WATER MONITORING REPORT

Buckeye Creek at Louanne Fatora's property

Monitoring date: September 2, 2009

Report date: October 5, 2009

Submitted to:

Louanne Fatora
PO Box 23134
Silverthorne, CO 80498

Prepared by:

Downstream Strategies, LLC
219 Wall Street
Morgantown, WV 26505

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Martin Christ, Evan Hansen, Anne Hereford

Downstream Strategies
building capacity for sustainability

1. INTRODUCTION

On the evening of August 24, 2009, Louanne McConnell Fatora and her son discovered an apparent spill in Buckeye Creek on their property east of Smithburg, West Virginia off of United States Highway 50 ("US 50"). At Ms. Fatora's request, Downstream Strategies visited the site on September 2 to collect water samples. This report includes Downstream Strategies affiliate Martin Christ's account of the sampling event and laboratory results from samples collected on September 2. It also includes additional notes on materials provided by the West Virginia Department of Environmental Protection (WVDEP) in response to a Freedom of Information Act request.

2. FIELD NOTES

After picking up bottles from Reliance Laboratory, I (Martin Christ) drove west on US 50 to Morgans Run Road. Turning left from US 50, the road comes down to Buckeye Creek and follows it downstream. A white State of West Virginia jeep was parked along the road next to a driveway. Its license plate was: 77-741. A sound of some device, possibly a pump, was coming from down the driveway. I followed the road across the bridge, and continued until reaching Louanne's house. Accompanied by her nephews, David and Brendon, we walked down the lawn, across a driveway, and along a mowed, truck-wide path to Buckeye Creek.

At the site, various booms were stretched across the creek, floating on the water (Figure 1). I believe two pairs of booms were visible at the site. One pair consisted of a yellow boom wrapped in what looked like a yellow rubber fabric. The upstream of the pair consisted of a blue, foam-like material floating inside white fabric net.

Figure 1: Booms across the creek

According to Louanne, “Tapo Energy” had backed a truck down the same path we walked to vacuum the pollution off the top of the water at this site (Figure 2). We saw small fish swimming in the creek. The McConnells pointed out some of the red material on the sandy bank (Figure 3). It was approximately 6 inches higher in elevation than the water. Louanne believed that the water had not been that high for approximately three weeks. I took a small sample of sand with the red material in it. There was some white powder along the bank, which had been spread on the material during the vacuuming. According to Louanne, the people who had spread it referred to it as lime.

Figure 2: Aerial photograph of Buckeye Creek between US 50 and Morgans Run Road

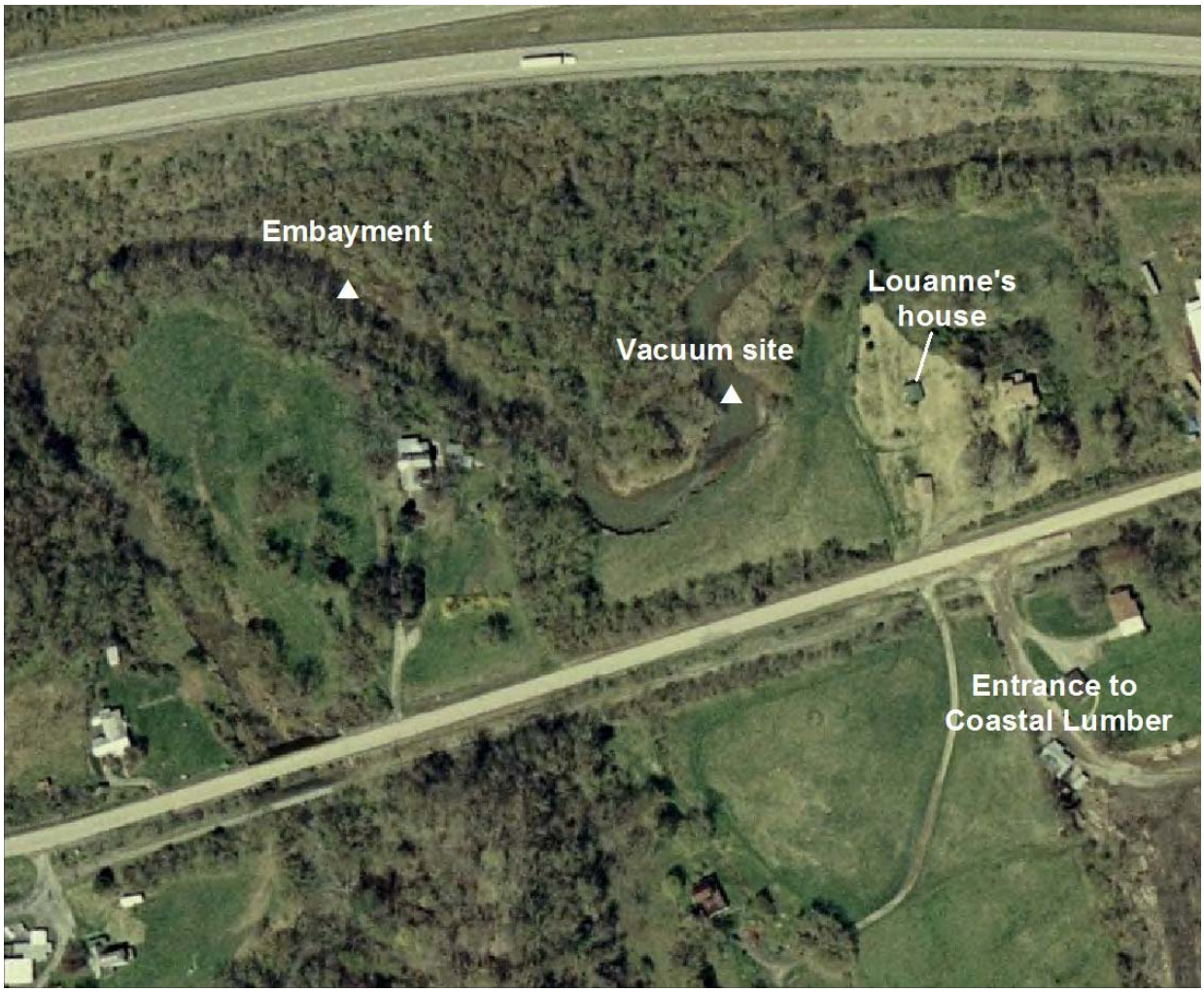

Figure 3: Red material in sand

Figure 4: Leaf floating amid flecks of red film

We walked down the creek (I along the bank, the others through a meadow). There were other spots of the reddish material downstream on the banks.

We came to a small embayment along the side of the creek (Figure 2). The water in this embayment was partially covered by a thin, reddish film (Figure 4). The film was not oily, but rather "polygonal"—it broke into discreet, polygonal pieces, rather than swirling like an oil. I took water samples at this spot.

As we walked back to the house, we discussed the way the stream had filled in. David remembered diving into a pool off a rock, and that pool was now completely filled in by rocks (Figure 5). The biggest disturbance was probably construction of US 50, which cut off some of the creek.

Figure 5: Rocks by formerly swimmable pool

We then drove to the bridge over Buckeye Creek between where I had seen the West Virginia jeep and the McConnells' house (Figure 6). From the bridge we could see three men. One was spraying rocks on the streambank with a hose. The other two were using leaf blowers to blow material on the stream bank towards the water flowing in the stream (Figure 7). We climbed down to the creek between Morgans Run Road and the North Bend Rail Trail. There were actually five or six people working in the stream. One was ahead spreading "Sphag-Sorb" along the banks. The others were washing and blowing material—presumably the Sphag-Sorb and whatever it picked up, into the water.

The workers did not want to talk extensively, but they acknowledged they were cleaning up the contamination. One said he works for Hall Drilling. We walked along a gas line right-of-way (it had not been posted) to view what was upstream from a piece of sediment fence-type material that had been spread across the stream. There were several square pieces of a white material (1.5 to 2 feet on a side) that had been laid along the edge of the water.

We returned downstream to leave, but Jerry Poling came to talk to us. He is the owner of Tapo Energy, but he was wearing a t-shirt for Hall Drilling of Ellenboro, West Virginia. He explained that the Sphag-Sorb would absorb the oil and then drop to the bottom of the stream and be completely harmless. They were cleaning up the stream from upstream to downstream. They had walked the stream for about four miles down from their site, and they had found that the pollution had not gotten far past the McConnell property, where it was hung up by logs along the surface of the water.

Mr. Poling said that he did not know when the spill had occurred. He did not know whether or not the spill had in fact come from one of his wells or from other wells in the area. He stated that WVDEP has been active on site. There have been as many as five WVDEP inspectors out looking at the site.

In consultation with WVDEP, Mr. Poling hired Ryan Environmental to make recommendations about the cleanup. Ryan took a sample for analysis. Mr. Poling stated that, although he does not know for sure that the spill came from his wells, he wanted to take a sample in case he had to show at some point in the future what it contained, and possibly to show that it was not from his wells. He said he has never seen the reddish oily substance before.

Mr. Poling also said they tested the water (as opposed to the red material) immediately when they heard about the spill. He found that the water was not toxic. The only specific measurement he reported was chloride, which apparently did not violate any standards.

Figure 6: Aerial photograph showing location of cleanup workers

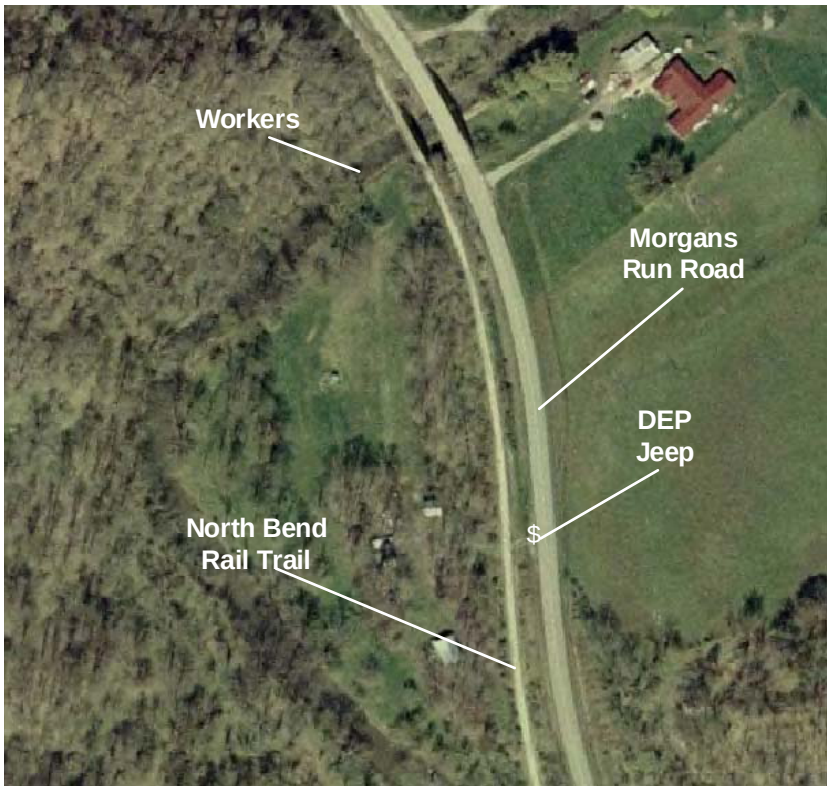

Figure 7: Man with leaf-blower cleaning stream

3. MONITORING RESULTS

During the September 2 visit described in the previous section, grab samples were collected by Downstream Strategies in clean containers and delivered to Reliance Laboratories within proper holding times and with chain of custody records. Reliance is a certified laboratory in Bridgeport, West Virginia. The laboratory results are included at the end of this report for the 17 parameters measured.

Surface water quality standards, as well as groundwater standards and drinking water standards, are provided in Table 1 for the parameters measured. Monitoring was performed on a surface water; therefore, the surface water quality standards apply. The groundwater and drinking water standards are included for additional context, and because surface waters are often used as drinking water sources and are hydrologically connected to groundwater. No research or analysis was performed on whether Buckeye Creek is a drinking water source or is hydrologically connected to groundwater.

Table 2 presents existing monitoring data from Buckeye Creek, its tributaries, and Middle Island Creek. The monitoring data for Buckeye Creek and its tributaries was conducted from 2002 through 2009 by WVDEP and was provided by the Watershed Assessment Program on September 29, 2009. The monitoring data for Middle Island Creek is from WVDEP's "Ambient Sampling" water monitoring program,[1] which tracks how different streams change over time. One of the sites for this program is located at Arvilla on Middle Island Creek, which receives Buckeye Creek. Although this sampling point is far downstream from the site sampled in this report, it provides further context for ambient levels of various parameters in a downstream waterbody. The Ambient Sampling data includes 37 data points between February 1999 and May 2007. Comparisons between the September 2 monitoring data and the data in Table 2 are summarized in Table 3.

Specific conductivity. On September 2, specific conductivity, a measure of the concentration of all the ions dissolved in the water, measured 1,386 µmhos. There are no standards for specific conductivity. However, in comparison with previous monitoring data, the value on September 2 is high. Specific conductivity exceeded the previous average for Buckeye Creek by a factor of 8, the previous average for Buckeye Creek and its tributaries by a factor of 5, and the ambient monitoring average by a factor of 9.

Total dissolved solids. Total dissolved solids (TDS) is a different measure of the dissolved ions in the water. On September 2, TDS measured 914 mg/L. This value exceeds the secondary drinking water standard of 500 mg/L. In comparison with previous monitoring data, the value on September 2 is high. TDS exceeded the previous average for Buckeye Creek by a factor of 11 and the previous average for Buckeye Creek and its tributaries by a factor of 7. The Ambient Sampling program did not monitor for TDS.

Chloride. The chloride level measured on September 2, 168 mg/L, does not violate the West Virginia surface water quality standard of 230 mg/L and is below the secondary drinking water standard of 250 mg/L. However, in comparison with previous monitoring data, the value on September 2 is high. It exceeded the previous average for Buckeye Creek by a factor of 15, the previous average for Buckeye Creek and its tributaries by a factor of 3, and the ambient monitoring average by a factor of 21.

[1] See www.wvdep.org/item.cfm?ssid=11&ss1id=713.

Sulfate. The sulfate level, 149 mg/L, is below the secondary drinking water standard of 250 mg/L. West Virginia does not have a surface water quality standard for sulfate. In comparison with previous monitoring data, the value on September 2 is high. It exceeded the previous average for Buckeye Creek by a factor of 10, the previous average for Buckeye Creek and its tributaries by a factor of 8, and the ambient monitoring average by a factor of 6.

Calcium. There are no standards for calcium. The calcium concentration measured on September 2 is 7 times the previous average for Buckeye Creek and 3 times the previous average for Buckeye Creek and its tributaries. The Ambient Sampling program did not monitor for calcium.

Sodium. There are no standards for sodium. The sodium concentration measured on September 2 is 13 times the previous average for Buckeye Creek and 3 times the previous average for Buckeye Creek and its tributaries. The Ambient Sampling program did not monitor for sodium.

pH. The pH measured on September 2 meets the secondary drinking water standard and the surface water standard, and is consistent with previous monitoring data.

Total and dissolved aluminum. Neither total nor dissolved aluminum were detected on September 2.

Iron. The measured iron concentration of 0.96 mg/L does not violate the surface water standard of 1.5 mg/L, although it exceeds the secondary drinking water standard of 0.3 mg/L. The total iron value is roughly similar to the averages found previously for Buckeye Creek, Buckeye Creek and its tributaries, and Middle Island Creek.

Manganese. The measured manganese concentration of 1.49 mg/L exceeds the surface water standard of 1.0 mg/L, but this standard only applies within the five-mile zone immediately upstream above a known public or private water supply used for human consumption. No research was performed to document whether the manganese standard applies. The measured manganese concentration, however, greatly exceeds the secondary drinking water standard of 0.05 mg/L. It also exceeds the average values from Buckeye Creek and its tributaries and from Middle Island Creek by a factor of 30.

Benzene, toluene, ethylbenzene, xylene, MTBE, and oil and grease. These six parameters were not detected at the method detection limits used by the lab.

Table 1: Drinking water and groundwater standards for measured parameters

Parameter	Unit	Groundwater standard	Drinking water standard			Surface water standard
			MCLG	MCL	Secondary	
Aluminum (total)	mg/L	None	None	None	0.05	None
Aluminum (dissolved)	mg/L	None	None	None	None	0.75
Benzene	mg/L	0.005	0	0.005	None	0.00066
Calcium	N/A	None	None	None	None	None
Chloride	mg/L	None	None	None	250	230
Ethylbenzene	mg/L	0.7	0.7	0.7	None	3.1
Iron	mg/L	None	None	None	0.3	1.5
Manganese	mg/L	None	None	None	0.05	1
MTBE	N/A	None	None	None	None	None
Oil and grease	N/A	None	None	None	None	None
pH (lower limit)	SU	None	None	None	6.5	6
pH (upper limit)	SU	None	None	None	8.5	9
Sodium	N/A	None	None	None	None	None
Specific conductivity	N/A	None	None	None	None	None
Sulfate	mg/L	None	None	None	250	None
Toluene	mg/L	1	1	1	None	6.8
Total dissolved solids	mg/L	None	None	None	500	None
Xylenes	mg/L	10	10	10	None	None

Note: MCLGs, MCLs, and secondary standards are from United States Environmental Protection Agency (USEPA). 2006. 2006 Edition of the Drinking Water Standards and Health Advisories. Office of Water. EPA 822-R-06-013. August. Groundwater standards are from 46 CSR 12. Surface water standards are the most stringent of the standards for Categories A, B1, and C from 47 CSR 2. The manganese surface water standard only applies within the five-mile zone immediately upstream above a known public or private water supply used for human consumption.

Table 2: Other instream data from Buckeye Creek, its tributaries, and Middle Island Creek

	Buckeye Creek only				Buckeye Creek and tributaries				Middle Island Creek			
Parameter	**No.**	**Avg.**	**Min.**	**Max.**	**No.**	**Avg.**	**Min.**	**Max.**	**No.**	**Avg.**	**Min.**	**Max.**
pH (SU)	37	7.36	6.55	8.19	87	7.40	6.47	8.19	0	N/A	N/A	N/A
Aluminum (mg/L)	0	N/A	N/A	N/A	2	0.07	0.05	0.08	37	0.44	<0.03	2.28
Iron (mg/L)	30	1.13	0.12	9.56	70	1.14	0.03	15.30	37	0.68	0.04	3.68
Manganese (mg/L)	0	N/A	N/A	N/A	8	0.05	0.02	0.09	37	0.05	0.02	0.19
Specific conductance (µmhos)	40	184	82	415	92	259	71	762	37	154	94	219
Total dissolved solids (mg/L)	18	83	20	173	42	132	20	368	0	N/A	N/A	N/A
Calcium (mg/L)	1	17	17	17	12	32	17	54	0	N/A	N/A	N/A
Chloride (mg/L)	1	11	11	11	26	61	5	197	37	8	<1	19
Sodium (mg/L)	1	5.3	5.3	5.3	13	26.4	5.3	53.9	0	N/A	N/A	N/A
Sulfate (mg/L)	1	15	15	15	26	19	10	39	37	25	13	220

Table 3: Ratios between 9/2/09 monitoring data and other instream data

Parameter	Buckeye Creek only	Buckeye Creek and tributaries	Middle Island Creek
pH	1	1	N/A
Aluminum	N/A	N/A	N/A
Iron	1	1	1
Manganese	N/A	30	30
Specific conductance	8	5	9
Total dissolved solids	11	7	N/A
Calcium	7	3	N/A
Chloride	15	3	21
Sodium	13	3	N/A
Sulfate	10	8	6

4. ADDITIONAL INFORMATION FROM WVDEP

In response to a request submitted under the Freedom of Information Act, James Martin, Chief of WVDEP's Office of Oil and Gas, provided lab results, an inspector report, and a notice of violation. Copies of these documents are attached to this report. All three of these documents refer to a "spill." The lab results specifically refer to "Hall's Drilling Spill," and label one of the sample locations as the "Spill/Bad area." The trip report refers to an "oil spill" on Buckeye Run reported on August 25, 2009 at approximately 8:19 AM. The notice of violation also refers to a "spill."

No information, however, is provided in any of these documents regarding what actually happened. Some unanswered questions include:

- What substance actually spilled?
- What caused the spill?
- When did the spill occur?
- Did TAPO report the spill to WVDEP?

The lab results provided by WVDEP were from water samples taken by Ryan Environmental in four locations: upstream of the spill source, in the "Spill/Bad area," and upstream and downstream of the last booms. The provided water quality data show very high total petroleum hydrocarbons (TPH) in the semi-volatile range in the "bad area," with values three orders of magnitude lower just upstream of the last booms, and non-detect results for the furthest upstream and downstream samples. Also of note are the chloride values, with the highest value recorded in the "bad area," and values decreasing downstream, but still above the average values for Buckeye Creek and tributaries shown in Table 2. Chloride was lowest (and below the average) upstream of the spill source.

WVDEP inspector David Scranage's September 16 report to James Martin summarizes eleven visits he made to the site between August 25, when the spill was reported, and September 10. He states that he observed "no evidence of a fish kill or harm to other aquatic life." The report includes observations about the clean-up efforts, including one mention of the crew "going about the process backwards." The final documented recommendation around the clean-up is from September 10, stating that the "remaining structures" should be monitored daily and vacuumed as needed "at the very least until we receive enough rainfall to create a flow on the stream." The report concludes with an inventory of contamination removed to date and a statement that the spill is not believed to have been intentional. No specific description of the spill is provided, and no evidence is presented regarding whether or not the spill was intentional.

The cited violation is against TAPO operation number 47-017-05814, well number Powell 7, dated September 9, 2009. The spill was recorded as a violation of West Virginia Code 22-6-7(1): that "It shall be unlawful…to…[a]llow pollutants or the effluent therefrom, produced by or emanating from any point source, to flow into the water of this state." As far as can be determined from the materials provided, no fine was assessed as a result of the violation. TAPO was instructed to clean up the spill by continuing to trap and remove contaminants until the stream reaches "prespill condition," and to report the volume of contaminant removed, as well as other requested information, to WVDEP Office of Oil and Gas.

5. LABORATORY RESULTS

RELIANCE LABORATORIES, INC.

ENVIRONMENTAL ANALYSTS AND CONSULTANTS

BRIDGEPORT, WV www.RelianceLabs.net MARTINSBURG, WV

Certifications: WV Department of Health #: 00354, 00433 | WV Department of Environmental Protection #: 158, 181 | MD Department of Environment #: 336, 337
VA DGS Division of Consolidated Laboratory Services #: 00434, 00435 | US Environmental Protection Agency #: WV00042, WV00801

DOWNSTREAM STRATEGIES, LLC **Thursday, September 24, 2009**

219 WALL STREET
MORGANTOWN WV 26505-

Lab Number 136688-2009-W **Sample ID** BUCKEYE CK

Parameter	Value	MDL	MCL	Units	Method
Benzene	ND	0.0007		mg/l	8021B/5030
Toluene	ND	0.002		mg/l	8021B/5030
Ethylbenzene	ND	0.0014		mg/l	8021B/5030
Xylene	ND	0.003		mg/l	8021B/5030
MTBE	ND	0.003		mg/l	8021B/5030

Surrogate	% Recovery
BTEX (LIMITS = 80.0 - 120.0%)	91.8%
TPH - GRO (LIMITS = 58.9 - 154.7 %)	100%

Remarks:

Date Sample Analyzed: 9/3/2009 16:10
Analyst: A.Seitz

REPORT REVIEWED BY: _____

Sample Submitted By	M CHRIST	
Date Sample Collected	9/2/2009	10:45
Date Sample Received:	9/2/2009	12:47

ND: Not Detected. If present, the result is less than the MDL - Minimum Detectable Limit.

* Method Code: STANDARD METHODS 18TH ED; US EPA METHODS FOR THE CHEMICAL ANALYSIS OF WATER AND WASTES, Rev. 83; US EPA METHODS FOR THE DETERMINATION OF METALS IN ENVIRONMENTAL SAMPLES, May 1994; TEST METHODS FOR EVALUATING SOLID WASTE, SW-846, 3rd Edition

RLL012

RELIANCE LABORATORIES, INC.

ENVIRONMENTAL ANALYSTS AND CONSULTANTS

BRIDGEPORT, WV www.RelianceLabs.net MARTINSBURG, WV

Certifications: WV Department of Health #: 00354, 00433 | WV Department of Environmental Protection #: 168, 181 | MD Department of Environment #: 330, 337
VA DGS Division of Consolidated Laboratory Services #: 00434, 00435 | US Environmental Protection Agency #: WV00042, WV00901

DOWNSTREAM STRATEGIES, LLC **Thursday, September 24, 2009**

219 WALL STREET
MORGANTOWN WV 26505-

Lab Number: 136686-2009-W **Sample ID:** BUCKEYE CK

Parameter	Value	Units	Method	Date/Time Analyzed		Analyst	MDL	MCL
pH	7.32	S.U.	SM4500H+B	9/9/2009	14:42	M.Coffman		
Total Dissolved Solids	914	mg/l	SM 2540C	9/4/2009	10:45	T. Miller	10	
Oil and Grease	ND	mg/l	EPA 1664A	9/22/2009	9:10	L. Lanham	8.23	
Total Chloride	168	mg/l	EPA 300.0	9/2/2009	23:46	M.Coffman	0.15	
Specific Conductivity	1385	umhos	EPA 120.1	9/9/2009	14:42	M.Coffman	0.14	
Total Sulfate	149	mg/l	EPA 300.0	9/2/2009	23:46	M.Coffman	0.05	
Total Calcium	112	mg/l	EPA 200.8	9/4/2009	15:14	T.Hanshaw	0.01	
Total Sodium	69.8	mg/l	EPA 200.8	9/4/2009	15:14	T.Hanshaw	0.01	
Total Manganese	1.49	mg/l	EPA 200.8	9/4/2009	13:41	T.Hanshaw	0.007	
Total Iron	0.96	mg/l	EPA 200.8	9/4/2009	13:41	T.Hanshaw	0.005	
Total Aluminum	ND	mg/l	EPA 200.8	9/4/2009	13:41	T.Hanshaw	0.009	
Dissolved Aluminum	ND	mg/l	EPA 200.8	9/4/2009	13:41	T.Hanshaw	0.009	

Remarks:

Date Sample Collected	9/2/2009	10:45
Sample Submitted By	M CHRIST	
Date Sample Received:	9/2/2009	12:47

REPORT REVIEWED BY:

ND = Not Detected
MDL - Minimum Detectable Limit **PQL - Practical Quantifiable Limit**
MCL - Maximum Contaminant Level, USEPA Regulated **[MCL] = Maximum Contaminant Level, Non-Regulated**

*** Method Code: STANDARD METHODS 18TH ED; US EPA METHODS FOR THE CHEMICAL ANALYSIS OF WATER AND WASTES, Rev. 83; US EPA METHODS FOR THE DETERMINATION OF METALS IN ENVIRONMENTAL SAMPLES, May 1994; TEST METHODS FOR EVALUATING SOLID WASTE, SW-846, 3rd Edition**

RLI.001

6. MATERIALS PROVIDED BY WVDEP IN RESPONSE TO FREEDOM OF INFORMATION ACT REQUEST

west virginia department of environmental protection

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

Joe Manchin III, Governor
Randy C. Huffman, Cabinet Secretary
www.wvdep.org

September 28, 2009

Ms. Anne Hereford
Downstream Strategies
219 Wall Street
Morgantown, WV 26505

Re: Spill on Buckeye Run

Dear Ms. Hereford:

Please find enclosed information on the subject spill, per your September 11, 2009 FOIA request. Feel free to contact me if you have additional questions.

Sincerely,

James Martin
Office of Oil and Gas

enclosures

225 Industrial Park Drive
Beaver, WV 25813
TEL: 304.255.2500
FAX: 304.255.2572
Website: www.reiclabs.com

Improving the environment, one client at a time...

September 15, 2009

Mr. Greg Mayle
RYAN ENVIRONMENTAL
RT 4 BOX 260
BRIDGEPORT WV 26330

TEL: (304) 842-5578
FAX (304) 842-5131

RE: HALL'S DRILLING SPILL

Order No.: 0909118

Dear Mr. Greg Mayle:

REI Consultants, Inc. received 4 sample(s) on 9/2/2009 for the analyses presented in the following report.

Please note two changes you may see on your report.

- Results for "Dissolved" parameters will be shown under a separate sample ID, rather than as a separate analysis under the same sample ID. The sample ID for "Dissolved" parameters will include "Field Filtered" or "Lab Filtered", as appropriate.
- Metals results will no longer be identified as "Total" or "Total Recoverable". The methods have not been changed, only their appearance on the report.

If you have any questions regarding these results, please do not hesitate to call.

Sincerely,

Kathy Lough

Kathy Lough
Project Manager

Accredited in accordance with nelac

REIC

225 Industrial Park Drive
Beaver, WV 25813
TEL: 304.255.2500
FAX: 304.255.2572
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3025-B Peters Creek Road
Roanoke, VA 24019
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FAX: 540.400.8508

Improving the environment, one client at a time...

Report Narrative

Project Manager:: **Kathy Lough** Kathy Lough

WO#: **0909118**
Date: **9/15/2009**

CLIENT: RYAN ENVIRONMENTAL
Project: HALL'S DRILLING SPILL

All analyses were performed using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. REI Consultants, Inc. (REIC) technical managers have verified compliance of reported results with the REIC's Quality Program and SOPs, except as noted in this case narrative. Any deviation from compliance is explained below and/or identified within the body of this report by a qualifier footnote which is defined at the bottom of each page.

All samples were analyzed using the methods stated in the analytical report without modification, unless otherwise noted.

All sample results are reported on an "as-received" wet weight basis unless otherwise noted.

Results reported for sums of individual parameters, such as Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5), may vary slightly from the sum of the individual parameter results. This apparent anomaly is caused by rounding individual results and summations at reporting, as required by EPA.

The test results in this report meet all NELAP requirements for parameters for which accreditations are required or available. Any exceptions are noted in this report. This report may not be reproduced, except in full, without the written approval of REIC.

In compliance with federal guidelines and standard operating procedures, all reports, including raw data and supporting quality control, will be disposed of after five years unless otherwise arranged by the client via written notification or contract requirement.

If you have any questions please contact the project manager whose name is listed above.

REI Consultants, Inc. Analytical Results

Date: *15-Sep-09*

CLIENT:	RYAN ENVIRONMENTAL	**WorkOrder:**	0909118	**Lab ID**	0909118-01A
Client Sample ID:	WS-1 Upstream	**DateReceived:**	9/2/2009		
Project:	HALL'S DRILLING SPILL	**Collection Date:**	8/28/2009 2:13:00 PM		
Site ID:	WV	**Matrix:**	WASTE WATER		

Analyses	Result	Units	Qual	MDL	PQL	Date Analyzed
METALS BY ICP			**E200.7**			Analyst: **JD**
Iron	0.105	mg/L		NA	0.100	9/3/2009 8:44:51 PM
SEMI-VOLATILE RANGE ORGANICS			**SW8015B**			Analyst: **TM**
TPH (Diesel Range)	ND	mg/L		NA	0.10	9/8/2009 6:15:29 PM
TPH (Oil Range)	ND	mg/L		NA	0.26	9/8/2009 6:15:29 PM
Surr: o-Terphenyl	91.9	%REC			51.7-134	9/8/2009 6:15:29 PM
VOLATILE RANGE ORGANICS			**SW8015B**			Analyst: **AS**
TPH (Gasoline Range)	ND	mg/L		NA	0.50	9/9/2009 4:59:42 PM
Surr: 2,5-Dibromotoluene	101	%REC			43.9-126	9/9/2009 4:59:42 PM
VOLATILE ORGANIC COMPOUNDS			**SW8021B**			Analyst: **AS**
Benzene	ND	µg/L		NA	1.0	9/9/2009 4:59:42 PM
Toluene	ND	µg/L		NA	1.0	9/9/2009 4:59:42 PM
Ethylbenzene	ND	µg/L		NA	1.0	9/9/2009 4:59:42 PM
m,p-Xylene	ND	µg/L		NA	2.0	9/9/2009 4:59:42 PM
o-Xylene	ND	µg/L		NA	1.0	9/9/2009 4:59:42 PM
Surr: 1,1,1-Trifluorotoluene	91.5	%REC			57.3-124	9/9/2009 4:59:42 PM
ANIONS BY ION CHROMATOGRAPHY			**E300.0**			Analyst: **CW**
Chloride	46.0	mg/L		NA	1.00	9/9/2009 1:40:00 AM

NOTES:

The CCB1 for CHLORIDE exceeded REIC control limits indicating a high bias.

Key:				
	MCL	Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	MDL	Minimum Detection Limit	E	Estimated Value above quantitation range
	NA	Not Applicable	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the PQL or MDL	S	Spike/Surrogate Recovery exceeds REIC control limits
	PQL	Practical Quantitation Limit	*	Value exceeds MCL or Regulatory Limits
	TIC	Tentatively Identified Compound, Estimated Concentration		

REI Consultants, Inc. Analytical Results

Date: *15-Sep-09*

CLIENT:	RYAN ENVIRONMENTAL	**WorkOrder:**	0909118	**Lab ID**	0909118-02A
Client Sample ID:	WS-2 Spill / Bond area	**DateReceived:**	9/2/2009		
Project:	HALL'S DRILLING SPILL	**Collection Date:**	8/28/2009 2:00:00 PM		
Site ID:	WV	**Matrix:**	WASTE WATER		

Analyses	Result	Units	Qual	MDL	PQL	Date Analyzed
METALS BY ICP			**E200.7**			Analyst: **JD**
Iron	0.424	mg/L		NA	0.100	9/3/2009 8:54:06 PM
SEMI-VOLATILE RANGE ORGANICS			**SW8015B**			Analyst: **TM**
TPH (Diesel Range)	4,590	mg/L		NA	21.5	9/10/2009 11:21:22 AM
TPH (Oil Range)	4,560	mg/L		NA	53.8	9/10/2009 11:21:22 AM
Surr: o-Terphenyl	7,300	%REC	S		51.7-134	9/10/2009 11:21:22 AM
NOTES:						
Surrogate recovery was not within method criteria due to matrix interference.						
VOLATILE RANGE ORGANICS			**SW8015B**			Analyst: **AS**
TPH (Gasoline Range)	ND	mg/L		NA	0.50	9/9/2009 5:34:40 PM
Surr: 2,5-Dibromotoluene	113	%REC			43.9-126	9/9/2009 5:34:40 PM
VOLATILE ORGANIC COMPOUNDS			**SW8021B**			Analyst: **AS**
Benzene	ND	µg/L		NA	1.0	9/9/2009 5:34:40 PM
Toluene	ND	µg/L		NA	1.0	9/9/2009 5:34:40 PM
Ethylbenzene	ND	µg/L		NA	1.0	9/9/2009 5:34:40 PM
m,p-Xylene	ND	µg/L		NA	2.0	9/9/2009 5:34:40 PM
o-Xylene	ND	µg/L		NA	1.0	9/9/2009 5:34:40 PM
Surr: 1,1,1-Trifluorotoluene	93.3	%REC			57.3-124	9/9/2009 5:34:40 PM
ANIONS BY ION CHROMATOGRAPHY			**E300.0**			Analyst: **CW**
Chloride	109	mg/L		NA	5.00	9/9/2009 1:59:00 AM
NOTES:						
The CCV for [CHLORIDE] exceeded REIC control limits indicating a high bias.						

Key:				
	MCL	Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	MDL	Minimum Detection Limit	E	Estimated Value above quantitation range
	NA	Not Applicable	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the PQL or MDL	S	Spike/Surrogate Recovery exceeds REIC control limits
	PQL	Practical Quantitation Limit	*	Value exceeds MCL or Regulatory Limits
	TIC	Tentatively Identified Compound, Estimated Concentration		

REI Consultants, Inc. Analytical Results

Date: *15-Sep-09*

CLIENT:	RYAN ENVIRONMENTAL	**WorkOrder:**	0909118	**Lab ID**	0909118-03A
Client Sample ID:	WS-3 Ahead of first booms	**DateReceived:**	9/2/2009		
Project:	HALL'S DRILLING SPILL	**Collection Date:**	8/28/2009 2:35:00 PM		
Site ID:	WV	**Matrix:**	WASTE WATER		

Analyses	Result	Units	Qual	MDL	PQL	Date Analyzed
METALS BY ICP			**E200.7**			Analyst: **JD**
Iron	ND	mg/L		NA	0.100	9/3/2009 8:57:11 PM
SEMI-VOLATILE RANGE ORGANICS			**SW8015B**			Analyst: **TM**
TPH (Diesel Range)	1.10	mg/L		NA	0.11	9/8/2009 5:38:12 PM
TPH (Oil Range)	2.88	mg/L		NA	0.26	9/8/2009 5:38:12 PM
Surr: o-Terphenyl	98.3	%REC			51.7-134	9/8/2009 5:38:12 PM
VOLATILE RANGE ORGANICS			**SW8015B**			Analyst: **AS**
TPH (Gasoline Range)	ND	mg/L		NA	0.50	9/9/2009 2:52:03 PM
Surr: 2,5-Dibromotoluene	115	%REC			43.9-126	9/9/2009 2:52:03 PM
VOLATILE ORGANIC COMPOUNDS			**SW8021B**			Analyst: **AS**
Benzene	ND	µg/L		NA	1.0	9/9/2009 2:52:03 PM
Toluene	ND	µg/L		NA	1.0	9/9/2009 2:52:03 PM
Ethylbenzene	ND	µg/L		NA	1.0	9/9/2009 2:52:03 PM
m,p-Xylene	ND	µg/L		NA	2.0	9/9/2009 2:52:03 PM
o-Xylene	ND	µg/L		NA	1.0	9/9/2009 2:52:03 PM
Surr: 1,1,1-Trifluorotoluene	93.3	%REC			57.3-124	9/9/2009 2:52:03 PM
ANIONS BY ION CHROMATOGRAPHY			**E300.0**			Analyst: **CW**
Chloride	90.5	mg/L		NA	5.00	9/9/2009 2:19:00 AM

NOTES:

The CCB1 for [CHLORIDE] exceeded REIC control limits indicating a high bias.

Key:				
	MCL	Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	MDL	Minimum Detection Limit	E	Estimated Value above quantitation range
	NA	Not Applicable	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the PQL or MDL	S	Spike/Surrogate Recovery exceeds REIC control limits
	PQL	Practical Quantitation Limit	*	Value exceeds MCL or Regulatory Limits
	TIC	Tentatively Identified Compound, Estimated Concentration		

REI Consultants, Inc. Analytical Results

Date: *15-Sep-09*

CLIENT:	RYAN ENVIRONMENTAL	**WorkOrder:**	0909118 **Lab ID** 0909118-04A
Client Sample ID:	WS-4 Below last Booms	**DateReceived:**	9/2/2009
Project:	HALL'S DRILLING SPILL	**Collection Date:**	8/28/2009 2:45:00 PM
Site ID:	WV	**Matrix:**	WASTE WATER

Analyses	Result	Units	Qual	MDL	PQL	Date Analyzed
METALS BY ICP			**E200.7**			Analyst: **JD**
Iron	ND	mg/L		NA	0.100	9/3/2009 9:00:15 PM
SEMI-VOLATILE RANGE ORGANICS			**SW8015B**			Analyst: **TM**
TPH (Diesel Range)	ND	mg/L		NA	0.10	9/8/2009 5:00:54 PM
TPH (Oil Range)	ND	mg/L		NA	0.26	9/8/2009 5:00:54 PM
Surr: o-Terphenyl	92.8	%REC			51.7-134	9/8/2009 5:00:54 PM
VOLATILE RANGE ORGANICS			**SW8015B**			Analyst: **AS**
TPH (Gasoline Range)	ND	mg/L		NA	0.50	9/9/2009 4:24:43 PM
Surr: 2,5-Dibromotoluene	94.1	%REC			43.9-126	9/9/2009 4:24:43 PM
VOLATILE ORGANIC COMPOUNDS			**SW8021B**			Analyst: **AS**
Benzene	ND	µg/L		NA	1.0	9/9/2009 4:24:43 PM
Toluene	ND	µg/L		NA	1.0	9/9/2009 4:24:43 PM
Ethylbenzene	ND	µg/L		NA	1.0	9/9/2009 4:24:43 PM
m,p-Xylene	ND	µg/L		NA	2.0	9/9/2009 4:24:43 PM
o-Xylene	ND	µg/L		NA	1.0	9/9/2009 4:24:43 PM
Surr: 1,1,1-Trifluorotoluene	92.4	%REC			57.3-124	9/9/2009 4:24:43 PM
ANIONS BY ION CHROMATOGRAPHY			**E300.0**			Analyst: **CW**
Chloride	91.5	mg/L		NA	5.00	9/9/2009 2:38:00 AM

NOTES:

The CCB1 for [CHLORIDE] exceeded REIC control limits indicating a high bias.

Key:				
	MCL	Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	MDL	Minimum Detection Limit	E	Estimated Value above quantitation range
	NA	Not Applicable	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the PQL or MDL	S	Spike/Surrogate Recovery exceeds REIC control limits
	PQL	Practical Quantitation Limit	*	Value exceeds MCL or Regulatory Limits
	TIC	Tentatively Identified Compound, Estimated Concentration		

To: Mr. James Martin Chief of the Office of Oil & Gas

Approximately 8:19 A.M. on Tuesday, August 25th 2009 an oil spill was reported to David Scranage. The spill was to be on Buckeye Run. Which, is a tributary to the Middle Island Creek. I responded to the call shortly there, after.

When I arrived on scene the first thing to do was to access the situation. By trying to determine, both the source of the spill, and the length of the spill. Also, I saw no evidence of a fish kill or harm to other aquatic life. I received assistance by David Cowan district inspector from Ritchie County. After a determination of the possible source or entry point of the, contaminates was made. The well operators Designated Agent was contacted. At that point he coordinated the response of the clean-up crew.

The Designated Agent met with David Cowan and myself. We discussed, what might be the best possible way to start the clean-up. At that point his crew started to set booms in place across the water shed at a fairly large portion of the spill located at approximately the half way point of the total length. Inspector Cowan and myself went down stream looking for signs of the lower end of the spill site. We determined that for one it had not entered the Middle Island Creek and was contained on Buckeye Run. After, this determination had been made we again contacted the Designated Agent. He met with us and another, containment was set up along the stream. Then as a precaution an additional or secondary containment was set up below the contaminated area. While this was going on his crew was in the process of using a vac. truck to suck up the bulk of the material up stream at the first containment site. We could see what appeared to be oil on the stream and needed to get the bulk of the oil cleaned up at the upper location first then deal with the lower contaminated area second. Because, oil floats on the surface and any of the bulk, contaminates that were lost at that site would float down stream to the second site. That evening the vac. truck was set up at the second site and it was determined that additional hoses would be needed to reach the second area and would be brought out the next morning when the clean-up continued.

Wednesday, August 26th I (David Scranage) made an inspection of the second site in the morning. The clean-up crew was working to vac. up this location. It was apparent that they would have an all day job ahead of them. I (David Scranage) returned to the site to check up of their progress later that day. Inspected all containment sites for breeches and could find none.

Thursday, August 27th I was assisted by inspector David Gilbert we made several site inspections along the stream and discussed possible things that could be done as the crew was starting the residual part of the clean-up. A determination was made to install a under flow dam at a site below the first containment site and it would be installed the next morning.

Friday, August 27th I was assisted again by Inspector Gilbert and also, Inspector Gainer. The under flow dam was put in place. Also, the Designated Agent hired an Environmental Consultant with Ryan Environmental to take samples of the stream I assisted with this. Samples were taken at four different collection points on the stream. One of those samples was taken at appoint where we could get a good composite of the, contaminates. Another was taken above the source to determine pre-spill condition of the waters of Buckeye Run. The other two samples were taken above and below the last containment site on Buckeye Run.

Peat-sorb was sprinkled on to heavy laden areas along the stream as the residual clean-up commenced. Workers used leaf blowers to move this along the surface of the water to lock up any sheen or residues as they were released along the banks of the stream. At the riffles and along the shallows various places it became necessary to utilize a fresh water pump to flush the residue again

peat-sorb was utilized to lock up these substances as they were released. In places crews picked up oil laden leafs from the stream and bagged them to remove the bulk of the residue from the stream. This became necessary largely in part of the continually decreasing flow rates of the waters of Buckeye Run, due to the lack of rainfall.

Saturday, August 29th I made an inspection of the clean-up efforts as they continued down- stream from the source. They had some new help that day and upon my arrival they were going about the process backwards. They were trying to clean the stream and put peat-sorb down behind them. I had them go back and start over they then saw how the absorbent would lock up the sheen as it was released.

Monday, August 31st I was accompanied by Specialist Richard Campbell. We, Inspected all the containments along Buckeye Run. He also, witnessed the clean-up efforts as they continued down-stream from the site. By late that evening the crew had made it approximately one mile from the source still about a half mile from the upper containment structure.

Wednesday Morning, September 2nd I made an inspection the crew had vacuumed up the peat -sorb on Tuesday evening at the upper containment site, and were ready to continue further down-stream. The water looked to be in good shape behind the first containment being that there was very little visible sign of contamination. Only, some residual peat-sorb, and leafs had floated down -stream behind the containment over night. I spoke with the workers and ask them to keep the containments vacuumed up. They reassured me that they would.

Thursday, September 3rd I made an inspection as the crew was working down-stream from the upper containment site this section was going to be a challenge with steep slopes along with a deep section of stream that had large rip-rap along U.S. Route 50 East. This section had been moved when the roadway was constructed, and would be a very time consuming section to clean up.

Tuesday, September 8th again I was accompanied by Specialist Campbell we looked at various sites along the stream along with inspections of the various containment sites.

Wednesday, September 9th I made an inspection of the clean-up efforts and posted Well API #47-017-05814 for Violation of West Virginia Code 22-6-7(1).

Thursday, September 10th I made an inspection of the site they were in the process of vacuuming up the lower containment site. In all, it has appeared to be a successful clean-up. At this point I instructed the operators agent to go ahead and remove the under flow dam and to monitor the remaining two structures on a daily basis, and vacuum the sites as necessary. At the very least until we receive enough rainfall to create a flow on the stream. This would help reassure a proper clean-up.

*****To date: There has been approximately 50-70 Barrels of the contaminate, vacuumed up along with 9 Industrial bags of leafs and debris that does not include the leafs and debris vacuumed up by the truck.

*****I have no proof that this was a deliberate act by the operator and shall commend the efforts made to correct the situation.

***** The Operators Agent has agreed to share test result information as it becomes available.

Sincerely, David Scranage

VIOLATION NO. 8279 DATE 9-9-09

47-17
5814

FORM VI 27
(REV 3-2007)

API NO. 47-017-05814

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

NOTICE OF VIOLATION

LOCATION: FARM NAME Powell, Dennis + Mellie WELL NO. Powell 7
DISTRICT Grant COUNTY Doddridge

TO: TAPC DESIGNATED AGENT Jerry Poling
ADDRESS P.O. Box 235 ADDRESS P.O. Box 235
West Union, W.V. 26456 West Union, W.V. 26456

The above well is being posted this 9th day of September, 2009, for a violation of West Virginia Code 22-6-7(1) and/or 35 CSR Series____, Section____, a Legislative rule of the Office of Oil and Gas of the Department of Environmental Protection, set forth in detail as follows: Allow Pollutants or the effluent therefrom, produced by or emanating from any point source, to flow into the water of this state;

To abate the violation you must: Make every effort to clean up spill, report Volume Amount's. Maintain booms on stream dailey for residual Oil residue as long as it may be deemed necessary to appropriately restore stream to prespill condition. Also, you must share information as needed with the Office of Oil + Gas related to any test that may be need

A copy of this notice has been posted at the wellsite and sent by certified or registered mail to the person or Designated Agent named above.

You are hereby granted until September 16th, 2009, to abate this violation.

Failure to abate the violation by that date will result in bond forfeiture and may result in assessment of civil penalties, filing of misdemeanor charges and/or an action for injunctive relief.

An informal conference with the Oil and Gas inspector should be arranged prior to the date set forth above for abatement of the violation.

If you wish to contest this violation, refer to procedures outlined in West Virginia Code 22-6-4.

SIGNED David K. Seramage ADDRESS Rt 2 Box 11

TITLE Oil + Gas Inspector Lost Creek, WV 26385

TELEPHONE (304) 380-3749

UNTIL THE DISTRICT OIL AND GAS INSPECTOR ISSUING THIS NOTICE RECEIVES A CALL FROM YOU (THE OPERATOR) STATING THIS VIOLATION IS ABATED, IT WILL BE ASSUMED THAT THE VIOLATION