



RAILROAD COMMISSION OF TEXAS

Form W-2

1701 N. Congress
P.O. Box 12967
Austin, Texas 78701-2967

Status: Approved
Date: 05/16/2023
Tracking No.: 290729

OIL WELL POTENTIAL TEST, COMPLETION OR RECOMPLETION REPORT,

OPERATOR INFORMATION

Table with Operator, PDEH LLC, Operator 646827, and address 600 W ILLINOIS AVE MIDLAND, TX 79701-0000.

WELL INFORMATION

Table with well details: API 42-301-32740, Well No.: 0403H, Lease UL 20 N TWITCH, RRC Lease 57934, Location Section: 9, Block: 20, Survey: UL, Abstract: 31, County: LOVING, RRC District 08, Field PHANTOM (WOLFCAMP), Field No.: 71052900, Latitude 31, Longitude -103, and direction from MENTONE.

FILING INFORMATION

Table with filing details: Purpose of Well Record Only, Type of Other/Recompletion, Well Type: Producing, Completion or Recompletion 03/03/2016, Type of Permit, Date 03/07/2016, Permit No. 810606, Rule 37 Exception, Fluid Injection, O&G Waste Disposal, and Other.

COMPLETION INFORMATION

Table with completion details: Spud 10/19/2015, Date of first production after rig 03/03/2016, Date plug back, deepening, drilling operation 10/19/2015, Date plug back, deepening, recompletion, drilling operation 11/14/2015, Number of producing wells on this lease this field (reservoir) including this 1, Distance to nearest well in lease & reservoir 759.0, Total number of acres in 640.70, Elevation 2786 GL, Total depth TVD 12019, Total depth MD 17295, Plug back depth TVD, Plug back depth MD, Was directional survey made other inclination (Form W- Yes, Rotation time within surface casing Is Cementing Affidavit (Form W-15) 145.5 No, Recompletion or Yes, Multiple No, Type(s) of electric or other log(s) Gamma Ray (MWD), Electric Log Other Description:, Location of well, relative to nearest lease of lease on which this well is 1375.0 Feet from the South Line and 291.0 Feet from the SE Line of the UL 20 N TWITCH Lease. Off Lease : Yes

FORMER FIELD (WITH RESERVOIR) & GAS ID OR OIL LEASE NO.

Table with columns: Field & Reservoir, Gas ID or Oil Lease, Well No., Prior Service Type. PACKET: N/A

W2: N/A

**FOR NEW DRILL OR RE-ENTRY, SURFACE CASING DEPTH DETERMINED BY:**

<b>GAU Groundwater Protection Determination</b>	<b>Depth</b>	1150.0	<b>Date</b>	11/29/2015
<b>SWR 13 Exception</b>	<b>Depth</b>	5110.0		

**INITIAL POTENTIAL TEST DATA FOR NEW COMPLETION OR RECOMPLETION**

<b>Date of</b>		<b>Production</b>
<b>Number of hours</b>	24	<b>Choke</b>
<b>Was swab used during this</b>	No	<b>Oil produced prior to</b>
<b>PRODUCTION DURING TEST PERIOD:</b>		
<b>Oil</b>		<b>Gas</b>
<b>Gas - Oil</b>	0	<b>Flowing Tubing</b>
<b>Water</b>		
<b>CALCULATED 24-HOUR RATE</b>		
<b>Oil</b>		<b>Gas</b>
<b>Oil Gravity - API - 60.:</b>		<b>Casing</b>
<b>Water</b>		

**CASING RECORD**

<u>Ro</u>	<u>Type of Casing</u>	<u>Casing Size (in.)</u>	<u>Hole Size</u>	<u>Setting Depth</u>	<u>Multi - Stage Tool</u>	<u>Multi - Stage Shoe</u>	<u>Cement Class</u>	<u>Cement Amoun</u>	<u>Slurry Volume (cu.)</u>	<u>Top of Cement (ft.)</u>	<u>TOC Determined By</u>
1	Surface	9 5/8	12 1/4	5122	1309		C	3225	5842.0	0	Circulated to Surface
2	Intermediate	7	8 3/4	12082			C, H	686	1356.0	4122	Calculation

**LINER RECORD**

<u>Ro</u>	<u>Liner Size</u>	<u>Hole Size</u>	<u>Liner Top</u>	<u>Liner Bottom</u>	<u>Cement Class</u>	<u>Cement Amoun</u>	<u>Slurry Volume (cu.)</u>	<u>Top of Cement (ft.)</u>	<u>TOC Determined</u>
1	4 1/2	6 1/8	11445	17280	H	590	696.0	1144 5	Calculation

**TUBING RECORD**

<u>Ro</u>	<u>Size (in.)</u>	<u>Depth</u>	<u>Size (ft.)</u>	<u>Packer Depth (ft.)/Type</u>
1	2 7/8	11391		11363 / L80, EUE, RD

**PRODUCING/INJECTION/DISPOSAL INTERVAL**

<u>Ro</u>	<u>Open hole?</u>	<u>From (ft.)</u>	<u>To (ft.)</u>
1	No	L1 12385	16963.0

**ACID, FRACTURE, CEMENT SQUEEZE, CAST IRON BRIDGE PLUG, RETAINER, ETC.**

<b>Was hydraulic fracturing treatment</b>	Yes		
<b>Is well equipped with a downhole sleeve?</b>	Yes		
<b>Production casing test pressure (PSIG) during hydraulic fracturing</b>	6412		
<b>Actual maximum pressure (PSIG) during fracturin</b>	9135		
<b>Has the hydraulic fracturing fluid disclosure been</b>	Yes		
<b>Was hydraulic fracturing treatment</b>	Yes		
<b>If yes, actuation pressure</b>	8307.0		
<b>Actual maximum pressure (PSIG) during fracturin</b>	9135		
<b>Has the hydraulic fracturing fluid disclosure been</b>	Yes		
<b>Ro</b>	<b>Type of Operation</b>	<b>Amount and Kind of Material Used</b>	<b>Depth Interval (ft.)</b>
1	Fracture	SEE FRAC FOCUS	12385 16963

**FORMATION RECORD**

<u>Formations</u>	<u>Encountere</u>	<u>Depth TVD</u>	<u>Depth MD</u>	<u>Is formation</u>	<u>Remarks</u>	
RED BLUFF	No			No	FORMATION NOT GEOLOGICALLY PRESENT	
BELL CANYON	Yes	3679.0	3699.0	Yes		
BRUSHY CANYON	Yes	5794.0	5817.0	Yes		
DELAWARE	Yes	3640.0	3660.0	Yes		
CHERRY CANYON	Yes	4571.0	4593.0	Yes		
BONE SPRINGS	Yes	7554.0	7587.0	Yes		
WOLFCAMP	Yes	10623.0	10649.0	Yes		
PENNSYLVANIAN	No			No		BELOW TVD
STRAWN	No			No		BELOW TVD
ATOKA - HIGH PRESSURE	No			No		BELOW TVD
MORROW	No			No	BELOW TVD	
DEVONIAN	No			No	BELOW TVD	
FUSSELMAN	No			No	BELOW TVD	
ELLENBURGER	No			No	BELOW TVD	

Do the producing interval of this well produce H2S with a concentration in excess of 100 ppm No

Is the completion being downhole commingled No

**REMARKS**

P 16 ATTACHED TO SHOW CORRECT ALLOCATION.

**RRC REMARKS**

**PUBLIC COMMENTS:**

[RRC Staff 2023-04-18 14:25:00.25] EDL=4578 feet, max acres=704, PHANTOM (WOLFCAMP) oil or gas well

**CASING RECORD :**

**TUBING RECORD:**

**PRODUCING/INJECTION/DISPOSAL INTERVAL :**

**ACID, FRACTURE, CEMENT SQUEEZE, CAST IRON BRIDGE PLUG, RETAINER, ETC. :**

**POTENTIAL TEST DATA:**

**OPERATOR'S CERTIFICATION**

**Printed** Martha Finley  
**Telephone** (432) 688-6036

**Title:** Regulatory Coordinator  
**Date** 05/08/2023



You must comply with all other provisions of SWR 13 (Statewide Rule 13) and a representative of the cementing company who performs the cementing job for the protection of usable quality water strata must sign the Form W-15 attesting to the information regarding cementing operations performed; including circulation of cement. (Note: If surface casing is set below the approved depth, this can result in denial of future Statewide Rule 13(b)(1)(H)(i) requests.) A condition of the approved drilling permit requires notification to the Railroad Commission of Texas District Office eight (8) hours prior to the time casing is to be set/cemented in the well. If your exception request was submitted after the subject well has been drilled and completed, the operator may be referred for enforcement action.

This authorization shall expire within five (5) years from the date the Groundwater Protection Determination was issued, or at the expiration of the drilling permit (if the well is not spudded prior to expiration) for the referenced well, whichever occurs first. Furthermore, this authorization supersedes any prior authorizations issued for the referenced well.

This exception is based on information provided when the application was submitted on 10/09/2015 .  
If any information has changed, you must contact the appropriate Railroad Commission of Texas District Office, and submit a new application if applicable. If you have questions, please contact the appropriate Oil and Gas District office.

RRC APPROVAL BY: Jeffery Morgan

DATE: 10/16/2015

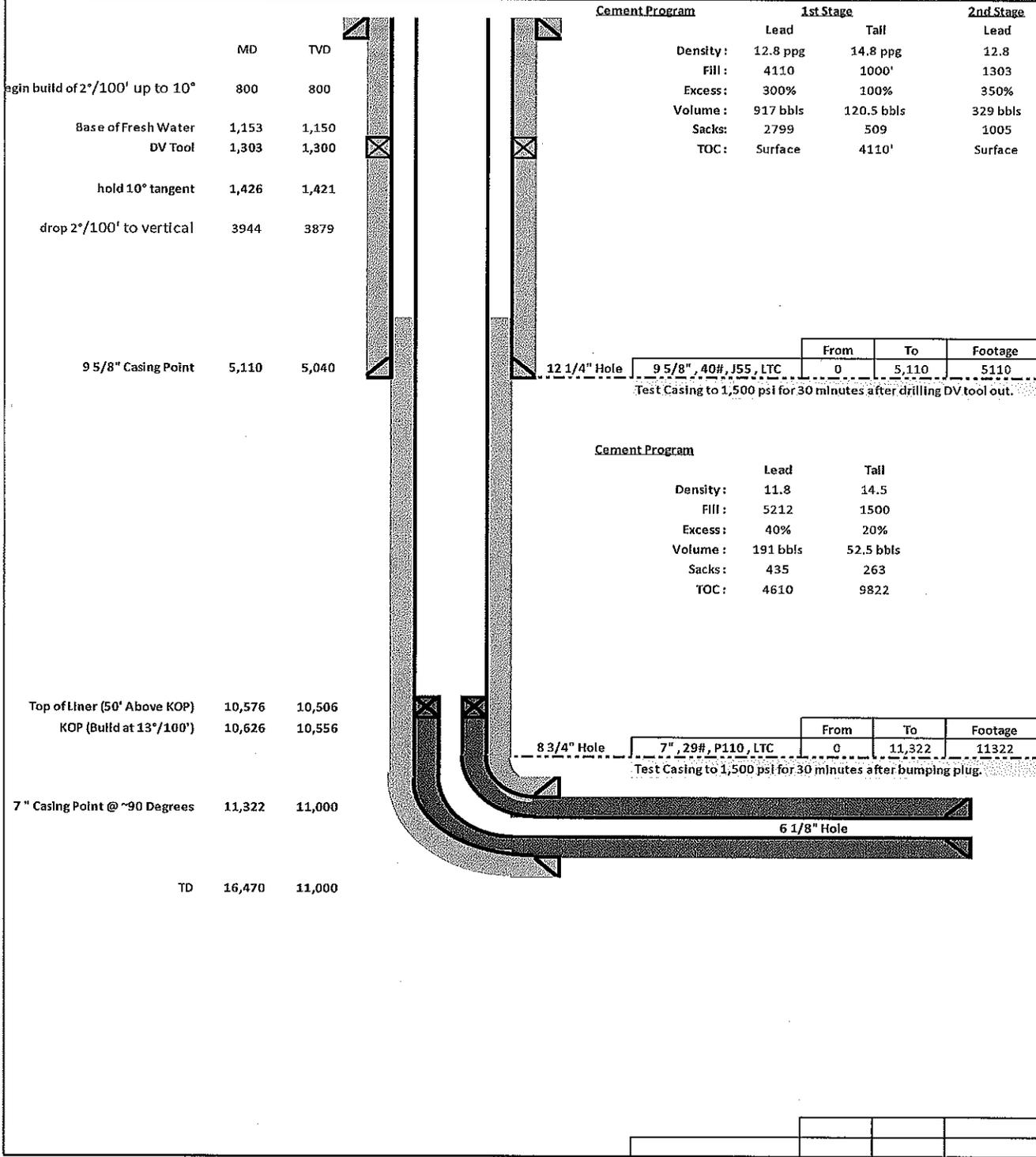
DISTRICT DIRECTOR

13b Information

Header		University 20-4 LOV 3H						
Well Name		University 20-4 LOV 3H						
County		Loving, Tx						
Field Rules		Phantom Wolfcamp						
Engineer		Power Charles						
Date		10/8/2015						
		Surface			Intermediate		Production	
Hole Size (in.)		12-1/4			8-3/4		6-1/8"	
O.D. (in.), Grade, Weight (lb/ft.)		9-5/8	J55	40	7	P110	29	4.5 P110 CYHP 11.6
Setting Depth (ft.)		5110			11,322		16,470	
Multi-Stage Tool Depth TVD (ft.)		1303			NA		NA	
Type and Free Water Content		Class C 0.3%		Class C 0.0%				
# of Sacks and Yield (cu. ft/sk)		2799	1.84	435		2.46		
LEAD/FILLER CEMENT		Cement Additives		Class C / (35:65) Poz (Fly Ash): Premium Plus C Cement + 0.005 lbs/sack Static Free + 0.85% bwoc R-3 + 3% bwoc Potassium Chloride + 5.75% bwoc LCM-1 + 1% bwoc FL-52 + 0.01 gps FP-6L + 1% bwoc Sodium Metasilicate + 6% bwoc Bentonite II + 131.2% Fresh Water				
24/72-Hr. Comp. Strength (psi)		550 psi	948 psi	350 psi	500 psi (50hr)			
Cement Height (TOC) (ft.)		4110' (0' surface)			5212' (4610')			
% Excess		300%			40%			
TAIL/CRITICAL CEMENT		Type and Free Water Content		Class H 0%		Class H 0.0%		
# of Sacks and Yield (cu. ft/sk)		509	1.33	263	1.20		497 1.20	
Cement Additives		Class C Cement + 0.15% bwoc Sodium Metasilicate + 0.15% bwoc R-3 + 56.1% FW 50.0 bbls FW @ 8.34 ppg 10.0 bbls		Class H / (50:50) Poz (Fly Ash): Premium Plus H Cement + 0.005 lbs/sack Static Free + 0.3% bwoc R-3 + 0.35% bwoc CD-32 + 0.01 gps FP-6L + 0.35% bwoc Sodium Metasilicate + 0.6% bwoc FL-66 + 2% bwoc Bentonite II + 51.8% Fresh Water		Class H / (50:50) Poz (Fly Ash): Premium Plus H Cement + 2% bwoc Bentonite II + 0.005 lbs/sack Static Free + 0.3% bwoc R-3 + 0.3% bwoc CD-32 + 0.01 gps FP-6L + 0.35% bwoc Sodium Metasilicate + 0.65% bwoc FL-66 + 51.8% Fresh Water		
24/72-Hr. Comp. Strength (psi)		1978 psi	2511 psi	1484 psi	2062 psi		1575 psi 2148 psi	
Cement Height (TOC) (ft.)		1000' (4110')			1500' (9822')		5894' (10,576')	
Centralizers No. & Placement		4 on shoe track and 1/4 jt to surface		1 every joint in curve, 1/4 to surface		1/4 jt in curve		
Number of centralizers		35		80		4		
% Excess		100%		20%		20%		
2nd Stage (Contingency)		Type and Free Water Content		Class C 0.3%				
# of Sacks and Yield (cu. ft/sk)		1005	1.84					
Cement Additives		same as 1st stage lead						
24/72-Hr. Comp. Strength (psi)		550 psi	948 psi					
Cement Height (TOC) (ft.)		1303' (0' surface)						
Centralizers No. & Placement		(8) 1/4 jt						
% Excess		350%						

Remarks: Lead/filler cement is to be pumped at 300% excess. A second stage (see multi-stage lead/filler) is only included in this request plan as a contingency measure to achieve cement returns to surface, in which case the DV tool would be opened.

# University 20-4 LOV 3H



Cement Program	1st Stage		2nd Stage
	Lead	Tail	Lead
Density:	12.8 ppg	14.8 ppg	12.8
Fill:	4110	1000'	1303
Excess:	300%	100%	350%
Volume:	917 bbls	120.5 bbls	329 bbls
Sacks:	2799	509	1005
TOC:	Surface	4110'	Surface

	From	To	Footage
12 1/4" Hole	0	5,110	5110

Test Casing to 1,500 psi for 30 minutes after drilling DV tool out.

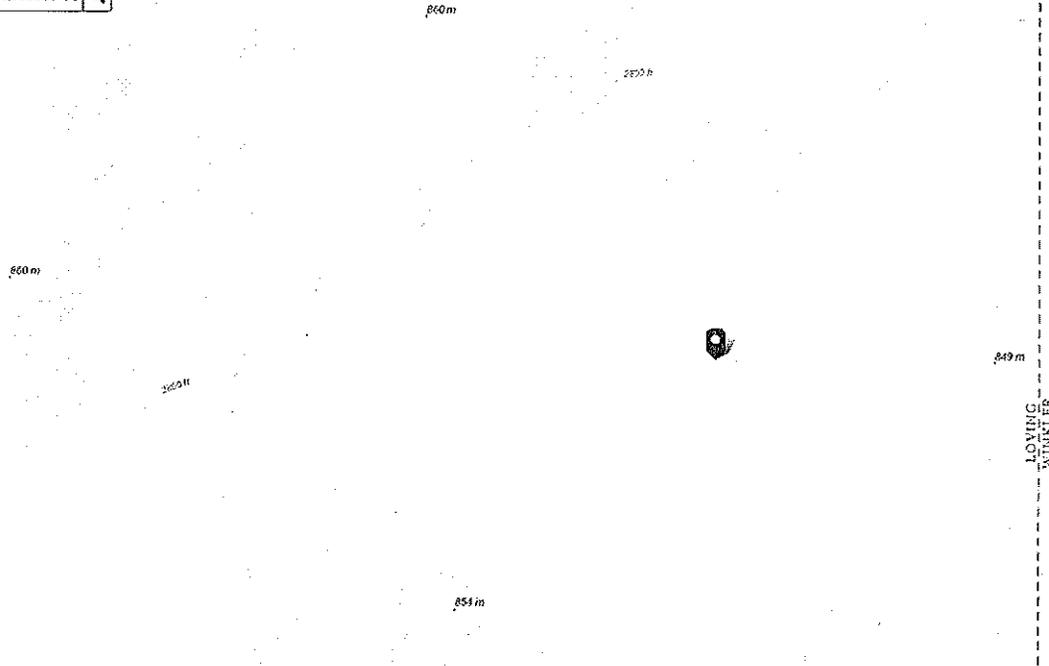
Cement Program		
	Lead	Tail
Density:	11.8	14.5
Fill:	5212	1500
Excess:	40%	20%
Volume:	191 bbls	52.5 bbls
Sacks:	435	263
TOC:	4610	9822

	From	To	Footage
8 3/4" Hole	0	11,322	11322

Test Casing to 1,500 psi for 30 minutes after bumping plug.

	MD	TVD
Begin build of 2°/100' up to 10°	800	800
Base of Fresh Water	1,153	1,150
DV Tool	1,303	1,300
hold 10° tangent	1,426	1,421
drop 2°/100' to vertical	3944	3879
9 5/8" Casing Point	5,110	5,040
Top of LIner (50' Above KOP)	10,576	10,506
KOP (BuIld at 13°/100')	10,626	10,556
7" CasIng Point @ ~90 Degrees	11,322	11,000
TD	16,470	11,000

+ 103.341358, 31.730953 X Q



-103.376613, 31.739330  
0.4km  
0.3mi  
1 : 10056

## GROUNDWATER PROTECTION DETERMINATION

Form GW-2



## Groundwater Advisory Unit

**Date Issued:** 29 September 2015**GAU Number:** 15802

**Attention:** SHELL WESTERN E&P  
 PO BOX 576  
 HOUSTON, TX 77001

**API Number:**  
**County:** LOVING  
**Lease Name:** University 20-4 LOV

**Operator No.:** 774719

**Lease Number:**  
**Well Number:** 3H  
**Total Vertical Depth:** 12400  
**Latitude:** 31.730953  
**Longitude:** -103.341358  
**Datum:** NAD27

**Purpose:** New Drill**Location:** Survey-UL; Abstract-U34; Block-20; Section-9

To protect usable-quality groundwater at this location, the Groundwater Advisory Unit of the Railroad Commission of Texas recommends:

Water-bearing strata from the land surface to a depth of 300 feet and the Rustler, which is estimated to occur from 775 to 1150 feet must be protected.

This recommendation is applicable to all wells within a radius of 200 feet of this location.

**Note:** Unless stated otherwise, this recommendation is intended to apply only to the subject well and not for area-wide use. This recommendation is for normal drilling, production, and plugging operations only. It does not apply to saltwater disposal operation into a nonproductive zone (RRC Form W-14).

This determination is based on information provided when the application was submitted on 09/28/2015. If the location information has changed, you must contact the Groundwater Advisory Unit, and submit a new application if necessary. If you have questions, please contact us at 512-463-2741 or gau@rrc.texas.gov.

Groundwater Advisory Unit, Oil and Gas Division

Form GW-2 P.O. Box 12967 Austin, Texas 78771-2967 512-463-2741 Internet address: www.rrc.texas.gov  
 Rev. 02/2014



APPLICATION FOR APPROVAL OF SURFACE CASING > 3500 FEET  
 Statewide Rule 13(b)(1)(A)  
 RAILROAD COMMISSION OF TEXAS

Operator's Name and Address: Shell Western E&P  
 150 N. Dairy Ashford  
 Houston, Texas 77079

P5 Number: 774719

Area for review: District 8  
 Lease Name: University 20-4 LOV 3H  
 Field Name: PHANTOM (WOLFCAMP) County: LOVING  
 Survey: UL Abstract: \_\_\_\_\_  
 Drilling Permits: 810606

Note: Attach a map if the request is for more than one pad.

How will the operator maintain well control during drilling operations:

While drilling the surface hole Shell utilizes drilling fluid of sufficient weight to overbalance the formations being penetrated. In the event that flow is encountered a low-pressure rotating head is rigged-up under the rig floor to divert flow to the reserve pit.

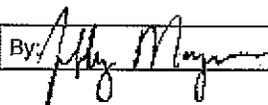
How will the operator ensure cement is circulated to surface and that there is adequate bonding of cement:

A DV tool is placed below the water table (as defined by the GAU), and Shell pumps a minimum of 250% excess cement for the second stage of the surface cement job. Depending on nearby offsets the amount of excess pumped has been as high as 300%. Adequate bonding of cement is achieved by utilizing the centralizer program as outlined in RRC Rule 3.13 (b) (1) (G). A second stage of cement is only included in this request plan as a contingency measure to achieve cement returns to surface, in which case the DV tool would be opened.

How will the operator prevent the migration of formation fluids thru the annular space:

All cement slurries pumped by Shell comply with RRC Rule 3.13 (b) (1) (D) and Rule 3.13 (b) (1) (E). These slurries have been effective in preventing migration of formation fluids after the cement has been placed in the 100+ wells Shell has drilled in the Permian.

Signature:  Name: Jeffrey Stevenson Date: 10/09/15 Phone: 832-337-0694

RRC District Office Action:			
<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Approved as Modified	<input type="checkbox"/> Denied	By:  Date: <u>10-16-15</u>
Remarks/Modifications:			

RRC Use Only ▶

**CERTIFICATE OF COMPLIANCE  
AND TRANSPORTATION AUTHORITY**  
REFER TO INSTRUCTIONS

Created by Tiff To PDF trial version, to remove this mark, please register this software

1. Field name exactly as shown on proration schedule Phantom (Wolfcamp) <b>71052900</b>		2. Lease name as shown on proration schedule UL 20 N Twitch		
3. Current operator name exactly as shown on P-5 Organization Report PDEH LLC		4. Operator P-5 no. 646827	5. Oil Lse/Gas ID no. <b>57974</b>	6. County Loving
8. Operator address including city, state, and zip code 600 W. Illinois Midland, TX 79701		9. Well no(s) (see instruction E) 0403H		
10. Classification <input checked="" type="checkbox"/> Oil <input type="checkbox"/> Gas <input type="checkbox"/> Other (see instruction A)			11. Effective Date 08/01/22	

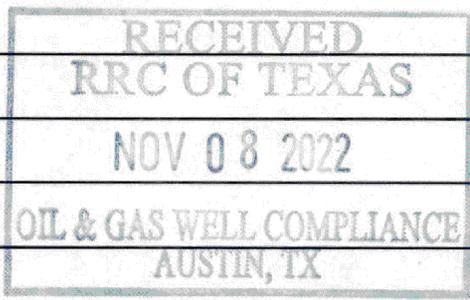
12. Purpose of Filing. (See instructions B and G)

a. Change of:  operator  oil or condensate gatherer  gas gatherer  gas purchaser  gas purchaser system code  
 field name from: \_\_\_\_\_ Docket #: \_\_\_\_\_  
 lease name from: UNIVERSITY 20 PW UNIT 0403H

b. New RRC Number for:  oil lease  gas well  other well (specify) \_\_\_\_\_ Due to:  new completion or recompletion  reclass oil to gas  reclass gas to oil  
 consolidation  unitization  subdivision (oil lease only)  
 field transfer

13. Authorized GAS WELL GAS or CASINGHEAD GAS Gatherer(s) and/or Purchaser(s). (See instruction G).

Gatherer	Purchaser	Name of GAS WELL GAS or CASINGHEAD GAS Gatherer(s) or Purchaser(s) As Indicated in Columns to the Left (Attach an additional sheet in same format if more space is needed)	Purchaser's RRC Assigned System Code	Percent of Take	Full-well Stream
X	X	Brazos Midstream Operating (089903)	0001	100	



14. Authorized OIL or CONDENSATE Gatherer(s). (See instruction G).

Name of OIL or CONDENSATE Gatherer(s) - List Highest Volume Gatherer First (Attach an additional sheet in same format if more space is needed)	Percent of Take	RRC USE ONLY
Plains Marketing L.P. (667883)	100	Reviewer's initials: <u>[Signature]</u> Approval date: <u>12/2/22</u>

15. PREVIOUS OPERATOR CERTIFICATION FOR CHANGE OF OPERATOR P-4 FILING. Being the PREVIOUS OPERATOR, I certify that operating responsibility for the well(s) designated in this filing, located on the subject lease has been transferred in its entirety to the above named Current Operator. I understand, as Previous Operator, that designation of the above named operator as Current Operator is not effective until this certificate is approved by the Commission.

Name of Previous Operator \_\_\_\_\_ Signature \_\_\_\_\_  
 Authorized Employee of previous operator  Authorized agent of previous operator (see instruction G)  
Name (print) \_\_\_\_\_  
Title \_\_\_\_\_ Date \_\_\_\_\_ Phone with area code \_\_\_\_\_

16. CURRENT OPERATOR CERTIFICATION. By signing this certificate as the Current Operator, I certify that all statements on this form are true and correct and I acknowledge responsibility for the regulatory compliance of the subject lease including plugging of well(s) pursuant to Rule 14. I further acknowledge that I assume responsibility for the physical operation, control, and proper plugging of each well designated in this filing. I also acknowledge that I will remain designated as the Current Operator until a new certificate designating a new Current Operator is approved by the Commission.

Chasity Jackson \_\_\_\_\_ Signature Chasity Jackson  
Name (print) \_\_\_\_\_  
Sr. Regulatory Coordinator \_\_\_\_\_  Authorized Employee of current operator  Authorized agent of current operator (see instruction G)  
Title \_\_\_\_\_  
Chasity.Jackson@conocophillips.com \_\_\_\_\_ 7/20/2022 \_\_\_\_\_ 432-686-3087  
E-mail Address (optional) \_\_\_\_\_ Date \_\_\_\_\_ Phone with area code \_\_\_\_\_

**REQUEST FOR PERMISSION TO SUBDIVIDE OR  
 CONSOLIDATE OIL LEASE(S)**

**P-6**

5/02  
 WWW-1

*READ INSTRUCTIONS ON BACK*

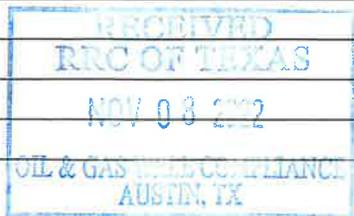
1. Receiving Operator name, exactly as shown on P-5 Organization Report	2. Operator P-5 no.	3. RRC district no.	5. Purpose of Filing:  <input type="checkbox"/> Consolidation <input type="checkbox"/> Subdivision	
		4. County		
6. Operator address including city, state, and zip code		7. Field name exactly as shown on proration schedule		
8. Are any of the leases being subdivided or consolidated currently overproduced or in violation of statewide rules? (check one) <input type="checkbox"/> No <input type="checkbox"/> Yes				
<b>9. Lease to be subdivided or leases to be consolidated. List lease names and well numbers exactly as listed on current Commission Oil Proration Schedule.</b>				
LEASE NAME	LEASE NUMBER	LEASE ACRES	WELL NUMBERS (e.g.: 1, 2, 3-U, 3-L, 4, etc.)	
(1)				
(2)				
(3)				
<b>10. Lease(s) resulting from subdivision or after consolidation (how the leases/wells are to be listed on the Commission Oil Proration Schedule). For well number changes, give both old and new number; if there is no well number change, show the number under "old".</b>				
LEASE NAME	LEASE NUMBER	LEASE ACRES	WELL NUMBERS	API NUMBER 42-
			Old      New	
(1)				
(2)				
(3)				
11. Is the ownership, working interest, and the royalty interest for all leases listed in Items 9 or 10 identical? (check one) <input type="checkbox"/> No <input type="checkbox"/> Yes (See instruction D)				
12. Is the acreage listed for the resulting leases in Item 10 contiguous? (Check one) <input type="checkbox"/> No <input type="checkbox"/> Yes (See instruction F)				<b>RRC USE ONLY</b>
<b>OPERATOR CERTIFICATION:</b> I certify that I am authorized to make this request, that it was prepared by me or under my supervision and direction, and that the data and facts stated herein are true, correct, and complete to the best of my knowledge.				Reviewer's initials: _____
Signature _____				Approval date: _____
Date _____				
Name (print or type) _____				
Title _____				
Phone number (with area code) _____				
E-mail address (optional) _____				

**REQUEST FOR PERMISSION TO SUBDIVIDE OR  
 CONSOLIDATE OIL LEASE(S)**

**P-6**

5/02

10. Lease(s) resulting from subdivision or after consolidation (how the leases/wells are to be listed on the Commission Oil Proration Schedule). For well number changes, give both old and new number; if there is no well number change, show the number under "old".					
LEASE NAME	LEASE NUMBER	LEASE ACRES	WELL NUMBERS		API NUMBER 42-
			Old	New	
<i>(1) * Indicates PSA well after P-6/W-2 approval..</i>					
UL 20 N Twitch	57934	640.7	0403H		301-32740
UL 20 N Paddle Tail	57935	640.7	0503H		301-31794
UL 20 S Bucktail	57938	640.7	1001H		495-33544
*UL Popper A	57940	300	1002H		495-33891
*UL 20 Popper B	57941	300	1003H		495-33892
*UL 20 Bucktail A1	57942	80	1005H		495-33889
*UL 20 Bucktail A	57943	320	1007H		495-33890
*UL 20 Bucktail C	57944	320	1009H		495-34399
*UL 20 Bucktail D	57945	260.7	1010H		495-34404
*UL Spinner A	57946	200.875	1503H		495-33705
UL 20 SW Topwater	57947	320.35	1803H		301-32609
UL 20 N Gold Spoon	57949	640.7	2002H		301-31788
*UL 20 N Gold Spoon A	57950	640.7	2003ST	2003H	301-32937
*UL 20 N Gold Spoon B	57954	640.7	2004H		301-32938
*UL 20 S Chatter A	57955	319	2701H		495-34175
*UL 20 S Chatter C	57956	319	2703H		495-34174
*UL 20 N Chatter A	57957	309	2704H		495-34170
*UL 20 N Chatter C	57958	314.7	2706H		495-34169
*UL 20 Rat Tail B	57959	200.225	2708H		495-34454
*UL 20 Silver Spoon A	57960	160	3902H		495-34004
*UL 20 Silver Spoon B	57961	160	3903H		495-33993
*UL 20 Silver Spoon C	57962	160	3904H		495-34006
*UL 20 Silver Spoon D	57963	160	3905H		495-33994
*UL 20 Silver Spoon E	57964	160	3906H		495-34449
*UL 20 Silver Spoon G	57965	140	3908H		495-34448
*UL 20 Silver Spoon H	57966	80	3909H		495-34550
*UL 20 Silver Spoon J	57967	60	3910H		495-34551
*UL 20 Silver Spoon I	57968	161.4	3911H		495-34571





## GROUNDWATER PROTECTION DETERMINATION

Form GW-2



## Groundwater Advisory Unit

<b>Date Issued:</b>	29 September 2015	<b>GAU Number:</b>	15802
<b>Attention:</b>	SHELL WESTERN E&P PO BOX 576 HOUSTON, TX 77001	<b>API Number:</b>	
<b>Operator No.:</b>	774719	<b>County:</b>	LOVING
		<b>Lease Name:</b>	University 20-4 LOV
		<b>Lease Number:</b>	
		<b>Well Number:</b>	3H
		<b>Total Vertical Depth:</b>	12400
		<b>Latitude:</b>	31.730953
		<b>Longitude:</b>	-103.341358
		<b>Datum:</b>	NAD27

**Purpose:** New Drill  
**Location:** Survey-UL; Abstract-U34; Block-20; Section-9

To protect usable-quality groundwater at this location, the Groundwater Advisory Unit of the Railroad Commission of Texas recommends:

Water-bearing strata from the land surface to a depth of 300 feet and the Rustler, which is estimated to occur from 775 to 1150 feet must be protected.

This recommendation is applicable to all wells within a radius of 200 feet of this location.

Note: Unless stated otherwise, this recommendation is intended to apply only to the subject well and not for area-wide use. This recommendation is for normal drilling, production, and plugging operations only. It does not apply to saltwater disposal operation into a nonproductive zone (RRC Form W-14).

This determination is based on information provided when the application was submitted on 09/28/2015. If the location information has changed, you must contact the Groundwater Advisory Unit, and submit a new application if necessary. If you have questions, please contact us at 512-463-2741 or gau@rrc.texas.gov.

Groundwater Advisory Unit, Oil and Gas Division

Form GW-2 P.O. Box 12967 Austin, Texas 78771-2967 512-463-2741 Internet address: www.rrc.texas.gov  
 Rev. 02/2014

**OPERATOR: PDEH LLC**

AS-DRILLED LOCATION

LEASE NAME & WELL NO.:

**UL 20 N TWITCH 0403H**

**API #: 4230132740**

LEASE WELL ACREAGE:

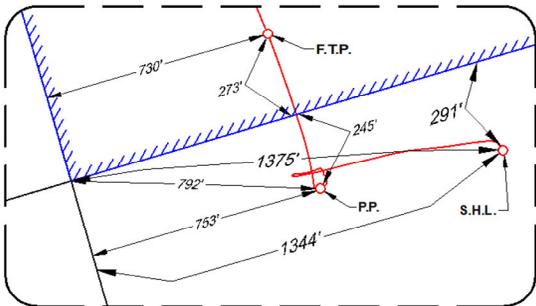
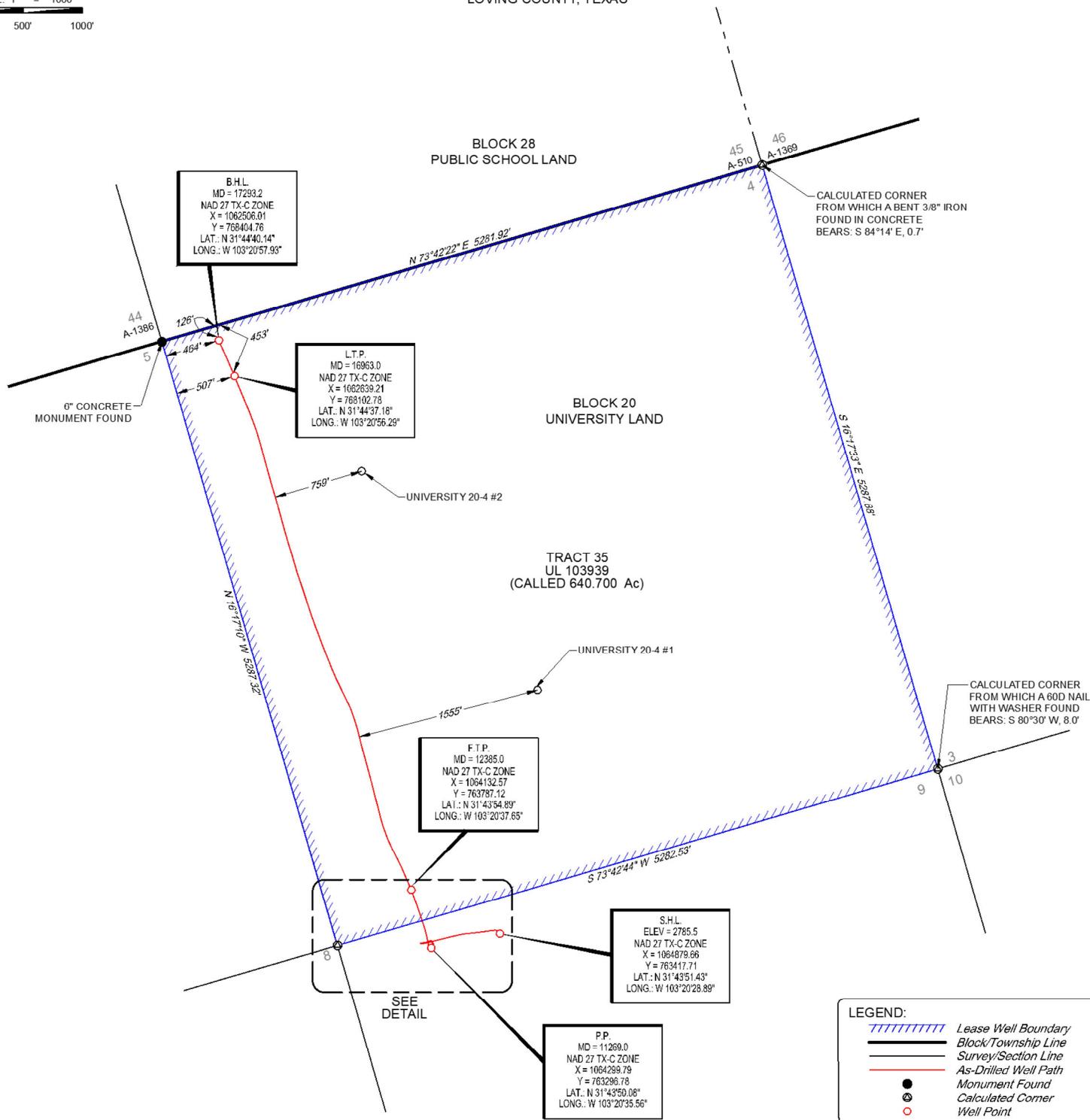
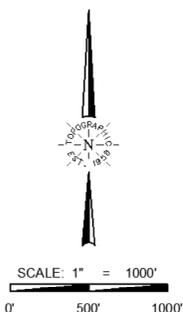
**640.700 ACRES (CALLED)**

NEAREST TOWN IN COUNTY:

**±15.2 MILES EAST OF MENTONE, TEXAS**

DESCRIPTION:

S.H.L./P.P.: SECTION 9, BLOCK 20, UNIVERSITY LAND SURVEY  
 F.T.P./L.T.P./B.H.L.: SECTION 4, BLOCK 20, UNIVERSITY LAND SURVEY  
 LOVING COUNTY, TEXAS



DETAIL VIEW  
SCALE: 1" = 500'

**TIES TABLE**

POINT	LEASE WELL	SURVEY/SECTION
S.H.L.	1375' FSC	291' FNWL & 1344' FSWL
	291' FSEL	245' FNWL & 753' FSWL
P.P.	792' FSC	730' FSWL & 273' FSEL
	245' FSEL	453' FNWL & 507' FSWL
F.T.P.	730' FSWL	126' FNWL & 464' FSWL
	273' FSEL	
L.T.P.	453' FNWL	
	507' FSWL	
B.H.L.	126' FNWL	
	464' FSWL	

**PRODUCTIVE LATERAL**

LENGTH (F.T.P TO L.T.P.)	
1	4,578.00'
TOTAL	4,578.00'

**LEGEND:**

- Lease Well Boundary
- Block/Township Line
- Survey/Section Line
- As-Drilled Well Path
- Monument Found
- Calculated Corner
- Well Point



*John R. Anderson* 8/2/2022  
 John R. Anderson, R.P.L.S. No. 6442



1400 EVERMAN PARKWAY, Ste. 146 FT. WORTH, TEXAS 76140  
 TELEPHONE: (817) 744-7512 FAX: (817) 744-7564  
 TEXAS FIRM REGISTRATION NO. 10042504  
 WWW.TOPOGRAPHIC.COM

DATE:	REVISION:	
	02/11/2016	O.M.
FILE: AD_UL_20_N_TWITCH_0403H_REV2_PDEH	A.C.L.	07/19/2022
DRAWN BY: O.M.		
SHEET: 1 OF 1		

**NOTES:**

- ORIGINAL DOCUMENT SIZE: 11" X 17"
- ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 1927, UNLESS OTHERWISE NOTED.
- THIS LOCATION AND/OR UNIT/LEASE BOUNDARY HAS BEEN CAREFULLY SURVEYED ON THE GROUND UNDER MY SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE ACCORDING TO THE EVIDENCE, OFFICIAL SURVEY RECORDS, MAPS, AND OTHER DATA PROVIDED BY PERMIAN DELAWARE ENTERPRISES HOLDINGS, LLC. THIS PLAT WAS CREATED FOR THE SOLE PURPOSE OF FILING A PERMIT WITH THE RAILROAD COMMISSION OF TEXAS AND SHOULD NOT BE CONSTRUED AS A "BOUNDARY SURVEY" IN COMPLIANCE WITH T.B.P.L.S. MINIMUM STANDARDS OF PROCEDURES FOR BOUNDARY SURVEYS. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.
- ALL ELEVATION VALUES CONTAINED HEREON ARE ORTHOMETRIC ONLY, BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), U.S. SURVEY FEET.
- ALL MINERAL OWNERSHIP DATA SHOWN HEREIN IS BASED ON INFORMATION PROVIDED BY PERMIAN DELAWARE ENTERPRISES HOLDINGS, LLC OR ITS SUBSIDIARIES & AFFILIATES.

**NOTES CONT'D:**

- THE AS-DRILLED SURFACE LOCATION HAS BEEN CAREFULLY SURVEYED ON THE GROUND DURING THE DATE OF OCTOBER 16, 2015
- THE SUBSURFACE WELL PATH DATA SHOWN HEREIN IS BASED ON INFORMATION PROVIDED BY PERMIAN DELAWARE ENTERPRISES HOLDINGS, LLC OR ITS SUBSIDIARIES & AFFILIATES.
- S.H.L. = SURFACE HOLE LOCATION
- P.P. = POINT OF PENETRATION
- F.T.P. = FIRST TAKE POINT
- L.T.P. = LAST TAKE POINT
- B.H.L. = BOTTOM HOLE LOCATION