

VERMEJO WDW WELLBORE DIAGRAM

Well Bore Diagram	Casing / Hole Size	Cement	Mud	Comments / Trouble	Form. Tops	Form. Eval.
	<i>Drill a</i> 17-1/2" Hole Set 13-3/8" 48# H-40, STC @ 350'	<i>Surface Cement</i> 265 sk MIDCON 2 Mix @ 13.5 ppg. Yield @ 1.76 cuft/sk <i>Intermediate Cement</i> Lead: 395 sks Raton SilicaliteBlend Mix @ 12 ppg Yield @ 2.07 cuft/sk Tail: 100 sks	Drill surface hole with fresh water Drill out using air. If encounter water drill with water and air.	Wait 8 hours before drilling out. of 13-3/8" Log 12-1/4" Hole	Raton Vermejo 2222' Trinidad 2432' Pierre 2527' Apishpa 4939' Timpas 5695' Carlie 5750' Greenhorn 5939' Graneros 5970' Dakota 6141' Morrison 6341' Tolditto 6641' Entrada 6714'	Cores - None & Mudloggers - Two Man Unit 10' Samples from 350' - T.D. Logs - DENSITY / GAMMA RAY / CALIPER
	100' into the Pierre Shale <i>Drill a</i> 8-3/4" Hole DVT @ 5500'	<i>Production Cement</i> <u>Stage I</u> Tail: 280 sks Raton Silicalite Blend Mix @ 13.5 ppg Yield @ 1.47 cuft/sk <u>Stage II</u> Lead: 385 sks Raton SilicaliteBlend Mix @ 12 ppg Yield @ 2.07 cuft/sk Tail: 100 sks Premium Cement Mix @ 15.8 ppg Yield @ 1.14 cuft/sk	Drillout w/ air until encounter water. If encounter water mud up immediately with Gel & Drispac WL = 10 cc Vis = 40	Pierre Shale extremly water sensitive Anticipate gas or water in the Greenhorn Gas maybe significant to flare in res. pit		
	7" 23# J-55, LTC 0' -6700'					

COMPANY CONTACTS

		OFFICE	FAX
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		<u>OPERATIONS</u>	
		Mobil/Home	OFFICE
SUPERVISOR	Mark Shumway	505 447-1382	
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DRLG SUPT.	Danny Laman	915 520-5548	915 686-3511
		Mobile	915 634-0288
	Raton Office		505 445-4625
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PRODUCTION	Larry Casey	505 447-1378	505 445-4627
PURCHASING:	Dennis Esiline		713 940-6959
SAFETY:	Steve O'Connell	361 319-9067	361 643-4561
	Tad Lynch	713 597-8376	713 546-8372
NM - OCD	Roy Johnson	505 690-2365	505 827-8198
CO - OCD	Bob Van Sickle		719 336-2843

	<u>EMERGENCY SERVICES</u>
Ambulance	505 445-1075
Fire Dept.	505 445-2708
Hospital	505 445-3661

DRILLING OUTLINE

CONDUCTOR HOLE: none required

SURFACE HOLE: 0' - 350'

DRILL: a 17-1/2" hole to 350'.
MUD: Fresh Water & Gel
CASING: 350' 13-3/8" 48# H-40 STC
Texas Pattern Shoe or Casing Collar / 4 - Centralizers.
CEMENT: Calculated @ 100% excess;
Tail: 265 sk MIDCON- 2 Additives: .25# Flocele/ 3% CaCl/ 5#/sk Gilsonite
Mix @ 13.5 ppg. Yield @ 1.76 cuft/sk.
BOP none - circulate the cellar

INTERMEDIATE HOLE: 350' - 2400' (100' into the Pierre Shale)

DRILL: a 12-1/4" hole size and set a 9-5/8" intermediate casing.
MUD: Drill out using air
CASING: 9-5/8" 36# J-55 STC
Guide Shoe / Float Collar / 10 Centralizers ..
CEMENT: Calculated at 30 % excess over caliper log
Lead: 395 sk RATON SILICALITE BLEND
Mix @ 12 ppg. Yield @ 2.07 cuft/sk.
Tail: 100 sk MIDCON 2 Additives: .25# Flocele/ 3% CaCl/ 5#/sk Gilsonite
Mix @ 13.5 ppg. Yield @ 1.76 cuft/sk.

BOP 13-5/8" X 3000 Annular / Grant rotating head
PROBLEMS: Possible water flow in the coal seams.
CORES: None.
MUD LOGGERS: Two man unit on @ 350'
LOGS: Open Hole Logs - Density / Gamma Ray / Caliper

PRODUCTION HOLE: 2400' - 6700' (TOP OF ENTRADA)

DRILL: a 8-3/4" hole size and set a 7" production casing.

MUD: Drill out using air; When encounter water go to a low water loss mud system.

CASING: 7" 23# J-55 LTC
DVT @ 5500'
Float shoe and Float Guide (Centralizers across zones of interest)

CEMENT: Calculated at 30 % excess.

Stage I Tail: 280 sk RATON SILICALITE BLEND
Mix @ 13.5 ppg. Yield @ 1.47 cuft/sk.

Stage II Lead: 385 sk SILICALITE LEAD
Mix @ 12 ppg. Yield @ 2.07 cuft/sk.
Tail: 100 sk Premium w/ .2% HALAD - 344
Mix @ 15.8 ppg. Yield @ 1.14 cuft/sk.

BOP Double Ram and Grant Rotating Head

PROBLEMS: Pierre shales extremely sensitive

CORES: None.

MUD LOGGERS: Two man unit on @ 350'

LOGS: Open Hole Logs - Density / Gamma Ray / Caliper