

HALLIBURTON DATA LOG

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COMPUFAC Ver. 1.54 4/02/91

Customer:	<u>BLACKWOOD NICHOLS</u>	Ticket Number:	<u>077151</u>
Contractor:	<u>NONE</u>	Permit Number:	<u> </u>
Lease:	<u>PUMP MESA SWD</u>	Well #:	<u>1</u>
Location:	<u>NAVAJO DAM</u>	Sec.:	<u>36</u>
Field:	<u>NAVAJO LAKE</u>	Twp.:	<u>31 N</u>
Country:	<u>USA</u>	Rng.:	<u>6 W</u>
County:	<u>SAN JUAN</u>	State:	<u>N M</u>
Job Type:	<u>INJECTION TEST</u>		

WELL DESCRIPTION

HOLE DEPTH		TYPE	SIZE	WEIGHT
<u>0</u>	<u>- 9125</u>	<u>CASING</u>	<u>7"</u>	<u>26#</u>
<u>0</u>	<u>- 8074</u>	<u>TUBING</u>	<u>5 1/2"</u>	<u>9.3#</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

PERF DEPTH		NUMBER	SIZE	FORMATION
<u>8152</u>	<u>- 8970</u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

Open Hole I.D.:	<u> </u>	Total Depth:	<u>9083</u>
Zone #:	<u> </u>	Formation:	<u>ENTRADA-MORRISON</u>
Packer Depth:	<u>8074</u>	Packer Type:	<u>BAKER ER-1</u>
Baffle/MSO Depth:	<u> </u>	Baffle Size:	<u> </u>
BHST:	<u> </u>	Frac Gradient:	<u> </u>

STIMULATION DATA

	TYPE	CONC/RATIO	VOLUME
PrePad:	<u> </u>	<u> </u>	<u> </u>
Pad:	<u> </u>	<u> </u>	<u> </u>
Acid:	<u> </u>	<u> </u>	<u> </u>
Sand Laden:	<u> </u>	<u> </u>	<u> </u>
Flush:	<u>PRODUCED WATER</u>	<u> </u>	<u> </u>
Overflush:	<u> </u>	<u> </u>	<u> </u>
Total:	<u> </u>	<u> </u>	<u> </u>
N2:	<u> </u>	<u> </u>	<u> </u>
CO2:	<u> </u>	<u> </u>	<u> </u>

PROPPANT TYPE	SIZE	QUANTITY	MAX CONC.
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

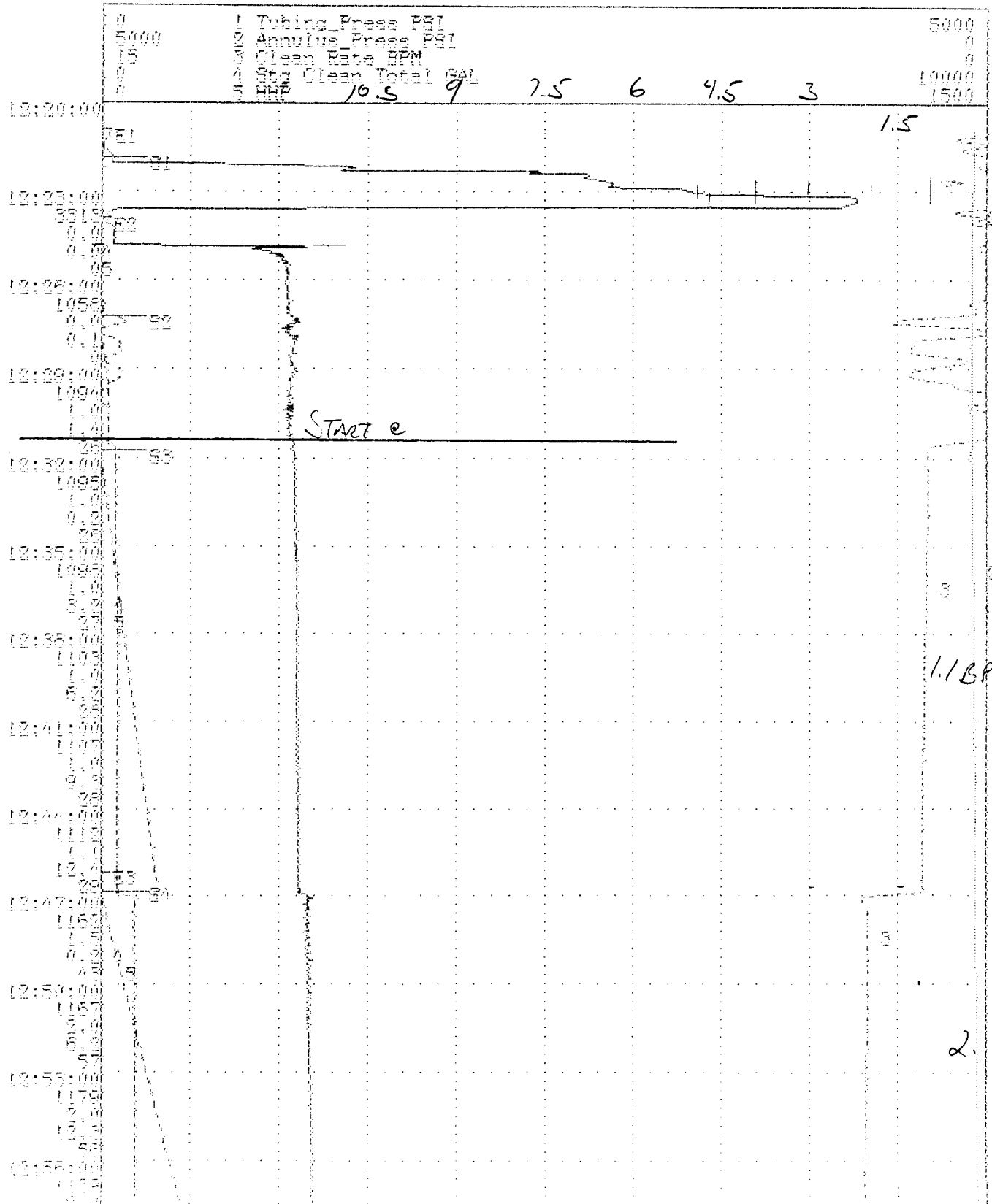
AVE. RATE: AVE. PRESSURE: AVE. HHP:

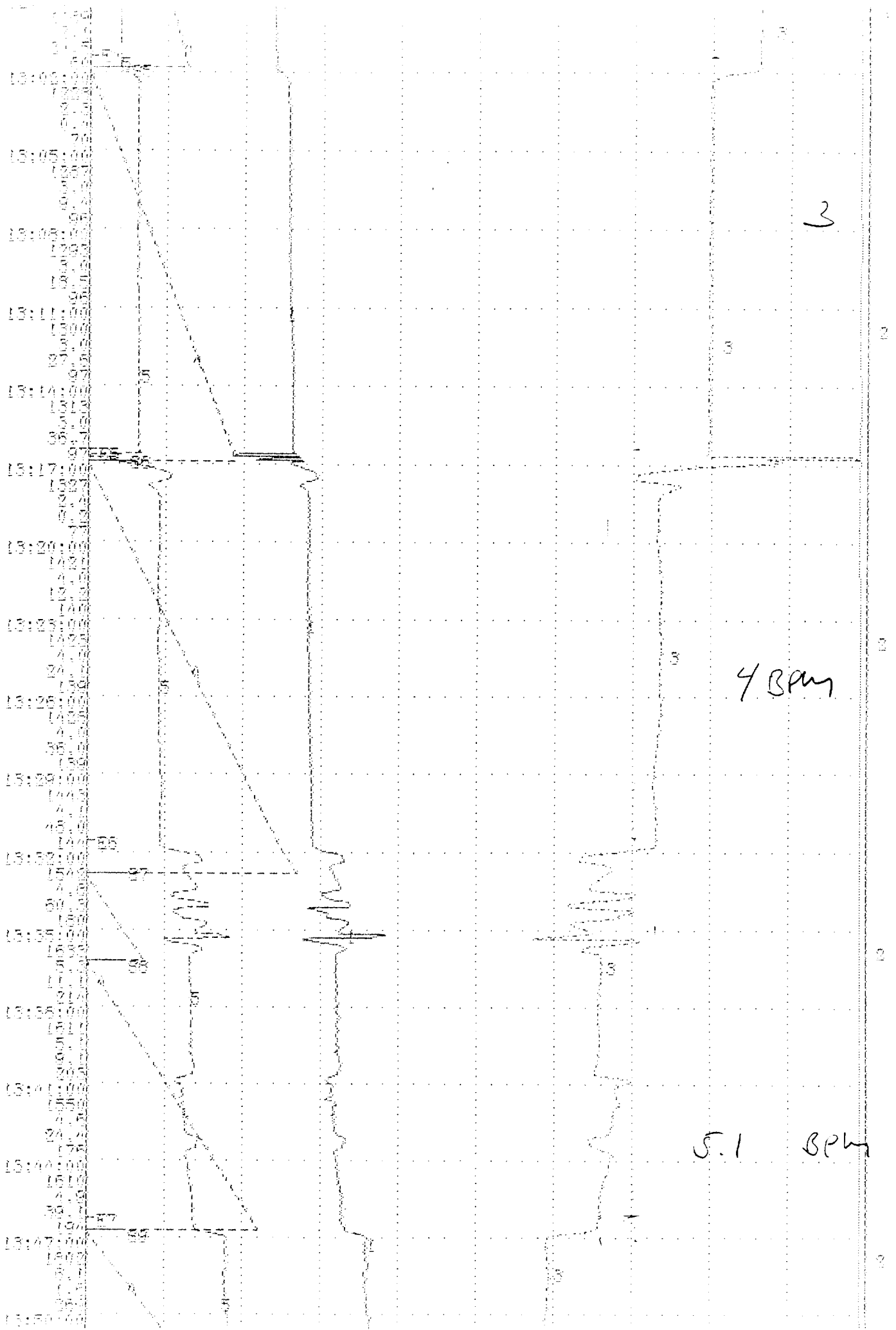
Comments:
INJECT INTO FORMATION AT CONSECUTIVE RATES
STARTING AT 2 RPM FOR 15 MINUTES INTERVALS

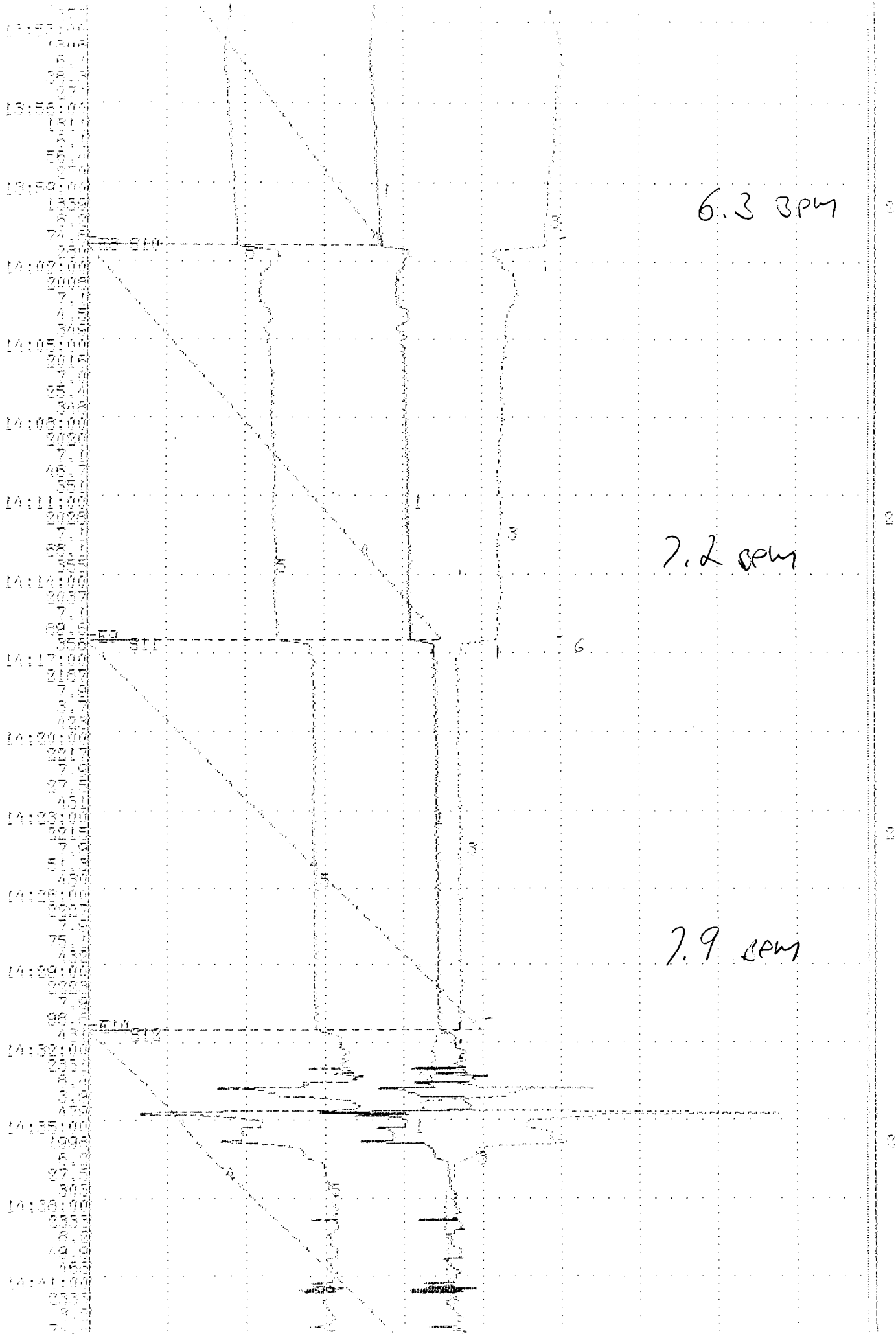
Legend for Side

1. Time
2. Tubing Press PSI
3. Clean Rate BPM
4. Std Clean Total GAL
5. HHP

1.400 = 1.5
 1.400 = 1.25
 1.400 = 1.0
 1.400 = 0.75
 1.400 = 0.5
 1.400 = 0.25
 1.400 = 0.0



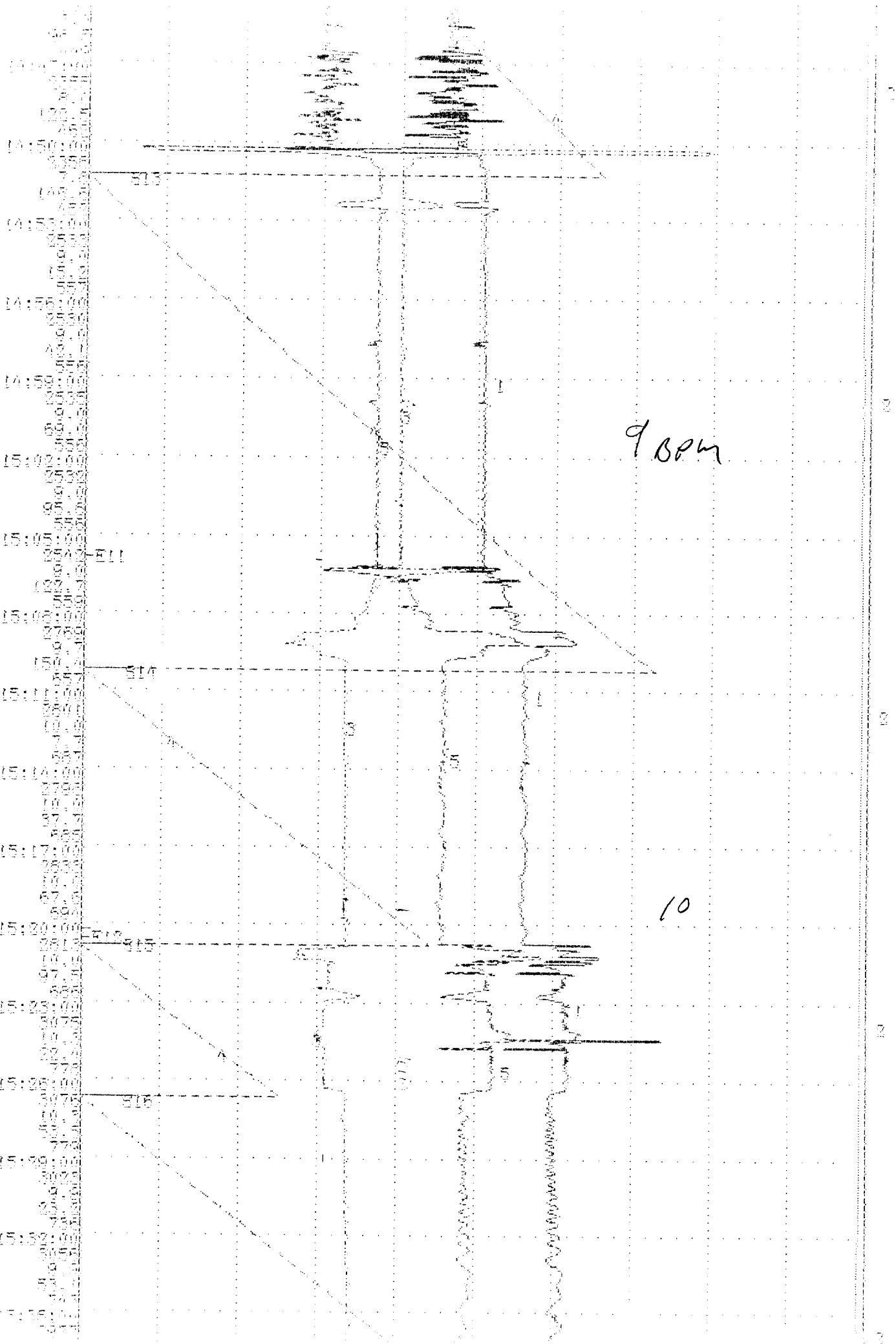




6.3 BPM

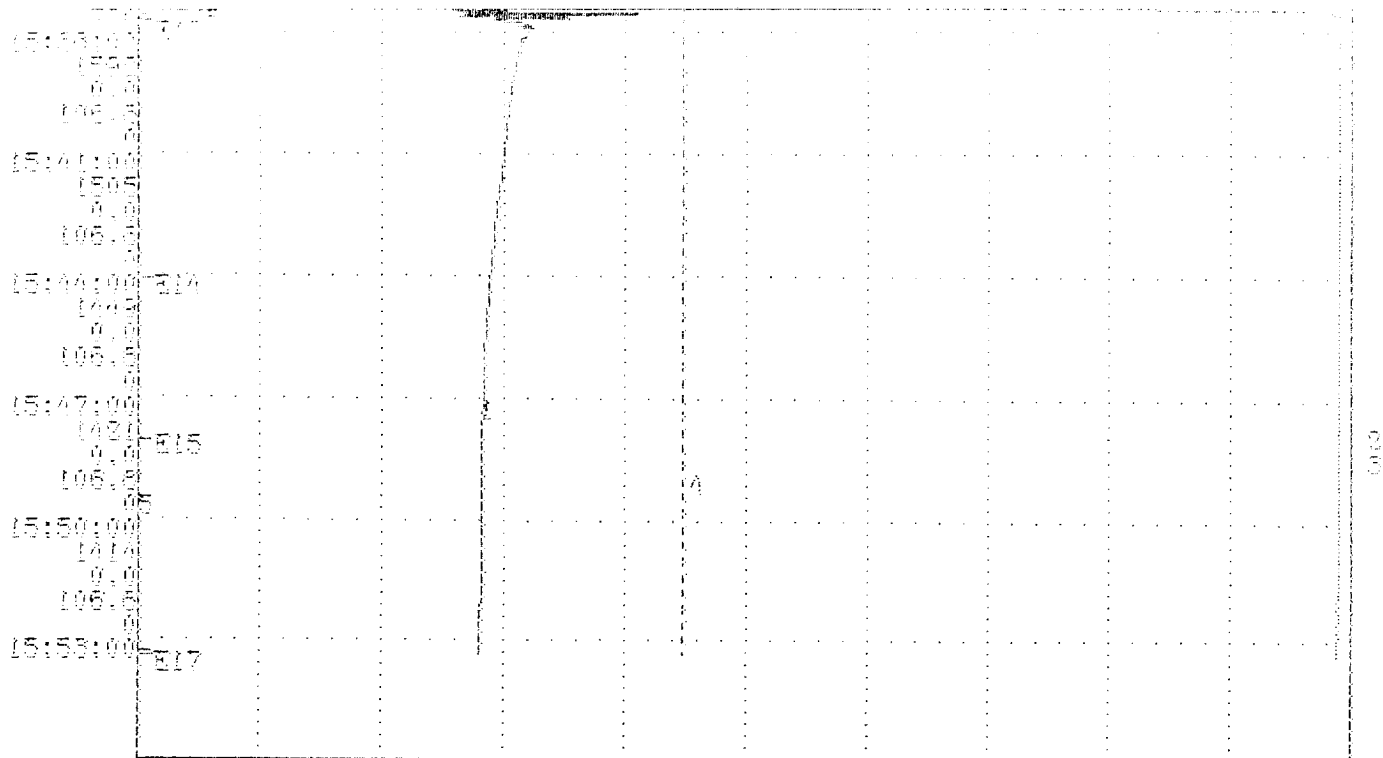
7.2 BPM

7.9 BPM



9 BPM

10



STAGE/EVENT SUMMARY

Customer: BLACKWOOD NICHOLS
Job Type: INJECTION TEST

Date: 4/02/91
Ticket #: 077151

***** 12:20:52 Start Job *****

***** 12:21:48 Stage #1 Test Lines *****

12:23:52 Event #2 Zero Flow Totals

STAGE SUMMARY

Max Tubing_Press -	4277 PSI	Max Annulus_Press -	81 PSI	Max Clean Rate -	0.6 BPM
Stg Clean Total -	11 GAL	Clean Total -	10.5 GAL	RRP -	17

***** 12:27:13 Stage #2 Establish Rate *****

CAPTURE DATA	Tubing_Press -	1078 PSI	Clean Rate -	0.6 BPM
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STAGE SUMMARY

Max Tubing_Press -	1121 PSI	Max Annulus_Press -	83 PSI	Max Clean Rate -	1.6 BPM
Stg Clean Total -	102 GAL	Clean Total -	112.5 GAL	RRP -	25

***** 12:31:43 Stage #3 Establish Rate *****

CAPTURE DATA	Tubing_Press -	1085 PSI	Clean Rate -	1.0 BPM
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12:45:07 Event #3 Record Pressure Rate

CAPTURE DATA	Tubing_Press -	1112 PSI	Clean Rate -	1.1 BPM
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STAGE SUMMARY

Max Tubing_Press -	1115 PSI	Max Annulus_Press -	81 PSI	Max Clean Rate -	1.1 BPM
Stg Clean Total -	650 GAL	Clean Total -	752.5 GAL	RRP -	29

***** 12:45:43 Stage #4 Establish Rate *****

CAPTURE DATA	Tubing_Press -	1112 PSI	Clean Rate -	1.1 BPM
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13:01:21 Event #4 Record Pressure Rate

CAPTURE DATA	Tubing_Press -	1199 PSI	Clean Rate -	2.1 BPM
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STAGE SUMMARY

Max Tubing_Press -	1207 PSI	Max Annulus_Press -	57 PSI	Max Clean Rate -	2.1 BPM
Stg Clean Total -	1273 GAL	Clean Total -	2035.5 GAL	RRP -	51

***** 13:01:47 Stage #5 Establish Rate *****

CAPTURE DATA	Tubing_Press -	1195 PSI	Clean Rate -	2.1 BPM
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13:15:24 Event #5 Record Pressure Rate

CAPTURE DATA	Tubing_Press -	1318 PSI	Clean Rate -	3.0 BPM
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STAGE SUMMARY

Max Tubing_Press -	1457 PSI	Max Annulus_Press -	45 PSI	Max Clean Rate -	3.1 BPM
Stg Clean Total -	1892 GAL	Clean Total -	3927.5 GAL	RRP -	57

***** 13:15:53 Stage #6 Establish Rate *****

CAPTURE DATA	Tubing_Press -	1349 PSI	Clean Rate -	1.7 BPM
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13:31:00 Event #6 Record Pressure Rate

CAPTURE DATA	Tubing_Press -	1455 PSI	Clean Rate -	4.0 BPM
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STAGE SUMMARY

Max Tubing_Press -	1658 PSI	Max Annulus_Press -	43 PSI	Max Clean Rate -	5.5 BPM
Stg Clean Total -	2714 GAL	Clean Total -	5541.8 GAL	RRP -	195

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***** 13132147 Stage #7 Establish Rate *****
CAPTURE DATA      Tubing_Press - 1553 PSI      Clean Rate - 5.0 BPM
                      STAGE SUMMARY
Max Tubing_Press - 1928 PSI      Max Annulus_Press - 37 PSI      Max Clean Rate - 5.4 BPM
Stg Clean Total - 738 GAL      Clean Total - 7379.3 GAL      HHP - 200

***** 13135111 Stage #8 Establish Rate *****
CAPTURE DATA      Tubing_Press - 1506 PSI      Clean Rate - 5.1 BPM
13145103 Event #7 Record Pressure Rate
CAPTURE DATA      Tubing_Press - 1542 PSI      Clean Rate - 5.1 BPM
                      STAGE SUMMARY
Max Tubing_Press - 1670 PSI      Max Annulus_Press - 35 PSI      Max Clean Rate - 5.3 BPM
Stg Clean Total - 2227 GAL      Clean Total - 9505.1 GAL      HHP - 215

***** 13145142 Stage #9 Establish Rate *****
CAPTURE DATA      Tubing_Press - 1670 PSI      Clean Rate - 5.3 BPM
14101103 Event #8 Record Pressure Rate
CAPTURE DATA      Tubing_Press - 1662 PSI      Clean Rate - 5.3 BPM
                      STAGE SUMMARY
Max Tubing_Press - 1669 PSI      Max Annulus_Press - 37 PSI      Max Clean Rate - 5.3 BPM
Stg Clean Total - 1754 GAL      Clean Total - 13370.0 GAL      HHP - 288

***** 14101120 Stage #10 Establish Rate *****
CAPTURE DATA      Tubing_Press - 1659 PSI      Clean Rate - 6.3 BPM
14115105 Event #9 Record Pressure Rate
CAPTURE DATA      Tubing_Press - 2055 PSI      Clean Rate - 7.2 BPM
                      STAGE SUMMARY
Max Tubing_Press - 2067 PSI      Max Annulus_Press - 39 PSI      Max Clean Rate - 7.3 BPM
Stg Clean Total - 4524 GAL      Clean Total - 17893.8 GAL      HHP - 358

***** 14115129 Stage #11 Establish Rate *****
CAPTURE DATA      Tubing_Press - 2067 PSI      Clean Rate - 7.3 BPM
14131105 Event #10 Record Pressure Rate
CAPTURE DATA      Tubing_Press - 2222 PSI      Clean Rate - 7.9 BPM
                      STAGE SUMMARY
Max Tubing_Press - 2143 PSI      Max Annulus_Press - 41 PSI      Max Clean Rate - 8.0 BPM
Stg Clean Total - 4992 GAL      Clean Total - 22885.5 GAL      HHP - 434

***** 14131139 Stage #12 Establish Rate *****
CAPTURE DATA      Tubing_Press - 2235 PSI      Clean Rate - 7.9 BPM
                      STAGE SUMMARY
Max Tubing_Press - 2583 PSI      Max Annulus_Press - 44 PSI      Max Clean Rate - 9.0 BPM
Stg Clean Total - 6558 GAL      Clean Total - 29473.8 GAL      HHP - 555

***** 14151105 Stage #13 Establish Rate *****
CAPTURE DATA      Tubing_Press - 2525 PSI      Clean Rate - 9.0 BPM
15105150 Event #11 Record Pressure Rate
CAPTURE DATA      Tubing_Press - 2545 PSI      Clean Rate - 9.0 BPM
                      STAGE SUMMARY
Max Tubing_Press - 3152 PSI      Max Annulus_Press - 44 PSI      Max Clean Rate - 11.2 BPM
Stg Clean Total - 7282 GAL      Clean Total - 35755.7 GAL      HHP - 687

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***** 05:10:12 Stage #14 Establish Rate *****
CAPTURE DATA      Tubing_Press -      2802 PSI      Clean Rate -      10.0 BPM
05:10:30 Event #12 Record Pressure Rate
CAPTURE DATA      Tubing_Press -      2815 PSI      Clean Rate -      10.0 BPM
                      STAGE SUMMARY
Max Tubing_Press -      3240 PSI      Max Annulus_Press -      39 PSI      Max Clean Rate -      10.1 BPM
Stg Clean Total -      4443 GGL      Clean Total -      41199.7 GGL      HHP -      651

***** 05:20:47 Stage #15 Establish Rate *****
CAPTURE DATA      Tubing_Press -      2724 PSI      Clean Rate -      9.8 BPM
                      STAGE SUMMARY
Max Tubing_Press -      3595 PSI      Max Annulus_Press -      35 PSI      Max Clean Rate -      11.0 BPM
Stg Clean Total -      2520 GGL      Clean Total -      43729.5 GGL      HHP -      727

***** 05:25:37 Stage #16 Start Flush *****
05:37:40 Event #13 ISIP
CAPTURE DATA      Tubing_Press -      1429 PSI
05:44:04 Event #14 5 Min Shutin Pres.
CAPTURE DATA      Tubing_Press -      1445 PSI
05:48:02 Event #15 10 Min Shutin Pres.
CAPTURE DATA      Tubing_Press -      1419 PSI
05:52:17 Event #16 15 Min Shutin Pres.
CAPTURE DATA      Tubing_Press -      1407 PSI
                      STAGE SUMMARY
Max Tubing_Press -      3080 PSI      Max Annulus_Press -      51 PSI      Max Clean Rate -      10.1 BPM
Stg Clean Total -      4485 GGL      Clean Total -      48214.5 GGL      HHP -      0

***** 05:53:23 End Job *****

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Job Comments:

