

P.O. Box 2407 • Abingdon, VA 24212 • 540-676-2380 • Fax 540-676-0151

April 2, 1997

Mr. Mark Deering Assistant State Gas and Oil Inspector Division of Gas and Oil P.O. Box 1416 Abingdon, VA 24212

Dear Mr. Deering:

Please find attached the completion report for the EH-131 disposal well. I have also enclosed a copy of the completion report prepared for the EPA.

Call me if you need any additional information.

Sincerely,

Lydia Sinemus
Lydia Sinemus
Vice President

Enclosure

APR 1997
RECEIVED
DIVISION OF
CAS & OIL

Operations Name: <u>EH-131</u>
Permit #: <u>2854</u>

Division of Gas and Oil Virginia Gas and Oil Inspector P.O. Box 1416 Abingdon, Virginia 24212 540/676-5423 Im. 3

COMPLETION REPORT

WELL TYPE: Oil Gas Coalbed Me	ethane or Injection _X_ well.	
Date Well Completed: 3/18/97	Total Depth of Well: 9342'	
Attach the Drilling Report, if not previously Drilling Report, was submitted.	y submitted. In addition submit any changes in casing or tubing that	t were approved after the
STIMULATION RECORD		
Zone 1: (No Zones Stimulated)	Formation Stimulated With:	
Perforated: To Formation Broke Down at: ISIP PSIG MIN SIP Date stimulated:	No. of Perforations: Perforation Size: BPM PSIG Average Injection Pressure: PSIG PSIG Average Injection Pressure: PSIG PSIG Average Injection Pressure: PSIG	
Zone 2:	Formation Stimulated With:	
Perforated: To Formation Broke Down at: ISIP PSIG MIN SIF Date stimulated:	No. of Perforations: Perforation Size: PSIG Average Injection Rate: BPM PSIG Average Injection Pressure: PSIG PSIG Average Injection Pressure: PSIG	APR 1997 RECEIVED DIVISION OF
Zone 3:	Formation Stimulated With:	GAS & OIL
Perforated: To Formation Broke Down at: ISIP PSIG MIN SIF Date stimulated:	No. of Perforations: Perforation Size: BPM PSIG Average Injection Rate: BPM PSIG Average Injection Pressure: PSIG PSIG Average Injection Pressure: PSIG	
FINAL PRODUCTION: Natural BOD Zone (1)	After Stimulation MCFD HOUR TESTED ROCK PRESSURE	HOURS TESTED
Zone (2) Final Production if Gas Zones are Comingle	d MCFD Hours Tested PSIG Hours Tested	
*Use additional sheets with this format if mo	ere than three (3) zones were stimulated.	
	Virginia Gas Company (Company)	

By: Lydia Sinemus (Signature)

Price (4600')

Operation	s Name:	EH-131	
Permit #:	2854		

Division of Gas and Oil Virginia Gas and Oil Inspector P.O. Box 1416 Abingdon, Virginia 24212 540/676-5423

Pursuant to VR-480-05-22.1, § 1.36, the undersigned Permittee submits this report on Well <u>EH-131</u> in the <u>Town of Saltville</u> District of <u>Smyth</u> City/County, Virginia on <u>2nd</u> day of <u>April</u> , 19 97.									
Location									
City/County: Smyth Surface Elevation: 2152' E 5840 FT. S. of Latitude 36	levation of Kelly Bushin	g: 2166' Quadra							
or, State Plane Coordinates: N	207818.55 and	E 1044395.52							
Attach a final location plat as req	uired by VR 480-05-22.	1, § 1.36.							
DRILLING DATA									
Date Drilling Completed: 9	Date Drilling Commenced: 7/2/96 Drilling Contractor: IPSCO Date Drilling Completed: 9/29/96 Rig Type: X Rotary Cable Tool Total Depth of Well: 9352'								
GEOLOGICAL DATA									
Fresh Water 485' 671' 720'	Feet 2" stream GP Feet 1 1/2" str. GPN Feet 2" stream GPN	И	1490' Feet	4" stream 5 1/2" str 1/2" stream	GPM				
Salt Water	Feet GPM Feet GPM Feet GPM	м:	Feet Feet Feet		GPM GPM GPM				
Coal Seams:					MINIDIC IN	LADEA			
NAME	TOP I	BOTTOM	THICKNESS	YES	MINING IN NO	MINED OUT			
OIL AND GAS SHOWS:						HOURS			
FORMATION TOP Price (3990') 3983	BOTTOM 4908	THICKNESS 925'	IPF (MCFD/Be show	OPD)	PRESSURE	TESTED			

show

FORM 1	4
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	Operations Name: EH-131	
	Permit #: 2854	
he	Virginia Division of Mineral Resources.	

Cuttings or samples are	are	not _X	_	available for	rexamination	bу	a member	of the	Virginia Divisior	of N	lineral l	Resources

Cuttings or samples have ____ have not _X__ been furnished to the Virginia Division of Mineral Resources.

ELECTRIC LOGS AND SURVEYS:

List logs ran on wellbore: <u>G/R, TEMP, CAL, NEU., DENS., DUAL LATERLOG, CCL, CBL</u> Did log disclose vertical location of a coal seam? Yes _____ No <u>X</u> _____

SURVEY RESULTS:

DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL	DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL
see attached			
*Use additional	sheets if necessary		

CASING AND TUBING

- 100	SIZE	TOP	воттом	LENGTH	_CEMENT USED IN CU/FT	DATE CEMENTED	PACKERS KIND	/BRIDGE SIZE	E PLUGS SET AT
Conductor	28"	0'	73'	73'	288	7/6/96			
Surface	16"	0'	318'	318'	1480	7/20/96			X
Water Protection	11 3/4"	0'	1328'	1328'	1838	7/28/96			
Intermediate Casing	8 5/8"	0'	4120'	4120'	2038	8/24/96			
Other Casing	4 1/2"	0'	9199'	9199'	1145	9/29/96	CIBP	5974'	
and Tubing left in Well	2 7/8"	0	5555'	5555'			CIBP	8352'	

REMARKS: Shut down, fishing jobs, depths and dates, caving, etc.

DEVIATION SURVEY RESULTS

1	to the same of the
Hole Devia	ation: 3° @ 204'; 4° @ 422'; 4° @ 733'; 3° @1041'; 6° @ 1150'; 9 1/2° @ 1194'; 7° @ 1270';
	5 1/4° @ 1333'; 1 1/4° @ 2076'; 3° @ 2295'; 2° @ 2383'; 2 3/4° @ 2538'; 3° @ 2666'; 3° @ 2790';
	2° @ 2915'; 2 1/4° @ 3037'; 3° @ 3161'; 2 3/4° @ 3285'; 3° @ 3410'; 4° @ 3534'; 5° @ 3659'
	5 1/2° @ 3783'; 4° @ 4177'; 4 1/4° @ 4326'; 5 1/2° @ 4450';7° @ 4546; 8 1/4 ° @ 4604';
	6 1/4 ° @ 4769'; 6 1/4° @ 4956; 7° @ 5173'; 7° @ 5362'; 11 3/4° @ 5487'; 9° @ 5703'; 9 1/2° @ 5900'
	12 1/2° @ 6104'; 11 3/4 @ 6321'; 12 1/2° @ 6508'; 13° @ 6819'; 14° @ 7099'; 14° @ 7409'
	14° @ 7717'

EH-131 SALTVILLE DISPOSAL WELL ELEVATION: 2166 K.B.

FORMATION TOPS

FORMATION	DEPTH	ELEVATION
COPPER RIDGE	@ SURFACE	
NOLICHUCKY	805 (G.R.L.)	+1361
HONAKER	1127 (G.R.L.)	+1039
SALTVILLE FAULT	1481 (G.R.L.)	+ 685
(MACCRADY)	1481 (G.R.L.)	+ 685
PRICE	3983 (G.R.L.)	-1817
DEVONIAN SHALE	4908 (G.R.L.)	-2742
FAULT	5160 (G.R.L.)	-2994
2ND PRICE	5160 (G.R.L.)	-2994
DEVONIAN SHALE	5877 (G.R.L.)	-3711
ONONDAGA	8922 (G.R.L.)	-6756
HUNTERSVILLE	8950 (S.S.)	-6784
ORISKANY	9010 (S.S.)	-6844
TONOLOWAY	9040 (S.S.)	-6874
KEEFER	9090 (S.S.)	-6924
ROSE HILL	9150 (S.S.)	-6984
CLINCH	9240 (S.S.)	-7074
TOTAL DEPTH	9342 (DRLR)	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20480

⊕EPA

COMPLETION REPORT FOR BRINE DISPOSAL, HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL

Form Approved
OMB No. 2040-0042
Approval Expires 6-30-98

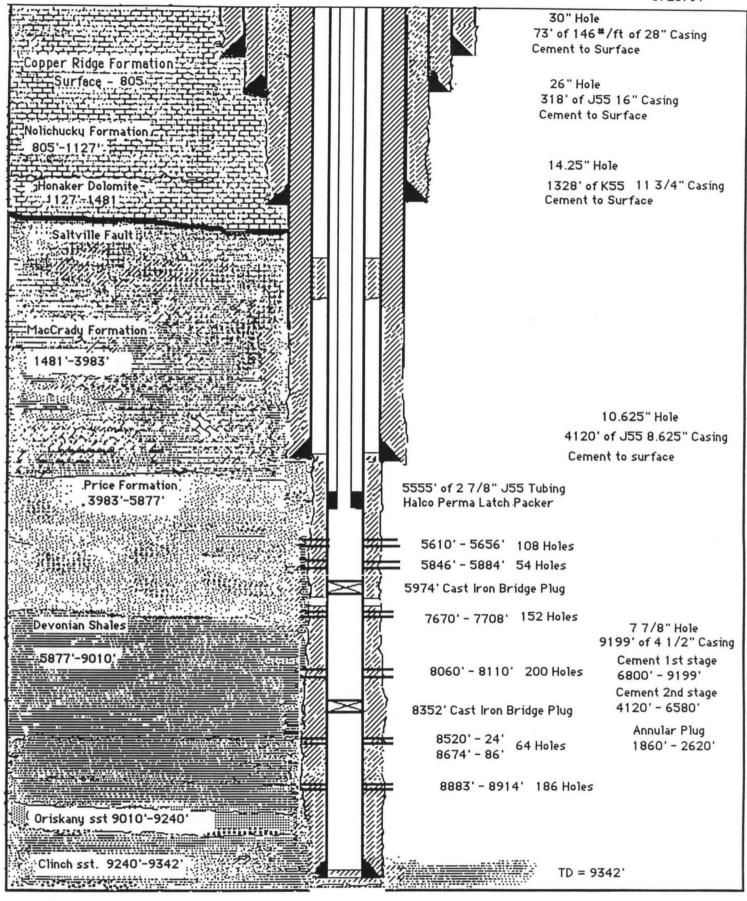
NA	ME AND ADDRESS	the Real Property lies and the last of the		TONAGE, ON E					
~	NAME AND ADDRESS OF EXISTING PERMITTEE NAME AND ADDRESS OF SURFACE OWNER								
	Virginia G			Y	Town of Saltville, Mayor Frank Lewis				
	200 East Ma				P.O. Box 730				
_	Abingcon, I	/A 24210		STATE COUNTY	Saltville	. VA 243	370		
	LOCATE WELL AND SECTION PLAT —		N	VA Smyt	1		VAS1X	NUMBER 1932BSMY	
1		N I		SURFACE LOCATION DE	SCRIPTION of 1/4 of	1/4 of Section	n Township	Range	
	ii_i		1	LOCATE WELL IN TWO					
	1 1 1	Surface Glade Spring 7 1/2' QUAD 5,840 S 36° 52' 30" Locationft. from (N/S) Line of quarter section							
1		$+ \div \div$	 	Location ft. from	(N/S) Line of qu	arter section	5,000 W 81		
-		 	+	and ft. from (E/V				.5 00	
	1 1 1	1 1 1	1	WELL ACTIVITY		PE OF PERMIT	r		
W		 	E	Brine Disposal		ini		Fracture Pressure	
		<u> </u>		Enhanced Reco		2	- of Injection	n Zone	
- 1	1 1 1	1 1 1	1		orage Number of			sig surface	
ŀ	-+-+-	 	+	Anticipated Daily Injection			on Interval		
		++	-	Average 400	Maximum 1,800	Feet 5	,610	5,884	
ι		\$ '	<u>. </u>	Anticipeted Deily Injection			to Bottom of Lowerm	ost Freshwater Formation	
		N/A		2,150	Maximum 2,250	(Feet)	1,219		
Type of Injection Fluid (Check the appropriate block(s)) Lasse Name Well Number									
	Selt Water	☐ Brackish	Water	☐ Fresh Water	Town of Sal	ltville	EH-13	1	
	☐ Liqui	d Hydrocarbon		Other	Name of Injection Zo			×	
_						Price	Sandstone		
Date	7-2-96		Date Well Con 3-18		Permeebility of Injec		o 40 md		
Dete	Drilling Completed	9-29-96	5	,	Porosity of Injection		Ausc		
		CASING AN			8 % 4VG.				
_	OD Size	Wt/Ft - Grade -		Depth	CEMENT Sacks Class		Depth	Bit Diameter	
		146#/ft-P-		73'	DRIVE	PIPE	67		
		75#/ft-J55		318'	1,144	A	525		
		54#/ft-R55		1,328'	1,470	A	1,378		
	8.625"	32#/ft-J55	-NEW	4,120'	1,630	A	4,150		
	4.5"	11.6#/ft-N	V80-NEW	9,199'	1,770	A	9,342		
	2.875"	6.5#/ft-J	5-NEW	5,555'	NA	NA	5,974		
		INJECTION ZONE	STIMULATION				LOGS, LIST EACH TY		
-	nterval Treated	М	eterials and Am	ount Used	Log T	урев	1	ogged Intervals	
	5610-5656	NOT STIN	TULATED		G/R, TEMP, CA		NS. 4120'-	-9120'	
5846-5884 NOT STIMULATED					DUAL LATERLA			4120-7000	
	7670-7708	11 11	CI		G/R, TEMP, C				
	8060-8110	11 11		8/ C 8352'	GR/TLMP		0-318		
	8520-8686	m 11	3		G/R, CCL, CE	L		1. 0-89161	
	8883-8914	п п			G/R,CCL, CEL		0-1289	0_4128	
Co	mplete Attachmen	ts A — E listed	on the reverse						
				CERTIF	ICATION				
21	I certify under the penalty of law that I have personally examined and am familiar with the information								

I certify under the 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. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)

Frank Merendino Vice President Frak Menendins

3/25/97



Operations	Name:	EH -131	
Permit #:		2854	

Division of Gas and Oil Virginia Gas and Oil Inspector P.O. Box 1416 Abingdon, Virginia 24212 540/676-5423

DRILLING REPORT Pursuant to VR-480-05-22.1, § 1.36, the undersigned Permittee submits this report on Well EH-131 in the Town of Saltville District of the Smyth County, Virginia on 20th day October month, 1996 Location City/County: Smyth District: Town of Saltville Surface Elevation: 2152,23' Elevation of Kelly Bushing: 2164,23' Quadrangle: Glade Spring 5.840' FT. S. of Latitude 36°52' 30" and 5.000 FT. W. of Longitude 81° 45' 00" or, State Plane Coordinates: N. 207818.55 and E 1044395.52 Attach a final location plat as required by VR 480-05-22.1, § 1.36. DRILLING DATA Date Drilling Commenced: 7/3/96 Drilling Contractor: IPSCO Drilling Date Drilling Completed: _______ Rig Type: ____ X Rotary _____ Cable Tool Total Depth of Well: _____ 9342" GEOLOGICAL DATA Feet 2" stream GPM Fresh Water 485' 1219' Feet 4" stream GPM Feet 1 1/2" stream GPM __1490' Feet <u>5-6" stream</u> GPM 671' Feet _____ 2" stream GPM _____ Feet _____ GPM Salt Water 4690' Feet 1/2" stream GPM: _____ Feet _____ GPM _____ Feet _____ GPM: _____ Feet _____ GPM _____ Feet _____ GPM: _____ Feet _____ GPM Coal Seams: MINING IN AREA NAME TOP **BOTTOM THICKNESS** YES NO MINED OUT OIL AND GAS SHOWS: **HOURS** IPF (MCFD/BOPD) PRESSURE **FORMATION** TOP **BOTTOM THICKNESS TESTED** 3990' show Price

FO	R	M	1	4

FORM 14	Operations Name: EH - 131 Permit #: 2854
Cuttings or samples are are not _x_ available for examination of Mineral Resources.	by a member of the Virginia Division
Cuttings or samples have have not _x_ been furnished to the Resources.	Virginia Division of Mineral
ELECTRIC LOGS AND SURVEYS:	
List logs ran on wellbore: DEN, TEMP, DIL, GR, SN	
Did log disclose vertical location of a coal seam? Yes	No _x
SURVEY RESULTS:	

DEGREES

FROM TRUE VERTICAL OF SURVEY

DEGREES

OF SURVEY FROM TRUE VERTICAL

*Use additional sheets if necessary.

CASING AND TUBING

	SIZE	TOP	<u>BOTTOM</u>	LENGTH	CEMENT USED IN CU/FT	DATE CEMENTED		BRIDGE PLUGS SIZE SET AT
Conductor	28"	0'	73'	73'	2376 ft3	7/17/96		
Water Protection	16"	0'	318'	318'	1409 ft3	7/20/96		
Intermediate:	11 3/4"	0'	1328'	1328'	2061 ft3	7/28/96		, ,
Other Casing	8 5/8"	0'	4120'	4120'	2809 ft3	8/24/96		
left in Well	4 1/2"	0'	9199'	9199'	2520 ft3	9/29 - 10	0/16/96	

Liners

REMARKS: Shut down, fishing jobs, depths and dates, caving, etc.____

		Virginia Gas	Compa	ny		
	Driller's/Geophy	ysical Log	Well:		EH - 131	
				Datum measured from K.B.		
Geological Age	Formation	Lithology	Top	Bottom	Thickness	Remarks
		fill	0	5	5	
Cambrian	Copper Ridge	dolomite	5	790	785	
	Nolichucky	shale	790	1130	340	
	Honaker	dolomite	1130	1480	350	
	Saltville Fault		1480			
Mississippian	MacCrady	shale	1481	3984	2503	
	Price	sand	3984	4820	836	gas show
Devonian	Devonian Shales	shale	4820	4970	150	
Mississippian	Price Repeat	sandstone	4970	5830	860	
Devonian	Devonian	shale	5830	8926	3096	
	Onondaga	chert	8926	9012	8 6	
	Oriskany	sandstone	9012	9092	8 0	
Silurian	Keefer	sand	9092	9150	58	
	Rose Hill	sand &shale	9150	9242	92	
	Clinch	sand	9242	9342	100	
Ordovician						
			TD	9342		

*

VIRGINIA GAS PIPELINE COMPANY

Daily Drilling Report

Hole Deviation: 3° @ 204'; 4° @ 422'; 4° @ 733'; 3° @1041'; 6° @ 1150'; 9 1/2° @ 1194'; 7° @ 1270';

5 1/4° @ 1333'; 1 1/4° @ 2076'; 3° @ 2295'; 2° @ 2383'; 2 3/4° @ 2538'; 3° @ 2666'; 3° @ 2790';

2° @ 2915'; 2 1/4° @ 3037'; 3° @ 3161'; 2 3/4° @ 3285'; 3° @ 3410'; 4° @ 3534'; 5° @ 3659'

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12 1/2° @ 6104'; 11 3/4 @ 6321'; 12 1/2° @ 6508'; 13° @ 6819'; 14° @ 7099'; 14° @ 7409'

14° @ 7717'

VLI 7

Abingdon

on was scheduled to close larseason on Tuesday, Jan. hilhowic against the Ward Powell Valley.

Canes wrestle in the Highstrict tournament Saturday ydon, where they hope to ague tourney title to their season championship. Virhis the defending champ.



ENVIRONMENTAL PROTECTION AGENCY REGION III

841 Chestnut Building Philadelphia, Pennsylvania 19107-4431

UNDERGROUND INJECTION CONTROL (UIC) PROGRAM NOTICE OF PERMIT MODIFICATION

The United States Environmental Protection Agency, Region III, announced on April 29, 1996, the issuance of two final permits under the authority of the Federal UIC Regulations at 40 CFR Parts 124,144,146 and 147 to the Virginia Gas Company, Abingdon, Virginia. The company has been authorized to construct and operate three (3) Class IIIG injection wells and three (3) Class IX injection wells used for the solution mining of salt and the disposal of the produced fluid (brine) from the solution mining process, respectively. The wells are to be located at the Saltville Storage Project in Saltville, Virginia. A federal permit is required to meet the provisions of the EPA administered UIC program in Virginia.

On January 2, 1997, EPA received a letter from Virginia Gas Company requesting that the Class IX permit, identified as VAS1X932BSMY, be modified. Specifically, Virginia Gas Company has requested that EPA modify the permit to reflect a change in the intended injection zone for the disposal of the brine fluid as well as to revise the maximum injection pressure permissible during operation. EPA has reviewed and analyzed the test data (e.g. injectivity testing of the Price Formation was conducted on December 11 and 12, 1996) submitted with the January 2, 1997 letter, to support the request for these modifications, and has found the information submitted acceptable. EPA is therefore approving the following permit modifications.

1. Part III.B.1., <u>Injection Formation</u>. This condition has been modified as follows:
"Injection shall be limited to the Price Formation in the subsurface interval between 5610 feet and 5884 feet." Previously, this condition read, "Injection shall be limited to the Devonian Shales, Huntersville Chert, Oriskany, Clinton, and Clinch Formations in the subsurface interval below 6000 feet and above 8600 feet."

2. Part III.B.4., <u>Injection Pressure Limitation</u>. This condition has been modified as follows: "Injection pressure, measured at the surface, shall not exceed 2250 psi. ..." Previously, this condition permitted a maximum injection pressure of 1590 psi.

In addition to the modification of these two permit conditions, EPA required Virginia Gas Company to determine whether there were any additional wells within the permits prescribed area of review that penetrate the intended injection zone and could provide conduits for fluid migration out of the injection zone. The Company found that there are no additional wells within the area of review that penetrate the Price Formation. Also, prior to EPA providing authorization to inject into the Price Formation, Virginia Gas will be required to plug the injection well back from its current depth to a depth of at least 25 feet below the lowest intended injection interval in the Price Formation.

• Sections 144.39 and 144.41 of the UIC regulations requires that any major permit modification be provided the opportunity for public comment. As such, EPA is soliciting public comment on the proposal to issue this permit modification for the Virginia Gas Company.

The Administrative Record for this permitting action is available for public inspection during normal business hours at the office of UIC program in the Safe Drinking Water Act Branch of EPA Region III in Philadelphia, Pennsylvania. All information submitted by the applicant, unless deemed confidential, is available to the public at the above location. A copy of the modified permit is available for public inspection at the Saltville Public Library, Main Street, Saltville, Virginia.

EPA solicits public comment on the proposal to issue a modification to the final UIC permit for this facility. A public hearing has been tentatively scheduled for March 11, 1997, at 7:00 PM at the Town Hall Square, Corner of Palmer Avenue and Stadium Drive, Saltville, Virginia. However, this hearing will be held only if there is a significant degree of interest expressed in the permit modification and this office receives written requests for a public hearing. Such written requests must state the nature of the proposed issues to be raised and must be submitted no later than February 28, 1997, to the contact person listed below. EPA expressly reserves the right to cancel this hearing unless a significant degree of public interest is evidenced.

Interested persons may obtain further information, including copies of the modified permit by contacting Lillie Ellerbe, Safe Drinking Water Act Branch (3WP32), U.S. EPA Region III, 841 Chestnut Building, Philadelphia, Pennsylvania 19107, or by phone at (215) 566-5454.