

VIRGINIA DIVISION OF MINERAL RESOURCES  
 Box 3667, Charlottesville, VA 22903

INTERVAL SHEET

Page 1 of 2

Well Repository No.: W-7218

Date rec'd: Date Processed: 5-29-90

Sample Interval: from 200 to 3690

PROPERTY: JOE TURNER LE-165  
 well # 8840

Number of samples: 349

COMPANY: Penn. VA. Resources

Total Depth: 3690

COUNTY: LEE

Oil or Gas:  Water:  Exploratory:

From-To	From-To	From-To	From-To	From-To
200 - 210	550 - 560	900 - 910	1250 - 1260	1600 - 1610
210 - 220	560 - 570	910 - 920	1260 - 1270	1610 - 1620
220 - 230	570 - 580	920 - 930	1270 - 1280	1620 - 1630
230 - 240	580 - 590	930 - 940	1280 - 1290	1630 - 1640
240 - 250	590 - 600	940 - 950	1290 - 1300	1640 - 1650
250 - 260	600 - 610	950 - 960	1300 - 1310	1650 - 1660
260 - 270	610 - 620	960 - 970	1310 - 1320	1660 - 1670
270 - 280	620 - 630	970 - 980	1320 - 1330	1670 - 1680
280 - 290	630 - 640	980 - 990	1330 - 1340	1680 - 1690
290 - 300	640 - 650	990 - 1000	1340 - 1350	1690 - 1700
300 - 310	650 - 660	1000 - 1010	1350 - 1360	1700 - 1710
310 - 320	660 - 670	1010 - 1020	1360 - 1370	1710 - 1720
320 - 330	670 - 680	1020 - 1030	1370 - 1380	1720 - 1730
330 - 340	680 - 690	1030 - 1040	1380 - 1390	1730 - 1740
340 - 350	690 - 700	1040 - 1050 no sample	1390 - 1400	1740 - 1750
350 - 360	700 - 710	1050 - 1060 no sample	1400 - 1410	1750 - 1760
360 - 370	710 - 720	1060 - 1070	1410 - 1420	1760 - 1770
370 - 380	720 - 730	1070 - 1080	1420 - 1430	1770 - 1780
380 - 390	730 - 740	1080 - 1090	1430 - 1440	1780 - 1790
390 - 400	740 - 750	1090 - 1100	1440 - 1450	1790 - 1800
400 - 410	750 - 760	1100 - 1110	1450 - 1460	1800 - 1810
410 - 420	760 - 770	1110 - 1120	1460 - 1470	1810 - 1820
420 - 430	770 - 780	1120 - 1130	1470 - 1480	1820 - 1830
430 - 440	780 - 790	1130 - 1140	1480 - 1490	1830 - 1840
440 - 450	790 - 800	1140 - 1150	1490 - 1500	1840 - 1850
450 - 460	800 - 810	1150 - 1160	1500 - 1510	1850 - 1860
460 - 470	810 - 820	1160 - 1170	1510 - 1520	1860 - 1870
470 - 480	820 - 830	1170 - 1180	1520 - 1530	1870 - 1880
480 - 490	830 - 840	1180 - 1190	1530 - 1540	1880 - 1890
490 - 500	840 - 850	1190 - 1200	1540 - 1550	1890 - 1900
500 - 510	850 - 860	1200 - 1210	1550 - 1560	1900 - 1910
510 - 520 no sample	860 - 870	1210 - 1220	1560 - 1570	1910 - 1920
520 - 530	870 - 880	1220 - 1230	1570 - 1580	1920 - 1930
530 - 540	880 - 890	1230 - 1240	1580 - 1590	1930 - 1940
540 - 550	890 - 900	1240 - 1250	1590 - 1600	1940 - 1950

VIRGINIA DIVISION OF MINERAL RESOURCES  
 Box 3667, Charlottesville, VA 22903

INTERVAL SHEET  
 Continued

Page 2 of 2

Well Repository No.: W- 7218

From-To	From-To	From-To	From-To	From-To
1950 - 1960	2350 - 2360	2750 - 2760	3150 - 3160	3550 - 3560
1960 - 1970	2360 - 2370	2760 - 2770	3160 - 3170	3560 - 3570
1970 - 1980	2370 - 2380	2770 - 2780	3170 - 3180	3570 - 3580
1980 - 1990	2380 - 2390	2780 - 2790	3180 - 3190	3580 - 3590
1990 - 2000	2390 - 2400	2790 - 2800	3190 - 3200	3590 - 3600
2000 - 2010	2400 - 2410	2800 - 2810	3200 - 3210	3600 - 3610
2010 - 2020	2410 - 2420	2810 - 2820	3210 - 3220	3610 - 3620
2020 - 2030	2420 - 2430	2820 - 2830	3220 - 3230	3620 - 3630
2030 - 2040	2430 - 2440	2830 - 2840	3230 - 3240	3630 - 3640
2040 - 2050	2440 - 2450	2840 - 2850	3240 - 3250	3640 - 3650
2050 - 2060	2450 - 2460	2850 - 2860	3250 - 3260	3650 - 3660
2060 - 2070	2460 - 2470	2860 - 2870	3260 - 3270	3660 - 3670
2070 - 2080	2470 - 2480	2870 - 2880	3270 - 3280	3670 - 3680
2080 - 2090	2480 - 2490	2880 - 2890	3280 - 3290	3680 - 3690
2090 - 2100	2490 - 2500	2890 - 2900	3290 - 3300	-
2100 - 2110	2500 - 2510	2900 - 2910	3300 - 3310	-
2110 - 2120	2510 - 2520	2910 - 2920	3310 - 3320	-
2120 - 2130	2520 - 2530	2920 - 2930	3320 - 3330	-
2130 - 2140	2530 - 2540	2930 - 2940	3330 - 3340	-
2140 - 2150	2540 - 2550	2940 - 2950	3340 - 3350	-
2150 - 2160	2550 - 2560	2950 - 2960	3350 - 3360	-
2160 - 2170	2560 - 2570	2960 - 2970	3360 - 3370	-
2170 - 2180	2570 - 2580	2970 - 2980	3370 - 3380	-
2180 - 2190	2580 - 2590	2980 - 2990	3380 - 3390	-
2190 - 2200	2590 - 2600	2990 - 3000	3390 - 3400	-
2200 - 2210	2600 - 2610	3000 - 3010	3400 - 3410	-
2210 - 2220	2610 - 2620	3010 - 3020	3410 - 3420	-
2220 - 2230	2620 - 2630	3020 - 3030	3420 - 3430	-
2230 - 2240	2630 - 2640	3030 - 3040	3430 - 3440	-
2240 - 2250	2640 - 2650	3040 - 3050	3440 - 3450	-
2250 - 2260	2650 - 2660	3050 - 3060	3450 - 3460	-
2260 - 2270	2660 - 2670	3060 - 3070	3460 - 3470	-
2270 - 2280	2670 - 2680	3070 - 3080	3470 - 3480	-
2280 - 2290	2680 - 2690	3080 - 3090	3480 - 3490	-
2290 - 2300	2690 - 2700	3090 - 3100	3490 - 3500	-
2300 - 2310	2700 - 2710	3100 - 3110	3500 - 3510	-
2310 - 2320	2710 - 2720	3110 - 3120	3510 - 3520	-
2320 - 2330	2720 - 2730	3120 - 3130	3520 - 3530	-
2330 - 2340	2730 - 2740	3130 - 3140	3530 - 3540	-
2340 - 2350	2740 - 2750	3140 - 3150	3540 - 3550	-

(FOR OFFICE USE ONLY: API Well No. 45 - -  
State County Permit

Date: 11/10, 1988

Operator's  
Well No. 8840 LE-165

VIRGINIA OIL AND GAS INSPECTOR  
DEPARTMENT OF LABOR AND INDUSTRY  
DIVISION OF MINES  
219 Wood Avenue  
Big Stone Gap, Virginia 24219-1799  
Phone 703-523-0335

WELL PLAT

+ Denotes location of well on United States Topographic Maps, scale 1 to 24,000. Latitude and longitude lines are represented by border lines as shown.

This plat is new \_\_\_ / updated X /

This plat is \_\_\_ / is not X / based on a mine coordinate system established for the areas of the well location.

Well operator PENN VIRGINIA RESOURCES CORPORATION

Address P. O. BOX 386, DUFFIELD, VA 24244

Farm JOE TURNER ET. UX.

Tract \_\_\_\_\_ Acres ±49.00 Lease No. 45-2659.00

Elevation 1711.86'

Quadrangle BACK VALLEY

County LEE District ROSE HILL

Registered Engineer X Registration No. \_\_\_\_\_

Certified Land Surveyor \_\_\_\_\_ Cert. No. 11439

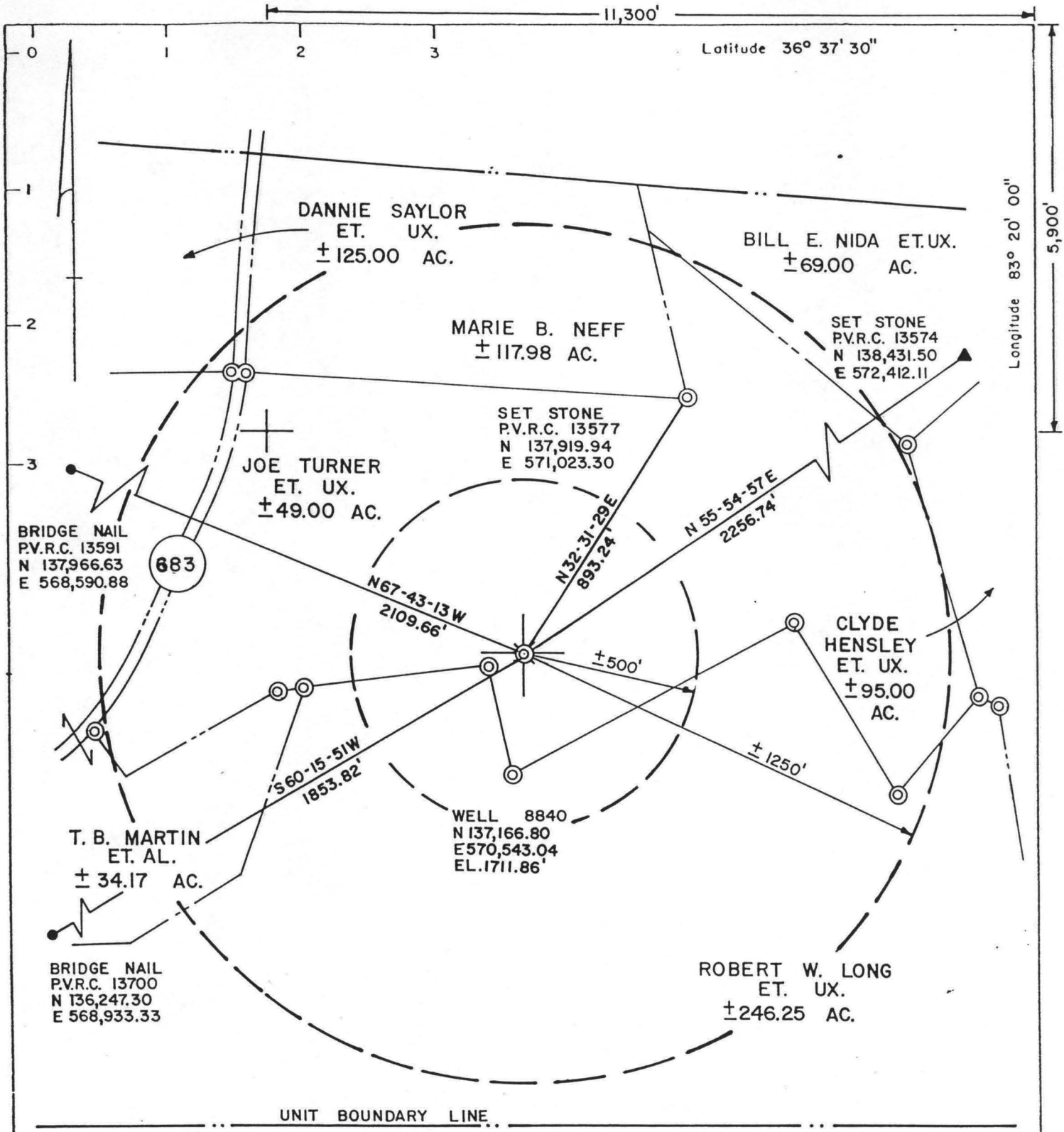
File No. \_\_\_\_\_ Drawing No. \_\_\_\_\_

Date 9-9-88 Scale 1" = 400'

Certification of Well Plat

I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief, and shows all the information required by law and the regulations of the Virginia Well Review Board.

Jack J. Gendrich  
Registered Engineer or Certified Land Surveyor  
in Charge



TRIAL LOCATION

⊙ = SURVEY CORNER

API NO. 45-105-21205  
 WELL NAME: 8840  
 DATE May 23, 1989



Virginia Oil and Gas Inspector  
 P. O. Box 1416  
 Abingdon, VA 24210  
 703 628-0115

## REPORT OF COMPLETION OF WELL WORK

Pursuant to Regulation 4.06 of the Regulations under the Virginia Oil and Gas Act, the undersigned well operator reports completion of the type(s) of well work specified below on the referenced well in Rose Hill District  
Lee County, Virginia on 6th day, December month, 19 88.

WELL TYPE: Oil \_\_\_ / Gas X / Enhanced Recovery \_\_\_ / Waste Disposal \_\_\_ / If Gas-Production X / Underground Storage \_\_\_ /  
 Exempt by Code Section 45.1-300.B.1. from general Oil and Gas Conservation Law yes \_\_\_ / no X /  
 WELL WORK: Drill X / Deepen \_\_\_ / Redrill \_\_\_ / Stimulate \_\_\_ / Plug Off Old Formation \_\_\_ / Perforate New Formation \_\_\_ /  
 Plug \_\_\_ / Replug \_\_\_ / Other physical change in well (specify) \_\_\_\_\_

The well work was done as shown in the Appendix(es) applicable to the type(s) of well work involved.

CONFIDENTIALITY STATUS UNDER CODE OF VIRGINIA SECTION 45.1-332

\_\_\_\_ Ninety days from the filing of this report

OR

X Two years from 12/6/88, the date on which the referenced well was completed, the well being an exploratory well as defined in Code of Virginia, Section 45.1-288.21.

AFFILIANT Penn Virginia Resources Corporation

BY William M. Ryan *William M. Ryan*

ITS Senior Geologist

ADDRESS P.O. Box 386, Duffield, VA 24244

TELEPHONE (703) 431-2831

### COMPLETION REPORT

WELL TYPE: Oil ( ) Gas Production (X) Gas-Underground Storage ( ) Enhanced Recovery ( ) Waste Disposal ( )

#### LOCATION

COUNTY Lee DISTRICT Rose Hill  
SURFACE ELEVATION: 1711.86' QUADRANGLE Back Valley  
LATITUDE 5,900' 'S 36° 37' ' 30" '  LONGITUDE 11,300' 'W 83° 20' ' 00" '

#### DRILLING DATA

DATE DRILLING COMMENCED 11/10/88 DRILLING CONTRACTOR Ray Resources  
DATE DRILLING COMPLETED 12/6/88 ADDRESS 600 Commerce Square, Charleston, WV  
DATE WELL COMPLETED \_\_\_\_\_ TELEPHONE NUMBER (304) 344-8393  
TOTAL DEPTH OF COMPLETED WELL 3200' RIG TYPE X ROTARY \_\_\_\_\_ CABLE TOOL \_\_\_\_\_

#### GEOLOGICAL DATA

FRESH WATER AT (1) \_\_\_\_\_ FEET \_\_\_\_\_ GPM: (2) \_\_\_\_\_ FEET \_\_\_\_\_ GPM  
SALT WATER AT (1) \_\_\_\_\_ FEET \_\_\_\_\_ GPM: (2) \_\_\_\_\_ FEET \_\_\_\_\_ GPM

COAL SEAMS: NAME	TOP	BOTTOM	THICKNESS	MINING IN AREA		
				YES	NO	MINED OUT
<u>N/A</u>						

#### OIL AND GAS SHOWS:

FORMATION	TOP	BOTTOM	THICKNESS	IFF (MCFD/EGFD)	PRESSURE	HOURS TESTED
<u>Stones River</u>	<u>1560'</u>	<u>1580'</u>	<u>20'</u>	<u>Show</u>		
<u>Stones River</u>	<u>2130'</u>	<u>2160'</u>	<u>30'</u>	<u>Show</u>		

#### STIMULATION RECORD

ZONE (1) Not Treated FORMATION STIMULATED WITH \_\_\_\_\_  
PERFORATED \_\_\_\_\_ TO \_\_\_\_\_ NO. OF PERFORATIONS \_\_\_\_\_ PERFORATION SIZE \_\_\_\_\_  
FORMATION BROKE DOWN AT \_\_\_\_\_ PSIG AVERAGE INJECTED RATE \_\_\_\_\_ GPM  
INITIAL SHUT IN PRESSURE \_\_\_\_\_ PSIG MINUTE SHUT IN PRESSURE \_\_\_\_\_ PSIG

#### STIMULATION RECORD

ZONE (2) Not Treated FORMATION STIMULATED WITH \_\_\_\_\_  
PERFORATED \_\_\_\_\_ TO \_\_\_\_\_ NO. OF PERFORATIONS \_\_\_\_\_ PERFORATION SIZE \_\_\_\_\_  
FORMATION BROKE DOWN AT \_\_\_\_\_ PSIG AVERAGE INJECTED RATE \_\_\_\_\_ GPM  
INITIAL SHUT IN PRESSURE \_\_\_\_\_ PSIG MINUTE SHUT IN PRESSURE \_\_\_\_\_ PSIG

#### FINAL PRODUCTION: ( ) NATURAL ( ) AFTER STIMULATION

	EGD	MCFD	HOURS TESTED	ROCK PRESSURE	HOURS TESTED
ZONE (1) <u>Show Natural - Not Treated - S.I. in 10 3/4" casing</u>					
ZONE (2) _____					
FINAL PRODUCTION IF GAS ZONES ARE COMINGLED _____		MCFD _____	HOURS TESTED _____	PSIG _____	HOURS TESTED _____

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	PERFORATIONS	PACKERS OR BRIDGE PLUGS		
					FEET TO FEET	KIND	SIZE	SET AT
<u>CONDUCTOR</u>	20"	0	60'	60'				
<u>CASING</u> Circulated and Cemented to Surface	13 3/8"	0	364'	364'				
<u>WATER PROTECTION</u> (Casing Set According to Section 45.1-334)	10 3/4"	0	1005'	1005'				
<u>COAL PROTECTION</u> (Casing Set According to Section 45.1-334)								
<u>OTHER CASING AND</u> Tubing Left In Well								
<u>LINERS</u> Remaining in well								
<u>OTHER</u> used and not left								

Is the well underlain by Red Shales \_\_\_\_\_ Yes  No, If Yes, was coal protection string set to Red Shales?  
 \_\_\_\_\_ Yes \_\_\_\_\_ No

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

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DRILLER'S LOG

Compiled by William M. Ryan

Geological Age	Formation	General Lithology	Color	Depth		Thickness	Remarks
				Top	Bottom		

(ATTACH DRILLER'S LOG IN THIS FORMAT)

<u>AGE</u>	<u>FORMATION</u>	<u>LITHOLOGY</u>	<u>COLOR</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>THICKNESS</u>
Cambrian/ Ordovician	Overthrust	Dolomite	Gray	0'	1168'	1168'
Ordovician	Eggleston	Limestone	Gray	1168'	1262'	94'
Ordovician	Stones River	Limestone	Gray	1262'	2492'	1230'
Ordovician	Knox	Dolomite	Gray	2492'	3200'	708'



Samples and Cuttings

Will  Will not \_\_\_\_\_ be available for examination by a member of the Virginia Division of Mineral Resources  
Will  Will not \_\_\_\_\_ be furnished to the Virginia Division of Mineral Resources upon request  
Will \_\_\_\_\_ Will not  require sacks to be furnished by the Virginia Division of Mineral Resources

Electric Logs and Surveys:

Type of Electric Log(s) Ran: LDT/SNP, Induction, Temperature, Cyberlook

Did log disclose vertical location of a coal seam? Yes \_\_\_\_\_ No N/A

Was log made at request of coal owner according to Section 45.1-333.B.1 of the Virginia Code? Yes \_\_\_\_\_ No N/A

Note: If a coal seam was located, the part of the survey from the surface through the coal is attached in accordance with Section 45.1-333.B.3 of the Virginia Code

Deviation Surveys:

Deviation surveys were \_\_\_\_\_ were not  required under Section 45.1-333.C of the Virginia Code "to the bottom of the lowest published coal seam depth."

Note: If a deviation survey(s) was/were required, the survey results are as follows:

<u>Depth of Survey</u>	<u>Feet/Degree Deviated From True Vertical</u>	<u>Depth of Survey</u>	<u>Feet/Degree Deviated From True Vertical</u>	<u>Depth of Survey</u>	<u>Feet/Degree Deviated From True Vertical</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

A continuous survey was \_\_\_\_\_ was not  required, under Section 45.1-333.C of the Virginia Code.

Note: If a continuous survey was required, the survey results are attached.

Changes in the Permitted Well Works:

The well operator did \_\_\_\_\_ did not  make any changes(s) in the permitted well work, verbally approved by the Inspector or Assistant Inspector under Regulation 4.03 of the Regulations under the Virginia Oil and Gas Act, for the purpose of insuring successful completion of the well work.

NOTE: The nature and purpose of each such change, if any, is set out below or on additional sheets if such are required.

Confidentiality Status:

Confidentiality status under Section 45.1-332 of the Virginia Codes:

The operator requests that information herein and log(s) be kept confidential (after COMPLETION DATE of the well) for a period of

\_\_\_\_\_ Ninety (90) days  
 two (2) years, if the well is exploratory