



RAILROAD COMMISSION OF TEXAS

Form W-2

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

Status: Approved
Date: 07/20/2018
Tracking No.: 184370

OIL WELL POTENTIAL TEST, COMPLETION OR RECOMPLETION REPORT,

OPERATOR INFORMATION

Operator	SHELL WESTERN E&P	Operator	774719
Operator	PO BOX 576 HOUSTON, TX 77001-0000		

WELL INFORMATION

API	42-301-33234	County:	LOVING
Well No.:	0908H	RRC District	08
Lease	UNIVERSITY 19 PW UNIT	Field	PHANTOM (WOLFCAMP)
RRC Lease	42401	Field No.:	71052900
Location	Section: 9, Block: 19, Survey: UL, Abstract: U9		
Latitude	31	Longitud	-103
This well is	11.1	miles in a	SE
direction from	MENTONE,		
which is the nearest town in the			

FILING INFORMATION

Purpose of	Well Record Only		
Type of	New Well		
Well Type:	Producing	Completion or Recompletion	12/28/2017
Type of Permit		Date	Permit No.
Permit to Drill, Plug Back, or		03/02/2017	823271
Rule 37 Exception			
Fluid Injection			
O&G Waste Disposal			
Other:			

COMPLETION INFORMATION

Spud	05/04/2017	Date of first production after rig	12/28/2017
Date plug back, deepening, drilling operation	05/08/2017	Date plug back, deepening, recompletion, drilling operation	08/18/2017
Number of producing wells on this lease this field (reservoir) including this	38	Distance to nearest well in lease & reservoir	520.0
Total number of acres in	13511.20	Elevation	2766 GL
Total depth TVD	11687	Total depth MD	19180
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)	53.5 Yes
Recompletion or	No	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	1477.0 Feet from the	Off Lease :	No
	7284.0 Feet from the	NE Line and	
		NW Line of the	
		UNIVERSITY 19 H Lease.	

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

<u>Field & Reservoir</u>	<u>Gas ID or Oil Lease</u>	<u>Well No.</u>	<u>Prior Service Type</u>
W2:	N/A		

PACKET: N/A

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

GAU Groundwater Protection Determination	Depth	1000.0	Date	02/01/2017
SWR 13 Exception	Depth	5005.0		

INITIAL POTENTIAL TEST DATA FOR NEW COMPLETION OR RECOMPLETION

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

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	5005	1166		CLASS C	3205	5738.0	0	Circulated to Surface
2	Intermediate	7	8 3/4	12096			CLASS C AND CLASS H	750	1608.0	4005	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	11016	19177	CLASS H	740	909.0	11016	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	10966		10935 / VERSASET PACKER

PRODUCING/INJECTION/DISPOSAL INTERVAL

<u>Ro</u>	<u>Open hole?</u>	<u>From (ft.)</u>	<u>To (ft.)</u>
1	No	L1 12066	18931.0

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

Was hydraulic fracturing treatment	Yes		
Is well equipped with a downhole sleeve?	Yes	If yes, actuation pressure	8227.0
Production casing test pressure (PSIG) during hydraulic fracturing	9800	Actual maximum pressure (PSIG) during fracturin	9600
Has the hydraulic fracturing fluid disclosure been	Yes		
Ro	Type of Operation	Amount and Kind of Material Used	Depth Interval (ft.)

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	5042.0	5130.0	Yes	
BRUSHY CANYON	Yes	7171.0	7269.0	Yes	
DELAWARE	Yes	5015.0	5104.0	Yes	
CHERRY CANYON	Yes	5974.0	6068.0	Yes	
BONE SPRINGS	Yes	8634.0	8733.0	Yes	
WOLFCAMP	Yes	11405.0	11556.0	Yes	
PENNSYLVANIAN	No			No	BELOW WELLBORE DEPTH
STRAWN	No			No	BELOW WELLBORE DEPTH
ATOKA - HIGH PRESSURE	No			No	BELOW WELLBORE DEPTH
MORROW	No			No	BELOW WELLBORE DEPTH
DEVONIAN	No			No	BELOW WELLBORE DEPTH
FUSSELMAN	No			No	BELOW WELLBORE DEPTH
ELLENBURGER	No			No	BELOW WELLBORE DEPTH

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

KOP AT 10964.

THIS WELL SHOULD BE ATTACHED TO LEASE ID 42401. PER PACKET NUMBER 193559, THE LEASE ACREAGE HAS BEEN INCREASED. REVISED P12 AND LEASE PLAT HAVE BEEN ATTACHED.

RRC REMARKS

PUBLIC COMMENTS:

[RRC Staff 2018-01-31 12:11:40.738] EDL=6865 feet, max acres=704, PHANTOM (WOLFCAMP) oil or gas well

CASING RECORD :

DV TOOL SET BUT NOT OPENED AS APPROVED IN SWR 13.

TUBING RECORD:

PRODUCING/INJECTION/DISPOSAL INTERVAL :

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

POTENTIAL TEST DATA:

OPERATOR'S CERTIFICATION

Printed	Maureen Kovacic	Title:	Regulatory Specialist
Telephone	(832) 337-0953	Date	07/12/2018



RAILROAD COMMISSION OF TEXAS

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

Form W-15

Rev. 08/2014

Cementor: Fill in shaded areas.
Operator: Fill in other items.

CEMENTING REPORT

OPERATOR INFORMATION

Operator Name: SHELL EXPLORATION & PRODUCTION CO	Operator P-5 No.: 774719
Cementor Name: BJ SERVICES, LLC	Cementor P-5 No.: 403101

WELL INFORMATION

District No.: 08	County: LOVING	
Well No.: 0908H	API No.: 42301332340000	Drilling Permit No.: 823271
Lease Name: UNIVERSITY 19 H	Lease No.:	
Field Name: Phantom (Wolfcamp)	Field No.: 71052900	

I CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Conductor <input checked="" type="checkbox"/> Surface <input type="checkbox"/> Intermediate <input type="checkbox"/> Liner <input type="checkbox"/> Production		
Drilled hole size (in.): 12.25	Depth of drilled hole (ft.): 5,020	Est. % wash-out or hole enlargement: 15%
Size of casing in O.D. (in.): 9.625	Casing weight (lbs/ft) and grade: 40 LB/FT, J-55	No. of centralizers used: 31
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO if no for surface casing, explain in Remarks.	Setting depth shoe (ft.): 5005	Top of liner (ft.):
Hrs. waiting on cement before drill-out: +12	Calculated top of cement (ft.): 0	Setting depth liner (ft.):
Cementing date: 05/10/2017		

SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1	2,705	C	SEE REMARK #1	5,074	16,202
2	500	C	SEE REMARK #2	664	2,120
3					
Total	3,205			5,738	18,322

II CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Surface <input type="checkbox"/> Intermediate <input type="checkbox"/> Production <input type="checkbox"/> Tapered production <input type="checkbox"/> Multi-stage cement shoe <input type="checkbox"/> Multiple parallel strings		
Drilled hole size (in.):	Depth of drilled hole (ft.):	Est. % wash-out or hole enlargement:
Size of casing in O.D. (in.):	Casing weight (lbs/ft) and grade:	No. of centralizers used:
Tapered string drilled hole size (in.) Upper: Lower:	Tapered string depth of drilled hole (ft.) Upper: Lower:	
Tapered string size of casing in O.D. (in.) Upper: Lower:	Tapered string casing weight (lbs/ft) and grade Upper: Lower:	Tapered string no. of centralizers used Upper: Lower:
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input type="checkbox"/> YES <input type="checkbox"/> NO	Setting depth shoe (ft.):	
Hrs. waiting on cement before drill-out:	Calculated top of cement (ft.):	Cementing date:

SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1					
2					
3					
Total					

III CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Surface <input type="checkbox"/> Intermediate <input type="checkbox"/> Production <input type="checkbox"/> Tapered production <input type="checkbox"/> Multi-stage cement/DV tool <input type="checkbox"/> Multiple parallel strings		
Drilled hole size (in.):	Depth of drilled hole (ft.):	Est. % wash-out or hole enlargement:
Size of casing in O.D. (in.):	Casing weight (lbs/ft) and grade:	No. of centralizers used:
Tapered string drilled hole size (in.) Upper: Lower:	Tapered string depth of drilled hole (ft.) Upper: Lower:	
Tapered string size of casing in O.D. (in.) Upper: Lower:	Tapered string casing weight (lbs/ft) and grade Upper: Lower:	Tapered string no. of centralizers used Upper: Lower:
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input type="checkbox"/> YES <input type="checkbox"/> NO	Setting depth tool (ft.):	
Hrs. waiting on cement before drill-out:	Calculated top of cement (ft.):	Cementing date:

SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1					
2					
3					
Total					

CEMENTING TO SQUEEZE PLUG BACK OR PLUG AND ABANDON							
	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Cementing Date							
Size of hole or pipe (in.)							
Depth to bottom of tubing or drill pipe (ft.)							
Cement retainer setting depth (ft.)							
CIBP setting depth (ft.)							
Amount of cement on top of CIBP (ft.)							
Sacks of cement used							
Slurry volume pumped (cu. ft.)							
Calculated top of plug (ft.)							
Measured top of plug, if tagged (ft.)							
Slurry weight (lbs/gal)							
Class/type of cement							
Perforate and squeeze (YES/NO)							

REMARKS

REMARK #1: C65/35POZ+ 4% BENTONITE+ 1.1% R-3+ 0.65% SMS+ 5% SALT+ 0.01 GAL/SK FP-6L+ 0.005 LB/SK STATIC FREE. REMARK #2: C+ 0.35% R-3+ 0.15% SMS+ 0.01 GAL/SK FP-6L+ 0.005 LB/SK STATIC FREE. CIRCULATED 500 BBLs @ 12.8 PPG (1,496 SACKS) BACK TO SURFACE.

CEMENTER'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that the cementing of casing and/or the placing of cement plugs in this well as shown in the report was performed by me or under my supervision, and that the cementing data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers cementing data only.

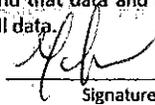
IGNACIO RODRIQUEZ CORRALES JR **BJ SERVICES, LLC** 

Name and title of cementer's representative Cementing Company Signature

11211 FM 2920 RD. **TOMBALL, TX 77375** **(281) 408-2361** **05/10/2017**

Address City, State, Zip Code Tel: Area Code Number Date: mo. day yr.

OPERATOR'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that I have knowledge of the well data and information presented in this report, and that data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers all well data.

Maureen Kovacic **Regulatory Specialist** 

Typed or printed name of operator's representative Title Signature

150 N. Dairy Ashford **Houston TX 77079** **832-337-0953** **01/15/2018**

Address City, State, Zip Code Tel: Area Code Number Date: mo. day yr.

Instructions for Form W-15, Cementing Report

NOTICE: The Form W-15 must be submitted as an attachment to a Form G-1 (Gas Well Back Pressure Test, Completion or Recompletion Report, and Log), Form W-2 (Oil Well Potential Test, Completion or Recompletion Report, and Log), Form W-3 (Plugging Record), or Form W-4 (Application for Multiple Completion), any time cement is pumped in a wellbore.

- A. What to file:** An operator should file an original and one copy of the completed Form W-15 for each cementing company used on a well. The cementing of different casing strings on a well by one cementing company may be reported on one form.
The Form W-15 should be filed with the Form W-3, Plugging Record, unless the Form W-3 is signed by the cementing company representative. When reporting dry holes, operators must complete Form W-15, in addition to Form W-3, to show any casing cemented in the hole.
- B. How to file:** An oil and gas completion report and Form W-15 may be filed online using the Commission's Online System (<https://webapps.rrc.state.tx.us/security/login.do>) or a paper copy of the form may be mailed to the Commission in Austin (P.O. Box 12967, Austin, Texas 78711-2967).
- C. Surface casing:** An operator must set and cement sufficient surface casing to protect all usable-quality water strata, as defined by the Groundwater Advisory Unit in Austin. Sufficient cement shall be used to fill the annular space outside the casing from the shoe to the ground surface or to the bottom of the cellar. Before drilling a well, an operator must obtain a letter from the Groundwater Advisory Unit stating the protection depth. Surface casing should not be set deeper than 200 feet below the specified depth without prior approval from the Commission.
To plug and abandon a well, operators must use only cementers approved by the Commission's Director of Field Operations in accordance with SWR 14 ([http://info.sos.state.tx.us/pls/pub/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_floc=&poloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&ri=14](http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_floc=&poloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&ri=14)). Cementing companies, service companies, or operators can qualify as approved cementers by demonstrating that they are able to mix and pump cement in compliance with Commission rules and regulations.
- D. Estimated % wash-out:** If the estimated % wash-out is less than 20% (or 30% along the Gulf Coast), provide supporting documentation such as a caliper log to show how the estimated % wash-out was obtained.
- E. Multi-stage cement:** An operator must report the multi-stage cement shoe in II. Casing Cementing Data section by selecting the type of casing and Multi-stage cement shoe. The operator must report the multi-stage cement tool in III. Casing Cementing Data section by selecting the type of casing and Multi-stage cement/DV tool.
- F. Multiple parallel strings:** An operator should file the Form W-15 as an attachment to the Form W-4, Application for Multiple Completion. An operator may be required to submit multiple Form W-15s to show all data for multiple parallel strings.
- G. Slurry data:** If cement job exceeds three slurries, continue the list of slurries in the Slurry table in the subsequent Casing Cementing Data box.



RAILROAD COMMISSION OF TEXAS

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

Form W-15

Rev. 08/2014

Cementer: Fill in shaded areas.
Operator: Fill in other items.

CEMENTING REPORT

OPERATOR INFORMATION

Operator Name: Shell Exploration & Production	Operator P-5 No.: 774719
Cementer Name: BJ Services, LLC	Cementer P-5 No.: 403101

WELL INFORMATION

District No.:	County: Loving	
Well No.: 0908H	API No.: 42301332340000	Drilling Permit No.: 823271
Lease Name: UNIVERSITY	Lease No.: 19H	
Field Name: Phantom (Wolfcamp)	Field No.: 71052900	

I. CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Conductor <input type="checkbox"/> Surface <input checked="" type="checkbox"/> Intermediate <input type="checkbox"/> Liner <input type="checkbox"/> Production		
Drilled hole size (in.): 8.75	Depth of drilled hole (ft.): 12112	Est. % wash-out or hole enlargement: 10%
Size of casing in O.D. (in.): 7"	Casing weight (lbs/ft) and grade: 29 P-110	No. of centralizers used: 58
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If no for surface casing, explain in Remarks.	Casing depth shoe (ft.): 12096	Top of liner (ft.):
Hrs. waiting on cement before drill-out: +12	Calculated top of cement (ft.): 4005	Setting depth liner (ft.):
Cementing date: 5-28-2017		

SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1	285	C	See Remarks	1048.2	8972.5
2	465	H	See Remarks	559.6	3724
Total	750			1608	10696.5

II. CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Surface <input type="checkbox"/> Intermediate <input type="checkbox"/> Production <input type="checkbox"/> Tapered production <input type="checkbox"/> Multi-stage cement shoe <input type="checkbox"/> Multiple parallel strings		
Drilled hole size (in.):	Depth of drilled hole (ft.):	Est. % wash-out or hole enlargement:
Size of casing in O.D. (in.):	Casing weight (lbs/ft) and grade:	No. of centralizers used:
Tapered string drilled hole size (in.) Upper: Lower:	Tapered string depth of drilled hole (ft.) Upper: Lower:	
Tapered string size of casing in O.D. (in.) Upper: Lower:	Tapered string casing weight (lbs/ft) and grade Upper: Lower:	Tapered string no. of centralizers used Upper: Lower:
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input type="checkbox"/> YES <input type="checkbox"/> NO	Setting depth shoe (ft.):	
Hrs. waiting on cement before drill-out:	Calculated top of cement (ft.):	Cementing date:

SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1					
2					
3					
Total					

III. CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Surface <input type="checkbox"/> Intermediate <input type="checkbox"/> Production <input type="checkbox"/> Tapered production <input type="checkbox"/> Multi-stage cement/DV tool <input type="checkbox"/> Multiple parallel strings		
Drilled hole size (in.):	Depth of drilled hole (ft.):	Est. % wash-out or hole enlargement:
Size of casing in O.D. (in.):	Casing weight (lbs/ft) and grade:	No. of centralizers used:
Tapered string drilled hole size (in.) Upper: Lower:	Tapered string depth of drilled hole (ft.) Upper: Lower:	
Tapered string size of casing in O.D. (in.) Upper: Lower:	Tapered string casing weight (lbs/ft) and grade Upper: Lower:	Tapered string no. of centralizers used Upper: Lower:
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input type="checkbox"/> YES <input type="checkbox"/> NO	Setting depth tool (ft.):	
Hrs. waiting on cement before drill-out:	Calculated top of cement (ft.):	Cementing date:

SLURRY

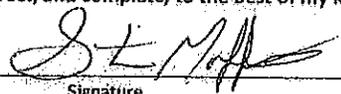
Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1					
2					
3					
Total					

CEMENTING TO SQUEEZE, PLUG BACK OR PLUG AND ABANDON							
	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Cementing Date							
Size of hole or pipe (in.)							
Depth to bottom of tubing or drill pipe (ft.)							
Cement retainer setting depth (ft.)							
CIBP setting depth (ft.)							
Amount of cement on top of CIBP (ft.)							
Sacks of cement used							
Slurry volume pumped (cu. ft.)							
Calculated top of plug (ft.)							
Measured top of plug, if tagged (ft.)							
Slurry weight (lbs/gal)							
Class/type of cement							
Perforate and squeeze (YES/NO)							

REMARKS

LEAD- 35/65 POZIC+ 10%BA-90 + 5%A-10 + 1.5%FL-52 + 1%CD-32 + 2.25%SMS + 3%KCL + 1.4%R-3 + .005ppsSTATIC FREE + .01gpsFP-6L
 TAIL- 50/50 POZIH+ .6%FL-66 + .35%CD-32 + .35%SMS + .3%R-3 + .005 pps STATIC FREE + .01gpsFP-6L
 CIRCULATED NO CEMENT TO SURFACE

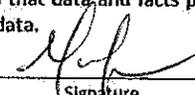
CEMENTER'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that the cementing of casing and/or the placing of cement plugs in this well as shown in the report was performed by me or under my supervision, and that the cementing data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers cementing data only.

Field Specialist Stephen Moffett **BJ Services, LLC** 

Name and title of cementer's representative 11211 FM 2920 Rd. Tomball, Texas 77375 (281) 408-2361 05-23-2017

Address City, State, Zip Code Tel: Area Code Number Date: mo. day yr.

OPERATOR'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that I have knowledge of the well data and information presented in this report, and that data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers all well data.

SCHARBAUER RANCH Maureen Kovacic Regulatory Specialist 

Typed or printed name of operator's representative 150 N. Dairy Ashford Houston TX 77079 832-337-0953 01/15/2018

Address City, State, Zip Code Tel: Area Code Number Date: mo. day yr.

Instructions for Form W-15, Cementing Report

NOTICE: The Form W-15 must be submitted as an attachment to a Form G-1 (Gas Well Back Pressure Test, Completion or Recompletion Report, and Log), Form W-2 (Oil Well Potential Test, Completion or Recompletion Report, and Log), Form W-3 (Plugging Record), or Form W-4 (Application for Multiple Completion), any time cement is pumped in a wellbore.

- A. What to file:** An operator should file an original and one copy of the completed Form W-15 for each cementing company used on a well. The cementing of different casing strings on a well by one cementing company may be reported on one form.
 The Form W-15 should be filed with the Form W-3, Plugging Record, unless the Form W-3 is signed by the cementing company representative. When reporting dry holes, operators must complete Form W-15, in addition to Form W-3, to show any casing cemented in the hole.
- B. How to file:** An oil and gas completion report and Form W-15 may be filed online using the Commission's Online System (<https://webapps.rrc.state.tx.us/security/login.do>) or a paper copy of the form may be mailed to the Commission in Austin (P.O. Box 12967, Austin, Texas 78711-2967).
- C. Surface casing:** An operator must set and cement sufficient surface casing to protect all usable-quality water strata, as defined by the Groundwater Advisory Unit in Austin. Sufficient cement shall be used to fill the annular space outside the casing from the shoe to the ground surface or to the bottom of the cellar. Before drilling a well, an operator must obtain a letter from the Groundwater Advisory Unit stating the protection depth. Surface casing should not be set deeper than 200 feet below the specified depth without prior approval from the Commission.
 To plug and abandon a well, operators must use only cementers approved by the Commission's Director of Field Operations in accordance with SWR 14 ([http://info.sos.state.tx.us/pls/pub/readtac\\$ext.TacPage?sl=R&app=9&p_dlr=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&ri=14](http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dlr=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&ri=14)). Cementing companies, service companies, or operators can qualify as approved cementers by demonstrating that they are able to mix and pump cement in compliance with Commission rules and regulations.
- D. Estimated % wash-out:** If the estimated % wash-out is less than 20% (or 30% along the Gulf Coast), provide supporting documentation such as a caliper log to show how the estimated % wash-out was obtained.
- E. Multi-stage cement:** An operator must report the multi-stage cement shoe in II. Casing Cementing Data section by selecting the type of casing and Multi-stage cement shoe. The operator must report the multi-stage cement tool in III. Casing Cementing Data section by selecting the type of casing and Multi-stage cement/DV tool.
- F. Multiple parallel strings:** An operator should file the Form W-15 as an attachment to the Form W-4, Application for Multiple Completion. An operator may be required to submit multiple Form W-15s to show all data for multiple parallel strings.
- G. Slurry data:** If cement job exceeds three slurries, continue the list of slurries in the Slurry table in the subsequent Casing Cementing Data box.



RAILROAD COMMISSION OF TEXAS

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

Form W-15

Rev. 08/2014

CEMENTING REPORT

Cementor: Fill in shaded areas.
Operator: Fill in other items.

OPERATOR INFORMATION

Operator Name: SHELL EXPLORATION & PRODUCTION	Operator P-5 No.: 774719
Cementor Name: BJ Services, LLC	Cementor P-5 No.: 403101

WELL INFORMATION

District No.:	County: LOVING	
Well No.: 19H #808H	API No.: 42301332340000	Drilling Permit No.: 823271
Lease Name: UNIVERSITY	Lease No.:	
Field Name: Phantom (Wolfcamp)	Field No.: 71052900	

I. CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Conductor <input type="checkbox"/> Surface <input type="checkbox"/> Intermediate <input checked="" type="checkbox"/> Liner <input type="checkbox"/> Production		
Drilled hole size (in.): 6 1/8"	Depth of drilled hole (ft.): 19,180'	Est. % wash-out or hole enlargement: 15%
Size of casing in O.D. (in.): 4 1/2"	Casing weight (lbs/ft) and grade: 11.6#/P-110	No. of centralizers used:
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If no for surface casing, explain in Remarks.	Setting depth shoe (ft.): 19177	Top of liner (ft.): 11016
Hrs. waiting on cement before drill-out: n/a	Calculated top of cement (ft.): 11016	Setting depth liner (ft.): 19177
		Cementing date: 8/5/2017

SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1	740	H	REMARK 1	909	9524
2					
3					
Total	740	H		909	9524

II. CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Surface <input type="checkbox"/> Intermediate <input type="checkbox"/> Production <input type="checkbox"/> Tapered production <input type="checkbox"/> Multi-stage cement shoe <input type="checkbox"/> Multiple parallel strings		
Drilled hole size (in.):	Depth of drilled hole (ft.):	Est. % wash-out or hole enlargement:
Size of casing in O.D. (in.):	Casing weight (lbs/ft) and grade:	No. of centralizers used:
Tapered string drilled hole size (in.) Upper: Lower:	Tapered string depth of drilled hole (ft.) Upper: Lower:	
Tapered string size of casing in O.D. (in.) Upper: Lower:	Tapered string casing weight (lbs/ft) and grade Upper: Lower:	Tapered string no. of centralizers used Upper: Lower:
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input type="checkbox"/> YES <input type="checkbox"/> NO	Setting depth shoe (ft.):	
Hrs. waiting on cement before drill-out:	Calculated top of cement (ft.):	Cementing date:

SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1					
2					
3					
Total					

III. CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Surface <input type="checkbox"/> Intermediate <input type="checkbox"/> Production <input type="checkbox"/> Tapered production <input type="checkbox"/> Multi-stage cement/DV tool <input type="checkbox"/> Multiple parallel strings		
Drilled hole size (in.):	Depth of drilled hole (ft.):	Est. % wash-out or hole enlargement:
Size of casing in O.D. (in.):	Casing weight (lbs/ft) and grade:	No. of centralizers used:
Tapered string drilled hole size (in.) Upper: Lower:	Tapered string depth of drilled hole (ft.) Upper: Lower:	
Tapered string size of casing in O.D. (in.) Upper: Lower:	Tapered string casing weight (lbs/ft) and grade Upper: Lower:	Tapered string no. of centralizers used Upper: Lower:
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input type="checkbox"/> YES <input type="checkbox"/> NO	Setting depth tool (ft.):	
Hrs. waiting on cement before drill-out:	Calculated top of cement (ft.):	Cementing date:

SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1					
2					
3					
Total					

CEMENTING TO SQUEEZE PLUG BACK OR PLUG AND ABANDON							
	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Cementing Date							
Size of hole or pipe (in.)							
Depth to bottom of tubing or drill pipe (ft.)							
Cement retainer setting depth (ft.)							
CIBP setting depth (ft.)							
Amount of cement on top of CIBP (ft.)							
Sacks of cement used							
Slurry volume pumped (cu. ft.)							
Calculated top of plug (ft.)							
Measured top of plug, if tagged (ft.)							
Slurry weight (lbs/gal)							
Class/type of cement							
Perforate and squeeze (YES/NO)							

REMARKS

REMARK #1 50:50 POZ +.065% FL-66 + .30% CD-32+.35% SMS+.50% R-3+.005 LBS/SK STATIC FREE

CEMENTER'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that the cementing of casing and/or the placing of cement plugs in this well as shown in the report was performed by me or under my supervision, and that the cementing data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers cementing data only.

LUIS RIOS -Field Specialist	BJ Services, LLC	
Name and title of cementer's representative	Cementing Company	Signature
11211 FM 2920 Rd.	Tomball, Texas 77375	(281) 408-2361
Address	City, State, Zip Code	Tel: Area Code Number
		Date: mo. day yr. 08/05/2017

OPERATOR'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that I have knowledge of the well data and information presented in this report, and that data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers all well data.

Maureen Kovacic	Regulatory Specialist	
Typed or printed name of operator's representative	Title	Signature
150 N. Dairy Ashford	Houston TX 77079	832-337-0953
Address	City, State, Zip Code	Tel: Area Code Number
		Date: mo. day yr. 01/15/2018

Instructions for Form W-15, Cementing Report

NOTICE: The Form W-15 must be submitted as an attachment to a Form G-1 (Gas Well Back Pressure Test, Completion or Recompletion Report, and Log), Form W-2 (Oil Well Potential Test, Completion or Recompletion Report, and Log), Form W-3 (Plugging Record), or Form W-4 (Application for Multiple Completion), any time cement is pumped in a wellbore.

- A. **What to file:** An operator should file an original and one copy of the completed Form W-15 for each cementing company used on a well. The cementing of different casing strings on a well by one cementing company may be reported on one form.
The Form W-15 should be filed with the Form W-3, Plugging Record, unless the Form W-3 is signed by the cementing company representative. When reporting dry holes, operators must complete Form W-15, in addition to Form W-3, to show any casing cemented in the hole.
- B. **How to file:** An oil and gas completion report and Form W-15 may be filed online using the Commission's Online System (<https://webapps.rrc.state.tx.us/security/login.do>) or a paper copy of the form may be mailed to the Commission in Austin (P.O. Box 12967, Austin, Texas 78711-2967).
- C. **Surface casing:** An operator must set and cement sufficient surface casing to protect all usable-quality water strata, as defined by the Groundwater Advisory Unit in Austin. Sufficient cement shall be used to fill the annular space outside the casing from the shoe to the ground surface or to the bottom of the cellar. Before drilling a well, an operator must obtain a letter from the Groundwater Advisory Unit stating the protection depth. Surface casing should not be set deeper than 200 feet below the specified depth without prior approval from the Commission.
To plug and abandon a well, operators must use only cementers approved by the Commission's Director of Field Operations in accordance with SWR 14 ([http://info.sos.state.tx.us/pls/pub/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=14](http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=14)). Cementing companies, service companies, or operators can qualify as approved cementers by demonstrating that they are able to mix and pump cement in compliance with Commission rules and regulations.
- D. **Estimated % wash-out:** If the estimated % wash-out is less than 20% (or 30% along the Gulf Coast), provide supporting documentation such as a caliper log to show how the estimated % wash-out was obtained.
- E. **Multi-stage cement:** An operator must report the multi-stage cement shoe in II. Casing Cementing Data section by selecting the type of casing and Multi-stage cement shoe. The operator must report the multi-stage cement tool in III. Casing Cementing Data section by selecting the type of casing and Multi-stage cement/DV tool.
- F. **Multiple parallel strings:** An operator should file the Form W-15 as an attachment to the Form W-4, Application for Multiple Completion. An operator may be

CHRISTI CRADDICK, CHAIRMAN
RYAN SITTON, COMMISSIONER
WAYNE CHRISTIAN, COMMISSIONER



LORI WROTENBERY
DIRECTOR, OIL AND GAS DIVISION
D. CRAIG PEARSON
DISTRICT DIRECTOR

RAILROAD COMMISSION OF TEXAS
OIL AND GAS DIVISION

OPERATOR Name: SHELL WESTERN E&P
Address1: PO BOX 576
Address2:
City: HOUSTON
State: TX

RE: Lease: UNIVERSITY 19 H
Well No: 0908H
Sec: 9 **Block:** 19
County: LOVING
Survey Name: UL

SWR13EX Application Number: 13437 **Drilling Permit No:** 823271

SWR 13 CASING EXCEPTION APPLICATION/ALTERNATIVE REQUEST APPROVED

The Proposed Casing and Cementing Program submitted for the **LEASE NAME:** UNIVERSITY 19 H ;
WELL NUMBER: 0908H has been approved by the Railroad Commission of Texas District Office.

- a. A copy of this approved letter must be kept on location during all phases of drilling and/or plugging operations. Once approved, changes CANNOT be made to the Proposed Casing Program on the original application without additional approval from the Railroad Commission of Texas District Office.
- b. Any substantive modifications to the cement program require prior approval from the Railroad Commission of Texas District Office, and may require re-submission of the SWR 13 (Statewide Rule 13) Alternate Surface Casing Application. Contact the Railroad Commission of Texas District Office for more information.
- c. The tail slurry must be sufficient to fill the Zone of Critical Cement as described in Statewide Rule 13(b)(1)(H)(i). In addition, all cement slurries must be mixed on location as described in Application for Alternate Surface Casing Program.
- d. The casing and cement program shall adhere to the following specifications:

Set 4900 feet of surface casing with a multistage tool set at a depth of not less than 1150 feet. Circulate cement from the multistage tool to the ground surface. If cement does not circulate to surface during the first stage, the multistage tool MUST be opened and neat cement be circulated from the tool to the surface.

The proposed alternative drilling fluid program for the fresh water protected interval is hereby approved.

The multistage tool is included as a contingency measure to achieve cement returns to surface.

Please notify the Midland District Office immediately if any gas, H2S or otherwise, is encountered before surface casing is set.

IF CEMENT IS NOT CIRCULATED TO THE GROUND SURFACE AS REQUIRED BY THIS EXCEPTION, YOU MUST CONTACT THE RAILROAD COMMISSION OF TEXAS DISTRICT OFFICE IMMEDIATELY AND FOLLOW THE PROCEDURES SET OUT IN RULE 13(b)(1)(H)(iii) OR AS REQUIRED BY THE RAILROAD COMMISSION OF TEXAS DISTRICT OFFICE.

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 03/06/2017
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: Erik Hanson

DATE: 03/09/2017

D. CRAIG PEARSON

DISTRICT DIRECTOR



**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 19 H 0908H
Field Name: Phantom (Wolfcamp) County: Loving
Survey: University Lands Abstract: A-
Drilling Permits: 823271

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: Sondra Bienvenu Name: Sondra Bienvenu Date: 03/06/2017 Phone: 832-337-3100

RRC District Office Action:			
<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Approved as Modified	<input type="checkbox"/> Denied	By: <u>Eric Hanson</u> Date: <u>3-9-17</u>
Remarks/Modifications:			

RRC Use Only ▶

CHRISTI CRADDICK, CHAIRMAN
RYAN SITTON, COMMISSIONER
WAYNE CHRISTIAN, COMMISSIONER



LORI WROTENBERY
DIRECTOR, OIL AND GAS DIVISION
D. CRAIG PEARSON
DISTRICT DIRECTOR

RAILROAD COMMISSION OF TEXAS OIL AND GAS DIVISION

OPERATOR Name: SHELL WESTERN E&P

RE: Lease: UNIVERSITY 19 H

Address1: PO BOX 576

Address2:

Well No: 0908H

City: HOUSTON

Sec: 9 **Block:** 19

State: TX

County: LOVING

Survey Name: UL

SWR13EX Application Number: 13437

Drilling Permit No: 823271

SWR 13 CASING EXCEPTION APPLICATION/ALTERNATIVE REQUEST APPROVED

The Proposed Casing and Cementing Program submitted for the **LEASE NAME:** UNIVERSITY 19 H ;
WELL NUMBER: 0908H has been approved by the Railroad Commission of Texas District Office.

- a. A copy of this approved letter must be kept on location during all phases of drilling and/or plugging operations. Once approved, changes CANNOT be made to the Proposed Casing Program on the original application without additional approval from the Railroad Commission of Texas District Office.
- b. Any substantive modifications to the cement program require prior approval from the Railroad Commission of Texas District Office, and may require re-submission of the SWR 13 (Statewide Rule 13) Alternate Surface Casing Application. Contact the Railroad Commission of Texas District Office for more information.
- c. The tail slurry must be sufficient to fill the Zone of Critical Cement as described in Statewide Rule 13(b)(1)(H)(i). In addition, all cement slurries must be mixed on location as described in Application for Alternate Surface Casing Program.
- d. The casing and cement program shall adhere to the following specifications:

Set 5005 feet of surface casing with a multistage tool set at a depth of not less than 1166 feet. Circulate cement from the multistage tool to the ground surface. If cement does not circulate to surface during the first stage, the multistage tool MUST be opened and neat cement be circulated from the tool to the surface.

The proposed alternative drilling fluid program for the fresh water protected interval is hereby approved.

IF CEMENT IS NOT CIRCULATED TO THE GROUND SURFACE AS REQUIRED BY THIS EXCEPTION, YOU MUST CONTACT THE RAILROAD COMMISSION OF TEXAS DISTRICT OFFICE IMMEDIATELY AND FOLLOW THE PROCEDURES SET OUT IN RULE 13(b)(1)(H)(iii) OR AS REQUIRED BY THE RAILROAD COMMISSION OF TEXAS DISTRICT OFFICE.

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 03/13/2018 .
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: Wade Goode

DATE: 03/15/2018

D. CRAIG PEARSON

DISTRICT DIRECTOR

Tracking No.: 184370

Instructions

When to File Form L-1:

- with Forms G-1, W-2, and GT-1 for new and deepened gas, oil, and geothermal wells
- with Form W-3 for plugged dry holes
- when sending in a log which was held under a request for confidentiality and the period for confidentiality has not yet expired.

When is Form L-1 NOT required:

- with Forms W-2, G-1, and GT-1 filed for injection wells, disposal wells, water supply wells, service wells, re-test wells, re-classifications, and plugbacks of oil, gas or geothermal wells
- with Form W-3 for plugging of other than a dry hole

Where to File Form L-1:

- with the appropriate Commission district office

Filling out Form L-1:

- Section I and the signature section must be filled out for all wells
- complete only the appropriate part of Section II

Type of log required:

- any wireline survey run for the purpose of obtaining lithology, porosity, or resistivity information
- no more than one such log is required but it must be of the subject well
- if such log is NOT run on the subject well, do NOT substitute any other type of log; just select Section II, Part A below

SECTION I. IDENTIFICATION

Operator Name: SHELL WESTERN E&P	District No. 08	Completion Date: 12/28/2017
Field Name PHANTOM (WOLFCAMP)	Drilling Permit No. 823271	
Lease Name UNIVERSITY 19 PW UNIT	Lease/ID No. 42401	Well No. 0908H
County LOVING	API No. 42- 301-33234	

SECTION II. LOG STATUS (Complete either A or B)

A. BASIC ELECTRIC LOG NOT RUN

B. BASIC ELECTRIC LOG RUN. (Select one)

- 1. Confidentiality is requested and a copy of the header for each log that has been run on the well is attached.
- 2. Confidentiality already granted on basic electric log covering this interval (applicable to deepened wells only).
- 3. Basic electric log covering this interval already on file with Commission (applicable to deepened wells only).
- 4. Log attached to (select one):
 - (a) Form L-1 (this form). If the company/lease name on log is different from that shown in Section I, please enter name on log here: _____
Check here if attached log is being submitted after being held confidential.
 - (b) Form P-7, Application for Discovery Allowable and New Field Designation.
 - (c) Form W-4, Application for Multiple Completion:
Lease or ID No(s). _____
Well No(s). _____

Maureen Kovacic

Signature

SHELL WESTERN E&P

Name (print)

Regulatory Specialist

Title

(832) 337-0953

Phone

01/15/2018

Date

-FOR RAILROAD COMMISSION USE ONLY-



MD
1:1200
Feet

MWD Gamma / ROP (1")

Client: SWEPI

Well Name: University 19 H 0908H

API/UWID: 42301332340000

County: Loving

Field: Permian

Permit #: 30257350

State: Texas

Country: USA

Longitude: 103° 24' 37.3276 W
Latitude: 31° 41' 57.76529 N

Personnel

Rig Name: Precision Drilling 559
Job Number: 60955
Ground Level: 2766.80 ft
Kelly Bushing: 2792.80 ft
Drill Floor: 26.00 ft
Permanent Datum: Mean Sea Level
Drilling Measured From: Kelly Bushing
Spud Date: May 8, 2017
Bottom Hole Temp: N/A °F
Log Start Depth: 100.00 ft
Log End Depth: 19200.00 ft

Company Representative

Dennis Morgan

Geologist

Directional Driller(s)

John Hill
Dustin StClair

MWD Operator(s)

Gatlin Finley
Pete Mavrelis

Reference Data

North Reference: Grid North
Magnetic Declination: 7.02
Grid Convergence: -1.58
Total Mag Correction: 8.60

Comments:

Main Leg

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Operational Run Summary

60955

	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6
Run Start Depth (ft)	0.00	5023.34	8197.55	10641.30	12110.96	12201.48
Run End Depth (ft)	5023.34	8197.55	10641.30	12110.96	12201.48	18168.59
Run Start Date	5/7/2017	5/20/2017	5/22/2017	5/24/2017	7/25/2017	7/27/2017
Run Start Time	6:05 PM	10:43 AM	7:35 PM	3:21 PM	10:51 PM	12:56 PM
Run End Date	5/9/2017	5/22/2017	5/24/2017	5/26/2017	7/27/2017	8/1/2017
Run End Time	12:57 PM	6:29 PM	2:03 PM	11:02 AM	12:01 PM	2:23 PM

Run 7						
Run Start Depth (ft)	18168.59					
Run End Depth (ft)	19179.98					
Run Start Date	8/1/2017					
Run Start Time	3:27 PM					
Run End Date	8/3/2017					
Run End Time	7:35 PM					

Tool Information Summary

60955

	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6
Gamma Probe Serial No	EGNF0182	EGNF0061	EGNF0061	EGNF0182	EGNF0168	EGNF0165

CERTIFICATE OF COMPLIANCE
 AND TRANSPORTATION AUTHORITY

This facsimile P-4 was generated electronically from data submitted to the RRC.
 A certification of the automated data is available in the RRC's Austin office.

Tracking No.: 184370

1. Field name exactly as shown on proration schedule PHANTOM (WOLFCAMP)		2. Lease name as shown on proration schedule UNIVERSITY 19 PW UNIT		
3. Current operator name exactly as shown on P-5 Organization Report SHELL WESTERN E&P		4. Operator P-5 no. 774719	5. Oil Lse/Gas ID no. 42401	6. County LOVING
8. Operator address including city, state, and zip code PO BOX 576 HOUSTON, TX 77001		9. Well no(s) (see instruction E) 0908H		7. RRC district 08
		10. Classification <input checked="" type="checkbox"/> Oil <input type="checkbox"/> Gas <input type="checkbox"/> Other (see instruction A)		11. Effective Date 12/28/2017
12. Purpose of Filing. (Complete section a or b below.) (See instructions B and G)				
a. Change of: <input type="checkbox"/> operator <input type="checkbox"/> oil or condensate gatherer <input type="checkbox"/> gas gatherer <input type="checkbox"/> gas purchaser <input type="checkbox"/> gas purchaser system code <input type="checkbox"/> field name from _____ <input type="checkbox"/> lease name from _____				
-- OR --				
b. New RRC Number for: <input checked="" type="checkbox"/> oil lease <input type="checkbox"/> gas well <input type="checkbox"/> other well (specify) _____				
Due to: <input checked="" type="checkbox"/> new completion or recompletion <input type="checkbox"/> reclass oil to gas <input type="checkbox"/> reclass gas to oil <input type="checkbox"/> consolidation, unitization, or subdivision (oil lease only)				
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 <i>(Attach an additional sheet in same format if more space is needed)</i>		Purchaser's RRC Assigned System Code
				Percent of Take
				Full-well stream
X		DELAWARE G&P LLC(211538)		
	X	SHELL ENERGY NORTH AM. (US), LP(773822)		0001
				100.0
				100.0
14. Authorized OIL or CONDENSATE Gatherer(s). (See instruction G).				
Name of OIL or CONDENSATE Gatherer(s) - List Highest Volume Gatherer First <i>(Attach an additional sheet in same format if more space is needed)</i>				Percent of Take
SHELL WESTERN E&P(774719)				100.0
RRC USE ONLY: Reviewer's initials: _____ Approval date: _____				
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 _____		
Name (print) _____		<input type="checkbox"/> Authorized Employee of previous operator		<input type="checkbox"/> Authorized agent of previous operator (see instruction G)
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.				
SHELL WESTERN E&P _____		Maureen Kovacic _____		
Name (print) _____		Signature _____		
Regulatory Specialist _____		<input checked="" type="checkbox"/> Authorized Employee of current operator		<input type="checkbox"/> Authorized agent of current operator (see instruction G)
Title _____		Date _____		Phone with area code _____
maureen.kovacic@shell.com _____		01/15/2018 _____		(832) 337-0953 _____
E-mail Address (optional) _____		Date _____		Phone with area code _____

CERTIFICATE OF POOLING AUTHORITY

P-12

Revised 05/2001

1. Field Name(s) Phantom (Wolfcamp)	2. Lease/ID Number (if assigned) 42401	3. RRC District Number 08
4. Operator Name Shell Western E&P	5. Operator P-5 Number 774719	6. Well Number 0908H
7. Pooled Unit Name University 19 PW Unit	8. API Number 301-33234	9. Purpose of Filing <input type="checkbox"/> Drilling Permit (W-1) <input checked="" type="checkbox"/> Completion Report
10. County Loving & Ward	11. Total acres in pooled unit 13511.20	

DESCRIPTION OF INDIVIDUAL TRACTS CONTAINED WITHIN THE POOLED UNIT

TRACT/PLAT IDENTIFIER	TRACT NAME	ACRES IN TRACT <i>(See inst. #7 below)</i>	INDICATE UNDIVIDED INTERESTS	
			UNLEASED	NON-POOLED
Tr. 1	University Lands	160.24	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 2	University Lands	480.71	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 3	University Lands	520.93	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 4	University Lands	641.05	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 5	University Lands	280.46	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 6	University Lands (below 11710')	40.07	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Tr. 7	University Lands	320.54	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 8	University Lands	641.06	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 9	University Lands	566.27	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 10	University Lands	641.31	<input type="checkbox"/>	<input type="checkbox"/>

CERTIFICATION:

I declare under penalties prescribed pursuant to the Sec. 91.143, Texas Natural Resources Code, that I am authorized to make the foregoing statements and that the information provided by me or under my direction on this Certificate of Pooling Authority is true, correct, and complete to the best of my knowledge.

Signature

Maureen Kovacic

Reg. Specialist

maureen.kovacic@shell.com

Print Name

09/26/2017

(832) 337-0549

Title

E-mail (if available)

Date

Phone

INSTRUCTIONS — Reference: Statewide Rules 31, 38 and 40

1. When two or more tracts are pooled to form a unit to obtain a drilling permit, file completion paperwork, or reform a pooled unit pursuant to Rule 38(d)(3) the operator must file an original Certificate of Pooling Authority and certified plat.
2. The certified plat shall designate each tract with an outline and a tract identifier. The tract identifier on the plat shall correspond to the tract identifier and associated information listed on the Certificate.
3. If within an individual tract, a non-pooled and/or unleased interest exists, indicate by checking the appropriate box.
4. If the Purpose of Filing is to obtain a drilling permit, in box #1 list all applicable fields separately or enter "All Fields" if the Certificate pertains to all fields requested on Form W-1.
5. If the Purpose of Filing is to file completion paperwork, enter the applicable field name in box #1 for the completion.
6. Identify the drill site tract with an * to the left of the tract identifier.
7. The total number of acres in the pooled unit in #11 should equal the total of all acres in the individual tracts listed.



CERTIFICATE OF POOLING AUTHORITY

P-12

Revised 05/2001

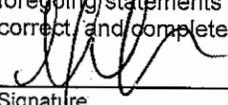
1. Field Name(s) Phantom (Wolfcamp)	2. Lease/ID Number (if assigned) 42401	3. RRC District Number 08
4. Operator Name Shell Western E&P	5. Operator P-5 Number 774719	6. Well Number 0908H
7. Pooled Unit Name University 19 PW Unit	8. API Number 301-33234	9. Purpose of Filing <input type="checkbox"/> Drilling Permit (W-1) <input checked="" type="checkbox"/> Completion Report
10. County Loving & Ward	11. Total acres in pooled unit 13511.20	

DESCRIPTION OF INDIVIDUAL TRACTS CONTAINED WITHIN THE POOLED UNIT

TRACT/PLAT IDENTIFIER	TRACT NAME	ACRES IN TRACT <small>(See inst. #7 below)</small>	INDICATE UNDIVIDED INTERESTS	
			UNLEASED	NON-POOLED
Tr. 11	University Lands	641.23	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 12	University Lands	320.60	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 13	University Lands	320.61	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 14	University Lands	640.92	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 15	University Lands	640.99	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 16	University Lands	465.34	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 17	University Lands	640.96	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 18	University Lands	624.55	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 20	University Lands	120.21	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 22	University Lands	320.45	<input type="checkbox"/>	<input type="checkbox"/>

CERTIFICATION:

I declare under penalties prescribed pursuant to the Sec. 91.143, Texas Natural Resources Code, that I am authorized to make the foregoing statements and that the information provided by me or under my direction on this Certificate of Pooling Authority is true, correct, and complete to the best of my knowledge.

 Signature Reg. Specialist	Maureen Kovacic Print Name 09/26/2017 Date maureen.kovacic@shell.com E-mail (if available) (832) 337-0953 Phone
---	--

INSTRUCTIONS — Reference: Statewide Rules 31, 38 and 40

1. When two or more tracts are pooled to form a unit to obtain a drilling permit, file completion paperwork, or reform a pooled unit pursuant to Rule 38(d)(3) the operator must file an original Certificate of Pooling Authority and certified plat.
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6. Identify the drill site tract with an * to the left of the tract identifier.
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CERTIFICATE OF POOLING AUTHORITY

P-12

Revised 05/2001

1. Field Name(s) Phantom (Wolfcamp)	2. Lease/ID Number <i>(if assigned)</i> 42401	3. RRC District Number 08
4. Operator Name Shell Western E&P	5. Operator P-5 Number 774719	6. Well Number 0908H
7. Pooled Unit Name University 19 PW Unit	8. API Number 301-33234	9. Purpose of Filing <input type="checkbox"/> Drilling Permit (W-1) <input checked="" type="checkbox"/> Completion Report
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TRACT/PLAT IDENTIFIER	TRACT NAME	ACRES IN TRACT <i>(See inst. #7 below)</i>	INDICATE UNDIVIDED INTERESTS	
			UNLEASED	NON-POOLED
Tr. 23	University Lands	640.99	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 24	University Lands	640.90	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 25	University Lands	640.86	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 26	University Lands	639.62	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 27	University Lands	638.33	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 28	University Lands	200.31	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 29	University Lands	120.19	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 30	University Lands	320.50	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 32	University Lands	320.48	<input type="checkbox"/>	<input type="checkbox"/>
Tr. 34	University Lands	320.52	<input type="checkbox"/>	<input type="checkbox"/>

CERTIFICATION:

I declare under penalties prescribed pursuant to the Sec. 91.143, Texas Natural Resources Code, that I am authorized to make the foregoing statements and that the information provided by me or under my direction on this Certificate of Pooling Authority is true, correct, and complete to the best of my knowledge.

Maureen Kovacic

Signature _____
 Reg. Specialist maureen.kovacic@shell.com
 Title _____ E-mail *(if available)*

Print Name _____
09/26/2017 _____
 Date _____ Phone (832) 337-0549

INSTRUCTIONS — Reference: Statewide Rules 31, 38 and 40

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7. The total number of acres in the pooled unit in #11 should equal the total of all acres in the individual tracts listed.



GROUNDWATER PROTECTION DETERMINATION

Form GW-2



Groundwater Advisory Unit

Date Issued: 01 February 2017**GAU Number:** 166499

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

API Number:
County: LOVING
Lease Name: University 19 PW Unit

Operator No.: 774719

Lease Number:
Well Number: 1407H
Total Vertical Depth: 12000
Latitude: 31.699414
Longitude: -103.410281
Datum: NAD27

Purpose: New Drill**Location:** Survey-UL; Block-19; Section-9

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

The interval from the land surface to a depth of 300 feet, and the Rustler, the top of which is estimated to occur from 500 to 550 feet depth and the base of which is estimated to occur from 950 to 1000 feet depth by reconnaissance-level evaluation, must be protected.

This recommendation is applicable for all wells drilled in this sec. 9.

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 01/25/2017. 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

UNIVERSITY 19 PW UNIT

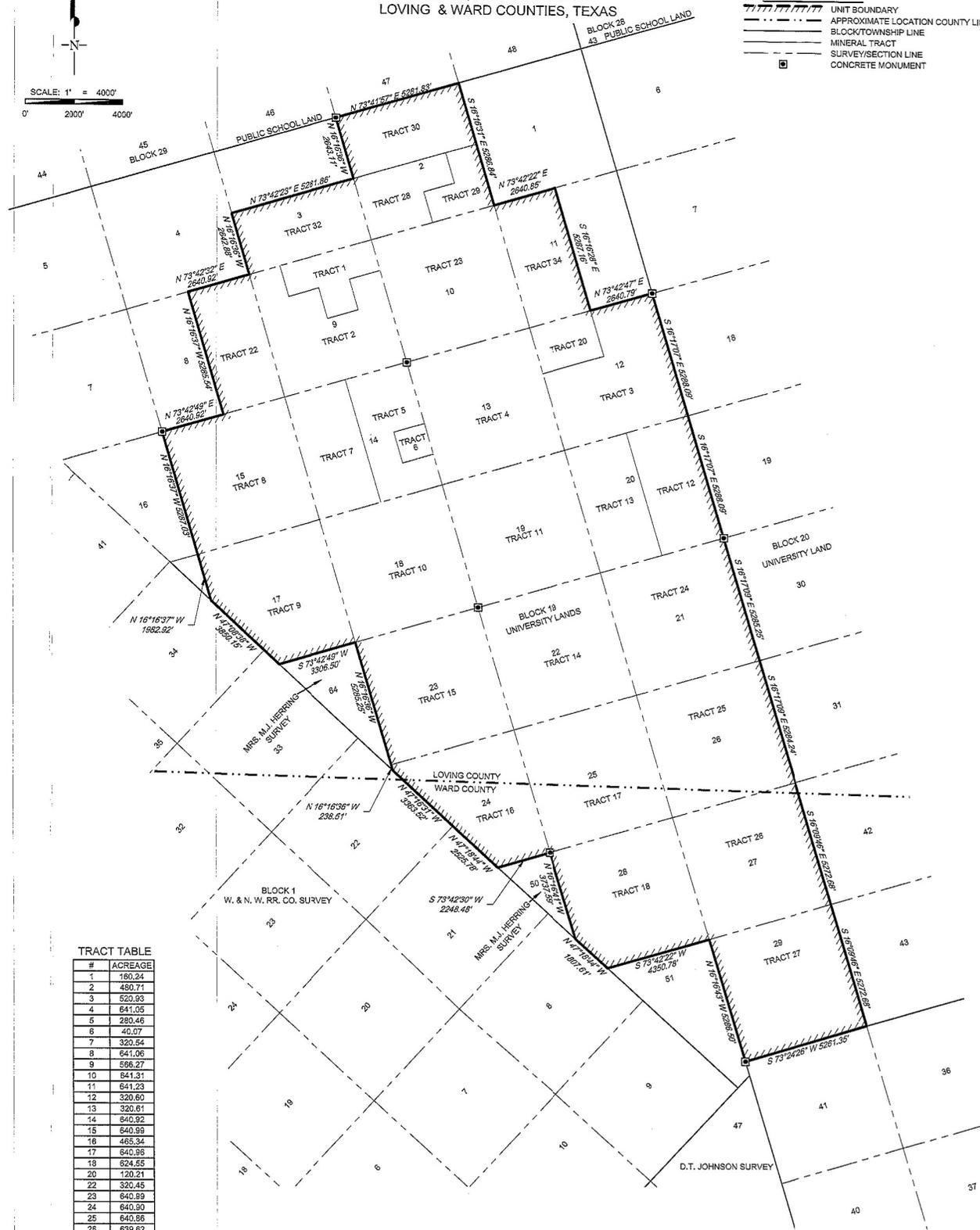
13511.20 ACRES (MEASURED)
 SECTIONS 2, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28 & 29,
 S/2 OF SECTION 3, E/2 OF SECTION 8, W/2 OF SECTION 11
 BLOCK 19, UNIVERSITY LAND
 LOVING & WARD COUNTIES, TEXAS

SHELL WESTERN
 E&P

LEGEND

- UNIT BOUNDARY
- APPROXIMATE LOCATION COUNTY LINE
- BLOCK/TOWNSHIP LINE
- MINERAL TRACT
- SURVEY SECTION LINE
- CONCRETE MONUMENT

SCALE: 1" = 4000'
 0' 2000' 4000'



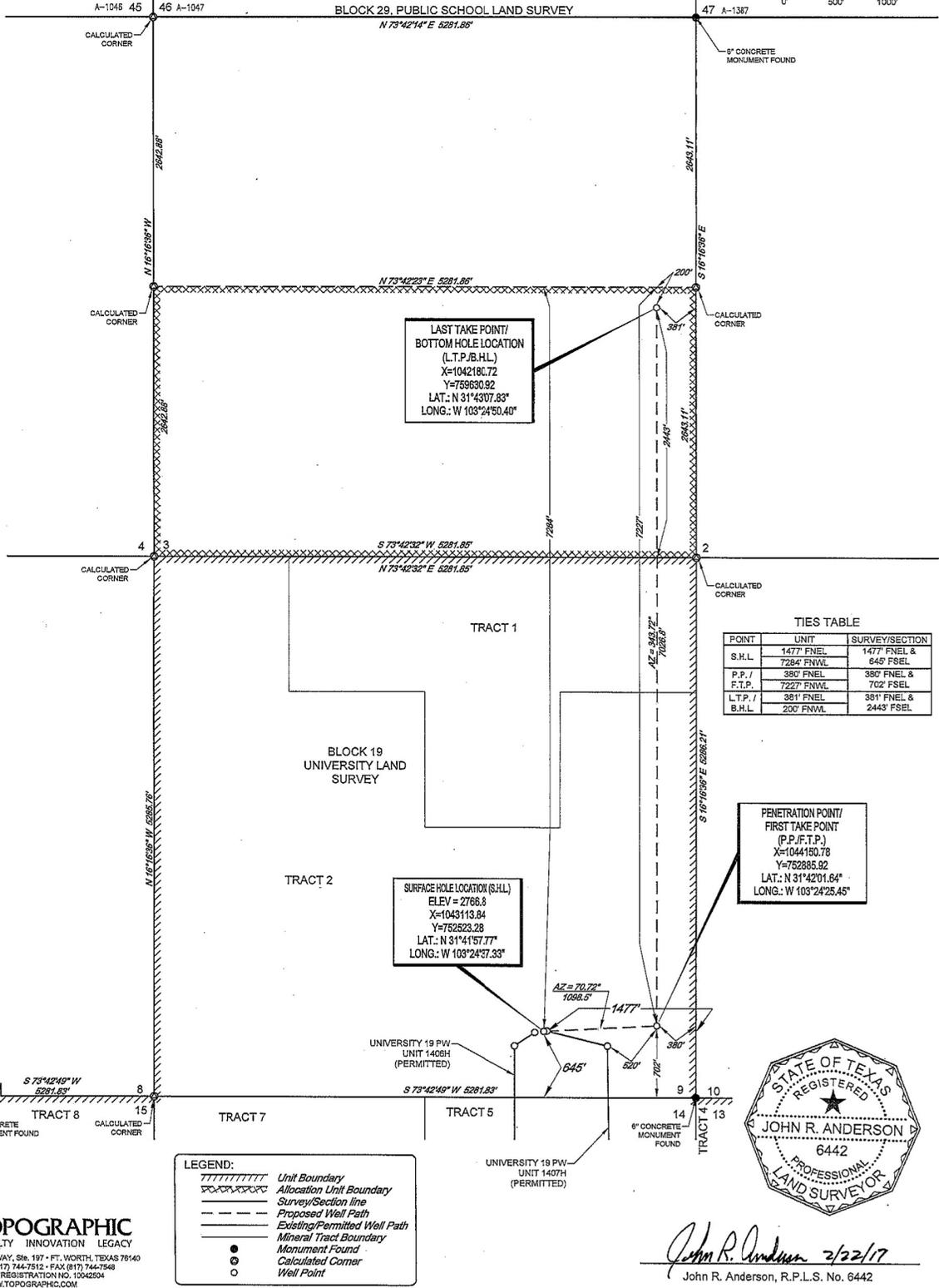
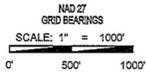
TRACT TABLE

#	ACREAGE
1	180.24
2	480.71
3	520.83
4	641.05
5	280.46
6	40.07
7	320.54
8	641.06
9	556.27
10	641.31
11	641.23
12	320.60
13	320.61
14	640.82
15	640.99
16	465.34
17	640.98
18	624.55
20	120.21
22	320.45
23	640.89
24	640.90
25	640.86
26	639.62
27	638.33
28	200.31
29	120.19
30	320.50
32	320.48
34	320.52
TOTAL	13511.20



SHELL WESTERN
E&P

WELL LOCATION
LEASE NAME & WELL NO.:
UNIVERSITY 19 H 0908H
UNIT/LEASE ACREAGE:
PW UNIT: 8588.11 ACRES, ALLOCATION UNIT: 320.48 ACRES (MEASURED)
TOTAL ACREAGE:
8908.59 ACRES (MEASURED)
NEAREST TOWN IN COUNTY:
±11.1 MILES SOUTHEAST OF MENTONE, TEXAS
DESCRIPTION:
S/2 OF SECTION 3 & SECTION 9, BLOCK 19, UNIVERSITY LAND SURVEY
LOVING COUNTY, TEXAS



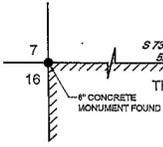
LAST TAKE POINT/
BOTTOM HOLE LOCATION
(L.T.P./B.H.L.)
X=104218.72
Y=759630.92
LAT.: N 31°43'07.83"
LONG.: W 103°24'50.40"

SURFACE HOLE LOCATION (S.H.L.)
ELEV = 2766.8
X=1043113.84
Y=752523.28
LAT.: N 31°41'57.77"
LONG.: W 103°24'37.33"

PENETRATION POINT/
FIRST TAKE POINT
(P.P./F.T.P.)
X=1044150.78
Y=752885.92
LAT.: N 31°42'01.64"
LONG.: W 103°24'25.45"

TIES TABLE

POINT	UNIT	SURVEY/SECTION
S.H.L.	1477' FNEL	1477' FNEL & 645' FSEL
P.P./	380' FSEL	380' FSEL & 702' FSEL
F.T.P.	727' FSEL	727' FSEL
L.T.P./	381' FSEL	381' FSEL & 2443' FSEL
B.H.L.	200' FSEL	2443' FSEL



John R. Anderson 2/22/17
John R. Anderson, R.P.L.S. No. 6442

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 197 - FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 - FAX: (817) 744-7549
TEXAS FIRM REGISTRATION NO. 10042504
WWW.TOPOGRAPHIC.COM

LEGEND:
Unit Boundary
Allocation Unit Boundary
Survey Section line
Proposed Well Path
Existing/Permitted Well Path
Mineral Tract Boundary
Monument Found
Calculated Corner
Well Point

UNIVERSITY 19 H 0908H

REVISION:	INT	DATE
O.M.		02/22/2017

DATE: 02/07/2017
FILE: LO_UNIVERSITY_19_H_0908H_REV1
DRAWN BY: O.M.
SHEET: 1 OF 1

NOTES:
1. ORIGINAL DOCUMENT SIZE: 11" X 17"
2. 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.
3. 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 SHELL WESTERN E&P. THIS PLAN 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.S.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 PLAN IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.
4. ALL ELEVATION VALUES CONTAINED HEREIN ARE ORTHOMETRIC ONLY, BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), U.S. SURVEY FEET.
5. ALL MINERAL OWNERSHIP DATA SHOWN HEREIN IS BASED ON INFORMATION PROVIDED BY SHELL WESTERN E&P OR ITS SUBSIDIARIES & AFFILIATES.

NOTES CONT'D:
6. THE PRELIMINARY LOCATION HAS BEEN CAREFULLY SURVEYED ON THE GROUND DURING THE DATE OF NOVEMBER 4, 2016, AT A GROUND LEVEL ELEVATION OF 2766.8 SURVEY FEET.
7. S.H.L. = SURFACE HOLE LOCATION
8. P.P. = POINT OF PENETRATION
9. F.T.P. = FIRST TAKE POINT
10. L.T.P. = LAST TAKE POINT
11. B.H.L. = BOTTOM HOLE LOCATION