



NOTES:  
 All known oil & gas wells within 3,000' of the proposed location are shown hereon.  
 The bearings and distances shown hereon are based on the West Virginia State Plane Coordinate System, South Zone NAD '27.

West Virginia State Plane Coordinates for Loc. No. 15  
 N 407,576.88 : E 1,573,930.83

FILE NO. 4985 WW  
 DRAWING NO. 15WW6-1  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY 1 : 12,894  
 PROVEN SOURCE OF ELEVATION U.S.G.S. BM "51RHP"  
Elev. = 1025.634 NGVD '29

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 THE LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENERGY  
 (SIGNED) Ronald L. Eastham  
 R.P.E. \_\_\_\_\_ L.L.S. 150

RONALD L. EASTHAM  
 LICENSED  
 No. 150  
 STATE OF  
 WEST VIRGINIA  
 LAND SURVEYOR  
 PLACE SEAL HERE

**STATE OF WEST VIRGINIA**  
 DIVISION OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS  
 NITRO, WV

DATE March 20, 2001  
 OPERATOR'S WELL NO. 15 CNR  
 API WELL NO. \_\_\_\_\_

**47-099-02041**  
 STATE COUNTY PERMIT

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
 (IF "GAS,") PRODUCTION \_\_\_ STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X

LOCATION: ELEVATION 1054.75 WATER SHED Jackson Branch of the West Fork of Twelvepole Creek  
 DISTRICT Lincoln COUNTY Wayne  
 QUADRANGLE Radnor

SURFACE OWNER Shirley Berry, et al (D.B. 467, Pg. 188) ACREAGE 60 Ac. T.M. 4, Par. 54.9  
 OIL & GAS ROYALTY OWNER Columbia Natural Resources, Inc. LEASE ACREAGE 5,000  
 LEASE NO. 47-11205

PROPOSED WORK: DRILL \_\_\_ CONVERT X DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR  
 STIMULATE X PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW  
 FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_

PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_

TARGET FORMATION Big Six ESTIMATED DEPTH \_\_\_\_\_

WELL OPERATOR Cabot Oil & Gas Corp. DESIGNATED AGENT John Abshire  
 ADDRESS 900 Lee Street East, Suite 500 ADDRESS 900 Lee Street East, Suite 500  
Charleston, WV 25301 Charleston, WV 25301

APR 20 2001

DEEP WELL 6-6 353

FORM WW-5 EASTHAM & ASSOCIATES

WAY COUNTY NAME PERMIT 2041

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

*ACT*

Farm name: Shirley Berry

Operator Well No.: CNR #15

LOCATION: Elevation: 1056' Quadrangle: Radnor  
 District: Lincoln County: Wayne  
 Latitude: 5.470 feet South of 38 DEG. 7 MIN. 30 SEC.  
 Longitude: 6.495 feet West of 82 DEG. 27 MIN. 30 SEC.

Company: Cabot Oil & Gas Corporation  
 900 Lee Street East, Suite 500  
 Charleston, WV 25301

Agent: John Abshire  
 Inspector: David Belcher  
 Permit Issued: 4/18/01  
 Well Work Commenced: 5/31/01  
 Well Work Completed: 9/25/01  
 Verbal Plugging  
 Permission granted on:  
 Rotary X Cable  
 Total Depth (feet) 4203'  
 Fresh Water Depths (ft) 40', 98', 351', 471', 731'  
 Salt Water Depths (ft) 1115', 1136', 1199', 1415'

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill up Cu. Ft.
16"	35'	35'	
9-5/8"	802'	802'	300 sks
7"	1863'	1863'	308 sks
4-1/2"		4161'	105 sks Latex
2-3/8" w/ 5/8" Rods	and pump	4099'	

Is coal being mined in area (Y / N)?

Coal Depths (ft) 114'-117', 455'-459', 490'-493', 527'-530', 572'-576', 634'-638'

Office of Oil and Gas  
 JAN 07 2002  
 WV Department of Environmental Protection

OPEN FLOW DATA

Producing formation BIG SIX Pay zone depth (ft) 4050' - 4056'  
4071' - 4078'  
 Gas: Initial open flow 110 MCF/d Oil: Initial open flow 0 Bbl/d  
 Final open flow 200 MCF/d Final open flow 0 Bbl/d  
 Time of open flow between initial and final tests N/A (TIL Rate) Hours  
 Static rock pressure 1250 psig (surface pressure after 1312 Hours

Second producing formation Pay zone depth (ft)  
 Gas: Initial open flow          MCF/d Oil: Initial open flow          Bbl/d  
 Final open flow          MCF/d Final open flow          Bbl/d  
 Time of open flow between initial and final tests          Hours  
 Static rock pressure          psig (surface pressure after          Hours

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

For: CABOT OIL & GAS CORPORATION

By: Ray Brudnick Operations Manager  
 Date: 1/4/02

FEB 01 2002

1100 LVM

Perforated from 4071' to 4078' w/22 holes, and from 4050' to 4056' w/19 holes. Total shots 41. All guns were 3 1/8" HSC. All charges were 12 gram. 0.52" entry hole.

Break down Big Six ( Lower Lockport Dolomite ) with 20 bbl fluid. Wiper plug was pumped down w/6 bbl 6% HCl when cemented. Big Six BD @ 2800 psi. Increased rate to 3 1/2 bbl/min (max w/cement at this pressure). MTP 3132 psi. ATP 2950 psi. MTR 3.5 bbl/min. ISIP 3072 psi, 5 min SIP 2102 psi, 10 min SIP 1625 psi, 15 min SIP 1305 psi. Frac gradient calculated at 1.18.

Break down and ball out Big Six w/1500 gal 15% HCl (treated), over displaced acid by 13 bbl. Saw good ball action. Ran 50 balls, did not get complete ball out. ATP=2600 psi. MTP=4582 psi. AIR=5.8 BPM. MIR=15 BPM. ISIP=1680 psi. 5minSIP=1442 psi. 45minSIP=1360 psi.

Frac'd with 1000 bbl clean fluid ( including step rate & mini-frac ).53.600 lb sand. 159 Mscf/N2. ATP=2420 psi. MTP=3200 psi. AIR=21 BPM. MIR=23 BPM. Max sand concentration 5.2 PPA. ISIP=2000 psi, 5 min SIP=1648 psi. 10 min SIP=1447 psi. 15 min SIP=1350 psi.

FORMATION	TOP	BOTTOM	REMARKS
Breathitt Fm	Surface	1070	
Lee Fm (Salt Sand)	1070	1433	
Pennington Fm	1433	1494	
Little Lime	1494	1533	
Big Lime	1533	1700	
Injun	1700	1830	
Borden	1830	2295	
Coffee Shale	2295	2305	
Berea	2305	2436	
Devonian Shale	2436	3380	
Corniferous Lime	3380	4046	
Big Six	4046	4092	
Rose Hill	4092	4203' TD	

