



**RAILROAD COMMISSION OF TEXAS**

**Form W-2**

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

Status: Approved  
Date: 03/16/2018  
Tracking No.: 182270

**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	42-301-33171	County:	LOVING
Well No.:	1504H	RRC District	08
Lease	UNIVERSITY 19 PW UNIT	Field	PHANTOM (WOLFCAMP)
RRC Lease	42401	Field No.:	71052900
Location	Section: 8, Block: 19, Survey: UL, Abstract: U8		
Latitude	31	Longitud	-103
This well is	9.7	miles in a	SOUTHEAST
direction from	MENTONE,		
which is the nearest town in the			

FILING INFORMATION			
Purpose of	Initial Potential		
Type of	New Well		
Well Type:	Producing	Completion or Recompletion	10/19/2017
<u>Type of Permit</u>		<u>Date</u>	<u>Permit No.</u>
Permit to Drill, Plug Back, or		01/18/2017	821065
Rule 37 Exception			
Fluid Injection			
O&G Waste Disposal			
Other:			

COMPLETION INFORMATION			
Spud	02/01/2017	Date of first production after rig	10/19/2017
Date plug back, deepening, drilling operation	02/01/2017	Date plug back, deepening, recompletion, drilling operation	10/19/2017
Number of producing wells on this lease this field (reservoir) including this	21	Distance to nearest well in lease & reservoir	403.0
Total number of acres in	8588.11	Elevation	2736 GL
Total depth TVD	11558	Total depth MD	20600
Plug back depth TVD		Plug back depth MD	20588
Was directional survey made other inclination (Form W-	Yes	Rotation time within surface casing Is Cementing Affidavit (Form W-15)	94.0 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	1279.0 Feet from the	570.0 Feet from the	Off Lease : No SW Line and SE Line of the UNIVERSITY 19 PW UNIT Lease.

FORMER FIELD (WITH RESERVOIR) & GAS ID OR OIL LEASE NO.			
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>	1050.0	<b>Date</b>	11/30/2016
<b>SWR 13 Exception</b>	<b>Depth</b>	4815.0		

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

<b>Date of</b>	10/22/2017	<b>Production</b>	Flowing
<b>Number of hours</b>	24	<b>Choke</b>	32/64
<b>Was swab used during this</b>	No	<b>Oil produced prior to</b>	1645.00
<b>PRODUCTION DURING TEST PERIOD:</b>			
<b>Oil</b>	934.00	<b>Gas</b>	1613
<b>Gas - Oil</b>	1726	<b>Flowing Tubing</b>	2244.00
<b>Water</b>	5063		
<b>CALCULATED 24-HOUR RATE</b>			
<b>Oil</b>	934.0	<b>Gas</b>	1613
<b>Oil Gravity - API - 60.:</b>	46.0	<b>Casing</b>	3212.00
<b>Water</b>	5063		

**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	4848			C	3075	5481.0	0	Circulated to Surface
2	Intermediate	7	8 3/4	11883			C,H	740	1572.0	1443	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	10881	20588	H	870	1044.0	1088 1	Calculation

**TUBING RECORD**

<u>Ro</u>	<u>Size (in.)</u>	<u>Depth Size (ft.)</u>	<u>Packer Depth (ft.)/Type</u>
1	2 7/8	10813	10782 / 7: HES VERSASET PACKER

**PRODUCING/INJECTION/DISPOSAL INTERVAL**

<u>Ro</u>	<u>Open hole?</u>	<u>From (ft.)</u>	<u>To (ft.)</u>
1	No	L1 11976	20355.0

**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>If yes, actuation pressure</b>	6206.0
<b>Production casing test pressure (PSIG) during hydraulic fracturing</b>	9500	<b>Actual maximum pressure (PSIG) during fracturin</b>	9427
<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>

**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	4958.0	4971.0	Yes	
BRUSHY CANYON	Yes	7059.0	7073.0	Yes	
DELAWARE	Yes	4927.0	4940.0	Yes	
CHERRY CANYON	Yes	5891.0	5905.0	Yes	
BONE SPRINGS	Yes	8486.0	8500.0	Yes	
WOLFCAMP	Yes	11279.0	11333.0	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: 10960  
ACTUATION SLEEVE INSTALLED BUT NOT OPENED.

**RRC REMARKS****PUBLIC COMMENTS:**

[RRC Staff 2017-12-07 11:37:27.057] EDL=8379 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** Maureen Kovacic  
**Telephone** (832) 337-0953

**Title:** Regulatory Specialist  
**Date** 12/21/2017



# RAILROAD COMMISSION OF TEXAS

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

Form W-15  
Rev. 08/2014

## CEMENTING REPORT

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

### OPERATOR INFORMATION

Operator Name: Shell Exploration	Operator P-5 No.: 774719
Cementer Name: Baker Hughes	Cementer P-5 No.: 046202

### WELL INFORMATION

District No.: 08	County: Loving	
Well No.: Unit 1504H	API No.: 42-301-33171	Drilling Permit No.: 821065
Lease Name: University 19 PW	Lease No.: UMRH3804M	Field No.:
Field Name: Phantom (Wolfcamp)		

### 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 1/4"      Depth of drilled hole (ft.): 4854      Est. % wash-out or hole enlargement: 13%
Size of casing in O.D. (in.): 9 5/8"      Casing weight (lbs/ft) and grade: 40# J55      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.): 4848'      Top of liner (ft.):
Hrs. waiting on cement before drill-out: +12      Calculated top of cement (ft.): 0      Cementing date: 2/5/17

### SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1	2575	C	SEE REMARKS	4817	16301
2	500	C	SEE REMARKS	684	2115
Total	3075	C	SEE REMARKS	5481	17406

### 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.)      Tapered string depth of drilled hole (ft.)
Upper:      Lower:      Upper:      Lower:
Tapered string size of casing in O.D. (in.)      Tapered string casing weight (lbs/ft) and grade
Upper:      Lower:      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.)      Tapered string depth of drilled hole (ft.)
Upper:      Lower:      Upper:      Lower:
Tapered string size of casing in O.D. (in.)      Tapered string casing weight (lbs/ft) and grade
Upper:      Lower:      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

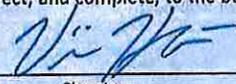
Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1					
2					
3					
Total					

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**

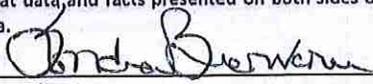
35/65 C+5%SODIUM CHLORIDE+0.01GPS FP-6L+4%BENTONITE+0.65%SODIUM METASILICATE+0.75%R-21+0.005#STATIC FREE TAIL SLURRY C+0.005#STATIC FREE+0.01GPS FP-6L+0.15%SODIUM METASILICATE+0.25% R-21

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.

Vivian Munoz Field Specialist I Baker Hughes Oil Field Ops, Inc 

Name and title of cementer's representative Cementing Company Signature  
 2929 Allen Parkway Suite 2100 Houston, Texas, 77019 (713)439-8600 2/5/17  
 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.

Sondra Bienvenu US Onshore Waste SME 

Typed or printed name of operator's representative Title Signature  
 150 N. Dairy Ashford Houston, TX 77079 832-337-2100 08/24/2017  
 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\\_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_dir=&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 callper 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 EXPLOITION & PRODUCTION

Operator P-5 No.: 774719

Cementor Name: BJ Services, LLC

Cementor P-5 No.: 403101

### WELL INFORMATION

District No.: 08

County: LOVING

Well No.: 1504H

API No.: ~~4231231710008~~ 42-301-33171

Drilling Permit No.: 821005

Lease Name: UNIVERSITY 10 PW UNIT

Lease No.:

Field Name: Phantom (Wolfcamp)

Field No.:

### I. CASING CEMENTING DATA

Type of casing:  Conductor  Surface  Intermediate  Liner  Production

Drilled hole size (in.): 8 3/4"

Depth of drilled hole (ft.): 11800

Est. % wash-out or hole enlargement: 15%

Size of casing in O.D. (in.): 7"

Casing weight (lbs/ft) and grade: 29, P-100

No. of centralizers used: 65

Was cement circulated to ground surface (or bottom of cellar) outside casing?  YES  NO If no for surface casing, explain in Remarks.

Setting depth shoe (ft.):

Top of liner (ft.):

11883

Setting depth liner (ft.):

Hrs. waiting on cement before drill-out: +12

Calculated top of cement (ft.): 1443

Cementing date: 02/23/217

### SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1	275	C	REMAR1	1012	6732
2	405	H	REMARK2	580	3725
Total	740			1572	10457

### II. CASING CEMENTING DATA

Type of casing:  Surface  Intermediate  Production  Tapered production  Multi-stage cement shoe  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.)

Tapered string depth of drilled hole (ft.)

Upper:

Lower:

Upper:

Lower:

Tapered string size of casing in O.D. (in.)

Tapered string casing weight (lbs/ft) and grade

Tapered string no. of centralizers used

Upper:

Lower:

Upper:

Lower:

Upper:

Lower:

Was cement circulated to ground surface (or bottom of cellar) outside casing?  YES  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:  Surface  Intermediate  Production  Tapered production  Multi-stage cement/DV tool  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.)

Tapered string depth of drilled hole (ft.)

Upper:

Lower:

Upper:

Lower:

Tapered string size of casing in O.D. (in.)

Tapered string casing weight (lbs/ft) and grade

Tapered string no. of centralizers used

Upper:

Lower:

Upper:

Lower:

Upper:

Lower:

Was cement circulated to ground surface (or bottom of cellar) outside casing?  YES  NO

Setting depth tool (ft.):

Hrs. waiting on cement before drill-out:

Calculated top of cement (ft.):

Cementing date:

### SLURRY

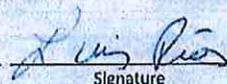
Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1					
2					
3					
Total					

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)							

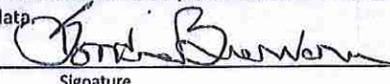
**REMARKS**

REMARK #1 35:85 POZ+10.00% BA-90+5% A-10+1.50% FL-52+1% CD-32+2.25% SMS+3 KCL +1.40% R-3+.005 LB/SK STATIC FREE  
 REMARK#250:50 POZ+ .60% FL-66+.35% 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 02/23/2017  
 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.

**Sondra Blenvenu** **Onshore Waste SME**   
 Typed or printed name of operator's representative Title Signature  
 150 N. Dairy Ashford Houston, TX 77084 832-337-2100 08/24/2017  
 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\\_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 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

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

### OPERATOR INFORMATION

Operator Name: SHELLEXPLORATION & PRODUCTION CO	Operator P-5 No.: 774719
Cementer Name: DJ SERVICES, LLC	Cementer P-5 No.: 403101

### WELL INFORMATION

District No.: 08	County: LOVING	
Well No.: 1504H	API No.: 42301331710000	Drilling Permit No.: 821065
Lease Name: UNIVERSITY 19 PW UNIT	Lease No.:	
Field Name: Phanton (Wolfcamp)	Field No.:	

### 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.): 20600      Est. % wash-out or hole enlargement: 15%
Size of casing in O.D. (in.): 4 1/2"      Casing weight (lbs/ft) and grade: 13.5/P-110      No. of centralizers used:
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.): 20588'      Top of liner (ft.): 10881
Setting depth liner (ft.): 20588
Hrs. waiting on cement before drill-out:      Calculated top of cement (ft.): 10881      Cementing date: 03-31-17

### SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1	870	H	SEE REMARKS	1044	11080
2					
3					
Total	870	H	SEE REMARKS	1044	11080

### 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.)      Tapered string depth of drilled hole (ft.)
Upper:      Lower:      Upper:      Lower:
Tapered string size of casing in O.D. (in.)      Tapered string casing weight (lbs/ft) and grade      Tapered string no. of centralizers used
Upper:      Lower:      Upper:      Lower:      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.)      Tapered string depth of drilled hole (ft.)
Upper:      Lower:      Upper:      Lower:
Tapered string size of casing in O.D. (in.)      Tapered string casing weight (lbs/ft) and grade      Tapered string no. of centralizers used
Upper:      Lower:      Upper:      Lower:      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					





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 01/18/2017 .  
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: 01/24/2017

D. CRAIG PEARSON

DISTRICT DIRECTOR

Tracking No.: 177808

**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: 04/12/2017
Field Name PHANTOM (WOLFCAMP)	Drilling Permit No. 821065	
Lease Name UNIVERSITY 19 PW UNIT	Lease/ID No. 42401	Well No. 1504H
County LOVING	API No. 42- 301-33171	

**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  
09/07/2017  
Date

-FOR RAILROAD COMMISSION USE ONLY-



# M17031\_Vertical-Curve-Lateral

MD  
1":100'

<p>Company: Shell Western E&amp;P          Well Name: University 19 PW Unit 1504H ST01          API: 42301331710100          County/Parish: Loving County          State: Texas          Country: United States          Job number: M17031          Field: Delaware Basin          Rig Id: Precision 563          Survey Company: Premier Directional Drilling</p>	<p>Log measurements: EVO-One          Depth measured from: Pason ft          Maximum temperature: 211</p> <table border="1"> <thead> <tr> <th>Depth</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>Start: 138 ft</td> <td>02/02/17</td> </tr> <tr> <td>End: 20600 ft</td> <td>03/30/17</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Casing</th> <th>Depth</th> <th>Size</th> </tr> </thead> <tbody> <tr> <td>Surface:</td> <td>4900 ft</td> <td>9 5/8"</td> </tr> <tr> <td>Intermediate:</td> <td>11681 ft</td> <td>7"</td> </tr> <tr> <td>Intermediate2:</td> <td>20600 ft</td> <td>4 1/2"</td> </tr> </tbody> </table> <table border="1"> <tr> <td>Mud Type: Brine - OBM</td> <td rowspan="4">Elevations KB:2761.20 ft DF:2761.20 ft GL:2736.20 ft</td> </tr> <tr> <td>Density: 9.1 - 13.4</td> </tr> <tr> <td>Viscosity: 28 - 71</td> </tr> <tr> <td>Rm: N/A    Rmf: N/A    Rmc: N/A</td> </tr> </table>	Depth	Date	Start: 138 ft	02/02/17	End: 20600 ft	03/30/17	Casing	Depth	Size	Surface:	4900 ft	9 5/8"	Intermediate:	11681 ft	7"	Intermediate2:	20600 ft	4 1/2"	Mud Type: Brine - OBM	Elevations KB:2761.20 ft DF:2761.20 ft GL:2736.20 ft	Density: 9.1 - 13.4	Viscosity: 28 - 71	Rm: N/A    Rmf: N/A    Rmc: N/A
Depth	Date																							
Start: 138 ft	02/02/17																							
End: 20600 ft	03/30/17																							
Casing	Depth	Size																						
Surface:	4900 ft	9 5/8"																						
Intermediate:	11681 ft	7"																						
Intermediate2:	20600 ft	4 1/2"																						
Mud Type: Brine - OBM	Elevations KB:2761.20 ft DF:2761.20 ft GL:2736.20 ft																							
Density: 9.1 - 13.4																								
Viscosity: 28 - 71																								
Rm: N/A    Rmf: N/A    Rmc: N/A																								

Run	Bit Size	Offsets		Depths		Dates	
		Gamma	Survey	Start	End	Start	End
1	12 1/4"	76.30 ft	78.00 ft	145 ft	4854 ft	01/29/17	02/01/17
2	8 3/4"	73.96 ft	75.00 ft	4854 ft	9801 ft	02/16/17	02/19/17
3	8 3/4"	73.96 ft	75.00 ft	9801 ft	10935 ft	02/20/17	02/22/17
4	8 3/4"	52.41 ft	54.00 ft	10935 ft	11900 ft	02/21/17	02/22/17
5	6 1/8"	55.67 ft	57.00 ft	11900 ft	11900 ft	03/16/17	03/18/17
6	6 1/8"	61.78 ft	63.00 ft	11681 ft	11696 ft	03/21/17	03/23/17
7	6 1/8"	52.87 ft	54.00 ft	11696 ft	20600 ft	03/23/17	03/30/17
8							
9							

# Field Rules and Producing Intervals

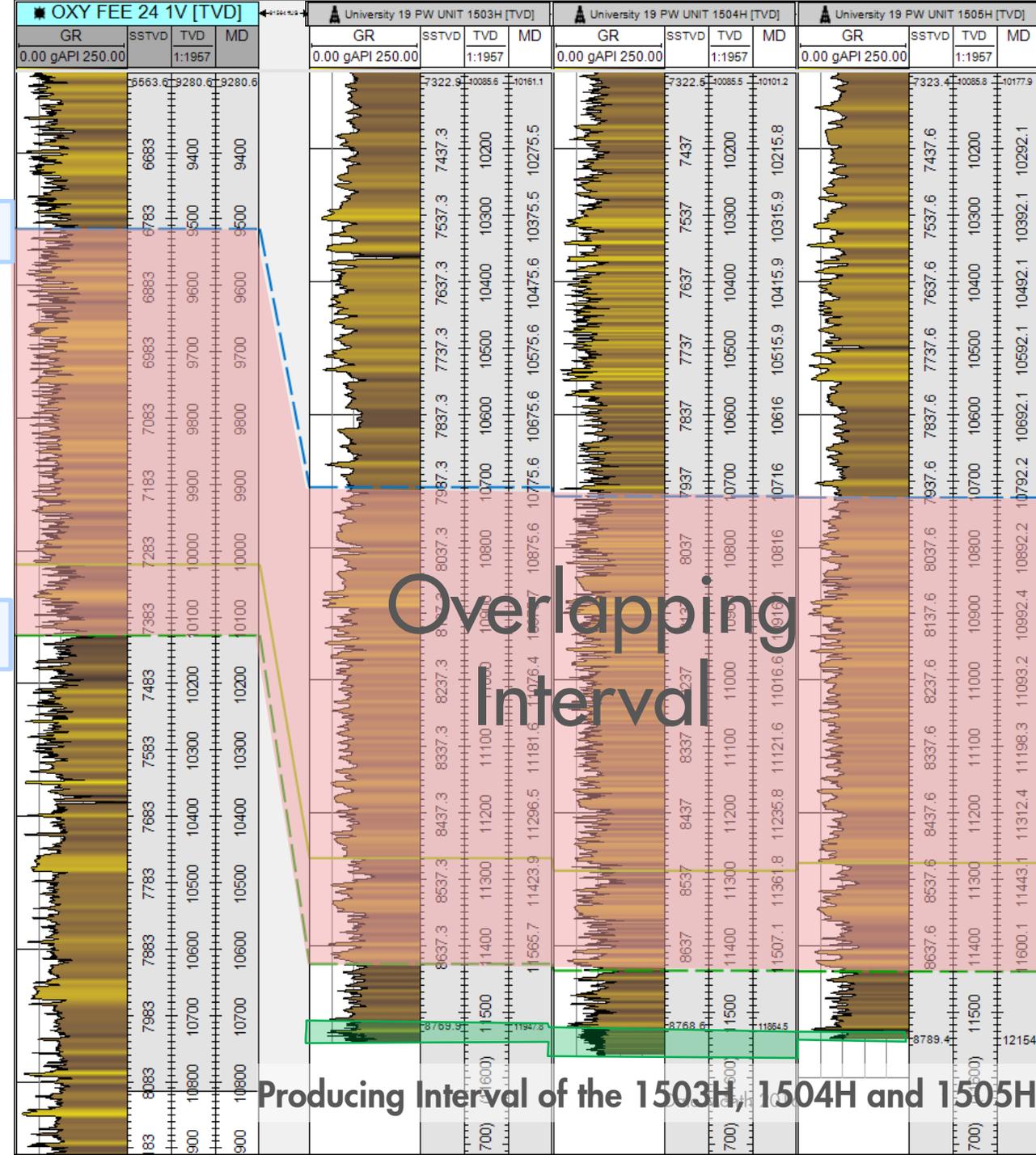
- The producing interval of the University 19 PW UNIT 1503H, 1504H and 1505H is NOT in the overlapping intervals of the Two Georges and the Phantom (Wolfcamp) field rules.

Top of Phantom (Wolfcamp) Field Rules

Base of Two Georges Field Rules

Overlapping Interval

Producing Interval of the 1503H, 1504H and 1505H



# CERTIFICATE OF POOLING AUTHORITY

# P-12

*Revised 05/2001*

1. Field Name(s)	2. Lease/ID Number <i>(if assigned)</i>	3. RRC District Number
4. Operator Name	5. Operator P-5 Number	6. Well Number
7. Pooled Unit Name	8. API Number	9. Purpose of Filing
10. County	11. Total acres in pooled unit	<input type="checkbox"/> Drilling Permit (W-1) <input type="checkbox"/> Completion Report

### 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
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<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.

*Sandra Braverman*

Signature

Print Name

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.





RAILROAD COMMISSION OF TEXAS

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

Form P-16

Page 1

Rev. 01/2016

Acreage Designation

SECTION I. OPERATOR INFORMATION

Operator Name: Shell Western E&P
Operator P-5 No.: 774719
Operator Address: P.O. Box 576, Houston, Texas 77001

SECTION II. WELL INFORMATION

District No.: 08
Well No.: 1504H
Total Lease Acres: 8588.11
Lease Name: University 19 PW Unit
Field Name: Phantom (Wolfcamp)
County: Loving and Ward
API No.: 42-301-33171
Drilling Permit No.: 821065
Lease No.: 42401
Field No.: 71052900
Purpose of Filing: Completion Report (Form G-1/W-2)

Filer is the owner or lessee, or has been authorized by the owner or lessee, of all or an undivided portion of the mineral estate under each tract for which filer is listed as operator below. For all leases operated by other entities, the number of assigned acres shown are reflected on current Commission records or the filer has been authorized by the current operator to change the assigned acreage of that operator as shown below.

SECTION III. LISTING OF ALL WELLS IN THE APPLIED-FOR FIELD ON THE SAME ACREAGE AS THE LEASE, POOLED UNIT, OR UNITIZED TRACT DESIGNATED IN SECTION II ABOVE BY FILER

Table with 8 columns: RRC ID No. or Lease No., Well No., H-Horizontal D-Directional V-Vertical, Lease Name, API No., Acres Assigned, SWR 38 Except. (Y/N), Operator Name and Operator No. (if different from filing operator). Rows include University 19 PW Unit wells and DP# wells.

Summary table for Section III: Total Well Count > 21, Total Assigned Horiz. Acreage 3360, Total Remaining Horiz. Acreage 5228.11, Total Assigned Vert./Dir. Acreage, Total Remaining Vert./Dir. Acreage.

SECTION IV. REMARKS / PURPOSE OF FILING (see instructions)

This well should be assigned to University 19 PW Unit, lease ID 42401

Attach Additional Pages As Needed. [ ] No additional pages [x] Additional Pages: 1 (No. of additional pages)

CERTIFICATION: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that this report was prepared by me or under my supervision or direction, that I am authorized to make this report, and that the information contained in this report is true, correct, and complete to the best of my knowledge.

Signature: Maureen Kovacic, Regulatory Specialist
maureen.kovacic@shell.com
150 N. Dairy Ashford, Houston TX 77079, 832 337-2100, 09/06/2017





# RAILROAD COMMISSION OF TEXAS

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

Form P-16

Page 1

Rev. 01/2016

## Acreage Designation

### SECTION I. OPERATOR INFORMATION

Operator Name: Shell Western E&P	Operator P-5 No.: 774719
Operator Address: P.O. Box 576, Houston, Texas 77001	

### SECTION II. WELL INFORMATION

District No.: 08	County: Loving and Ward	Purpose of Filing: <input type="checkbox"/> Drilling Permit Application (Form W-1) <input checked="" type="checkbox"/> Completion Report (Form G-1/W-2)
Well No.: 1504H	API No.: 42-301-33171	
Total Lease Acres: 8588.11	Drilling Permit No.: 821065	
Lease Name: University 19 PW Unit	Lease No.: 42401	
Field Name: Phantom (Wolfcamp)	Field No.: 71052900	

Filer is the owner or lessee, or has been authorized by the owner or lessee, of all or an undivided portion of the mineral estate under each tract for which filer is listed as operator below. For all leases operated by other entities, the number of assigned acres shown are reflected on current Commission records or the filer has been authorized by the current operator to change the assigned acreage of that operator as shown below.

### SECTION III. LISTING OF ALL WELLS IN THE APPLIED-FOR FIELD ON THE SAME ACREAGE AS THE LEASE, POOLED UNIT, OR UNITIZED TRACT DESIGNATED IN SECTION II ABOVE BY FILER

RRC ID No. or Lease No.	Well No.	H-Horizontal D-Directional V-Vertical	Lease Name	API No.	Acres Assigned	SWR 38 Except. (Y/N)	Operator Name and Operator No. (if different from filing operator)
42401	1902H	H	University 19 PW Unit	42-301-31709	640.00	N	
42401	2202H	H	University 19 PW Unit	42-301-31708	160.23	N	
42401	1702H	H	University 19 PW Unit	42-301-31703	666.65	N	
42401	2502H	H	University 19 PW Unit	42-475-35995	151.24	N	
42401	2802H	H	University 19 PW Unit	42-475-35996	160.33	N	
42401	1302H	H	University 19 PW Unit	42-301-31705	640.00	N	
42401	1502H	H	University 19 PW Unit	42-301-31872	640.00	N	
42401	1802H	H	University 19 PW Unit	42-301-32460	640.00	N	
42401	2302H	H	University 19 PW Unit	42-301-32579	640.00	N	
42401	2304H	H	University 19 PW Unit	42-301-32849	640.00	N	
42401	2303H	H	University 19 PW Unit	42-301-32848	160	N	
42401	2503H	H	University 19 PW Unit	301-33047	160	N	
42401	2504H	H	University 19 PW Unit	301-33048	160	N	
42401	2505H	H	University 19 PW Unit	301-33049	160	N	
42401	2506H	H	University 19 PW Unit	301-33054	160	N	
42401	1506H	H	University 19 PW Unit	301-33126	160		
42401	1507H	H	University 19 PW Unit	301-33144	160		

Total Well Count >	21	6638.45	< A. Total Assigned Horiz. Acreage	6638.45	< C. Total Assigned Acreage
		1949.66	< Total Remaining Horiz. Acreage	1949.66	< Total Remaining Acreage
			< B. Total Assigned Vert./Dir. Acreage		
			< Total Remaining Vert./Dir. Acreage		

### SECTION IV. REMARKS / PURPOSE OF FILING (see instructions)

This well should be assigned to University 19 PW Unit, lease ID 42401

Attach Additional Pages As Needed.  No additional pages  Additional Pages: 1 (No. of additional pages)

CERTIFICATION: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that this report was prepared by me or under my supervision or direction, that I am authorized to make this report, and that the information contained in this report is true, correct, and complete to the best of my knowledge.

Signature: Maureen Kovacic, Regulatory Specialist maureen.kovacic@shell.com  
Name and title (type or print) Email (include email address only if you affirmatively consent to its public release)

Address: 150 N. Dairy Ashford Houston TX 77079 832 337-0953 02/28/2018  
City, State, Zip Code Tel: Area Code Number Date: mo. day yr.



## GROUNDWATER PROTECTION DETERMINATION

Form GW-2



## Groundwater Advisory Unit

**Date Issued:** 30 November 2016      **GAU Number:** 163817

<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 19 PW Unit
		<b>Lease Number:</b>	
		<b>Well Number:</b>	1503H
		<b>Total Vertical Depth:</b>	12000
		<b>Latitude:</b>	31.692625
		<b>Longitude:</b>	-103.434239
		<b>Datum:</b>	NAD27

**Purpose:** New Drill  
**Location:** Survey-University Lands; Block-19; Section-8

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 250 feet and the Rustler, which is estimated to occur from 550 to 1050 feet must be protected.

Please send Gamma Ray/Porosity log of this well when it is available.

This recommendation is applicable to all wells within a radius of 300 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 11/29/2016. 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](mailto: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](http://www.rrc.texas.gov)  
Rev. 02/2014

# UNIVERSITY 19 PW UNIT

8588.11 ACRES (MEASURED)

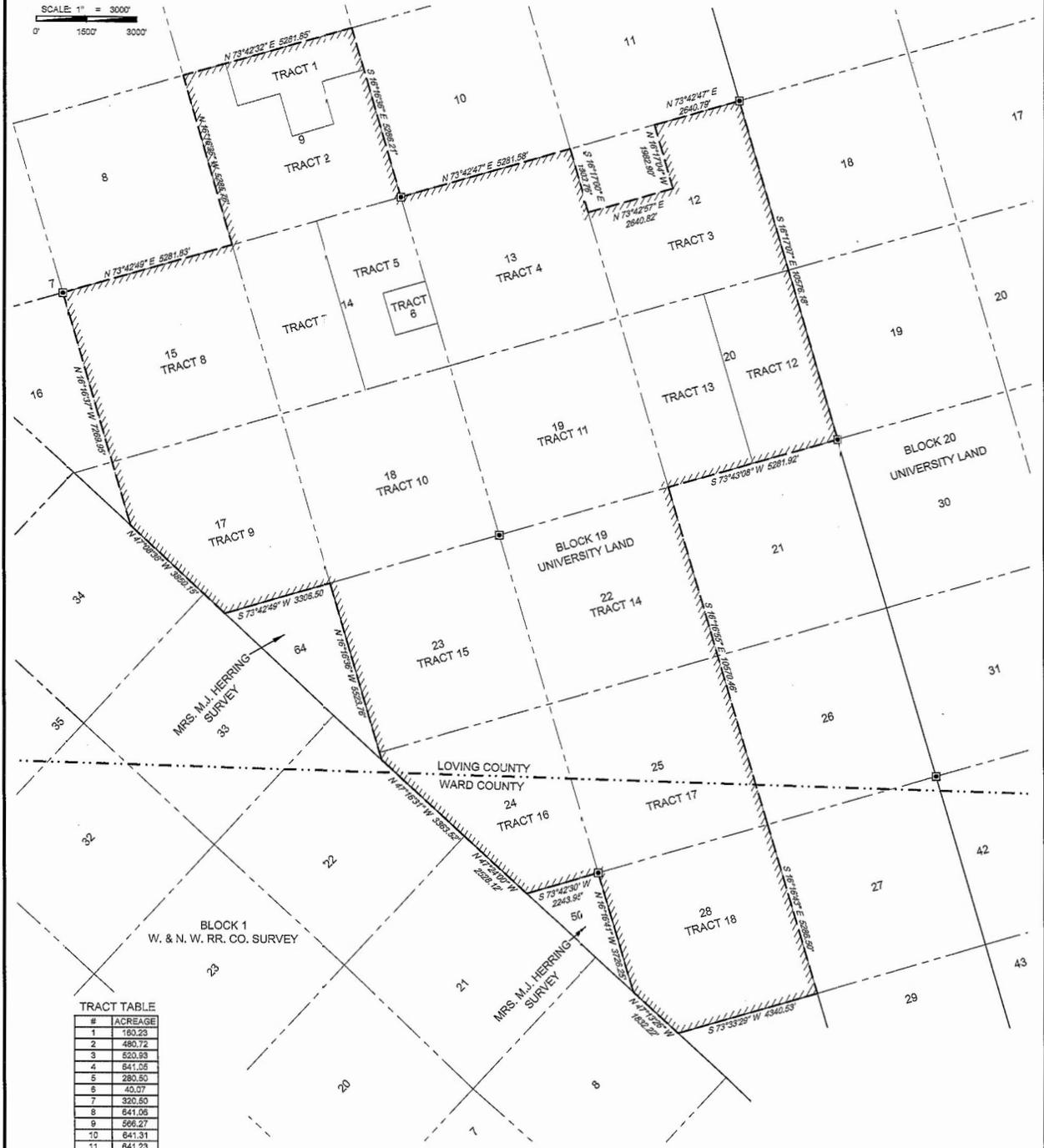
SECTIONS 9, 15, 14, 13, 12, 17, 18, 19, 20, 22, 23, 24, 25 & 28,  
 SAVE & EXCEPT NW/2 NW/4 AND NW/2 SE/2 NW/4 OF SECTION 12  
 BLOCK 19, UNIVERSITY LAND  
 LOVING & WARD COUNTIES, TEXAS

SHELL WESTERN  
 E&P

### LEGEND

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

SCALE: 1" = 3000'  
 0' 1500' 3000'



**TRACT TABLE**

#	ACREAGE
1	183.23
2	480.72
3	520.93
4	641.06
5	280.50
6	42.07
7	320.50
8	641.06
9	566.27
10	641.31
11	641.23
12	320.60
13	320.61
14	640.92
15	640.99
16	468.23
17	640.96
18	624.93
<b>TOTAL</b>	<b>8588.11</b>

I certify this plat is true and correct to the best of my knowledge.

*George Mullen*  
 George Mullen  
 Senior Regulatory Specialist

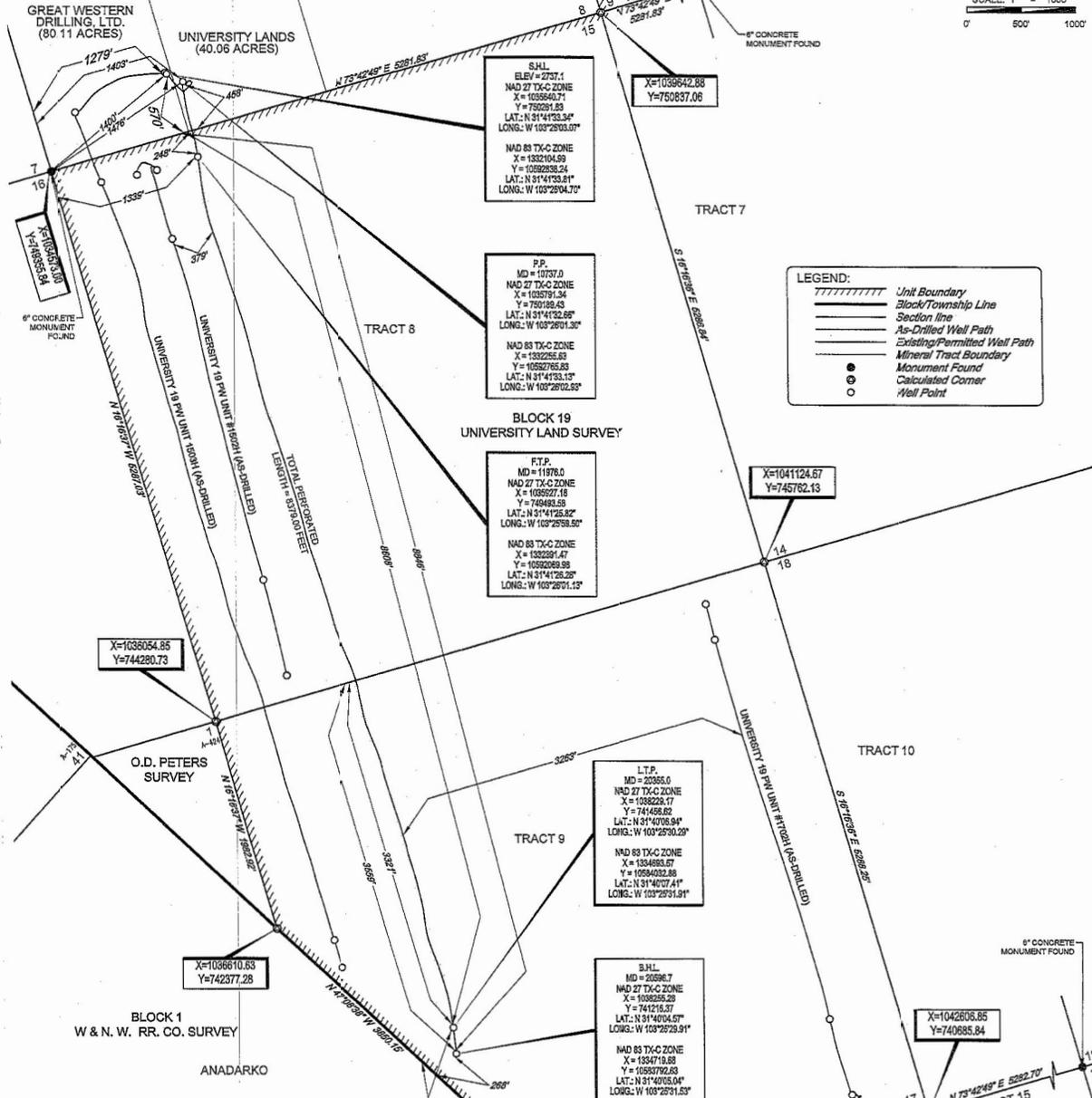


**SHELL WESTERN  
E&P**

AS-DRILLED LOCATION  
LEASE NAME & WELL NO.:  
**UNIVERSITY 19 PW UNIT 1504H**  
UNITLEASE ACREAGE:  
8588.11 ACRES (MEASURED)  
NEAREST TOWN IN COUNTY:  
±9.7 MILES SOUTHEAST OF MENTONE, TEXAS

DESCRIPTION:  
SECTIONS 15 & 17, BLOCK 19, UNIVERSITY LAND SURVEY  
LOVING COUNTY, TEXAS

SCALE: 1" = 1000'  
0' 500' 1000'



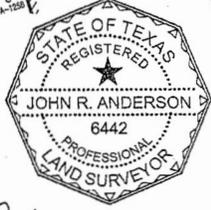
**LEGEND:**

- Unit Boundary
- Block Township Line
- Section line
- As-Drilled Well Path
- Existing/Permitted Well Path
- Mineral Tract Boundary
- Monument Found
- Calculated Corner
- Well Point

**TIES TABLE**

POINT	UNIT	SURVEY/SECTION
S.H.L.	570' FNWL & 1400' FSBL	1279' FSWL & 570' FSBL
P.P.	458' FNWL & 1476' FSBL	1403' FSWL & 458' FSBL
F.T.P.	248' FNWL & 1339' FSBL	248' FNWL & 1339' FSBL
L.T.P.	8808' FNWL & 428' FSBL	3321' FNWL & 428' FSBL
B.H.L.	8846' FNWL & 288' FSBL	3859' FNWL & 288' FSBL

**TOPOGRAPHIC**  
LOYALTY INNOVATION LEGACY  
1400 EVERMAN PARKWAY, Ste. 197 - FT. WORTH, TEXAS 76140  
TELEPHONE: (817) 744-7512 - FAX: (817) 744-7548  
TEXAS FIRM REGISTRATION NO. 10042904  
WWW.TOPOGRAPHIC.COM



*John R. Anderson* 1/22/17  
John R. Anderson, R.P.L.S. No. 6442

UNIVERSITY 19 PW UNIT 1504H	REVISION:
DATE: 11/21/2017	
FILE: AD\UNIVERSITY 19 PW UNIT 1504H_OPT_1	
DRAWN BY: T.D.H.	
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 UNITLEASE 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 PLAT IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.
- ALL ELEVATION VALUES CONTAINED HEREIN 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 SHELL WESTERN E&P OR ITS SUBSIDIARIES & AFFILIATES.

**NOTES CONT'D:**

- THE AS-DRILLED SURFACE LOCATION HAS BEEN CAREFULLY SURVEYED ON THE GROUND DURING THE DATE OF JANUARY 9, 2017.
- THE SUBSURFACE WELL PATH DATA SHOWN HEREIN IS BASED ON INFORMATION PROVIDED BY SHELL WESTERN E&P 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