



west virginia department of environmental protection

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

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

PERMIT MODIFICATION APPROVAL
Horizontal 6A / Horizontal 6A Well - 1

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for MANZAREK UNIT 1H
47-017-06775-00-00

Top Hole Coordinates changed

ANTERO RESOURCES CORPORATION

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

Operator's Well Number: MANZAREK UNIT 1H
Farm Name: FOSTER, YVONNE
U.S. WELL NUMBER: 47-017-06775-00-00
Horizontal 6A / Horizontal 6A Well - 1
Date Issued: 09/23/2016

Promoting a healthy environment.

09/23/2016



September 22, 2016

Antero Resources
1615 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

West Virginia Department of Environmental Protection
Office of Oil and Gas
Attn: Mrs. Laura Adkins
601 57th Street
Charleston, WV 25304

Mrs. Adkins:

Antero Resources Corporation (Antero) is submitting the following permit modifications for two approved wells on the Yvonne Pad. We are requesting to slightly shift the surface hole locations of the Manzarek Unit 1H (API# 47-017-06775) and Manzarek Unit 2H (API# 47-017-06776) as shown on the attached survey plats.

The Yvonne Pad will not change from what was originally approved, and there will be no additional disturbance associated with these requested modifications. Please note that the casing program is the same as submitted and approved in the original permit application.

Attached you will find the following documents:

- REVISED Mylar Plats, which show the new surface hole locations
- REVISED Exhibit 7: Well Pad Surface Diagram, which shows the changes to the Yvonne Pad surface configuration

If you have any questions please feel free to contact me at (303) 357-7323.

Thank you in advance for your consideration.

Sincerely,

A handwritten signature in black ink that reads "Ashlie Steele".

Ashlie Steele
Permitting Supervisor
Antero Resources Corporation

Enclosures

RECEIVED
Office of Oil and Gas

SEP 23 2016

WV Department of
Environmental Protection

09/23/2016



Antero Resources
Well No. Manzarek Unit 1H
Antero Resources Corporation

Well Location References

Scale: 1" = 300' 5/8" Rebar w/ Cap

Scale: 1" = 2000'

Notes:
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
 Well No. Manzarek Unit 1H Top Hole coordinates are
 N: 311,679.52' Latitude: 39°20'55.61"
 E: 1,640,995.27' Longitude: 80°46'10.23"
 Bottom Hole coordinates are
 N: 317,479.07' Latitude: 39°21'52.52"
 E: 1,638,115.38' Longitude: 80°46'47.93"
 UTM Zone 17, NAD 1983
 Top Hole Coordinates Bottom Hole Coordinates
 N: 4,355,516.806m N: 4,357,268.995m
 E: 519,875.368m E: 518,968.528m
 Plat orientation and corner and well references are based upon the grid north meridian.
 Well location references are based upon the magnetic meridian.

Wellhead Layout

Detail Not to Scale

ID	TM/Par	Owner	Bk / Pg	Acres
1	2/16	David & Lucy Mae Sparling	219/213	20.95
2	4/4.2	David & Lucy Mae Sparling	219/213	10.69
3	4/4	David & Lucy Mae Sparling	219/213	20.75
4	2/15	Ronnie D. Smith, et al	253/696	23.07
5	2/14	Ronnie D. Smith & Thomas G. Smith	259/232	31.00
6	4/11	Gary Lynn McMillan	195/237	7.19
7	4/3.3	James A. Smith	266/94	20.00
8	4/19	Naomi Beagle, et al	AP 19/594	33.25
9	4/20	Stella E. Spencer, et al	103/53	31.50
10	4/4.1	David & Lucy Mae Sparling	219/213	31.50

Legend

- Proposed gas well
- Found corner, as noted
- Existing Well, as noted
- Creek or Drain
- Existing Road
- Surface boundary (approx.)
- Interior surface tracts (approx.)

Mineral Owners

A Ed Broome Inc, Memorandum of Oil & Gas Lease
 B Ed Broome Inc, Memorandum of Oil & Gas Lease
 C Joseph C. Moffatt, et al Lease

Notes:
 Well No. Manzarek Unit 1H UTM Zone 17, NAD 1927
 Top Hole Coordinates
 N: 14,289,009.77'
 E: 1,705,577.14'
 Point of Entry Coordinates
 N: 14,288,727.24'
 E: 1,705,037.01'
 Bottom Hole Coordinates
 N: 14,294,758.47'
 E: 1,702,601.93'

Bearing Dist.
 L1 S 63°20' W 609.4'
 L2 S 36°41' E 759.6'
 L3 N 87°28' W 590.6'
 L4 N 66°35' W 2,144.2'
 L5 N 36°10' W 2,750.5'

(•) Denotes Location of Well on United States Topographic Maps

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 rules issued and prescribed by the Department of Environmental Protection.

Bradley D. Miller
 Bradley D. Miller, P.S. 2167

BRADLEY D. MILLER
 LICENSED
 No 2167
 STATE OF
 WEST VIRGINIA
 PROFESSIONAL SURVEYOR

SEAL

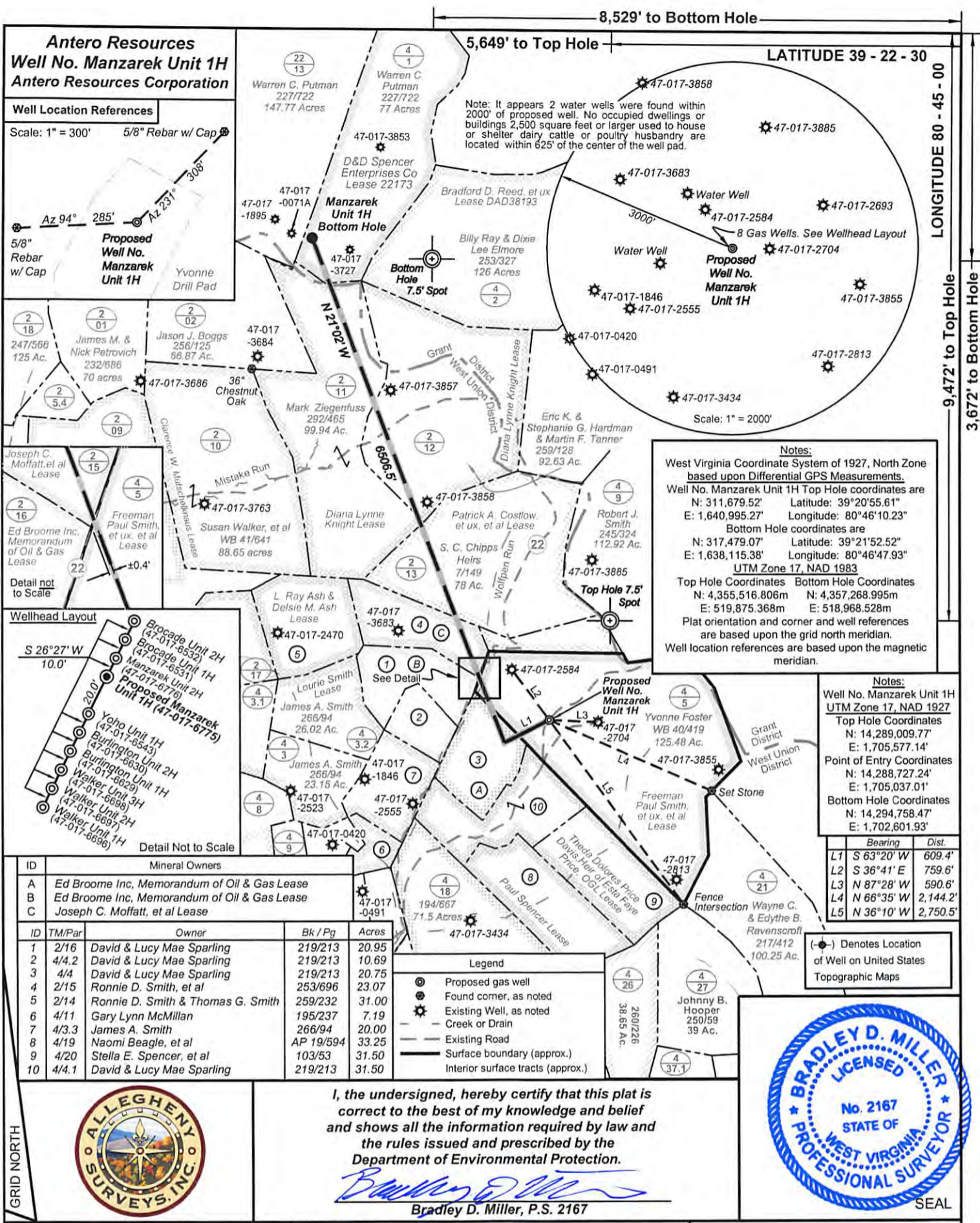
FILE NO: 264-30(54)-M(G)-14
 DRAWING NO: Manzarek 1H Well Plat_09-22-16
 SCALE: 1" = 1500'
 MINIMUM DEGREE OF ACCURACY: Submeter
 PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

DATE: September 22 20 16
 OPERATOR'S WELL NO. Manzarek Unit 1H
 API WELL NO
 47 - 017 - 6775
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: Proposed Grade-1227' Original Grade-1253' WATERSHED: Headwaters Middle Island Creek QUADRANGLE: West Union
 DISTRICT: West Union COUNTY: Doddridge

SURFACE OWNER: Yvonne Foster Patrick A. Costlow, et ux, et al; D&D Spencer Enterprises Co ACREAGE: 125.48 78,973; 73; 23
 ROYALTY OWNER: Freeman Paul Smith, et ux, et al; Joseph C. Moffatt, et al; Diana Lynne Knight LEASE NO: 22173 ACREAGE: 20.75; 125; 283
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) SHL-MOD 7,400' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 15,300' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
 Denver, CO 80202 Charleston, WV 25313



Antero Resources
Well No. Manzarek Unit 1H
Antero Resources Corporation

Well Location References

Scale: 1" = 300' 5/8" Rebar w/ Cap

Az 94° 285' Az 231° 308'

5/8" Rebar w/ Cap

Proposed Well No. Manzarek Unit 1H

Yvonne Drill Pad

Warren C. Putman 227/722 147.77 Acres

Warren C. Putman 227/722 77 Acres

47-017-3853

D&D Spencer Enterprises Co Lease 22173

Bradford D. Reed, et ux Lease DAD38193

Billy Ray & Dixie Lee Elmore 253/327 126 Acres

47-017-0071A

47-017-1895

Manzarek Unit 1H Bottom Hole

47-017-3727

Bottom Hole 7.5' Spot

47-017-3683

47-017-2584

47-017-2693

47-017-2704

Proposed Well No. Manzarek Unit 1H

47-017-1846

47-017-2555

47-017-3855

47-017-2813

47-017-3434

Scale: 1" = 2000'

Wellhead Layout

S 26°27' W 10.0'

Brocade Unit 2H (47-017-6532)

Brocade Unit 1H (47-017-6531)

Manzarek Unit 2H (47-017-6776)

Manzarek Unit 1H (47-017-6775)

Yoho Unit 1H (47-017-6543)

Burlington Unit 2H (47-017-6630)

Burlington Unit 1H (47-017-6629)

Walker Unit 3H (47-017-6698)

Walker Unit 2H (47-017-6697)

Walker Unit 1H (47-017-6696)

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GRID NORTH

FILE NO: 264-30(54)-M(G)-14

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

DATE: September 22 20 16

OPERATOR'S WELL NO. Manzarek Unit 1H

API WELL NO

47 - 017 - 6775

STATE COUNTY PERMIT

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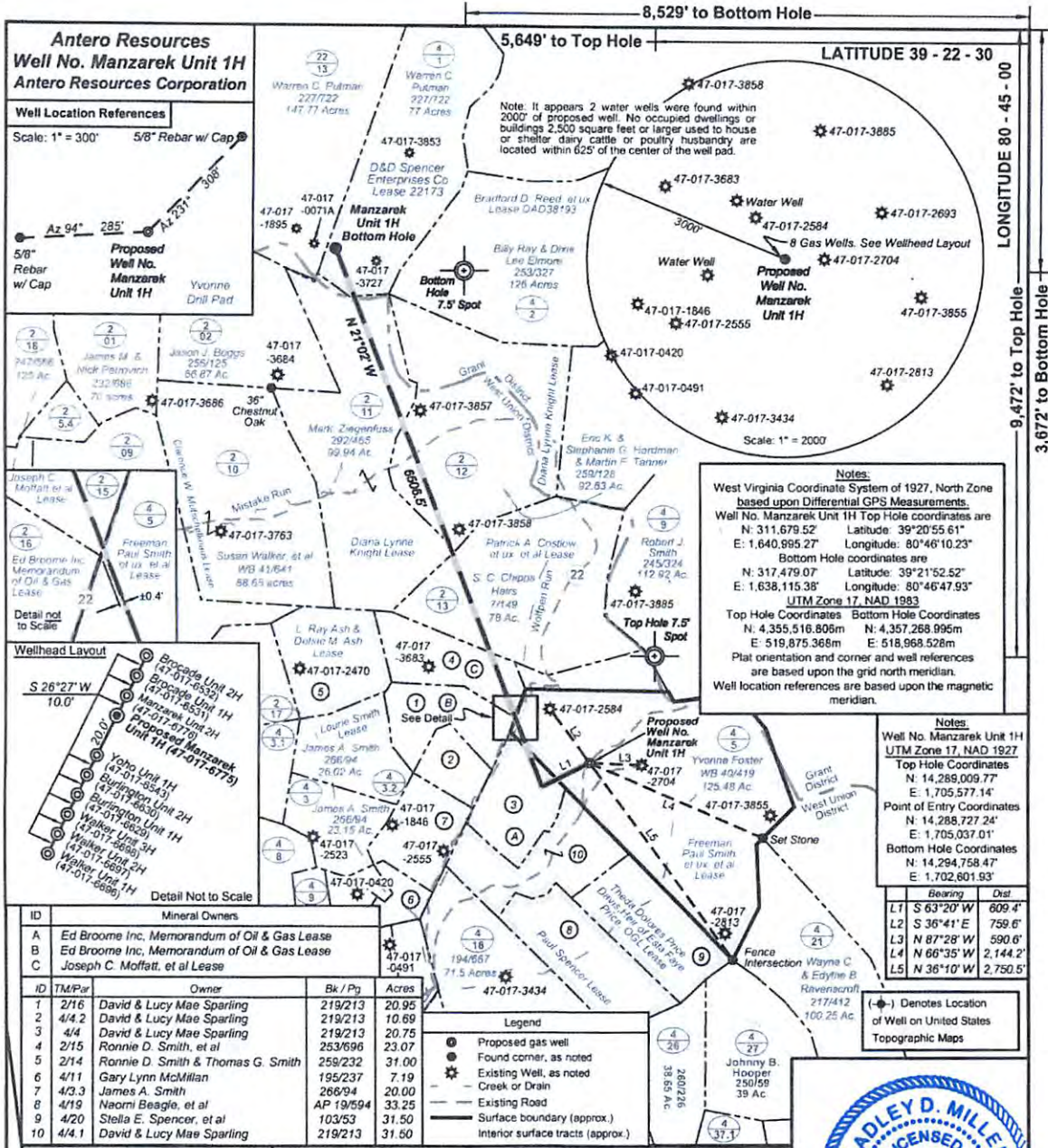
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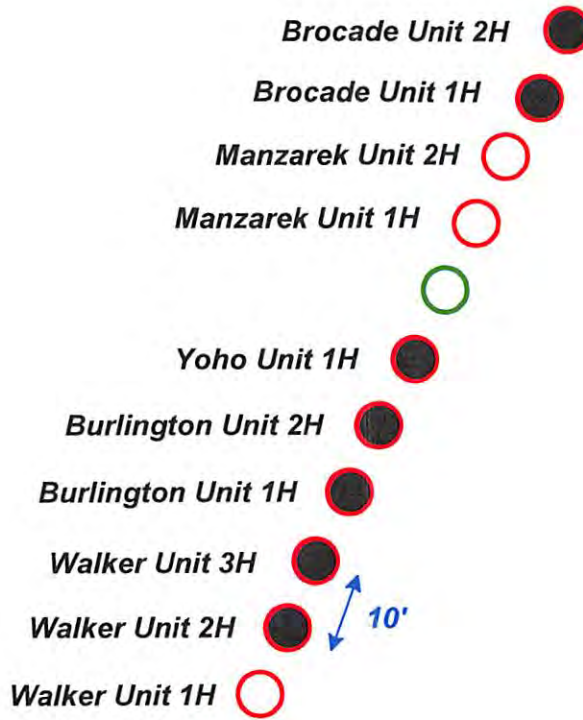
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Denver, CO 80202 Charleston, WV 25313

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Office of Oil and Gas
SEP 23 2016
WV Department of Environmental Protection

09/23/2016

Yvonne Pad



RECEIVED
Office of Oil and Gas

SEP 23 2016

WV Department of
Environmental Protection

WELL NAME	API NUMBER	WELL STATUS
Brocade Unit 2H	47-017-06532	Permitted Well
Brocade Unit 1H	47-017-06531	Permitted Well
Manzarek Unit 2H	Proposed Well	Permitted Well
Manzarek Unit 1H	Proposed Well	Permitted Well
<u>Skipped Location</u>		
Yoho Unit 1H	47-017-06543	Permitted Well
Burlington Unit 2H	47-017-06630	Permitted Well
Burlington Unit 1H	47-017-06629	Permitted Well
Walker Unit 3H	47-017-06696	Permitted Well
Walker Unit 2H	47-017-06697	Permitted Well
Walker Unit 1H	47-017-06696	Permitted Well

Legend

- Existing Well
- Permitted Well
- Proposed Well
- Skipped Well

Updated: 09/22/2016

Not to Scale

09/23/2016