

# HENRY PETROLEUM LP

Univ6 Paige27 #2  
Noelke Creek  
Crockett Co., TX  
DRILLING PERMIT # 672615  
API #42-105-40879

Patterson Rig #508 KB = 16'

PROPOSED TD: 9,160'

## PROPOSED CASING DESIGN

Casing	Size	Hole Size	Setting Depth
Surface	9-5/8"	12-1/4"	625' MD
Production	5-1/2"	7-7/8"	9,160' MD

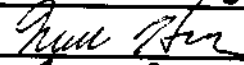

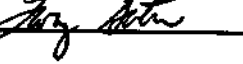
### SURFACE LOCATION

1450' FSL & 2350' FEL, Sec. 27, Blk. 6, ULS Survey,  
Crockett County, Texas

**SPECIAL NOTES:** Lower water loss before drilling into the Mississippian @ 9000'  
Have Mud logger rigged up by 4500'  
TD may be extended to 9500' depending on mud log shows in the Devonian  
Final casing decision will be made after open hole logs

ORIG: Well File  
XC: Dan Varner  
Rick Vannoy  
Larry Gates  
Terrell Hansen  
Jim Rivest  
Brad Boen  
Bobby Delcore  
Sharon McCain  
Shirley Houchins  
Bob Howard  
James Moore  
Marvis Schneider

**SUBMITTED BY:** Terrell Hansen

Approvals:	Signature	Date
Engineer		11-11-08
Geologist		11-13-08
Drilling Engr. Supv.		11/11/2008

# Henry Petroleum LP Univ6 Paige27 #2

## CONTRACTOR LIST

Last Revised: 11/6/2006

Service	VENDOR	CONTACT PERSON	Phone Number	Mobile / Home
Drilling Rig - Rig #508 - T.P.	Patterson Drilling	Randall Handley		557-4184 Cell
Drilling Rig - Rig #508	Patterson Drilling	Rig Phone	634-3787	894-6648 Cell
Drilling Rig - Supt.	Patterson Drilling	JD Jones	682-9401	894-2411 Cell
Rathole/Mousehole	Bid out			
BHA Rental Tools	Bid out			
Casing Crews	Bid out			
Bits (12-1/4") (Rental)	Security	Bill Stark	632-4305	661-4870 Cell
Bits (7-7/8" PDC)	Security	Bill Stark	632-4305	661-4870 Cell
Bits (7-7/8" insert)	Hughes	Garland Hadley	498-9898	935-2030 Cell
Bits (7-7/8" insert)	Smith	Mark Hunter	620-0432	553-7893
Corrosion Chemical	Corrosion Ltd.	Tommy Farrel	800-669-8023	505-631-3351
Welding	Haley Heideberg		556-0576	263-0614
	Way West	Chuy Olivas	381-6321	238-2072 Cell
Roustabouts	Top Construction	Victor Jordan	570-9129	838-1502 Cell
Mud	Buckeye	Steve Spyres	682-7422	634-0793 Cell
Wellheads	Wellhead Specialties	Quen Hussey	530-2448	559-6457 Cell
9-5/8" Csg & 5-1/2" Csg	JD Rush	Juanita Homer	281-617-5509	261-367-5216 Cell
	JD Rush	Office	281-558-8004	
Casing Transportation	McClatchy Bros.		520-9443	894-9691
Ryl-wrap	Permian Enterprises	Raymond Marrero	332-0903	800-725-0904 / 638-6655 Cell
Cementing	BJ Services	Odesa Yard	381-2301	
	BJ Services	Midland	683-2781	
Field Sup.	BJ Services	Ruben Rocha		631-4948 Cell
Acct. Rep.	BJ Services	Randy Kuiper		556-6357 Cell
Pit Lining & Water Well	Dubose	Robert Scott	634-7654	634-4451 (both cells)
Water Hauling	Just Trucking	Mark Woodfin	558-7904	884-4410 Cell
	BHD Trucking	Junior Guevara	302-0214	894-2001
	Ramos Trucking	Freddy Palacios	556-1660	
Temperature Srvy (if needed)	Subsurface Well Testing	Allen Arnett	682-7580	631-3610 Cell
Centralizers/Float Eq.	Weatherford Gemoco	Mike Sneed	563-2255	557-0365 Cell
H2S Equipment	Midland Safety	Bart Campbell	520-3838	888-395-5235 (24hr service)
Cased-Hole Logging	Halliburton	Dale Lay	563-1214	238-7341 Cell
Open-Hole Logging	Schlumberger	Bruce Robertson	571-4631	884-2138 Cell
Open-Hole Pressure Control	STS-District mgr.	Eddie Merryman	561-8940	770-5037
	STS-acct. mgr.	Bruce Morgan	561-8941	770-3445
Mud Logging	Quality Logging	Chad Stevens	682-7168	894-2213 Cell
Tenant				
Landowner				

## PERSONNEL LIST

	NAME	POSITION	HOME	OFFICE / MOBILE
2	Dan Varner	Operations Supt.	695-4599	685-4380 / 634-4392 Cell
2	Rick Vannoy	Drilling Supt.		934-1692 Cell
3	Jim Rivest	Drig Field Supt.		288-2298 Cell
	Frank Savage	Safety Coordinator	(254) 319-4267 (extra cell)	664-8912 Cell
	Dallas Frazier	Drig Foreman	520-8969	770-7673 Cell
	Gary Chastain	Drig Foreman		770-7688 Cell
	Mark Kincaid	Drig Foreman		557-4056 Cell
1	Brad Boen	Drig Foreman		631-9998 Cell
	Michael Walker	Drig Foreman	618-0305	553-3316 Cell
	Vernon Johnson	Drig Foreman	332-8199	557-3739 Cell
	Vernon Wills	Drig Foreman	614-1061	553-9015 Cell
	Larry White	Drig Foreman		653-4469 Cell
1	Bobby Delcore	Drig Foreman		530-8788 Cell
	Lance Mosley	Forman (water)		556-0638 Cell
	James Moore	Prod. Foreman		634-8134 Cell
	Robbie Woodruff	Foreman (locations & roads)	686-9234	631-5393 Cell
	David Corbett	Foreman (locations & roads)	694-7656	634-4399 Cell
4	Larry Gates	Drilling Engr. Supv.	685-9909	686-3038 / 634-4381 Cell
5	Terrell Hansen	Drilling Engr.	699-4784	686-3046 / 230-8924 Cell
	Bob Howard	Consultant		553-3288 Cell
	Debra Osborne	Geologist	686-0042	683-7443 / 425-8406 Cell
	James Caputo	Geologist	218-6867	683-7443 / 230-4189 Cell
	Marvis Schneider	Purchasing		683-7443 / 770-0719 Cell
	Don Horner	RRC-District 7C		325-657-7450

All numbers are 432 area code unless otherwise stated.

**Henry Petroleum LP**  
**Drilling Procedure**  
**Univ6 Paige27 #2**

**General Information**

**Keep pipe moving in open hole to avoid getting stuck**

1. E-mail daily report and cost sheet by 7:00 am each morning.
2. Post a copy of the drilling permit, plat, and Water Board Letter in the upper dog house during all drilling operations. **Notify the TRC at least 8 hours prior to setting each string of casing. Record the date, time, and the TRC representative on the Casing and Cementing Report.**
3. Post emergency numbers for the appropriate county, Carestar Service, and numbers for foreman, Drilling Superintendent, and Operations Superintendent in the upper doghouse.
4. **Deviation Surveys** – First dev. svy at 300'±. Second svy at surface casing depth. Remainder of surveys at intervals no greater than 500' apart. Max deviation from surf to 1000' is 3° with a max dogleg of 1° per 100'. Max deviation from 1000' to TD is 5° with a max dogleg of 1.5° per 100'.
5. The hole should be kept full at all times. Fill up the hole every 5 stands of DP and every stand of DC's.
6. Have the driller or rig pusher contact you immediately if a downhole flow is indicated.
7. **The casing pressure should not be allowed to go above 500 psi to avoid breaking down the surface casing shoe. If the well is shut-in to control a flow, make sure that the driller or rig pusher knows to call you, the Drilling Superintendent, or the Operations Superintendent immediately.**
8. Check the DP & DC inventory on location prior to well spud. Check all X/O's to verify they are full bore and do not have internal shoulders. SLM out of hole on the last anticipated bit trip prior to TD. Verify the drill pipe joint count before laying down the drill pipe at TD. Discuss any discrepancies with Drlg Supt.
9. If a mud logger is required for this well, make sure that the trailer is rigged up at least 125' from the flow line. (see Geologic prog page)
10. Check the Drilling Permit for required H2S equipment (Rule 36). If H2S equipment is required for this well, make sure that it is in good working order, monitors are working, and any new crew members have the required training. Also make sure that the rig pusher is aware that H2S scavenger may be needed to protect the DP.
11. When pipe is out of hole, keep hole covered.

12. **Do Not pull more than 40,000# over string weight without calling the Drlg Supt. Drlg. Foreman & Toolpushers need to check over-pull margins at all stages during the well.**
13. Measure O.D., I.D. Length of every item that might be run below the rotary table or installed in drill string above rotary table. This includes TIW valves, float valves, etc. Make sure that the TIW valve is full opening.
14. **MOST WELL CONTROL ISSUES IN THIS AREA HAVE OCCURED BELOW THE TOP OF THE WOLFCAMP.** Make sure that the rig pusher knows the depth of the Wolfcamp top and to install the rotating head rubber by at least 50' above this point.
15. On trips in the hole control the pipe running speed, stage in, and bring the pump on the hole slowly, to reduce lost circulation problems.

#### **Daily Check List**

1. **Verify geolograph recording weight indicator reading is functioning throughout all drilling operations until casing is on bottom and the cement job is complete. Verify geolograph is recording ROP data while making new hole.**
2. Verify weight indicator accuracy periodically throughout the course of the well. Know the estimated weight of the traveling equipment, the expected buoyed weight of the drill string at TD, and the expected buoyed weight of the casing at TD.
3. Insure that a full opening TIW valve, necessary X/O's, and safety valve wrenches available on rig floor at all times. Keep TIW valve in the open position.
4. Check the accumulator pressure and make sure that all BOP equipment appears to be in good working order.
5. Obtain slow pump rates with each pump and record on each tour after topping the Wolfcamp.
6. After topping the Wolfcamp, check to see if and how rig crews are adequately checking for flow when making connections.
7. Check the Derrickman's efforts to monitor pit levels to identify losses, flows, etc. Note on the morning report the depth of noticeable mud losses, show of oil on the mud pits, and any drilling breaks of 5' or more below the top of the Wolfcamp.
8. Observe equipment, work practices, and housekeeping issues that might affect operational safety. Discuss any important observations with the rig pusher and / or the Drlg Supt.

### **Surface Hole Drilling/Casing**

1. Drill the surface hole to fit casing as per the casing & cementing plan. Circ hole clean. Make sure that the required deviation surveys, centralizers, and setting depth are followed to comply with all RRC rules. Make sure that the cementing company has the correct information for the RRC form W-15.
2. WOC at least 6 hours after plug down prior to cutting off casing and welding on casing head (9-5/8" SOW x 11" 3M w/ C-22 profile). Test the bradenhead weld to 500 psi. Verify surface samples are firm prior to NU wellhead. **Install wear bushing.**
3. NU BOP with the following configuration: rotating head, annular, 4-1/2" pipe rams, blind rams, mud cross, and DSA (if needed). Test all rams, upper and lower Kelly valves, all valves on choke manifold, standpipe, and mud pump lines as specified.

<b>Pressure Test</b>	<b>Low Press.</b>	<b>High Press.</b>	<b>Time</b>
Annular BOP	300 psi	1000 psi	5 min
BOP Rams	300 psi	1000 psi	5 min
Upper & Lower Kelly valves	300 psi	1000 psi	5 min
All valves on Choke Manifold	300 psi	1000 psi	5 min
Standpipe & mud lines	300 psi	1000 psi	5 min
Surface casing	300 psi	-	30 min
Intermediate casing			

4. During the casing test, if the pressure has dropped more than 10% of the actual shut-in test pressure after 30 minutes, contact the Drilling Superintendent for possible remedial operations. **(This is a required RRC test)**
5. Leave chokes aligned for a soft shut in. **NOTE: After drilling out the shoe, maximum surface casing pressure should be less than 500 psi to avoid breaking down the shoe. Contact the Operations Superintendent if casing pressure approaches 500 psi.**
6. WOC a total of 12 hours before drilling out shoe.

**Production Hole Drilling/Casing**

**Keep pipe moving in open hole to avoid getting stuck**

1. PU PDC bit and BHA per attached table and TIH. **Be sure to use a ported flapper float in the BHA.** Email detail of BHA with morning report.
2. RIH and tag cement float equipment. Drill out cement inside of casing and float equipment.
3. Monitor rotary torque gauge and insure it is functioning.
4. Drill new formation, varying parameters to maximize ROP. Let hole conditions and ROP dictate actual parameters used. Be on the look-out for abnormal drilling string vibrations, stalling of the rotary table, changes in pump pressure, etc. Make adjustments to the drilling parameters as necessary to prevent damaging the bit.
5. If bit trip is required before reaching TD, SLM out of hole to verify drillers depth.
6. Drill down to ~3150', allowing the drilling fluid to brine-up. At ~3150', swap-out mud systems to a "Spraberry-type" FW gel system. Do not drill deeper than 3350' with brine water. If possible, conduct swap-out during the daylight. Do not shutdown to take a survey in the middle of the swap-out. **Keep pipe moving in the open hole to prevent getting stuck.**
7. **Install rotating head rubber ~50' above the top of the Wolfcamp.**
8. Prior to reaching TD, discuss the adjusted cement volume based the depth of any hole size changes (if no OH logs run) with the Drilling Supt. and make sure that the cementing company has field blend pump times.
9. Circulate until the hole is clean at TD before TOH.
10. At TD, if no recent bit trip, discuss short tripping to drill collars with Drilling Supt. Circulate bottoms up until the hole is clean to run logs. Monitor background gas while circulating. If background gas level is high, continue to circulate until it decreases to an acceptable level. TOH standing back DP & DC's.
11. Monitor drag on TOOH. **CONTACT DRLG SUPT IF THERE ARE ANY TIGHT SPOTS.** Work through any tight spots and verify the hole is slick. Flange up riser to annular & RU pack-off at rig floor. PU logging tools and log well as specified in Geology section of this prognosis. One logging run is planned. If unable to get OH logs on first attempt, run wiper trip with drill string and then try OH logs again. If DLL used for resistivity logs, the overall tool length should be 60'± with Sonic to be made up as it goes into the hole. RD logging equipment. **Review OH log caliper with Drlg Engr to adjust cmt volumes. Also the designed top of the slurry may be adjusted based on log shows.**

12. After logging, TIH & condition mud before running csg, then TOH & LD drill string.
13. At TD, if funnel vis is 39 or more, add 8 sx lignite to the mud to reduce vis and surge pressure while running casing. Additional lignite should be added while running csg if vis is above 36.
14. Run 5-1/2" casing as specified. E-Mail the anticipated pipe tally to the Drilling Engineer prior to running pipe for a final check. If it is elected to not run the 5-1/2" casing, call the operations superintendent for plugging procedure.
15. **KEEP PIPE MOVING IN THE OPEN HOLE--EVEN WHILE FILLING UP CASING.**
16. Cement casing as specified. **If cementing problems occur, discuss running a temperature survey with the Operations Superintendent. If needed, run** temperature log 6 to 20 hours after cementing and have the slick line company send the log and PBTD to Drilling Engineering.
17. Be sure to report all required information on the Casing / Cementing Report and include any comments that might help in the design of future wells.
18. Verify that the annulus is static. PU the BOP and hang full string weight on the slips.
19. RDMO drilling rig.

**Mud Program**

Interval	Type	MW	FV	pH	API FL
0 – 625'	Spud	8.3-8.7	34	10.5-11.0	NC
625' – 3,150'	FW/Cut Brine	8.3-10.0	28-29	10.5-11.0	NC
3,150' – 9,160'	FW/gel	8.6-8.9	40-44	10.5-11.0	Lower to 10cc @ 9000' before the Mississippian

**Mud Notes**

1. Drill with fresh water base spud mud to surface casing setting depth.
2. Prior to spud, it is recommended to build a high vis pill to use in the event that river bed rocks are encountered that will effect the stability of the surface hole. Drill surf hole through steel pits if additional viscosity is required.
3. Use lime as necessary to control pH.
4. MW and salinity will increase during upper portion of production hole. An elevated chloride level will increase the MW.
5. Drill hole to ~3150', allowing mud to brine up. At ~3150', swap-out mud in hole to FW gel system with adequate viscosity to prevent further leaching of the salt. Maintain MW as low as possible to reduce the likelihood of lost returns. Use cottonseed hulls for seepage and losses.
6. **After swap-out, keep MW  $\leq$  8.9 until TD (if possible) to prevent differential sticking.**
7. Have an LCM pill built prior to 5000' in the event lost returns are encountered.
8. Where available, utilize the desander to remove solids and keep MW down.
9. Don't add brine water while drilling with mud as this will cause mud wt to increase.
10. Allow MW to drift up to about 8.9 ppg by the depth of the Lower Wolfcamp. If the hole will not support 8.9 ppg mud, maintain highest MW possible.

**Corrosion Control Notes:**

Insure that the drill pipe corrosion control program is followed as per the drilling contractor's recommendation. If the contractor is not already doing so, request that H<sub>2</sub>S scavenger be added to their corrosion control program. If any unexpected water flows or H<sub>2</sub>S are



## Univ6 Paige27 #2 Mud Program for Logging

### Keep pipe moving in open hole to avoid getting stuck

1. AT about 8700', begin circulating the steel pits and start adding yellow starch to the working volume (typically  $\geq 39$  vis) at a rate of 1.0-1.5 min/sx to achieve a water loss to  $\leq 10$ cc and adding 5 gals/100 bbls A-Cide for bacteria control. Have mud engineer come to location to do complete mud checks and verify water loss numbers prior to reaching TD. 150-200-sx of yellow starch is a typical quantity needed to achieve desired properties, but be sure to have ~250-sx yellow starch on location. **Have WL  $\leq 10$ cc prior to 9000'**
2. Build a 100-bbl pill (80 vis, WL  $\leq 10$ -cc) in the slug pit to be used at TD.
3. If no recent bit trip, pull bit up above depth of last bit trip (discuss with Operations Supt.), then trip back to TD. Circulate bottoms up to remove any fill/debris from short trip. If no short trip, circulate for 1 – 1½ bottoms up (discuss with Office) before TOH for logs. Do NOT pull out of the hole for logs until the logging company confirms that the logging truck is ready to go to location. Make sure that the logging company brings out a "de-centralizer sub" and a "hole finder" to make up with their tools, and also let them know the chlorides content of the drilling mud.
4. Before TOH for logging, pump 100-bbl pill of the 80 vis, 10-cc WL followed by 100-bbls of  $\geq 39$  vis system mud plus 30 – 40-bbls 10# brine (discuss these amounts with office as they may vary with hole conditions, e.g. gas previously encountered). **Do not** over displace more than required to be able to pull the drill pipe dry.
5. Tally out of the hole (confirm this first with the Office), and chain out until bit is into the surface casing shoe, stand back DP & BHA. Install lubricator, RU logging company and log, remove lubricator. After logging, TIH to TD & condition mud. Circulate at least one bottoms up before TOH to run casing. TOH, LDDP and BHA.

### **Additional Well Control Measures**

1. Request that the driller or rig pusher notify you or the Drilling Superintendent immediately if the well indicates a flow from down hole.
2. If a flow is detected, open the 4" line on the choke manifold and close the annular BOP. If possible keep the pump on the hole at slow pump rate. Reciprocate the pipe every 10 to 15 minutes to reduce the chances of getting stuck.
3. If the well must be shut-in due to safety concerns, record the SICP & the SIDPP.
4. **The casing pressure should not be allowed to go above 500 psi to avoid breaking down the surface casing shoe.**
5. Check for flow periodically while tripping. Especially check for flow before pulling drill collars.
6. From 50' above top of lower Wolfcamp to TD, monitor returns on each connection.
7. If a 5 ft drilling break is encountered anywhere in the Wolfcamp, notify Drilling Supt., stop drilling, and check for flow. If well is flowing, pull kelly out of the hole to tool joint and circ bottoms up. If well is static, drill an additional 5 ft. If still in a drilling break, pull the kelly out of the hole to tool joint, notify Drilling Supt., and circ bottoms up. Repeat this process for every additional 10 ft in the same drilling break.
8. **BE PREPARED FOR A POSSIBLE KICK ANYWHERE IN THE INTERVAL FROM THE TOP OF THE WOLFCAMP TO TD.**

**UNiv6 Paige27 #2 / Patterson 508**  
**Rig Information & Bit Program**

*Data from Patterson's Inventory & Personnel/Foreman must verify*

Derrick Rating	No. Lines	Drill Line Size	Drwks
390,500			National 610-M

**Bit Program**    *Subject to Optimization Changes at well site*

Interval	Hole Size	Make	Bit Type	IADC	WOB	RPM	Nozzles
0 - 625'	12.25	Re-Run	Tri Cone		All	120	3 X 13
625' - +7780'	7.875	SEC		PDC	20-30	70-80	7 X 13
+7780' - 9160'	7.875	SEC		PDC	20-35	60-80	7 X 13

**Univ6 Paige27 #2 / Patterson #508  
BHA AND DRILLSTRING DATA**

*All Information Subject to Verification by Foreman at Well Site*

**Surface Hole Drilling**

**Depth Range      0 - 625'**

Component	Approx. Length	Total Length	Max O.D.	Min I.D.	Top Conn.	Bottom Conn.	MU Torque*	Adj. Wt. ppf	Jt. Strength*	Air Weight	Total Air Weight	Margin	Cap. (bpf)	Disp. (bpf)
Bit	1	1	12.25	-	6-5/8Reg	N/A		225	-	225	225	-	-	-
Bit Sub	3	4	8	3	6-5/8Reg	6-5/8Reg		147	-	441	666		0.0087	0.0534
(2) 8" DC	60	64	8	3	6-5/8Reg	6-5/8Reg	51,390	147	-	8,820	9,486	-	0.0087	0.0534
Reamer	5	69	12.25	2.25	6-5/8Reg	6-5/8Reg	53,000	157	-	785	10,271	-	0.0049	0.1409
(1) 8" DC	30	99	8	3	6-5/8Reg	6-5/8Reg	51,390	147	-	4,410	14,681	-	0.0087	0.0534
X/O	3	102	8	3	4-1/2XH	6-5/8Reg	-	147	-	441	15,122		0.0087	0.0534
(18) 6" DC	526	625	6.25	2.25	4-1/2XH	4-1/2XH	28,090	91	-	47,866	62,988	-	0.0049	0.0330

**Production Hole Drilling**

**Depth Range      625' - 9,160'**

Component	Approx. Length	Total Length	Max O.D.	Min I.D.	Top Conn.	Bottom Conn.	MU Torque*	Adj. Wt. ppf	Joint Strength*	Air Weight	Total Air Weight	Margin	Cap. (bpf)	Disp. (bpf)
Bit	1	1	7.875	-	4-1/2Reg	-	-	96	-	96	96	-	-	-
6-Pt Reamer	5	6	7.875	2	4-1/2XH	4-1/2Reg	-	190	-	950	1,046		0.0039	0.0564
Pony collar	10	16	6.25	2	4-1/2XH	4-1/2XH	-	91	-	910	1,956	-	0.0039	0.0341
Reamer	5	21	7.875	2	4-1/2XH	4-1/2XH	-	152	-	760	2,716	-	0.0039	0.0564
(1) DC	30	51	6.25	2.25	4-1/2XH	4-1/2XH	28,090	91	-	2,730	5,446	-	0.0049	0.0330
Reamer	6	57	7.875	2	4-1/2XH	4-1/2XH	-	152	-	912	6,358	-	0.0039	0.0564
(20) DC	600	657	6.25	2.25	4-1/2XH	4-1/2XH	28,090	91	-	54,600	60,958	-	0.0049	0.0330
4.5 16.6 G	8503	9160	6.25	2.25	4-1/2XH	4-1/2XH	23,800	18,88	364,231	160,537	221,495	142,736	0.0049	0.0071

**\*premium class drill pipe, no undersized drill collars**

**If needed, set 1 joint of 14" conductor pipe prior to moving in drilling rig**

## Surface Casing & Cement

**Well Name: Univ6 Paige27 #2**  
**County, State: Crockett, Texas**  
**Drilling Rig: Patterson #508**

**Casing Size:** 9 5/8  
**Planned Setting Depth** 625'  
**Min / Max Setting Depth** **616'** to 665'  
  
**Hole Size:** 12 1/4  
  
**Assumed avg. jt. Length** 42'  
**Estm. # of jts.** 14.9

### **Bow Type Centralizers** (every 4th jt. & top jt.)

- pin end of top jt.	1
- pin end of every 4th jt to top	4
- 7' above shoe	1
<b>Total needed</b>	<b>6</b>

1. Drill to setting depth plus footage to make the cmt head near the rig floor.
2. Run a Texas Pattern shoe, full shoe jt, & float collar.
3. Make sure that the wiper plug, FC, & shoe are PDC drillable (if a PDC is planned)
4. Fill up as needed using a swedge
5. Makeup casing to the optimum torque for the pin end of each connection
6. Thread-lock the casing shoe & the pin end of the 2nd & 3rd joints
7. Use Best-O-Life 2000 pipe dope on box & pin of all other connections
8. Circulate at least 1 bottoms up with casing 1'± off bottom
9. RU cementing co. & Pump cement and displacement at 6-8 BPM
10. DO NOT reciprocate pipe. Catch wet & dry samples of lead & tail slurries
11. Drop wiper plug (do not flush cement lines to the pit).
12. DO NOT over displace by more than 1 barrel over calculated displacement.
13. If floats do not hold, rock floats in an attempt to get them to hold.
14. If floats still do not hold, shut-in 6 hrs. & check surf. samples prior to releasing pres.
15. If cmt does not circulate, call TRRC and the Operations Coordinator

### **NOTE ON THE CASING - CEMENT REPORT:**

- a. Number of sacks of cement used
- b. Slurry recipe
- c. Slurry yield & slurry density
- d. Number of centralizers used
- e. The final lift pressure at reduced rate
- f. Estimated % returns and/or lost circulation
- g. Sacks of cement circulated
- h. Time, contact person & details of all calls to TRRC
- i. Time & date of spud and the time & date of plug down

### **Casing Design**

Interval Length	625'
Weight - lbs/ft	36.0#
Grade	J-55
Nominal ID	8.921
Drift ID	8.765
Cap. (bpf)	0.0773
Connection	STC
Connection OD	10.625
Collapse	2020
Collapse Load Scenario	Evac. Inside
Collapse DF≥1.125	7.31
Burst	3520
Burst Load Scenario	Max test pres.
Burst DF≥1.25	2.33
Tensile Body (kips)	564
Tensile Conn. (kips)	394
Tensile DF≥1.8 (air wt.)	17.51
Min. MU torque	2955
Opt. MU torque	3940
Max. MU torque	4925
Hookload in Air	23 kips
Hookload in Mud	20 kips
Hookload w/ cmt in place	8 kips

### **Cement Design - BJ Services**

FW Pre-flush	30 bbls	Hole size	12.250 in
		Calc. lift press.	160 psi
<b>Lead Cement</b>	<b>Surface</b>	325' BOC	Density 12.8 ppg
Sacks	175 sx		Yield 1.83 cf/sk
Slurry Volume	57 bbls		Water Req'd 9.76 gal/sk
Mix Water	41 bbls		% Excess OH 180%
<b>Tail Cement</b>	<b>325' TOC</b>	625' BOC	Density 14.8 ppg
Sacks (incl shoe)	200 sx		Yield 1.34 cf/sk
Slurry Volume	48 bbls		Water Req'd 6.36 gal/sk
Mix Water	30 bbls		% Excess OH 160%
<b>Lead Slurry</b>	<b>Tail Slurry</b>		
65:35 C:Poz	Class "C"		
6% gel	2% CaCl <sub>2</sub>		
2% CaCl			
1/8 #/sx Cello-flake			
Estm. Displacement	45.1 bbls	Disp. Density	8.4 ppg

**No Fluid Caliper recommended.**

If lost circ while drlg surf hole, pmp 20 - 30 bbls frac gel ahead of cmt and possibly 3 pps Kolseal in lead. Also discuss w/ Drld Supt. Hauling 200-300 sxs additional Class C neat & CaCl (not blended) for a possible 1" job.

**Final decision to run casing will be made after running logs.**

**If TD is extended to 9500', add N-80 to the bottom of the casing design & adjust the tail cement**

**Adjust cement volumes to 20% over openhole log caliper.**

**Well Name: Univ6 Paige27 #2**

**County, State: Crockett, Texas**

**Casing Size: 5 1/2**

<b>Top of J-55</b>		<b>1,410'</b>
<b>Top of Ryt-wrap</b>		<b>5,500'</b>
<b>Bottom of Ryt-wrap</b>		<b>8,160'</b>
<b>Marker jt. @</b>	<b>5,595'</b>	
<b>Marker jt. @</b>	<b>6,775'</b>	
<b>Marker jt. @</b>	<b>8,500'</b>	
<b>Top of N-80</b>		<b>8,300'</b>
<b>Float Collar @</b>		<b>9,140'</b>
<b>Length of Shoe jt.</b>		<b>20'</b>
<b>Casing Shoe @</b>		<b>9,160'</b>
<b>Assumed avg jt length</b>		<b>42.5'</b>

**Bow Type Centralizers**

pin end of every third jt. to top marker jt.	28
7' above shoe	1
<b>Total needed</b>	<b>29</b>

**Casing Design**

Top of Interval	0	1,410'	8,300'
Bottom of Interval	1,410'	8,300'	9,160'
Interval Length	1,410'	6,890'	860'
Weight - lbs/ft	17.0#	17.0#	17.0#
Grade	N-80	J-55	N-80
Nominal ID	4.892	4.892	4.892
Drift ID	4.767	4.767	4.767
Cap. (bpf)	0.0233	0.0233	0.0233
Connection	LTC	LTC	LTC
Connection OD	6.05	6.05	6.05
Collapse Rating	6280	4910	6280
Collapse Load Scenario	Evac. Inside		
<b>Collapse DF<math>\geq</math>1.125</b>	<b>9.52</b>	<b>1.26</b>	<b>1.46</b>
Burst Rating	7740	5320	7740
Burst Load Scenario	5000# frac press.		
<b>Burst DF<math>\geq</math>1.25**</b>	<b>1.53</b>	<b>1.00</b>	<b>1.44</b>
Ten. Body Rating (kips)	397	273	397
Ten. Conn. Rating (kips)	348	247	348
<b>Ten. DF<math>\geq</math>1.8 (air wt.)**</b>	<b>2.23</b>	<b>1.87</b>	<b>23.80</b>
Min. MU torque	2610	1853	2610
<b>Opt. MU torque</b>	<b>3480</b>	<b>2470</b>	<b>3480</b>
Max. MU torque	4350	3088	4350

Hookload in Air 156 kips

Calc. Hookload in Mud 134 kips

Calc. Hookload w/ cmt in place 101 kips

(Hookloads do not include weight of traveling equip.)

\*\*Safety factor of 1 is for test & screenout conditions

for frac stimulation w/ management approval

1. Make sure that the Hydri has been function tested and in good working order
2. Stop to fill up casing every 40 to 50 jts. & use a swedge to fill casing
3. Run the first 95 jts. (4000' +/-) lowering each jt. at not less than 25 sec / jt.
4. Circulate for 1-1/2 hrs then run remaining casing lowering at not less than 25 sec / jt.
5. **KEEP PIPE MOVING AS MUCH AS POSSIBLE TO AVOID GETTING STUCK**
6. Have Ryt-Wrap Tech patch all damage to Ryt-wrap caused by tongs, slips, & elev.
7. Make sure cementing co. has proper swedges for casing (LTC)
8. Makeup casing to the optimum torque for the pin end of each connection
9. Thread-lock the casing shoe & the pin end of the 2nd & 3rd joints
10. Use Best-O-Life 2000 pipe dope on box & pin of all other connections
11. **Do not pull more than 20,000# over the current actual string weight of casing**  
(Call Drilling Coordinator if necessary to exceed this hookload)
12. Circulate 1.5 casing volumes with casing 1'± off bottom  
(Discuss circ. time w/ Operations Coordinator if well has had a gas kick)
13. RU cementing co. & pump cement and displacement at 6-8 BPM
14. **DO NOT** reciprocate pipe. Catch wet & dry samples of lead & tail slurries
15. Drop wiper plug and flush cement lines to the pit.
16. Verify that the valve on the wash-up line is not leaking.
17. Monitor vol. of fluid in the mix tub to verify valve between mix tub & disp. tanks isn't leaking.
18. Gauge acid transport before & after pumping acid.
19. Unhook lines from transport after pumping acid.
20. Displace @ 6 - 7 BPM. Reduce rate to 2 BPM for the last 10 bbls. (Do not exceed 8 BPM)
21. If plug has not bumped by calculated displacement, over displace by up to 1 bbl.
22. If plug still has not bumped & the precautions listed have been followed,  
over displace by up to 4 additional barrel.
23. **DO NOT** over displace by more than a total of 5 barrels over calculated displacement.
24. If floats do not hold, rock floats in an attempt to get them to hold.
25. If floats still do not hold, shut-in 6 hrs. & check surface samples prior to releasing press.
26. If problems occur while cementing, discuss a Temp survey with the Operations Supt.

**NOTE ON THE CASING - CEMENT REPORT:**

- a. Number of sacks of cement used
- b. Slurry recipe
- c. Slurry yield & slurry density
- d. Number of centralizers used
- e. The final lift pressure at reduced rate
- f. Estimated % returns and/or lost circulation
- g. Actual casing weight set on slips (not including wt. of blocks)
- h. Time, contact person & details of all calls to TRRC
- i. Time & date of plug down and time & date of rig release
- j. ph & Sp. Grav. of Acetic acid

**Cement Design - BJ Services**

<b>FW ahead of cmt</b>			
FW Pre-flush	30 bbls	OH Size to:	8,500 ft. > 7 7/8
BJ's Sure Bond III	24 bbls	OH Size to:	TD > 7 7/8
FW Spacer	30 bbls	Calc. lift press.	1,500 psi
<b>Lead Cement - None</b>			
<b>Tail Cement w/ top @ 4,670'</b>			
Sacks (incl shoe)	810 sx	Density	14.2 ppg
Slurry Volume	182 bbls	Yield	1.26 cts/sk
Total Mix Water	111 bbls	Water Req'd	5.8 gal/sk
<b>Lead Slurry</b>		<b>Tail Slurry</b>	
		50:50 H:Poz	
		2% Gel	
		.005 gps FP13L	
		0.2% FL-52A	
		1% Salt	
		(Salt is optional to adjust pump time)	
		Target pump time = 2.75 to 3.5 hrs.	

(Estm. Displacement) 213 bbls (1000 gals. 10% acetic acid followed by fr wrt)

RECALCULATE ACTUAL DISPLACEMENT USING THE FINAL PIPE TALLY AS RAN IN THE HOLE

**Note: Acetic acid should have a ph =1 to 2.5 & SG=1.009 to 1.03**

**HENRY PETROLEUM LP**  
**Drilling Prognosis – UNIV6 PAIGE27 #2**

Date: 10/16/2008

Revised: \_\_\_\_\_

KB: 2558  
Patterson Rig #508 KB = 16'

GL: 2542

**FORMATION TOPS**

Formations & Pays	Est. Top	Comments
Grayburg/SA	3,260	
Clearfork	5,170	
Spraberry	5,595	
Dean	6,775	
Wolfcamp	6,875	
Lower Wolfcamp	7,780	
Strawn	8,500	
Penn Detrital	8,680	
Mississippian	9,010	
Woodford	9,040	** probable TD @ 9160', may extend to 9500'
Devonian	9,070	depending on mud log shows in the Devonian
<b>Total Depth</b>	<b>9,600</b>	**Exact T.D. will be picked by geologist

**WELLSITE GEOLOGY**

From-To	Sample Interval	Drilling Time Interval	Mudlogging Program
4500' to TD	10'	0 - 6	2 man unit

**ELECTRIC LOGGING PROGRAM**

Open hole:	Platform Express HRLA-MCFL, BHC Sonic, HNGS (One logging run planned)
Cased hole:	Compensated Neutron - GR-CCL TD to int. casing. GR to surface if open hole logs not run. Tie back depth to open hole logs.

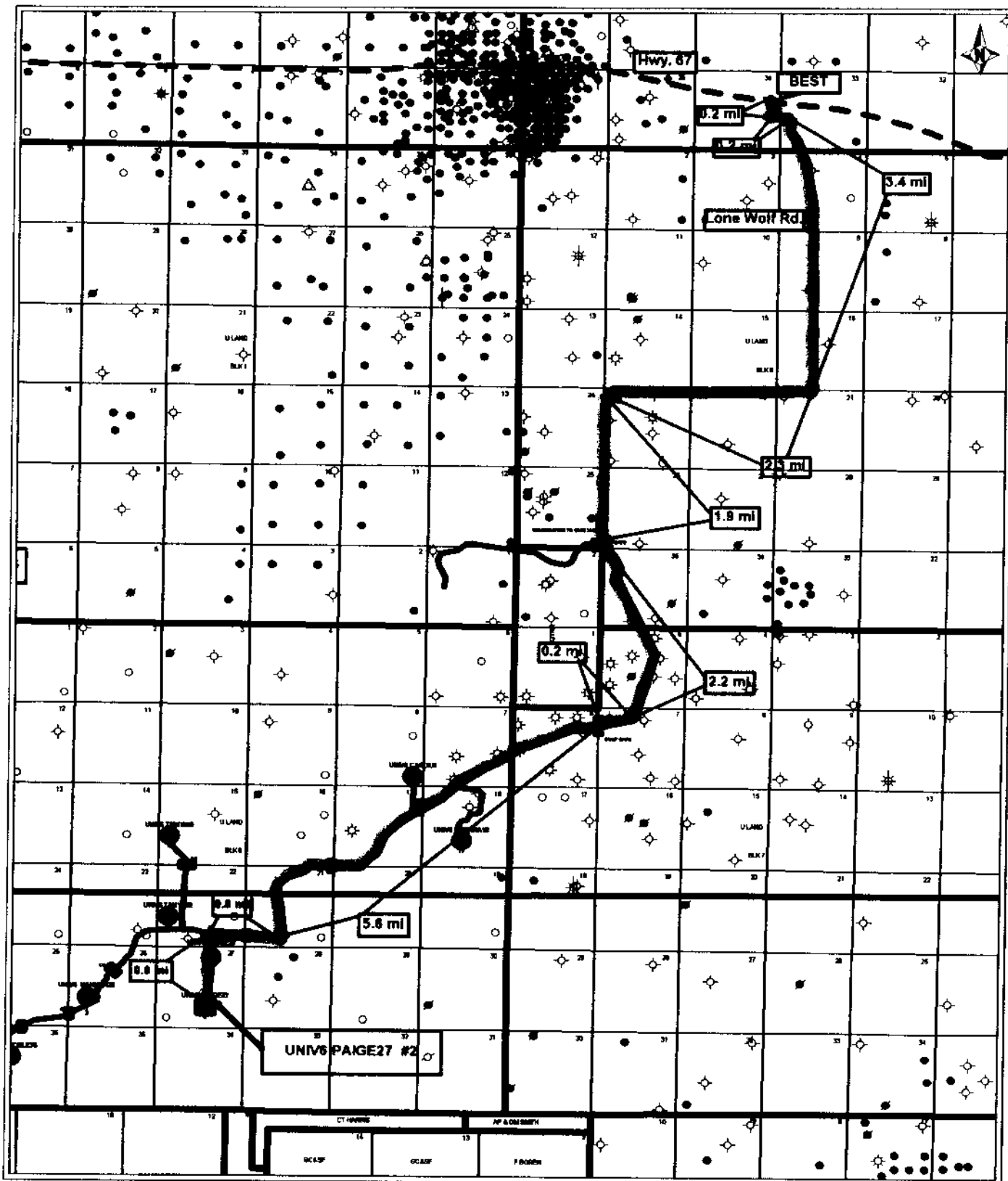

**LOCATION**

1450' FSL & 2350' FEL, Sec. 27, Blk. 6, ULS Survey,  
Crockett County, Texas

**DIRECTIONS TO THE UNIV6 PAIGE27 #2 LOCATION**

On Hwy 67 From Best turn South on Best Ln. Turn left on Santa Rita Rd. Turn right (South) on 113 (Lone Wolf Rd.) & go 3.4 miles. Turn right (West) & go 2.3 miles. Turn left (South) & 1.9 miles you will come to a cattleguard. Take East Gate. Gate combination is 3000. Go through gattleguard & continue Southeast for 2.2 miles. Turn right (West) & go 0.2 miles to cattleguard. Continue (Southwest) for 5.6 miles. Turn right & go 0.8 miles. Turn left (South) and go 0.9 miles to location.

**API # 42-105-40879**



PTNRA 131270208 11-13-98 AM

P:\Prods\dr\SOUTH MIDLAND BASIN\OVERLAY\Chron Roads Tece 9-2004.OVL

### **DIRECTIONS TO THE UNIV6 PAIGE27 #2 LOCATION**

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# Block 6, University Land

(202)  
(203) 22  
23 Fnd. Concrete Monument

S 88°49'33" E 5389.40'

(201)  
21

26 27  
(206) (207)

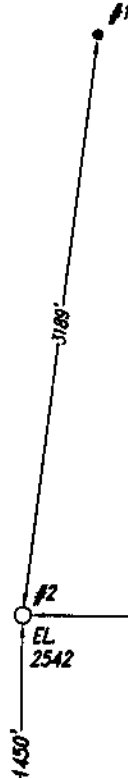
HENRY PETROLEUM LP

28  
(208)



N 1°10'27" E 5276.49'

S 1°10'27" W 5276.49'



653.1 Acres

Univ6 Paige27

35 34  
(215) (214)

N 88°49'33" W 5389.40'

33  
(213)

Note: Survey Reconstruction filed in the Office of Luchini and Mertz Land Surveying Company.

Note: All bearings and coordinates shown are based on the Texas Coordinate System of 1927, Central Zone.

A combined grid factor of 0.9997563 must be divided into Section Line distances to obtain a true horizontal distance.

Note: Example: (S-99999) indicates General Land Office file number.

Note: HAD '27 Coordinates & Latitude/Longitude on well location in Section 27.

Note: Well location is approximately 39.8 miles northwest of Ozona.

#2

X: 1562590.44

Latitude - 31°03'35.730" N

Y: 509452.42

Longitude - 101°43'49.320" W

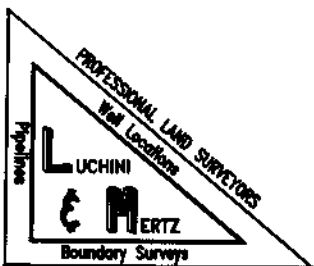
Railroad Commission Permit Plat



Steven L. Prewitt

September 29, 2008

080929J



HENRY PETROLEUM LP  
"Univ6 Paige27" Lease  
all of  
Section 27, Block 6,  
University Land,  
Crockett County, Texas

Scale: 1" = 1000'

**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 <b>672615</b>	DATE PERMIT ISSUED OR AMENDED <b>Oct 11, 2008</b>	DISTRICT <b>* 7C</b>	
API NUMBER <b>42-105-40879</b>	FORM W-1 RECEIVED <b>Oct 07, 2008</b>	COUNTY <b>CROCKETT</b>	
TYPE OF OPERATION <b>NEW DRILL</b>	WELLBORE PROFILE(S) <b>Vertical</b>	ACRES <b>653.1</b>	
OPERATOR <b>HENRY PETROLEUM LP</b>		<b>378642</b> <b>NOTICE</b> 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> <b>(325) 657-7450</b>	
LEASE NAME <b>UNIV6 PAIGE27</b>		WELL NUMBER <b>2</b>	
LOCATION <b>39.8 miles NW direction from OZONA</b>		TOTAL DEPTH <b>10800</b>	
Section, Block and/or Survey SECTION <b>◀ 27</b> BLOCK <b>◀ 6</b> ABSTRACT <b>◀</b> SURVEY <b>◀ UNIVERSITY LAND</b>			
DISTANCE TO SURVEY LINES <b>1450 ft. SOUTH    2350 ft. EAST</b>		DISTANCE TO NEAREST LEASE LINE <b>1450 ft.</b>	
DISTANCE TO LEASE LINES <b>1450 ft. SOUTH    2350 ft. EAST</b>		DISTANCE TO NEAREST WELL ON LEASE <b>See FIELD(s) Below</b>	
FIELD(s) and LIMITATIONS: <p align="center"><b>* SEE FIELD DISTRICT FOR REPORTING PURPOSES *</b></p>			
FIELD NAME LEASE NAME	ACRES NEAREST LEASE	DEPTH NEAREST LEASE	WELL # NEAREST WE
-----	-----	-----	-----
<b>SHEEP MOUNTAIN (CONSOLIDATED)</b>	<b>653.10</b>	<b>9,500</b>	<b>2</b>
<b>UNIV6 PAIGE27</b>	<b>1450</b>	<b>3189</b>	<b>7C</b>
<p align="center"><b>THE FOLLOWING RESTRICTIONS APPLY TO ALL FIELDS</b></p> <p>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.</p>			

**TYPE OR PRINT IN INK**

**DEPTH OF USABLE-QUALITY GROUND WATER TO BE PROTECTED**

**PLEASE READ ALL INSTRUCTIONS**

**PLEASE READ ALL INSTRUCTIONS**

The information requested is essential in order for this agency to provide an appropriate response. Please allow for receipt of this form in our offices at least two weeks before your operation begins. Due to the volume of these requests, at times, it may be difficult for us to handle telephone inquiries. Complete, keep the bottom sheet (goldenrod) for your files, and mail the top 3 sheets of the 4-sheet set of carbon-backed forms with a map to the address below. One sheet bearing our response will be returned to you. Another will be sent to the appropriate district office of the Railroad Commission. If you have questions on how to fill out this form or about the Surface Casing program, please contact us at 812239-0815.

**Surface Casing - MC 151**

TCEQ

P.O. Box 13087

Austin, TX 78711-3087

Date 09/25/2008 TCEQ File No.: SC-

13650

ROY R. JOHNSON (432) 681-7222

Name of person preparing this request &amp; phone No. (with area code)

RRC P-5 OPERATOR # 378642

HENRY PETROLEUM LP

Company (operator's name as on RRC form W-1)

3525 ANDREWS HIGHWAY - Suite 200

**Mailing Address**

MIDLAND TX 79703-5000

City and State

ZIP Code

**ALWAYS INCLUDE A MAP SHOWING YOUR WELL SITE AND ALL SURROUNDING SURVEYS**

COUNTY CROCKETT Survey Name UNIVERSITY LAND

Block No. 6 Township - Section or Survey No. - (or) Lot No. -

Abstract No. A- \_\_\_\_\_ LEASE Name UNIV6 Paige27 Well No. 2

Distances, in feet, and directions measured at right angles from each of two intersecting ☐ Section or ☐ Survey lines  
(NOT LEASE LINES) 1450 feet from SOUTH line and 2350 feet from EAST line

Distance (in miles) and direction from a nearby town in this County (name the town) \_\_\_\_\_

39.3 miles NW of Orono

THE ABOVE INFORMATION MUST BE COMPLETE AND CORRECT

API # \_\_\_\_\_ RRC Lease No. 16139 RRC Dist. No. 7C

GPS Coord. (long/lat or X-Y state plane) \_\_\_\_\_ NAD \_\_\_\_\_

Elevation 2561' GR      Total Depth 10,000      Geologic Fm. at T.D. Wolfcamp/Consolidated

Purpose of the Request : ☒ New Drill ☐ Re-entry ☐ Plug & Abandon ☐ Other (specify) \_\_\_\_\_

Is this an **AMENDED** request? ☐ Yes ☒ No Previous File No. for this well: SC-

☐ Log included of same or nearby well (The applicable type of well log that shows the aquifers.) Please provide a location map or AP# for attached log.

**ALWAYS** attach the electric log of any well that is to be reentered.

Additional remarks: \_\_\_\_\_

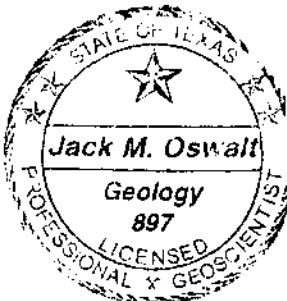
**To protect usable-quality ground water at this location, the TEXAS COMMISSION ON ENVIRONMENTAL QUALITY recommends:**

CO-CROCKETT,SUR-UL,BLK-6,SEC-27,LSE-UNIV6 PAIGE27,#9/SANTA ROSA,600

The interval from the land surface to the base of the SANTA ROSA, which is estimated to occur at a depth of 600 feet, must be protected.

Very truly yours,

Jack M. Oswalt, P.G.



October 9, 2008

Date \_\_\_\_\_

typed by TCEQ

**Geologist, Surface Casing, TCEO**

NOTE: Unless stated otherwise, this recommendation is intended to apply only to the subject well and not for area-wide use. Approval of the well-completion methods for protection of this ground water falls under the jurisdiction of the Railroad Commission of Texas. This recommendation is intended for normal drilling, production, and plugging operations only. It does not apply to saltwater disposal operations into a nonproductive zone (RRC Form W-14).

for to LHM  
9/23/08  
SMB

HENRY PETROLEUM LP  
APPROVAL TO STAKE, PERMIT, AND BUILD DRILLING LOCATION

Prospect Name: LMU (Noelke Creek)  
Well Name/No: Univb Paige 27 #2  
County, State: Crockett co, Texas  
Proposed Location: 1450'PSL, 2350'FEZ, sec. 27, blk 6, Univ. Land Surv  
Actual Location: \_\_\_\_\_  
Lease Description (RRC): Sec. 27, Blk 6, ULS, Crockett Co.  
Permitted TD: \_\_\_\_\_ Estimated TD: 9500  
Potential Horizons: \_\_\_\_\_  
Critical Spud Date: \_\_\_\_\_  
Nature of Damages: Per UL Rot. Damage Schedule  
(Other than as per attached) Dated September 1, 2008

Contact Tommy Gray  
prior to entering surface

APPROVALS:	INITIAL	DATE	COMMENT
Technician	<u>sal</u>	<u>9/17/08</u>	<u>Prepare Form</u>
Geology	<u>DAO</u>	<u>9/17/08</u>	<u>Confirm Location</u>
Land Manager *	<u>CS</u>	<u>9-19-08</u>	<u>Approve to Stake</u>
Land Manager *	<u>CS</u>	<u>9-19-08</u>	<u>Approve to Permit</u>
Land Manager *	<u>CS</u>	<u>10-6-08</u>	<u>Approve to Build Location</u>
Asst Production Manager	<u>CS</u>	<u>10-7-08</u>	<u>Approve to Build Location</u>
Shirley	<u>sal</u>	<u>10-8-08</u>	<u>Distribute</u>

\*Land to notify Operations Engineer upon each separate approval

Distribution Upon Actual Staking (return to Shirley):

Engineer Analyst (Susan Moore)	Geologic Technician (Sharon McCain)
Land	Susan King
Geology	Drilling - (Sherry Morrow)
Regulatory Specialists (Shirley, Roy)	Original - Well File