

## COMPRESSOR PERFORMANCE SUMMARY

Unit 050769

Compressor: Ariel JGT/4 c/w 2 x 11-1/2ET (11.5" bore) and 2 x 6-3/8ET (6.375" bore) cylinders  
 Engine: Caterpillar G3520B rated for 1,675 bhp @ 1,350 rpm at 95 deg. F and 2,952 feet a.s.l.  
 Cooler: Air-X-Changers 144EH

Page No.	Suction Pressure (psig)	Discharge Pressure (psig)	Capacity (mmscfd)	Compression Horsepower	Operating Mode
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1.	140	950	13.630	1595	DBL/DBL + DBL/DBL
2.	200	800	17.930	1548	DBL/DBL + DBL/DBL
3.	175	800	17.011	1595	DBL/DBL + DBL/DBL
4.	150	800	15.565	1595	DBL/DBL + DBL/DBL
5.	125	800	13.754	1553	DBL/DBL + DBL/DBL
6.	100	800	11.044	1392	DBL/DBL + DBL/DBL
7.	200	900	17.130	1595	DBL/DBL + DBL/DBL
8.	175	900	15.823	1595	DBL/DBL + DBL/DBL
9.	150	900	14.549	1595	DBL/DBL + DBL/DBL
10.	125	900	13.281	1595	DBL/DBL + DBL/DBL
11.	100	900	10.938	1459	DBL/DBL + DBL/DBL
12.	200	1000	16.040	1595	DBL/DBL + DBL/DBL
13.	175	1000	14.894	1595	DBL/DBL + DBL/DBL
14.	150	1000	13.753	1595	DBL/DBL + DBL/DBL
15.*	140	1000	13.296	1595	DBL/DBL + DBL/DBL
16.**	140	1000	12.000	1398	DBL/DBL + DBL/DBL
17.	125	1000	12.607	1595	DBL/DBL + DBL/DBL
18.	100	1000	10.836	1518	DBL/DBL + DBL/DBL
19.	200	1100	15.165	1595	DBL/DBL + DBL/DBL
20.	175	1100	14.089	1595	DBL/DBL + DBL/DBL
21.	150	1100	13.078	1595	DBL/DBL + DBL/DBL
22.	125	1100	12.032	1595	DBL/DBL + DBL/DBL
23.	100	1100	10.735	1572	DBL/DBL + DBL/DBL
24.	200	1200	14.263	1595	CE/DBL + DBL/DBL
25.	175	1200	13.463	1595	DBL/DBL + DBL/DBL
26.	150	1200	12.505	1595	DBL/DBL + DBL/DBL
27.	125	1200	11.541	1595	DBL/DBL + DBL/DBL
28.	100	1200	10.079	1527	DBL/DBL + DBL/DBL

\* Design Point – maximum flow @ 1350 rpm

\*\* Design Point – required flow @ 1200 rpm

Operating Conditions		Site Conditions	
Speed =	1350 rpm	Elevation =	2952 feet
Gas is Sweet/Sour, S.G. =	0.5863	Ambient Temperature =	95°F.
Suction Temperature =	50°F.		
Intercooling Temperature =	120°F.		
Aftercooling Temperature =	106°F.		



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Compressor: Ariel JGT/4 c/w 2 x 11-1/2ET (11.5" bore) and 2 x 6-3/8ET (6.375" bore) cylinders  
 Engine: Caterpillar G3520B rated for 1,675 bhp @ 1,350 rpm at 95 deg. F and 2,952 feet a.s.l.  
 Cooler: Air-X-Changers 144EH

Page No.	Suction Pressure (psig)	Discharge Pressure (psig)	Capacity (mmscfd)	Compression Horsepower	Operating Mode
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### Legend

- CE - crank end single acting cylinder (head end valves manually removed from cylinder)
- DBL - double acting cylinder (all valves in cylinder)
- Blank - cylinder/piston has been removed from throw (ie. 4 throw frame operating with only 3 throws)
- DIS - cylinder disabled (head end valves and crank end valves manually removed from cylinder)





Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

**Ariel Performance**

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



**Compressor Data:**

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient, °F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

**Driver Data:**

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

**Services**

Stage Data:	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	13.630	---	13.630	---
Cyl HP per Stage	823.8	---	753.2	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2950	---	1.2911	---
Comp Suct (Zs)	0.9763	---	0.9608	---
Comp Disch (Zd)	0.9748	---	0.9667	---
Pres Suct Line, psig	140.00	---	N/A	---
Pres Suct Flg, psig	140.00	---	411.79	---
Pres Disch Flg, psig	419.47	---	960.00	---
Pres Disch Line, psig	N/A	---	950.00	---
Pres Ratio F/F	2.825	---	2.290	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

**Cylinder Data:**

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	129.92	129.92	382.04	382.04
Temp Suct Intl, °F	57	57	125	125
Suct Zsph	0.9774	0.9774	0.9621	0.9621
Pres Disch Intl, psig	443.72	443.72	1030.40	1030.40
Temp Disch Intl, °F	213	213	268	268
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	37.40 (V)	37.40 (V)	0.00 (V)	0.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	34.68	34.68	11.84	11.84
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	51.4/71.7	51.4/71.7	83.5/82.5	83.5/82.5
Disch Event HE/CE, ms	6.7/9.1	6.7/9.1	9.6/10.7	9.6/10.7
Suct Pseudo-Q HE/CE	5.5/5.2	5.5/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	33045 C	33045 C	22031 C	22031 C
Gas Rod Ld Tens, lbf	31158 T	31158 T	17353 T	17353 T
Gas Rod Ld Total, lbf	64203	64203	39384	39384
Xhd Pin Deg/%RvrsI lbf	170/88.0	170/88.0	170/88.4	170/88.4
Flow Calc, MMSCFD	6.815	6.815	6.815	6.815
Cyl HP	411.9	411.9	376.6	376.6



### Ariel Performance

Company: Enerflex  
Quote: Unit 050769

Customer: Husky Oil  
Inquiry:



7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Project: CBM - McKee Lake

#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1548	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

**Stage Data:**  
 Flow Req'd, MMSCFD  
 Flow Calc, MMSCFD  
 Cyl HP per Stage  
 Specific Gravity  
 Ratio of Sp Ht (N)  
 Comp Suct (Zs)  
 Comp Disch (Zd)  
 Pres Suct Line, psig  
 Pres Suct Flg, psig  
 Pres Disch Flg, psig  
 Pres Disch Line, psig  
 Pres Ratio F/F  
 Temp Suct, °F  
 Temp Ctr Disch, °F

#### Gathering

#1	#2
12.000	12.000
17.930	17.930
929.1	600.8
0.5863	0.5863
1.3002	1.2989
0.9670	0.9529
0.9657	0.9555
200.00	N/A
200.00	500.99
509.32	810.00
N/A	800.00
2.451	1.601
50.00	120.00
120.00	106.00

#### Cylinder Data:

Throw 2	Throw 4	Throw 1	Throw 3
11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
11.500	11.500	6.375	6.375
577.3	577.3	1500.0	1500.0
635.0	635.0	1650.0	1650.0
DBL	DBL	DBL	DBL
719.3	719.3	213.4	213.4
185.82	185.82	464.59	464.59
56	56	123	123
0.9685	0.9685	0.9539	0.9539
539.78	539.78	875.22	875.22
193	193	213	213
8572	8572	9654	9654
7521	7521	9155	9155
0/2	0/2	0/2	0/2
0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
85.00 (V)	85.00 (V)	0.00 (V)	0.00 (V)
17.08	17.08	11.41	11.41
55.88	55.88	11.84	11.84
8313	8313	8704	8704
7294	7294	8254	8254
0/2	0/2	0/2	0/2
17.90	17.90	13.00	13.00
17.90	17.90	13.00	13.00
39.1/76.2	39.1/76.2	89.5/89.0	89.5/89.0
6.0/10.0	6.0/10.0	12.3/13.3	12.3/13.3
5.3/5.2	5.3/5.2	8.0/6.5	8.0/6.5
37399 C	37399 C	14665 C	14665 C
35023 T	35023 T	10290 T	10290 T
72422	72422	24955	24955
175/74.6	175/74.6	162/97.8	162/97.8
8.965	8.965	8.965	8.965
464.6	464.6	300.4	300.4



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### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

### Services

**Stage Data:**  
 Flow Req'd, MMSCFD  
 Flow Calc, MMSCFD  
 Cyl HP per Stage  
 Specific Gravity  
 Ratio of Sp Ht (N)  
 Comp Suct (Zs)  
 Comp Disch (Zd)  
 Pres Suct Line, psig  
 Pres Suct Flg, psig  
 Pres Disch Flg, psig  
 Pres Disch Line, psig  
 Pres Ratio F/F  
 Temp Suct, °F  
 Temp Clr Disch, °F

### Gathering

#1	#2	#3	#4
12.000	12.000	---	---
17.011	17.011	---	---
964.2	612.8	---	---
0.5863	0.5863	---	---
1.2979	1.2977	---	---
0.9709	0.9548	---	---
0.9695	0.9576	---	---
175.00	N/A	---	---
175.00	479.42	---	---
487.24	810.00	---	---
N/A	800.00	---	---
2.659	1.671	---	---
50.00	120.00	---	---
120.00	106.00	---	---
Throw 2	Throw 4	Throw 1	Throw 3
11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
11.500	11.500	6.375	6.375
577.3	577.3	1500.0	1500.0
635.0	635.0	1650.0	1650.0
DBL	DBL	DBL	DBL
719.3	719.3	213.4	213.4
162.54	162.54	444.62	444.62
57	57	123	123
0.9723	0.9723	0.9558	0.9558
515.78	515.78	874.46	874.46
205	205	219	219
8572	8572	9654	9654
7521	7521	9155	9155
0/2	0/2	0/2	0/2
0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
46.56 (V)	46.56 (V)	0.00 (V)	0.00 (V)
17.08	17.08	11.41	11.41
38.76	38.76	11.84	11.84
8313	8313	8704	8704
7294	7294	8254	8254
0/2	0/2	0/2	0/2
17.90	17.90	13.00	13.00
17.90	17.90	13.00	13.00
50.6/73.7	50.6/73.7	88.8/88.3	88.8/88.3
6.8/9.5	6.8/9.5	12.0/13.0	12.0/13.0
5.5/5.2	5.5/5.2	8.0/6.5	8.0/6.5
37250 C	37250 C	15218 C	15218 C
35023 T	35023 T	10902 T	10902 T
72273	72273	26120	26120
179/86.6	179/86.6	162/97.2	162/97.2
8.505	8.505	8.505	8.505
482.1	482.1	306.4	306.4



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### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

### Services

#### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	15.565	---	15.565	---
Cyl HP per Stage	949.6	---	627.4	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2955	---	1.2955	---
Comp Suct (Zs)	0.9747	---	0.9578	---
Comp Disch (Zd)	0.9734	---	0.9609	---
Pres Suct Line, psig	150.00	---	N/A	---
Pres Suct Fig, psig	150.00	---	445.25	---
Pres Disch Fig, psig	452.53	---	810.00	---
Pres Disch Line, psig	N/A	---	800.00	---
Pres Ratio F/F	2.854	---	1.796	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

#### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	139.25	139.25	412.98	412.98
Temp Suct Intl, °F	57	57	124	124
Suct Zsph	0.9760	0.9760	0.9589	0.9589
Pres Disch Intl, psig	478.59	478.59	873.24	873.24
Temp Disch Intl, °F	215	215	230	230
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	20.06 (V)	20.06 (V)	0.00 (V)	0.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	26.96	26.96	11.84	11.84
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	60.2/71.3	60.2/71.3	87.7/87.1	87.7/87.1
Disch Event HE/CE, ms	7.2/9.0	7.2/9.0	11.4/12.5	11.4/12.5
Suct Pseudo-Q HE/CE	5.5/5.2	5.5/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	35732 C	35732 C	16093 C	16093 C
Gas Rod Ld Tens, lbf	33699 T	33699 T	11872 T	11872 T
Gas Rod Ld Total, lbf	69431	69431	27965	27965
Xhd Pin Deg/%RvrsI lbf	172/98.7	172/98.7	163/96.1	163/96.1
Flow Calc, MMSCFD	7.783	7.783	7.783	7.783
Cyl HP	474.8	474.8	313.7	313.7



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Project: CBM - McKee Lake

### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGY74	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1553	Calc PS FPM:	1012.5

### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

### Services

#### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	13.754	---	13.754	---
Cyl HP per Stage	897.1	---	637.6	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2931	---	1.2926	---
Comp Suct (Zs)	0.9786	---	0.9617	---
Comp Disch (Zd)	0.9772	---	0.9650	---
Pres Suct Line, psig	125.00	---	N/A	---
Pres Suct Flg, psig	125.00	---	402.00	---
Pres Disch Flg, psig	408.71	---	810.00	---
Pres Disch Line, psig	N/A	---	800.00	---
Pres Ratio F/F	3.053	---	1.983	---
Temp Suct, °F	50.00	---	120.00	---
Temp Ctr Disch, °F	120.00	---	106.00	---

#### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	115.94	115.94	372.93	372.93
Temp Suct Intl, °F	58	58	124	124
Suct Zsph	0.9797	0.9797	0.9627	0.9627
Pres Disch Intl, psig	431.90	431.90	871.63	871.63
Temp Disch Intl, °F	225	225	245	245
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	0.00 (V)	0.00 (V)	0.00 (V)	0.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	18.02	18.02	11.84	11.84
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	68.8/69.0	68.8/69.0	86.1/85.3	86.1/85.3
Disch Event HE/CE, ms	7.5/8.6	7.5/8.6	10.6/11.7	10.6/11.7
Suct Pseudo-Q HE/CE	5.5/5.2	5.5/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	33225 C	33225 C	17199 C	17199 C
Gas Rod Ld Tens, lbf	31420 T	31420 T	13098 T	13098 T
Gas Rod Ld Total, lbf	64645	64645	30297	30297
Xhd Pin Deg/%RvrsI lbf	166/86.0	166/86.0	165/94.2	165/94.2
Flow Calc, MMSCFD	6.877	6.877	6.877	6.877
Cyl HP	448.5	448.5	318.8	318.8



### Ariel Performance

Company: Enerflex  
Quote: Unit 050769

Customer: Husky Oil



7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Inquiry:  
Project: CBM - McKee Lake

#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke,in:	4.50	Rod Dia,in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1392	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

##### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	11.044	---	11.044	---
Cyl HP per Stage	741.3	---	632.2	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2910	---	1.2874	---
Comp Suct (Zs)	0.9824	---	0.9675	---
Comp Disch (Zd)	0.9811	---	0.9715	---
Pres Suct Line, psig	100.00	---	N/A	---
Pres Suct Flg, psig	100.00	---	336.33	---
Pres Disch Flg, psig	342.40	---	810.00	---
Pres Disch Line, psig	N/A	---	800.00	---
Pres Ratio F/F	3.142	---	2.355	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

##### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	92.61	92.61	312.04	312.04
Temp Suct Intl, °F	58	58	125	125
Suct Zsph	0.9834	0.9834	0.9686	0.9686
Pres Disch Intl, psig	361.77	361.77	869.02	869.02
Temp Disch Intl, °F	228	228	271	271
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	0.00 (V)	0.00 (V)	0.00 (V)	0.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	18.02	18.02	11.84	11.84
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	67.7/67.9	67.7/67.9	82.9/81.8	82.9/81.8
Disch Event HE/CE, ms	7.4/8.4	7.4/8.4	9.5/10.6	9.5/10.6
Suct Pseudo-Q HE/CE	5.5/5.1	5.5/5.1	7.9/6.4	7.9/6.4
Gas Rod Ld Comp, lbf	28285 C	28285 C	18874 C	18874 C
Gas Rod Ld Tens, lbf	26785 T	26785 T	14958 T	14958 T
Gas Rod Ld Total, lbf	55070	55070	33832	33832
Xhd Pin Deg/%RvrsI lbf	145/85.2	145/85.2	167/92.2	167/92.2
Flow Calc, MMSCFD	5.522	5.522	5.522	5.522
Cyl HP	370.7	370.7	316.1	316.1





### Ariel Performance



Company: Enerflex  
 Quote: Unit 050769

Customer: Husky Oil  
 Inquiry:

7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Project: CBM - McKee Lake

#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

##### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	17.130	---	17.130	---
Cyl HP per Stage	881.2	---	695.8	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.3003	---	1.2975	---
Comp Suct (Zs)	0.9670	---	0.9532	---
Comp Disch (Zd)	0.9657	---	0.9575	---
Pres Suct Line, psig	200.00	---	N/A	---
Pres Suct Flg, psig	200.00	---	497.17	---
Pres Disch Flg, psig	506.00	---	910.00	---
Pres Disch Line, psig	N/A	---	900.00	---
Pres Ratio F/F	2.435	---	1.809	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

##### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	185.82	185.82	461.09	461.09
Temp Suct Intl, °F	56	56	124	124
Suct Zsph	0.9685	0.9685	0.9544	0.9544
Pres Disch Intl, psig	536.31	536.31	980.98	980.98
Temp Disch Intl, °F	192	192	232	232
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	98.45 (V)	98.45 (V)	10.00 (V)	10.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	61.88	61.88	16.28	16.28
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	33.9/76.4	33.9/76.4	85.1/87.0	85.1/87.0
Disch Event HE/CE, ms	5.7/10.0	5.7/10.0	11.1/12.3	11.1/12.3
Suct Pseudo-Q HE/CE	5.1/5.2	5.1/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	37038 C	37038 C	18161 C	18161 C
Gas Rod Ld Tens, lbf	34674 T	34674 T	13427 T	13427 T
Gas Rod Ld Total, lbf	71712	71712	31588	31588
Xhd Pin Deg/%RvrsI lbf	173/77.2	173/77.2	165/89.6	165/89.6
Flow Calc, MMSCFD	8.565	8.565	8.565	8.565
Cyl HP	440.6	440.6	347.9	347.9



### Ariel Performance

Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

Stage Data:	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	15.823	---	15.823	---
Cyl HP per Stage	861.3	---	715.7	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2984	---	1.2951	---
Comp Suct (Zs)	0.9709	---	0.9565	---
Comp Disch (Zd)	0.9694	---	0.9611	---
Pres Suct Line, psig	175.00	---	N/A	---
Pres Suct Flg, psig	175.00	---	460.07	---
Pres Disch Flg, psig	468.36	---	910.00	---
Pres Disch Line, psig	N/A	---	900.00	---
Pres Ratio F/F	2.559	---	1.951	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

#### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	162.54	162.54	426.74	426.74
Temp Suct Intl, °F	56	56	124	124
Suct Zsph	0.9722	0.9722	0.9577	0.9577
Pres Disch Intl, psig	496.07	496.07	979.56	979.56
Temp Disch Intl, °F	199	199	243	243
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	72.82 (V)	72.82 (V)	0.00 (V)	0.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	50.46	50.46	11.84	11.84
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	40.9/74.9	40.9/74.9	86.4/85.6	86.4/85.6
Disch Event HE/CE, ms	6.0/9.8	6.0/9.8	10.7/11.9	10.7/11.9
Suct Pseudo-Q HE/CE	5.4/5.2	5.4/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	35201 C	35201 C	19108 C	19108 C
Gas Rod Ld Tens, lbf	33041 T	33041 T	14478 T	14478 T
Gas Rod Ld Total, lbf	68242	68242	33586	33586
Xhd Pin Deg/%RvrsI lbf	180/77.3	180/77.3	165/92.2	165/92.2
Flow Calc, MMSCFD	7.912	7.912	7.912	7.912
Cyl HP	430.7	430.7	357.8	357.8



### Ariel Performance

Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

Stage Data:	#1	---	#2	---
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	14.549	---	14.549	---
Cyl HP per Stage	858.9	---	718.1	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2959	---	1.2931	---
Comp Suct (Zs)	0.9747	---	0.9592	---
Comp Disch (Zd)	0.9733	---	0.9640	---
Pres Suct Line, psig	150.00	---	N/A	---
Pres Suct Flg, psig	150.00	---	429.66	---
Pres Disch Flg, psig	437.38	---	910.00	---
Pres Disch Line, psig	N/A	---	900.00	---
Pres Ratio F/F	2.761	---	2.085	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

#### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	139.25	139.25	398.58	398.58
Temp Suct Intl, °F	57	57	124	124
Suct Zsph	0.9760	0.9760	0.9604	0.9604
Pres Disch Intl, psig	462.79	462.79	978.36	978.36
Temp Disch Intl, °F	210	210	253	253
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcra Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	41.50 (V)	41.50 (V)	0.00 (V)	0.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	36.51	36.51	11.84	11.84
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcra Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	50.7/72.4	50.7/72.4	85.2/84.4	85.2/84.4
Disch Event HE/CE, ms	6.7/9.3	6.7/9.3	10.2/11.4	10.2/11.4
Suct Pseudo-Q HE/CE	5.5/5.2	5.5/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	34089 C	34089 C	19883 C	19883 C
Gas Rod Ld Tens, lbf	32110 T	32110 T	15338 T	15338 T
Gas Rod Ld Total, lbf	66199	66199	35221	35221
Xhd Pin Deg/%RvrsI lbf	173/86.8	173/86.8	167/92.0	167/92.0
Flow Calc, MMSCFD	7.275	7.275	7.274	7.274
Cyl HP	429.4	429.4	359.1	359.1



# Ariel Performance

Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

### Driver Data:

Type: Nat. Gas  
 Mfg: Caterpillar  
 Model: G3520B  
 BHP: 1675  
 Avail: 1595 (80)

### Services

### Gathering

#### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	13.281	---	13.281	---
Cyl HP per Stage	861.5	---	715.5	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2931	---	1.2909	---
Comp Suct (Zs)	0.9786	---	0.9619	---
Comp Disch (Zd)	0.9772	---	0.9671	---
Pres Suct Line, psig	125.00	---	N/A	---
Pres Suct Flg, psig	125.00	---	399.17	---
Pres Disch Flg, psig	406.27	---	910.00	---
Pres Disch Line, psig	N/A	---	900.00	---
Pres Ratio F/F	3.036	---	2.239	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

#### Cylinder Data:

#### Throw 2

#### Throw 4

#### Throw 1

#### Throw 3

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	115.94	115.94	370.33	370.33
Temp Suct Intl, °F	57	57	125	125
Suct Zsph	0.9797	0.9797	0.9631	0.9631
Pres Disch Intl, psig	429.36	429.36	977.13	977.13
Temp Disch Intl, °F	224	224	264	264
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcra Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	8.54 (V)	8.54 (V)	0.00 (V)	0.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	21.82	21.82	11.84	11.84
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcra Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	63.9/69.2	63.9/69.2	83.9/82.9	83.9/82.9
Disch Event HE/CE, ms	7.3/8.6	7.3/8.6	9.9/10.9	9.9/10.9
Suct Pseudo-Q HE/CE	5.5/5.2	5.5/5.2	7.9/6.5	7.9/6.5
Gas Rod Ld Comp, lbf	32962 C	32962 C	20660 C	20660 C
Gas Rod Ld Tens, lbf	31165 T	31165 T	16200 T	16200 T
Gas Rod Ld Total, lbf	64127	64127	36860	36860
Xhd Pin Deg/%RvrsI lbf	167/92.2	167/92.2	168/90.4	168/90.4
Flow Calc, MMSCFD	6.641	6.641	6.641	6.641
Cyl HP	430.8	430.8	357.7	357.7



### Ariel Performance

Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1459	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

##### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	10.938	---	10.938	---
Cyl HP per Stage	745.7	---	695.3	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2908	---	1.2863	---
Comp Suct (Zs)	0.9824	---	0.9670	---
Comp Disch (Zd)	0.9811	---	0.9727	---
Pres Suct Line, psig	100.00	---	N/A	---
Pres Suct Flg, psig	100.00	---	342.12	---
Pres Disch Flg, psig	348.55	---	910.00	---
Pres Disch Line, psig	N/A	---	900.00	---
Pres Ratio F/F	3.196	---	2.598	---
Temp Suct, °F	50.00	---	120.00	---
Temp Ctr Disch, °F	120.00	---	106.00	---

##### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	92.61	92.61	317.43	317.43
Temp Suct Intl, °F	58	58	125	125
Suct Zsph	0.9834	0.9834	0.9682	0.9682
Pres Disch Intl, psig	368.18	368.18	974.69	974.69
Temp Disch Intl, °F	231	231	287	287
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcra Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	0.00 (V)	0.00 (V)	0.00 (V)	0.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	18.02	18.02	11.84	11.84
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcra Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	67.1/67.2	67.1/67.2	80.9/79.6	80.9/79.6
Disch Event HE/CE, ms	7.3/8.3	7.3/8.3	8.9/10.0	8.9/10.0
Suct Pseudo-Q HE/CE	5.5/5.1	5.5/5.1	7.9/6.4	7.9/6.4
Gas Rod Ld Comp, lbf	28951 C	28951 C	22109 C	22109 C
Gas Rod Ld Tens, lbf	27430 T	27430 T	17812 T	17812 T
Gas Rod Ld Total, lbf	56381	56381	39921	39921
Xhd Pin Deg/%RvrsI lbf	145/86.0	145/86.0	171/88.5	171/88.5
Flow Calc, MMSCFD	5.469	5.469	5.469	5.469
Cyl HP	372.8	372.8	347.6	347.6



Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

**Ariel Performance**

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



**Compressor Data:**

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

**Driver Data:**

Type: Nat. Gas  
 Mfg: Caterpillar  
 Model: G3520B  
 BHP: 1675  
 Avail: 1595 (80)

**Services**

Stage Data:	Gathering #1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	16.040	---	16.040	---
Cyl HP per Stage	818.2	---	758.8	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.3004	---	1.2960	---
Comp Suct (Zs)	0.9670	---	0.9536	---
Comp Disch (Zd)	0.9656	---	0.9598	---
Pres Suct Line, psig	200.00	---	N/A	---
Pres Suct Flg, psig	200.00	---	492.79	---
Pres Disch Flg, psig	502.09	---	1010.13	---
Pres Disch Line, psig	N/A	---	1000.00	---
Pres Ratio F/F	2.417	---	2.022	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---
Cylinder Data:	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	185.82	185.82	457.06	457.06
Temp Suct Intl, °F	56	56	124	124
Suct Zsph	0.9685	0.9685	0.9550	0.9550
Pres Disch Intl, psig	532.22	532.22	1086.65	1086.65
Temp Disch Intl, °F	191	191	249	249
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	2/2	2/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	93.06 (V)	93.06 (V)	25.00 (V)	25.00 (V)
HE Min Cir, %	17.08	17.08	11.41	11.41
HE Total Cir, %	64.77	64.77	22.94	22.94
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	2/2	2/2	0/2	0/2
CE Min Cir, %	17.90	17.90	13.00	13.00
CE Total Cir, %	23.37	23.37	13.00	13.00
Suct Vol Eff HE/CE, %	31.9/71.4	31.9/71.4	78.1/85.0	78.1/85.0
Disch Event HE/CE, ms	5.4/9.8	5.4/9.8	9.9/11.6	9.9/11.6
Suct Pseudo-Q HE/CE	5.0/5.2	5.0/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	36614 C	36614 C	21669 C	21669 C
Gas Rod Ld Tens, lbf	34263 T	34263 T	16579 T	16579 T
Gas Rod Ld Total, lbf	70877	70877	38248	38248
Xhd Pin Deg/%Rvrsl lbf	175/79.5	175/79.5	167/77.4	167/77.4
Flow Calc, MMSCFD	8.020	8.020	8.020	8.020
Cyl HP	409.1	409.1	379.4	379.4



Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

### Ariel Performance

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

##### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	14.894	---	14.894	---
Cyl HP per Stage	822.5	---	754.5	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2982	---	1.2943	---
Comp Suct (Zs)	0.9709	---	0.9559	---
Comp Disch (Zd)	0.9695	---	0.9624	---
Pres Suct Line, psig	175.00	---	N/A	---
Pres Suct Flg, psig	175.00	---	466.37	---
Pres Disch Flg, psig	475.11	---	1010.13	---
Pres Disch Line, psig	N/A	---	1000.00	---
Pres Ratio F/F	2.595	---	2.134	---
Temp Suct, °F	50.00	---	120.00	---
Temp Cir Disch, °F	120.00	---	106.00	---

##### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	162.54	162.54	432.61	432.61
Temp Suct Intl, °F	57	57	125	125
Suct Zsph	0.9722	0.9722	0.9573	0.9573
Pres Disch Intl, psig	503.12	503.12	1085.57	1085.57
Temp Disch Intl, °F	201	201	257	257
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	83.54 (V)	83.54 (V)	25.00 (V)	25.00 (V)
HE Min Cir, %	17.08	17.08	11.41	11.41
HE Total Cir, %	55.23	55.23	22.94	22.94
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Cir, %	17.90	17.90	13.00	13.00
CE Total Cir, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	34.7/74.4	34.7/74.4	76.3/84.0	76.3/84.0
Disch Event HE/CE, ms	5.6/9.6	5.6/9.6	9.5/11.2	9.5/11.2
Suct Pseudo-Q HE/CE	5.1/5.2	5.1/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	35934 C	35934 C	22341 C	22341 C
Gas Rod Ld Tens, lbf	33750 T	33750 T	17325 T	17325 T
Gas Rod Ld Total, lbf	69684	69684	39666	39666
Xhd Pin Deg/%Rvrsl lbf	177/78.1	177/78.1	169/74.6	169/74.6
Flow Calc, MMSCFD	7.447	7.447	7.447	7.447
Cyl HP	411.2	411.2	377.3	377.3



Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

### Ariel Performance

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT74	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

##### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	13.753	---	13.753	---
Cyl HP per Stage	830.6	---	746.4	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2956	---	1.2925	---
Comp Suct (Zs)	0.9747	---	0.9583	---
Comp Disch (Zd)	0.9733	---	0.9650	---
Pres Suct Line, psig	150.00	---	N/A	---
Pres Suct Fig, psig	150.00	---	439.87	---
Pres Disch Fig, psig	448.00	---	1010.13	---
Pres Disch Line, psig	N/A	---	1000.00	---
Pres Ratio F/F	2.826	---	2.259	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

##### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	139.25	139.25	408.06	408.06
Temp Suct Intl, °F	57	57	125	125
Suct Zsph	0.9760	0.9760	0.9597	0.9597
Pres Disch Intl, psig	473.86	473.86	1084.47	1084.47
Temp Disch Intl, °F	214	214	266	266
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcra Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	49.57 (V)	49.57 (V)	25.00 (V)	25.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	40.10	40.10	22.94	22.94
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcra Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	44.8/71.6	44.8/71.6	74.4/82.8	74.4/82.8
Disch Event HE/CE, ms	6.2/9.1	6.2/9.1	9.1/10.9	9.1/10.9
Suct Pseudo-Q HE/CE	5.4/5.2	5.4/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	35240 C	35240 C	23014 C	23014 C
Gas Rod Ld Tens, lbf	33223 T	33223 T	18074 T	18074 T
Gas Rod Ld Total, lbf	68463	68463	41088	41088
Xhd Pin Deg/%RvrsI lbf	178/79.6	178/79.6	171/72.1	171/72.1
Flow Calc, MMSCFD	6.876	6.876	6.876	6.876
Cyl HP	415.3	415.3	373.2	373.2





### Ariel Performance

Company: Enerflex  
 Quote: Unit 050769

Customer: Husky Oil



7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Inquiry:  
 Project: CBM - McKee Lake

#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

##### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	13.296	---	13.296	---
Cyl HP per Stage	835.1	---	741.9	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2945	---	1.2917	---
Comp Suct (Zs)	0.9763	---	0.9593	---
Comp Disch (Zd)	0.9749	---	0.9661	---
Pres Suct Line, psig	140.00	---	N/A	---
Pres Suct Flg, psig	140.00	---	429.20	---
Pres Disch Flg, psig	437.08	---	1010.13	---
Pres Disch Line, psig	N/A	---	1000.00	---
Pres Ratio F/F	2.939	---	2.313	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

##### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	129.93	129.93	398.18	398.18
Temp Suct Intl, °F	57	57	125	125
Suct Zsph	0.9775	0.9775	0.9606	0.9606
Pres Disch Intl, psig	462.07	462.07	1084.01	1084.01
Temp Disch Intl, °F	220	220	270	270
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	35.80 (V)	35.80 (V)	25.00 (V)	25.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	33.97	33.97	22.94	22.94
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	49.8/70.3	49.8/70.3	73.5/82.3	73.5/82.3
Disch Event HE/CE, ms	6.4/8.9	6.4/8.9	8.9/10.7	8.9/10.7
Suct Pseudo-Q HE/CE	5.5/5.2	5.5/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	34954 C	34954 C	23285 C	23285 C
Gas Rod Ld Tens, lbf	33004 T	33004 T	18375 T	18375 T
Gas Rod Ld Total, lbf	67958	67958	41660	41660
Xhd Pin Deg/%Rvrrl lbf	174/86.9	174/86.9	171/71.0	171/71.0
Flow Calc, MMSCFD	6.648	6.648	6.648	6.648
Cyl HP	417.5	417.5	371.0	371.0



# Ariel Performance

Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient, °F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1200.0	Calc BHP:	1398	Calc PS FPM:	900.0

### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

### Services

Stage Data:	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	12.000	---	12.000	---
Cyl HP per Stage	742.7	---	638.9	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2944	---	1.2920	---
Comp Suct (Zs)	0.9763	---	0.9589	---
Comp Disch (Zd)	0.9750	---	0.9656	---
Pres Suct Line, psig	140.00	---	N/A	---
Pres Suct Flg, psig	140.00	---	433.86	---
Pres Disch Flg, psig	441.74	---	1010.13	---
Pres Disch Line, psig	N/A	---	1000.00	---
Pres Ratio F/F	2.970	---	2.289	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	639.4	639.4	189.7	189.7
Pres Suct Intl, psig	132.04	132.04	409.08	409.08
Temp Suct Intl, °F	57	57	125	125
Suct Zsph	0.9775	0.9775	0.9602	0.9602
Pres Disch Intl, psig	461.78	461.78	1069.08	1069.08
Temp Disch Intl, °F	217	217	263	263
HE Suct Gas Vel, FPM	7620	7620	8581	8581
HE Disch Gas Vel, FPM	6685	6685	8138	8138
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	30.99 (V)	30.99 (V)	25.00 (V)	25.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	31.83	31.83	22.94	22.94
CE Suct Gas Vel, FPM	7389	7389	7736	7736
CE Disch Gas Vel, FPM	6483	6483	7337	7337
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	51.9/70.0	51.9/70.0	73.9/82.5	73.9/82.5
Disch Event HE/CE, ms	7.4/9.9	7.4/9.9	10.1/12.1	10.1/12.1
Suct Pseudo-Q HE/CE	4.4/4.1	4.4/4.1	6.3/5.1	6.3/5.1
Gas Rod Ld Comp, lbf	34701 C	34701 C	22467 C	22467 C
Gas Rod Ld Tens, lbf	32763 T	32763 T	17618 T	17618 T
Gas Rod Ld Total, lbf	67464	67464	40085	40085
Xhd Pin Deg/%Rvrsl lbf	179/94.8	179/94.8	180/74.4	180/74.4
Flow Calc, MMSCFD	6.000	6.000	6.000	6.000
Cyl HP	371.3	371.3	319.5	319.5



# Ariel Performance

Company: Enerflex  
 Quote: Unit 050769

Customer: Husky Oil  
 Inquiry:



7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Project: CBM - McKee Lake

### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

### Services

#### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	12.607	---	12.607	---
Cyl HP per Stage	843.2	---	733.8	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2927	---	1.2905	---
Comp Suct (Zs)	0.9786	---	0.9607	---
Comp Disch (Zd)	0.9773	---	0.9677	---
Pres Suct Line, psig	125.00	---	N/A	---
Pres Suct Flg, psig	125.00	---	413.05	---
Pres Disch Flg, psig	420.53	---	1010.13	---
Pres Disch Line, psig	N/A	---	1000.00	---
Pres Ratio F/F	3.139	---	2.401	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

#### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	115.94	115.94	383.22	383.22
Temp Suct Intl, °F	58	58	125	125
Suct Zsph	0.9797	0.9797	0.9621	0.9621
Pres Disch Intl, psig	444.22	444.22	1083.32	1083.32
Temp Disch Intl, °F	229	229	276	276
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	14.96 (V)	14.96 (V)	25.00 (V)	25.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	24.68	24.68	22.94	22.94
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	58.5/68.0	58.5/68.0	72.2/81.5	72.2/81.5
Disch Event HE/CE, ms	6.8/8.4	6.8/8.4	8.6/10.5	8.6/10.5
Suct Pseudo-Q HE/CE	5.5/5.2	5.5/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	34507 C	34507 C	23695 C	23695 C
Gas Rod Ld Tens, lbf	32659 T	32659 T	18830 T	18830 T
Gas Rod Ld Total, lbf	67166	67166	42525	42525
Xhd Pin Deg/%Rvrsl lbf	170/98.9	170/98.9	172/69.6	172/69.6
Flow Calc, MMSCFD	6.304	6.304	6.304	6.304
Cyl HP	421.6	421.6	366.9	366.9



### Ariel Performance

Company: Enerflex  
Quote: Unit 050769

Customer: Husky Oil



7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Inquiry:  
Project: CBM - McKee Lake

#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1518	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

##### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	10.836	---	10.836	---
Cyl HP per Stage	749.6	---	750.9	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2906	---	1.2852	---
Comp Suct (Zs)	0.9824	---	0.9665	---
Comp Disch (Zd)	0.9811	---	0.9742	---
Pres Suct Line, psig	100.00	---	N/A	---
Pres Suct Flg, psig	100.00	---	347.80	---
Pres Disch Flg, psig	354.57	---	1010.13	---
Pres Disch Line, psig	N/A	---	1000.00	---
Pres Ratio F/F	3.249	---	2.835	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

##### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	92.61	92.61	322.72	322.72
Temp Suct Intl, °F	58	58	126	126
Suct Zsph	0.9834	0.9834	0.9678	0.9678
Pres Disch Intl, psig	374.45	374.45	1080.37	1080.37
Temp Disch Intl, °F	234	234	301	301
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	0.00 (V)	0.00 (V)	0.00 (V)	0.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	18.02	18.02	11.84	11.84
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	66.5/66.6	66.5/66.6	79.0/77.6	79.0/77.6
Disch Event HE/CE, ms	7.2/8.3	7.2/8.3	8.4/9.5	8.4/9.5
Suct Pseudo-Q HE/CE	5.5/5.1	5.5/5.1	7.9/6.4	7.9/6.4
Gas Rod Ld Comp, lbf	29603 C	29603 C	25347 C	25347 C
Gas Rod Ld Tens, lbf	28061 T	28061 T	20669 T	20669 T
Gas Rod Ld Total, lbf	57664	57664	46016	46016
Xhd Pin Deg/%Rvrsl lbf	147/86.5	147/86.5	179/83.8	179/83.8
Flow Calc, MMSCFD	5.418	5.418	5.418	5.418
Cyl HP	374.8	374.8	375.4	375.4



Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

### Ariel Performance

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient, °F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

Stage Data:	#1	---	#2	---
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	15.165	---	15.165	---
Cyl HP per Stage	788.9	---	787.9	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.3002	---	1.2953	---
Comp Suct (Zs)	0.9670	---	0.9529	---
Comp Disch (Zd)	0.9657	---	0.9611	---
Pres Suct Line, psig	200.00	---	N/A	---
Pres Suct Fig, psig	200.00	---	501.72	---
Pres Disch Fig, psig	511.47	---	1111.13	---
Pres Disch Line, psig	N/A	---	1100.00	---
Pres Ratio F/F	2.461	---	2.184	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

#### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	185.82	185.82	465.36	465.36
Temp Suct Intl, °F	56	56	125	125
Suct Zsph	0.9685	0.9685	0.9544	0.9544
Pres Disch Intl, psig	542.02	542.02	1193.63	1193.63
Temp Disch Intl, °F	194	194	262	262
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcra Used/Max	2/2	2/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	100.00 (V)	100.00 (V)	45.50 (V)	45.50 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	67.86	67.86	32.05	32.05
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcra Used/Max	2/2	2/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	23.37	23.37	13.00	13.00
Suct Vol Eff HE/CE, %	27.0/70.7	27.0/70.7	68.4/83.6	68.4/83.6
Disch Event HE/CE, ms	4.9/9.6	4.9/9.6	8.8/11.1	8.8/11.1
Suct Pseudo-Q HE/CE	4.7/5.2	4.7/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	37632 C	37632 C	24862 C	24862 C
Gas Rod Ld Tens, lbf	35249 T	35249 T	19378 T	19378 T
Gas Rod Ld Total, lbf	72881	72881	44240	44240
Xhd Pin Deg/%RvrsI lbf	171/79.1	171/79.1	172/77.8	172/77.8
Flow Calc, MMSCFD	7.582	7.582	7.582	7.582
Cyl HP	394.5	394.5	394.0	394.0



### Ariel Performance

Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient, °F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

Stage Data:	#1	---	#2	---
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	14.089	---	14.089	---
Cyl HP per Stage	766.1	---	810.9	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2984	---	1.2925	---
Comp Suct (Zs)	0.9709	---	0.9566	---
Comp Disch (Zd)	0.9694	---	0.9653	---
Pres Suct Line, psig	175.00	---	N/A	---
Pres Suct Flg, psig	175.00	---	459.04	---
Pres Disch Flg, psig	468.19	---	1111.13	---
Pres Disch Line, psig	N/A	---	1100.00	---
Pres Ratio F/F	2.558	---	2.381	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

#### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	162.54	162.54	425.85	425.85
Temp Suct Intl, °F	56	56	125	125
Suct Zsph	0.9722	0.9722	0.9581	0.9581
Pres Disch Intl, psig	495.90	495.90	1191.78	1191.78
Temp Disch Intl, °F	199	199	275	275
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	99.68 (V)	99.68 (V)	25.00 (V)	25.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	62.42	62.42	22.94	22.94
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	28.4/74.9	28.4/74.9	72.6/81.7	72.6/81.7
Disch Event HE/CE, ms	5.1/9.8	5.1/9.8	8.8/10.5	8.8/10.5
Suct Pseudo-Q HE/CE	4.8/5.2	4.8/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	35183 C	35183 C	25944 C	25944 C
Gas Rod Ld Tens, lbf	33024 T	33024 T	20581 T	20581 T
Gas Rod Ld Total, lbf	68207	68207	46525	46525
Xhd Pin Deg/%RvrsI lbf	175/83.0	175/83.0	176/75.7	176/75.7
Flow Calc, MMSCFD	7.045	7.045	7.045	7.045
Cyl HP	383.1	383.1	405.4	405.4



### Ariel Performance

Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type: Nat. Gas  
 Mfg: Caterpillar  
 Model: G3520B  
 BHP: 1675  
 Avail: 1595 (80)

#### Services

Stage Data:	#1	---	#2	---
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	13.078	---	13.078	---
Cyl HP per Stage	798.6	---	778.4	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2955	---	1.2915	---
Comp Suct (Zs)	0.9747	---	0.9579	---
Comp Disch (Zd)	0.9734	---	0.9667	---
Pres Suct Line, psig	150.00	---	N/A	---
Pres Suct Flg, psig	150.00	---	444.77	---
Pres Disch Flg, psig	453.30	---	1111.13	---
Pres Disch Line, psig	N/A	---	1100.00	---
Pres Ratio F/F	2.859	---	2.455	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

#### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	139.25	139.25	412.64	412.64
Temp Suct Intl, °F	57	57	125	125
Suct Zsph	0.9760	0.9760	0.9594	0.9594
Pres Disch Intl, psig	479.39	479.39	1191.15	1191.15
Temp Disch Intl, °F	215	215	280	280
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	57.64 (V)	57.64 (V)	35.00 (V)	35.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	43.70	43.70	27.39	27.39
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	39.6/71.3	39.6/71.3	67.2/81.1	67.2/81.1
Disch Event HE/CE, ms	5.7/9.0	5.7/9.0	8.1/10.4	8.1/10.4
Suct Pseudo-Q HE/CE	5.3/5.2	5.3/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	35815 C	35815 C	26305 C	26305 C
Gas Rod Ld Tens, lbf	33779 T	33779 T	20983 T	20983 T
Gas Rod Ld Total, lbf	69594	69594	47288	47288
Xhd Pin Deg/%RvrsI lbf	180/74.3	180/74.3	177/76.4	177/76.4
Flow Calc, MMSCFD	6.539	6.539	6.539	6.539
Cyl HP	399.3	399.3	389.2	389.2



### Ariel Performance

Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

##### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	12.032	---	12.032	---
Cyl HP per Stage	817.6	---	759.4	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2925	---	1.2897	---
Comp Suct (Zs)	0.9786	---	0.9601	---
Comp Disch (Zd)	0.9774	---	0.9691	---
Pres Suct Line, psig	125.00	---	N/A	---
Pres Suct Fig, psig	125.00	---	420.45	---
Pres Disch Fig, psig	428.30	---	1111.13	---
Pres Disch Line, psig	N/A	---	1100.00	---
Pres Ratio F/F	3.195	---	2.593	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

##### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	115.95	115.95	390.11	390.11
Temp Suct Intl, °F	58	58	126	126
Suct Zsph	0.9798	0.9798	0.9616	0.9616
Pres Disch Intl, psig	452.31	452.31	1190.05	1190.05
Temp Disch Intl, °F	232	232	288	288
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcra Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	21.47 (V)	21.47 (V)	35.00 (V)	35.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	27.58	27.58	27.39	27.39
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcra Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	53.5/67.3	53.5/67.3	64.7/79.8	64.7/79.8
Disch Event HE/CE, ms	6.4/8.4	6.4/8.4	7.8/10.0	7.8/10.0
Suct Pseudo-Q HE/CE	5.5/5.2	5.5/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	35348 C	35348 C	26920 C	26920 C
Gas Rod Ld Tens, lbf	33473 T	33473 T	21667 T	21667 T
Gas Rod Ld Total, lbf	68821	68821	48587	48587
Xhd Pin Deg/%RvrsI lbf	173/94.8	173/94.8	180/75.7	180/75.7
Flow Calc, MMSCFD	6.016	6.016	6.016	6.016
Cyl HP	408.8	408.8	379.7	379.7





Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

### Ariel Performance

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1572	Calc PS FPM:	1012.5

#### Driver Data:

Type: Nat. Gas  
 Mfg: Caterpillar  
 Model: G3520B  
 BHP: 1675  
 Avail: 1595 (80)

#### Services

##### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	10.735	---	10.735	---
Cyl HP per Stage	753.2	---	800.6	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2903	---	1.2843	---
Comp Suct (Zs)	0.9824	---	0.9660	---
Comp Disch (Zd)	0.9812	---	0.9758	---
Pres Suct Line, psig	100.00	---	N/A	---
Pres Suct Fig, psig	100.00	---	353.42	---
Pres Disch Fig, psig	360.52	---	1111.13	---
Pres Disch Line, psig	N/A	---	1100.00	---
Pres Ratio F/F	3.302	---	3.067	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

##### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	92.62	92.62	327.96	327.96
Temp Suct Intl, °F	58	58	126	126
Suct Zsph	0.9834	0.9834	0.9675	0.9675
Pres Disch Intl, psig	380.65	380.65	1186.87	1186.87
Temp Disch Intl, °F	236	236	315	315
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	0.00 (V)	0.00 (V)	0.00 (V)	0.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	18.02	18.02	11.84	11.84
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	65.9/66.0	65.9/66.0	77.2/75.6	77.2/75.6
Disch Event HE/CE, ms	7.2/8.1	7.2/8.1	8.0/9.0	8.0/9.0
Suct Pseudo-Q HE/CE	5.5/5.1	5.5/5.1	7.9/6.4	7.9/6.4
Gas Rod Ld Comp, lbf	30248 C	30248 C	28612 C	28612 C
Gas Rod Ld Tens, lbf	28684 T	28684 T	23552 T	23552 T
Gas Rod Ld Total, lbf	58932	58932	52164	52164
Xhd Pin Deg/%RvrsI lbf	149/86.8	149/86.8	157/72.7	157/72.7
Flow Calc, MMSCFD	5.367	5.367	5.367	5.367
Cyl HP	376.6	376.6	400.3	400.3



Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

**Ariel Performance**

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



**Compressor Data:**

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient, °F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

**Driver Data:**

Type: Nat. Gas  
 Mfg: Caterpillar  
 Model: G3520B  
 BHP: 1675  
 Avail: 1595 (80)

**Services**

**Stage Data:**

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	14.263	---	14.263	---
Cyl HP per Stage	707.0	---	870.0	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.3008	---	1.2923	---
Comp Suct (Zs)	0.9670	---	0.9552	---
Comp Disch (Zd)	0.9655	---	0.9661	---
Pres Suct Line, psig	200.00	---	N/A	---
Pres Suct Flg, psig	200.00	---	474.25	---
Pres Disch Fig, psig	484.25	---	1212.13	---
Pres Disch Line, psig	N/A	---	1200.00	---
Pres Ratio F/F	2.333	---	2.514	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

**Cylinder Data:**

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	CE(HEVR)	DBL	DBL	DBL
Cyl Disp, CFM	354.1	719.3	213.4	213.4
Pres Suct Intl, psig	186.33	185.81	439.96	439.96
Temp Suct Intl, °F	59	56	125	125
Suct Zsph	0.9691	0.9684	0.9568	0.9568
Pres Disch Intl, psig	512.55	513.59	1298.86	1298.86
Temp Disch Intl, °F	189	186	284	284
HE Suct Gas Vel, FPM	N/A	8572	9654	9654
HE Disch Gas Vel, FPM	N/A	7521	9155	9155
HE Spcrrs Used/Max	N/A	2/2	0/2	0/2
HE Vol Pkt Avail, %	N/A	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	N/A	95.13 (V)	25.00 (V)	25.00 (V)
HE Min Clr, %	N/A	17.08	11.41	11.41
HE Total Clr, %	N/A	65.69	22.94	22.94
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	2/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	23.37	13.00	13.00
Suct Vol Eff HE/CE, %	N/A/77.6	34.5/72.7	70.7/80.6	70.7/80.6
Disch Event HE/CE, ms	N/A/10.4	5.8/10.0	8.4/10.2	8.4/10.2
Suct Pseudo-Q HE/CE	N/A/5.2	5.1/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	2248 C	34676 C	28972 C	28972 C
Gas Rod Ld Tens, lbf	31023 T	32390 T	23198 T	23198 T
Gas Rod Ld Total, lbf	33271	67066	52170	52170
Xhd Pin Deg/%RvrsI lbf	84/57.9	179/83.2	175/78.1	175/78.1
Flow Calc, MMSCFD	5.933	8.331	7.132	7.132
Cyl HP	298.5	408.5	435.0	435.0



### Ariel Performance

Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

##### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	13.463	---	13.463	---
Cyl HP per Stage	757.4	---	819.8	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2980	---	1.2923	---
Comp Suct (Zs)	0.9709	---	0.9552	---
Comp Disch (Zd)	0.9695	---	0.9661	---
Pres Suct Line, psig	175.00	---	N/A	---
Pres Suct Flg, psig	175.00	---	474.61	---
Pres Disch Flg, psig	484.17	---	1212.13	---
Pres Disch Line, psig	N/A	---	1200.00	---
Pres Ratio F/F	2.643	---	2.512	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

##### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	162.54	162.54	440.29	440.29
Temp Suct Intl, °F	57	57	125	125
Suct Zsph	0.9722	0.9722	0.9569	0.9569
Pres Disch Intl, psig	512.57	512.57	1298.88	1298.88
Temp Disch Intl, °F	204	204	284	284
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	100.00 (V)	100.00 (V)	43.50 (V)	43.50 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	62.57	62.57	31.16	31.16
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	25.0/73.9	25.0/73.9	62.5/80.6	62.5/80.6
Disch Event HE/CE, ms	4.6/9.5	4.6/9.5	7.8/10.2	7.8/10.2
Suct Pseudo-Q HE/CE	4.5/5.2	4.5/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	36917 C	36917 C	28963 C	28963 C
Gas Rod Ld Tens, lbf	34701 T	34701 T	23188 T	23188 T
Gas Rod Ld Total, lbf	71618	71618	52151	52151
Xhd Pin Deg/%Rvrsl lbf	169/79.9	169/79.9	175/85.5	175/85.5
Flow Calc, MMSCFD	6.731	6.731	6.731	6.731
Cyl HP	378.7	378.7	409.9	409.9



Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

### Ariel Performance

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



#### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient, °F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

#### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

#### Services

##### Stage Data:

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	12.505	---	12.505	---
Cyl HP per Stage	770.7	---	806.3	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2954	---	1.2905	---
Comp Suct (Zs)	0.9747	---	0.9575	---
Comp Disch (Zd)	0.9734	---	0.9686	---
Pres Suct Line, psig	150.00	---	N/A	---
Pres Suct Flg, psig	150.00	---	448.96	---
Pres Disch Flg, psig	457.86	---	1212.13	---
Pres Disch Line, psig	N/A	---	1200.00	---
Pres Ratio F/F	2.887	---	2.651	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

##### Cylinder Data:

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	139.25	139.25	416.54	416.54
Temp Suct Intl, °F	57	57	126	126
Suct Zsph	0.9760	0.9760	0.9591	0.9591
Pres Disch Intl, psig	484.15	484.15	1297.68	1297.68
Temp Disch Intl, °F	217	217	293	293
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	64.27 (V)	64.27 (V)	40.00 (V)	40.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	46.65	46.65	29.61	29.61
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	35.2/70.9	35.2/70.9	61.4/79.4	61.4/79.4
Disch Event HE/CE, ms	5.3/9.0	5.3/9.0	7.5/9.9	7.5/9.9
Suct Pseudo-Q HE/CE	5.1/5.2	5.1/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	36309 C	36309 C	29610 C	29610 C
Gas Rod Ld Tens, lbf	34258 T	34258 T	23909 T	23909 T
Gas Rod Ld Total, lbf	70567	70567	53519	53519
Xhd Pin Deg/%Rvrs/ lbf	178/75.2	178/75.2	160/85.2	160/85.2
Flow Calc, MMSCFD	6.253	6.253	6.253	6.253
Cyl HP	385.3	385.3	403.2	403.2



Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

**Ariel Performance**

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



**Compressor Data:**

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1595	Calc PS FPM:	1012.5

**Driver Data:**

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

**Services**

**Stage Data:**

	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	11.541	---	11.541	---
Cyl HP per Stage	794.4	---	782.6	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2923	---	1.2889	---
Comp Suct (Zs)	0.9786	---	0.9596	---
Comp Disch (Zd)	0.9774	---	0.9708	---
Pres Suct Line, psig	125.00	---	N/A	---
Pres Suct Flg, psig	125.00	---	426.55	---
Pres Disch Flg, psig	434.74	---	1212.13	---
Pres Disch Line, psig	N/A	---	1200.00	---
Pres Ratio F/F	3.242	---	2.787	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---

**Cylinder Data:**

	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	115.95	115.95	395.78	395.78
Temp Suct Intl, °F	58	58	126	126
Suct Zsph	0.9798	0.9798	0.9612	0.9612
Pres Disch Intl, psig	459.02	459.02	1296.62	1296.62
Temp Disch Intl, °F	234	234	300	300
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcra Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	26.87 (V)	26.87 (V)	40.00 (V)	40.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	29.99	29.99	29.61	29.61
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcra Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	49.2/66.8	49.2/66.8	58.8/78.2	58.8/78.2
Disch Event HE/CE, ms	6.0/8.3	6.0/8.3	7.2/9.6	7.2/9.6
Suct Pseudo-Q HE/CE	5.5/5.2	5.5/5.2	8.0/6.5	8.0/6.5
Gas Rod Ld Comp, lbf	36046 C	36046 C	30175 C	30175 C
Gas Rod Ld Tens, lbf	34148 T	34148 T	24538 T	24538 T
Gas Rod Ld Total, lbf	70194	70194	54713	54713
Xhd Pin Deg/%RvrsI lbf	175/90.0	175/90.0	158/85.6	158/85.6
Flow Calc, MMSCFD	5.771	5.771	5.771	5.771
Cyl HP	397.2	397.2	391.3	391.3



# Ariel Performance

Company: Enerflex

Customer: Husky Oil

Quote: Unit 050769

Inquiry:

7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Project: CBM - McKee Lake



### Compressor Data:

Elevation,ft:	2952.8	Barmtr,psia:	13.176	Ambient,°F:	95.00
Frame:	JGT/4	Stroke, in:	4.50	Rod Dia, in:	2.000
Max RL Tot, lbf:	74000	Max RL Tens, lbf:	37000	Max RL Comp, lbf:	40000
Rated RPM:	1500	Rated BHP:	2600.0	Rated PS FPM:	1125.0
Calc RPM:	1350.0	Calc BHP:	1527	Calc PS FPM:	1012.5

### Driver Data:

Type:	Nat. Gas
Mfg:	Caterpillar
Model:	G3520B
BHP:	1675
Avail:	1595 (80)

### Services

### Gathering

Stage Data:	#1		#2	
Flow Req'd, MMSCFD	12.000	---	12.000	---
Flow Calc, MMSCFD	10.079	---	10.079	---
Cyl HP per Stage	769.8	---	739.1	---
Specific Gravity	0.5863	---	0.5863	---
Ratio of Sp Ht (N)	1.2890	---	1.2862	---
Comp Suct (Zs)	0.9824	---	0.9626	---
Comp Disch (Zd)	0.9815	---	0.9742	---
Pres Suct Line, psig	100.00	---	N/A	---
Pres Suct Flg, psig	100.00	---	392.24	---
Pres Disch Flg, psig	399.65	---	1212.13	---
Pres Disch Line, psig	N/A	---	1200.00	---
Pres Ratio F/F	3.648	---	3.022	---
Temp Suct, °F	50.00	---	120.00	---
Temp Clr Disch, °F	120.00	---	106.00	---
Cylinder Data:	Throw 2	Throw 4	Throw 1	Throw 3
Cyl Model	11-1/2ET	11-1/2ET	6-3/8ET	6-3/8ET
Cyl Bore, in	11.500	11.500	6.375	6.375
Cyl RDP (API), psig	577.3	577.3	1500.0	1500.0
Cyl MAWP, psig	635.0	635.0	1650.0	1650.0
Cyl Action	DBL	DBL	DBL	DBL
Cyl Disp, CFM	719.3	719.3	213.4	213.4
Pres Suct Intl, psig	92.63	92.63	363.98	363.98
Temp Suct Intl, °F	59	59	126	126
Suct Zsph	0.9835	0.9835	0.9642	0.9642
Pres Disch Intl, psig	421.39	421.39	1294.94	1294.94
Temp Disch Intl, °F	252	252	313	313
HE Suct Gas Vel, FPM	8572	8572	9654	9654
HE Disch Gas Vel, FPM	7521	7521	9155	9155
HE Spcrrs Used/Max	0/2	0/2	0/2	0/2
HE Vol Pkt Avail, %	0.94+44.55	0.94+44.55	0.43+44.43	0.43+44.43
Vol Pkt Used, %	0.00 (V)	0.00 (V)	40.00 (V)	40.00 (V)
HE Min Clr, %	17.08	17.08	11.41	11.41
HE Total Clr, %	18.02	18.02	29.61	29.61
CE Suct Gas Vel, FPM	8313	8313	8704	8704
CE Disch Gas Vel, FPM	7294	7294	8254	8254
CE Spcrrs Used/Max	0/2	0/2	0/2	0/2
CE Min Clr, %	17.90	17.90	13.00	13.00
CE Total Clr, %	17.90	17.90	13.00	13.00
Suct Vol Eff HE/CE, %	61.9/62.1	61.9/62.1	54.4/76.1	54.4/76.1
Disch Event HE/CE, ms	6.5/7.5	6.5/7.5	6.7/9.1	6.7/9.1
Suct Pseudo-Q HE/CE	5.5/5.1	5.5/5.1	7.9/6.4	7.9/6.4
Gas Rod Ld Comp, lbf	34483 C	34483 C	31039 C	31039 C
Gas Rod Ld Tens, lbf	32782 T	32782 T	25501 T	25501 T
Gas Rod Ld Total, lbf	67265	67265	56540	56540
Xhd Pin Deg/%RvrsI lbf	167/90.5	167/90.5	160/86.3	160/86.3
Flow Calc, MMSCFD	5.040	5.040	5.040	5.040
Cyl HP	384.9	384.9	369.6	369.6



Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

### Gas Analysis Data

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



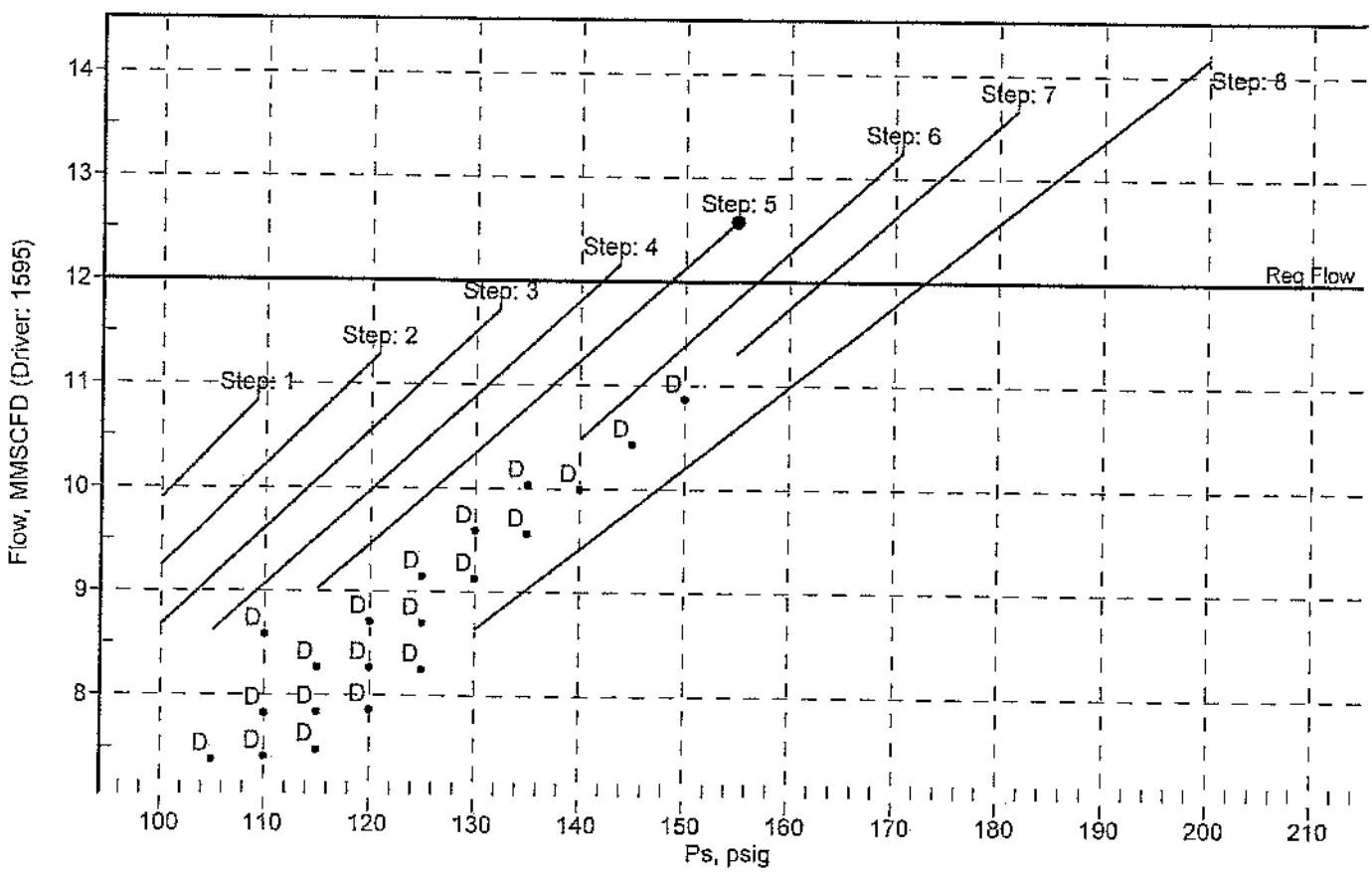
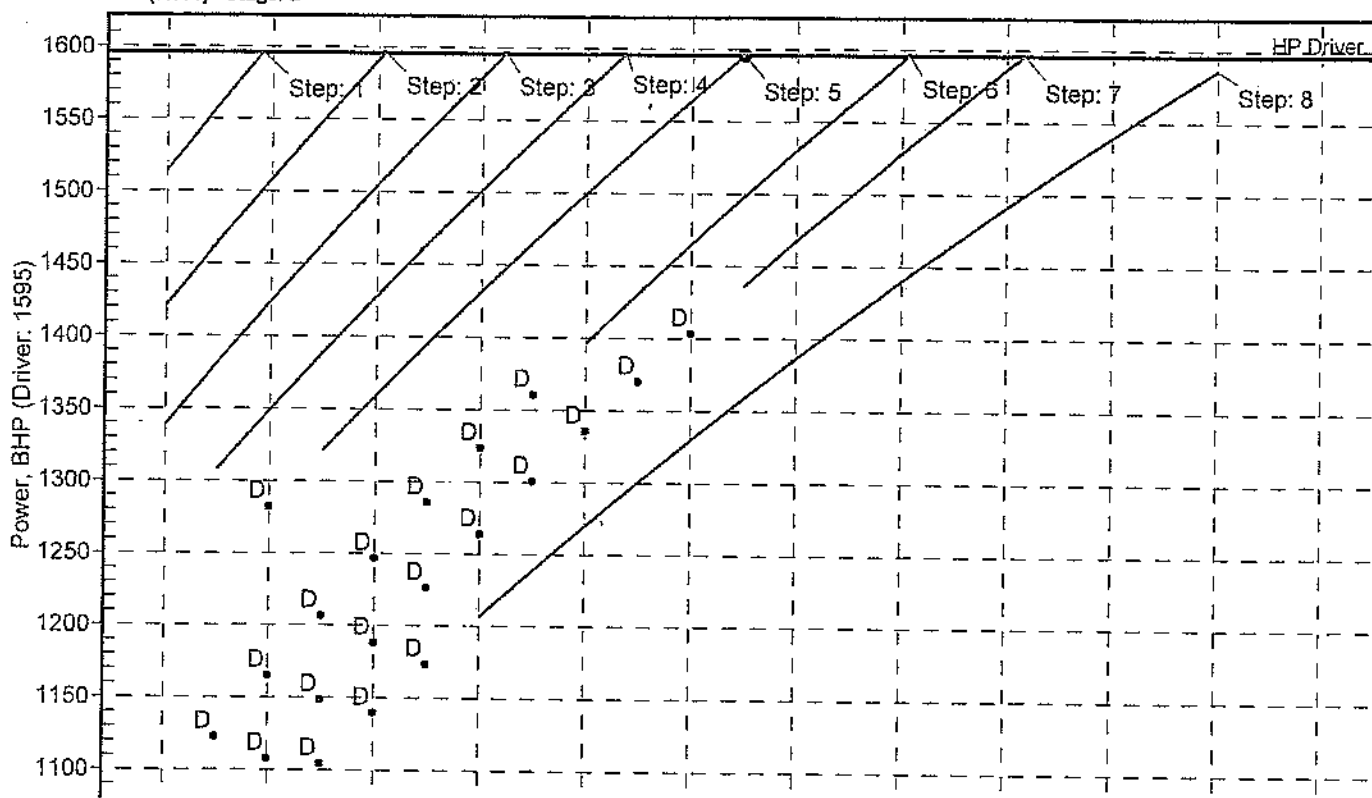
Services	Gathering		
	Gas Model	Hall	
Stage	# 1	# 2	Final
Stream	Vapor	Vapor	Vapor
Suction Press, psig	140.000	411.790	
Disch Press, psig	419.472	960.000	960.000
Suction Temp, °F	50.000	120.000	106.000
Disch Temp, °F	213.360	268.051	106.000
Flow, MMSCFD	13.630	13.630	13.630
Flow, lb/h	25412.5	25412.5	25412.5
Flow, GPM			
Dropout, %			
Specific Gravity	0.5863	0.5863	0.5863
Ratio of Sp Ht (N)	1.2950	1.2911	
Comp Suct (Zs)	0.9763	0.9608	0.9102
Comp Disch (Zd)	0.9748	0.9667	
Mole Weight	16.98	16.98	16.98
Density, lb/ft <sup>3</sup>	0.480	1.196	2.991
Density @ Std, lb/ft <sup>3</sup>	0.045	0.045	0.045
Speed of Sound, ft/s	N/A	N/A	N/A
Pseudo-Pc, psig	N/A	N/A	N/A
Pseudo-Tc, °F	N/A	N/A	N/A
Cp, BTU/lb·°F	N/A	N/A	N/A
Viscosity, lb/ft·s	N/A	N/A	N/A
Thermal Cond., btu/ft·h·°F	N/A	N/A	N/A
Heat Load, BTU/h	N/A	N/A	N/A
Humidity	100.00		
METHANE	95.04923	95.04923	95.04923
ETHANE	1.59814	1.59814	1.59814
PROPANE	0.82903	0.82903	0.82903
ISOBUTANE	0.13984	0.13984	0.13984
N-BUTANE	0.21974	0.21974	0.21974
ISOPENTANE	0.05993	0.05993	0.05993
N-PENTANE	0.04994	0.04994	0.04994
N-HEXANE	0.01998	0.01998	0.01998
N-HEPTANE	0.02997	0.02997	0.02997
CARBON DIOXIDE	0.07991	0.07991	0.07991
HYDROGEN SULFIDE			
NITROGEN	1.75795	1.75795	1.75795
WATER	0.11627	0.11627	0.11627
HELIUM	0.04994	0.04994	0.04994

# CBM - McKee Lake

RPM: 1350.0, Pd, psig: 1200.00

Ariel 7.4.3.2 MRV 1.3.6a  
050769 pd1200.run  
050769 pd1200.csv

Driver: Caterpillar Model: G3520B  
 Frame: JGT/4MMSCFD at 14.70 psia, 60.0 °F  
 Thw2: 11-1/2ET (11.500) Stage: 1, Service: Gathering, SG: 0.5863, Suct Temp (°F): 50  
 w4: 11-1/2ET (11.500) Stage: 1  
 w1: 6-3/8ET (6.375) Stage: 2  
 Thw3: 6-3/8ET (6.375) Stage: 2







Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

### Load Steps

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



Stp	Thr	Model	Action	VVCP %	HE/CE Spcrs	Desc
0	1	6-3/8ET	DBL	0.00	0/0	Step Description
0	2	11-1/2ET	DBL	0.00	0/0	
0	3	6-3/8ET	DBL	0.00	0/0	
0	4	11-1/2ET	DBL	0.00	0/0	
1	1	6-3/8ET	DBL	0.00	0/0	Step Description
1	2	11-1/2ET	DBL	20.00	0/0	
1	3	6-3/8ET	DBL	0.00	0/0	
1	4	11-1/2ET	DBL	20.00	0/0	
2	1	6-3/8ET	DBL	0.00	0/0	Step Description
2	2	11-1/2ET	DBL	40.00	0/0	
2	3	6-3/8ET	DBL	0.00	0/0	
2	4	11-1/2ET	DBL	40.00	0/0	
3	1	6-3/8ET	DBL	0.00	0/0	Step Description
3	2	11-1/2ET	DBL	60.00	0/0	
3	3	6-3/8ET	DBL	0.00	0/0	
3	4	11-1/2ET	DBL	60.00	0/0	
4	1	6-3/8ET	DBL	0.00	0/0	Step Description
4	2	11-1/2ET	DBL	80.00	0/0	
4	3	6-3/8ET	DBL	0.00	0/0	
4	4	11-1/2ET	DBL	80.00	0/0	
5	1	6-3/8ET	DBL	0.00	0/0	Step Description
5	2	11-1/2ET	DBL	100.00	0/0	
5	3	6-3/8ET	DBL	0.00	0/0	
5	4	11-1/2ET	DBL	100.00	0/0	
6	1	6-3/8ET	DBL	25.00	0/0	Step Description
6	2	11-1/2ET	DBL	100.00	0/1	
6	3	6-3/8ET	DBL	25.00	0/0	
6	4	11-1/2ET	DBL	100.00	0/1	
7	1	6-3/8ET	DBL	25.00	0/0	Step Description
7	2	11-1/2ET	DBL	100.00	2/2	
7	3	6-3/8ET	DBL	25.00	0/0	
7	4	11-1/2ET	DBL	100.00	2/2	
8	1	6-3/8ET	DBL	25.00	0/0	Step Description
8	2	11-1/2ET	CE(HEVR)	0.00	0/0	
8	3	6-3/8ET	DBL	25.00	0/0	
8	4	11-1/2ET	DBL	100.00	2/2	

# CBM - McKee Lake

RPM: 1350.0, Pd, psig: 1100.00

Ariel 7.4.3.2 MRV 1.3.6a

050769 pd1100.run

050769 pd1100.csv

Driver: Caterpillar Model: G3520B

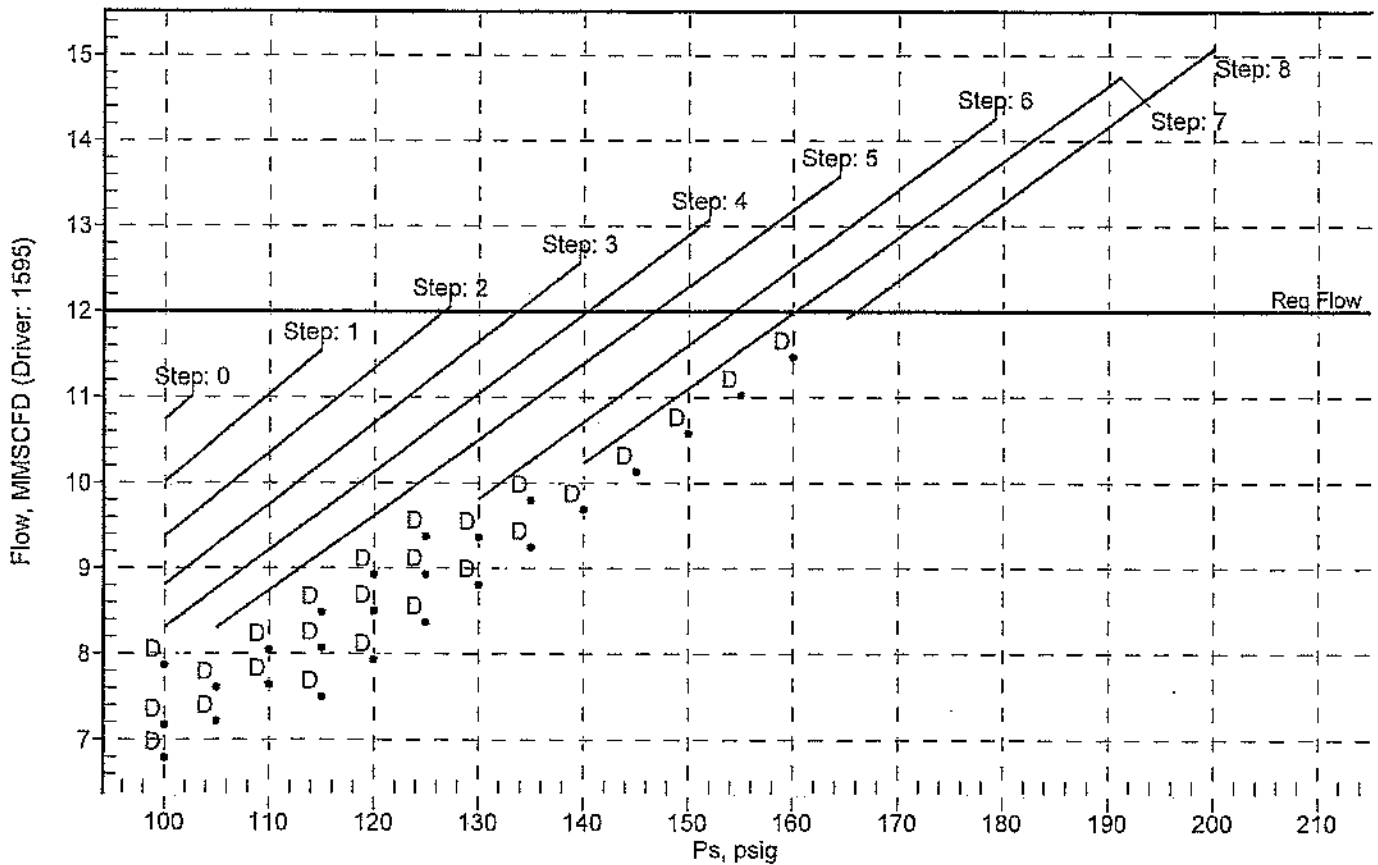
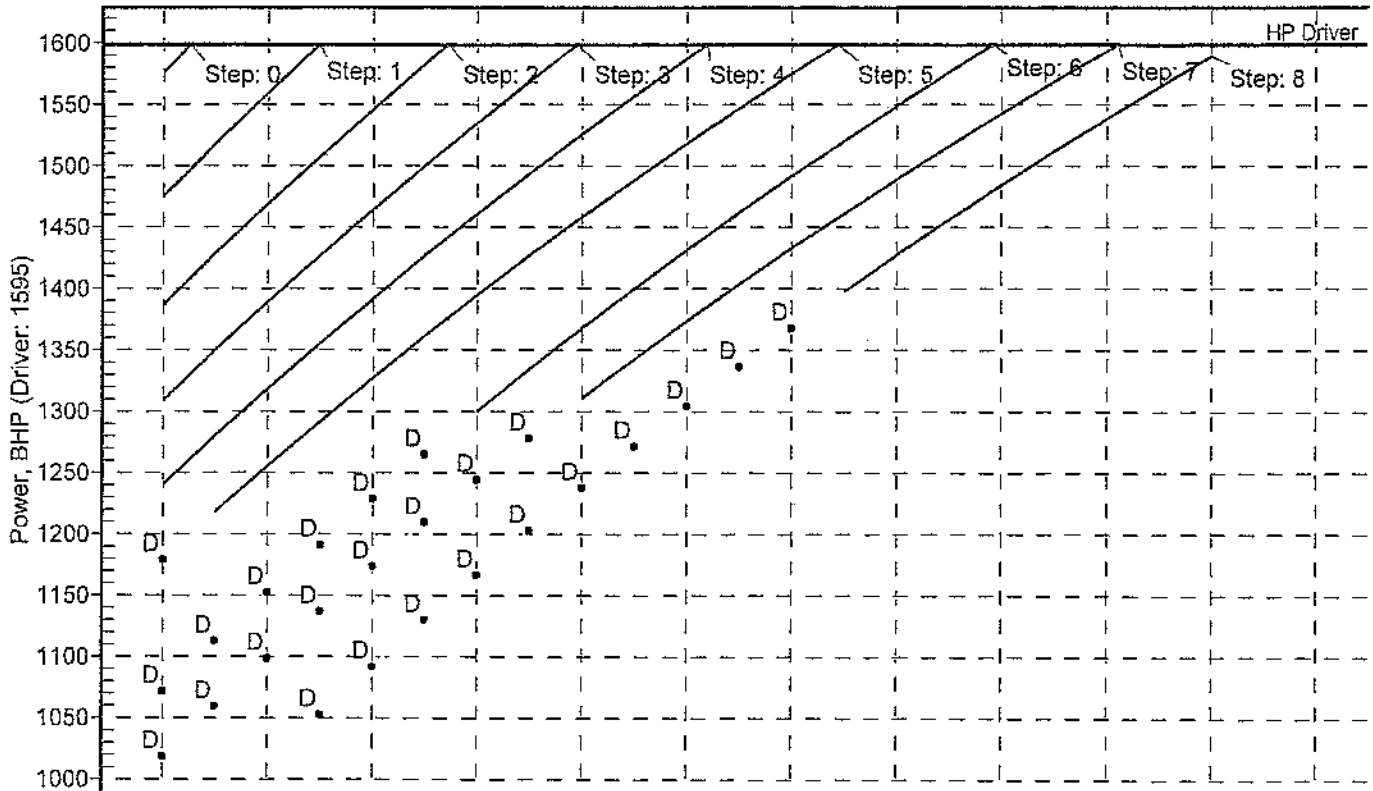
Frame: JGT/4MMSCFD at 14.70 psia, 60.0 °F

w2: 11-1/2ET (11.500) Stage: 1, Service: Gathering, SG: 0.5863, Suct Temp (°F): 50

w4: 11-1/2ET (11.500) Stage: 1

w1: 6-3/8ET (6.375) Stage: 2

Thw3: 6-3/8ET (6.375) Stage: 2





Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

### Load Steps

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



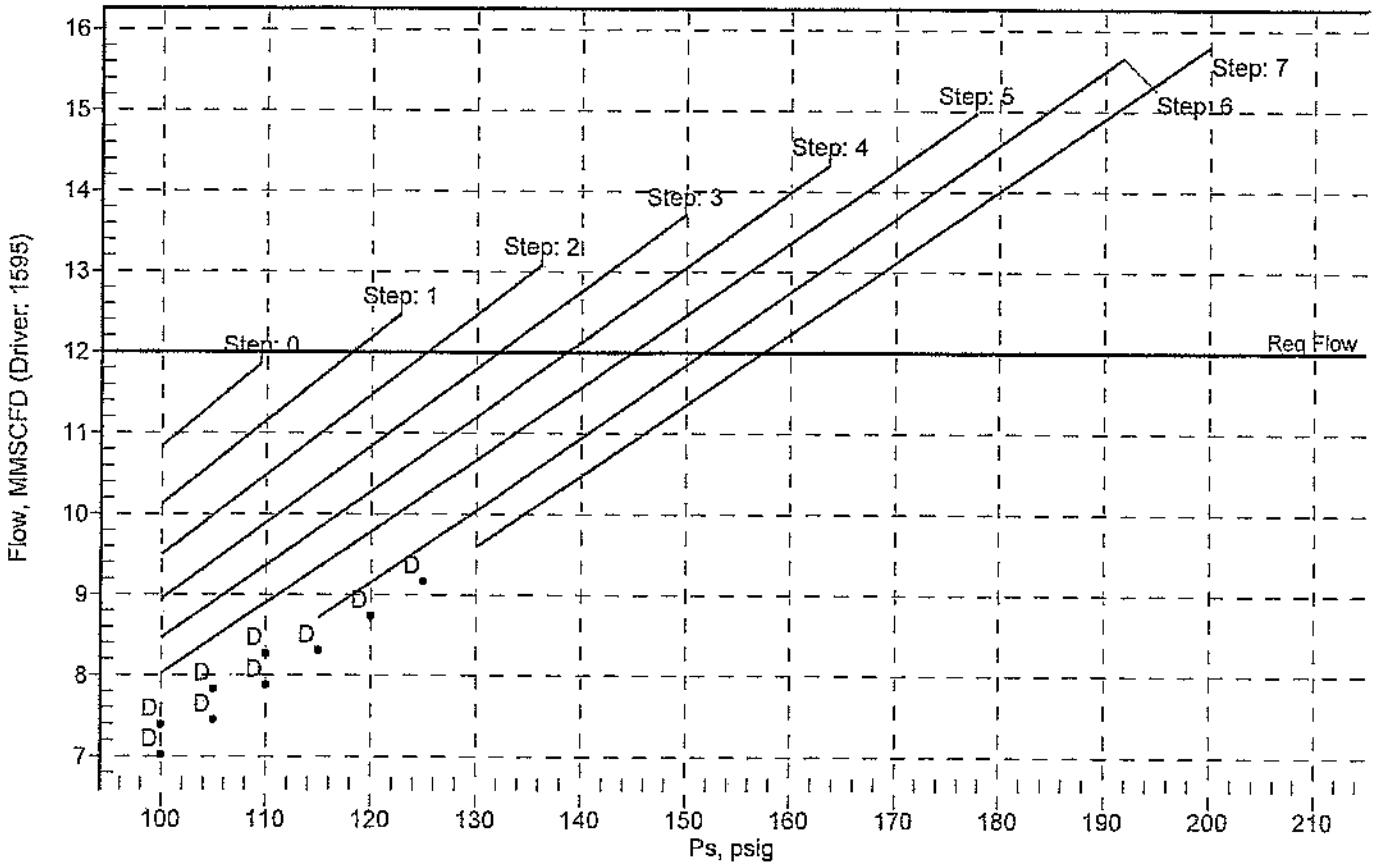
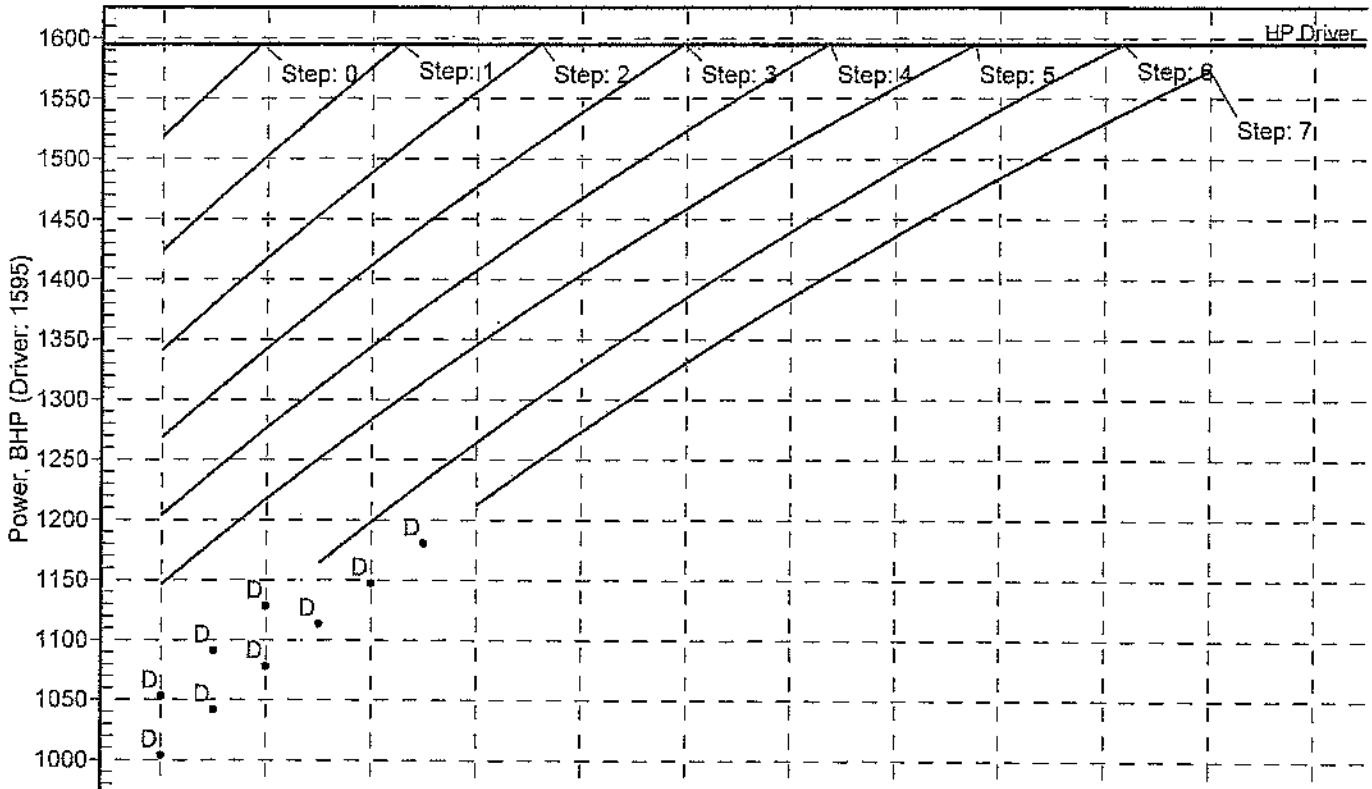
Stp	Thr	Model	Action	VVCP %	HE/CE Spcrs	Desc
0	1	6-3/8ET	DBL	0.00	0/0	Step Description
0	2	11-1/2ET	DBL	0.00	0/0	
0	3	6-3/8ET	DBL	0.00	0/0	
0	4	11-1/2ET	DBL	0.00	0/0	
1	1	6-3/8ET	DBL	0.00	0/0	Step Description
1	2	11-1/2ET	DBL	20.00	0/0	
1	3	6-3/8ET	DBL	0.00	0/0	
1	4	11-1/2ET	DBL	20.00	0/0	
2	1	6-3/8ET	DBL	0.00	0/0	Step Description
2	2	11-1/2ET	DBL	40.00	0/0	
2	3	6-3/8ET	DBL	0.00	0/0	
2	4	11-1/2ET	DBL	40.00	0/0	
3	1	6-3/8ET	DBL	0.00	0/0	Step Description
3	2	11-1/2ET	DBL	60.00	0/0	
3	3	6-3/8ET	DBL	0.00	0/0	
3	4	11-1/2ET	DBL	60.00	0/0	
4	1	6-3/8ET	DBL	0.00	0/0	Step Description
4	2	11-1/2ET	DBL	80.00	0/0	
4	3	6-3/8ET	DBL	0.00	0/0	
4	4	11-1/2ET	DBL	80.00	0/0	
5	1	6-3/8ET	DBL	0.00	0/0	Step Description
5	2	11-1/2ET	DBL	100.00	0/0	
5	3	6-3/8ET	DBL	0.00	0/0	
5	4	11-1/2ET	DBL	100.00	0/0	
6	1	6-3/8ET	DBL	25.00	0/0	Step Description
6	2	11-1/2ET	DBL	100.00	0/1	
6	3	6-3/8ET	DBL	25.00	0/0	
6	4	11-1/2ET	DBL	100.00	0/1	
7	1	6-3/8ET	DBL	25.00	0/0	Step Description
7	2	11-1/2ET	DBL	100.00	2/2	
7	3	6-3/8ET	DBL	25.00	0/0	
7	4	11-1/2ET	DBL	100.00	2/2	
8	1	6-3/8ET	DBL	50.00	0/0	Step Description
8	2	11-1/2ET	DBL	100.00	2/2	
8	3	6-3/8ET	DBL	50.00	0/0	
8	4	11-1/2ET	DBL	100.00	2/2	

# CBM - McKee Lake

RPM: 1350.0, Pd, psig: 1000.00

Ariel 7.4.3.2 MRV 1.3.6a  
050769 pd1000.run  
050769 pd1000.csv

Driver: Caterpillar Model: G3520B  
 Frame: JGT/4MMSCFD at 14.70 psia, 60.0 °F  
 w2: 11-1/2ET (11.500) Stage: 1, Service: Gathering, SG: 0.5863, Suct Temp (°F): 50  
 v4: 11-1/2ET (11.500) Stage: 1  
 w1: 6-3/8ET (6.375) Stage: 2  
 Thw3: 6-3/8ET (6.375) Stage: 2





Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

### Load Steps

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



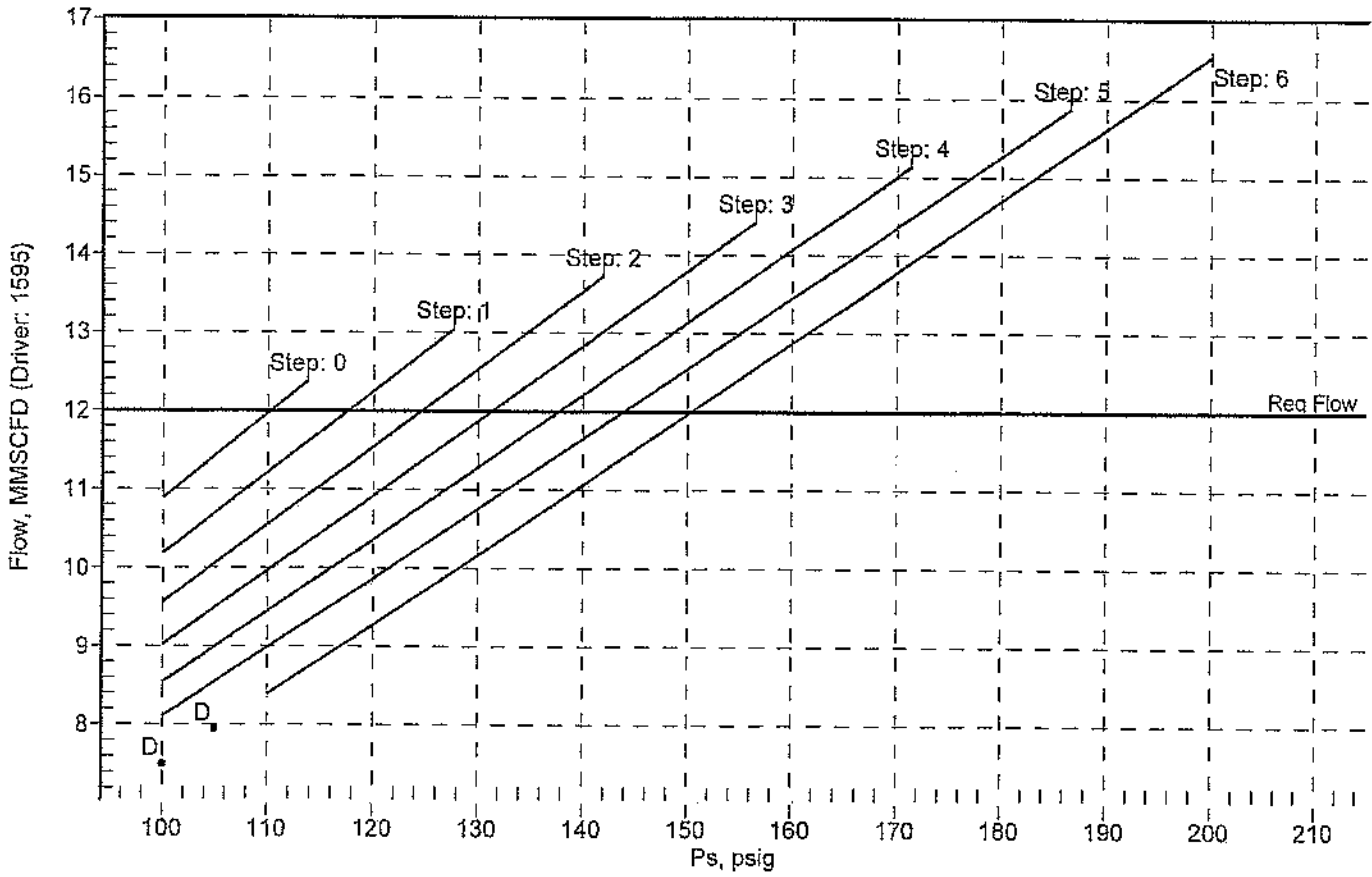
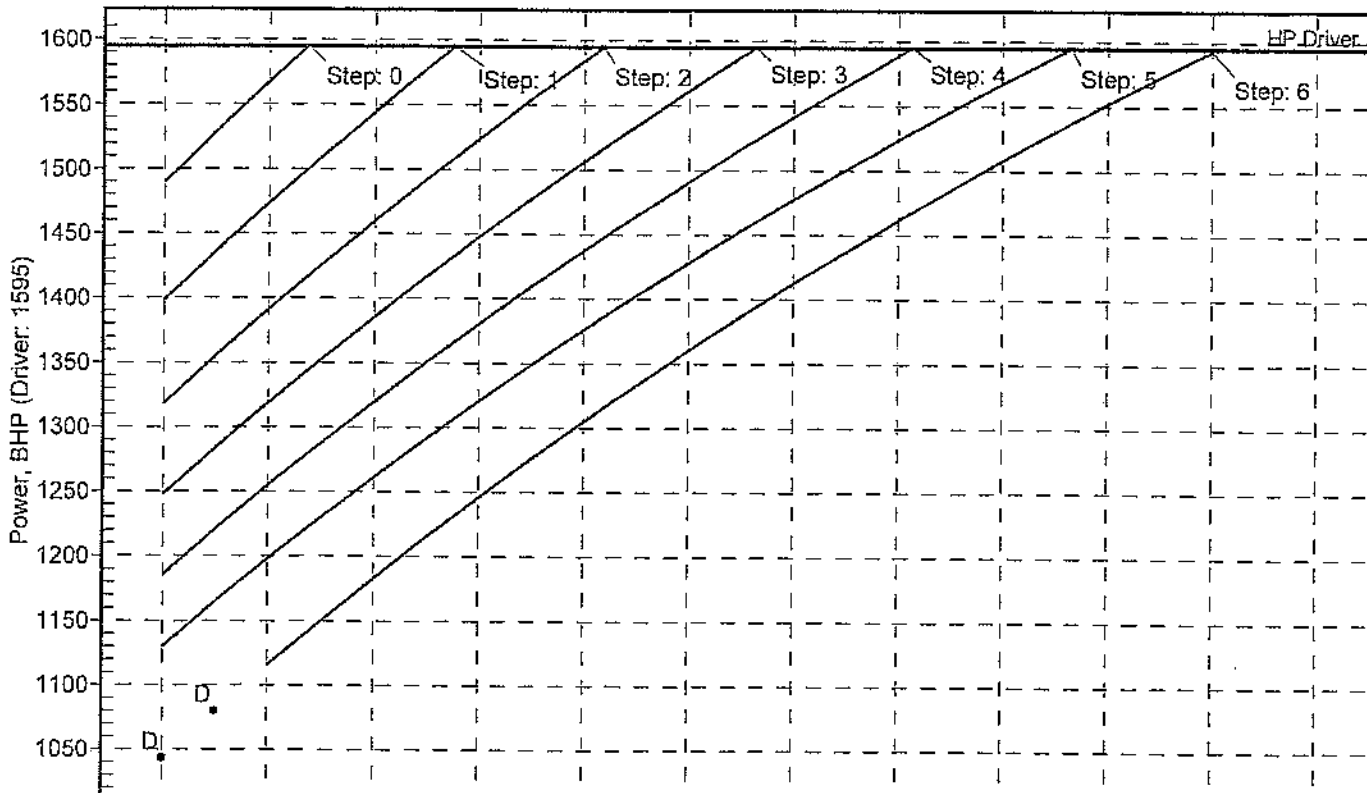
Stp	Thr	Model	Action	VVCP %	HE/CE Spcrrs	Desc
0	1	6-3/8ET	DBL	0.00	0/0	Step Description
0	2	11-1/2ET	DBL	0.00	0/0	
0	3	6-3/8ET	DBL	0.00	0/0	
0	4	11-1/2ET	DBL	0.00	0/0	
1	1	6-3/8ET	DBL	0.00	0/0	Step Description
1	2	11-1/2ET	DBL	20.00	0/0	
1	3	6-3/8ET	DBL	0.00	0/0	
1	4	11-1/2ET	DBL	20.00	0/0	
2	1	6-3/8ET	DBL	0.00	0/0	Step Description
2	2	11-1/2ET	DBL	40.00	0/0	
2	3	6-3/8ET	DBL	0.00	0/0	
2	4	11-1/2ET	DBL	40.00	0/0	
3	1	6-3/8ET	DBL	0.00	0/0	Step Description
3	2	11-1/2ET	DBL	60.00	0/0	
3	3	6-3/8ET	DBL	0.00	0/0	
3	4	11-1/2ET	DBL	60.00	0/0	
4	1	6-3/8ET	DBL	0.00	0/0	Step Description
4	2	11-1/2ET	DBL	80.00	0/0	
4	3	6-3/8ET	DBL	0.00	0/0	
4	4	11-1/2ET	DBL	80.00	0/0	
5	1	6-3/8ET	DBL	0.00	0/0	Step Description
5	2	11-1/2ET	DBL	100.00	0/0	
5	3	6-3/8ET	DBL	0.00	0/0	
5	4	11-1/2ET	DBL	100.00	0/0	
6	1	6-3/8ET	DBL	25.00	0/0	Step Description
6	2	11-1/2ET	DBL	100.00	0/1	
6	3	6-3/8ET	DBL	25.00	0/0	
6	4	11-1/2ET	DBL	100.00	0/1	
7	1	6-3/8ET	DBL	25.00	0/0	Step Description
7	2	11-1/2ET	DBL	100.00	2/2	
7	3	6-3/8ET	DBL	25.00	0/0	
7	4	11-1/2ET	DBL	100.00	2/2	

# CBM - McKee Lake

RPM: 1350.0, Pd, psig: 950.00

Ariel 7.4.3.2 MRV 1.3.6a  
050769 pd950.run  
050769 pd950.csv

Driver: Caterpillar Model: G3520B  
 Frame: JGT/4MMSCFD at 14.70 psia, 60.0 °F  
 w2: 11-1/2ET (11.500) Stage: 1, Service: Gathering, SG: 0.5863, Suct Temp (°F): 50  
 w4: 11-1/2ET (11.500) Stage: 1  
 w1: 6-3/8ET (6.375) Stage: 2  
 Thw3: 6-3/8ET (6.375) Stage: 2





Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

### Load Steps

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



Stp	Thr	Model	Action	VVCP %	HE/CE Spcrs	Desc
0	1	6-3/8ET	DBL	0.00	0/0	Step Description
0	2	11-1/2ET	DBL	0.00	0/0	
0	3	6-3/8ET	DBL	0.00	0/0	
0	4	11-1/2ET	DBL	0.00	0/0	
1	1	6-3/8ET	DBL	0.00	0/0	Step Description
1	2	11-1/2ET	DBL	20.00	0/0	
1	3	6-3/8ET	DBL	0.00	0/0	
1	4	11-1/2ET	DBL	20.00	0/0	
2	1	6-3/8ET	DBL	0.00	0/0	Step Description
2	2	11-1/2ET	DBL	40.00	0/0	
2	3	6-3/8ET	DBL	0.00	0/0	
2	4	11-1/2ET	DBL	40.00	0/0	
3	1	6-3/8ET	DBL	0.00	0/0	Step Description
3	2	11-1/2ET	DBL	60.00	0/0	
3	3	6-3/8ET	DBL	0.00	0/0	
3	4	11-1/2ET	DBL	60.00	0/0	
4	1	6-3/8ET	DBL	0.00	0/0	Step Description
4	2	11-1/2ET	DBL	80.00	0/0	
4	3	6-3/8ET	DBL	0.00	0/0	
4	4	11-1/2ET	DBL	80.00	0/0	
5	1	6-3/8ET	DBL	0.00	0/0	Step Description
5	2	11-1/2ET	DBL	100.00	0/0	
5	3	6-3/8ET	DBL	0.00	0/0	
5	4	11-1/2ET	DBL	100.00	0/0	
6	1	6-3/8ET	DBL	25.00	0/0	Step Description
6	2	11-1/2ET	DBL	100.00	0/1	
6	3	6-3/8ET	DBL	25.00	0/0	
6	4	11-1/2ET	DBL	100.00	0/1	

# CBM - McKee Lake

RPM: 1350.0, Pd, psig: 900.00

Ariel 7.4.3.2 MRV 1.3.6a

050769 pd900.run

050769 pd900.csv

Driver: Caterpillar Model: G3520B

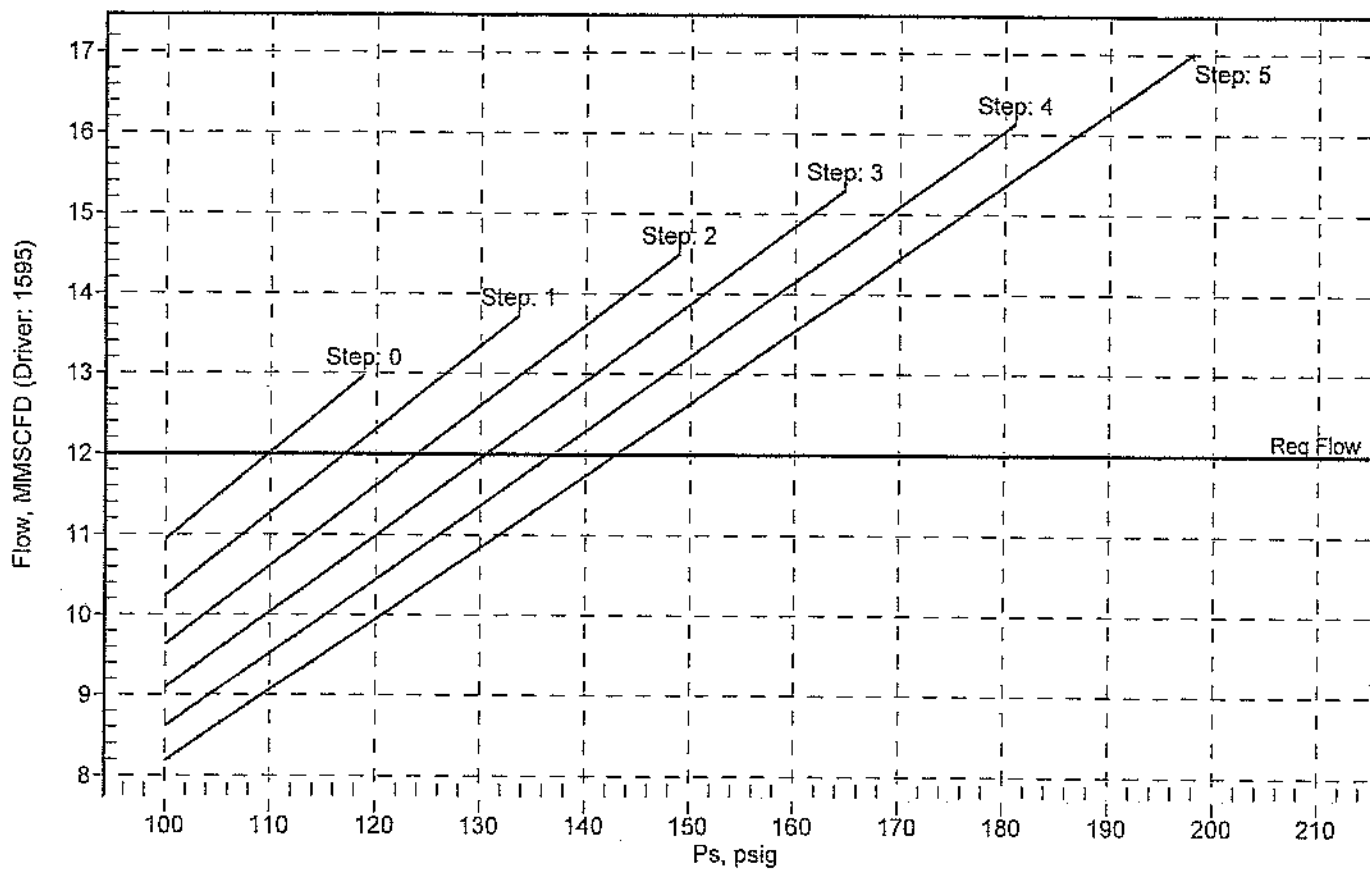
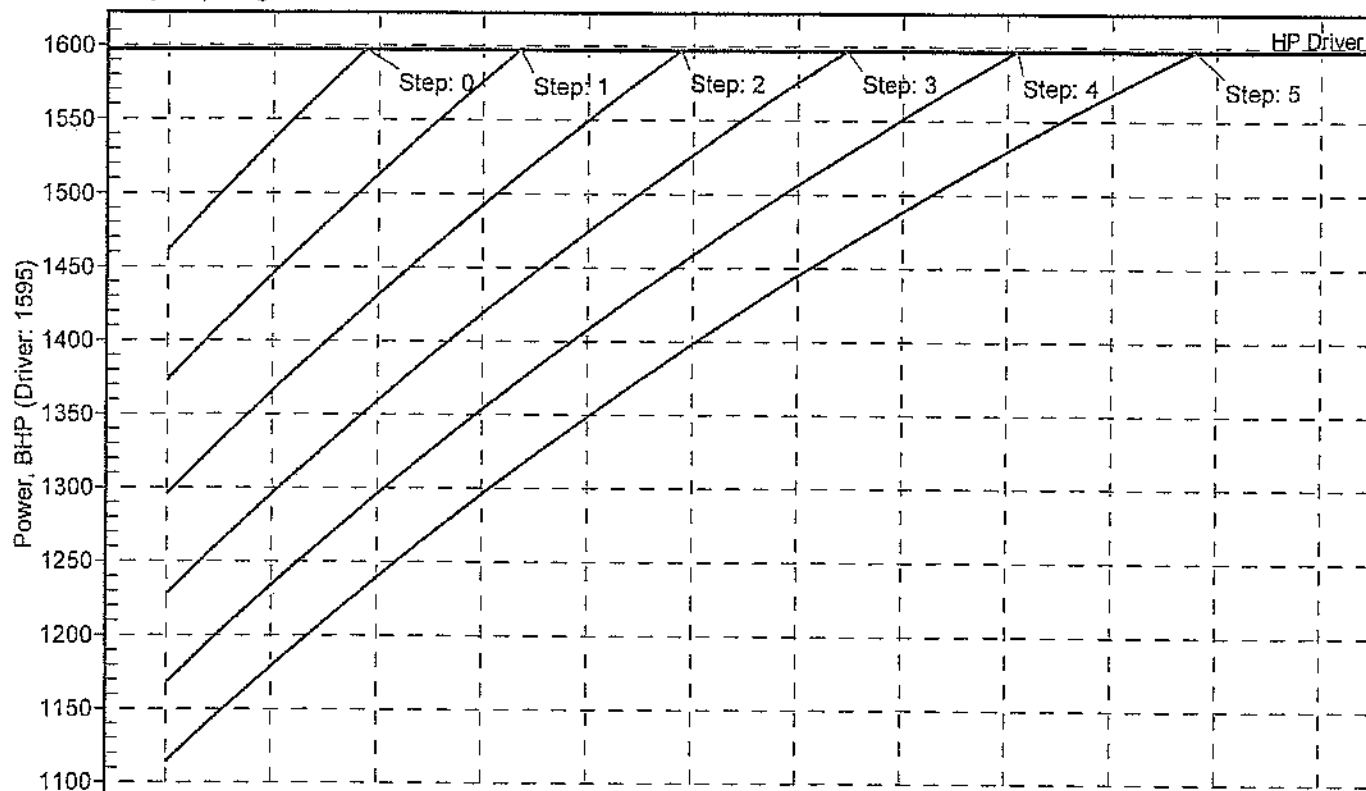
Frame: JGT/4MMSCFD at 14.70 psia, 60.0 °F

w2: 11-1/2ET (11.500) Stage: 1, Service: Gathering, SG: 0.5863, Suct Temp (°F): 50

v4: 11-1/2ET (11.500) Stage: 1

w1: 6-3/8ET (6.375) Stage: 2

Thw3: 6-3/8ET (6.375) Stage: 2







Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

**Load Steps**

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



Stp	Thr	Model	Action	WVCP %	Desc
0	1	6-3/8ET	DBL	0.00	Step Description
0	2	11-1/2ET	DBL	0.00	
0	3	6-3/8ET	DBL	0.00	
0	4	11-1/2ET	DBL	0.00	
1	1	6-3/8ET	DBL	0.00	Step Description
1	2	11-1/2ET	DBL	20.00	
1	3	6-3/8ET	DBL	0.00	
1	4	11-1/2ET	DBL	20.00	
2	1	6-3/8ET	DBL	0.00	Step Description
2	2	11-1/2ET	DBL	40.00	
2	3	6-3/8ET	DBL	0.00	
2	4	11-1/2ET	DBL	40.00	
3	1	6-3/8ET	DBL	0.00	Step Description
3	2	11-1/2ET	DBL	60.00	
3	3	6-3/8ET	DBL	0.00	
3	4	11-1/2ET	DBL	60.00	
4	1	6-3/8ET	DBL	0.00	Step Description
4	2	11-1/2ET	DBL	80.00	
4	3	6-3/8ET	DBL	0.00	
4	4	11-1/2ET	DBL	80.00	
5	1	6-3/8ET	DBL	0.00	Step Description
5	2	11-1/2ET	DBL	100.00	
5	3	6-3/8ET	DBL	0.00	
5	4	11-1/2ET	DBL	100.00	

# CBM - McKee Lake

RPM: 1350.0, Pd, psig: 800.00

Ariel 7.4.3.2 MRV 1.3.6a

050769 pd800.run

050769 pd800.csv

Driver: Caterpillar Model: G3520B

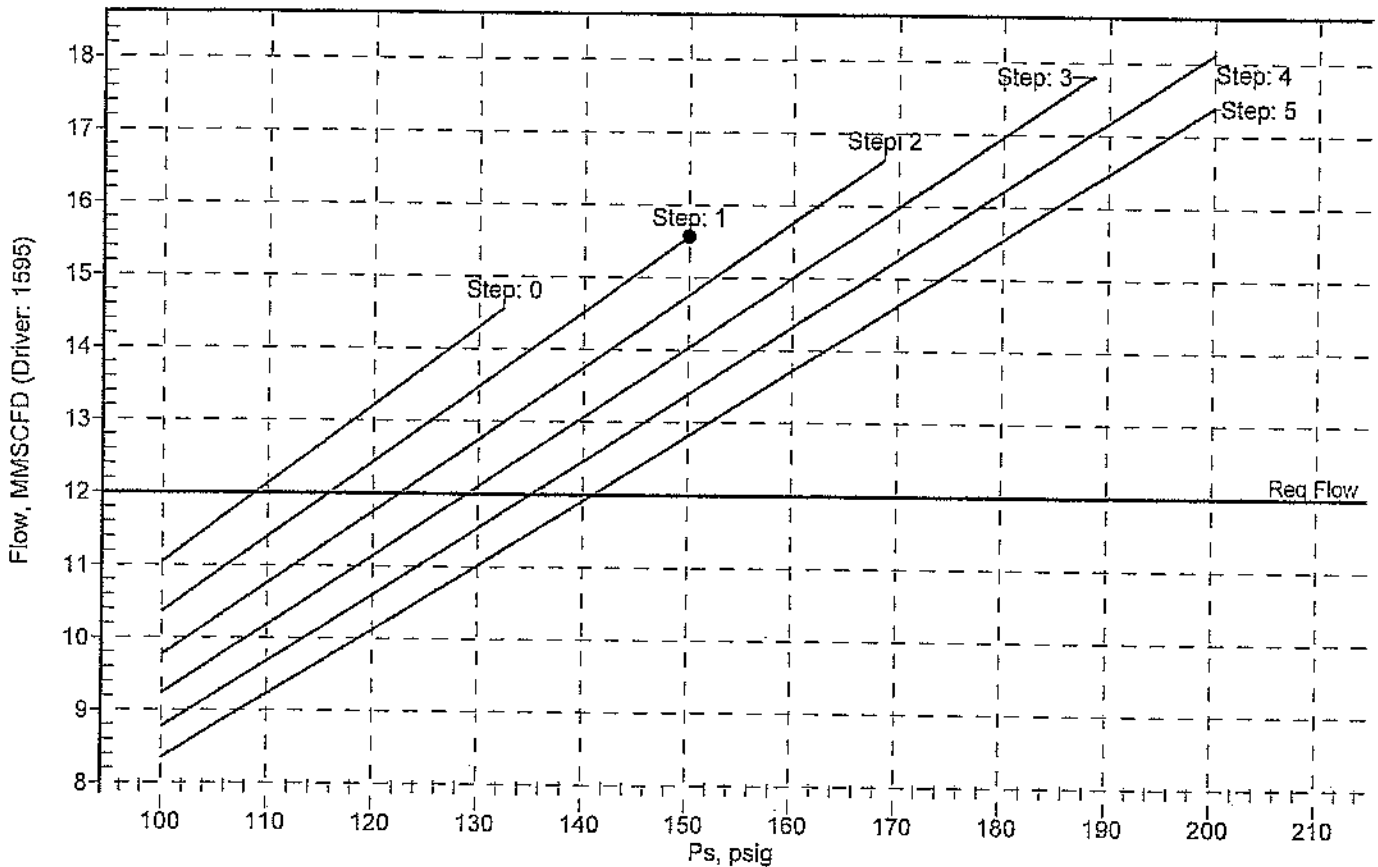
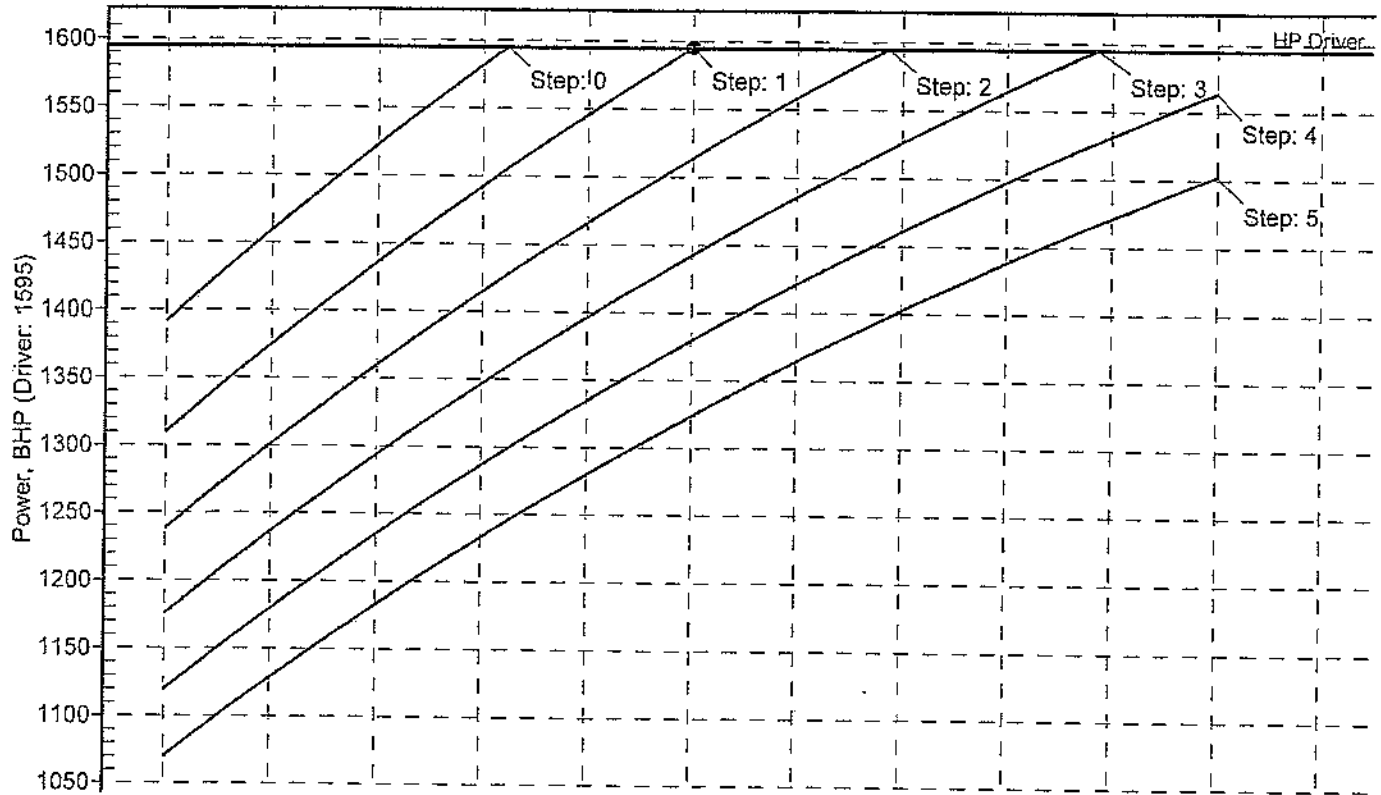
Frame: JGT/4MMSCFD at 14.70 psia, 60.0 °F

w2: 11-1/2ET (11.500) Stage: 1, Service: Gathering, SG: 0.5863, Suct Temp (°F): 50

w4: 11-1/2ET (11.500) Stage: 1

w1: 6-3/8ET (6.375) Stage: 2

Thw3: 6-3/8ET (6.375) Stage: 2





Company: Enerflex  
 Quote: Unit 050769  
 Remarks: LSD 1-13-32-19 W4M

### Load Steps

Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



Stp	Thr	Model	Action	VVCP %	Desc
0	1	6-3/8ET	DBL	0.00	Step Description
0	2	11-1/2ET	DBL	0.00	
0	3	6-3/8ET	DBL	0.00	
0	4	11-1/2ET	DBL	0.00	
1	1	6-3/8ET	DBL	0.00	Step Description
1	2	11-1/2ET	DBL	20.00	
1	3	6-3/8ET	DBL	0.00	
1	4	11-1/2ET	DBL	20.00	
2	1	6-3/8ET	DBL	0.00	Step Description
2	2	11-1/2ET	DBL	40.00	
2	3	6-3/8ET	DBL	0.00	
2	4	11-1/2ET	DBL	40.00	
3	1	6-3/8ET	DBL	0.00	Step Description
3	2	11-1/2ET	DBL	60.00	
3	3	6-3/8ET	DBL	0.00	
3	4	11-1/2ET	DBL	60.00	
4	1	6-3/8ET	DBL	0.00	Step Description
4	2	11-1/2ET	DBL	80.00	
4	3	6-3/8ET	DBL	0.00	
4	4	11-1/2ET	DBL	80.00	
5	1	6-3/8ET	DBL	0.00	Step Description
5	2	11-1/2ET	DBL	100.00	
5	3	6-3/8ET	DBL	0.00	
5	4	11-1/2ET	DBL	100.00	



# Ariel Frame Data Sheet



Model: JGT/4

Stroke: 4.50 in

Class: (JGT)

### Frame:

Number of Throws: 4  
 Rated Power: 2600.00 BHP  
 Frame Friction Power: 20.00 BHP  
 Cyl Friction Factor: 0.95

### Weights:

Avg. Weight without Cylinders: 8500.00 lbs  
 Maximum Recip: 493.70 lbs  
 Maximum Imbalance: 2.50 lbs  
 Connecting Rod: 94.30 lbs  
 Pin Assembly: 31.65 lbs  
 Stub Shaft: 2.20 lbs

### Speed Ratings:

Rated Piston Speed @ 1500 RPM: 1125.00 FPM  
 Maximum Speed: 1500.00 RPM  
 Minimum Speed: 750.00 RPM  
 Minimum PRC Speed: 600.00 RPM  
 Maximum Non-Lube Speed: 1000.00 RPM  
 Maximum Process Speed: 1000.00 RPM

### Frame Dimensions:

Center Line Height: 17.00 in  
 Max. Overall Height: 29.00 in  
 Max. Width with Cylinders: 154.00 in  
 Length: 101.00 in

### Component Dimensions:

Piston Rod Diameter: 2.000 in  
 Connecting Rod Center Distance: 13.750 in  
 Crankshaft Pin Diameter: 5.625 in  
 Crankshaft Journal Diameter: 5.625 in  
 Main Bearing Length: 3.375 in

### Internal Gas Rod Loads:

Total: 74000 lbf  
 Compression: 40000 lbf  
 Tension: 37000 lbf  
 Single Acting Tension: 37000 lbf

### Lubrication:

Oil Pump Flow Rate: 32.0 GPM  
 Oil Sump Capacity: 37.0 gal  
 Oil Heat Rejection: 68000.0 BTU/h

### Material Specifications:

Crankcase:	Gray Iron	12G	(ASTM A278 Class 30)
Crosshead Guide:	Gray Iron	12G	(ASTM A278 Class 30)
Crankshaft:	Forged Carbon Steel	11N	(ASTM A668 Class DH)
Connecting Rod:	Forged Carbon Steel	11N	(AISI 1045)
Main Bearing:	Tri-metal		(Tri-metal)
Thrust Bearing:	Bronze	10B	(SAE 660)
Connecting Rod Bearing:	Tri-metal		(Tri-metal)
Crosshead:	Ductile Iron	16D	(ASTM A536 Grade 65-45-12)
Crosshead Pin:	Alloy Steel		(AISI 8620)
Crosshead Pin Bushing:	Bronze	10B	(SAE 660)
Stress Bolts, standard:	Grade 8		(Grade 8)

### Outline Drawings:

Duplex Oil Filter	A-4155
Frame Outline - Dry Sump	A-4194
Frame Feet Dimensions	A-12831
Notes/Options	A-4186s1
Notes/Options - Sheet 2	A-4186s2
Frame Outline - JGT with ET cylinders	A-4181s2
Frame Outline - JGT with T cylinders	A-4181s1
Crosshead Guide Connections - JGT with ET cylinders	A-4185s2
Crosshead Guide Connections - JGT with T cylinders	A-4185s1
Lube Oil Cooler	A-4154



# Ariel Cylinder Data Sheet



Model: 11-1/2ET

Bore: 11.500in

MAWP: 635.0 psig

Flange: 6"- 300 FF

Stroke: 4.50 in  
Maximum Speed: 1500 RPM

Cyl Assembly Wt: 1550.00 lbs  
Piston/Rod Std Wt: 120.10 lbs

### Pressure Ratings:

MAWP: 635.0 psig

RDP: 577.3 psig

HTP: 952.5 psig

### Piston and Velocity Data:

	HE	CE	
Piston Area, in <sup>2</sup>	103.87	100.73	
Piston Displacement at 1500 RPM, CFM	405.74	393.47	Total: 799.20
API Suct Valve Velocity at 1500 RPM, FPM	6980.44	6769.31	

### Cylinder ADJ Equivalent Area:

	HE	CE
Suction, in <sup>2</sup>	17.500	17.500
Discharge, in <sup>2</sup>	24.000	24.000

### Clearance:

Spacers (Maximum)	HE			CE		
	Suct: N/A in3	Disch: 2 %	% w/Vlv	Suct: N/A in3	Disch: 2 %	% w/Vlv
Spacer Clearance	12.380	2.649		12.380	2.731	
Normal Clearance	34.163	7.31	17.08	35.497	7.83	17.90
Non-Std Clearance	0.000	0.00		0.000	0.00	

Valve Data:	HE	Suction	CE	HE	Discharge	CE
Num valves/Corner:	2	2	2	2	2	2
Nominal Diameter, in:	5.98	5.98	5.98	5.98	5.98	5.98
Model:	137CT	137CT	137CT	137CT	137CT	137CT
Clearance, % (in3):	1.93 (9.040)	1.99 (9.040)	2.95 (13.790)	3.04 (13.790)		
Lift, in (Area, in <sup>2</sup> ):	0.094 (8.370)	0.094 (8.370)	0.094 (8.370)	0.094 (8.370)		
Adj Equivalent, in <sup>2</sup> :	8.602	8.602	8.602	8.602		
Plate Material:	Nylon	Nylon	Med temp nylon	Med temp nylon		
Seat/Guard Material:	AISI 4140	AISI 4140	AISI 4140	AISI 4140		
Spring Material(s):	17-7PH	17-7PH	17-7PH	17-7PH		
Bolt Material:	AISI 410	AISI 410	AISI 410	AISI 410		

### Variable Volume Clearance Pockets:

Selected	Minimum		Pocket		Total Turns	Total in	Total %	Chg per in. %	Chg per turn. %	Weight lbs
	in3	%	in3	%						
	4.40	0.94	208.22	44.55	23.50	2.94	45.49	15.5	1.9	242.00

### Fixed Volume Clearance Pockets:

Pocket 1		Pocket 2		Pocket 3	
Min	Pocket	Min	Pocket	Min	Pocket
in3	%	in3	%	in3	%
NO POCKETS					

### Material Specifications:

Body:	Ductile Iron	14D	(ASTM A395 Grade 60-40-18)
Piston:	Gray Iron	12G	(ASTM A278 Class 30)
Piston Rod:	Alloy Steel	13C	(AISI 4100 Series)
Piston Ring:	PPS Bearing Grade		(Polyphenylene Sulfide)
Piston Wear Band:	N/A		(N/A)
Rod Packing Case:	Gray Iron	12G	(ASTM A278 Class 30)
Rod Packing Rings:	CFTFE		(Carbon Filled Teflon)
Stress Bolt:	Grade 8		(Grade 8)

### Outline Drawings:

Cylinder Outline A-4175



# Ariel Cylinder Data Sheet



Model: 6-3/8ET

Bore: 6.375in

MAWP: 1650.0 psig

Flange: 4" - 900 FF

Stroke: 4.50 in  
Maximum Speed: 1500 RPM

Cyl Assembly Wt: 1120.00 lbs  
Piston/Rod Std Wt: 71.10 lbs

### Pressure Ratings:

MAWP: 1650.0 psig

RDP: 1500.0 psig

HTP: 2475.0 psig

### Piston and Velocity Data:

	<u>HE</u>	<u>CE</u>	
Piston Area, in2	31.92	28.78	
Piston Displacement at 1500 RPM, CFM	124.68	112.41	Total: 237.10
API Suct Valve Velocity at 1500 RPM, FPM	6724.52	6062.67	

### Cylinder ADJ Equivalent Area:

	<u>HE</u>	<u>CE</u>
Suction, in2	5.610	5.610
Discharge, in2	7.852	7.852

### Clearance:

	<u>HE</u>			<u>CE</u>		
Spacers (Maximum)	Suct: N/A	Disch: 2		Suct: N/A	Disch: 2	
	in3	%	% w/Vlv	in3	%	% w/Vlv
Spacer Clearance	6.492	4.520		6.492	5.013	
Normal Clearance	10.753	7.49	11.41	11.205	8.65	13.00
Non-Std Clearance	0.000	0.00		0.000	0.00	

Valve Data:	HE		Suction	CE	HE		Discharge	CE
Num valves/Corner:	2		2		2		2	
Nominal Diameter, in:	3.20		3.20		3.20		3.20	
Model:	70CRO		70CRO		70CRO		70CRO	
Clearance, % (in3):	0.86 (1.230)		0.95 (1.230)		1.10 (1.586)		1.22 (1.586)	
Lift, in (Area, in2):	0.079 (2.670)		0.079 (2.670)		0.063 (2.124)		0.063 (2.124)	
Adj Equivalent, in2:	2.086		2.086		1.976		1.976	
Plate Material:	Nylon		Nylon		Med temp nylon		Med temp nylon	
Seat/Guard Material:	AISI 416		AISI 416		AISI 416		AISI 416	
Spring Material(s):	17-7PH		17-7PH		17-7PH		17-7PH	
Bolt Material:	AISI 410		AISI 410		AISI 410		AISI 410	

### Variable Volume Clearance Pockets:

	----- Minimum -----		----- Pocket -----		Total	Total	Total	Chg per	Chg per	Weight
	in3	%	in3	%	Turns	in	%	in, %	turn, %	lbs
Selected	0.62	0.43	63.81	44.43	26.00	3.25	44.86	13.8	1.7	140.00

### Fixed Volume Clearance Pockets:

	----- Pocket 1 -----				----- Pocket 2 -----				----- Pocket 3 -----			
	----- Min -----		----- Pocket -----		----- Min -----		----- Pocket -----		----- Min -----		----- Pocket -----	
	in3	%	in3	%	in3	%	in3	%	in3	%	in3	%
	3.70	2.58	64.00	44.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### Material Specifications:

Body:	Ductile Iron	14D	(ASTM A395 Grade 60-40-18)
Piston:	Gray Iron	12G	(ASTM A278 Class 30)
Piston Rod:	Alloy Steel	13C	(AISI 4100 Series)
Piston Ring:	PPS Bearing Grade		(Polyphenylene Sulfide)
Piston Wear Band:	N/A		(N/A)
Rod Packing Case:	Gray Iron	12G	(ASTM A278 Class 30)
Rod Packing Rings:	CFTFE		(Carbon Filled Teflon)
Stress Bolt:	Grade 8		(Grade 8)

### Outline Drawings:

Cylinder Outline A-4175



Company: Enerflex  
 Quote: Unit 050769  
 7.4.3.2 Remarks: LSD 1-13-32-19 W4M

### Configuration

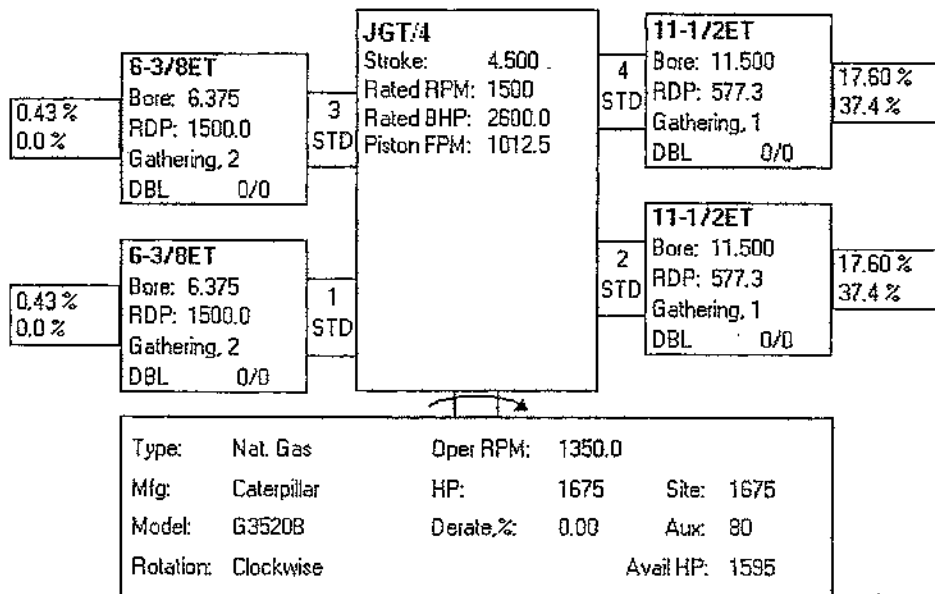
Customer: Husky Oil  
 Inquiry:  
 Project: CBM - McKee Lake



Elevation,ft: 2952.8                      Barmtr,psia: 13.176                      Ambient,°F: 95.00

Service: Gathering  
 Flow,MMSCFD: 12.000  
 Ps Line, psig: 140.00  
 Ps Loss, psi: 0.00  
 Suct Temp, °F: 50.00  
 Pd Line, psig: 950.00  
 Gas Model: Hall  
 Gas Analysis: Yes  
 Specific Gravity: 0.5863  
 Remove Water: Yes  
 Calc Press Loss: Yes  
 Enter Oper Params: No

Stage:	1	2
Enabled:	Yes	Yes
Press Loss, psi:	7.68	10.00
Cooler Temp, °F:	120.00	106.00
Calc N&Z:	Yes	Yes
N:	1.2964	1.2876
Zs:	0.9763	0.9647
Zd:	0.9746	0.9712
Side,MMSCFD:	N/A	N/A
Side,°F:	N/A	N/A
Side, SG:	N/A	N/A
Condensate,%:	N/A	N/A
Enter Gas:	No	No





### Weights & Couples Data

Company: Enerflex  
Quote: Unit 050769

Customer: Husky Oil  
Inquiry:



7.4.3.2 Remarks: LSD 1-13-32-19 W4M

Project: CBM - McKee Lake

Frame: JGT/4                      Stroke,in: 4.50                      Connecting Rod Length, in: 13.75  
Unit Weight: 14604.00 lbs                      Max Recip Weight (lbs) at 1350.0 RPM: 609.51

#### Install Weights:

Throw	Cyl Model	Bore in	C-Rod lbs	Piston + Rod	X-Head Part #	X-Head lbs		Bal Nut Part #	Bal Nut lbs		Recip Weight	Imb
1	6-3/8ET	6.375	94.3	71.1	D-0869	106.8	S	B-0786	29.9	S	302.1	
2	11-1/2ET	11.500	94.3	120.1	D-0868	76.1	S	B-0781	10.1	S	300.6	1.5
3	6-3/8ET	6.375	94.3	71.1	D-0869	106.8	S	B-0786	29.9	S	302.1	
4	11-1/2ET	11.500	94.3	120.1	D-0868	76.1	S	B-0781	10.1	S	300.6	1.5

#### LEGEND:

Imb - Opposing Throws are NOT Balanced

Recip Weight - Can't exceed max recip weight @ rated speed.

#### X-Head and Nut Part Legend:

A - Part is from Available Parts List

NS - Non-Standard Part

SP - Non-Standard Part: Guide (JG:A) or crankshaft (M:N:P:Q) must be removed to install.

S - Standard Part

B is in front of any above if Balancing X-Head

Legend - Manual Part Selection

#### UNBALANCED FORCES & COUPLES

Horizontal	Primary	Secondary
Force, KIP at Max Imb: 2.50 lbs	0.412	0.095
Force, KIP (actual weights)	0.247	0.000
Couple, KIP-ft	9.673	0.100
Vertical	Primary	
Force, KIP	0.000	
Couple, KIP-ft	16.814	

#### CROSSHEAD GUIDE DEFLECTION

Throw	Guide Type	Cyl Wt lbs	Pkt Wt lbs	Other Wt lbs	Total Wt lbs	Deflection in
1	STD	1120.00	140.00	0.00	1260.00	0.005
2	STD	1550.00	242.00	0.00	1792.00	0.007
3	STD	1120.00	140.00	0.00	1260.00	0.005
4	STD	1550.00	242.00	0.00	1792.00	0.007

IMPORTANT NOTE: Crosshead top and bottom clearance and Piston Rod Run-out should be measures after shimming.