PACIFIC ENTERPRISES OIL COMPANY (USA)

OIL CONSERVATION DIVISION

RECEIVED

'92 SEP 24 PM 9 20

4245 Kemp Blvd.
Suite 600
Wichita Falls, TX 76308
(817) 692-3003
(817) 689-2343

21 September, 1992

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
SANTA FE, NEW MEXICO 87504

Attn: DIVISION DIRECTOR

Sir;

Please find attached duplicate copies of an application from PACIFIC ENTERPRISES OIL COMPANY (USA) for approval to downhole commingle the Antelope Ridge (Atoka) and the Antelope Ridge (Morrow) zones in the State 23 Com 2, located Unit F, Section 23, T23S, R34E Lea County, New Mexico. One copy of this application is being forwarded to the District I office.

Please contact the undersigned at the letterhead address or (817) 692-3003 if further information is required.

Regards,
PACIFIC ENTERPRISES
OIL COMPANY (USA)

Donald L. Black

Donald L. Black
Operations Engineer

APPLICATION FOR APPROVAL TO DOWNHOLE COMMINGLE

Operator: PACIFIC ENTERPRISES OIL COMPANY (USA)

Address: 4245 Kemp Boulevard, Suite 600
Wichita Falls, Texas 76308

Lease Name: State 23 Com 2

Location: Unit F, Section 23, T23S, R34E NMPM Lea County, New Mexico

Pools: Antelope Ridge (Atoka)
Antelope Ridge (Morrow)

Plat: Attached

FORM C-116: Current Form C-116 for Antelope Ridge (Morrow) attached. The Antelope Ridge (Atoka) is incapable of sustained production due to high friction pressure losses caused by small size production tubing.

Decline Curves: Attached. Please note that the Atoka interval has not produced since 1988.

Bottomhole Pressures: Atoka - 1604 PSIA @ 12042'
Morrow - 898 PSIA @ 13265'

Due to the small size (1-1/2" O.D.) of the Atoka production tubing no direct measurement of the pressure of that interval is possible. Therefore the above bottomhole pressure was calculated based on surface shutin pressure.

The bottomhole pressure for the Morrow was likewise calculated from an 84 hour surface shutin pressure. We believe that this pressure is approaching that of static pressure and should be acceptable for determining reservoir pressure.

Fluid Characteristics: Analyses attached. Precipitation is not expected from mixing of produced fluids.

Combined Value: Attached is a "GAS CONTRACT BRIEF" for August, 1992 prepared by the PACIFIC ENTERPRISES OIL COMPANY (USA)'s Marketing Department showing the price paid for gas from the State 23 Com 1 (Antelope Ridge (Atoka) field) and the State 23 Com 2 (presently Antelope Ridge (Morrow) field production only) are identical. No decrease in value in the commingled gas stream from the State 23 Com 2 is anticipated.

Allocation Formula: Recommend that gas production from the commingled zones be allocated evenly between the two zones. No production tests from the Atoka interval have occurred since 1/88. No reliable estimate of potential production from the Atoka can be made.

The Morrow formation of the State 23 Com 2 does not now produce condensate, therefore all such production from the commingled zones must be allocated to the Antelope Ridge (Atoka) field.

Offset Operators Notification: All operators offsetting the subject well have been notified via registered mail.

General: Small diameter tubing (please see attached wellbore schematic) was installed in January 8, 1988 on the Atoka in an effort to improve lifting velocities and keep fluid unloaded. Friction pressures were greater than predicted and resulted in that interval becoming incapable of production.

Permission is requested to downhole commingle the Atoka and Morrow zones in this well by perforating the 2-7/8" tubing opposite the lowermost Atoka interval and producing up the long string of tubing. The additional gas volume from the Atoka will aid in keeping the long string of tubing from loading with produced fluid.

Waste will be prevented by production of gas reserves now left in the ground.

Submit 2 copies to Appropriate
District Office.
DISTRICT I
P.O. Box 1980, Hobbs, NM 88240
DISTRICT II
P.O. Drawer DD, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Form C-116
Revised 1/1/89

GAS - OIL RATIO TEST

Operator	Pool	County
Pacific Enterprises Oil Company (USA)	Antelope Ridge (Morrow)	Lea

Address: 4245 Kemp, Ste. 600, Wichita Falls, TX 76308

TYPE OF TEST - (X): Scheduled [ ] Completion [ ] Special [XX]

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS - OIL RATIO CU.FT/BBL.
State 23 Com	#2	F	23	23S	34E	8/22/92		64/64"	120		24	3	N/A	0	462	N/A

Instructions:

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Division.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

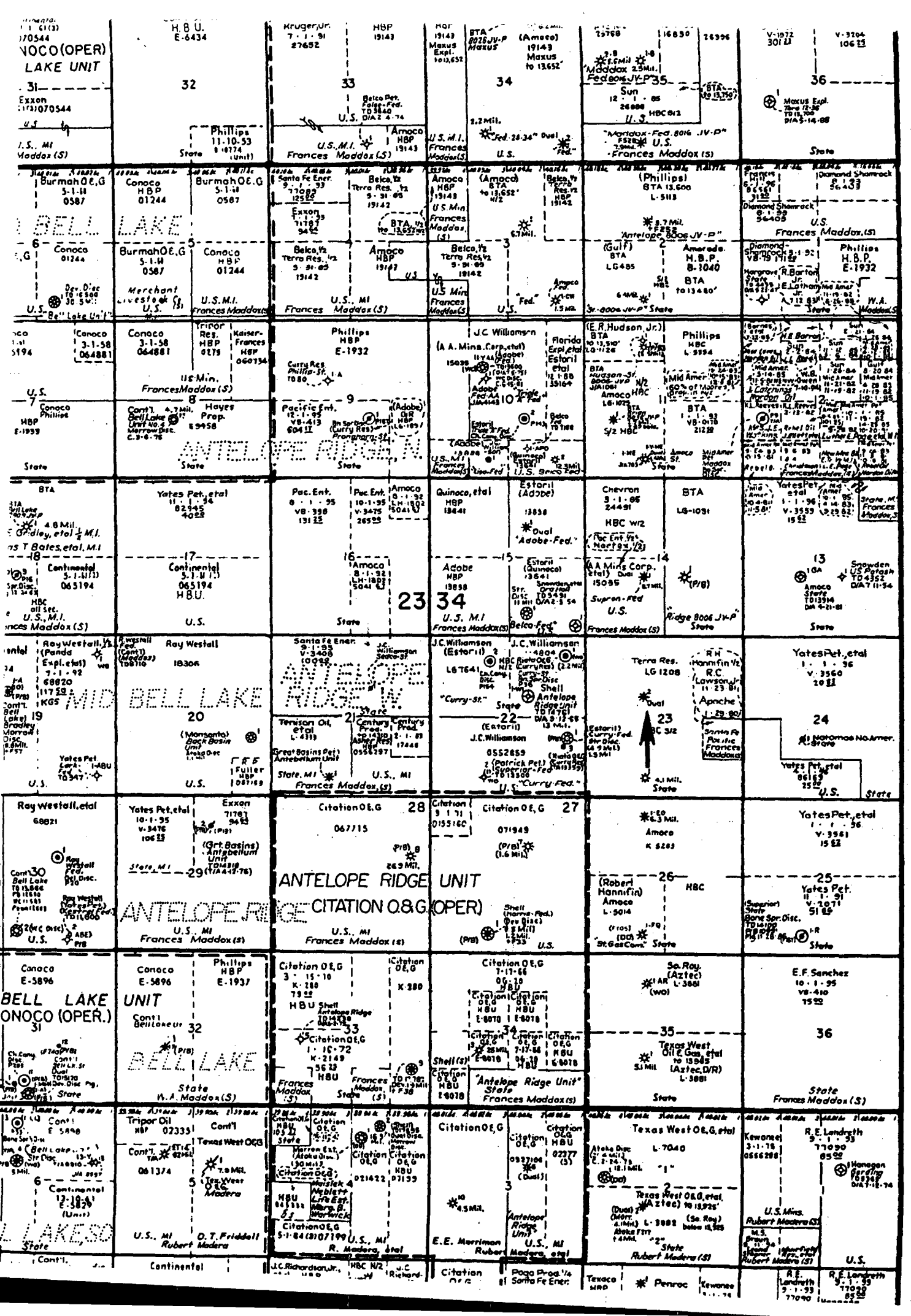
(See Rule 301, Rule 1116 & appropriate pool rules.)

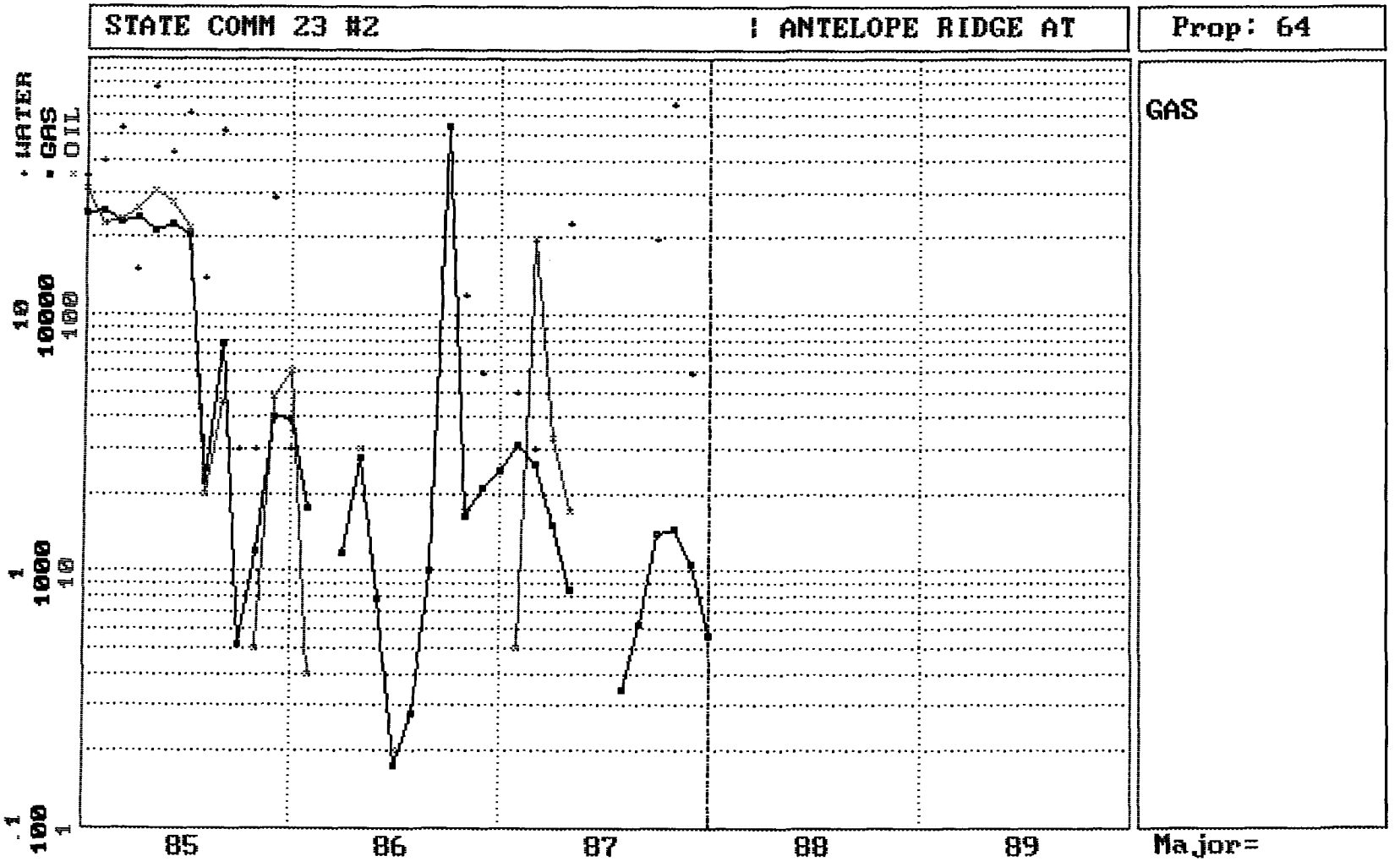
I hereby certify that the above information is true and complete to the best of my knowledge and belief.

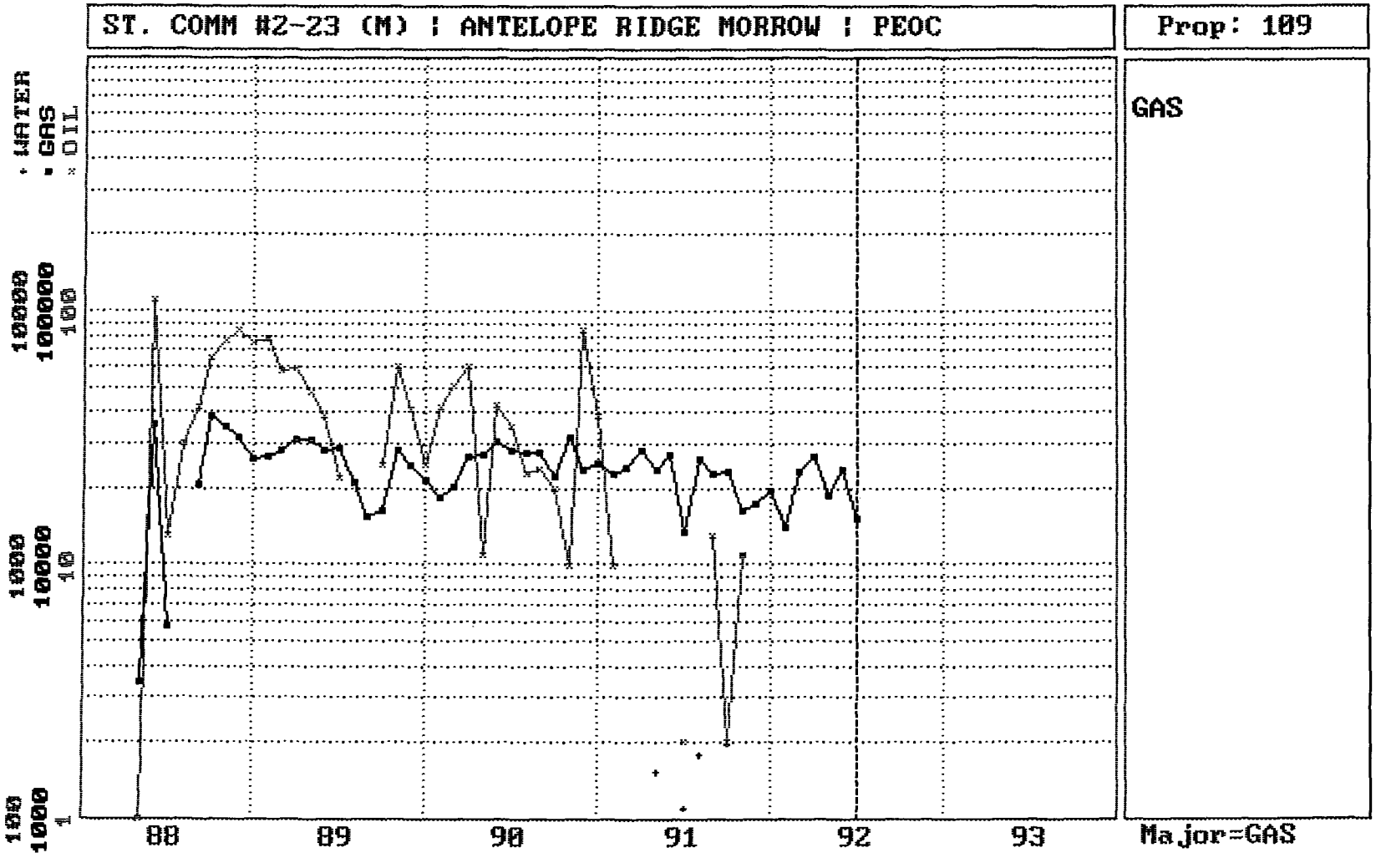
Signature

Donald L. Black, Operations Engineer
Printed name and title

9/21/92 817/692-3003
Date Telephone No.


T
23
S
ANTELOPE RIDGE
ANTELOPE RIDGE UNIT
CITATION O&G (OPER)
BELL LAKE
BELL LAKE UNIT
MID BELL LAKE
ONOCO (OPER.)
Frances Maddox (S)
U.S.
State


STATE COMM 23 #2
ANTELOPE RIDGE AT
Prop: 64
GAS
WATER
GAS
OIL
10
10000
100
1
1000
10
.1
100
1
85
86
87
88
89
Major=


ST. COMM #2-23 (M) ! ANTELOPE RIDGE MORROW ! PEOC
Prop: 109
GAS
WATER
GAS
OIL
100000
100000
100
10000
10000
10
1000
1000
1
88
89
90
91
92
93
Major=GAS

--QUICK BHP--

Calculate BHP and Z-factor from surface shut-in pressure

09/10/92

WELL NAME :	State 23 Com 2 Morrow				
GAS GRAVITY:	0.60		% N2	0.21	
CONDENSATE (YES=1):	0		% CO2	0.53	%
RESERVOIR TEMP:	177	'F	% H2S	0.00	%
SURFACE TEMP:	70	'F	Pc =	674.49	%
DEPTH OF ZONE:	13,265	feet	Tc =	356.51	

SURFACE PRES	BHP	Z	BHP/Z
psia	psia		psia
680	898	0.9344	961

Written by
Doug Boone
Version 1.0

--QUICK BHP--

Calculate BHP and Z-factor from surface shut-in pressure

09/10/92

WELL NAME :	State 23 Com 2 Atoka				
GAS GRAVITY:	0.62		% N2	0.71	
CONDENSATE (YES=1):	1		% CO2	0.00	%
RESERVOIR TEMP:	154	'F	% H2S	0.00	%
SURFACE TEMP:	70	'F	Pc =	668.47	%
DEPTH OF ZONE:	12,042	feet	Tc =	362.96	

SURFACE PRES	BHP	Z	BHP/Z
psia	psia		psia
1,200	1,604	0.8742	1,835

Written by
Doug Boone
Version 1.0

NL Industries, Inc.
P.O. Box 1675, Houston, Texas 77001

WATER ANALYSIS REPORT

BAROID TREATING CHEMICALS

SHEET NUMBER

COMPANY: Natomas of North America

DATE: 8/12/80

FIELD

COUNTY OR PARISH: Lea

STATE: N.M.

LEASE OR UNIT: State Comm

WELL(S) NAME OR NO.: 23-3 ~~22-1 South~~

WATER SOURCE (FORMATION): South Separator Morrow

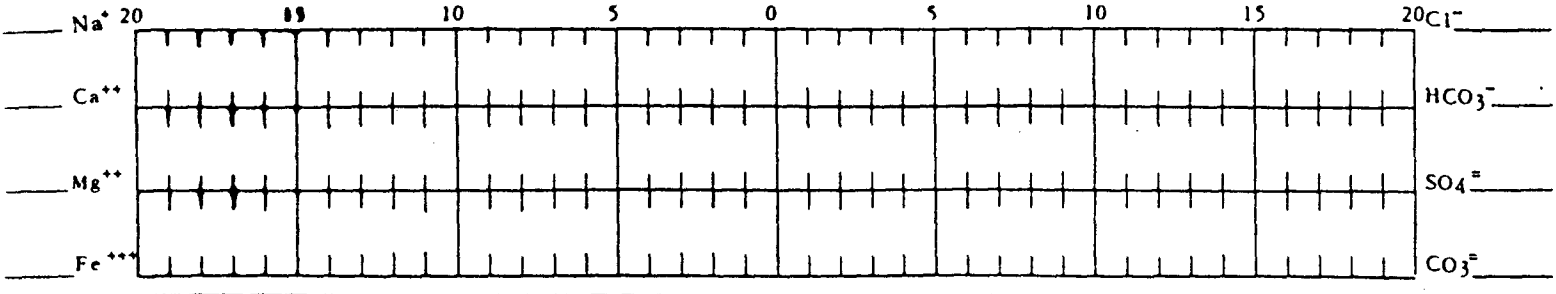
DEPTH, FT.	SMT, F	SAMPLE SOURCE	TEMP, F	WATER, BBL/DAY	OIL, BBL/DAY	GAS, MMCF/DAY

DATE SAMPLED

TYPE OF WATER: [X] PRODUCED [ ] SUPPLY [ ] WATERFLOOD [ ] SALT WATER DISPOSAL

WATER ANALYSIS PATTERN

(NUMBER BESIDE ION SYMBOL INDICATES me/l* SCALE UNIT)



DISSOLVED SOLIDS

CATIONS	me/l*	mg/l* (ppm)
Total Hardness	86	
Calcium, Ca^{++}	68	1360
Magnesium, Mg^{++}	18	220
Iron (Total) Fe^{+++}		
Barium, Ba^{++}	.07	5
Sodium, Na^{+} (calc.)	989	22751
ANIONS		
Chloride, Cl^{-}	1056	37500
Sulfate, SO_4	10	500
Carbonate, CO_3		
Bicarbonate, HCO_3^{-}	8.4	512
Hydroxyl, OH		
Sulfide, $S^{=}$	less than 1	

DISSOLVED GASES

Hydrogen Sulfide, H_2S	mg/l*
Carbon Dioxide, CO_2	mg/l*
Oxygen, O_2	mg/l*

PHYSICAL PROPERTIES

pH	7.4
Eh (Redox Potential)	MV
Specific Gravity	
Turbidity, JTU Units	
Total Dissolved Solids (calc.)	62848 mg/l*
Stability Index @68 F	+.32
@122F	+1.00
$CaSO_4$ Solubility @68 F	57.62 mg/l*
@104F	59.26 mg/l*
Max. $CaSO_4$ Possible (calc.)	10 ~~mg~~ xxxme/l
Max. $BaSO_4$ Possible (calc.)	mg/l*
Residual Hydrocarbons	ppm(Vol/Vol)

SUSPENDED SOLIDS (QUALITATIVE)

Iron Sulfide [ ] Iron Oxide [ ] Calcium Carbonate [ ] Acid Insoluble [ ]

REMARKS AND RECOMMENDATIONS:

*NOTE: me/l and mg/l are commonly used interchangeably for epm and ppm respectively. Where epm and ppm are used, corrections should be made for specific gravity.

ENGINEER	DIST. NO.	ADDRESS	OFFICE PHONE	HOME PHONE
K.W.Keeton	21	P.O.Box 1697, Hobbs	393-3938	392-7303
ANALYZED: Larson	DATE: 8/20/80	DISTRIBUTION [ ] CUSTOMER [ ] AREA OR [ ] DISTRICT OFFICE		

Baroid
NL Industries, Inc.
P.O. Box 1675, Houston, Texas 77001

WATER ANALYSIS REPORT

BAROID TREATING CHEMICALS

COMPANY: Natomas of North America	SHEET NUMBER:
FIELD:	DATE: 8/12/80
LEASE OR UNIT:	COUNTY OR PARISH: Lea
WELL(S) NAME OR NO.: ~~23-2 22-1 North~~	STATE: N.M.
WATER SOURCE (FORMATION): North Separator Atoka	

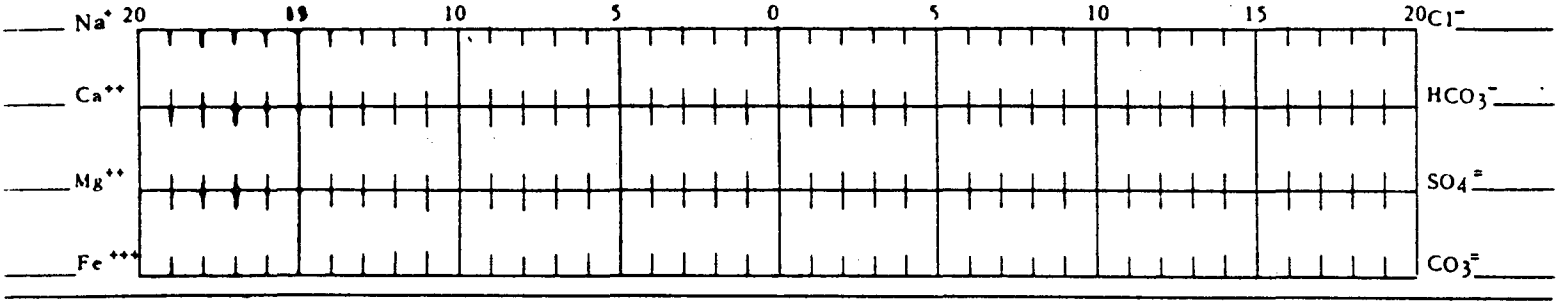
DEPTH, FT.	BHT, F	SAMPLE SOURCE	TEMP, F	WATER, BBL/DAY	OIL, BBL/DAY	GAS, MMCF/DAY

DATE SAMPLED:

TYPE OF WATER: [X] PRODUCED [ ] SUPPLY [ ] WATERFLOOD [ ] SALT WATER DISPOSAL

WATER ANALYSIS PATTERN

(NUMBER BESIDE ION SYMBOL INDICATES me/l* SCALE UNIT)



DISSOLVED SOLIDS

CATIONS	me/l*	ppm mg/l*
Total Hardness	3	
Calcium, Ca^{++}	1	20
Magnesium, Mg^{++}	2	24
Iron (Total) Fe^{+++}		
Barium, Ba^{++}	.3	20
Sodium, Na^{+} (calc.)	17	392
ANIONS		
Chloride, Cl^{-}	17	600
Sulfate, SO_4	.5	25
Carbonate, CO_3		
Bicarbonate, HCO_3^{-}	2.6	159
Hydroxyl, OH^{-}		
Sulfide, S^{-}	less than 1	

DISSOLVED GASES

Hydrogen Sulfide, H_2S	mg/l*
Carbon Dioxide, CO_2	mg/l*
Oxygen, O_2	mg/l*

PHYSICAL PROPERTIES

pH	5.9
Eh (Redox Potential)	MV
Specific Gravity	
Turbidity, JTU Units	
Total Dissolved Solids (calc.)	1240 mg/l*
Stability Index @ 68 F	-2.08
@ 122 F	-1.68
$CaSO_4$ Solubility @ ___ F	mg/l*
@ ___ F	mg/l*
Max. $CaSO_4$ Possible (calc.)	.5 ~~mg~~ me/l
Max. $BaSO_4$ Possible (calc.)	mg/l*
Residual Hydrocarbons	ppm(Vol/Vol)

SUSPENDED SOLIDS (QUALITATIVE)

Iron Sulfide [ ] Iron Oxide [ ] Calcium Carbonate [ ] Acid Insoluble [ ]

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K.W.Keeton	21	P.O.Box 1697, Hobbs	393-3938	392-7303
ANALYZED: Tarson	DATE: 8/20/80	DISTRIBUTION [ ] CUSTOMER [ ] AREA OR [ ] DISTRICT OFFICE		

GAS CONTRACT BRIEF

BRIEF # 1201

NEW CONTRACT BRIEF ____
AMENDMENT BRIEF ____

PERMIAN

K# 4051

OPERATOR: VARIOUS (See Attached)	DATE: PREPARED BY: RANDY KEMPER
PURCHASER: AQUILA GAS MARKETING ATTN: MARK GURLEY	PEOC IS: JOA___ CONTRACT _XX_ CHANGE OF PURCHASER: ✓ YES ____ NO PO PREPARED BY: ✓ PEOC ____ PURCHASER CONTRACT DATE: 7/1/90 TERM: AUGUST 1992

WELL NAME(S): NOMINATION:

STATE COM 1-23, 2-23 1,479 MMBTU/D

FIELD: CO/PARISH: STATE :

BASE PRICE:

(PRICE/MMBTU + TAX REIMBURSEMENT - (*TYPE AMOUNT)) X Btu - PRICE/MCF W/TAX

($ 1.87 + _____ - _____) X ____ = $ 1.87

*DEDUCTIONS: 1)TREATING 2) GATHERING 3) TRANSPORTATION 4) DEHYDRATION 5) COMPRESSION

BTU: @SAT ____ @DRY _XX_ @ACTUAL ____

INVOICING REQUIREMENTS: YES, INVOICE AT 1.87 PER MMBTU (DRY)

PAYOR IF OTHER THAN PURCHASER : AQUILA

ACCOUNTS TO PEOC FOR: NET ____ GROSS ____ PEOC, et al ____

ROYALTY PAID BY: PURCHASER ____ OPERATOR ____ PEOC _XX_

BUYER TAX REIMBURSEMENT: YES ____ NO _XX_

TAXES REMITTED BY: PURCHASER _____ OPERATOR _____ PEOC _XX_

GATHERER/TRANSPORTER: GCNM / EL PASO

DELIVERY POINT: EL PASO

BEST EFFORTS CONTRACT: _XX_ TAKE OR RELEASE: _____ TAKE OR PAY: _____

COMMENTS: PEOC PREPARES P/O
VOLS. SOLD INTO EL PASO & PEOC PAYS TRANSPORT TO GCNM @ $.09 PER MMBTU

Permian Basin

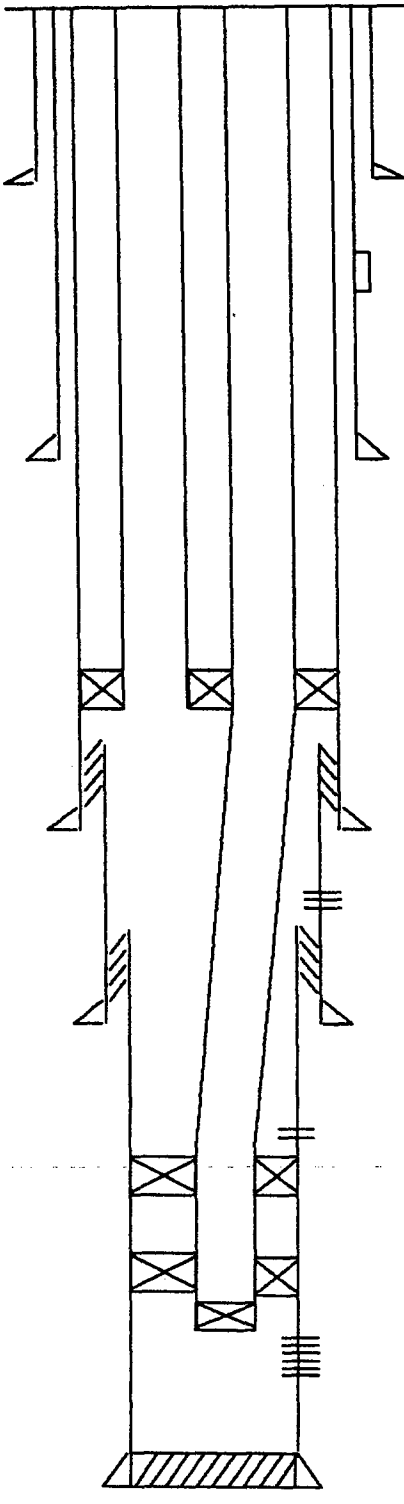
DISTRIBUTION:
1) BLACK
2) BAKER
3) KEMPER
4) BRIEF BOOK / 201
5) LAND DEPT. - ROD SMITH
6) ACCOUNTING DEPT. - C. NICKEL
7) TAX DEPT. - W. FINLEY
ORIGINAL: HOLDING FILE/CONTRACT FILE

RECEIVED
AUG 27 1992
WICHITA FALLS OPERATIONS

PACIFIC ENTERPRISES OIL COMPANY (USA)

STATE COM #2-23

1980' FNL, 1980' FWL, Sec. 23, T23S R34E, Lea Co., NM — 3/18/92



GR 3389'
KB 3414'

20" 94#/ft H-40 @682'
Cmtd w/ 925 sx HLC
Tail w/ 500 sx Class C
Cmt to surface

DV Tool @1,471'
Cmtd w/ 1200 sx HLC
Tail w/ 200 sx Class C

13-3/8" csg @5090'
Cmtd w/ 1575 sx HLC
Tail w/ 350 sx Class C

9-5/8" x 3-1/2" x 2-7/8" RDH pkr @11,250'

9-5/8" 47#/ft P-110 @11,900'
Cmtd w/ 325 sx HLC
Tail w/ 320 sx Class H

Atoka Perfs: 12,033-12,052'

TOL (5") @12,402'

7-7/8" 39#/ft P-110 @12,680'
Cmtd w/ 165 sx
Atoka "EO" Perfs: 12,796-12,802'

4-1/2" Otis "WB" pkr @12,943'

4-1/2" Otis "WB" pkr @13,000'
Plug stuck in SN. Perfed tailpipe.

Morrow perfs: 13,232-13,298'

PBTD = 13,481'
5" 23#/ft P-110 @13,598'

TD = 13,600'

Antelope Ridge Field

Spud date: 6/20/79
Completion: 12/4/79
Reworked: 8/25/79

Producing from Morrow 13,232'-298'

Stimulation:
Morrow 800 G Acetic acid
Atoka EO 500 G 7-1/2% Acetic acid
U. Atoka - none

IP: Morrow 7262 MCFD, 133 BOPD
11 BWPD @4990# FTP
Atoka 4455 MCFD, 204 BOPD
64 BWPD @3110# FTP

Current Production:
Morrow: 715 MCFD, 6 BWPD @120# FTP
Atoka: None

Tubing data:
Short String: 1/8/88
2-7/8" A95 pup, xo, 11,250' (approx)
1-1/2" IJ, xo, seal assy, xo, 1100' (approx)
1-1/4" IJ

Long String: 9/23/81
342 jts 2-7/8" CS-HYD, xo
9-5/8" RDH pkr, 25 jts 2-7/8" tbg.
42' blast jt, 11 jts, 2-7/8" 8.7# PH6, xo, 13 jts
2-3/8" CS, 30' blast jt, 4 jts 2-3/8" CS, seal assy

APPLICATION FOR APPROVAL TO DOWNHOLE COMMINGLE

Operator: PACIFIC ENTERPRISES OIL COMPANY (USA)

Address: 4245 Kemp Boulevard, Suite 600
Wichita Falls, Texas 76308

Lease Name: State 23 Com 2

Location: Unit F, Section 23, T23S, R34E NMPM Lea County, New Mexico

Pools: Antelope Ridge (Atoka)
Antelope Ridge (Morrow)

Plat: Attached

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General: Small diameter tubing (please see attached wellbore schematic) was installed in January 8, 1988 on the Atoka in an effort to improve lifting velocities and keep fluid unloaded. Friction pressures were greater than predicted and resulted in that interval becoming incapable of production.

Permission is requested to downhole commingle the Atoka and Morrow zones in this well by perforating the 2-7/8" tubing opposite the lowermost Atoka interval and producing up the long string of tubing. The additional gas volume from the Atoka will aid in keeping the long string of tubing from loading with produced fluid.

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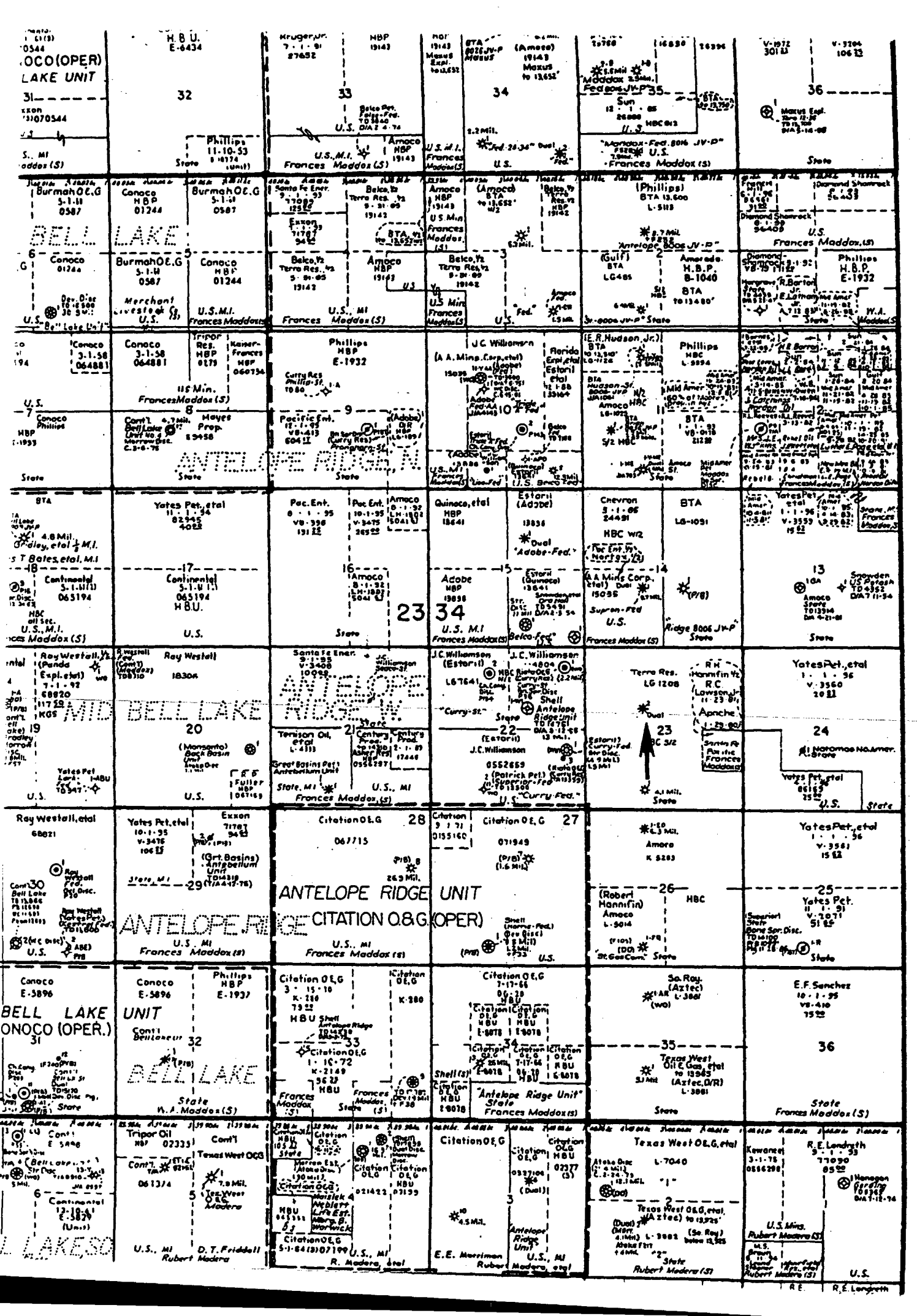
T 23 S
BELL LAKE
BELL LAKE UNIT
OCO (OPER)
LAKE UNIT
MID BELL LAKE
ANTELOPE RIDGE
ANTELOPE RIDGE UNIT
CITATION O&G (OPER)
BELL LAKE
ONOCO (OPER.)
L LAKE SO
H.B.U.
E-6434
Phillips
11-10-53
Amoco
HBP
19143
Conoco
HBP
01244
Burmah O.E.G
5-1-61
0587
Belco, 1/2
Terra Res. 1/2
Exxon
Amoco
(Amoco)
Maxus
(Phillips)
BTA 13,600
L-5113
Gulf
BTA
LG485
Amerada
H.B.P.
B-1040
Diamond Shamrock
Phillips
H.B.P.
E-1932
Tripor Res.
HBP
Kaiser-Francis
Hayes Prop.
Pacific Ent.
Adobe
Quinoco, etal
Estoril
Chevron
BTA
Yates Pet. etal
Continental
Scanlan
Ray Westall, 1/2
Santa Fe Ener.
Williamson
Terrison Oil, etal
Century Prod.
Yates Pet., etal
Citation O&G
Sa. Ray.
(Aztec)
E.F. Sanchez
Texas West Oil & Gas, etal
Tripor Oil
Texas West O.G.
Kewanee
R.E. Landreth
U.S.
State
Frances Maddox (S)
U.S., M.I.
Frances Maddox (S)
U.S. Mins.
Robert Madera (S)
R. Madera, etal
E.E. Merriman
D.T. Friddell
Robert Madera
R.E. Landreth

Submit 2 copies to Appropriate
District Office.
DISTRICT I
P.O. Box 1980, Hobbs, NM 88240
DISTRICT II
P.O. Drawer DD, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Form C-116
Revised 1/1/89

GAS - OIL RATIO TEST

Operator	Pool	County
Pacific Enterprises Oil Company (USA)	Antelope Ridge (Morrow)	Lea

Address: 4245 Kemp, Ste. 600, Wichita Falls, TX 76308

TYPE OF TEST - (X): Scheduled [ ] Completion [ ] Special [XX]

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS - OIL RATIO CU.FT/BBL.
State 23 Com	#2	F	23	23S	34E	8/22/92		64/64"	120		24	3	N/A	0	462	N/A

Instructions:

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Report casing pressure in lieu of tubing pressure for any well producing through casing.

(See Rule 301, Rule 1116 & appropriate pool rules.)

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

Donald L. Black

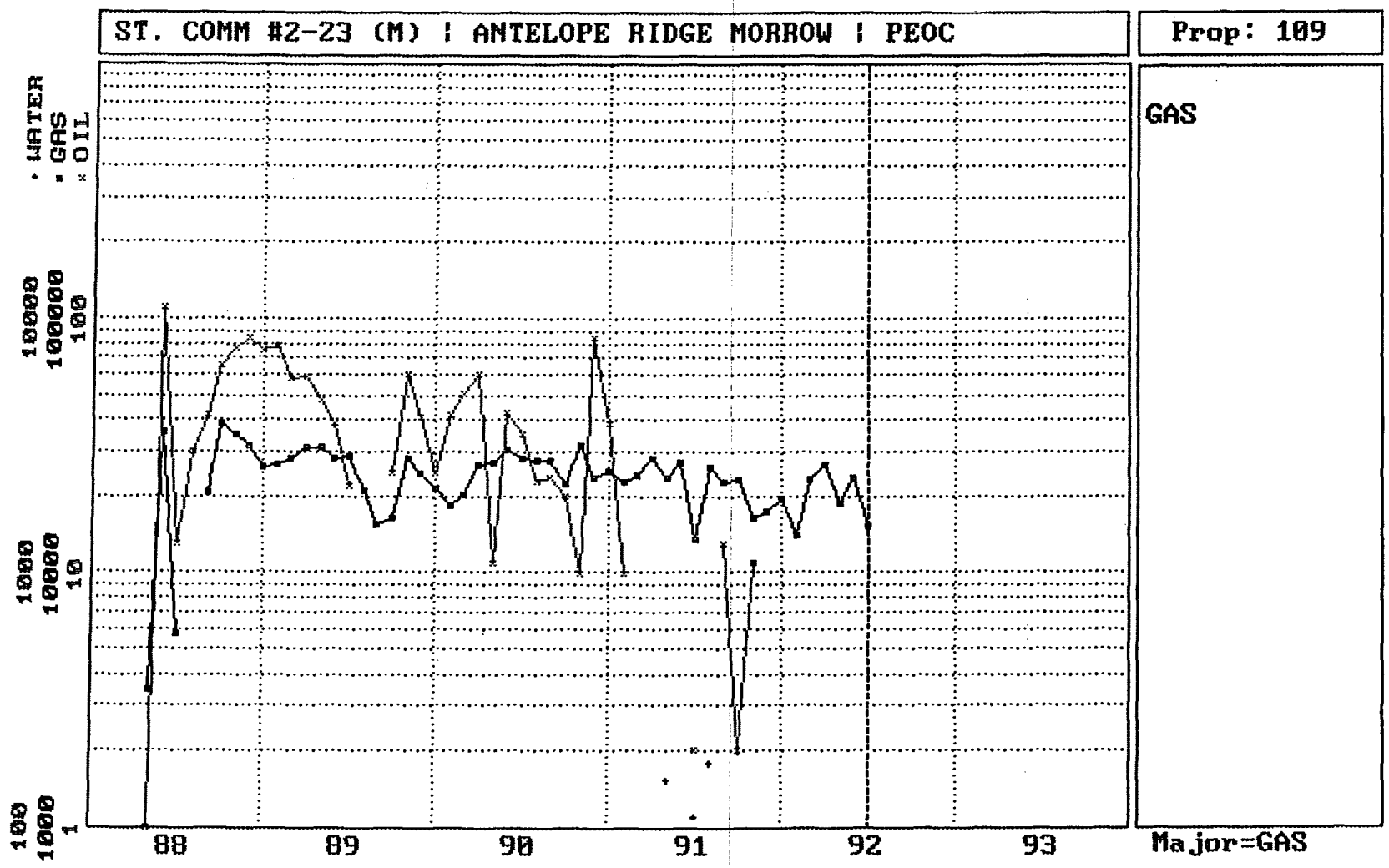
Signature

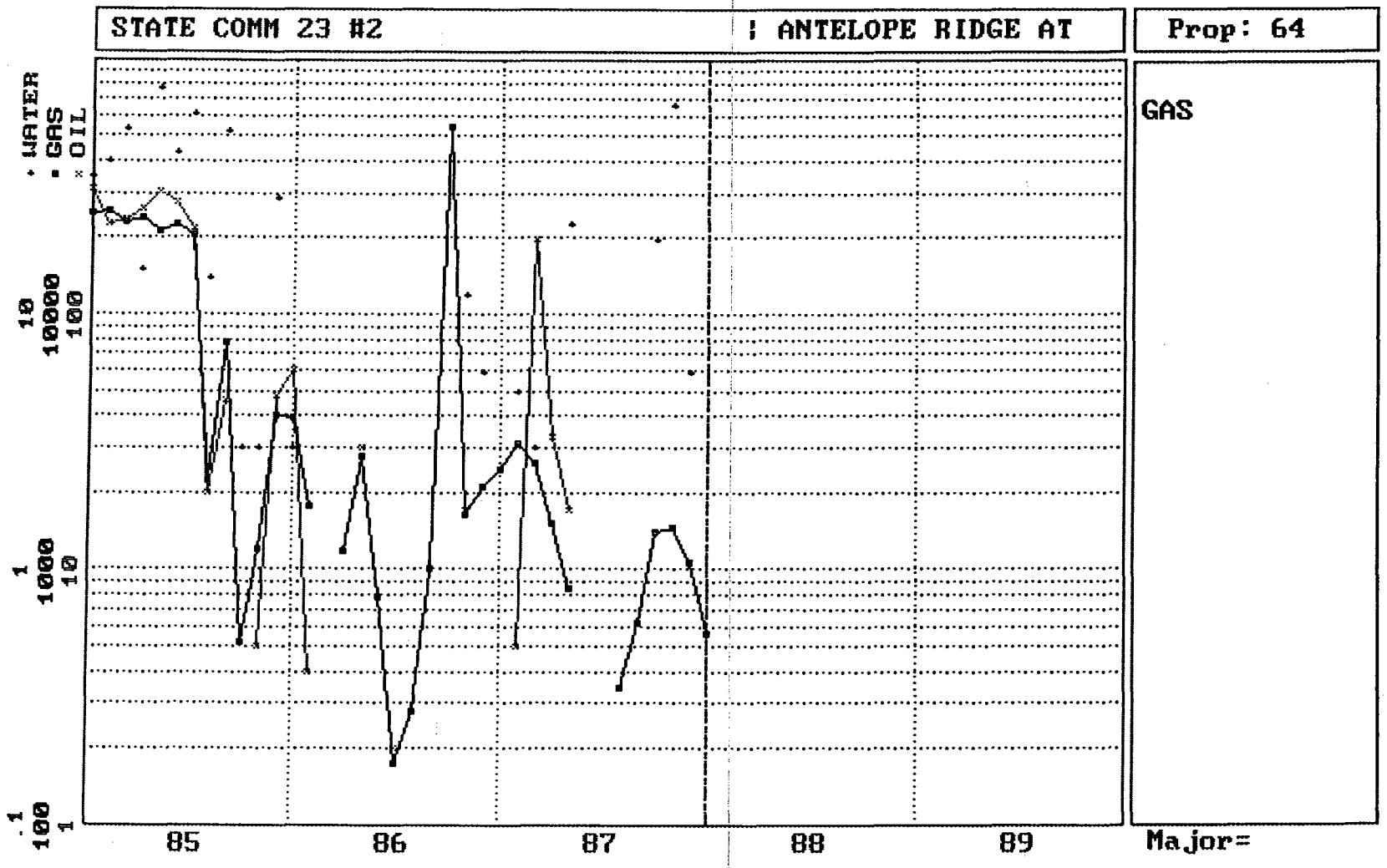
Donald L. Black, Operations Engineer

Printed name and title

9/21/92 — Date

817/692-3003 — Telephone No.


ST. COMM #2-23 (M) ¦ ANTELOPE RIDGE MORROW ¦ PEOC
Prop: 109
GAS
• WATER
▪ GAS
× OIL
100
1000
1
1000
10000
10
10000
100000
100
88
89
90
91
92
93
Major=GAS


STATE COMM 23 #2
ANTELOPE RIDGE AT
Prop: 64
WATER
GAS
OIL
10
10000
100
1
1000
10
.1
100
1
85
86
87
88
89
GAS
Major=

--QUICK BHP--

Calculate BHP and Z-factor from surface shut-in pressure

09/10/92

WELL NAME :	State 23 Com 2 Morrow				
GAS GRAVITY:	0.60		% N2	0.21	
CONDENSATE (YES=1):	0		% CO2	0.53	%
RESERVOIR TEMP:	177	'F	% H2S	0.00	%
SURFACE TEMP:	70	'F	Pc =	674.49	%
DEPTH OF ZONE:	13,265	feet	Tc =	356.51	

SURFACE PRES	BHP	Z	BHP/Z
psia	psia		psia
680	898	0.9344	961

Written by
Doug Boone
Version 1.0

--QUICK BHP--

Calculate BHP and Z-factor from surface shut-in pressure

09/10/92

WELL NAME :	State 23 Com 2 Atoka				
GAS GRAVITY:	0.62		% N2	0.71	
CONDENSATE (YES=1):	1		% CO2	0.00	%
RESERVOIR TEMP:	154	'F	% H2S	0.00	%
SURFACE TEMP:	70	'F	Pc =	668.47	%
DEPTH OF ZONE:	12,042	feet	Tc =	362.96	

SURFACE PRES	BHP	Z	BHP/Z
psia	psia		psia
1,200	1,604	0.8742	1,835

Written by
Doug Boone
Version 1.0

NL Industries, Inc.
P.O. Box 1675, Houston, Texas 77001

WATER ANALYSIS REPORT

BAROID TREATING CHEMICALS

SHEET NUMBER

COMPANY: Natomas of North America

DATE: 8/12/80

FIELD:

COUNTY OR PARISH: Lea

STATE: N.M.

LEASE OR UNIT: State Com

WELL(S) NAME OR NO.: ~~22-1 South~~ 23-2

WATER SOURCE (FORMATION): South Separator Morrow

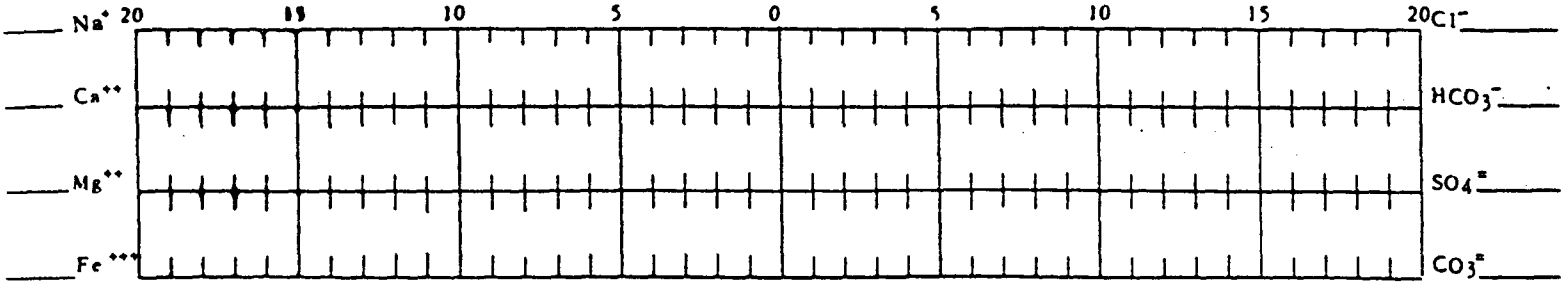
DEPTH, FT.	WHT. #	SAMPLE SOURCE	TEMP. F	WATER, BBL/DAY	OIL, BBL/DAY	GAS, MMCF/DAY

DATE SAMPLED:

TYPE OF WATER: [X] PRODUCED [ ] SUPPLY [ ] WATERFLOOD [ ] SALT WATER DISPOSAL

WATER ANALYSIS PATTERN

(NUMBER BESIDE ION SYMBOL INDICATES me/l* SCALE UNIT)



DISSOLVED SOLIDS

CATIONS	me/l*	ppm mg/l*
Total Hardness	86	
Calcium, Ca++	68	1360
Magnesium, Mg++	18	220
Iron (Total) Fe+++		
Barium, Ba++	.07	5
Sodium, Na+ (calc.)	989	22751
ANIONS		
Chloride, Cl-	1056	37500
Sulfate, SO4=	10	500
Carbonate, CO3=		
Bicarbonate, HCO3-	8.4	512
Hydroxyl, OH		
Sulfide, S=	less than 1	

DISSOLVED GASES

Hydrogen Sulfide, H_2S		mg/l*
Carbon Dioxide, CO_2		mg/l*
Oxygen, O_2		mg/l*

PHYSICAL PROPERTIES

pH	7.4	
Eh (Redox Potential)		MV
Specific Gravity		
Turbidity, JTU Units		
Total Dissolved Solids (calc.)	62848	mg/l*
Stability Index @68 F	+.32	
@122F	+1.00	
$CaSO_4$ Solubility @68 F	57.62	mg/l*
@104F	59.26	mg/l*
Max. $CaSO_4$ Possible (calc.)	10	~~mg/l~~ me/l
Max. $BaSO_4$ Possible (calc.)		mg/l*
Residual Hydrocarbons		ppm(Vol/Vol)

SUSPENDED SOLIDS (QUALITATIVE)

Iron Sulfide [ ] Iron Oxide [ ] Calcium Carbonate [ ] Acid Insoluble [ ]

REMARKS AND RECOMMENDATIONS:

*NOTE: me/l and mg/l are commonly used interchangeably for epm and ppm respectively. Where epm and ppm are used, corrections should be made for specific gravity.

FIELD ENGINEER	DIST. NO.	ADDRESS	OFFICE PHONE	HOME PHONE
K.W.Keeton	21	P.O.Box 1697, Hobbs	393-3938	392-7303

Baroid
NL Industries, Inc.
P.O. Box 1675, Houston, Texas 77001

WATER ANALYSIS REPORT

BAROID TREATING CHEMICALS

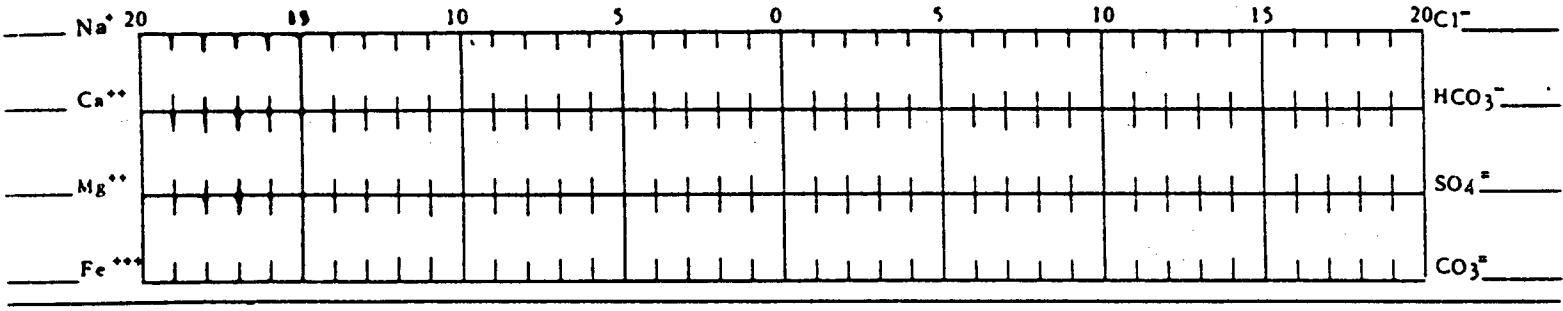
NATIONAL OILWELL NORTH AMERICA
SEP 15 1980
Production Dept.
Moore, Oklahoma

COMPANY: Natomas of North America			SHEET NUMBER:
FIELD		OIL RUN	DATE: 8/12/80
LEASE OR UNIT	WELL(S) NAME OR NO.: ~~23-2 22-3 North~~	COUNTY: Lea	STATE: N.M.
DEPTH, FT.	BHT, F	WATER SOURCE (FORMATION): North Separator Atoka	
DATE SAMPLED	SAMPLE SOURCE	TEMP, F	WATER, BBL/DAY / OIL, BBL/DAY / GAS, MMCF/DAY

TYPE OF WATER: [X] PRODUCED [ ] SUPPLY [ ] WATERFLOOD [ ] SALT WATER DISPOSAL

WATER ANALYSIS PATTERN

(NUMBER BESIDE ION SYMBOL INDICATES me/l* SCALE UNIT)



DISSOLVED SOLIDS

CATIONS	me/l*	mg/l* (ppm)
Total Hardness	3	
Calcium, Ca^{++}	1	20
Magnesium, Mg^{++}	2	24
Iron (Total) Fe^{+++}		
Barium, Ba^{++}	.3	20
Sodium, Na^{+} (calc.)	17	392
ANIONS		
Chloride, Cl^{-}	17	600
Sulfate, SO_4	.5	25
Carbonate, CO_3		
Bicarbonate, HCO_3^{-}	2.6	159
Hydroxyl, OH^{-}		
Sulfide, S^{-}	less than 1	

DISSOLVED GASES

Hydrogen Sulfide, H_2S		mg/l*
Carbon Dioxide, CO_2		mg/l*
Oxygen, O_2		mg/l*

PHYSICAL PROPERTIES

pH	5.9	
Eh (Redox Potential)		MV
Specific Gravity		
Turbidity, JTU Units		
Total Dissolved Solids (calc.)	1240	mg/l*
Stability Index @ 68 F	-2.08	
@ 122 F	-1.68	
$CaSO_4$ Solubility @ ___ F		mg/l*
@ ___ F		mg/l*
Max. $CaSO_4$ Possible (calc.)	.5	~~xxxx~~me/l
Max. $BaSO_4$ Possible (calc.)		mg/l*
Residual Hydrocarbons		ppm(Vol/Vol

SUSPENDED SOLIDS (QUALITATIVE)

Iron Sulfide [ ] Iron Oxide [ ] Calcium Carbonate [ ] Acid Insoluble [ ]

REMARKS AND RECOMMENDATIONS:

*NOTE: me/l and mg/l are commonly used interchangeably for epm and ppm respectively. Where epm and ppm are used, corrections should be made for specific gravity.

BTC ENGINEER	DIST. NO.	ADDRESS	OFFICE PHONE	HOME PHONE
K.W. Keeton	21	P.O. Box 1697, Hobbs	393-3938	392-7303
ANALYZED	DATE	DISTRIBUTION — CUSTOMER — AREA OR — DISTRICT OFFICE		

GAS CONTRACT BRIEF

BRIEF # 1201

NEW CONTRACT BRIEF ___
AMENDMENT BRIEF ___

PERMIAN

K# 4051

OPERATOR: VARIOUS (See Attached)	DATE: PREPARED BY: RANDY KEMPER
PURCHASER: AQUILA GAS MARKETING ATTN: MARK GURLEY	PEOC IS: JOA___ CONTRACT _XX_ CHANGE OF PURCHASER: ✓ YES ___ NO PO PREPARED BY: ✓ PEOC ___ PURCHASER CONTRACT DATE: 7/1/90 TERM: AUGUST 1992

WELL NAME(S): NOMINATION:

STATE COM 1-23, 2-23 1,479 MMBTU/D

FIELD: CO/PARISH: STATE :

BASE PRICE:

(PRICE/MMBTU + TAX REIMBURSEMENT - (*TYPE AMOUNT)) X Btu - PRICE/MCF W/TAX

($ 1.87 + _____ - _____) X ___ = $ 1.87

*DEDUCTIONS: 1)TREATING 2) GATHERING 3) TRANSPORTATION 4) DEHYDRATION 5) COMPRESSION

BTU: @SAT ___ @DRY _XX_ @ACTUAL ___

INVOICING REQUIREMENTS: YES, INVOICE AT 1.87 PER MMBTU (DRY)

PAYOR IF OTHER THAN PURCHASER : AQUILA

ACCOUNTS TO PEOC FOR: NET ___ GROSS ___ PEOC, et al ___

ROYALTY PAID BY: PURCHASER ___ OPERATOR ___ PEOC _XX_

BUYER TAX REIMBURSEMENT: YES ___ NO _XX_

TAXES REMITTED BY: PURCHASER ___ OPERATOR ___ PEOC _XX_

GATHERER/TRANSPORTER: GCNM / EL PASO

DELIVERY POINT: EL PASO

BEST EFFORTS CONTRACT: _XX_ TAKE OR RELEASE: ___ TAKE OR PAY: ___

COMMENTS: PEOC PREPARES P/O

VOLS. SOLD INTO EL PASO & PEOC PAYS TRANSPORT TO GCNM @ $.09 PER MMBTU

Permian Basin

DISTRIBUTION:

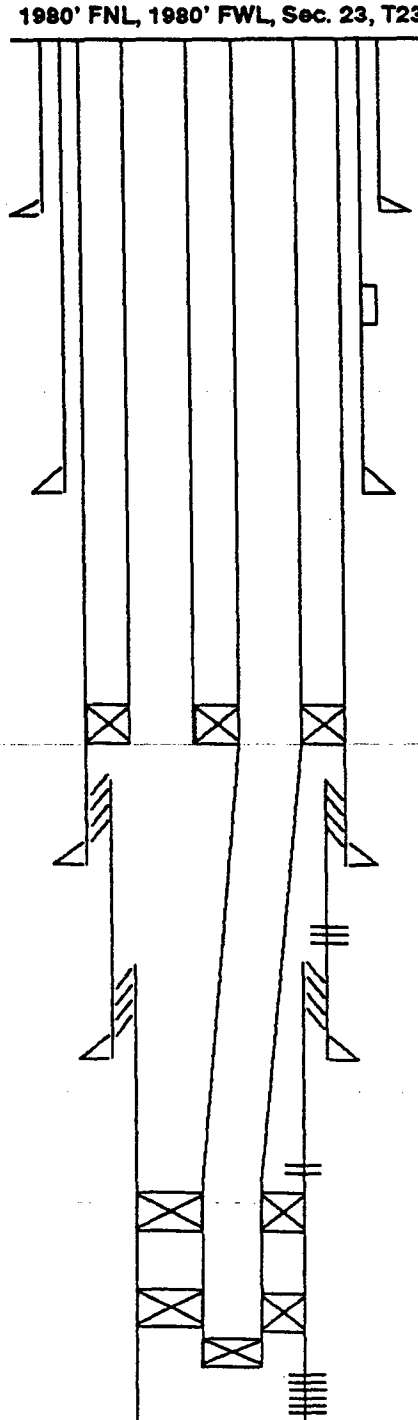
1) BLACK
2) BAKER
3) KEMPER
4) BRIEF BOOK / 201
5) LAND DEPT. - ROO SMITH
6) ACCOUNTING DEPT. - C. NICKEL
7) TAX DEPT. - W. FINLEY
ORIGINAL: HOLDING FILE/CONTRACT FILE

RECEIVED
AUG 27 1992
WICHITA FALLS OPERATIONS

PACIFIC ENTERPRISES OIL COMPANY (USA)

STATE COM #2-23

1980' FNL, 1980' FWL, Sec. 23, T23S R34E, Lea Co., NM — 3/18/92



GR 3389'
KB 3414'

20" 94#/ft H-40 @682'
Cmtd w/ 925 sx HLC
Tail w/ 500 sx Class C
Cmt to surface

DV Tool @1,471'
Cmtd w/ 1200 sx HLC
Tail w/ 200 sx Class C

13-3/8" csg @5090'
Cmtd w/ 1575 sx HLC
Tail w/ 350 sx Class C

9-5/8" x 3-1/2" x 2-7/8" RDH pkr @11,250'

9-5/8" 47#/ft P-110 @11,900'
Cmtd w/ 325 sx HLC
Tail w/ 320 sx Class H

Atoka Perfs: 12,033-12,052'

TOL (5") @12,402'

7-7/8" 39#/ft P-110 @12,680'
Cmtd w/ 165 sx
Atoka "EO" Perfs: 12,796-12,802'

4-1/2" Otis "WB" pkr @12,943'

4-1/2" Otis "WB" pkr @13,000'
Plug stuck in SN. Perfed tailpipe.

Morrow perfs: 13,232-13,298'

PBTD = 13,481'
5" 23#/ft P-110 @13,598'

TD = 13,600'

Antelope Ridge Field

Spud date: 6/20/79
Completion: 12/4/79
Reworked: 8/25/79

Producing from Morrow 13,232'-298'

Stimulation:
Morrow 800 G Acetic acid
Atoka EO 500 G 7-1/2% Acetic acid
U. Atoka - none

IP: Morrow 7262 MCFD, 133 BOPD
11 BWPD @4990# FTP
Atoka 4455 MCFD, 204 BOPD
64 BWPD @3110# FTP

Current Production:
Morrow: 715 MCFD, 6 BWPD @120# FTP
Atoka: None

Tubing data:
Short String: 1/8/88
2-7/8" A95 pup, xo, 11,250' (approx)
1-1/2" IJ, xo, seal assy, xo, 1100' (approx)
1-1/4" IJ

Long String: 9/23/81
342 jts 2-7/8" CS-HYD, xo
9-5/8" RDH pkr, 25 jts 2-7/8" tbg.
42' blast jt, 11 jts, 2-7/8" 8.7# PH6, xo, 13 jts
2-3/8" CS, 30' blast jt, 4 jts 2-3/8" CS, seal assy

OIL CONSERVATION DIVISION
RECEIVED
'92 OCT 26 AM 9 07

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
SANTA FE, NEW MEXICO 87504

Attn: DIVISION DIRECTOR

We, the undersigned, waive objection to the downhole commingling request by PACIFIC ENTERPRISES OIL COMPANY (USA) for the State 23 Com 2, located Unit F, Section 23, T23S, R34E, Lea County, New Mexico.

Donald M. Johnson
Name

Production Supt.
Title

ESTORIL PRODUCING COMPANY
Company

10-23-92
Date

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
SANTA FE, NEW MEXICO 87504

Attn: DIVISION DIRECTOR

We, the undersigned, waive objection to the downhole commingling request by PACIFIC ENTERPRISES OIL COMPANY (USA) for the State 23 Com 2, located Unit F, Section 23, T23S, R34E, Lea County, New Mexico.

J.C. Williamson
Name

Owner
Title

J. C. WILLIAMSON
Company

10/14/92
Date

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
SANTA FE, NEW MEXICO 87504

Attn: DIVISION DIRECTOR

We, the undersigned, waive objection to the downhole commingling request by PACIFIC ENTERPRISES OIL COMPANY (USA) for the State 23 Com 2, located Unit F, Section 23, T23S, R34E, Lea County, New Mexico.

Peter B. Williamson
Name

EXPLOITATION MANAGER
Title

BTA OIL PRODUCERS
Company

10-7-92
Date

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
SANTA FE, NEW MEXICO 87504

Attn: DIVISION DIRECTOR

We, the undersigned, waive objection to the downhole commingling request by PACIFIC ENTERPRISES OIL COMPANY (USA) for the State 23 Com 2, located Unit F, Section 23, T23S, R34E, Lea County, New Mexico.

J. F. Dickett Jr
Name

MANAGER ESRA
Title

AMOCO PRODUCTION COMPANY
Company

10/5/92
Date

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
SANTA FE, NEW MEXICO 87504

Attn: DIVISION DIRECTOR

We, the undersigned, waive objection to the downhole commingling request by PACIFIC ENTERPRISES OIL COMPANY (USA) for the State 23 Com 2, located Unit F, Section 23, T23S, R34E, Lea County, New Mexico.

Ronald Favro
Name

PROD. ADMIN. MGR.
Title

CITATION OIL & GAS CORP.
Company

11-5-92
Date

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
SANTA FE, NEW MEXICO 87504

Attn: DIVISION DIRECTOR

We, the undersigned, waive objection to the downhole commingling request by PACIFIC ENTERPRISES OIL COMPANY (USA) for the State 23 Com 2, located Unit F, Section 23, T23S, R34E, Lea County, New Mexico.

Sarah P. Delaney KPR
Name

RESOURCE MANAGER
Title

AMOCO PRODUCTION COMPANY
Company

10-23-92
Date

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

OIL CONSERVATION DIVISION
RECEIVED
'92 OCT 6 PM 9 18

9-28-92

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

RE: Proposed:
MC_____
DHC X
NSL_____
NSP_____
SWD_____
WFX_____
PMX_____

Gentlemen:

I have examined the application for the:

Pacific Enterprises Oil Co. USA State 23 #2-F 23-23-34
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK

Yours very truly,

Jerry Sexton
Supervisor, District 1

/ed