

API No. <u>42-003-46000</u> Drilling Permit # <u>779313</u> SWR Exception Case/Docket No. <u>0287622</u> (R37)		<b>RAILROAD COMMISSION OF TEXAS</b> <b>OIL &amp; GAS DIVISION</b> <b>APPLICATION FOR PERMIT TO DRILL, RECOMPLETE, OR RE-ENTER</b> <i>This facsimile W-1 was generated electronically from data submitted to the RRC.</i> <i>A certification of the automated data is available in the RRC's Austin office.</i>				<b>FORM W-1</b> 07/2004 Permit Status: <b>Approved</b>	
1. RRC Operator No. <u>559624</u>		2. Operator's Name (as shown on form P-5, Organization Report) <b>MEMORIAL PRODUCTION OPER. LLC</b>		3. Operator Address (include street, city, state, zip):			
4. Lease Name <b>WEMAC, SOUTH (WOLFCAMP) UNIT</b>		5. Well No. <u>7</u>					
<b>GENERAL INFORMATION</b>							
6. Purpose of filing (mark ALL appropriate boxes): <input checked="" type="checkbox"/> New Drill <input type="checkbox"/> Recompletion <input type="checkbox"/> Reclass <input type="checkbox"/> Field Transfer <input type="checkbox"/> Re-Enter <input checked="" type="checkbox"/> Amended <input type="checkbox"/> Amended as Drilled (BHL) (Also File Form W-1D)							
7. Wellbore Profile (mark ALL appropriate boxes): <input checked="" type="checkbox"/> Vertical <input type="checkbox"/> Horizontal (Also File Form W-1H) <input type="checkbox"/> Directional (Also File Form W-1D) <input type="checkbox"/> Sidetrack							
8. Total Depth <u>9600</u>		9. Do you have the right to develop the minerals under any right-of-way ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		10. Is this well subject to Statewide Rule 36 (hydrogen sulfide area)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<b>SURFACE LOCATION AND ACREAGE INFORMATION</b>							
11. RRC District No. <u>08</u>		12. County <b>ANDREWS</b>		13. Surface Location <input checked="" type="checkbox"/> Land <input type="checkbox"/> Bay/Estuary <input type="checkbox"/> Inland Waterway <input type="checkbox"/> Offshore			
14. This well is to be located <u>6.5</u> miles in a <u>SE</u> direction from <u>Andrews</u> which is the nearest town in the county of the well site.							
15. Section <u>31</u>	16. Block <u>3</u>	17. Survey <b>PSL/MC CARLEY, W D</b>		18. Abstract No. <u>A-2006</u>	19. Distance to nearest lease line: <u>706</u> ft.	20. Number of contiguous acres in lease, pooled unit, or unitized tract: <u>596.88</u>	
21. Lease Perpendiculars: <u>2467</u> ft from the <u>S</u> line and <u>2224</u> ft from the <u>E</u> line. 22. Survey Perpendiculars: <u>184</u> ft from the <u>N</u> line and <u>2224</u> ft from the <u>E</u> line.							
23. Is this a pooled unit? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		24. Unitization Docket No:		25. Are you applying for Substandard Acreage Field? <input type="checkbox"/> Yes    (attach Form W-1A) <input checked="" type="checkbox"/> No			
<b>FIELD INFORMATION    List all fields of anticipated completion including Wildcat. List one zone per line.</b>							
26. RRC District No.	27. Field No.	28. Field Name (exactly as shown in RRC records)		29. Well Type	30. Completion Depth	31. Distance to Nearest Well in this Reservoir	
<u>08</u>	<u>96296500</u>	<b>WEMAC, SOUTH (WOLFCAMP)</b>		<b>Oil Well</b>	<u>9600</u>	<u>920.00</u>	
<b>BOTTOMHOLE LOCATION INFORMATION is required for DIRECTIONAL, HORIZONTAL, AND AMENDED AS DRILLED PERMIT APPLICATIONS</b>							
<b>Remarks</b> [FILER Mar 27, 2014 8:32 AM]: Permit amended for depth. Well count amended for well #8; [RRC STAFF May 9, 2014 10:34 AM]: Changed well count to match original location.				<b>Certificate:</b> I certify that information stated in this application is true and complete, to the best of my knowledge. <div style="text-align: center;"> <b>Stephanie Brassovan, Sr. Regulatory Specialist</b>          Name of filer _____ Date submitted <u>Mar 27, 2014</u> </div> <div style="display: flex; justify-content: space-between;"> <span><u>(713)5888383</u> Phone</span> <span><u>sbrassovan@memorialrd.com</u> E-mail Address (OPTIONAL)</span> </div>			
<b>RRC Use Only</b> Data Validation Time Stamp: <u>Jun 4, 2014 12:46 PM( 'As Approved' Version )</u>							

**RAILROAD COMMISSION OF TEXAS**  
**OIL & GAS DIVISION**

PERMIT TO DRILL, DEEPEN, PLUG BACK, OR RE-ENTER ON A REGULAR OR ADMINISTRATIVE EXCEPTION LOCATION

PERMIT NUMBER <div style="text-align: right;">779313</div>	DATE PERMIT ISSUED OR AMENDED (AMENDED) Jun 04, 2014	DISTRICT <div style="text-align: right;">* 08</div>			
API NUMBER <div style="text-align: right;">42-003-46000</div>	FORM W-1 RECEIVED <div style="text-align: center;">Mar 27, 2014</div>	COUNTY <div style="text-align: center;">ANDREWS</div>			
TYPE OF OPERATION <div style="text-align: center;">NEW DRILL</div>	WELLBORE PROFILE(S) <div style="text-align: center;">Vertical</div>	ACRES <div style="text-align: right;">596.88</div>			
OPERATOR <div style="text-align: right;">559624</div> <div style="text-align: center;">MEMORIAL PRODUCTION OPER. LLC</div>		NOTICE This permit and any allowable assigned may be revoked if payment for fee(s) submitted to the Commission is not honored. <b>District Office Telephone No:</b> <div style="text-align: right;">(432) 684-5581</div>			
LEASE NAME <div style="text-align: center;">WEMAC, SOUTH (WOLFCAMP) UNIT</div>		WELL NUMBER <div style="text-align: center;">7</div>			
LOCATION <div style="text-align: center;">6.5 miles SE direction from ANDREWS</div>		TOTAL DEPTH <div style="text-align: right;">9600</div>			
Section, Block and/or Survey SECTION ⬅ 31                      BLOCK ⬅ 3                      ABSTRACT ⬅ 2006 SURVEY ⬅ PSL/MC CARLEY, W D					
DISTANCE TO SURVEY LINES <div style="text-align: center;">184 ft. N    2224 ft. E</div>		DISTANCE TO NEAREST LEASE LINE <div style="text-align: center;">706 ft.</div>			
DISTANCE TO LEASE LINES <div style="text-align: center;">2467 ft. S    2224 ft. E</div>		DISTANCE TO NEAREST WELL ON LEASE <div style="text-align: center;">See FIELD(s) Below</div>			
FIELD(s) and LIMITATIONS: <div style="text-align: center;">                     * SEE FIELD DISTRICT FOR REPORTING PURPOSES *                      ** THIS PERMIT IS GRANTED PURSUANT TO STATEWIDE RULE 37(h)(2)(B) **                      CASE NO. 0287622                 </div>					
FIELD NAME LEASE NAME -----		ACRES NEAREST LEASE -----	DEPTH -----	WELL # NEAREST WE -----	DIST -----
** WEMAC, SOUTH (WOLFCAMP) <div style="text-align: center;">WEMAC, SOUTH (WOLFCAMP) UNIT</div>		596.88 <div style="text-align: center;">706</div>	9,600 <div style="text-align: center;">920</div>	7 <div style="text-align: center;">920</div>	08
' ** ' PRECEDING FIELD NAME INDICATES RULE (R37)					
THE FOLLOWING RESTRICTIONS APPLY TO ALL FIELDS					
This well shall be completed and produced in compliance with applicable special field or statewide spacing and density rules. If this well is to be used for brine mining, underground storage of liquid hydrocarbons in salt formations, or underground storage of gas in salt formations, a permit for that specific purpose must be obtained from Environmental Services prior to construction, including drilling, of the well in accordance with Statewide Rules 81, 95, and 97.					
This well must comply to the new SWR 3.13 requirements concerning the isolation of any potential flow zones and zones with corrosive formation fluids. See approved permit for those formations that have been identified for the county in which you are drilling the well in.					

**RAILROAD COMMISSION OF TEXAS  
OIL & GAS DIVISION  
SWR #13 Formation Data**

**ANDREWS (003) County**

Formation	Shallow Top	Deep Top	Remarks	Geological Order	Effective Date
YATES	2,500	3,200		1	12/17/2013
SEVEN RIVERS	3,000	3,000		2	12/17/2013
QUEEN	3,600	4,800		3	12/17/2013
GRAYBURG	3,100	5,000		4	12/17/2013
SAN ANDRES	3,700	5,300	CO2 flood, high flows, H2S, corrosive	5	12/17/2013
HOLT	5,000	5,500		6	12/17/2013
GLORIETA	5,100	6,000		7	12/17/2013
TUBB	6,100	6,300		8	12/17/2013
CLEARFORK	5,600	7,600		9	12/17/2013
PERMIAN DETRITAL	7,800	7,900		10	12/17/2013
LEON	7,900	7,900		11	12/17/2013
WICHITA ALBANY	6,500	8,100		12	12/17/2013
SPRABERRY	7,300	8,600		13	12/17/2013
DEAN	9,200	9,500		14	12/17/2013
WOLFCAMP	7,500	9,900		15	12/17/2013
CANYON	8,600	10,200		16	12/17/2013
PENNSYLVANIAN	8,700	10,200		17	12/17/2013
MCKEE	8,300	10,600		18	12/17/2013
STRAWN	8,800	11,000		19	12/17/2013
FUSSELMAN	8,400	11,900		20	12/17/2013
DEVONIAN	7,600	12,500		21	12/17/2013
SILURIAN	8,000	12,500		22	12/17/2013
ELLENBURGER	7,900	13,900		23	12/17/2013

This is a dynamic table that will be updated continuously. It is the operators responsibility to make sure that at time of spudding the well the most current table is being referenced.

Groundwater  
Advisory Unit

GROUNDWATER PROTECTION DETERMINATION

Date **February 11, 2014**

GAU File No.: SC- **16448**

\*\*\*\*\* EXPEDITED APPLICATION \*\*\*\*\*

API Number **00300000**

Attention: **ADONYA DRYDEN**

RRC Lease No. **00000**

SC\_559624\_00300000\_00000\_16448.pdf

MEMORIAL PRODUCTION OPER LLC  
400 TEXAS ST  
STE 600  
SHREVEPORT LA 71101

--Measured--

2224 ft FEL

184 ft FNL

MRL:SECTION

P-5# 559624

Digital Map Location:

X-coord/Long **467995**

Y-coord/Lat **252026**

Datum **27** Zone **NC**

County **ANDREWS**

Lease & Well No. **WEMAC, SOUTH (WOLFCAMP) UNIT #7&ALL**

Purpose **ND**

Location **SUR-UL, BLK-1, SEC-1, -- [TD=8900], [RRC 8],**

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

The interval from the land surface to a depth of 275 feet and the ZONE from 1100 feet to 1700 feet must be protected.

This recommendation is applicable to all wells drilled in this SECTION 1 ON THIS LEASE.

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

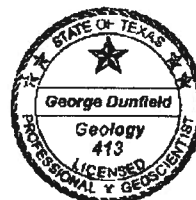
If you have any questions, please contact us at 512-463-2741, [gau@rrc.state.tx.us](mailto:gau@rrc.state.tx.us), or by mail.

Sincerely,

Digitally signed by George Dunfield  
DN: cn=US, st=TEXAS, o=Austin, ou=Railroad  
Commission of Texas, ou=Groundwater  
Advisory Unit, cn=George Dunfield,  
email=george.dunfield@rrc.state.tx.us  
Date: 2014.02.11 11:56:10 -0600

**George Dunfield, P.G.**

GEOLOGIST SEAL



Geologist, Groundwater Advisory Unit  
Oil & Gas Division

The seal appearing on this document was authorized by George Dunfield on 2/11/2014  
Note: Alteration of this electronic document will invalidate the digital signature.



# RAILROAD COMMISSION OF TEXAS

## STATEWIDE RULE 13 EXCEPTION APPLICATION/ALTERNATIVE REQUEST

Surface Casing: 13(b)(1)(H), Tubing: 13(b)(4)(B), Drilling Fluid: 13(a)(6)(C), or Non-standard Cement 13(b)(1)(D)

1. Operator: Memorial Production Oper. LLC	2. P-5 No.: 559624	3. Lease Name: Wemac South (Wolfcamp) Unit	4. Well No.: 8
5. Street Address: 1300 McKinney St, Ste 2100, Houston TX 77010		6. RRC District: 08	7. Drill Permit No.: 782597
8. Field Name: Wemac, South	9. County: Andrews	10. Proposed Depth: 9600' <input type="checkbox"/> TVD <input type="checkbox"/> MD	
11. Well Location: Latitude: 32° 15' 36.69"		Longitude: -102° 27' 16.52" Datum: NAD 27	
Survey Name: University Lands Survey Abstract No: A-U1		Block/Township: Section:	
12. GAU No.: 16448 (attach letter) Recommendation Type (below)		13. Usable-Quality Water (determined by GAU): 275 ft.	
<input type="checkbox"/> Well <input type="checkbox"/> Lease <input type="checkbox"/> Survey <input type="checkbox"/> Pad <input checked="" type="checkbox"/> Radius: Sec 1		Separation points: 1000 ft.	

14. Exception Request: <input type="checkbox"/> Short Surface Csg <input checked="" type="checkbox"/> Excess Surface Csg <input type="checkbox"/> Single-string <input type="checkbox"/> Tubing <input checked="" type="checkbox"/> Area-wide <sup>2</sup>
15. Alternate Program Request: <input type="checkbox"/> Drilling Fluid Program <input type="checkbox"/> Non-API Cement <input type="checkbox"/> Other: _____
16. Reason for this request: <input type="checkbox"/> Economic <input checked="" type="checkbox"/> Technical <input type="checkbox"/> Other Please explain: _____ First-time requests for exception to tubing requirements outlined in 13(b)(4)(A) will be granted for a period of 180 days, 13(d)(2)
17. Is this a proposed injection or disposal well <sup>3</sup> ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
18. Is this a Minimum Separation well <sup>4</sup> ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
19. Are there any water wells within ¼ mile of this proposed well location <sup>5</sup> ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, provide information requested below Type of water well: _____ Depth: _____ Distance: _____ Direction: _____
20. Are there any INJECTION or DISPOSAL wells within ¼ mile of the proposed well location <sup>6</sup> ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, list names and depths of all formations permitted for INJECTION OR DISPOSAL within ¼ miles of the well location <sup>7</sup> : _____ Wolfcamp 4250' - 8971'
21. Have there been any blowouts within one mile of this wellsite <sup>8</sup> ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, name operator(s), lease(s), and date(s) blowout(s) occurred: _____

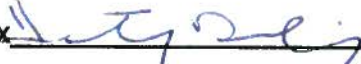
**IF CEMENT IS NOT CIRCULATED TO THE GROUND SURFACE AS REQUIRED BY THIS EXCEPTION, YOU MUST CONTACT THE DISTRICT OFFICE IMMEDIATELY AND FOLLOW THE PROCEDURES SET OUT IN RULE 13(B)(2)(g)(III) OR AS REQUIRED BY THE DISTRICT OFFICE.**

### 22. Proposed Casing and Cementing Program (if more space is needed, use supplemental table on page 3)

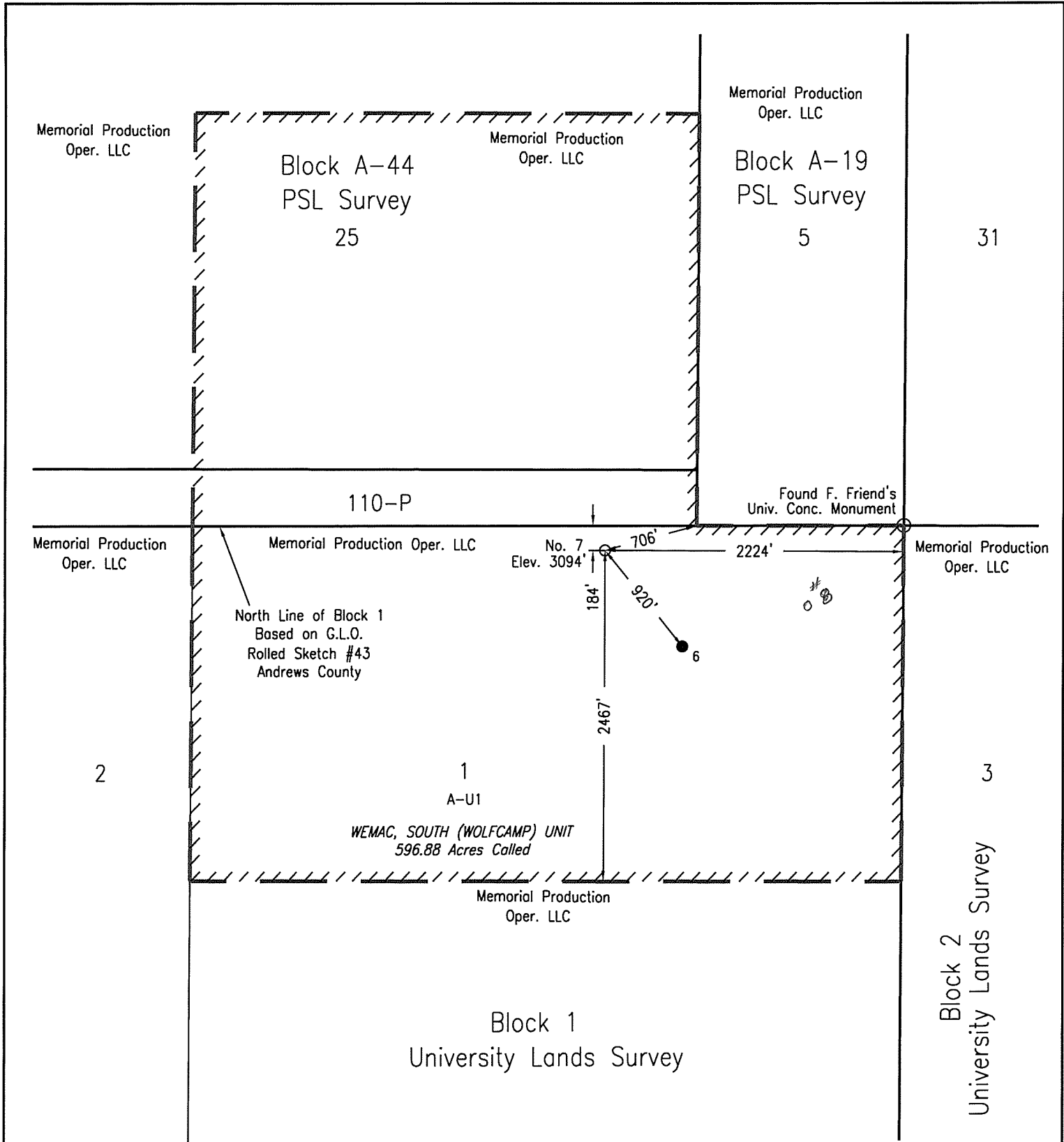
		Surface Casing/Single-String		Intermediate Casing		Production Casing	
Hole Size (in.), Casing O.D. (in.)		14-3/4"	11-3/4"	11"	8-5/8"	7-7/8"	5-1/2"
Grade, Weight (lb/ft.)		J-55	47#	J55	32#	N-80	17#
Setting Depth (ft.)		1800'		5300'		9450'	
Multi-Stage Tool Depth (ft.)		N/A		N/A		N/A	
Centralizers (no. & placement)		1 per jt. = 25		1jt 400': 1/2jts 1600' = 30 total		1jt 400': 1per 2jts 800' = 20 total	
Cement Type		65/35 POZ C		50/50 POZ C		50/50 POZ H	
# of Sacks and Yield (cu. ft./sk)		650	1.68	540	2.42	420	2.43
Cement Additives		NaCl, Cello Flk, CPT-503p, CPT-20		Cello Flk, Gel, Fiber C41P, NaCl		NaCl, Cello Flk, C41P, C20, Kolseal	
24/72-Hr. Comp. Strength (psi)		829	1326	825	1295	920	1650
Height/TOC (ft.), % Excess		0' (surface)	100%	1000'	50%	4500'	35%
Free Water Content <sup>9</sup> (mL water per 250 mL cement)		8.69 gal/sk		13.54		13.56	
LEAD/FILLER CEMENT	Cement Type	C, Prem +		C		H	
	# of Sacks and Yield (cu. ft./sk)	370	1.35	300	1.33	280	1.68
	Cement Additives	Cello Flake, CaCl		Fiber		NaCl, C49, C45, Plexcrete, STB, Kols	
	24/72-Hr. Comp. Strength (psi)	2313	2588	2315	2625	1625	2435
	Height/TOC (ft.), % Excess	1240	100%	4310	50%	7860	35%
	Free Water Content <sup>9</sup> (mL water per 250 mL cement)	6.4 gal/sk		6.3		8.3 gal/sk	
TAIL/CRITICAL CEMENT	Cement Type	C, Prem +		C		H	
	# of Sacks and Yield (cu. ft./sk)	370	1.35	300	1.33	280	1.68
	Cement Additives	Cello Flake, CaCl		Fiber		NaCl, C49, C45, Plexcrete, STB, Kols	
	24/72-Hr. Comp. Strength (psi)	2313	2588	2315	2625	1625	2435
	Height/TOC (ft.), % Excess	1240	100%	4310	50%	7860	35%
	Free Water Content <sup>9</sup> (mL water per 250 mL cement)	6.4 gal/sk		6.3		8.3 gal/sk	

**PROVISIONS APPLICABLE TO RULE 13 EXCEPTIONS:**

1. **REQUESTS FOR EXCEPTIONS TO STATEWIDE RULE 13 SUBMITTED AFTER THE WELL HAS BEEN DRILLED OR COMPLETED MAY RESULT IN ENFORCEMENT ACTION AGAINST THE OPERATOR.**
2. For area-wide exception requests, please provide additional information which clearly defines the area to be exempted. Area-wide approvals are NOT allowed for short surface casing applications (only approved on a well-by-well basis). Note: District Offices are not required to grant area-wide exceptions.
3. **Caution:** If this well is being drilled for injection or disposal purposes, a(n) injection/disposal well permit may be denied unless surface casing is set and cemented through all zones of usable-quality groundwater.
4. A **Minimum Separation Well**, further defined in section 13(a)(2)(L), is a well in which hydraulic fracturing treatments will be conducted AND for which: the vertical distance between BUQW and the top of the formation to be fracture stimulated is less than 1000 ft. *or for which the District Director has determined there to be inadequate separation between the BUQW and the top of the formation to be fracture stimulated.*
5. Review applications 1-3 (Groundwater Database, Submitted Driller's Report, and Brackish Groundwater Database) at the following link to determine location(s) of water wells within ¼ mile of the proposed well: <http://wiid.twdb.texas.gov/>.
6. Refer to the Railroad Commission of Texas Public GIS map viewer to locate injection and disposal wells within ¼ mile of the well(s) mentioned on this application: <http://www.rrc.state.tx.us/data/online/gis/index.php>.
7. Review W-14 or H-1a applications at (<http://www.rrc.state.tx.us/data/online/OGImagedRecordsQuery.php>) to determine permitted injection/disposal zones for wells within ¼ mile of the proposed well. Additionally, refer to Rule 13 Formation Tables provided on the RRC website for information regarding saltwater, H2S, and other notable formation depths by county. (<http://www.rrc.state.tx.us/environmental/rule13/index.php>). Statewide Rule 13 may require cementing across these formations.
8. Blowout records can be found at the following URL: <http://www.rrc.state.tx.us/data/drilling/blowouts/index.php>.
9. Free water content for tail and critical cement may be provided based on lab data available at the time of submission. If additional lab analyses are required by the District Office, slurries must be tested according to API RP 10B-2, per 13(b)(1)(D)(iii).
10. Notify District Office at least 8 hours prior to setting and cementing casing.
11. The alternative surface casing program authorized by this letter is subject to the condition that drilling fluid used while drilling to the base of usable quality groundwater have a salinity of 3000 ppm TDS or less and be conditioned to form a filter cake sufficient to prevent infiltration into the protected water while drilling with fluid having a salinity greater than 3000 ppm TDS below the base of usable quality groundwater to the approved surface casing depth. *The use of oil-based and emulsion drilling fluids are prohibited until casing is set and cemented across the base of usable quality groundwater.*
12. **Note:** The following attachments may be requested by the District Office:
  - a. Proposed wellbore diagram or cementing proposal
  - b. Lab reports containing compressive strength and free water data for Lead and/or Tail Slurry
  - c. Any other information that may be required by the District Office.
13. **Please note that a copy of the approved application form must be kept on location during all phases of drilling and/or plugging operations. Once approved, changes CANNOT be made to the Proposed Casing and Cementing Program on the original application without additional approval from the District Office.**

OPERATOR CONTACT INFORMATION		
Signature: <u></u>	Name: <u>Heather Dolphin</u>	Title: <u>Sr. Regulatory Specialist</u>
Date: <u>5/12/2014</u>	Phone: <u>832-408-8603</u>	Fax: <u>713-588-8301</u>
Email Address (optional): <u>hdolphin@memorialrd.com</u>		

RRC District Office Action— FOR RRC USE ONLY.		Ref. No:
<b>TUBING EXCEPTION:</b> <input type="checkbox"/> Approved <input type="checkbox"/> Approved as Modified <input type="checkbox"/> Denied	By: _____	Date: _____
<b>SURFACE CASING EXCEPTION:</b> <input type="checkbox"/> Approved <input type="checkbox"/> Approved as Modified <input type="checkbox"/> Denied	By: _____	Date: _____
<b>DRILLING FLUID PROGRAM:</b> <input type="checkbox"/> Approved <input type="checkbox"/> Approved as Modified <input type="checkbox"/> Denied	By: _____	Date: _____
<b>ALTERNATE CEMENT PROGRAM:</b> <input type="checkbox"/> Approved <input type="checkbox"/> Approved as Modified <input type="checkbox"/> Denied	By: _____	Date: _____
<b>Remarks/Modifications:</b> <div style="border: 1px solid black; height: 40px; margin-top: 5px;"></div>		



Preliminary, this document shall  
not be recorded for any purpose.  
[Michael L. Stanford, RPLS 4413]

Date Well Location Staked January 21, 2014

NAD 27 X = 467995'  
NAD 27 Y = 252026'

EMERGENCY RESPONSE LOCATOR

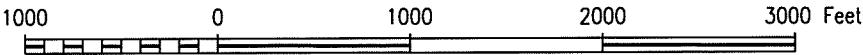
NAD 27 Lat. = 32° 15' 36.11" / 32.260032  
NAD 27 Long. = -102° 27' 27.45" / -102.457625



This plat is for Texas Railroad Commission Permit Purposes Only  
and is NOT a boundary survey and is NOT to be used to convey  
or establish interests in real property.

BASIS OF BEARINGS is the Texas State Plane Coordinate System  
North Central Zone NAD 27.

Application for Well No. 7  
6.5 Miles Southeast of Andrews, TX.



Memorial Production Oper. LLC  
WEMAC, SOUTH (WOLFCAMP) UNIT No. 7 - 184' FNL & 2224' FEL  
Section 1, Block 1, University Lands Survey,  
Andrews County, Texas

STANFORD SURVEYING COMPANY  
P.O. BOX 8490  
MIDLAND, TEXAS 79708-8490  
432-699-5708