

DRILLING REPORT

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Yates Pet. - Hanagan "APL" Fed Com #1 (Unit G) 31-19S-30E Eddy Co., NM  
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*Morrow*

Attachment B

11-12-95

4 AM 2200' 3 17  
 5 AM 2200' 3 17  
 6 AM 2200' 3 18  
 Total recovered 0 bbls oil and 70 bbls water. DC \$10,525  
 Continued to swab/flow as follows:  
 TIME FL # SR BW MCF  
 7 AM 2000' 2 16 Slight Started to make gas and  
 unload fluid  
 8 AM 60# - 3/4" 12 Slight Burn  
 9 AM 80# - 3/4" 10 Fair Burn  
 10 AM 50# - 3/4" 5 Fair Burn  
 11 AM 20# - 3/4" 2 Fair Burn/Rig up swab. IFL  
 10000'  
 12 PM 10,000' 2 10 Fair Burn  
 1 PM 200# - 1/4" 313 20-25' flare  
 2 PM 190# - 1/4" 298 20-25' flare  
 3 PM 190# - 1/4" 298 20-25' flare  
 4 PM 190# - 1/4" 298 20-25' flare  
 5 PM 190# - 1/4" 298 20-25' flare  
 Shut down. Daily recovery 0 BO + 55 BW. Total recovered 0  
 BO + 125 BW.

11-13-95

SITP 2500#. Bled down to 80# in 60 mins. Did not unload  
 fluid. Installed 1/4" choke. had a strong mist. Opened  
 up on a 3/4" choke. Bled down to 15 psi. IFL 10000'.  
 Continued to swab/flow as follows:  
 TIME FL # SR BW MCF  
 8 AM 80# - 3/4" Good Install 1/4" choke  
 9 AM 130# - 1/4" Str mist Install 3/4" choke.  
 Bled down. Rig up swab.  
 10 AM 10000' 2 10 Good  
 11 AM 190# - 1/4" 298 20-25' flare  
 12 PM 190# - 1/4" 298 20-25' flare  
 1 PM 190# - 1/4" 298 20-25' flare  
 2 PM 190# - 1/4" 298 20-25' flare  
 3 PM 190# - 1/4" 298 20-25' flare  
 4 PM 190# - 1/4" 298 20-25' flare  
 5 PM 190# - 1/4" 298 20-25' flare

*Morrow Test*

Shut down. Daily recovery 0 BO + 10 BW. Total recovery 0  
 BO + 135 BW. Moving to Strawn. DC \$2125  
 WATER ANALYSIS: 11-12-95 10 AM  
 Spec Gravity 1.025 @ 74 Resistivity .095 @ 75  
 pH 6.55 Sulfate 976  
 Iron 400 Tot Hardness 9762  
 Calcium 1953 Bicarbonate 2678  
 Magnesium 1185 Sod Chloride 38,508  
 Chloride 23,409 Tot Diss Sol 53,262  
 Sod & Pot 16,437 Pot Chloride 1500  
 Iodine Nil

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4 PM 40# - 1/4" 0 0 78 10' flare  
 5 PM 40# - 1/4" 0 0 78 10' flare  
 Prep to frac with 30,000#. THIS AM - Overnight SITP  
 1800#. Bled to 0 in 30 mins. DC \$5325  
 11-7-95 SITP 1800#. Bled down to 0 psi in 30 mins. Rig up 15K  
 tree saver. Tested annulus. Annulus would not test. Rig  
 down 15K test saver. Nippled down tree. Reset packer.  
 Tested annulus. Annulus would not test. Nippled up BOP.  
 Unset packer at 11,017'. TOH with 2-7/8" N-80 tubing and  
 packer. Shut down. Prep to TIH with Uni VI 10K packer and  
 hydrotest tubing in hole. Will frac on Tuesday at 3 PM.  
 DC \$2475  
 11-8-95 TIH with packer, Uni VI 10K with 1.81 profile nipple and  
 on/off tool and 2-7/8" N-80 tubing (hydrotest tubing in  
 hole - test tubing to 8000 psi, found 3 collar leaks). Set  
 packer at 11,017'. Tested annulus to 4000 psi for 10 mins,  
 OK. Nippled down BOP and installed tree. Swabbed tubing.  
 FL down to 9500'. Recovered 55 bbls water. Rig down  
 swab. Rig up 15K tree saver. Frac'd perms 11,491-11,496'  
 down 2-7/8" N-80 tubing with 30000 gals 30Q Medallion frac  
 4000 + 30,000# 20/40 Premium AC frac "PR" Black. Max  
 9765#, Avg 9325# at 16.1 BPM. ISDP 5577#, 5 mins 5010#, 10  
 mins 4853#, 15 mins 4843#. TLTR 618 bbls. Max sand conc  
 2.5 ppg. Rig down tree saver. Left well shut in for 6  
 hours. Flowed well back as follows:  

TIME	PSI/CHOKE	BW	MCF
12 AM	4000# - 8/64"	50	CO2
1 AM	3200# - 8/64"	50	CO2 little sand
2 AM	1900# - 12/64"	50	CO2 little sand
3 AM	1400# - 12/64"	40	CO2 no sand
4 AM	1000# - 12/64"	30	CO2 no sand
5 AM	600# - 16/64"	20	CO2 no sand
6 AM	500# - 16/64"	20	CO2 no sand

 Total recovered 0 BO + 260 BW. Load left 358 bbls. DC  
 \$52,225  
 11-9-95 Continued to flow well as follows:  

TIME	PSI/CHOKE	BW	MCF
7 AM	490# - 24/64"	10	CO2 too wet to burn/no sand
8 AM	380# - 24/64"	10	CO2 too wet to burn/no sand
9 AM	100# - 1/2"	15	CO2 too wet to burn/no sand
10 AM	35# - 3/4"	10	CO2 too wet to burn/no sand
11 AM	20# - 3/4"	15	CO2 too wet to burn/no sand
12 PM	20# - 3/4"	10	CO2 too wet to burn/no sand

 Daily recovery 0 BO + 70 BW. Total recovery 0 BO + 330  
 BW. Load left 288 bbls. Nippled down tree and nipped up  
 BOP. Unset packer at 11,017'. TOH with 2-7/8" N-80 tubing  
 and Uni VI 10K packer. Started TIH with retrieving tool  
 and 2-7/8" N-80 tubing. Shut down. Prep to finish TIH and  
 retrieve Uni VI RBP at 11,621'. DC \$3175  
 11-10-95 Continued to TIH with retrieving tool and 2-7/8" N-80  
 tubing to 11,560'. Tag sand at 11,560'. Rig up and wash  
 sand from 11,560-11,621'. Unset RBP at 11,621'. TOH with  
 2-7/8" N-80 tubing and RBP. TIH with on/off tool and  
 2-7/8" N-80 tubing to 11,686'. Latch on to packer at  
 11,686'. Unset packer 11,686'. TOH with 2-7/8" N-80  
 tubing and packer. TIH with retrieving tool and 2-7/8"  
 N-80 tubing. Shut down. Prep to continue TOH with  
 retrieving tool and 2-7/8" N-80 tubing to pull RBP; then  
 run packer and swab in Morrow. DC \$3025  
 11-11-95 Continued TIH with retrieving tool and 2-7/8" N-80 tubing  
 to 11,750'. Washed sand from 11,750-11,812'. Latched onto  
 RBP at 11,812'. Unset RBP at 11,812'. Started TOH with  
 2-7/8" N-80 tubing and RBP. Shut down because of high  
 winds. Continued working at 6 PM 11-10-95. TOH with  
 2-7/8" N-80 tubing and RBP. TIH with packer (Uni VI 10K  
 with 1.81" profile nipple and on/off tool) and 2-7/8" N-80  
 tubing. Set packer at 11,012'. Tested annulus to 3000 psi  
 for 10 mins, OK. Nippled down BOP and installed tree.  
 Rigged up swab. Swabbed as follows:  

TIME	FL	# SR	BW
3 AM	2000'	3	18

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11-2-95

psi for 10 mins, OK. Unset packer at 11,600'. TOH with 2-7/8" N-80 and packer. Shut down. Prep to finish TOH with 2-7/8" N-80 tubing and packer, then TIH with Uni VI packer and acidize with 100 gals acid and N2. DC \$8425  
Finished TOH with 2-7/8" N-80 tubing and Uni V packer. TIH with Uni VI (10K) packer with 1.81 profile nipple and on/off tool and 2-7/8" N-80 tubing. Set packer at 11,017'. Nippled down BOP and nipped up tree. Tested annulus to 2000 psi, OK. Rigged up swab. Swabbed tubing fluid level down to 11,000'. Recovered 62 bbls. Rigged up tree saver. Rigged up and acidized perfs 11,491-11496' with 1000 gals 7-1/2% NEFE Morrow type acid with 1000 SCF/bbl N2 and 10 balls. Broke down 3200 psi. Avg 5400 psi @ 4.5 BPM. Ball action good. ISDP 5000 psi, 5 mins 4900 psi, 10 mins 4800 psi, 15 mins 4800 psi. Total load to recover 70 bbls. Rigged down tree saver. Rigged up and flow/swab with the following results:

TIME	PSI/CHOKE	OIL	WATER	GAS
7 PM	2800# - 8/64"	0	5	N2
8 PM	1100# - 12/64"	0	10	N2
9 PM	100# - 16/64"	0	5	N2
10 PM	0# - 3/4"	0	35	slight burn
11 PM	9800-SN 2 runs	0	7	slight burn
12 AM	SN 1 run	0	0	slight burn
1 MA	80# - 1/8"	0	0	32, 5-10' flre
2 AM	150# - 1/8"	0	0	56, 10-15' flre
3 AM	280# - 1/8"	0	0	101, 10-15' flre
4 AM	290# - 1/8"	0	0	105, 10-15' flre
5 AM	290# - 1/8"	0	0	105, 10-15' flre
6 AM	300# - 1/8"	0	0	108, 10-15' flre

Total recovered 0 bbls oil and 62 bbls water. Load left 8 bbls. At 8:00 AM Thursday flowing 340 psi on 1/8" choke = 122 MCFD with pressure increasing. prep to swab/flow well. DC \$13,005

11-3-95

Continued to swab/flow as follows:

TIME	PSI/CHOKE	SR	BO	BW	MCF
7 AM	320# - 1/8"		0	0	115 10-15' flare
8 AM	340# - 1/8"		0	0	122 10-15' flare
9 AM	1000'-SN	2	2%	7	Slt 10-15' flare
Put on 1/4" choke - 20 psi = 48 MCF					
10 AM	40# - 1/4"		0	0	77 10-15' flare
11 AM	45# - 1/4"		0	0	85 10-15' flare
12 PM	45# - 1/4"		0	0	85 10-15' flare
1 PM	45# - 1/4"		0	0	85 10-15' flare

Bled down. Rig up swab.

2 PM	10200'-SN	1	2%	4	Slt 10-15' flare
Put on 1/4" choke, 30# = 63 MCF					
3 PM	45# - 1/4"		0	0	85 10-15' flare
4 PM	45# - 1/4"		0	0	85 10-15' flare
5 PM	45# - 1/4"		0	0	85 10-15' flare

Daily recovery trace of oil and 11 bbls water. Total recovery - trace oil and 73 bbls water. 3 bbls over load. Shut down. Plan to frac on Monday. DC \$1525

WATER ANALYSIS: 11-2-95 2:00 PM	
Spec Gravity	1.065 @ 65
pH	4.2
Iron	160
Calcium	25540
Magnesium	-14603
Chloride	75100
K+	1200
Resistivity	.035 @ 75
Sulfate	2230
Total Hard	3756
Bicarbonate	69
Sod Chlor	123540
Tot Diss Sol	145984
H2S	Nil

11-4-6-95

SITP 1150#. Bled down to 0 psi in 25 mins. TIH with thru tubing guns. Perforated 4 SPF with 21 - .27" holes as follows: 11,491-11,496'. TOH with thru tubing guns. Flowed as follows:

TIME	TP/CHOKE	BO	BW	MCF
11 AM	20# - 1/4"	0	0	48 10' flare
12 P.M.	30# - 1/4"	0	0	63 10' flare
1 PM	Perf with thru tubing guns,			left well flowing
2 PM	40# - 1/4"	0	0	78 10' flare
3 PM	40# - 1/4"	0	0	78 10' flare

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10-30-95 K+ 1000  
SITP 2200 psi. Bled down to 15 psi in 50 mins. Rigged up swab. Initial fluid level 5000'. Continued to swab/flow with the following results:

TIME	FL	#SR	OIL	WATER	GAS
8 AM	5000'	0	0	10	good, 15-20' flre
9 AM	8000'	2	0	13	good, 15-20' flre
10 AM	SN	2	0	9	good, 15-20' flre
11 AM	130# - 1/4"	ck	0	0	210, 15-20' flre
Noon	130# - 1/4"	0	0	0	210, 15-20' flre
1 PM	130# - 1/4"	0	0	0	210, 15-20' flre
2 PM	130# - 1/4"	0	0	0	210, 15-20' flre
3 PM	130# - 1/4"	0	0	0	210, 15-20' flre
4 PM	130# - 1/4"	0	0	0	210, 15-20' flre
5 PM	130# - 1/4"	0	0	0	210, 15-20' flre

Daily recovered 0 bbls oil and 32 bbls water. Total recovered 0 bbls oil and 630 bbls water, 32 bbls overload.

Shut down. NOTE: Recovery is estimated. DC \$1725

WATER ANALYSIS: 10:00 AM 10-29-95 - load water

Sp. Gravity	1.025 @ 74	Resistivity	.085 @ 75
pH	6.55	Iron	150
Sulfate	68	Calcium	2732
Tot Hardness	10,732	Magnesium	948
Bicarbonates	1690	Chloride	25,360
CALC	41,717	Sod & Pot	16,431
Tot Diss Sol	54,281	H2S	Nil

10-31-95 K+ 1500  
SITP 2300 psi. Bled down to 15 psi in 50 mins. Rigged up swab. Initial fluid level 9000'. Continued to swab/flow well with the following results:

TIME	FL	#SR	OIL	WATER	GAS
8 AM	9000'	1	20%	8	good, 15-20' flre
9 AM	SN	2	2%	8	good, 15-20' flre
10 AM	120# - 1/4"	0	0	0	195, 15-20' flre
11 AM	120# - 1/4"	0	0	0	195, 15-20' flre
Noon	120# - 1/4"	0	0	0	195, 15-20' flre

Opened up, bled down. Rigged up swab.

1 PM	10,200-SN	2	2%	6	good, 15-20' flre
2 AM	120# - 1/4"	0	0	0	195, 15-20' flre
3 PM	120# - 1/4"	0	0	0	210, 15-20' flre

Daily recovered 1 bbl oil and 21 bbls water. Total recovered 1 bbl oil and 651 bbls water, 53 bbls overload.

Flow test - 120 psi @ 1/4" choke = 210 MCF. Shut down.

NOTE: Recovery is estimated. prep to move to Morrow zone #3. DC \$1525

WATER ANALYSIS: 8 AM 10-30-95		9 AM	
Sp. Gravity	1.025 @ 76	Sp. Gravity	1.023 @ 74
Resistivity	.095 @ 75	Resistivity	.095 @ 75
pH	6.35	pH	6.55
Iron	150	Iron	125
Sulfate	63	Sulfate	68
Calcium	2341	Calcium	1955
Tot Hardness	10,732	Tot Hardness	9775
Magnesium	1185	Magnesium	1188
Bicarbonate	1762	Bicarbonate	1717
Chloride	25,360	Chloride	23,455
CALC	41,717	CALC	38,584
Sod & Pot	16,464	Sod & Pot	15,371
Tot Dis Solids	54,381	Tot Dis Solids	50,387
H2S	nil	H2S	nil
K+	1500	K+	1500

11-1-95 SITP 2350 psi. Rigged up slickline and set standing valve in packer at 11,686. Bled down tubing. Loaded tubing with 2% KCL water. Get off on/off tool. Nipple down tree. Nippled up BOP. TOH with 2-7/8" N-80 tubing. Rigged up wireline. TIH with 4" casing guns. Correlated guns into place and perforate Morrow Zone #3 (2 SPF - 60 deg phasing) with 1/2" - .42" holes as follows: 11,491-11,496'. TOH with 4" casing guns and rigged down wireline. TIH with RBP (10K), packer and 2-7/8" N-80 tubing. Set RBP at 11,621'. Set packer at 11,600'. Rigged up and tested RBP to 3000.

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Sulfate	191	Calcium	8038
Tot Hardness	24,880	Magnesium	1163
Bicarbonate	4086	Chloride	114,807
CALC	188,857	Sod & Pot	87,168
Tot Diss Sol	231,132	H2S	none

10-25-95 Prep to frac Morrow.

10-26-95 Prep to frac Morrow with 30,000 gals and 30,000# sand at 10:00 AM Thursday morning.

10-27-95 Rig down swab. Rig up 15K tree saver. Rig up and frac perfs 11,770-11,778' with 35,867 gals of 30Q Medallion frac 4000 and 31000# 20/40 AC frac Premium black sand. Avg 8700# at 15 BPM. ISDP 4723#, 5 mins 4338#, 10 mins 3968#, 15 mins 3900#. Max sand 3.5#/gal. TLTR 598 bbls. Shut in. Rig down tree saver. Shut in for 6 hours. Flow back well with the following results:

TIME	TP/CHOKE	BW	MCF	
10 PM	3000# - 1/8"	30	0	gel broke
11 PM	2300# - 1/4"	40	0	no sand
12 AM	7700# - 1/4"	40	CO2	no sand
1 AM	1300# - 16/64"	60	CO2	little sand
2 AM	1100# - 16/64"	50	CO2	little sand
3 AM	900# - 16/64"	50	CO2	little sand
4 AM	750# - 16/64"	50	CO2	little sand
5 AM	650# - 16/64"	50	CO2	no sand
6 AM	500# - 16/64"	50	CO2	no sand

Total recovered 0 bbls oil + 420 bbls water. Load left 178 bbls. \*NOTE: Fluid recovery is estimated, flowing to pit not a frac tank. DC \$52,425

10-28-95 Continued to flow back well with the following results:

TIME	PSI/CHOKE	OIL	WATER	GAS
7 AM	400# - 16/64"	0	50	CO2 - no sand
8 AM	150# - 3/8"	0	30	CO2 - no sand
9 AM	50# - 3/4"	0	15	CO2 - no sand
10 AM	50# - 3/4"	0	20	CO2 - no sand
11 AM	40# - 3/4"	0	10	sl - no sand, intermittent flr
Noon	30# - 3/4"	0	5	sl - inter flre
1 PM	22# - 3/4"	0	1	sl - inter flre

Installed 1/4" positive choke

2 PM	70# - 1/4"	0	0	122 - 10-15' flre
3 PM	70# - 1/4"	0	0	122 - 10-15' flre
4 PM	70# - 1/4"	0	0	122 - 10-15' flre

Daily recovered 0 bbls oil and 131 bbls water. Total recovered 0 bbls oil and 551 bbls water. Load left 47 bbls water. NOTE: Fluid recovery is an estimate. DC \$1725

10-29-95 SITP 1500 psi. Bled down to 0 psi in 50 mins. Rigged up swab. Initial fluid level 3000'. Continued to flow/swab with the following results:

TIME	FL	#SR OIL	WATER	GAS
8 AM	3000'	0	5	good, 15-20' flre
9 AM	5500'-900' 3	0	18	good, 15-20' flre
10 AM	4000' scat 1	0	8	good, 15-20' flre
11 AM	8000' scat 1	0	6	good, 15-20' flre
Noon	9000' scat 2	0	10	good, 15-20' flre
1 PM	120# - 1/4"	0	0	195, 15-20' flre
2 PM	130# - 1/4"	0	0	210, 15-20' flre
3 PM	130# - 1/4"	0	0	210, 15-20' flre
4 PM	130# - 1/4"	0	0	210, 15-20' flre
5 PM	130# - 1/4"	0	0	210, 15-20' flre

Daily recovered 0 bbls oil and 47 bbls water. Total recovered 0 bbls oil and 598 bbls water. Load left 0 bbls. NOTE: Recovery is an estimate. Flowed and swabbed to pit, not a tank. Shut down. DC \$1725

WATER ANALYSIS: 10:00 AM 10-28-95

Sp. Gravity	1.020 @ 72	Resistivity	.115 @ 75
pH	6.6	Iron	175
Sulfate	69	Calcium	2353
Tot Hardness	11,765	Magnesium	1429
Bicarbonate	2763	Chloride	19,603
CALC	32,248	Sod & Pot	11,304
Tot Diss sol	45,504	H2S	nil

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Magnesium	91	24
Bicarbonate	205	157
Chloride	20,556	13,858
CALC	33,815	22,797
Sod & Pot	17,305	11,595
Tot Diss Solids	40,169	27,590
H2S	None	None

10-22-95 SITP 700 psi. Bled to 0 psi in 30 mins. Initial fluid level 9200'. First swab run recovered 0 bbls oil and 3 bbls water. Continued to swab/flow with the following results:

TIME	FL	#SR	OIL	WATER	GAS
9 AM	11000'	2	0	6	slight - burn
10 AM	70# - 1/8"		0	0	28.8 5-6' flre*
11 AM	85# - 1/8"		0	0	34.0 5-6' flre*
Noon	95# - 1/8"		0	0	37.4 5-6' flre*
1 PM	110# - 1/8"		0	0	42.6 6-8' flre*
2 PM	130# - 1/8"		0	0	49.6 10-15' flre*
3 PM	140# - 1/8"		0	0	53.0 10-15' flre*
4 PM	140# - 1/8"		0	0	53.0 10-15' flre*
5 PM	140# - 1/8"		0	0	53.0 10-15' flre*

\*Burn

Total recovered 0 bbls oil and 68 bbls water. Load left 5 bbls. DC \$1975; CC \$48,660

WATER ANALYSIS: 9 AM 10/21

Sp. Gravity	1.050 @ 74	Resisitivity	.075 @ 75
pH	3.3	Iron	49
Sulfate	714	Calcium	190
Tot Hardness	1810	Magnesium	324
Bicarbonate	198	Chloride	34,278
CALC	56,387	Sod & Pot	29,407
Tot Diss Sol	66,406	H2S	none

10-23-95 SITP 1000 psi. Bled to 0 psi in 40 mins. Initial fluid level 10,200'. First swab run recovered 0 bbls oil and 4 bbls water. Continued to swab/flow with the following results:

TIME	FL	#SR	OIL	WATER	GAS
9 AM	11,000'	2	0	5	slight - burn
10 AM	22# - 1/4" ck		0	0	51 6-8' flre*
11 AM	22# - 1/4" ck		0	0	51 6-8' flre*
Noon	22# - 1/4" ck		0	0	51 6-8' flre*

\*Burn

Daily recovered 0 bbls oil and 5 bbls water. Total recovered 0 bbls oil and 73 bbls water. Load left 0 bbls. DC \$1475; CC \$50,135 THIS AM: SITP 1050 psi.

WATER ANALYSIS: 9 AM 10/22

Sp. Gravity	1.050 @ 73	Resisitivity	.065 @ 75
pH	3.3	Iron	52
Sulfate	595	Calcium	571
Tot Hardness	1905	Magnesium	116
Bicarbonate	93	Chloride	38,087
CALC	62,653	Sod & Pot	32,548
Tot Diss Sol	37,227	H2S	none

10-24-95 SITP 1050 psi. Bled down in 45 mins. Initial fluid level 9800'. First swab run recovered 3 bbls of distillate and 3 bbls water. Continued to swab/flow with the following results:

TIME	PSI/CHOKE	OIL	WATER	GAS
8 AM	9800' 1 run	3	3	slight
9 AM	11,000' 1 run	2%	2	slight, 2% distillate
10 AM	20# - 1/4"	0	0	48 - 4-5' flre*
11 AM	20# - 1/4"	0	0	48 - 4-5' flre*
Noon	20# - 1/4"	0	0	48 - 4-5' flre*

\*Burn

Daily recovered 3 bbls of distillate and 5 bbls water. Total recovered 3 bbls of distillate and 78 bbls water, 5 bbls overload. Prep to frac Wednesday/Thursday. DC \$1475; CC \$51,610

WATER ANALYSIS: 1st swab run 10-23-95

Sp. Gravity	1.045 @ 72	Resistivity	.025 @ 75
pH	5.5	iron	31

Morrow

5 AM 11,000' 1 0 1 slight\*  
6 AM wait

\*burn when pulling swab, vac after swab run  
Total recovered 0 bbls oil and 69 bbls water. Load left 29  
bbls. Prep to move to Morrow #2. DC \$11,725; CC \$31,085

WATER ANALYSIS: 5 PM 10/18 11 PM 10/18 3 AM 10/19  
Sp. Gravity 1.015 @ 66 1.085 @ 66 1.070 @ 64  
Resistivity .125 @ 75 .025 @ 75 .025 @ 75  
pH 7 4 5  
Iron 9 10 6  
Sulfate 172 138 196  
Calcium 473 5530 8598  
Total Hardness 2266 82,949 52,336  
Magnesium 263 16,797 7494  
Bicarbonate 300 157 114  
Chloride 17,730 165,861 130,812  
CALC 29,166 272,842 215,185  
Sod & Pot 14,361 93,808 82,142  
Tot Diss Solids 34,830 342,914 265,601  
H2S -- -- --  
K+ 700 600 600

10-20-95

Continued to swab/flow with the following results:

TIME FL #SR OIL WATER GAS  
7 AM 11,000' 1 0 1 slight  
Burn when pulling swab. Vac after swab run  
8 AM 0 psi @ 1/8 ck 0 0 slight

Daily recovered 0 bbls oil and 1 bbls water. Total  
recovered 0 bbls oil and 70 bbls water. Load left 28.  
bbls. Rigged down swab. Loaded tubing with 60 bbls 2% KCl  
water. Unset packer at 11,812'. Nippled down tree and  
installed BOP. TOH with 2-7/8" N-80 tubing and packer (UNI  
VI). Rigged up wireline. TIH with 4" casing guns.  
Correlated guns into place and perforated (2 SPF - 60 deg  
phasing) with 18 - .41" holes as follows: 11,770-11,778'.  
TOH with casing guns and rigged down wireline. TIH with  
RBP, packer and 2-7/8" N-80 tubing. Set RBP at 11,812'.  
Tested RBP to 2000 psi, OK. Moved up and set packer at  
11,716'. Nippled down BOP and installed tree. Tested  
annulus to 1000 psi, OK. Rigged up swab. Shut down. Prep  
to swab tubing fluid level down to 10,000' and acidize. DC  
\$5325; CC \$36,410

10-21-95

Swabbed tubing fluid level down to 10,500'. Recovered 63  
bbls. Rigged up tree saver. Tested adn hold 1000 psi on  
annulus. Rigged up and acidized perfs 11,770-11,778' with  
1000 gals 7-1/2% HCL Morrow type acid with 1000 SCF/bbl N2  
and 12 balls. Broke down 5300 psi, 5300 psi @ 4 BPM. Ball  
action none. ISDP 4800 psi, 5 mins 4500 psi, 10 mins 4250  
psi, 15 mins 4200 psi. Total load to recover 73 bbls.  
Rigged down tree saver. Rigged up and flow/swab with the  
following results:

TIME FL #SR OIL WATER GAS  
1 PM 4200#  
2 PM 300# - 1/4" ck 0 34 0 N2  
3 PM 0# 1 0 2 0 N2  
Rigged up swab. Initial fluid level 7100'  
4 PM 10,000' 2 0 13 acid gas  
5 PM 10,500' 2 0 10 slight - burn  
6 PM 11,000' 2 0 2 slight - burn  
7 PM 11,000-SN 1 0 1 slight - burn  
8 PM 20# - 1/8" ck 0 0 11.45 - burn,  
3' lazy flare

Total recovered 0 bbls oil and 62 bbls water. Load left 11  
bbls. Shut down. DC \$10,275; CC \$46,685

WATER ANALYSIS: 4 PM 10/20 7 PM  
Sp. Gravity 1.070 @ 77 1.010 @ 74  
pH 3.1 3.3  
Resistivity .115 @ 75 .155 @ 75  
Iron 40 23  
Sulfate 421 495  
Calcium 523 554  
Tot Hardness 1682 1485

DRILLING PORT

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Yates Pet. - Hanagan "APL" Fed Com #1 (Unit G) 31-19S-30E Eddy Co., NM

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Morrow

DETAILED CASING REPORT: TD 7-7/8" hole at 4:30 AM.

10-10-95. Ran 292 joints (12,161.28') casing, set at 12,140' as follows:

55 joints 5-1/2" 17# S-95 LT&C 2310.73'  
220 joints 5-1/2" 17# N-80 LT&C 9146.47'  
17 joints 5-1/2" 17# S-95 LT&C 702.08'

Float shoe set 12,140'. Float collar set 12,097.40'. DV tool set 9207.66'. Cemented in two stages as follows:

Stage I - 800 sxs Premium Lite + 5#/sx Gilsonite + .6% Halad 9 + 5% SMJ + .3% CFR-3 (yld 1.54, wt 13.5). PD 12 PM 10-13-95. Bumped plug to 1500 psi for 5 mins. Circulated thru DV tool 4 hours. Stage II - 1250 sxs Howco Lite + 5#/sx Salt + 1/4#/sx Flocele + .2% CFR-3 (yld 1.18, wt 15.6). PD 6 PM 10-13-95. Bumped plug to 4000 psi for 5 mins, float and casing held. Circulated 60 sacks. Rig released 10 PM 10-13-95.

10-17-95 Prep to move in service unit. Cleaned location. Set and tested anchors and markers. Made cut off on 5-1/2" casing. Moved in and rigged up pulling unit. Installed tubing head and nipples up BOP. TIH with bit, stabilizer, drill collars and 2-7/8" N-80 tubing to DV tool at 9208'. Rigged up power swivel and drilled out DV tool. Tested casing to 3000 psi for 15 mins, OK. Finished TIH to 12,075'. Circulated casing with 2% KCL water. TOH with 2-7/8" N-80 tubing, drill collars, stabilizer and bit. TIH bit, scraper and 2-7/8" N-80 tubing to 9250'. Worked scraper thru DV tool. Prep to TOH with 2-7/8" N-80 tubing and run CBL/CCL/GR. Plan to perf Morrow zone today and acidized with 2000 Wednesday. DC \$9985

10-18-95 TOH with 2-7/8" N-80 tubing, scraper and bit. Rigged up wireline. TIH with logging tool. Correlated logging tool into place and pressured casing to 1000 psi and run CBL/CCL/GR log from 12,071-3000'. TOH with logging tool. TIH with 4" casing guns. Correlated guns into place and perforated (2 SPF - 60 deg phasing) with 28 - .41" holes as follows: 11,872-11,878' and 11,853-11,859'. TOH with 4" casing guns and rigged down wireline. TIH with Uni VI packer with on/off tool and 1.81" profile nipple and 2-7/8" N-80 tubing to 11,812'. Shut down. Prep to acidize Morrow Zone #1 with 2000 gals acid with N2 and balls. DC \$9375; CC \$19,360

10-19-95 Finished TIH with 2-7/8" N-80 tubing to 11,907'. Rigged up and spotted 2 bbls of 7-1/2% HCL Morrow acid across perfs 11,853-11,878'. Moved up and set packer at 11,812'. Reversed 2 bbls inside tubing. Nippled down BOP and installed tree. Loaded and tested annulus to 1000 psi, OK. Rigged up swab. Swabbed fluid level in tubing down to 10,000'. Recovered 62 bbls. Rigged down swab. Rigged up tree saver. Rigged up and acidized perfs 11,853-11,878' with 2000 gals 7-1/2% HCL Morrow type acid with 1000 SCF/bbl N2 and 45 balls. Broke down 6200 psi, avg 6200 psi @ 4 BPM. Ball action good. ISDP 5500 psi, 5 mins 5200 psi, 10 mins 5100 psi, 15 mins 5000 psi. Total load to recover 98 bbls. Rigged down tree saver. Rigged up and flow/swab with the following results:

TIME	FL	SR	OIL	WATER	GAS
4 PM	700# - 1/4" ck	0	34	0	N2
5 PM	0# - 1/4" ck	0	2	0	N2
6 PM	1600'	1	0	22	0 flowed N2
7 PM	10,000'	1	0	0	0 no recovery
8 PM	light plant went down				
9 PM	waiting on new light plant				
10 PM	10,200'				
11 PM	10,800'	2	0	6	slight*
12 AM	11,000'	2	0	2	slight*
1 AM	11,000'	1	0	1	slight*
2 AM	wait				
3 AM	11,000'	1	0	1	slight*
4 AM	wait				