	03/24/15 7:16AM	03/26/15 1:21AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 1:21AM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 1:21AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 1:21AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	03/24/15 7:16AM	03/26/15 1:21AM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 1:21AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	92.5	NA	61.2-135	NA		%REC	03/24/15 7:16AM	03/26/15 1:21AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Brent McCormick

Address 4365 Midway Rd

Phone 304 524 9418

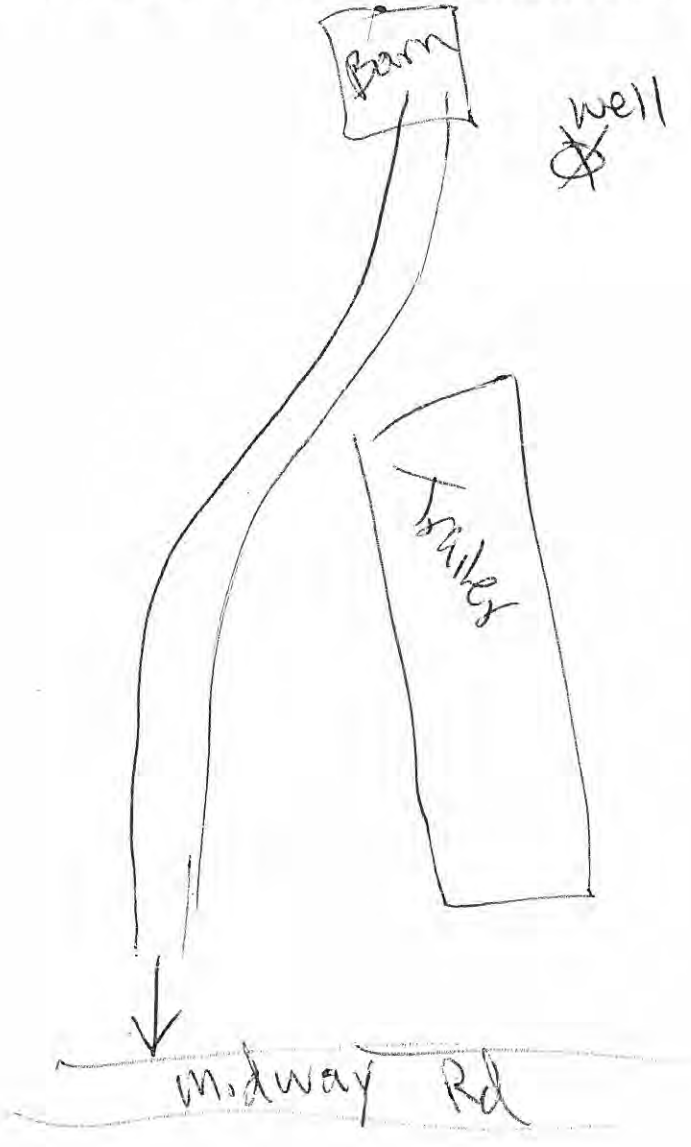
Depth of well (if known- estimate if not) 300-350'

GPS Coordinates

Lat 38° 12' 59.2"

Long 81° 56' 19.1"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: KENNETH MITCHELL
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-19-15 1410

DATE/TIME RECEIVED: 03-19-15 1800

LABORATORY ID: HGE 150319-A2

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-19-15 1410	CR
FIELD pH	7.70	units			03-19-15 1410	CR
FIELD TEMP	430	°C			03-19-15 1410	CR
FIELD COND	11	µmhos			03-19-15 1410	CR
LATTITUDE	38°13'05.6N				03-19-15 1410	CR
LONGITUDE	81°56'41.2W				03-19-15 1410	CR
pH	7.3	units	SM 22nd 4500 H B	.1	03-20-15 1357	KH
Fe	9.70	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-26-15 1141	MM
Mn	.452	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-26-15 1141	MM
TSS	20	mg/L	SM22nd 2540 D	4	03-20-15 1300	BB
TDS	215	mg/L	SM22nd 2540 C	4	03-20-15 1300	BB
MBAS	<.01	mg/L	SM22nd 5540C	.01	03-20-15 1452	DB
TOC	1.5	mg/L	SM22nd 5310B	1.0	03-20-15 1732	MW
SO_4	4.96	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-25-15 0500	DC
Cl^-	34.0	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-26-15 0730	DC
Al	.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-26-15 1141	MM
As	.0022	mg/L	SM22nd 3113 B	.0005	03-27-15 1446	RC
Ba	.507	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-27-15 1107	MM
Ca	24.6	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-27-15 1107	MM

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas A Bruton

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: SB

METHOD: 3

DATE & TIME SAMPLED: 03-19-15 1410

DATE & TIME RECEIVED: 03-19-15 1800

DATE & TIME ANALYZED: 03-19-15 1800

LABORATORY ID: HGE 150319-A2

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
KENNETH MITCHELL	PRESENT	ABSENT	03-19-15 1410	HGE 150319-A2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Douglas H Bantz

Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503Q96

Date Reported: 3/27/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/19/2015 2:10:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/23/2015
Lab ID:	1503Q96-04A	**Matrix:**	Liquid
Client Sample ID:	15057 KENNETH MITCHELL	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	03/24/15 8:54AM	03/25/15 2:25AM	PA/VA
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	03/24/15 8:54AM	03/25/15 2:25AM	
Surr: o-Terphenyl	100	NA	28.3-152	NA		%REC	03/24/15 8:54AM	03/25/15 2:25AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	6,820	NA	200	NA	E	µg/L		03/25/15 12:00AM	
Ethane	ND	NA	300	NA		µg/L		03/25/15 12:00AM	
Propane	ND	NA	400	NA		µg/L		03/25/15 12:00AM	
Butane	ND	NA	500	NA		µg/L		03/25/15 12:00AM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	03/24/15 7:16AM	03/26/15 1:53AM	PA/VA
Surr: 2,5-Dibromotoluene	126	NA	37.2-152	NA		%REC	03/24/15 7:16AM	03/26/15 1:53AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 1:53AM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 1:53AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 1:53AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	03/24/15 7:16AM	03/26/15 1:53AM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 1:53AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	84.4	NA	61.2-135	NA		%REC	03/24/15 7:16AM	03/26/15 1:53AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Kenneth Mitchell

Address 4474 Midway Rd

Phone 304 524 7804

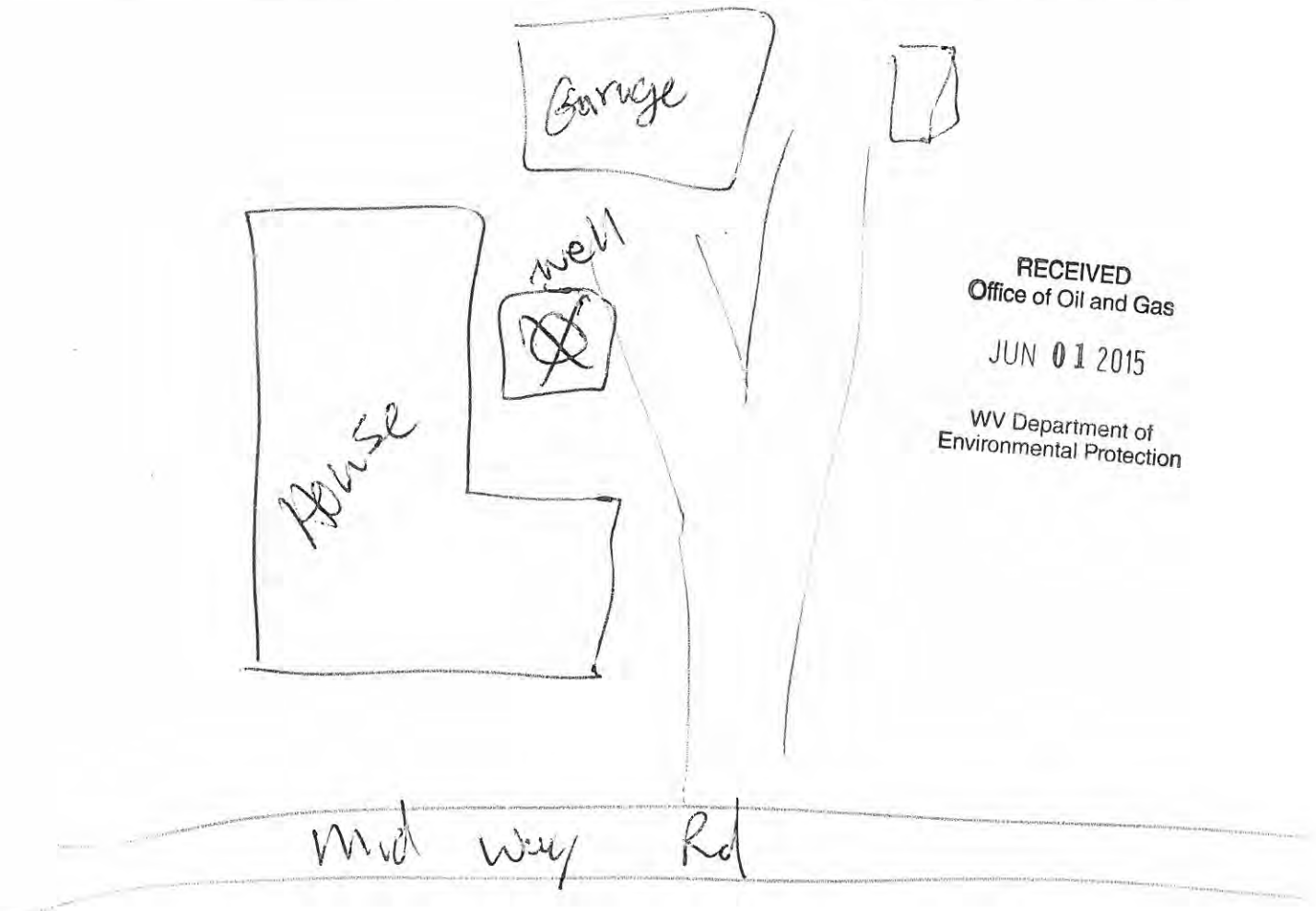
Depth of well (if known- estimate if not) 153'

GPS Coordinates

Lat 38 13' 05.6"

Long 81 56 41.2

Provide sketch below of approximate location of dwelling(s) and water wells(s)



Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: MASON KITCHEN
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-19-15 1440

DATE/TIME RECEIVED: 03-19-15 1800

LABORATORY ID: HGE 150319-A3

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-19-15 1440	CR
FIELD pH	7.20	units			03-19-15 1440	CR
FIELD TEMP	340	°C			03-19-15 1440	CR
FIELD COND	11	µmhos			03-19-15 1440	CR
LATTITUDE	38°13'03.8N				03-19-15 1440	CR
LONGITUDE	81°56'46.0W				03-19-15 1440	CR
pH	6.9	units	SM 22nd 4500 H B	.1	03-20-15 1357	KH
Fe	1.40	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-26-15 1141	MM
Mn	.481	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-26-15 1141	MM
TSS	<4	mg/L	SM22nd 2540 D	4	03-20-15 1300	BB
TDS	180	mg/L	SM22nd 2540 C	4	03-20-15 1300	BB
MBAS	<.01	mg/L	SM22nd 5540C	.01	03-20-15 1452	DB
TOC	1.5	mg/L	SM22nd 5310B	1.0	03-20-15 1732	MW
SO_4	1.33	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-25-15 0500	DC
Cl^-	38.4	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-26-15 0730	DC
Al	.02	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-26-15 1141	MM
As	.0006	mg/L	SM22nd 3113 B	.0005	03-27-15 1446	RC
Ba	.327	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-27-15 1107	MM
Ca	24.1	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-27-15 1107	MM

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas W Bunto

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: SB

METHOD: 3

DATE & TIME SAMPLED: 03-19-15 1440

DATE & TIME RECEIVED: 03-19-15 1800

DATE & TIME ANALYZED: 03-19-15 1800

LABORATORY ID: HGE 150319-A3

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
MASON KITCHEN	ABSENT	ABSENT	03-19-15 1440	HGE 150319-A3

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF) 9222 D
2 – Coliform, Fecal (MPN) COLILERT 18
3 – Coliform, Total (MPN) COLILERT
4 – Coliform, Total (P/A) 9223 B
5 – Hetertrophic Plate Count (HPC) 9215 B

Douglas W Bunto

Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503Q96

Date Reported: 3/27/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/19/2015 2:40:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/23/2015
Lab ID:	1503Q96-05A	**Matrix:**	Liquid
Client Sample ID:	15058 MASON KITCHEN	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	03/24/15 8:54AM	03/25/15 2:58AM	PA/VA
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	03/24/15 8:54AM	03/25/15 2:58AM	
Surr: o-Terphenyl	81.0	NA	28.3-152	NA		%REC	03/24/15 8:54AM	03/25/15 2:58AM	
DISSOLVED GASES				**Method: GC-FID**				**Analyst: JC**	
Methane	11,600	NA	200	NA	E	µg/L		03/25/15 12:00AM	
Ethane	ND	NA	300	NA		µg/L		03/25/15 12:00AM	
Propane	ND	NA	400	NA		µg/L		03/25/15 12:00AM	
Butane	ND	NA	500	NA		µg/L		03/25/15 12:00AM	

Notes:

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS				**Method: SW8015C (2000)**				**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	03/24/15 7:16AM	03/26/15 2:25AM	PA/VA
Surr: 2,5-Dibromotoluene	122	NA	37.2-152	NA		%REC	03/24/15 7:16AM	03/26/15 2:25AM	
VOLATILE ORGANIC COMPOUNDS				**Method: SW8021B (1996)**				**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 2:25AM	PA/VA
Toluene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 2:25AM	PA/VA
Ethylbenzene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 2:25AM	PA/VA
m,p-Xylene	ND	NA	2.00	NA		µg/L	03/24/15 7:16AM	03/26/15 2:25AM	PA/VA
o-Xylene	ND	NA	1.00	NA		µg/L	03/24/15 7:16AM	03/26/15 2:25AM	PA/VA
Surr: 1,1,1-Trifluorotoluene	83.2	NA	61.2-135	NA		%REC	03/24/15 7:16AM	03/26/15 2:25AM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Mason Kitchen

Address 4529 Midway Rd

Phone 304 524 2181

Depth of well (if known- estimate if not) 220

GPS Coordinates

Lat 38 13 03.8

Long 81 56 46.0

Provide sketch below of approximate location of dwelling(s) and water wells(s)

CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

RECEIVED
Office of Oil and Gas
0 1 2015
WV Department of Environmental Protection

REPORT TO: Client Name: HG Energy
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Griffithsville VICZ
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
___ Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Brent McCormick (4365 Midway Rd)					3/19/15	1330	X								X							12	8.90	Pooled	635			8.5
Kenneth Mitchell (4474 Midway Rd)					~~1330~~																							
						1410	X								X													
Mason Kitchen (4529 Midway Rd)						1440	X								X							10	7.70	Pooled	430			11
																						10	7.20	Pooled	340			11

Comments

Records retained for 5 years

Relinquished by:	Date	Time	Received by:	Date	Time
	3/19/15	1800	Michael D. Lipscomb	3/19/15 1800	1800
Relinquished by:	Date	Time	Received by:	Date	Time

Laboratory Comments:
Temperature Upon Receipt: ~.2°C
Bottles Preserved? Y N
Temp upon Receipt:

CHAIN OF CUSTODY RECORD

REIC
Research Environmental & Industrial Consultants, Inc.
MAIN LABORATORY & CORPORATE HEADQUARTERS:
PO Box 268 • 125 Industrial Park Rd, Beaver, WV 25813
(800) 999-6103 • (304) 255-2500 • www.reicusa.com

MID-OHIO VALLEY Service Center
SHENANDOAH Service Center
ROANOKE Service Center
MORGANTOWN Service Center

Preservative Codes:

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME	RUSH TURNAROUND*			
NORMAL	5 DAY	3 DAY	2 DAY	1 DAY

*Rush work needs prior laboratory approval and may incur additional charges.

ANALYSIS & METHOD REQUESTED

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/Grab

ENTER PRESERVATIVE CODE

COMMENTS:

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of Environmental Protection

All analytical requests are subject to REIC's Standard Terms and Conditions

Temperature at arrival: °C | ICE? Y N | Containers provided by: REIC Client

1 | 2

FAX RESULTS | EMAIL RESULTS

COC-NO R01-414

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: ALBERT MIDKIFF
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-23-15 1115

DATE/TIME RECEIVED: 03-23-15 1615

LABORATORY ID: HGE 150323-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-23-15 1115	CR
FIELD pH	8.30	units			03-23-15 1115	CR
FIELD TEMP	560	°C			03-23-15 1115	CR
FIELD COND	10.5	µmhos			03-23-15 1115	CR
LATTITUDE	38°13'04.9N				03-23-15 1115	CR
LONGITUDE	81°56'52.4W				03-23-15 1115	CR
pH	7.7	units	SM 22nd 4500 H B	.1	03-23-15 1853	KH
Fe	.18	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-27-15 1107	MM
Mn	.006	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-27-15 1107	MM
TSS	<4	mg/L	SM22nd 2540 D	4	03-24-15 1320	BB/EK
TDS	314	mg/L	SM22nd 2540 C	4	03-24-15 1320	BB/EK
MBAS	.01	mg/L	SM22nd 5540C	.01	03-24-15 2328	SW
TOC	1.4	mg/L	SM22nd 5310B	1.0	03-24-15 1424	MW
SO_4	<1.0	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-28-15 1200	DC
Cl^-	56.0	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-31-15 0545	DC
Al	.03	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-27-15 1107	MM
As	<.0005	mg/L	SM22nd 3113 B	.0005	03-24-15 1945	RC
Ba	.048	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-27-15 1107	MM
Ca	.91	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-27-15 1107	MM

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas H Bantz

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 03-23-15 1115

DATE & TIME RECEIVED: 03-23-15 1615

DATE & TIME ANALYZED: 03-23-15 1621

LABORATORY ID: HGE 150323-1

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
ALBERT MIDKIFF	ABSENT	ABSENT	03-23-15 1115	HGE 150323-1

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF)	9222 D
2 – Coliform, Fecal (MPN)	COLILERT 18
3 – Coliform, Total (MPN)	COLILERT
4 – Coliform, Total (P/A)	9223 B
5 – Hetertrophic Plate Count (HPC)	9215 B

Doyle H Bunto

Approved

* Client provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503W55

Date Reported: 4/8/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/23/2015 11:15:00 AM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/26/2015
Lab ID:	1503W55-01A	**Matrix:**	Liquid
Client Sample ID:	15059 ALBERT MIDKIFF	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	03/27/15 11:21AM	03/28/15 3:41AM	
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	03/27/15 11:21AM	03/28/15 3:41AM	
Surr: o-Terphenyl	97.1	NA	28.3-152	NA		%REC	03/27/15 11:21AM	03/28/15 3:41AM	
DISSOLVED GASES			**Method: GC-FID**					**Analyst: JC**	
Methane	26,000	NA	200	NA	E	µg/L		04/06/15 12:00AM	
Ethane	ND	NA	300	NA		µg/L		04/06/15 12:00AM	
Propane	ND	NA	400	NA		µg/L		04/06/15 12:00AM	
Butane	ND	NA	500	NA		µg/L		04/06/15 12:00AM	

Notes:

Elevated PQLs are due to matrix interference.

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	03/27/15 10:16AM	04/01/15 9:39PM	
Surr: 2,5-Dibromotoluene	74.2	NA	37.2-152	NA		%REC	03/27/15 10:16AM	04/01/15 9:39PM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**					**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 9:39PM	
Toluene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 9:39PM	
Ethylbenzene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 9:39PM	
m,p-Xylene	ND	NA	2.00	NA		µg/L	03/27/15 10:16AM	04/01/15 9:39PM	
o-Xylene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 9:39PM	
Surr: 1,1,1-Trifluorotoluene	88.7	NA	61.2-135	NA		%REC	03/27/15 10:16AM	04/01/15 9:39PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Albert Midkiff

Address 4589 Midway Rd

Phone 304 524 2818

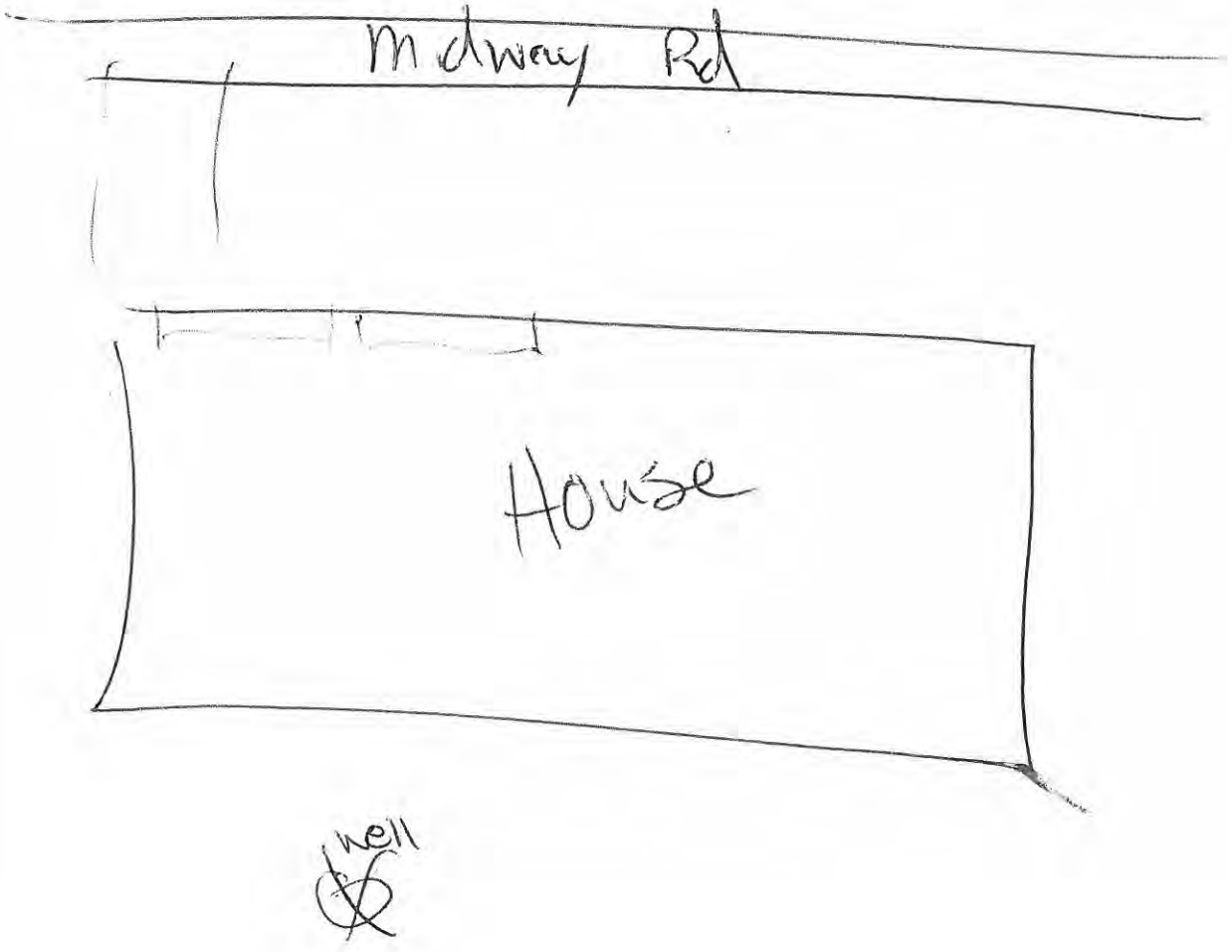
Depth of well (if known- estimate if not) 100+'

GPS Coordinates

Lat 38° 13' 04.9"

Long 81° 56' 52.4"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



APPENDIX E

Water Sources

Operator: HG Energy, LLC Year 2015 UIC Permit #

		Source # 37	Source # 38	Source # 39	Source # 40
Water Source Name		Bethany Dodson			
Northing Easting		-81.9509 38.21789			
Parameter	Units				
TPH - GRO	mg/L	NA			
TPH - DRO	mg/L	NA			
TPH - ORO	mg/L	NA			
BTEX	mg/L	NA			
Chloride	mg/L	60.0			
Soidum	mg/L				
Total Dissolved Solids (TDS)	mg/L	317			
Aluminum	mg/L	0.03			
Arsenic	mg/L	<.005			
Barium	mg/L	0.086			
Iron	mg/L	0.24			
Manganese	mg/L	0.009			
pH	SU	7.7			
Calcium	mg/L	1.83			
Sulfate	mg/L	<1.0			
MBAS	mg/L	<.01			
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100ml	Absent			

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: H.G. ENERGY, LLC.

SAMPLE ID: BETHANY DODSON
GRIFFITHSVILLE UIC 2

SAMPLED BY: C. ROSS

DATE/TIME SAMPLED: 03-23-15 1210

DATE/TIME RECEIVED: 03-23-15 1615

LABORATORY ID: HGE 150323-2

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
FLOW	POOLED	gpm			03-23-15 1210	CR
FIELD pH	8.30	units			03-23-15 1210	CR
FIELD TEMP	565	°C			03-23-15 1210	CR
FIELD COND	10.5	µmhos			03-23-15 1210	CR
LATTITUDE	38°13'04.4N				03-23-15 1210	CR
LONGITUDE	81°57'03.3W				03-23-15 1210	CR
pH	7.7	units	SM 22nd 4500 H B	.1	03-23-15 1853	KH
Fe	.24	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-27-15 1107	MM
Mn	.009	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-27-15 1107	MM
TSS	<4	mg/L	SM22nd 2540 D	4	03-24-15 1320	BB/EK
TDS	317	mg/L	SM22nd 2540 C	4	03-24-15 1320	BB/EK
MBAS	<.01	mg/L	SM22nd 5540C	.01	03-24-15 2328	SW
TOC	2.1	mg/L	SM22nd 5310B	1.0	03-24-15 1424	MW
SO_4	<1.0	mg/L	EPA 300.0 Rev 2.1-1993	1.0	03-28-15 1200	DC
Cl^-	60.0	mg/L	EPA 300.0 Rev 2.1-1993	.50	03-31-15 0545	DC
Al	.03	mg/L	EPA 200.7 Rev 4.4-1994	.02	03-27-15 1107	MM
As	<.0005	mg/L	SM22nd 3113 B	.0005	03-24-15 1945	RC
Ba	.086	mg/L	EPA 200.7 Rev 4.4-1994	.002	03-27-15 1107	MM
Ca	1.83	mg/L	EPA 200.7 Rev 4.4-1994	.10	03-27-15 1107	MM

*Client Provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Approved Douglas H Bentz

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

MICROBIOLOGY

COMPANY: H.G. ENERGY, LLC.

SAMPLED BY: C. ROSS

ANALYST: MW

METHOD: 3

DATE & TIME SAMPLED: 03-23-15 1210

DATE & TIME RECEIVED: 03-23-15 1615

DATE & TIME ANALYZED: 03-23-15 1621

LABORATORY ID: HGE 150323-2

SAMPLE ID	TOTAL COLIFORM P/A	E. COLI PA	DATE/TIME SAMPLED	LOG NO.
BETHANY DODSON	ABSENT	ABSENT	03-23-15 1210	HGE 150323-2

Microbiological analysis results will be discarded after 5 years
Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

1 – Coliform, Fecal (MF) 9222 D
2 – Coliform, Fecal (MPN) COLILERT 18
3 – Coliform, Total (MPN) COLILERT
4 – Coliform, Total (P/A) 9223 B
5 – Hetertrophic Plate Count (HPC) 9215 B

Douglas W Bennett

Approved

* Client provided
**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

REI Consultants, Inc. - Analytical Report

WO#: 1503W55

Date Reported: 4/8/2015

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	3/23/2015 12:10:00 PM
Project:	H.G. ENERGY, LLC.	**Date Received:**	3/26/2015
Lab ID:	1503W55-02A	**Matrix:**	Liquid
Client Sample ID:	15060 BETHANY DODSON	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CL**	
TPH (Diesel Range)	ND	NA	0.11	NA		mg/L	03/27/15 11:21AM	03/28/15 4:14AM	
TPH (Oil Range)	ND	NA	0.27	NA		mg/L	03/27/15 11:21AM	03/28/15 4:14AM	
Surr: o-Terphenyl	96.5	NA	28.3-152	NA		%REC	03/27/15 11:21AM	03/28/15 4:14AM	
DISSOLVED GASES			**Method: GC-FID**					**Analyst: JC**	
Methane	30,200	NA	200	NA	E	µg/L		04/06/15 12:00AM	
Ethane	ND	NA	300	NA		µg/L		04/06/15 12:00AM	
Propane	ND	NA	400	NA		µg/L		04/06/15 12:00AM	
Butane	ND	NA	500	NA		µg/L		04/06/15 12:00AM	

Notes:

Elevated PQLs are due to matrix interference.

Methane level exceeds the concentration range due to method constraints.

VOLATILE RANGE ORGANICS			**Method: SW8015C (2000)**					**Analyst: CB**	
TPH (Gasoline Range)	ND	NA	0.500	NA		mg/L	03/27/15 10:16AM	04/01/15 10:12PM	
Surr: 2,5-Dibromotoluene	79.0	NA	37.2-152	NA		%REC	03/27/15 10:16AM	04/01/15 10:12PM	
VOLATILE ORGANIC COMPOUNDS			**Method: SW8021B (1996)**					**Analyst: CB**	
Benzene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 10:12PM	
Toluene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 10:12PM	
Ethylbenzene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 10:12PM	
m,p-Xylene	ND	NA	2.00	NA		µg/L	03/27/15 10:16AM	04/01/15 10:12PM	
o-Xylene	ND	NA	1.00	NA		µg/L	03/27/15 10:16AM	04/01/15 10:12PM	
Surr: 1,1,1-Trifluorotoluene	86.1	NA	61.2-135	NA		%REC	03/27/15 10:16AM	04/01/15 10:12PM	

Griffithsville Unit No. 2 Water Sampling December 2014

Residence

Name Bethany Dodson

Address 4701 Midway Rd Yawkey

Phone 304 989 7971

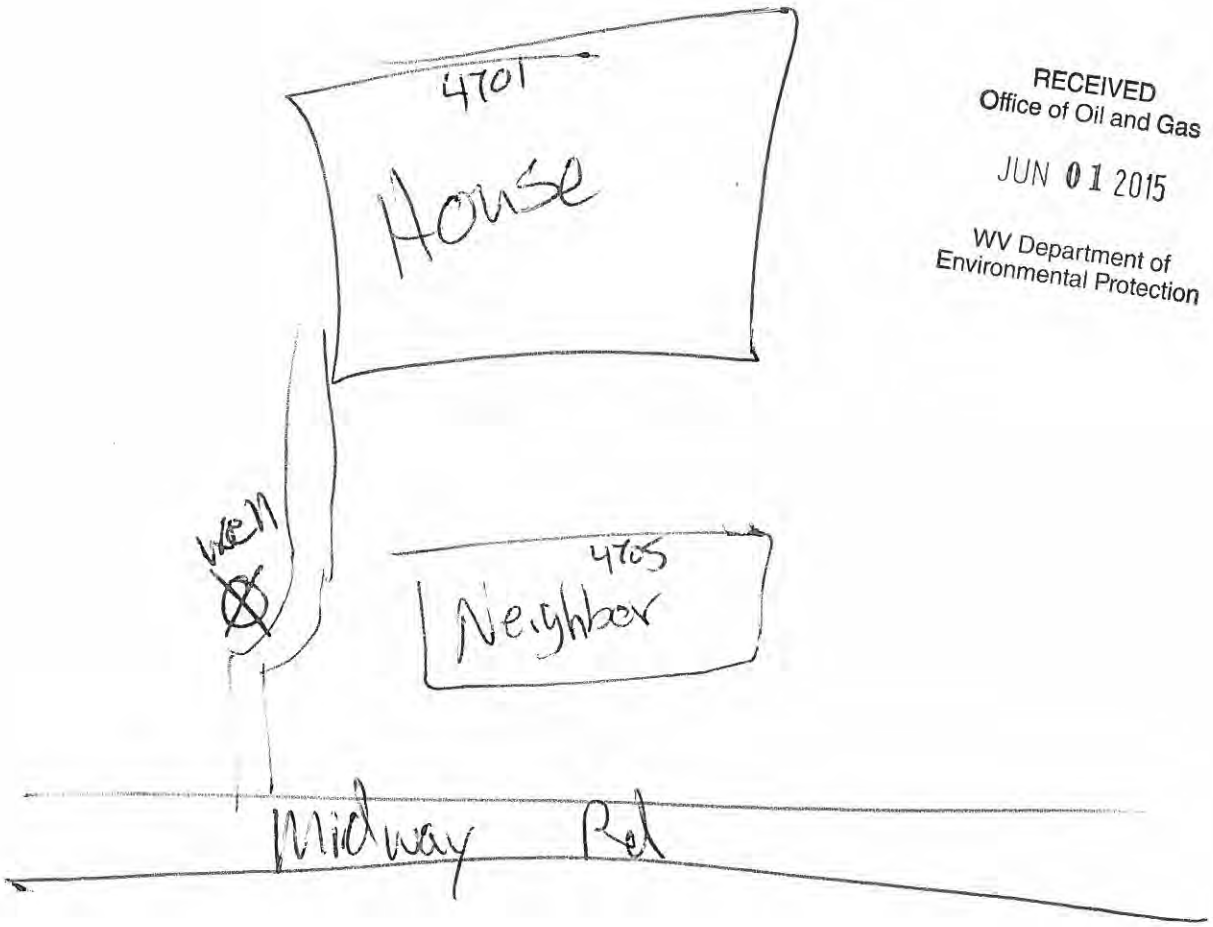
Depth of well (if known- estimate if not)

GPS Coordinates

Lat 38° 13' 04.4"

Long 81° 57' 03.3"

Provide sketch below of approximate location of dwelling(s) and water wells(s)



CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of
Environmental Protection

REPORT TO: Client Name: HG Energy II
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Sampler Name: (Print) Chris Ross
Sampler Signature:
Project Name: Griffithsville UIC 2
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name:
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY ☐ 2 DAY ☐ 3 DAY ☐

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR:	# of Bottles	Field pH	Flow (gpm) cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Albert Midkiff (4589 Midway Rd)					3/23/15	1115	X								X						Lab # 041-15	12	8.30	Pooled	560			10.5
Bethany Dodson (4701 Midway Rd)					↓	1210	X								X						Lab # 096-15	10	8.30	Pooled	565			10.5

Comments

Records retained for 5 years

Laboratory Comments:
Temperature Upon Receipt
Bottles Preserved? Y N
Temp upon Receipt:

Relinquished by:	Date	Time	Received by:	Date	Time
	3/23/15	1615		3-23-15	1615
Relinquished by:	Date	Time	Received by:	Date	Time

CHAIN OF CUSTODY RECORD

REIC
Research Environmental & Industrial Consultants, Inc.
MAIN LABORATORY & CORPORATE HEADQUARTERS:
P.O. Box 286 • 225 Industrial Park Rd. Beckley, WV 25801
800-999-0181 • 304-255-5476 • www.reicweb.com

MID-OHIO VALLEY Service Center
101 17th Street
Ashland, KY 41101
606-327-5027

SHENANDOAH Service Center
1527 Cornerstone Rd. Ste. 201
Winchester, VA 22602
540-868-9379

ROANOKE Service Center
5029 Valley Creek Rd.
Roanoke, VA 24018
540-527-1571

MORGANTOWN Service Center
Performance Plaza
Westover, WV 26501
304-241-2801

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME	RUSH TURNAROUND*			
NORMAL	5 DAY	3 DAY	2 DAY	1 DAY

*Rush work needs prior laboratory approval and may result in additional charges.

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/Grab

ANALYSIS & METHOD REQUESTED

ENTER PRESERVATIVE CODE

Preservative Codes:

COMMENTS:

RECEIVED
Office of Oil and Gas
JUN 01 2015
WV Department of Environmental Protection

All analytical requests are subject to REIC's Standard Terms and Conditions.

Temperature at arrival: °C | ICED? Y N | Containers provided by: REIC | Client

1 | 2

FAX RESULTS | EMAIL RESULTS

Appendix F

See Appendix C

Appendix G

There are currently no wells to be served by the injectors for this proposed Griffithsville Unit No. 2. As he unit sis developed both producers and injectors will be drilled and placed into service.

APPENDIX H

RECEIVED
Office of Oil and Gas

JUN 01 2015

WV Department of
Environmental Protection

GROUNDWATER PROTECTION PLAN

Facility Name: Griffithsville

County: Lincoln

Facility Location:

Postal Service Address:	NA	
Latitude and Longitude:	38.246329	81.954480

Contact Information:

Person:	Roger Heldman
Phone Number:	304-420-1107
E-mail Address:	rheldman@hgenergyllc.com

Date: _____

1. A list of all operations that may contaminate the groundwater.

Tank failure/leak
Pipeline leak

2. A description of procedures and facilities used to protect groundwater quality from the list of potential contaminant sources above.

Secondary containment around tanks
Pipelines routinely patrolled for leaks

3. List procedures to be used when designing and adding new equipment or operations.

Non-corrosive materials will be utilized as much as possible to minimize failures.

4. Summarize all activities at your facility that are already regulated for groundwater protection.

This injection facility is covered by existing UIC permit.

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

There are no known ground water quality issues in this area.

6. Provide a statement that no waste material will be used for deicing or fill material on the property unless allowed by another rule.

No waste material is or will be used for deicing or fill material.

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.

The operators of this facility are instructed to routinely monitor tank conditions, secondary containment condition, and patrol injection lines.

8. Include provisions for inspections of all GPP elements and equipment. Inspections must be made quarterly at a minimum.

Dikes, pipelines, and injection equipment will be inspected at a minimum of every 90 days.

Signature: _____

Date: 5/21/15

(4/25)

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: HG Energy, LLC
5260 Dupont Road
Parkersburg, WV 26101

Date: April 1, 2015

Subject: Underground Injection Control (UIC) Permit Application
#
Requirement for Financial Responsibility

I, Eric Grayson, 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: Eric Grayson

Signature: Eric Grayson

Date: 5/26/15

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Environmental Protection

Appendix J

This is not a commercial disposal facility.

Appendix K

There have been and currently are no other permit related activities on going within the area of this proposed UIC permit.

CURRY DUVAL

Herbert H Wilkinson 30.25a

Louis R Sweetland 114.5a

John S Burdette 157a

H J Bird 172.5a

R A Clay 49a

Fork

Xenil E Campbell 135.7a

J C Wilkinson 118.5a

Hamlin Realty 70.25a

Dry Branch

Thomas J McDowell 100a

Ival McCallister 55a

W L & D G Beheler 101.5a

Columbus Nelson 63a

Hulda A Perdue 101a

A E Smith 73a

469

40a

J A Fowlkes 88a

W W & R E Vanderlinde 90a

53a

J Samuel Sanson 59a

John S Burdette 85a

20a

A E Smith 73a

Lower Road

E G Pauley 121a

J T Lawrence Hrs 50a

J R McCallister 56a

T F Nelson 59a

Thos F Nelson 88.75a

77a

Mahala Coon 65a

Trace

Stephenson etal 66a

Jonas V Alford 63a

Z A Ranson

B P McKinney 80a

Matilda Nelson 40a

Nelson Cem

Emma & Z A Schilling 62a

5.5a

M G Lawson 15a

85.8a

S Reed Hill 100a

John R Strickler 61a

Thomas McDowell 89a

W M Goode 151a

E S Alford 107.8a

W L Richmond Hrs 25a

Fork

Lafayette Alford 74a

John W Lipscomb 76a

N N Nelson 192a

BM 712

Hollister Road

A L Escue 9a

A E Robertson 94a

Jane Paul 1a

Road

A G Lawrence 51a

Oscar F Bell 75a

J L Spurlock 114.75a

34.75a

G T Lawrence Hrs 102.7a

Floyd Strickler

M C Warth etal 31a

Jas W Harless 38a

16a

James Lawson 92a

J W Curnes 70a

PIPELINE

J Belcher 30a

Joes

D A Oxley 110a

E Strickler 19.5a

Albert Nelson 3a

J Adam Pauley 50a

B L Pauley 52a

H Bird 45a

Truman Rakerd 90a

Valley

18a

18a

Miles Branch Rd

J G Settle 71a

Addison Hager 42a

Br

M A Lawrence 73a

Fannie J Bell 35a

Cordelia Holton 30a

Eliz McCallister 30a

Thomas Nelson 30a

Tango

Andrew Pauley 70a

Leonard Oxley 109a

Sams

Strickler & Morrison 31a

B F Curnes 108a

J B Kingery 49a

H E Schmidt 40a

Leonard Oxley 109a

73.5a

Branch Tango Br

18a

Fork

John A Stowers 152.5a

Hager & McClure 40a

Ban S Oxley 42a

Tango

Creek

25a

M A Dingess 115a

Jennie Jones 235.5a total

92.4a

PIPELINE

H B Griffith 82a

Mathew Spurlock 222a

Emily Morrison

John Morrison 8a

Fay Bolling 49.5a

H E Ridenour 70a

Bays Cem

White Cem

James A White 72a

J Monroe Dunlap 107a

Big

Reece McClure Hrs 40a

Chas O Waggoner 50a

C C Chambers 58a

Valley

Sams

Branch

27.7a

Mason & Tackett 44a

Oliver Hill 112.5a

50a

Wm S Keeling 65a

Jennie A Jones 110a

Joes

Straight

Fork

Bear

Edna J May 149a

Wilbur S May 75a

Walter Vickers 42a

PIPELINE

Deer Seed Orchard Run

Hamlin & Hilbert Hrs 50a

M Pauley 26a

Octavia Hager 20a

Black Cem

Nathaniel Mason 72a

Enoch Tackett 18a

Emma Griffith Hrs 68a

Thomas S Cooper 50a

Ira Hill 30a

Julian Hill 18a

Mosey Branch

J A Purdy 60a

Sarepta Workman 175a

Octavia Hager Hrs

M A Bays 77a

Thomas Fowler 80a

Maggie Fowler 45a

Creed Kingery 105a

Roxey A McKinney 50a

Fork

Robert Fowler 82a

J M Grass 90a

A G Grass 155a

Ellen A Workman 105a

Yawkey

Griffith Station

BM 693

J F Fowler

C Griffith 20a

Ephraim Griffith 42a

E P Bell 110a

F M Midkiff 100a

R C McCallister 10a

Wm Paxton 35a

C.W. May Freehold Co 108a

Brown Lot

Austin Griffith 373a

Griffith Cem

Horizontal Section

Weaver McClure 25a

Thos McCallister 29a

Dorb Clark 11a

Rufus McCallister 34a

Gordon Mason 100a

Branch

Sams

Jos W Stephens 76a

Benj Burton 75a

Porter

Fork

Bell Cem

W T Bell 49a

Dora B Clark 21a

A C Hilbert 40a

Eliza A Sheets 45a

Elbert G Griffith 76a

BM 717

Martha A Griffith 39a

McClure Cem

Albert P Oxley 83a

Mary E Wade 96a

Washington Griffith 91a

Hester A Hager Hrs 63a

John F Stephens 60a

Albert Hill 70a

Jos W Stephens 83a

PIPELINE

Rufus Woodrum 10a

A C Hilbert 15a

G Thos McCormick Hrs 44a

Jas M Egnor

Richard Woodrum Hrs 150a

Eliza Cornes 90a

W I Wade 63.5a

Jas Hale 60a

S F & W Wade 50a

Fork

SUGARTREE

Julia M Egnor Cem 20.37a

Peter Woodrum 97a

DUVAL

UNION

ROAD

Thos L Harless 80a

Straight

Horse Creek & Harless 77a

Baltimore Woodrum 46a

J S Pridemore 50a

Rock

Alford White 110a

Beech Grove Cem

T Craddock 59.5a

Figure No.1

GRIFFITHSVILLE AREA

Duval Dist., Lincoln Co.

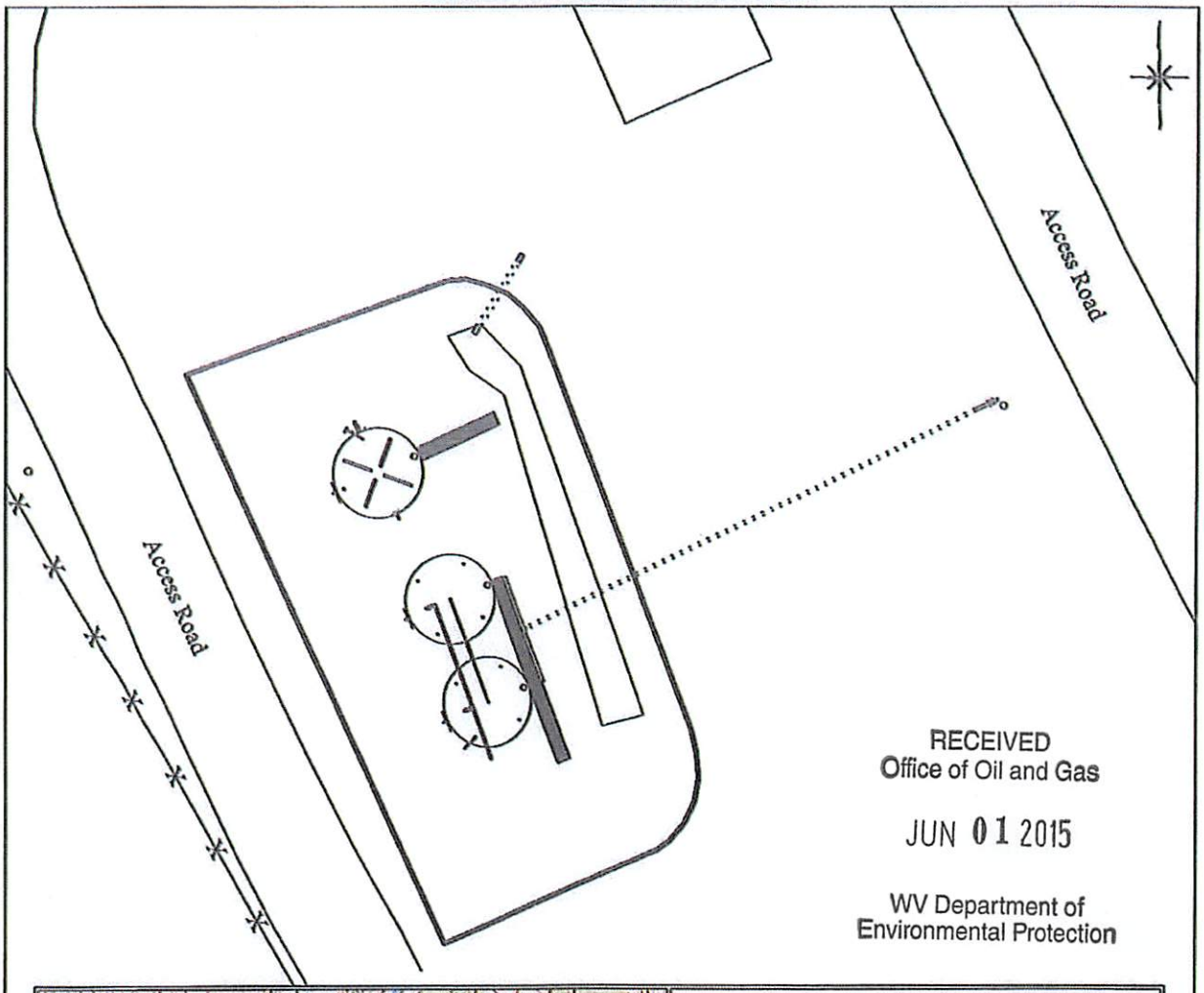
- 1/4 Mile AOR Boundary
- Unit #2 Boundary
- Unit Boundary
- Existing Oil Pipelines
- Existing Water Pipelines

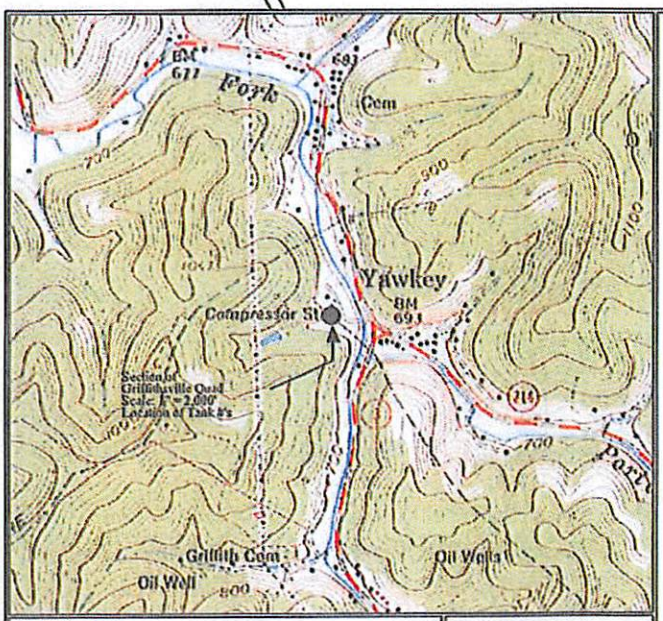
1000'

5-19-15

Figure 1A

FACILITY SITE PLAN





HG ENERGY, LLC
SPCC PLAN

Drawn By: KAB
File Name: Yawkey Area
Scale:
Date: 10-31-14
Point No:

Facility Name: Griffithsville Main Facility

State: WV

County: Lincoln

District: Duval

Name of Nearest Stream:
Straight Fork

Direction & Distance from
Facility: 65° at 250'

~CRUDE OIL STORAGE TANKS~

No. 3

Volume bbl: 210

Tank #'s: 153, 154 & 155

Dike Dimensions: 196' Perimeter X 1' Depth
Ditch: 102' Perimeter X 2' Depth

Calculated Capacity: 841bbl

Griffithsville Field
Figure 2
05/18/2015
1 inch = 1,000 feet
Well Locations
HGE Unit Boundaries
1/4 Mile Buffer
0 750 1,500 3,000 Feet

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