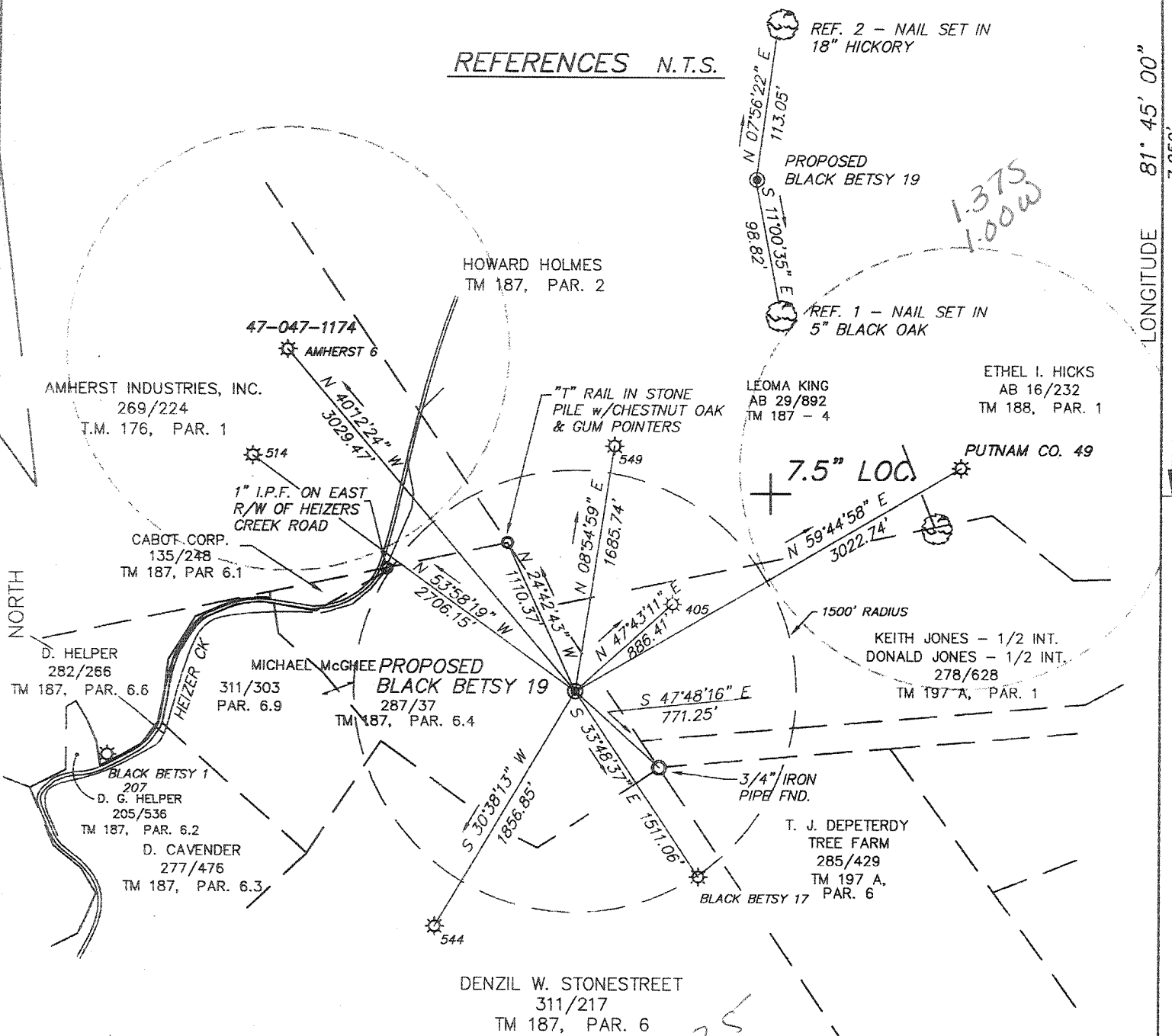


LATITUDE 38° 32' 30"

5,300'

LONGITUDE 81° 45' 00"

REFERENCES N.T.S.



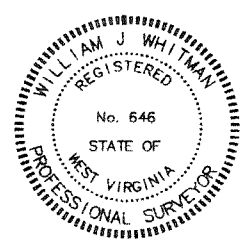
NOTE: NO WATER SOURCES LOCATED WITHIN 1000' OF PROPOSED LOCATION.

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE No. 8723-412
 DRAWING No. BLACK BETSY 19
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY 1 : 2500
 PROVEN SOURCE OF ELEVATION U.S.G.S. BM U97
ELEV. 635

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 ISSUED AND PRESCRIBED BY THE DEPARTMENT OF MINES

(SIGNED) William J. Whitman R.P.S. 646



PLACE SEAL HERE

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION



DATE SEPTEMBER 28 19 95
 OPERATOR'S WELL No. BLACK BETSY 19
 API WELL No.

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS") PRODUCTION X STORAGE ___ DEEP X SHALLOW ___
 LOCATION: ELEVATION 941.58 WATER SHED HEIZER CREEK
 DISTRICT POCATALICO COUNTY PUTNAM
 QUADRANGLE BANCROFT, W. VA. Winfield SE
 SURFACE OWNER MICHAEL McGHEE ACREAGE ___
 OIL & GAS ROYALTY OWNER BLACK BETSY COAL CO. LEASE ACREAGE ___
 LEASE No. ___
 PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR
 STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW
 FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) ___

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
 TARGET FORMATION ___ ESTIMATED DEPTH ___
 WELL OPERATOR CABOT OIL & GAS CORP. DESIGNATED AGENT DAVID G. McCLUSKEY
 ADDRESS P.O. BOX 1473 ADDRESS P.O. BOX 1473
CHARLESTON, W. VA. CHARLESTON, W. VA.

DEEP WELL

6-4-312

079-1201

FORM WV-28
RECEIVED
WV Division of
Environmental Protection

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY, DIVISION OF OIL AND GAS
WELL WORK PERMIT APPLICATION

SEP 08 1995

- 1) Well Operator: Cabot Oil & Gas Corporation ¹⁴⁹ 8145 (3) 229
- 2) Permitting Office: ~~Oil & Gas~~ Well Number: Black Betsy #19 3) Elevation: 941.58
- 4) Well type: (a) Oil ___ / or Gas X / *Issued 10/05/95*
(b) If Gas: Production X / Undergrnd Storage ___ / *Expires 10/05/97*
Deep X / Shallow ___
- 5) Proposed Target Formation(s): Newburg 535
- 6) Proposed Total Depth: 5840' feet
- 7) Approximate fresh water strata depths: 70'
- 8) Approximate salt water depths: 1654', 2081'
- 9) Approximate coal seam depths: 325', 641'
- 10) Does land contain coal seams tributary to active mine? Yes X / No ___
- 11) Proposed Well Work: Drill and complete a gas well.
- 12)

CASING AND TUBING PROGRAM

39CSR18-11.3
39CSR18-11.2-2

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft.	For drilling	Left in well	Fill-up (cu. ft.)
Conductor	20"	L.S.	-	30'	30'	30 sks GFS
Coal/ Fresh Water	13-3/8"	L.S.	54.5	700'	700'	530 sks GFS <i>cts</i>
Coal	9-5/8"	L.S.	32.3	2200'	2200'	590 sks CTS
Intermediate	7"	L.S.	23.0	4950'	4950'	290 sks
Production	4-1/2"	M-75	11.6	5840'	5840'	75 sks
Tubing	2-3/8"	J-55	4.7	5730'	5730'	<i>39CSR18-11</i>
Liners						

PACKERS : Kind n/a
Sizes _____
Depths set _____

For Division of Oil and Gas Use Only

13359
39

Fee(s) paid: 17 Well Work Permit 17 Reclamation Fund 17 WPCF
Plat 17 WW-9 17 WW-2B 17 Bond 17 (Type) 17 Age: 17

RECEIVED
WV Division of
Environmental Protection
SEP 08 1995

- 1) Date: August 30, 1995
- 2) Operator's well number Black Betsy #19
- 3) API Well No: 47 - 079 - 1201
State - County - Permit

Permitting
Office of Oil & Gas
STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY, DIVISION OF OIL AND GAS

NOTICE AND APPLICATION FOR A WELL WORK PERMIT

- 4) Surface Owner(s) to be served:
 - (a) Name Michael McGhee
Address P.O. Box 141
Poca, WV 25159
 - (b) Name _____
Address _____
 - (c) Name _____
Address _____
- 6) Inspector Glen P. Robinson
Address Box 1
Belleville, WV 26133
Telephone (304)- 863-8766

- 5) (a) Coal Operator:
Name Not Operated
Address _____
- (b) Coal Owner(s) with Declaration
Name I.V. Cunningham
Address 431 McKinley Ave.
Charleston, WV 25314
Name _____
Address _____
- (c) Coal Lessee with Declaration
Name _____
Address _____

TO THE PERSON(S) NAMED ABOVE TAKE NOTICE THAT:

_____ Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas OR
 Included is the information required by Chapter 22B, Article 1, Section 8(d) of the Code of West Virginia (see page 2)
 I certify that as required under Chapter 22B of the West Virginia Code
 I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through _____ on the above named parties, by:
 Personal Service (Affidavit attached)
 Certified Mail (Postmarked postal receipt attached)
 Publication (Notice of Publication attached)

I have read and understand Chapter 22B and 38 CSR 11-18, and I agree to the terms and conditions of any permit issued under this application.
 I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form 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.

Well Operator Cabot Oil & Gas Corporation
 By: [Signature]
 Title: Regional Engineering Manager
 Address 400 Fairway Drive, Suite 400
Coraopolis, PA 15108
 Telephone (412) 299-7000

Subscribed and sworn before me this 30th day of August, 1995

[Signature] Notary Public

Notarial Seal
 Cynthia M. Bowles, Notary Public
 Chas. S. Co., Washington County
 My Commission Expires June 17, 1996



STATE OF WEST VIRGINIA
OIL AND GAS CONSERVATION COMMISSION
#10 McJUNKIN ROAD
NITRO, WEST VIRGINIA 25143-2506

October 3, 1995

Division of Environmental Protection
Office of Oil and Gas
Nitro, West Virginia

Re: Application for Permit #47-079-01201 to drill deep well.

COMPANY: Cabot Oil and Gas Corporation

FARM: Black Betsy Coal Company #19

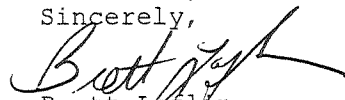
COUNTY: Putnam DISTRICT: Pocatalico QUAD: Bancroft

The application of the above company is Approved for Newburg.
(Approved or Disapproved)

Applicant has complied with the provisions of Chapter twenty-two, eight (22-8), of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

- 1.) Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owner; **yes**
- 2.) Provided a tabulation of all deep wells within one mile of the proposed location, including the Api number of the deep well, well name, and the name and address of operator and; ***yes**
- 3.) Provided a plat showing that the proposed location is a distance of 600 feet from the nearest unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,


Brett Loflin
Engineer III

*1,400 feet to 47-079-01178PP
2,800 feet to 47-079-01200PP
2,350 feet to 47-079-00544
3,000 feet to 47-079-01174PP
4,300 feet to 47-079-00806P
3,300 feet to 47-079-00207

RECEIVED
WV Division of
Environmental Protection

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas

Permitting
Office of Oil & Gas Well Operator's Report of Well Work

Farm name: **McGHEE, MICHAEL** Operator Well No.: **BLACK BETSY 19**

LOCATION: Elevation: **941.58** Quadrangle: **BANCROFT**

District: **POCOTALICO** County: **PUTNAM**
Latitude: **7250** Feet South of **38** Deg. **32**Min. **30** Sec.
Longitude: **5300** Feet West of **81** Deg. **45** Min. **0** Sec.

Company: **CABOT OIL & GAS CORPORATI**
400 FAIRWAY DRIVE, SUITE 400
CORAOPOLIS, PA 15108-4308

Agent: **JOHN W. ABSHIRE**

Inspector: **CARLOS HIVELY**
Permit Issued: 10/05/95
Well work Commenced: 11/15/95
Well work Completed: 7/25/96
Verbal Plugging
Permission granted on: _____
Rotary X Cable _____ Rig
Total Depth (feet) 5937'
Fresh water depths (ft) 133'

Salt water depths (ft) 880', 986', 1550'

Is coal being mined in area (Y/N)? _____
Coal Depths (ft): N/A

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
20"	25'	25'	
13 ³ / ₈ "	724'	724'	234 sks Class A
9 ⁵ / ₈ "	2367'	2367'	400 SKS RFC-LEAD 150 SKS CLASS "A"-TALL
7"	4965'	4965'	166 SKS RFC-LEAD 100 SKS CLASS "A"-TALL
*4 ¹ / ₂ "	5845'	1035'	61 sks RFC

*Latex plug over Newburg

OPEN FLOW DATA

Producing formation Newburg Pay zone depth (ft) 5738'-5744'
 Gas: Initial open flow TSTM MCF/d Oil: Initial open flow N/A Bbl/c
 Final open flow N/A MCF/d Final open flow N/A Bbl/c
 Time of open flow between initial and final tests N/A Hours
 Static rock Pressure N/A psig (surface pressure) after N/A Hours
 *Latex cement plug over Newburg 4021'-4029'; 4083'-4089'; 4122'-4128'
 Second producing formation Devonian Shale Pay zone depth (ft) 4247'-4251'
 Gas: Initial open flow TSTM MCF/d Oil: Initial open flow N/A Bbl/d
 Final open flow 353 MCF/d Final open flow N/A Bbl/d
 Time of open flow between initial and final tests 4 Hours
 Static rock Pressure 600 psig (surface pressure) after 18 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.

John W. Abshire
For: **CABOT OIL & GAS CORPORATION**

By: _____
Date: _____

AUG 23 1996

AUG 23 1996

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Perf Newburg @ 5738' - 5744'. Broke down with treated fluid, displaced with 76 bbls H2O. Spotted latex cement from 5796' - 5615', 6% gel @ 5615' - 5292', latex cement plug from 5292' - 5192', 6% gel from 5192' - 4800'. Cut 4 1/2" @ 4810' and removed, set 7" C.I.B.P. @ 4800' with 2 sks cal-seal above it.

Perf Devonian Shale @ 4021' - 4029', 4083' - 4089', 4122' - 4128' and 4247' - 4251'. Broke down with 750 gals 15 % HCl acid, displaced with 46,900 SCF N2 @ 15,900 SCFM. Break down pressure 1400 psi, ISIP 1440 psi. Frac with 75 Q foam with 75,000# 20/40 mesh sand, total N2 - 585,500 SCF, ISIP 1490 psi.

Perf 2nd stage of Devonian Shale @ 3766' - 3772', 3825' - 3831', 3890' - 3896'. Broke down with 750 gals 15% HCl acid, displaced 15,700 SCF N2. Break down pressure 3500 psi, ISIP 1950 psi. Frac with 75 Q foam with 45,000# 20/40 mesh sand, total N2 - 352,500 SCF, ISIP 2350 psi.

FORMATION	TOP	BOTTOM
Shale	0	1000
Sand	1000	1160
Shale	1160	1350
Sand/Shale	1350	1480
Shale	1480	1540
Sand	1540	1805
Shale	1805	1832
Sand	1832	1850
Limestone	1850	2060
Injun	2060	2115
Shale	2115	2545
Berea	2545	2556
Shale	2556	4920
Onondaga	4920	5006
Oriskany	5006	5053
Limestone	5053	5224
Dolomite	5224	5738
Newburg	5738	5752
Dolomite	5752	5939