

TECHNOLOGIES LTD.

ANNULAR FLUID DEPRESSION TEST

SAMPLE COMPANY SAMPLE et al SASKATCHEWAN 1-2-3-14 100/01-02-003-14W2/0 FIELD: SASKATCHEWAN FORMATION: MIDALE

> TEST DATE: JUNE 11, 2004 (Analysis provided by NR-Tec Ltd.)

DISTRIBUTION:

BOB LOBLAW, Calgary, AB.

PREPARED BY:

NR-TEC ANALYST

DATE:

2004-06-12

LEVEL BEST TECHNOLOGIES LTD.

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INTRODUCTION

An annular fluid depression test was conducted on the subject well in order to determine an annular fluid gradient and producing subsurface pressure at the mid-point of the perforated interval.

PROCEDURE

Pumping fluid levels and wellhead pressures were obtained using an automated acoustic fluid level instrument.

Backpressure was applied to the annulus by closing the casing valve on the "D" wing. The increasing gas/liquid interface pressure causes the fluid level to change. The fluid gradient is established by calculating the gas/liquid interface pressure and measuring the corresponding fluid level at various intervals after the backpressure is applied.

The fluid rates and properties were provided by SAMPLE COMPANY.

RESULTS

The results of the test indicate that the annular fluid column is comprised of multiple fluid gradients. The producing subsurface pressure at the mid-point of the producing interval was determined to be **3175 kPaa** from this test.

A summary sheet showing test results, calculations and a graph of pumping fluid level versus gas-liquid interface pressure is included with this report.





NR-TEC LTD. ANNULAR FLUID DEPRESSION TEST

Fluid Level (m CF)

COMPANY: SAMPLE COMPANY FIELD:

SASKATCHEWAN

POOL NAME: MIDALE

ELEVATIONS							
KELLY BUSHING (K.B.)	=	771.90	m				
CASING FLANGE (C.F.)	=	767.55	m				
K.B. TO C.F.	=	4.35	m				
TUBING							
TOTAL JOINTS	=	108.000					
TUBING BOTTOM	=	1021.5	m KB				
PUMP DEPTH	=	1012.0	m KB				
PRODUCING INTERVAL							
TOP OF INTERVAL	=	1007.00	m KB				
BOTTOM OF INTERVAL	=	1014.70	m KB				
MID-POINT	=	1010.85	m KB				
FLUID PROPERTIES							
GAS GRAVITY	=	0.700					
OIL GRAVITY	=	40.000	°API				
WATER GRAVITY	=	1.050					
PRODUCTION							
OIL RATE	=	35.00	m³/d				
WATER RATE	=	35.00	m³/d				
GAS RATE	=	8.00	E³m³/d				
G.O.R.	=	228.57	m³/m³				
SURFACE UNIT							
TUBING PRESSURE	=	587.0	kPaa				
PUMPING SPEED	=	6.4	SPM				
STROKE LENGTH	=	488.0	cm				

ACCOSTIC TESTING COMMENCED ON 2004-JUN-TTAT 15:38:00						
SHOT #	TEST TIME (hours)	JOINTS TO FLUID	FLUID LEVEL (m CF)	CASING PRESSURE (kPaa)	INTERFACE PRESSURE (kPaa)	
001	0.000	41.10	387.1	587.0	607.1	
002	0.533	49.64	467.5	865.3	901.4	
003	1.033	57.66	543.0	1097.6	1151.2	
004	1.533	65.81	619.8	1288.8	1361.0	
005	2.033	72.31	681.0	1440.6	1529.8	
006	2.533	77.61	730.9	1574.9	1680.0	
007	3.033	80.36	756.8	1705.9	1824.4	
008	3.533	82.55	777.4	1832.1	1963.4	
009	4.033	85.58	805.9	1954.8	2100.7	
010	4.533	87.96	828.4	2076.8	2236.8	
011	5.033	89.97	847.3	2194.6	2368.3	
012	5.533	94.27	887.8	2307.8	2499.9	
013	6.033	95.37	898.1	2420.9	2625.7	
014	6.533	98.02	923.1	2531.5	2752.5	
015	7.033	100.49	946.4	2637.0	2873.9	
016	7.533	102.78	967.9	2741.8	2994.7	
017	8.033	106.90	1006.7	2844.3	3118.1	

WELL NAME: SAMPLE et al SASKATCHEWAN 1-2-3-14 LOCATION: 100/01-02-003-14W2/0 LICENSE: 0123456

AVERAGE COLUMN COLUMN GRADIENT PRESSURE LENGTH (kPa/m) 0.046 COLUMN (kPa) 18.0 (m) 387.1 Gas Column 1 1063.2 3.092 2 Calculated 343.8 5.468 Calculated 275.6 1507.0 3 0 700 1400 2100 2800 3500 0 1 2 500 3 1000 PBHP = 3175.2 kPaa @ MPP (1006.5 m CF) TUBING END 1500

Interface Pressure (kPaa)