

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

RECEIVED
Office of Oil and Gas

SEP 26 2017

WV Department of
Environmental Protection

API 47-035-03028 County Jackson District Ripley
Quad Sandyville Pad Name Benson Field/Pool Name Ripley Storage
Farm name Benson, Betty & Roger L. Well Number 12596
Operator (as registered with the OOG) Columbia Gas Transmission, LLC
Address PO Box 1273 City Charleston State WV Zip 25314

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4304010.5 m Easting 439322.3 m
Landing Point of Curve Northing N/A Easting N/A
Bottom Hole Northing 4304292.1 m Easting 439391.7 m

Elevation (ft) 782 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other storage
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
fresh water based w/ NaCl, KCl, polymer, starch, biocide, pH control, etc.

Date permit issued 2/24/17 Date drilling commenced 7/18/17 Date drilling ceased 8/7/17
Date completion activities began 8/11/17 Date completion activities ceased 8/23/17
Verbal plugging (Y/N) N/A Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft none Open mine(s) (Y/N) depths N
Salt water depth(s) ft 603 (damp), 1317 Void(s) encountered (Y/N) depths N
Coal depth(s) ft none Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

APPROVED

NAME: Camille Stevens
DATE: 10/26/2017

Reviewed by: _____

11/10/2017

API 47-035 - 03028 Farm name Benson, Betty & Roger L. Well number 12596

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24	20	23 GL	New	L/S 65.5	none	N
Surface	17.5	13.375	563	New	J-55 54.5	none	Y
Coal							
Intermediate 1	12.25	9.625	2504	New	J-55 36	none	Y
Intermediate 2	8.75	7	5130	New	L/N-80 23	none	N
Intermediate 3							
Production	6.25	4.5	5275	New	P-110 11.6	none	N
Tubing							
Packer type and depth set							

Comment Details All depths in WR-35 referenced to rig floor (16 ft above GL), except where designated.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Type I	11	15	1.0	11	12 GL	3
Surface	Class A	470	15.6	1.20	564	0 GL	8
Coal							
Intermediate 1	Class A	500 lead / 350 tail	15.6 / 15.6	5.20 / 5.23	4430	0 GL	12
Intermediate 2	Class A	100 lead / 70 tail	15.6 / 15.6	5.26 / 5.36	901	4000	24
Intermediate 3							
Production	Pozmix / Class A	150 lead / 100 tail	13.1 / 15.6	1.71 / 1.23	379	4430	24
Tubing							

Drillers TD (ft) 5280 Loggers TD (ft) 5303 RECEIVED
 Deepest formation penetrated Helderberg Plug back to (ft) N/A Office of Oil and Gas
 Plug back procedure _____ SEP 26 2017

Kick off depth (ft) 2560 WV Department of Environmental Protection

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

13.375" casing: three (3) centralizers on jts 1, 2, and on top jt.
 9.825" casing: eight (8) centralizers on jts 1, 2, 12, 22, 32, 42, 52, and 62.
 7" casing: twelve (12) centralizers on jts 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12.
 4.5" casing: ten (1) centralizers on jts 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

API 47- 035 - 03028 Farm name Benson, Betty & Roger L. Well number 12596

PRODUCING FORMATION(S) DEPTHS
Oriskany (natural gas storage) 4922 TVD 5161 MD

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Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1371 psi Bottom Hole _____ psi DURATION OF TEST 0.75 hrs

OPEN FLOW Gas Oil NGL Water GAS MEASURED BY
24500 mcfpd _____ bpd _____ bpd _____ bpd Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
Salt Sand	1683	1809	1683	1809	
Little Lime	1811	1834	1811	1834	
Big Lime	1834	1946	1834	1946	
Big Injun	1971	2042	1971	2042	
Sunbury Shale	2424		2424		
Berea	2449	2461	2449	2461	
Marcellus	4806	4820	5045	5059	
Onondaga	4820	4922	5059	5161	
Oriskany	4922	4984	5161	5223	storage gas
Helderberg	4984	5041	5223	5280	

Please insert additional pages as applicable.

Drilling Contractor Yost Drilling, LLC
Address 313 Steele Hill Road City Mt. Morris State PA Zip 15349

Logging Company Baker Hughes
Address 106 Island Ave City Buckhannon State WV Zip 26201

Cementing Company C&J Energy Services
Address 1650 Hackers Creek Rd City Jane Lew State WV Zip 26378

Stimulating Company Reliance Well Services, LLC
Address 1250 Tower Lane City Erie State PA Zip 16505

Please insert additional pages as applicable.

Completed by James Amos Telephone 304-483-0073
Signature  Title Sr WET Engineer Date 9/25/17

Submission of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

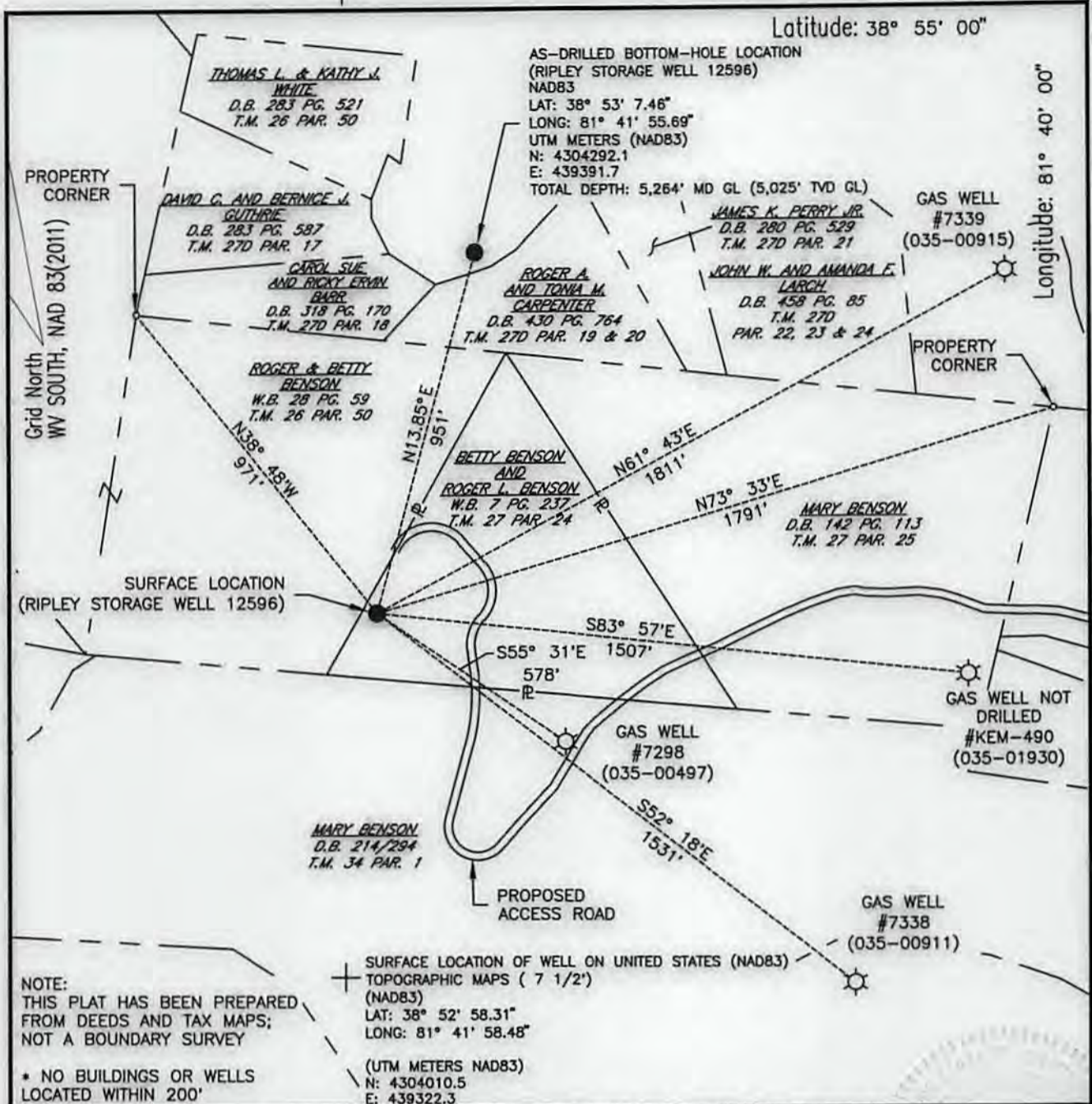
11/10/2017

9,379'

Latitude: 38° 55' 00"

Longitude: 81° 40' 00"

12,370'



NOTE:
THIS PLAT HAS BEEN PREPARED
FROM DEEDS AND TAX MAPS;
NOT A BOUNDARY SURVEY

* NO BUILDINGS OR WELLS
LOCATED WITHIN 200'

⊕ SURFACE LOCATION OF WELL ON UNITED STATES (NAD83)
TOPOGRAPHIC MAPS (7 1/2')
(NAD83)
LAT: 38° 52' 58.31"
LONG: 81° 41' 58.48"
(UTM METERS NAD83)
N: 4304010.5
E: 439322.3

FILE #: _____
DRAWING #: 12596
SCALE: 1" = 400'
MINIMUM DEGREE OF ACCURACY: 1:2,500'
PROVEN SOURCE: STATIC GPS SURVEY
OF ELEVATION: WITH TIES TO NGS DATA

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: *Richard Buckler*

R.P.E.: _____ L.L.S.: 1064

PLACE SEAL HERE

+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304



DATE: SEPTEMBER 13, 2017
OPERATOR'S WELL #: RIPLEY 12596
API WELL #: 47 035 03028
STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: MUD RUN ELEVATION: 782'
COUNTY/DISTRICT: JACKSON / RIPLEY QUADRANGLE: SANDYVILLE

SURFACE OWNER: BETTY BENSON AND ROGER L. BENSON ACREAGE: 10
O.H. COOK AND JEWEL COOK AND LEWIS H. COOK AND ETHEL STANLEY COOK
OIL & GAS ROYALTY OWNER: LEASE NO. 1052774-000 (SURFACE) 1052506-00 (BOTTOM HOLE) ACREAGE: 72

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE SPECIFY): _____

11/10/2017

TARGET FORMATION: ORISKANY SANDSTONE (STORAGE RESERVOIR) AS-DRILLED DEPTH: 5145 FT. MD GL 4906 FT. TVD GL
WELL OPERATOR COLUMBIA GAS TRANSMISSION DESIGNATED AGENT PAUL AMICK
Address 1700 MACCORKLE AVE. SE PO BOX 1273 Address 1700 MACCORKLE AVE. SE PO BOX 1273
City CHARLESTON State WV Zip Code 25325-1273 City CHARLESTON State WV Zip Code 25325-1273

CITY CHANGE/STION 2706 MA ZIP CODE 22232-1332 CITY CHANGE/STION 2706 MA ZIP CODE 22232-1332
 ADDRESS 1300 WASSOCKE AVE 2E PO BOX 1332 ADDRESS 1300 WASSOCKE AVE 2E PO BOX 1332
 WELL OPERATOR CONSUMIN GAS TRANSMISSION DESIGNATED AGENT BUNG WICK
 TARGET FORMATION: OBISKAYA SANDSTONE (STORAGE RESERVOIR) V2-DRILLED DEPTH: 4808 FT. 1st MD OF 2142 FT. 2nd MD OF
 CLEAN OUT & BEHOLD OTHER CHANGE SPECIFY:
 BEHOLD OFF OLD FORMATION BEFORAIE NEW FORMATION BEHOLD & ABANDON
 DRIFT CONCRETE DRIFT DEEBER BEDDING EXCLUSIVE OF STIMULATE
 OIL & GAS BOUATY OMIEB: FEUSE NO: 1023334-000 (SURFACE) 1023208-00 (BOTTOM HOLE) ACCEUSE: 33
 O'H COOK AND JEMET COOK AND FEMIS H' COOK AND ETHEG STINGEA COOK
 SURFACE OMIEB: BETTY BENSON AND ROSEB T BENSON ACCEUSE: 10
 COUNTY/DISTRICT: JACKSON \ BIRGEY COUNTY/DISTRICT: SANDHILLTE
 WATERFRESH: MUD RUN ELEVATION: 383.
 Gas Fluid Injection Storage Shallow
 Well Type: Oil Waste Disposal Production Deep

CHANGE/STION, MA 22304
 801 21TH STREET
 OFFICE OF OIL & GAS
 MADEB
 UNITED STATES TOBOSKABHIC MAB2
 +) DENOTES LOCATION OF WELL ON



STATE COUNTY PERMIT
 MA 032 03038
 WELL # 13
 OPERATOR, 2 WELL # BIRGEY 13288
 DATE: SEPTEMBER 12, 2013

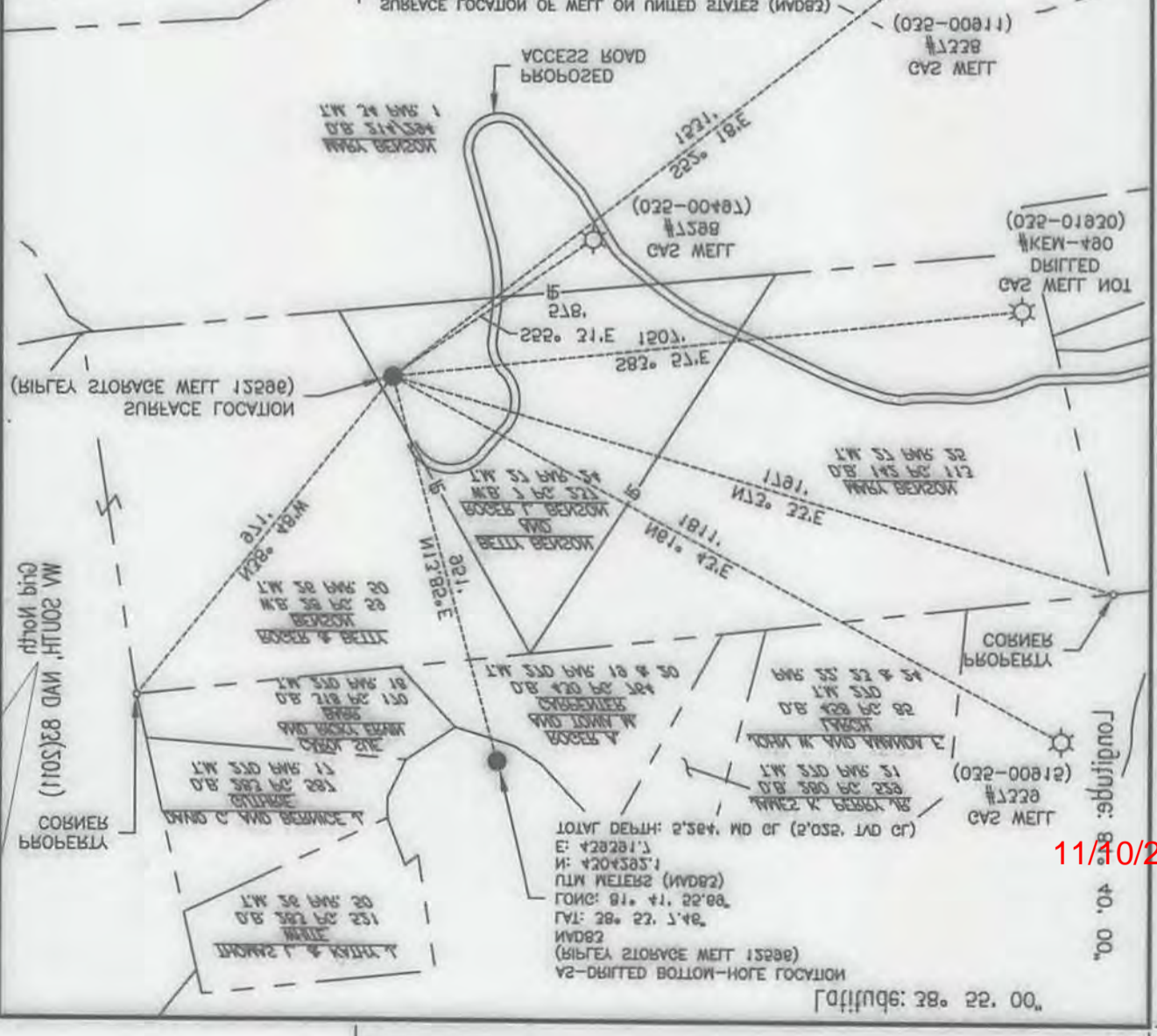
OF ELEVATION: WITH TIES TO HCS DATA
 BY/OWN SURFACE STATIC GAS SURVEY
 OF ACCURACY: 1:5'±00.
 MINIMUM DEGREE
 SCALE: 1" = 400.
 DRAWING # 13288
 DATE #

B'E: G'S: 1084
 SIGNED: [Signature]
 THE DEPARTMENT OF ENVIRONMENTAL PROTECTION
 GAM AND THE REGULATIONS ISSUED AND PRESCRIBED BY
 BEHOLD AND SHOWS YTT THE INFORMATION REQUIRED BY
 B'GAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND
 I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS

PLACE SEAL HERE
 [Seal Area]

LOCATED WITHIN 300.
 * NO BUILDINGS OR WELLS
 NOT A BOUNDARY SURVEY
 FROM DEEDS AND TAX MAPS:
 THIS B'GAT HAS BEEN PREPARED
 NOTE:

E: 428253.2
 N: 4204010.2
 (LTM METERS INVD82)
 GONS: 81. 41. 28.48,
 GAT: 28. 25. 28.21,
 (INVD82)
 TOBOSKABHIC MAB2 (3 1/5.)
 SURFACE LOCATION OF WELL ON UNITED STATES (INVD82)



11/10/2017