

IX

Stimulation

Program

WORKOVER PROCEDURE
VG 134 WIW

Date: May 27, 2004

I- General Information

Well: VGSAU #134
API #: 30-025-36681
Field: Vacuum
Location: 2630' FSL & 1980' FWL
Section 1, Unit Letter "K", T18S & R34E, Lea County, New Mexico
Formation: Grayburg San Andres
Drilled: 5/24/2004
Elevation: GL: 3985'
KB: 3991'

II- Current Wellbore

See Attached Diagram.

III- Formation Tops

Grayburg Marker:
Grayburg Dolomite Top: 4196'
Grayburg Dolomite Base: 4232'
Grayburg San Andres: 4268'
Lovington Sand: 4485'
LSA:
O/W Contact: 4710'

IV- Objective Workover

Complete new vertical injector.

V- **Procedure**

- 1- MIRU, ND well head & NU BOP.
- 2- **Drill Out to TD**: P/U 4 3/4" bit and 2 7/8" working string. TIH to clean out wellbore to FC @ **4400'**. Drill to **4440'** (9' above the shoe). TOH with bit.
- 3- **Logging**: R/U Baker Atlas and run CBL-CCL-GR Log from TD to surface. (Note: Run the CBL w/ 1000 psi applied on surface.)
- 4- **Perforating**: R/U BAKER ATLAS tools and guns. **Safety Meeting** about perforating operations. TIH with 3 1/8" XPS Expendable Guns. Correlate and perforate w/ 2 jspf (120° phasing) intervals in the Grayburg Dolomite and Upper San Andres: **4217-4229 (12')**, **4260-4283 (23')**, **4292-4320 (28')**, **4323-4331 (8')**, **4342-4370 (28')**, **4374-4386 (12')**, **4392-4420 (28')**. Total of 139' (278 holes). TOH with guns and check if charges fired as planned. Rat hole Available: 20'.
- 5- **Stimulation**: P/U 5 1/2" Retrievable BP and packer and 2 7/8" treating tubing. TIH w/ tubing, packer (Check CCL for packer).

Perform acid job to intervals as follows:

Intervals: **139'**
Volume: **8,000** gls acid 15% HCl. **2000** gls acid per stage w/ 55 ball sealers per stage.
Rate: **8-10 bpm**
Initial Pad: As recommended by Schlumberger
Stages: **4**
Diversion: 3000 # Rock Salt. 500, 1000 and 1500 # in between stages.
Ball Sealers: 220 – 1.3 sg. ball sealers
Flush: To top of perforation

Note: - See Schlumberger Program for details and changes.
- Request Frac Pump for this job.

- 6- **Swabbing/Flow Back Load**: Record volumes.
- 7- **Clean Out Debris, balls and Rock Salt**: Release Packer and RBP. TOH w/ working string and packer. L/D packer. P/U bit again and TIH with 2 7/8" working tubing. C/O to PBTB @ **4440'**. TOH and L/D tubing and bit.
- 8- **Run Injection Equipment**: P/U 2 3/8" Plastic lined tubing and 5 1/2" packer. TIH with injection equipment. Set packer **within 150' of top of perforations**.
- 9- Evaluate Surface Pressure for Injection. If surface pressure higher than 2/10 of psi per foot to the top of the perforations then proceed w/ step 10. Otherwise RTWI.
- 10- Perform Step Rates w/ Gray Wireline. Phone: **1-806-893 3790**.

Prepared by
Mario A. Ballesteros