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	Penneco		
Existing UIC Permit ID Number	UIC2D0930103	UIC Well API Number	47-93-103

Office of Oil and Gas Office Use Only Permit Reviewer Date Received 4/18/17 Administratively Complete Date Approved Date Permit Issued

Please check the fees and payment included.

Fees					
UIC Permit Fee: \$500	V	Check	1		
Groundwater Protection Plan	1	Electronic			
(GPP) Fee: \$50.00		Other			

Please check the items completed and enclosed.		
Checklist	CK#	18407
UIC-1	4	18407 550°
Section 1 – Facility Information		
Section 2 – Operator Information		
Section 3 – Application Information		
Section 4 – Applicant/Activity Request and Type		
Section 5 – Brief description of the Nature of the Busines	SS	
CERTIFICATION		
Section 6 - Construction		
Appendix A Injection Well Form		
Appendix B Storage Tank Inventory		
Section 7 – Area of Review		
Appendix C Wells Within the Area of Review		REC

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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/oll-and-gas

UNDERGROUND INJECTION CONTROL (UIC) PERMIT APPLICATION

UIC PERMIT ID#	C2D0930103
----------------	------------

47-093-00103

well # Gotinsky #1

Section I. Facility Information

Facility Name:

Gotinsky #1 UIC Well

Address: 1608 Seneca Trail

City: Parsons

State: WV

County: Tucker

Black Fork District

Location description:

From Elkins, WV, take US Rt. 219 N/US Rt. 250 N 1.8 miles. Turn right to merge onto US Rt. 219 N/US Rt. 48 E and continue5.5 miles. Turn right onto US Rt. 219 N/Seneca Trail and continue 8.2 miles. The site will be on the right hand side of the road.

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

Northing: 4327930

Easting: 607294

Latitude 39.0939 Longitude -79.7593

Environmental Contact Information:

Name: Dave Smail

Title:

Zip: 26287

Land & Energy Supervisor

Phone: 724-468-8232

Email: dtsmail@penneco.com

Section 2. Operator Information

Operator Name: Penneco

Operator ID:

494460033

Address: 1608 Seneca Trail

City:

Parsons

State: WV

Zip: 26287

County: Tucker

Contact Name: Dave Smail

Contact Title: Land & Energy Supervisor

Contact Phone: 724-468-8232

Contact Email: dtsmail@penneco.com

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age 1 of 3

Section 3. Applicant Information	
Ownership Status: PRIVATE PUBLIC FEDERAL STATE OTHER (explain):	
SIC code: III 1311 (2D, 2H, 2R) 1479 (3S) OTHER (explain):	
Section 4. Applicant / Activity Request and Type:	************
Section 4. Applicant / Activity Request and Type: A. Apply for a new UIC Permit:	its anv
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Page 2 of 3

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WV Department of Environmental Protection

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 ¹duly authorized representative in accordance with 47CSR13-13.11.b.

A. Name and title of person applying for permit:

Print Name:

D. Marc Jacobs, Jr.

Print Title:

Senior 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:

Date:

1/12/18

The written authorization is submitted to the Director.



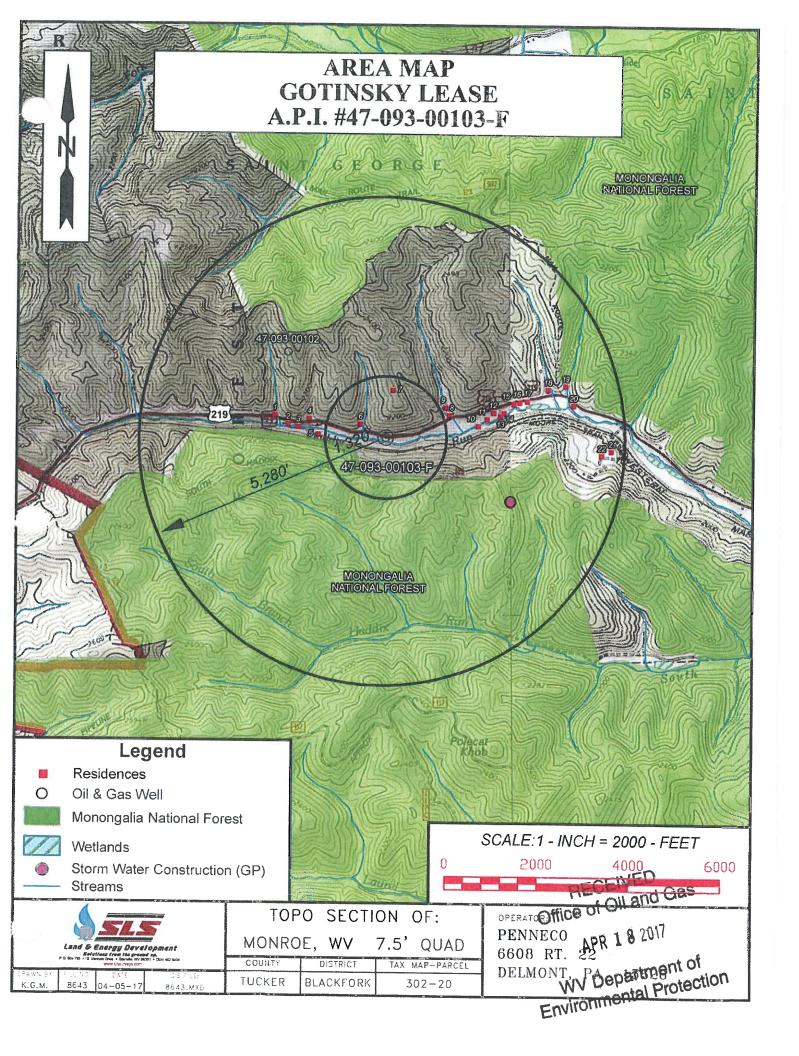
A person is a duly authorized representative if:

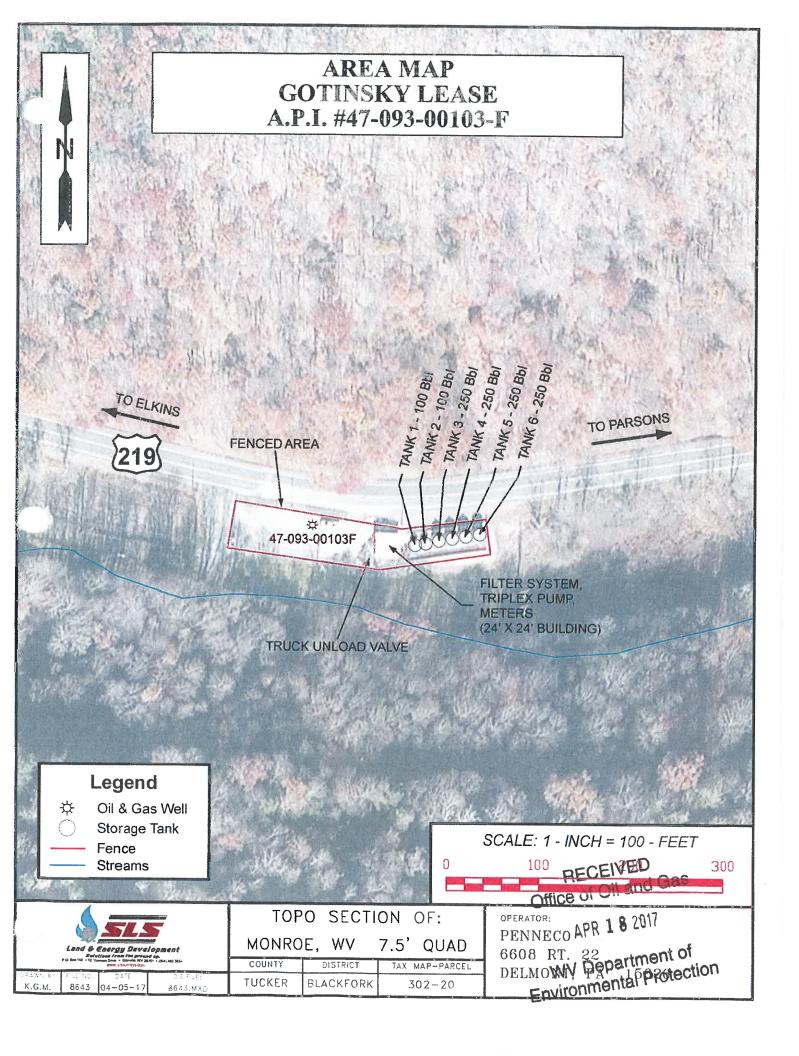
The authorization is made in writing by a person described in subdivision 47CSR13-13.11.a.

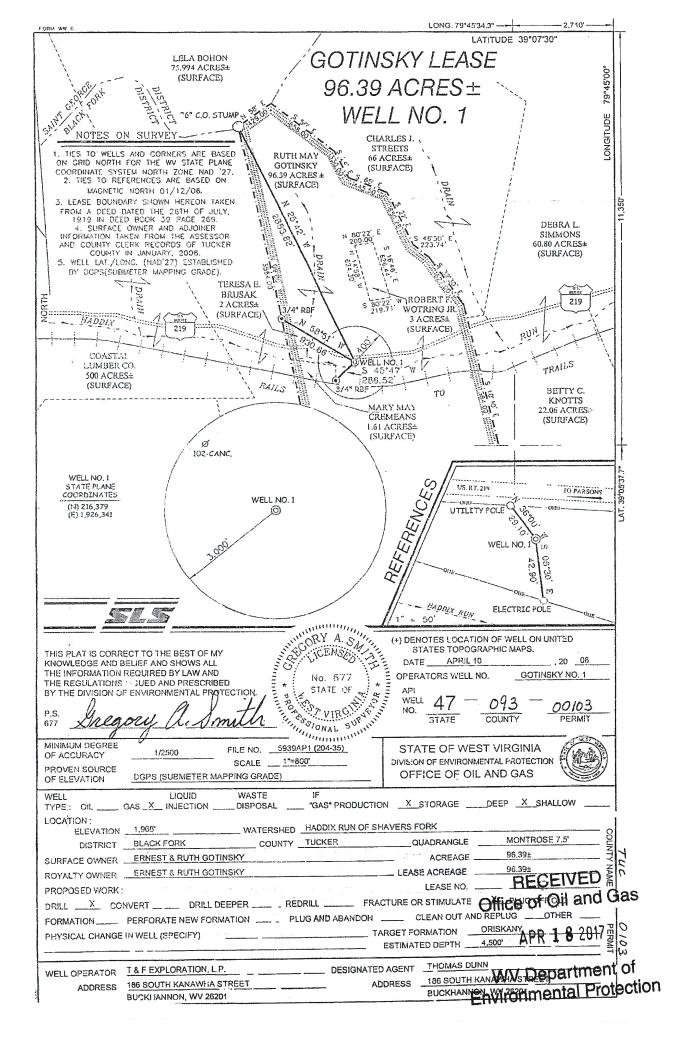
The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of the plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility.

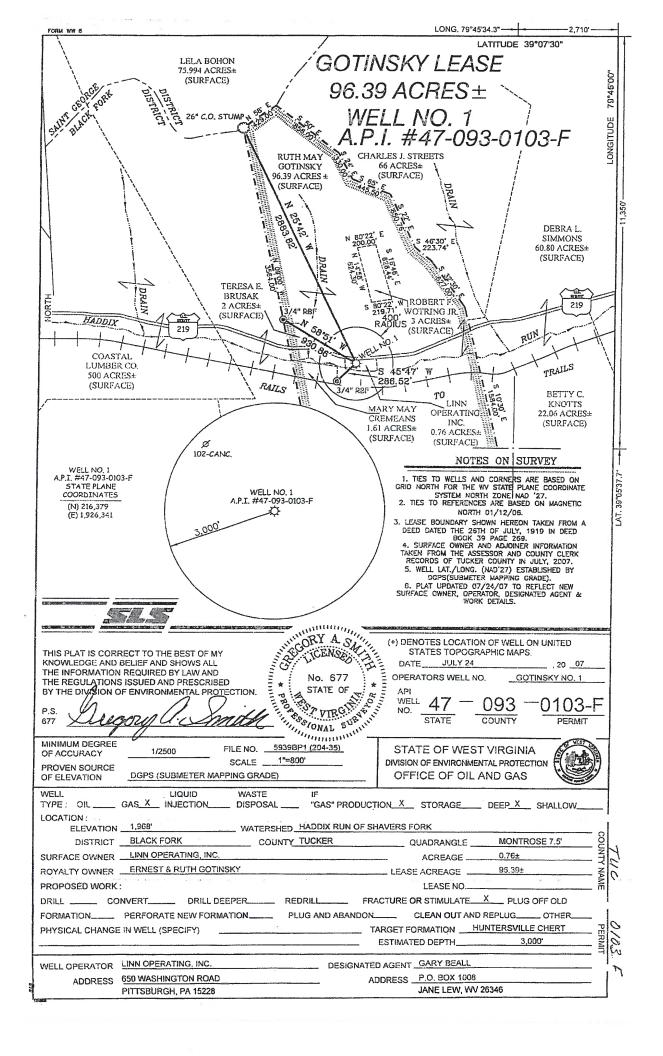
Section 6

Construction









SITE MAP FOR GOTINSKY UIC 2D0930103 A.P.I. #47-093-0103-F

TRIPLEX PUMP AND FILTER HOUSING CONCRETE SECONDARY CONTAINMENT 100 100 250 250 250 250

INJECTION WELL

LOAD LINE

FILTERED WATER TO DOWNHOLE

UNFILTERED WATER TO FILTER

FILTERED WATER TO STORAGE

UNLOADING PORT

NOT TO SCALE



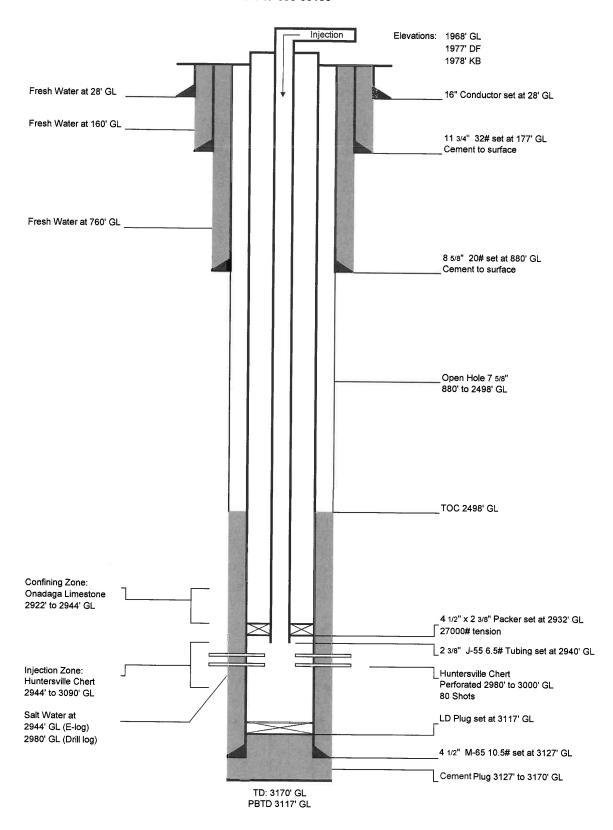
FACILITY SKETCH

DISTRICT COUNTY TAX MAP-PARCEL NO.

BLACKFORK TUCKER 302-20

OPERATOR:
PENNECO RECEIVED
6608 RTOMES of Oil and Gas
DELMONT, PA 15626
APR 1 8 2017

Gotinsky #1 API 47-093-00130



APPENDIX AInjection Well Form

1) GEOLOGIC TARGET FORMATION Huntersville Chert	
Depth 2944 Feet (top) 3090 Feet (bottom)	
2) Estimated Depth of Completed Well, (or actual depth of existing well): TD 3170'/PBTD 3117' Feet	
3) Approximate water strata depths: Fresh 28', 160', 760' Feet Salt 2948	Feet
4) Approximate coal seam depths:	_
5) Is coal being mined in the area? Yes No	
6) Virgin reservoir pressure in target formation 1350 psig Source Local geology on existi	ng wells, logs, etc.
7) Estimated reservoir fracture pressure 1646	psig (BHFP)
8) MAXIMUM PROPOSED INJECTION OPERATIONS:	
Injection rate (bbl/hour)65	
Injection volume (bbl/day) 1500	
Injection pressure (psig) Up to 808	
Bottom hole pressure (psig) 1402	
9) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES:	
Salt brine, inhibitors, and bio-emulsions to control bateria	
UIC Class II compliant fluids	
Temperature of injected fluid: (°F) Ambient	
10) FILTERS (IF ANY)	
One 50 micron sock filter and five 10 micron cartridge filters	
11) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL	
Internal control will be done with inhibitors	
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APPENDIX A (cont.)

12. Casing and Tubing Program

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu.
							Ft.)
Conductor	16"	New			28'	28'	CTS
Fresh Water	11 3/4"	New		32#	177'	177'	CTS
Coal							0.0
Intermediate 1	8 5/8"	New		20#	880'	880'	CTS
Intermediate 2							010
Production	4 1/2"	New	M-65	10.5#	3127'	3127'	128 sks
Tubing	2 3/8"	New	J-55	6.5#		2940'	N/A
Liners						2010	19/75

TYPE	Wellbore Diameter	Casing Size	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu.	Cement to Surface?
Conductor		16"				ft./sk)	(Y or N)
Fresh Water		11 3/4"					Y
Coal							
Intermediate 1		8 5/8"					Υ
Intermediate 2							
Production		4 1/2"					N
Tubing		2 3/8"					N/A
Liners							

PACKERS	Packer #1	Packer #2	Packer #3	Packer #4
Kind:	Tension			
Sizes:	4 1/2" X 2 3/8"			
Depths Set:	2932'			Office of Oil and Gas

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APPENDIX B Storage Tank Inventory

Tank Type	Single/Double Wall	Single w/containment						
Volume of Fluid Storad	riuld Stored (gallons)	10	1	_		7		
Type of	Fluid Stored	Brine	Brine	Brine	Brine	Brine	Brine	
Capacity	(gallons)	4200	4200	10500	10500	10500	10500	
Construction Material (Steel	plastic, etc.)	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic	
Tank Age	(Months)	112	112	112	112	112	112	
Installation	Date	01/2008	01/2008	01/2008	01/2008	01/2008	01/2008	
ocation 83 Meters)	Easting	607328.726	607328.720	607336.405	607340.893	607345.381	607349.955	
Tank Location (UTM NAD 83 Meters)	Northing	4327924.947	4327925.391	4327926.384	4327927.111	4327927.838	4327928.567	
Tank	9	647-00000107	047-00000108	047-05000112	947-00000116	047-00030111	047-000001109	
API #		47-93-00103	47-93-00103	47-93-00103	47-93-00103	47-93-00103	47-93-00103	Office of Oil and Gas APR 1 2017 APR 1 2017 APR 1 2017 APR 1 2017
								APR 1 2011 APR 1 2011 WV Department of Environmental Protection



All AST's have been inspected by a licensed inspector per WV DEP Regulations and were considered Fit for Continued Service.

Containment Volume = 90' Length x 30' Width x 2.66' Height = 7182 cubic feet

7182 cubic feet x 7.48 gallons = 53,721 gallons of containment capacity before subtracting footprint of other tanks

Footprint:

 $3.14 \times 5' \times 5' \times 2.66' = 209$ cubic feet

209 cubic feet x 7.48 gallons = 1563 gallons

1563 gallons x 5 tanks = 7815 gallons

Total Containment Volume:

53,721 gallons - 7815 gallons = 45906 gallons

Containment Required:

250 bbl x 42 gallons = 10,500 gallons

10,500 gallons x 110% = 11,550 gallons

Contents:

Tank 1 - 100 bbl Filtered Brine

Tank 2 - 100 bbl Filtered Brine

Tank 3 – 250 bbl Unfiltered Brine

Tank 4 – 250 bbl Unfiltered Brine

Tank 5 - 250 bbl Unfiltered Brine

Tank 6 - 250 bbl Unfiltered Brine

Office of Oil and Gas

APR 1 8 2017

WV Department of
Environmental Protection

HALLIBURTON	Job Sumi	mary	SALES OR 44464			06/12/06	
REGION: UNITED STATES MBU ID	NWA / COUNTRY: Northeast/United States H.E.S EMPLOYEE NAME:		BDA / STATE EASTERN/M PSL DEPARTM	\sim	COUNTY TUCKER		
106639 LOCATION: WESTON	BRIAN LOUGH COMPANY: T.&F. EXPLORATIONS	' ;			ZONE ISOLATION CUSTOMER REP / PHONE HOWARD GROVES (304) 677-8394		
TICKET AMOUNT: WELL LOCATION (LAND)	WELL TYPE: 02 GAS		API/UWI # 47-093-0010	3	11	134"	CSG
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Tools and Accessories Type and Size Qty Float Collar	Make Casing	New/Used	Well Data Weight Size 32# 113	Grade	From	To	Max. Allow
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	039						SHUT DOWN,	DROP PLUG	
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	0000	5.0	5.0	TEMPERATURE			H2O
	0901	5.0	53.0				CEMENT
	0919	5.0	58.6		004		SHUT DOWN RELEASE PLUG
	0932	5.0	0.00	-DECREENERS NO	364	ADDISONAL	DISP PLUG DOWN
							PLUG DOYA
							14 BBL CEMENT BACK
			Comment State on Car Car	TT-SAME CAPE			
						-	
					i		**************************************
	0932						END OF JOB
	0935						WASH UP PUMP TRUCKCEVEU, Cas
	1025						END OF JOB WASH UP PUMP TRUCK RIG DOWN POST JOB SAFETY MEETING LEAVE LOCATION 2017
	1030						POST JOB SAFETY MEETING
	1000						LEAVE LOCATION JIMINE 2017

WV Department of Environmental Protection

HALLIBURTO!	N Joh	Summary	SALES ORDER 4455425	TICKET DATE 06/18/06			
REGION: UNITED STATES	NWA / COUNTR Northeast/Un	ited States	BDA / STATE Eastern/WV	COUNTY			
MEU ID 106538	H.E.S EMPLOY	EE NAME:	PSL DEPARTMENT				
LOCATION:	COMPANY:		ZONAL ISOLATION				
Weston WV TICKET AMOUNT:	T&F Explorat	ion	Roger Witter				
IICRET AMOUNT:	WELL TYPE: 02 GAS		АРИИМ # 47-093-00103	41/2" CsG			
WELL LOCATION (LAND)	PSL DEPARTME	INT:		ription //2 CSG			
Parsons	10003 ELL # Rig		7523 Cen	nent Production Casing-035			
Gotinsky	1 SW Jack#7		HES FACILITY (CLOSES Weston VVV	T TO WELL SITE)			
HES EMP MAIZ / TOP 4 / (EXPOSURE HOURS)	Maring and the Charles of the	MRS	FPRS	PES			
Hornung Sr, Eric 108538 Romans, Kermeth 106641							
Shakespeare ⊮ike 385636							
LES UNITES / [R/THESS) R/TME	3	R/T MILES	8/T MILES	R/TWLES			
10252889 60 10011845 120							
10011920 120							
Form. NameTy	pe:		1				
Form. Thickness From Packer Type Se	ot At	Called Out Date	On Location Job !	Started Job Completed			
Bottom Hole Temp. Pr	essure						
Tools and Access	ories	Time 0:01	3:00 Well Data	4:22 5:18			
Type and Size Qty Baffles	Make	New/Used Casing NEW					
Float Shoe 4 1/2 1	Howco	Liner	10.5 4 1/2	0 3,127 2,000			
Centralizers Reg 4.5 6 Top Plug	Howco	Liner Tubing					
HEAD 4.5 PC&M 1	Ночко	Drill Pipe					
LD Baffle 4 1/2 1	Howco Howco	Open Hole Perforations					
Guide Shoe Baskets		Perforations					
Materials Materials		Perforations Hours On Location Date Hours	Operating Hours	Description of Joh			
Mud Type Density Disp. Fluid WATER Density		Date Hours 3Hr30Min	Date Hours	Cement Production Casing-035			
Prop. Type Size Prop. Type Size	Lb Lb						
Acid Type Gel	%						
Acid Type Gal. Surfactant Gal.	% 						
NE Agent Gal. Fluid Loss Gal/Lb	In In						
Gelling Agent Gal/Lb	In		77.7				
Fric. Red. Gal/Lb Gal/Lb Gal/Lb	ln	Total 3Hr30Min	Total 55%in				
Clay Control Gal/Lb Bacteriacide Gal/Lb	In In						
Other 500# Gel	"	Ordered	Hydraulic Horsepowe Avail.	Used			
Other		Treating	Average Rates in BPI Disp.	VI Overall			
Other			Cement Left in Pipe				
O I GI		Feet	Reason				
Stage Sacks Cement Bulk/		Cement Data Additives		Water Req Yield Lbs/Gal			
1 (_465 50/50 Poz BLI	2% Gel, 16% Salt,	2# Phenoseal p/ Sk		5.75 1.29 14.30			
Disculating Dis	sla tament	Summary		-0			
Breakdown MA	placement XIMUM	Prefiush: Load & Bkdn:	BBI Gal - BBI	Profession Bland Gas			
Int Rtm (bbl)Act	t Returns ual TOC	Excess /Retu Calc. TOC:	m BBI	FIGHT Disp Bin O			
verage Fra	c. Gradient in. 15 M	Lead Cement	Gal-BBI	Type: 1/ED Period Car Activities Band Gas Activities Band Gas			
rac Hing #1		Total Volume	DDI				
THE INFORMATION STATED	Frac King # 2	Frac Ring		Fraction 54			
CUSTOMER REPRESENTATI	VE VE	SVI		WV Department of WV Department of Protection			
			SIGNATURE	MA Deba Diotecua.			
				vironmenta			
			Er	Mina			

HAL	LIBU	RTC			Job	Log		4455425		06/18/06	
IREGION:	· Same · e · le		INVYA	V/ COUN	TOV		3 00 00 × 477303 000	IBDA / STATE		ICOUNTY	
UNITED S	STATES		Non	theast/l	United S	tates		Eastern/WV		Tucker	
MBU ID 106538			H.E.	S EMPL	OYEE NA	ME		PSL DEPARTN ZONAL ISOI CUSTOMER RI	ENT	T/ON	
LOCATION	A /		COM	W. Ho	mana			CUSTOMER R	爭	PHONE	
Weston W			11 Sch	Explor L TYPE	ation			Roger vvitter			
			02 0					APVUWI# 47-093-0010	3	41/2	"CSG
WELL LOCA	MOITA		DEP	RTHEN	T			JOB PURPOSE	CO	DE	
Parsons LEASE NAIN	122	WEL	1000	<u> </u>	240			Cement Pro	odu	ction Casing-035	7523
Gotinsky				Jack#				Weston WV	(CL	OSEST TO WELL SITE)	
KEN END HANDER OF	EXPONENTE HOLDER		A HES BAP MASS	The second second	TO CASE OF THE PARTY OF THE PAR	HRS ESBP	WEDE FERON		Hills	ES BIP RALE BIP & (COPOSURE HOURS)	Hits
Homung Sr	, Eric 10	6538	1						T		T
Romans, K	enneth 1	06641	1						T		
Shakespea	re Mike 3	85636							-		
			tar i		****	- -			+	,	
	······································		1			-			┾		_
			-		-	 			+	ļ-	
	1	7					T				
				-	U 17						
Chart	Time	Rate	Volume	Rate	Dren	s.(PSI)		int D		-1-41 I P	
No.	Titing	(BPM)	(EBL)(CAL)	N2		The state of the s	-	900 D	esc	ription / Remarks	
	3:00	(61:3)	(tearless)	NZ	CEG	Tbg	ON LOCA	TION			
	3:20						1	EETING & RIG U	10		-
	4:15				THE RESERVE AND ADDRESS OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED I			EETING & JOB I		CEDUER	
	4:22							Æ TEST LINES	-		***************************************
	AC. 1, 1886							All page not be paged and the page of		We will have a second	
			120				Pump Bri	ne To Circulate	Hola)	
			10		-		H20				- 5, 5
			25				6% Gel				
			10				H20				
			35.6				50/50 Poz				
							Wash Out				
		************					Release P				
			51				Disp W/H				-
	10-00-00-00-00-00-00-00-00-00-00-00-00-0				A town		Land Plug				
		THE CANADA COMM					Ralease P	si Cheack Float	5		

							-				
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									•—		
									-		
						i i					
1						1879 Maria Ma					
	8,40										
	5:18 5:25							& SAFTY MEET	MG		
	6:30							& RIG DOWN		3701	
	0.00						SAP I Y	ETING & OFF L	(JU)	ATION	

DATE: 10/24/06

API#: 47-093-00103

State of West Virginia Department of Environmental Protection Office of Oil and Gas

Well Operator's Report of Well Work

• • •				\$ 6 · · · · · · · · · · · · · · · · · ·
Farm name: Ernest and Ruth Gotinsky	Oper	ator Well No.:		
LOCATION: Elevation: 1968'	· ·	luamatar Mantus		
DOCATION. Elevation, 1906	Quad	irangle: Montro	se .	200
District: Black Fork	County: Tu	alson	•	·
	39 Deg. 07		Sec.	. 1
	79 Deg. 07			(.)
Longitudo. :2,710 Tool West of	Deg. 43	, MIII. OO	Sec.	
Company: T&F Exploration, LP	300			•
<i>y</i> ,	Casing &	Used in	Left in well	Cement fill
	Tubing	drilling	* *	up Cu. Ft.
Address: 186 South Kanawha Street	16" Cond	28'	28'	
Buckhannon, WV 26201	11 %" FW	177'	177'	CTS
Agent:	8 5/8" Surf	880'	880,	CTS
Inspector: Craig Duckworth	4 1/2 " Prod	3127'	3127'	128 sx
Date Permit Issued: 5/17/06				
Date Well Work Commenced: 6/12/06				
Date Well Work Completed: 6/18/06				
Verbal Plugging:				
Date Permission granted on:				
Rotary X Cable Rig				
Total Depth (feet): 3170'				
Fresh Water Depth (ft.): 28', 160', 760'				
Salt Water Depth (ft.): 2980'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.):				
	1 (1	, ,	ļ	ı
OPEN FLOW DATA				
Producing formation NA-Will be converted	ed to SWD we	ell. Pay zon	e denth (ft)	
Gas: Initial open flow MCF/d Oil:	Initial open flo	ow R	bl/d	
Final open flow MCF/d F	inal open flow	RI	1/d	
Time of open flow between initial and f	inal tests	Hours	7 L L	
Static rock Pressure psig (surfac	A pressure) of	er Uou		The same of the sa
porg (surface	e bressme) an	erHou	TA 173	Shick of Chief
Second producing formation	Pay zon	e depth (ft)	CA''	CO CHON CHIEF
	Initial open flo		bl/d	Olygon and I
	inal open flow		ol/d	117 6
	inal tacto	LI ₀	,	in and
Time of open flow between initial and f Static rock Pressurepsig (surface NOTE: ON BACK OF THIS FORM PUT THE F INTERVALS, FRACTURING OR STIMULATIN LOG WHICH IS A SYSTEMATIC DETAILED OF INCLUDING COAL ENCOUNTERED BY THE METAIL STATE OF THE	a pressure of a			IN Desprised of
hark (antisc	e pressure) are	ei Hou	us /	WWW.
NOTE: ON BACK OF THIS FORM DITT THE		I) DETAILS	NE DEDECT A	WILL
INTERVALS FRACTIDING OF STIME ATEN	C DUVETOATING:	OUANOR PO	r perforal	
I OG WHICH IS A SYSTEMATIC DETAILED.	CECT CCTCAT	PECOPO OF	ALL BODA AM	LL
INCLUDING COAL ENCOUNTERED BY THE X	MELL BUDE OFOTOGICAT	RECORD OF	ALL FURMAT	IONS,
INCLUDING COAL ENCOUNTERED BY THE	WELLBUKE.			
Signed: Wallama	the	_		
By: Drong trong C	1			

Well Log

<u>Formation</u>	<u>Top (ft.)</u>	Bottom (ft.)
Devonian Siltstones &	0	2,520'
Shales		,020
Harrell Shale	2,520'	2,552'
Tully Limestone	2,552'	2,595'
Shale	2,595'	2,830'
Upper Marcellus	2,830'	2,868'
Purcell Limestone	2,868'	2,886'
Lower Marcellus	2,886'	2,922'
Onondaga Limestone	2,922'	2,944'
Huntersville Chert	2,944'	3,090'
Needmore Shale	3,090'	•
Oriskany Sandstone	3,105'	3,105'
and the second	5, 105	TD

WR-37 (REV. 5/01

李 美华

Date: 4-	4-2008	19
Operator's Well No.	GOTINSKY	,#1
API No. 4	7-093 -	00 103

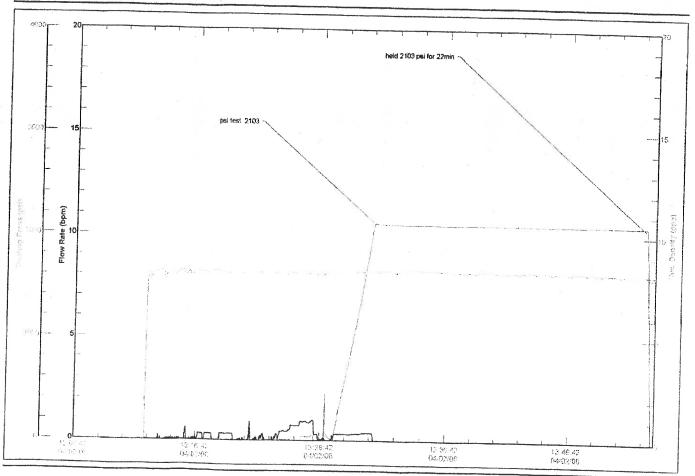
STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENT-OFFICE OF OIL AND GAS PRE-OPERATION CERTIFICATE FOR LIQUID INJECTION OR WASTE DISPOSAL WELL

WELL OPE	idress 48	AND Ende	estrial	Park	<u>.</u> 1801.	DESIGNATE	DAGENT Ja)can (304-871-
Source	n reservoir e of inforn	pressure in	target form	ation	1350	tocal geolog	4 on existing		st(bottom)
MAXIMUM Well Volum	head inject	ion pressure	CTION OP : 955 10 Barr		TONS psig HR.	Bottom he	ole pressure: /Կ	oz psig	Many Spring The Land
DETAILED I Liqui Waste	ds to be inj	CATION C jected for or sposed of:_	il recovery:			INJECTED	š,		
Addit	ives (Slurr	y mediums, La hibit	inhibitors,	solven	ts, oxidi mu (s	zers, deoxidizers,	etc.)	January C.	Page 17 May
	1 MOON C	R CATHO	700 not	ECTI Les	ON AN	DOTHER COR	ROSION CONTI	ROL	accomplished
ADDITIONAL DETAILS ON	DRILLII	NG AS PAI	RT OF TH	E COI	NVERS	ION (Complete	form WR-35)	Alveady su	10
CASING OR TUBING TYPE	SIZE	GRADE	WEIGHT PER FT.	NEW	USED	FOOTAGE USED IN DRILLING	FOOTAGE LEFT IN WELL	CEMENT USED	PACKERS (KIND, SIZE,
CONDUCTOR	16"			<u>×</u>		28"	28'	CT	DEPTH SET)
FRESH WATER	113/4"	14	324	<u> </u>		177'	177'	CTS	
BOALInterm.	8 4		204	X		<u> క</u> ికిం'	880'	CTS	3
PRODUCTION	U!/a"	- 1.C	1054						
TUBING		m-45 J-55			— .	3127'	3127	128 sacks	
LINERS	_			× 1- 6		t@2940'	2940'	NA	
JE 1250		- 10	<u> </u>	-TO ^		16 6440			4/2 x 27/8

	÷	ŧI.		
	ndersigned certifies that nical integrity of the we fice of Oil and Gas.	the test was performed all. The test was witnessed	on _ U-2	, 20 48 and demonstrated representing
	Well Operator	- for Linn	4-2-09 Date	
	E AUTHORIZED DOD	INJECTION.		
WELL IS	S AUTHORIZED FOR			香
WELL IS	, ,	etern	UIC PROGRAM DIRECTOR	



BJ Services JobMaster Program Version 3.10 Job Number: 225044971 Customer: Linn Well Name: Gotinsky#1 Gotinsky#1



BJ Services

CEMENT JOB REPORT



												**	West Charles			
CUSTO		Cim Oper	ating LLC		DATE 02	2-APR-08	F.R.#	22504	4971	5	SERV. SUPV.	Ron Bla	and			
		LL NAME			LOCATION	1	-									
		v #1 - API 47	093001030000		PARSO	NS				1	COUNTY-PARISH-BLOCK Tucker West Virginia					
DISTRIC	ST Isbum	_			DRILLING	CONTRAC	TOR RIG	#		7	YPE OF JOE					
CIBIL	SIZE	& TYPE OF	Pilles	1 107	NA						Misc Pump - Misc					
			1.2000	1	-CSG-HARD	WARE		and I	Р		LURRY PRO	PERTIES				
				No Shoe			*	ACKS	SLURRY	SLURRY	*****	PUMP	Bbl			
							CE	MENT	PPG	YLD FT ³	GPS	TIME HR:MIN	SLURR			
			MATERIALS	FURNISHED E	Y BJ					• • •		1117.1MD4		WATER		
h20																
Assallab	.l. B41		_						8.34				1	15		
Availab	HE MI	x Water	<u>0</u> вы.	Available D	ispl. Fluid _	151	Bbl.				TOT	'A1	-	5		
		HOLE				TBG-C	SG-D.P.				101			기		
SIZE		% EXCES	S DEPTH	SIZE	WGT		YPE	DEP	TH (GRADE	SHOE		DEPTHS			
				4	.5 1	0.5 CSG			3127 J-5		SHUE	- FL	OAT	STAGE		
	L	AST CASIN	G	PK	R-CMT RET-	R PL-LINE	R	DEDE								
SIZE	WG	TYP!	DEPT		PRAND & TYPE						PCONN		ELL FLUI	D		
		1	ĺ					I I UP	DIM	SIZE 4.	THREAD	TYPE		WGT.		
DISPL	. VOI	LUME	DIS	PL. FLUID	CAL. P	SI CAL	MAX PSI		<u> </u>	1		FRESH V		8.34		
VOLU	ME	UOM	TYPE				REV.	0		X TBG PSI		AX CSG P	SI	MIX		
	3	BBLS		- 110	1. DOMF P		REV.	SQ. PS	RATE	D Opera	tor RATI	ED Op	erator	WATER		
	J	DDLG				0	0		0	0	0 3	800	3500 tr	uck		
														QUN.		
EXPLANA	MOITA	: TROUBLE	SETTING TO	OL, RUNNING	CSG ETC P	PIOP TO CI	CASCAITIA	10:	_'							
					, L. (d.)	NOK TO C	SIALEIA I IM	IG:								
			PRESSURE	RATE DETAIL							EVEL ALLEGE					
TIME	T	PRESSI	JRE - PSI	RATE	Bbl. FLUID	201112					EXPLANATIO	ON				
HR:MIN	ı.	PIPE	ANNULUS	BPM	PUMPED	FLUID	SAF	ETY MEE	TING: BJ		CO. REP.	X				
			7					T LINES		500 PSI						
13:26	T	2103	•	.2	.5	H20			WELL -	RIG	BJ					
13:52	_	0				1720		st 2103								
	1	DCI TO					held	2103 for	22min blee	ed off rig or	ut					
BUMPE	[PSI TO BUMP	TEST FLOAT	BBL.CMT RETURNS/	TOTAL BBL.	PSI		POT	een//or	6HDEB: "	OR SIGNATI					
	ED				P4. P4. I	LEFT ON	I TO				17 1M CICAIATY	IDE.		11		
PLUG		PLUG	EQUIP.	REVERSED				OUT	OLIVICE	SUPERVIS	CK SIGNATI	UNE.		11		
PLUG		PLUG	EQUIP.		PUMPED	CSG		MENT	P	RI	1	JICE:				

DATE: 10/24/06

API#: 47-093-00103

State of West Virginia Department of Environmental Protection Office of Oil and Gas

Well Operator	's Report of We	ell Work		्र १८०० १६०४
Farm name: Ernest and Ruth Gotinsky	Oper	Gotinsky #1	§ .	
LOCATION: Elevation: 1968'	Ound	manalar Mantus		01 505 545
LOCATION. Elevation, 1908	Quad	rangle: Montro	se ·	a de
District: Black Fork	County: Tu	cker		
Latitude: 11,350' Feet South of 3	9 Deg. 07	Min. 30	Sec.	
Longitude: 2,710' Feet West of 7	9 Deg. 45	Min. 00	Sec.	• •
Commonwed BOR Revolution I II				*
Company: T&F Exploration, LP	[Code a e	[#7a. a t.	en toera. Lanctana and a	lime i i ma
	Casing & Tubing	Used in drilling	Left in well	
Address: 186 South Kanawha Street	16" Cond	28'	28'	up Cu. Ft.
Buckhannon, WV 26201	11 %" FW	177'	177'	CTS
Agent:	8 5/8" Surf	880'	880'	CTS
Inspector: Craig Duckworth	4 1/2 " Prod	3127'	3127'	128 sx
Date Permit Issued: 5/17/06				
Date Well Work Commenced: 6/12/06				
Date Well Work Completed: 6/18/06				
Verbal Plugging:				
Date Permission granted on:				
Rotary X Cable Rig				
Total Depth (feet): 3170'				
Fresh Water Depth (ft.): 28', 160', 760'				
Salt Water Depth (ft.): 2980'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.):				
Coar Deptilis (11.).	ı.			l
OPEN FLOW DATA				
Producing formation NA- Will be converted	ed to SWD we	ll. Pay zon	e depth (ft)	
Gas: Initial open flow MCF/d Oil:	Initial open flo	ow B	bl/d	
Final open flow MCF/d Fi	nal open flow	Bl	ol/d	
Time of open flow between initial and f	inal tests	Hour	S	1
Static rock Pressure psig (surface	e pressure) aft	er Hou	ırs	3
	• ,		E	333
Second producing formation	Pay zon	e depth (ft)	Con	CO O Chies
Gas: Initial open flow MCF/d Oil:	Initial open flo	ow B	bl/d	Onice of Chief
Final open flow MCF/d Fi	nal open flow	Bl	ol/d \	1 2 6 6
Time of open flow between initial and fi	inal tests	Hour	s \	The supplied of
Time of open flow between initial and for Static rock Pressurepsig (surface NOTE: ON BACK OF THIS FORM PUT THE FINTERVALS, FRACTURING OR STIMULATIN LOG WHICH IS A SYSTEMATIC DETAILED OF INCLUDING COAL ENCOUNTERED BY THE X	e pressure) aft	er Hou	ırs \	hay Desperander of
			\.	nvir.
NOTE: ON BACK OF THIS FORM PUT THE F	OLLOWING: 1	l). DETAILS (OF PERFORAT	
INTERVALS, FRACTURING OR STIMULATIN	G, PHYSICAL	CHANGE, E	rc. 2). The wi	ELL
LOG WHICH IS A SYSTEMATIC DETAILED	GEOLOGICAL	RECORD OF	ALL FORMAT	IONS,
INCLUDING COAL ENCOUNTERED BY THE X	VELLBORE.			

Signed: Mallagna C. By:

By: Operations Manager
Date: 1/19/07

Well Log

<u>Formation</u>	<u>Top (ft.)</u>	Bottom (ft.)
Devonian Siltstones & Shales	0	2,520'
Harrell Shale	2,520'	2,552'
Tully Limestone	2,552'	2,595'
Shale	2,595'	2,830'
Upper Marcellus	2,830'	2,868'
Purcell Limestone	2,868'	2,886'
Lower Marcellus	2,886'	2,922'
Onondaga Limestone	2,922'	2,944'
Huntersville Chert	2,944'	3,090'
Needmore Shale	3,090'	3,105'
Oriskany Sandstone	3,105'	TD

ري الريا**ث المنتج** - WR-35 عالي

Date API# March 13, 2009 47 - 093 - 00103

State of West Virginia Division of Environmental Protection Section of Oil and Gas Well Operator's Report of Well Work

Farm Name:	Linn Operating, Inc.			Operator Well No.: Gotinsky #1 Frac							
LOCATION: Elevation: 1,968' District: Black Fork Latitude: 11,350' feet \$		South of	Quadrangle: County:			Montre Tuck	er	er			
	Longitude:		West of	79	DEG. DEG.	07 45	MIN. MIN.	30 00	SEC.		
Company:	Linn Operating,	lno			sing & ng Size	Used in	Drilling	Left li	n Well	Cemen Up Cu	
Company.	P. O. Box 368			1	3/4	17	77'	17	77'	C.T.S	3.
Amant	Glenville, WV 26			8	5/8	88	10'	88	30'	C.T.5	3.
Agent: Inspector:		Gary Beall Craig Duckwor	rth	4	1/2	3,1	27'	3,1	27	128 sl	ks
Permit Issued: Well Work Cor	mmenced:	8/23/2007 May 14, 2008		2	7/8			2,9	40'	iED n/a	1
Well Work Cor Verbal Pluggin	ıg:	May 14, 2008	3					Offi	ce of O	& Gas	T
Permission gra Rotary Total Depth (fe Fresh Water D	Cable <u>Fr</u>	acture 3,170' Fracture Only							ווי סמ	ement of all Protection	n.
Salt Water Dep Is coal being m Coal Depths (f		Fracture Only N)? Fracture Or	/								
OPEN FLOW	DATA				Pay Zo	nne.	Hunt	ersville	Chart		
Producing Fo		Huntersville Che		_	Depth (/	2,980'	Chert		
	en Flow Fracen flow between i	cture For Injection cture For Injection nitial and final tests psig surf	MCF/d	sure aff	Fi	itial Oper			re for In re for In	_	
	icing Formation				Pay Zo Depth (ne			-		
	en Flowen flow between i	nitial and final tests		sure afte	Fir	tial Open nal Open		********		Bbl/d	
NOTE: ON BAC STIMULATING, I	K OF THIS FORM PHYSICAL CHANG	PUT THE FOLLOWI GE, ETC. 2.) THE W	ING: 1.) D	ETAILS WHICH WELLE	OF PER	FORATEI EMATIC	- DINTERV	/ALS, FR D GEOL	ACTURI OGICAL	NG OR RECORD	OF
			By: Date:	1	B2-4-2-	07		Sr. Pr	oduction	Foreman	

Stage

Formation
Huntersville Chert

Depth & No. of Shots

2,980'- 3,000' 80 Shots **Treatment Detail**

X-Link. Breakdown 1,646 psi; Avg Treating 1,465 psi @ 26 bpm; 325 sacks 30/50 sand; 857 bbls water; 3,500 gal. acid; ISIP 982 psi; 5 min. 652 psi

FORMATION TOP BOTTOM REMARKS

Fracture Fracture Fracture

WR-37 REV. 5/01 Date: 4/13/2017

Operator's Well Number

County Permit

API Well No.:

State 47-

093 - 00/03

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENT-OFFICE OF OIL AND GAS PRE-OPERATION CERTIFICATE FOR LIQUID INJECTION OR WASTE DISPOSAL WELL

WELL OPERA Addr	ess 660	enneco C 8 Route nont, P	22				dress <u>660</u>	Parc Jacobs, 8 Route 22 Mont, PA 15	Jr.
GEOLOGICA	L TARGE	T FORMA	TION K	unde cen:	11. CL	uct Depth 29	50 feet(top) t	o <u> 3090 </u> feet(bo	ttom)
		essure in ta							,
Source	of informa	tion on virg	in reservoi	ir press	ure: 🗘	cal beology os	n existing w	elle, Legs, evalu	ation
Perforat	tion interva	ıls 29.	ro'			Open-hole	intervals 305	ə '	
		n pressure:				Bottom ho	le pressure:	psig	
DETAILED ID	ENTIFIC.	ATION OF							
Liquids Wastes	s to be inje to be disp	cted for oil	recovery:_	A 2 a 4					
_									
Additiv	res (Slurry	mediums, ii	nhibitors, s	solvents	, oxidi:	zers, deoxidizers,	etc.)		
_	Inhib	itors !	Pio	-em	ulsio	ms to cont	rol Bacter	ì sa	
-							1979		
SPECIFICATION	ONS FOR	CATHOD	IC PROT	ECTIO	N ANI	OTHER CORE	ROSION CONT	ROL	
ADDITIONAL	DDILLIN	CASDAD	TOFTH	E CON	VEDC	ION (Complete	6 N(D 26)		
DETAILS ON ? the new casing a relates.)	NEW CAS	ING AND program is o	TUBING described of	PROG on a for	RAM A m WR-	AS PART OF TH -35, submitted in o	IE CONVERSIC	ON (To be complete the permit to which the	ted below unless his form WR-37
CASING OR TUBING TYPE	SIZE	GRADE	WEIGHT PER FT.	NEW	USED	FOOTAGE USED IN DRILLING	FOOTAGE LEFT	CEMENT USED	PACKERS (KIND, SIZE,
CONDUCTOR	16"					28'	28'	CT	DEPTH SET)
FRESH WATER	1134"		32	-		177'	177'	CTS	
COAL								•	
INTERMEDIATE	85%"		20			880 '	880 '	CTS	:D
PRODUCTION	45"	M. 45	10.5			3127'	3127'	Office of Oil a	nd Gas
TUBING	2	J-55	L.5	-		2940'	NA	UHICE A.	I .
LINERS (o mpretin	sete.	2940'					APR 18	43 x 2 % "
								WV Depar Environment	tment of al Protection

MECHANICAL INTEGRITY TEST

Test Method: Prassure up on Annulus 4/2 To 1000# Start down, Fix leat
on fittings. Pressure up again to 1500 paig shut in and held press for 20 minutes. Recorded 1500 paig Lost 15 paig To 1485 in 20 minutes. Released pressure
press for 20 minutes, Recorded 1500psia Lost 150sia To 1485
in 20 minutes. Released pressure
The undersigned certifies that the test was performed on 4/13/2017, 20 and demonstrated mechanical integrity of the well. The test was witnessed by 4/13/2017 representing the Office of Oil and Gas.
Well Operator Well Operator Date
THIS WELL IS AUTHORIZED FOR INJECTION.
SignedUIC PROGRAM DIRECTOR
Date

[NOTE: That the mechanical integrity of this well must be demonstrated again within ninety (90) days of five years from this date in order for injection to continue. Please notify the state inspector 24 hours in advance of the test].

Penneco (Oil Company, Inc.

Well Operator

By: D. Mara Jacobs

RECEIVED
Office of Oil and Gas

APR 1 8 2017

WV Department of
Environmental Protection

The first transfer of the first transfer of

Ċ,

Office of Oil and Gas

APR 1 8 2017

WV Department of Environmental Protection

WR-37 REV. 5/01 Most Recent Mtt

Operator's Well Number
State
County

API Well No .:

47- 093 -00/03

Permit

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENT-OFFICE OF OIL AND GAS PRE-OPERATION CERTIFICATE FOR LIQUID INJECTION OR WASTE DISPOSAL WELL

	ddress	6608 K	PA 15	426		ED AGENT DAddress G60	8 Kowle 23 unt, PA	15636	A
GEOLOGIC	CAL TARG	ET FORM	IATION A	lu de mille	Cle. + Depth 2	em feat(to-	New 2012	6	
Virgi	in reservoir	pressure in	target form	ation/25	<u> </u>	930 leed tob) to 3090	feet(bottom)	
Sour	ce of inform	- lation on v	rein reservo	ir proceura:	o psig		1		
Perfo	ration inter	vals	20 50 '	pressure 3050'	Local Geolog	y on exis	ting wells,	evaluation	_
MAXIMUM					Open-noi	le intervals	50 Non	e (98TO 347	2
Well Volun	head injecti ne per <u>hou</u> r:	on pressur	e: <u>808</u> 1	psig		ole pressure:	2360 p	sig	854/ 9/31/47
DETAILED 1	IDENTIFIC	CATION (OF MATER	IALS TO BE	E INJECTED				
Liqui	ids to be inj	ected for o	il recovery.	N/A.					
Wast	es to be dis	posed of:_	Brine L	Jaker -				RECTIVITY Office of Office 6	250
Addit	tives (Slurry	mediums	inhibitors e	olemen! 1	izers, deoxidizers				ACIO
	Til	hal.	[mmonors, s F Q .	/	izers, deoxidizers	, etc.)		AUG 3 1 2017	
	The state of the s	DITEL O	- D.OCH	Addians.	To control	Backeria		Visi Depositry of	<u>n</u> ‡
ADDITIONAL DETAILS ON	L DRILLIN	IG AS PA	RT OF THE	CONVERS	ION (Complete	form WR-35)		ompleted below unl	
relates.)				n a torni w K	-33, submitted in	connection with	the permit to w	ompleted below unli hich this form WR	-37
CASING OR FUBING TYPE	SIZE	GRADE	WEIGHT PER FT.	NEW USED	FOOTAGE USED IN DRILLING	FOOTAGE LEF	- CRIMENT	PACKERS	_
CONDUCTOR	16"				ا ھو	28'	USED	(KIND, SIZE, DEPTH SET)	
RESH WATER	113/"		32		177'	177 '		-	
COAL									.
NTERMEDIATE			20		880'	880'	CTS		-
RODUCTION	45"	M.65	105		3127'			4.4	-
UBING	21	J-55			312/	3127	1782KE		238×42
INERS	2932.	76					****	2930 Fras.	Packer

MECHANICAL INTEGRITY TEST
in and held for 20 minutes. Didn't Lose any pressure in 20 minutes. Released pressure.
The undersigned certifies that the test was performed on \(\frac{8}{29} \) \(\frac{20}{100} \) and demonstrated mechanical integrity of the well. The test was witnessed by \(\frac{100}{100} \) \(
Rest alow 8/29/17 Well Operator Date
THIS WELL IS AUTHORIZED FOR INJECTION
Signed UIC PROGRAM DIRECTOR Date 9/11/17
The state of the s

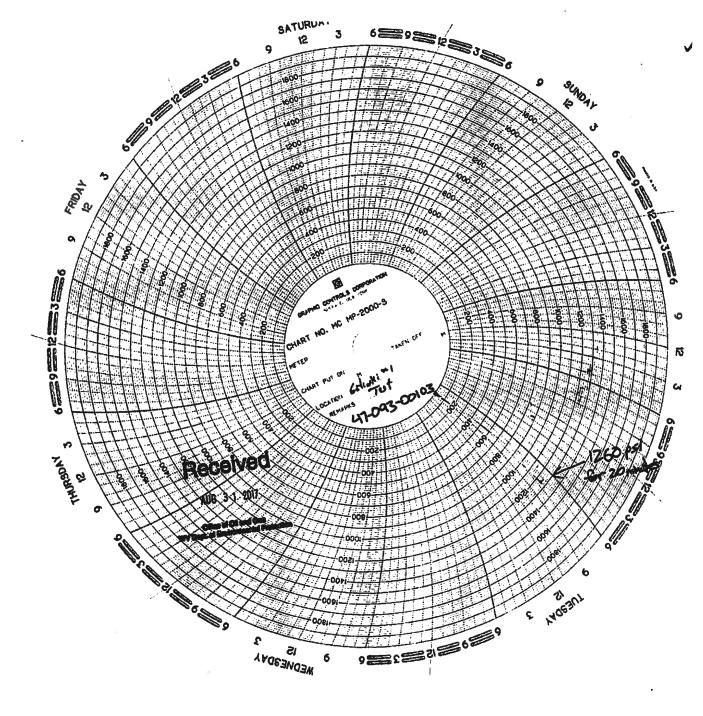
[NOTE: That the mechanical integrity of this well must be demonstrated again within ninety (90) days of five years from this date in order for injection to continue. Please notify the state inspector 24 hours in advance of the test].

By: D. Marc Jacobs Jr - Pannece Environments

Office or thinked Gas

AUG 31 2017

WV Deposition is a Environmental Profession



WAGES "Pipeline"

Get Data

☑ Location ☑ Production ☑ Owner/Completion ☑ Stratigraphy ☑ Pay/Show/Water ☑ Logs Select datatypes: (Check All) > Select County: (093) Tucker Reset Enter Permit #: 103

Sample
Btm Hole Loc Plugging

Well: County = 093 Permit = 103

WV Geological & Economic Survey:

Location Information: View Map
APP COUNTY PERMIT TAX DISTRICT QUAD_75 QUAD_15 LAT_DD LON_DD UTME UTMN
4709200103 Tucker 103 PERMIT TAX DISTRICT QUAD_75 QUAD_75 QUAD_75 A227932.4
4709300103 Tucker 103 PERMIT TAX DISTRICT QUAD_75 QU

There is no Bottom Hole Location data for this well

Owner Information:
APT SUFFIX STATUS SURFACE_CONNER WELL_NUM CO_NUM LEASE LEASE_NUM MINERAL_OWN OPERATOR AT_COMPLETION PROP_ING_FM TFM_EST_PR
APPOSAGONISM STATUS SURFACE COMPLETED ASSOCIATION OF THE Exploration, LP 4500 Onskary
T & F Exploration, LP 4500 Onskary
APOSAGONISM STATUS Worked Over Completed Linn Operating inc 1 EmestRivin Golinsky Linn Operating, LLC 3000 Huntersville Chert

Outprocess of the Despession o Completion Information:

G_BEF G_AFT O_BEF O_AFT WATER_QNTY DEPTH_BOT FM_BOT
28 Pennsylvanian System
206 Pennsylvanian System
760 Pennsylvanian System
760 Pennsylvania Chert 2948 Huntersville Chert Pay/Show/Water Information:

API CMP DT ACTIVITY PRODUCT SECTION DEPTH_TOP FM_TOP

API CMP DT ACTIVITY PRODUCT SECTION DEPTH_TOP FM_TOP

API CANADOM SIGH STAND WATER

ACTIVITIES SIGHT SI

FRESH WATER CLOB ACCORDING TO PRILL LOG WYGES TYPD?

Production Oil Information: (Volumes in Bb)) ** some operators may have reported NGL under Oil
API PRODUCING_OPERATOR PRD_YEAR ANN_OIL JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DCM |
4709300103 Penneco Oil Company, Inc. 2016 0

Production Water Information: (Volumes in Gallons)
API PRODUCING OPERATOR PRO_YEAR ANN_WITE JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DCM 4709300103 Penneco Oil Company, Inc. 2016 Production NGL Information: (Volumes in Bb) ** some operators may have reported NGL under Oil
APP PRODUCING OPERATOR PRO_YEAR ANN_NGL JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DCM
4709300103 Penneco Oil Company, Inc. 2016

There is no Stratigraphy data for this well

There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

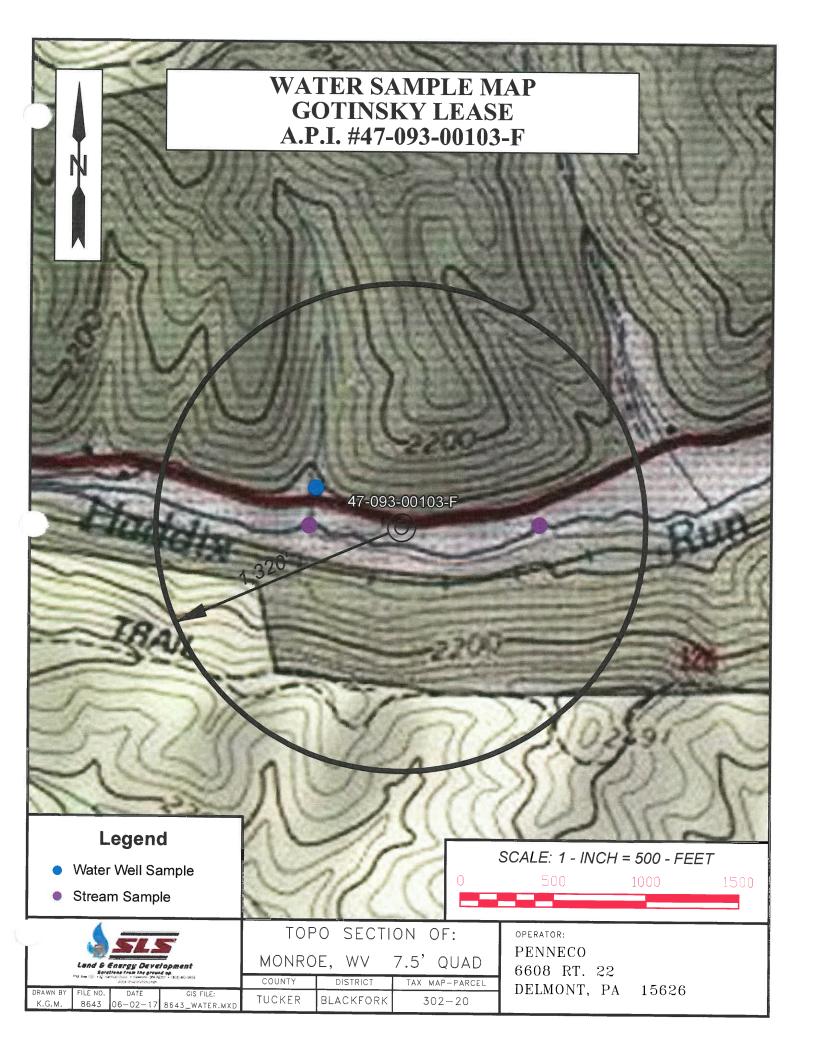
Report Time: Monday, December 04, 2017 7:52:28 AM

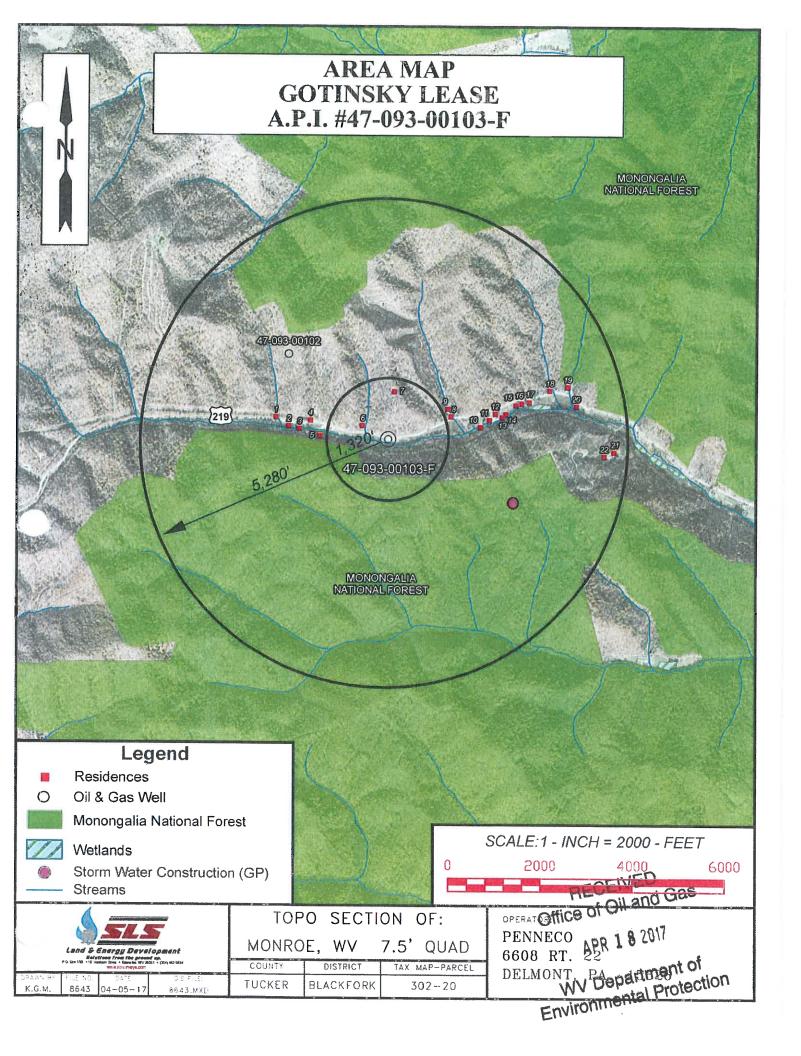
http://www.wvgs.wvnet.edu/oginfo/pipeline/pipeline2.asp?txtsearchapi=4709300103

12/4/2017

Section 7

Area of Review





*CLIENT NA	ime Si	SIA		PC BF TE E-IN	LIANC: 44 MEADOW DST OFFICE I RIDGEPORT, EL. (304) 842- MAIL reliance TERNET WWW TENERGY	BROOK I BOX 4657 WV 2633 5285 • Felabs@wv w.Relianc	ROAD 7 10 FAX (304) /dsl.net eLabs.net	842-5		ES, I	NC	: C		I RIDG 25 CF MARI	EFIE RIMSO FINSE	LD E ON (BUR	SUSI CIRC G, W	NES LE /V 2	S CE 5403	ENTE 3	R	ORD 96-2086	
					GLENVIL												- /	- /					
*ADDRESS		C CY	124	4	GLENVIL										-/-					-/-		SHEET NOOF	
CUSTOMER		Ca	Ш	ŀ			EL.#305							<u>5656</u>						/			
*SAMPLER	(s) A-D A	tm w	16	501	J	E-	MAIL Gr	مكاني	200	<u>:/55.</u>		15. Cor	<u> </u>		/	/			/	/	/ /	*PROJECT/REMARKS	
LABORATORY #	DATE	TIME	100	Ġ.	MATRIX W, DW, S, O, M	TEMP. ≤ 4°C Yes No		HNO3	H2S04	HÇL	NBOH	BAC-T	NO									THOUSE THE MARKS	
#1	5-8	12:30	1"1	1	W	8,2	CONTAIN.	1	†	4		1	PAES.	 	Sant Lag				72	77.5	Sept.		
			+	-1	17	012		1	-	1 -	 	11	2		-	d		7	1-	P		WATER WELL /4 MILE	
#2	5-8	1,00	Н	4	<u> </u>		G			4		1	2			a۱	04	14	7			UPSTREAM	
#3	15-8	1:15		1	W	1	8	1		4		1	21			21	10	9	8			DOWNSTREAM	
				Т								<u> </u>				Z151	Y		_	1-1	1		\neg
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	WISHED BY:				*DATE/TIME		T .		IVED BY		\dashv												
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PRINT: DATE: PRINT:							145001	•				AL LABOR						LY***					
SIGN: TIME: SIGN						SIGN:	_			!	EXTEN	TOF	LIABILITY	f				0,50					
'RELING								*RECE	VEDBY	:	7	THE EXTER A REFUND	OF THE	E LIABILITY TO NALYTICAL FI	RELIAN BELIAN	CE WI	LL BE	A DUPL	JCATE A	ARIS	E REGA S OF TH	ARDING ANALYTICAL DATA GENERATED BY THE LABORAT HAT SAMPLE (PROVIDING ADEQUATE SAMPLE REMAINS BE LIABLE FOR DAMAGES INCLUDING BUT NOT LIMITE	ORY,
SIGN:									1.			00.150450	accord D	SAMPLE CO.	LO ME	Des 102 (-)	TOM SI	ACIT CIGI	-015		1		
					'DATE/TIME			*RECE	VEDBY	:	[COMPLETE	IN THIS	TIME FRAME, I	HOWEVE	OR RO	N-ROUT	SAMPL INE SA	MPLES	no 10 W May rec	ORIGNO DUIRE AI	3 DAYS. THIS IN NOT A GUARANTEE THAT SAMPLES WIL ODITIONAL TIME.	T BE
*COURIER:			DAT				PRINT:									- 19	10	BE C	OMP.	LETE	D BY	CLIENT	
TRACKING #:			TIME	<u> </u>			SIGN:					ORIGINAL C	HAIN OF	CUSTODY DOC	UMENT I	AUST E	E EXE	CUTED	N INK			WHITE - LABORATORY YELLOW - C	LIENT



2044 Meadowbrook Road | P.O. Box 4657 Bridgeport, WV 26330 Phone: 304.842.5285 | Fax: 304.842.5351

Martinsburg Laboratory

Ridgefield Business Center | 25 Crimson Circle Martinsburg, WV 25403 Phone: 304.596.2084 | Fax: 304.596.2086

Certifications: WV Department of Health #: 00354, 00443 | WV Department of Environmental Protection #: 158, 181 MD Department of Environment #: 336, 337 | US Environmental Protection Agency #: WV00042, WV00901

LABORATORY REPORT SUMMARY

Client:

C00117

Wednesday, May 24, 2017

SMITH LAND SURVEYING, INC.

Total Number of Pages: 7

P.O. BOX 150 GLENVILLE

WV 26351-

(Not Including C.O.C.)
Page 1 of 7

Lab ID

Sample ID

Sample ID 2

Sample Date

266975-2017-W

WATER WELL 1/4 MILE (1)

266977-2017-W

UPSTREAM (2)

266978-2017-W

DOWNSTREAM (3)

5/8/2017

5/8/2017

5/8/2017

The enclosed results have been analyzed according to the referenced method and SOP. Any deviations to the method have been noted on the report. Unless otherwise noted, all results have been verified to meet quality control requirements of the method. All analysis performed by Reliance Laboratories, Bridgeport, WV unless otherwise noted. Parameters analyzed by Reliance Laboratories, Martinsburg, WV are noted with @ on laboratory report. This report may not be reproduced, except in full, without written approval of Reliance Laboratories, Inc.

Report Reviewed By:



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SMITH LAND SURVEYING, INC.

Wednesday, May 24, 2017 Page 2 of 7

P.O. BOX 150

GLENVILLE,

WV

26351-

Lab Number: 266975-2017-W

Sample ID:

WATER WELL 1/4 MILE (1)

Parameter		Value	Units	Method	Date/Time A	nalyzed	Analyst	MDL	MRL
Analyte Group: <u>Inorganics</u>	<u>i</u>								
Total Organic Carbon	J	0.26	mg/l	SM5310C-00	5/19/2017	8:33	TH	0.1	0.5
Total Suspended Solids		ND	mg/l	SM2540D-97	5/11/2017	12:20	AAB	4	5
E.coli(MPN)**		< 1	Index/100ml	SM9223B-97	5/8/2017	16:29	CP		
рН		# 7.57	S.U.	SM4500H+B-00	5/17/2017	15:30	AAB		
Total Aluminum		ND	mg/l	EPA 200.7 R4.4	5/17/2017	11:52	TH	0.009	0.05
Total Arsenic		ND	mg/l	EPA 200.7 R4.4	5/17/2017	11:52	TH	0.007	0.05
Total Barium		2.56	mg/l	EPA 200.7 R4.4	5/17/2017	11:52	TH	0.003	0.05
Total Calcium		12.8	mg/l	EPA 200.7 R4.4	5/17/2017	11:52	TH	0.078	0.5
Total Chloride		31.0	mg/l	EPA 300.0 R2.1	5/9/2017	17:11	TM	0.15	0.5
Total Coliform(MPN)**		< 1	Index/100ml	SM9223B-97	5/8/2017	16:29	CP		
Total Dissolved Solids		186	mg/l	SM2540C-97	5/11/2017	12:20	AAB	10	20
Total Iron		0.71	mg/l	EPA 200.7 R4.4	5/17/2017	11:52	TH	0.004	0.05
Total Manganese	J	0.03	mg/l	EPA 200.7 R4.4	5/17/2017	11:52	TH	0.007	0.05
Total Sodium		56.8	mg/l	EPA 200.7 R4.4	5/17/2017	11:52	TH	0.011	0.5
Total Sulfate		ND	mg/l	EPA 300.0 R2.1	5/9/2017	17:11	TM	0.12	0.5
Total Surfactant		ND	mg/l	SM5540C-00	5/10/2017	9:05	AAB	0.05	0.2

Remarks:

Date Sample Collected:

5/8/2017

12:30

Sample Submitted By: Date Sample Received: A. WILSON

5/8/2017

15:20

Sample temp. upon receipt: 8.2 Deg C

MDL - Minimum Detectable Limit MCL - Maximum Contaminant Level, USEPA Regulated ND = Not Detected at the MDL or MRL

MRL - Minimum Reporting Limit

J = Reported value is an estimate because concentration is less than the MRL

*Method Code: STANDARD METHODS ONLINE 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, 5rd ED; USEPA Manual for Certification of Laboratories Analyzing Drinking Water, 5th ED. In accordance with EPA Regulations, all reports, including raw data and quality control data, are maintained by the laboratory for a minimum of 5 years.

NOTE: 40CFR136 sets criteria for sample temperature and preservation. This sample fell outside of this criteria.



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SMITH LAND SURVEYING, INC. P.O. BOX 150

Wednesday, May 24, 2017

Page 3 of 7

GLENVILLE,

26351-

Lab Number: 266975-2017-W

Sample ID:

WATER WELL 1/4 MILE (1)

Parameter	Value	Units	Method	Date/Time Analyzo	d Analyst	MDL	MRL
Analyte Group: <u>Total Petroleum</u>	n Hydrocarbons						
Benzene	ND	mg/l	SW8021B/5030B	5/17/2017 13:	18 TM	0.0007	0.01
Ethylbenzene	ND	mg/l	SW8021B/5030B	5/17/2017 13:	18 TM	0.0014	0.01
MTBE	ND	mg/l	SW8021B/5030B	5/17/2017 13:	18 TM	0.003	0.005
Toluene	ND	mg/l	SW8021B/5030B	5/17/2017 13:	8 TM	0.002	0.01
TPH - GRO	0.614	mg/l	SW8015B/5030B	5/17/2017 13:	8 TM	0.04	0.5
Xylene	ND	mg/l	SW8021B/5030B	5/17/2017 13:	8 TM	0.003	0.01
4-Bromochlorobenzene (Surrogate	97.7	%	SW8021B/8015B	5/17/2017 13:	8 TM		
TPH - DRO	ND	mg/l	SW8015B/3535A	5/16/2017 21:		0.68	1
TPH - ORO	ND	mg/l	SW8015B/3535A	5/16/2017 21:		0.54	_
o-Terphenyl (Surrogate)	105	%	SW8015B	5/16/2017 21:			

Remarks:

Date Sample Collected:

5/8/2017

12:30

Sample Submitted By: Date Sample Received: A. WILSON

5/8/2017

15:20

Sample temp. upon receipt: 8.2 Deg C

MDL - Minimum Detectable Limit MCL - Maximum Contaminant Level, USEPA Regulated ND = Not Detected at the MDL or MRL

MRL - Minimum Reporting Limit

J = Reported value is an estimate because concentration is less than the MRL

*Method Code: STANDARD METHODS ONLINE 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 ED; USEPA Manual for Certification of Laboratories Analyzing Drinking Water, 5th ED. In accordance with EPA Regulations, all reports, including raw data and quality control data, are maintained by the laboratory for a minimum of 5 years.

NOTE: 40CFR136 sets criteria for sample temperature and preservation. This sample fell outside of this criteria.



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SMITH LAND SURVEYING, INC. P.O. BOX 150

Wednesday, May 24, 2017

Page 4 of 7

GLENVILLE,

WV

26351-

Lab Number:

266977-2017-W

Sample ID:

UPSTREAM (2)

Parameter		Value	Units	Method	Date/Time A	nalyzed	Analyst	MDL	MRL
Analyte Group: <u>Inorganics</u>									
Total Organic Carbon	J	0.34	mg/l	SM5310C-00	5/19/2017	8:33	TH	0.1	0.5
Total Suspended Solids	J	4	mg/l	SM2540D-97	5/11/2017	12:20	AAB	4	5
E.coli(MPN)**		3.1	Index/100ml	SM9223B-97	5/8/2017	16:29	CP		
pH		# 7.22	S.U.	SM4500H+B-00	5/17/2017	15:30	AAB		
Total Aluminum	J	0.02	mg/l	EPA 200.7 R4.4	5/17/2017	11:55	TH	0.009	0.05
Total Arsenic		ND	mg/l	EPA 200.7 R4.4	5/17/2017	11:55	TH	0.007	0.05
Total Barium	J	0.02	mg/l	EPA 200.7 R4.4	5/17/2017	11:55	TH	0.003	0.05
Total Calcium		4.36	mg/l	EPA 200.7 R4.4	5/17/2017	11:55	TH	0.078	0.5
Total Chloride		4.95	mg/l	EPA 300.0 R2.1	5/9/2017	17:24	TM	0.15	0.5
Total Coliform(MPN)**		416.0	Index/100ml	SM9223B-97	5/8/2017	16:29	CP		
Total Dissolved Solids		36	mg/l	SM2540C-97	5/11/2017	12:20	AAB	10	20
Total Iron		0.05	mg/l	EPA 200.7 R4.4	5/17/2017	11:55	TH	0.004	0.05
Total Manganese		ND	mg/l	EPA 200.7 R4.4	5/17/2017	11:55	TH	0.007	0.05
Total Sodium		2.99	mg/l	EPA 200.7 R4.4	5/17/2017	11:55	TH	0.011	0.5
Total Sulfate		6.99	mg/l	EPA 300.0 R2.1	5/9/2017	17:24	TM	0.12	0.5
Total Surfactant		ND	mg/l	SM5540C-00	5/10/2017	9:05	AAB	0.05	0.2

Remarks:

Date Sample Collected:

5/8/2017

13:00

Sample Submitted By: Date Sample Received: A. WILSON

5/8/2017

15:20

Sample temp. upon receipt: 8.2 Deg C

MDL - Minimum Detectable Limit

ND = Not Detected at the MDL or MRL MRL - Minimum Reporting Limit

MCL - Maximum Contaminant Level, USEPA Regulated

J = Reported value is an estimate because concentration is less than the MRL

*Method Code: STANDARD METHODS ONLINE 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 THE CHEMICAL ANALYSIS OF WATER AND WAS IES, Rev. 83; US EPA METHODS FOR THE DETERMINATION OF METALS IN ENVIRONMENTAL SAMPLES, May 1994; TEST METHODS FOR EVALUATING SOLID WASTE, SW-846, 3rd ED; USEPA Manual for Certification of Laboratories Analyzing Drinking Water, 5th ED. In accordance with EPA Regulations, all reports, including raw data and quality control data, are maintained by the laboratory for a minimum of 5 years.

NOTE: 40CFR136 sets criteria for sample temperature and preservation. This sample fell outside of this criteria.



2044 Meadowbrook Road | P.O. Box 4657 Bridgeport, WV 26330

Phone: 304.842.5285 | Fax: 304.842.5351

Martinsburg Laboratory

Ridgefield Business Center | 25 Crimson Circle Martinsburg, WV 25403

Date/Time Analyzed Analyst

Phone: 304.596.2084 | Fax: 304.596.2086

Certifications: WV Department of Health #: 00354, 00443 | WV Department of Environmental Protection #: 158, 181 MD Department of Environment #: 336, 337 | US Environmental Protection Agency #: WV00042, WV00901

SMITH LAND SURVEYING, INC.

P.O. BOX 150

Wednesday, May 24, 2017

MDL

Page 5 of 7

MRL

GLENVILLE,

Parameter

WV

26351-

Value

Lab Number: 266977-2017-W

Sample ID:

Units

UPSTREAM (2)

Method

Analyte Group: <u>Total Petroleum</u>	n Hvdrocarbe	ons						
Benzene	ND	mg/l	SW8021B/5030B	5/17/2017	13:48	TM	0.0007	0.01
Ethylbenzene	ND	mg/l	SW8021B/5030B	5/17/2017	13:48	TM	0.0014	0.01
MTBE	ND	mg/l	SW8021B/5030B	5/17/2017	13:48	TM	0.003	0.005
Toluene	ND	mg/l	SW8021B/5030B	5/17/2017	13:48	TM	0.002	0.01
TPH - GRO	ND	mg/l	SW8015B/5030B	5/17/2017	13:48	TM	0.04	0.5
Xylene	ND	mg/l	SW8021B/5030B	5/17/2017	13:48	TM	0.003	0.01
4-Bromochlorobenzene (Surrogate	105	%	SW8021B/8015B	5/17/2017	13:48	TM		0.01
TPH - DRO	ND	mg/l	SW8015B/3535A	5/17/2017	10:46	TM	0.68	1
TPH - ORO	ND	mg/l	SW8015B/3535A	5/17/2017	10:46	TM	0.54	1
o-Terphenyl (Surrogate)	109	%	SW8015B	5/17/2017	10:46	TM	3.04	· · · ·

Remarks:

Date Sample Collected:

5/8/2017

13:00

Sample Submitted By: Date Sample Received:

A. WILSON 5/8/2017

15:20

Sample temp. upon receipt: 8.2 Deg C

MDL - Minimum Detectable Limit

MRL - Minimum Reporting Limit

ND = Not Detected at the MDL or MRL

MCL - Maximum Contaminant Level, USEPA Regulated

J = Reported value is an estimate because concentration is less than the MRL

*Method Code: STANDARD METHODS ONLINE 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 WASTES, Rev. 83; US EPA METHODS FOR THE Laboratories Analyzing Drinking Water, 5th ED. In accordance with EPA Regulations, all reports, including raw data and quality control data, are maintained by the laboratory for a minimum of 5 years.

NOTE: 40CFR136 sets criteria for sample temperature and preservation. This sample fell outside of this criteria.



2044 Meadowbrook Road | P.O. Box 4657 Bridgeport, WV 26330 Phone: 304.842.5285 | Fax: 304.842.5351

Martinsburg Laboratory

Ridgefield Business Center | 25 Crimson Circle Martinsburg, WV 25403 Phone: 304.596.2084 | Fax: 304.596.2086

Certifications: WV Department of Health #: 00354, 00443 | WV Department of Environmental Protection #: 158, 181 MD Department of Environment # 336, 337 | US Environmental Protection Agency #: WV00042, WV00901

SMITH LAND SURVEYING, INC. P.O. BOX 150

Wednesday, May 24, 2017

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GLENVILLE,

W

26351-

Lab Number: 266978-2017-W

Sample ID:

DOWNSTREAM (3)

Parameter		Value	Units	Method	Date/Time A	nalyzed	Analyst	MDL	MRL
Analyte Group: <u>Inorganics</u>	<u> </u>								
Total Organic Carbon		1.70	mg/l	SM5310C-00	5/19/2017	8:33	TH	0.1	0.5
Total Suspended Solids		6	mg/l	SM2540D-97	5/11/2017	12:20	AAB	4	5
E.coli(MPN)**		5.2	Index/100ml	SM9223B-97	5/8/2017	16:29	CP		
рН		# 7.09	S.U.	SM4500H+B-00	5/17/2017	15:30	AAB	-	
Total Aluminum	J	0.02	mg/l	EPA 200.7 R4.4	5/17/2017	11:58	TH	0.009	0.05
Total Arsenic		ND	mg/l	EPA 200.7 R4.4	5/17/2017	11:58	TH	0.007	0.05
Total Barium	J	0.02	mg/l	EPA 200.7 R4.4	5/17/2017	11:58	TH	0.003	0.05
Total Calcium		4.73	mg/l	EPA 200.7 R4.4	5/17/2017	11:58	TH	0.078	0.5
Total Chloride		1.58	mg/l	EPA 300.0 R2.1	5/9/2017	17:37	TM	0.15	0.5
Total Coliform(MPN)**		285.1	Index/100ml	SM9223B-97	5/8/2017	16:29	CP		
Total Dissolved Solids		26	mg/l	SM2540C-97	5/11/2017	12:20	AAB	10	20
Total Iron		0.05	mg/l	EPA 200.7 R4.4	5/17/2017	11:58	TH	0.004	0.05
Total Manganese		ND	mg/l	EPA 200.7 R4.4	5/17/2017	11:58	TH	0.007	0.05
Total Sodium		3.18	mg/l	EPA 200.7 R4.4	5/17/2017	11:58	TH	0.011	0.5
Total Sulfate		7.37	mg/l	EPA 300.0 R2.1	5/9/2017	17:37	TM	0.12	0.5
Total Surfactant		ND	mg/l	SM5540C-00	5/10/2017	9:05	AAB	0.05	0.2

Remarks:

Date Sample Collected: Sample Submitted By:

5/8/2017 A. WILSON 13:15

Date Sample Received:

5/8/2017

Sample temp. upon receipt: 8.2 Deg C

15:20

MDL - Minimum Detectable Limit

MCL - Maximum Contaminant Level, USEPA Regulated

ND = Not Detected at the MDL or MRL MRL - Minimum Reporting Limit

J = Reported value is an estimate because concentration is less than the MRL

*Method Code: STANDARD METHODS ONLINE 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 WASTES, Rev. 3; US EPA METHODS FOR THE CHEMICAL AIRCRAFT METHODS FOR EVALUATING SOLID WASTE, SW-846, 3rd ED; USEPA Manual for Certification of Laboratories Analyzing Drinking Water, 5th ED. In accordance with EPA Regulations, all reports, including raw data and quality control data, are maintained by the laboratory for a minimum of 5 years.

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SMITH LAND SURVEYING, INC.

P.O. BOX 150

Wednesday, May 24, 2017

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GLENVILLE,

WV

26351-

Lab Number:

266978-2017-W

Sample ID:

DOWNSTREAM (3)

Parameter	Value	Units	Method	Date/Time Analyze	d Analyst	MDL	MRL
Analyte Group: <u>Total Petroleum</u>	n Hydrocarbons						
Benzene	ND	mg/l	SW8021B/5030B	5/17/2017 14:1	8 TM	0.0007	0.01
Ethylbenzene	ND	mg/l	SW8021B/5030B	5/17/2017 14:1	8 TM	0.0014	0.01
MTBE	ND	mg/l	SW8021B/5030B	5/17/2017 14:1	8 TM	0.003	0.005
Toluene	ND	mg/l	SW8021B/5030B	5/17/2017 14:1	8 TM	0.002	0.01
TPH - GRO	ND	mg/l	SW8015B/5030B	5/17/2017 14:1	8 TM	0.04	0.5
Xylene	ND	mg/l	SW8021B/5030B	5/17/2017 14:1	8 TM	0.003	0.01
4-Bromochlorobenzene (Surrogate	117	%	SW8021B/8015B	5/17/2017 14:1	8 TM		
TPH - DRO	ND	mg/l	SW8015B/3535A	5/16/2017 22:2	8 TM	0.68	1
TPH - ORO	ND	mg/l	SW8015B/3535A	5/16/2017 22:2	8 TM	0.54	1
o-Terphenyl (Surrogate)	108	%	SW8015B	5/16/2017 22:2	8 TM		

Remarks:

Date Sample Collected: Sample Submitted By:

5/8/2017

13:15

Date Sample Received:

A. WILSON 5/8/2017

Sample temp. upon receipt: 8.2 Deg C

15:20

MDL - Minimum Detectable Limit

ND = Not Detected at the MDL or MRL

MCL - Maximum Contaminant Level, USEPA Regulated

MRL - Minimum Reporting Limit

J = Reported value is an estimate because concentration is less than the MRL

*Method Code: STANDARD METHODS ONLINE 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 ED; USEPA Manual for Certification of Laboratories Analyzing Drinking Water, 5th ED. In accordance with EPA Regulations, all reports, including raw data and quality control data, are maintained by the laboratory for a minimum of 5 years.

NOTE: 40CFR136 sets criteria for sample temperature and preservation. This sample fell outside of this criteria.



<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville 2960 Foster Creighton Drive Nashville, TN 37204

Tel: (615)726-0177

TestAmerica Job ID: 490-128176-1

Client Project/Site: RSK / 266975, 266977, 266978

For:

Reliance Laboratories Inc PO BOX 4657 Bridgeport, West Virginia 26330

Attn: Tenley Miller

Jennifer Granbill

Authorized for release by: 5/17/2017 4:16:39 PM

Jennifer Gambill, Project Manager I (615)301-5044

jennifer.gambill@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Reliance Laboratories Inc

Project/Site: RSK / 266975, 266977, 266978

TestAmerica Job ID: 490-128176-1

Lab Sample ID	Client Sample ID	Matrix	Collected Received
490-128176-1	266975-2017-W	Water	05/08/17 12:30 05/10/17 09:2
490-128176-2	266977-2017-W	Water	05/08/17 13:00 05/10/17 09:2
490-128176-3	266978-2017-W	Water	05/08/17 13:15 05/10/17 09:2

3

6

8

Case Narrative

Client: Reliance Laboratories Inc

Project/Site: RSK / 266975, 266977, 266978

TestAmerica Job ID: 490-128176-1

Job ID: 490-128176-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative 490-128176-1

Comments

No additional comments.

Receipt

The samples were received on 5/10/2017 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.9° C.

GC Semi VOA

Method(s) RSK-175: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 490-429481.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Reliance Laboratories Inc

Project/Site: RSK / 266975, 266977, 266978

Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin)

Toxicity Equivalent Quotient (Dioxin)

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

TestAmerica Job ID: 490-128176-1

Glossary

RER

RPD TEF

TEQ

RL

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control

Client Sample Results

Client: Reliance Laboratories Inc

Project/Site: RSK / 266975, 266977, 266978

TestAmerica Job ID: 490-128176-1

Matrix: Water

Client Sample ID: 266975-2017-W Lab Sample ID: 490-128176-1

Date Collected: 05/08/17 12:30 Date Received: 05/10/17 09:20

Method: RSK-175 - Dis	ssolved Gases in Water	r						
Analyte	Result Qua	lifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Butane	ND	10.0	5.80	ug/L			05/12/17 10:33	
Ethane	31.4	5.00	2.70	ug/L			05/12/17 10:33	1
Methane	5980	200	68.0	ug/L			05/12/17 11:25	40
Propane	ND	5.00	3.30	ug/L			05/12/17 10:33	1
Surrogate	%Recovery Qua	lifier Limits				Prepared	Analyzed	Dil Fac
Acetylene (Surr)	98	62 - 124					05/12/17 10:33	

Domestic Water Well

Client Sample Results

Client: Reliance Laboratories Inc

Project/Site: RSK / 266975, 266977, 266978

TestAmerica Job ID: 490-128176-1

Client Sample ID: 266977-2017-W Lab Sample ID: 490-128176-2

Date Collected: 05/08/17 13:00 Date Received: 05/10/17 09:20

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Butane	ND		10.0	5.80	ug/L			05/12/17 10:38	
Ethane	ND		5.00	2.70	ug/L			05/12/17 10:38	1
Methane	9.75		5.00	1.70	ug/L			05/12/17 10:38	1
Propane	ND		5.00	3.30	ug/L			05/12/17 10:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Acetylene (Surr)	101		62 - 124			-	-	05/12/17 10:38	

STREAM SAMPLE
- UPSTREAM

TestAmerica Nashville

Client Sample Results

Client: Reliance Laboratories Inc

Project/Site: RSK / 266975, 266977, 266978

TestAmerica Job ID: 490-128176-1

Client Sample ID: 266978-2017-W Lab Sample ID: 490-128176-3

Date Collected: 05/08/17 13:15 Date Received: 05/10/17 09:20

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Butane	ND		10.0	5.80	ug/L	5.00		05/12/17 10:45	
Ethane	ND		5.00	2.70	ug/L			05/12/17 10:45	1
Methane	ND		5.00	1.70	ug/L			05/12/17 10:45	1
Propane	ND		5.00	3.30	ug/L			05/12/17 10:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analvzed	Dil Fac
Acetylene (Surr)	104		62 - 124			-		05/12/17 10:45	1

STREAM SAMPLE
- DOWNSTREAM

QC Sample Results

Client: Reliance Laboratories Inc

Project/Site: RSK / 266975, 266977, 266978

TestAmerica Job ID: 490-128176-1

Method: RSK-175 - Dissolved Gases in Water

Lab Sample ID: MB 490-429481/5

Matrix: Water

Analysis Batch: 429481

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyzed

Dil Fac

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Butane	ND		10.0	5.80	ug/L			05/12/17 10:01	
Ethane	ND		5.00	2.70	ug/L			05/12/17 10:01	1
Methane	ND		5.00	1.70	ug/L			05/12/17 10:01	1
Propane	ND		5.00	3.30	ug/L			05/12/17 10:01	1
	MR	MR							

Surrogate %Recovery Qualifier Limits Prepared Acetylene (Surr) 81 62 - 124 05/12/17 10:01

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 490-429481/6

Matrix: Water

Analysis Batch: 429481

Prep Type: Total/NA

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Butane	1020	957.5		ug/L	_	94	80 - 120	
Ethane	527	516.7		ug/L		98	80 - 120	
Methane	287	282.7		ug/L		99	80 - 120	
Propane	771	752.1		ug/L		98	80 - 120	
100	1.00							

LCS LCS

Surrogate %Recovery Qualifier Limits Acetylene (Surr) 83 62 - 124

Lab Sample ID: LCSD 490-429481/7

Matrix: Water

Analysis Batch: 429481

Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

Spike LCSD LCSD %Rec. **RPD Analyte** Added Result Qualifier Unit Limits D %Rec **RPD** Limit Butane 1020 976.4 ug/L 96 80 - 120 2 33 Ethane 527 508.8 ug/L 97 80 - 120 2 30 Methane 287 279.1 ug/L 97 80 - 120 33 1 Propane 771 747.6 ug/L 97 80 - 120 33

LCSD LCSD Surrogate %Recovery Qualifier Limits Acetylene (Surr) 84 62 - 124

QC Association Summary

Client: Reliance Laboratories Inc

Project/Site: RSK / 266975, 266977, 266978

TestAmerica Job ID: 490-128176-1

GC VOA

Analysis Batch: 429481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-128176-1	266975-2017-W	Total/NA	Water	RSK-175	
490-128176-1	266975-2017-W	Total/NA	Water	RSK-175	
490-128176-2	266977-2017-W	Total/NA	Water	RSK-175	
490-128176-3	266978-2017-W	Total/NA	Water	RSK-175	
MB 490-429481/5	Method Blank	Total/NA	Water	RSK-175	
LCS 490-429481/6	Lab Control Sample	Total/NA	Water	R\$K-175	
LCSD 490-429481/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	

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Lab Chronicle

Client: Reliance Laboratories Inc

Project/Site: RSK / 266975, 266977, 266978

TestAmerica Job ID: 490-128176-1

Client Sample ID: 266975-2017-W

Date Collected: 05/08/17 12:30 Date Received: 05/10/17 09:20 Lab Sample ID: 490-128176-1

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175	-	1	21 mL	21 mL	429481	05/12/17 10:33	AAB	TAL NSH
Total/NA	Analysis	RSK-175		40	21 mL	21 mL	429481	05/12/17 11:25	AAB	TAL NSH

Client Sample ID: 266977-2017-W

Date Collected: 05/08/17 13:00 Date Received: 05/10/17 09:20 Lab Sample ID: 490-128176-2

Matrix: Water

Γ		Batch	Batch		Dil	Initial	Final	Batch	Prepared		
P	Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
T	otal/NA	Analysis	RSK-175		1	21 mL	21 mL	429481	05/12/17 10:38	AAB	TAL NSH

Client Sample ID: 266978-2017-W

Date Collected: 05/08/17 13:15 Date Received: 05/10/17 09:20 Lab Sample ID: 490-128176-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175	7.	1	21 mL	21 mL	429481	05/12/17 10:45	AAB	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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Method Summary

Client: Reliance Laboratories Inc

Project/Site: RSK / 266975, 266977, 266978

TestAmerica Job ID: 490-128176-1

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases in Water	RSK	TAL NSH

Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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Accreditation/Certification Summary

Client: Reliance Laboratories Inc

Project/Site: RSK / 266975, 266977, 266978

TestAmerica Job ID: 490-128176-1

Laboratory: TestAmerica Nashville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
West Virginia DEP	State Program	3	219	02-28-18



COOLER RECEIPT FORM



	and a second of the latest and the l
Cooler Received/Opened On 05-10-2017 @ 09:20	
Time Samples Removed From Cooler 1500 Time Samples Placed In Storage $15/8$	(2 Hour Window)
1. Tracking # 43 29 (last 4 digits, FedEx) Courier: _FedEx_	
IR Gun ID 31470366 pH Strip Lot Chlorine Strip Lot	Par -
2. Temperature of rep. sample or temp blank when opened: 5.9 Degrees Celsius	
3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen?	YES NO
1. Were custody seals on outside of cooler?	YES.:70NA
If yes, how many and where:	
5. Were the seals intact, signed, and dated correctly?	YESNO. (NA)
Were custody papers inside cooler?	ESNONA
certify that I opened the cooler and answered questions 1-6 (initial)	F
7. Were custody seals on containers: YES NO and Intact	YESNONA
Were these signed and dated correctly?	YESNONA
3. Packing mat'l used? Bubblewrap (Fastic bag Peanuts Vermiculite Foam Insert Paper	Other None
). Cooling process: (Ice lice-pack lice (direct contact) Dry ice	Other None
0. Did all containers arrive in good condition (unbroken)?	YESNONA
1. Were all container labels complete (#, date, signed, pres., etc)?	YESNONA
Did all container labels and tags agree with custody papers?	YES NONA
3a. Were VOA vials received?	YESNONA
b. Was there any observable headspace present in any VOA vial?	YES (.NO.).NA
4. Was there a Trip Blank in this cooler? YES NO.NA If multiple coolers, sequence	e#
certify that I unloaded the cooler and answered questions 7-14 (initial)	9/
5a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level?	YESNO NA
	ESNONA
6. Was residual chlorine present?	YESNONA
certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial)	- ser
7. Were custody papers properly filled out (ink, signed, etc)?	YESNONA
8. Did you sign the custody papers in the appropriate place?	YESNONA
9. Were correct containers used for the analysis requested?	YES)NONA
Was sufficient amount of sample sent in each container?	¥ E 8NONA
certify that I entered this project into LIMS and answered questions 17-20 (initial)	39/
certify that I attached a label with the unique LIMS number to each container (initial)	se_
1. Were there Non-Conformance issues at login? YESNO Was a NCM generated? YES(N	0)#

CHAIN OF CUSTODY RECORD I RIDGEFIELD BUSINESS CENTER 25 CRIMSON CIRCLE MARTINSBURG, WV 25403 TEL. (304) 596-2684 • FAX (304) 596-2086	SHEET NO. OF	PROJECTIREMARKS	2-506-51422A	7 - LIOC-8LBAAR	9 5 6	490-128176		#SMd		YTURE:	LI RUSH STATUS (INITIAL ACCEPTANCE	Δ1 (m) can be a set of the set o	STOCKUP THE LUBBLITY TO RELIANCE WILL BE A DUPLICATE ANDER REGARDING BANKTYDOL, NATA GENERATED BY THE LEAGRANDRY. THE ESTIBLY OF THE LUBBLITY TO RELIANCE WILL BE A DUPLICATE ANDER SAMPLE FRANDRY OF THE ANAVITOL, HEE. IN 10 EVERY WILL RELIANCE LABORATORIES BE LIABLE FOR DAMAGES INCLUDING BUT NOT LIMITED TO DIRECT, INDIRECT OR CONSEQUENTAL DAMAGES ARISING FROM SIVEN DIRECTED.	NOTE: TYPICAL SAMPLE TURN AROUND FOR ROUTINE SAMPLES IS 5TO 10 WORKING DAYS. THIS IN NOT A GUARANTEE THAT SAMPLES WILL BE COMPLETED IN THIS TIME FRAME HOWEVER. MINJACHURIS SAMPLES WILL BE	TO BE COMPLETED BY CLENT	WHITE THE WENT THE WAY WAY WAY THE WAY
FORIES, INC (42-5351 ES	#	MAIL *# OF HN03 H2S04 HCL NaOH BAC-T PRES.	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	~		490		MEET USEPA GUIDELINES FOR HOLDING TIMES MEET USEPA GUIDELINES FOR CHEMICAL PRESERVATIVES	OR SAMPLE CONTAINERS PLIANCE PURPOSES		*RECEIVED BY: 747	PS 05/2007/16	RECEIVED BY:	SIGN: ** ** ** ** ** ** ** ** ** ** ** ** **	"NECEIVED BY:	SIGN:
RELIANCE LABORAT 2044 MEADOWBROOK ROAD POST OFFICE BOX 4657 BRIDGEPORT, WV 26330 TEL. (304) 842-5285 • FAX (304) 8 E-MAIL reliancelabs@wvdsl.net INTERNET www.RelianceLabs.net	#TEL.#	MATRIX TEMP 54°C MATRIX TEMP 54°C	3 3	3					 	DATE	*DATE/TIME		*DATE:	TIME:	DATE LINE	TIME
CLIENT NAME	*ADDRESS CUSTOMER#	LABORATORY# 'DATE 'TIME	10.30 10.30 10.30	58/n/3:15				AMPLES DO V DO NOT	AMPLES DO DO NOT	PRINT: C ALCONOMISMED BY:	PRINT: LO L'IL	Sign: -CCC	*RELINQUISHED BY: PRINT:	SIGN:	COURIER:	TRACKING#:



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 | US Environmental Protection Agency #: WV00042, WV00901

Tuesday, May 09, 2017

TestAmerica - Nashville 2960 Foster Creighton Drive Nashville, TN 37204

Please analyze the following sample(s) for: Dissolved Methane, Dissolved Ethane, Dissolved Butane, Dissolved Propane

Please identify as:

266975-2017-W DATE/TIME SAMPLED: 5/8/2017 12:30 Loc: 490
266977-2017-W DATE/TIME SAMPLED: 5/8/2017 13:00 **128176**266978-2017-W DATE/TIME SAMPLED: 5/8/2017 13:15

Sampled by: A.WILSON

PLEASE SEND RESULTS & INVOICE TO:

RELIANCE LABORATORIES, INC. ATTN: TENLEY MILLER P.O. BOX 4657 BRIDGEPORT, WV 26330 tmiller@wvdsl.net

Thank You

12

Login Number: 128176

List Number: 1

Creator: Vest, Laura E

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

13

APPENDIX C

Wells within the Area of Review

Surface Elevation	N/A											* C	<u>)</u>
Total Vertical Depth	N/A			The second secon		*****							
Penetrate Confining Zone (Y or N)	z		A STATE OF THE STA										
Penetrate Injection Zone (Y or N)	Z		ST (PRE) - 18 to 18 to 16 to 18 to 1									iment.	
Easting (UTM NAD 83 Meters)	86.099909										rs as appropriate.	Promoting a healthy environment.	
Northing (UTM NAD 83 Meters)	4328503.02		MICHELE STATE (CHARGE (CHARGE STATE								include page numbe	Promo	
Well Status (Active, Abandoned, Shut-in, Plugged)	Never Drilled										as necessary and		
Well Type	Vertical										many copies	of_	
API#	47-093-00102							F Silve	1E 6	EN Bil	aug (3a5	
								En	AP NV ' Viro'	nme Def	partm Intal f	ent of Protect	tion

APPENDIX D

Public Service District Affidavit

Underground Injection Control Permit applicants must identify all publically recorded drinking water sources within a one (1) mile radius of the proposed injection well facility. If no drinking water sources are present within this radius a written affidavit shall be supplied by the local Public Service District (PSD) as ample verification.

"I certify under penalty of law that (state name of business)
PENNECO OIL CO.
has verified with the public service district (state name of PSD) (ity DF Parsons
that there are no such publically recorded sources.
John & Tegasont
(Signature of Authorized Representative)
Sworn and subscribed to before me this 17th day of April: ,2017. M. Caxel Hebb , my commission expires 2104/18
(Notary Signature)
M. Eaxal Hebb
OFFICIAL SEAL NOYARY PUBLIC STAFF OF WEST VIRGINIA M CAROL HEBB PO Box 42 Section 1997 (2018) My Commission Expires February 4, 2018

Promoting a healthy environment.

Office of Oil and Gas

APR 18 2017

WV Department of Environmental Protection

APPENDIX E Water Sources

Operator: Penneco Year 2017 UIC Permit # 2D0930103

						2																				
Source #													to ment annually rate per party for a few property of the few party of the			And state the state of the stat										
Source #																										
Source #									and the second	ROMANIA MARANIA MARANIA MARANIA CANTO CANTON TO THE STANDAR AND								One with the first winds the state of the st		adence i della manataria della seglia della d						
Source # 1	Water Sources will be sampled at the time	that clients are secured so that the water	quality data is as up to date as possible.																							
				Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	SU	mg/l.	mg/L	mg/L	mg/L	J/gm	mg/L	mg/L	c/100m	<u></u>
	Water Source Name	Northing	Easting	Parameter	TPH - GRO	TPH - DRO	TPH - ORO	BTEX	Chloride	Sodium	Total Dissolved Solids (TDS)	Aluminum	Arsenic	Barium	Iron	Manganese	Hd	Calcium	Sulfate	MBAS	Dissolved Methane	Dissolved Ethane	Dissolved Butane	Dissolved Propane	Bacteria	(Total Coliform)



Page of

Promoting a healthy environment.

APPENDIX F

Area Permit Wells

API#	Well Type (Injection, Production, Observation, Monitoring)	Well Status (Active, Abandoned, Shut-in, Plugged)	Northing (UTM NAD 83 Meters)	Easting (UTM NAD 83 Meters)
N/A				THE STATE OF THE S
Not A Class 2R or 3S				
Injection Well				
			100000000000000000000000000000000000000	
				11
	The state of the s			
	-			
		TO THE STATE OF THE PROPERTY O		
Males				

	200000000000000000000000000000000000000			_
Make as mar	ny copies as neces	ssary and include	page numbers as a	ppropriate. SIMED COS
Page of _			thy environment.	Office of Oil and Gas APR 18 2017
				WV Department of Environmental Protection

Section 8

Geological Data
Injection and
Confining Zones

SECTION 8 – Geological Data on the Injection and Confining Zone:

The Gotinsky UIC well is located in Black Fork District of Tucker County, West Virginia on Haddix Run of Shavers Fork on Montrose quadrangle (see Figure 1). Tucker County falls within the boundaries of the Allegheny Highland Province which is characterized by folded mountains and at the eastern edge of a dissected plateau.

The injection zone for the Gotinsky UIC well is the Huntersville Chert. This formation is found at the base of the Middle Devonian Section. It can be described as a nearly pure dolomitic chert which grades downward into a slightly calcareous shale, namely the Needmore Shale with chert being the most prevalent constituent. The Huntersville has minimal primary porosity. The secondary porosity exists in the form of natural fractures and those induced during a stimulation process. It is a blanket deposit across Tucker county ranging in thickness from a low of 44 feet in the south-eastern portion of the county to a high of 219 feet in the north-western part. An isopach map has been drawn using public information from well records submitted by operators to the Office of Oil and Gas (see Figure 2). The subject well has 161 feet of the Huntersville Section.

Immediately above the Huntersville Chert is a hard, crystalline, and cherty limestone, namely the Onondaga Limestone. It is dense, has negligible porosity, and with a very low permeability which makes it a very good confining layer. It is also a blanket deposit and has a more uniform thickness of 16 to 51 feet in thickness across Tucker County. Most of the differences in thickness can be explained by the degree of dip when drilling through the bed. An isopach map has been drawn using public information from well records submitted by operators to the Office of Oil and Gas (see Figure 3). The subject well has 22 feet of the Onondaga Section. In the event of injected fluid ever breaching the Onondaga, the overlying Marcellus shale would be an additional confining zone to prevent any migration of fluids upward. The upper and lower Marcellus is separated by the Purcell Limestone. The entire sequence for the Marcellus in the Gotinsky well is 92 feet. A copy of the well record (see Figure 4) and a copy of the e-log in its entirety (see Figure 5) can be used together to delineate formation tops for the Marcellus through the Oriskany Interval in the Gotinsky UIC well.

Based on seismic, the subject well was spotted on a structural high. A copy of the previously submitted seismic line with contours drawn for the base of the Huntersville Section is included as part of this renewal (see Figure 6). A more generalized structure map of the top of the Onondaga Limestone has been drawn by the WVGES. This is also included in the permit renewal. The Gotinsky UIC well is located on an extension of the Deer Park Anticline (see Figure 1). The well was drilled with structural concerns in mind. Being down dip, formation water was immediately encountered during drilling operations and the well was determined to be a candidate for injection. The trapping mechanism for the fluids in the Huntersville is the natural

fractures associated with the folding of the brittle beds. As a result of a stimulation job, additional secondary porosity was achieved. Thus, all injected fluids are going into this collection of fractures and not into a conventional reservoir. Without having porosity values or a net thickness of a conventional reservoir, determining fluid migration over time within the injected formation around the existing injection well would be difficult, but the migration of injected fluids should be elliptical in shape along the north-east south-west strike of the Deer Park Anticline.

Since 1824, nearly one hundred earthquakes have been recorded within the boundaries of West Virginia (see Figure 7). These have had magnitudes of 0.3 to 4.7. Though some of these earthquake epicenters have been in close proximity to UIC permitted fluid injection wells, very few of the 52 active non-commercial and 14 active commercial UIC disposal wells have experienced an increase in seismic anomalies. While the relationship between fluid injection wells and increased seismicity remains unclear, the rate of injection and pressure aspects along with being in close proximity to basement faulting appear to play key roles. Injecting fluids into the upper extensions of basement faults can affect the normal stresses and frictional characteristics of the fault plane and cause a seismic event. While there isn't any public or private data available showing the exact location of faulting in the AOR, it is safe to assume they exist. On the WVGES generated Onondaga Structure Map (see figure 7), faults affecting the Onondaga and Huntersville beds are shown to be present. In other areas of the State of WV, similar structures to the Deer Park Anticline also have associated normal faulting causing fault blocks to occur. Even with the suspicion of reverse and normal faulting being present in Tucker County, it should be noted; there have been no recorded seismic events in Tucker County before or after fluid has been injected in the Gotinsky UIC well. One of the seven seismic stations situated West Virginia is located in adjacent Grant County and would be capable of detecting those earthquakes not felt at the surface.

With a ten year history of fluid injection without having pressure issues, containment problems, or causing an increase in the seismicity of the area, the Gotinsky UIC well continues to be a viable fluid injection well.

Figure 1

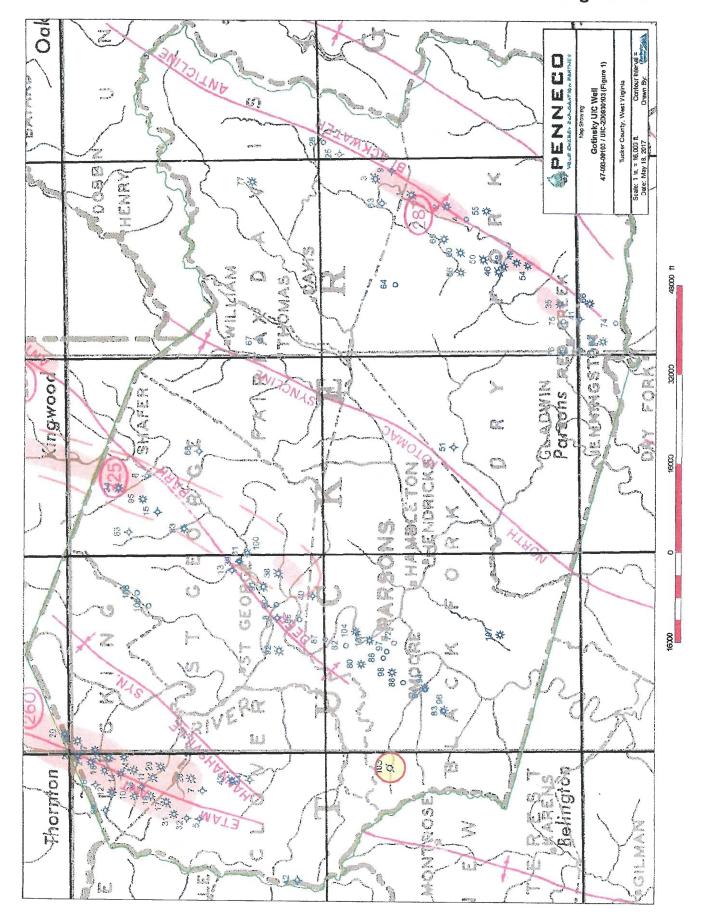
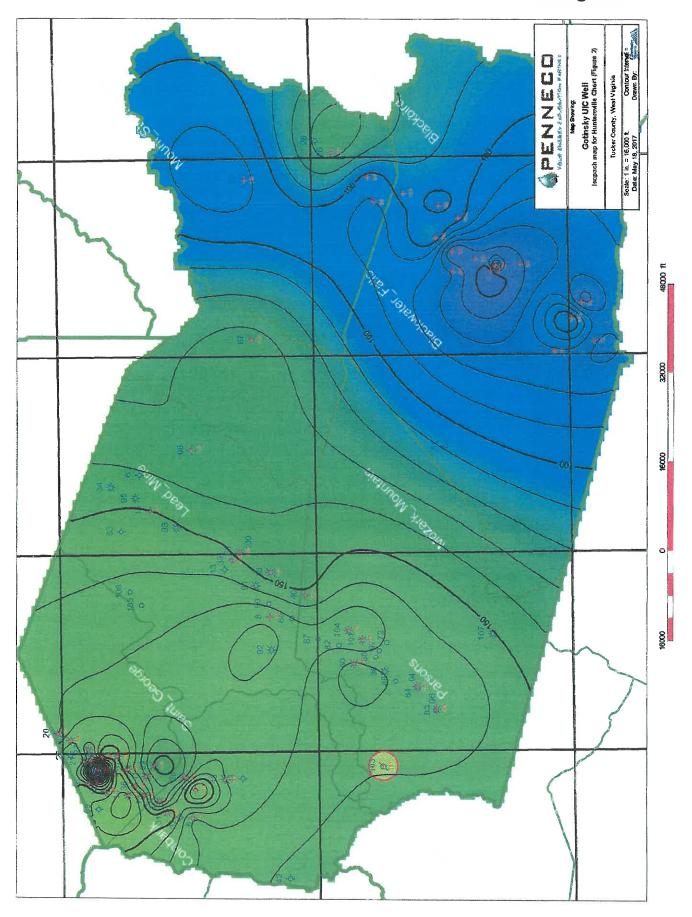
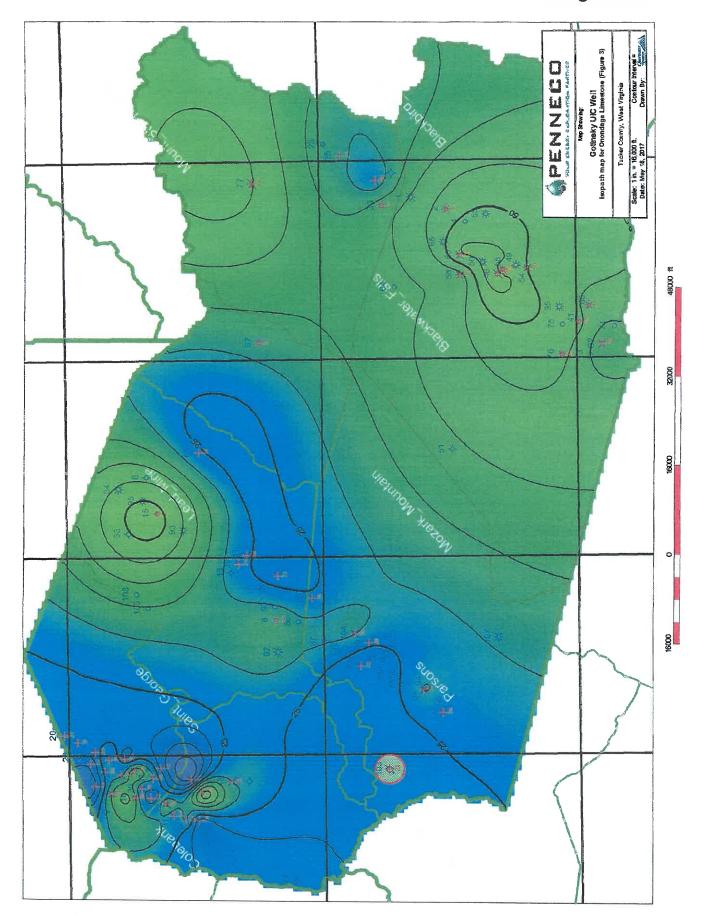


Figure 2



....

Figure 3



WR-35 Rev (5-01) DATE: 10/24/06

API#: 47-093-00103

1.3.

State of West Virginia Department of Environmental Protection Office of Oil and Gas

AS

Well Operator's Report of Well Work

Parameter Property and William Property	Operator Well No.: Gotinsky #1	Maria.
---	--------------------------------	--------

				Same of the same o
Martine Andread the	Casing & Tubing	Used in drilling	Left in well	
Address: 186 South Kanawha Street	16" Cond	28'	28*/////	THE MESSAGE
Buckhannon, WV 26201	11 %" FW	177*	-177	CTS
Agent:	8 5/8" Surf	880'	880'	CTS
Inspector: Craig Duckworth	4 1/2 " Prod	3127'	3127'	128 sx
Date Permit Issued: 5/17/06				
Date Well Work Commenced: 6/12/06				
Date Well Work Completed: 6/18/06				
Verbal Plugging:				
Date Permission granted on:				
Rotary X Cable Rig				
Total Depth (feet): 3170'				
Fresh Water Depth (ft.): 28', 160', 760'				
Salt Water Depth (ft.): 29805				
Is coal being mined in area (N/Y)? N				
Coal Denths (ft.):				

OPEN FLOW DATA

Producing formation NA- Will be concluded Gas; Initial open flow MCF/ Final open flow MCF/ Time of open flow between initial Static rock Pressure psig	d Oil: Initial open flow_ d Final open flow	Pay zone depth (i Bbl/d Bbl/d Hours Hours	
Second producing formation Gas: Initial open flow MCF Final open flow MCF Time of open flow between initial Static rock Pressure psig	d Final open flow Il and final tests	Bbl/d	Of Care of Car
NOTE; ON BACK OF THIS FORM PUT INTERVALS, FRACTURING OR STIMU LOG WHICH IS A SYSTEMATIC DETA	LATING, PHYSICAL CH	ANGE, ETC. 2). T	HE WELL

1 1 41

Signed:

INCLUDING COAL ENCOUNTERED BY THE WELLBORE,

By: Operations Manager

Date: 1/19/07

Well Log

Formation	Top (ft.)	Bottom (ft.)
Devonian Siltstones &	0	2,520'
Shales		
Harrell Shale	2,520'	2,552'
Tully Limestone	2,552'	2,595'
Shale	2,595'	2,830'
Upper Marcellus	2,830'	2,868'
Purcell Limestone	2,868'	2,886'
Lower Marcellus	2,886'	2,922'
Onondaga Limestone	2,922'	2,944'
Huntersville Chert	2,944'	3,090'
Needmore Shale	3,090'	3,105'
Oriskany Sandstone	3,105'	TD

Schlumberger

Company: T&F EXPLORATION, LP

Well:

GOTINSKY 1

Field:

BLACK FORK

COUNTY: TUCKER

STATE: WEST VIRGINIA

ARRAY II	IDUCTION/	LITHO	DEN	SITY		
COMPEN	COMPENSATED NEUTRON					
3 OOM L			V			
z AUDIO/ T	EMPERATL	JRE				
TUCKER BLACK FORK GOTINSKY 1 T&F EXPLORATION, LP COATION OUT TO WEST TO THE TO		The second state of		Elev.:	K.B.	1978 ft
英 2 8 1 1			ļ		G.L.	1968 ft
때 맛 왔 되 [호]					D.F.	
TUCKER BLACK FORK GOTINSKY 1 T&F EXPLOR LOCATION		21 12 152 1 52				1977 ft
Permanent D		DUND LE		Elev.:	1968	The same of the sa
cog madadic		LY BUSH	ING	10.0 ft	above	e Perm. Datum
Drilling Meas APIS APIS APIS APIS	ured From: KEL	LY BUSH	ING			
COUNTY Drilling Meas Well: Well: APIS 47-09	erial No.	DIST	RICT	WATERS	HED.	QUADRANGLE
Ö ii	3-00103	1	FORK			MONTROSE
Logging Date	18-Jun-2006					
Run Number	ONE					
Depth Driller	3170 ft					
Schlumberger Depth	3170 ft					
Bottom Log Interval	3168 ft					
Top Log Interval	2400 ft	and appoint the Mar alessan against a gar				
Casing Driller Size @ Depth	8.625 in	@	880 ft			@
Casing Schlumberger	880 ft		244230			
Bit Size	7.875 in	niyasan da kasan ka ka samanini sama.			2 102	
Type Fluid In Hole	FLUID					
Density Viscosity	9.5 lbm/gal	42 s				
Fluid Loss PH	2 cm3	7				
Source Of Sample	MUD PIT					
RM @ Measured Temperature	0.400 ohm.m		70 degF			@
RMF @ Measured Temperature	0.300 ohm.m		70 degF			@
RMC @ Measured Temperature	0.600 ohm.m		70 degF			@
Source RMF RMC	CALCULATED	CALCU				
RM @ MRT RMF @ MRT	0.354 @ 80	0.265	@ 80		@	@
Maximum Recorded Temperatures Circulation Stopped Time	80 degF 17-Jun-2006	V	20:00			L
	18-Jun-2006	PACE CAR.	0:30			
Unit Number Location		ON, WV		<u> </u>		
Recorded By	BRENT HENDE					
Witnessed By	ROGER WITTER					

GR > 200 From LHT1 to GR1

Density Correction (HDRA) -0.3 (G/C3) 0.2

PIP SUMMARY

Integrated Hole Volume Minor Pip Every 10 F3 Integrated Cement Volume Minor Pip Every 10 F3

Time Mark Every 60 S

200	20	207	ete	CP ATT
	1 24	ERS		VS.

DUS	Name	Description	Valt	10
BHFL_DHC FD GCLF MDEN NAAC NMT	HILTB-DTB: High reso TLD	Plution Integrated Logging Tool-CTS HILT Nuclear Mud Base Density Hole Correction Fluid Density Germany Coal-like Formation Option Matrix Density HRDD APS Activation Correction HILT Nuclear Mud Type	WATER 8S 1 NO 2.71 OFF	G/C 3 G/C 3
NPRM NSAR FCD HVCS	HOLEV: Integrated Ho	HRDD Processing Mode HRDD Depth Sampling Rate ble/Cement Volume Future Casing (Outer) Diameter	NOBARITE StdRes 1 4.5 HCAL	IN
LBFR STKT TDD TDL	System and Miscellan	Trigger for MAXIS First Reading Label STI Stuck Threshold Total Depth - Driller Total Depth - Logger	TDL 5 3170.00 0.00	FT FT FT
DFD TD ormat: All	E Paris 6 com	Drilling Fluid Density Total Depth ale: 2' per 100'	7.875 9.50 3170 Graphics File Created: 1	IN LB/G FT 8-Jun-2006 00:52

OP System Version: 14C0-302

ILTB-OTB SRPC-3102-HILT_b CC-B SRPC-3136-Q2_2006_b

SGT-L

SRPC-3136-Q2_2006 b

Output DLIS Files

DEFAULT TLD_MCFL_CNL_003LUP

FN:2

PRODUCER 18-Jun-2006 00:52

Output DLIS Files

DEFAULT TLD_MCFL_CNL_003LUP

FN:2

PRODUCER 18-Jun-2006 00:52

3180.0 FT

2350.5 FT

OP System Version: 14C0-302

MCM

SRPC-3102-HILT_b

SRPC-3136-Q2_2006_b

SGT-L

SRPC-3136-Q2_2006_b

Changed Parameter Summary

DLIS Name

IILTB-DTB

New Value

Previous Value Depth & Time

3170.00 FT

0.00 FT

2489.6 01:06:27

PIP SUMMARY

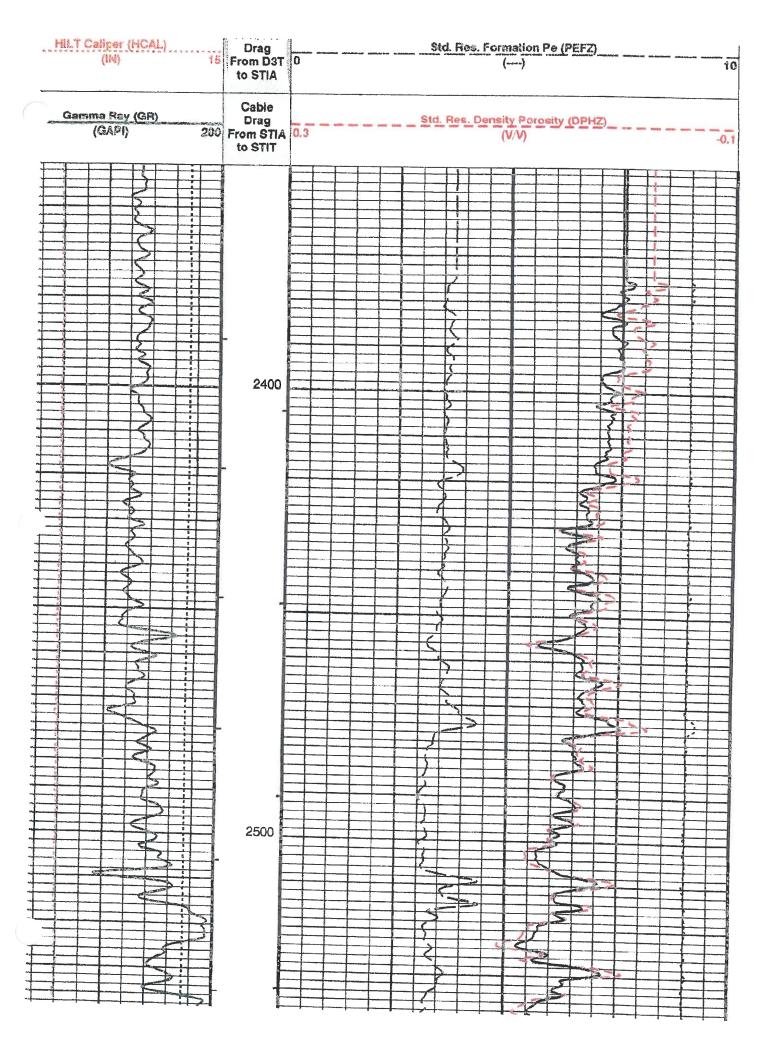
Integrated Hole Volume Minor Pip Every 10 F3 H Integrated Cement Volume Minor Pip Every 10 F3

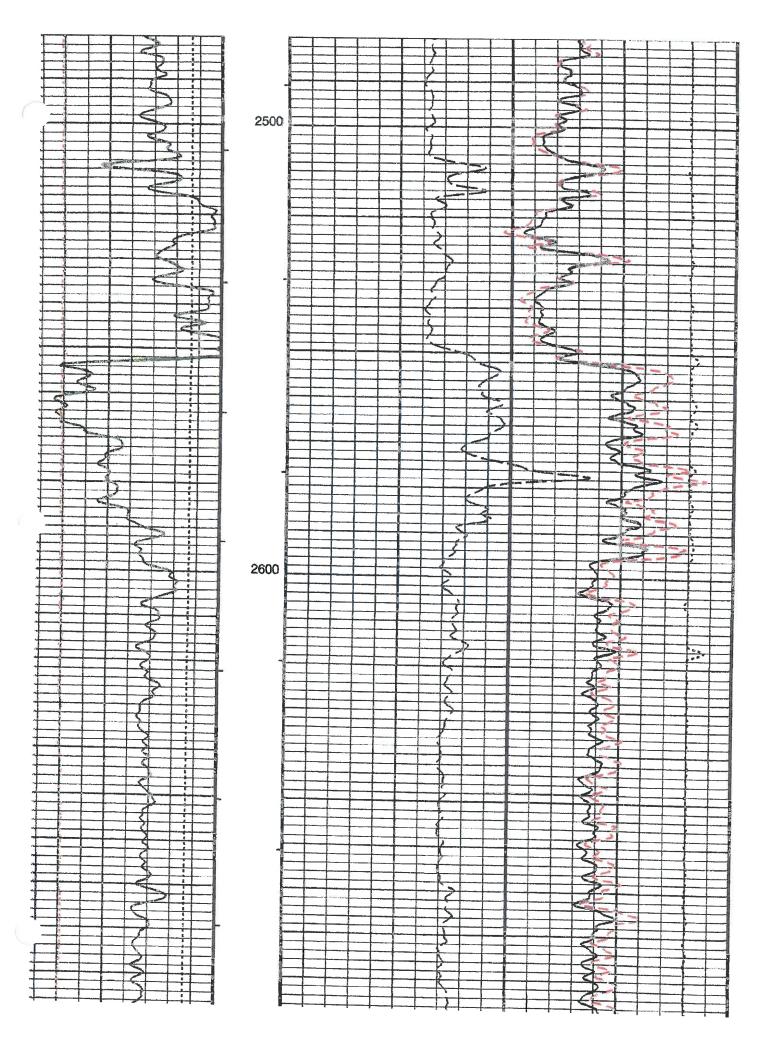
me Mark Every 50 S

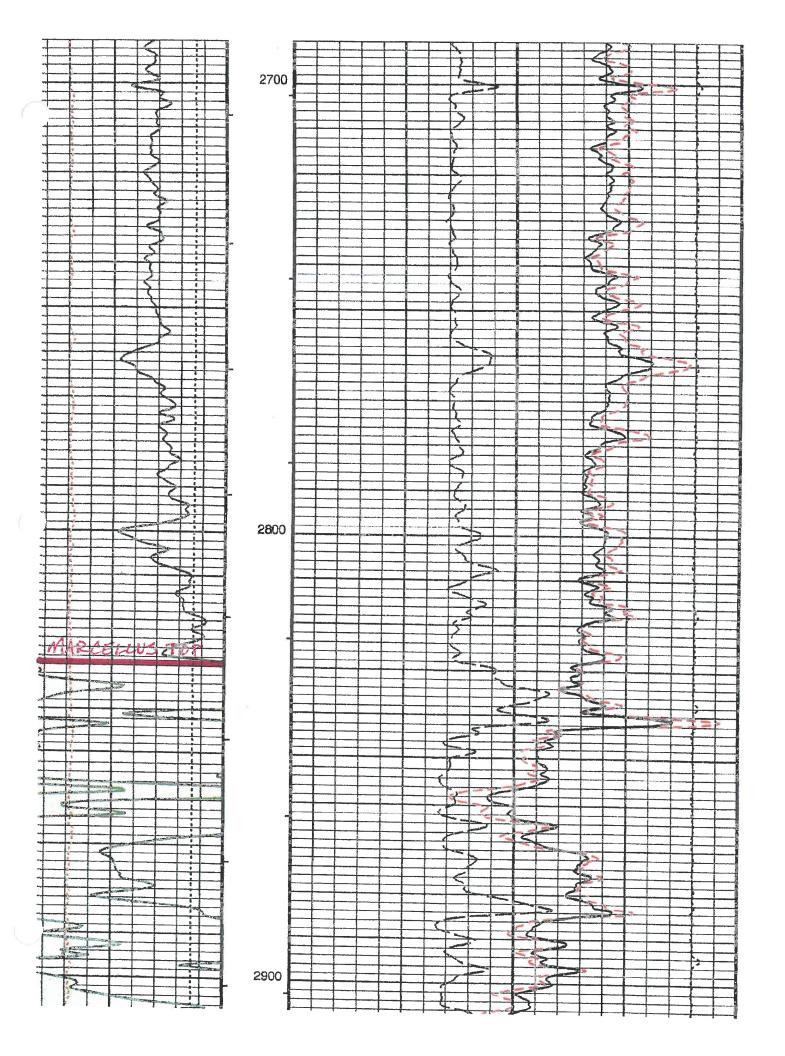
GĦ > 200 From LHT1 to GR1

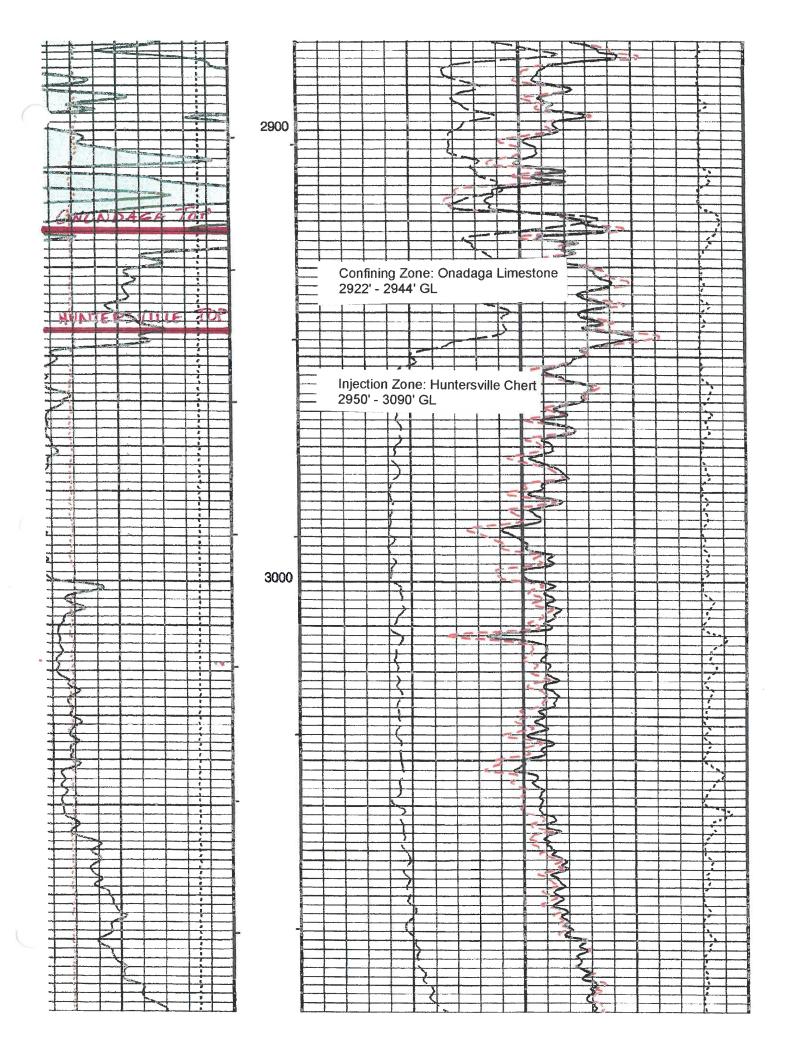
Density Correction (HDRA)

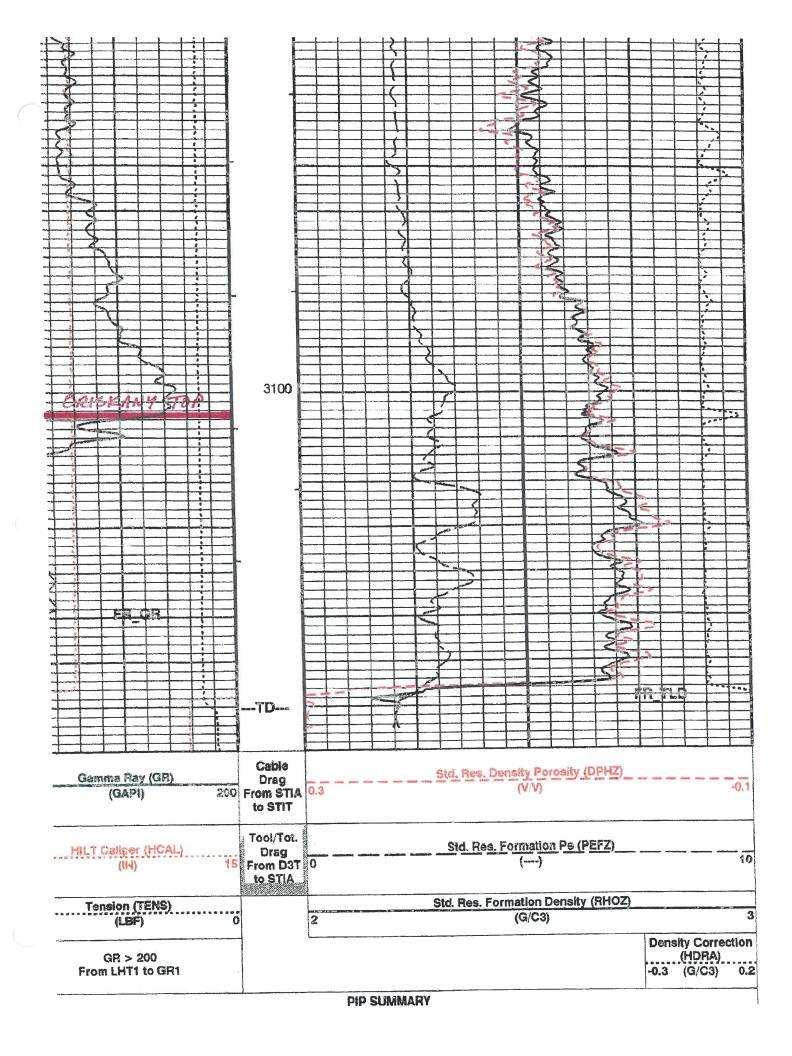
(G/C3)











IBIT 7

URE MAP

eorge



> Bottom of Chert Depth Structure (Subsea) Oriskany Time Structure CI: 5 (10) msec, 10 msec 140. R. Villoirs 10/9/05

> > SHEET 2 OF 2

 Field Locations By Others	Scale: 1" = 2000'	
 Coordinate . Values By Offices	Drawing Name: Selsmic-FWL9	GLYMPIC SURVEYING L.L.C.
Drawn Ey: Stophen A. Birurakia	Job Naroe: Solemic-PV/L9	867 SHERWOOD ROAD, CHARLESTON, WEST VIRGINIA 25314 (304)-344-2500 or (304)-545-6442

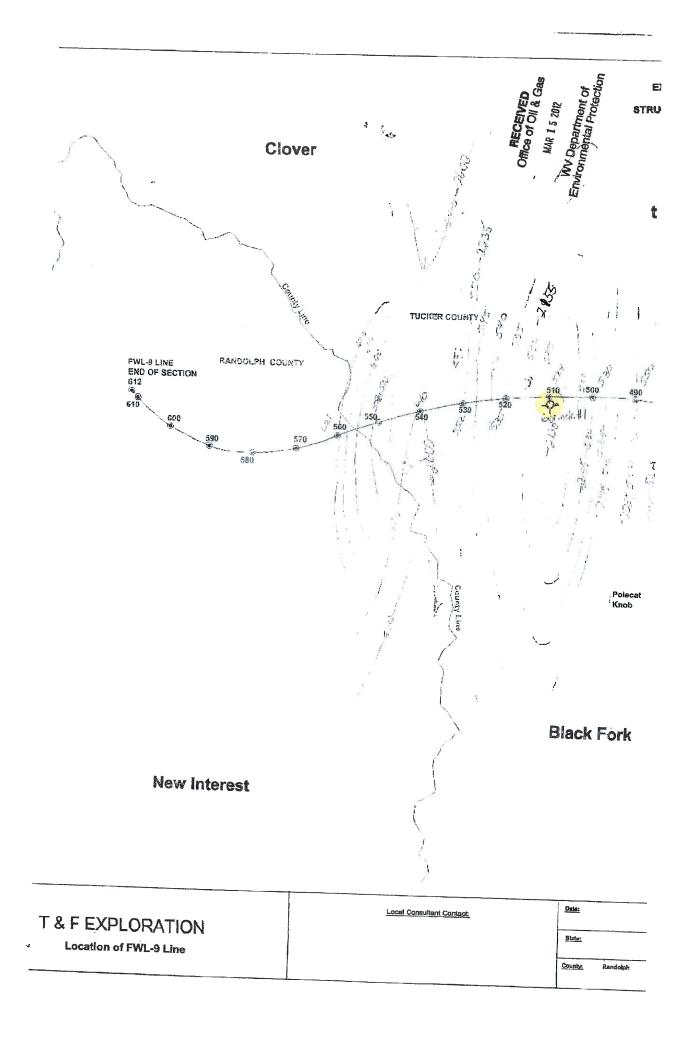
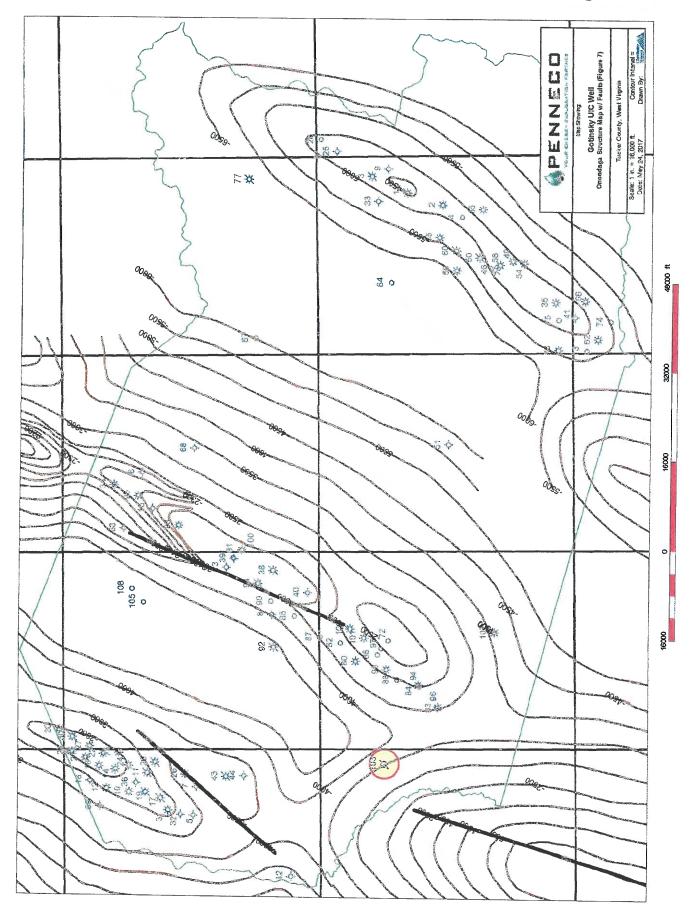
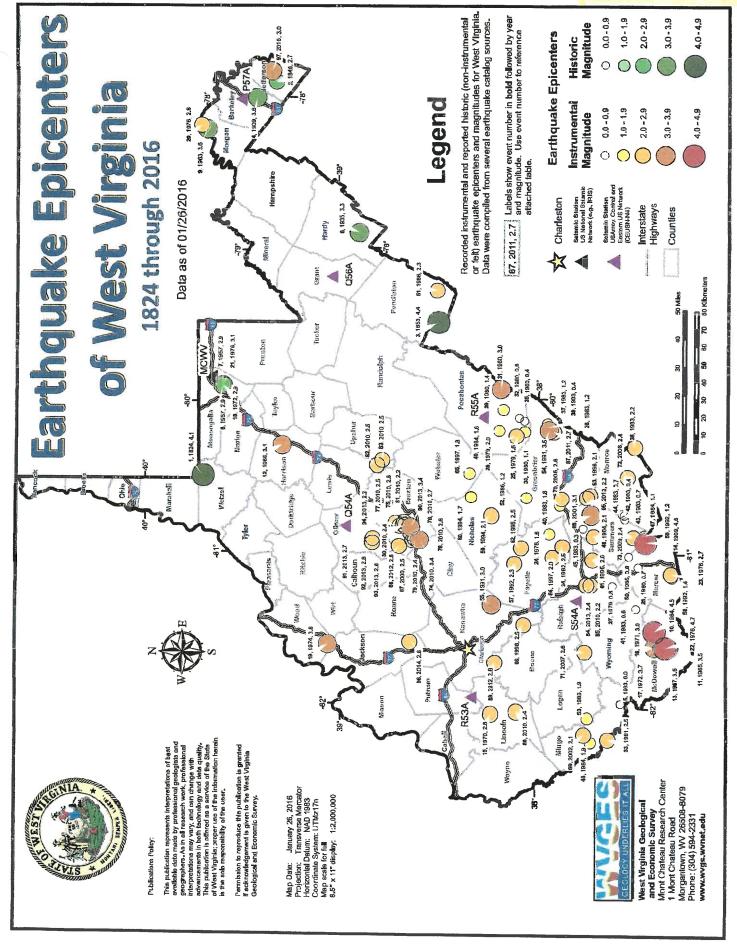


Figure 7





Section 9

Operating Requirements

MOST PRECENT MIT

WR-37 REV. 5/01

Operator's Well Number

State

County

Permit

API Well No.: 47- 093 - 00/0 3

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENT-OFFICE OF OIL AND GAS PRE-OPERATION CERTIFICATE FOR LIQUID INJECTION OR WASTE DISPOSAL WELL

WELL OF		α			ION OR WAS			
	PERATOR	Pennace	DIL Co	m/0 m/	DESIGNAT	ED ACENT	D. Mare Je	
	Address _	6408	Poule s:	2	PEDIGIA	Address //	D. Marc Je	cobe
		Delman	PA 1	5626		Address 66	08 forte 25	
		-			9	Pel	ment, PA	17.67.6
GEOLOGI	ICAL TAF	RGET FOR	MATION_	Huntermille	Mat Depth 3	e co feet(t	op) to 3090	
		or pressure	m target 1011	mation / 2.0	CO peio			
Sou	rce of info	rmation on	Virgin reserv	Oir proceura:	/ // /		sting wells,	
Per	foration int	ervals	20	- 3050'	Local Geolog	sy on exi	sting wells,	evaluation
					()nen-ha	ole intervals	DO Non	e (98TO 3V27')
Wel	head inia	ction pressu	CTION O	PERATIONS			•	85
Volu	ime per ho	ur: 10 L	ire: 800	psig	Bottom	hole pressure:_	2360 ps	ig 4/11
DETAILED	IDENTI	CATION	OF MATE	Divione	E INJECTED			75
Liq	mias to be i	injected for	Oil recovere	. AI CA	E INJECTED			
Was	stes to be d	isposed of:	Bain	· N/A				
								Office of Off and Gas
Add	litives (Slu	rry medium:	s, inhibitors.	solvents, oxid	lizers, deoxidizer:			
	I	h:bih	£ B:	. 1.	To control	s, etc.)		AUG 3 1 2017
				WASIEWE	10 control	Backeria		Marif II is now that you and
								West Topostruent of tweeten
SPECIFICA'	TIONS FO	OR CATHO	DIC PROT	ECTION AN	D OTHER COR			
				DC11011 AIT	DOLUFK CON	KOSION CON	NTROL	
	L DRILL							
ADDITIONA	L DRILL	ING AS PA	RT OF TH	E CONVERS	ION (Complete	form WR-35)	-	
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MECHANICAL INTEGRITY TEST
in and held for 20 minutes. Didn't Lose any pressure in 20 minutes. Released pressure.
The undersigned certifies that the test was performed on 8/29/17, 20 and demonstrated mechanical integrity of the well. The test was witnessed by the Office of Oil and Gas.
Well Operator 8/29/17 Date
THIS WELL IS AUTHORIZED FOR INJECTION.
Signed UIC PROGRAM DIRECTOR

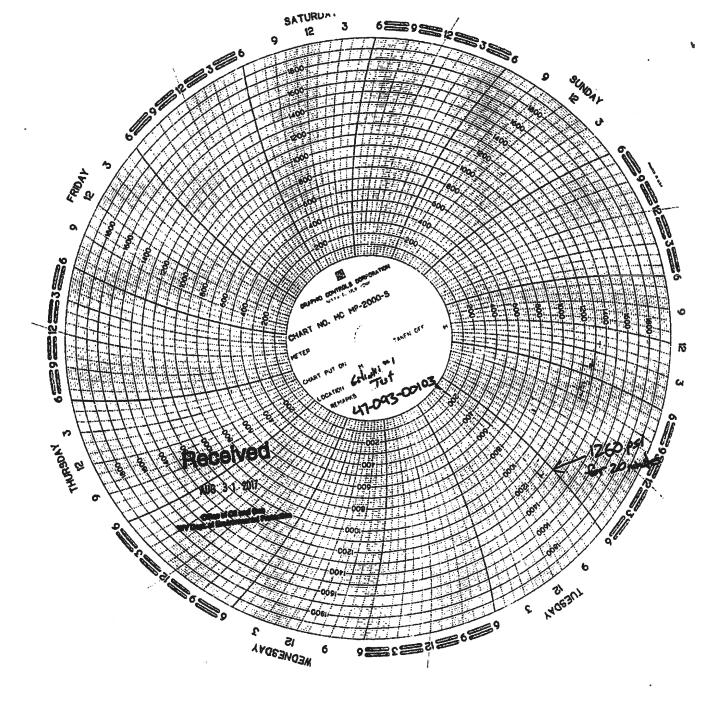
[NOTE: That the mechanical integrity of this well must be demonstrated again within ninety (90) days of five years from this date in order for injection to continue. Please notify the state inspector 24 hours in advance of the test].

By: 1. Marc Jacobs Jr - Pannece Environments

Office of Telland Gas

AUG 31 2017

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Wells Serviced by Injection Wells

API#	Operator	Producing Formation
041-04470	Sachdeva Energy Enterprises, Inc.	Benson
041-04514	Sachdeva Energy Enterprises, Inc.	Big Lime
041-05325	Stalnaker Energy Corporation	Balltown
041-02056	Consolidated Gas Supply Corp.	Benson
041-05694	EQT Production Company	Marcellus
041-05690	EQT Production Company	Marcellus
041-05692	EQT Production Company	Marcellus
041-05693	EQT Production Company	Marcellus
049-00312	Phillips Petroleum Company	Oriskany
049-00321	Phillips Petroleum Company	Oriskany
097-02501	Chesterfield Energy Corporation	Benson
041-00756	Bayer Brokerage Company, Inc.	Benson
001-00680	Elvis Energy, LLC	Benson
001-02860	Abarta Oil & Gas Company	Benson
033-02701	Abarta Oil & Gas Company	Benson
001-00805	Elvis Energy, LLC	Benson
001-00713	Elvis Energy, LLC	Benson
001-00710	Elvis Energy, LLC	Benson
001-01203	Alliance Petroleum Corp.	Benson
097-01579	Denex Petroleum Corp.	Benson
097-01590	Denex Petroleum Corp.	Benson
097-03588	Denex Petroleum Corp.	Benson
083-01011	Alliance Petroleum Corp.	Benson
097-02592	Alliance Petroleum Corp.	Benson
097-02697	Alliance Petroleum Corp.	Benson
097-03554	Alliance Petroleum Corp.	Marcellus
097-03723	Alliance Petroleum Corp.	Marcellus
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Wells Serviced by Injection Wells

API#	Operator	Producing Formation
071-00019	T&F Exploration	Oriskany
001-01618	Denex Petroleum Corp.	Benson
001-02891	Denex Petroleum Corp.	Benson
033-01107	Alliance Petroleum Corp.	Benson
097-01662	Alliance Petroleum Corp.	Benson
077-00494	Tenaska Resources, LLC	Marcellus
077-00493	Tenaska Resources, LLC	Marcellus
001-03087	Denex Petroleum Corp.	Benson
001-02886	Denex Petroleum Corp.	Oriskany
071-00025	T&F Exploration	Benson
097-03647	Alliance Petroleum Corp.	Marcellus
017-02494	Abarta Oil & Gas Company	Riley
033-01211	Petroleum Service Partners	Benson
017-02484	Petroleum Service Partners	Benson
033-01699	Petroleum Service Partners	Benson
001-01512	Alliance Petroleum Corp.	Benson
001-02963	Abarta Oil & Gas Company	Benson
041-00765	Bayer Brokerage Company, Inc.	Benson
041-00902	Bayer Brokerage Company, Inc.	Big Injun
001-01229	Alliance Petroleum Corp.	Benson
001-01530	Denex Petroleum Corp.	Benson
001-01973	Denex Petroleum Corp.	Benson
001-03086	Denex Petroleum Corp.	Benson
077-00458	Tenaska Resources, LLC	Marcellus
077-00442	Tenaska Resources, LLC	Marcellus
097-03505	Alliance Petroleum Corp.	Marcellus
097-03712	Alliance Petroleum Corp.	Marcellus
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Wells Serviced by Injection Wells

API#	Operator	Producing Formation			
001-01167	Alliance Petroleum Corp.	Benson			
083-00500	Alliance Petroleum Corp.	Benson			
097-01632	Alliance Petroleum Corp.	Benson			
091-01101	Devonian Gas Production	Benson			
097-03503	Alliance Petroleum Corp.	Marcellus			
091-01104	Alliance Petroleum Corp.	Benson			
091-00619	Alliance Petroleum Corp.	Benson			
091-00625	Alliance Petroleum Corp.	Benson			
091-00885	Alliance Petroleum Corp.	Benson			
017-02357	Petroleum Service Partners	Benson			
001-02872	Abarta Oil & Gas Company	Benson			
021-02823	Abarta Oil & Gas Company	Big Injun			
021-02804	Abarta Oil & Gas Company	Big Injun			
021-02803	Abarta Oil & Gas Company	Benson			
001-00680	Elvis Energy LLC	Benson			
097-00789	Great Oak Energy	Benson			
091-00846	Alliance Petroleum Corp.	Benson			
021-03734	Abarta Oil & Gas Company	Big Injun			
097-02247	Alliance Petroleum Corp.	Benson			
37-065-23017	R&R Oil and Gas	Bradford			
37-065-23015	R&R Oil and Gas	Bradford			
083-00626	Alliance Petroleum Corp.	Benson			
083-00768	Alliance Petroleum Corp.	Benson			
083-00863	Alliance Petroleum Corp.	Benson			
041-00926	Bayer Brokerage Company, Inc.	Benson			
021-03703	B Abarta Oil & Gas Company Benson				
033-02004	Petroleum Service Partners	Bradford			



Wells Serviced by Injection Wells

API#	Operator	Producing Formation			
033-02090	Petroleum Service Partners	Benson			
017-02518	Petroleum Service Partners	Alexander			
017-02516	Petroleum Service Partners	Alexander			
033-02002	Petroleum Service Partners	Benson			
001-02861	Abarta Oil & Gas Company	Benson			
083-00482	Alliance Petroleum Corp.	Benson			
033-01936	Petroleum Service Partners	Benson			
033-02003	Petroleum Service Partners	Benson			
097-00934	Great Oak Energy	Benson			
097-01303	Great Oak Energy	Benson			
37-065-23026	R&R Oil and Gas	Bradford			
37-065-23027	R&R Oil and Gas	Bradford			
37-065-23067	R&R Oil and Gas	Bradford			
37-065-23054	R&R Oil and Gas	Bradford			
097-02970	Denex Petroleum Corp.	Benson			
097-02972	Denex Petroleum Corp.	Benson			
001-03152	Denex Petroleum Corp.	Marcellus			
001-03305	HG Energy, LLC	Marcellus			
097-03792	HG Energy, LLC	Marcellus			
021-05747	HG Energy, LLC	Marcellus			
041-05685	HG Energy, LLC	Marcellus			
001-03251	HG Energy, LLC	Marcellus			
001-03259	HG Energy, LLC	Marcellus			
097-03443	Alliance Petroleum Corp.	Benson			
097-03768	HG Energy, LLC	Marcellus			
041-00713	Bayer Brokerage Company, Inc	Benson			
001-01732	Elvis Energy, LLC	Benson			
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Wells Serviced by Injection Wells

API#	Operator	Producing Formation			
097-03750	HG Energy, LLC	Marcellus			
097-03847	HG Energy, LLC	Marcellus			
001-03220	HG Energy, LLC	Marcellus			
001-03247	HG Energy, LLC	Marcellus			
097-03792	HG Energy, LLC	Marcellus			
001-03284	HG Energy, LLC	Marcellus			
001-02455	Alliance Petroleum Corp.	Squaw			
001-04004	Denex Petroleum Corp.	Benson			
041-04510	Mike Ross, Inc.	Benson			
041-04511	Mike Ross, Inc	Benson			
37-063-21850	R&R Oil and Gas	Bradford			
37-063-21851	R&R Oil and Gas	Bradford			
37-021-20563	R&R Oil and Gas	Huntersville Chert			
37-065-23208	R&R Oil and Gas	Bradford			
001-01197	Alliance Petroleum Corp.	Benson			
001-03147	HG Energy, LLC	Marcellus			
001-02697	Harper Crosby Holdings	Benson			
041-04523	Jerry McClain	Benson			
041-02870	Abarta Oil & Gas Company	Benson			
041-02871	Abarta Oil & Gas Company	Benson			
041-02890	Abarta Oil & Gas Company	Benson			
077-00443	Tenaska Resources, LLC	Marcellus			
041-02898	Abarta Oil & Gas Company	Benson			
021-02924	Abarta Oil & Gas Company	Benson			
041-00901	Bayer Brokerage Company, Inc	Benson			
097-02916	Evervest Operating, LLC	Benson			
001-01879	Denex Petroleum Corp.	Benson			
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Section 10

Monitoring

Section 10 – Monitoring

☐ Mail Disposal Tickets to PA office

☐ Clean office and pump room

☐ Trim weeds

The monitoring plan starts with a daily integrity audit of all tanks, lines, valves, containments, and equipment. It also includes logging and reporting of all injection parameters such as maximum injection pressure, shut-in injection string pressure, tubing annulus pressure, casing annulus pressure, injection rate, total injection volume, and accumulated injection volume. The injection pressure and tubing annulus pressure are monitored and recorded continuously via chart recorders. The WR-40 Form detail shall be compiled daily, completed monthly, and filed at the facility for Department access upon request. Each load delivered to the facility shall be documented in the Class II Manifest and filed at the facility for Department access upon request. The monitoring plan is designed for compliance with all applicable Department regulations.

The following checklist is posted at the facility to assure execution of the plan.

Daily
□ Inspect tanks, lines, valves, etc. in containment
□ Confirm approval status of each delivery
O Operator approved for shipment
 Well source of wastewater reconciles with operator well list
 Primary formation analytical characterization on file
□ Complete Disposal Ticket
o Operator name
Well name, number, and API number
o Fluid volume and type
 Trucking company, driver name, and truck number
□ Transfer shipment detail to Class II Manifest
□ Transcribe injection detail on WR-40 Form
□ Filter, prep, and transfer received wastewater to injection-ready holding tanks
□ Measure volume of injected wastewater from filtered holding tanks
□ Transfer rain water in containment vault to storage tanks as needed
Weekly
□ Change charts

WV Department of Environmental Protection

Section 10 - Monitoring (cont.)

- □ Pick up road trash outside of fence
- $\hfill\Box$ Paint plumbing and parking bumpers as needed

Monthly

- $\hfill\Box$ Collect and deliver random water sample from storage tanks to lab
- $\hfill\square$ Mail copies of WR-40 Form, Class II Manifest, and charts to PA office
- □ Complete Spill Prevention Response Plan inspection checklist

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Section 11

Groundwater Protection Plan

APPENDIX H

GROUNDWATER PROTECTION PLAN

Catingly LUC 2D0020402

Facility Nat	ne:_G	Olinsky	010 2009301			
County: Tu	ıcker					
Facility Loc	ation:					
Postal Servi	ice Ad	dress:	1608 Seneca Tr	ail		
			Montrose, WV 2	26283		
Latitude:	atitude: 39.093909				-79.759279	
Contact Info	ormati	on:				
_	ave S					
Phone Num	ber:	724-4	68-8232			
E-mail Add	ress:	dtsma	ail@pennecc	o.com		
Date: 4/14/	17					
1. A list of	`all op	erations	that may conta	minate the gro	oundwater.	
maintena	nce o	f facility scale pr	 pumping of evention liquid 	brine water a	brine water and additives, and additives down hole, I leaks at site. Fuel and oil	
			edures and faci		protect groundwater quality fro	m the
hookup co	onnect second	ion has dary cor	containment to	catch any sp and each tan	to prevent spills. Truck ills. All tanks are located in a k is equipped with overfill b be manually pumped out with	

3. List procedures to be used when designing and adding new equipment or operations.

supervision. Pump is only operated with personnel on site. Spill kits are located at the site with absorbent pads, booms, snakes, and bagged absorbent material.

Potential impact minimization is considered for all aspects. Safety Checklist for all new installations or procedures. Analysis of ways it could potentially effect the ED environment through either spills or pollution with a plan in place to minigate those Gas pathways. Ensure proper training is conducted and signed off office and new piece of equipment or operation and that all manufacturers suggestions are followed.

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4.	Summarize	all	activities	at	your	facility	that	are	already	regulated	for	groundwater
	protection.											

WV DEP UIC Injection Parameters. Aboveground Storage Tanks WV DEP Office of Oil and Gas Regulations

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

Please see existing sampling results for groundwater wells in the 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 will be used for deicing or fill material at the Gotinsky UIC site unless allowed by another rule.

 Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

Each employee undergoes safety training that also covers environmental factors such as what to do in the event of a spill and how to protect groundwater from contamination. Each employee will undergo periodic renewal of safety and environmental training on a regular basis. A detailed log of each training is kept on file. Topics covered in training include spill prevention and how to use all spill response tools such as booms and absorbent pads, spill response and cleanup, good housekeeping practices, state and federal rules on reporting spills, and general safety with particular attention being paid actions that help keep the personnel and site safe and free from contamination.

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8. Include provisions for inspections of all GPP elements and equipment. Inspections must be made quarterly at a minimum.

All facility functions that could result in a spill or groundwater contamination that are covered under this plan along with any new provisions will be inspected on a monthly basis. After inspection has occurred, employee will initial and sign off the date and time that the inspection occurred along with any problems or potential for contamination and what corrective action was taken. If corrective action is taken the employee shall notify his/her supervisor and draft an inspection schedule to ensure that corrective action is working. Upon finalization of corrective action a followup inspection will be performed to detail that the situation is fixed and inspections will continue on at the regularly scheduled interval.

Signature:

Date: 4/17/17

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Section 12

Plugging and Abandonment

Section 12 - Plugging and Abandonment

At the conclusion of the viable injection phase of the well or a determination of irremediable mechanical integrity, the injection well will be plugged and abandoned in accordance with all WVDEP plugging and abandonment regulations. The 2¾" tubing will be pulled along with the attached 4½" X 2¾" packer. At the determined cement top, the free 4½" casing will be retrieved either by backing off at the nearest collar or by cutting. Tubing will be run back in to a depth 50' below the bottom perforations. After loading the hole with bentonite gel for spacer capacity between cement plugs, a cement plug will be spotted to 50' above the top of the perforation interval. The tubing will be pulled up to 50' inside the remaining 4½" casing and a 100' cement plug will be spotted. The tubing will then be pulled to within 50' of the bottom of the 8½" Intermediate string and a 100' cement plug spotted. The tubing will be pulled to 100' of the surface and a finishing plug will be spotted to surface. The tubing will be retrieved and a permanent abandonment monument erected. Finally, a WR-38 Form will be executed and submitted to the OOG within 30 days of completion.

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Additional Bonding

Section 13 – Additional Bonding

On March 28, 2017, Penneco Oil Company posted the \$5000 UIC bond for the Gotinsky #1 well (47-093-00103) with the West Virginia Department of Environmental Protection. The \$5000 bond is in the form of a Certificate of Deposit dated February 24, 2017 from First Commonwealth Bank.

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Financial Responsibility

APPENDIX I

Requirement for Financial Responsibility to Plug/Abandon an Injection Well

10:	Office of Oil and Gas 601 57 th Street, SE
	Charleston, West Virginia 25304-2345
	ATTN: Underground Injection Control Program
From:	Penneco Oil Company
	6608 Route 22
	Delmont, PA 15626
	Attn. D. Marc Jacobs, Jr.
Date:	1/12/18
Subject:	Underground Injection Control (UIC) Permit Application # 200930103
	Requirement for Financial Responsibility
will mainta	o Jacobs, Jr, verify in accordance with 47CSR13-13.7.g., that I hin financial responsibility and resources to close, plug, and abandon and injection wells(s) in a manner prescribed by the Chief of the Office Gas.
Name:	D. Marc Jacobs, Jr.
Signature:	The state of the s
Date:	1/12/18



Site Security Plan

APPENDIX J

Site Security for Commercial Facilities

Provide a detailed description of the method(s) utilized at the facility to restrict or prohibit illegal dumping of unauthorized waste or vandalism at the facility.

- 1. Complete enclosure of all wells, holding tank/pits and manifold assemblies within a chain link or other suitable fencing; and
- 2. Require that all gates and other entry points be locked when the facility is unattended; or
- Providing tamper-proof seals for the master valve on each well (a "lock-out" or chain & padlock system would be more secure; however, these devices could create a potential safety hazard if the well needed to be quickly shut in due to an emergency); and
- 4. Installing locking caps on all valves and connections on holding tanks, unloading racks, and headers.

The site including the well, storage tanks, and equipment building is surrounded by chain link fencing with three strand barbed wire, security lighting, and locked gates to prevent unauthorized entry. Only authorized personnel are permitted on site and there are signs indicating that there is no trespassing allowed. The equipment building which houses the filter system, pump and pump controls, and electrical components is locked and only accessible to authorized personnel. The well is equipped with tamper proof seals for the master valve. All valves and connections for the aboveground storage holding tanks are locked as well as unloading racks and headers to prevent tampering or unwanted dumping.

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Additional Information

APPENDIX K

Identify permit or construction approvals received or applied for under the following programs:

Permit/approvals	ID Number
Hazardous Waste Management Program under RCRA	N/A
NPDES Program	N/A
Prevention of Significant Deterioration (PSD)	N/A
Nonattainment Program	N/A
Dredge or Fill	N/A
NPDES/NPDES – Stormwater	N/A
WVDEP - Office of Waste Management (OWM) - Solid Waste Facility	N/A
WVDEP – OWM – RCRA (Hazardous Waste TSD or Transporter)	N/A
WVDEP - OWM - UST	N/A
CERCLA - Superfund	N/A
WV Voluntary Remediation – Brownfields	N/A
FIFRA – Federal Insecticide, Fungicide and Rodenticide Act	N/A
Well Head Protection Program (WHPP)	N/A
Underground Injection Control (UIC)	2D0930103
Toxic Substances Control Act (TSCA)	N/A
Best Management Plans	N/A
Management of Used Oil	N/A
Other Relevant Permits (Specify):	
AST	
	047-0000107 047-0000108 047-0000109 047-0000110 047-0000111 047-0000112

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APR 1 8 2017

WV Departmental Projection
Environmental Projection

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