CAT CANYON OIL COMPANY

Dye Injection Project

Priesker #1

December 5, 1985

DIVISION OF OIL AND GAS
RECEIVED
JUL 18 1986
SANTA MARIA, CA

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   g. Hammond #11

   h Gibson #5

OEC

OILFIELD ENGINEERING & CONSULTING, INC.

547 "C" WEST BETTERAVIA RD., SANTA MARIA, CA 93455
(805) 922-4772

December 23, 1985

Mr. Ron Reid
Cat Canyon Oil Company
2082 S. E. Bristol, Suite 204
Santa Ana, California 92707

Dear Ron:

As per your request, the California Division of Oil and Gas was asked to give permission for a dye injection/migration test into Cat Canyon Oil Companys' Priesker #1 well. That permission was given and on December 5, 1985, 55 gallons of pre-mixed flourescent dye, Uranine Concentrate, was injected into 1000 barrels of waste water as it was being injected into Priesker #1. Approximately 18 hours was required to inject and normal water injection rates with no dye was continued thereafter.

Monitoring of producing wells in the area was started immediately after dye injection and continued for six (6) days thereafter. The wells monitored were:

Gibson #3	Gibson #5
Hammon #3	Hammon #6
Hammon #9	Hammon #10
Hammon #11	Hammon #13

Selection of these wells were made by Texaco, Inc., Union Oil of California, and the Division of Oil and Gas.

Monitoring consisted of taking samples from the flowline of each of the above wells, seperating the oil and water, filtering the water to clarity, and applying an ultra violet light source to determine flouresence color. The undyed water has a natural blue-white flouresence; a yellow-green flouresence occurs with the dye.

An attached sheet gives the results of the flouresence tests. It indicates dye was found in all but one (1) well monitored within 24 to 48 hours. Within 264 hours after injection of dye stopped, it was below the range of detection in all wells monitored.

All of the initial samples were completely analyzed for a geochemical suite. The results of those tests are also attached hereto.

In conclusion, these tests indicate rapid communication between Priesker #1 and selected producers in the area. The pattern of communication suggests some form of directional permeability such as an incompetant fault plain.

Sincerely,

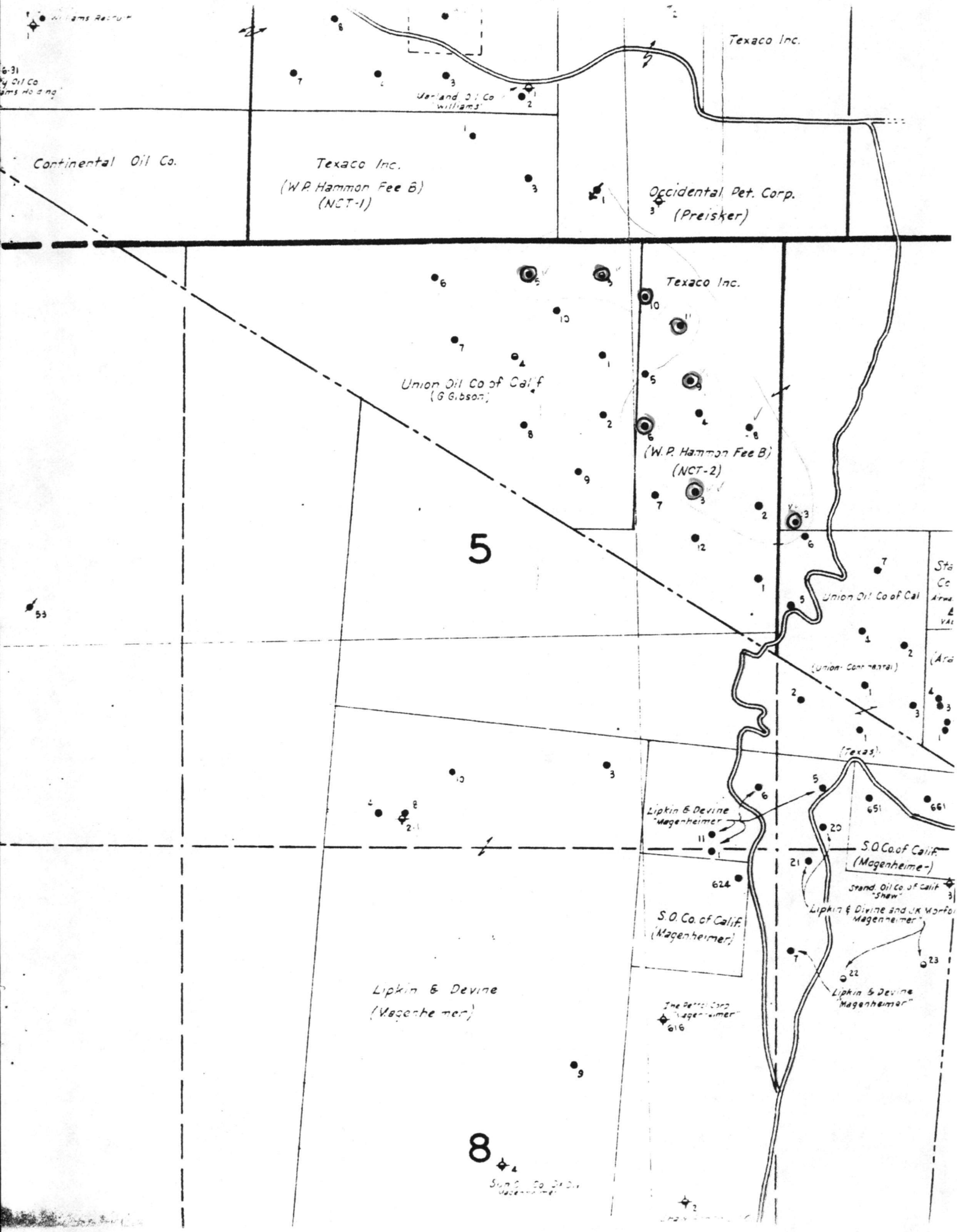
Thomas C. McLean

Thomas C. McLean

PPE #P1220

TCM:srj

enclosures
copy file


Texaco Inc.
Continental Oil Co.
Texaco Inc.
(W.P. Hammon Fee B)
(NCT-1)
Occidental Pet. Corp.
(Preisker)
Texaco Inc.
Union Oil Co of Calif
(G Gibson)
(W.P. Hammon Fee B)
(NCT-2)
5
Union Oil Co of Cal
(Union-Continental)
(Texas)
Lipkin & Devine
"Magenheimer"
S.O. Co. of Calif.
(Magenheimer)
S.O. Co. of Calif.
(Magenheimer)
Stand. Oil Co. of Calif
"Shaw"
Lipkin & Devine and JK Manfo
Magenheimer
Lipkin & Devine
"Magenheimer"
Lipkin & Devine
(Magenheimer)
8

CAT CANYON OIL COMPANY

Flourescence Test Results

WELL #	DATES				
	12/5	12/6	12/7	12/9	12/11
Preisker #1 (injector)	P	--	--	--	--
Gibson #3	O	P	PP	O	O
Gibson #5	O	P	PP	O	O
Hammon #3	--	O	PP	PP	O
Hammon #6	--	P	PP	O	O
Hammon #9	--	P	P	--	O
Hammon #10	O	--	P	--	--
Hammon #11	--	O	O	O	O
Hammon #13	--	PP	PP	O	O
Hammon #7	--	--	--	O	--
Hammon #8	--	--	--	PP	--

Legend: O, negative yellow green flourescence

PP, possible positive yellow green flourescence

P, positive yellow green flourescence

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SUBMITTED BY:

CAT CANYON OIL COMPANY
2082 S.E. BRISTOL, SUITE 204
SANTA ANA, CALIFORNIA 92707

VERBAL: MR. RON REID

SAMPLE DATE: DECEMBER 6, 1985

SAMPLE SOURCE:

HAMMON #11; HAMMON #9; HAMMON #6; HAMMON #3; HAMMON #13

OEC #: 7062-7066/4087

FLOURSCENCES

HAMMON #11 (7062)

Flourescence — blue to white

HAMMON #9 (7063)

Flourescence — positive yellow green

HAMMON #6 (7064)

Flourescence — positive yellow green

HAMMON #3 (7065)

Flourescence — blue to white

HAMMON #13 (7066)

Flourescence — possible ~~possible~~ positive yellow green

Thomas O. McLean
Test Engineer

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SUBMITTED BY:

CAT CANYON OIL COMPANY
2082 S.E. BRISTOL, SUITE 204
SANTA ANA, CALIFORNIA 92707

VERBAL: MR. RON REID

SAMPLE DATE: DECEMBER 7, 1985

SAMPLE SOURCE:

HAMMON #9; HAMMON #6; HAMMON #11; HAMMON #10; HAMMON #3; HAMMON #13; GIBSON #3; GIBSON #5

OEC #: 7068-7075/4087

FLOURSCENCES

HAMMON #9 (7068)	
Flourescence	positive yellow green
HAMMON #6 (7069)	
Flourescence	possible positive yellow green
HAMMON #11 (7070)	
Flourescence	blue to white
HAMMON #10 (7071)	
Flourescence	positive yellow green
HAMMON #3 (7072)	
Flourescence	possible positive yellow green
HAMMON #13 (7073)	
Flourescence	possible positive yellow green
GIBSON #3 (7074)	
Flourescence	possible positive yellow green
GIBSON #5 (7075)	
Flourescence	possible positive yellow green

Thomas C. McLean
Test Engineer

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SUBMITTED BY:

CAT CANYON OIL COMPANY
2082 S.E. BRISTOL, SUITE 204
SANTA ANA, CALIFORNIA 92707

VERBAL: MR. RON REID

SAMPLE DATE: DECEMBER 9, 1985

SAMPLE SOURCE:
HAMMON #3; HAMMON #9; HAMMON #7;
HAMMON #8; HAMMON #10:

OEC #: 7076,7077,7079-7081/4087

FLOURSCENCES

HAMMON #3 (7076)	
Flourescence	possible positive yellow green
HAMMON #9 (7077)	
Flourescence	insufficient sample
HAMMON #7 (7079)	
Flourescence	blue to white
HAMMON #8 (7080)	
Flourescence	possible positive yellow green
HAMMON #10 (7081)	
Flourescence	insufficient sample

Thomas O. McLean

Test Engineer

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CAT CANYON OIL COMPANY
2082 S.E. BRISTOL, SUITE 204
SANTA ANA, CALIFORNIA 92707

VERBAL: MR. RON REID

SAMPLE DATE: DECEMBER 9, 1985

SAMPLE SOURCE:

HAMMON #11; GIBSON #5; GIBSON #3; HAMMON #6; HAMMON #13

OEC #: 7082-7084, 7086,7087/4087

FLOURSCENCES

HAMMON #11 (7082)

Flourescence — blue to white

GIBSON #5 (7083)

Flourescence — blue to white

GIBSON #3 (7084)

Flourescence — blue to white

HAMMON #6 (7086)

Flourescence — blue to white

HAMMON #13 (7087)

Flourescence — blue to white

Thomas P. McLean
Test Engineer

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547 "C" WEST BETTERAVIA RD., SANTA MARIA, CA 93455
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SUBMITTED BY:

CAT CANYON OIL COMPANY
2082 S.E. BRISTOL, SUITE 204
SANTA ANA, CALIFORNIA 92707

VERBAL: MR. RON REID

SAMPLE DATE: DECEMBER 11, 1985

SAMPLE SOURCE:
HAMMON #13; HAMMON #6; HAMMON #9!
HAMMON #10; HAMMON #11; HAMMON #13;
GIBSON #3; GIBSON #5

OEC #: 7099-7106/4087

FLOURSCENCES

HAMMON #3 (7099)	
Flourescence	blue to white
HAMMON #6 (7100)	
Flourescence	blue to white
HAMMON #9 (7101)	
Flourescence	blue to white
HAMMON #10 (7102)	
Flourescence	insufficient sample
HAMMON #11 (7103)	
Flourescence	blue to white
HAMMON #13 (7104)	
Flourescence	blue to white
GIBSON #3 (7105)	
Flourescence	blue to white
GIBSON #5 (7106)	
Flourescence	blue to white

Thomas C. McLean
Test Engineer

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OILFIELD ENGINEERING & CONSULTING

547 C WEST BETTERAVIA ROAD
SANTA MARIA, CALIFORNIA 93455
(805)922-4772

ORDERED BY: MR RON REED

CAT CANYON OIL COMPANY
CAT CANYON ROAD
SANTA MARIA CA 93455

SOURCE: PRISHER #1

SAMPLE DATE: 6 DECEMBER 1985 OEC#: 7061/[illegible]

GEOCHEMICAL WATER ANALYSIS

SPECIFIC GRAVITY (AT 60F): 1.0058

ION	MG/L	ME/L
1.SODIUM	2566	111.65
2.CALCIUM	21.9	1.09
3.MAGNESIUM	12	.99
4.AMMONIUM	54.15	3.01
5.BARIUM	.7	.01
6.SULFATE	86	1.79
7.CHLORIDE	3450	97.29
8.BICARBONATE	750	12.3
9.CARBONATE	100	3.33
10.IODINE	.29	0
11.BORATE	157	2.04
12.HYDROXIDE	0	0

TOTAL DISSOLVED SOLIDS: 7198.04 MG/L
CONDUCTIVITY: 5600 MICROMHOS/CM
RESISTIVITY: 178.57 OHMS/CM
SALINITY: 2985 MG/L
PH: 8.33
HARDNESS (CACO3): 104.75 MG/L
EQUIVALENT NACL CONC: 6432.31 MG/L

COMPANY CAT CANYON OIL COMPANY DATE 12/6/85 SAMPLE 7061

ICP SCAN

ELEMENTS	mg/l
Arsenic	0.2
Selenium	1.2
Aluminum	0
Molybdenum	0
Potassium	17.1
Strontium	1
Chromium	0
Antimony	0
Zinc	trace
Cadium	0
Lead	0.1
Bismuth	0
Barium	0.7
Cobalt	0
Nickel	trace
Boron	11.2
Silicon	21.5
Manganese	trace
Iron	0.3
Platinum	0
Magnesium	12
Vanadium	0
Sodium	2566
Beryllium	0
Calcium	21.9
Copper	0
Silver	0
Titanium	0.6
Lithium	trace
Palladium	0
Thallium	0.3

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(805)922-4772

ORDERED BY: MR RON REED

CAT CANYON OIL COMPANY
CAT CANYON ROAD
SANTA MARIA CA 93455

SOURCE: TEXACO HAMMOND #3

SAMPLE DATE: 6 DECEMBER 1985 OEC#: 7065A/

GEOCHEMICAL WATER ANALYSIS

SPECIFIC GRAVITY (AT 60F): 1.006

ION	MG/L	ME/L
1.SODIUM	2956	128.62
2.CALCIUM	20.7	1.03
3.MAGNESIUM	4.1	.34
4.AMMONIUM	49.98	2.78
5.BARIUM	.5	.01
6.SULFATE	45	.94
7.CHLORIDE	3650	102.93
8.BICARBONATE	1300	21.32
9.CARBONATE	200	6.66
10.IODINE	.25	0
11.BORATE	71.4	.93
12.HYDROXIDE	0	0

TOTAL DISSOLVED SOLIDS: 8297.93001 MG/L
CONDUCTIVITY: 6000 MICROMHOS/CM
RESISTIVITY: 166.67 OHMS/CM
SALINITY: 3212 MG/L
PH: 8.00
HARDNESS (CACO3): 68.83 MG/L
EQUIVALENT NACL CONC: 7259.37 MG/L

COMPANY CAT CANYON OIL CO DATE 12/6/85 SAMPLE 7065A

ICP SCAN

ELEMENTS	mg/l
Arsenic	0.2
Selenium	0.8
Aluminum	0
Molybdenum	0
Potassium	0
Strontium	0.6
Chromium	0
Antimony	0
Zinc	0.2
Cadium	trace
Lead	0.1
Bismuth	0.5
Barium	0.4
Cobalt	0
Nickel	trace
Boron	5.1
Silicon	9.0
Manganese	trace
Iron	0.4
Platinum	0
Magnesium	4.1
Vanadium	0
Sodium	2956
Beryllium	0
Calcium	20.7
Copper	0.1
Silver	0
Titanium	0.5
Lithium	0
Palladium	0
Thallium	0

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CAT CANYON OIL COMPANY
CAT CANYON ROAD
SANTA MARIA CA 93455

SOURCE: HAMMOND #10

SAMPLE DATE: 6 DECEMBER 1985 DEC#: 7060/4069

GEOCHEMICAL WATER ANALYSIS

SPECIFIC GRAVITY (AT 60F): 1.002

ION	MG/L	ME/L
1.SODIUM	2266	98.5800001
2.CALCIUM	42	2.1
3.MAGNESIUM	46	3.81
4.AMMONIUM	45.82	2.55
5.BARIUM	10	.15
6.SULFATE	2.5	.05
7.CHLORIDE	3200	90.24
8.BICARBONATE	750	12.3
9.CARBONATE	100	3.33
10.IODINE	0	0
11.BORATE	98	1.27
12.HYDROXIDE	0	0
13.IRON	3	

TOTAL DISSOLVED SOLIDS: 6560.32 MG/L
CONDUCTIVITY: 4400 MICROMHOS/CM
RESISTIVITY: 227.27 OHMS/CM
SALINITY: 2312 MG/L
PH: 6.98
HARDNESS (CACO3): 296.67 MG/L
EQUIVALENT NACL CONC: 5927.65 MG/L

COMPANY CAT CANYON OIL COMPANY DATE 12/6/85 SAMPLE 7060

ICP SCAN

ELEMENTS	mg/l
Aluminum	0.0
Molybdenum	0.0
Chromium	0.1
Phosphorus	3
Zinc	0.1
Lead	0.4
Barium	0.1
Nickel	0.1
Tin	2
Boron	0.7
Silicon	3.7
Iron	0.0
Magnesium	4.6
Vanadium	0.1
Sodium	2266
Calcium	4.2
Copper	0.1
Silver	0.0
Titanium	0

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ORDERED BY: MR. RON REED

CAT CANYON OIL COMPANY
CAT CANYON ROAD
SANTA MARIA CA 93455

SOURCE: GIBSON #3

SAMPLE DATE: 6 DECEMBER 1985 OEC#: 7058 /4087

GEOCHEMICAL WATER ANALYSIS

SPECIFIC GRAVITY (AT 60F): INSUF SAMP

ION	MG/L	ME/L
1.SODIUM	2402	104.53
2.CALCIUM	40.3	2.01
3.MAGNESIUM	16.2	1.34
4.AMMONIUM	45.82	2.55
5.BARIUM	.5	.01
6.SULFATE	86	1.79
7.CHLORIDE	3150	88.83
8.BICARBONATE	850	13.94
9.CARBONATE	100	3.33
10.IODINE	.25	0
11.BORATE	196	2.55
12.HYDROXIDE	0	0

TOTAL DISSOLVED SOLIDS: 6887.07 MG/L
CONDUCTIVITY: 5100 MICROMHOS/CM
RESISTIVITY: 196.08 OHMS/CM
SALINITY: 2704 MG/L
PH: 7.75
HARDNESS (CACO3): 168.25 MG/L
EQUIVALENT NACL CONC: 6021.19 MG/L

COMPANY CAT CANYON OIL CO DATE 12/6/85 SAMPLE 7058

ICP SCAN

ELEMENTS	mg/l
Arsenic	1.2
Selenium	0
Aluminum	0.4
Molybdenum	0
Potassium	0
Strontium	1.5
Chromium	0
Antimony	0.3
Zinc	0
Cadmium	0
Lead	0.1
Bismuth	0.5
Barium	0.5
Cobalt	0
Nickel	trace
Boron	14
Silicon	28.4
Manganese	0.1
Iron	0.1
Platinum	0.1
Magnesium	16.2
Vanadium	0
Sodium	2402
Beryllium	0
Calcium	40.3
Copper	0
Silver	0
Titanium	0.2
Lithium	0
Palladium	0
Thallium	0

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SANTA MARIA, CALIFORNIA 93455
(805)922-4772

ORDERED BY: MR. RON REED

CAT CANYON OIL COMPANY
CAT CANYON ROAD
SANTA MARIA CA 93455

SOURCE: HAMMOND #13

SAMPLE DATE: 6 DECEMBER 1985 OEC#: 7066-A

GEOCHEMICAL WATER ANALYSIS

SPECIFIC GRAVITY (AT 60F): INSUF SAMPLE

ION	MG/L	ME/L
1.SODIUM	2839	123.53
2.CALCIUM	62	3.09
3.MAGNESIUM	19	1.58
4.AMMONIUM	49.98	2.78
5.BARIUM	6	.09
6.SULFATE	180	3.74
7.CHLORIDE	3500	98.7
8.BICARBONATE	1200	19.68
9.CARBONATE	200	6.66
10.IODINE	.36	0
11.BORATE	176.4	2.29
12.HYDROXIDE	0	0

TOTAL DISSOLVED SOLIDS: 8232.74 MG/L
CONDUCTIVITY: 6050 MICROMHOS/CM
RESISTIVITY: 165.29 OHMS/CM
SALINITY: 3240 MG/L
PH: 8.34
HARDNESS (CACO3): 234.17 MG/L
EQUIVALENT NACL CONC: 7101.9 MG/L

COMPANY CAT CANYON OIL CO DATE 12/6/85 SAMPLE 7066A

ICP SCAN

ELEMENTS	mg/l
Arsenic	1.2
Selenium	0
Aluminum	0.2
Molybdenum	0
Potassium	0
Strontium	2.1
Chromium	0
Antimony	0
Zinc	trace
Cadmium	0
Lead	0.1
Bismuth	0
Barium	2.2
Cobalt	0
Nickel	0
Boron	12.6
Silicon	19.8
Manganese	trace
Iron	0.1
Platinum	0
Magnesium	8.3
Vanadium	0
Sodium	2839
Beryllium	0
Calcium	39.7
Copper	0
Silver	0
Titanium	0.3
Lithium	0
Palladium	0
Thallium	0.9

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CAT CANYON OIL COMPANY
CAT CANYON ROAD
SANTA MARIA CA 93455

SOURCE: HAMMOND #11

SAMPLE DATE: 6 DECEMBER 1985 OEC#: 7062-A

GEOCHEMICAL WATER ANALYSIS

SPECIFIC GRAVITY (AT 60F): INSUF. SAMPLE

ION	MG/L	ME/L
1.SODIUM	2523	109.79
2.CALCIUM	44	2.2
3.MAGNESIUM	15	1.24
4.AMMONIUM	49.98	2.78
5.BARIUM	2	.03
6.SULFATE	3	.06
7.CHLORIDE	3700	104.34
8.BICARBONATE	450	7.38
9.CARBONATE	100	3.33
10.IODINE	.21	0
11.BORATE	71.4	.93
12.HYDROXIDE	0	0

TOTAL DISSOLVED SOLIDS: 6958.59 MG/L
CONDUCTIVITY: 5500 MICROMHOS/CM
RESISTIVITY: 181.82 OHMS/CM
SALINITY: 2929 MG/L
PH: 7.41
HARDNESS (CACO3): 172.5 MG/L
EQUIVALENT NACL CONC: 6343.8 MG/L

COMPANY CAT CANYON OIL CO DATE 12/6/85 SAMPLE 7062

ICP SCAN

ELEMENTS	mg/l
Arsenic	1.2
Selenium	0.6
Aluminum	0
Molybdenum	0
Potassium	0
Strontium	1
Chromium	0
Antimony	0.1
Zinc	trace
Cadmium	0
Lead	0.1
Bismuth	1.5
Barium	0.2
Cobalt	0
Nickel	0.1
Boron	5.1
Silicon	13.7
Manganese	0
Iron	1
Platinum	0
Magnesium	9
Vanadium	0
Sodium	2521
Beryllium	0
Calcium	31.3
Copper	0
Silver	0
Titanium	1
Lithium	0
Palladium	0
Thallium	0

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(805)922-4772

ORDERED BY: MR. RON REED

CAT CANYON OIL COMPANY
CAT CANYON ROAD
SANTA MARIA CA 93455

SOURCE: HAMMOND #6

SAMPLE DATE: 6 DECEMBER 1985 DEC#: 7064-A

GEOCHEMICAL WATER ANALYSIS

SPECIFIC GRAVITY (AT 60F): 1.004

ION	MG/L	ME/L
1.SODIUM	2000	87.01
2.CALCIUM	44	2.2
3.MAGNESIUM	8	.66
4.AMMONIUM	37.49	2.08
5.BARIUM	2	.03
6.SULFATE	78	1.62
7.CHLORIDE	2900	81.78
8.BICARBONATE	250	4.1
9.CARBONATE	100	3.33
10.IODINE	.29	0
11.BORATE	88.2	1.15
12.HYDROXIDE	0	0

TOTAL DISSOLVED SOLIDS: 5507.98 MG/L
CONDUCTIVITY: 5200 MICROMHOS/CM
RESISTIVITY: 192.31 OHMS/CM
SALINITY: 2760 MG/L
PH: 7.81
HARDNESS (CACO3): 143.33 MG/L
EQUIVALENT NACL CONC: 5190.3 MG/L

COMPANY CAT CANYON OIL CO DATE 12/6/85 SAMPLE 7064A

ICP SCAN

ELEMENTS	mg/l
Arsenic	0.9
Selenium	0
Aluminum	0
Molybdenum	0
Potassium	58.2
Strontium	0.8
Chromium	0
Antimony	0
Zinc	trace
Cadmium	0
Lead	0.1
Bismuth	2.5
Barium	0.2
Cobalt	trace
Nickel	0.1
Boron	6.3
Silicon	27.5
Manganese	0
Iron	0.4
Platinum	0
Magnesium	5
Vanadium	0
Sodium	2000
Beryllium	0
Calcium	23.6
Copper	0
Silver	0
Titanium	1
Lithium	0
Palladium	0
Thallium	0.5

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(805)922-4772

ORDERED BY: MR. RON REED

CAT CANYON OIL COMPANY
CAT CANYON ROAD
SANTA MARIA CA 93455

SOURCE: GIBSON #5

SAMPLE DATE: 6 DECEMBER 1983 OEC#: 7059

GEOCHEMICAL WATER ANALYSIS

SPECIFIC GRAVITY (AT 60F): 1.005

ION	MG/L	ME/L
1.SODIUM	2119	92.18
2.CALCIUM	42	2.1
3.MAGNESIUM	14	1.16
4.AMMONIUM	49.98	2.78
5.BARIUM	6	.09
6.SULFATE	15	.31
7.CHLORIDE	2850	80.37
8.BICARBONATE	750	12.3
9.CARBONATE	100	3.33
10.IODINE	0	0
11.BORATE	154	2
12.HYDROXIDE	0	0

TOTAL DISSOLVED SOLIDS: 6099.98 MG/L
CONDUCTIVITY: 4700 MICROMHOS/CM
RESISTIVITY: 212.77 OHMS/CM
SALINITY: 2479 MG/L
PH: 7.95
HARDNESS (CACO3): 163.33 MG/L
EQUIVALENT NACL CONC: 5372.9 MG/L

COMPANY CAT CANYON OIL CO DATE 12/6/85 SAMPLE 7059

ICP SCAN

ELEMENTS	mg/l
Arsenic	0
Selenium	0.2
Aluminum	0.1
Molybdenum	0
Potassium	0
Strontium	1.2
Chromium	0
Antimony	0
Zinc	trace
Cadmium	0
Lead	0.1
Bismuth	1.5
Barium	0.4
Cobalt	0
Nickel	0.1
Boron	11
Silicon	19.8
Manganese	0.1
Iron	0.2
Platinum	0
Magnesium	8
Vanadium	trace
Sodium	2119
Beryllium	0
Calcium	22.7
Copper	0
Silver	0
Titanium	0.5
Lithium	0
Palladium	0.1
Thallium	0.2