

**DYNAMOMETER ANALYSIS**

**EFFICIENT RESOURCES LIMITED  
EFFICIENT et al PROLIFIC 1-2-30-4  
100/01-02-030-04W5/0**

**SURFACE LOCATION: 08-02-030-04W5  
FIELD / FORMATION: PROLIFIC / GOODSAND**

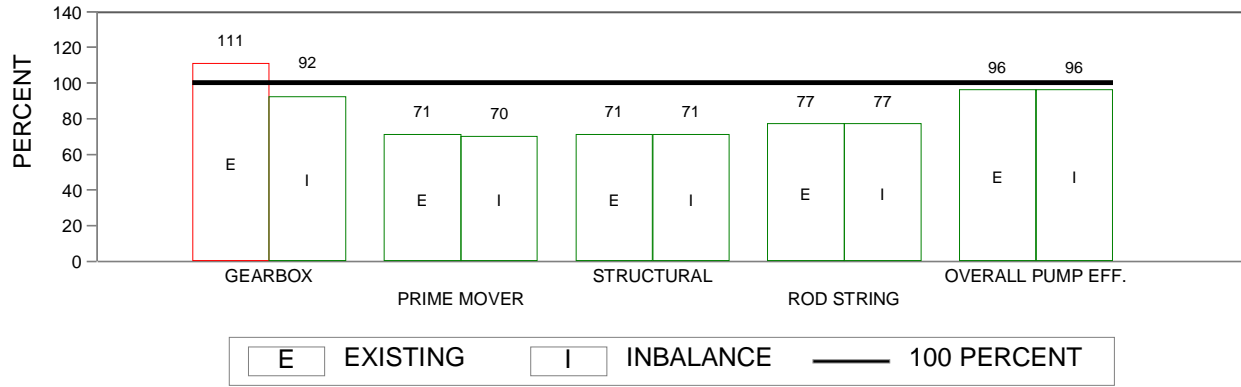
**TEST DATE: Yesterday  
(Analysis Provided by NR-Tec Ltd.)**

**DISTRIBUTION: BOB LOBLAW**

**PREPARED BY: EXPERT ANALYST**

**DATE: Today**

### DYNALOG GRAPHIC SUMMARY



### PRODUCTION POTENTIAL

The results of the pumping fluid level test indicate approximately 224 meters of pump submergence. A second fluid level was taken after closing the casing valve for 15 minutes. No significant change in fluid level or casing pressure was recorded and therefore a pump intake pressure of 3158 kPa was determined from these results using an estimated in-situ annular fluid gradient of 7.000 kPa/m. Based on these results the well is near maximum drawdown with only a slight amount of additional production available. It should be noted that in view of the high water-cut of the produced fluid, the amount of additional oil production would be minimal.

### GENERAL COMMENTS

The pump card indicates excellent efficiency with slight losses due to gas interference. A slight amount of fluid acceleration is also evident at the start of the upstroke. This is a result of the high water cut of the fluid produced and effects of the oversized tubing pump.

The valve checks indicate that the bottomhole pump is in excellent mechanical condition with only a slight amount of traveling valve leakage and/or plunger slippage.

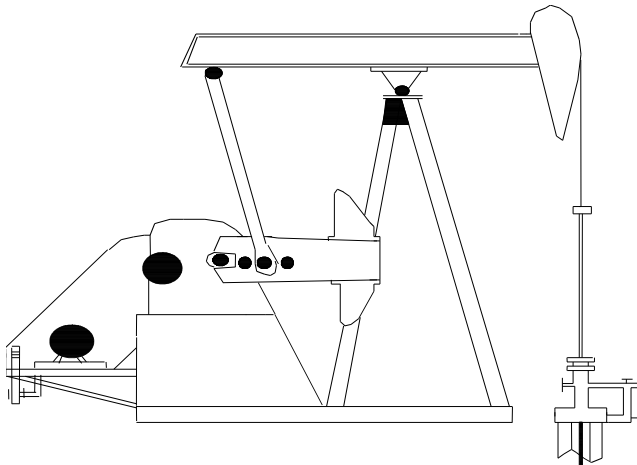
Horizontal completion - depths have not been corrected to TVD.

### RECOMMENDATIONS

In order to obtain optimum counterbalance for existing conditions and reduce the gearbox torque from 111 to 92 percent of rating, additional counterweight would be required. This can be accomplished by installing 1 additional type 3CR0 master weight with 3BS auxiliary weights on each 3CR0 master weight and positioning all of the weights 7 inches from maximum.

The brake on the pumping unit should be inspected and repaired.

No further operational changes are required at this time as the pumping system is loaded to capacity and the pump efficiency is excellent.



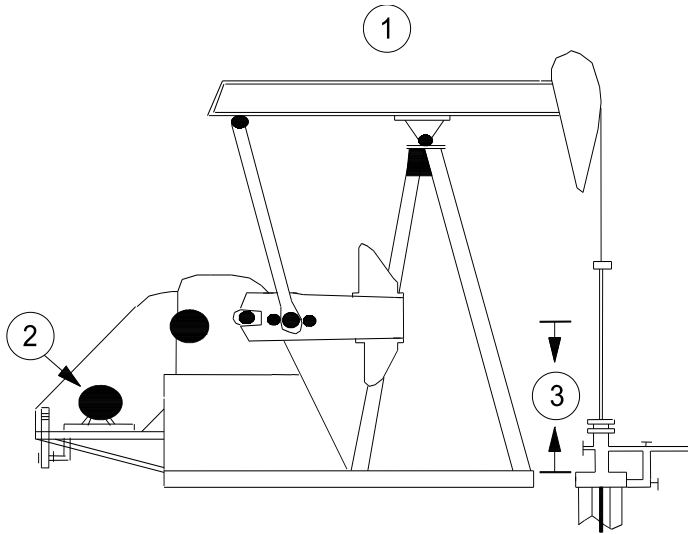
PRIME MOVER									
GENERAL ELECTRIC	ELECTRIC								
SHEAVE O.D. (cm)	20.32								
RATED HORSEPOWER	75 - 60 - 50								
RATED AMPS (RMS)	85.2 - 67.8 - 56.6								
RATED RPM	1140								
	<table border="1"> <thead> <tr> <th>EXISTING</th> <th>INBALANCE</th> </tr> </thead> <tbody> <tr> <td>POLISHED ROD H.P.</td> <td>32.79    32.79</td> </tr> <tr> <td>CYCLIC LOAD FACTOR</td> <td>1.390    1.368</td> </tr> <tr> <td>APPROX. MOTOR H.P.</td> <td>53.6    52.8</td> </tr> </tbody> </table>	EXISTING	INBALANCE	POLISHED ROD H.P.	32.79    32.79	CYCLIC LOAD FACTOR	1.390    1.368	APPROX. MOTOR H.P.	53.6    52.8
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POLISHED ROD H.P.	32.79    32.79								
CYCLIC LOAD FACTOR	1.390    1.368								
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PUMP UNIT		
LUFKIN	CONVENTIONAL	912-365-168
ROTATION		CW
PITMAN POSITION		2 OF 3
PUMPING SPEED (SPM)		7.4
STROKE LENGTH (cm) / (in)		377 / 148
BALANCE CONDITION		UNDER
	EXISTING	INBALANCE
MAX. TORQUE (in-lb)	1007980	838790
- % OF RATING	111	92
MIN. TORQUE (in-lb)	-59118	-69210
- % OF RATING	6	8
MAX. LOAD (lb)	26067	26067
- % OF RATING	71	71
C.B. EFFECT (lb)	15056	17883
C.B. MOMENT (in-lb)	1167589	1366908

PUMP EFFICIENCY	
TOTAL PLUNGER STROKE (cm)	321
PUMP DISPLACEMENT (m3/d)	131.4
FLUID PROD'N AS % OF TOTAL DISP.	96
OIL PRODUCTION RATE (m3/d)	24.25
WATER PRODUCTION RATE (m3/d)	102.45
TOTAL FLUID PROD. RATE (m3/d)	126.70
GAS - OIL RATIO	35
EFFECTIVE PLUNGER STROKE (cm)	310
EFFECTIVE PUMP DISPLACEMENT (m3/d)	126.7
FLUID PROD. AS % OF EFF. PUMP DISP.	100
PRODUCTION TEST DATE	Yesterday

FLUID LEVEL AND PRESSURES	
TUBING PRESSURE (kPa)	1441
CASING PRESSURE (kPa)	1441
PUMPING FLUID LEVEL (mCF)	1114.01
PUMP SUBMERGENCE (m)	223.99
* ANNULAR FLUID GRADIENT (kPa/m)	7.000
PRESS. DUE TO GAS COLUMN (kPa)	149
PRESS. DUE TO FLUID COLUMN (kPa)	1568
PUMP INTAKE PRESSURE (kPa)	3158
* ESTIMATED	
CASING TIED-IN AND OPEN TO FLOWLINE	

ROD LOADING									
SECTION	DIAM. (mm)	LOAD (lb)		STRESS (psi)		PERCENT API GOODMAN			ROD GRADE
		MAX.	MIN.	MAX.	MIN.	1.0 S.F.	0.8 S.F.	0.6 S.F.	
POL. ROD	38.10	26067	5366	14751	3037	43	55	77	D
2	25.40	26067	5366	33190	6832	58	75	107	N97
3	22.23	19565	2053	32537	3413	61	77	106	N97
4	38.10	10786	-3003	6103	-1700	34	41	53	C



**NOTES:**

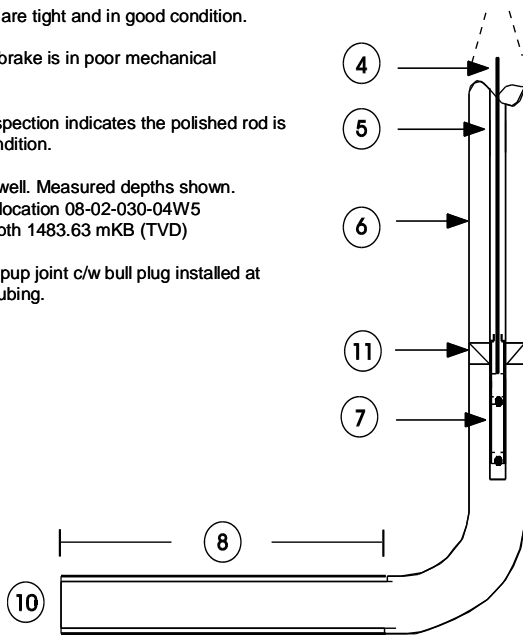
Drive belts are tight and in good condition.

Pump unit brake is in poor mechanical condition.

A visual inspection indicates the polished rod is in good condition.

Horizontal well. Measured depths shown.  
Surface location 08-02-030-04W5  
Total depth 1483.63 mKB (TVD)

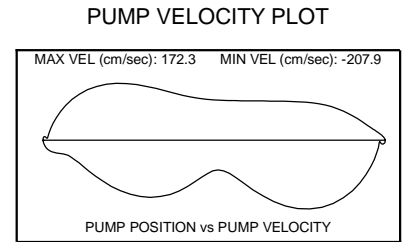
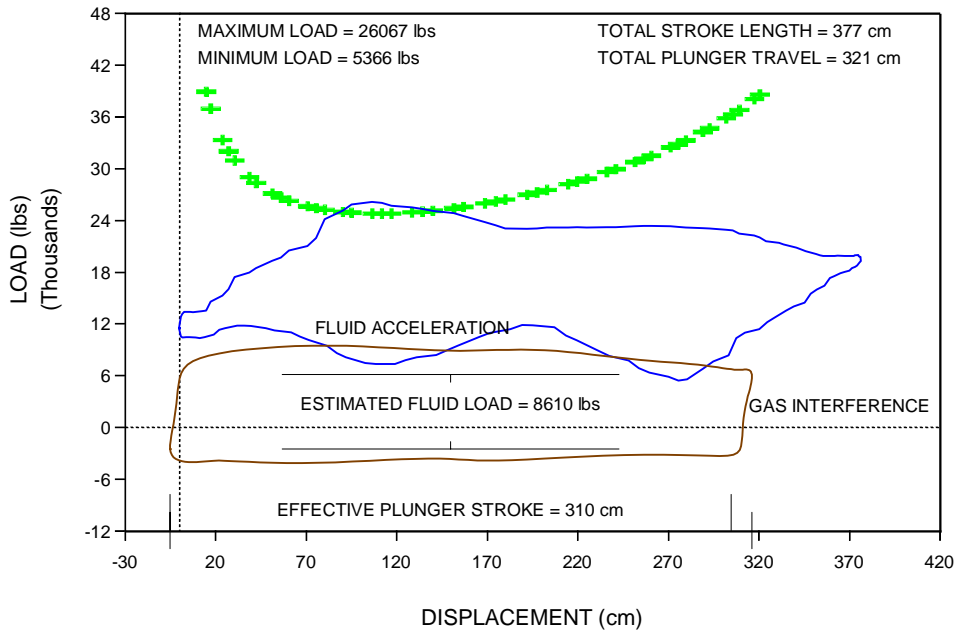
Perforated pup joint c/w bull plug installed at bottom of tubing.



SUMMARY OF BASIC WELL INFORMATION			
<b>1. PUMP UNIT</b>			
LUFKIN	CONVENTIONAL	912-365-168	
STROKE LENGTH (cm) / (in)		377 / 148	
SHEAVE O.D.: 50.0 inches		GEARBOX RATIO: 28.72:1	
BELT SIZE: 5 type C240		CRANK #: 94110C	
	COUNTER	AUXILIARY	WEIGHT
	<u>WEIGHTS</u>	<u>WEIGHTS</u>	<u>POSITION</u>
LEAD A	0R0		2.0"
LAG A			
LEAD B	3CR0		7.0"
LAG B	0R0		0.0"
<b>2. PRIME MOVER</b>			
GENERAL ELECTRIC	ELECTRIC		
SHEAVE O.D. (cm)		20.32	
RATED HORSEPOWER		75 - 60 - 50	
RATED AMPS (RMS)		85.2 - 67.8 - 56.6	
RATED RPM		1140	
VOLT RATING		460	
<b>3. ELEVATIONS</b>			
KB ELEVATION (m)		590.20	
CF ELEVATION (m)		585.10	
KB - CF (m)		5.10	
<b>5. TUBING</b>			
DIAMETER (mm)		73.03	
SET AT (mKB)		1353.48	
NO. OF JTS. / AVG. JT. LENGTH (m)		142.1 / 9.489	
<b>6. CASING</b>			
DIAMETER (mm)		177.80	
SET AT (mKB)		1365.00	
<b>7. BOTTOMHOLE PUMP</b>			
63.5 X 69.9 X THOS X 7.3 X 0.6 X 0.6			
PLUNGER DIAMETER (in) / (mm)		2.75 / 69.85	
BARREL LENGTH (ft) / (m)		24.00 / 7.32	
SETTING DEPTH (mKB)		1343.10	
<b>COMPLETION DETAILS (HORIZONTAL COMPLETION)</b>			
8.	PRODUCING INTERVAL (mKB)		
	TOP / BOTTOM	1353.48 / 2003.00	
9.	TOTAL DEPTH (mKB)	2003.00	
11.	ANCHOR - GUIBERSON TM	SET AT (mKB)	1351.56

ROD STRING								
SECTION	DIAMETER (mm)	LENGTH (m)	UNIT WT. (lb/m)	WT. IN AIR (lb)	WT. IN FLUID (lb)	API ROD GRADE	TENSILE STRENGTH (psi)	COMMENTS
POL. ROD	38.10	9.14	20.11	184	161	D	115000	
2	25.40	570.58	9.51	5429	4802	N97	140000	Plain c/w Ponies
3	22.23	716.28	7.28	5217	4614	N97	140000	Plain
4	38.10	60.96	20.11	1226	1075	C	90000	Sinker Bar
		1356.96		12056	10652			

### SURFACE AND PUMP CARDS



### GEARBOX TORQUES

