

# ENERGEN

## RESOURCES

3300 North "A" Street  
Building 4, Suite 100  
Midland, Texas 79705  
(915) 687-1155  
FAX (915) 687-1796

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TO: UNIVERSITY LANDS DEPT. 688-0466 OR 682-7456  
ATTN: WENDA KELLY  
FROM: ENERGEN RESOURCES  
DATE: OCTOBER 20, 1999

### COVER MESSAGE:

#### UNIVERSITY #2

**First Report: Well is off w/ a suspected San Andres casing leak.**

10/07/99: Well is pumping 100% water w/ a strong H2S odor. Suspect a casing leak, took a water sample in for confirmation. Looking for a pulling unit now, will move on ASAP. (WO)

10/08/99: Well was pumping 100% water w/ a strong H2S odor. Confirmed the casing leak w/ a water sample. Will move on to isolate the leak this a.m. DC-\$153, AT-\$153. (WO)

10/09/99: MIRUPU, unseated the pump, hot-oiled the rods & tubing w/ 25 bbls of 200 degree oil, & POOH w/ the rods & pump. ND the WH, released the TAC, & NU a BOP. POOH w/ 287 jts of 2 3/8" J-55 4.70# EUE 8rd R-2 tubing, API SN, SSN, 2 3/8" x 4 1/2" TAC, & a 2 7/8" BPMA/PS. PU & RIH w/ a 4 1/2" "Lok-Set" RBP, RH, 2 3/8" x 4 1/2" "CST" packer, API SN, & 283 jts of the 2 3/8" tubing. Set the RBP @ 8,640' & tested to 1M# w/ no leak-off. Pulled up & tested the previously squeezed Wolfcamp perforations from 8,504'-8,524' to 500#, w/ no leak-off. Pulled up & tested the squeeze holes @ 8,150' to 500#, w/ no leak-off. Pulled up to 6,504' & tested to 500#, w/ no leak-off, (TOC-6,419'). Continued pulling up & isolated the leak to be between 5,192'-5,222'. Had an injection rate of 1 BPM @ 250#, & 2 BPM @ 850#. Opened the 4 1/2" x 7" annulus & had good returns, opened the 7" x 9 5/8" annulus & had fair returns. Spotted 2 sacks of sand atop of the RBP & SIFWE. Will continue operations Tuesday, (10/12), a.m. DC-\$3,764, AT-\$3,917. (WO)

10/10-11/99: SIFWE. Will continue operations Tuesday a.m. DC-\$0, AT-\$3,917. (WO)

10/12/99: Will continue operations this a.m. DC-\$400, AT-\$4,317. (WO)

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10/13/99: POOH w/ the tubing, SN, packer, & RH. RU Baker Atlas WL & shot 4-90 degree phased squeeze holes over a 1 ft interval w/ a 3 1/8" casing gun loaded w/ 16 gram, (0.37" EHD, 13.58" PD), charges, & RDWL. RIH w/ the 2 3/8" x 4 1/2" "CST" packer, a 2 3/8" API SN, & 209 jts of the 2 3/8" tubing down to 6,378'. Set the packer @ 6,378', RU BJ Services, & tested the packer to 500# w/ no leak-off. POOH w/ 3 jts of tubing, set the packer @ 6,286', pumped 6 BFW, & established circulation on the 7" x 9 5/8" annulus, (The rate was 1.7 BPM @ 475#). Recovered 40 BO & 12 BW in the test tank w/ 53 BF pumped. Closed the 7" x 9 5/8" annulus & opened the 4 1/2" x 7" annulus. Established circulation, the rate was 1.7 BPM @ 470#, recovered 1 BO & 19 BW w/ 20 BF pumped. Released the packer @ 6,286' & POOH w/ the tubing, SN, & packer. PU & RIH w/ a 4 1/2" cement retainer, 2 3/8" API SN, & 206 jts of the 2 3/8" tubing. Pumped 30 BFW through the retainer, set the retainer @ 6,283', tested the tubing to 3M# w/ no leak-off, stung out of the retainer, stung back into the retainer, & SION. Plan to cement in two stages today. DC-\$5,055, AT-\$9,372. (WO)

10/14/99: Stung out of the retainer & stung back in w/ no problem. Opened the 7" x 9 5/8" annulus & established circulation w/ 18 BFW. Opened the 4 1/2" x 7" annulus & established circulation w/ 8 BFW. Established a rate of 1 1/2 BPM @ 500# w/ 25 BFW up the 7" x 9 5/8" annulus. Mixed & pumped 275 sacks of Class "C" neat cement @ 13.9# w/ a yield of 1.53. put 175 sacks between the 7" x 9 5/8" annulus & 100 sacks between the 4 1/2" x 7" annulus. Followed the 13.9# cement w/ 25 sacks of Class "C" neat cement mixed @ 14.8#. Closed both sides & squeezed the last 25 sacks to 1M# w/ 1 bbl of cement remaining in the tubing. SD & the pressure dropped to 780#, stung out of the retainer. Bled the remaining pressure down via the 7" x 9 5/8" annulus. POOH w/ 41 jts of tubing up to 5,039'. Pumped 10 BFW down the tubing & SI. RU on the 2 3/8" x 4 1/2" annulus & circulated the 4 1/2" x 7" annulus clean w/ 120 BFW, (No cement w/ bottoms-up). Circulated the 7" x 9 5/8" annulus clean w/ 160 BFW, (No cement w/ bottoms-up). POOH w/ the tubing & setting tool. PU & RIH w/ a 4 1/2" cement retainer, 2 3/8" API SN, & 169 jts of the 2 3/8" tubing. Established circulation from both the 4 1/2" x 7" & 7" x 9 5/8" annuluses. Pumped 25 BFW through the retainer & attempted to set the retainer @ 5,152'. The retainer slid down the hole to 5,158', PU on tubing to pack the retainer off & the setting tool pulled out prematurely. Stung back into the retainer & attempted to pressure test the casing & retainer, pumped by the retainer @ 1 BPM @ 370#. POOH w/ the tubing & setting tool. The setting tool had part of the retainer's failed internal ratcheting mechanism on it. SION, will RIH w/ a drill bailer & knock the retainer down this a.m. DC-\$5,603, AT-\$14,975. (WO)

10/15/99: RU a 3" "Drill-Bailer" w/ a 3" chisel bottom on the sandline. Knocked the retainer loose @ 5,158', (4 1/2 hrs to knock loose), chased the retainer down to 5,338' w/ the bailer, & POOH & RD the bailer. PU & RIH w/ a 4 1/2" cement retainer, 2 3/8" API SN, & 169 jts of the 2 3/8" tubing. Established circulation from both the 4 1/2" x 7" & 7" x 9 5/8" annuluses. Pumped 25 BFW through the retainer, set the retainer @ 5,150', tested the tubing to 3M# w/ no leak-off, stung out of the retainer, stung back into the retainer, & pressured the casing to 500#. Opened the 7" x 9 5/8" annulus & established a rate of 1.3 BPM @ 620# w/ 15 BFW. Mixed & pumped 75 sacks of Class "C" neat cement @ 13.9# w/ a yield of 1.53. Placed 50 sacks between the 7" x 9 5/8" annulus & 25 sacks between the 4 1/2" x 7" annulus. Followed the 13.9# cement w/ 50 sacks of Class "C" neat cement mixed @ 14.8#. Closed both annuluses & squeezed the last 50 sacks to 1M# w/ 1 bbl of cement remaining in the tubing. SD & the pressure dropped to 920#, stung out of the retainer. Reversed 1 1/2 bbls of cement to the pit w/ 30 BFW. RD BJS & POOH w/ the tubing, SN, & setting tool. SION, will start drilling-out this a.m. DC-\$4,577, AT-\$19,552. (WO)

10/16/99: PU & RIH w/ a 3 7/8" HTC tooth bit, BS, 6-3 1/8" DC's, XO, & 163 jts of the 2 3/8" tubing &

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tagged-up @ 5,145'. RU the swivel & JUS & commenced drilling soft cement @ 5,145'. Drilled soft cement from 5,145' down to the retainer @ 5,150'. Drilled the retainer @ 5,150' in 5 rotating hrs. Drilled cement down to & fell out @ 5,178'. Washed from 5,178' down to 5,213', w/ no cement. RIH down to 5,244', circulated the hole clean, open both the 4 1/2" x 7" & the 7" x 9 5/8" annuluses, & pressure tested the casing to 600# for 15 minutes w/ no leak-off. RD the swivel & RIH w/ 33 jts of 2 3/8" tubing, (Pushed the failed cement retainer from 5,338' down to 6,278'). Pulled 1 jt of tubing up to 6,253', circulated the hole clean w/ 65 BFW, & SION. Will continue the drill-out this a.m. DC-\$2,826, AT-\$22,378. (WO)

10/17/99: RU the swivel & RIH down to the retainer @ 6,278'. Drilled the remainder of the failed retainer in 3 1/2 rotating hrs. Drilled medium hard cement down to the bottom retainer @ 6,283'. Drilled the retainer @ 6,283' in 4 rotating hrs. Drilled cement down to & fell out @ 6,361'. Circulated the hole clean & tested the casing to 500# for 15 minutes w/ no leak-off. SIFS, will continue RIH to wash the sand off of the RBP Monday a.m. DC-\$2,405, AT-\$24,783. (WO)

10/18/99: SIFS, will continue operations this a.m. DC-\$0, AT-\$24,783. (WO)

10/19/99: RIH w/ the BHA & 277 jts of the 2 3/8" tubing. Tagged-up @ 8,621', RU & pressure tested the casing & both squeezes to 550# for 15 minutes w/ no leak-off, (Had both the 4 1/2" x 7" & the 7" x 9 5/8" annuluses open while testing). RU the swivel & JUS, reverse washed the sand from 8,621' down to the RBP @ 8,640', circulated the tubing clean, & POOH w/ the tubing, LD the BHA. RIH w/ a RH, 2 3/8" API SN, & 283 jts of the 2 3/8" tubing down to the RBP @ 8,640'. Displaced the hole w/ 130 bbls of filtered 2% KCl water. Released the RBP & POOH w/ the tubing, SN, RH, & RBP. RIH w/ a 2 3/8" x 4 1/2" "CST" packer, 2 3/8" API SN, & 283 jts of the 2 3/8" tubing. Set the packer @ 8,636' in 20M# compression & L&P the casing to 300# w/ 30 bbls of filtered 2% KCl water. SION, will swab back until the fluid is clean & acidize this a.m. DC-\$4,147, AT-\$28,930. (WO)

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University #2

10/20/99: RU the swab, IFL-5,300' FS, swabbed 6 hrs & recovered a total of 74 BF. The initial fluid was extremely dirty w/ a high solids content. The solids tapered off & cleared up to good clear fluid w/ a 1-2% oil cut, FFL-6,900' FS. RU BJ Services, & pressured the casing to 500#. Acidized the existing Wolfcamp perforations from 8,698'-8,706' w/ 1M gallons of 15% HCl acid w/ additives & 50-1.3 SGBS. The AIR was 3 1/2 BPM @ 900#, had fair BA, bid not BO. Flushed the acid, the ISDP was a vacuum, have 58 BLWTR, RD BJS. RU the swab, IFL-4,800' FS, swabbed 3 hrs & recovered a total of 37 BF, FFL-6,900' FS. Recovered 37 bbls of the 58 BL, have 21 BLWTR. Left the well open to the TTON, will run the production tubing & rods back & RWTP today. DC-\$3,627, AT-\$32,557. (WO)

### University #2

10/21/99: Left the well open to the TTON. RU the swab, IFL-5,800' FS, pulled from 7,100' FS, recovered 4 BF, 1% oil-cut. Swabbed an additional 1 1/2 hrs & recovered 20 BF, FFL-6,900', the fluid was good & clean w/ no signs of acid, & a final run oil-cut of 1-2%. Recovered a total of 24 BF for the day, have a 2-day total recovery of 61 barrels, 3-BOL. RD the swab, released the 4 1/2" "CST" packer @ 8,634', RIH w/ 2 stands of tubing down to 8,762' w/ no problems, & POOH w/ the tubing, SN, & packer. Poured 3 gallons of corrosion inhibitor down the casing. RIH w/ a 2 7/8" BPMA/PS, 2 3/8" x 4 1/2" TAC, 2 3/8" SSN, 2 3/8" API SN, & 287 jts of the 2 3/8" J-55 4.70# EUE 8rd R-2 tubing. ND the BOP, set the TAC in 15M# tension, & NU the WH. The 13 ft KB corrected EOT is @ 8,796', the TAC is set @ 8,765', & the SN is @ 8,763'. Poured 2 gallons of corrosion inhibitor down the tubing & RIH w/ a 1" x 20' GA, the R&R'd 2 x 1 1/4 x 30 x 34 DSV, STV,

(w/ a DDV), 5' SMP, RHBC pump, a 7/8" 26K shear tool, 18-7/8" guided rods, 126-7/8" Grade "D" steel rods, 135-1" Fiberflex FG rods, & 35' of 7/8" steel subs (1-7/8" "D" rod, 1-7/8" x 6', & 1-7/8" x 4' "D" pony rod). SO, L&P the tubing to 500#, re-spaced, HO, HGPA, RDP, & RWTP, (11.8-54" SPM). Will stroke the unit out 10/22 after setting the unit on the Ring University #6. DC-\$3,855, AT-\$36,412. (WO)

### University #2

10/22/99: 0 BO / 36 BW / 0 MCF, (0% oil-cut / 0 GOR).

The unit is running 11.8-54" SPM. Will stroke the unit out this afternoon.

DC-\$0, AT-\$36,412. (WO)

### University #2

10/23/99: 0 BO / 77 BW / 0 MCF, (0% oil-cut / 0 GOR).

Stroked the unit out to the 100" hole & RWTP, (11.8-100" SPM).

DC-\$333, AT-\$36,745. (WO)

10/24/99: 1 BO / 170 BW / 6 MCF, (0.6% oil-cut / 6,000 GOR). DC-\$0, AT-\$36,745. (WO)

10/25/99: 1 BO / 191 BW / 10 MCF, (0.5% oil-cut / 10,000 GOR). DC-\$0, AT-\$36,745. (WO)

### University #2

10/26/99: 1 BO / 181 BW / 19 MCF, (0.5% oil-cut / 19,000 GOR). DC-\$0, AT-\$36,745. (WO)

### University #2

10/27/99: 1 BO / 176 BW / 37 MCF, (5.9% oil-cut / 3,364 GOR). DC-\$0, AT-\$36,745. (WO)

### University #2

10/28/99: 16 BO / 172 BW / 42 MCF, (8.5% oil-cut / 2,625 GOR). DC-\$0, AT-\$36,745. (WO)

### University #2

10/29/99: 19 BO / 189 BW / 42 MCF, (9.1% oil-cut / 2,211 GOR). DC-\$0, AT-\$36,745. (WO)