

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

API 47-069-00224 County OHIO District TRIADELPHIA
Quad WHEELING Pad Name MELVIN KAHLE OHI PAD 1 Field/Pool Name PANHANDLE
Farm name MELVIN W KAHLE AND CAROL M KAHLE Well Number MELVIN KAHLE OHI 6H
Operator (as registered with the OOG) SWN PRODUCTION COMPANY, LLC
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,435,782.94 Easting 531,962.38
Landing Point of Curve Northing 4,435,398.64 Easting 531,843.52
Bottom Hole Northing 4,434,068.31 Easting 532,276.93

Elevation (ft) 1276.3 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)
SOBM

Date permit issued 05/08/2017 Date drilling commenced 12/19/2017 Date drilling ceased 03/13/2018
Date completion activities began 05/01/2018 Date completion activities ceased 06/04/2018
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

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

Freshwater depth(s) ft 369' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 766' Void(s) encountered (Y/N) depths 605' - 617'
Coal depth(s) ft 604' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed
C. J. [Signature] 10-9-18

Reviewed by:
B10-9-18

API 47- 069 - 00224 Farm name MELVIN W KAHLE AND CAROL M KAHLE Well number MELVIN KAHLE OHI 6H

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	126'	NEW	J-55/94#		Y
Surface	17.5	13.375	679'	NEW	J-55/54.50#	595'; 625'	Y
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	2,022'	NEW	J-55/36#		Y, 43 bbls
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	11,707'	NEW	HCP-110/20#		Y
Tubing		2.375	7,023'	NEW	P-110/4.7#		N
Packer type and depth set							

Comment Details _____

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	CLASS A	GROUT TO SURFACE				SURFACE	24
Surface	CLASS A	603	15.60	1.20	723.6	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	796	15.60	1.19	947.24	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	2,046	15.60	1.19	2,434.74	SURFACE	24
Tubing							

Drillers TD (ft) 11,707 Loggers TD (ft) 11,707
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5,593'

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 _____
 SURFACE: 7 CENTRALIZERS - EVERY THIRD JOINT OF CASING
 INTERMEDIATE: 24 CENTRALIZERS - EVERY THIRD JOINT OF CASING
 PRODUCTION: 181 CENTRALIZERS - EVERY THIRD JOINT FROM SURFACE TO TOP OF CURVE, THEN EVERY JOINT UNTIL TD

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 _____

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API 47- 069 - 00224 Farm name MELVIN W KAHLE AND CAROL M KAHLE Well number MELVIN KAHLE OHI 6H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>6,310'</u> TVD	<u>6,838'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1652 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 4105 mcfpd Oil 430 bpd NGL _____ bpd Water 298 bpd GAS MEASURED BY 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	
	<u>0</u>		<u>0</u>		
	<u>SEE</u>	<u>ATTACHMENT</u>	<u>3</u>		

Please insert additional pages as applicable.

Drilling Contractor SWN DRILLING COMPANY
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

Logging Company WEATHERFORD
Address 111 N RIVER AVE City WESTON State WV Zip 26452

Cementing Company SCHLUMBERGER WELL SERVICES
Address 1080 US-33 City WESTON State WV Zip 26452

Stimulating Company HALLIBURTON ENERGY SERVICES
Address 5146 ELK RIVER RD City BLUE CREEK State WV Zip 25026

Please insert additional pages as applicable.

Completed by ELIZABETH GEE Telephone 832-796-7632
Signature  Title STAFF REGULATORY ANALYST Date 09/29/2018

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

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MELVIN KAHLE OHI 6H
ATTACHMENT 1
PERF REPORT

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	4/25/2018	11,622	11,526	36
2	5/2/2018	11,491	11,384	42
3	5/2/2018	11,351	11,244	42
4	5/14/2018	11,211	11,104	42
5	5/15/2018	11,073	10,964	42
6	5/16/2018	10,931	10,824	42
7	5/17/2018	10,791	10,684	42
8	5/17/2018	10,651	10,544	42
9	5/18/2018	10,511	10,404	42
10	5/18/2018	10,371	10,260	42
11	5/18/2018	10,231	10,124	42
12	5/18/2018	10,091	9,984	42
13	5/19/2018	9,951	9,844	42
14	5/19/2018	9,811	9,704	42
15	5/19/2018	9,671	9,564	42
16	5/20/2018	9,531	9,424	42
17	5/20/2018	9,391	9,284	42
18	5/20/2018	9,251	9,144	42
19	5/21/2018	9,111	9,004	42
20	5/21/2018	8,971	8,864	42
21	5/21/2018	8,831	8,724	42
22	5/22/2018	8,691	8,584	42
23	5/22/2018	8,551	8,444	42
24	5/22/2018	8,411	8,304	42
25	5/23/2018	8,271	8,164	42
26	5/23/2018	8,131	8,024	42
27	5/23/2018	7,991	7,884	42
28	5/24/2018	7,851	7,744	42
29	5/24/2018	7,708	7,604	42
30	5/24/2018	7,571	7,459	42
31	5/25/2018	7,431	7,324	42
32	5/25/2018	7,291	7,184	42
33	5/25/2018	7,151	7,044	42

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MELVIN KAHLE OHI 6H
ATTACHMENT 2
STIM REPORT

STAGE NUM	Stim Date	Ave Pump Rate (BPM)	Ave Treatment	Max Breakdown	ISIP (PSI)	Amount of Proppant (lbs)	Amount of water bbls	Amount of nitrogen/othe
1	5/2/2018	93.8	8,008	5987	4,300	211,720	6,580	0
2	5/2/2018	94	7,553	6,303	4,330	486,790	7,498	0
3	5/14/2018	99.3	7,410	5,674	4,544	486,630	8,722	0
4	5/15/2018	100.8	7,352	4,583	4,701	475,780	7,485	0
5	5/15/2018	100.1	7,635	5,324	4,657	483,410	7,279	0
6	5/16/2018	82.3	6,574	5,742	4,797	494,940	6,883	0
7	5/17/2018	99.9	7,477	3,900	4,559	485,690	7,443	0
8	5/17/2018	100.4	7,242	5,258	4,991	479,079	6,607	0
9	5/18/2018	94.1	7,569	5,530	4,746	492,020	6,948	0
10	5/18/2018	99	7,526	5,397	4,759	506,080	6,994	0
11	5/18/2018	100.1	7,194	6,433	4,587	449,500	6,919	0
12	5/19/2018	100.6	7,374	5,472	4,582	481,700	6,868	0
13	5/19/2018	100.7	7,272	4,235	4,441	496,030	6,507	0
14	5/19/2018	97	7,000	3,940	4,575	481,820	6,618	0
15	5/19/2018	102.3	7,040	5,506	4,546	489,610	6,502	0
16	5/20/2018	99.4	7,165	3,830	4,698	497,270	6,591	0
17	5/20/2018	100	7,193	5,447	4,685	493,150	6,630	0
18	5/21/2018	99.8	7,138	5,656	4,478	493,210	6,793	0
19	5/21/2018	98.5	7,386	4,326	4,539	498,250	6,303	0
20	5/21/2018	100.8	6,927	5,636	4,590	495,680	6,122	0
21	5/21/2018	100.2	7,000	5,716	4,603	496,925	5,825	0
22	5/22/2018	100.5	6,827	5,151	4,494	487,560	6,575	0
23	5/22/2018	100.6	6,697	2,958	4,551	485,480	6,434	0
24	5/22/2018	99.5	6,973	5,708	4,564	483,400	6,061	0
25	5/23/2018	100.5	6,817	5,734	4,441	506,860	6,696	0
26	5/23/2018	100.3	6,971	5,586	4,623	490,650	6,541	0
27	5/24/2018	100.1	7,074	5,608	4,663	493,780	6,202	0
28	5/24/2018	99.1	7,020	5,435	4,597	498,620	6,692	0
29	5/24/2018	100.1	6,896	5,630	4,662	487,850	6,576	0
30	5/25/2018	98.2	7,040	5,625	4,467	480,040	6,054	0
31	5/25/2018	100.1	6,825	4,910	4,590	495,860	6,582	0
32	5/25/2018	100.3	6,972	5,210	4,611	482,620	5,711	0
33	5/26/2018	100.4	6,834	4,876	4,655	500,600	6,037	0

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Well Name: Melvin Kahle OHI 6H

47069002240000

Attachment 3

LITHOLOGY/FORMATION	TOP DEPTH, MD (FT)	TOP DEPTH, TVD (FT)	BOTTOM DEPTH, MD (FT)	BOTTOM DEPTH, TVD (FT)	QUANTITY AND TYPE OF FLUID
Base of Fresh Water	0.00	0.00	369.00	369.00	
Top of Salt Water	766.00	766.00	NA	NA	
Pittsburgh Coal	604.00	604.00	617.00	617.00	
Pottsville (ss)	750.00	750.00	803.00	803.00	
Mauch Chunk (shale)	803.00	803.00	1569.00	1569.00	
Raven Cliff (ss)	1053.00	1053.00	1271.00	1271.00	
Maxton (ss)	1481.00	1481.00	1569.00	1569.00	
Greenbriar (ls)	1569.00	1569.00	1768.00	1768.00	
Big Injun (ss)	1768.00	1763.00	1945.00	1938.00	
Berea (siltstone)	2211.00	2201.00	2220.00	2218.00	
Rhinestreet (shale)	5820.00	5724.00	6143.00	5992.00	
Cashaqua (shale)	6143.00	5992.00	6226.00	6053.00	
Middlesex (shale)	6226.00	6053.00	6338.00	6130.00	
Burket (shale)	6338.00	6130.00	6365.00	6146.00	
Tully (ls)	6365.00	6146.00	6451.00	6191.00	
Mahantango (shale)	6451.00	6191.00	6838.00	6310.00	
Marcellus (shale)	6838.00	6310.00	NA	NA	GAS

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/2/2018
Job End Date:	5/26/2018
State:	West Virginia
County:	Ohio
API Number:	47-069-00224-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Melvin Kahle 6H
Latitude:	40.07170100
Longitude:	-80.62516300
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,349
Total Base Water Volume (gal):	9,165,807
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	82.45688	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.35560	

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SCAL16486A	NALCO	Scale Inhibitor					
				Listed Below			
FDP-S1016-11	Halliburton	Friction Reducer					
				Listed Below			
LP-65 MC	Halliburton	Scale Inhibitor					
				Listed Below			
SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676)	Halliburton	Proppant					
				Listed Below			
BIOC11219A	NALCO	Biocide					
				Listed Below			
HYDROCHLORI C ACID	Halliburton	Solvent					
				Listed Below			
SAND- PREMIUM WHITE-40/70, BULK	Halliburton	Proppant					
				Listed Below			
NRB	MultiChem	Biocide					
				Listed Below			

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HAI-150E	Halliburton	Corrosion Inhibitor					
				Listed Below			
Items above are Trade Names with the exception of Base Water , Items below are the individual ingredients.							
			Crystalline silica, quartz	14808-60-7	100.00000	17.13841	
			Hydrochloric acid	7647-01-0	60.00000	0.19248	
			Polyacrylate	Proprietary	30.00000	0.01722	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01722	
			Amine Triphosphate	Proprietary	30.00000	0.00500	
			Ethylene Glycol	107-21-1	30.00000	0.00500	
			Salts	Proprietary	5.00000	0.00287	
			Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00287	
			Amide	Proprietary	5.00000	0.00287	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Sodium Nitrate	7631-99-4	60.00000	0.00127	
			Non-hazardous food substance	Proprietary	100.00000	0.00061	
			Inorganic salt	Proprietary	1.00000	0.00057	
			Fatty acid ester	Proprietary	1.00000	0.00057	
			Organic phosphonate	Proprietary	60.00000	0.00036	
			Ammonium chloride	12125-02-9	30.00000	0.00018	
			Diammonium phosphate	7783-28-0	5.00000	0.00003	
			Methanol	67-56-1			
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1			
			Glutaraldehyde	111-30-8			

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* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%
*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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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**5D Survey Report**

SOUTHWESTERN ENERGY

Field Name: *SOUTHWESTERN_OHIO CO, WV UTM NAD 83 (17N)*
Site Name: *Melvin Kahle OHI Pad*
Well Name: *Melvin Kahle OHI 6H*
Survey: *Definitive survey*

11 March 2018

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Latitude: 40°05'00" SURFACE HOLE 46'

BOTTOM HOLE 10701'

ELK LAKE SERVICES, LLC

280 Indian Springs Road,
Suite 123 Indiana, PA 15701
Phone: (724) 463-7303

Latitude: 40°05'00"

TRACT	SURFACE OWNER / ROYALTY OWNER	TAX PARCEL	ACRES
1	MELVIN W. KAHLE AND CAROL M. KAHLE	6-17-170	84.99
2	SURFACE OWNER	TAX PARCEL	ACRES
3	MARY ANGELA DICKEY	06-17-171	99.95
4	CONNIE DAVIS	6-17-172.16	10.036
5	ROBERT F. SELAK AND TAMMY L. SELAK	6-17-172.13	1.078
6	ROBERT F. SELAK AND TAMMY L. SELAK	6-17-172.18	0.128
7	BRIAN W. VOSSER AND TAMARA K. VOSSER	6-17-172.1	33.8
8	RANDALL E. BARTLETT	6-17-172.15	1
9	CLARK EDWARD MCKEE	6-17-174	81
10	LOUIS G. BRINKMEIER JR. AND JELINDA A. BRINKMEIER	6-17-175	45.238
	LINDA L. CLARK	7-15-5-1	10.4

TRACT	SURFACE OWNER	TAX PARCEL	ACRES
A	MELVIN W. & CAROL M. KAHLE JR.	6-17-170.2	1.14
B	MELVIN W. KAHLE JR.	6-17-36	28.47
C	FRANCIS A. & D.M. RIDGS	6-17-3	4.35
D	CHAS M. SLEDD COMPANY	7-17-1	2.96
E	CHAS M. SLEDD COMPANY	7-17-2	5.84
F	NASLE FAMILY IRREVOCABLE TRUST	6-17-3	0.97
G	OHIO COUNTY PUBLIC SERV DIST	7-17-4.1	0.18
H	OHIO COUNTY PUBLIC SERV DIST	7-17-5	0.46
I	OHIO COUNTY PUBLIC SERV DIST	7-17-6	0.56
J	OHIO COUNTY PUBLIC SERV DIST	7-17-7	0.56
K	KEVIN S. & BRENDA A. KOSEM	7-17-8	1.19
L	EDWARD P. & JEAN D. LAUFER (LE)	7-17-9	0.8
M	KEVIN S. & BRENDA A. KOSEM	7-17-10	0.87
N	KEVIN S. & BRENDA A. KOSEM	7-17-11	2.4
P	KEVIN S. & BRENDA A. KOSEM	7-17-1	0.98
Q	EDWARD B. HARTLEB	7-17-2.1	0.54
R	DAVID A. & KIMBERLY D. DOUGLASS	7-17-5	0.3
S	LARRY R. & REBECCA L. KALO	7-17-7	0.18
T	MATTHEW H. GOSSET	7-17-14	0.21
U	MATTHEW H. GOSSET	7-17-14.3	0.19
V	MICHELLE L. PARSONS	7-17-17	0.33
W	RICHMOND M. MCCARDLE	7-17-18-2	0.15
X	CLARENCE M. & SU DEVALE	7-17-19	0.54
Y	CARPET UNLIMITED INC	7-17-2	0.87
Z	CARPET UNLIMITED INC	7-17-2.1	0.3
AA	CAROL L. McDONALD	7-17-21	0.27
BB	WILLIAM M. & S.R. ROSTEMEIER	7-17-22	0.24
CC	ELMER & MARTHA ANDREWS	7-17-23	0.29
DD	JOHN WILLIAM NASH	7-17-24	0.97
EE	MIDTOWN MOBILE HOMES, INC	7-17-25	0.35
FF	WOODROW J. KNOLLINGER, JR.	7-17-26	0.23
GG	RAMOND FRANK HELBING, JR	7-17-27	0.09
HH	RAMOND FRANK HELBING, JR	7-17-28	0.09
II	R.S. HELBING	7-17-29	0.11
JJ	THOMAS J. NASSIF, JR.	7-17-30	0.16
KK	BORIS JO PLANTS	7-17-30.1	0.29
LL	LINDA L. CLARK	7-17-50	0.47
MM	MIDTOWN MOBILE HOMES, INC	7-17-49	0.09
NN	WM C. & ALICE H. IKLER	7-17-48	0.1
OO	DANN M. MEANS	7-17-47	0.45
PP	LINDA L. CLARK	7-17-187	0.13
QQ	ROBERT C. & S.G. TRENTON	7-17-186	3.91
RR	WILLIAM J. BRINKMEIER	6-17-173.2	1.9
SS	LOUIS BRINKMEIER, JR.	6-17-175.1	10.44
TT	WLD-LR BRINKMEIER	6-17-165.1	3.02
UU	ABUNDANT LIFE BAPTIST CHURCH	6-17-172.14	22.13
VV	RANDALL E. & D.M. BARTLETT	6-17-172.4	7.25
WW	JERRY L. & CYNTHIA KOPIAR	6-17-172.6	4.87
XX	DAVID A. DICKEY	6-17-172.3	3.6
YY	WILLIAM R. & TERRY L. BENNETT	6-17-172.13	2.87
ZZ	DAVID L. & MARY LOU FURBEE	6-17-172.5	2.84
AB	THOMAS SCOTT TOMINACK	6-17-172.7	4.18
AC	THOMAS S. & M.D. TOMINACK	6-17-172.8	3.68
AD	MARK A. & ALAIRE S. KNOX	6-17-172.10	5.82
AE	THOMAS & CATHY MILLER	6-17-172.17	2.03
AF	JOSEPH T. SUBASIC	6-17-161	0.4
AG	470 LAND CO. LLC	6-17-156	30.04
AH	KAREN J. BUTLER	6-17-160	2.94

SURFACE HOLE LOCATION (SHL):
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,435,782.94
 EASTING: 531,862.38

LANDING POINT (LPL):
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,435,398.64
 EASTING: 531,843.52

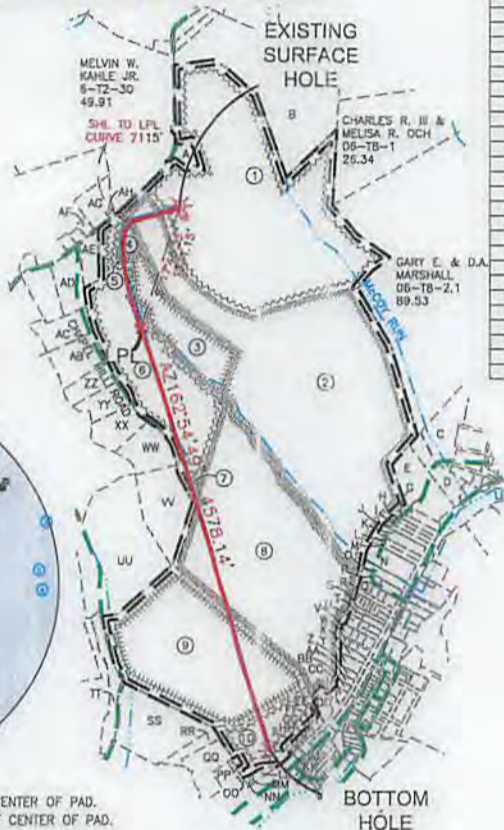
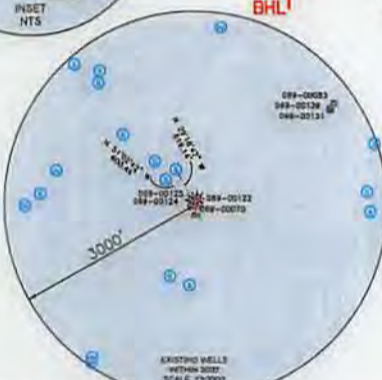
BOTTOM HOLE LOCATION (BHL):
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,434,068.31
 EASTING: 532,276.93

GRID NORTH DATUM, ZONE 17, US FT
UTM, NAD83

SURFACE HOLE LOCATION (SHL):
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,435,782.73
 EASTING: 531,862.45

LANDING POINT (LPL):
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,435,551.57
 EASTING: 531,801.24

BOTTOM HOLE LOCATION (BHL):
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,434,068.08
 EASTING: 532,277.35



WELL RESTRICTIONS

1. NO OCCUPIED DWELLINGS > 2500 SQ FT. WITHIN 825 FEET OF CENTER OF PAD.
2. NO AGRICULTURE BUILDINGS > 2500 SQ FT. WITHIN 625 FEET OF CENTER OF PAD.
3. WATER WELLS OR DEVELOPED SPRINGS ARE WITHIN 531 FEET OF PROPOSED WELL.
4. PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS ARE WITHIN THE LIMITS OF DISTURBANCE.
5. NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
6. NO GROUND INTAKE OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD, LIMITS OF DISTURBANCE, E & S CONTROLS OR PUBLIC WATER SUPPLY.

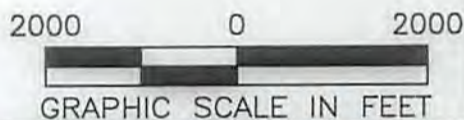
NOTES ON SURVEY

1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
3. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 2164

[Signature]



COMPANY: **SWN** Production Company, LLC

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

WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)

OPERATOR'S WELL #: MELVIN KAHLE OHI 6H

API WELL #: 47 STATE 069 COUNTY 00224 PERMIT

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

WATERSHED: UPPER OHIO SOUTH ELEVATION: 1276.3'

DISTRICT: TRIADELPHIA COUNTY: OHIO COUNTY QUADRANGLE: WHEELING & VALLEY GROVE

SURFACE OWNER: MELVIN W. KAHLE AND CAROL M. KAHLE ACREAGE: ±84.99

OIL & GAS ROYALTY OWNER: MELVIN W. KAHLE AND CAROL M. KAHLE ACREAGE: ±84.99

DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY) AS-DRILLED

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,358' TVD 11,707' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: BRITTANY WOODY

ADDRESS: P.O. BOX 1300 ADDRESS: P.O. BOX 1300

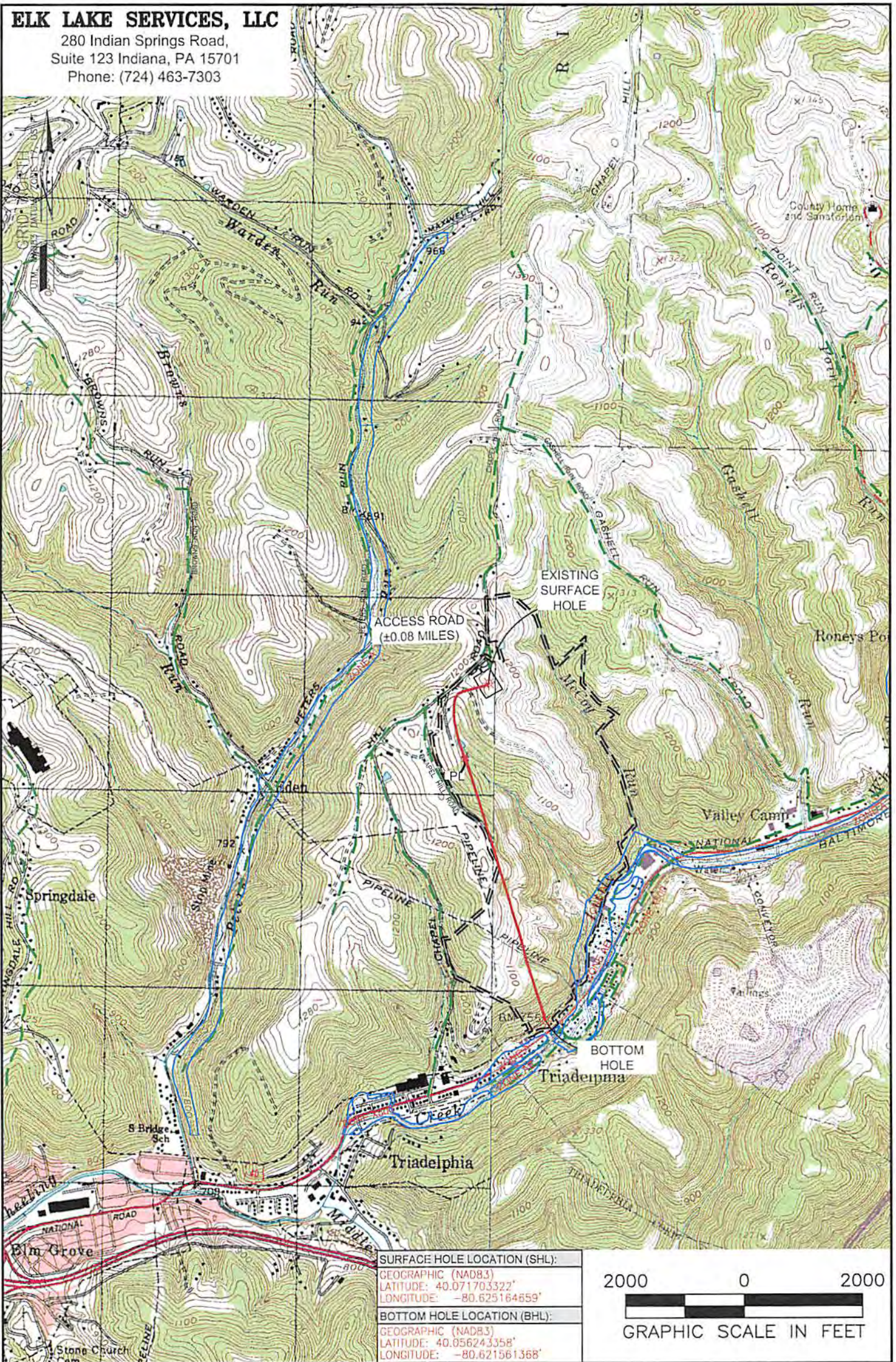
CITY: JANE LEW STATE: WV ZIP CODE: 26378 CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND:	REVISIONS:	DATE:
○ PROPOSED SURFACE HOLE / BOTTOM HOLE	— SURVEYED BOUNDARY	8/28/2018
⊙ EXISTING / PRODUCING WELLHEAD	— DRILLING UNIT	FILE NO: 16-51
LPL* LANDING POINT LOCATION	== LEASE BOUNDARY	DRAWN BY: JMB
⊙ EXISTING WATER WELL	— EXISTING PATH	SCALE: 1" = 2000'
⊙ EXISTING SPRING	— PROPOSED PATH	DRAWING NO: 1
		WELL LOCATION PLAT 1

Longitude: 80°37'30" SURFACE HOLE 4237'
Longitude: 80°35'00" BOTTOM HOLE 9869'

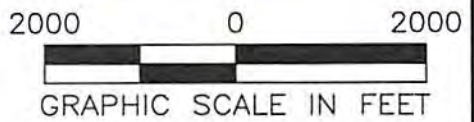
ELK LAKE SERVICES, LLC

280 Indian Springs Road,
Suite 123 Indiana, PA 15701
Phone: (724) 463-7303



SURFACE HOLE LOCATION (SHL):
GEOGRAPHIC (NAD83)
LATITUDE: 40.071703322'
LONGITUDE: -80.625164659'

BOTTOM HOLE LOCATION (BHL):
GEOGRAPHIC (NAD83)
LATITUDE: 40.056243358'
LONGITUDE: -80.621561358'



NOTES ON SURVEY

1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
3. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

LEGEND:

- PROPOSED SURFACE HOLE / BOTTOM HOLE
- EXISTING / PRODUCING WELLHEAD
- ✱ LPL LANDING POINT LOCATION
- FLOOD PLAIN
- ACCESS ROAD
- PUBLIC ROAD
- ACCESS ROAD TO PREV. SITE
- LEASE BOUNDARY
- EXISTING PATH
- PROPOSED PATH

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC	WELL (FARM) NAME: MELVIN KAHLE OHI	WELL # 6H	SERIAL # XXXX
ADDRESS: P.O. BOX 1300 JANE LEW, WV 26378	COUNTY OHIO COUNTY - 69	DISTRICT: TRIADELPHIA	
SURFACE OWNER: MELVIN W. KAHLE AND CAROL M. KAHLE	USGS 7 1/2 QUADRANGLE MAP NAME WHEELING, WV & VALLEY GROVE, WV		

LEGEND:	<ul style="list-style-type: none"> EXISTING SPRING EXISTING WATER WELL LANDING POINT LOCATION EXISTING \ PRODUCING WELLS PROPOSED SURFACE HOLE \ BOTTOM HOLE DRIILING UNIT LEASE BOUNDARY EXISTING PATH PROPOSED PATH SCREENED BOUNDARY 	
REVISIONS:	DATE: 8/28/2018 FILE NO: 18-51 DRAWN BY: JMB SCALE: 1" = 2000' DRAWING NO: 1 WELL LOCATION PLAT 1	
CITY: JANE LEW	STATE: WV	ZIP CODE: 26378
CITY: JANE LEW	STATE: WV	ZIP CODE: 26378
ADDRESS: P.O. BOX 1300	ADDRESS: P.O. BOX 1300	
WELL OPERATOR: SWN PRODUCTION COMPANY, LLC	DESIGNATED AGENT: BRITANY WOODY	
TARGET FORMATION: MARCELLUS	ESTIMATED DEPTH: 6358' TMD 11703' TMD	
CONVERT <input type="checkbox"/> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REAM <input type="checkbox"/> OTHER CHANGE <input checked="" type="checkbox"/> (SPECIFY AS-DRILED)	DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/>	
OIL & GAS ROYALTY OWNER: MELVIN W. KAHL AND CAROL M. KAHL	ACREAGE: ±84.99	
SURFACE OWNER: MELVIN W. KAHL AND CAROL M. KAHL	COUNTY: OHIO COUNTY	DISTRICT: TRADAPLHIA
WATERSHED: UPPER OHIO SOUTH	ELEVATION: 1528.3'	
WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input checked="" type="checkbox"/> DEEP <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>		

CITY: JANE LEW STATE: WV ZIP CODE: 26378	CITY: JANE LEW STATE: WV ZIP CODE: 26378
ADDRESS: P.O. BOX 1300 ADDRESS: P.O. BOX 1300	
WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: BRITANY WOODY	
TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6358' TMD 11703' TMD	
CONVERT <input type="checkbox"/> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REAM <input type="checkbox"/> OTHER CHANGE <input checked="" type="checkbox"/> (SPECIFY AS-DRILED) DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/>	
OIL & GAS ROYALTY OWNER: MELVIN W. KAHL AND CAROL M. KAHL SURFACE OWNER: MELVIN W. KAHL AND CAROL M. KAHL DISTRICT: TRADAPLHIA COUNTY: OHIO COUNTY WATERSHED: UPPER OHIO SOUTH	
WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input checked="" type="checkbox"/> DEEP <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>	
ELEVATION: (NAD 83 US FT) SOURCE OF GRADE GPS PROVEN SURVEY ACCURACY: 1/200	
(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WDEP OFFICE OF OIL & GAS 801 57TH STREET CHARLESTON, WV 25034	
API WELL #: 47 STATE: OH COUNTY: 009 PERMIT: 00224	OPERATOR'S WELL #: MELVIN KAHL OH COMPANY: SWN Production Company, LLC

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

WEST VIRGINIA SURVEYOR
 STATE OF
 No. 2184
 LICENSED
 JEFFREY ALAN HORNEMAN

NOTES ON SURVEY

- ALL METERS ARE GROUND NORTH UNLESS OTHERWISE DESIGNATED
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON
- CLIENT AND/OR FIELD LOCATIONS
- HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN

LIMITS OF DISTURBANCE

- NO GROUND WATER OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD.
- NO DISTURBANCE TO EXISTING UTILITIES OR PUBLIC WATER SUPPLY.
- NO OCCUPIED DWELLINGS > 2500 SQ FT WITHIN 825 FEET OF CENTER OF PAD.
- NO AGRICULTURE BUILDINGS > 2500 SQ FT WITHIN 825 FEET OF CENTER OF PAD.
- NO OCCUPIED DWELLINGS > 2500 SQ FT WITHIN 825 FEET OF CENTER OF PAD.

WELL RESTRICTIONS

- NO AGRICULTURE BUILDINGS > 2500 SQ FT WITHIN 825 FEET OF CENTER OF PAD.
- NO OCCUPIED DWELLINGS > 2500 SQ FT WITHIN 825 FEET OF CENTER OF PAD.
- NO DISTURBANCE TO EXISTING UTILITIES OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD.
- NO DISTURBANCE TO EXISTING UTILITIES OR PUBLIC WATER SUPPLY.
- NO OCCUPIED DWELLINGS > 2500 SQ FT WITHIN 825 FEET OF CENTER OF PAD.
- NO AGRICULTURE BUILDINGS > 2500 SQ FT WITHIN 825 FEET OF CENTER OF PAD.
- NO OCCUPIED DWELLINGS > 2500 SQ FT WITHIN 825 FEET OF CENTER OF PAD.



TRACT	TAXPAYER	ACRES
10	LINDA J. CLARK	1.94-7.1
9	LOUIS G. BRUNNERMAN JR AND JUDITH A. BRUNNERMAN	8-11-173
8	CLARA EDWARDS MOORE	8-11-174
7	SANDRA E. BRUNTT	8-11-175
6	BRUN W. VOSTER AND TAMARA B. VOSTER	8-11-176
5	ROBERT T. DEAN AND TAMARA L. DEAN	8-11-177
4	ROBERT T. DEAN AND TAMARA L. DEAN	8-11-178
3	CONOR DEAN	8-11-179
2	MARY ANN GIBBY	8-11-180
1	SURFACE OWNER	8-11-181
	MELVIN W. KAHL AND CAROL M. KAHL	8-11-182

TRACT	TAXPAYER	ACRES
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8	CLARA EDWARDS MOORE	8-11-174
7	SANDRA E. BRUNTT	8-11-175
6	BRUN W. VOSTER AND TAMARA B. VOSTER	8-11-176
5	ROBERT T. DEAN AND TAMARA L. DEAN	8-11-177
4	ROBERT T. DEAN AND TAMARA L. DEAN	8-11-178
3	CONOR DEAN	8-11-179
2	MARY ANN GIBBY	8-11-180
1	SURFACE OWNER	8-11-181
	MELVIN W. KAHL AND CAROL M. KAHL	8-11-182

Latitude: 40°05'00" SURFACE HOLE 46'
 Latitude: 40°05'00" BOTTOM HOLE 10701'

Longitude: 80.33.30" SURFACE HOLE 4521'
 Longitude: 80.33.00" BOTTOM HOLE 308