

AUG 02 2018

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GEOLOGICAL PROGNOSIS

Original Date: June 20, 2018

Well Name: BRAHMAN STATE COM 15-10 #452H

API #: 30 025

- 45030

Original Location: SHL: 508 FSL 1390 FWL SEC 15 T24S R35E
FTP: 330 FSL 1150 FWL SEC 15 T24S R35E
LTP/BHL: 330 FNL 1150 FWL SEC 10 T24S R35E
LEA CO, NEW MEXICO

Lateral Length: 9903' VS

Pool: Wolfbone

Prospect: BIG HAT

Lat/Long: LAT= 32.2383918

LONG= -103.3602352

Elevation:

GL(ft): 3336

KB(ft): 25

<u>FORMATION</u>	<u>DEPTH (TVD)(ft)</u>	<u>SUBSEA(ft)</u>	<u>TYPE LOG (AZTEC-STATE 1)</u>
Rustler	961	2400	818
base Salt	5281	-1920	5068
1st Intermediate Casing	5261	-1900	
Top Delaware Group	5311	-1950	5268
Bell Canyon	5321	-1960	5285
Cherry Canyon	6336	-2975	
Brushy Canyon	7681	-4320	7715
Bone Spring	8861	-5500	8968
1st Bone Spring	9111	-5750	9218
1st Bone Spring Sand	10021	-6660	10053
2nd Bone Spring	10191	-6830	10257
2nd Bone Spring Sand	10581	-7220	10681
3rd Bone Spring	11261	-7900	11253
KOP			
2nd Intermediate Casing	IN CURVE		
3rd Bone Spring Sand	11736	-8375	11728
APPROX. TARGET ZONE (WFMP -70)	12051	-8690	12014
Wolfcamp Formation	12121	-8760	12084
Wolfcamp A Shale	12221	-8860	12183
Wolfcamp B	12541	-9180	12469
ESTIMATED TD	11816	-8455	

Primary Objective(s): 3rd Bone Spring Sand

Mud Logger: TBD (beginning at 1st Intermediate Casing)

Electric Logging Program: N/A

MWD Logging Program: GR from 300' above KOP

Coring Program: N/A

Correlation Logs: 30025300620000 ENRON CINTA ROJA '17' FEC 1
30025244120000 TEXAS INT'L PETR CORP AZTEC-STATE 1 (TYPE LOG)
30025260800000 COG CINTA ROJA '10' 1

Remarks:

Operations Geologist: AL BONDURANT 205.568.5467 albert.bondurant@energen.comSecondary Geologist: GREG JENNINGS 205.326.2763 greg.jennings@energen.comMIKE NIX 205.441.8678 mike.nix@energen.com

Engineer: JACOB RUSSELL, MANNY HEALD, RICHARD ADAMS



Well: Brahman State Com 15-10 452H

Casing

Section	Hole Size	Csg Size	Drift	From (MD)	To (MD)	From (TVD)	To (TVD)	Tapered String	Weight (lbs)	Grade	Conn.	Collapse	Burst	Body Tension	Joint Tension	Dry/Buoyant	Mud Weight (ppg)
Surface	17.500	13.375	12.359	0	800	0	800	No	61	J-55	BTC	1540	3090	962	1025	Dry	8.4
Intermediate #1	12.250	10.75	9.875	0	5210	0	5210	No	45.5	HCN-80	BTC	3020	5210	1040.00	1097	Dry	9.7
Intermediate #2	9.875	7.625	6.875	0	11506	0	11506	No	29.7	HCP110	BTC	6700	9460	940.00	960	Dry	9
Production	6.750	5.5	4.545	0	11406	0	11406	Yes	23	CYP110	DQXHT	14540	14530	729.00	693	Dry	11
Production	6.750	4.5	3.701	11406	22196	11406	12051	Yes	15.1	CYP110	DQXHT	14340	14420	485.00	485	Dry	11

Safety Factors

Section	Csg Size	Weight (lbs)	Grade	Collapse	Burst	Body Tension	Joint Tension
Surface	13.375	61	J-55	4.407	8.843	19.713	21.004
Intermediate #1	10.75	45.5	HCN-80	1.149	1.983	4.387	4.628
Intermediate #2	7.625	29.7	HCP110	1.244	1.757	2.751	2.809
Production	5.5	23	CYP110	2.229	2.227	2.779	2.642
Production	4.5	15.1	CYP110	2.080	2.092	2.816	2.816

Criteria

Collapse	1.125
Burst	1.125
Body Tension	2
Joint Tension	2

Description of Operation

Plan to drill a 17-1/2" hole to 800' with fresh water. Run 13-3/8", 61# J-55 casing and cement to surface. Drill 12-1/4" hole to 5,210' with brine water, run 10-3/4" 45.5# HCL-80 casing and cement to surface. Drill 9-7/8" hole to 11,506' with cut brine, run 7-5/8" 29.7# HCP-110 casing and cement to surface. Drill 6-3/4" hole curve and lateral with 11 ppg OBM to approximately 22,196'. Run 4-1/2" x 5-1/2" tapered production string consisting of 4-1/2" 15.1# CYP-110 and 5-1/2" 23# CYP110 casing and cement to 8,000'.

Well Control

Type	13-5/8" Double Ram 10M 13-5/8" Single Ram 10M 13-5/8" Annular 5M
Test	8500
Manufacture	Cameran

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