Company:Sandia Data
Well:Well 2
Disk file:Sandia Data Well 2(FG).rsdx
Comment:Test Number: 02. Test Date Oct, 1995

Theta Oilfield Services, Inc. (gotheta.com)
Norris/AOT DAL
432-561-8101

User:Scott Malone 432-559-2005

Date:8/1/2014

INPUT DATA

Strokes per minute:	8.2	Fluid level	
Run time (hrs/day):	24.0	(ft from surface):	7227
Tubing pres. (psi):	60	(ft over pump):	428
Casing pres. (psi):	76	Stuf.box fr. (lbs):	100
		Pol. rod. diam. 1.25"	

Fluid Properties

Water cut:	90%
Water sp. gravity:	1.055
Oil API gravity:	40.0
Fluid sp. gravity:	1.032

Motor & Power Meter

Power meter	Detent
Elect. cost:	$.06/KWH
Type:	NEMA D

Pumping Unit:Lufkin Mark II

API Size: M-640-305-144 (Unit ID: ML26)	
Crank hole number:	# 1 (out of 3)
Calculated stroke length (in):	144.1
Crank rotation with well to right:	CCW
Max. cb moment (M in-lbs):	Unknown
Structural unbalance (lbs):	-4300
Crank offset angle (degrees):	23.0

Tubing And Pump Information

Tubing O.D. (in):	2.875	Upstr. rod-fl. damp. coeff.:	0.100
Tubing I.D. (in):	2.441	Dnstr. rod-fl. damp. coeff.:	0.100
Pump depth (ft):	7655	Tub.anch.depth (ft):	6168
Pump conditions:	Full		
Pump type:	Insert	Pump vol. efficiency:	85%
Plunger size (in):	1.5	Pump friction (lbs):	200.0

CALCULATED RESULTS

Production rate (bfpd):	272	Peak pol. pod load (lbs):	20834
Oil production (BOPD):	27	Min. pol. rod load (lbs):	6253
Strokes per minute:	8.2	MPRL/PPRL:	0.3
System eff. (Motor->Pump):	43%	Unit struct. loading:	68%
Permissible load HP:	70.7	PRHP / PLHP:	0.35
Fluid load on pump (lbs):	5746	Buoyant rod weight (lbs):	11703
Fluid level tvd (ft from surface):	7227	N/No: .376 , Fo/SKr: .305	
Polished rod HP:	24.6		

Required prime mover size (speed var. not included)	BALANCED (Min. Energy)	BALANCED (Min Torq)
NEMA D motor:	50 HP	50 HP
Single/double cyl. engine:	40 HP	40 HP
Multicylinder Engine:	50 HP	50 HP

Torque analysis and electricity consumption	BALANCED (Min. Energy)	BALANCED (Min Torq)
Peak g'box torq.(M in-lbs):	493	417
Gearbox loading:	77%	65.2%
Cyclic load factor:	1.326	1.332
Max. cb moment (M in-lbs):	1358.6	1282.94
Counterbalance effect(lbs):	17257	16057
Daily electr.use (Kwh/Day):	600	625
Monthly electric bill:	$1098	$1145
Electr.cost per bbl fluid:	$0.133	$0.138
Electr.cost per bbl oil:	$1.325	$1.382

Tubing, Pump And Plunger Calculations

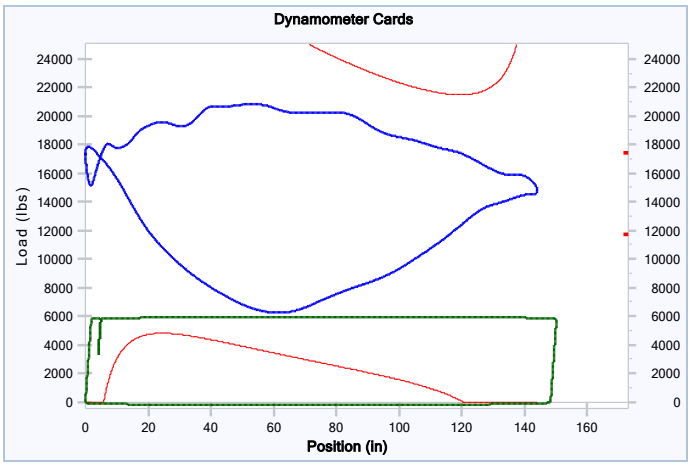
Tubing stretch (in):	1.9
Prod. loss due to tubing stretch (bfpd):	3.4
Gross pump stroke (in):	150.2
Pump spacing (in. from bottom):	54.6
Minimum pump length (ft):	25.5
Recommended plunger length (ft):	6.0

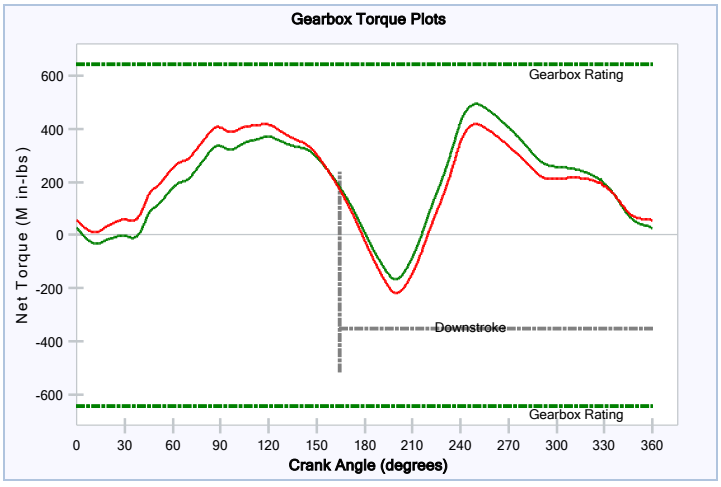
Rod string design

Rod string stress analysis (service factor: 1)

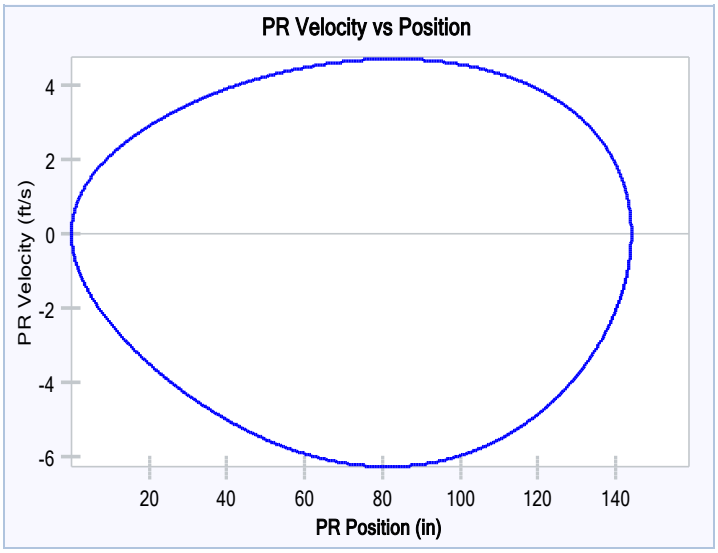
Diameter (inches)	Rod Grade	Length (ft)	Min. Ten. Str. (psi)	Fric. Coeff	Stress Load %	Top Maximum Stress (psi)	Top Minimum Stress (psi)	Bot. Minimum Stress (psi)	# Guides/Rod
+ 1.25	Norris FG	4362	N/A	0.2	61.2%	16896	5177	3406	0
+ 1	C (API)	3293	90000	0.2	74.9%	20043	4753	-255	0

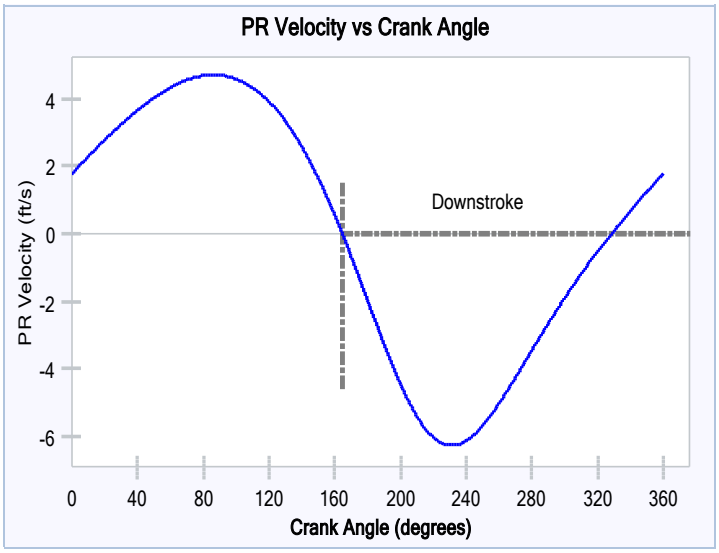
+requires slimhole couplings.
NOTE: Displayed bottom minimum stress calculations do not include buoyancy effects (top minimum and maximum stresses always include buoyancy).

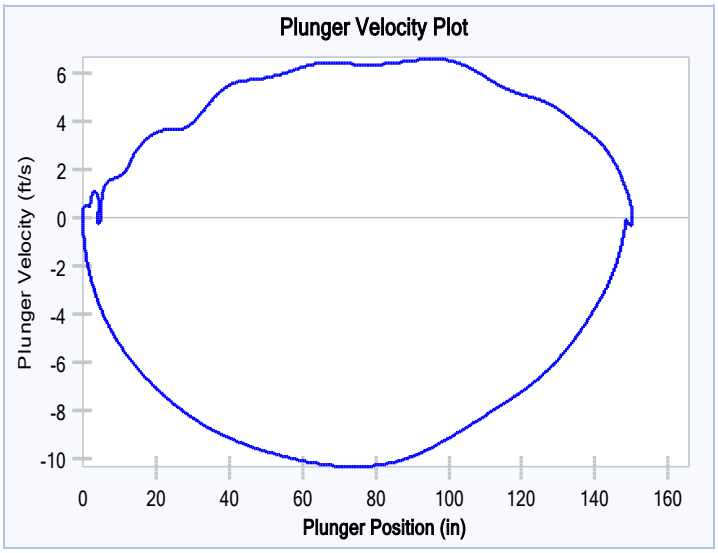




VELOCITY PLOTS







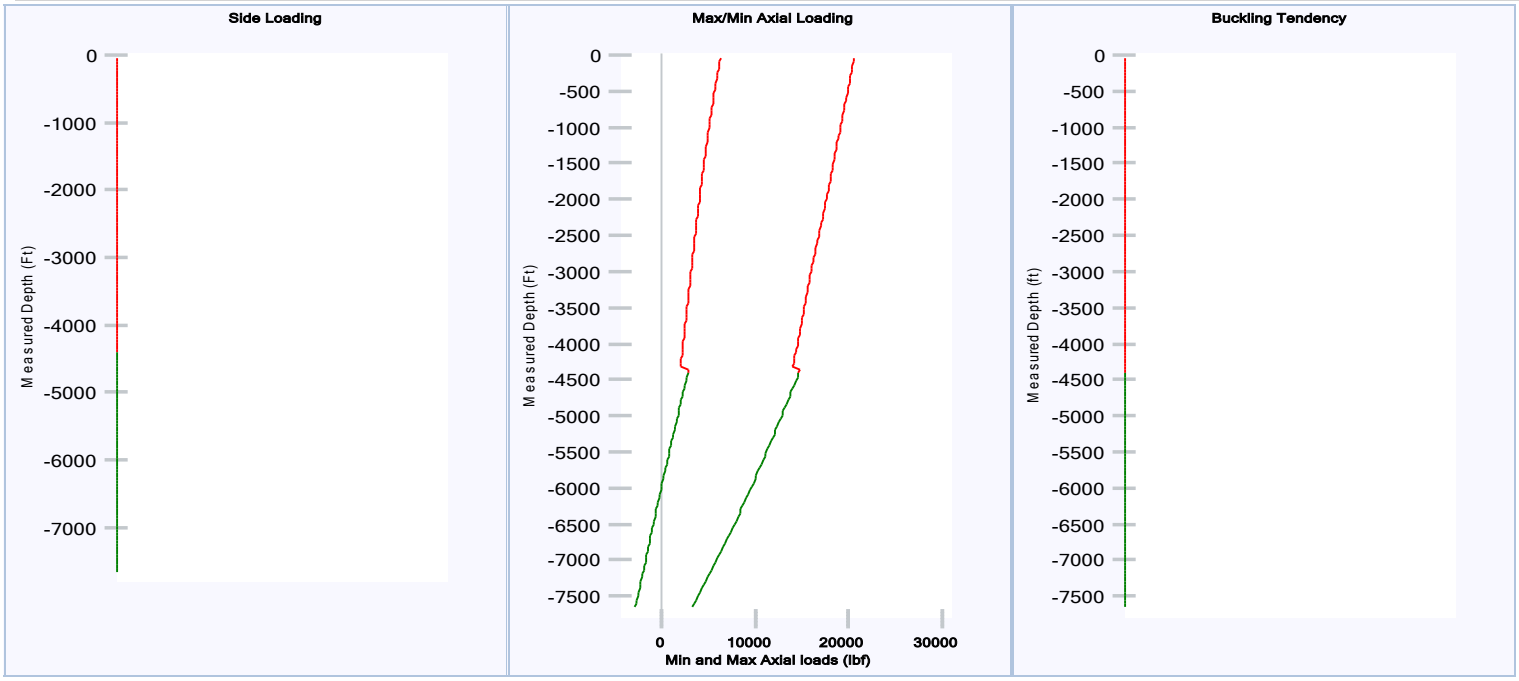
Maximum Upstroke Polished Rod Velocity (ft/s) : 4.718

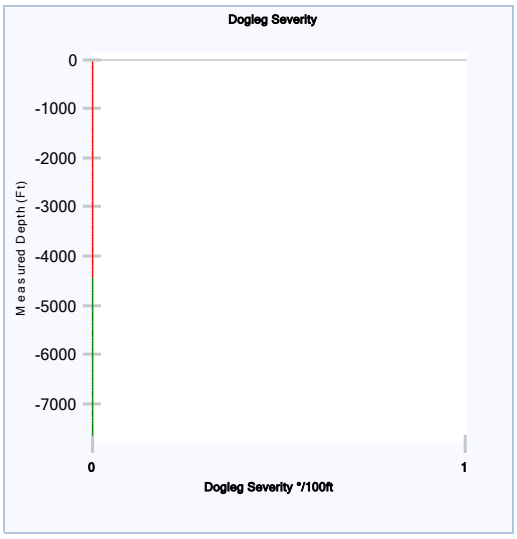
Maximum Downstroke Polished Rod Velocity (ft/s) : 6.29

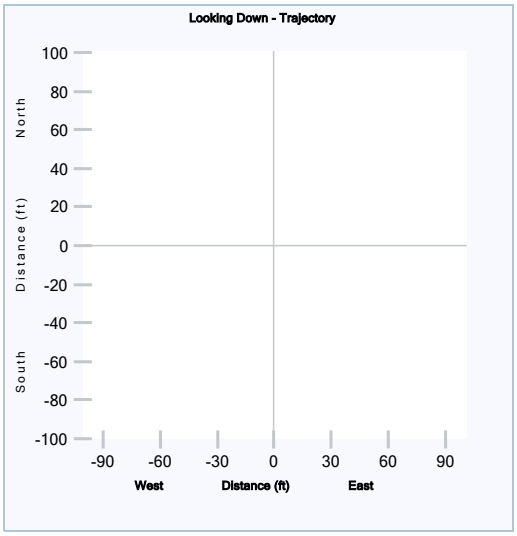
Maximum Upstroke Plunger Velocity (ft/s) : 6.579

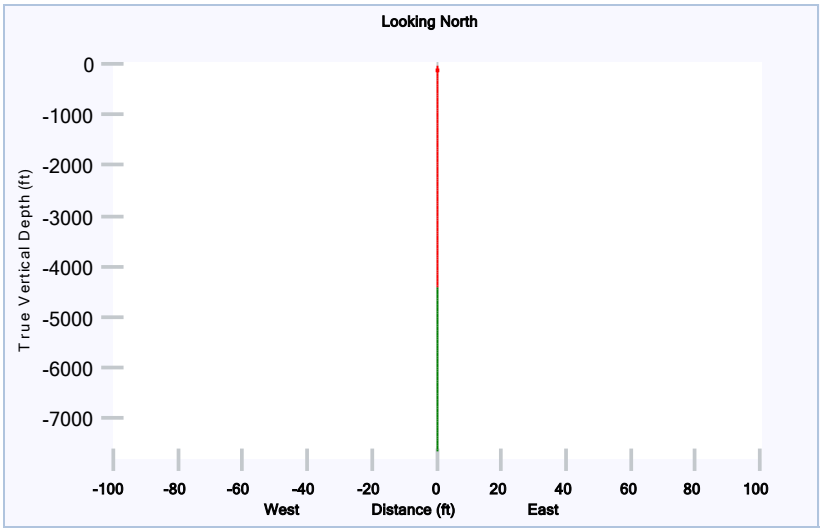
Maximum Downstroke Plunger Velocity (ft/s) : 10.308

DEVIATION SURVEY PLOT









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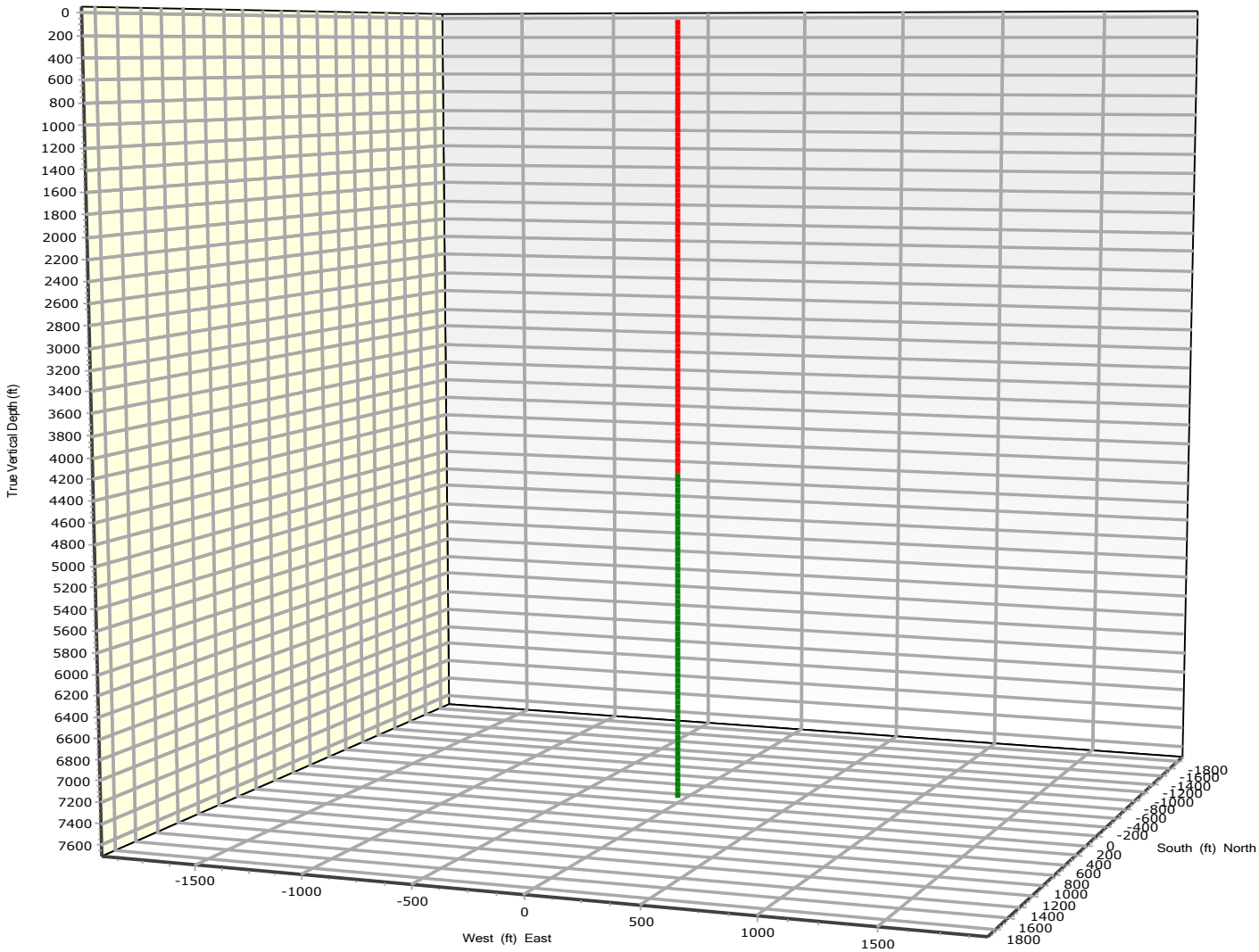

Rod Diameters 1 1/4" 1"

MEASURED DEVIATION SURVEY

MD (ft)	Inclination (°)	Azimuth (°)	Dogleg sev. °/100ft	TVD (ft)	N-S (ft)	E-W (ft)
0	0	0	0	0	0	0
2000	0	0	0	2000	0	0
4000	0	0	0	4000	0	0
9000	0	0	0	9000	0	0