AGRICULTURE
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC.

4100 PIERCE ROAD, 93308 BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Submitted By: Berry Ventures
P. O. Box 5182
Bakersfield, California 93388

Date Reported: 5/30/84
Date Received: 5/16/84
Laboratory No.: 5566

Marked: New Hope Water Leg

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JUN 28 1985
DIVISION OF OIL & GAS
BAKERSFIELD

OILFIELD
WATER ANALYSIS

Constituents, Parts/million

Boron (B)	1.6
Calcium (Ca)	31.
Magnesium (Mg)	6.1
Sodium (Na)	355.
Potassium (K)	3.2
Carbonate (CO_3)	0.
Bicarbonate (HCO_3)	319.
Chloride (Cl)	424.
Sulfate (SO_4)	(-) 5.
Nitrate (NO_3)	0.4
Fluoride (F)	
Iron (Fe)	(-) 0.05
Manganese (Mn)	0.05
Copper (Cu)	(-) 0.01
Zinc (Zn)	
Aluminum (Al)	
Silica (SiO_2)	48.
Phosphate (PO_4)	
Total Hardness as $CaCO_3$	103 (6.0 gr/gal)
Total Dissolved Solids	1,188.
Oil (Freon extraction)	
pH	8.0
E.C., Micromhos/cm, ($Kx10^6$) @ 25°C	1,930.
Resistivity, Ohm M^2/M	5.18

(-) refers to "less than"

B C LABORATORIES, INC.

BY J. J. Eglin
J. J. Eglin

CHEMICAL ANALYSIS
PETROLEUM
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DIVISION OF OIL & GAS
BAKERSFIELD

Berry Ventures
P. O. Box 5182
Bakersfield, California 93388

Date Reported: 5/1/85
Date Received: 4/19/85
Laboratory No.: 5903

Marked: New Hope Lease

Irrigation WATER ANALYSIS

Salinity, EC x 10^3 (Mmhos/cm) @25° C

Below 0.5	Very low salt content, may cause permeability problems.
Below 0.75	Low salinity hazard - sat. for most crops.
0.75 - 1.5	Medium salinity hazard - sat. for moderately salt tolerant crops.
1.5 - 3.0	High salinity hazard - sat. for highly salt tolerant crops.
Over 3.0	Very high salinity hazard - generally unsuitable for continual use except under favorable conditions of soil, climate, tolerance of crop and necessary leaching.

NOTE: This interpretation of EC assumes that 10-20% of the total water applied passes through and below the root zone. In most cases deep percolation losses will satisfy this leaching requirement for the usual crops of the area.

Salinity
EC Mmhos/cm = 1.75

Boron, ppm

Below 0.5	Satisfactory for all crops.
0.5 - 1.0	Satisfactory for most crops; sensitive crops may show injury - leaf injury, but yields may not be affected.
1.0 - 2.0	Satisfactory for semi-tolerant crops. Sensitive crops usually reduced in yield and vigor.
2.0 - 4.0	Only tolerant crops produce satisfactory yields.

Boron, (B) = 1.7 **ppm**

Chloride, expressed as epm. Fruit crops in general and many wood ornamentals are chloride sensitive.

Below 2	Satisfactory for all crops.
2 - 10	Range associated with leaf burn on chloride sensitive crops.
Above 10	Generally unsatisfactory for chloride sensitive crops.
CAUTION:	Under high rates of evaporation water with 3 epm chloride has caused leaf burn on sensitive tree crops.

CHLORIDE (Cl) = 11.10 **epm.**

SAR Sodium Adsorption Ratio. A calculated valve used to estimate the exchangeable sodium percentage (ESP) of a soil after long term use of the water.

SAR (Water)	ESP (Soil)	
Below 6	Below 10	No soil permeability problem due to sodium.
6 - 9	10 - 15	Possible permeability problems with fine textured soils (saturation percentage above 50).
Above 9	Above 15	Permeability problems likely on all mineral soils with possible exception of very coarse textured soils (saturation percentage below 20).

NOTE: Permeability problems are more probable at a given SAR with waters of low salinity than at high salinity.

***SAR of Water =** 27.54
***ESP of Soil =** 18.09

pHc** = 7.66

Gypsum Requirement = 16.25 **Lbs. 100% Gyp./Hr./100 Gal./min.**
(for treating "Residual Sodium Carbonate")

Constituents PPM (parts per million)

Calcium, (Ca)	27.	Nitrate, (NO_3)	(-) 0.4	Carbonates, (CO_3)	0.
Magnesium, (Mg)	4.8	Nitrate, (N)	(-) 0.1	Bicarbonates, (HCO_3)	332.
Sodium, (Na)	340.			Chlorides, (Cl)	393.
		pH	7.8	Sulphates, (SO_4)	8.
Total Hardness as $CaCO_3$	87.3				
	5.1 gr/gal			Total Dissolved Solids	1,109.

* Adjusted SAR. (-) refers to "less than".
** Values of pHc above 8.4 indicate tendency to dissolve lime from soil through which the water moves; values below 8.4 indicate tendency to precipitate lime from waters applied.

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By J. J. Eqlin
J. J. Eqlin

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BC LABORATORIES INC.
J. J. EGLIN, REG. CHEM. ENGR.

MAIN OFFICE: 4100 PIERCE ROAD, BAKERSFIELD, CA. 93308 PHONE 327-4911

Berry Ventures
P. O. Box 5182
Bakersfield, California 93388

Attention Ruel Joslin

Date Reported: 6/21/85
Date Received: 6/19/85
Laboratory No.: 9693-9695

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WATER ANALYSES

Sample Descriptions:

#1 - New Hope Lease Sample #3
#2 - Cuccica Sample #2
#3 - Caribou Lease Sample #2

Constituents	#1	#2	#3
Chloride, mg/liter	434.	331.	496.
Boron, mg/liter	2.0	1.2	0.92
Oil, mg/liter	1.8	2.6	4.3
Salinity, mg/liter	716.	547.	818.

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BC LABORATORIES, INC.

4100 PIERCE ROAD, 93308 BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Submitted By: Berry Ventures
P. O. Box 5206
Bakersfield, California 93388
Attn: Ruel Josley

Date Reported: 6/19/85
Date Received: 6/17/85
Laboratory No.: 9464

Marked: New Hope Lease

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DIVISION OF OIL & GAS
BAKERSFIELD

WATER ANALYSIS

Constituents, mg/liter	
Boron (B)	1.0
Calcium (Ca)	
Magnesium (Mg)	
Sodium (Na)	
Potassium (K)	
Carbonate (CO_3)	
Bicarbonate (HCO_3)	
Chloride (Cl)	429.
Sulfate (SO_4)	
Nitrate (NO_3)	
Fluoride (F)	
Iron (Fe)	
Manganese (Mn)	
Copper (Cu)	
Zinc (Zn)	
Aluminum (Al)	
Silica (SiO_2)	
Phosphate (PO_4)	
Total Hardness as $CaCO_3$	
Total Dissolved Solids @	
Oil (Freon extraction)	17.9
pH	
E.C., Micromhos/cm, ($Kx10^6$) @ 25°C	
Resistivity, Ohm M^2/M	
Salinity as NaCl	708.

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4100 PIERCE ROAD, 93308 BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Submitted By: Berry Ventures
P. O. Box 5206
Bakersfield, California 93388
Attn: Ruel Josley

Date Reported: 6/19/85
Date Received: 6/18/85
Laboratory No.: 9611

Marked: New Hope Lease Sample #2

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WATER ANALYSIS

Constituents, mg/liter	
Boron (B)	1.0
Calcium (Ca)	
Magnesium (Mg)	
Sodium (Na)	
Potassium (K)	
Carbonate (CO_3)	
Bicarbonate (HCO_3)	
Chloride (Cl)	436.
Sulfate (SO_4)	
Nitrate (NO_3)	
Fluoride (F)	
Iron (Fe)	
Manganese (Mn)	
Copper (Cu)	
Zinc (Zn)	
Aluminum (Al)	
Silica (SiO_2)	
Phosphate (PO_4)	
Total Hardness as $CaCO_3$	
Total Dissolved Solids @	
Oil (Freon extraction)	3.5
pH	
E.C., Micromhos/cm, ($Kx10^6$) @ 25°C	
Resistivity, Ohm M^2/M	
Salinity as NaCl	719.

BC LABORATORIES, INC.

BY J. J. Eglin
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AGRICULTURE
CHEMICAL ANALYSIS
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BC LABORATORIES, INC.

4100 PIERCE ROAD, 93308 BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Submitted By: Berry Ventures
P. O. Box 5206
Bakersfield, California 93388
Attn: Mr. Ruel Joslin

Date Reported: 6/25/85
Date Received: 6/20/85
Laboratory No.: 9812

Marked: New Hope Lease Sample #4

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WATER ANALYSIS

Constituents,	mg/liter
Boron (B)	1.9
Calcium (Ca)	
Magnesium (Mg)	
Sodium (Na)	
Potassium (K)	
Carbonate (CO_3)	
Bicarbonate (HCO_3)	
Chloride (Cl)	436.
Sulfate (SO_4)	
Nitrate (NO_3)	
Fluoride (F)	
Iron (Fe)	
Manganese (Mn)	
Copper (Cu)	
Zinc (Zn)	
Aluminum (Al)	
Silica (SiO_2)	
Phosphate (PO_4)	
Total Hardness as $CaCO_3$	
Total Dissolved Solids @	
Oil (Freon extraction)	12.
pH	
E.C., Micromhos/cm, ($Kx10^6$) @ 25°C	
Resistivity, Ohm M^2/M	
Salinity as NaCl:	719.

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AGRICULTURE
CHEMICAL ANALYSIS
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BC LABORATORIES, INC.

4100 PIERCE ROAD, 93308 BAKERSFIELD, CALIFORNIA 93308 PHONE 327-4911

Submitted By: Berry Ventures
P. O. Box 5206
Bakersfield, California 93388
Attn: Mr. Ruel Joslin

Date Reported: 6/25/85
Date Received: 6/21/85
Laboratory No.: 10003

Marked: Sample #5 New Hope Lease

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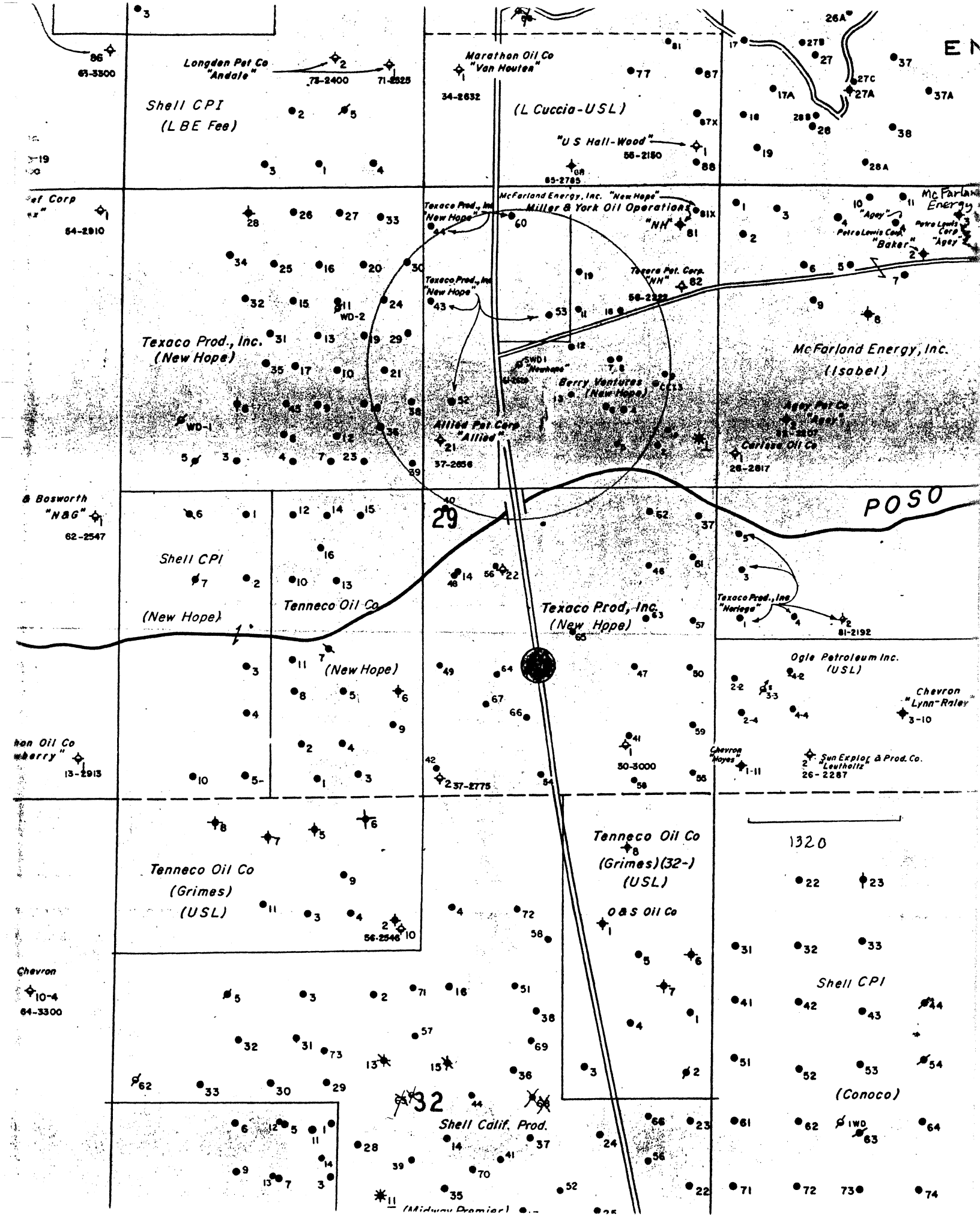
DIVISION OF OIL & GAS
BAKERSFIELD

WATER ANALYSIS

Constituents, mg/liter	
Boron (B)	1.7
Calcium (Ca)	
Magnesium (Mg)	
Sodium (Na)	
Potassium (K)	
Carbonate (CO_3)	
Bicarbonate (HCO_3)	
Chloride (Cl)	429.
Sulfate (SO_4)	
Nitrate (NO_3)	
Fluoride (F)	
Iron (Fe)	
Manganese (Mn)	
Copper (Cu)	
Zinc (Zn)	
Aluminum (Al)	
Silica (SiO_2)	
Phosphate (PO_4)	
Total Hardness as $CaCO_3$	
Total Dissolved Solids @	
Oil (Freon extraction)	3.5
pH	
E.C., Micromhos/cm, ($Kx10^6$) @ 25°C	
Resistivity, Ohm M^2/M	
Salinity as NaCl:	707.

B C LABORATORIES, INC.

BY J. J. Eglin
J. J. Eglin


Longden Pet Co
"Andale"
73-2400
71-2525
Shell CPI
(LBE Fee)
Marathon Oil Co
"Van Houten"
34-2632
(L Cuccia-USL)
"U S Hall-Wood"
56-2150
65-2785
McFarland Energy, Inc. "New Hope"
Miller & York Oil Operations
"NH"
Texaco Prod., Inc
"New Hope"
Texaco Pet. Corp.
"NH"
56-2322
Texaco Prod., Inc.
(New Hope)
McFarland Energy, Inc.
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Berry Ventures
(New Hope)
Allied Pet. Corp
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37-2656
Agey Pet Co
"Agey"
Carlesse Oil Co
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Petro Lewis Corp
"Baker"
Petro Lewis Corp
"Agey"
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Shell CPI
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Tenneco Oil Co
(New Hope)
Texaco Prod., Inc.
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Texaco Prod., Inc
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81-2192
Ogle Petroleum Inc.
(USL)
Chevron
"Lynn-Raley"
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Chevron
"Hayes"
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Sun Explor & Prod. Co.
"Leutholtz"
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50-3000
37-2775
Tenneco Oil Co
(Grimes)
(USL)
56-2546
Tenneco Oil Co
(Grimes)(32-)
(USL)
O & S Oil Co
1320
Shell CPI
(Conoco)
32
Shell Calif. Prod.
(Midway Premier)
Chevron
10-4
64-3300
63-3300
54-2810
62-2547
13-2913