



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

November 15, 2013

WELL WORK PERMIT

Vertical Well

This permit, API Well Number: 47-10701746, issued to CABOT OIL & GAS CORPORATION, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: CABOT WOOD #1
Farm Name: WHITLATCH, JOHN & SUCK, RO
API Well Number: 47-10701746
Permit Type: Vertical Well
Date Issued: 11/15/2013

Promoting a healthy environment.



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street, SE Charleston, WV 25304
(304)926-0499, Ext 1656

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

November 14, 2013

Department of Environmental Protection
Office of Oil and Gas
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-107-01746

COMPANY: Cabot Oil and Gas Corporation

FARM: Cabot Wood #1

COUNTY Wood DISTRICT: Lubeck QUAD: South Parkersburg

The application for the above company is **approved to drill to TRENTON formation, POINT PLEASANT production zone**

The applicant has complied with the provision of Chapter 22C-9, 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 owners; yes
2. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells, well name, and the name and address of the operator; none
3. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or **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,

Cindy Raines
Executive Assistant

PERMIT CONDITIONS

West Virginia Code § 22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR § 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR § 4-19.1.c, if the operator is unable to sample and analyze any water well or spring within one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours.
7. Well work activities shall not constitute a hazard to the safety of persons.
8. If well work related activities require the use of water obtained by withdrawals from waters of this state in amounts that exceed two hundred ten thousand gallons during any thirty day period, the operator is required to consult, and adhere to, the guidance provided by DEP's Water Withdrawal Guidance Tool prior to any water withdrawals.

Revised 11/13/13

EXHIBIT 1

107 01746

WW - 2B
(Rev. 8/10)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

03 615

1) Well Operator: Cabot Oil & Gas Corporation
Operator ID: 08145 County: 107 Wood District: Lubeck Quadrangle: South Parkersburg

2) Operator's Well Number: Cabot-Wood #1 3) Elevation: 855'

4) Well Type: (a) Oil _____ or Gas X
(b) If Gas: Production X / Underground Storage _____
Deep X / Shallow _____

5) Proposed Target Formation(s): Point Pleasant Proposed Target Depth: 7,828'-7,955'

6) Proposed Total Depth: 8,155' Feet Formation at Proposed Total Depth: Trenton

7) Approximate fresh water strata depths: 106'

8) Approximate salt water depths: 1,227'-1,264'

9) Approximate coal seam depths: None

10) Approximate void depths,(coal, Karst, other): None

11) Does land contain coal seams tributary to active mine? No

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)

The conductor, fresh water and surface strings are proposed to be drilled on air or water based mud. The intermediate and production strings are proposed to be drilled on air or salt/polymer based mud. Frac will be pumped at approximately 80 BPM over the perforated interval of the pay zone (7,828'-7,955'). Proppant total will be +/-500,000 lbs. with a fluid volume of +/- 10,000 bbls. Max surface treating pressure will be estimated at 15,000 psi. We are planning on going to (9.5-11 ppg) fluid once drilling past the Tuscarora. We were planning on air drilling the hard and abrasive Oriskany Formation.

13) CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	26"			50'	50'	61
Fresh Water	18 5/8"	H40	87.5	200' 300'	200' 300'	250 CTS
Coal Surface	13-3/8"	J55	54.5	1,400'	1,400'	973
Intermediate	9 5/8"	N80	47	6,200'	6,200'	1,409
Production	5.5"	HCP110	23	8,200'	8,200'	1,049
Tubing						
Liners						

2 m m

Packers: Kind: _____
Sizes: _____
Depths Set _____



10701746

WW - 2B
(Rev. 8/10)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

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Deep / Shallow _____

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Intermediate	9 5/8"	N80	40	4,500'	4,500'	1,409
Production	5.5"	HCP110	20	8,200'	8,200'	1,049
Tubing						
Liners						

RECEIVED
Office of Oil and Gas
OCT 24 2013
WV Department of Environmental Protection
10/22/2013

Packers: Kind: _____
Sizes: _____
Depths Set _____

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6, Section 8(d)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
-----------------------	-----------------------	---------	-----------

See Attached Spreadsheet

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources
- WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator:
By: Its:


 Cabot Oil & Gas Corporation
 Kenneth L. Marcum, Regulatory Supervisor

RECEIVED
 Office of Oil and Gas
 OCT 24 2013
 WV Department of
 Environmental Protection

WW-2A1 Parties and Recordation Data (if recorded) for Lease(s) or Other Continuing Contracts(s)

GRANTOR/LESSOR	GRANTEE LESSEE	ROYALTY	BK/PG	Assignment 1 (Assignor)	Assignment 1 (Assignee)	BK/PG	Assignment 2 (Assignor)	Assignment 2 (Assignee)	BK/PG	Assignment 3 (Assignor)	Assignment 3 (Assignee)	BK/PG	Comments
John Whitlatch, James Whitlatch, Jeanette Whitehead and Julia Sams	Magnum Land Services, LLC	1/8	1109/217	Magnum Land Services, LLC	Belmont Resources LLC	1125/751	Belmont Resources LLC	Sinclair Oil & Gas Company	1128/325	Sinclair Oil & Gas Company and Belmont Resources, LLC	Cabot Oil & Gas Corporation	1188/35	This is the Drill Tract 54-3-360-A6. Tax Map/Parcels: 360-A6, 360-A2, 360-A, 360-A3, 360-A2A
Kathleen A. Suck and Robert D. Suck	Cabot Oil & Gas Corporation	15.50%	1199/900	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Tax Map/Parcels: 290-L
Robert D. & Kathleen A. Suck	Magnum Land Services, LLC	1/8	1109/247	Magnum Land Services, LLC	Belmont Resources LLC	1125/751	Belmont Resources LLC	Sinclair Oil & Gas Company	1188/367	Sinclair Oil & Gas Company and Belmont Resources, LLC	Cabot Oil & Gas Corporation	1188/35	Tax Map/Parcels: 290-M, 290-M2, 290-B
Alberta J. Johnson	Magnum Land Services, LLC	1/8	1109/237	Magnum Land Services, LLC	Belmont Resources LLC	1125/751	Belmont Resources LLC	Sinclair Oil & Gas Company	1188/367	Sinclair Oil & Gas Company and Belmont Resources, LLC	Cabot Oil & Gas Corporation	1188/35	Tax Map/Parcels: 290-M, 290-M2, 290-B. Alberta Johnson had a life estate on 25% of these tracts. She is now deceased and her interest went to the Suck's.
Kathleen A. Suck and Robert D. Suck	Cabot Oil & Gas Corporation	15.50%	1205/693	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Tax Map/Parcels: 290-M4

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 Office of Oil and Gas
 OCT 24 2013
 WV Department of
 Environmental Protection

10701746

WW-2B1
(5-12)

Well No. Cabot-Wood #1

West Virginia Department of Environmental Protection
Office of Oil and Gas

NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing. The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore, if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

Be advised, you have the right to sample and analyze any water supply at your own expense.

Listed below is the laboratory chosen by operator to perform analysis, and contactor chosen to collect sample.

Certified Laboratory Name Euofins Lancaster Laboratories Environmental, LLC
Sampling Contractor SLR International Corporation

Well Operator Cabot Oil & Gas Corporation
Address Five Penn Center West, Suite 401
Pittsburgh, PA 15276
Telephone (412) 249-3850

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underling which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site, the Chief may require the operator to test wells up to 2000 feet from the proposed site.

- Jeanette & Carl E. Whitehead *
- Jill Fleak & Joby Sims *
- Robert D. & Kathleen A. Suck*
- John & Donna Whitlatch *
- Cody & Sharon Ewing *
- James H. & Jo Ann Whitlatch *

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 RECEIVED
 Office of Oil and Gas
 Office of Oil and Gas
 OCT 24 2013
 OCT 24 2013
 WV Department of
 Environmental Protection
 WV Department of
 Environmental Protection

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Cabot Oil & Gas Corporation OP Code _____

Watershed (HUC 10) Badgley Fork of Tygart Creek Quadrangle South Parkersburg

Elevation 855 County Wood District Lubeck

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No _____

Will a pit be used for drill cuttings? Yes _____ No

If so, please describe anticipated pit waste: N/A

Will a synthetic liner be used in the pit? Yes _____ No _____ If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- _____ Land Application
- _____ Underground Injection (UIC Permit Number _____)
- _____ Reuse (at API Number _____)
- _____ Off Site Disposal (Supply form WW-9 for disposal location)
- _____ Other (Explain _____)

Will closed loop system be used? Yes _____

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air and possibly salt system as backup FLUID FROM TUSCARAWA TO TD.
-If oil based, what type? Synthetic, petroleum, etc. _____

Additives to be used in drilling medium? See Attached Sheet

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) _____

-Landfill or offsite name/permit number? Tunnel Hill Reclamation, LLC/Ohio Environmental Protection Agency Permit #06-08443

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

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 thereto 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 or imprisonment.

Company Official Signature *Kenneth L. Marcum*

Company Official (Typed Name) Kenneth L. Marcum

Company Official Title Regulatory Supervisor

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Constance C. Carden, Notary Public
McDonald Boro, Washington County
My Commission Expires Nov. 16, 2013

Subscribed and sworn before me this 17th day of October, 2013

Constance C. Carden Notary Public

My commission expires 11/16/2013



Form WW-9

Operator's Well No. Cabot-Wood #1

Cabot Oil & Gas Corporation

Proposed Revegetation Treatment: Acres Disturbed 11.77 Prevegetation pH To be tested

Lime 2 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch Hay or Straw at 2 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Winter Rye	168	Tall Fescue	40
Winter Wheat	180	Birdsfoot Trefoil	10
Annual Ryegrass	40	Redtop	3

See Construction Plans for additional seed mixtures

Attach:

Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: _____

Comments: _____

Title: *Jamie Stevens* Date: 10/22/2013

Field Reviewed? Yes No

WW-9

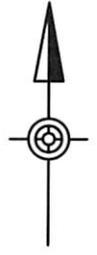
ADDITIVES TO BE USED IN DRILLING MEDIUM

BARAZAN D PLUS - Viscosifier
Barite (4.1 SG) – Weight Agent
Bicarbonate of Soda
Caustic Soda
DEXTRID LT - Starch
Lime
PAC-L - Filtration Control
Potassium Chloride
Evaporated Salt

Potential Additives:

ALDACIDE G - Microbiocide
BARA-DEFOAM W300 – Defoamer
CLAYSEAL PLUS – Shale Stabilizer
NO-SULF – H₂S Scavenger
OXYGON – Oxygen Scavenger
Soda Ash / Citric Acid
QUIK-THIN – Thinner





BEGINNING OF IMPACT
 39.227728
 -81.609008

1

WOOD #1
 WELL PAD

ACCESS
 ROAD

COUNTY
 ROUTE 9/3

LUBECK

USGS QUAD: SOUTH PARKERSBURG

1500 0 1500 3000 FEET



SCALE



Architects Engineers Surveyors
 2502 Cranberry Square
 Morgantown, WV 26508
 PHONE 304.777.2940
 TOLL FREE 877.323.6603
 FAX 570.323.9902

Larson Design Group® www.larsondesigngroup.com

WOOD WELL PAD #1

PROJECTS LOCATION MAP
 FOR

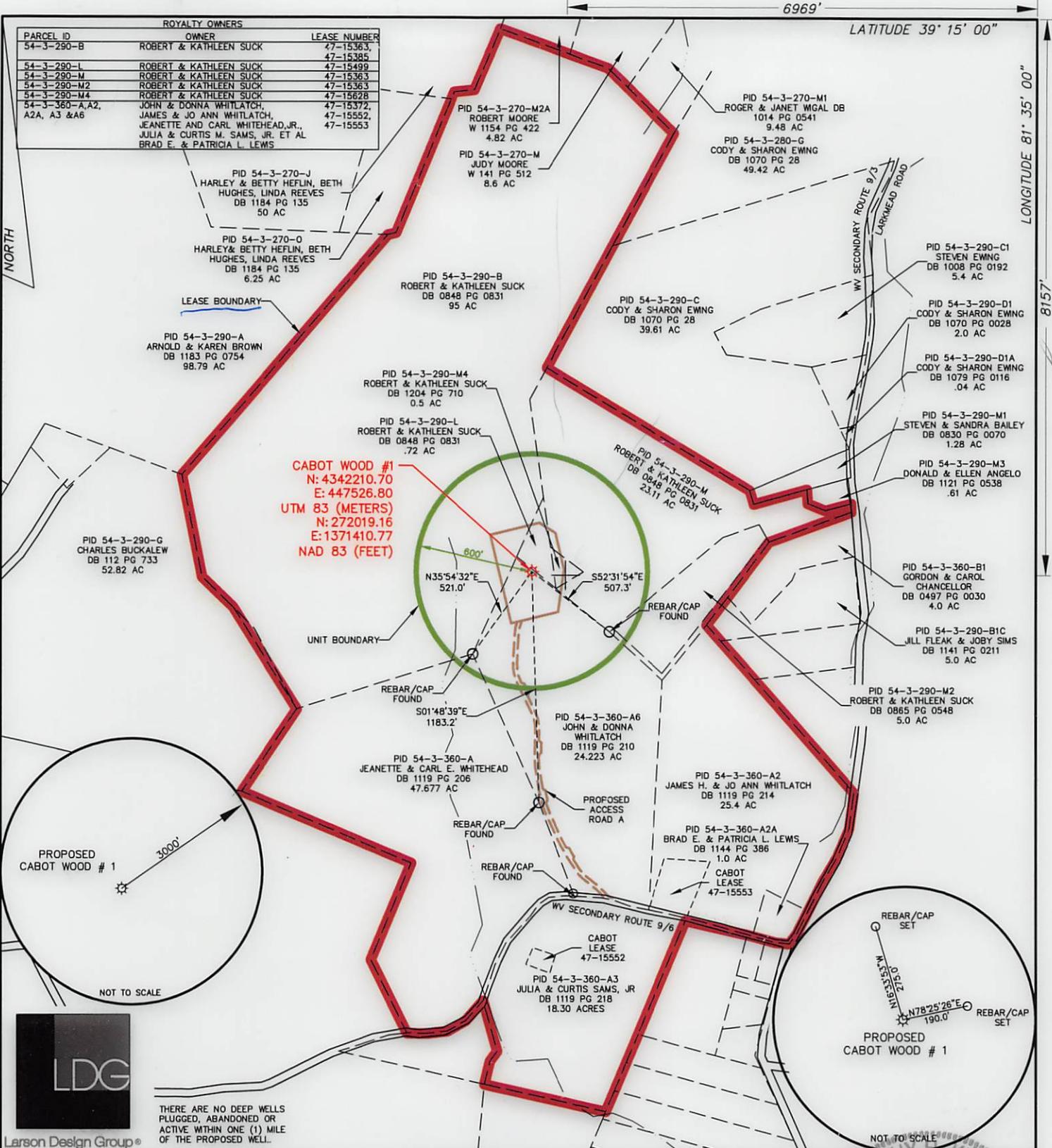
CABOT OIL & GAS CORPORATION

DATE: 10/03/13

SHEET NO.:
 EX-2

PROJECT NO.:
 8744-003-1

SCALE:



THERE ARE NO DEEP WELLS PLUGGED, ABANDONED OR ACTIVE WITHIN ONE (1) MILE OF THE PROPOSED WELL.

FILE NO. 8744-003-1
 DRAWING NO. 1
 SCALE 1" = 700'
 MINIMUM DEGREE OF ACCURACY 1 in 2500'
 PROVEN SOURCE OF ELEVATION SURVEY GRADE GPS

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 ENVIRONMENTAL PROTECTION.
 (SIGNED) [Signature]
 R.P.E. _____ L.L.S. 1969



STATE OF WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OIL AND GAS DIVISION

DATE OCTOBER, 20 13
 OPERATOR'S WELL NO. CABOT WOOD #1
 API WELL NO. 47 107 01746
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION 855' WATERSHED BADGLEY FORK OF TYGART CREEK
 DISTRICT LUBECK COUNTY WOOD
 QUADRANGLE SOUTH PARKERSBURG

SURFACE OWNER SEE TABLE ABOVE ACREAGE 24.22 ACRES
 OIL & GAS ROYALTY OWNER SEE TABLE ABOVE LEASE ACREAGE ±240.93 ACRES
 LEASE NO. 47-0015372

PROPOSED WORK: DRILL X CONVERT _____ 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 POINT PLEASANT ESTIMATED DEPTH TARGET DEPTH 7,828' - 7955' TOTAL DEPTH 8,155'
 WELL OPERATOR CABOT OIL & GAS CORPORATION DESIGNATED AGENT WHITNEY JOHNSON
 ADDRESS FIVE PENN CENTER WEST, SUITE 401 ADDRESS CABOT OIL & GAS CORPORATION
PITTSBURGH, PA 15276-0130 P.O. BOX 450 GLASGOW, WV 25086

FORM WW-6

COUNTY NAME
 PERMIT