Attachment to Form C-105

Drill Stem Tests
Shell State CA-1

Clardy Area

DST #1 5457 - 5496' (39' Basal San Andres) w/Johnston straddle packer assembly. Tool open 1/2 hr. thru 5/8" BC & 1" TC on 4-1/2" DS. Weak air blow, dying in 1 min. Rec. 35' (0.2 bbls.) mud. NS. FBHP 0 psi. 15-min. SIBHP 1225 psi. HMH 2600 psi. Charts indicated effective isolation of interval tested. Positive Test.

DST #2 5521 - 5575' (54' Basal San Andres). Tool open 2-1/2 hrs. thru 5/8" BC & 1" TC on 4-1/2" DS. Moderate air blow, decreasing to weak in 1-1/2 hrs., which lasted throughout test. Rec. 273' (3.9 bbls.) water-cut mud w/trace oil, 920' (13 bbls.) salty sulfur water w/trace gas and oil. Salt water titrated 106,800 ppm clorides. FBHP 30 - 660 psi. 30-min. SIBHP 1775 psi. HMH 2615 psi. Positive Test.

DST #3 6304 - 6474' (170' Yeso Dolomite). Tool open 40 mins. thru 5/8" BC & 1" TC on 4-1/2" DS. Immediate extremely weak air blow lasting 30 mins. Closed and re-opened tool for an additional 10 mins. w/extremely weak air blow dying in 10 mins. After taking 15-min. SIBHP, pulled tool and found disc valve ruptured (had dropped 3 bars). Rec. 20' (0.1 bbls) mud w/NS. Mud filtrate titrated 1420 ppm clorides, pit mud filtrate titrated 1100 ppm clorides. FBHP 0 psi. 15-min. SIBHP 500 psi. HMH 3200 psi. Positive Test.

DST #4 8350 - 8520 (170' Abo). Tool open 1/2 hr. thru 5/8" BC & 1" TC on 4-1/2" DS. Immediate weak (very) blow dying in 10 mins. After 15 min. closed and re-opened tool. Immediate very weak blow dying in 10 mins. After 15-min. closed tool. Rec. 40' (0.2 bbls.) mud. NS. FBHP 0 - 30 psi. 30-min. SIBHP 30 psi. HMH 4090 - 4120 psi. Positive Test.

DST #5 9513 - 9596' (83' lower Permian). Tool open 1 hr. thru 5/8" BC & 1" TC on 3-1/2" DS. Weak air blow throughout test. No gas to surface. Took 30-min. SIBHP. Rec. 130' (0.65 bbls.) mud, 90' (0.45 bbls.) sli. salty sulfur water-cut mud (filtrate titrates 7300 ppm clorides) & 60' (0.3 bbls.) heavily salty sulfur water-cut mud (filtrate titrate 22,400 ppm clorides). Pit mud filtrate titrate 800 ppm clorides. FBHP 0 psi. 30-min. SIBHP 3550 psi. HMH 4700 psi. Positive Test.

DST #6 10,110 - 10,182' (72' Basal Wolfcamp). Tool open 2 hrs. thru 5/8" BC & 1" TC on 4-1/2" DS. Immediate strong blow. Gas to surface in 7 mins. After 1 hr. measured flow of gas at 105,700 cu. ft./day. Rec. 211' (3 bbls.) mud, 1167' (16.6 bbls.) clean oil (38°) API 442' (4.5 bbls.) salt water which titrated 104,300 ppm clorides (pit mud 1575 ppm clorides). FBHP 150 - 625 psi. 30-min. SIBHP 3250 psi. HMH 4875 psi. Positive Test.

DST #7 10,254 - 10,307' (53' lower Wolfcamp). Tool open 2 hours thru 5/8" BC & 1" TC on 4-1/2" DS. Weak blow decreasing to moderate blow lasting throughout test. Rec. 30' (0.42 bbls.) mud + 597' (6.3 bbls.) sli GCM. Mud filtrate from sample above the tool titrated 42,000 ppm clorides. Pit mud titrated 1500 ppm clorides. FBHP 0 - 175 psi. 30-min. SIBHP 3775 psi. HMH 4925 psi. Positive Test.

DST #8 10,307 -10,330' (23' lower Wolfcamp Lime). Tool open 2 hrs. thru 5/8" BC & 1" TC on 4-1/2" DS. Immediate strong blow lasting throughout test. Gas to surface in 15 mins. (TSTM). Rec. 120' (1.68 bbls.) mud cut oil and 450' (4.41 bbls.) clean 36.1° API oil. No water. FBHP 0 - 50 psi, 30-min SIBHP 3250 psi. HMH 4950 psi. Positive Test.

DST #9 10,330 - 10,355' (25' lower Wolfcamp Lime). Tool open 25 mins. thru 5/8" BC & 1" TC on 4-1/2" DS. Weak blow dying in 10 mins. By passed packer w/mud. Weak blow dying in 4 mins. Rec. 210' (1.05 bbls.) sli. gas cut mud. Rec. mud filtrate titrated 22,680 ppm clorides. Pit mud titrated 1500 ppm clorides. FBHP 0 - 50 psi. 15-min. SIBHP 3375 psi. HMH 5025 psi. Positive Test.

DST #10 10,610 - 10,640' (30' Wolfcamp Lime). Tool open 2 hrs. 20 mins. thru 5/8" BC & 1" TC on 4-1/2" DS. Strong blow throughout test. Gas to surface in 27 mins. Vol. TSTM. Rec. 240' (1.41 bbls.) O&GCM (est. 20% oil). Rec. mud filtrate titrated 668 ppm clorides and pit mud filtrate titrated 318 ppm clorides. FBHP 0 psi. 30-Min. SIBHP 1625 psi. HMH 5060 psi. Positive Test.