Company:Sandia Data
Well:Well 6
Disk file:Sandia Data Well 6.rsvx
Comment:

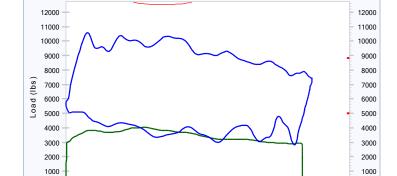⌐ Theta Oilfield Services, Inc.   (gotheta.com)
Norris/AOT DAL
432-561-8101

Page   1   of 1
User:Scott Malone 432-559-2005
Date:9/12/2014

INPUT DATA

Strokes per minute:	7.1
Run time (hrs/day):	24.0
Tubing pres. (psi):	43
Casing pres. (psi):	0

Fluid level	
(ft from surface):	1921
(ft over pump):	988
Stuf.box fr. (lbs):	100
Pol. rod. diam. 1.25"	

Fluid Properties

Water cut:	97%
Water sp. gravity:	1
Oil API gravity:	38.0
Fluid sp. gravity:	1.015
compress. Index:	3.0

Motor & Power Meter

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

Pumping Unit:Lufkin Conventional - New

API Size: C-456-305-144 (Unit ID: CL22)

Crank hole number:	# 1 (out of 4)
Calculated stroke length (in):	145.9
Crank rotation with well to right:	CCW
Max. cb moment (M in-lbs):	Unknown
Structural unbalance (lbs):	-520
Crank offset angle (degrees):	0.0

Tubing And Pump Information

Tubing O.D. (in):	2.875	Upstr. rod-tbg fr. coeff.:	1.100
Tubing I.D. (in):	2.441	Dnstr. rod-tbg fr. coeff.:	1.100
Pump depth (ft):	2909	Tub.anch.depth (ft):	2603
Pump conditions:	Full	Pump load adj. (lbs):	0.0
Pump type:	Insert	Pump vol. efficiency:	85%
Plunger size (in):	2.25	Pump friction (lbs):	200.0

CALCULATED RESULTS

Production rate (bfpd):	499
Oil production (BOPD):	15
Strokes per minute:	7.1
System eff. (Motor->Pump):	39%
Permissible load HP:	39.7
Fluid load on pump (lbs):	3834
Polished rod HP:	13.4

Peak pol. pod load (lbs):	10582
Min. pol. rod load (lbs):	2793
MPRL/PPRL:	0.264
Unit struct. loading:	35%
PRHP / PLHP:	0.34
Buoyant rod weight (lbs):	4987
N/No: .082 , Fo/SKr: .068	

Required prime mover size (speed var. not included)	BALANCED (Min. Energy)	BALANCED (Min. Torq)
NEMA D motor:	25 HP	25 HP
Single/double cyl. engine:	25 HP	25 HP
Multicylinder Engine:	25 HP	25 HP

Torque analysis and electricity consumption	BALANCED (Min. Energy)	BALANCED (Min. Torq)
Peak g'box torq.(M in-lbs):	319	296
Gearbox loading:	70%	64.9%
Cyclic load factor:	1.384	1.386
Max. cb moment (M in-lbs):	503.81	528.32
Counterbalance effect(lbs):	6840	7198
Daily electr.use (Kwh/Day):	324	329
Monthly electric bill:	$593	$602
Electr.cost per bbl fluid:	$0.039	$0.040
Electr.cost per bbl oil:	$1.297	$1.319

Tubing, Pump And Plunger Calculations

Tubing stretch (in):	.3
Prod. loss due to tubing stretch (bfpd):	0.9
Gross pump stroke (in):	140.4
Pump spacing (in. from bottom):	8.7
Minimum pump length (ft):	18.0
Recommended plunger length (ft):	2.0

Rod string design

Rod string stress analysis (service factor: 1)

Diameter (inches)	Rod Grade	Length (ft)	Min. Tensile Strength (psi)	Stress Load %	Top Maximum Stress (psi)	Top Minimum Stress (psi)	Bot. Minimum Stress (psi)	Stress Calc. Method
0.875	C (API)	2409	90000	61.9%	17432	4812	325	API MG
0.5	C (API)	500	90000	101.0%	21387	-2380	-1019	API MG

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

Dynamometer Cards

Gearbox Torque Plots