

*COPY  
1 of 2*

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

API 47-103-02926 County Wetzel District Clay  
Quad Littleton 7.5' Pad Name Shreve-Watson Unit Field/Pool Name Marcellus Shale  
Farm name Shreve-Watson Unit Well Number 2H  
Operator (as registered with the OOG) Statoil USA Onshore Properties, Inc.  
Address 2013 City West Blvd., Ste 800 City Houston State TX Zip 77042

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 427690 Easting 1705680  
Landing Point of Curve Northing 428525 Easting 1706548  
Bottom Hole Northing 432334 Easting 1702569

Elevation (ft) 1471' 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 \_\_\_\_\_  
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)  
Surface - Drill Water; Intermediate - KCI/Polymer ; Production - CyberDrill

Date permit issued 01/09/2014 Date drilling commenced 08/04/2014 Date drilling ceased 08/23/2014  
Date completion activities began 10/08/2014 Date completion activities ceased 10/17/2014  
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 130' - 737' MD (Estimated) Open mine(s) (Y/N) depths No - N/A  
Salt water depth(s) ft 2150' - Unknown (Estimated) Void(s) encountered (Y/N) depths No - N/A  
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths No - N/A  
Is coal being mined in area (Y/N) No

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No - N/A  
FEB 09 2015  
Reviewed by: AL  
WV Department of 5/19/15  
Environmental Protection  
W.S. Oul 06/12/2015

API 47- 103 - 02926 Farm name Shreve-Watson Unit Well number 2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	80'	NEW	H-40; 94#		Y
Surface	17/12"	13 3/8"	804'	NEW	J-55; 54.5#		Y
Coal		N/A					N/A
Intermediate 1	12 1/4"	9 5/8"	3132'	NEW	J-55; 36#		Y
Intermediate 2							N/A
Intermediate 3							N/A
Production	8 3/4"	5 1/2"	13738'	NEW	P-110; 20#		Y
Tubing	4 5/8"	2 3/8"	7616'	NEW	L-80; 4.7#		N/A
Packer type and depth set		VersaSet Packer set at 7,606' (top)					

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	CLASS A	350	15.8	2.45	143 bbls	32 bbls to surface	29
Coal							
Intermediate 1	CLASS A	570	15.8	2.45	233 bbls	3040'	28.5
Intermediate 2							
Intermediate 3							
Production	CLASS A	664	15	1.29	515 bbls	1330'	
Tubing							

Drillers TD (ft) 13,760 MD Loggers TD (ft) 13,710 MD  
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) \_\_\_\_\_

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 \_\_\_\_\_  
Intermediate String: Every Joint to 800', then every other joint to 2487', then every 4th joint to 3032'  
Production: Every Joint to 6710', then every 4th joint to 11078'

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS Fractured from 13457' to 6179' 40 puffs per stage @ 6 shots per foot.

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_

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API 47- 103 - 02926

Farm name Shreve-Watson Unit

Well number 2H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	10/08/2014	13457'	13277'	48	Marcellus
2	10/09/2014	13157'	12977'	48	Marcellus
3	10/09/2014	12857'	12677'	48	Marcellus
4	10/10/2014	12557'	12377'	48	Marcellus
5	10/10/2014	12257'	12077'	48	Marcellus
6	10/11/2014	11957'	11777'	48	Marcellus
7	10/12/2014	11657'	11477'	48	Marcellus
8	10/12/2014	11357'	11177'	48	Marcellus
9	10/13/2014	11057'	10877'	48	Marcellus
10	10/13/2014	10757'	10577'	48	Marcellus
11	10/14/2014	10457'	10277'	48	Marcellus
12	10/14/2014	10157'	9977'	48	Marcellus
13	10/15/2014	9857'	9677'	48	Marcellus
14	10/15/2014	9557'	9377'	48	Marcellus
15	10/16/2014	9257'	9077'	48	Marcellus
16	10/16/2014	8957'	8947'	48	Marcellus

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	10/8/14	79.9	7615	7263	4721	441,735	7859	
2	10/09/14	85.6	7608	7271	4773	441,700	7341	
3	10/09/14	82	7388	7619	1612	441,735	7804	
4	10/10/14	85.1	7453	6890	4401	441,735	7312	
5	10/10/14	85.4	7460	7571	4763	441,735	5343	
6	10/11/14	82.2	7326	6794	5288	441,735	9349	
7	10/12/14	85.1	7186	7313	5509	441,735	6553	
8	10/12/14	82.1	7594	7445	4602	441,735	7477	
9	10/13/14	85.1	7464	7794	4948	441,735	7149	
10	10/13/14	84.8	7495	7361	5737	441,735	7203	
11	10/14/14	79.3	7575	7839	5550	441,735	7973	
12	10/14/14	85.1	7024	7228	4682	441,735	7217	
13	10/15/14	83.8	7310	8354	1	441,735	7335	
14	10/15/14	85	6982	6897	4461	441,735	7204	
15	10/16/14	84.9	7038	6979	4695	441,735	7625	
16	10/16/14	84.6	7145	6572	4977	441,735	6882	

Please insert additional pages as applicable.

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API 47- 103 - 02926 Farm name Shreve-Watson Unit Well number 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus (currently shut in)</u>	<u>7625 - TD</u> TVD	<u>7694 - TD</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump  
 SHUT-IN PRESSURE Surface \_\_\_\_\_ psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs  
 OPEN FLOW Gas \_\_\_\_\_ mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ bpd GAS MEASURED BY  
 Estimated  Orifice  Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP DEPTH IN FT NAME TVD</u>	<u>BOTTOM DEPTH IN FT TVD</u>	<u>TOP DEPTH IN FT MD</u>	<u>BOTTOM DEPTH IN FT MD</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H<sub>2</sub>S, ETC)</u>
	0		0		
Big Injun	2492	2750	2499	2758	
Gordon	3320	3371	3339	3391	
Warren	4002	4035	4044	4078	
Geneseo	7476	7498	7667	4078	Single Gas Show
Marcellus	7625	N/A	7964	N/A	Gas shows through formation

Please insert additional pages as applicable.

Drilling Contractor ORION Drilling  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Logging Company Halliburton  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Cementing Company Halliburton  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Stimulating Company Producers Service Corp  
 Address 109 S. Graham Street City Zanesville State OH Zip 43701

Please insert additional pages as applicable.

Completed by Beth Davidson Telephone 281-797-7757  
 Signature *Beth Davidson* Title Regulatory Advisor Date 02/04/2015

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

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 FEB 09 2015  
 WV Department of Environmental Protection **06/12/2015**

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/8/2014
Job End Date:	10/17/2014
State:	West Virginia
County:	Wetzel
API Number:	47-103-02926-00-00
Operator Name:	Statoil USA Onshore Properties Inc.
Well Name and Number:	Shreve Watson 2H
Longitude:	-80.54537300
Latitude:	39.66964500
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,670
Total Base Water Volume (gal):	5,370,792
Total Base Non Water Volume:	0



## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Statoil	Carrier/Base Fluid	Water	7732-18-5	100.00000	84.33601	None
Sand (Proppant)	PSC	Proppant	Silica Substrate	NA	100.00000	14.20413	None
PRO GEL 4.0L	Producers Service Corp	Gelling Agent	Distillates (Petroleum), hydrotreated light	64742-47-8	65.00000	0.08927	None
			Guar Gum	9000-30-0	50.00000	0.06867	None
			Nonylphenol, Ethoxylate	9016-45-9	5.00000	0.00687	None
			Nonionic Surfactant	60828-78-6	5.00000	0.00687	None
			Nonionic Surfactant	60828-78-6	5.00000	0.00687	None
Hydrochloric Acid (7.5%)	Producers Service Corp	Acidizing	Hydrochloric Acid	7647-01-0	7.50000	0.09064	None
PRO FR 2000	Producers Service Corp	Friction Reducer	Petroleum Distillate	064742-47-8	24.00000	0.01702	None
MB 7530	Producers Service Corp	Biocide	Tetrahydro-3, 5-dimethyl-2H-1, 3,5-thiadiazine-2-thione	533-74-4	24.00000	0.00990	None

PROHIB II	Producers Service Corp	Inhibitor	Sodium Hydroxide	1310-73-2	4.00000	0.00165	None
			Dimethylcooamine, bis (chloroethyl)ether, diquatary ammonium salt	58607-28-3	60.00000	0.00068	None
			Ethylene Glycol	107-21-1	40.00000	0.00045	None
			Glycol Ethers	111-76-2	40.00000	0.00045	None
			Methanol	67-56-1	30.00000	0.00034	None
			Propargyl Alcohol	107-19-7	30.00000	0.00034	None
			Ethoxylated Nonylphenol	58412-54-4	10.00000	0.00011	None
PRO BREAKER 4	Producers Service Corp	Breaker					
			Sucrose	57-50-1	40.00000	0.00030	None
			Ethylene Glycol	107-21-1	40.00000	0.00030	None
			Proprietary Ingredient	Proprietary	1.00000	0.00001	None
			Proprietary Ingredient	Proprietary	1.00000	0.00001	None
			Sodium Bicarbonate	144-55-8	1.00000	0.00001	None
			Proprietary Ingredient	Proprietary	1.00000	0.00001	None
			Polyether Polyol	9003-11-6	1.00000	0.00001	None
			Hexamethylenetetramine	100-97-0	1.00000	0.00001	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							

\* Total Water Volume sources may include fresh water, produced water, and/or recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided. Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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# SHREVE-WATSON UNIT 2H (47-103-02926) AS-DRILLED

**SHREVE-WATSON UNIT 2H BOTTOM HOLE**

STATE PLANE COORDINATES  
NORTH ZONE -NAD 27  
(N) 432334  
(E) 1702569

L & L DECIMAL  
NAD 83  
39.682285  
80.556618

UTM (NAD 83)  
ZONE 17  
METERS  
4392589  
538022

**SHREVE-WATSON UNIT 2H LANDING POINT**

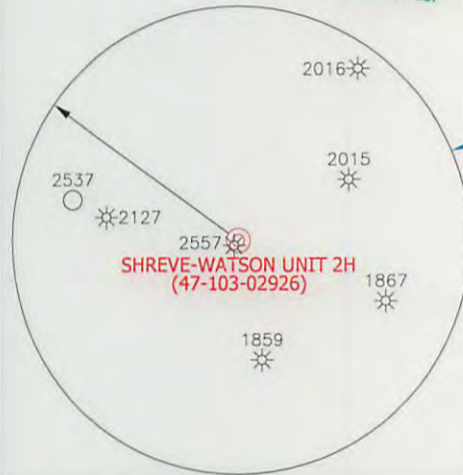
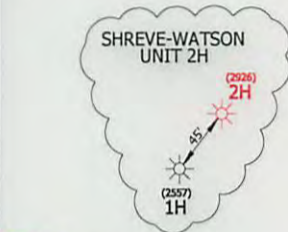
STATE PLANE COORDINATES  
NORTH ZONE -NAD 27  
(N) 428525  
(E) 1706548

L & L DECIMAL  
NAD 83  
39.671956  
80.542325

UTM (NAD 83)  
ZONE 17  
METERS  
4391449  
539253

**SHREVE-WATSON UNIT 2H MINERAL OWNERSHIP**

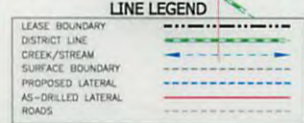
UNIT TRACT 10— KENNETH L. & SONDR L. SHREVE, P/O 03-6-24, 100 AC  
UNIT TRACT 17— MICHAEL & ALLISON KOONTZ, P/O 03-6-25, 77.75 AC  
UNIT TRACT 5— ACROPOLIS, INC., P/O 03-6-2, 153.5 AC  
UNIT TRACT 8— GREEN DOT FARM, INC., BRC MINERALS LP AND BRC APPALACHIAN MINERALS I LLC, P/O 03-5-31, 36 AC  
UNIT TRACT 7— GREEN DOT FARM, INC. P/O 03-5-25,29,30, 86 AC



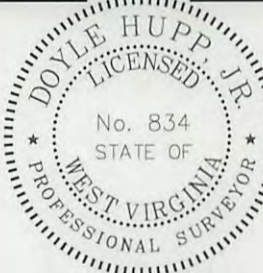
- NOTES ON SURVEY**
1. THERE ARE NO EXISTING OCCUPIED DWELLINGS, BUILDINGS OR RAILROADS WITHIN 625' OF DRILLED WELL.
  2. THERE ARE NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' OF DRILLED WELL.
  3. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE '27, WELL LAT./LONG. ESTABLISHED BY SG-(OPUS).
  4. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL COUNTY IN DECEMBER, 2014 AND INFORMATION PROVIDED BY STATOIL ONSHORE PROPERTIES INC.
  5. WELLS SHOWN ARE TAKEN FROM RECORDS OF WVDOP. AS-DRILLED INFORMATION PROVIDED BY STATOIL ONSHORE PROPERTIES INC.

**SHREVE-WATSON UNIT 2H SURFACE HOLE**

STATE PLANE COORDINATES NORTH ZONE-NAD 27 (N) 427690 (E) 1705680	L & L DECIMAL NAD 83 39.669635 80.545371	UTM (NAD 83) ZONE 17 METERS 4391190 538993
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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.



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

DATE JANUARY 8, 20 15

OPERATORS WELL NO. SHREVE-WATSON UNIT 2H

API WELL NO. 47-103-02926

STATE COUNTY PERMIT

P.S. 834   
**HUPP Surveying & Mapping**  
 P.O. Box 647 Grantsville, WV 26147  
 (304) 354-7035 EMAIL: hupp@frontiernet.net

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2380 (BK75-7)

PROVEN SOURCE OF ELEVATION SG-GPS (OPUS) SCALE 1" = 1000'

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

WELL TYPE : OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  IF "GAS" PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION : ELEVATION 1475' WATERSHED KNOB FORK AND LISTON HOLLOW OF SUGAR RUN

DISTRICT CLAY COUNTY WETZEL QUADRANGLE LITTLETON 7.5'

SURFACE OWNER KENNETH & SONDR A SHREVE ACREAGE 100 ±

ROYALTY OWNER KENNETH & SONDR A SHREVE, et al LEASE ACREAGE 453.25± **06/12/2015**

PROPOSED WORK : LEASE NO. \_\_\_\_\_

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS

ESTIMATED DEPTH 7,690' TVD 13,760' MD

WELL OPERATOR STATOIL USA ONSHORE PROPERTIES INC. DESIGNATED AGENT RICHARD PYLES

ADDRESS 2103 CITYWEST BLVD., SUITE 800, HOUSTON, TX 77042 ADDRESS 803 NASH ROAD MIDDLEBOURNE, WV 26149

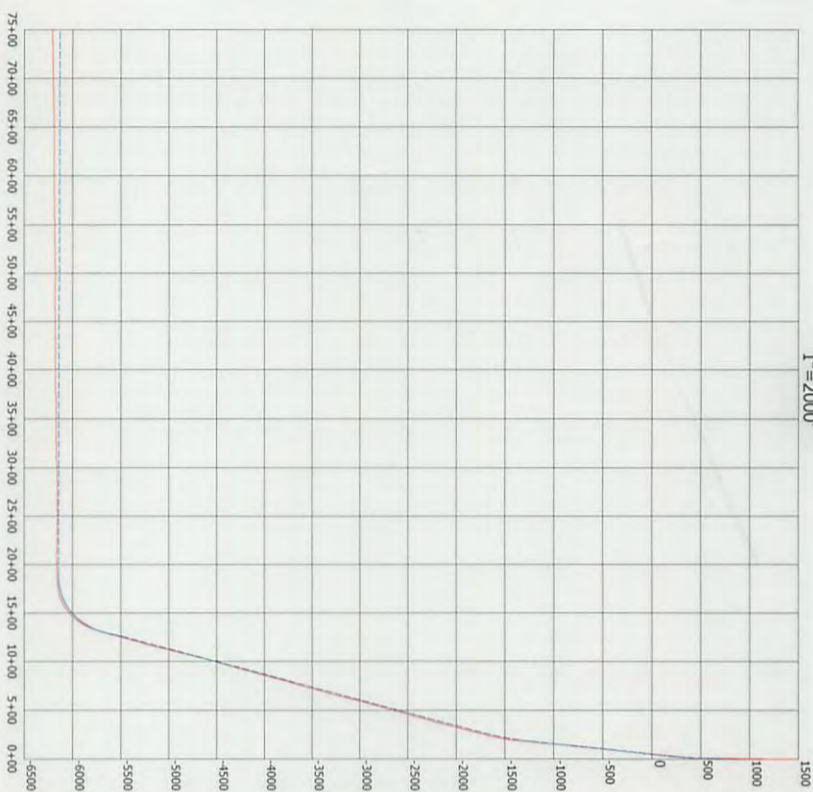
LONGITUDE 80°32'30" — 14,090'

LAT. 39°40'10.4"

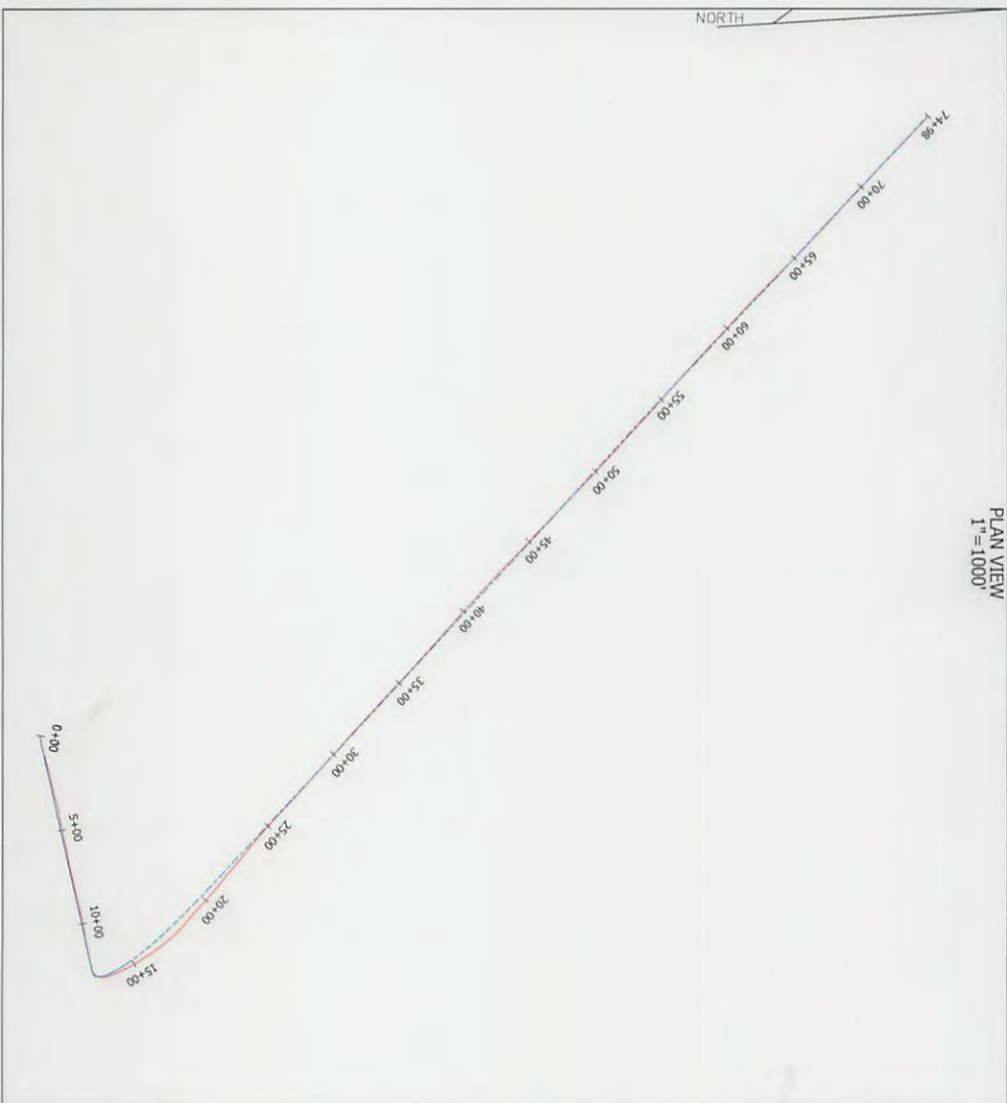


# PLAN AND PROFILE VIEW FOR SHREVE-WATSON UNIT 2H API #47-103-02926

PROFILE VIEW  
1"=2000'



PLAN VIEW  
1"=1000'



NOTES

1. AS DRILLED DATA WAS PROVIDED BY STATOIL USA ONSHORE PROPERTIES INC.
2. HSW IS NOT CERTIFYING THIS DATA AND IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA THAT HAS BEEN PROVIDED.



P.S.  
834

*Doyle Hupp Jr.*  
Hupp Surveying & Mapping  
P.O. Box 647 Grantsville, WV 26147  
(304) 354-7035 EMAIL: hupp@frontiernet.net

AS-DRILLED LATERAL  
PROPOSED LATERAL

06/12/2015