ENGINEERING AND GEOLOGIC REPORT
July 15, 1989

Proposed Jennifer Chaveroo San Andres Unit
Chaveroo San Andres Field
Roosevelt County, New Mexico

I. SAN ANDRES REGIONAL GEOLOGY. The San Andres Formation is one of the most prolific hydrocarbon-bearing horizons of the Permian Basin. It consists of a cyclic sequence of shallow-water carbonates and evaporites which progressed across the Northwest Shelf toward the Midland and Delaware Basins. San Andres production exists through the vertical stacking of porous dolomitic reservoirs. Stratigraphic trapping of hydrocarbons results from porosity pinch-outs defined by the degree of dolomitization and anhydrite plugging, both vertically near the top of depositional cycles, and on a regional scale. Stratigraphic trapping, combined with subtle structural nosing and changes in dip, define the limits of production. Reservoir zones are regionally correlatable and mappable. Major productive trends pinch out northward onto the Matador Arch causing this feature to be a major influence on San Andres deposition and production.

II. STRATIGRAPHY. At its type locality in the San Andres Mountains of New Mexico, the San Andres Formation consists of a 32 foot (10 meters) thick basal yellowish sandstone and 578 foot (176 meters) of overlying dark-gray to black petroliferous limestone (Lee and Girty, 1909; Kottlowski et al., 1956; Gratton and LeMay, 1969). This section apparently corresponds to the lower half of the uneroded subsurface San Andres of the Northwest Shelf (Kottlowski, et al., 1956; Kinney, 1969).

The San Andres consists of interbedded dolomites, anhydrites, and minor limestones, which directly overlie the sandy anhydritic dolomite of the Glorietta and Yeso formations (Leonardian). The San Andres is directly overlain by the evaporitic dolomites of the Grayburg Formation of the Artesia/White Horse Group (upper-middle Guadalupian).

The San Andres Formation over much of the Northwest Shelf can be divided into upper and lower parts based on the occurrence of a regionally correlatable marker bed, a silt-stone 5-10 foot (1.5-3 meters) thick, known as the "Pi" marker, which typically occurs 400-650 feet (122-198 meters) below the formation top. From bottom to top, the lower part of the San Andres, which may be up to 800 feet (244 meters) thick, is a large-scale shoaling depositional cycle. It is formed of open-marine shelf deposits, overlain by a thick package of restricted shelf and tidal-flat deposits, and capped by supratidal deposits. Depositional facies of the San Andres Formation have been previously described in detail (Gratton and LeMay, 1969, Silver and Todd, 1969; Chuber and Pusey, 1972; Meissner, 1972; Todd, 1976; Dutton et al., 1979; Hafner, 1979; Ramondetta, 1982). This regressive sequence of deposits represents progradation of facies to the south across the Northwest Shelf and toward the adjacent basins.

The cyclic nature of the restricted shelf and tidal-flat deposits of the lower San Andres has formed stratigraphic traps whose mechanism is the occurrence of impermeable anhydrite and tight dolomites between vertically stacked porosity zones commonly about 50 feet (15 meters) thick (Gratton and LeMay, 1969; Pitt and Scott, 1981; Ramondetta, 1982). The anhydrite layer is thicker to the north (updip), providing an impermeable regional porosity plug that parallels the deeper structural trend of the Matador Arch.

III. POROSITY ZONES. Eight porosity zones are defined at various depths below the Pi marker. Regionally, these zones represent, from bottom to top, cyclic deposition of carbonates and evaporites which become increasingly evaporitic upward through the section.

Zones 1 through 5 extend across the Northwest Shelf to their regional pinch-out against the Matador Arch. The reservoir zones correlate to anhydrite and anhydrite-plugged dolomites facies farther north (Gratton and LeMay, 1969; Pitt and Scott, 1981). Reservoir zones are stacked, with increasingly shallower production located farther southward. Zones 2 through 4 which comprise the productive interval are major hydrocarbon-producing zones and pinch out north and parallel to the Matador Arch. Dip cross-sections of the San Andres show that the deeper porous zones 7 and 8 are regionally extensive across the Northwest Shelf and Matador Arch. Although zones 7 and 8 are typically porous, the porosity occurs in a water-saturated dolomitic limestone which has not proven productive.

IV. STRUCTURAL INFLUENCES. Most San Andres fields on the Northwest Shelf are primarily stratigraphic traps, controlled by a combination of extensive dolomitization and anhydrite plugging. However, subtle structural elements on both a local and regional scale have some bearing on the localization of hydrocarbons in the San Andres Formation. Subtle structural nosing and changes in dip are important in localizing hydrocarbons in the porous reservoir zones (Gratton and LeMay, 1969). Gratton and LeMay showed that the Chaveroo field of Roosevelt County, New Mexico, results from a combination of stratigraphic, structural, and hydrodynamic interaction. The field produces from three vertically-stacked dolomite reservoirs on two subtle structural noses. Production is limited on the eastern edge of the field by porosity pinch-outs associated with steepening of dip.

The subtle structural influences evident on a local scale are also important on a regional scale. Two important structural features have a marked influence on San Andres production on the Northwest Shelf: a) the Matador Arch; and b) the shallow expression of the Wolfcamp-Pennsylvanian Shelf edge of the Midland Basin. The Matador Arch was a positive feature throughout much of the Mississippian and Pennsylvanian; undoubtedly, it remained a regional high even in the Late Permian. The southern-most wells in the Slaughter-Levelland Field produce from several porosity zones. These zones pinch out regionally updip onto the Matador Arch -- a pattern that is repeated and typifies the Northwest Shelf. All productive San Andres reservoirs that are major hydrocarbon producers pinch out onto this structural feature, restricting production in an east-west trend across the Northwest Shelf which parallels the Arch. Whereas, porous zones developed north of the Arch are stratigraphically deeper and typically produce water (Pitt and Scott, 1981). In addition, the percentage of halite increases north of the Matador Arch. Indeed, the Matador Arch probably marks the southern extent of major halite deposition and the northern extent of reservoir-facies deposition.

V. RESERVOIR CHARACTERISTICS. Core analysis porosities in the Chaveroo Field range up to 20 percent, but generally average between 6 and 8%. Available core analyses indicate that permeabilities in the Field are less than 1 millidarcy. However, core data is extremely limited and, therefore, existing core information may not be representative of reservoir characteristics throughout the Field. The high cumulative production from certain existing wells supported by volumetric engineering analysis suggests higher and more continuous permabilities throughout portions of the Chaveroo Field. This is particularly applicable to the wells within the proposed Unit Area.

Water-oil contacts in San Andres fields are somewhat difficult to determine due to the existence of a broad oil-water transition zone and a possible "tilted" oil-water contact. Typically, oil and water cumulative production is about equal during primary recovery.

Certain Chaveroo Field wells exhibit high initial production and rapid decline to relatively low-rate, flatter decline. This suggests initial fracture production depleting by solution gas drive to matrix permeability production both directly to the well bore and through the fracture system. There is evidence of fracture orientation in a northwest/southeast direction. This can be expected in secondary structural north/south arching considering stress parallelogram analysis.

VI. CHAVEROO SAN ANDRES FIELD. As shown on Exhibit VIII.A., the Chaveroo San Andres Field is located on the county line separating Chaves and Roosevelt Counties, New Mexico. The field name itself is a contraction of Chaves and Roosevelt. The Field, located geologically on the south flank of the Matador Arch on the Northwestern Shelf, was discovered in March, 1965, with the completion of the Champlin Petroleum Company and Warren American Oil Company No. 1 Hondo State. This well was plugged back from a total depth of 9,100 feet to 4,400 feet. The field now has 419 wells. Production is a sour 24° to 28° A.P.I. gravity crude and the cumulative field production was 23,131,431 barrels of oil, 34,070,069 MCF of gas, and 28,100,918 barrels of water as of January 1, 1989. The original discovery was made using a combination of subsurface geology and reflection-seismograph data. Oil production is from a gray-to-brown fine crystalline to granular anhydritic dolomite with fine vuggy inter-crystalline and fracture-type porosity zones located approximately 650 feet below the top of the San Andres of Guadalupian (Permian) age. The Field contains a gross pay section of approximately 200 feet. The Field structure consists primarily of a southward plunging nose. Reservoir conditions are controlled by porosity zones which pinch out updip.

JENNIFER CHAVEROO SAN ANDRES UNIT

SUPPLEMENTAL DATA REQUIRED BY FORM C-108

INDEX OF EXHIBITS

FILE 3.

Exhibit VIII. - Engineering and Geological Report - Proposed Jennifer Chaveroo San Andres Unit, prepared by Bert H. Murphy, Registered Professional Petroleum Engineer dated July 15, 1989;

Exhibit VIII.A. - General Location Map;

Exhibit VIII.B. - Report dated November, 1966 prepared by Roswell Geological Society Symposium with attached structural and isopachus maps and type log;

Exhibit VIII.C. - Core Data - "Completion Coregraphs" for the Homme Federal Well No. 3 and for the Wolf Federal Well No. 1 located within the Unit Area; "Completion Coregraph" for the State "AZ" Well No. 2 located in near proximity of Unit in Section 33, T-7-S, R-33-E;

Exhibit VIII.D. - Tabulated Summary of Geological Data;

Exhibit VIII.E. - *Structure Map with proposed Unit Area delineated, San Andres Correlation Point.

Exhibit VIII.F. - *Iso-Cum Base Map with proposed Unit Area delineated, Contour of Cumulative Oil Production to 01/01/89.

Exhibit VIII.G.1. - *Cross Section A-A' (Northwest-Southeast through Sections 30-29-32);

Exhibit VIII.G.2. - *Cross Section B-B' (West-East through Sections 20-21);

Exhibit VIII.G.3. - *Cross Section C-C' (North-South through Sections 8-18-19);

Exhibit VIII.G.4. - *Cross Section D-D' (West-East through Sections 35-36);

Exhibit VIII.G.5. - *Cross Section E-E' (North-South through Sections 25-36-2);

Exhibit VIII.G.6. - *Cross Section F-F' (West-East through Sections 30-29);

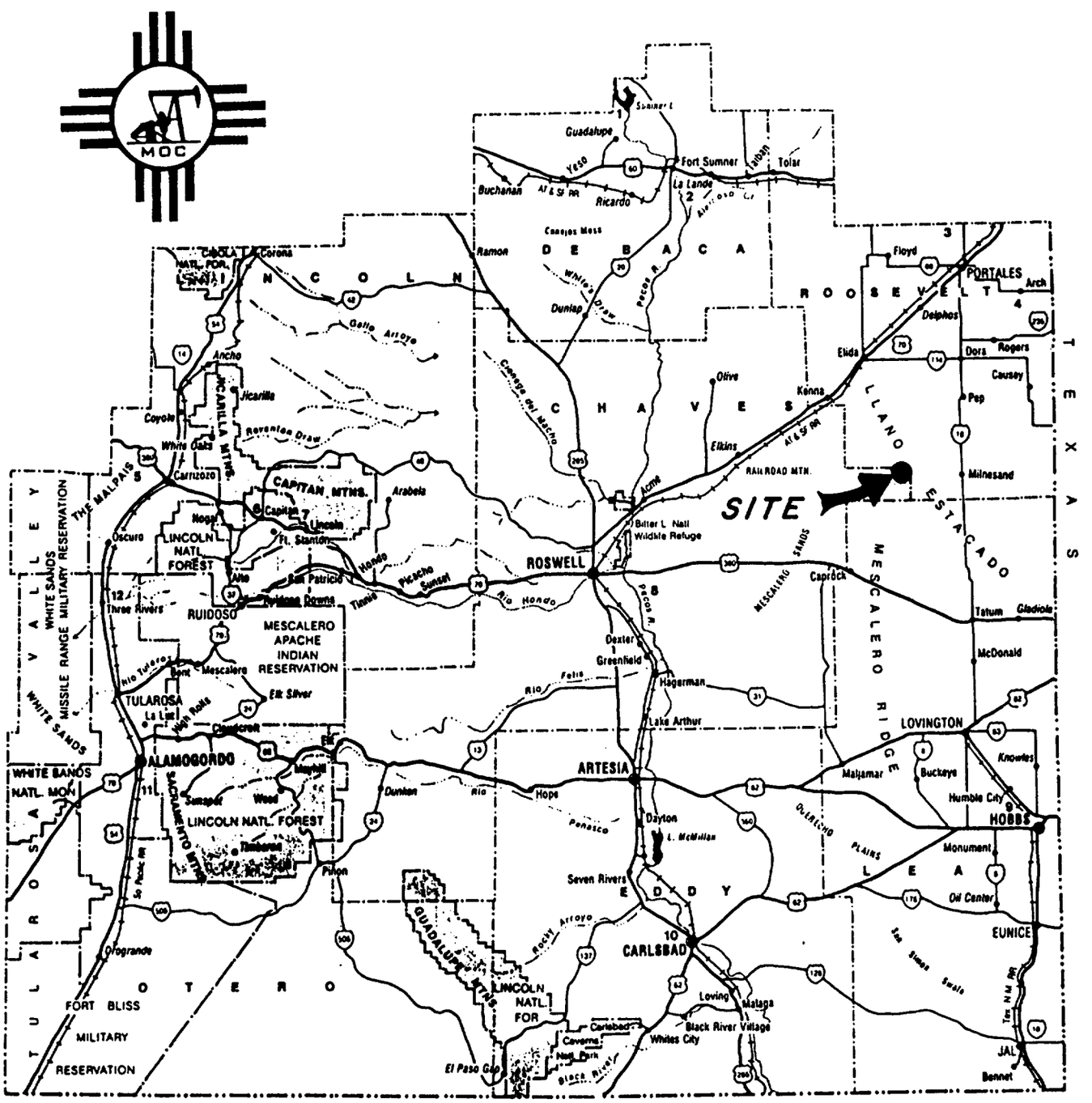
Exhibit VIII.G.7. - *Cross Section G-G' (North-South through Sections 19-30);

Exhibit VIII.H. - Chart of Derivation of Tract Participation Factors.

Exhibit VIII.I.1. - Decline Curves for Wells within Unit Area.

Exhibit VIII.I.2. - Decline Curves for Wells outside Unit Area but within Area of Review.

* See enclosures.



GENERAL LOCATION MAP

WATER FLOOD STUDY

MURPHY OPERATING CORPORATION

CHAVEROO SAN ANDRES FIELD

PROPOSED JENNIFER CHAVEROO SAN ANDRES UNIT

ROOSEVELT COUNTY, NEW MEXICO

EXHIBIT VIII.A.

ROSWELL GEOLOGICAL SOCIETY SYMPOSIUM

Author: George L. Scott, Jr.
Affiliation: Consulting Geologist
Date: November 1966

Field Name: Chaveroo
Location: T-7,8-S, R-33, 34-E
County & State: Chaves & Roosevelt Counties, New Mexico

Discovery Well: Champlin Pet. Co. & Warren American Oil Co. #1 Hondo State, SE/4 NE/4 Section 32, T-7-S, R-33-E. Completed 3/20/65
IPP 148 BOPD + 2 BWPD, GOR 810.

Exploration Method Leading to Discovery: 80% subsurface 20% seismic

Pay Zone: Top of field pay is at 4184 (+255)
Formation Name: San Andres Depth & Datum Discovery Well: Top perf in disc. well 4299.
Lithology Description: Tan to brown, fine to medium crystalline dolomite with scattered anhydrite inclusions, and vugular, inter-crystalline and fracture porosity. Most wells complete from 1st to 2nd porosities; scattered wells also perf 3rd porosity. The net porosity is based on a cut-off of 4% and covers only 1st and 2nd porosities. (Cont. under Type Trap)
Approximate average pay: 210 gross 40 net Productive Area 11,000 acres (on Nov. 1, 1966)

Type Trap: Stratigraphic. Porosity and permeability fails up dip along the north and west margin of the field to provide the trap.
Pay Zone (cont. from above). Net porosity map is not a strict net pay map as there are wells where extensive fracturing has lowered the porosity cut-off to 2 1/2%. It also includes porosity in the 2nd porosity interval at the south and southeast field margin that is below the irregular oil-water contact.
Reservoir Data:
6 % Porosity, .7 Md Permeability, 25 % Sw, 16 % So
Oil: 26° API, black, sour
Gas: GOR 400 to 1000
Water: 66,600 Na+K, 27,680 Ca, 4860 Mg, 165,600 Cl, 200 SO_4, 240 HCO_3, ____ Fe
Specific Gravity 1.174 Resistivity .035 ohms @ 110 °F
Initial Field Pressure: 1340 psi @ +140 datum Reservoir Temp. 110°F
Type of Drive: Solution gas

Normal Completion Practices: Set casing through pay and selectively perforate with one shot per interval. Acidize with 2000 gallons of acid, and sand fracture with 30,000 gallons of oil and 30,000 pounds of sand.

Type completion: Both flowing and pumping Normal Well Spacing 40 Acres

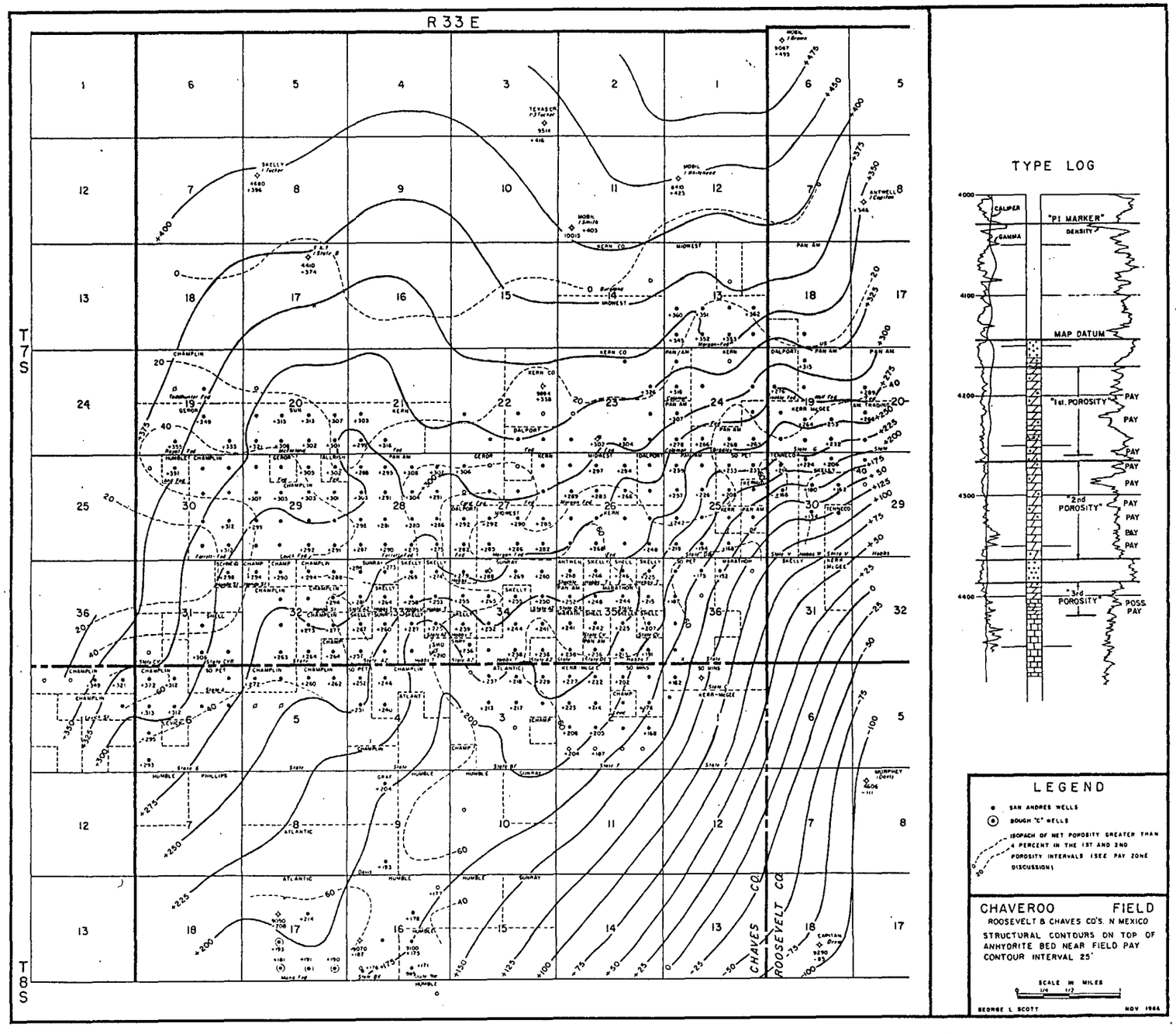
Deepest Horizon Penetrated & Depth: Bough "C" at 9100' in the discovery well. At the south end of the field several abandoned Bough "C" wells have been plugged back to the San Andres
Other Producing Formations in Field: None within the area of San Andres production, however, Bough "C" production in the Tobac field adjoins the Chaveroo San Andres field on the south.

Production Data:

YEAR	TYPE	No. of wells @ yr. end		PRODUCTION OIL IN BARRELS GAS IN MMCF		YEAR	TYPE	No. of wells @ yr. end		PRODUCTION OIL IN BARRELS GAS IN MMCF	
		Prod.	S.I.or Abd.	ANNUAL	CUMULATIVE			Prod.	S.I.or Abd.	ANNUAL	CUMULATIVE
1965	OIL	45		166,896	166,896		OIL				
	GAS			179,400	179,400		GAS				
1966*	OIL	241		1,474,705	1,641,601		OIL				
	GAS			1,084,527	1,263,927		GAS				
	OIL						OIL				
	GAS						GAS				
	OIL						OIL				
	GAS						GAS				

* 1966 production to September 30, 1966.

EXHIBIT VIII. B.


R 33 E
T 7 S
T 8 S
CHAVES CO.
ROOSEVELT CO.
TYPE LOG
CALIPER
GAMMA
DENSITY
"PI MARKER"
MAP DATUM
"1st. POROSITY"
"2nd POROSITY"
"3rd POROSITY"
PAY
POSS. PAY
LEGEND
SAN ANDRES WELLS
BOUGH "C" WELLS
ISOPACH OF NET POROSITY GREATER THAN 4 PERCENT IN THE 1ST AND 2ND POROSITY INTERVALS (SEE PAY ZONE DISCUSSION)
CHAVEROO FIELD
ROOSEVELT & CHAVES CO'S. N MEXICO
STRUCTURAL CONTOURS ON TOP OF ANHYDRITE BED NEAR FIELD PAY
CONTOUR INTERVAL 25'
SCALE IN MILES
GEORGE L. SCOTT
NOV 1966

CORE LABORATORIES, INC. CORE LAB *Petroleum Reservoir Engineering*

COMPANY PAN AMERICAN PETROLEUM CORPORATION — FILE NO. MD-1-2702
WELL JOYCE WOLF NO. 1 — DATE 6-5-66 — ENGRS. BOONE
FIELD CHAVEROO — FORMATION SAN ANDRES — ELEV.
COUNTY ROOSEVELT — STATE NEW MEXICO — DRLG. FLD. WATER BASE MUD — CORES DIAMOND 4 3/8"
LOCATION 19-7S-34E — REMARKS SAMPLED AS DIRECTED BY CLIENT

COMPLETION COREGRAPH

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories Inc. (all errors and omissions excepted); but Core Laboratories Inc. and its officers and employees, assume no responsibility and make no warranty or representations as to the productivity, proper operation, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

SAND · LIMESTONE · CONGLOMERATE · CHERT · ANHYDRITE · SHALE · DOLOMITE · OOLITES

SAMPLE CHARACTERISTICS F:Fractured L:Laminated FG; MG; CG:Type Grain Size S:Stylolitic V:Vuggy — PROBABLE PRODUCTION O:Oil W:Water G:Gas T:Transitional

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY, MD. * = Horizontal Perm Plug HORIZONTAL MAX	90°	POROSITY %	RESIDUAL SATURATION % PORE SPACE OIL	TOTAL WATER
23	4266.5-68.0	<0.1	<0.1	2.9	8.1	76.5
24	68.0-69.5	<0.1	<0.1	2.6	2.3	60.3
25	4269.5-71.0	<0.1	<0.1	3.6	5.3	56.8
26	71.0-72.5	0.1	0.1	8.1	3.9	54.3
27	4272.5-74.0	3.6	<0.1	6.2	3.1	50.2
28	74.0-75.5	0.5	0.1	5.3	7.3	51.4
29	4275.5-76.8	0.1	0.1	6.9	12.8	38.7
30	76.8-78.5	0.1	0.1	7.6	16.3	37.8
31	4278.5-80.0	2.1	0.4	5.2	6.8	55.7
32	80.0-81.5	0.2	0.1	2.8	0.4	66.1
33	4281.5-83.0	0.3	0.1	3.2	3.1	63.0
34	83.0-84.3	2.0	<0.1	4.5	5.4	57.3
35	84.3-85.6	0.1	0.1	5.0	5.0	52.7
36	4285.6-87.0	9.7	3.6	7.1	12.1	32.6
37	87.0-88.7	0.2	0.2	6.6	7.4	35.2
38	4288.7-89.8	0.1	<0.1	6.2	9.4	35.8
39	89.8-91.4	<0.1	<0.1	5.3	4.2	49.4
40	4291.4-93.2	<0.1	<0.1	5.1	4.1	30.6
41	93.2-94.6	<0.1	<0.1	7.2	4.1	46.7
42	4294.6-96.0	<0.1	<0.1	6.4	8.6	49.2
43	96.0-97.7	<0.1	<0.1	4.3	2.5	57.5
44	4297.7-99.1	<0.1	<0.1	3.6	1.1	60.8
45	99.1-00.7	<0.1	<0.1	0.6	0.0	71.0
46	4300.7-02.0	<0.1	<0.1	1.1	0.0	56.2
47	02.0-03.4	<0.1	<0.1	1.1	0.0	71.6
48	4303.4-05.0	<0.1	<0.1	0.7	0.0	58.7

PERMEABILITY ○—○ MILLIDARCYS 10 5 — POROSITY x---x PERCENT 10 5 — TOTAL WATER ○—○ PERCENT PORE SPACE 75 50 25 — OIL SATURATION x---x PERCENT PORE SPACE 25 50 75

4255 4260 4265 4270 4275 4280 4285 4290 4295 4300 4305 4306

Well #19-07

Completion Date: 07-12-66

Completion Interval: 4108'-4298'

Perfs:
4268'-4298' (2 JSPF)
4108'-4123' (2 JSPF)
4127'-4214' (2 JSPF)

Initial Treatment:
Acid 2000 G
Frac 30000 #

Initial Potential:
P 97 BOPD
- MCFGPD
2 BWPD

Cumulative Recovery to January 1, 1989:
Oil 32,254
Gas 25,626
Wat 17,215

Proposed Jennifer Chaveroo San Andres Unit
Form C-108 Exhibit VIII.C. - Core Data - "Completion Coregraph" for Wolf Federal Well #1 (#19-07) located within Unit boundary.

EXHIBIT VIII. C.

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY PAN AMERICAN PETROLEUM CORPORATION — FILE NO. WP-3-2815
WELL HOMME FEDERAL NO 3 — DATE 12-24-66 — ENGRS ROONE
FIELD CHAVEROO — FORMATION SAN ANDRES — ELEV.
COUNTY ROOSEVELT — STATE NEW MEXICO — DRLG FLD WATER BASE MUD — CORES DIAMOND 4 1/4"
LOCATION 1980 FN & WL SEC 20-T7S-R34E — REMARKS SAMPLED AS DIRECTED BY CLIENT

COMPLETION COREGRAPH

SAND SHALE LIMESTONE DOLOMITE CONGLOMERATE OOLITES CHERT ANHYDRITE

SAMPLE CHARACTERISTICS — F Fractured L Laminated FG, MG, CG Type Grain Size S Stylolitic V Vuggy — PROBABLE PRODUCTION O Oil W Water G Gas T Transitional

SAMPLE NO.	DEPTH FEET	PERMEABILITY MILLIDARCYS Horizontal Kair Plug MAX	90	POROSITY PERCENT	RESIDUAL SATURATION % PORE SPACE OIL	TOTAL WATER	PROBABLE PRODUCTION
3	4105.0-06.7	<0.1	<0.1	1.0	0.0	87.9	
4	4106.7-08.1	0.1	<0.1	3.6	0.0	90.3	F
5	08.1-09.8	0.4	0.1	3.1	2.3	87.5	F
6	4109.8-11.3	<0.1	<0.1	3.4	5.5	83.5	F
7	4111.3-13.0	0.3	0.2	2.0	3.5	79.2	F
8	13.0-14.7	<0.1	<0.1	0.9	0.0	96.8	
9	4114.7-16.4	<0.1	<0.1	0.5	0.0	93.3	
10	16.4-17.7	<0.1	<0.1	1.3	7.1	90.5	F
11	4117.7-19.3	0.1	<0.1	1.5	4.7	92.0	F
12	19.3-20.3	<0.1	<0.1	1.5	3.3	84.8	
13	4120.3-22.0	6.3	<0.1	2.2	5.5	64.8	
14	22.0-23.9	<0.1	<0.1	3.8	5.2	57.6	F
15	4123.9-25.6	0.1	<0.1	3.3	2.6	38.3	F
16	4125.6-27.0	<0.1	<0.1	2.7	0.4	55.8	F
17	27.0-28.9	0.1	<0.1	2.9	7.0	58.0	F
18	4128.9-30.5	<0.1	<0.1	2.3	1.0	10.8	F
19	4130.5-32.1	<0.1	<0.1	3.0	3.4	62.8	F
20	32.1-33.9	<0.1	<0.1	2.8	6.2	61.9	F
21	4133.9-35.4	<0.1	<0.1	2.4	5.5	75.5	
22	4135.4-37.0	<0.1	<0.1	1.8	1.1	88.3	
23	37.0-38.5	0.1	<0.1	2.8	0.0	94.0	
24	4138.5-40.0	0.1	<0.1	1.8	0.0	91.2	
25	40.0-41.2	<0.1	<0.1	0.8	2.7	77.3	
26	4141.2-43.0	<0.1	<0.1	0.7	1.4	80.6	
27	43.0-44.0	<0.1	<0.1	0.4	0.0	71.5	
28	44.0-45.0	<0.1	<0.1	0.6	0.0	78.2	
29	4146.0-47.0	<0.1	<0.1	0.3	0.0	79.3	
30	47.0-48.0	<0.1	<0.1	0.2	0.0	75.0	
31	48.0-49.0	<0.1	<0.1	0.8	2.6	83.0	F
32	49.0-50.3	<0.1	<0.1	0.3	0.0	73.3	
33	50.3-51.5	<0.1	<0.1	0.6	0.0	81.3	
34	4154.0-55.7	<0.1	<0.1	0.3	0.0	78.5	
35	4155.7-57.0	<0.1	<0.1	0.3	0.0	74.2	
36	4161.0-62.3	<0.1	<0.1	0.5	0.0	75.0	
37	4162.3-63.8	<0.1	<0.1	0.5	4.0	76.0	
38	63.8-65.4	0.3	<0.1	2.8	5.0	62.2	F
39	4165.4-67.0	0.1	<0.1	1.6	0.6	72.0	F
40	67.0-68.3	<0.1	<0.1	0.6	3.4	54.3	
41	68.3-69.7	0.2	0.2	0.8	2.6	51.3	
42	4169.7-71.6	0.7	0.5	0.5	1.9	54.8	F
43	4171.6-73.0	72	0.1	4.2	6.8	49.8	F
44	73.0-74.7	0.3	0.2	6.9	6.4	59.2	F
45	4174.7-76.0	1.0	0.3	4.0	1.3	45.4	F
46	76.0-77.6	0.1	0.1	5.7	4.2	52.3	
47	4177.6-79.0	0.2	<0.1	4.2	13.7	42.5	
48	79.0-80.6	<0.1	<0.1	0.1	0.0	70.7	
49	4180.6-82.4	<0.1	<0.1	0.4	0.0	82.8	
50	4182.4-84.0	<0.1	<0.1	0.3	0.0	76.7	
51	84.0-85.0	<0.1	<0.1	0.5	0.0	82.1	
52	85.0-86.3	0.1	<0.1	1.1	3.6	80.3	
53	4186.3-88.0	<0.1	<0.1	0.8	1.2	85.2	
54	88.0-89.9	<0.1	<0.1	1.2	8.9	79.2	F
55	4189.9-91.6	0.1	0.1	1.8	5.1	69.4	F
56	4191.6-93.1	0.1	0.1	4.0	9.3	55.5	F
57	93.1-94.7	<0.1	<0.1	2.9	13.0	48.5	
58	4194.7-96.3	0.1	<0.1	1.1	1.9	68.8	
59	4196.3-98.0	<0.1	0.1	5.9	17.8	15.3	
60	98.0-99.0	<0.1	0.1	1.2	22.9	38.5	
61	99.0-00.0	<0.1	0.1	6.2	7.7	40.4	
62	4200.0-01.8	<0.1	<0.1	3.0	8.7	46.8	F
63	4201.8-03.3	0.2	<0.1	2.5	7.8	74.0	F
64	03.3-04.5	0.6	0.4	3.3	16.5	61.8	F
65	4204.5-06.3	<0.1	<0.1	1.6	7.3	83.0	F
66	4206.3-08.0	0.3	0.2	3.0	18.7	69.0	F
67	08.0-09.2	0.3	0.3	3.9	4.3	75.3	F
68	09.2-10.7	0.1	0.1	5.4	11.1	63.5	
69	4210.7-12.3	1.9	0.2	6.8	15.0	61.3	F
70	4212.3-13.0	<0.1	<0.1	3.2	7.4	41.1	F
71	13.0-15.6	<0.1	<0.1	5.0	7.8	66.7	F
72	4215.6-17.2	0.1	0.1	2.9	9.6	71.8	F
73	17.2-18.6	0.2	0.1	3.2	7.0	79.8	F
74	4218.6-20.0	0.1	0.1	1.9	11.8	73.8	F
75	20.0-22.0	<0.1	<0.1	0.9	6.4	74.5	F
76	4222.0-24.0	<0.1	<0.1	1.1	12.3	68.0	F
77	4224.0-26.0	0.1	<0.1	2.7	10.6	79.2	F
78	4226.0-27.5	0.1	<0.1	2.9	16.4	49.2	F
79	4227.5-29.0	101	1.0	1.7	13.4	57.0	F
80	29.0-30.0	0.1	<0.1	1.8	11.0	55.1	
81	4230.6-32.0	<0.1	<0.1	2.2	13.8	60.9	
82	32.0-33.5	<0.1	<0.1	1.8	1.6	80.8	
83	4233.5-35.0	<0.1	<0.1	0.9	16.7	55.5	
84	35.0-36.7	0.2	0.2	1.5	3.3	84.3	F
85	4236.7-38.5	0.1	<0.1	2.8	7.2	73.3	
86	4238.5-40.0	<0.1	<0.1	1.2	0.0	94.0	
87	40.0-41.5	<0.1	<0.1	1.5	8.6	86.2	F
88	4241.5-43.0	<0.1	<0.1	1.7	8.1	73.2	
89	43.0-44.3	<0.1	<0.1	0.9	7.7	69.2	
90	44.3-45.5	<0.1	<0.1	1.0	7.0	82.2	
91	4245.5-47.2	<0.1	<0.1	1.7	1.2	83.8	
92	47.2-48.7	<0.1	<0.1	0.9	1.1	54.6	
93	4248.7-50.0	<0.1	<0.1	1.9	17.4	71.2	
94	50.0-51.0	<0.1	<0.1	1.8	3.3	92.8	
95	51.0-52.6	0.1	<0.1	1.9	2.7	94.3	F
96	4252.6-54.1	<0.1	<0.1	0.9	8.5	76.7	F
97	4254.1-56.0	<0.1	<0.1	1.5	9.9	83.9	
98	4283.0-84.7	<0.1	<0.1	2.8	0.4	78.3	
99	4284.7-86.1	0.8	0.1	6.3	3.5	61.5	
100	86.1-87.7	0.5	0.3	5.7	1.7	58.8	F
101	4287.7-88.9	<0.1	<0.1	2.9	4.8	69.7	
102	88.9-90.7	2.5	0.3	7.4	8.1	52.3	F
103	4290.7-92.0	1.0	0.5	7.1	6.1	51.0	F
104	92.0-93.7	16	8.7	5.8	9.0	40.5	F
105	4293.7-95.3	1.9	0.7	7.0	8.1	35.3	F
106	4295.3-97.0	2.7	0.7	7.9	5.6	49.2	F
107	97.0-98.8	0.4	0.3	5.3	10.0	40.0	F
108	4298.8-00.0	0.2	0.1	6.9	9.9	37.4	F
109	4300.0-01.0	3.0	2.6	6.6	9.9	33.4	F
110	01.0-02.0	0.3	0.2	6.2	13.6	33.9	
111	02.0-03.5	0.1	<0.1	5.1	6.0	54.8	F
112	4301.5-05.0	4.4	1.5	9.8	14.9	28.7	F
113	05.0-06.7	0.9	0.6	12.1	11.7	41.4	F
114	4306.7-08.0	0.8	0.6	11.6	12.3	38.1	F
115	08.0-09.4	0.6	0.4	10.7	19.3	37.4	F
116	4309.4-11.0	0.3	0.2	9.2	8.1	49.2	F
117	11.0-12.5	0.6	0.4	9.7	6.6	53.7	F
118	4312.5-14.0	<0.1	<0.1	3.1	7.3	58.7	
119	14.0-15.8	<0.1	<0.1	0.5	0.0	80.4	F
120	4315.8-17.5	25	<0.1	0.6	0.0	75.4	F
121	4317.5-18.8	0.1	<0.1	3.3	2.7	46.8	F
122	18.8-20.0	<0.1	<0.1	0.1	0.1	86.7	F

PERMEABILITY MILLIDARCYS 10 5 — POROSITY X---X PERCENT 10 5 — TOTAL WATER PERCENT PORE SPACE 75 50 25 — OIL SATURATION X---X PERCENT PORE SPACE 25 50 75

4110 4115 4120 4125 4130 4135 4140 4145 4150 4155 4160 4165 4170 4175 4180 4185 4190 4195 4200 4205 4210 4215 4220 4225 4230 4235 4240 4245 4250 4255 4285 4290 4295 4300 4305 4310 4315

Well #20-06

Completion Date: 01-07-66

Completion Interval: 4114'-4317'

Perfs:
4114', 4128', 4138', 4178', 4179', 4180', 4182', 4205', 4216', 4220', 4222', 4223', 4237', 4294', 4295', 4300', 4301', 4305', 4311', 4312', 4312½', 4313', 4314', 4314½', 4315', 4316', 4317' (1 JSPF)

Initial Treatment:
Acid 2000 G
Frac 50000 #

Initial Potential:
P 194 BOPD
- MCFGPD
55 BWPD

Cumulative Recovery to January 1, 1989:
Oil 25,505
Gas 71,014
Wat 14,729

Proposed Jennifer Chaveroo San Andres Unit
Form C-108 Exhibit VIII.C. - Core Data - "Completion Coregraph" for Homme Federal Well #3 (#20-06) located within Unit boundary.

Well #33-11

Completion Date: 06/27/65

Completion Interval: 4218'- 4419'

Perfs:
~~4408'~~, 4413', 4419', 4218', 4246', 4251', 4276', 4295', 4307', 4314', 4223', 4330', 4338', 4369'

Initial Treatment:
Acid 2000 G
Frac 30000 #

Initial Potential:
F 288 BOPD
334 MCFGPD
N/A BWPD

Cumulative Recovery to January 1, 1989:

Oil 67,376 BBL
Gas 68,549 MCF
Wat 96,555 BBL

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY SUNRAY D-X OIL COMPANY — FILE NO. WD-3-2535
WELL STATE "AZ" NO. 2 — DATE 6-15-65 — ENGRS. BOONE
FIELD CHAVEROO — FORMATION SAN ANDRES — ELEV. 4426' KB
COUNTY ROOSEVELT — STATE NEW MEXICO — DRLG. FLD. WATER BASE MUD — CORES DIAMOND 3 1/2"
LOCATION 1980' FS & 1940 FWL SEC 33-T7S-R33E — REMARKS SAMPLED AS DIRECTED BY CLIENT

COMPLETION COREGRAPH

SAND, SHALE, LIMESTONE, DOLOMITE, CONGLOMERATE, OOLITES, CHERT, ANHYDRITE

SAMPLE CHARACTERISTICS
F:Fractured L:Laminated FG; MG; CG:Type Grain Size S:Stylolitic V:Vuggy

PROBABLE PRODUCTION
O:Oil W:Water G:Gas T:Transitional

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY, MD * = Horizontal Perm Plug HORIZONTAL MAX	90	POROSITY %	RESIDUAL SATURATION % PORE SPACE OIL	TOTAL WATER	
		WHOLE CORE ANALYSIS					
1	4301.0-02.0	<0.1	<0.1	4.3	15.9	58.0	
2	02.0-05.5	<0.1	<0.1	4.7	12.7	40.0	F
3	4305.5-07.0	0.2	0.2	8.2	16.1	43.8	F
4	07.0-08.5	0.4	0.3	10.5	9.6	44.6	
5	4308.5-10.0	0.1	<0.1	7.9	12.2	36.8	F
6	10.0-11.5	1.2	0.9	14.5	14.6	34.0	
7	4311.5-13.0	0.8	0.4	9.1	17.6	44.0	F
8	13.0-16.6	<0.1	<0.1	6.6	1.1	92.3	
9	4314.6-16.0	<0.1	<0.1	6.9	18.2	51.7	F
10	16.0-17.6	0.1	0.1	8.3	16.8	35.0	F
11	4317.6-19.0	0.1	<0.1	6.3	15.3	35.2	F
12	19.0-20.6	0.1	0.1	7.0	15.3	32.2	F
13	4320.6-22.0	0.1	<0.1	5.9	15.5	39.2	F
14	22.0-23.0	0.1	<0.1	6.2	11.3	40.0	F
15	23.0-24.0	<0.1	<0.1	3.8	18.0	63.7	F
16	4325.0-26.6	0.1	<0.1	6.8	13.3	38.6	F
17	4326.6-28.0	<0.1	<0.1	4.7	5.6	66.3	
18	28.0-29.0	<0.1	<0.1	5.1	0.6	73.5	
19	4339.0-40.6	0.1	0.2	5.3	13.3	39.6	
20	4340.6-42.5	<0.1	<0.1	6.1	9.2	54.2	F
21	4351.0-52.4	0.2	0.2	3.1	16.4	41.6	
22	4352.4-53.8	0.2	<0.1	3.7	6.0	39.3	
23	53.8-55.2	<0.1	<0.1	2.7	17.8	12.2	
24	55.2-56.6	<0.1	<0.1	2.4	17.3	41.3	F

PERMEABILITY MILLIDARCYS 10 5 — POROSITY X---X PERCENT 10 5 — TOTAL WATER PERCENT PORE SPACE 75 50 25 — OIL SATURATION X--- PERCENT PORE SPACE 25 50 75

4301 4305 4310 4315 4320 4325 4330 4335 4340 4345 4350 4355

Proposed Jennifer Chaveroo San Andres Unit
Form C-108 Exhibit VIII.C. - Core Data - "Completion Coregraph" for State "AZ" Well #2 (#33-11) located within close proximity of Unit boundary.

EXHIBIT VIII.D.
Tabulated Summary of Geological Data for Wells within Proposed Unit Area
PROPOSED JENNIFER CHAVEROO SAN ANDRES UNIT
Roosevelt County, New Mexico

CHL = Cased Hole Log
BHCS = Borehole Compensated Sonic Log
NDE = Not Deep Enough
GRN = Gamma Ray Neutron

Operator / Lease	Original Well#/Unit	New Unit Well #	Elevation GRL	Elevation KB	Top P-1 Meas.	Top P-2 SubSea	Thickness P-1 to P-3
Sec. 25, T7S-R33E							
Murphy Operating Corp.							
State "J"	3A	25-01	4320	4330	4097	+ 233	-
State "J"	1B	25-02	4320	4331	4100	+ 231	-
State "DB"	3C	25-03	4321	4333	4082	+ 251	CHL
State "DB"	1D	25-04	4324	4335	4072	+ 263	CHL
State "DB"	2E	25-05	4325	4336	4084	+ 252	CHL
State "DB"	5F	25-06	4319	4330	4102	+ 228	CHL
State "J"	2G	25-07	4320	4331	4124	+ 207	-
State Conine	1H	25-08	4322	4332	4143	+ 189	207
State "DF"	1I	25-09	4315	4325	4172	+ 153	CHL
State "I"	1J	25-10	4324	4337	4141	+ 196	CHL
State "DB"	7K	25-11	4316	4327	4112	+ 215	CHL
State "DB"	4L	25-12	4327	4338	4100	+ 238	CHL
State "DB"	6M	25-13	4325	4336	4116	+ 220	CHL
State "DB"	8N	25-14	4323	4333	4135	+ 198	CHL
State "DB"	9O	25-15	4310	4329	4160	+ 169	CHL
State "J"	4P	25-16	4324	4335	4180	+ 155	-
Sec. 26, T7S-R33E							
Murphy Operating Corp.							
Federal "26"	7I	26-09	4335	4347	4085	+ 262	CHL
Federal "26"	5J	26-10	4343	4355	4084	+ 271	210
Federal "26"	3K	26-11	4366	4378	4096	+ 282	208
Federal "26"	2L	26-12	4373	4385	4096	+ 289	214
Federal "26"	1M	26-13	4381	4388	4114	+ 274	216
Federal "26"	4N	26-14	4365	4374	4102	+ 272	216
Federal "26"	6O	26-15	4347	4354	4092	+ 262	216
Federal "26"	8P	26-16	4339	4346	4098	+ 248	217
Sec. 35, T7S-R33E							
Murphy Operating Corp.							
Hobbs "T"	17A	35-01	4333	4345	4118	+ 227	232
State "CV"	2B	35-02	4361	4370	4110	+ 260	Sonic Log
Hobbs "T"	16C	35-03	4366	4378	4108	+ 270	216
Shackelford	1D	35-04	4380	4391	4120	+ 270	220
State "DA"	1E	35-05	4368	4378	4126	+ 252	206
State Section 35	3F	35-06	4369	4379	4130	+ 249	210
State Section 35	4G	35-07	4361	4371	4126	+ 245	214
State Section 35	5H	35-08	4337	4348	4132	+ 216	210
State "CV"	3I	35-09	4345	4354	4146	+ 208	Latero Log
Hobbs "T"	14J	35-10	4347	4358	4135	+ 223	211
State "CV"	1K	35-11	4358	4367	4118	+ 249	212
State Section 35	1L	35-12	-	4378	4133	+ 245	211
State Section 35	2M	35-13	4363	4374	4131	+ 243	212
State "DE"	1N	35-14	4360	4370	4134	+ 236	216
Hobbs "T"	18O	35-15	4351	4363	4146	+ 217	214
Hobbs "T"	19P	35-16	4343	4355	4162	+ 193	216
Sec. 36, T7S-R33E							
Murphy Operating Corp.							
State Section 36	1B	36-02	4323	4334	4180	+ 154	212
State "K"	3C	36-03	4325	4335	4155	+ 180	-
State "K"	1D	36-04	4330	4340	4134	+ 206	219
State "K"	2E	36-05	4331	4341	4154	+ 187	BHCS
State "K"	6F	36-06	4324	4333	4178	+ 155	BHCS
State Section 36	1G	36-07	4321	4331	4208	+ 123	210 GRN
State "K"	7K	36-11	4331	4341	4188	+ 153	BHCS
State "K"	4L	36-12	4336	4345	4172	+ 173	BHCS
State "K"	5M	36-13	4337	4346	4188	+ 158	BHCS

EXHIBIT VIII.D.

EXHIBIT VIII.D.
Tabulated Summary of Geological Data for Wells within Proposed Unit Area
PROPOSED JENNIFER CHAVEROO SAN ANDRES UNIT
Roosevelt County, New Mexico

CHL = Cased Hole Log
BHCS = Borehole Compensated Sonic Log
NDE = Not Deep Enough
GRN = Gamma Ray Neutron

Operator / Lease	Original Well#/Unit	New Unit Well #	Elevation GRL	Elevation KB	Top P-1 Meas.	Top P-2 SubSea	Thickness P-1 to P-3
Sec. 18, T7S-R34E							
Murphy Operating Corp.							
Wolf Federal	30	18-15					
Sec. 19, T7S-R34E							
Murphy Operating Corp.							
Wolf Federal	4A	19-01	4316	4325	4020	+ 305	CHL
Wolf Federal	2B	19-02	4318	4329	4020	+ 309	CHL
Federal "19"	2C	19-03	4320	4330	4016	+ 314	198
Federal "19"	1F	19-06	4321	4332	4046	+ 286	CHL
Wolf Federal	1G	19-07	4318	4328	4042	+ 286	CHL
Wolf Federal	5H	19-08	4316	4325	4040	+ 285	CHL
State "G"	5I	19-09	4314	4323	4072	+ 251	CHL
State "G"	3J	19-10	4320	4328	4065	+ 263	CHL
State "G"	1K	19-11	4318	4327	4048	+ 279	208
State "G"	2N	19-14	4319	4328	4080	+ 248	CHL
State "G"	4O	19-15	4315	4325	4080	+ 245	CHL
State "G"	6P	19-16	4312	4322	4091	+ 231	CHL
Sec. 20, T7S-R34E							
Murphy Operating Corp.							
Homme Federal	2C	20-03	4312	4323	4030	+ 293	208
Homme Federal	1E	20-05	4313	4324	4036	+ 288	CHL
Homme Federal	3F	20-06	4310	4320	4056	+ 264	Laterolog
State "20"	3K	20-11	4312	4323	4113	+ 210	-
State "20"	1L	20-12	4315	4326	4060	+ 266	195
State "20"	2M	20-13	4312	4324	4100	+ 224	CHL
State "20"	4N	20-14	4309	4320	4168	+ 152	-
Sec. 29, T7S-R34E							
Murphy Operating Corp.							
Hobbs "W"	8C	29-03	4309	4319	4170	+ 149	197
Hobbs "W"	6D	29-04	4311	4322	4118	+ 204	202
Hobbs "W"	7E	29-05	4308	4319	4172	+ 147	CHL
Hobbs "W"	9F	29-06	4309	4320	4252	+ 68	-
Sec. 30, T7S-R34E							
Murphy Operating Corp.							
Hobbs "W"	2A	30-01	4313	4323	4114	+ 209	202
Hobbs "W"	1B	30-02	4313	4324	4109	+ 215	205
State "V"	1C	30-03	4317	4327	4113	+ 214	201
State "V"	2F	30-06	4312	4322	4154	+ 168	-
Hobbs "W"	3G	30-07	-	4322	4144	+ 178	204
Hobbs "W"	4H	30-08	4309	4320	4155	+ 165	205
State "V"	4I	30-09	4310	4320	4189	+ 131	CHL
Hobbs "W"	5J	30-10	4312	4323	4187	+ 136	157
State "V"	3K	30-11	4315	4325	4176	+ 149	204

Exhibit VIII.D.
Tabulated Summary of Geological Data for Wells Outside Proposed Unit Area
but within Area of Review.*
PROPOSED JENNIFER CHAVEROO SAN ANDRES UNIT
Roosevelt County, New Mexico

CHL = Cased Hole Log
BHC-S = Borehole Compensated Sonic Log
NDE = Note Deep Enough
GR-N = Gamma Ray Neutron

Operator / Lease	Original Well#/Unit	Elevation GRL	Elevation KB	Top P-1 Meas.	Top P-2 SubSea	Thickness P-1 to P-3
Sec. 13, T7S-R33E						
Mims Texas Oil & Gas, Inc.						
Morgan Fed. Tract 4	5I	325	4336	3973	+ 363	197
Morgan Fed. Tract 4	6J	4328	4339	3982	+ 357	197
Morgan Fed. Tract 4	3O	4328	4338	3982	+ 356	198
Morgan Fed. Tract 4	4P	4327	4338	3984	+ 354	196
Sec. 23, T7S-R33E						
Mims Texas Oil & Gas, Inc.						
Federal 23	8I	4336	4344	4034	+ 310	204
Federal 23	7J	4342	4353	4037	+ 316	CHL
Federal 23	3O	4345	4352	4040	+ 312	206
Federal 23	4P	4335	4343	4040	+ 303	198
Sec. 24, T7S-R33E						
Mims Texas Oil & Gas, Inc.						
Federal	8A	4322	4334	4004	+ 330	CHL
Federal	7B	4323	4335	4001	+ 334	CHL
Federal	5H	4321	4333	4030	+ 303	CHL
Milford Pipe & Supply						
Bradley	3I	4321	4332	4046	+ 286	CHL
Mims Texas Oil & Gas, Inc.						
Federal	2J	-	4341	4052	+ 289	CHL
Federal	1K	4324	4336	4030	+ 306	CHL
Milford Pipe & Supply						
Coleman	2L	4326	4334	4027	+ 307	CHL
Coleman	1M	4328	4340	4058	+ 282	202
Bradley	1N	4323	4333	4053	+ 280	CHL
Bradley	2O	4321	4332	4073	+ 259	205
Bradley	4P	4323	4334	4078	+ 256	202
Sec. 26, T7S-R33E						
Dalport Oil Corp.						
Federal	3A	4337	4346	4064	+ 282	210
Mims Texas Oil & Gas, Inc.						
Morgan Fed. Tract 2	6B	4343	4353	4057	+ 296	206
Morgan Fed. Tract 2	5C					
Morgan Fed. Tract 2	4D					
Morgan Fed. Tract 2	1E					
Morgan Fed. Tract 2	2F					
Morgan Fed. Tract 2	3G	4343	4353	4076	+ 277	210
Dalport Oil Corp.						
Federal	4H	4336	4345	4075	+ 270	CHL
Sec. 27, T7S-R33E						
Mims Texas Oil & Gas, Inc.						
Federal 27	3A					
Federal 27	1-22B					
Federal 27	2G					
Federal 27	1H					
Morgan Fed. Tract 1	6I	4378	4389	4100	+ 289	210
Morgan Fed. Tract 1	5J	4388	4399	4106	+ 293	214
Morgan Fed. Tract 1	2O	4400	4412	4120	+ 292	212
Morgan Fed. Tract 1	3P	4420	4431	4121	+ 310	214

* Within one-half (½) mile of Unit Boundary.

Exhibit VIII.D.
Tabulated Summary of Geological Data for Wells Outside Proposed Unit Area but within Area of Review.*
PROPOSED JENNIFER CHAVEROO SAN ANDRES UNIT
Roosevelt County, New Mexico

CHL = Cased Hole Log
BHC-S = Borehole Compensated Sonic Log
NDE = Not Deep Enough
GR-N = Gamma Ray Neutron

Operator / Lease	Original Well#/Unit	Elevation GRL	Elevation KB	Top P-1 Meas.	Top P-2 SubSea	Thickness P-1 to P-3
Sec. 34, T7S-R33E						
Murphy Operating Corp.						
State "AZ"	13A					
State "AZ"	12B					
Hobbs "T"	10G					
State "AZ"	14H					
Hobbs "T"	12I					
Hobbs "T"	8J					
Hobbs "T"	15O					
State "AZ"	15P					
Sec. 16, T7S-R34E						
Murphy H. Baxter						
Smelting State	1M	4306	4317	4326	+ 91	Sonic Log
Sec. 17, T7S-R34E						
Kern County Land Co.						
Sieber	1C					
NRM Petroleum Corp.						
Sieber	1F					
NRM Petroleum Corp.						
Metzger	1J	4314	4325	4094	+ 231	-
Kern County Land Co.						
Archer	1K					
NRM Petroleum Corp.						
Archer	2L					
Cities Service Oil Co.						
Davis "A"	1M	4314	4325	4010	+ 315	-
NRM Petroleum Corp.						
Archer	1N	4318	4329	4016	+ 313	-
NRM Petroleum Corp.						
Metzger	8O					
NRM Petroleum Corp.						
Metzger	7P					
Sec. 21, T7S-R34E						
JEM Petroleum Corp.						
Dilly	1L	4301	4312	4310	+ 002	196
Sec. 32, T7S-R34E						
Charles B. Read						
Sinclair "B"	1B	4314	4324	4372	- 48	204
Sec. 1, T8S-R33E						
Kerr-McGee Corp.						
State "C"	5C	4336	4347	4212	+ 135	213
State "C"	4D	4339	4351	4189	+ 162	203
State "FU"	9E	4338	4350	4186	+ 164	CHL

* Within one-half (½) mile of Unit Boundary.

Exhibit VIII.D.
Tabulated Summary of Geological Data for Wells Outside Proposed Unit Area
but within Area of Review.*
PROPOSED JENNIFER CHAVEROO SAN ANDRES UNIT
Roosevelt County, New Mexico

CHL = Cased Hole Log
BHCS = Borehole Compensated Sonic Log
NDE = Not Deep Enough
GR-N = Gamma Ray Neutron

Operator / Lease	Original Well#/Unit	Elevation GRL	Elevation KB	Top P-1 Meas.	Top P-2 SubSea	Thickness P-1 to P-3
Sec. 2, T8S-R33E						
Kerr-McGee Corp.						
State "C"	2A	4344	4356	4172	+ 184	214
State "C"	1B	4352	4363	4153	+ 210	-
State "F"	2C	4356	4366	4157	+ 209	NDE
State "F"	14C	4366	4377	4150	+ 227	204
State "F"	1D	4371	4381	4153	+ 228	NDE
State "F"	3E	4367	4377	4154	+ 223	205
State "F"	4F	4362	4371	4159	+ 212	204
Champlin Petroleum Co.						
Levick State 2	1G	4351	4363	4168	+ 195	CHL
Kerr-McGee Corp.						
State "C"	3H	4346	4358	4180	+ 178	-
Sec. 3, T8S-R33E						
Murphy Operating Corp.						
State "BF"	1A	4379	4389	4158	+ 231	210
State "BF"	2B	4385	4395	4174	+ 221	207
State "BF"	6G	4388	4399	4179	+ 220	215
State "BF"	4H	4376	4388	4170	+ 218	205

* Within one-half (½) mile of Unit Boundary.

EXHIBIT VIII.H.
PROPOSED JENNIFER SAN ANDRES UNIT
Derivation of Tract Participation Factors

(08/15/89)

Tract	Lease Name	Original Well Number	Well Location	Well Status	Unit Well Number	A Useable Wells Number	%	x 15%	B Total Primary Oil Recovery to January 1, 1989 BBLS*	100%	x 80%	C Acreage Number	%	x 5%	Tract Participation Factor
1.	Federal 26	1M	26 7S 33E	S	26-13	1			62,819						
		2L	26 7S 33E	P	26-12	1			71,687						
		3K	26 7S 33E	P	26-11	1			64,475						
		4N	26 7S 33E	S	26-14	1			65,965						
		5J	26 7S 33E	P	26-10	1			62,823						
		6O	26 7S 33E	S	26-15	1			64,066						
		7I	26 7S 33E	P	26-09	1			63,263						
		8P	26 7S 33E	P	26-16	1			70,685						
						8	11.267606	1.690141	525,783	10.594641	8.475713	320.00	6.217214	0.310861	10.476715
2.	Homme Federal	1E	20 7S 34E	S	20-05	1			62,290						
		2C	20 7S 34E	S	20-03	1			27,465						
		3F	20 7S 34E	S	20-06	1			25,505						
						3	4.225352	0.633803	115,260	2.322514	1.858011	480.00	9.325821	0.466291	2.958105
3.	Wolf Federal	1G	19 7S 34E	P	19-07	1			32,250						
		2B	19 7S 34E	P	19-02	1			27,113						
		3O	18 7S 34E	S	18-15	1			32,687						
		4A	19 7S 34E	P	19-01	1			28,695						
		5H	19 7S 34E	S	19-08	1			37,670						
						5	7.042254	1.056338	158,415	3.192096	2.553677	659.16	12.806684	0.640334	4.250349
4.	Federal 19	1F	19 7S 34E	A	19-06	0			15,554						
		2C	19 7S 34E	A	19-03	0			7,997						
						0	0.000000	0.000000	23,551	0.474558	0.379646	90.77	1.763552	0.088178	0.467824
5.	State DB	1D	25 7S 33E	S	25-04	1			70,715						
		2E	25 7S 33E	S	25-05	1			79,087						
		3C	25 7S 33E	P	25-03	1			147,639						
		4L	25 7S 33E	A	25-12	0			76,257						
		5F	25 7S 33E	I	25-06	1			73,421						
		6M	25 7S 33E	I	25-13	1			70,955						
		7K	25 7S 33E	P	25-11	1			76,711						
		8N	25 7S 33E	A	25-14	0			55,065						
		9O	25 7S 33E	P	25-15	1			64,017						
	State DF	1I	25 7S 33E	SWD	25-09	1			26,633						
						8	11.267606	1.690141	740,500	14.921235	11.936988	400.00	7.771517	0.388576	14.015705

Tract Participation Formula
Tract Participation = 15% A + 80% B + 5% C
Where A = Percent of Total Useable Wells in Unit Area.
Where B = Percent of Total Primary Oil Recovery in Unit Area as of January 1, 1989.
Where C = Total Unit Acreage.

LEGEND
A Permanently Abandoned
F Flowing
I Injection
S Shut In
F Flowing

*Based upon the 1988 A .1 Report of the New Mexico Oil & Gas E neering Committee.

EXHIBIT VIII.H.

(08/15/89)

Tract	Lease Name	Original Well Number	Well Location	Well Status	Unit Well Number	A Useable Wells Number	A %	A x 15%	B Total Primary Oil Recovery to January 1, 1989 BBLS*	B 100%	B x 80%	C Acreage Number	C %	C x 5%	Tract Participation Factor
6.	State J	1B	25 7S 33E	P	25-02	1			73,707						
		2G	25 7S 33E	A	25-07	0			47,492						
		3A	25 7S 33E	P	25-01	1			52,490						
		4P	25 7S 33E	P	25-16	1			23,528						
						3	4.225352	0.633803	197,217	3.973965	3.179172	160.00	3.108607	0.155430	3.968405
7.	State Conine	1H	25 7S 33E	A	25-08	0	0.000000	0.000000	39,758	0.801132	0.640906	40.00	0.777152	0.038858	0.679764
8.	State I	1J	25 7S 33E	P	25-10	1	1.408451	0.211268	53,127	1.070521	0.856417	40.00	0.777152	0.038858	1.106543
9.	State DA	1E	35 7S 33E	S	35-05	1			42,792						
	and	1N	35 7S 33E	S	35-14	1			58,153						
	State DE					2	2.816901	0.422535	100,945	2.034064	1.627251	80.00	1.554303	0.077715	2.127501
10.	Hobbs T	14J	35 7S 33E	P	35-10	1			140,139						
		16C	35 7S 33E	P	35-03	1			94,174						
		17A	35 7S 33E	P	35-01	1			114,624						
		18O	35 7S 33E	P	35-15	1			103,771						
		19P	35 7S 33E	P	35-16	1			103,495						
						5	7.042254	1.056338	556,203	11.207610	8.966088	200.00	3.885759	0.194288	10.216714
11.	State CV	1K	35 7S 33E	P	35-11	1			120,660						
		2B	35 7S 33E	S	35-02	1			159,554						
		3I	35 7S 33E	P	35-09	1			167,096						
						3	4.225352	0.633803	447,310	9.013393	7.210714	120.00	2.331455	0.116573	7.961090
12.	Shackelford	1D	35 7S 33E	S	35-04	1	1.408451	0.211268	81,728	1.646837	1.317470	40.00	0.777152	0.038858	1.567596
13.	State Sec. 35	1L	35 7S 33E	P	35-12	1			68,993						
	and	2M	35 7S 33E	P	35-13	1			44,151						
	State Sec. 36	3F	35 7S 33E	P	35-06	1			70,037						
		4G	35 7S 33E	P	35-07	1			79,365						
		5H	35 7S 33E	P	35-08	1			102,078						
		1B	36 7S 33E	A	36-02	0			31,561						
		1G	36 7S 33E	SWD	36-07	1			444						
						6	8.450704	1.267606	396,629	7.992160	6.393728	480.00	9.325821	0.466291	8.127625

Tract Participation Formula
Tract Participation = 15% A + 80% B + 5% C
Where A = Percent of Total Useable Wells in Unit Area.
Where B = Percent of Total Primary Oil Recovery in Unit Area as of January 1, 1989.
Where C = Total Unit Acreage.

LEGEND
A Permanently Abandoned
F Flowing
I Injection
S Shut In
F Flowing

*Based upon the 1988 A[illegible].1 Report of the New Mexico Oil & Gas L[illegible]neering Committee.

(08/15/89)

Tract	Lease Name	Original Well Number	Well Location	Well Status	Unit Well Number	A Useable Wells Number	A %	A x 15%	B Total Primary Oil Recovery to January 1, 1989 BBLS*	B 100%	B x 80%	C Acreage Number	C %	C x 5%	Tract Participation Factor
14.	State K	1D	36 7S 33E	P	36-04	1			77,262						
		2E	36 7S 33E	P	36-05	1			74,701						
		3C	36 7S 33E	P	36-03	1			120,329						
		4L	36 7S 33E	P	36-12	1			62,611						
		5M	36 7S 33E	P	36-13	1			81,027						
		6F	36 7S 33E	P	36-06	1			52,689						
		7K	36 7S 33E	P	36-11	1			29,142						
						7	9.859155	1.478873	497,761	10.029992	8.023994	360.00	6.994366	0.349718	9.852585
15.	State G	1K	19 7S 34E	S	19-11	1			29,473						
		2N	19 7S 34E	S	19-14	1			37,651						
		3J	19 7S 34E	S	19-10	1			24,987						
		4O	19 7S 34E	P	19-15	1			35,548						
		5I	19 7S 34E	S	19-09	1			30,678						
		6P	19 7S 34E	S	19-16	1			44,611						
						6	8.450704	1.267606	202,948	4.089446	3.271557	251.59	4.888090	0.244405	4.783568
16.	State 20	1L	20 7S 34E	A	20-12	0			61,425						
		2M	20 7S 34E	A	20-13	0			66,208						
		3K	20 7S 34E	A	20-11	0			46,572						
		4N	20 7S 34E	A	20-14	0			61,790						
						0	0.000000	0.000000	235,995	4.755350	3.804280	320.00	6.217214	0.310861	4.115141
17.	State 20 (Section 29)	--	--	-	--	0	0.000000	0.000000	0	0.000000	0.000000	160.00	3.108607	0.155430	0.155430
18.	Hobbs W	1B	30 7S 34E	P	30-02	1			51,082						
		2A	30 7S 34E	P	30-01	1			65,313						
		3G	30 7S 34E	P	30-07	1			69,741						
		4H	30 7S 34E	P	30-08	1			51,798						
		5J	30 7S 34E	S	30-10	1			44,321						
		6D	29 7S 34E	P	29-04	1			67,244						
		7E	29 7S 34E	S	29-05	1			68,701						
		8C	29 7S 34E	S	29-03	1			35,098						
		9F	29 7S 34E	I	29-06	1			0						
						9	12.676056	1.901408	453,298	9.134053	7.307242	680.00	13.211580	0.660579	9.869229

Tract Participation Formula
Tract Participation = 15% A + 80% B + 5% C
Where A = Percent of Total Useable Wells in Unit Area.
Where B = Percent of Total Primary Oil Recovery in Unit Area as of January 1, 1989.
Where C = Total Unit Acreage.

LEGEND

A Permanently Abandoned
F Flowing
I Injection
S Shut In
F Flowing

*Based upon the 1988 A[illegible].1 Report of the New Mexico Oil & Gas L[illegible]neering Committee.

(08/15/89)

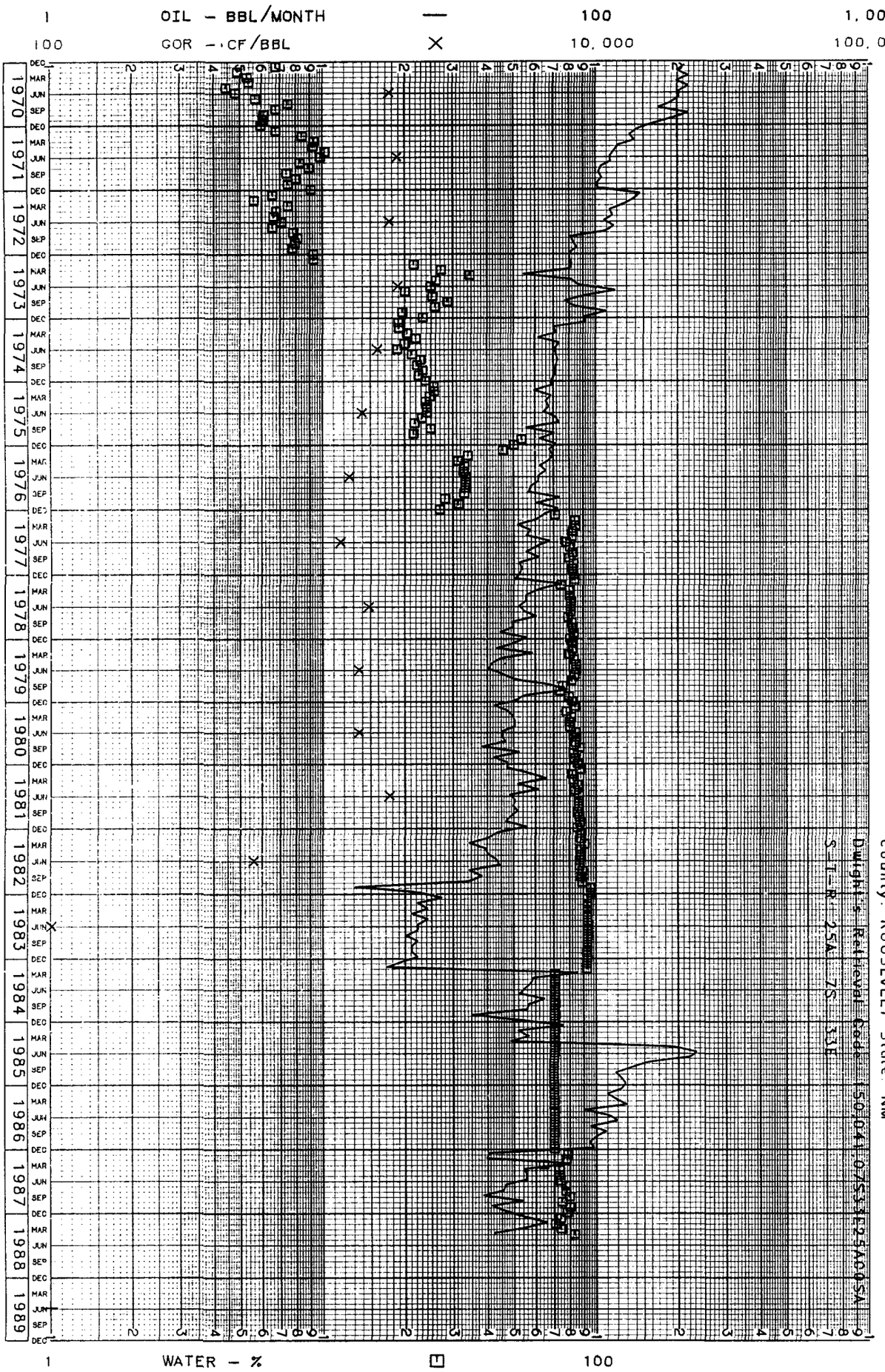
Tract	Lease Name	Original Well Number	Well Location	Well Status	Unit Well Number	A Useable Wells Number	A Useable Wells %	x	A Useable Wells 15%	B Total Primary Oil Recovery to January 1, 1989 BBLS*	B 100%	x	B 80%	C Acreage Number	C Acreage %	x	C 5%	Tract Participation Factor
19.	State V	1C	30 7S 34E	P	30-03	1				46,952								
		2F	30 7S 34E	S	30-06	1				49,641								
		3K	30 7S 34E	S	30-11	1				19,839								
		4I	30 7S 34E	P	30-09	1				19,866								
						4	5.633802		0.845069	136,298	2.746433		2.197146	265.48	5.157954		0.257896	3.300111
				TOTALS		71	100.000000%		15.000000%	4,962,726	100.000000%		80.000000%	5,147.00	100.000000		5.000000	100.000000%

Tract Participation Formula
Tract Participation = 15% A + 80% B + 5% C
Where A = Percent of Total Useable Wells in Unit Area.
Where B = Percent of Total Primary Oil Recovery in Unit Area as of January 1, 1989.
Where C = Total Unit Acreage.

LEGEND

A Permanently Abandoned
F Flowing
I Injection
S Shut In
F Flowing

*Based upon the 1988 A[illegible]l Report of the New Mexico Oil & Gas [illegible]neering Committee.



Operator: MYCO PETROLEUM
Lease: STATE J Well No: 000003
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

Dwight's Retrieval Code: 150041075331251A00SA
S-T-R: 25A 7S 33E

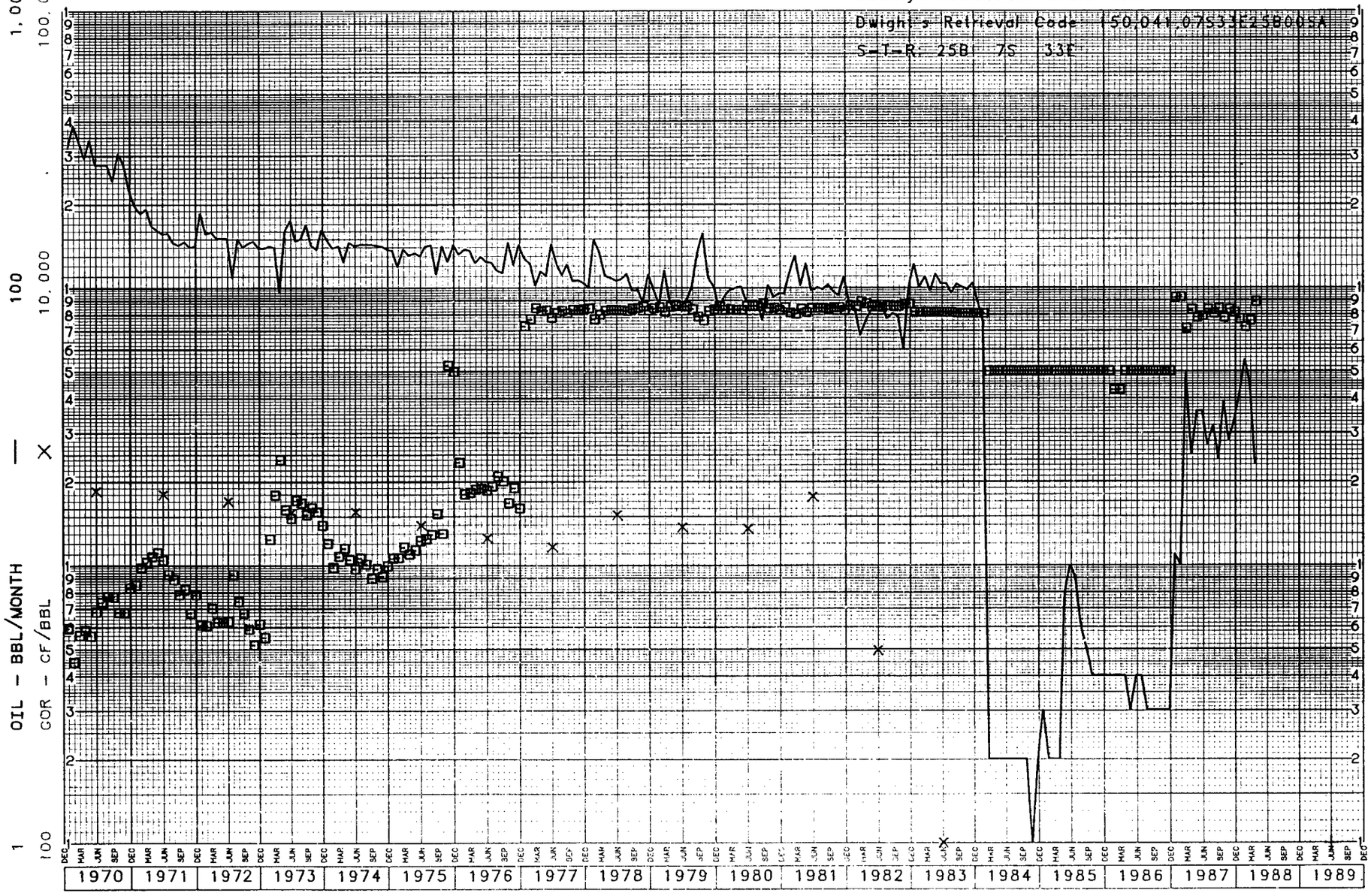
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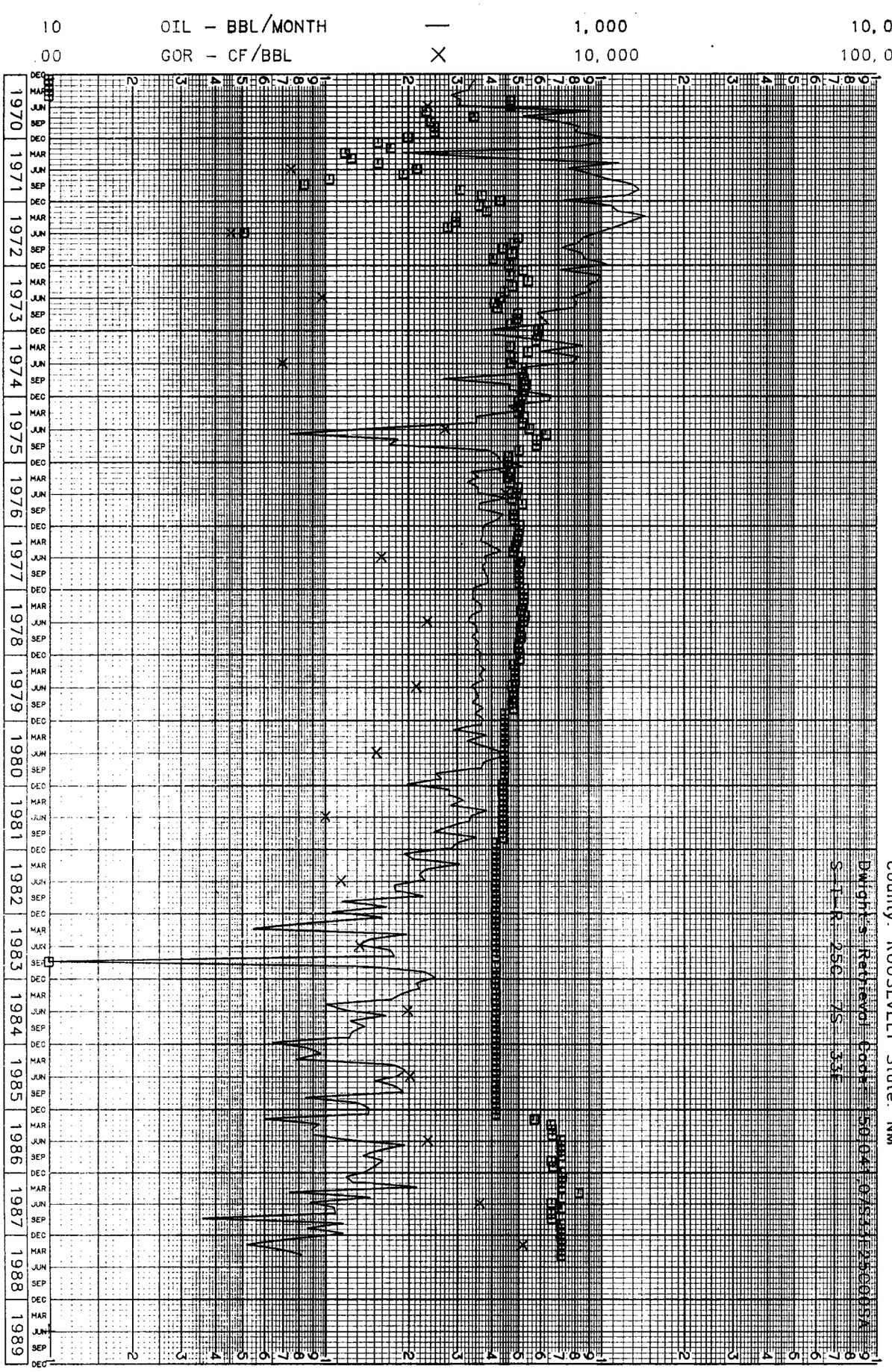
29

WELLS LOCATED WITHIN UNIT BOUNDARY

EXHIBIT VIII.1.1.

Operator: MYCO PETROLEUM
Lease: STATE J Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,04N,07S33E25B00SA
S-T-R: 25B 7S 33E





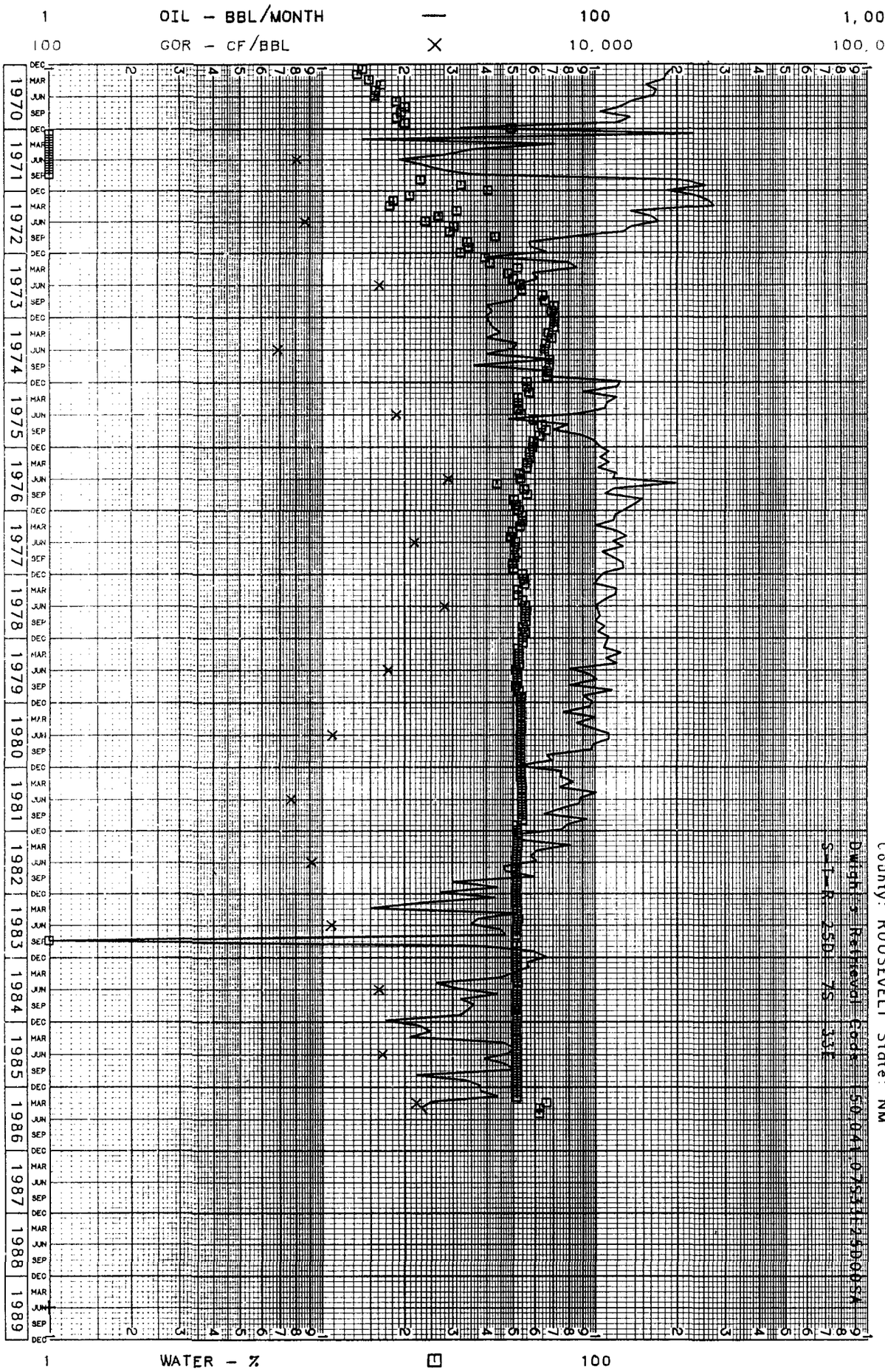
Operator: BRADEN DEEM INC
Lease: STATE DB Well No: 000003
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

Dwight's Retrieval Code: 50 041 07533 E2SC 0 SA

S-T-R: 25S 7S 33E

SA

31



Operator: BRADEN DEEM INC

Lease: STATE DB Well No: 00001

Field: CHAVEROO SAN ANDRES

Reservoir:

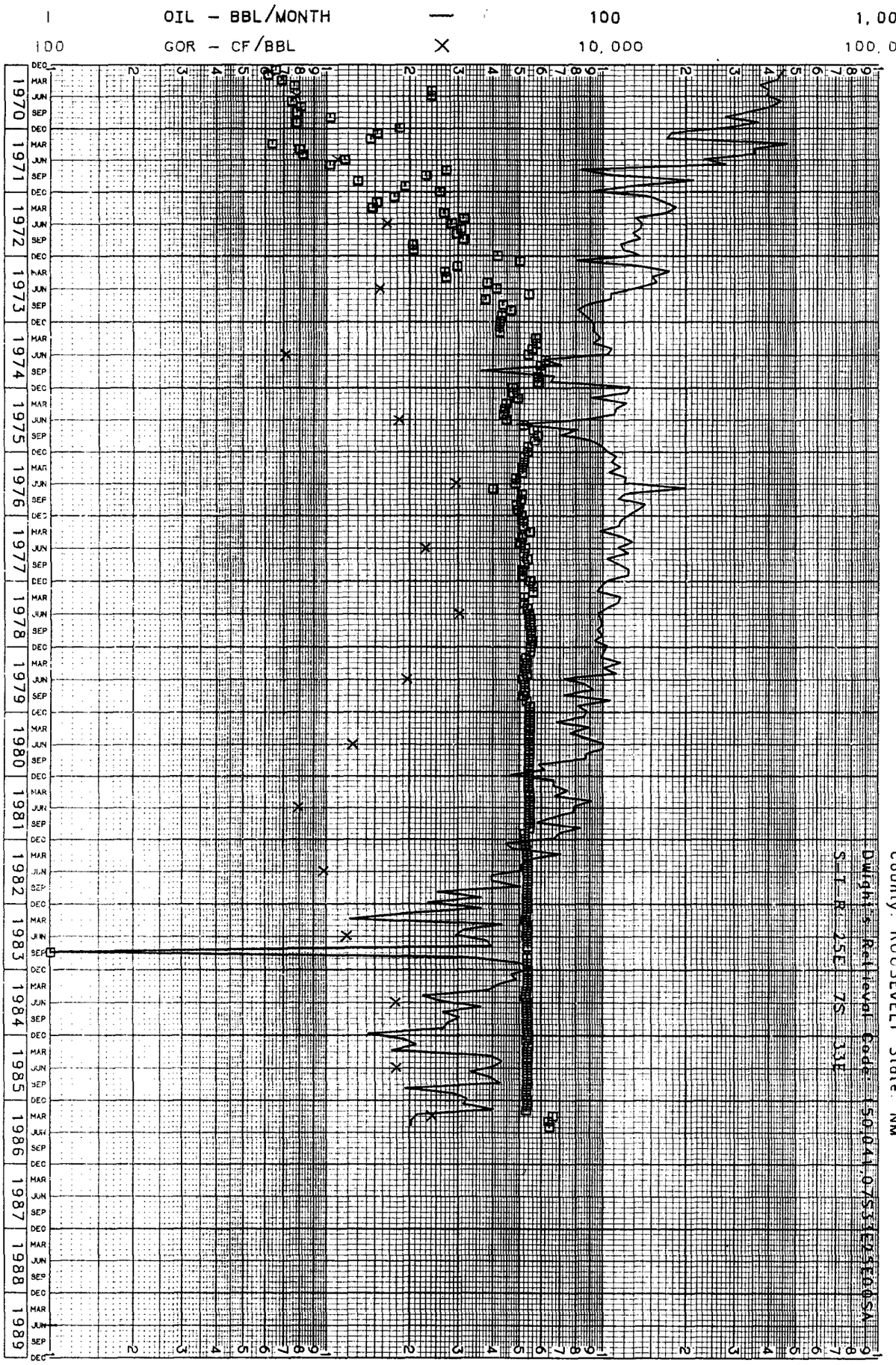
County: ROOSEVELT State: NM

Dwight's Reference Code: E50041075311E25D00SA

S-T-R 25D 7S 33E

SA

32



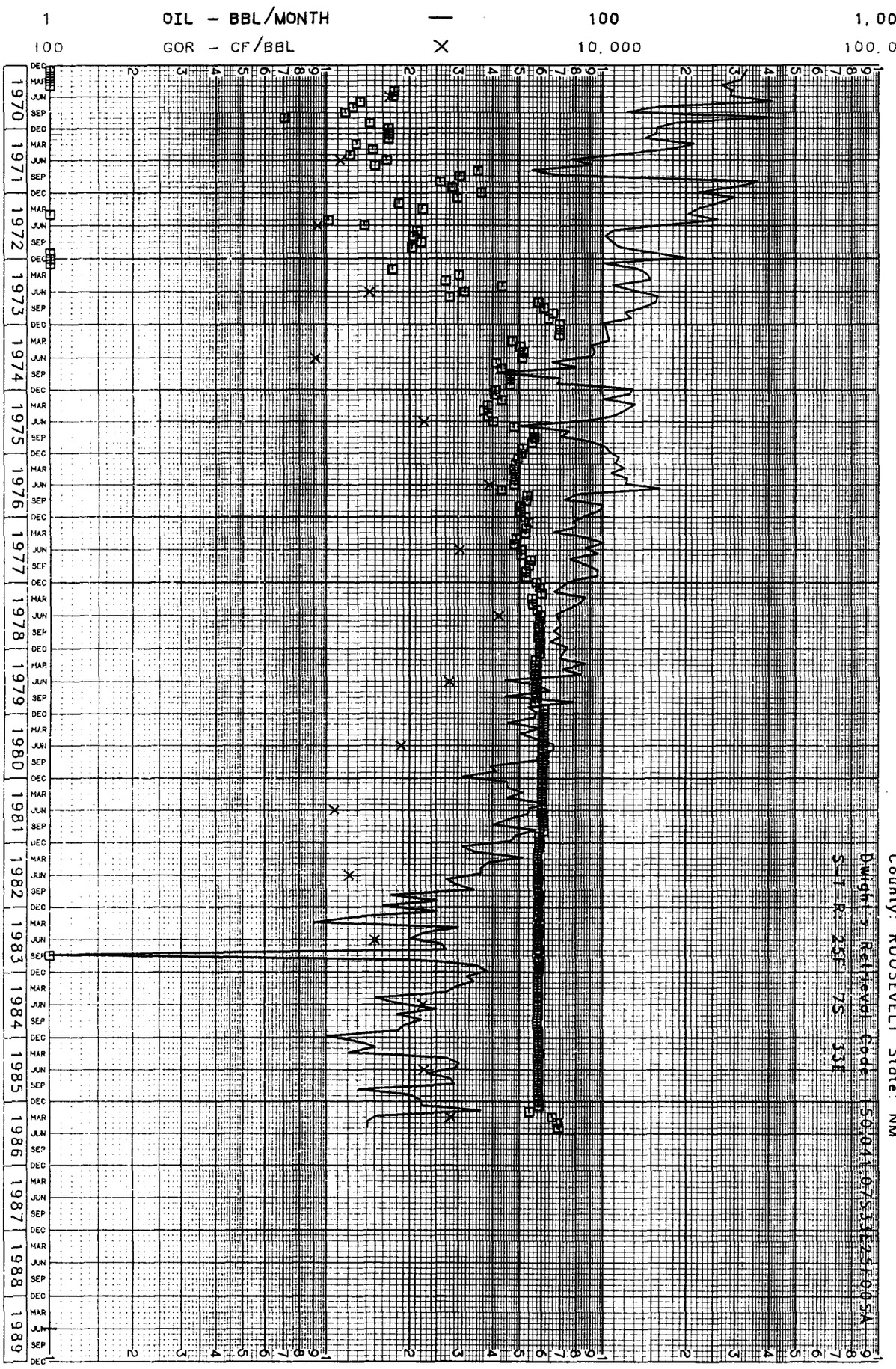
Operator: BRADEN DEEM INC
Lease: STATE DB Well No: 00002
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

Dwight's Retrieval Code: 150441.07531E25E00SA

S-T-R: 25E 7S 33E

SA

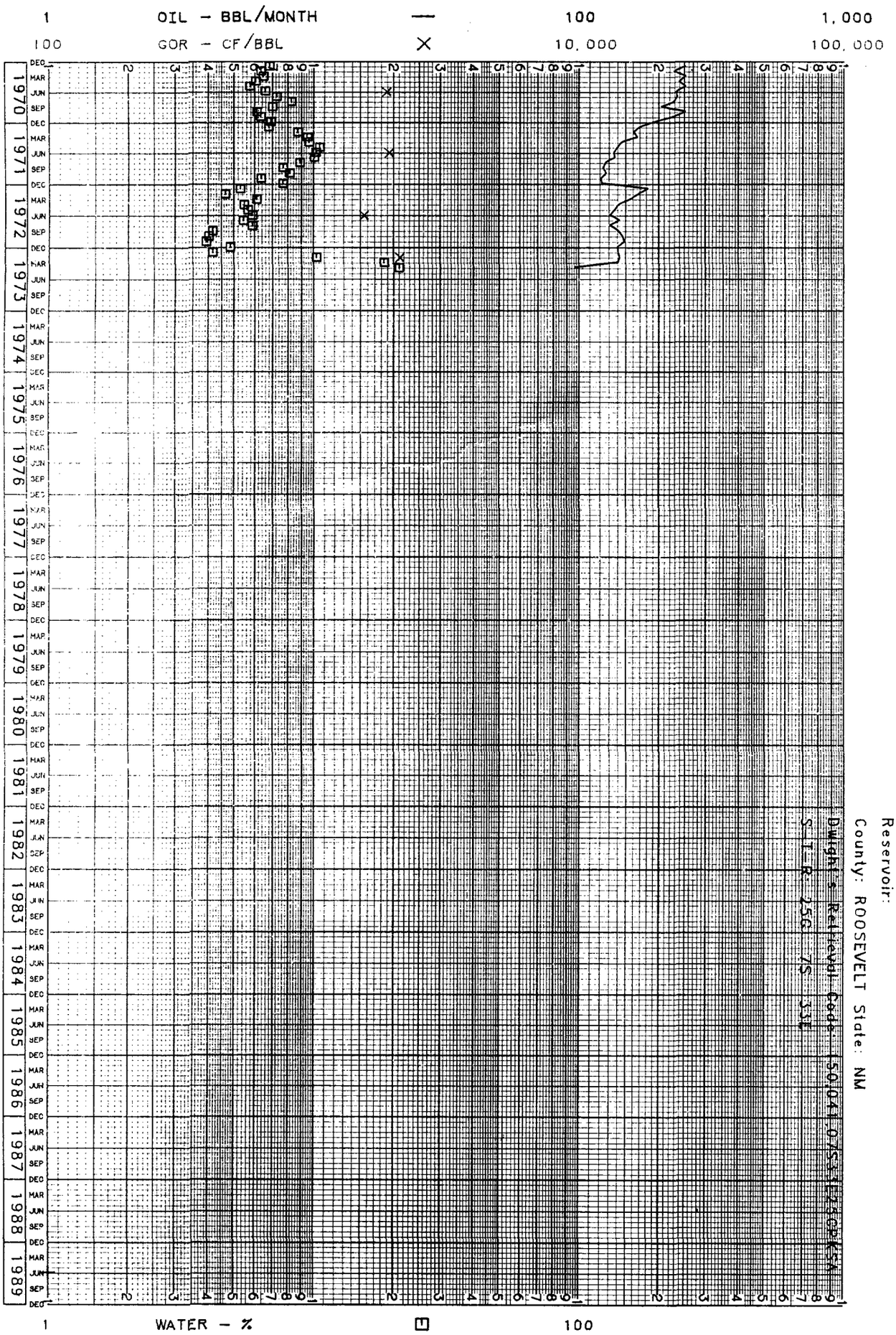
33



Operator: BRADEN DEEM INC
Lease: STATE DB Well No: 000005
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM

Dwight's Retrieval Code: 50-041-07531E25F00SA
S-T-R: 25E 7S 33R

34



Operator: WISER OIL CO
Lease: STATE J Well No: 000002
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

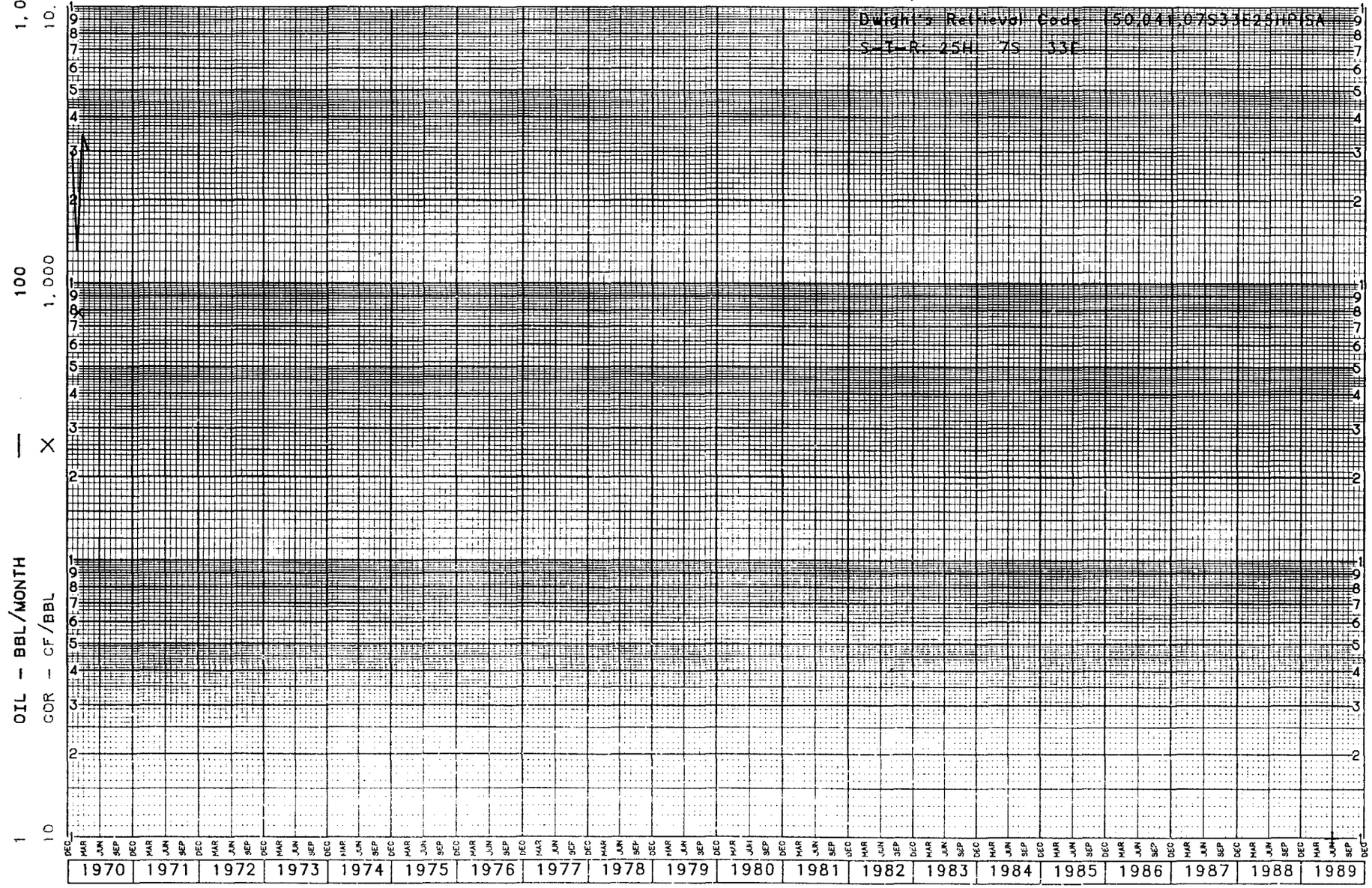
Dwight's Retrieval Code: 30,041,07S,33E,25G,GBKSA

S T R 25G 7S 33E

SA

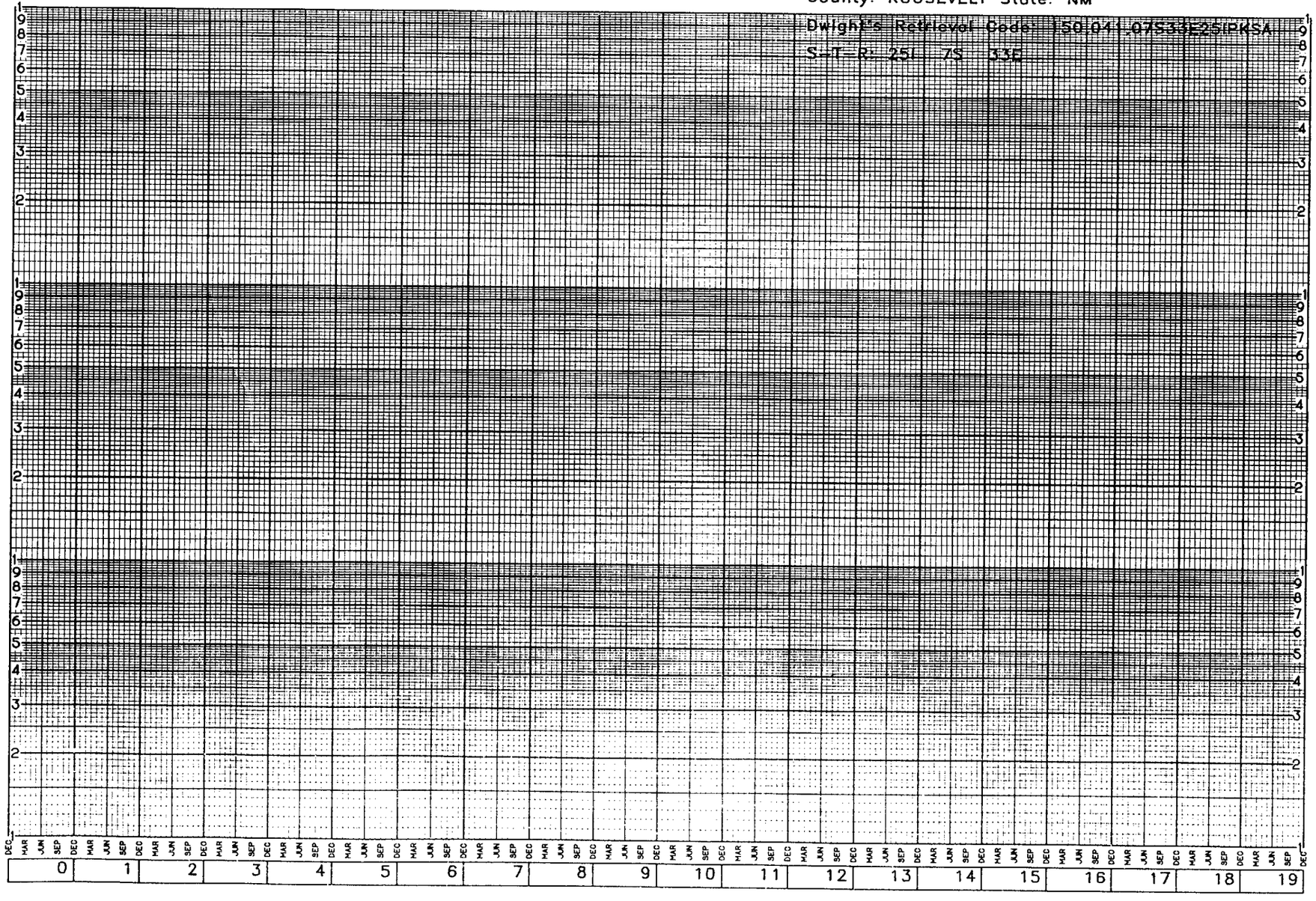
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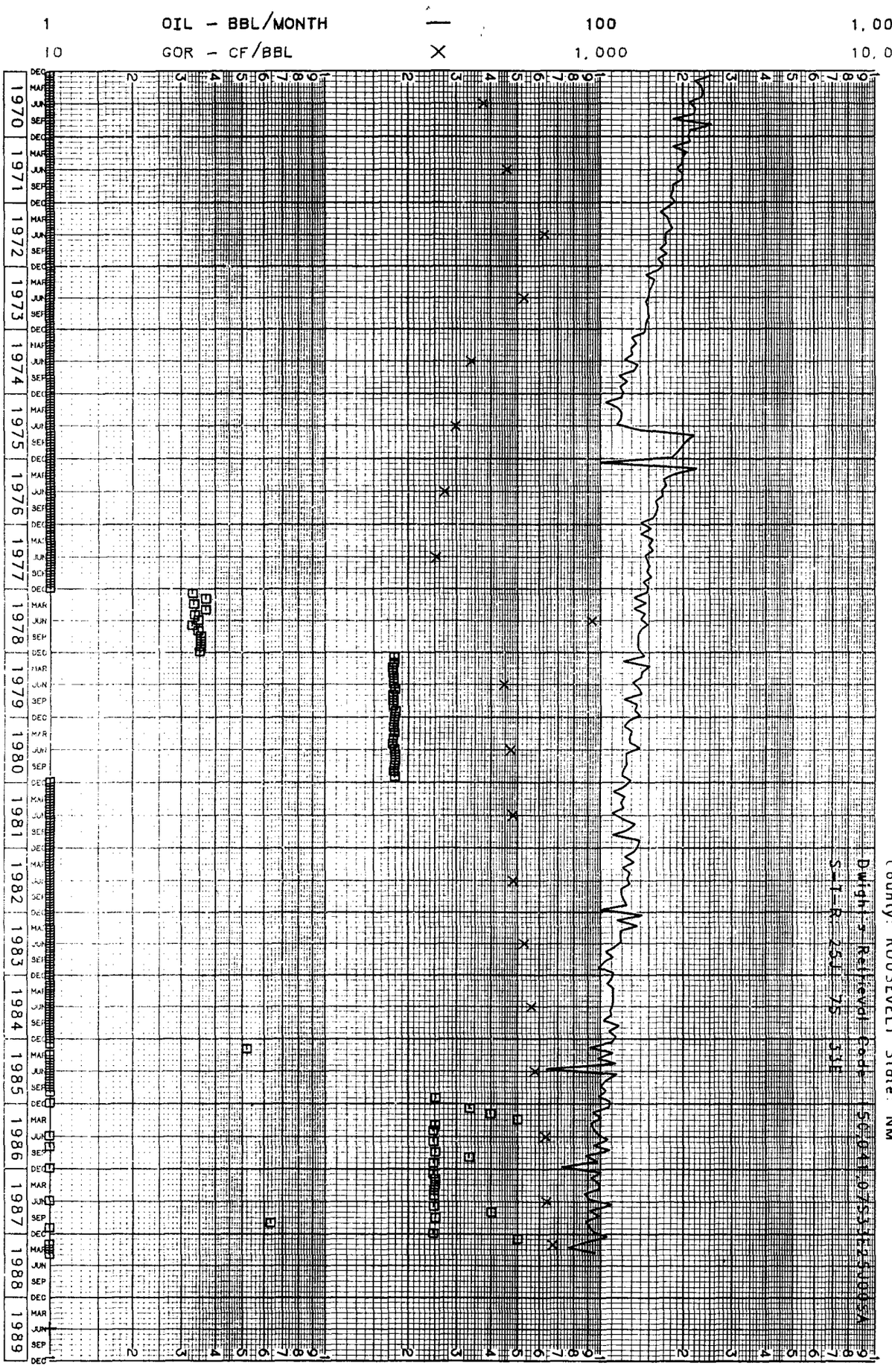
Operator: CONINE JIM INC
Lease: STATE Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 350,041,07S33E25HPISA
S-T-R: 25H 7S 33E



Operator: BRADEN DEEM INC
Lease: STATE DF Well No: 000001
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150041.07S33E25IPKSA
S-T-R: 25L 7S 33E

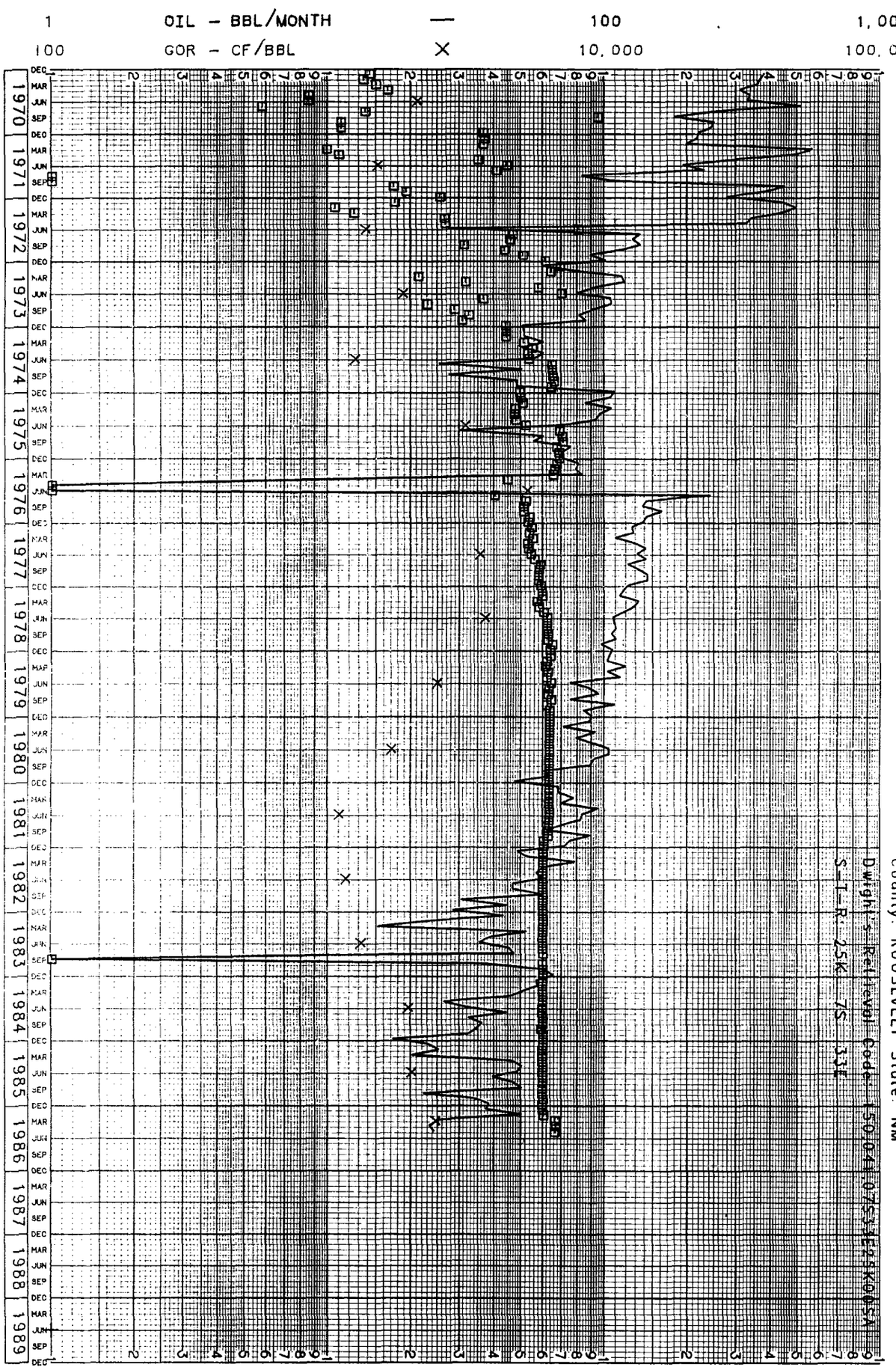
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1 OIL - BBL/MONTH 100 1,000
10 GOR - CF/BBL 1,000 10,000
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989
1 WATER - % 100
Operator: KERR MCGEE CORP
Lease: STATE I Well No: 000001
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 1500430107531E25.00SA
S-T-R: 25J 7S 31E

38

SA



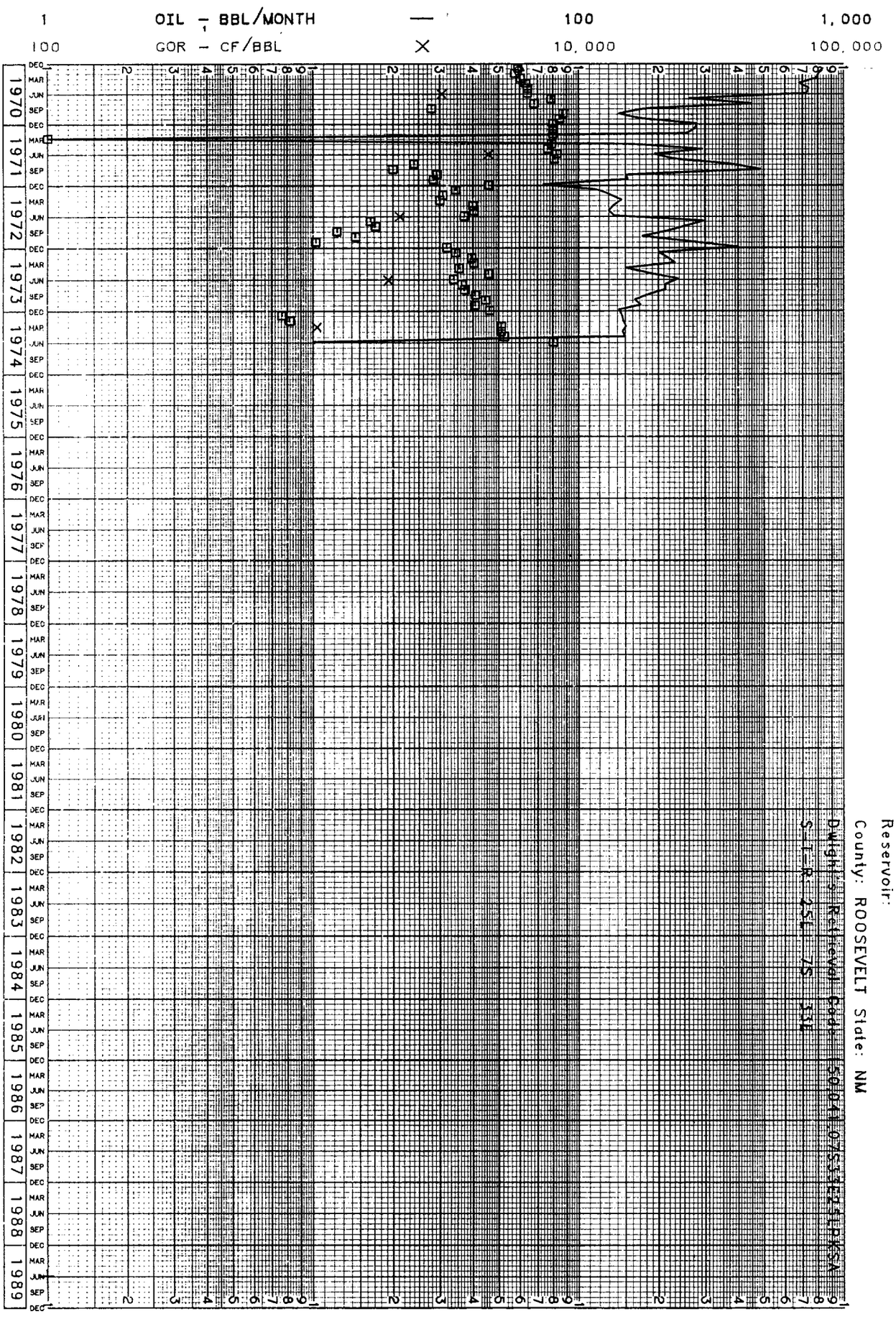
Operator: BRADEN DEEM INC
Lease: STATE DB Well No: 000007
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

Dwight's Retrieval Code: 150741075334E25K00SA

S-T-R: 25K 7S 33E

SA

39

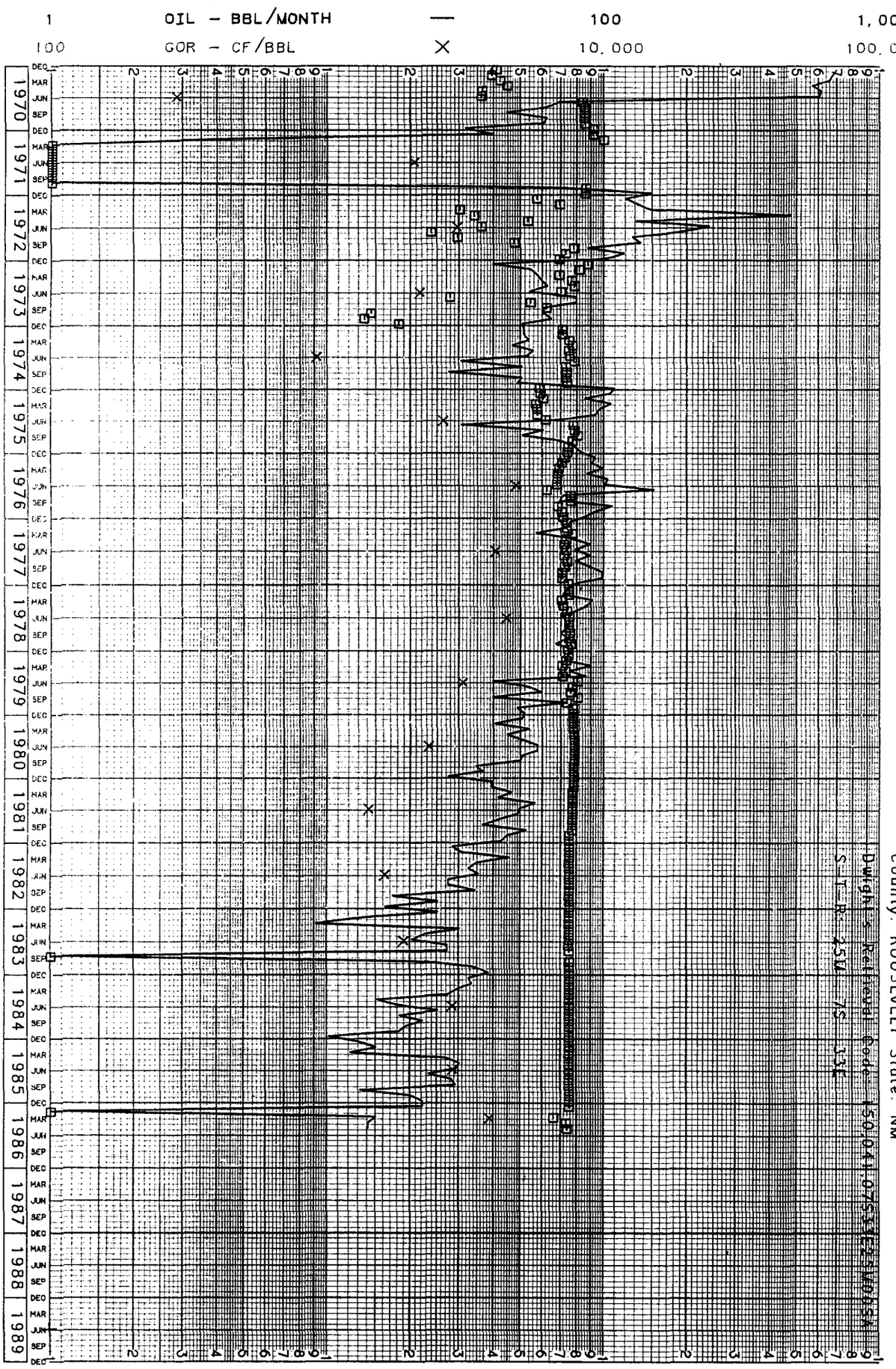


Operator: BRADEN DEEM INC
Lease: STATE DB Well No: 000004
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

Dwight's Retrieval Code: 30 041 07S 33E 41 PKSA
S-T-R: 4-5S-33E

SA

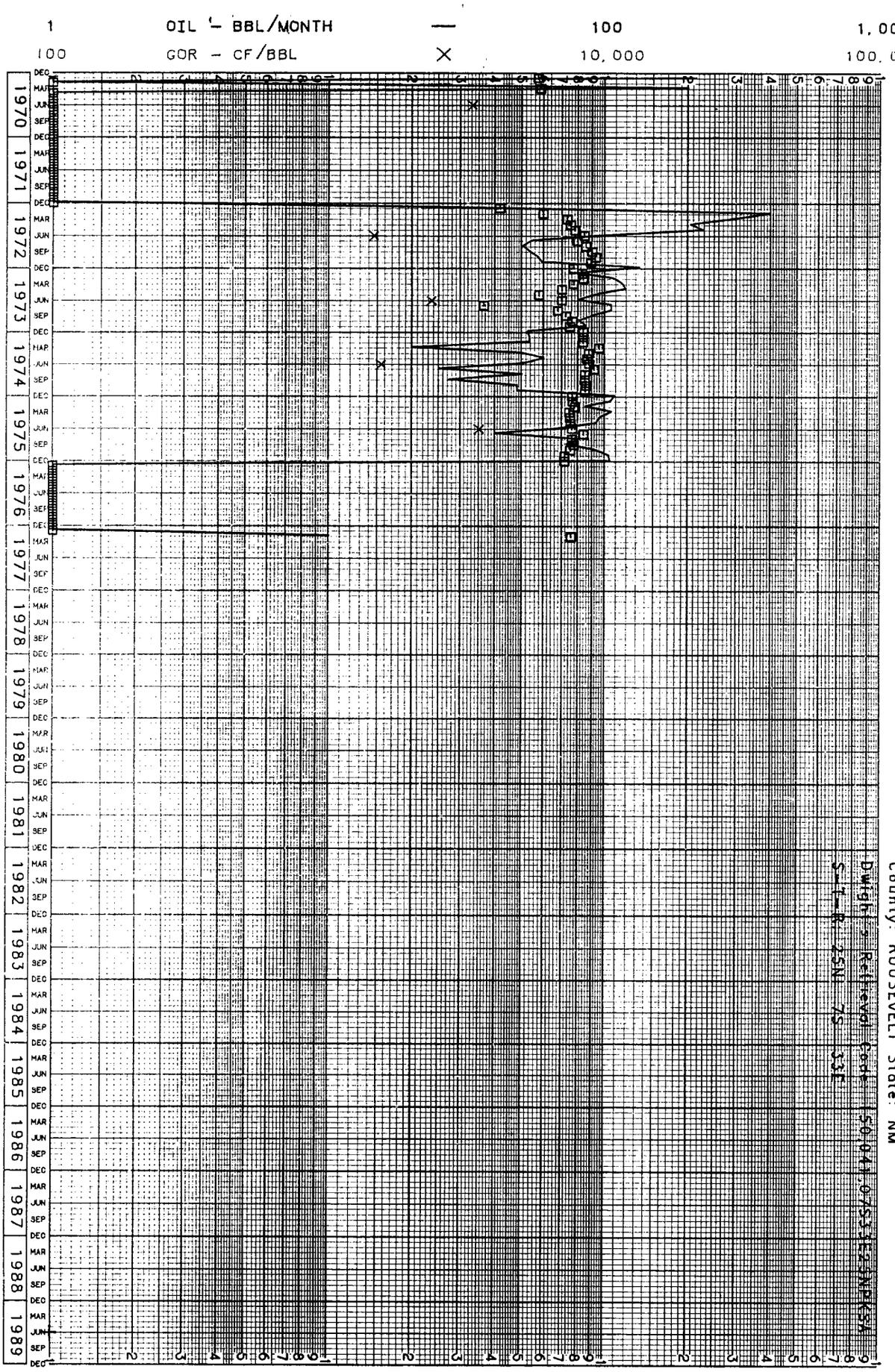
40



Operator: BRADEN DEEM INC
Lease: STATE DB Well No: 000006
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

SA

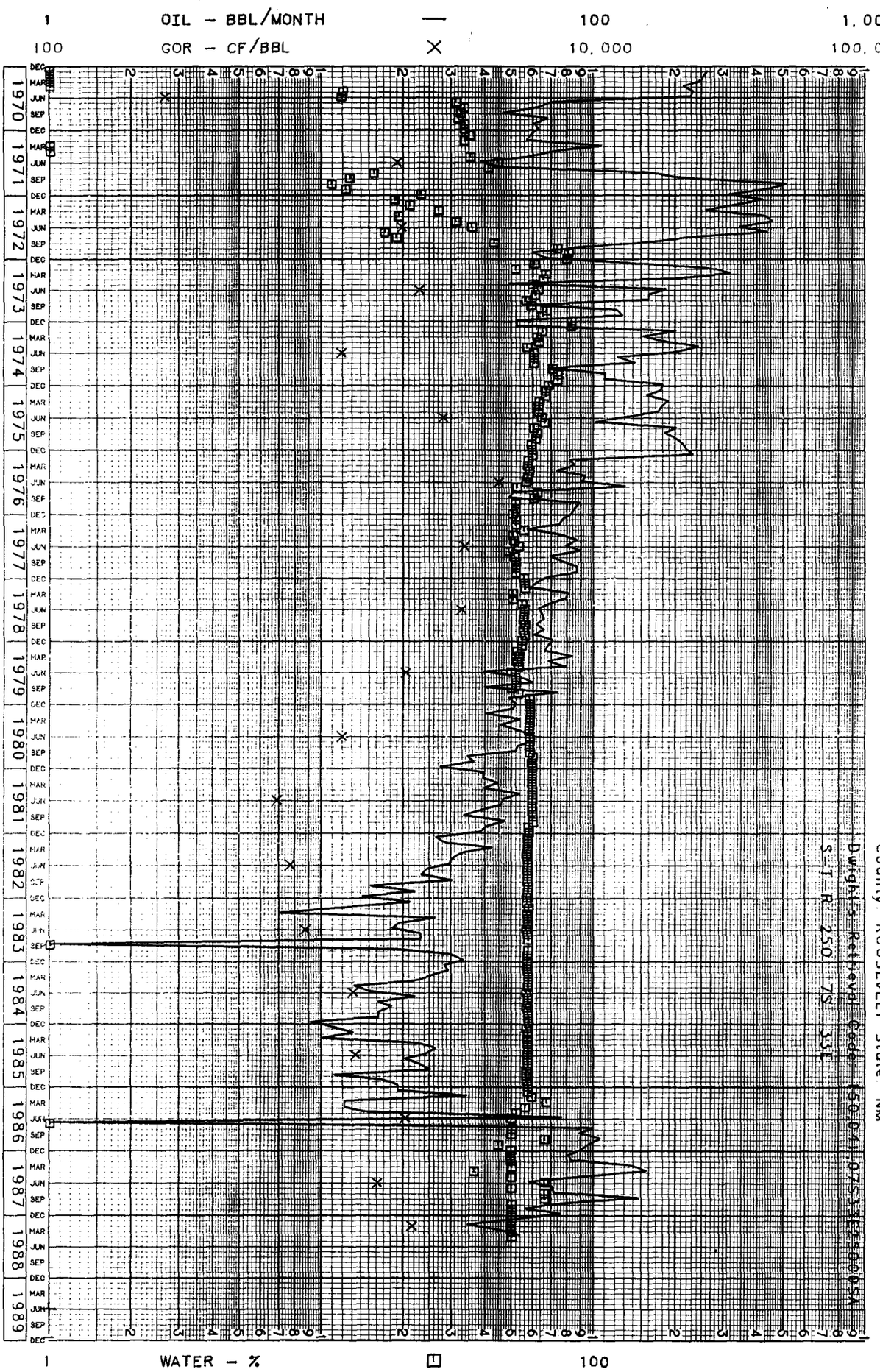
41



Operator: BRADEN DEEM INC
Lease: STATE DB Well No: 000008
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 350411.07S33E25NPKSPA
S-T-R: 25N 7S 33E

SA

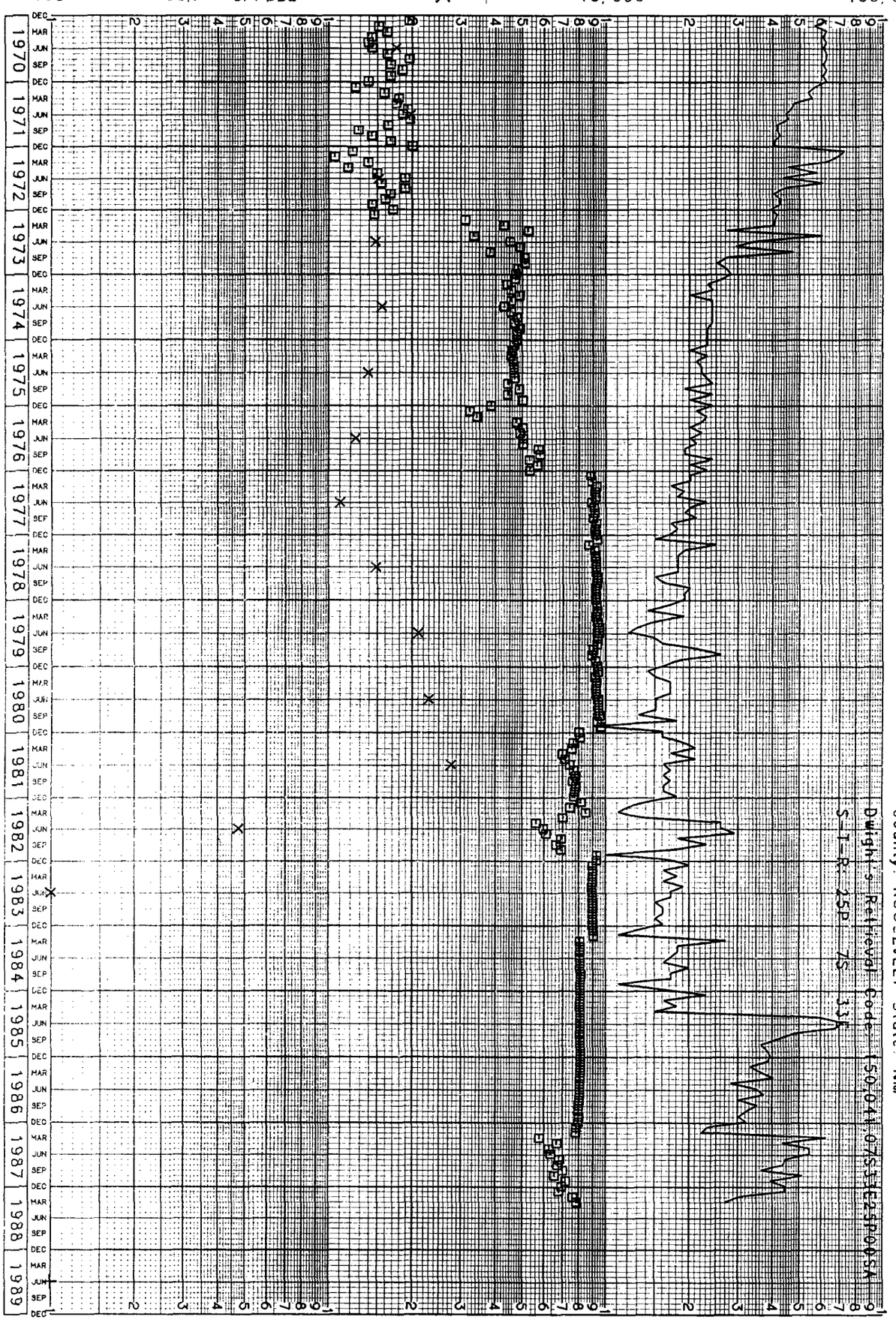
42

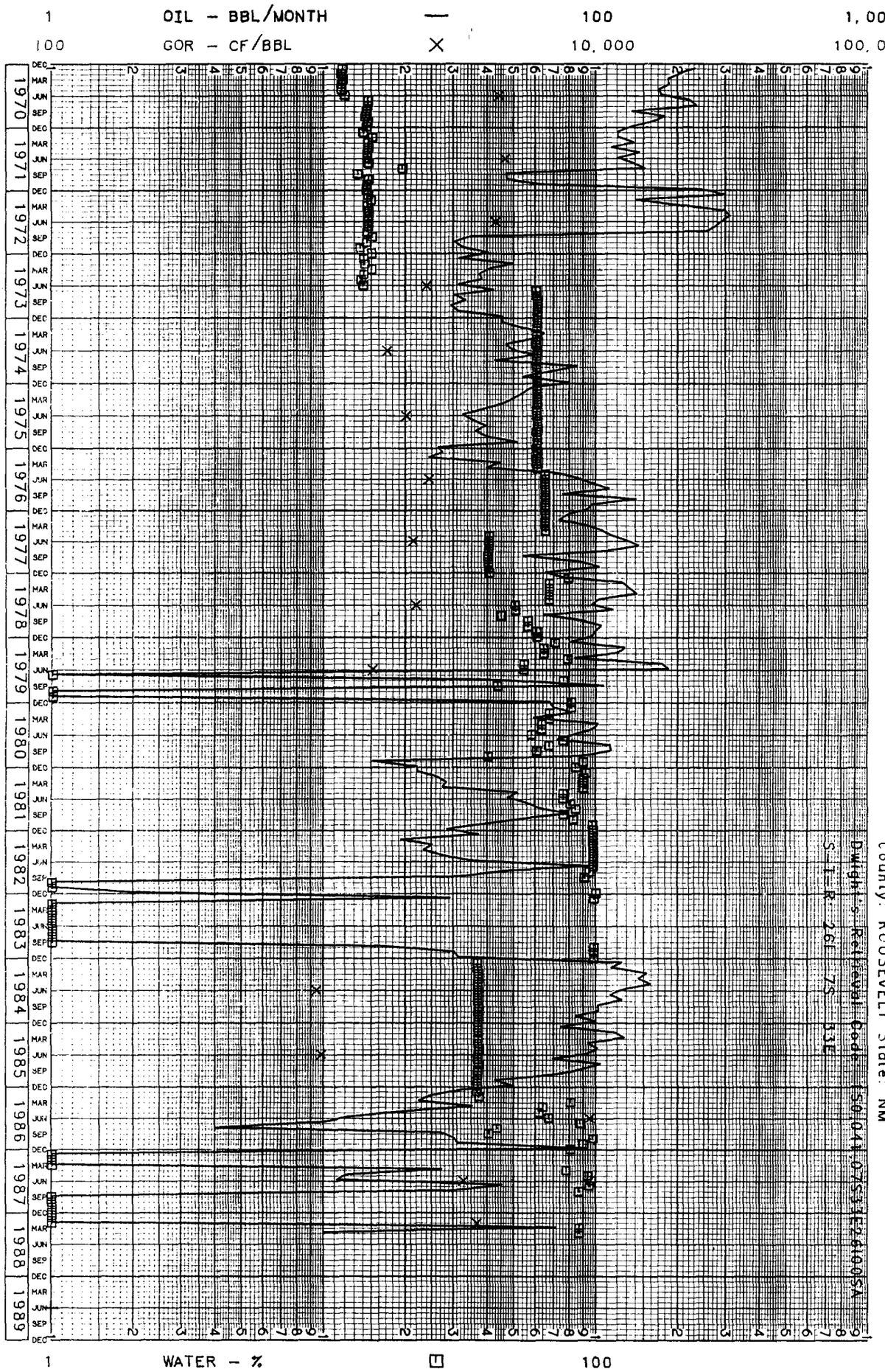


Operator: BRADEN DEEM INC
Lease: STATE DB Well No: 000009
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 43041,07S,33E,00009A
S-T-R: 25S 7S 33E

SA

43


0.1
OIL - BBL/MONTH
10
100
100
GOR - CF/BBL
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1
WATER - %
100
Operator: NYCO PETROLEUM
Lease: STATE J Well No: 000004
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 350411.07SEE25P00SA
S-T-R: 25P 7S 33E
SA
44



Operator: MIMS TEXAS O&G CO
Lease: FEDERAL 26 Well No: 000007
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

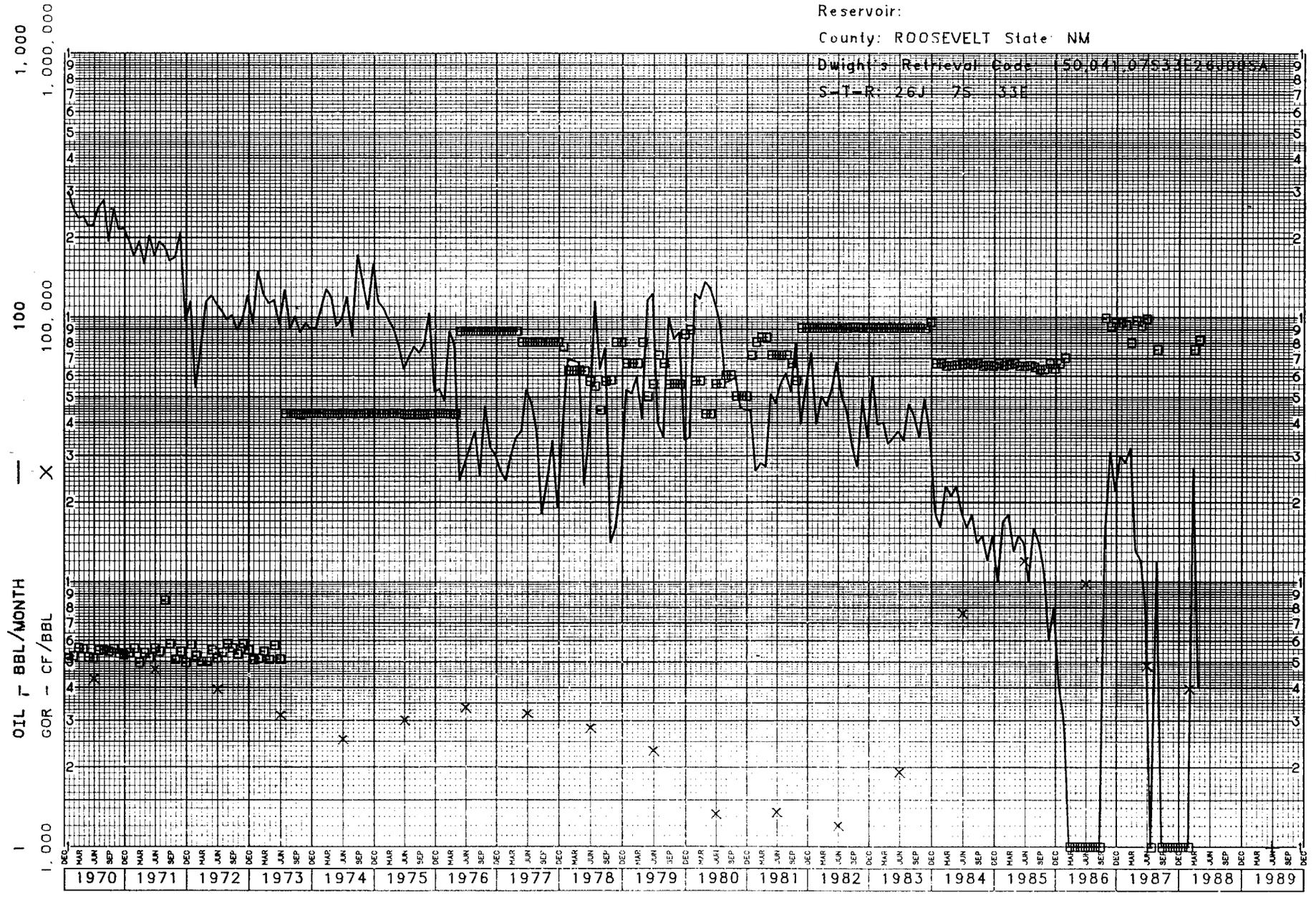
Dwight's Retrieval Code: 30,041,07533,26100SA

S-T-R: 26E 7S R3E

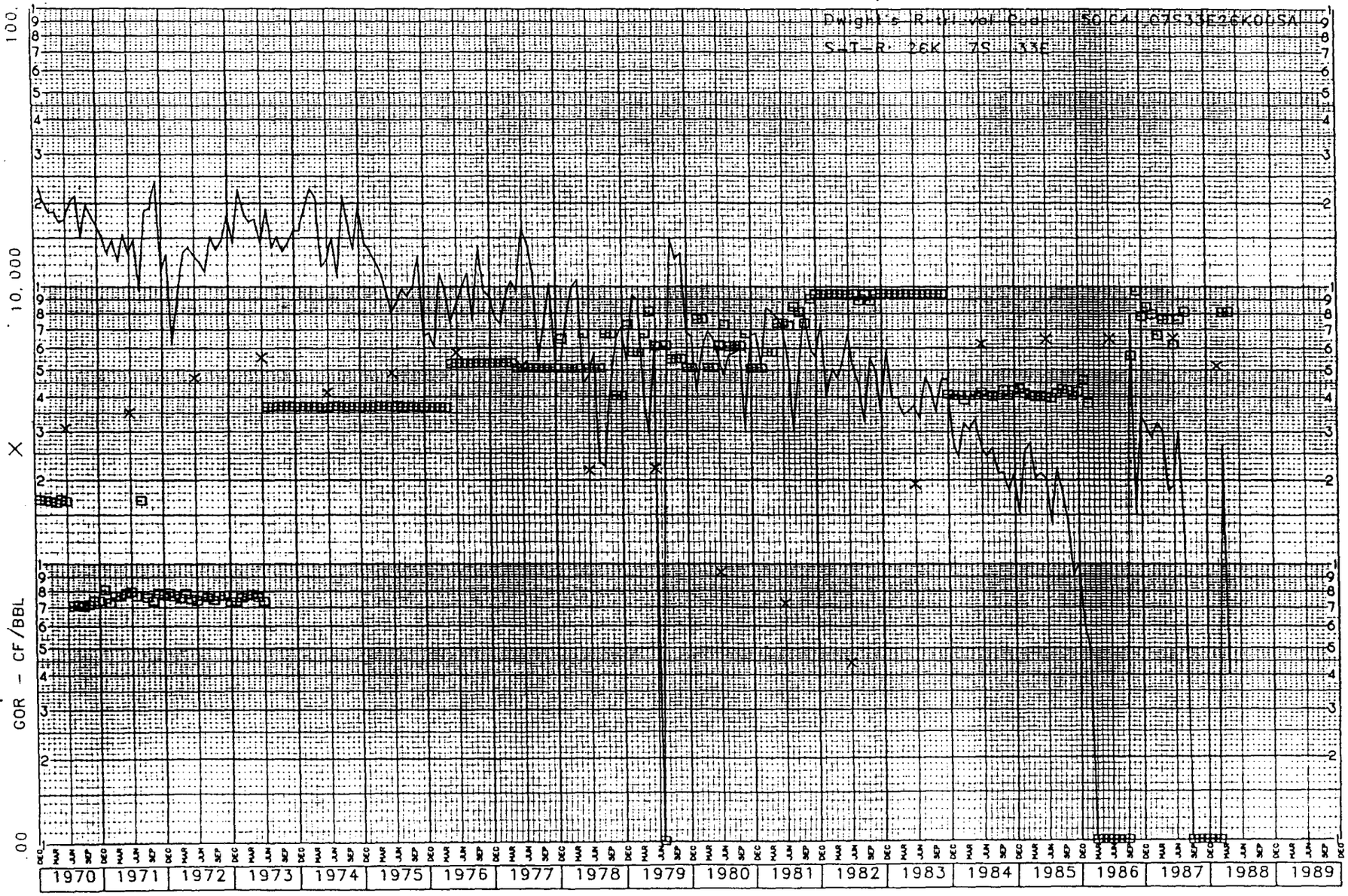
SA

49

Operator: MIMS TEXAS O&G CO
Lease: FEDERAL 26 Well No: 000005
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07533E26,00SA
S-T-R: 26J 7S 33E



Operator: MIMS TEXAS O&G Cr
Lease FEDERAL 26 Well No 00003
Field: CHAVEROO SAN ANDRES SA
Reservoir
County: ROOSEVELT State: NM



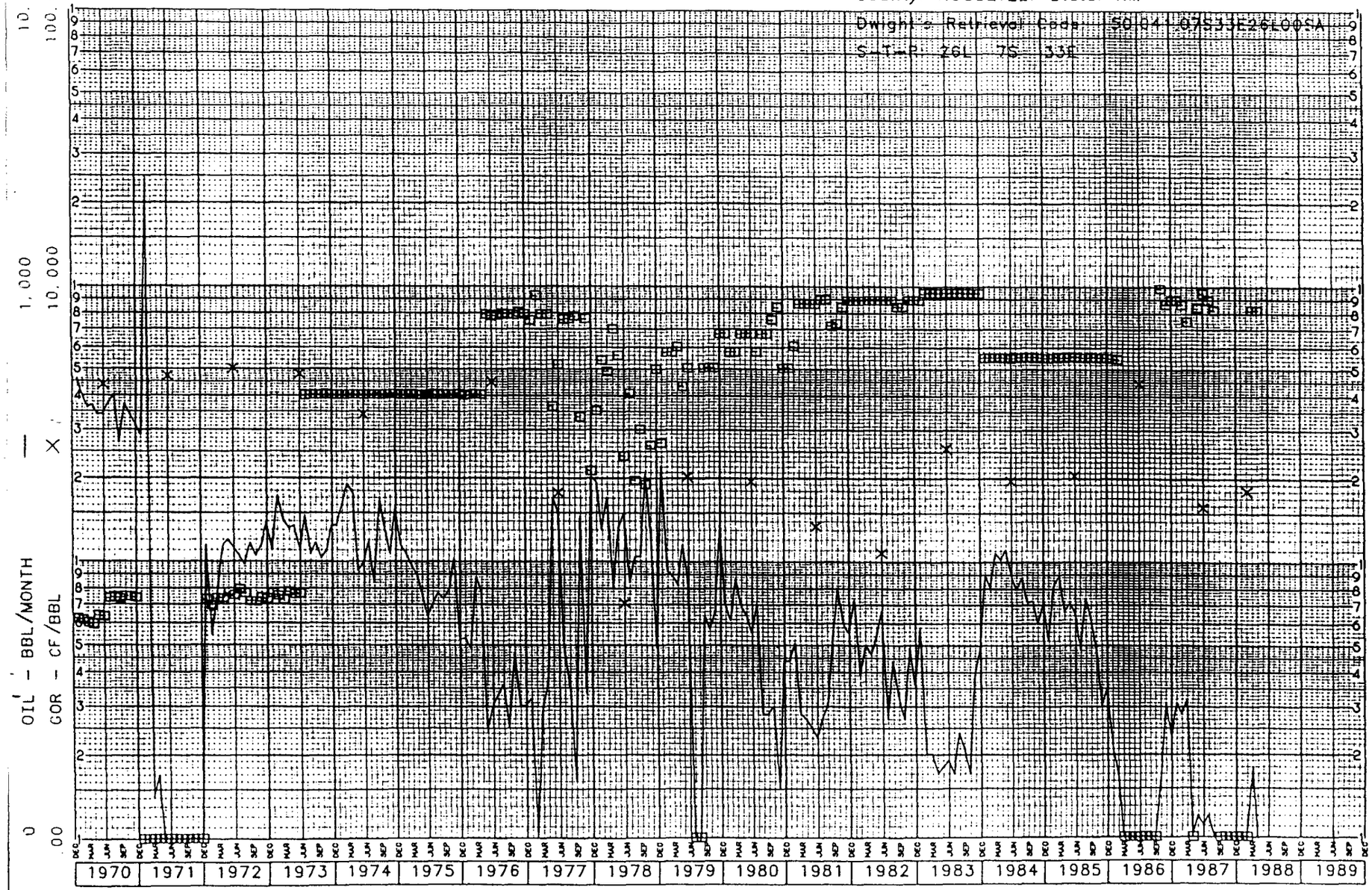
Operator: MIMS TEXAS O&G CO

Lease: FEDERAL 26 Well No: 000002

Field: CHAVEROO SAN ANDRES SA

Reservoir:

County: ROOSEVELT State: NM



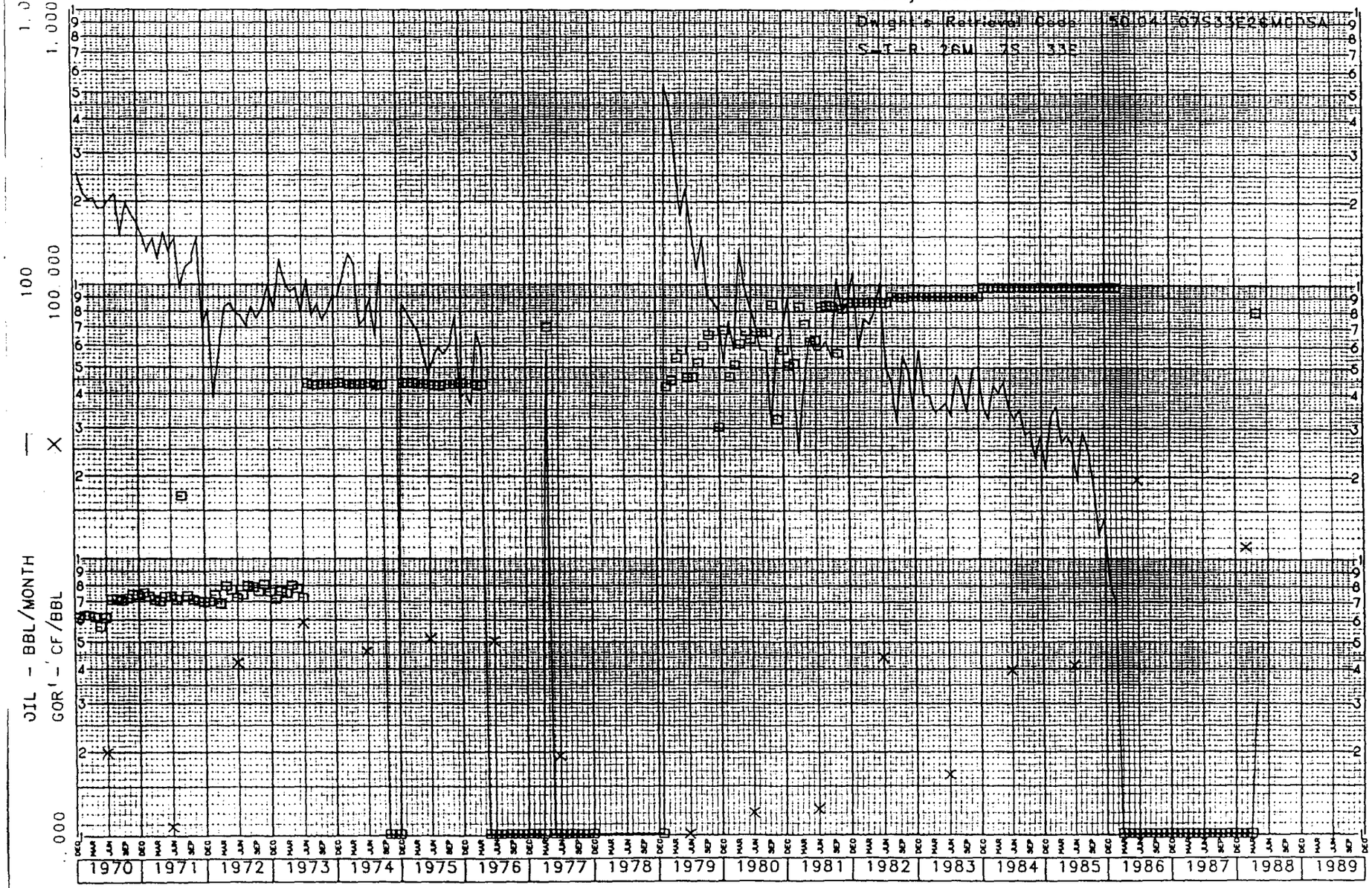
Operator: MIMS TEXAS O&G CO

Lease: FEDERAL 26 Well No: 000001

Field: CHAVEROO SAN ANDRES SA

Reservoir:

County: ROOSEVELT State: NM



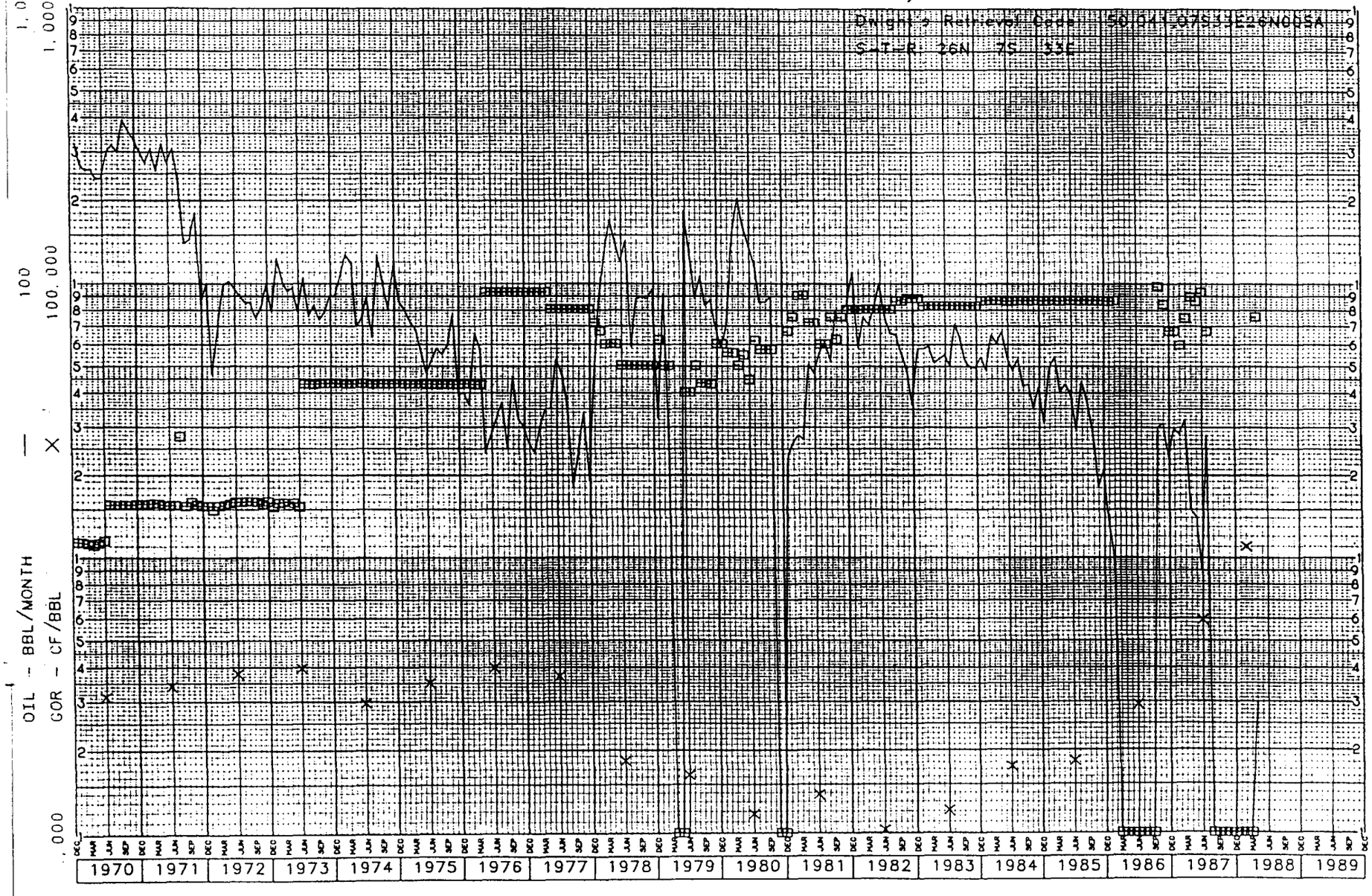
Operator: MIMS TEXAS O&G CO

Lease: FEDERAL 26 Well No: 000004

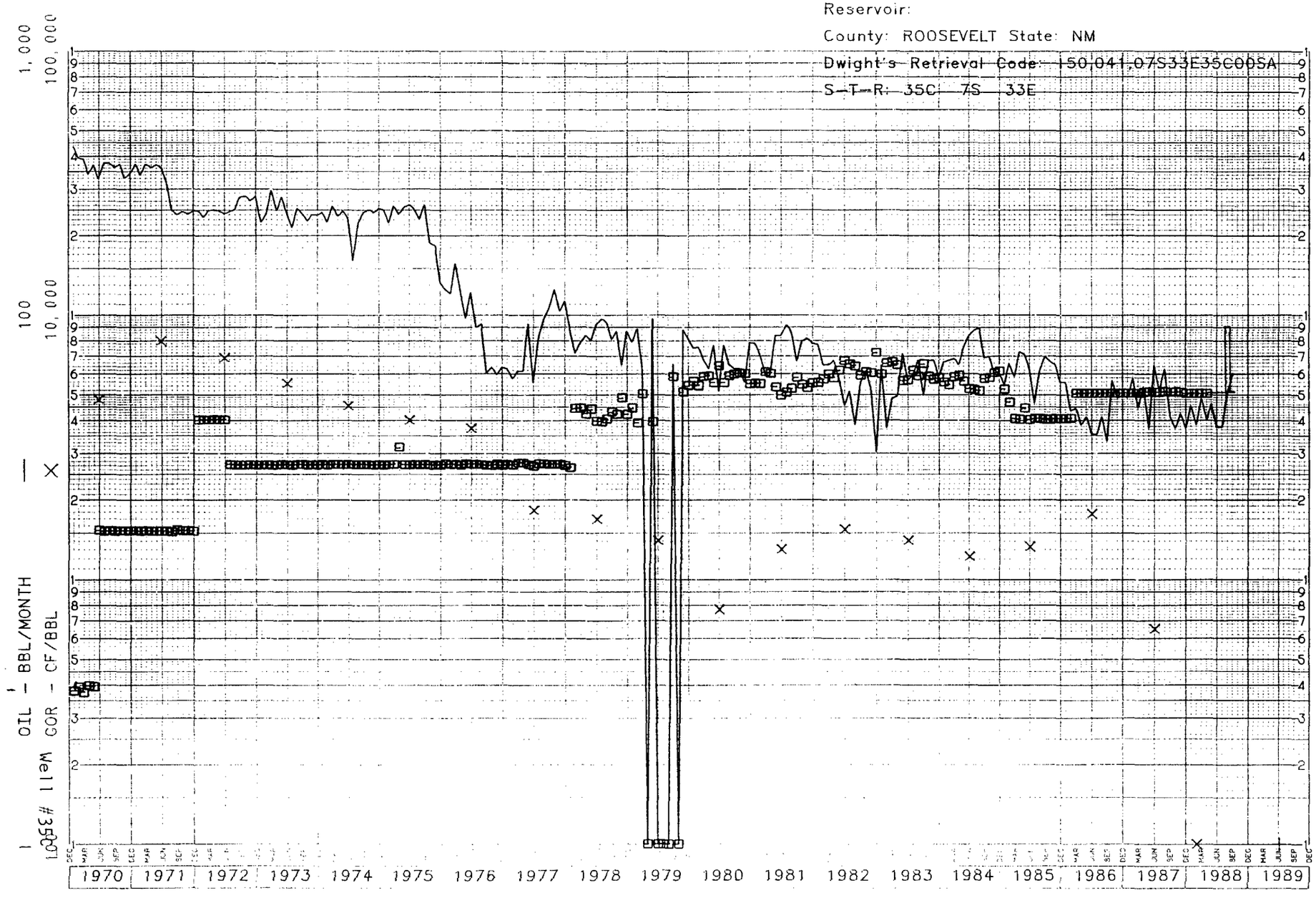
Field: CHAVEROO SAN ANDRES SA

Reservoir:

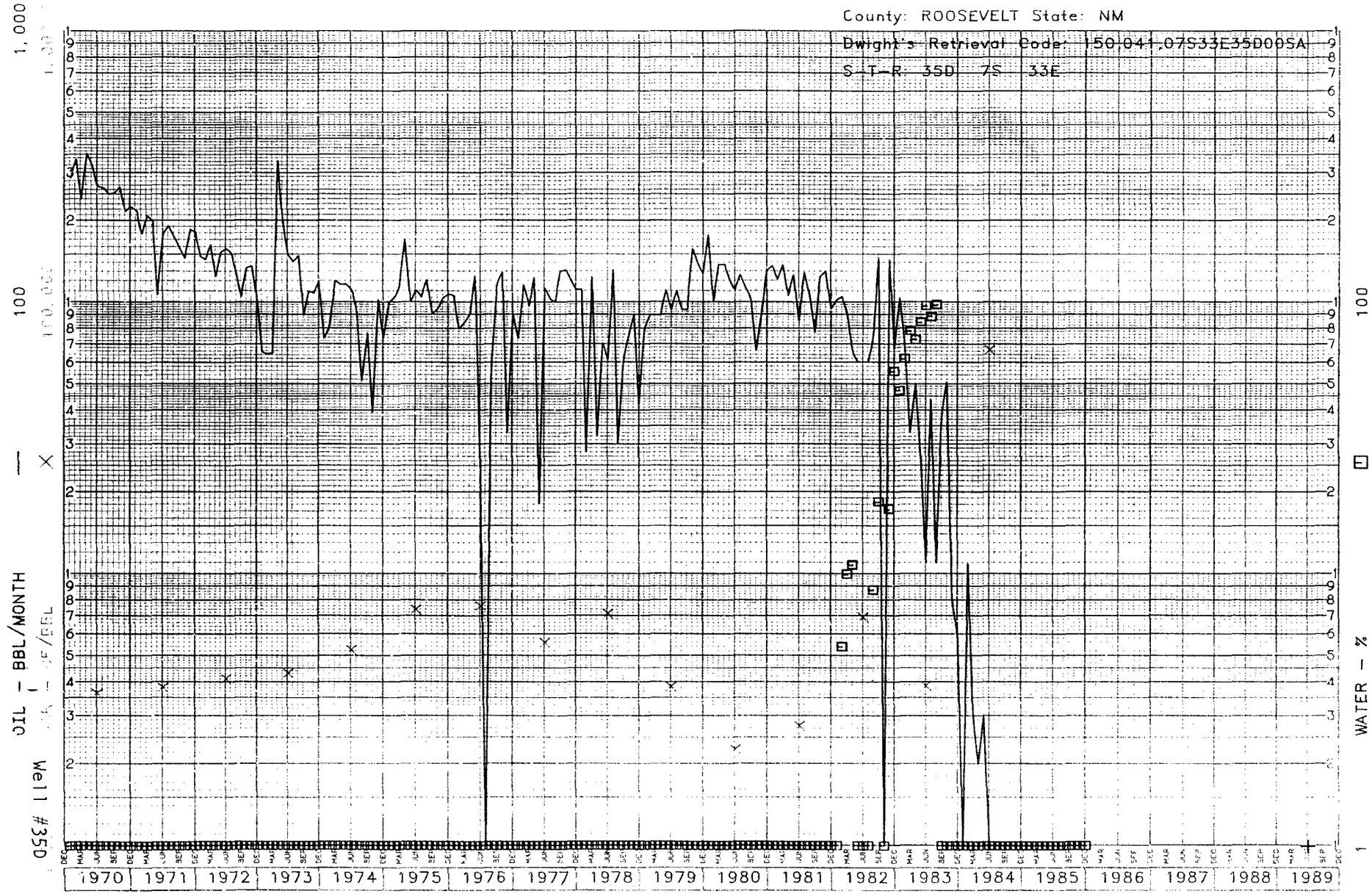
County: ROOSEVELT State: NM



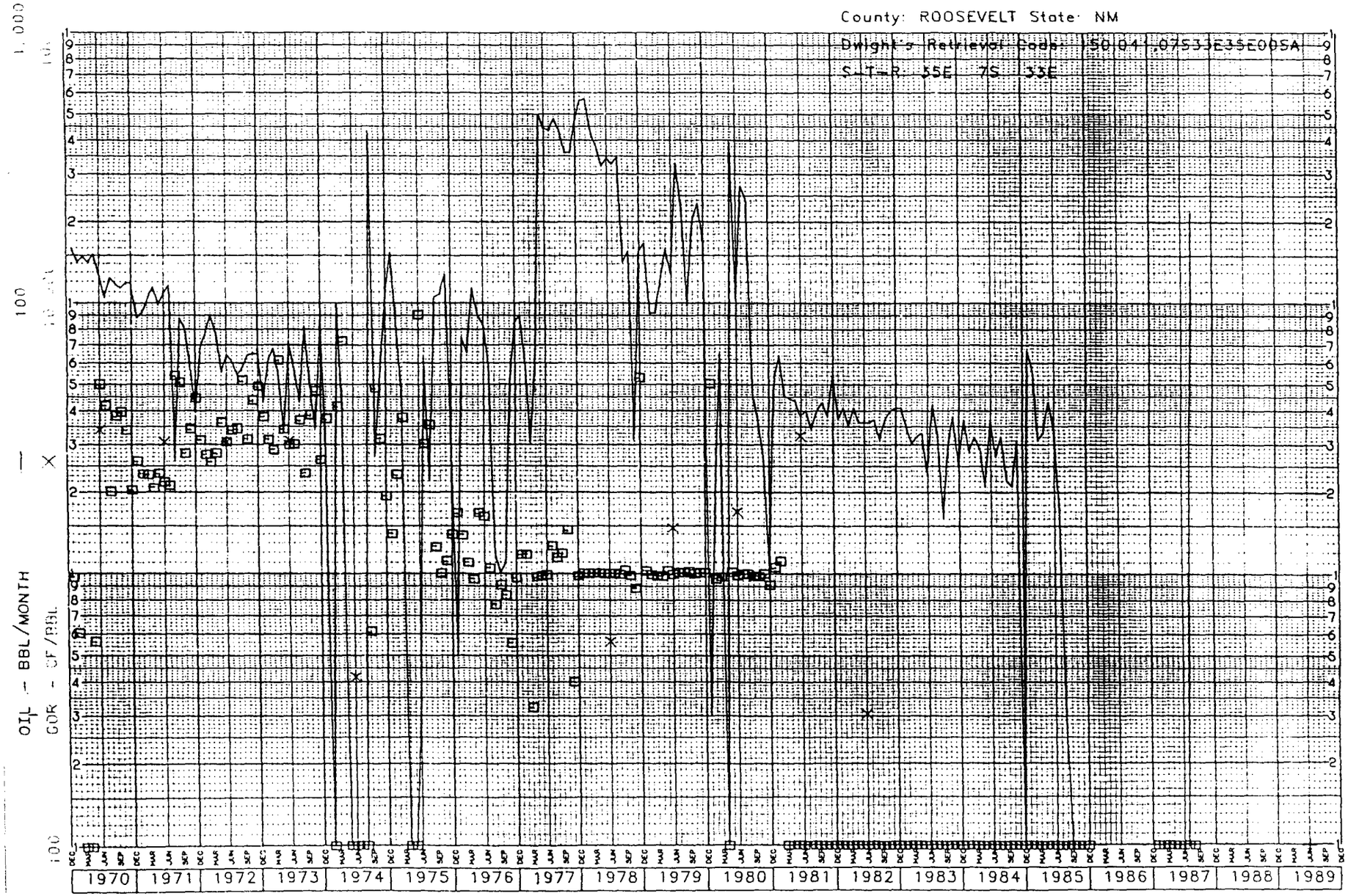
Operator: TEXACO PRODUCING INC
Lease: HOBBS T Well No: 000016
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S33E35C00SA
S-T-R: 35C 7S 33E



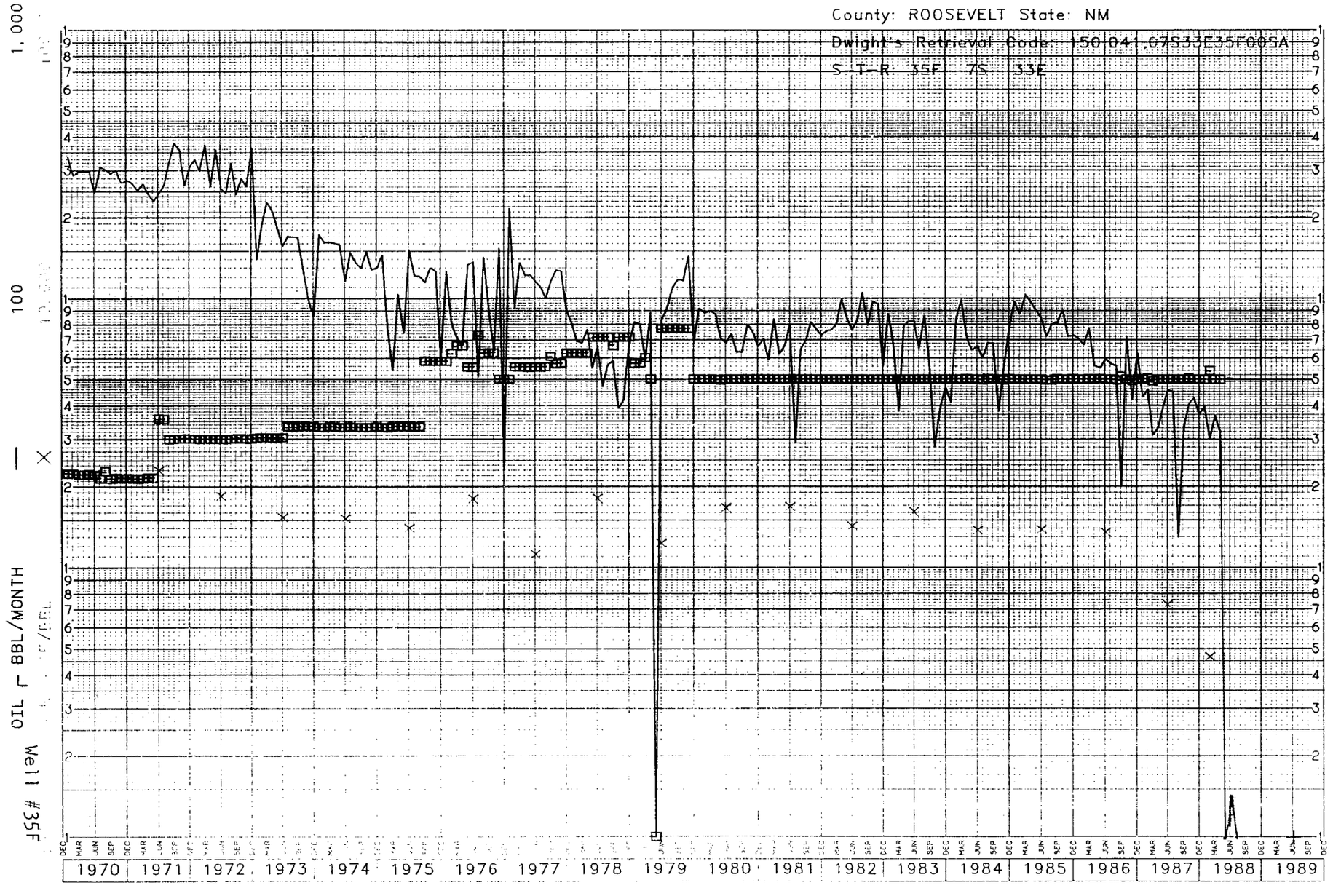
Operator: CHAVEROO OPERATING INC
Lease: SHACKELFORD Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S33E35D00SA
S-T-R: 35D 7S 33E



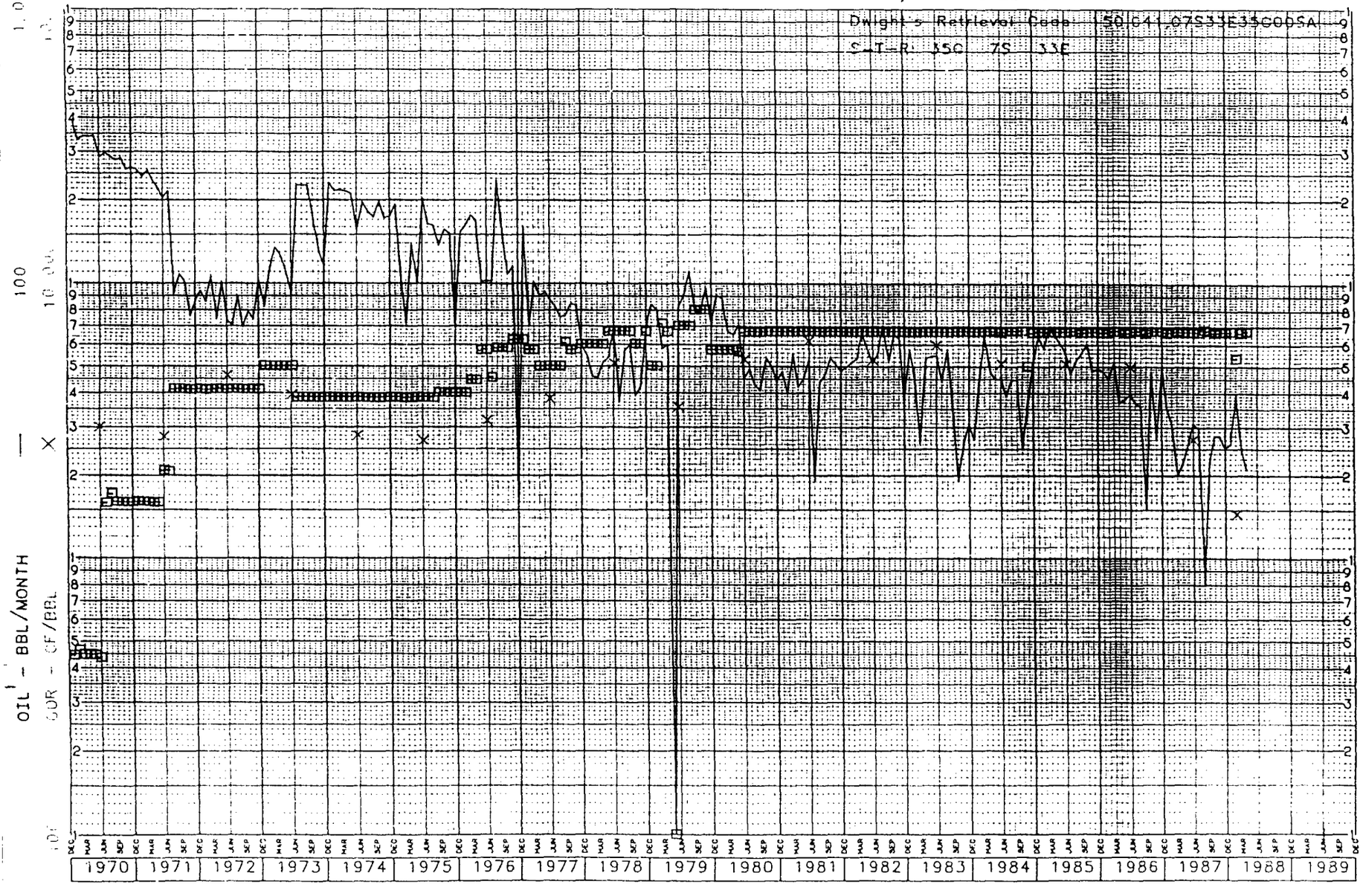
Operator: MERLIN EXPLORATION INC
Lease: STATE DA Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 30041.07533E35E00SA
S-T-R 35E 7S 33E



Operator: MARATHON OIL CO
Lease: STATE SECTION 35 Well No: 000003
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150041,07S33E35F00SA
S-T-R: 35F 7S 33E



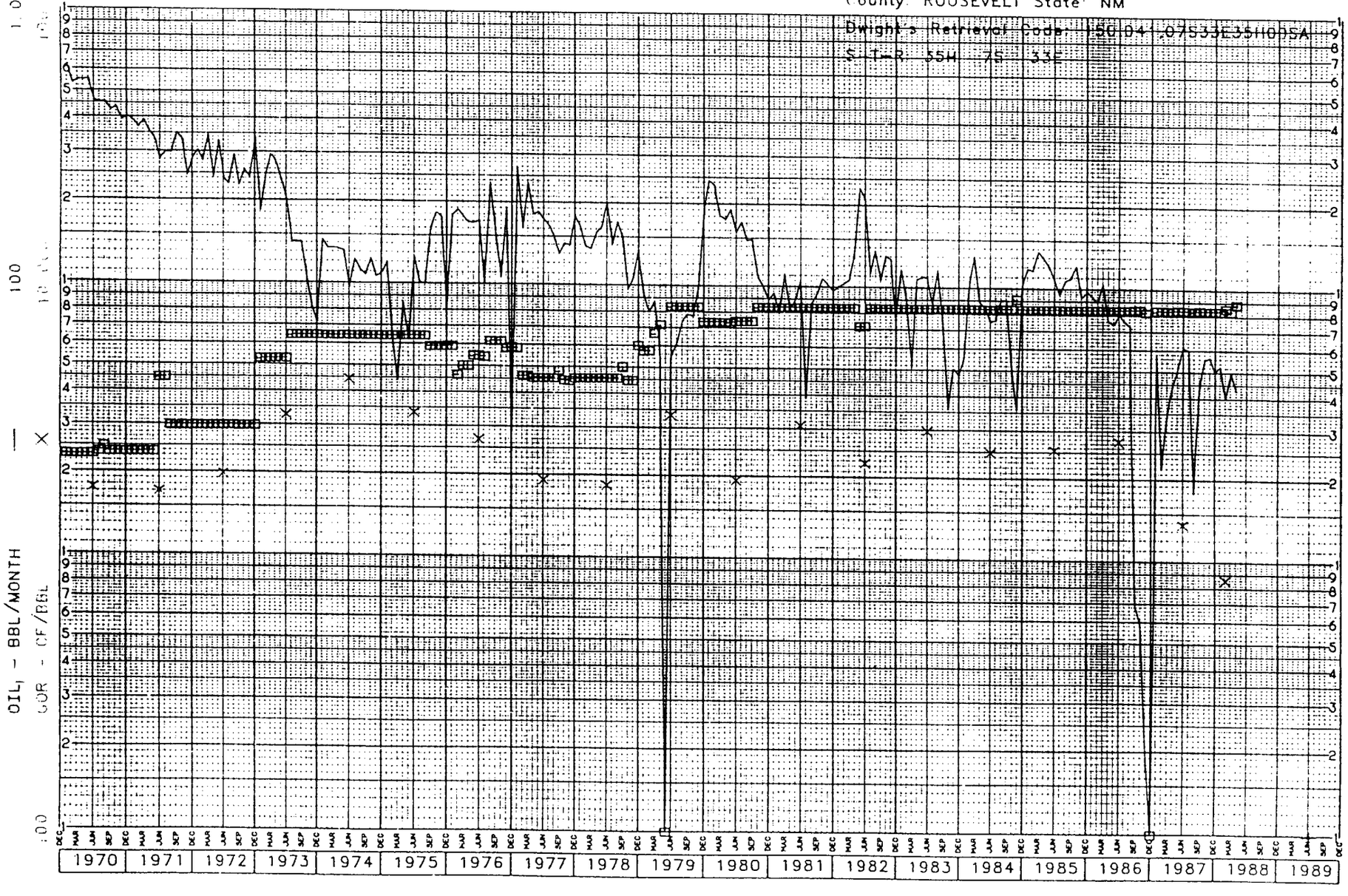
Operator: MARATHON OIL CO
Lease: STATE SECTION 35 Well No: 000004
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50|041,07S33E35C00SA
S-T-R: 35C 7S 33E



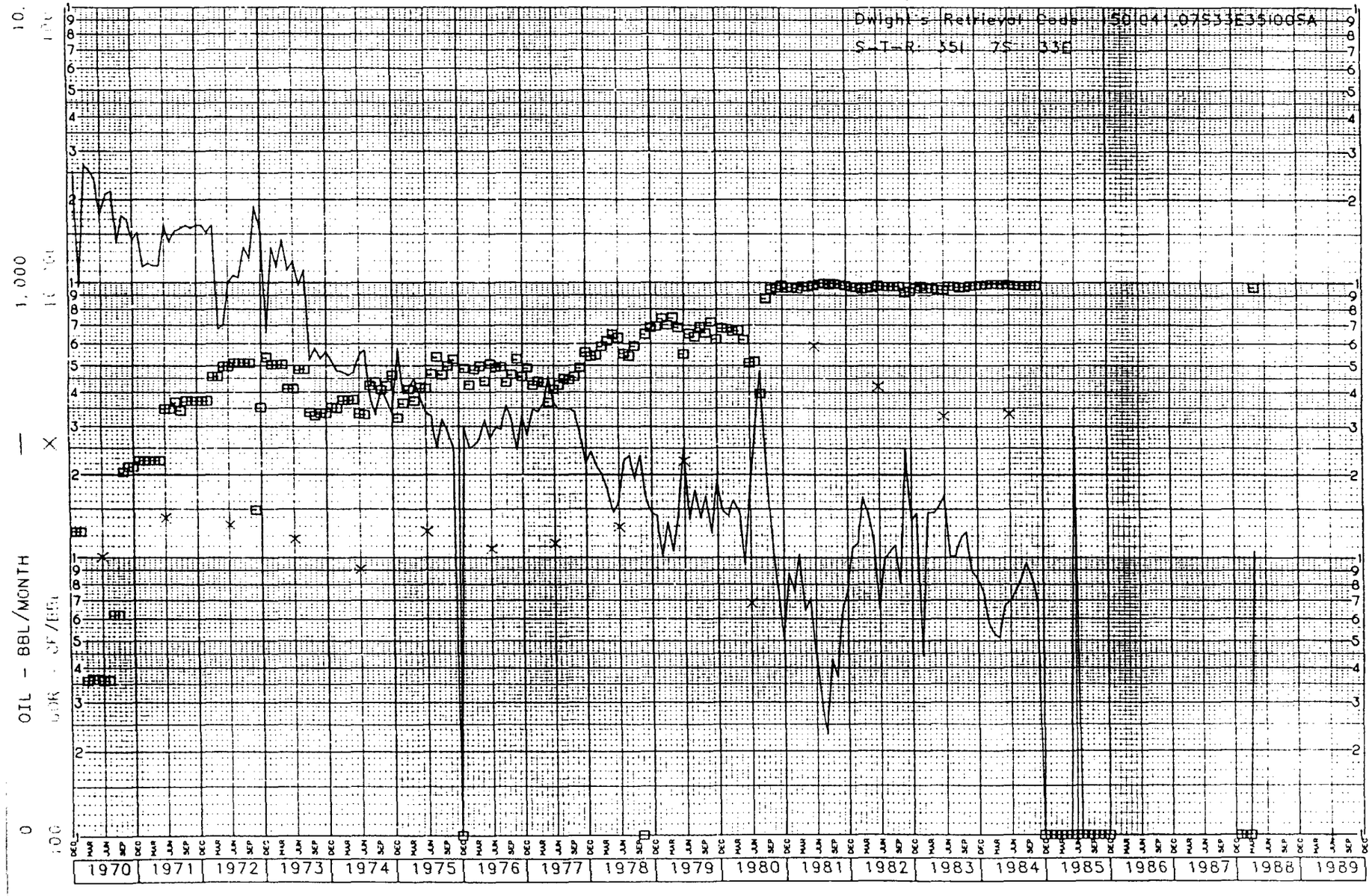
Operator: MARATHON OIL CO
Lease: STATE SECTION 35 Well No: 000005
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

SA

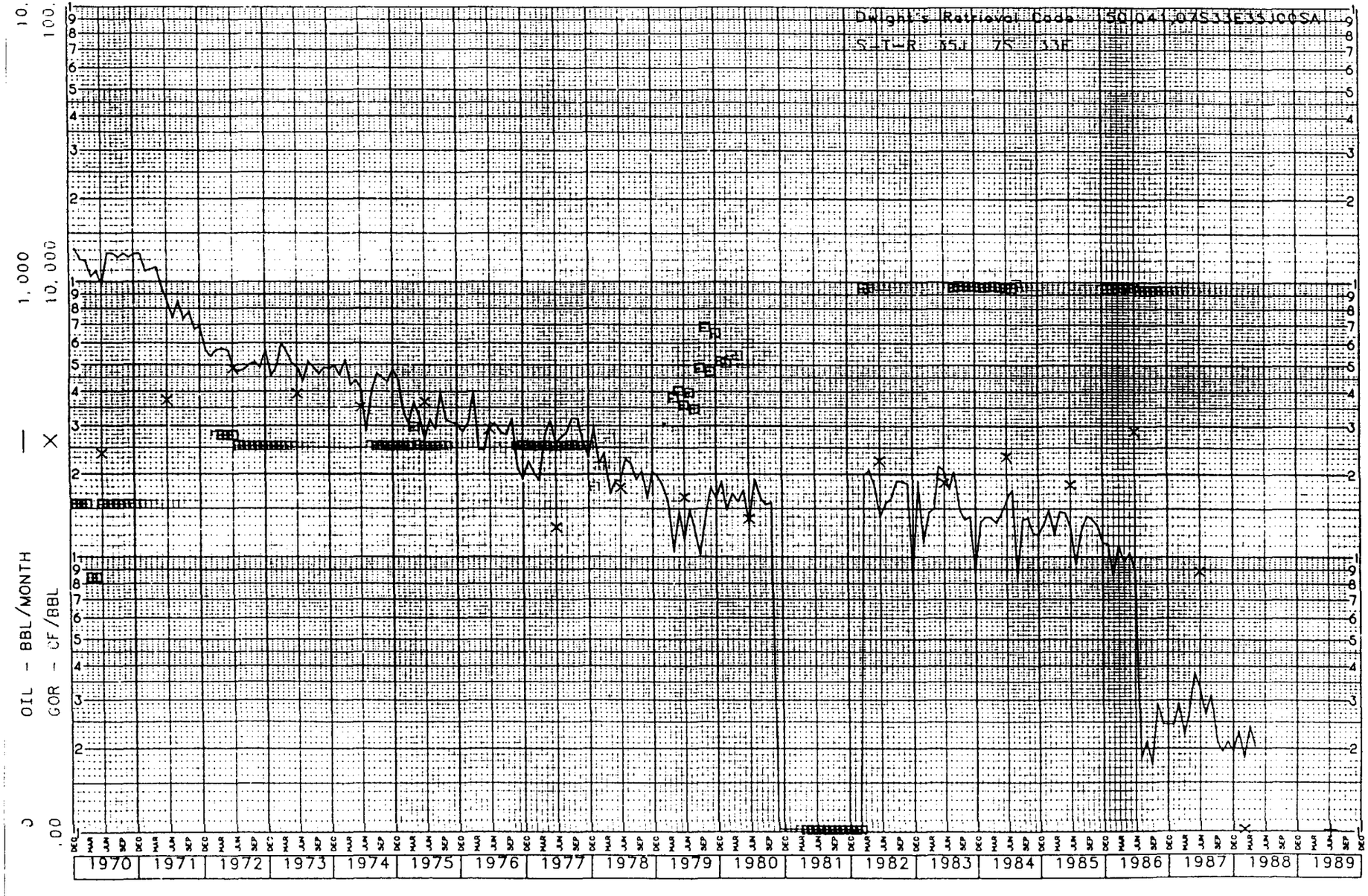
Dwight's Retrieval Code: 30 04 .07533E35H00SA
S-T-R 35H 7S 33E



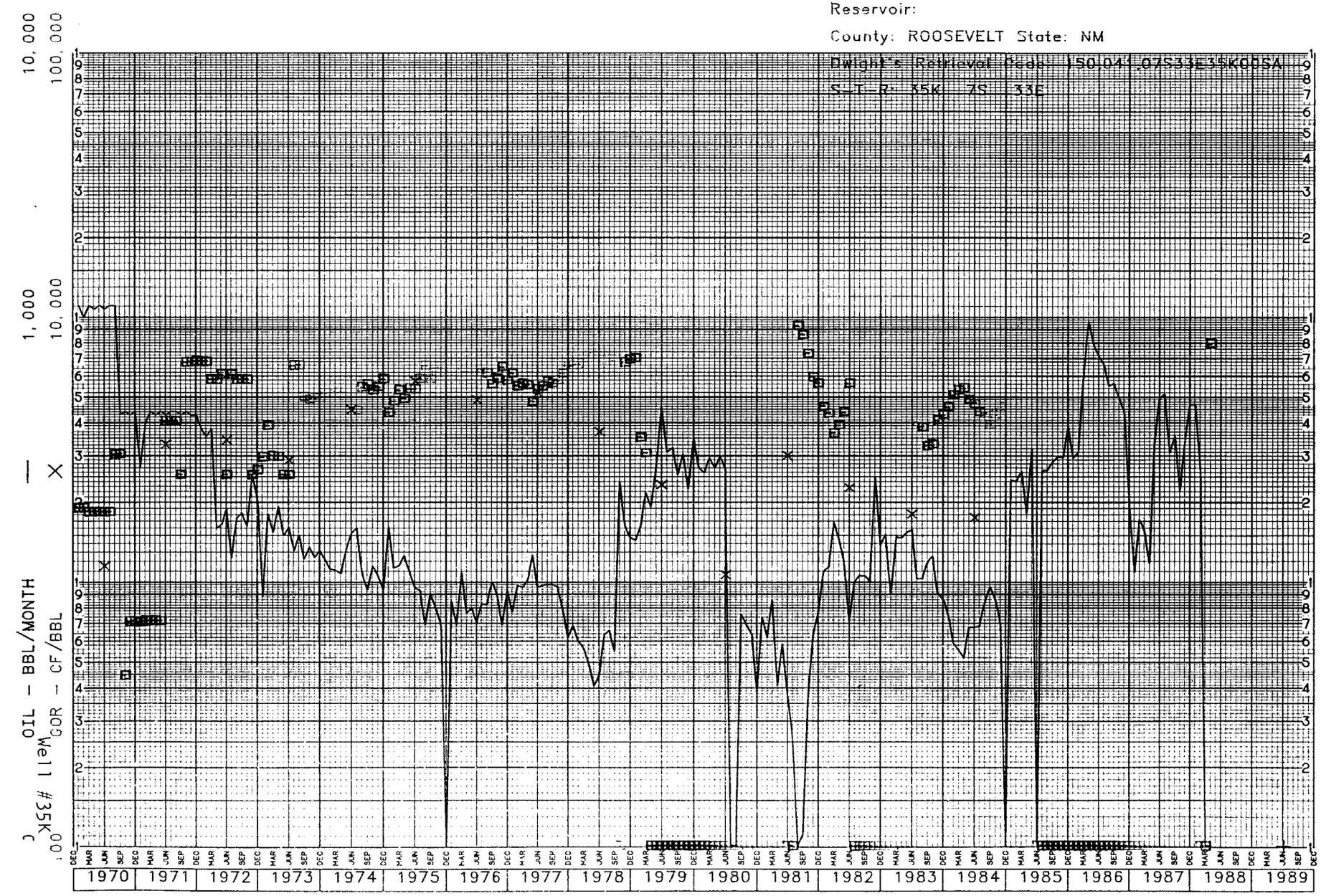
Operator: MERLIN EXPLORATION INC
Lease STATE CV Well No: 000003
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM

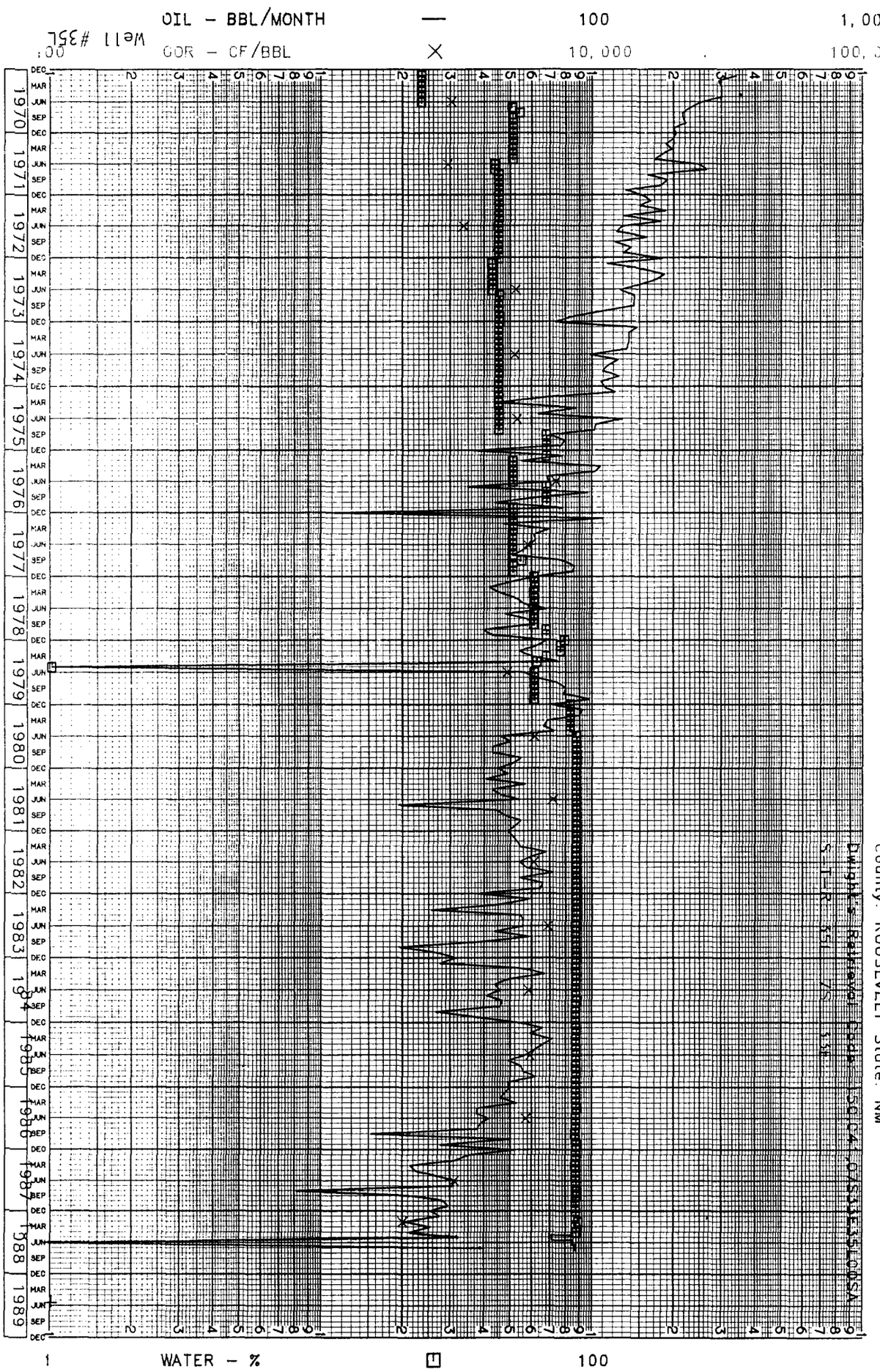


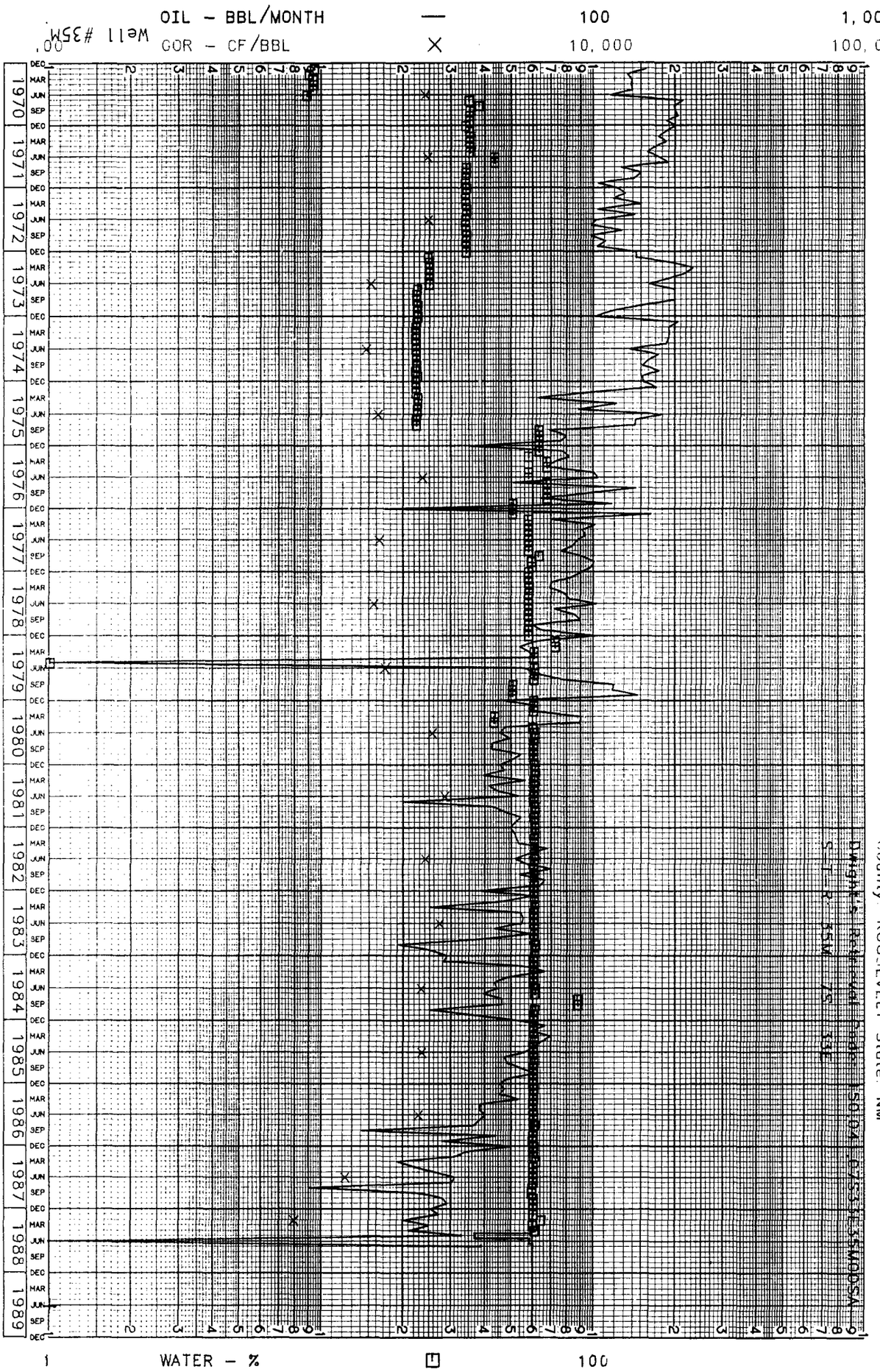
Operator: TEXACO PRODUCING INC
Lease: HOBBS T Well No: 000014
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 1500410753E35J00SA
S-T-R 35J 7S 33E



Operator: MERLIN EXPLORATION INC
Lease: STATE CV Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07533E35K00SA
S-T-R: 35K 7S 33E

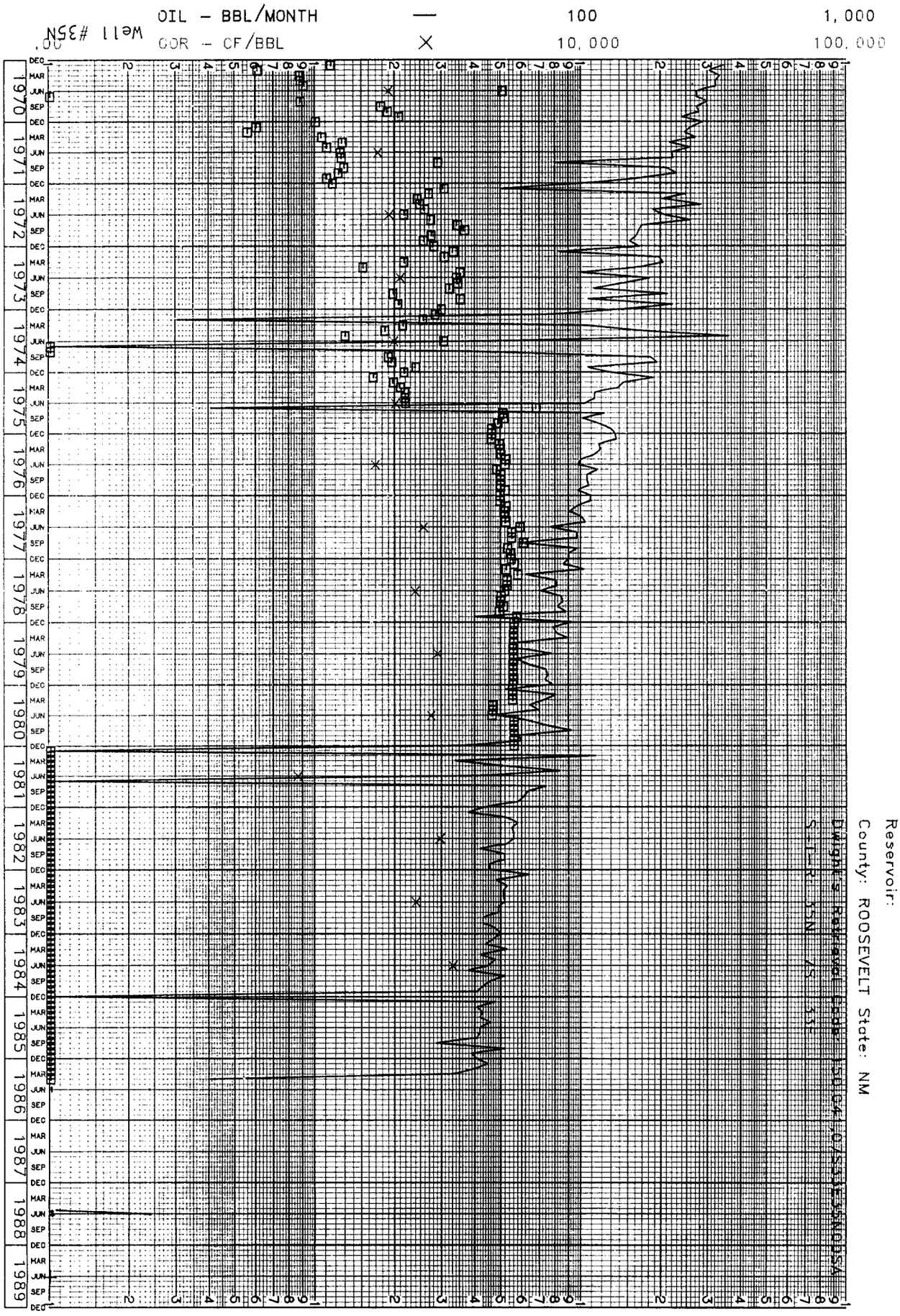



OIL - BBL/MONTH
GOR - CF/BBL
WATER - %
100
1,000
10,000
100,000
1
100
Well #35L
Operator: MARATHON OIL CO
Lease: STATE SECTION 35 Well No: 000001
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
SA
55
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
DEC
MAR
JUN
SEP



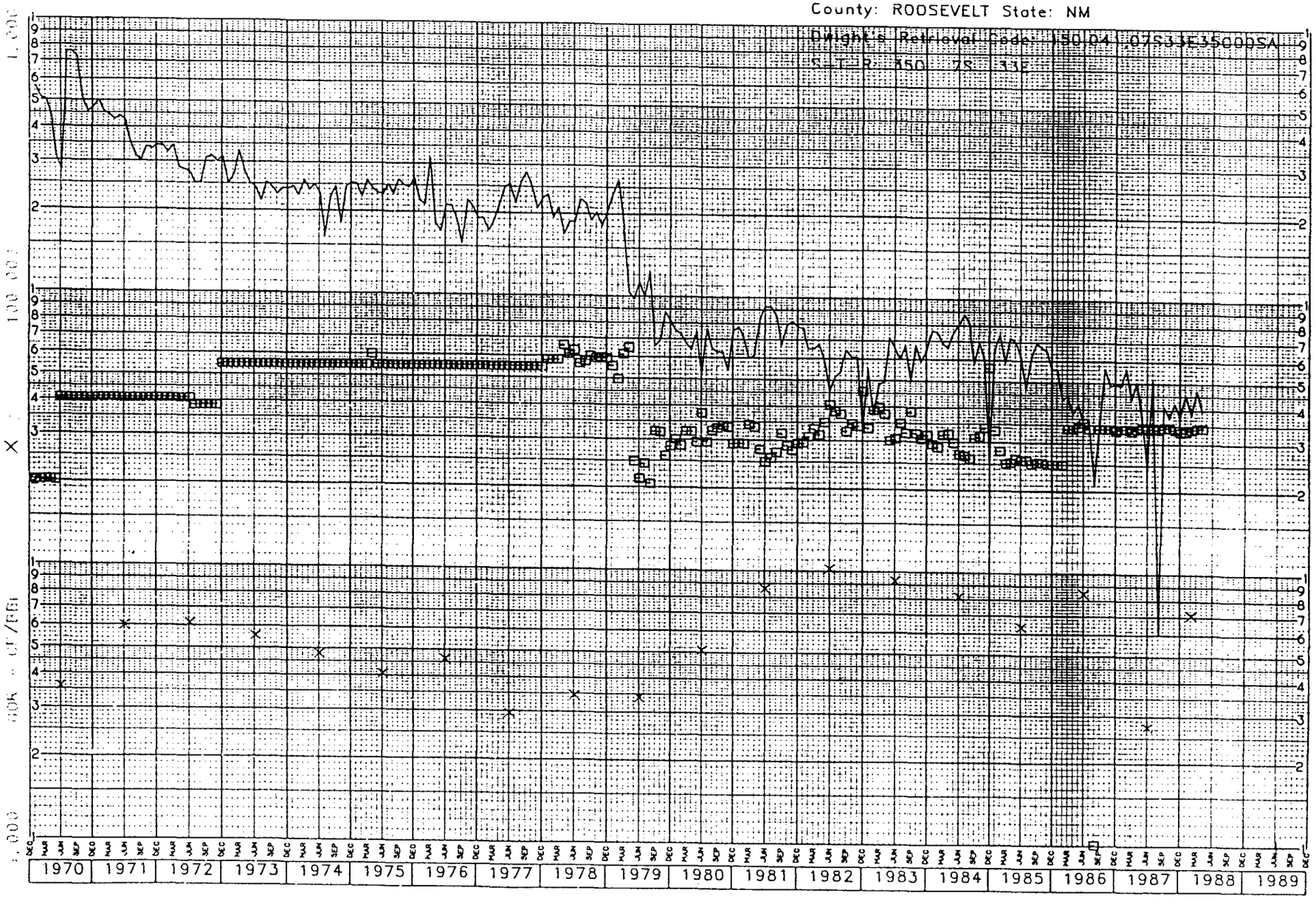
Operator: MARATHON OIL CO
Lease: STATE SECTION 35 Well No: 000002
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

56

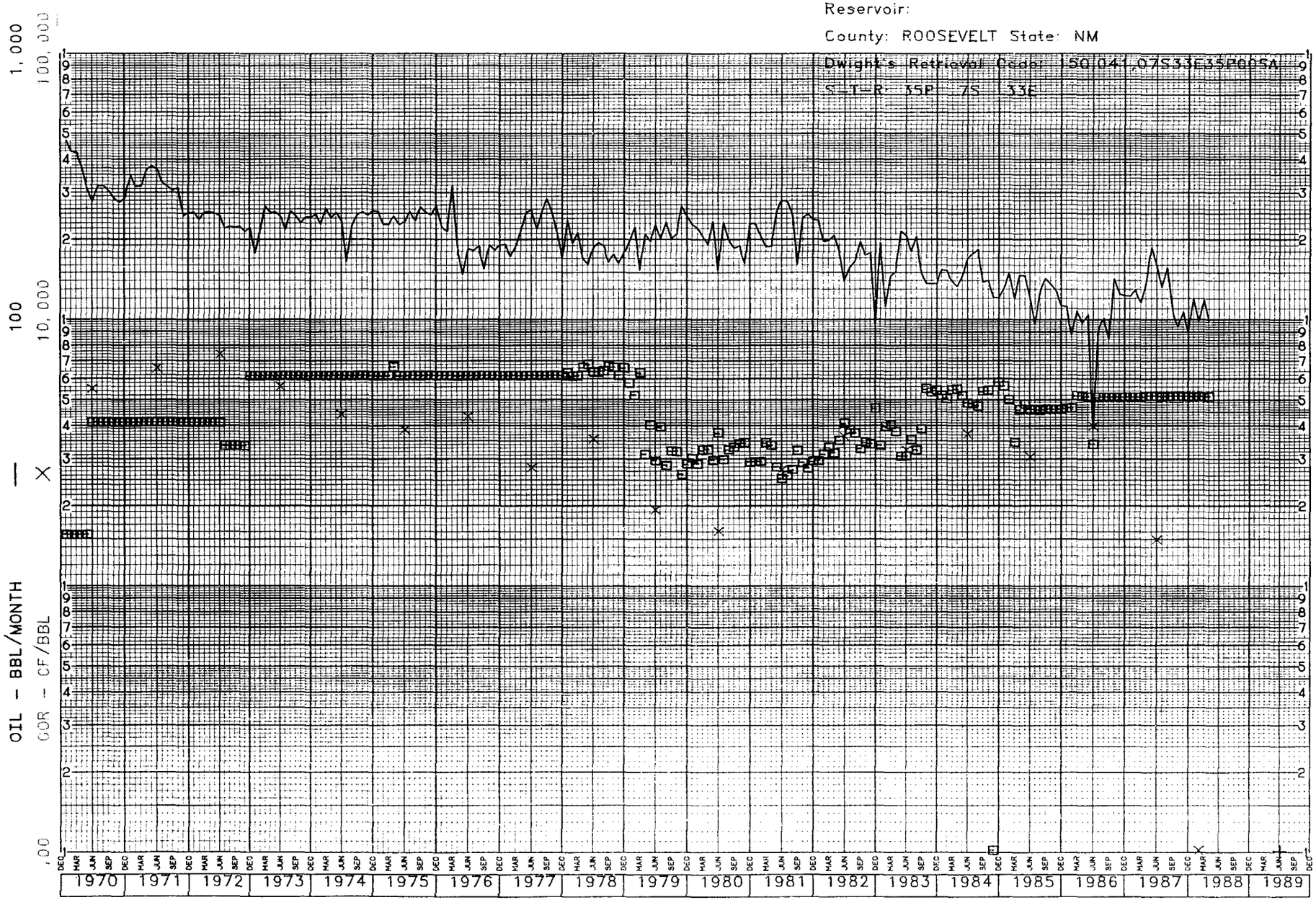

OIL - BBL/MONTH
GOR - CF/BBL
WATER - %
1
100
1,000
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
Well #35N
Operator: MERLIN EXPLORATION INC
Lease: STATE DE Well No: 000001
Field: CHAVERCO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Reservoir Data
S-T-R 35N /S 33E
SA
57

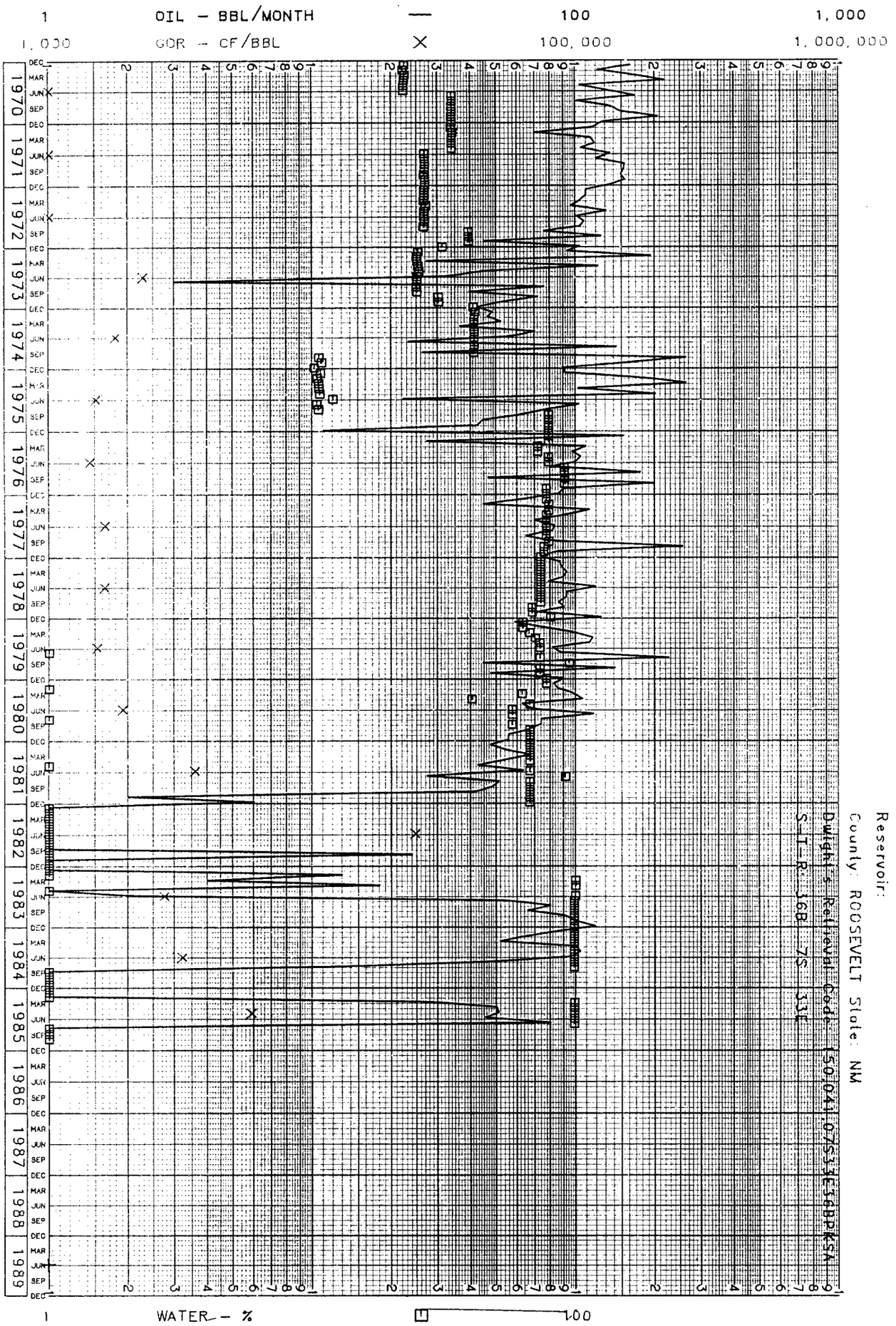
Operator: TEXACO PRODUCING INC
Lease: HOBBS T Well No: 000018
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

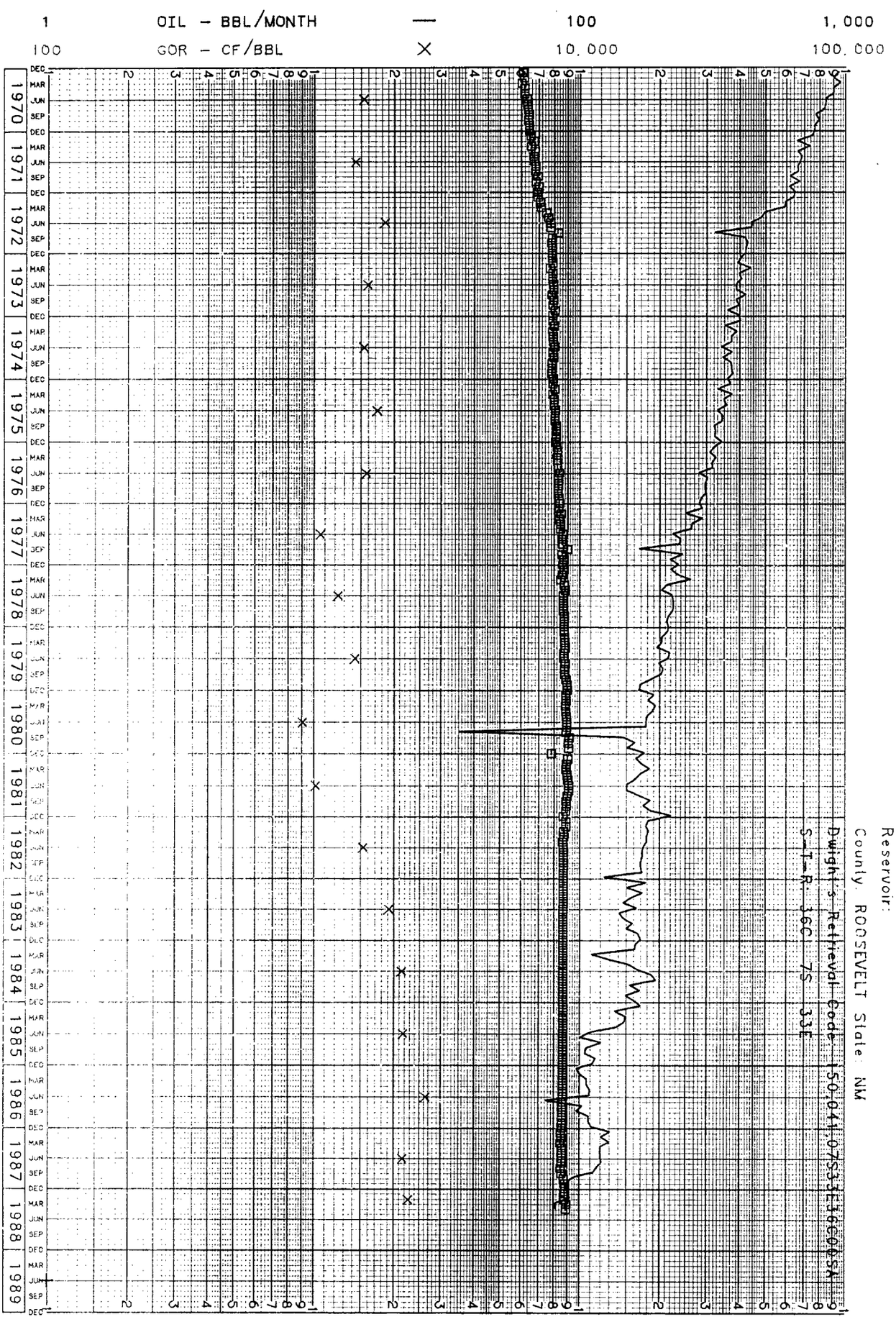
SA



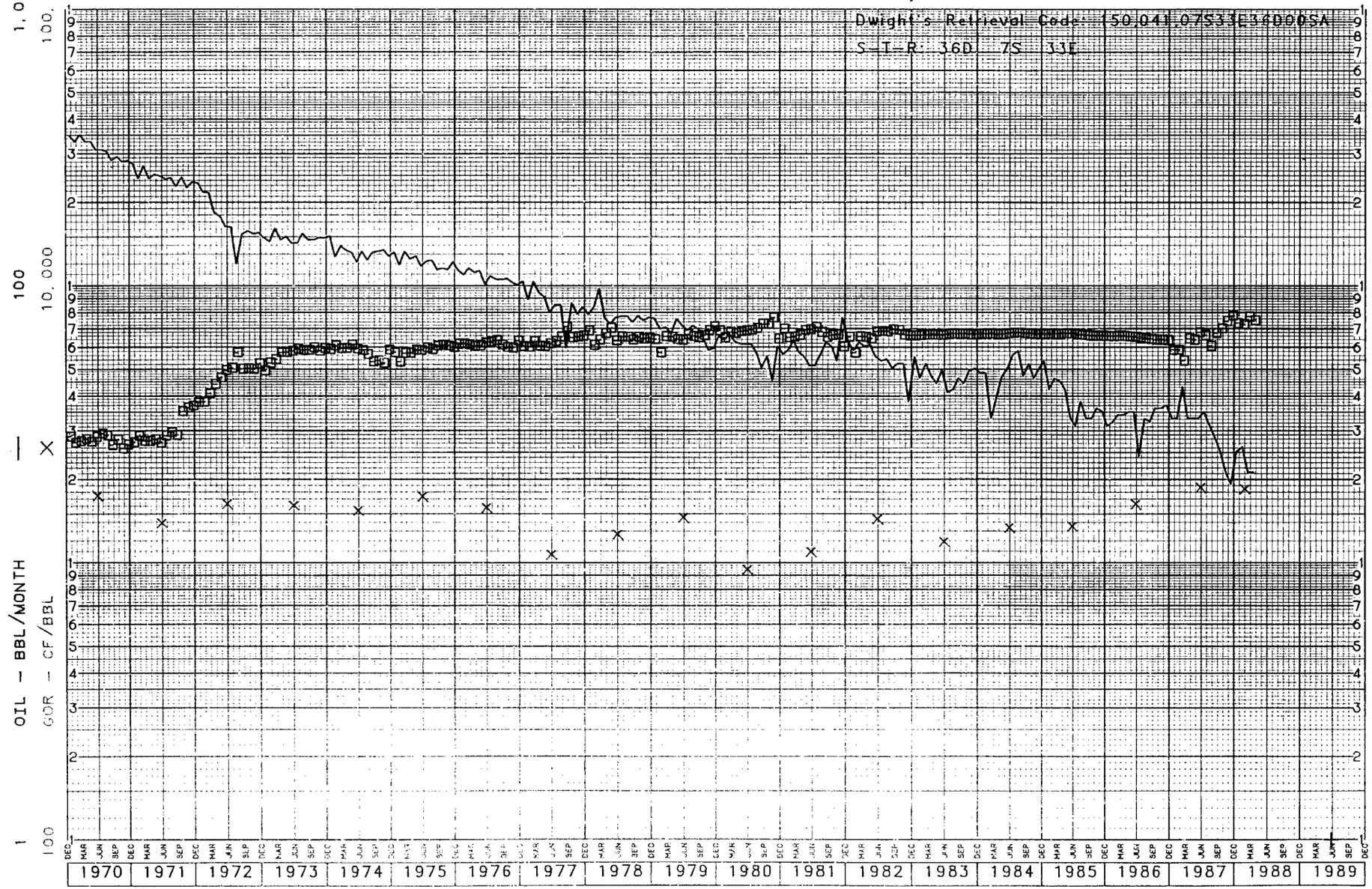
Operator: TEXACO PRODUCING INC
Lease: HOBBS T Well No: 000019
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 30,041,07S33E35P00SA
S-T-R: 35P 7S 33E



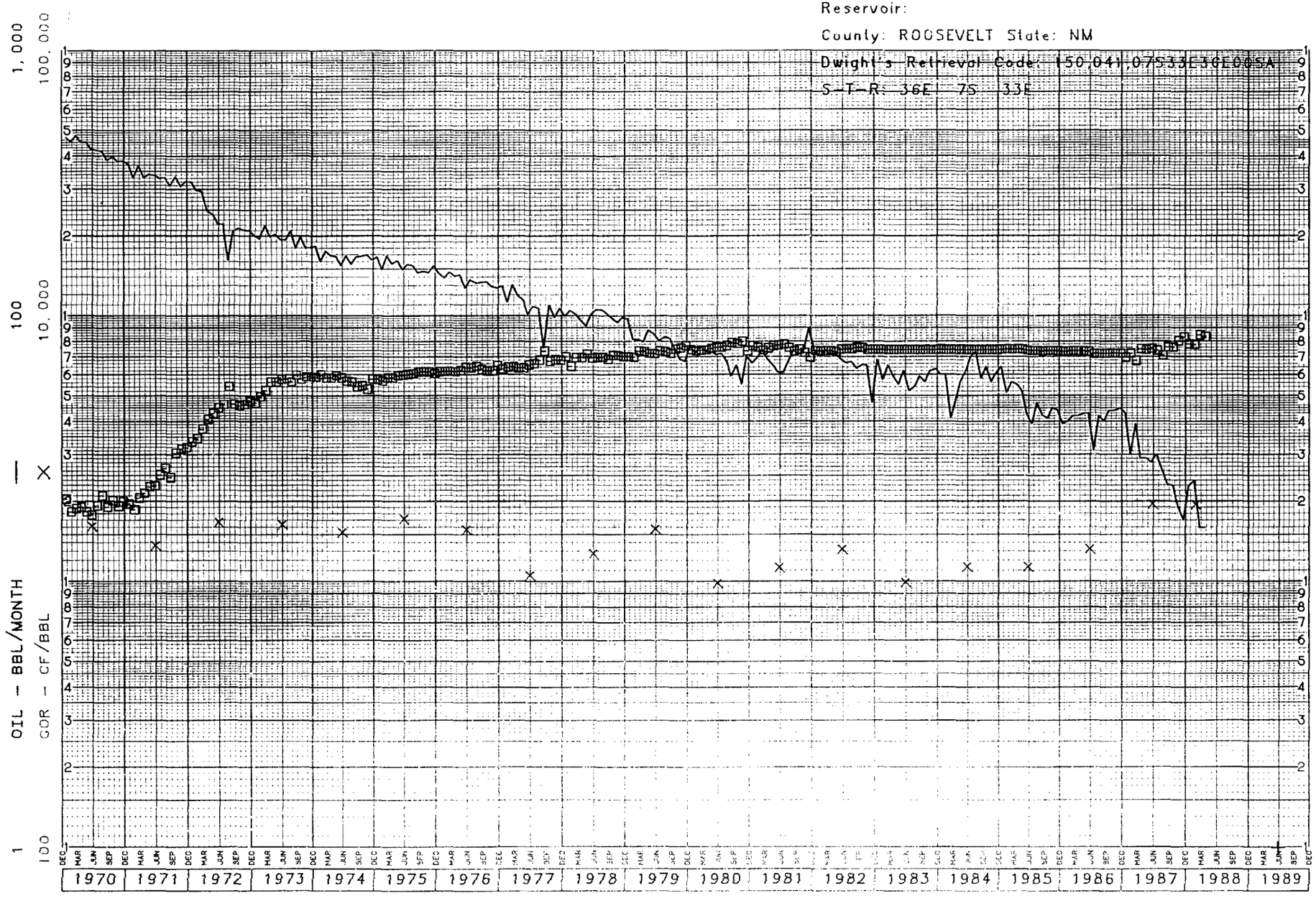

1
OIL – BBL/MONTH
100
1,000
1,000
GOR – CF/BBL
100,000
1,000,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
DEC
MAR
JUN
SEP
1
WATER – %
100
Operator: MARATHON OIL CO
Lease: STATE SECTION 36 Well No: 000001
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 1500410750336E16DPRSA
S_T_R: 36E 7S 33E

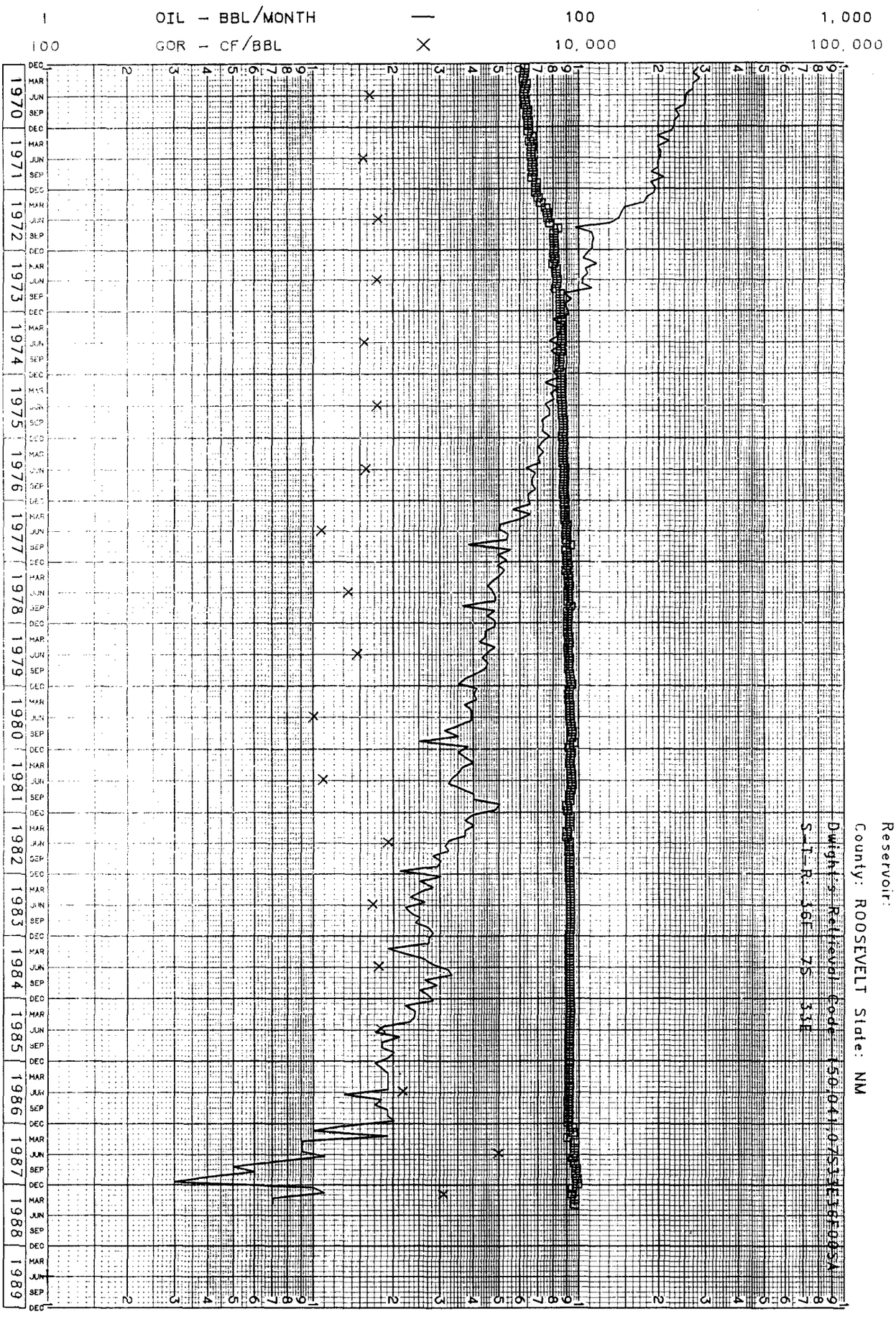

1
OIL – BBL/MONTH
100
1,000
100
GOR – CF/BBL
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1
WATER – %
100
Operator: MYCO PETROLEUM
Lease: STATE K Well No: 00003
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 30-041-07531-E-16-00-SA
S-T-R: 36C 7S 33E

Operator: MYCO PETROLEUM
Lease: STATE K Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM

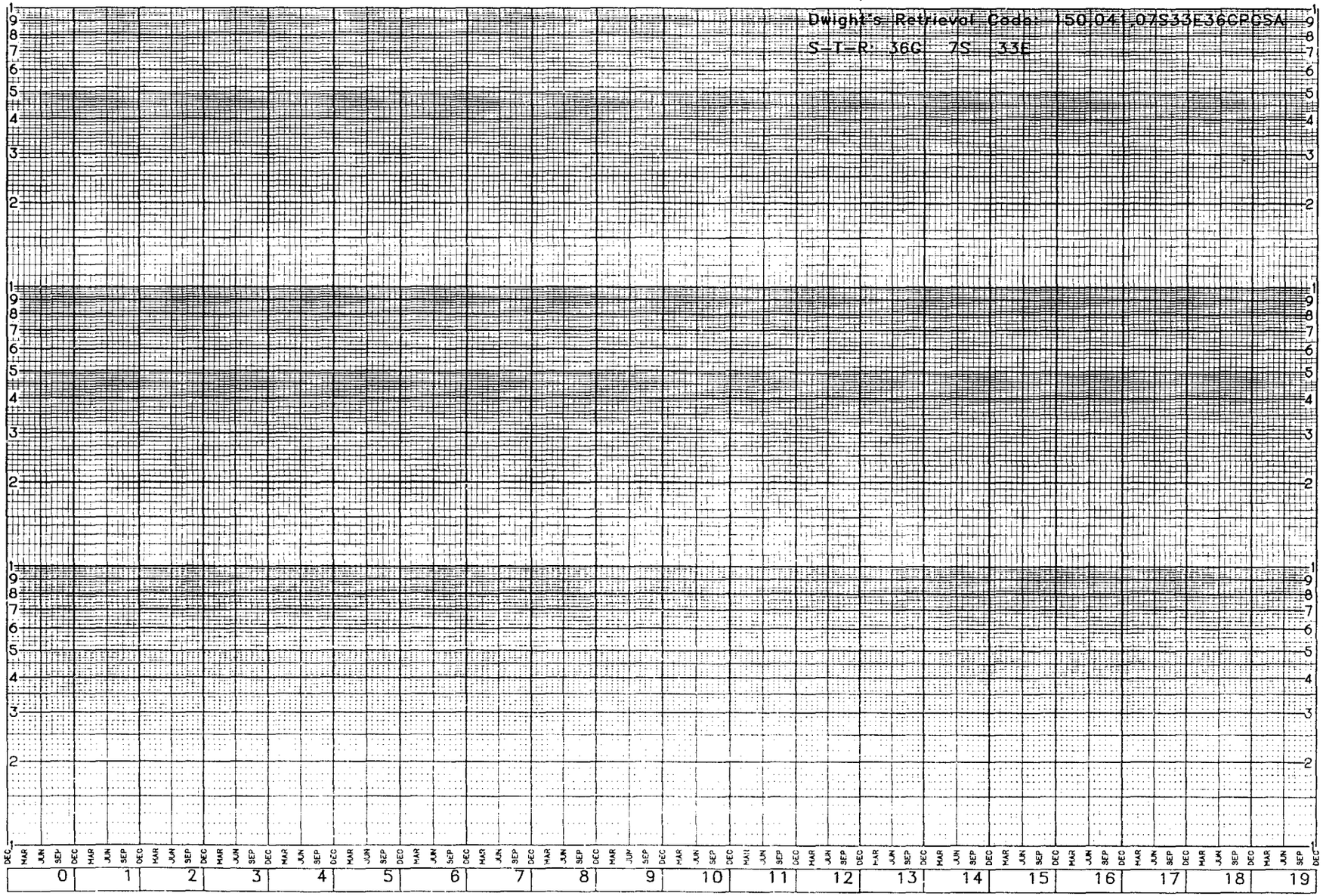


Operator: MYCO PETROLEUM
Lease: STATE K Well No: 000002
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07533E30E00SA
S-T-R: 36E 7S 33E

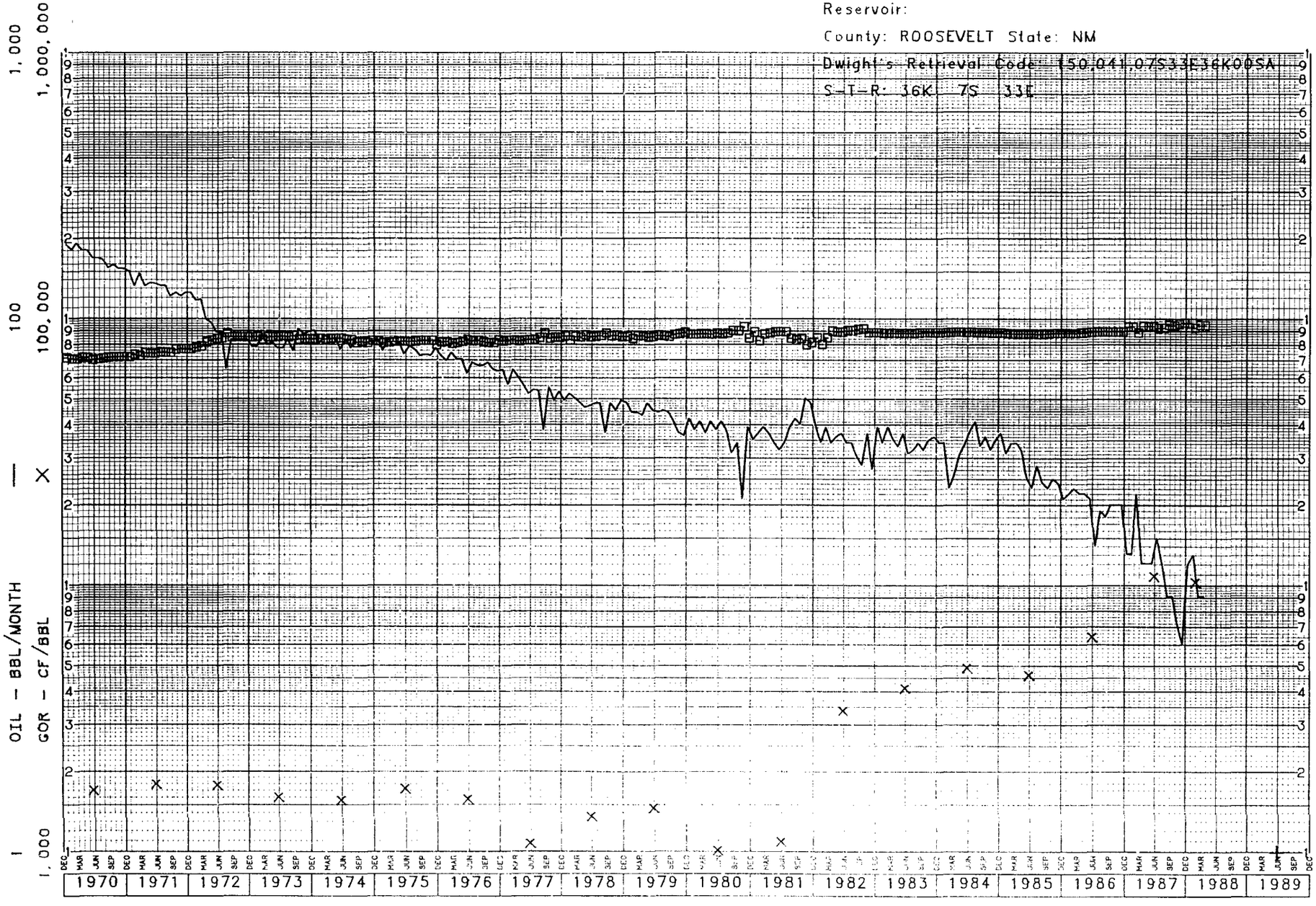


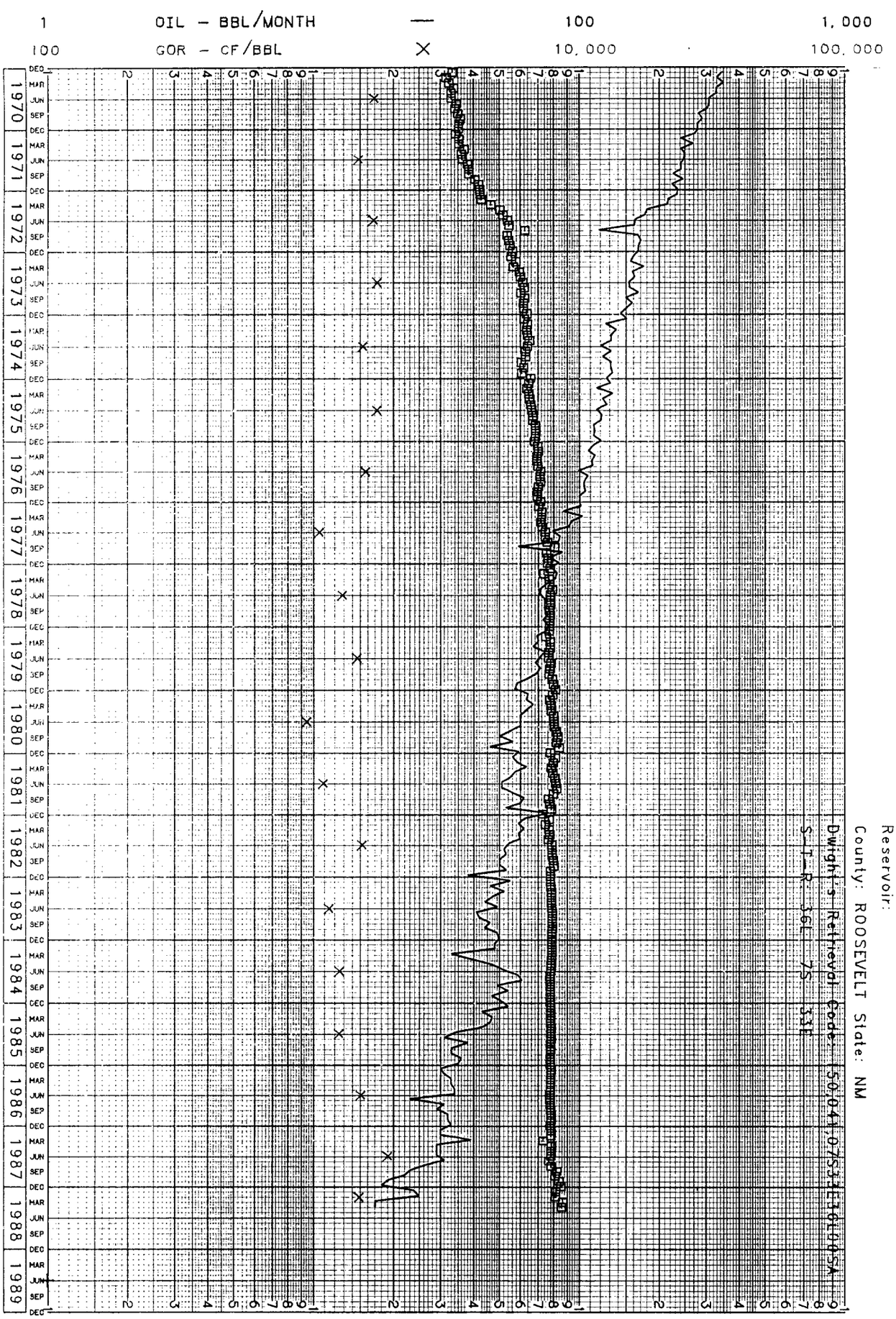

1
OIL - BBL/MONTH
100
1,000
100
GOR - CF/BBL
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
DEC
MAR
JUN
SEP
1
WATER - %
100
Operator: MYCO PETROLEUM
Lease: STATE K Well No: 000006
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,075336E1E6E08SA
S-T-R: 36E 7S 33E

Operator: MARATHON OIL CO
Lease: MARATHON STATE Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150041 07S33E36CPGSA
S-T-R: 36C 7S 33E



Operator: MYCO PETROLEUM
Lease: STATE K Well No: 000007
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 650,041,07S33E36K00SA
S-T-R: 36K 7S 33E





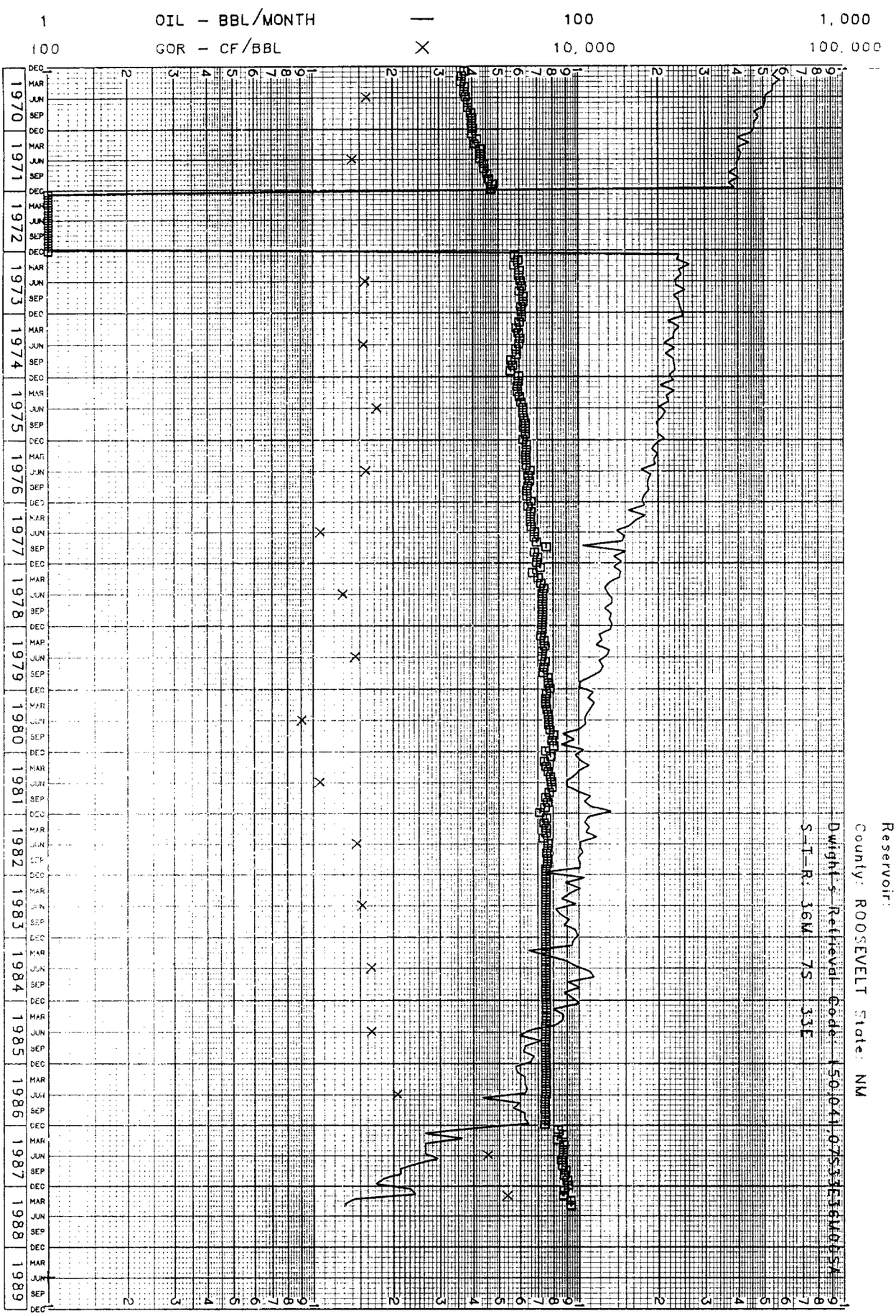
Operator: MYCO PETROLEUM
Lease: STATE K Well No: 000004
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

Dwight's Retrieval Code: 150,041,07531E10105A

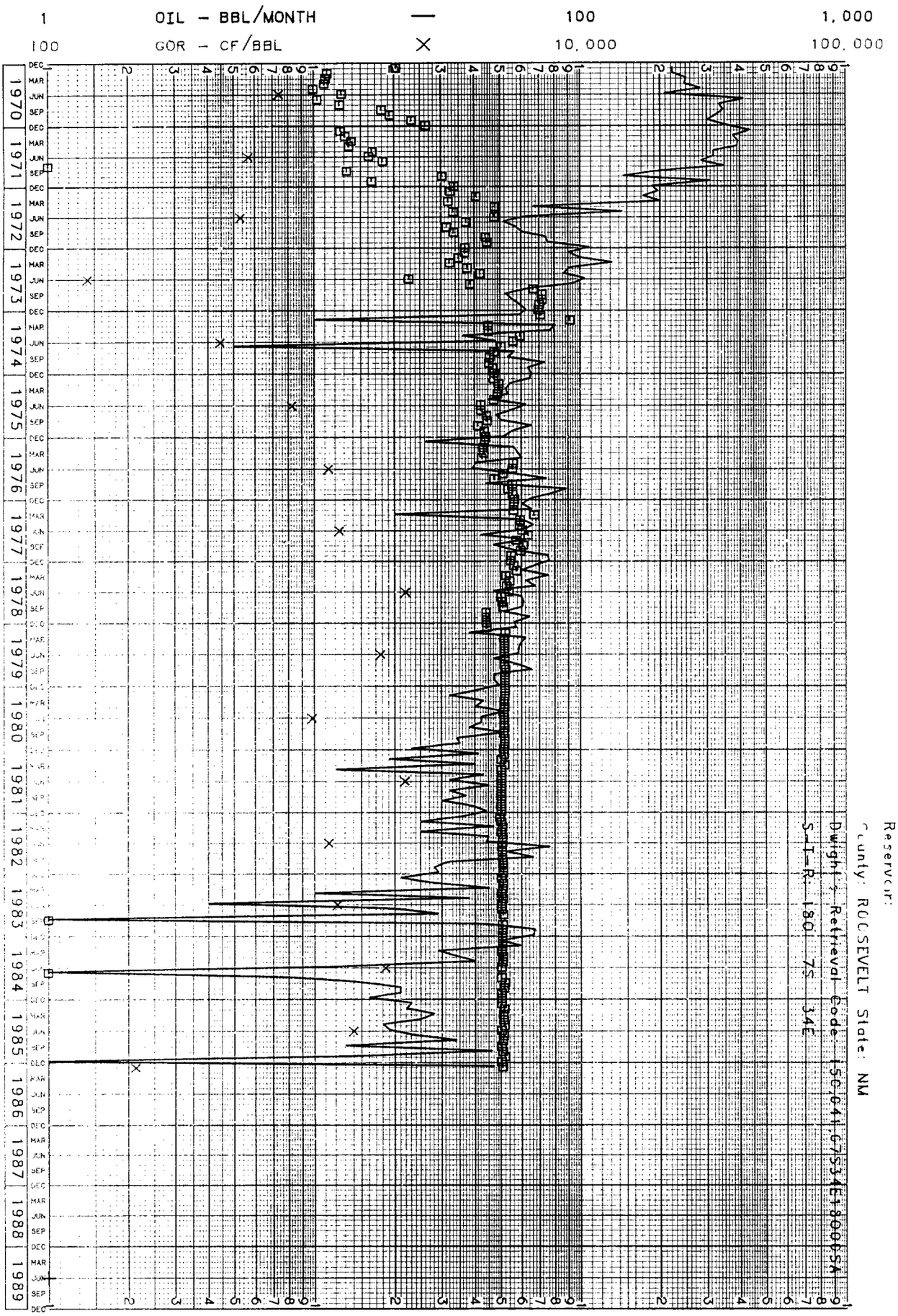
S-T-R: 36L 7S 33E

SA

Page 48 of 82


1
OIL – BBL/MONTH
100
1,000
100
GOR – CF/BBL
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
JAN
MAR
JUN
SEP
DEC
1
WATER – %
100
Operator: MYCO PETROLEUM
Lease: STATE K Well No: 000005
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 350411075313E36U00SA
S-T-R: 36M-7S-33E

SA



Operator: BRADEN DEEM INC

Lease: WOLF FEDERAL Well No: 00003

Field: CHAVEROO SAN ANDRES

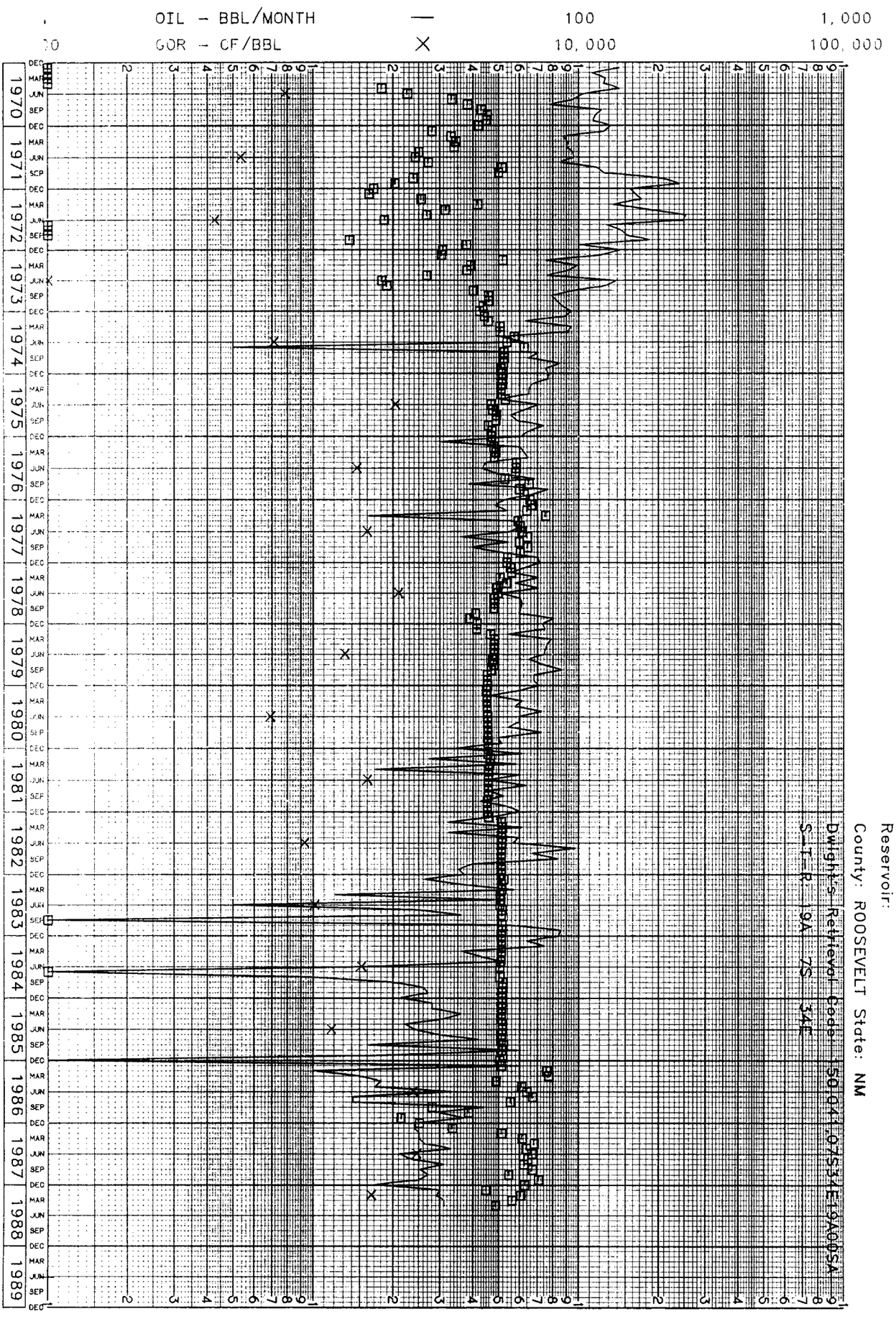
Reservoir:

County: ROOSEVELT State: NM

Dwight's Retrieval Code: 1506411753400SA

S-T-R: 18S 33E

SA



Operator: BRADEN DEEM INC
Lease: WOLF FEDERAL Well No: 000004
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

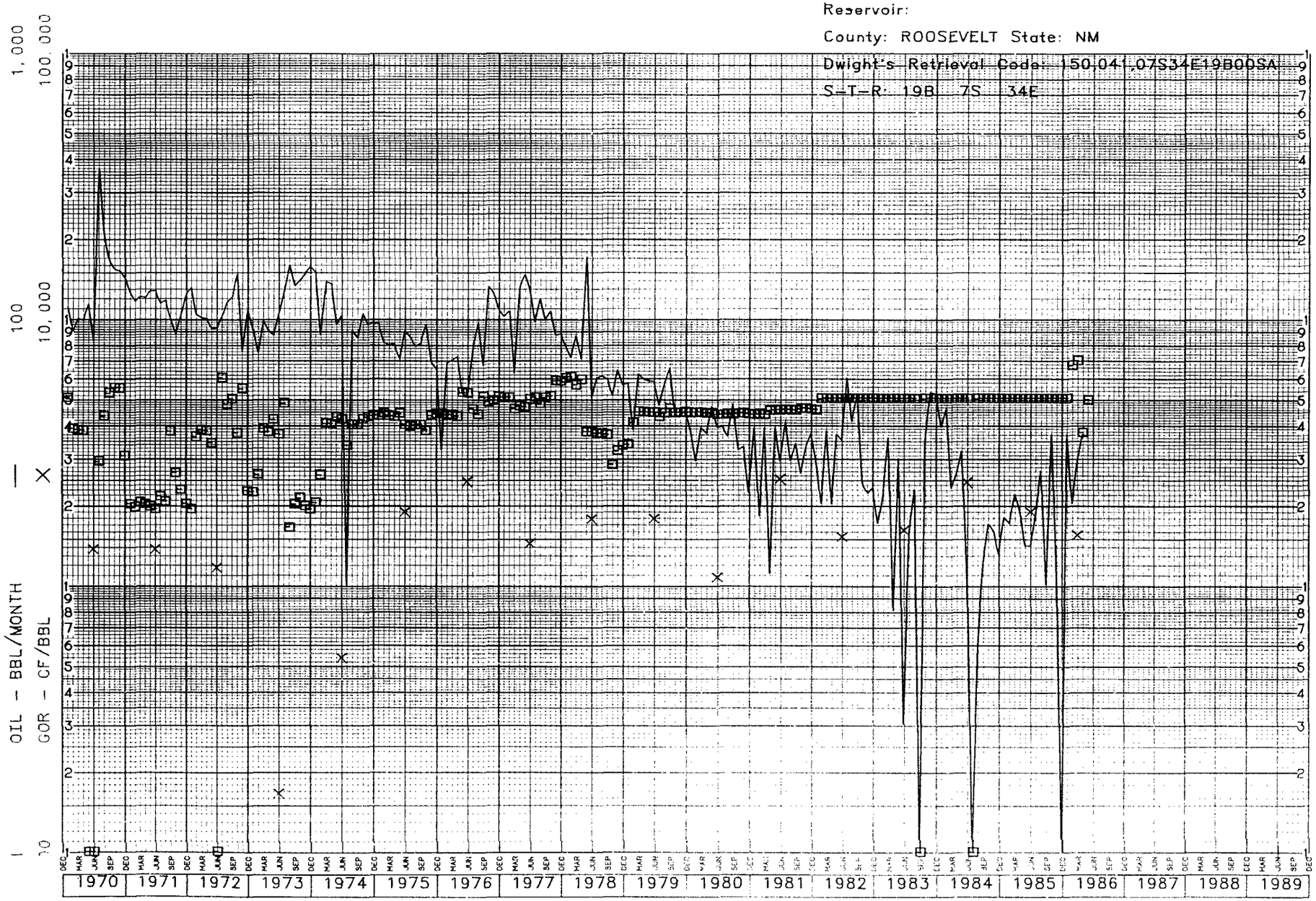
Dwights Retrieval Code: 1500410750334E19A00SA

S-T-R: 19A 7S 34E

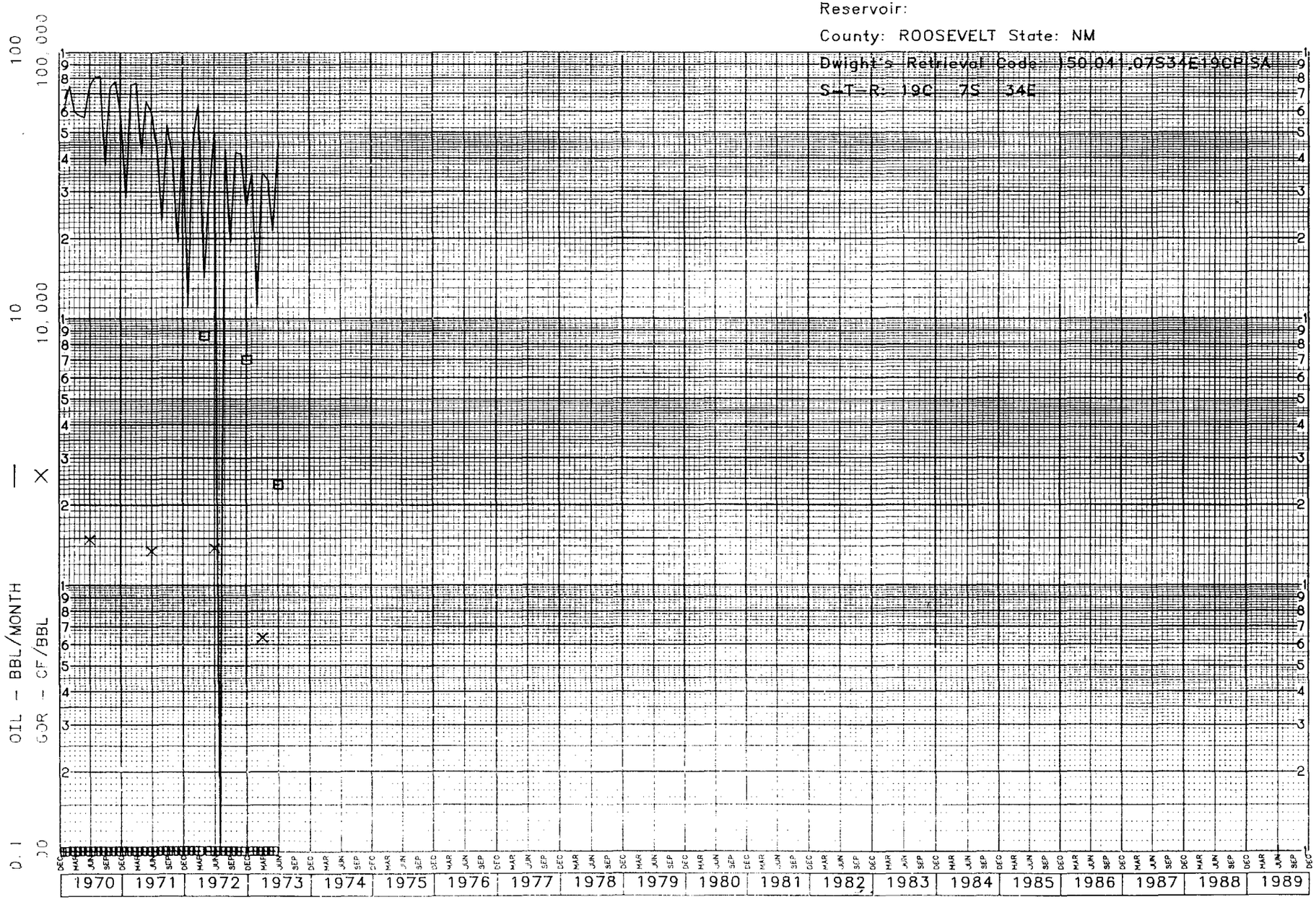
SA

67

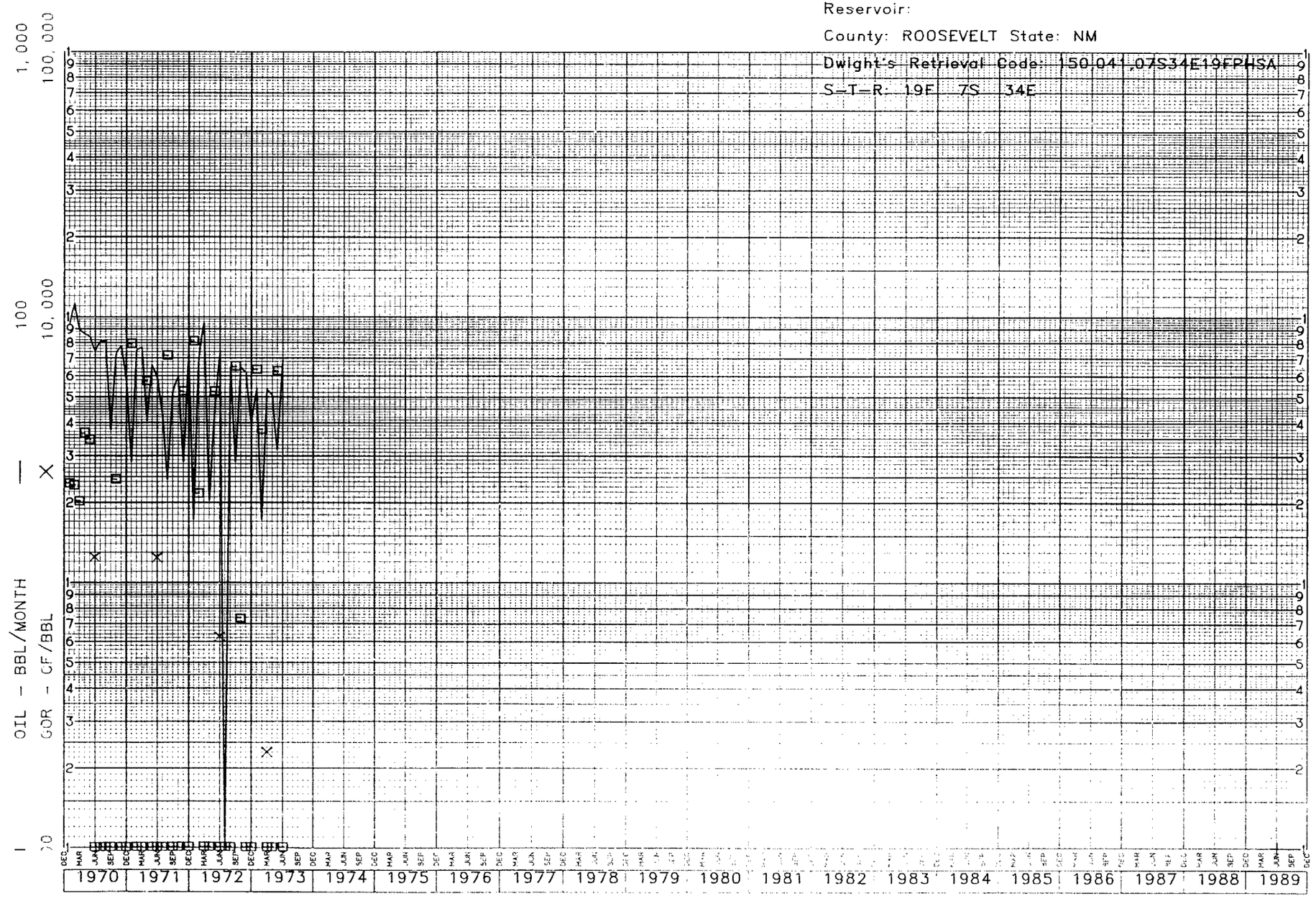
Operator: BRADEN DEEM INC
Lease: WOLF FEDERAL Well No: 000002
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E19B00SA
S-T-R: 19B 7S 34E



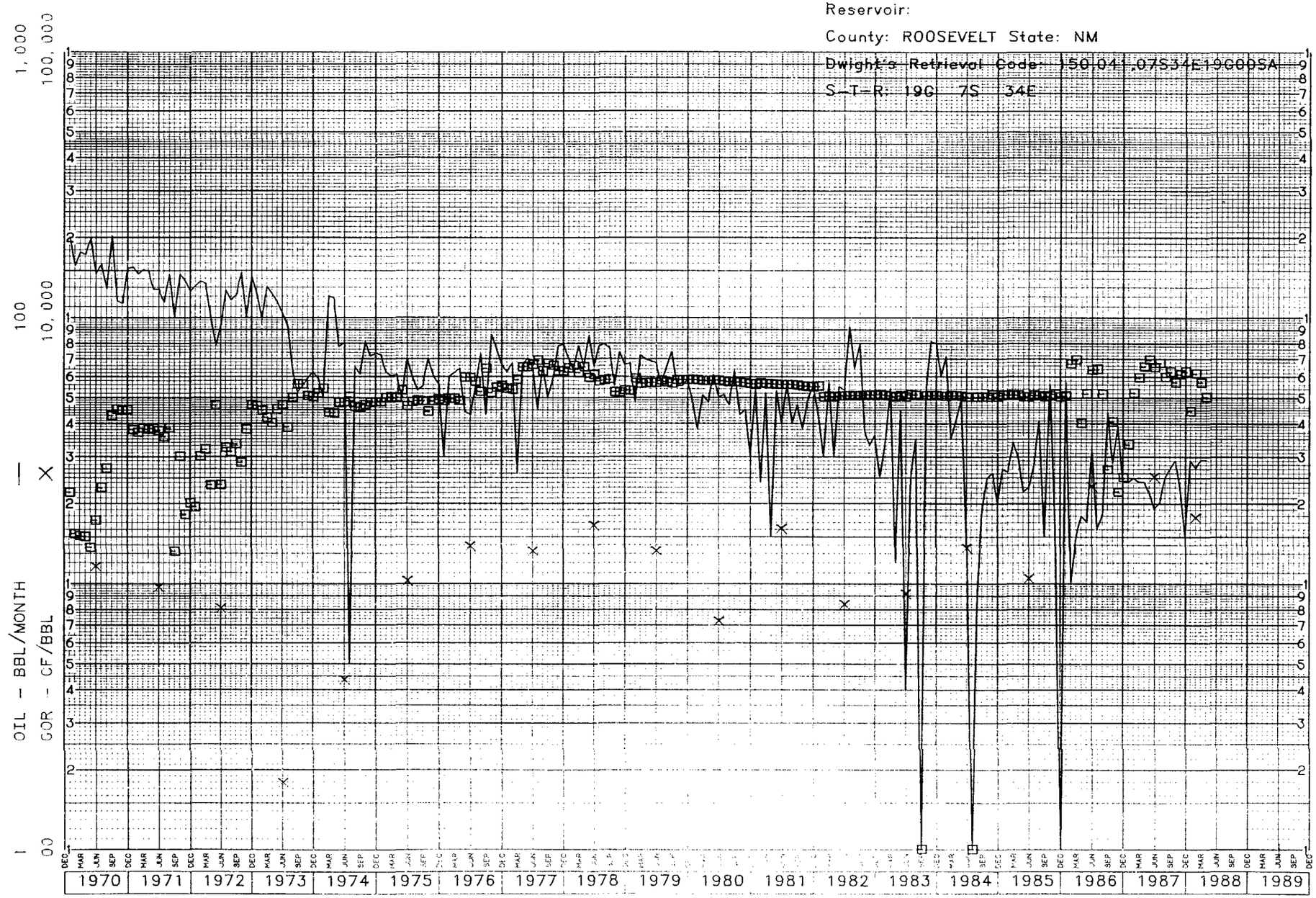
Operator: DALPORT OIL CORP
Lease: HINKLE FEDERAL Well No: 000002
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150041.07S34E19CR SA
S-T-R: 19C 7S 34E

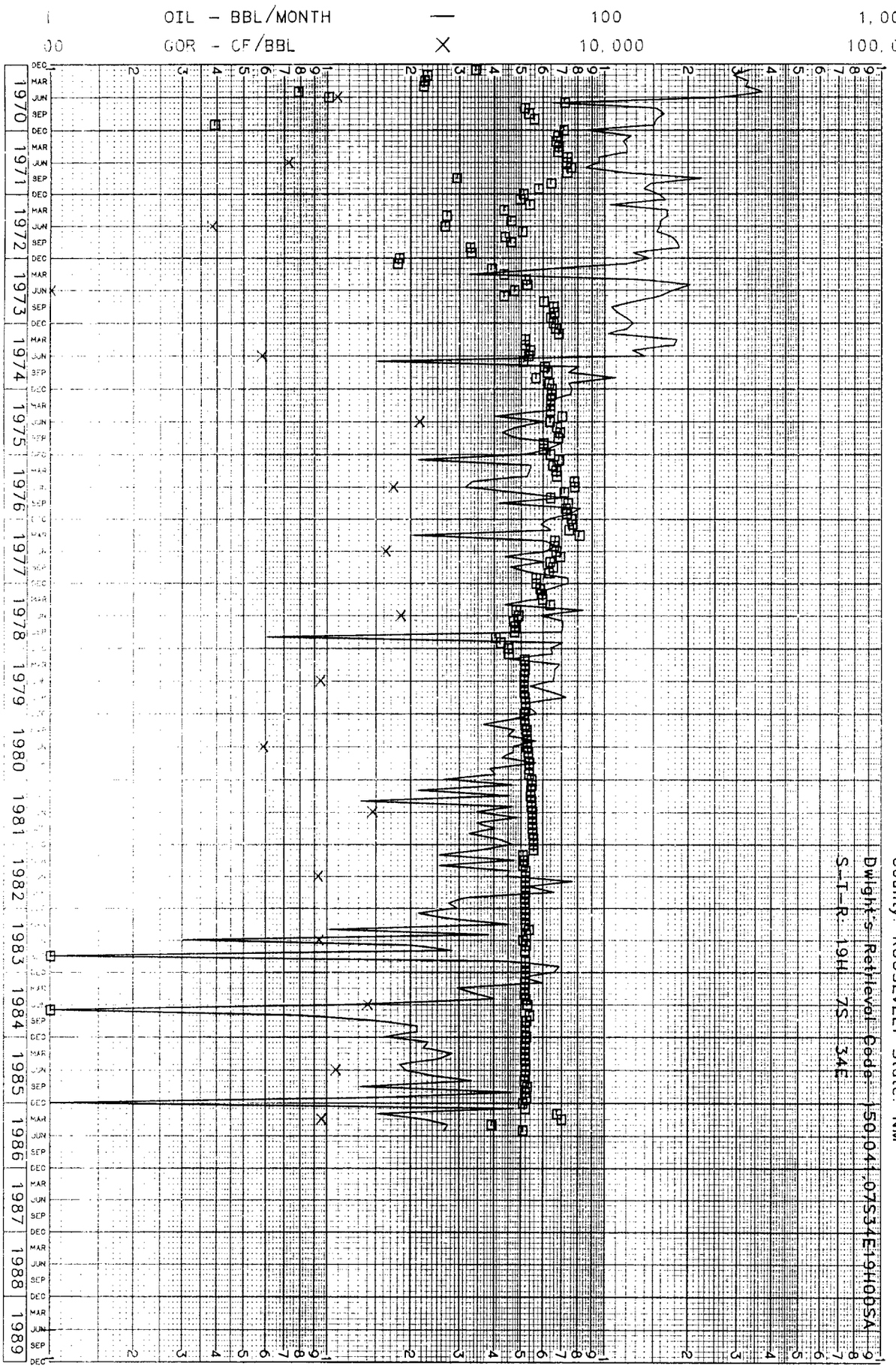


Operator: DALPORT OIL CORP
Lease: HINKLE FEDERAL Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50041,07S34E19FPHSA
S-T-R: 19F 7S 34E



Operator: BRADEN DEEM INC
Lease: WOLF FEDERAL Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E19G00SA
S-T-R: 19G 7S 34E





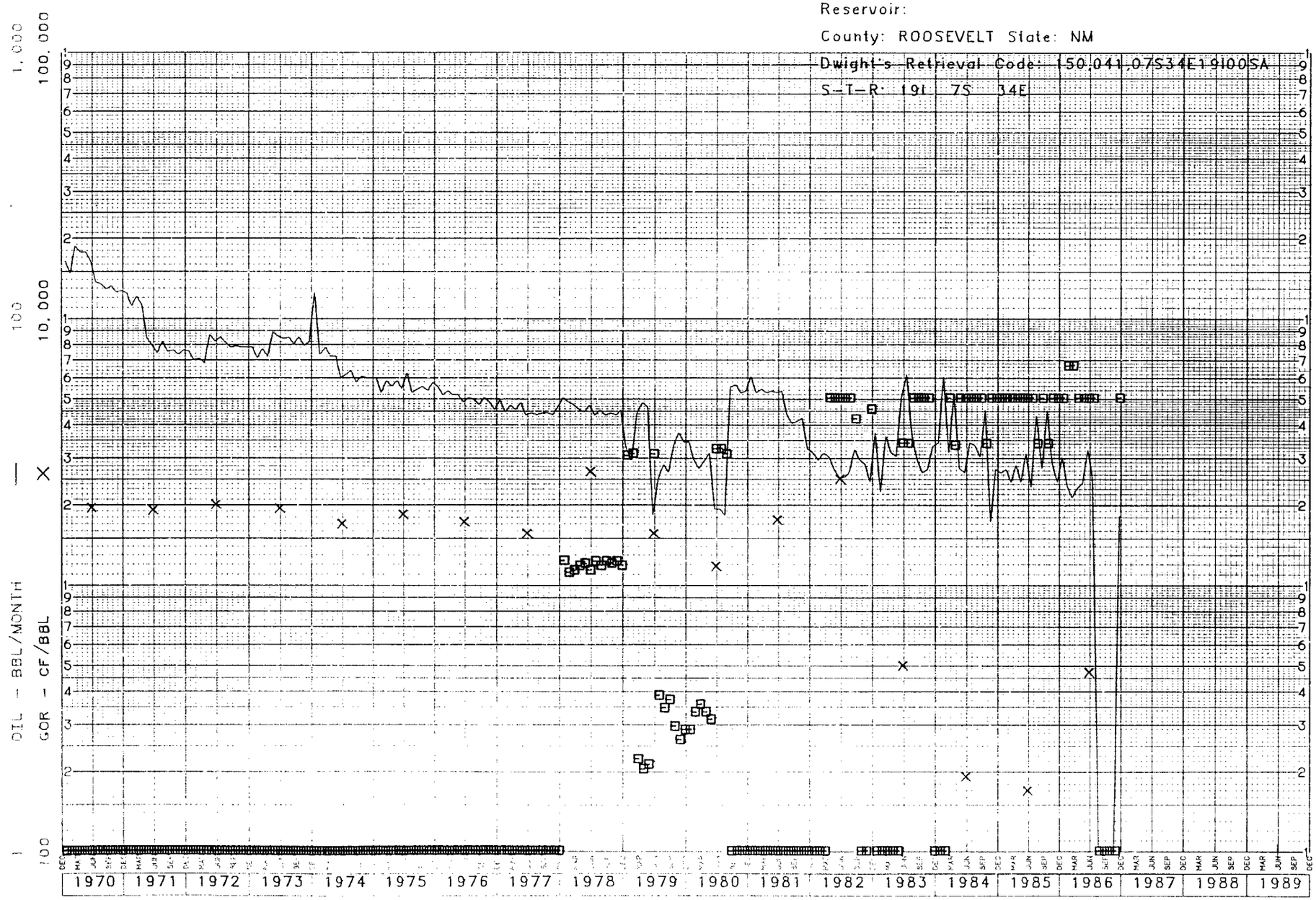
Operator: BRADEN DEEM INC
Lease: WOLF FEDERAL Well No: 000005
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

Dwight's Retrieval Code: 50-041-07S34E19H00SA
S-T-R 19H 7S 34E

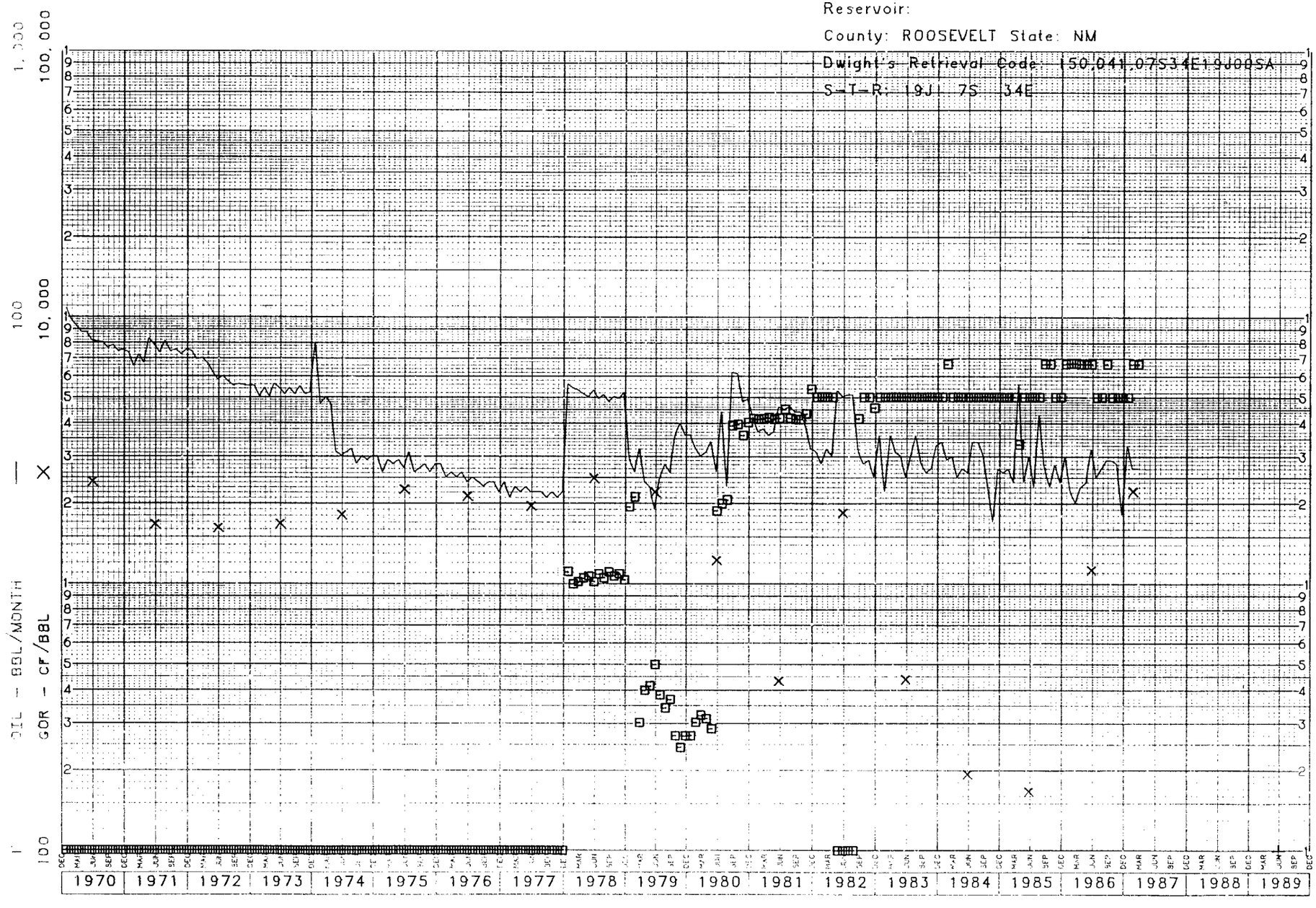
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72

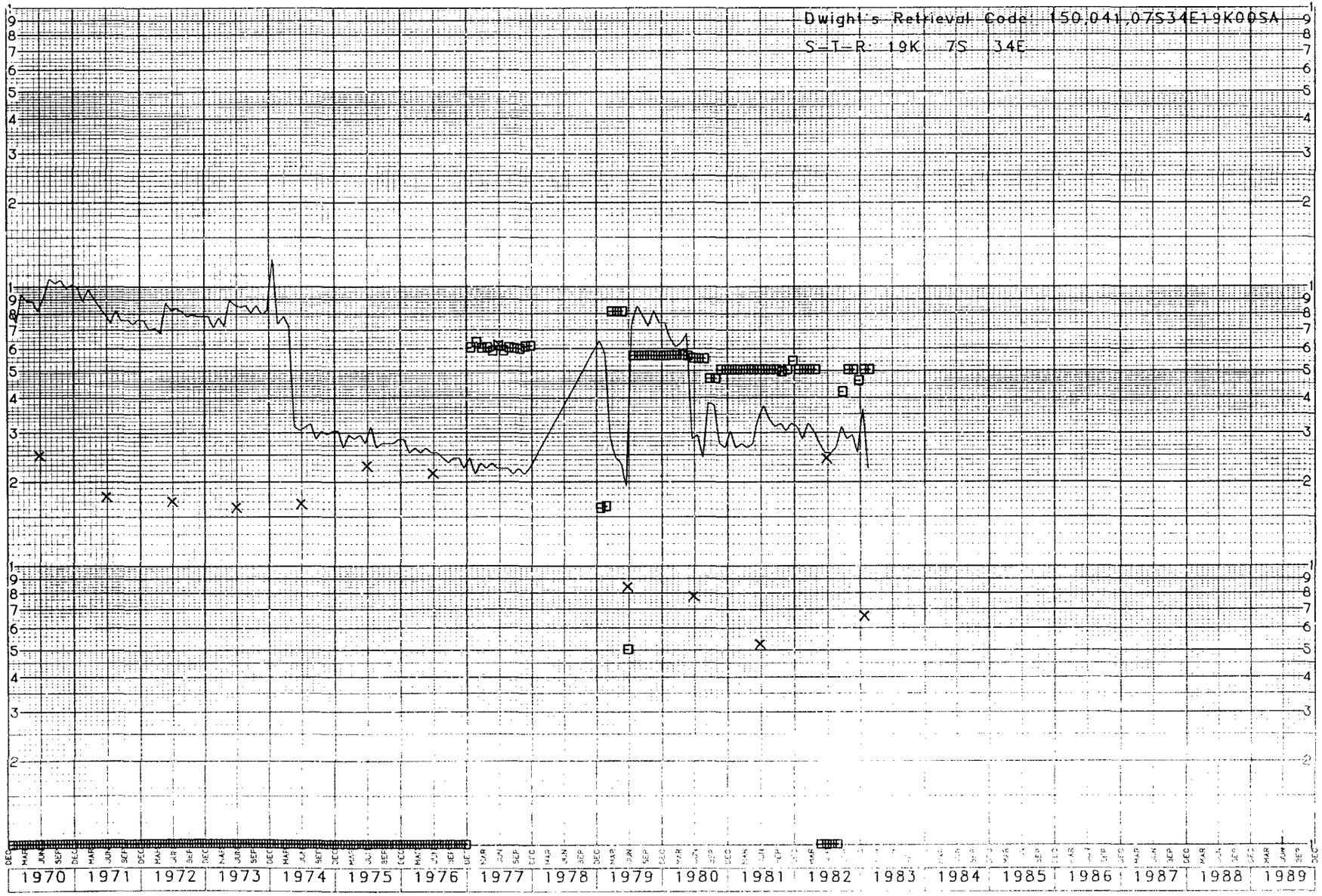
Operator: KERR MCGEE CORP
Lease: STATE C Well No: 000005
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E19100SA
S-T-R: 19 7S 34E



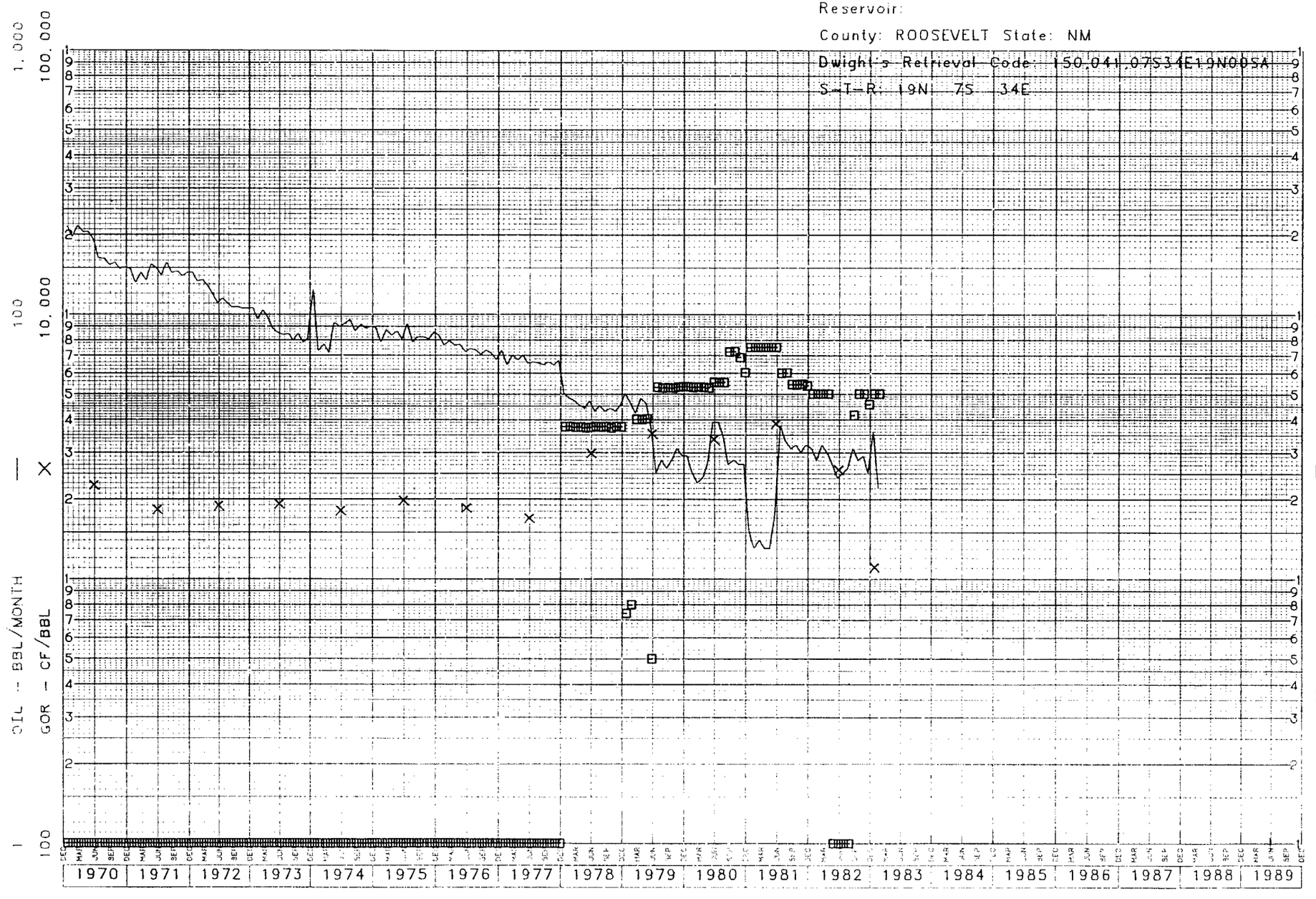
Operator: KERR MCGEE CORP
Lease: STATE G Well No: 000003
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E19J00SA
S-T-R: 19J 7S 34E



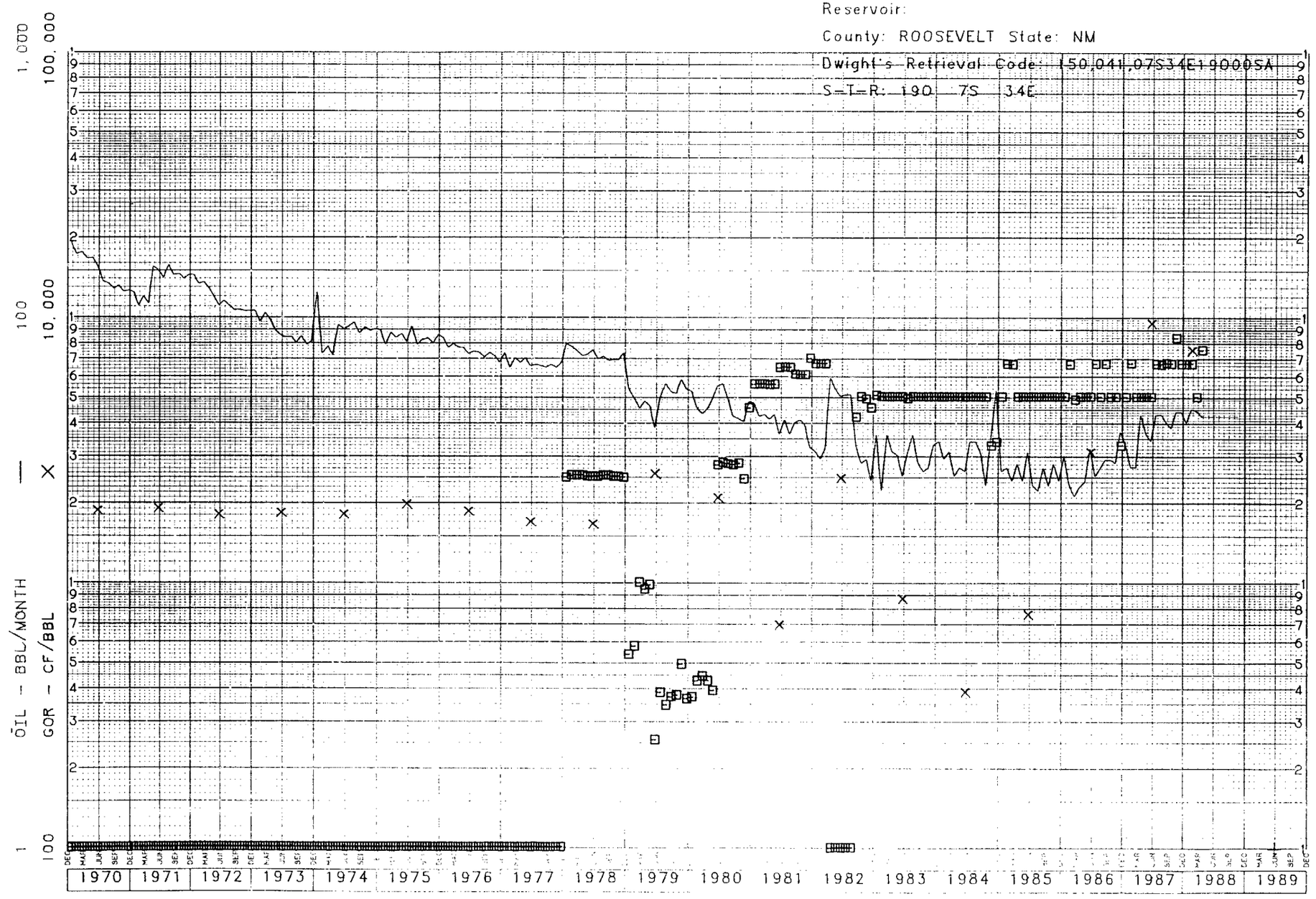
Operator: KERR MCGEE CORP
Lease: STATE G Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E19K00SA
S-T-R: 19K 7S 34E



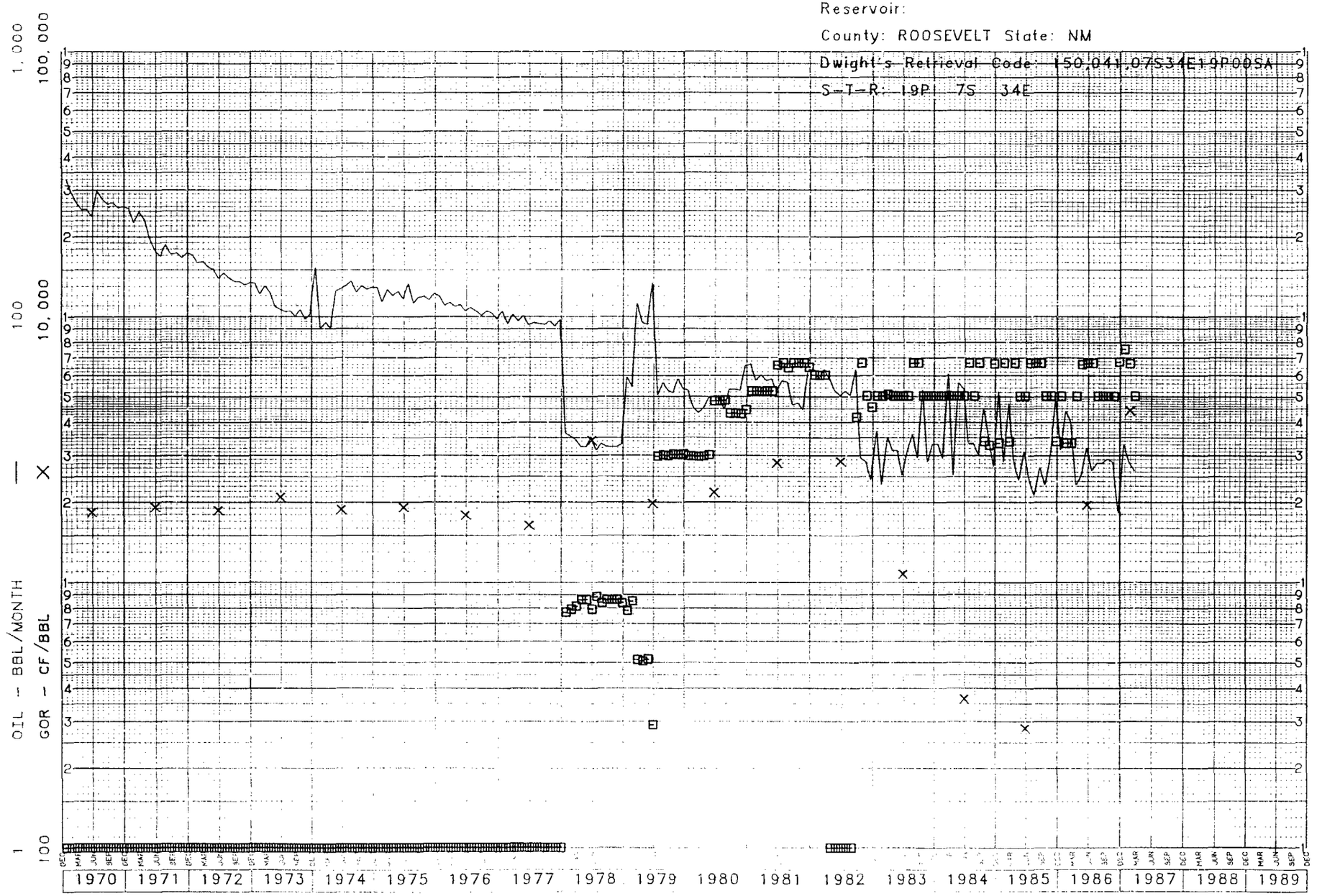
Operator: KERR MCGEE CORP
Lease: STATE G Well No: 000002
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E19N00SA
S-T-R: 19N 7S 34E



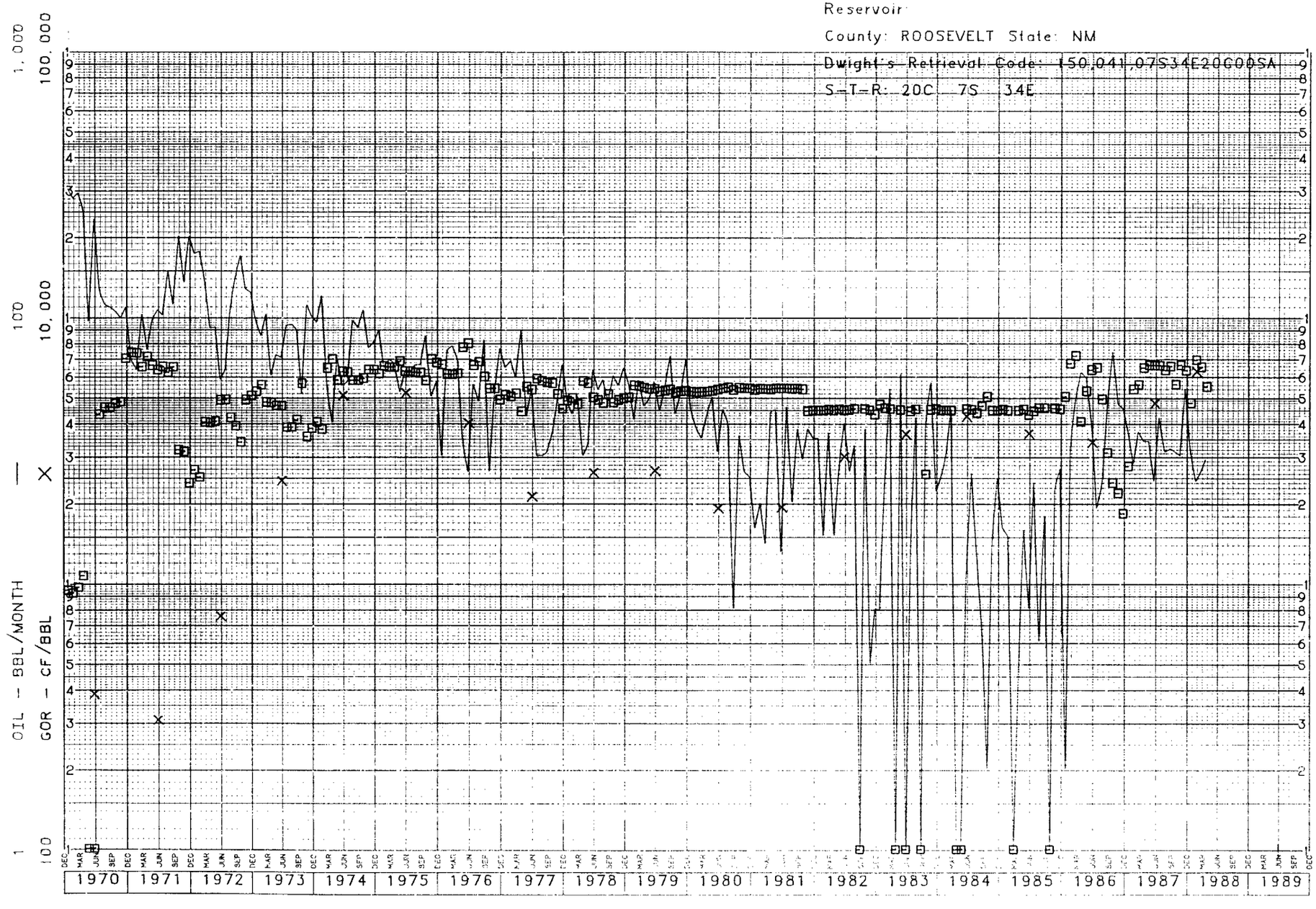
Operator: KERR MCGEE CORP
Lease: STATE G Well No: 000004
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E19000SA
S-T-R: 19Q 7S 34E

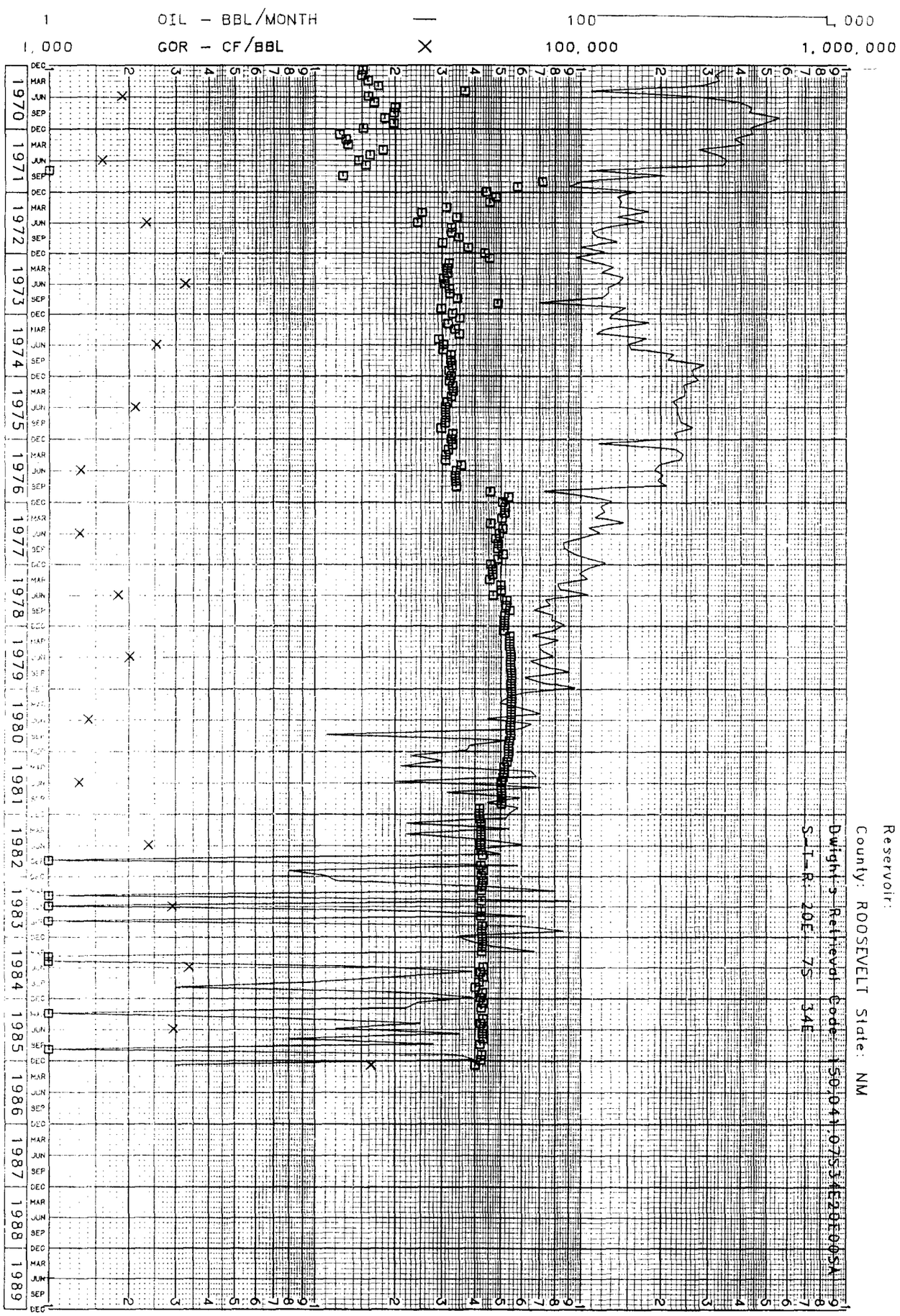


Operator: KERR MCGEE CORP
Lease: STATE G Well No: 000006
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E19P00SA
S-T-R: 19P 7S 34E

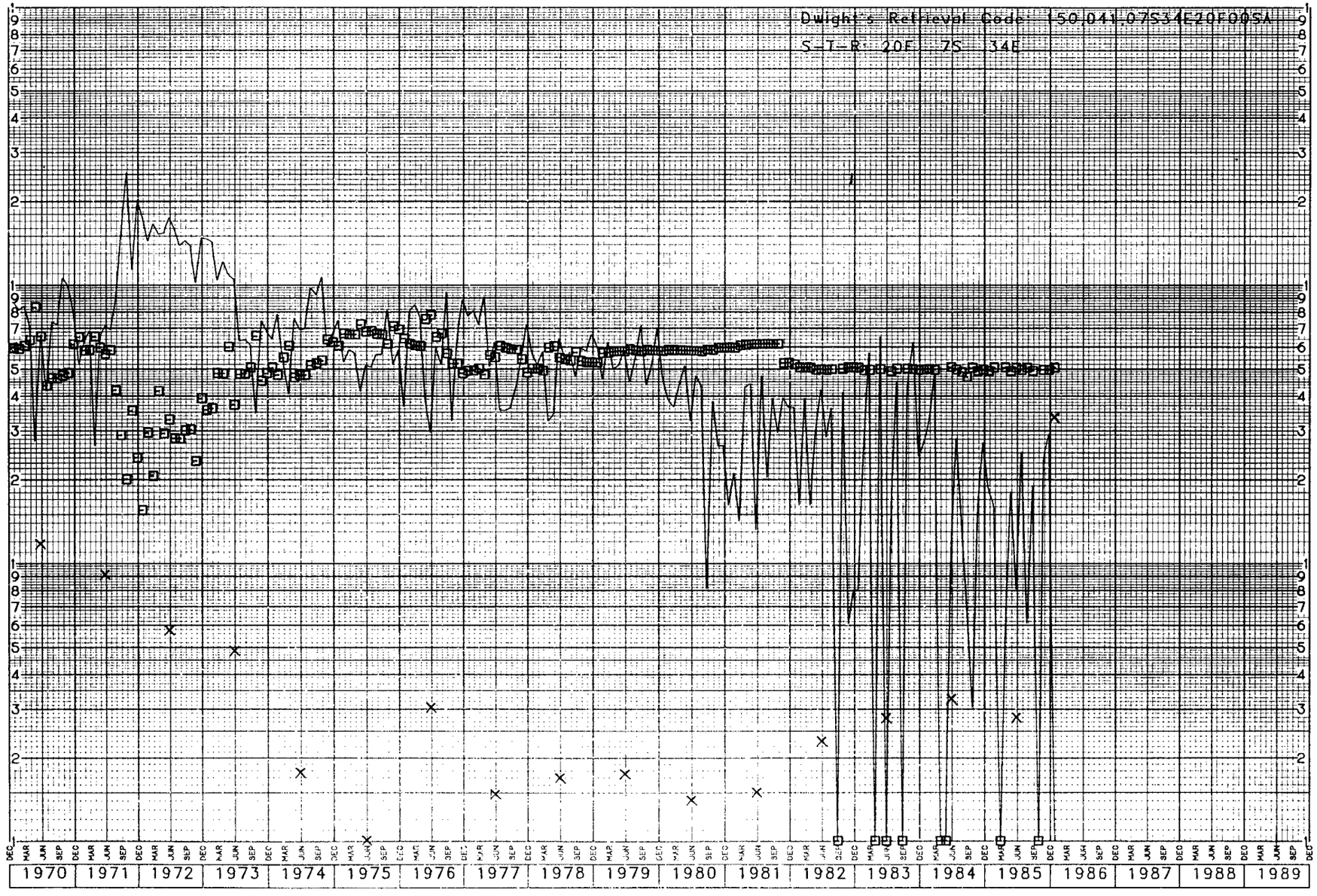


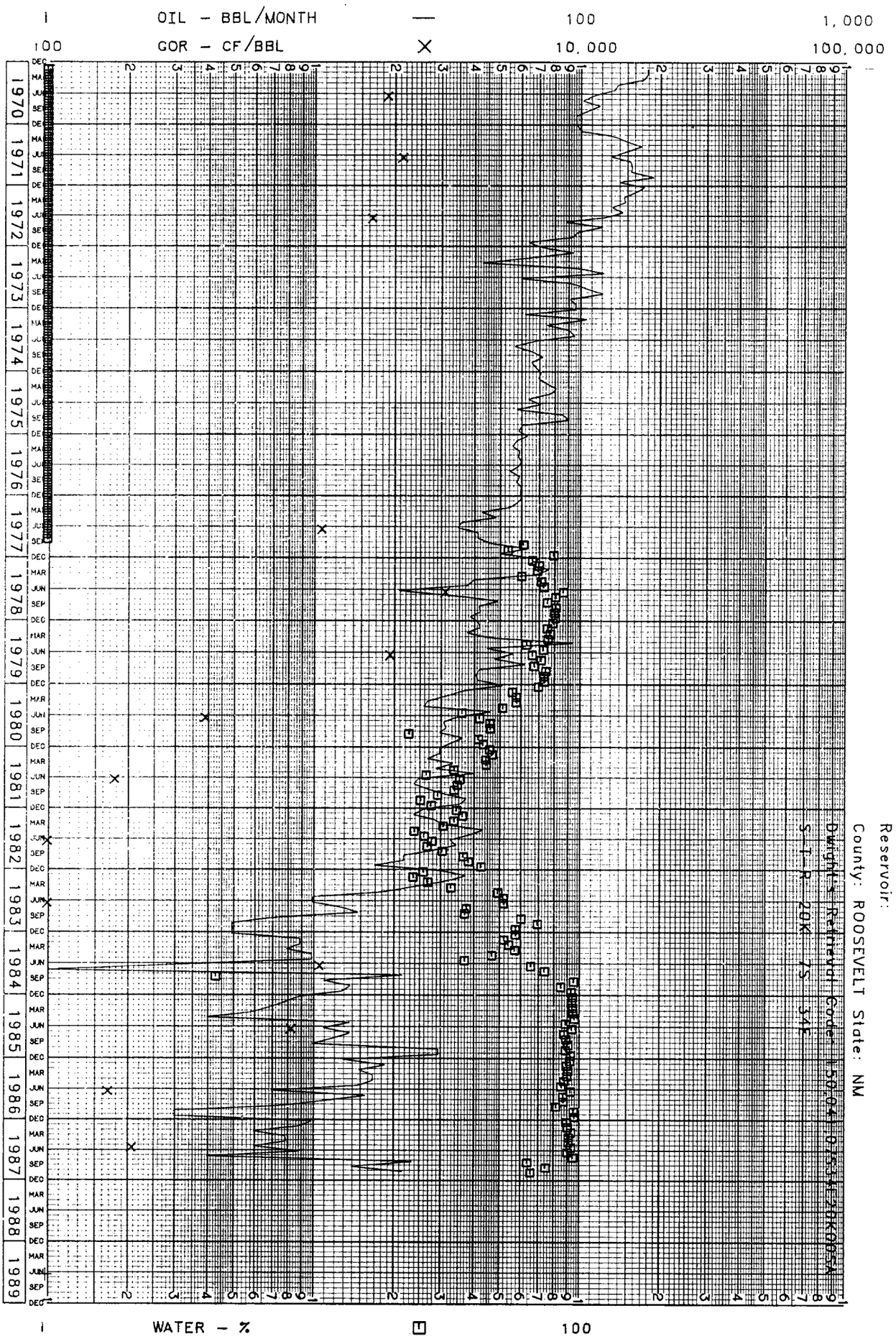
Operator: BRADEN DEEM INC
Lease: HOMME FEDERAL Well No: 000002
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E20C00SA
S-T-R: 20C 7S 34E




1
OIL – BBL/MONTH
100
1,000
1,000
GOR – CF/BBL
100,000
1,000,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
DEC
MAR
JUN
SEP
1
WATER – %
100
Dwight's Retrieval Code: 1501941.07S.34E.20E.00SA
S-T-R: 20E 7S 34E
Operator: BRADEN DEEM INC
Lease: HOMME FEDERAL Well No: 000001
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
SA
80

Operator: BRADEN DEEM INC
Lease: HOMME FEDERAL Well No: 000003
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50,041,07S34E20F00SA
S-T-R: 20F 7S 34E

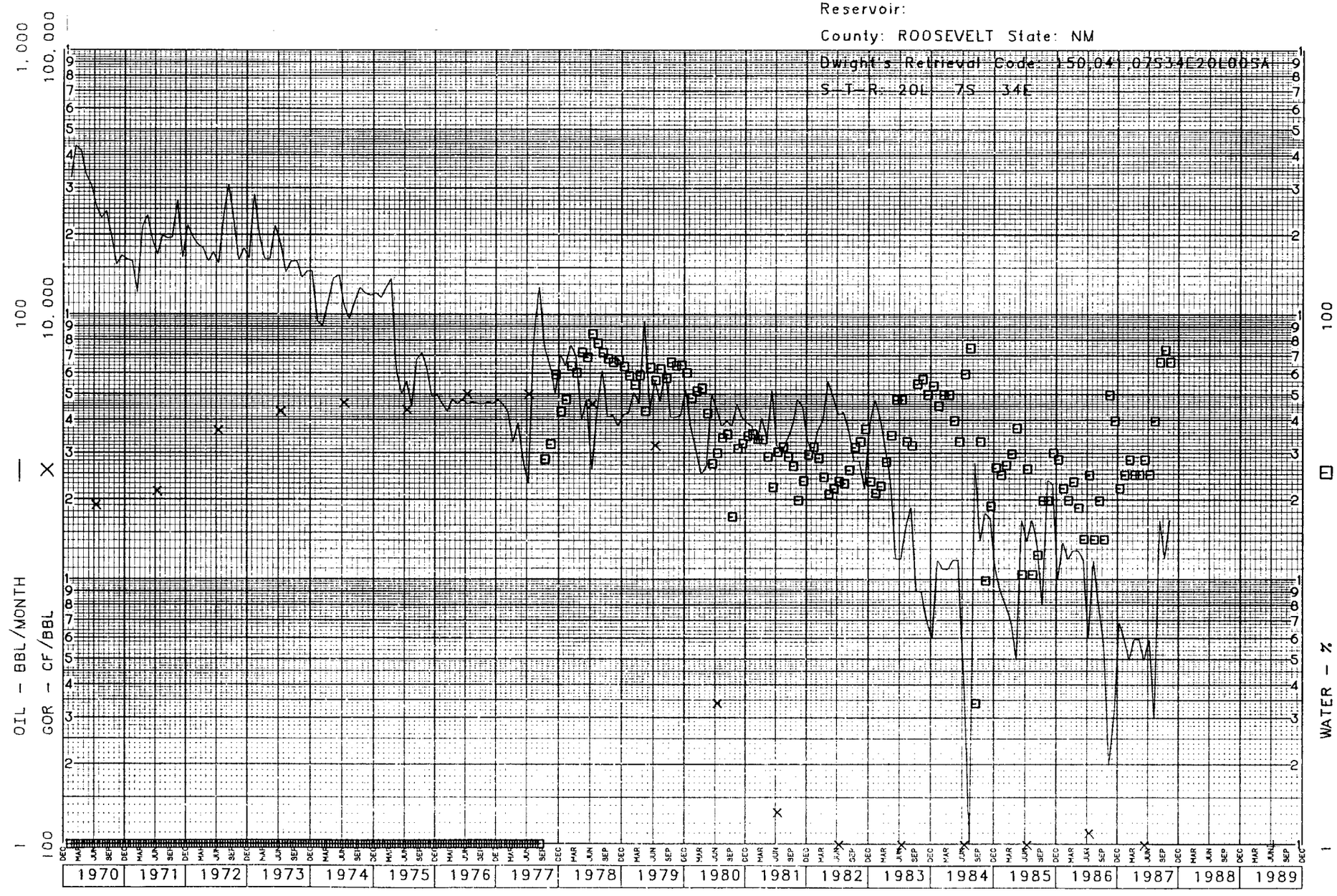


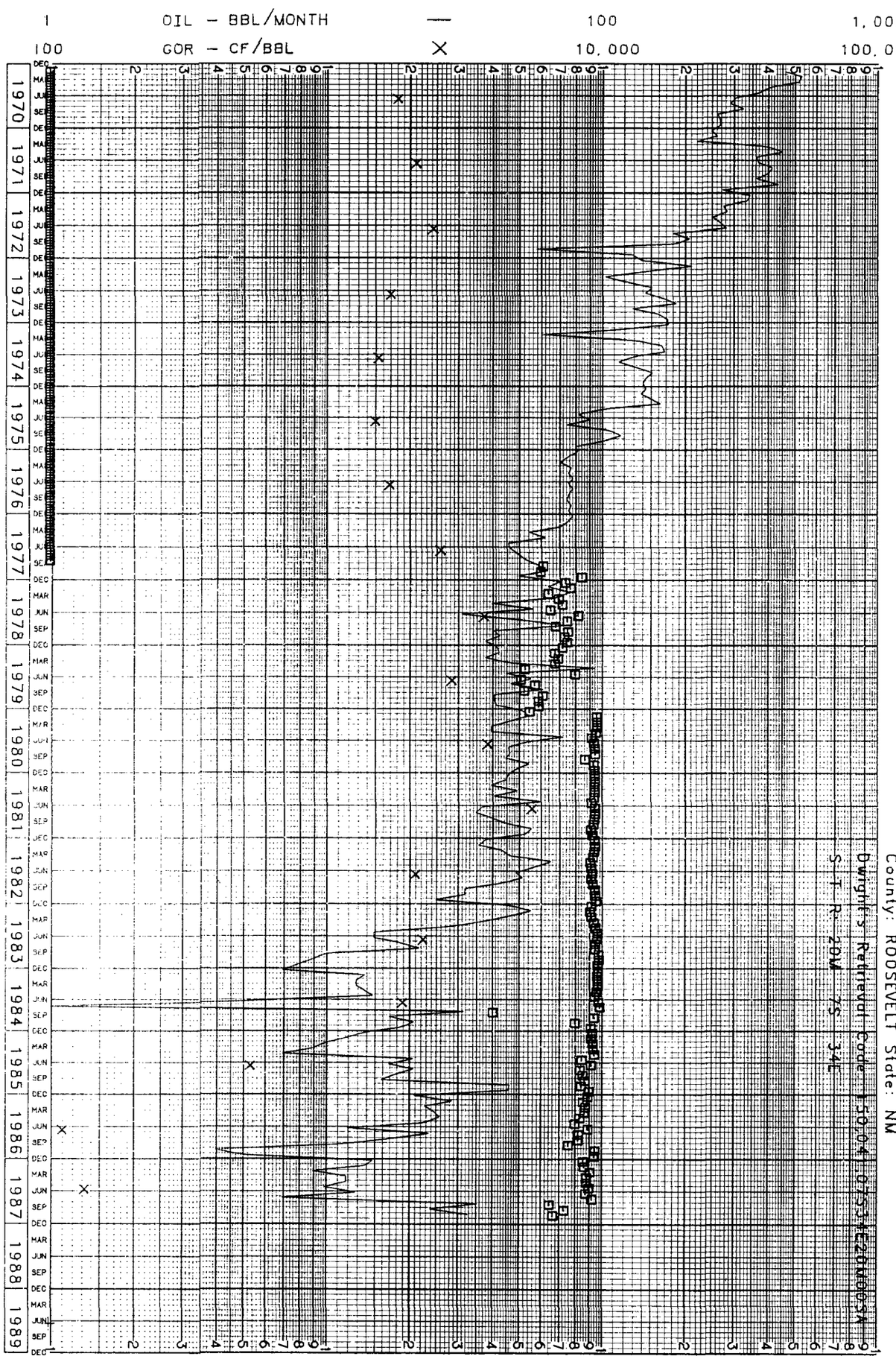


Operator: AMERICAN TRADING & PROD
Lease: NEW MEXICO STATE 20 Well No: 000003
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50704 0753E20K00SA
S-T-R 20K 7S 34E

82

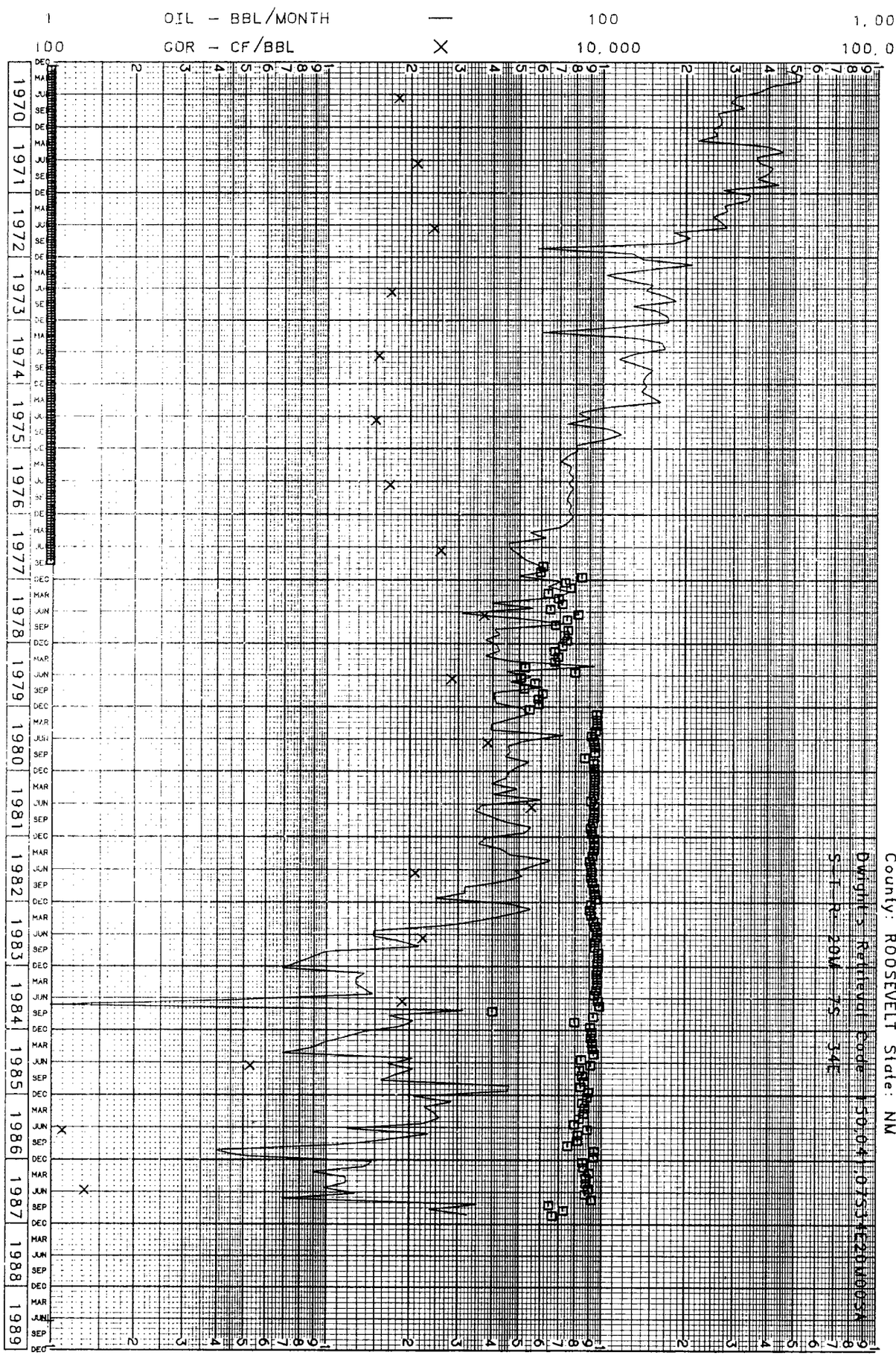
Operator: AMERICAN TRADING & PROD
Lease: NEW MEXICO STATE 20 Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E20L00SA
S-T-R: 20L 7S 34E





Operator: AMERICAN TRADING & PROD
Lease: NEW MEXICO STATE 20 Well No: 000002
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50,04,075345E20M0002A
S-T-R: 20M 7S 34E

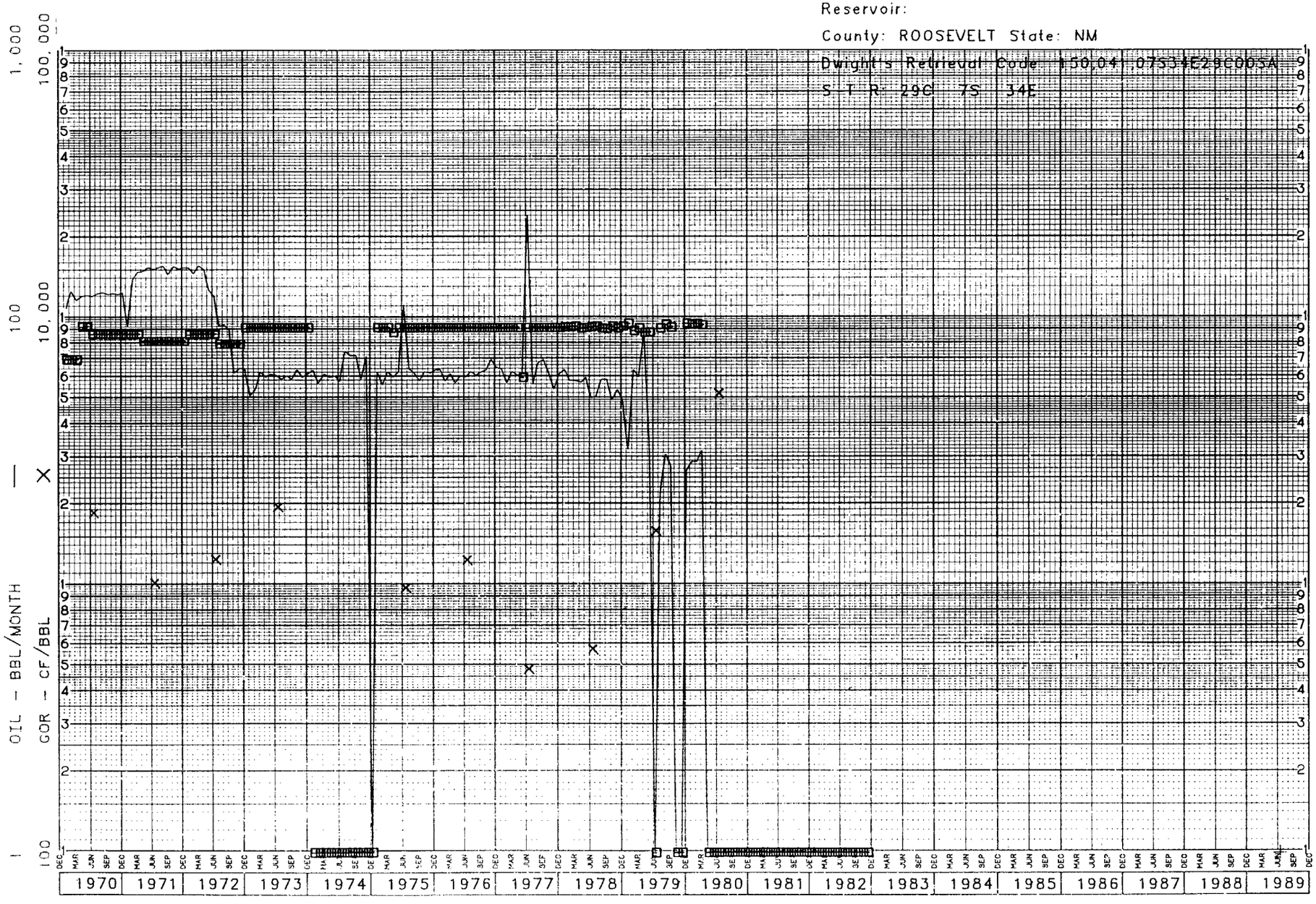
84



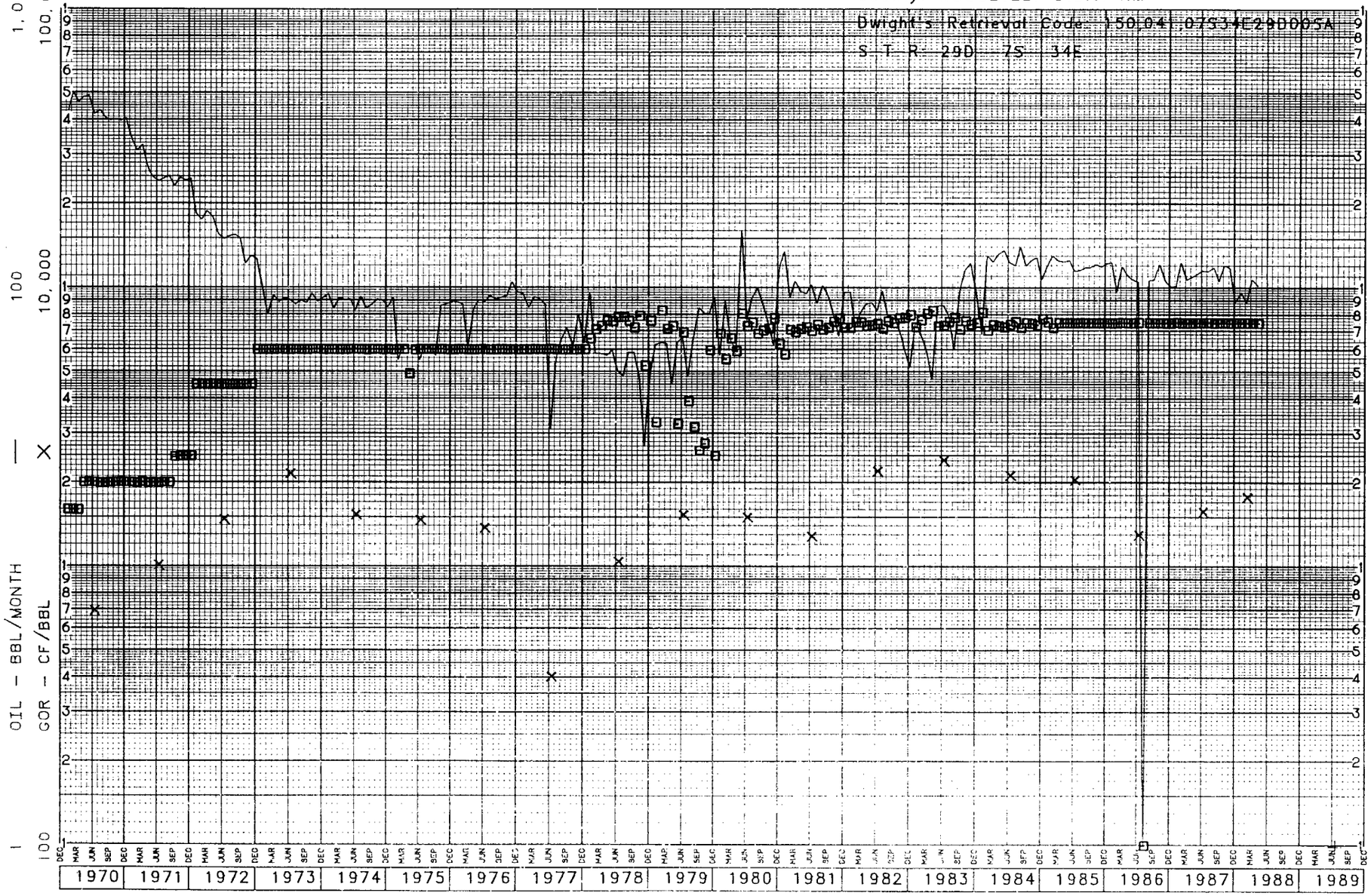
Operator: AMERICAN TRADING & PROD
Lease: NEW MEXICO STATE 20 Well No: 000002
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50.04.0753.52210002A
S-T-R: 20N-7S-34E

84

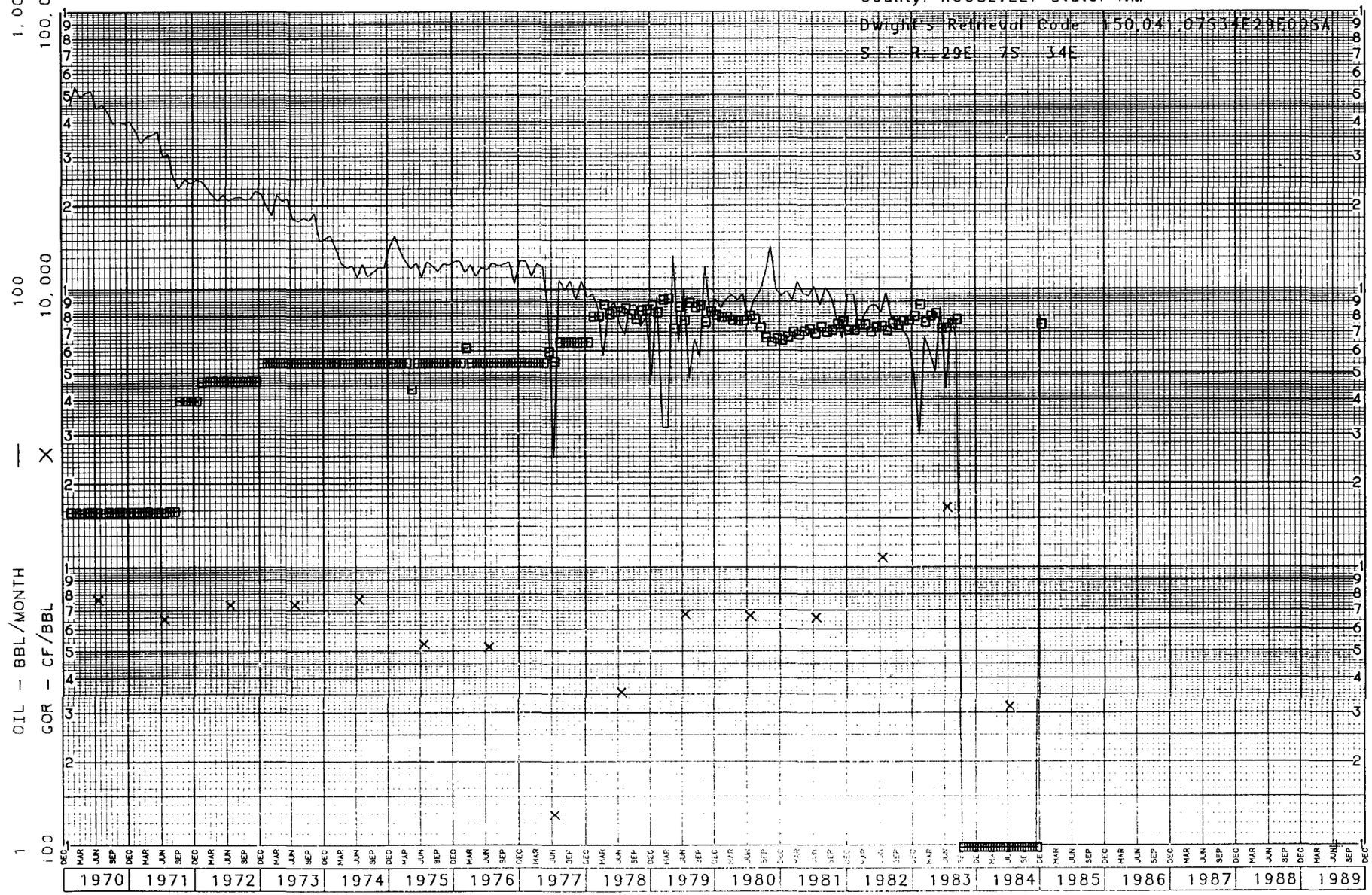
Operator: TEXACO PRODUCING INC
Lease: HOBBS W Well No: 000008
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07534E29C00SA
S-T-R: 29C 7S 34E



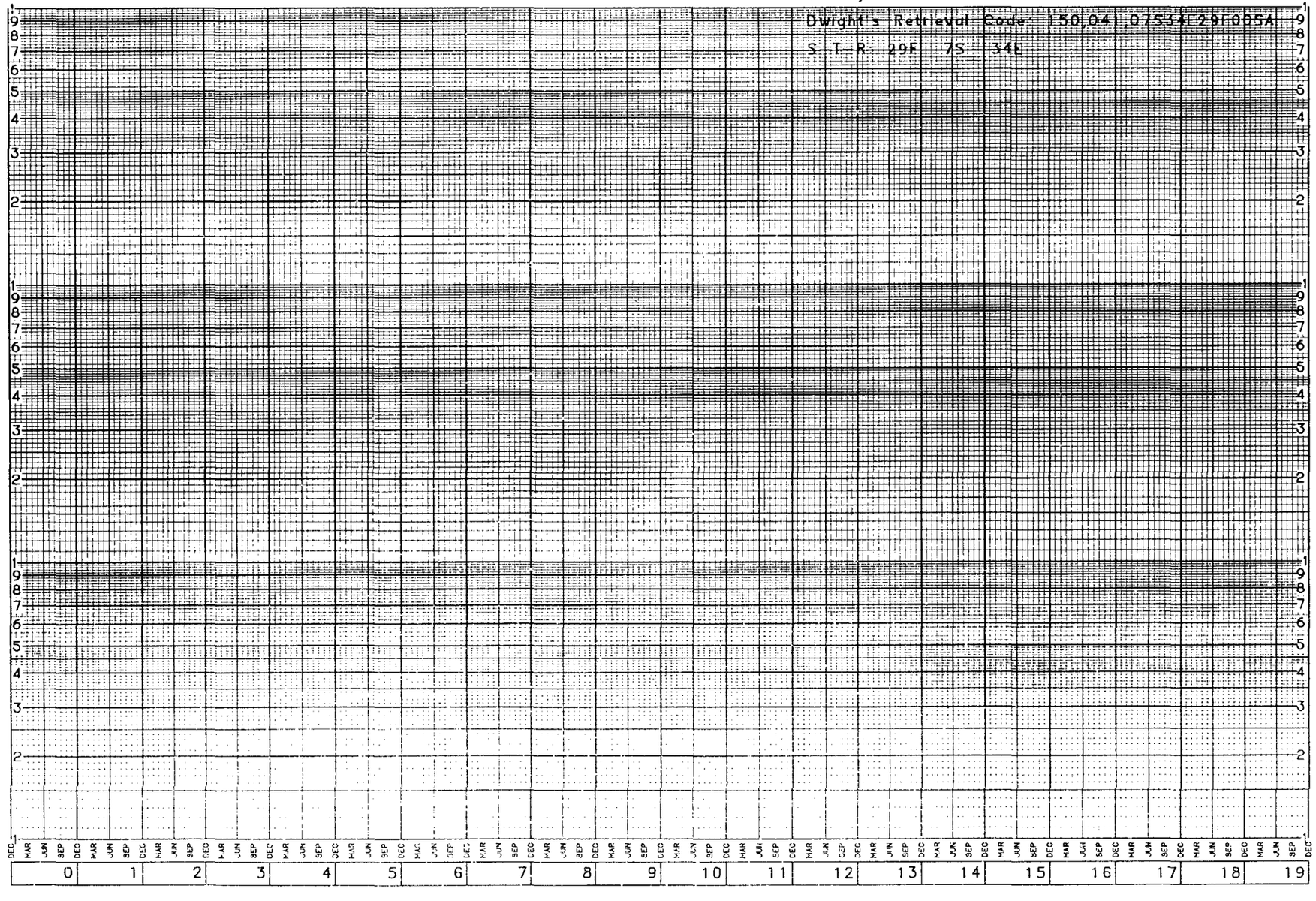
Operator: TEXACO PRODUCING INC
Lease: HOBBS W Well No: 000006
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07534E29D005A
S T R 29D 7S 34E



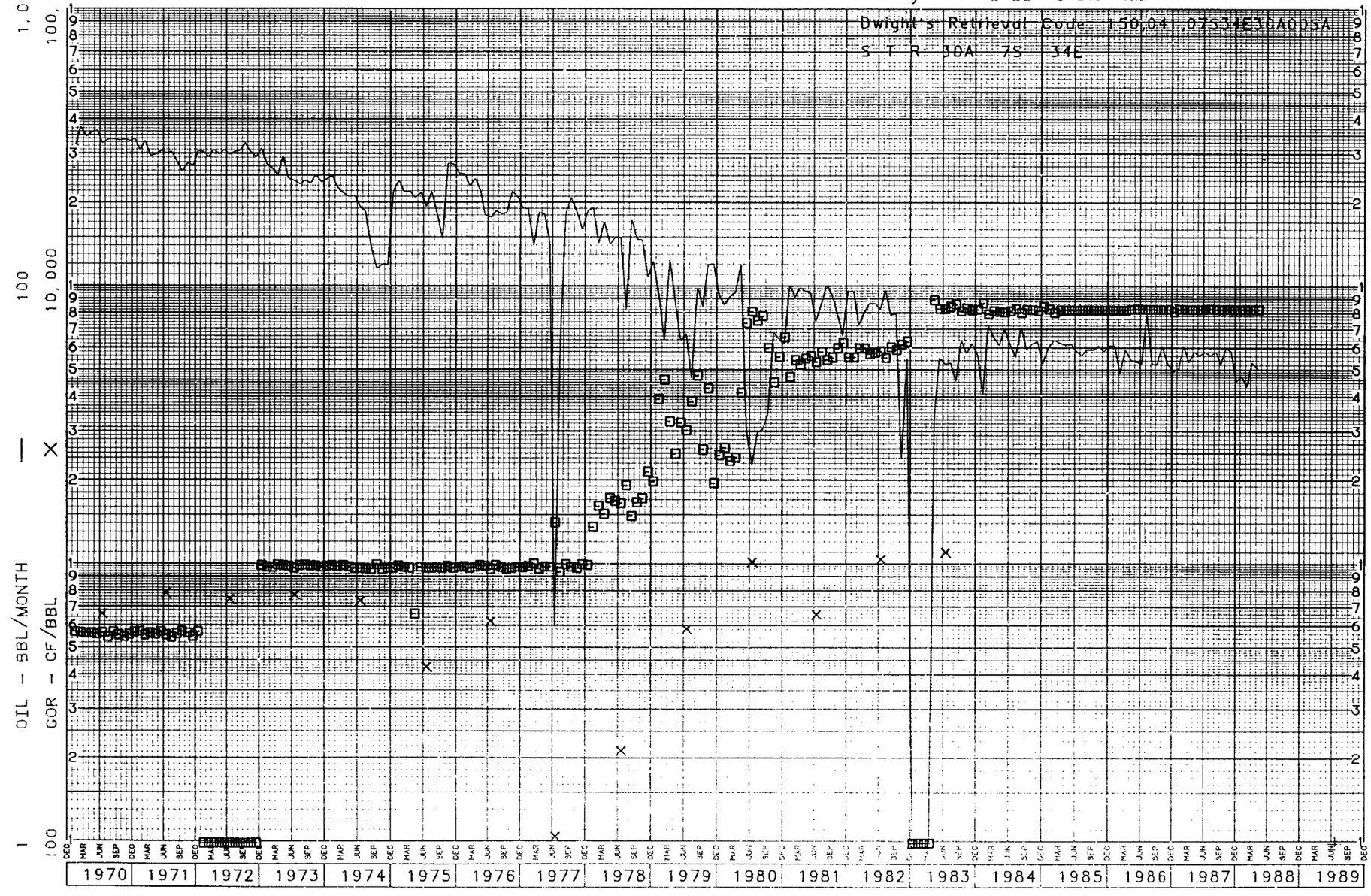
Operator: TEXACO PRODUCING INC
Lease: HOBBS W Well No: 000007
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07534E29E005A
S-T-R-29E 7S 34E

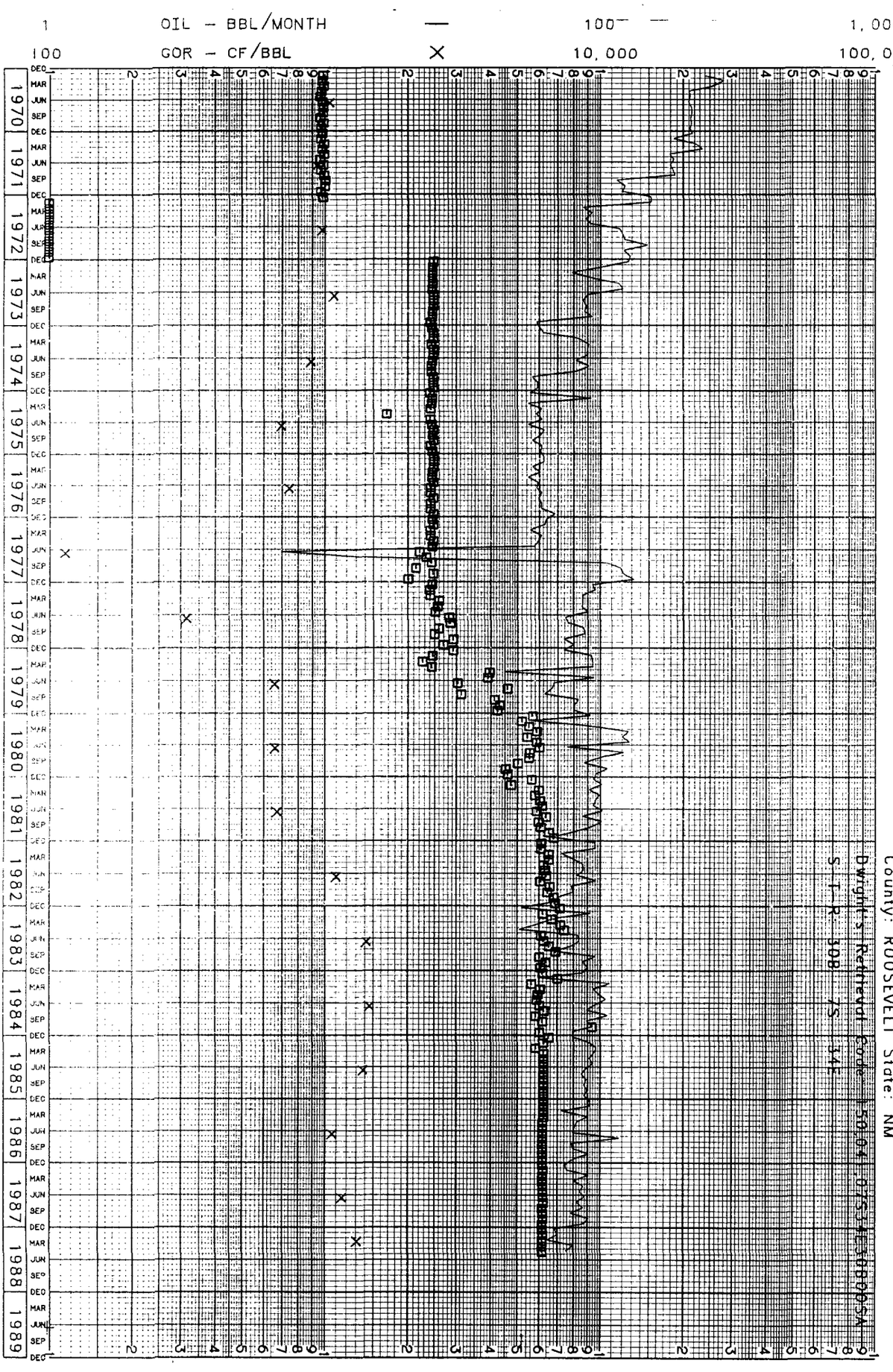


Operator: TEXACO PRODUCING INC
Lease: HOBBS W Well No: 000009
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM



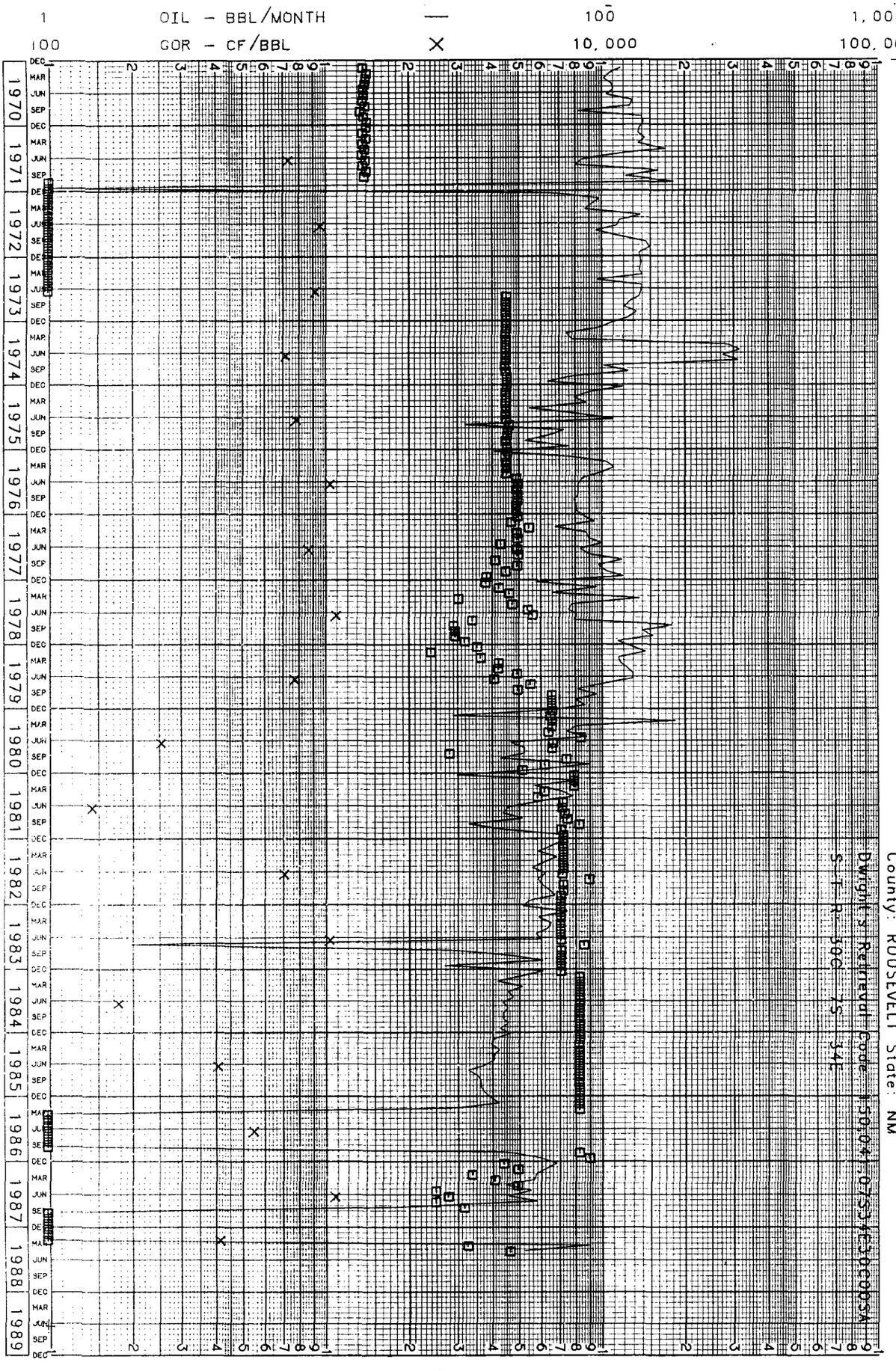
Operator: TEXACO PRODUCING INC
Lease: HOBBS W Well No: 000002
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E30A005A
S T R 30A 7S 34E



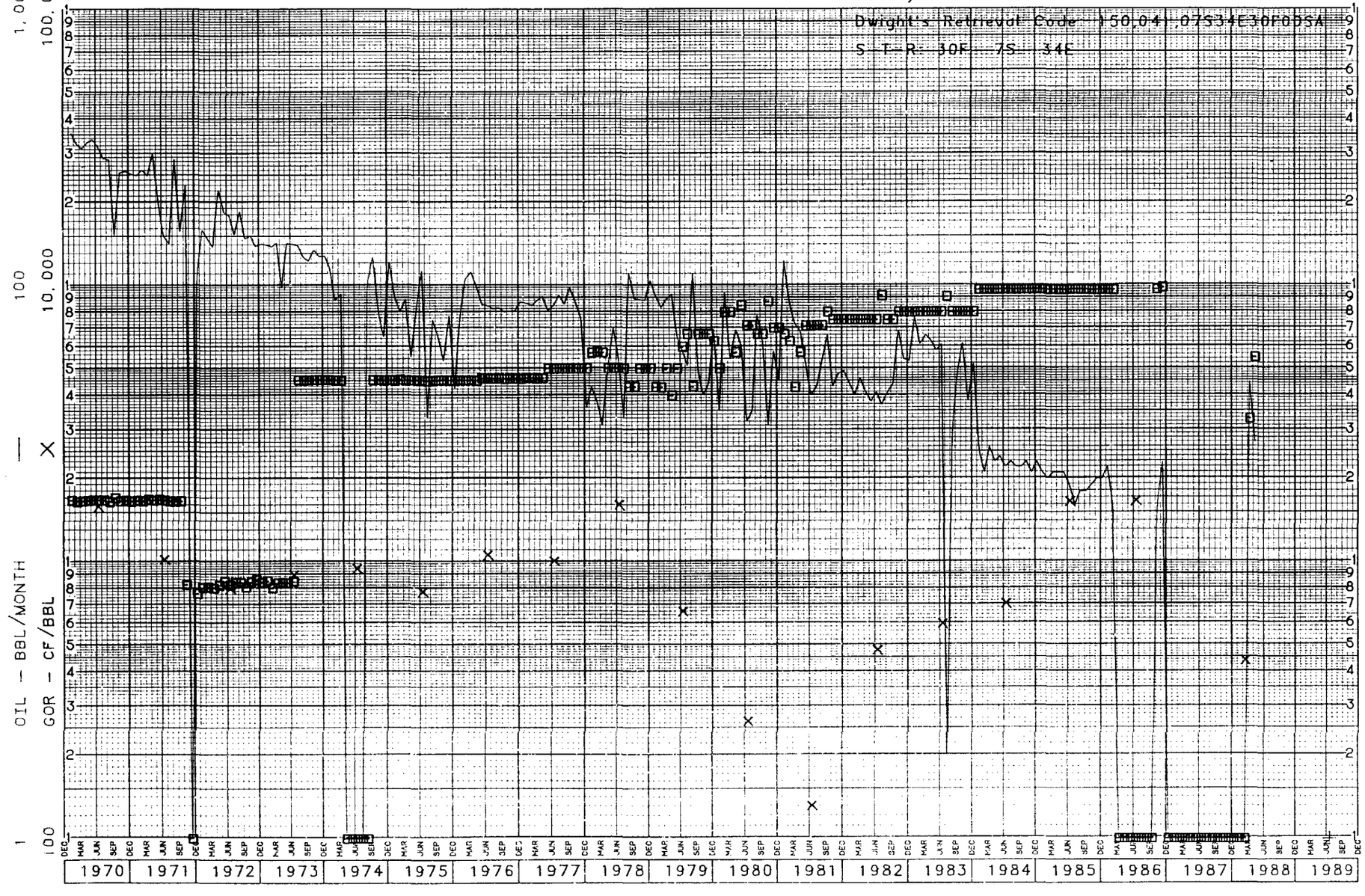

1
OIL – BBL/MONTH
100
1,000
100
GOR – CF/BBL
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
DEC
MAR
JUN
SEP
1
WATER – %
100
Operator: TEXACO PRODUCING INC
Lease: HOBBS W Well No: 000001
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
S-T-R: 30E 7S 34E

91

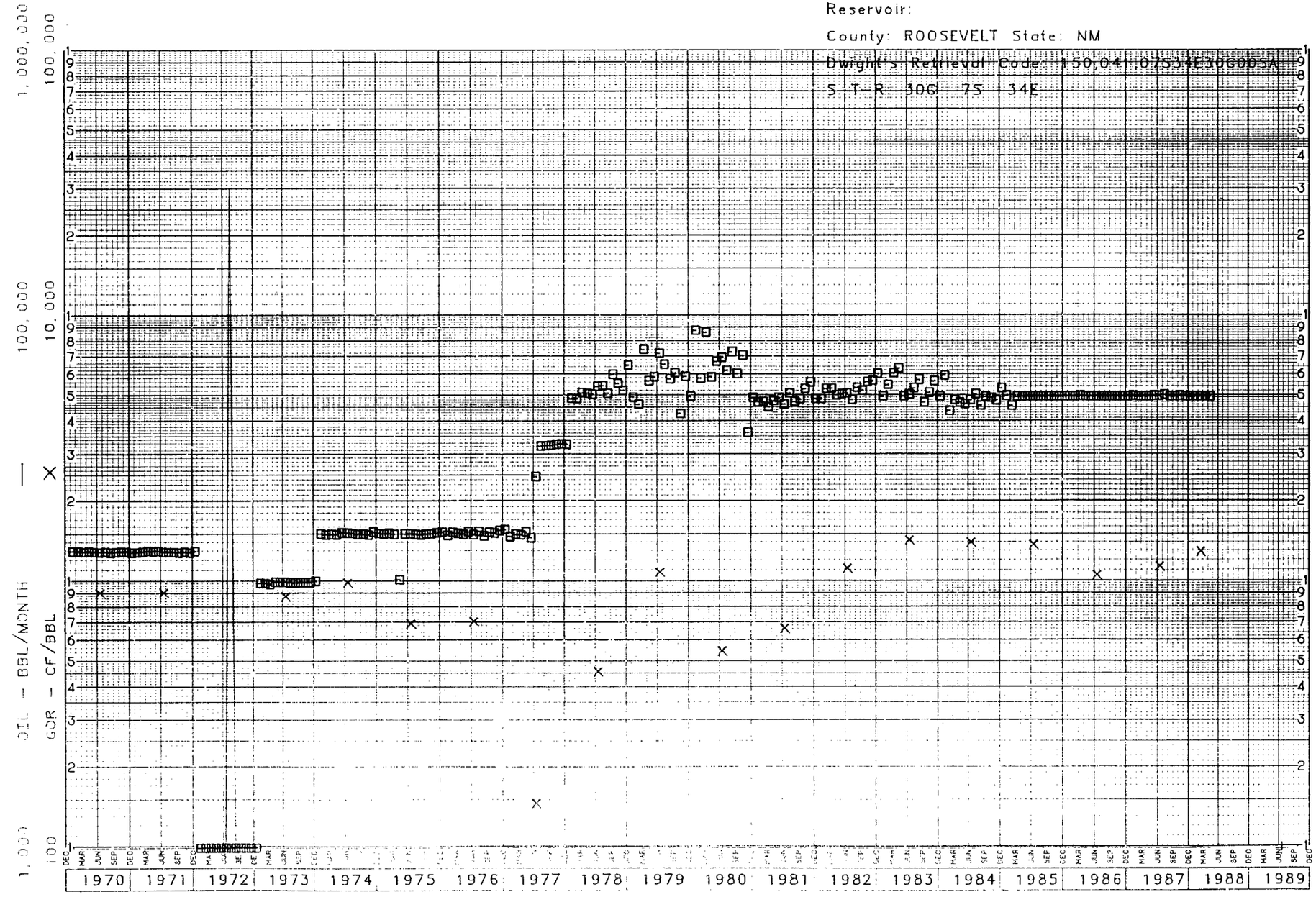
SA

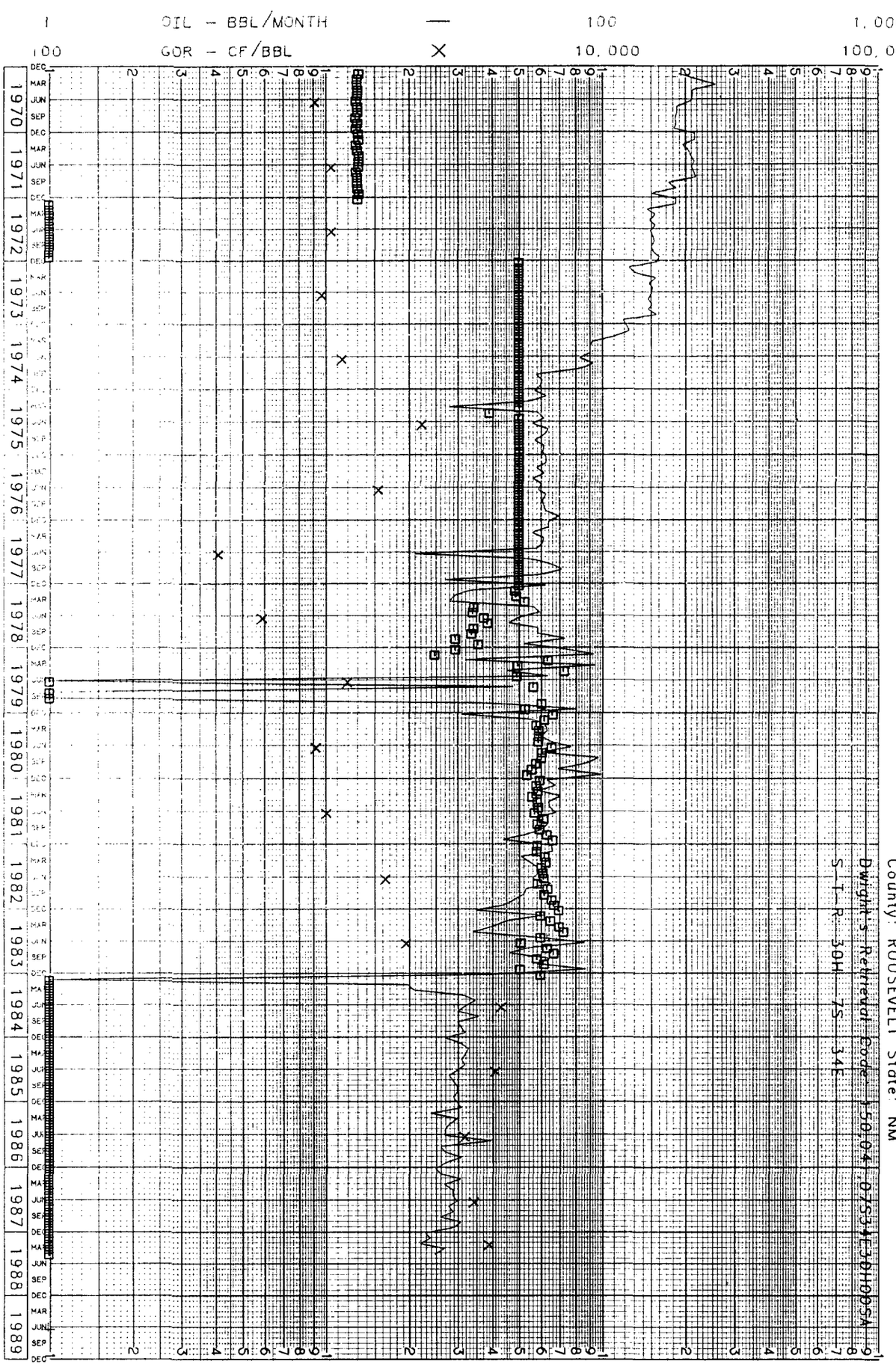

1
OIL – BBL/MONTH
100
1,000
100
GOR – CF/BBL
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
DEC
MAR
JUN
SEP
1
WATER – %
100
Dwight's Retrieval Code 1-30-041-07537-C3-0E005A
S-T-R: 30S-7S-34E
County: ROOSEVELT State: NM
Reservoir:
Field: CHAVEROO SAN ANDRES
Lease: STATE V Well No: 000001
Operator: STRINGER OIL & GAS INC
SA
92

Operator: STRINGER OIL & GAS INC
Lease: STATE V Well No: 000002
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E30F0DSA
S-T-R: 30F-7S-34E



Operator: TEXACO PRODUCING INC
Lease: HOBBS W Well No: 000003
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07534E30G005A
S T R: 30G 7S 34E



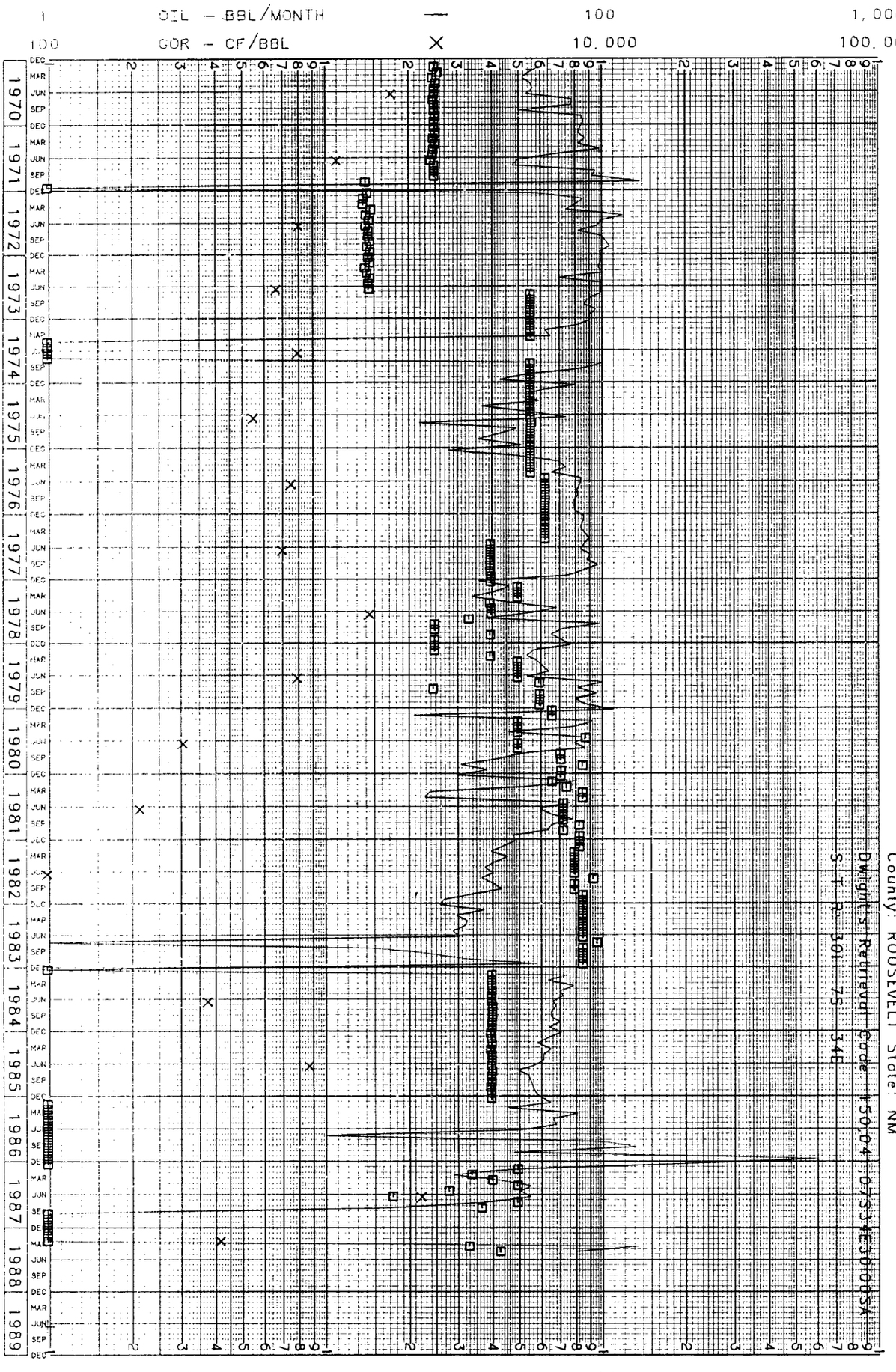


Operator: TEXACO PRODUCING INC
Lease: HOBBS W Well No: 000004
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,04 ,07S,34E,30H,00SA

S T R 30H 7S 34E

SA

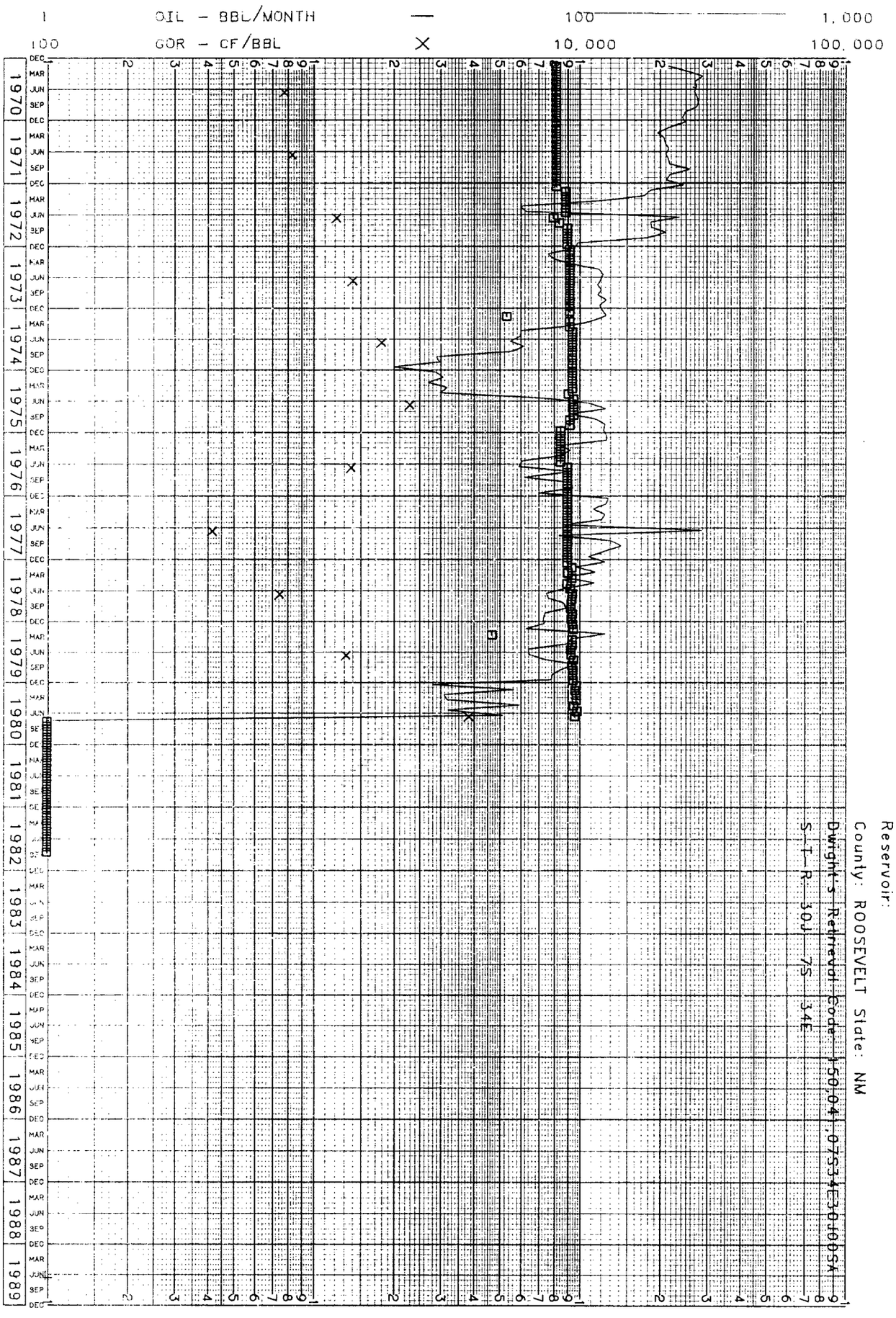
95



Operator: STRINGER OIL & GAS INC
Lease: STATE V Well No: 000004
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code 150,04,07S,33E,30000SX

SA

96

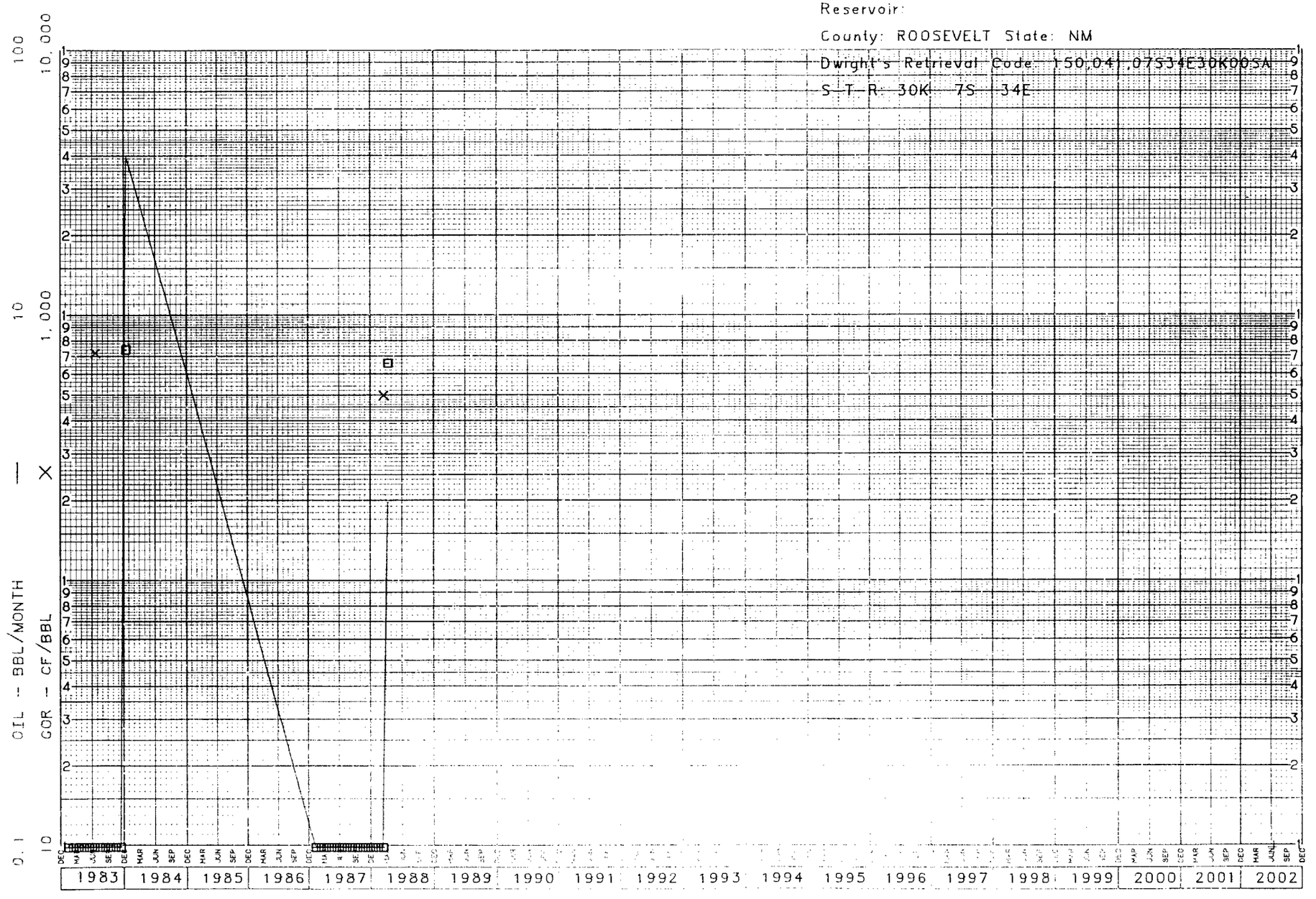


Operator: TEXACO PRODUCING INC
Lease: HOBBS W Well No: 000005
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,04 ,07534E30J00SA
S T R 30J 7S 34E

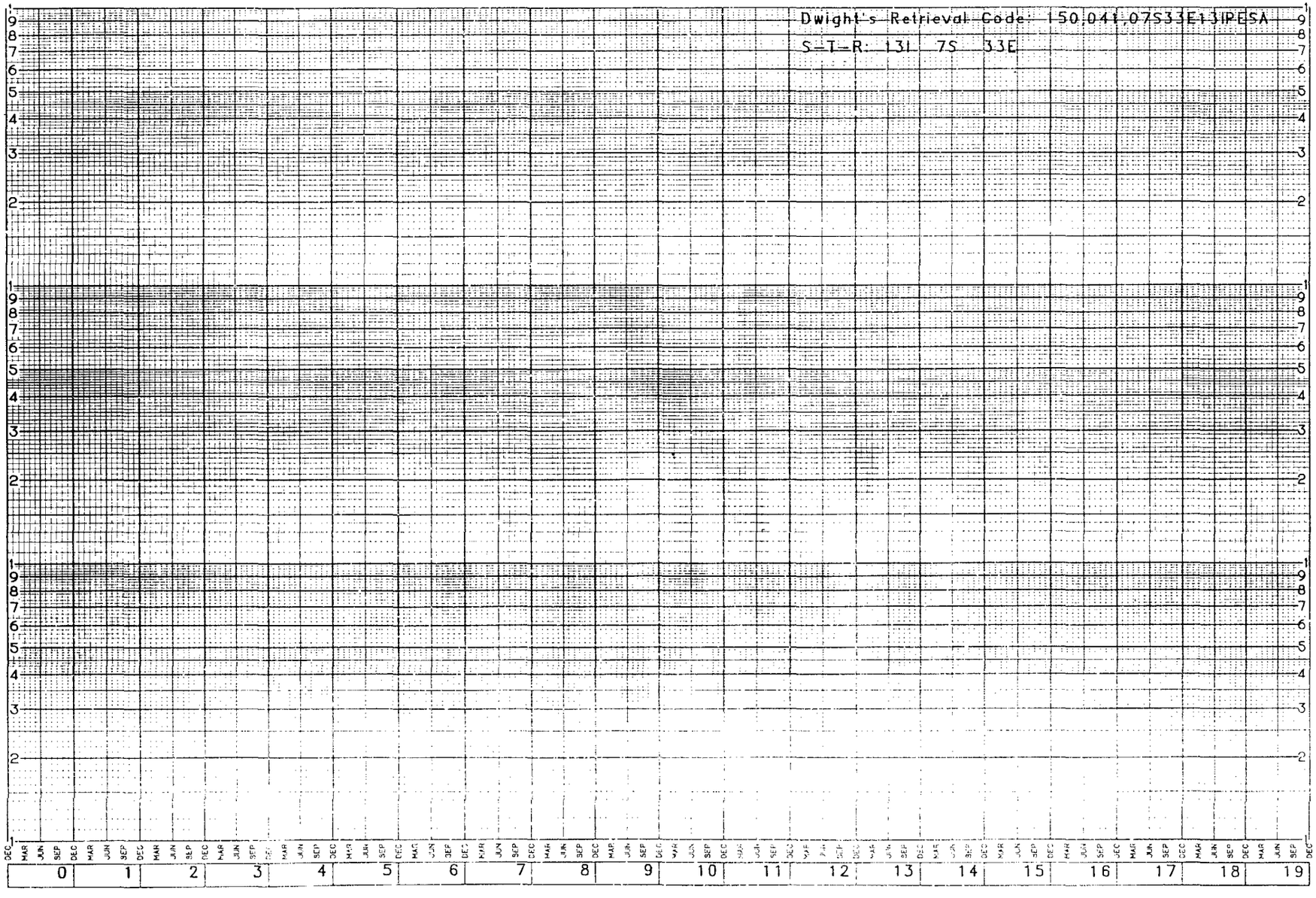
97

SA

Operator: STRINGER OIL & GAS INC
Lease: STATE V Well No: 000003
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S34E30K00SA
S-T-R: 30K-7S-34E

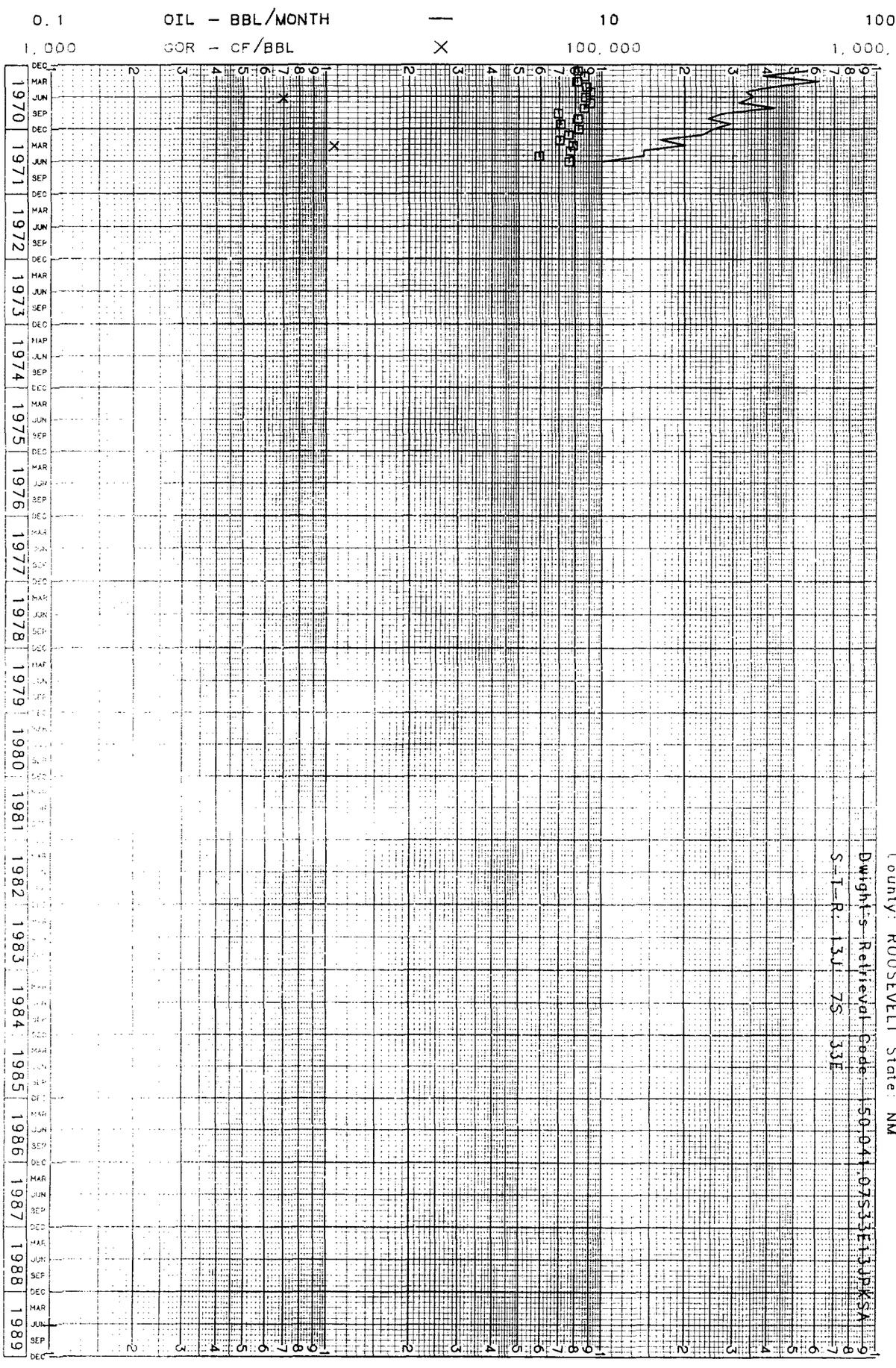


Operator: MIDWEST OIL CORP
Lease: MORGAN FEDERAL TRACT 4 Well No: 000005
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S33E13IPESA
S-T-R: 13 7S 33E



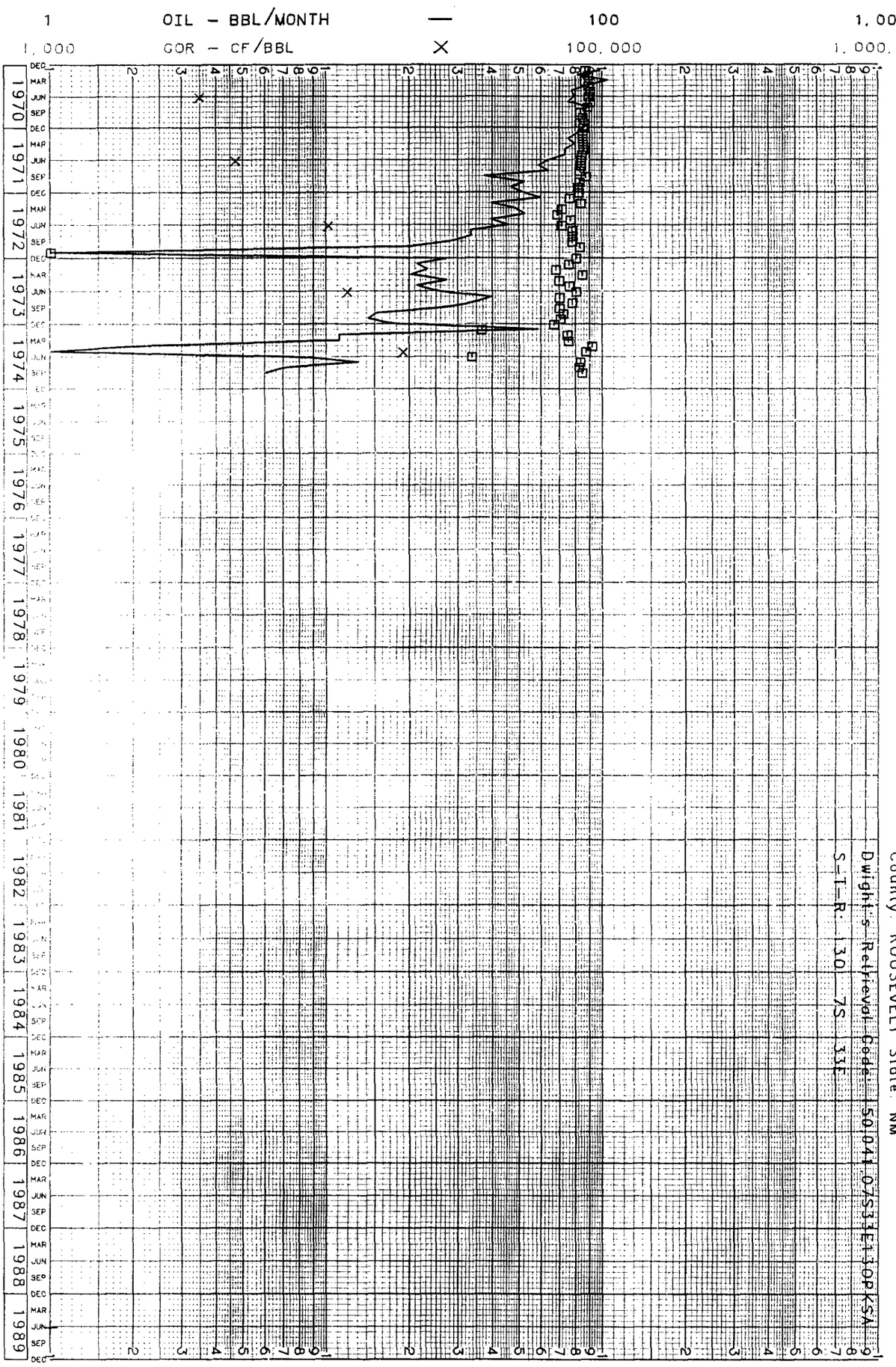
WELLS LOCATED OUTSIDE OF UNIT BOUNDARY BUT WITHIN AREA OF REVIEW

EXHIBIT VIII. 1. 2.



Operator: AMOCO PRODUCTION CO
Lease: MORGAN D FEDERAL Well No: 000006
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150-041-07533-E13-JPKSA
S-T-R: 13J 7S 33E

5A

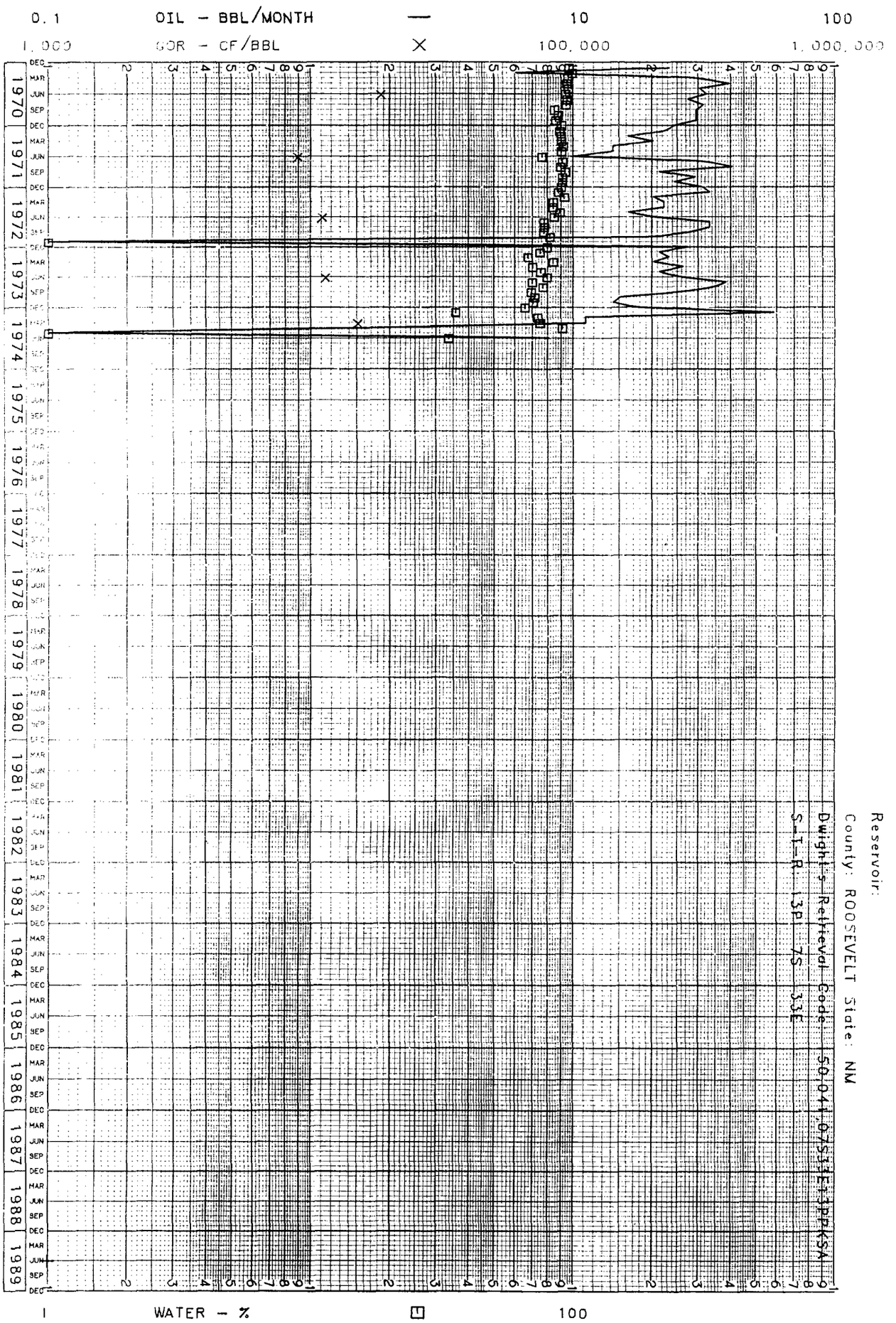


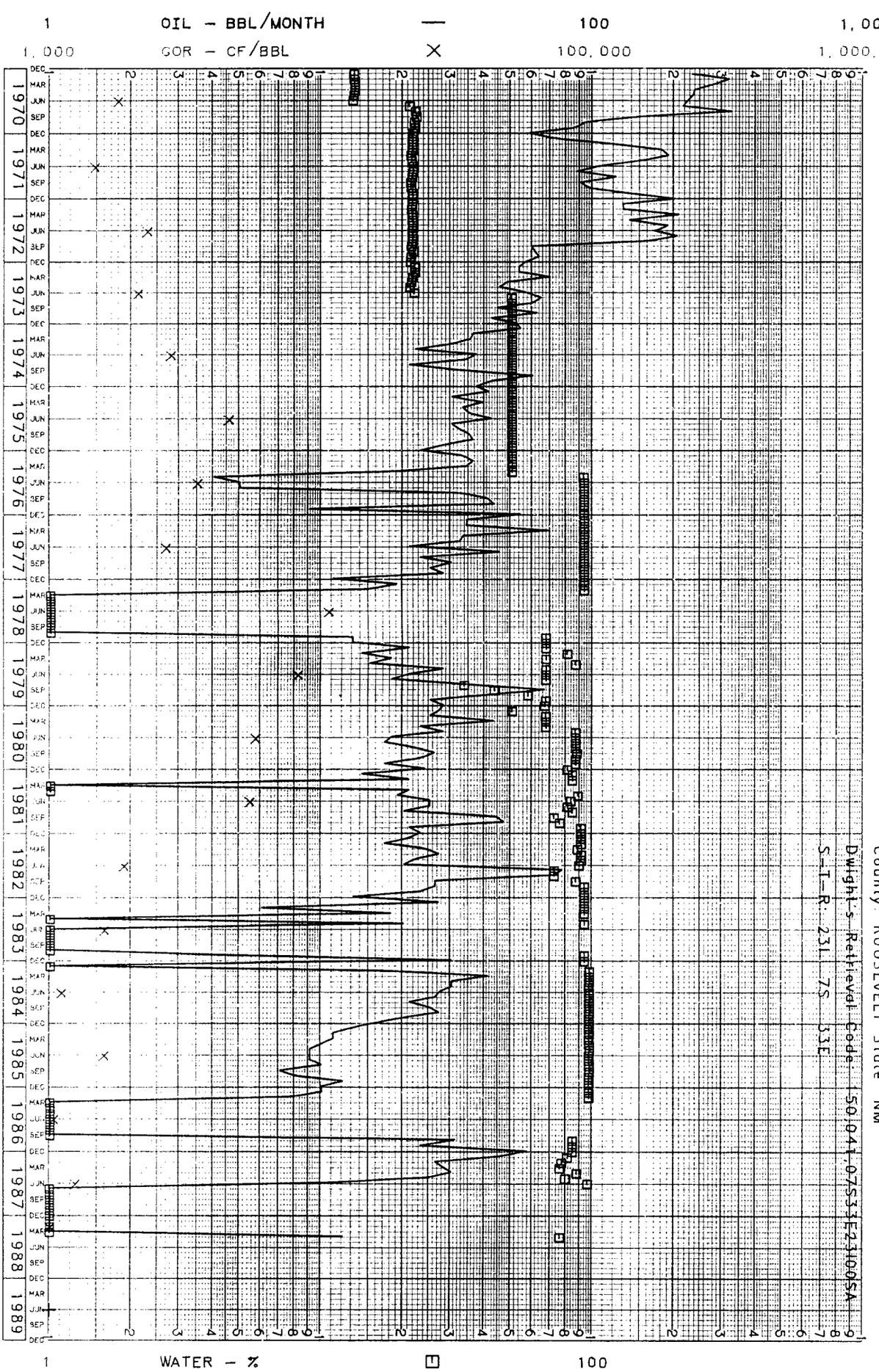
Operator: AMOCO PRODUCTION CO
Lease: MORGAN D FEDERAL Well No: 000003
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

Dwight's Retrieval Code: 50.041.07S.33E.13OP.KSA
S-T-R: 13O 7S 33E

SA

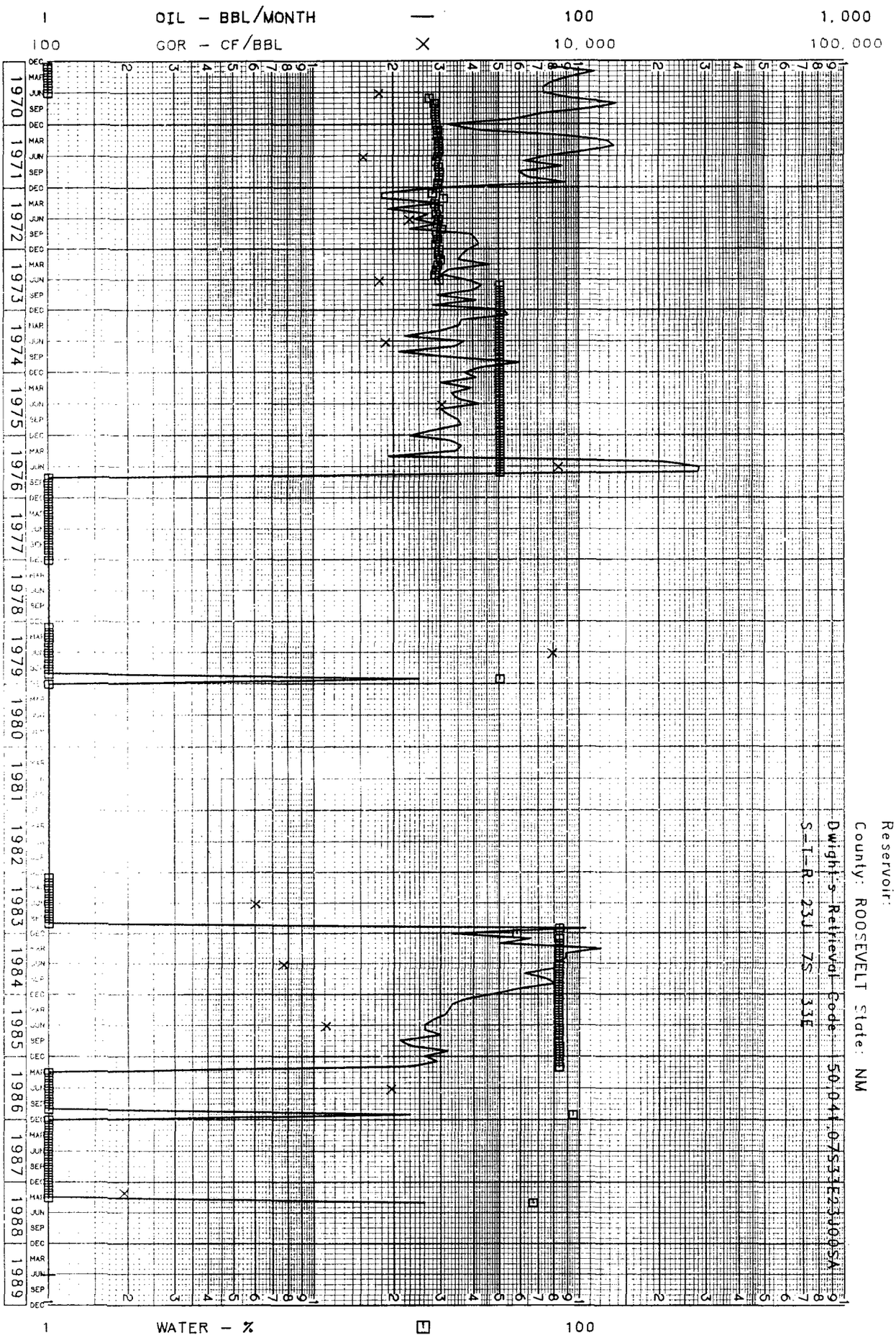
12


0.1
OIL - BBL/MONTH
10
100
1,000
GOR - CF/BBL
100,000
1,000,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1
WATER - %
100
Operator: AMOCO PRODUCTION CO
Lease: MORGAN D FEDERAL Well No: 000004
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 30-041-07515E1PPKSA
S-T-R: 13P 7S 33E



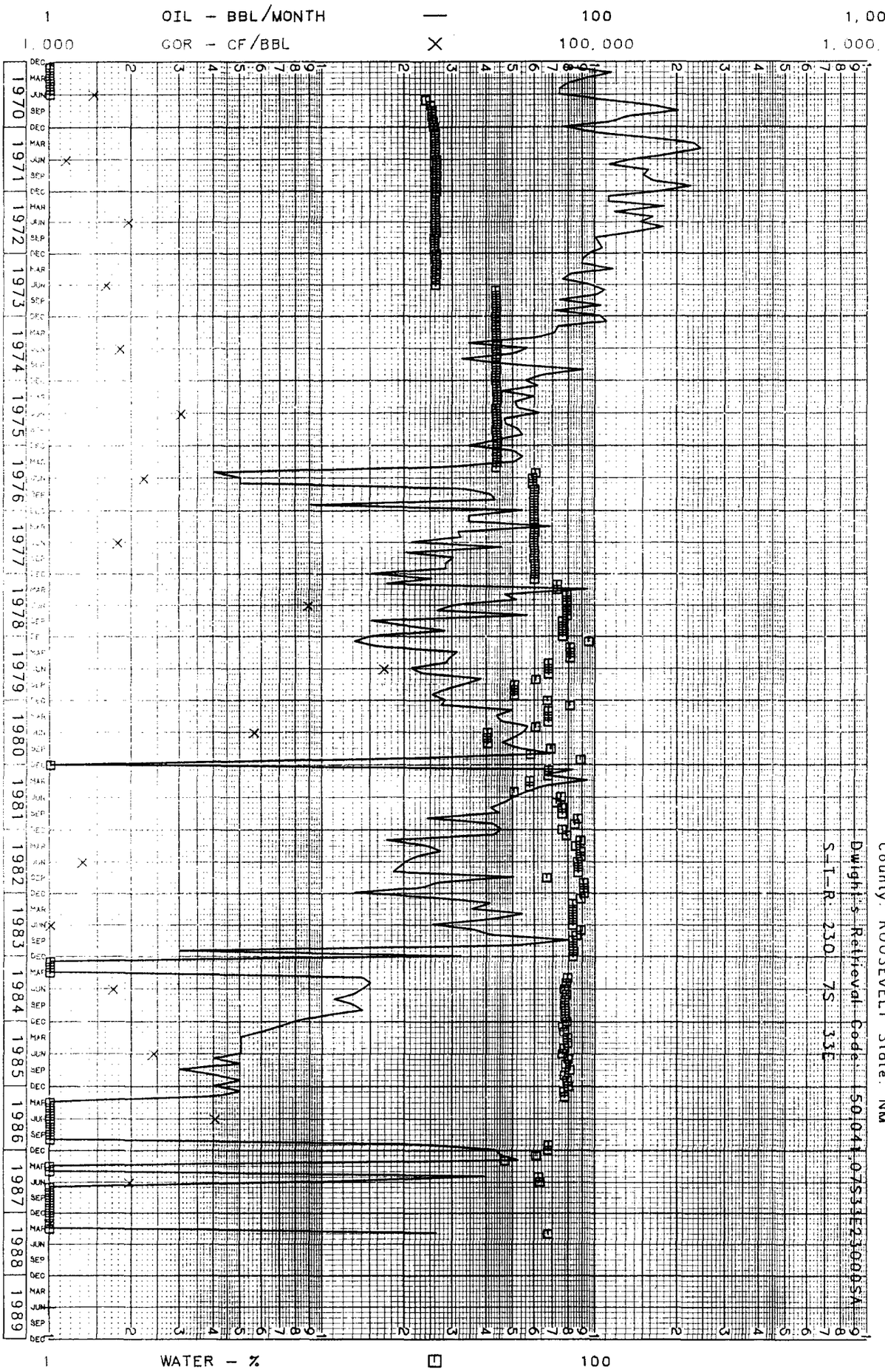
Operator: MIMS TEXAS O&G CO
Lease: FEDERAL 23 Well No: 000008
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

SA


1
OIL – BBL/MONTH
100
1,000
100
GOR – CF/BBL
10,000
100,000
1
WATER – %
100
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
Operator: MIMS TEXAS O&G CO
Lease: FEDERAL 23 Well No: 000007
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50-041-07533-E23J00SA
S-T-R: 23J 7S 33E

15

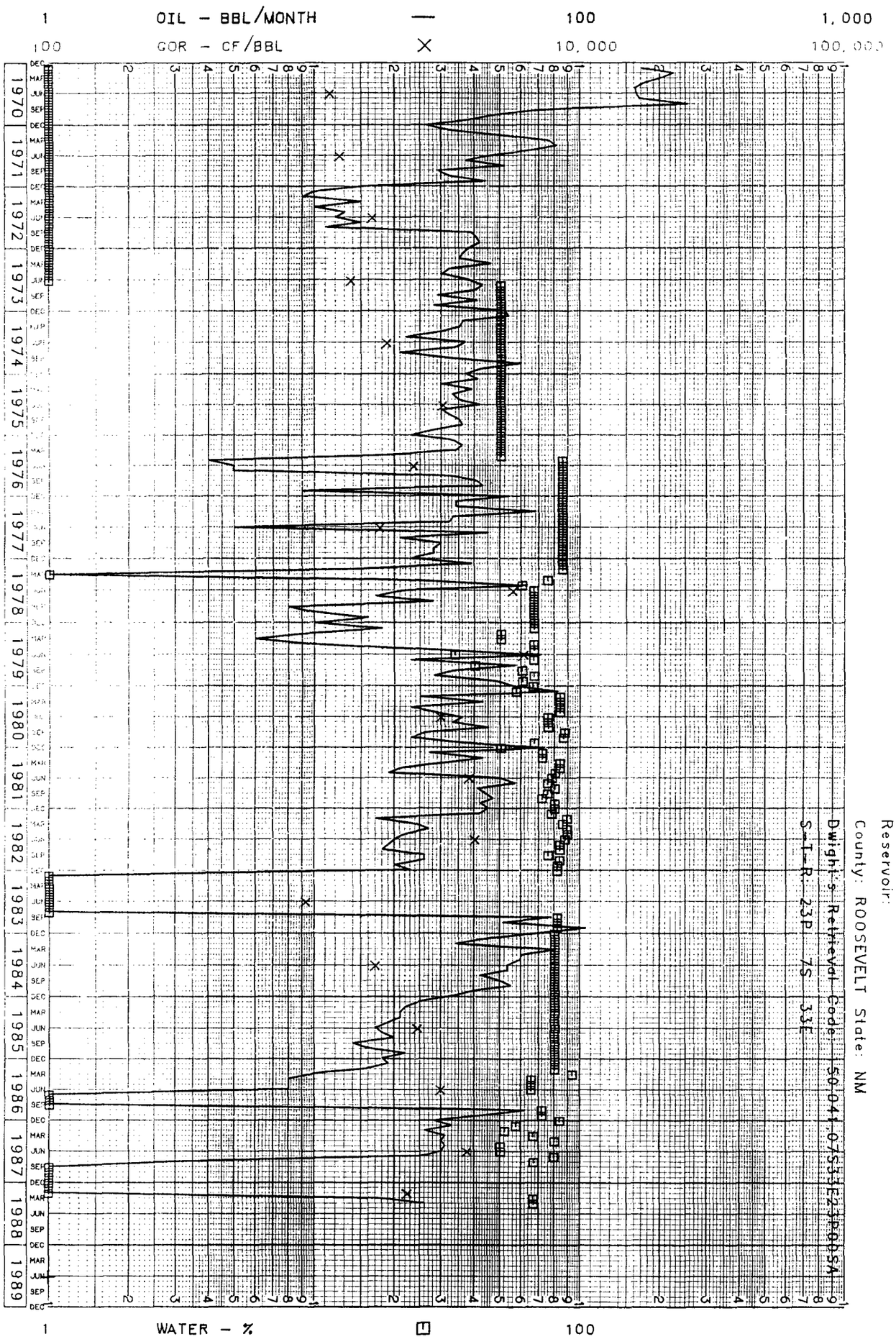
SA



Operator: MIMS TEXAS C&G CO
Lease: FEDERAL 23 Well No. 00003
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50041.07S33E2300SA
S-T-R 23 7S 33E

SA

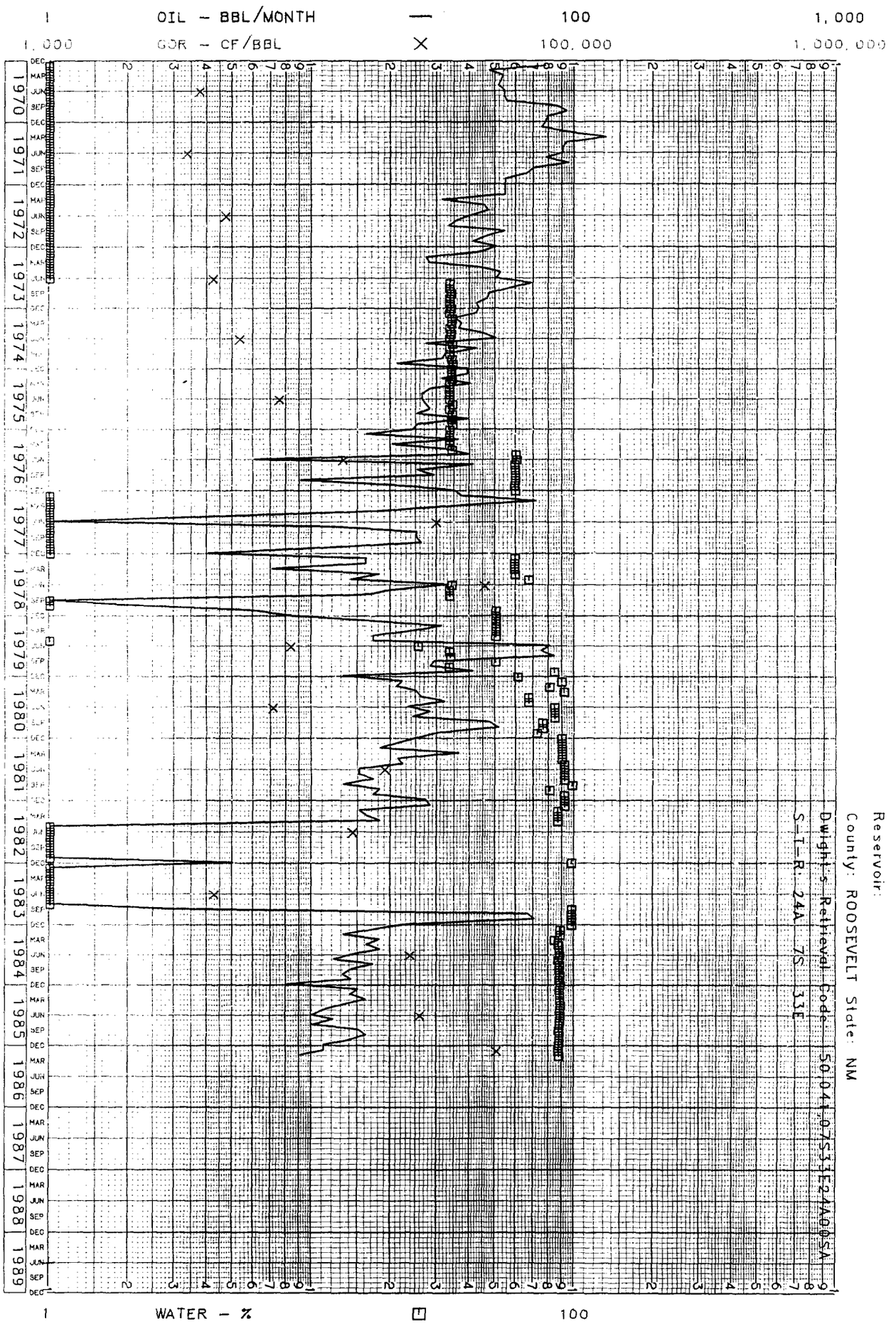
16



Operator: MIMS TEXAS O&G CO
Lease: FEDERAL 23 Well No 000004
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50-041-07535-E-23-P-08-SA
S-T-R: 23P 7S 33E

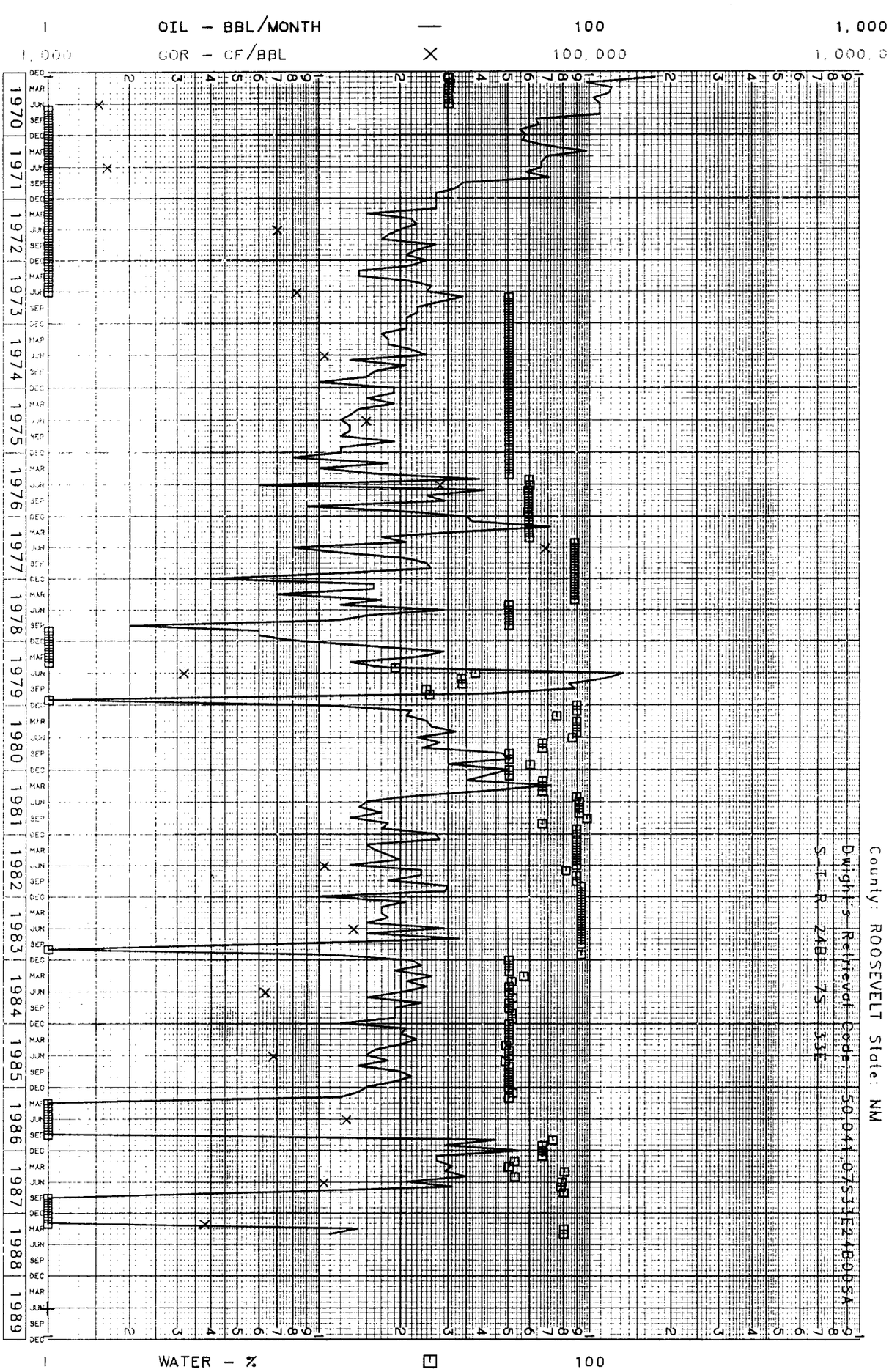
SA

17

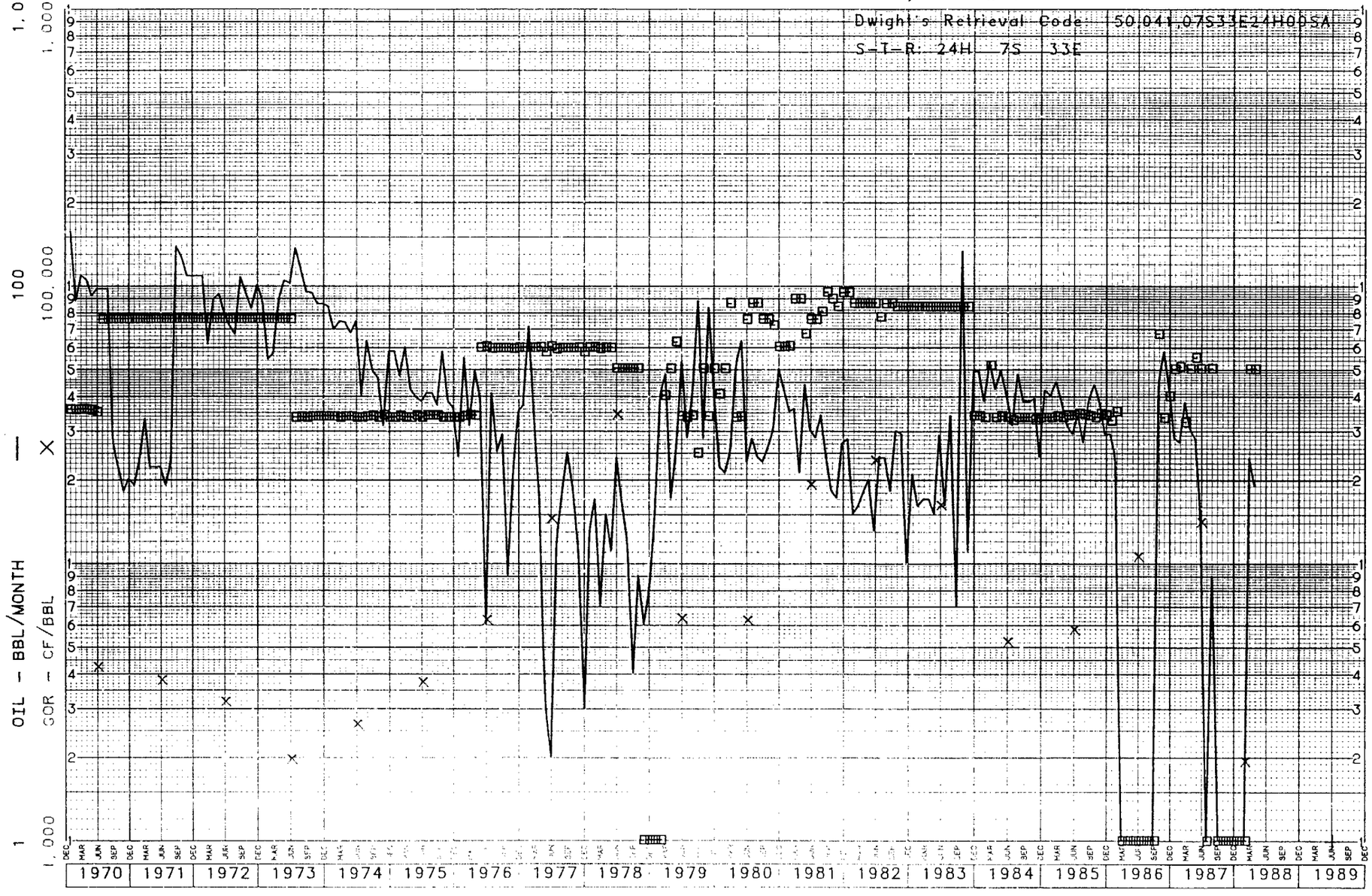


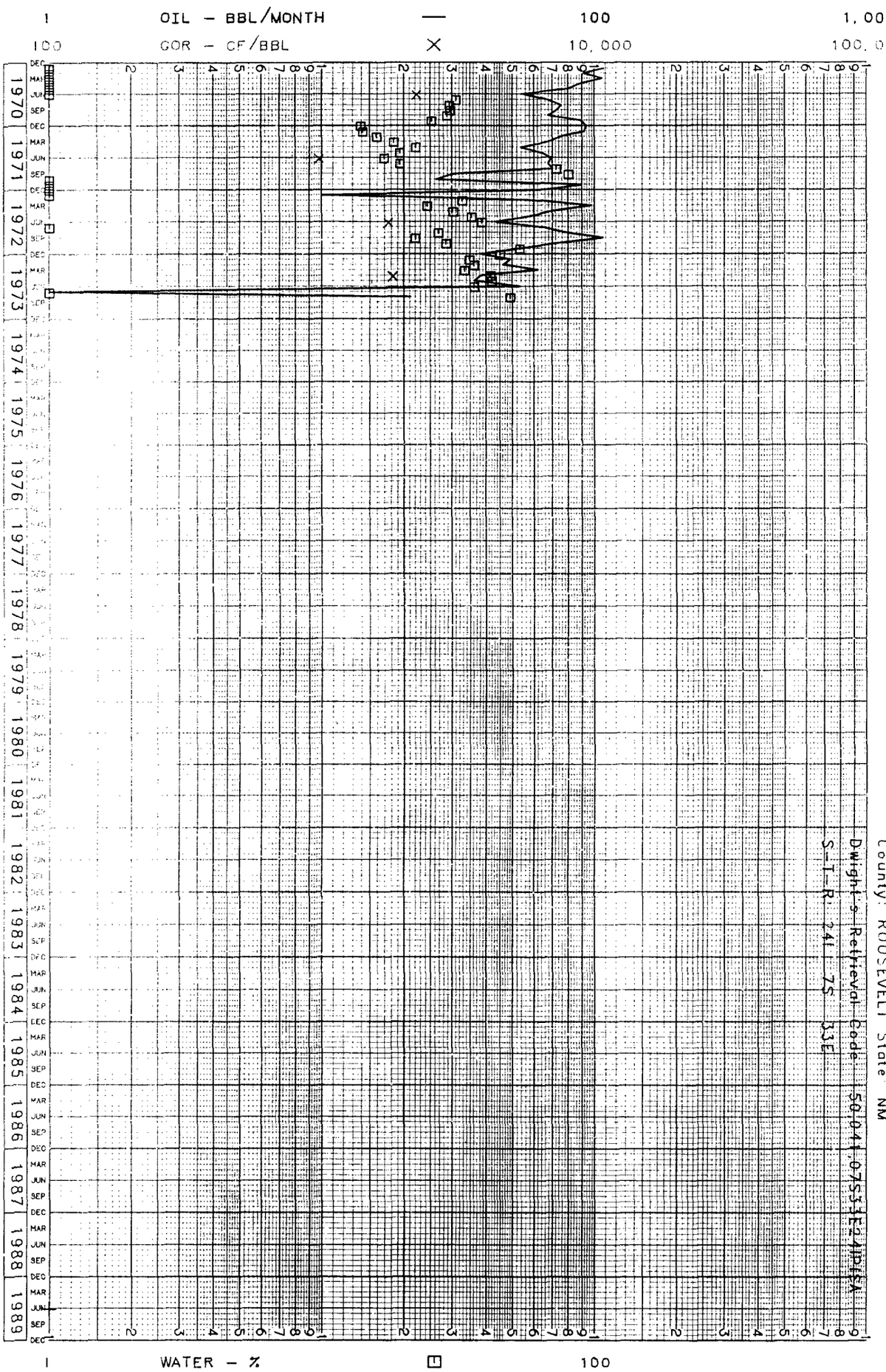
Operator: MIMS TEXAS O&G CO
Lease: FEDERAL 24 Well No 000008
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50,041,07533,E2,4A,0SA
S-T-R: 24A 7S 33E

SA


OIL - BBL/MONTH
GOR - CF/BBL
WATER - %
1
100
1,000
1,000
100,000
1,000,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
Operator: MIMS TEXAS O&G CO
Lease: FEDERAL 24 Well No: 000007
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50-041-07531-24-00-SA
S-T-R: 24B 7S 33E
SA

Operator: MIMS TEXAS O&G CO
Lease: FEDERAL 24 Well No: 000005
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50,041,07S33E24H00SA
S-T-R: 24H 7S 33E





Operator: MILFORD PIPE & SUPPLY

Lease: BRADLEY Well No. 000003

Field: CHAVEROO SAN ANDRES

Reservoir:

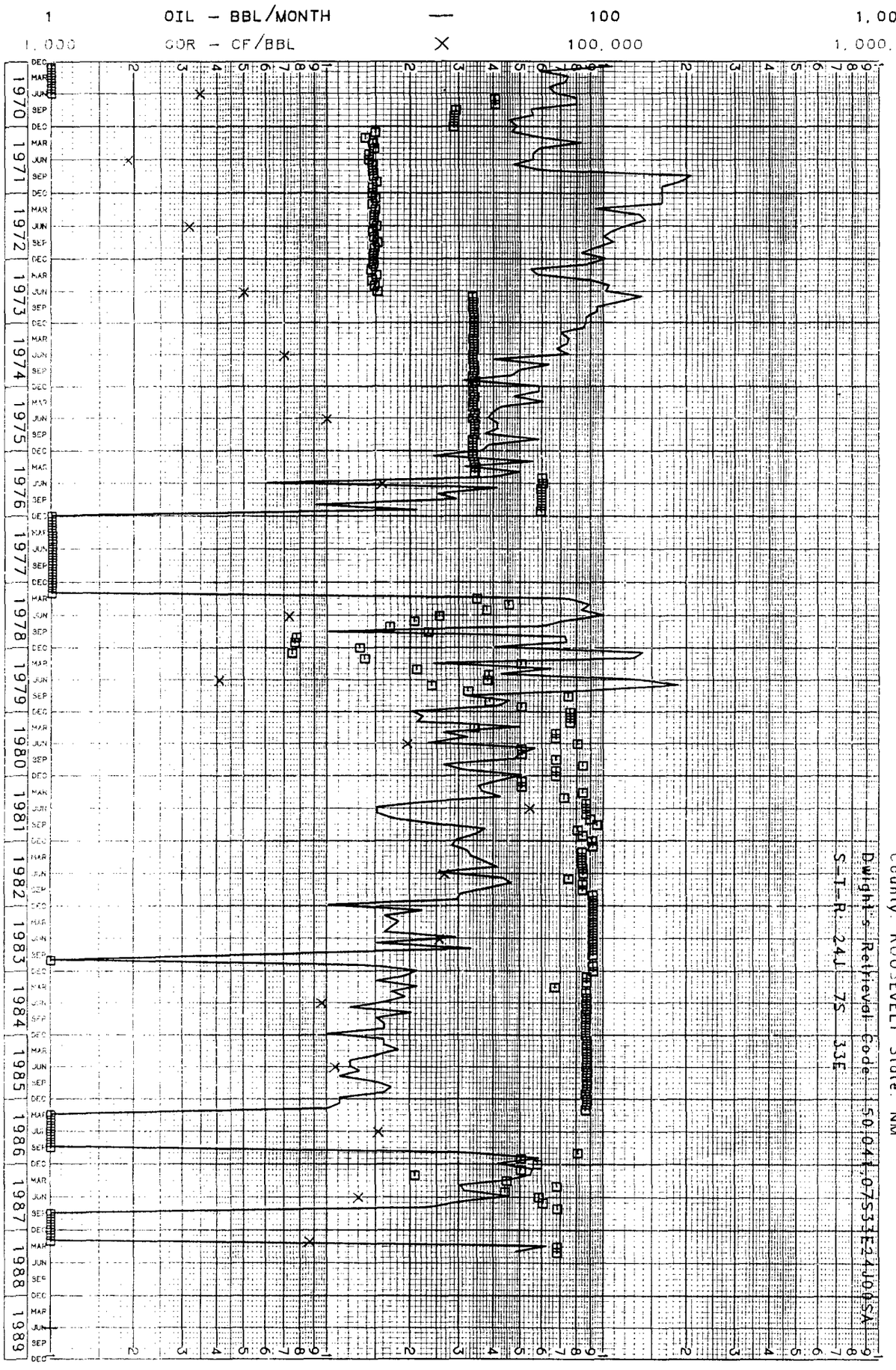
County: ROOSEVELT State NM

Dwight's Retrieval Code: 50041075333E2 APIEA

S-T-R: 24 7S 33E

SA

21



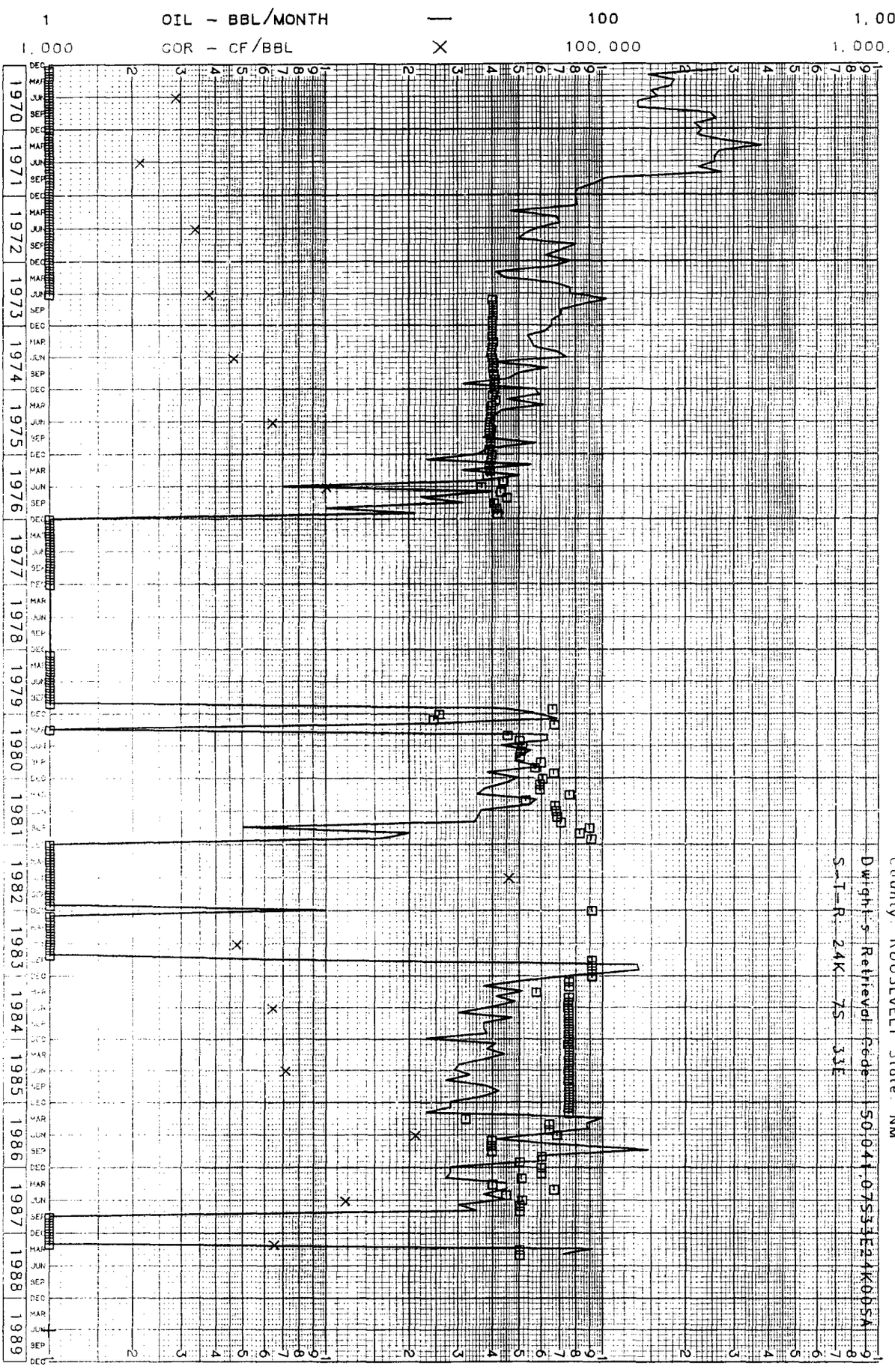
Operator: MIMS TEXAS O&G CO
Lease: FEDERAL 24 Well No: 000002
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM

Dwight's Retrieval Code: 50,041,07533E24J00SA

S-T-R: 24J 7S 33E

SA

22



Operator: MIMS TEXAS O&G CO

Lease: FEDERAL 24 Well No: 000001

Field: CHAVEROO SAN ANDRES

Reservoir:

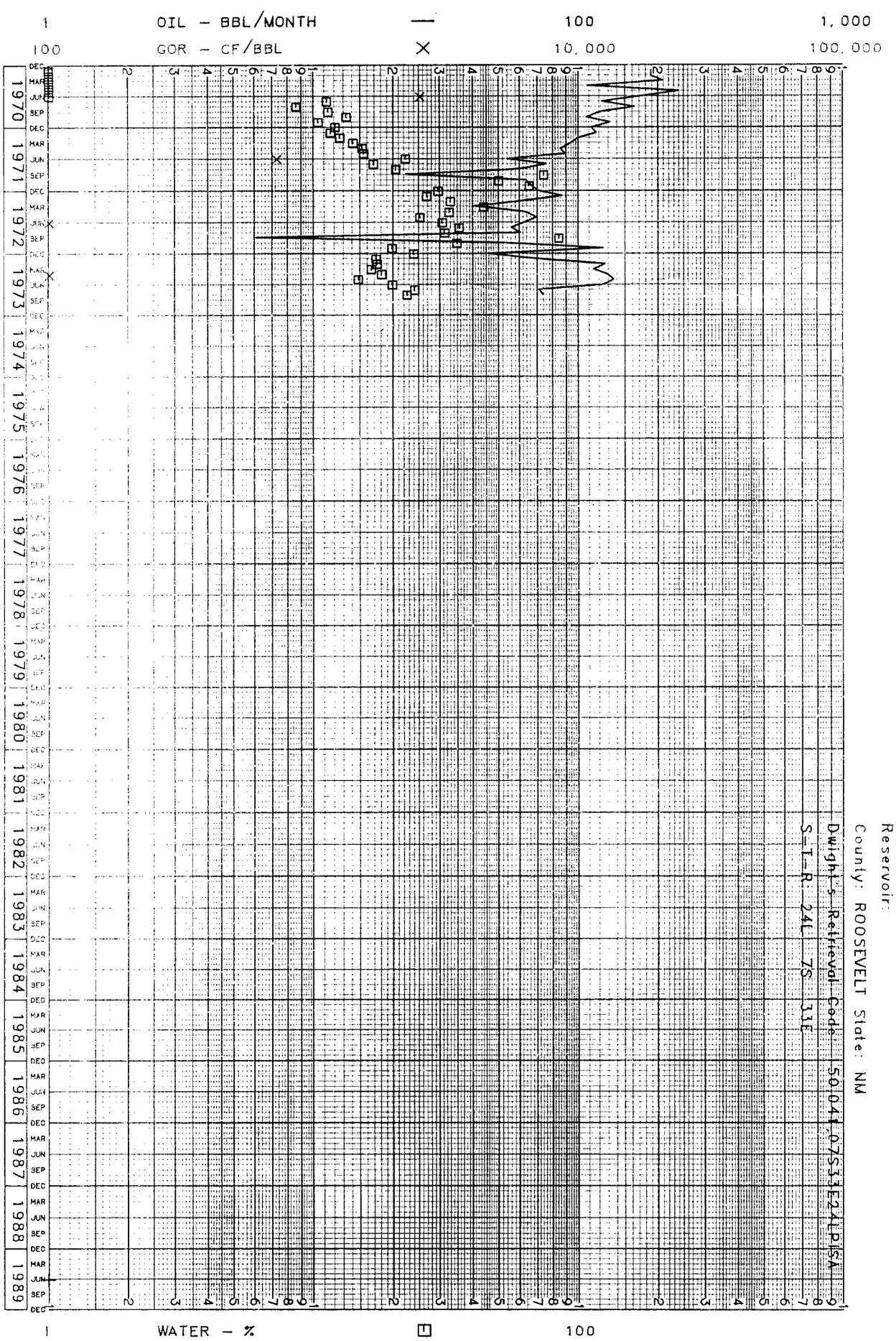
County: ROOSEVELT State: NM

Dwight's Retrieval Code: 30-041-07533-E24K00SA

S-T-R: 24K 7S 33E

SA

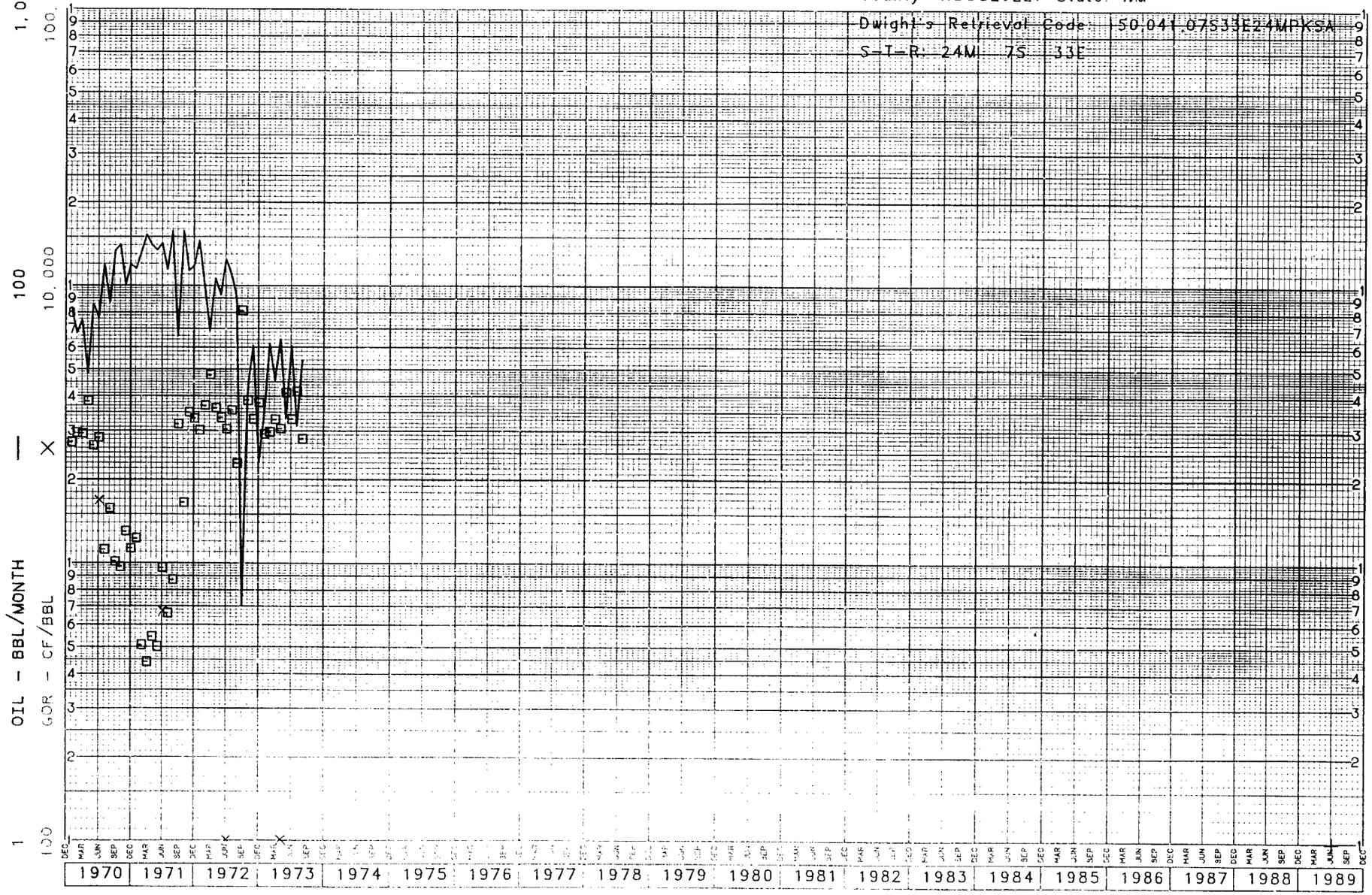
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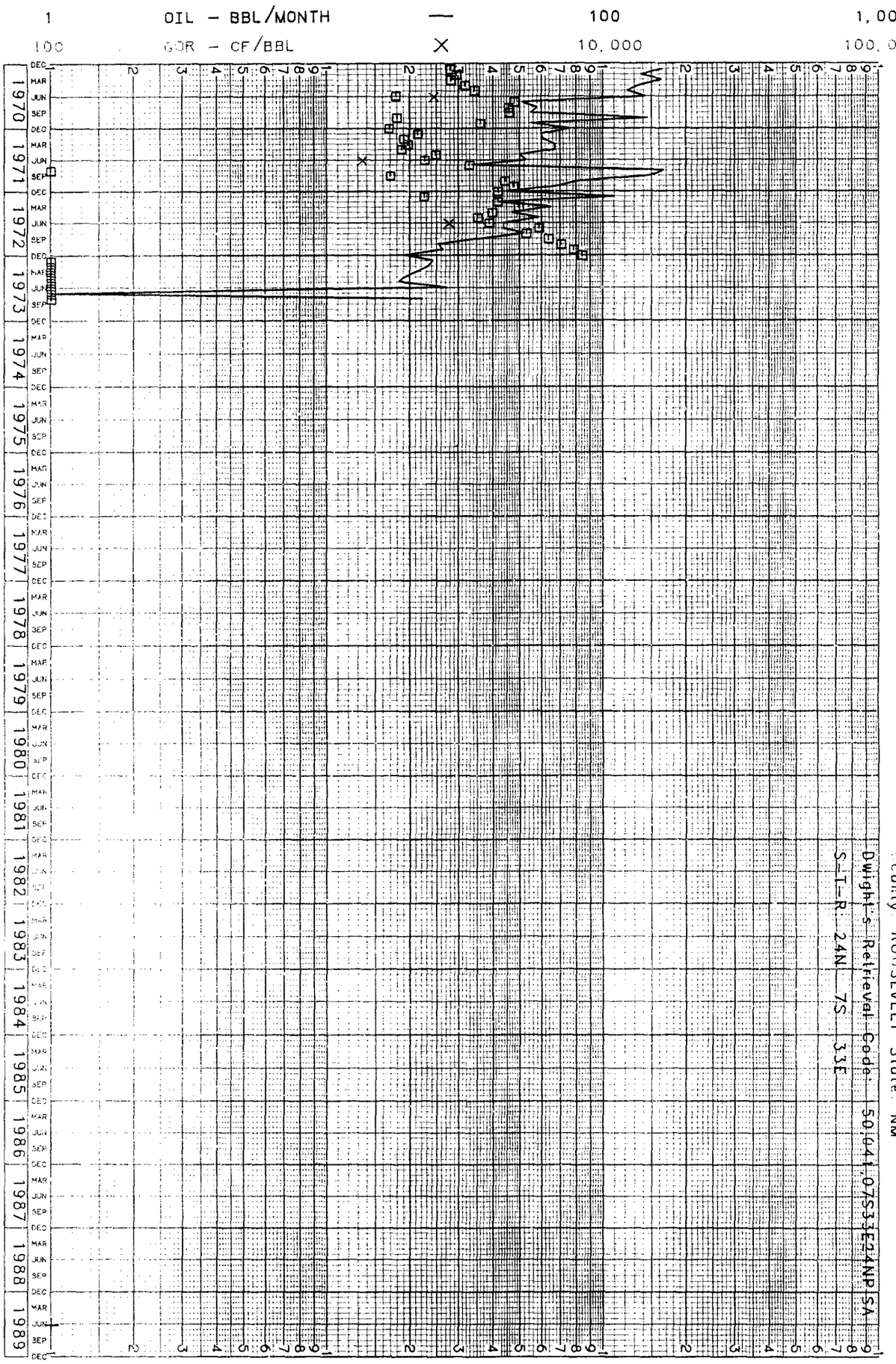


Operator: MILFORD PIPE & SUPPLY
Lease: COLEMAN Well No: 000002
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50,041,07533E24LPISA
S-T-R: 24L 7S 33E

SA

Operator: MILFORD PIPE & SUPPLY
Lease: COLEMAN Well No 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50,041,07S33E24MPKSA
S-T-R: 24M 7S 33E





Operator: MILFORD PIPE & SUPPLY

Lease: BRADLEY Well No: 000001

Field: CHAVEROO SAN ANDRES

Reservoir:

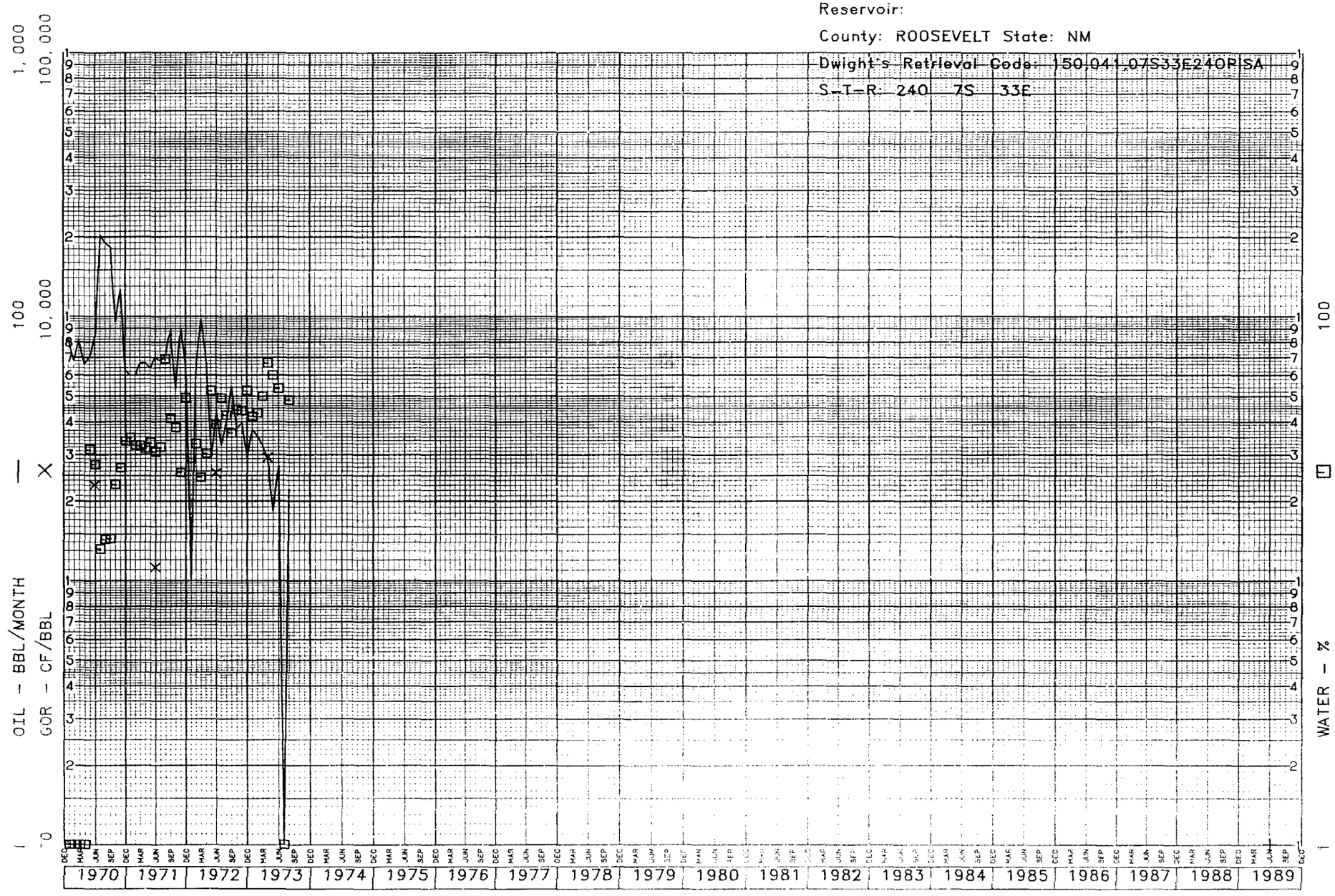
County: ROOSEVELT State: NM

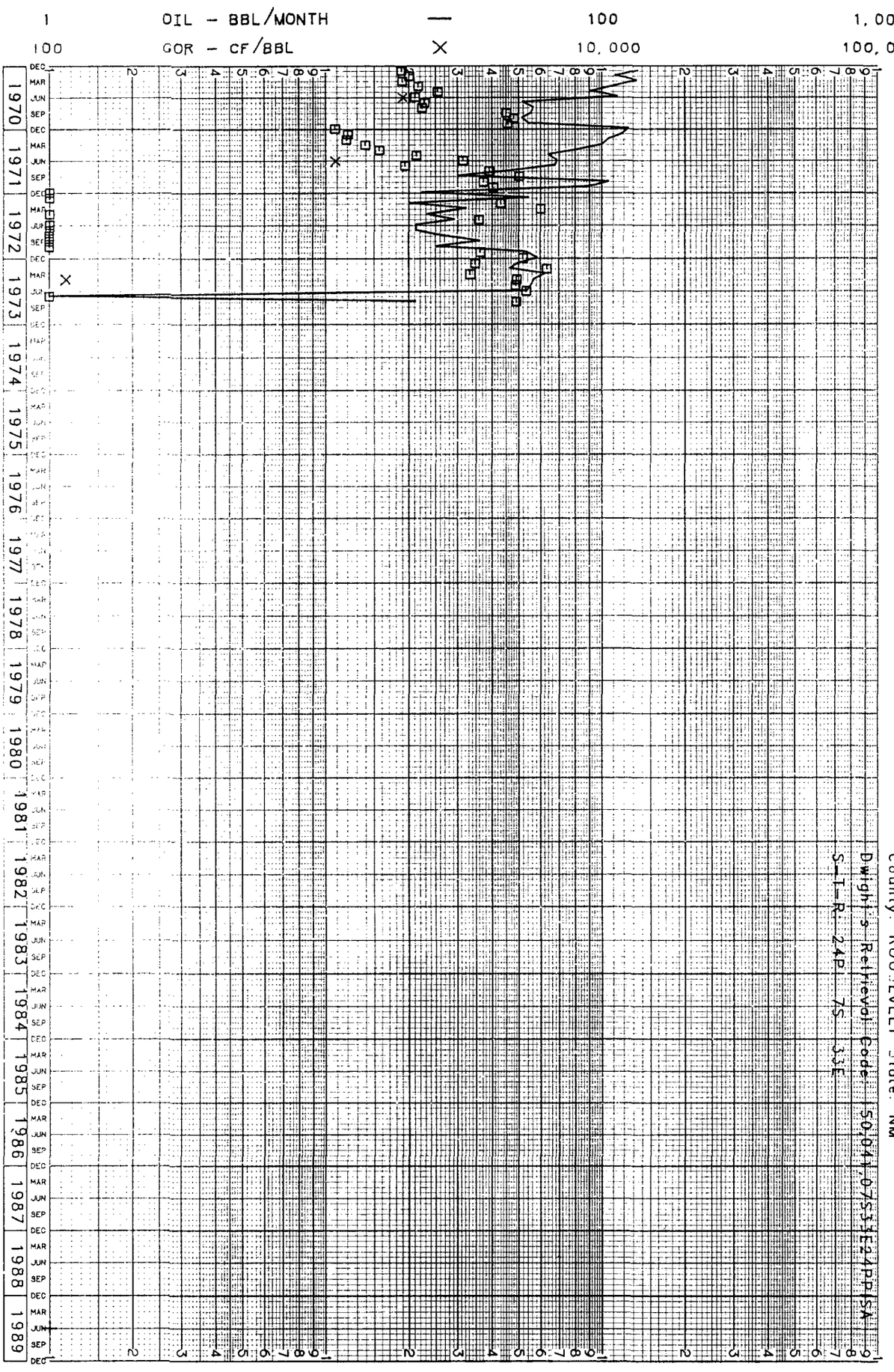
Dwight's Retrieval Code: 50,041,07S33E24NPSA

S-T-R: 24N 7S 33E

SA

Operator: MILFORD PIPE & SUPPLY
Lease: BRADLEY Well No: 000002
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150041_07S33E240RSA
S-T-R: 240 7S 33E



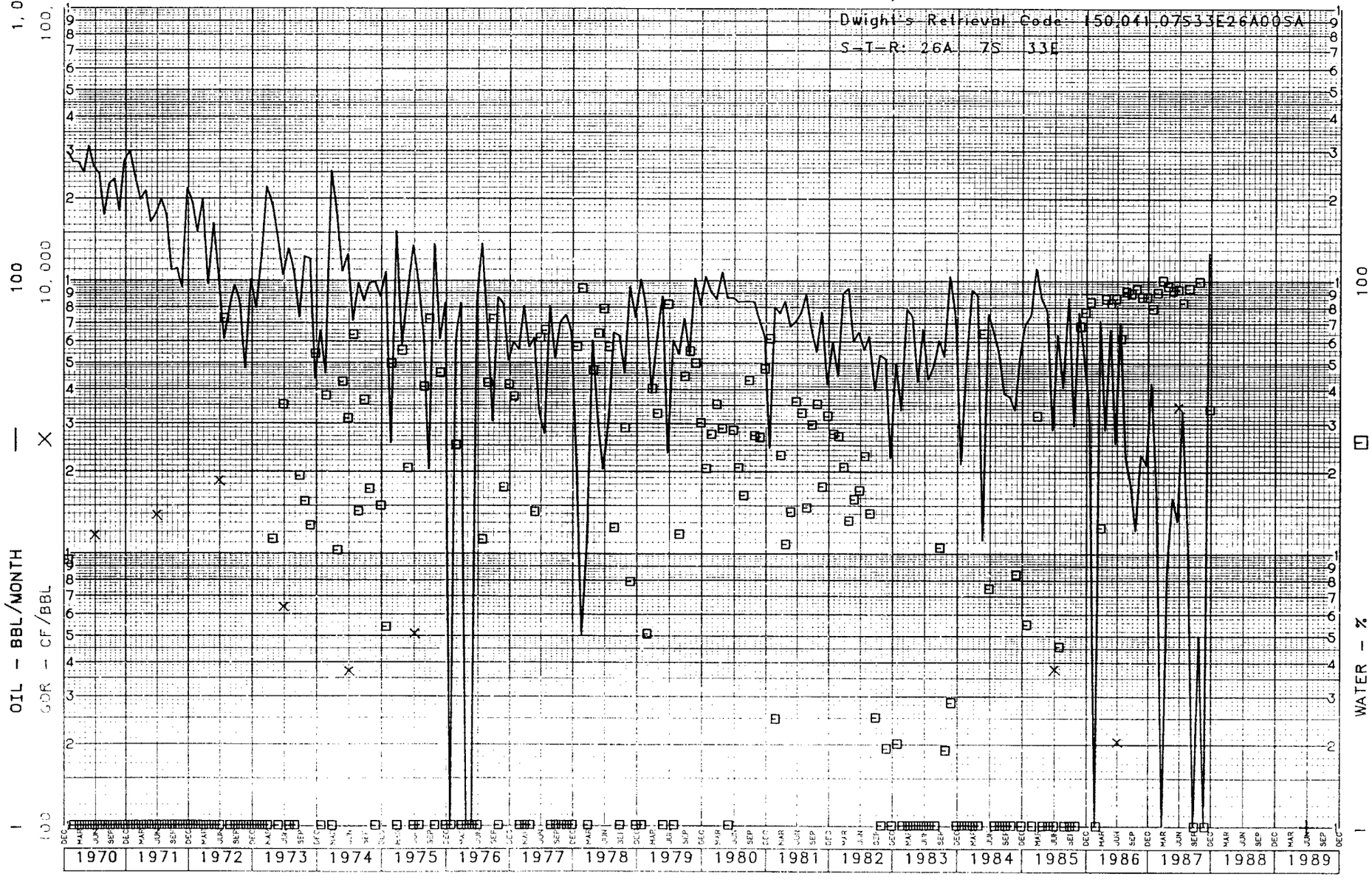


Operator: MILFORD PIPE & SUPPLY
Lease: BRADLEY Well No: 000004
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50-041-07533E24PPISA
S-T-R: 24P 7S 33E

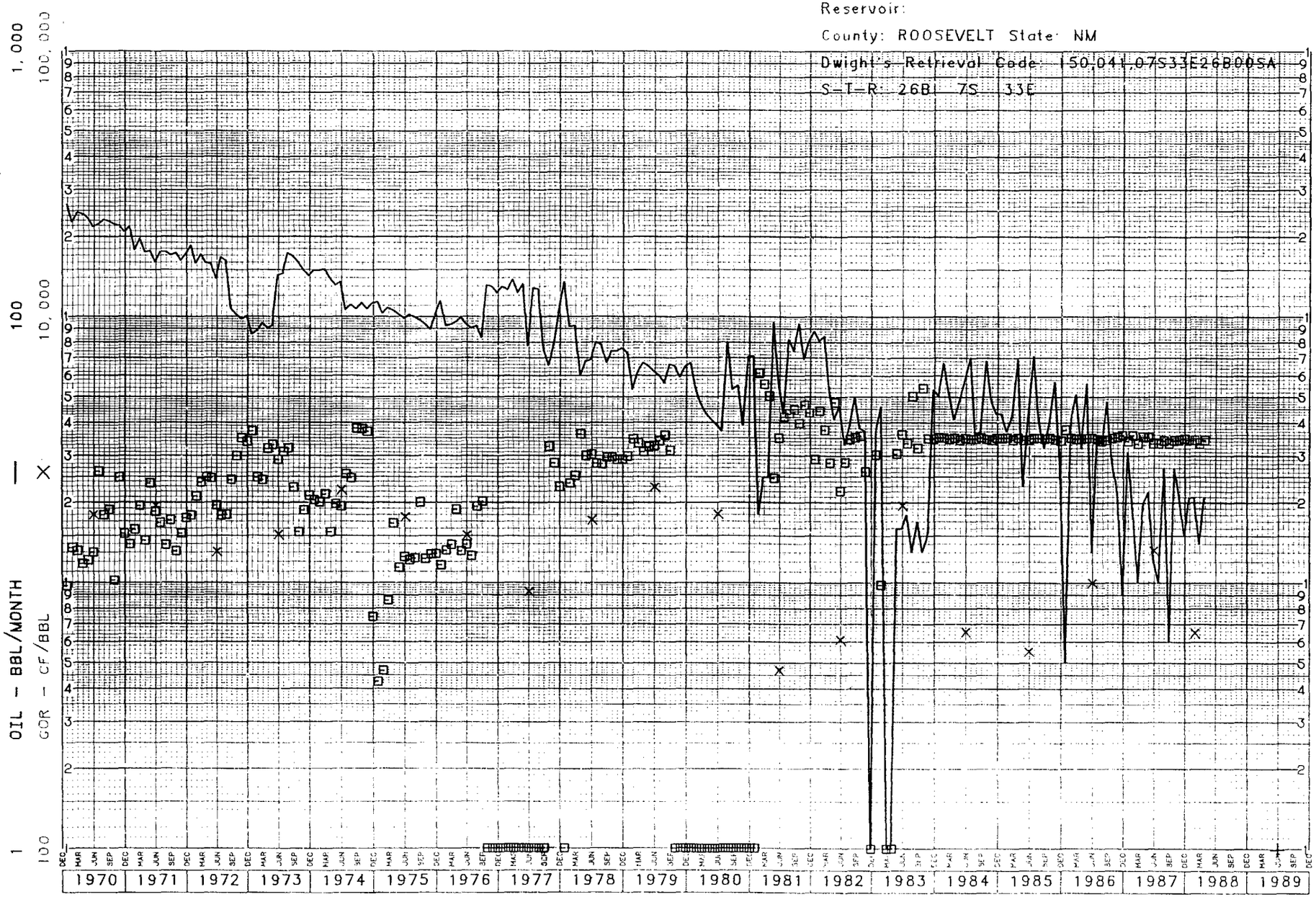
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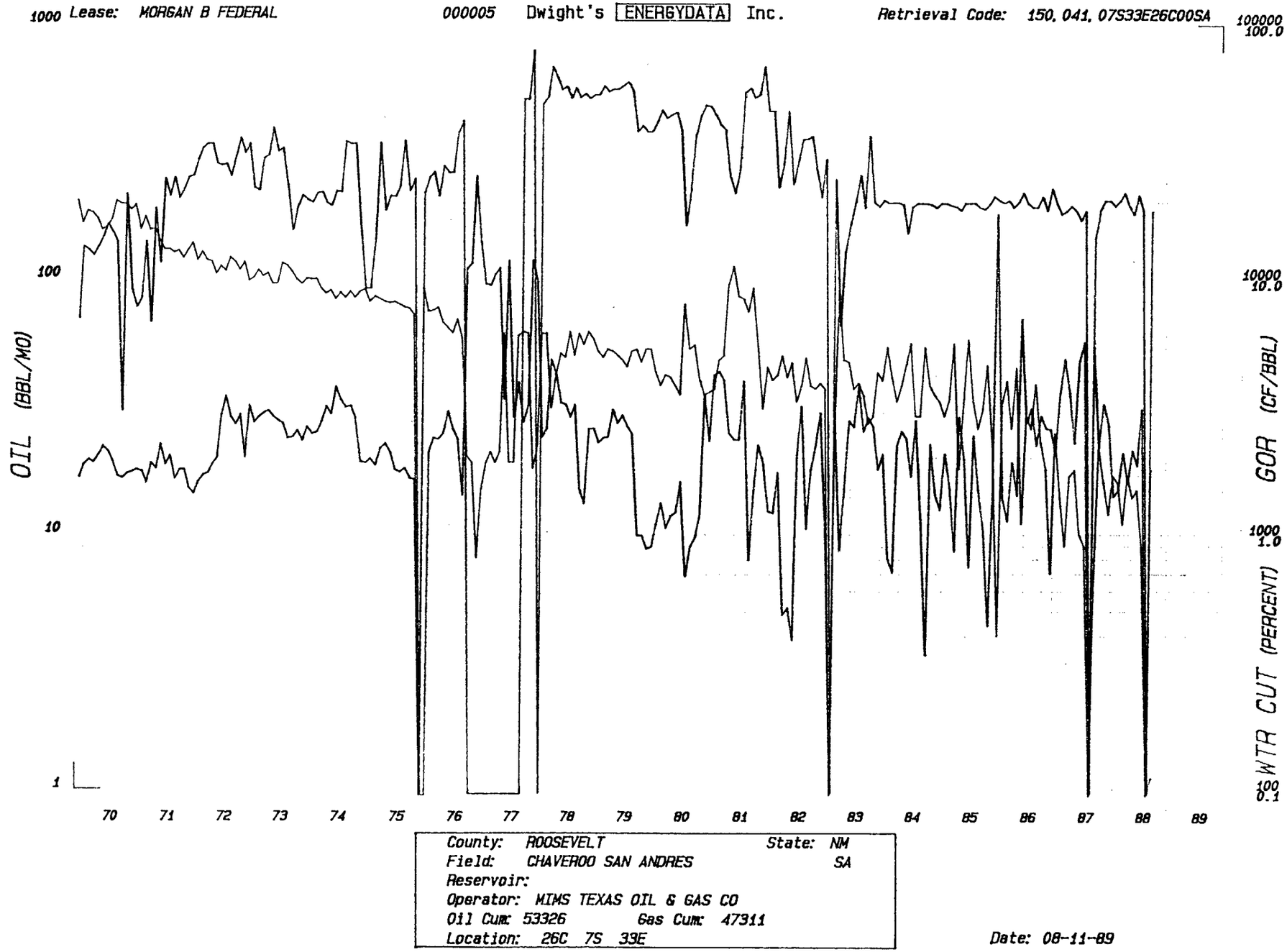
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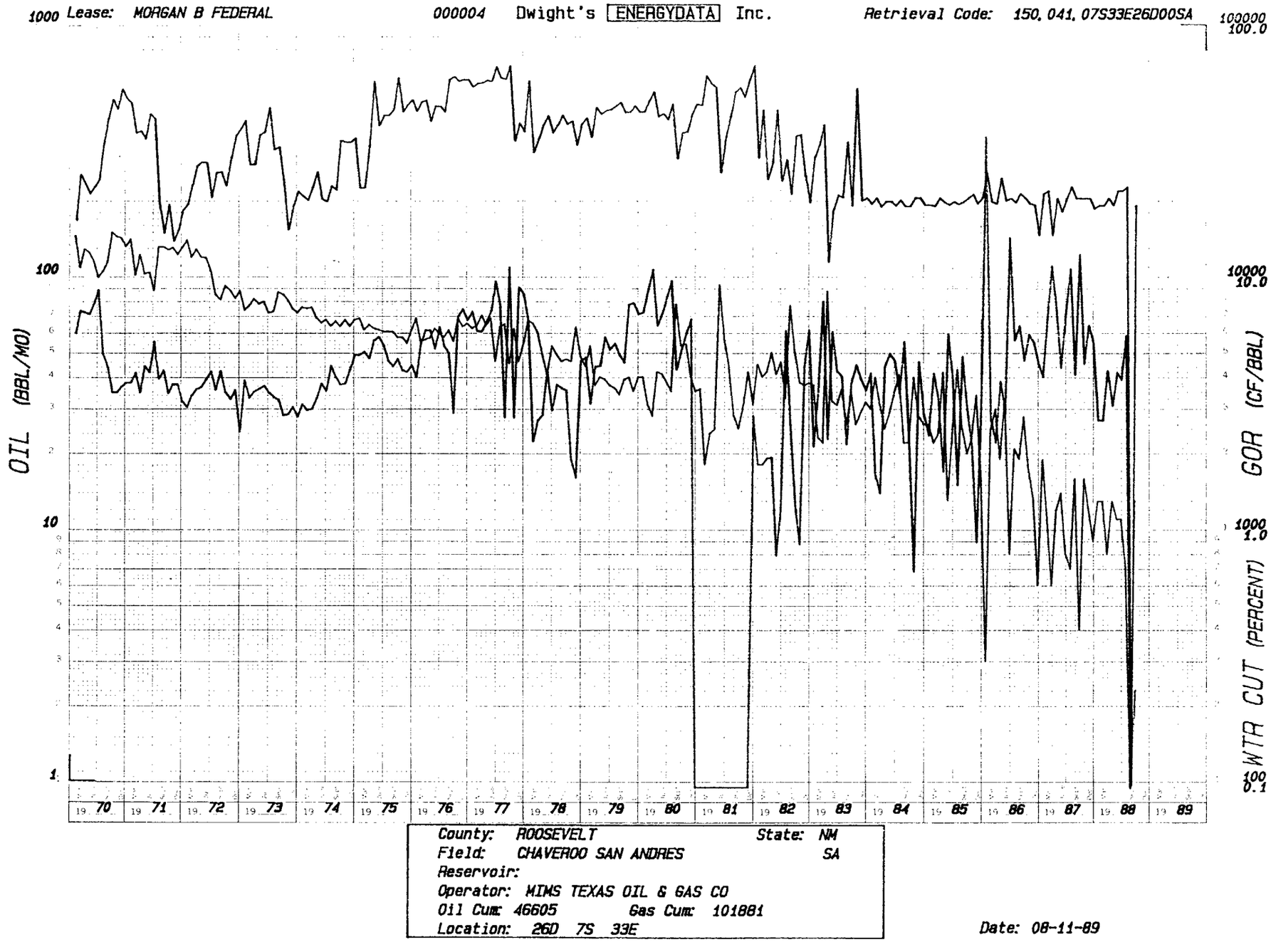
Operator: DALPORT OIL CORP
Lease: FEDERAL Well No: 000003
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S33E26A00SA
S-T-R: 26A 7S 33E

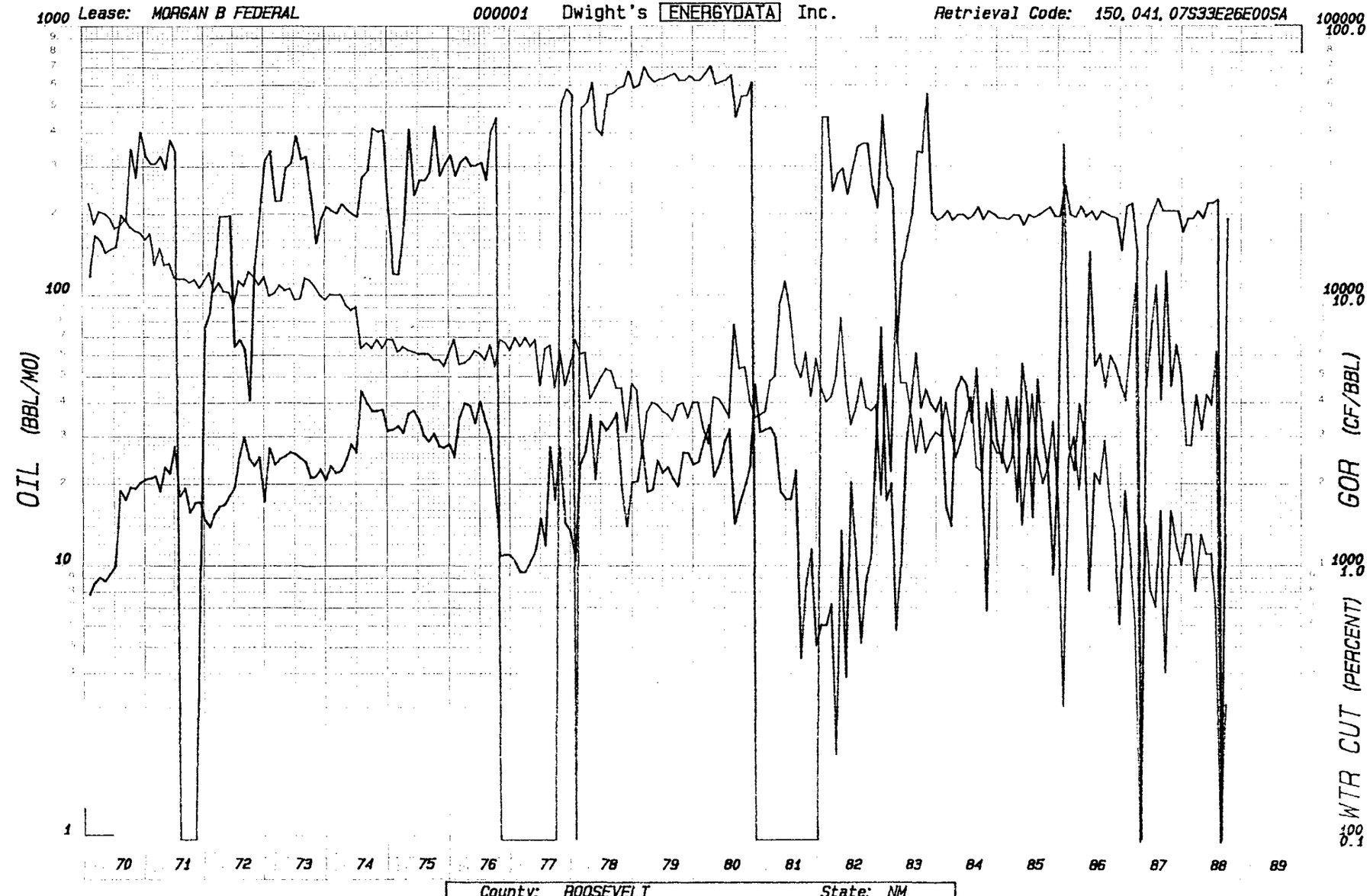


Operator: LYNX PETROLEUM CONSLTNTS
Lease: MORGAN B FEDERAL Well No: 000006
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50,041,07S33E26B00SA
S-T-R: 26B 7S 33E



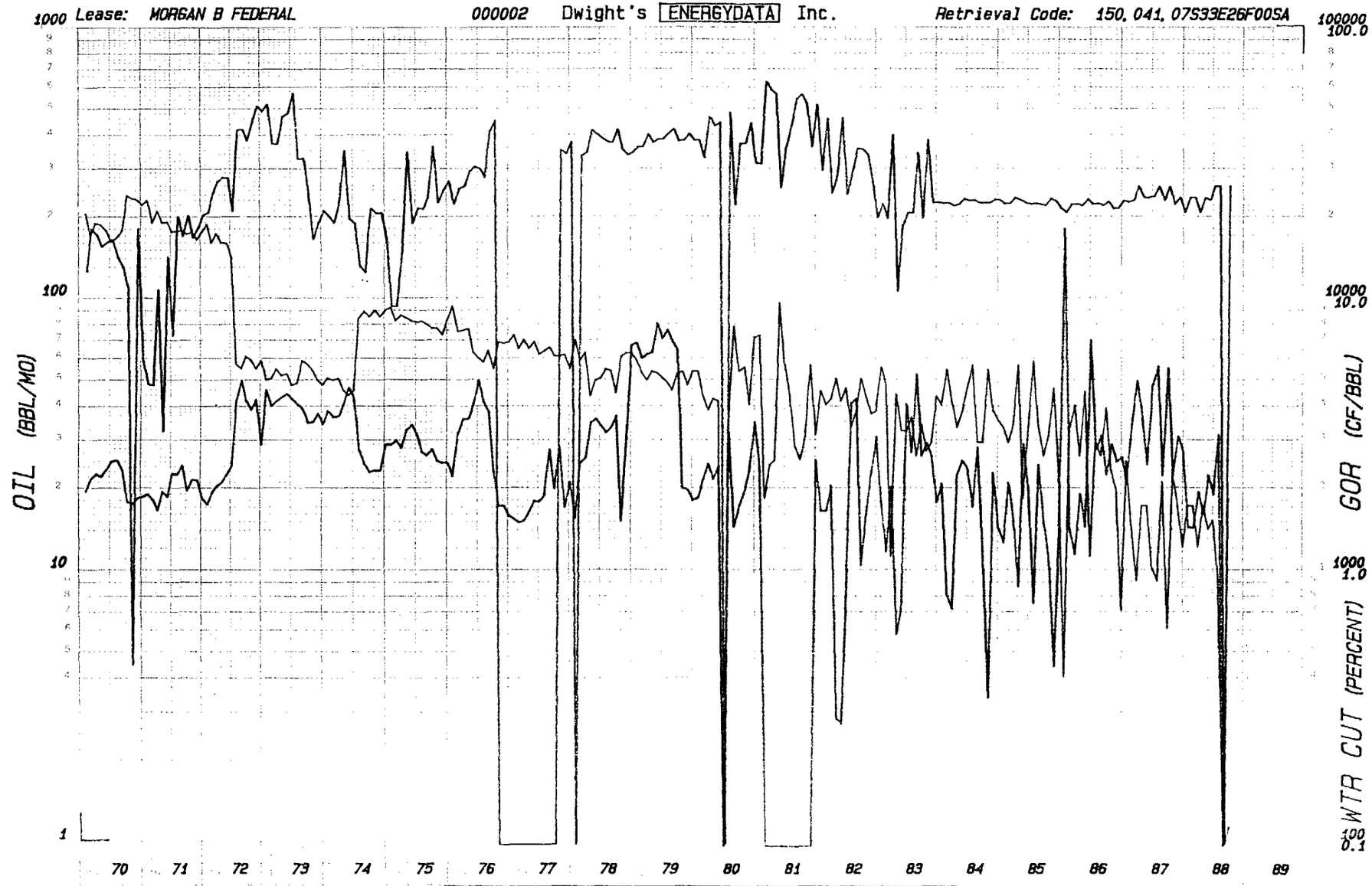

Lease: MORGAN B FEDERAL
000005 Dwight's ENERGYDATA Inc.
Retrieval Code: 150, 041, 07S33E26C00SA
OIL (BBL/MO)
GOR (CF/BBL)
WTR CUT (PERCENT)
1000
100
10
1
100000
100.0
10000
10.0
1000
1.0
100
0.1
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89
County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: MIMS TEXAS OIL & GAS CO
Oil Cum: 53326 Gas Cum: 47311
Location: 26C 7S 33E
Date: 08-11-89


Lease: MORGAN B FEDERAL
000004 Dwight's ENERGYDATA Inc.
Retrieval Code: 150,041,07S33E26D00SA
OIL (BBL/MO)
GOR (CF/BBL)
WTR CUT (PERCENT)
1000
100
10
1
100000
10000
1000
100
100.0
10.0
1.0
0.1
19 70
19 71
19 72
19 73
19 74
19 75
19 76
19 77
19 78
19 79
19 80
19 81
19 82
19 83
19 84
19 85
19 86
19 87
19 88
19 89
County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: MIMS TEXAS OIL & GAS CO
Oil Cum: 46605 Gas Cum: 101881
Location: 26D 7S 33E
Date: 08-11-89



County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: MIMS TEXAS OIL & GAS CO
Oil Cum: 47941 Gas Cum: 54282
Location: 26E 7S 33E

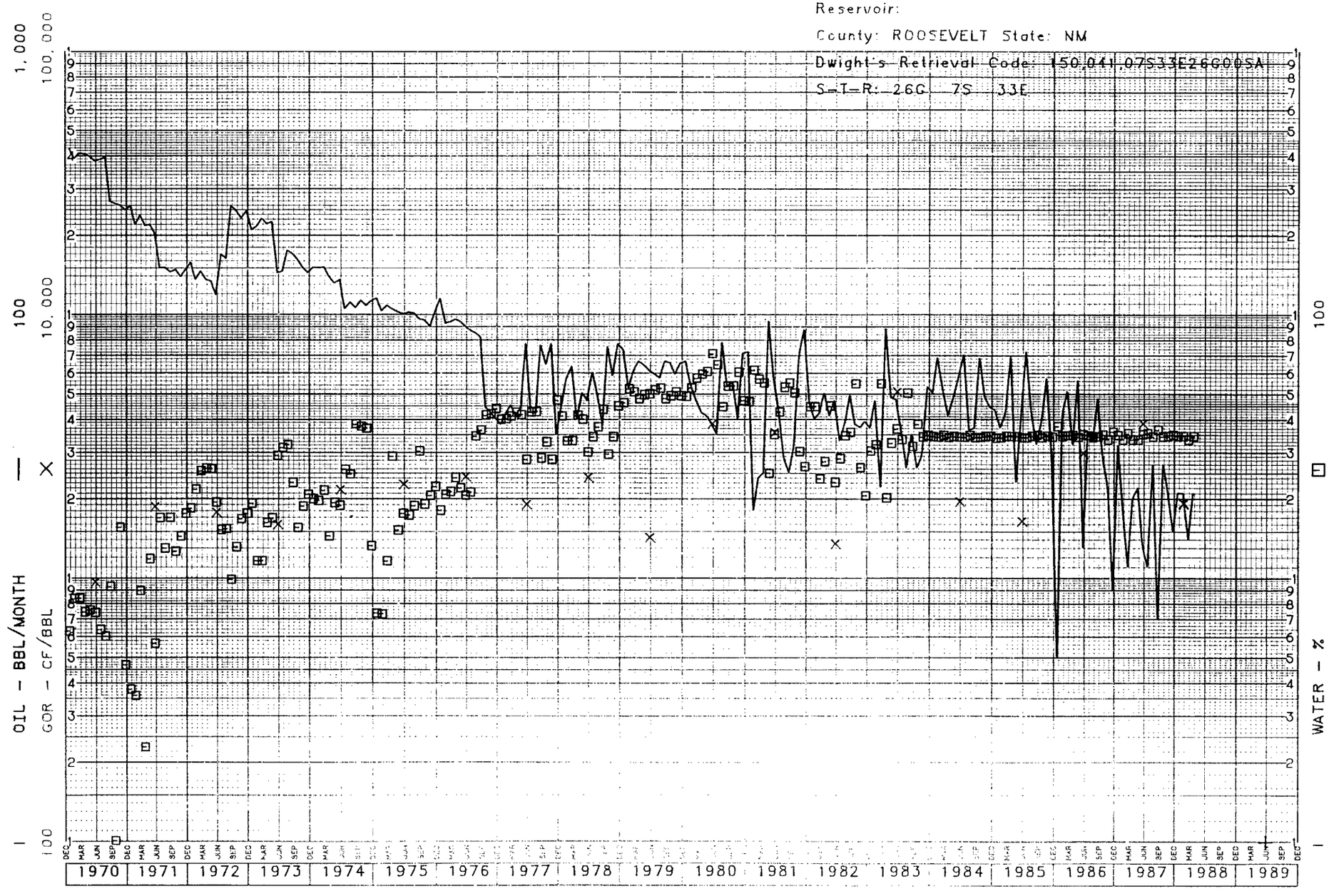
Date: 08-11-89

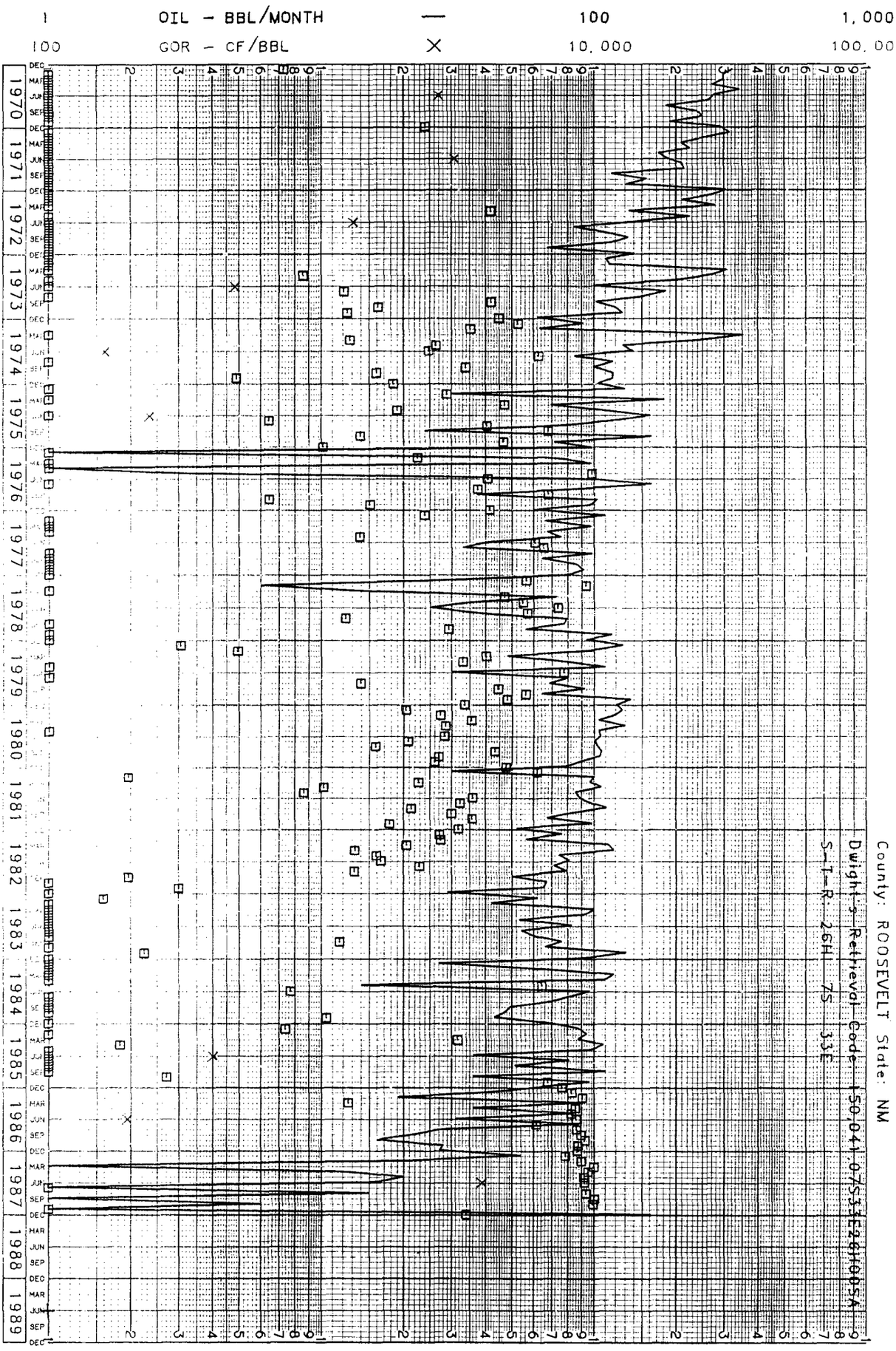


County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: MIMS TEXAS OIL & GAS CO
Oil Cum: 48870 Gas Cum: 69033
Location: 26F 7S 33E

Date: 08-11-89

Operator: LYNX PETROLEUM CONSLTNTS
Lease: MORGAN B FEDERAL Well No: 000003
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S33E26G00SA
S-T-R: 26G 7S 33E





Operator: DALPORT OIL CORP

Lease: FEDERAL Well No: 00004 SA

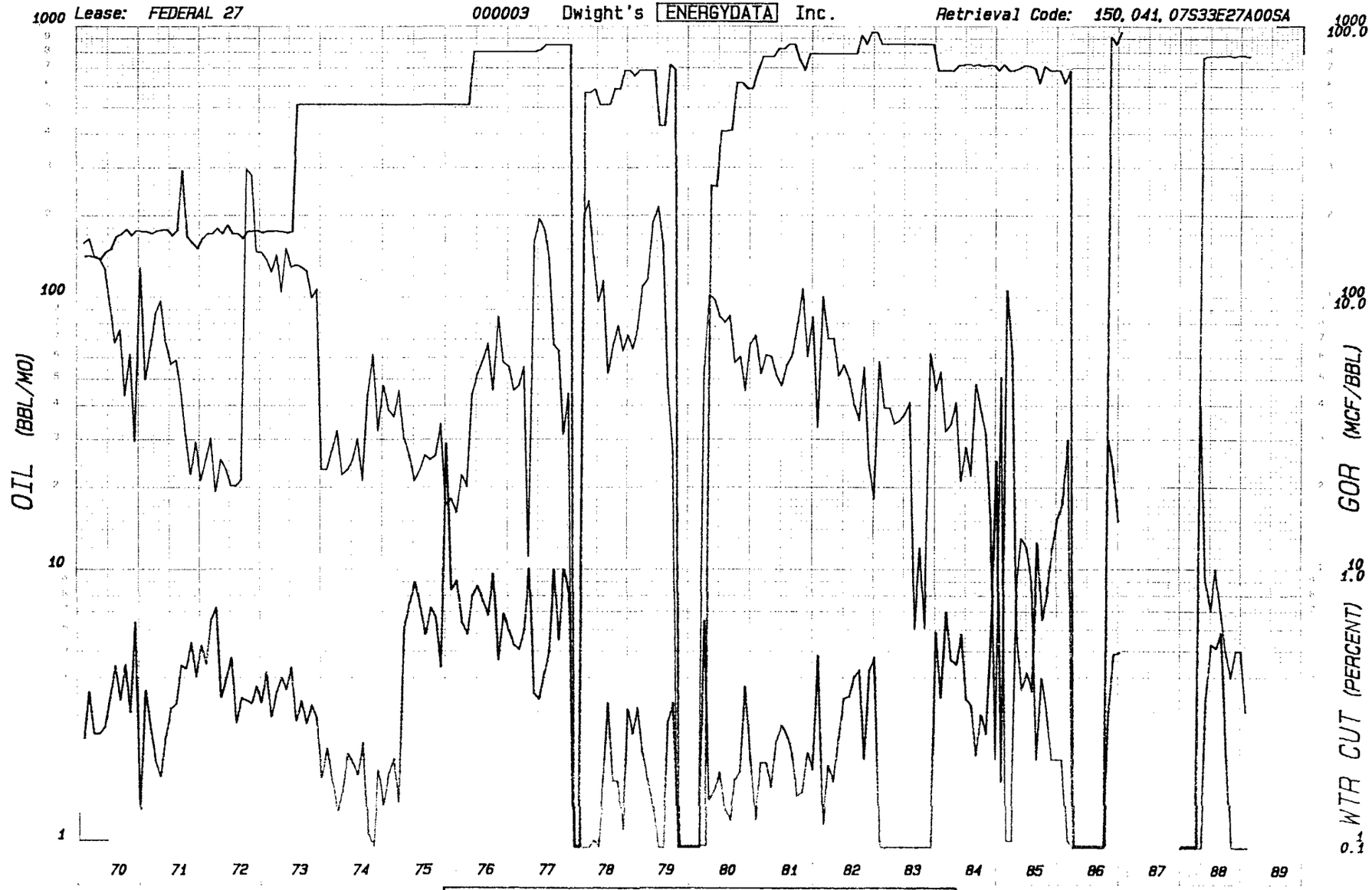
Field: CHAVEROO SAN ANDRES

Reservoir:

County: ROOSEVELT State: NM

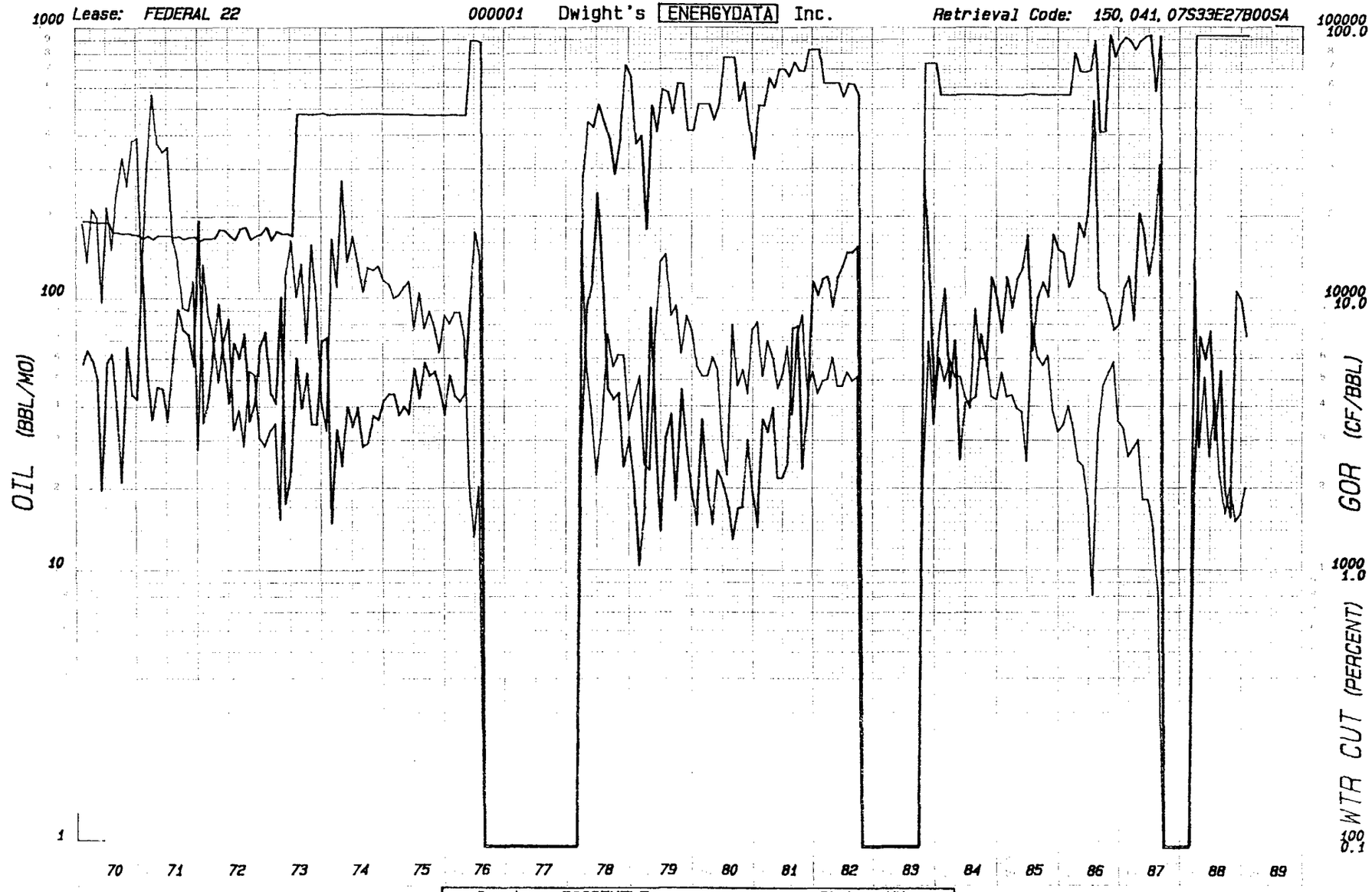
Dwight's Retrieval Code: 30-041-07533-00-00

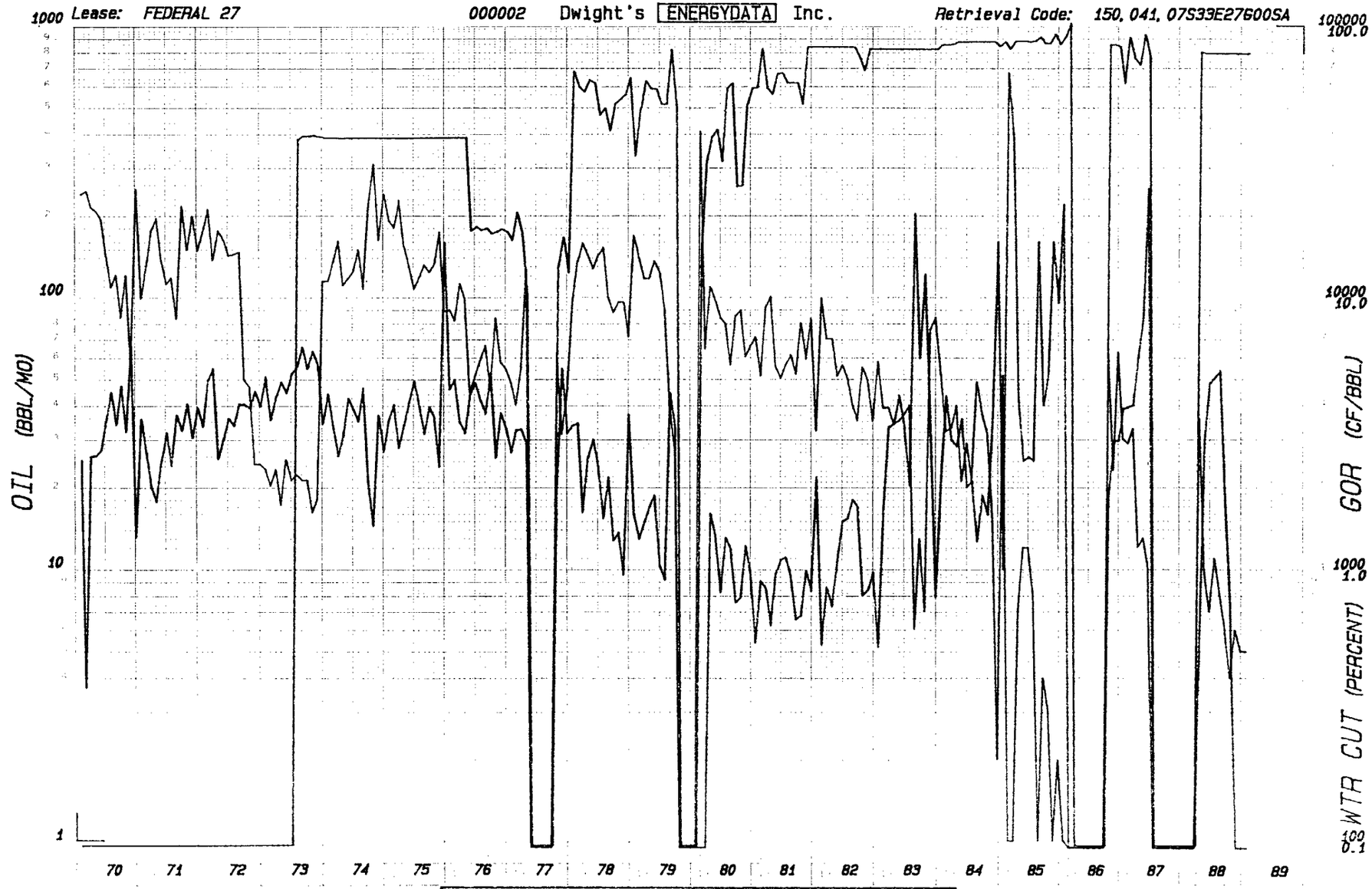
S-T-R: 26N 7S 33E

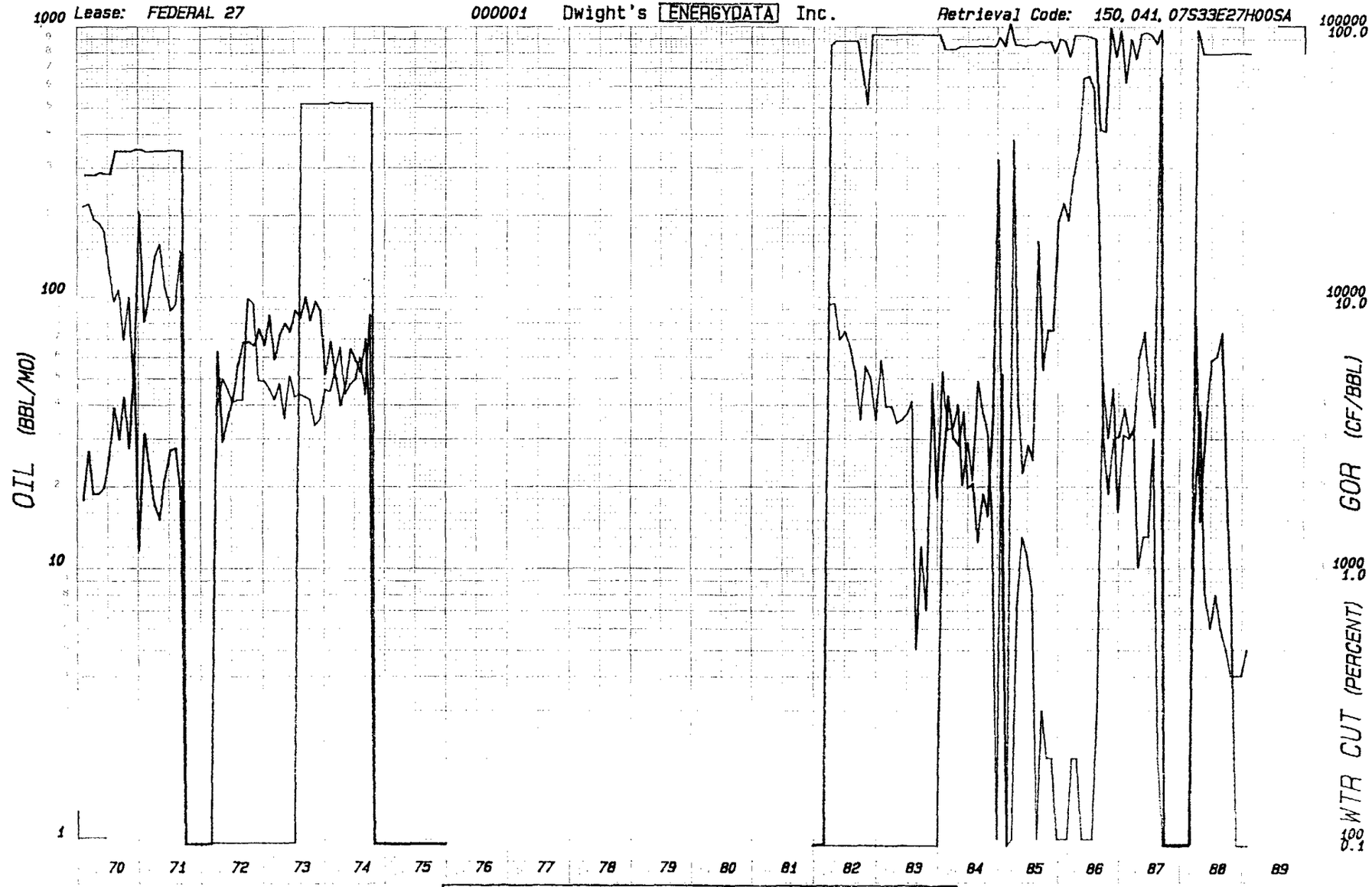


County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: MIMS TEXAS OIL & GAS CO
Oil Cum: 36649 Gas Cum: 60515
Location: 27A 7S 33E

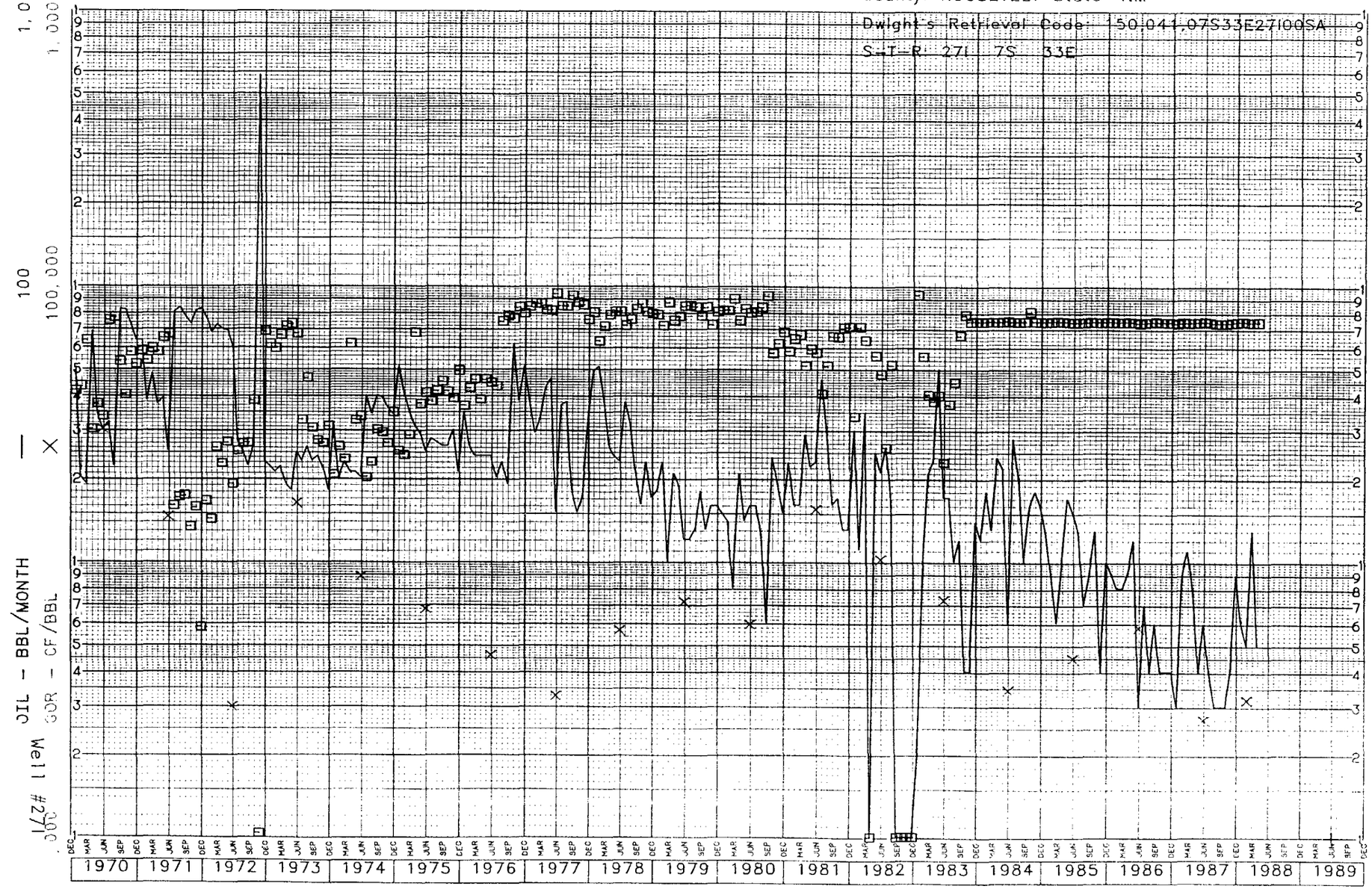
Date: 08-11-89


Lease: FEDERAL 22
000001 Dwight's ENERGYDATA Inc.
Retrieval Code: 150,041,07S33E27B00SA
OIL (BBL/MO)
GOR (CF/BBL)
WTR CUT (PERCENT)
1000
100
10
1
100000
100.0
10000
10.0
1000
1.0
100
0.1
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89
County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: MIMS TEXAS OIL & GAS CO
Oil Cum: 36964 Gas Cum: 114256
Location: 27B 7S 33E
Date: 08-11-89

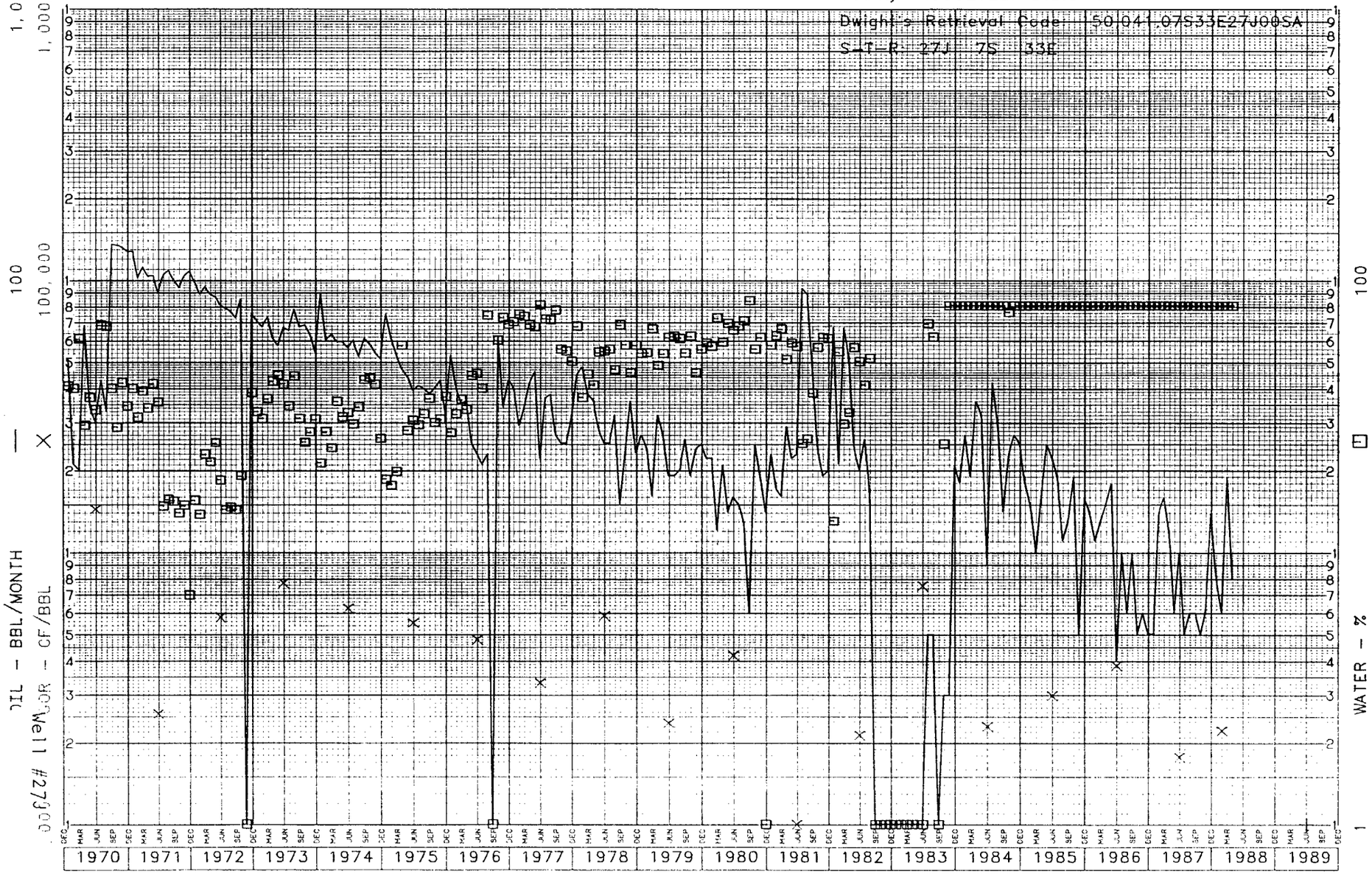

Lease: FEDERAL 27
000002 Dwight's ENERGYDATA Inc.
Retrieval Code: 150, 041, 07S33E27600SA
OIL (BBL/MO)
GOR (CF/BBL)
WTR CUT (PERCENT)
1000
100
10
1
100000
10000
1000
100
100.0
10.0
1.0
0.1
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89
County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: MIMS TEXAS OIL & GAS CO
Oil Cum: 42491 Gas Cum: 89424
Location: 27G 7S 33E
Date: 08-11-89


Lease: FEDERAL 27
000001 Dwight's ENERGYDATA Inc.
Retrieval Code: 150,041,07S33E27H00SA
OIL (BBL/MO)
GOR (CF/BBL)
%WTR CUT (PERCENT)
1000
100
10
1
100000
100.0
10000
10.0
1000
1.0
100
0.1
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89
County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: MIMS TEXAS OIL & GAS CO
Oil Cum: 31750 Gas Cum: 44661
Location: 27H 7S 33E
Date: 08-11-89

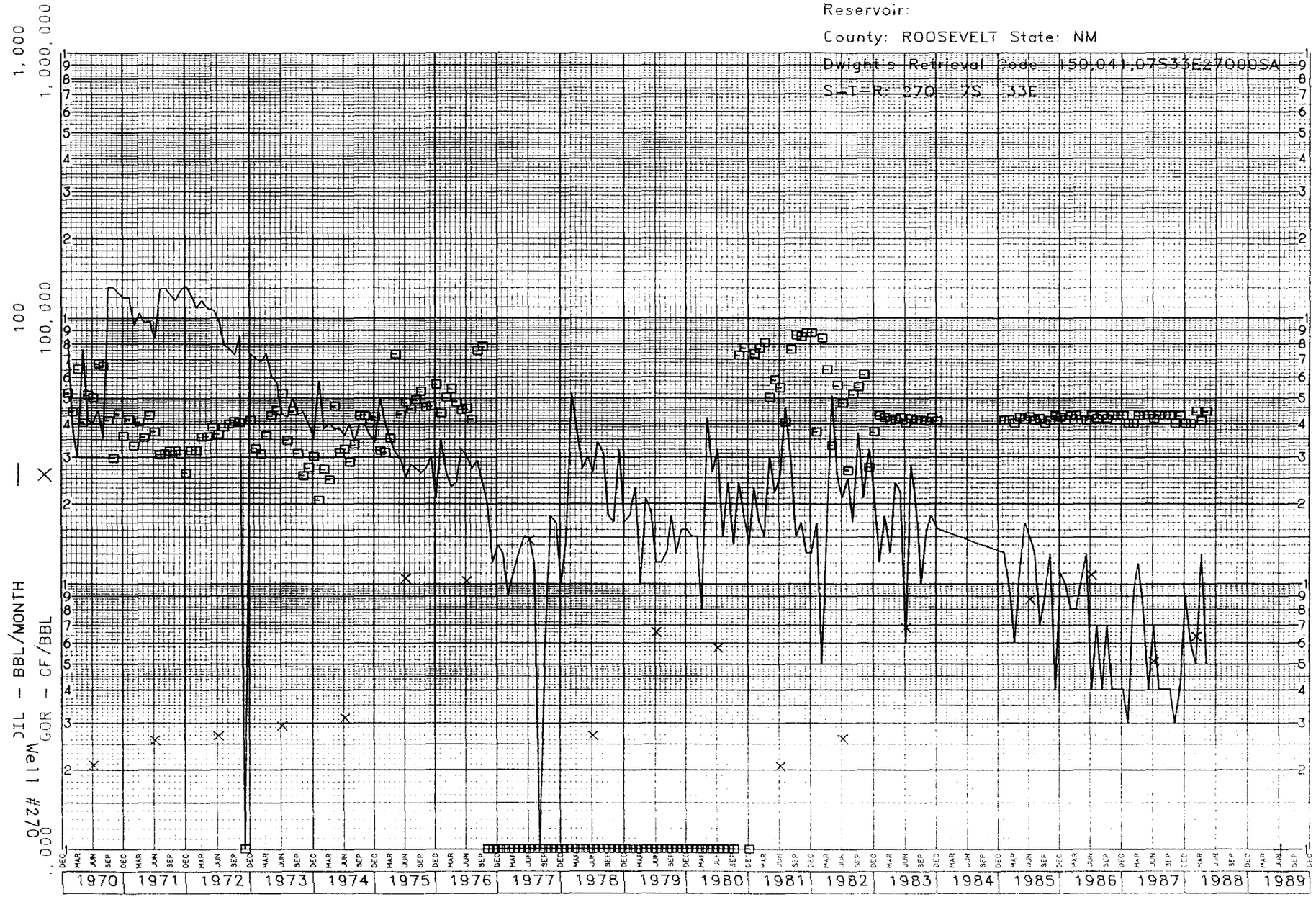
Operator: LYNX PETROLEUM CONSLTNTS
Lease: MORGAN A FEDERAL Well No: 000006
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50,041,07S33E27100SA
S-T-R: 27 7S 33E



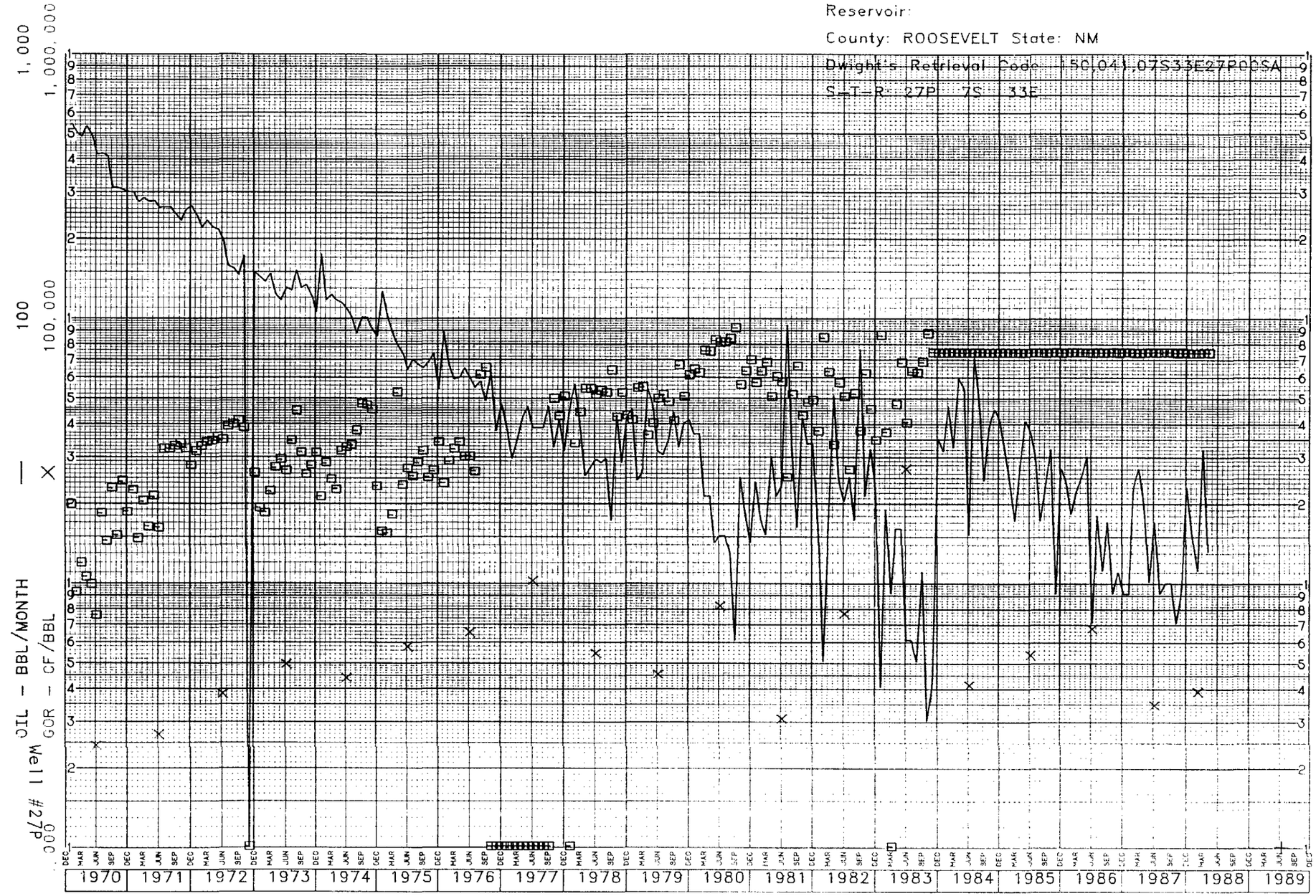
Operator: LYNX PETROLEUM CONSLTNTS
Lease: MORGAN A FEDERAL Well No: 000005
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50-041-07S-33E-27J-00-SA
S-T-R: 27J 7S 33E



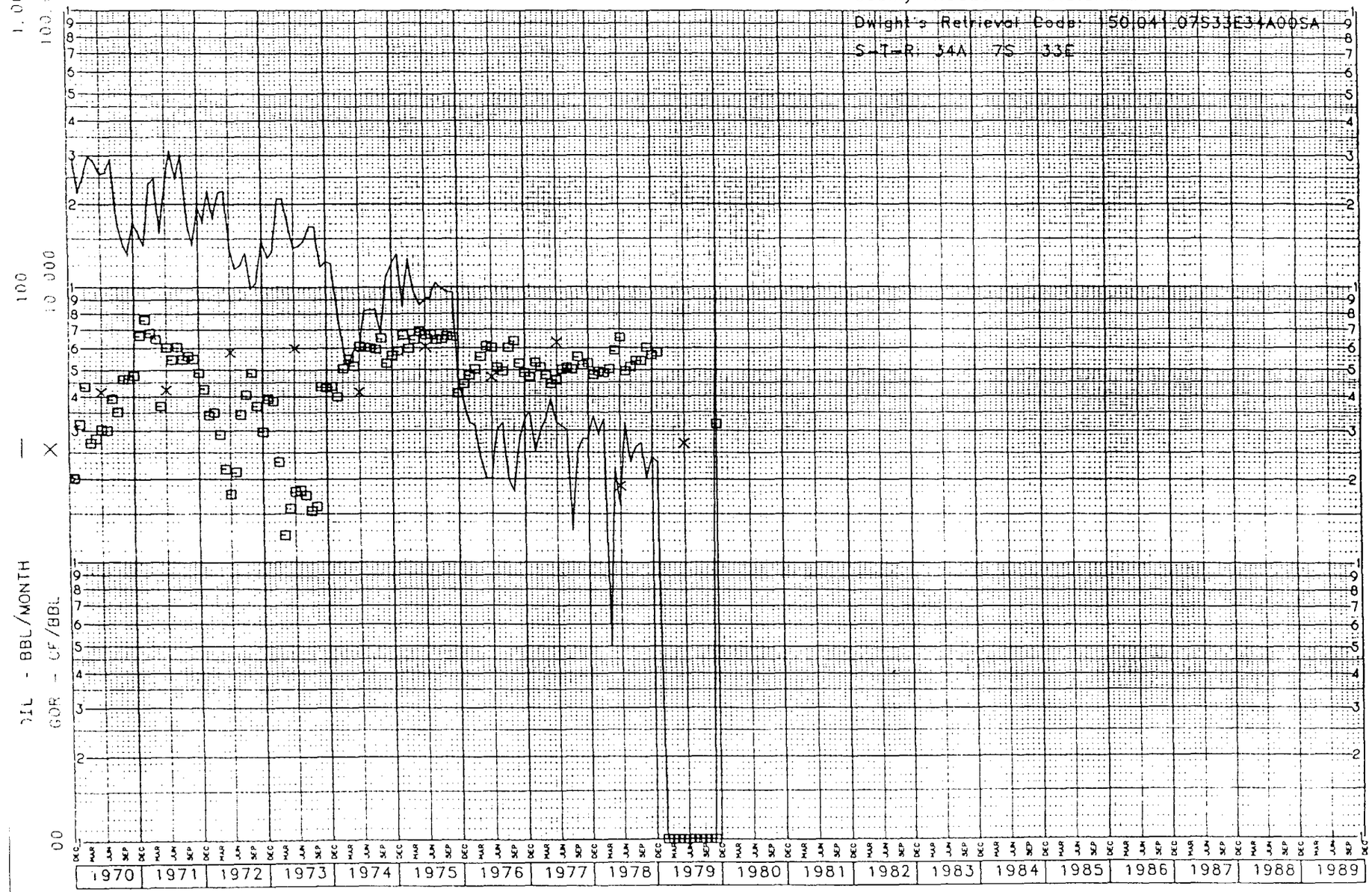
Operator: LYNX PETROLEUM CONSLTNTS
Lease MORGAN A FEDERAL Well No: 000002
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S33E27000SA
S-T-R: 27D 7S 33E



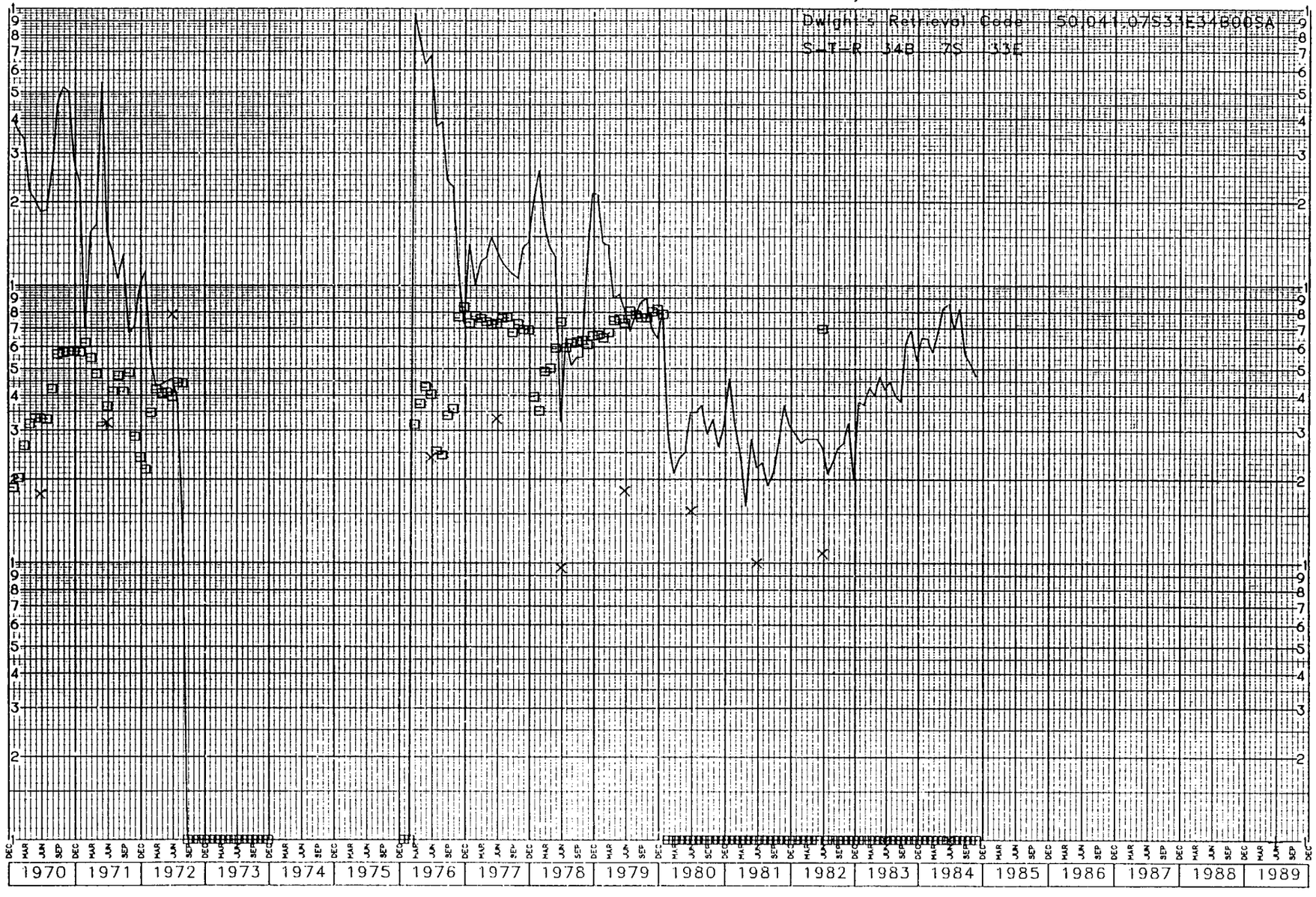
Operator: LYNX PETROLEUM CONSLTNTS
Lease: MORGAN A FEDERAL Well No: 000003
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150,041,07S33E27P00SA
S-T-R: 27P 7S 33E

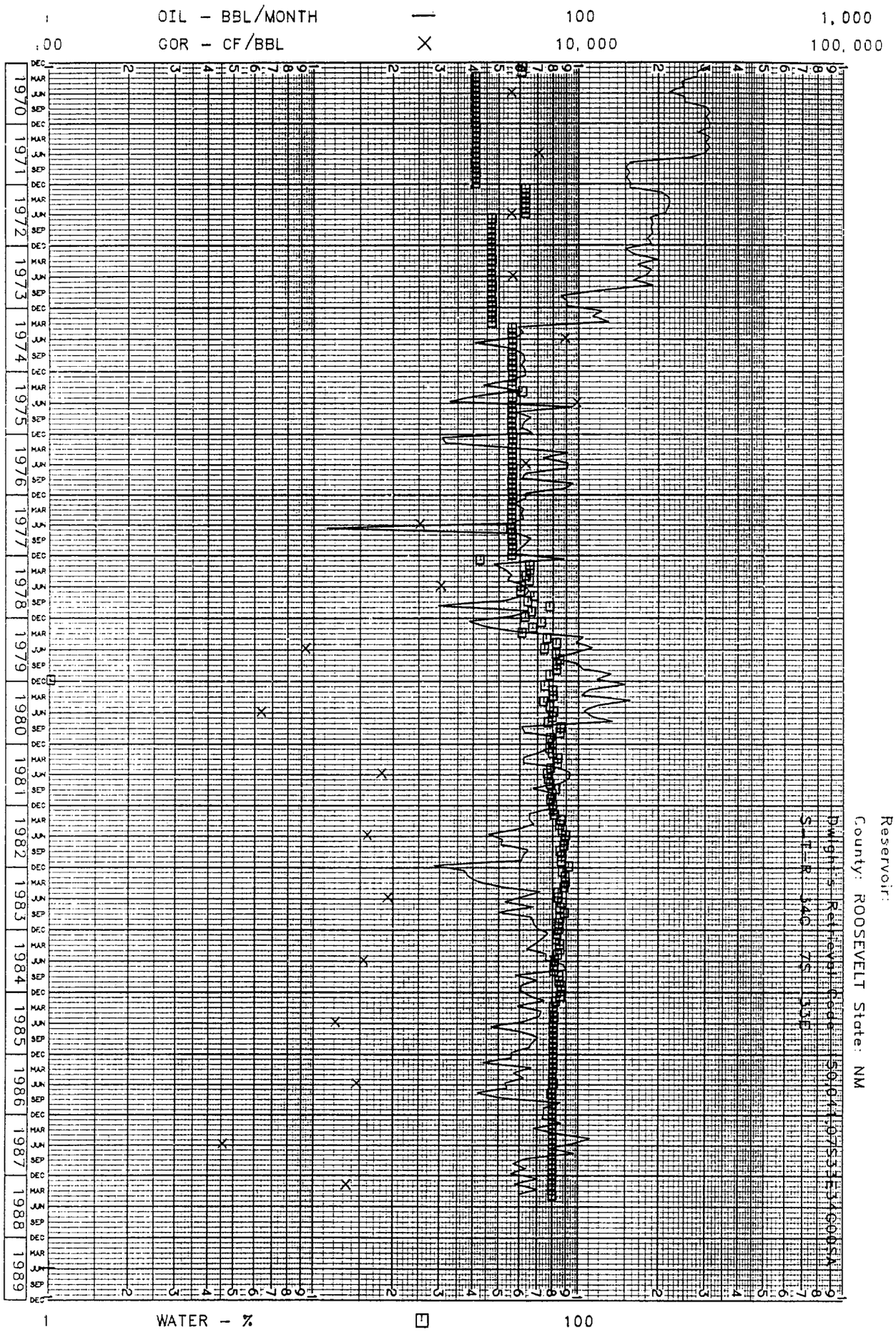


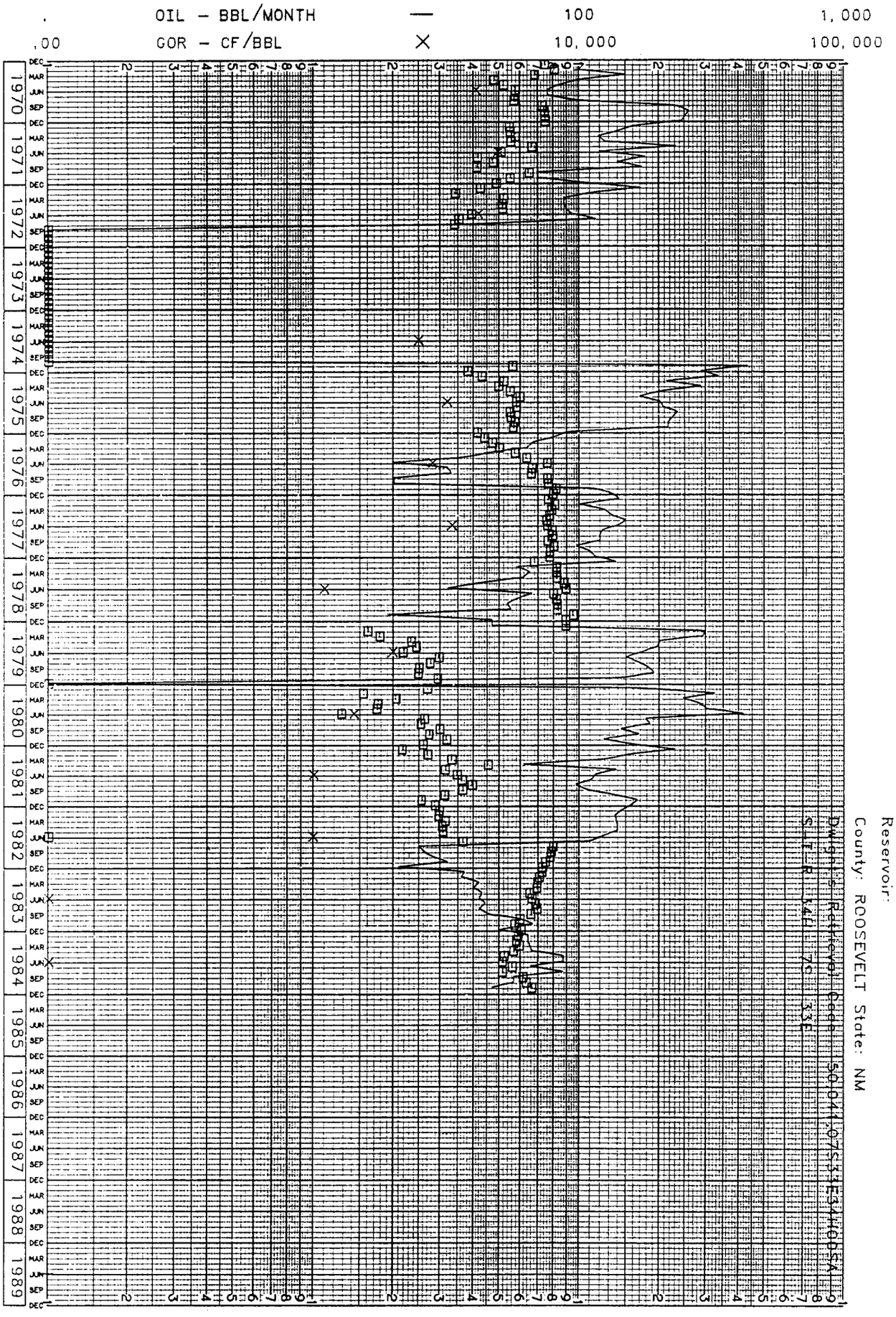
Operator: MERLIN EXPLORATION INC
Lease: NEW MEXICO AZ STATE Well No: 000013
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 150|041.07S33E34A00SA
S-T-R: 34A 7S 33E



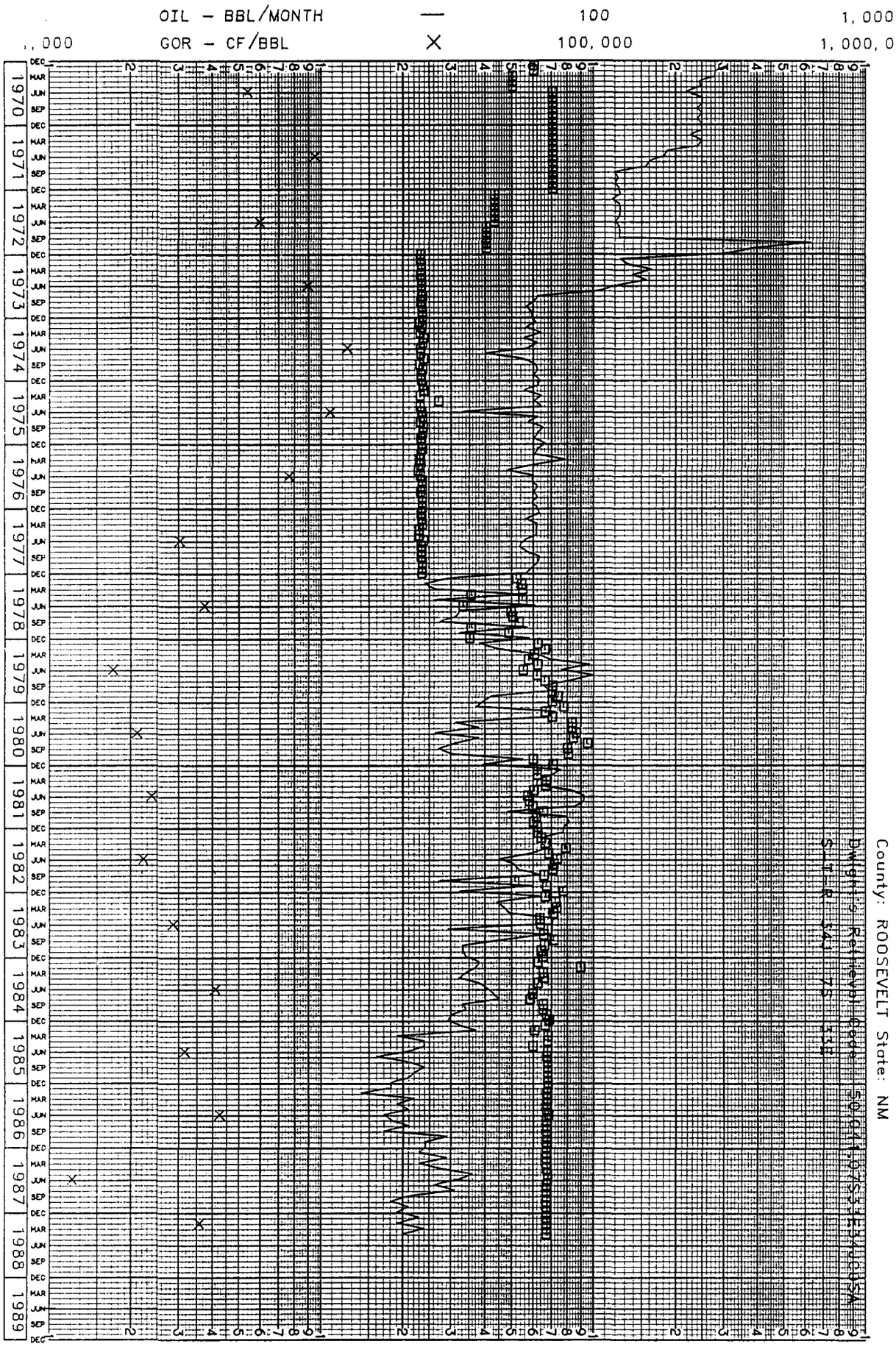
Operator: MERLIN EXPLORATION INC
Lease: NEW MEXICO AZ STATE Well No: 000012
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM



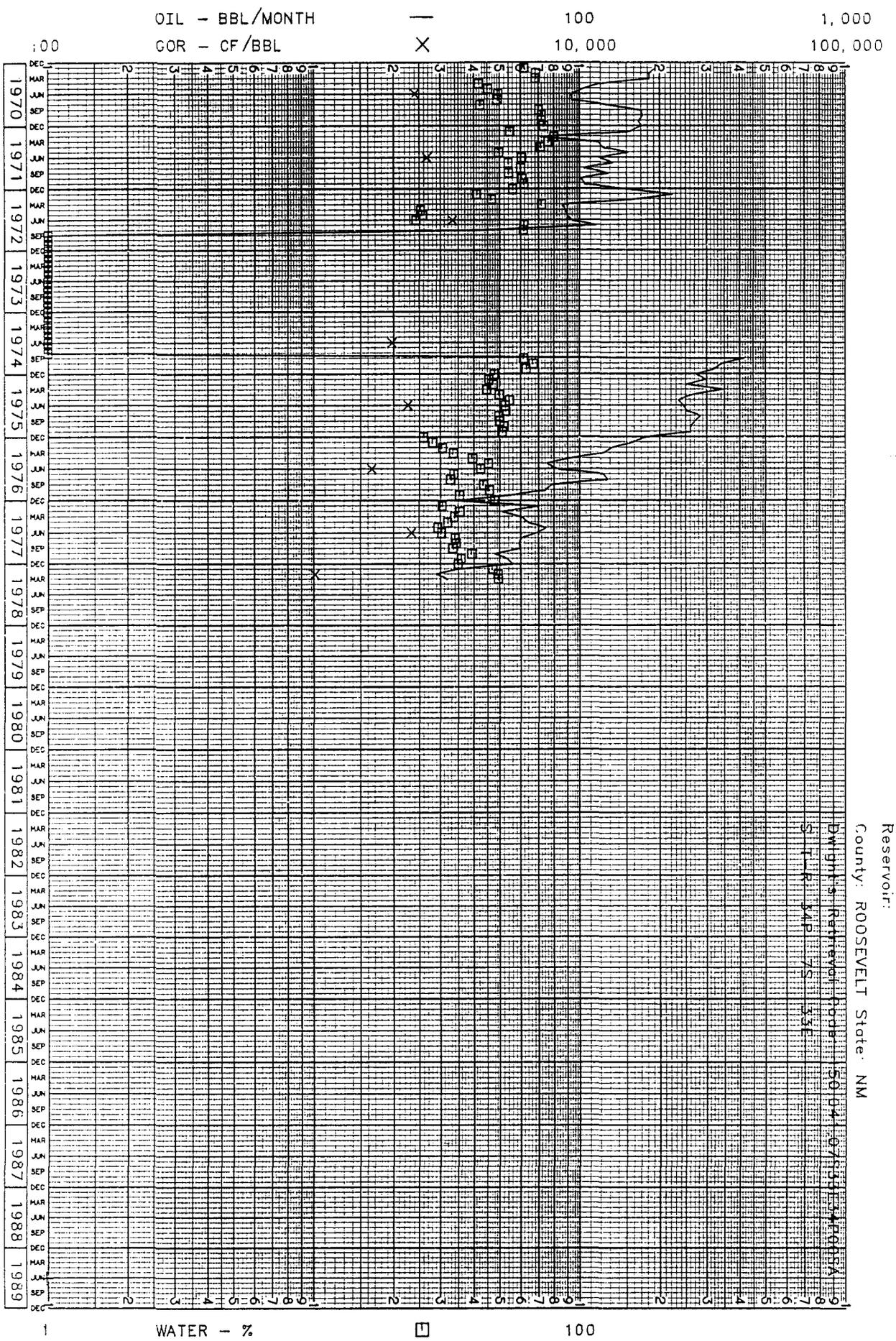

OIL - BBL/MONTH
100
1,000
GOR - CF/BBL
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
WATER - %
100
Operator: TEXACO PRODUCING INC
Lease: HOBBS T Well No: 000010
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50,041,07533,34600SA
S-T-R: 34S 33E
SA

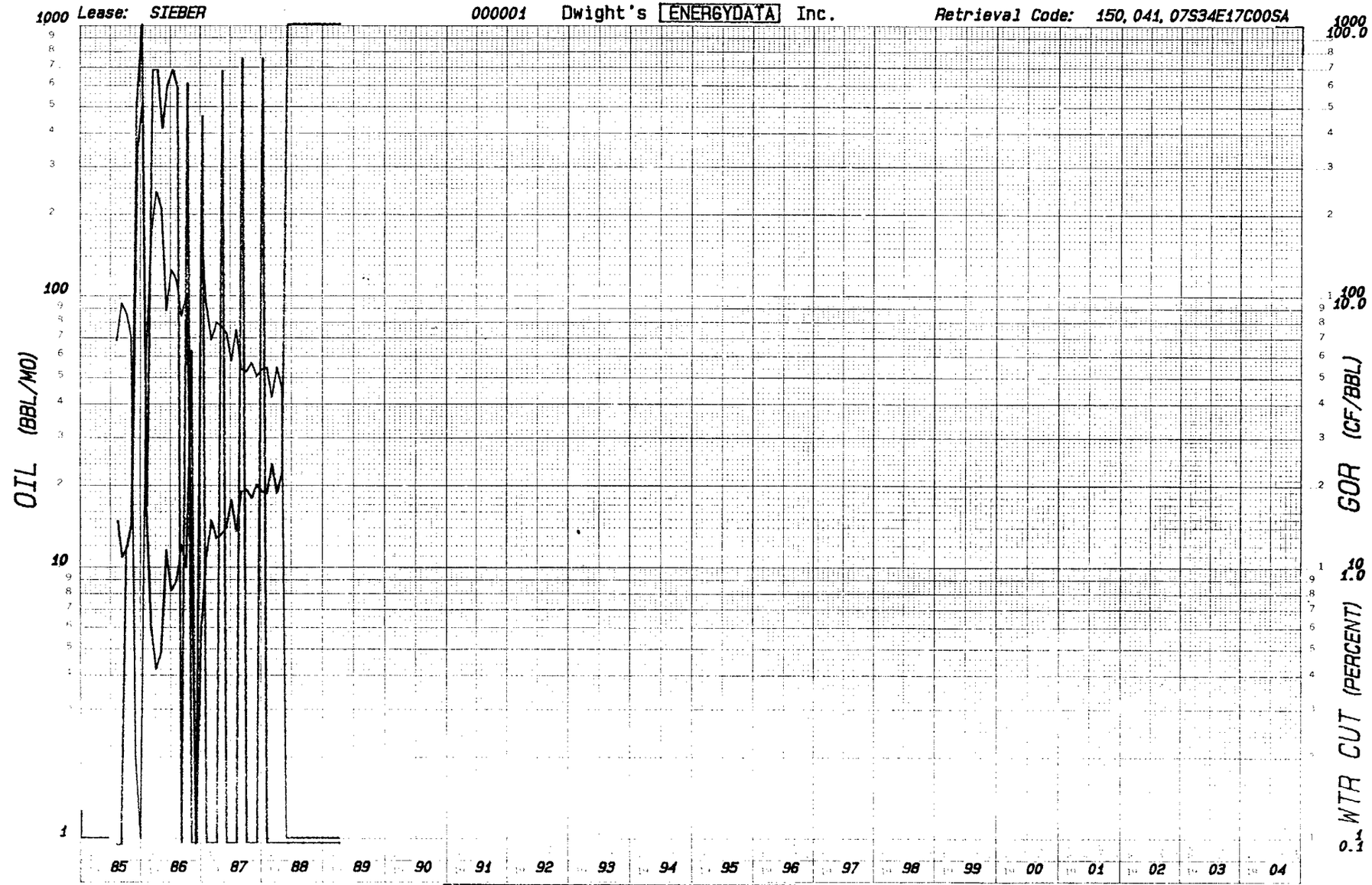

OIL - BBL/MONTH
100
1,000
GOR - CF/BBL
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
WATER - %
1
100
Operator: MERLIN EXPLORATION INC
Lease: NEW MEXICO AZ STATE Well No: 000014
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwights Retrieval Code: 50104107511E3/H00SA
S-T-R 14S 33E


OIL - BBL/MONTH
GOR - CF/BBL
WATER - %
100
1,000
100,000
1,000,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
Operator: TEXACO PRODUCING INC
Lease: HOBBS T Well No: 000012
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
SA


OIL – BBL/MONTH
GOR – CF/BBL
WATER – %
100
1,000
100,000
1,000,000
1
100
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
Operator: TEXACO PRODUCING INC
Lease: HOBBS T Well No: 000008
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
SA

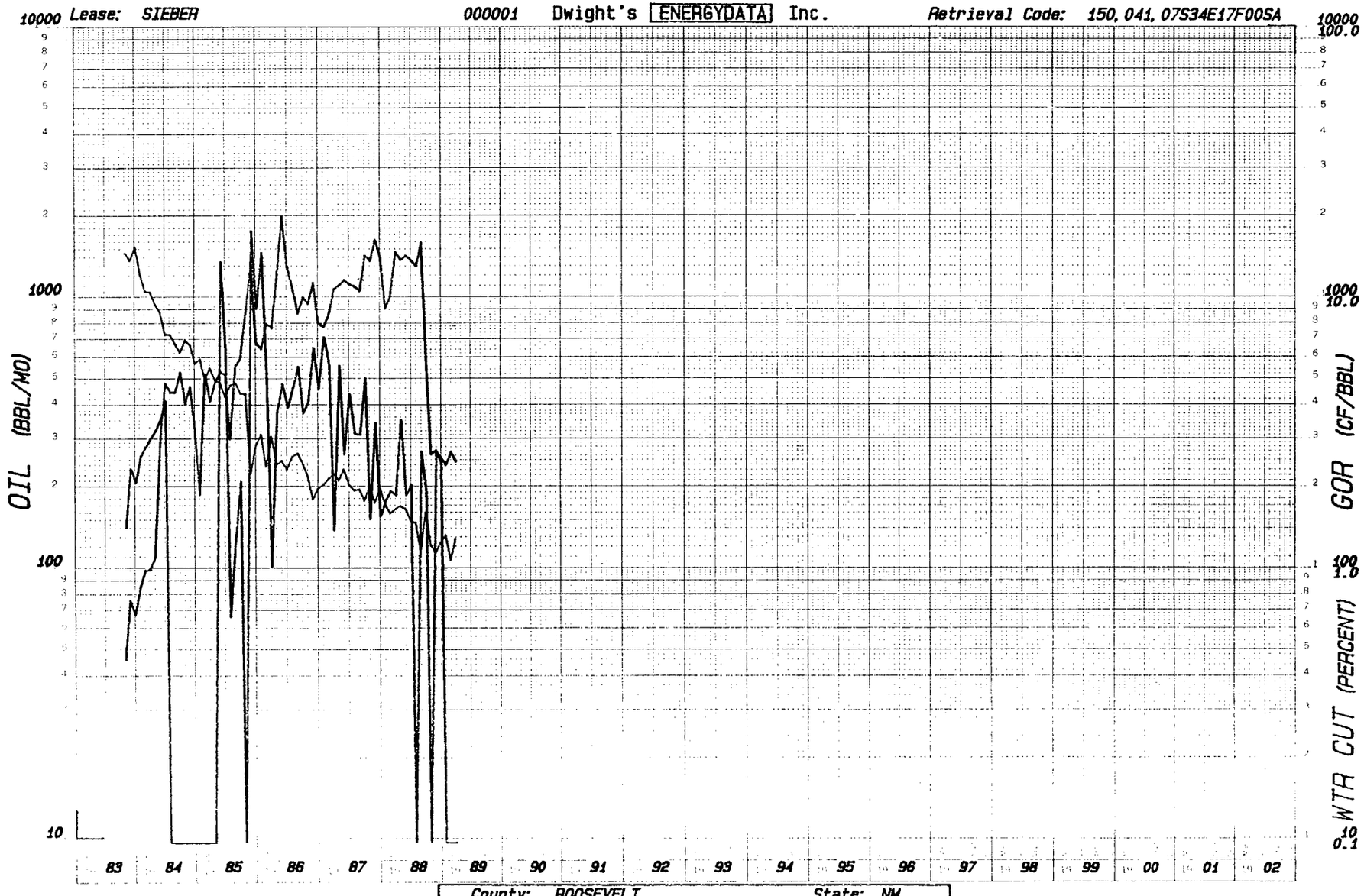
OIL - BBL/MONTH
100
1,000
;00
GOR - CF/BBL
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
WATER - %
100
Operator: TEXACO PRODUCING INC
Lease: HOBBS T Well No: 000015
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 30041075331340005A
S-T-R 34S 35E
SA


OIL - BBL/MONTH
GOR - CF/BBL
WATER - %
100
1,000
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
Operator: MERLIN EXPLORATION INC
Lease: NEW MEXICO AZ STATE Well No: 000015
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50 04 07633 E34 ROSA
S T-R: 34P 7S 33E



County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: KERN CO
Oil Cum: 2687 Gas Cum: 43
Location: 17C 7S 34E

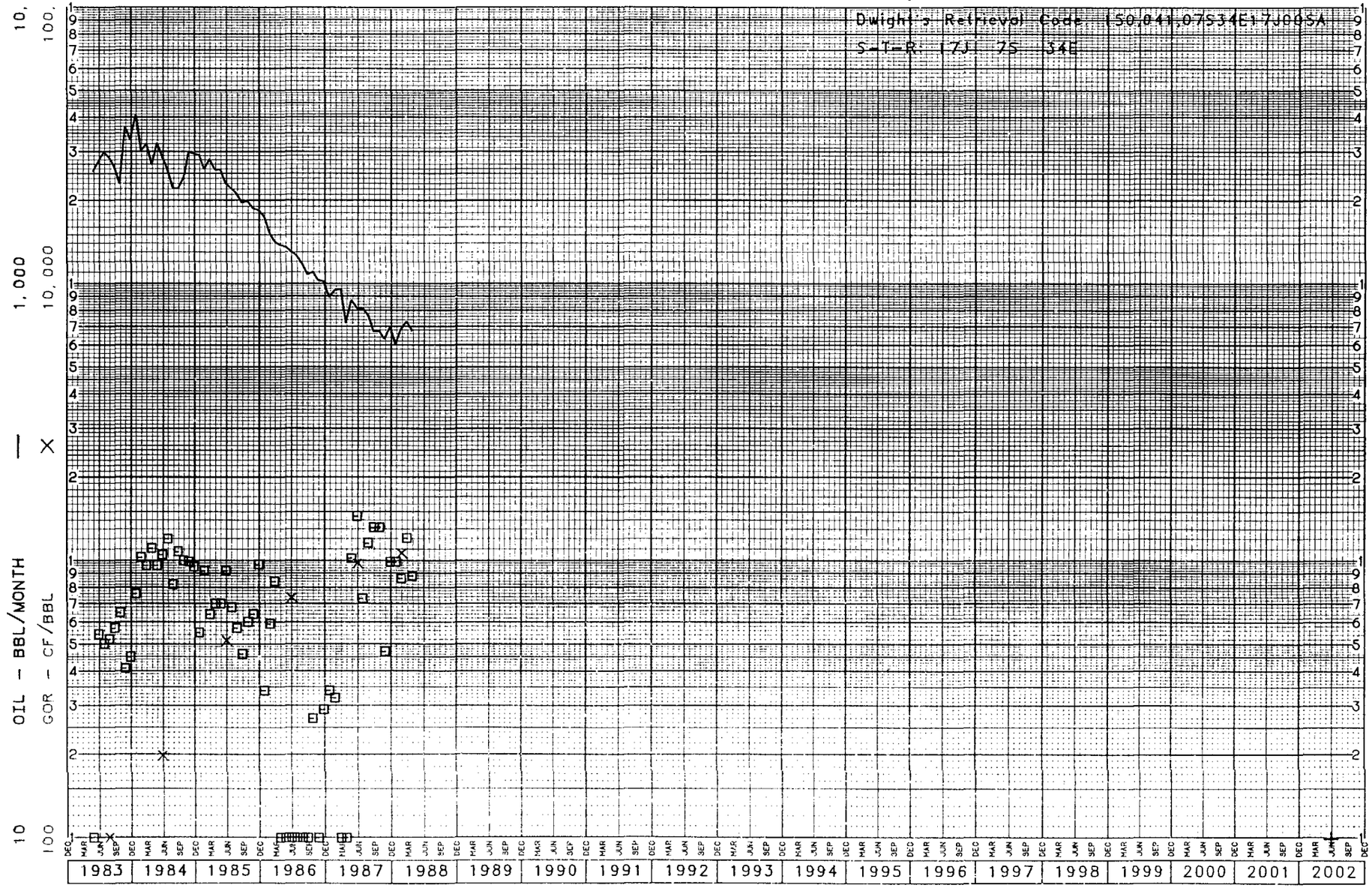
Date: 08-11-89

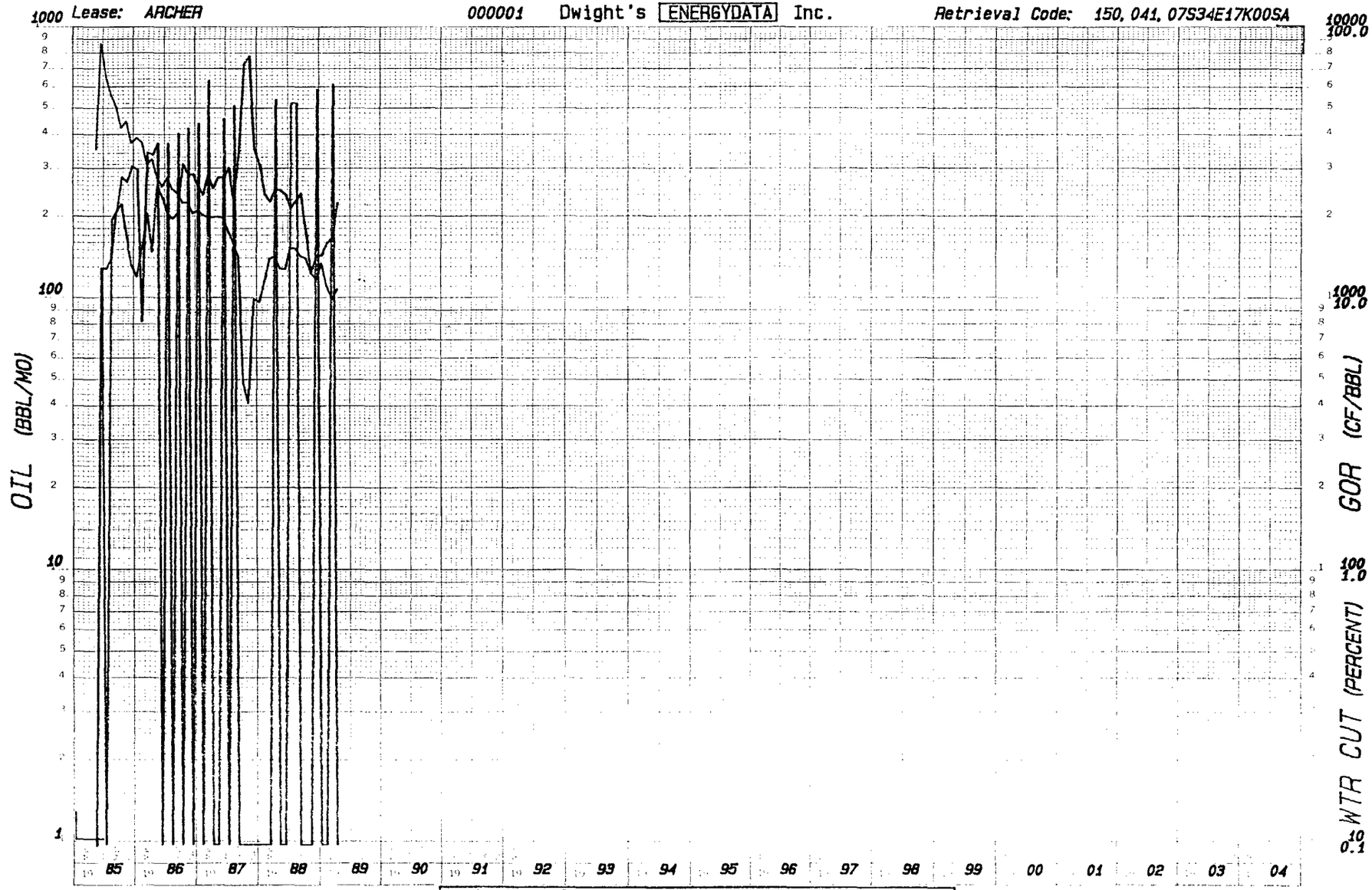


County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: NATIONAL RESOURCES MGMT
Oil Cum: 26612 Gas Cum: 13182
Location: 17F 7S 34E

Date: 08-11-89

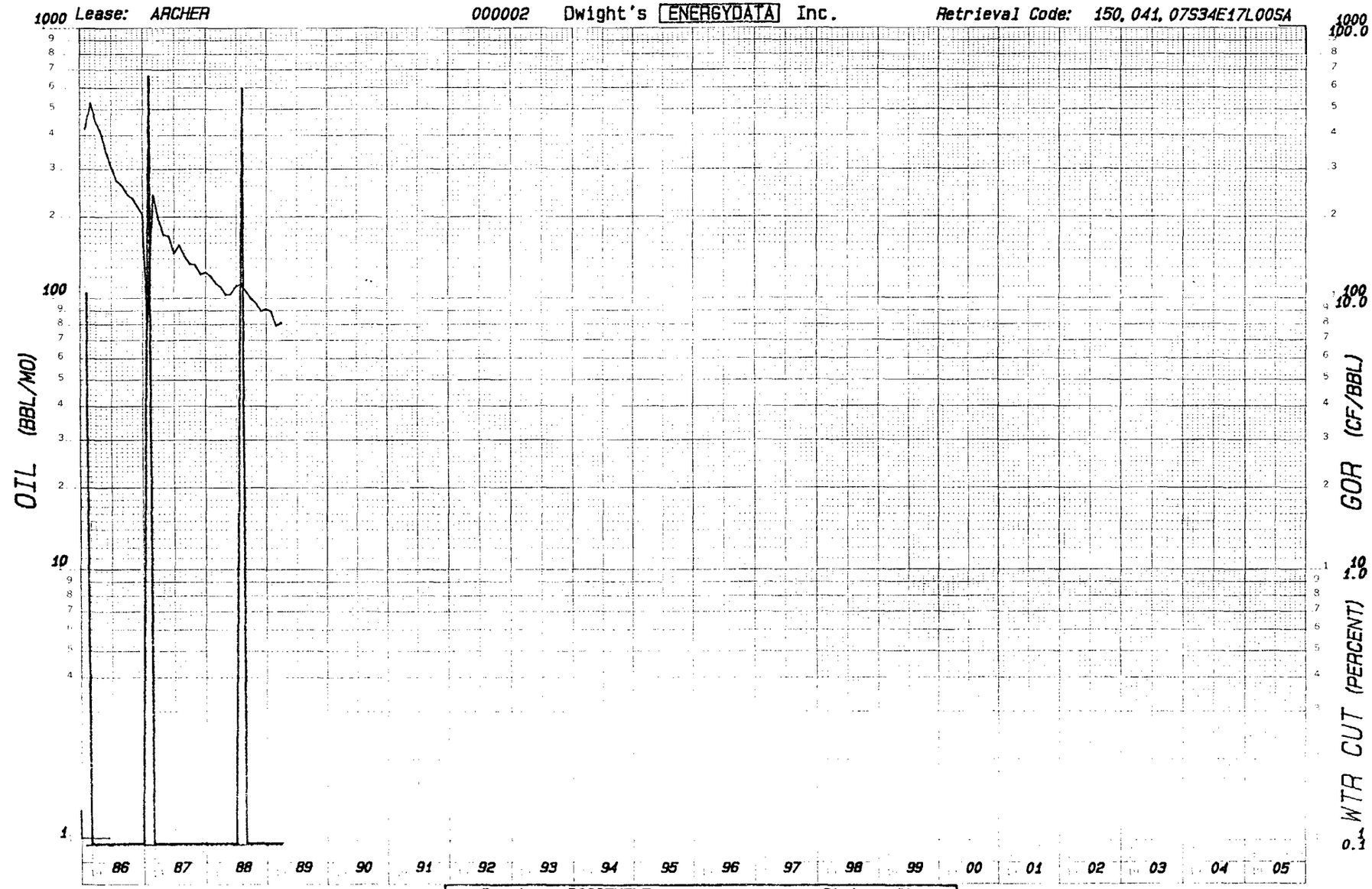
Operator: NATIONAL RESOURCES MGMNT
Lease: METZGER Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM





County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: KERN CO
Oil Cum: 11101 Gas Cum: 21477
Location: 17K 7S 34E

Date: 08-11-89



County: ROOSEVELT State: NM
Field: CHAVEROO SAN ANDRES SA
Reservoir:
Operator: KERN CO
Oil Cum: 6994 Gas Cum: 0
Location: 17L 7S 34E

Date: 08-11-89

Operator: OXY U S A INC

Lease: DAVIS A Well No: 000001

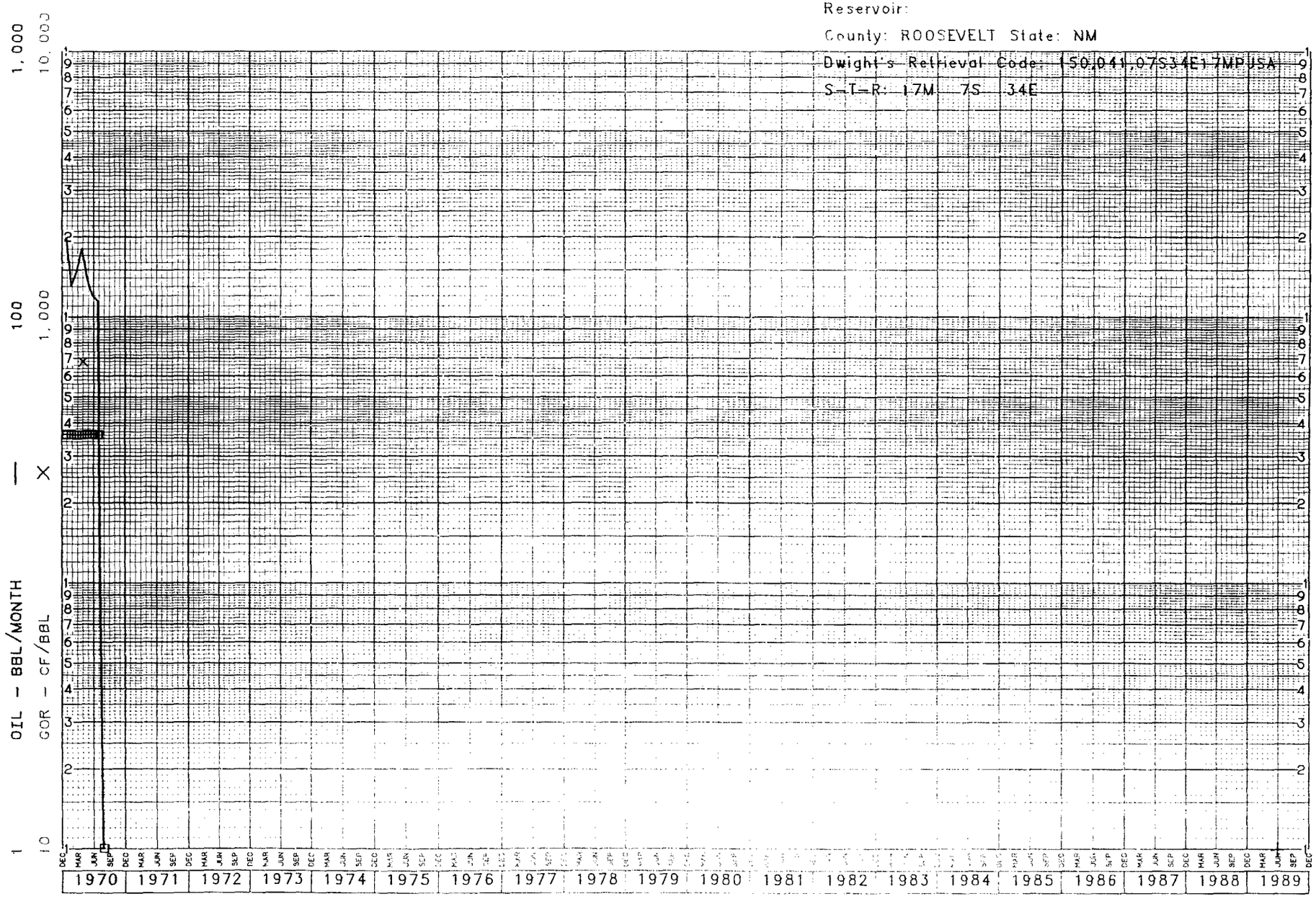
Field: CHAVEROO SAN ANDRES SA

Reservoir:

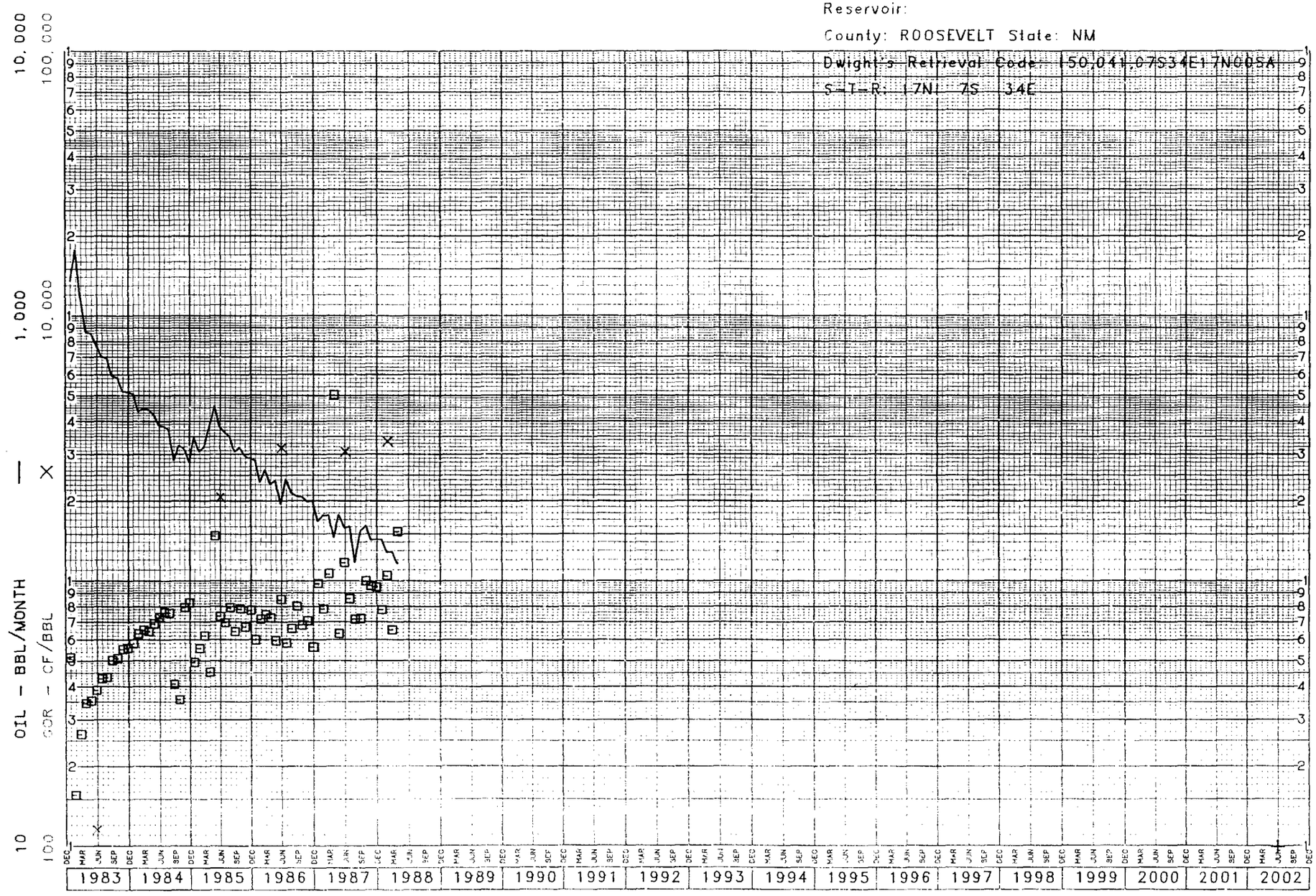
County: ROOSEVELT State: NM

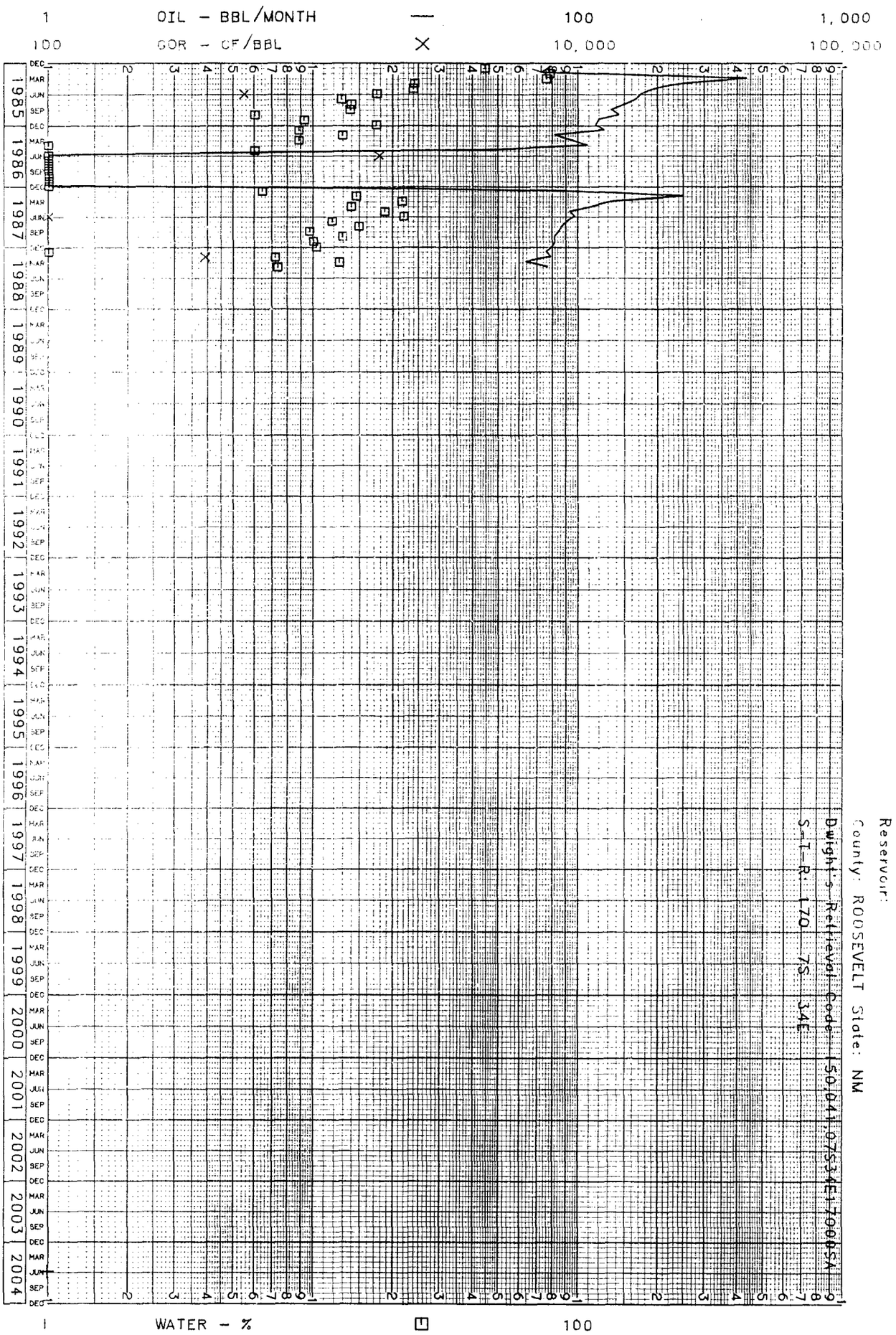
Dwight's Retrieval Code: 150,041,07S34E17MP USA

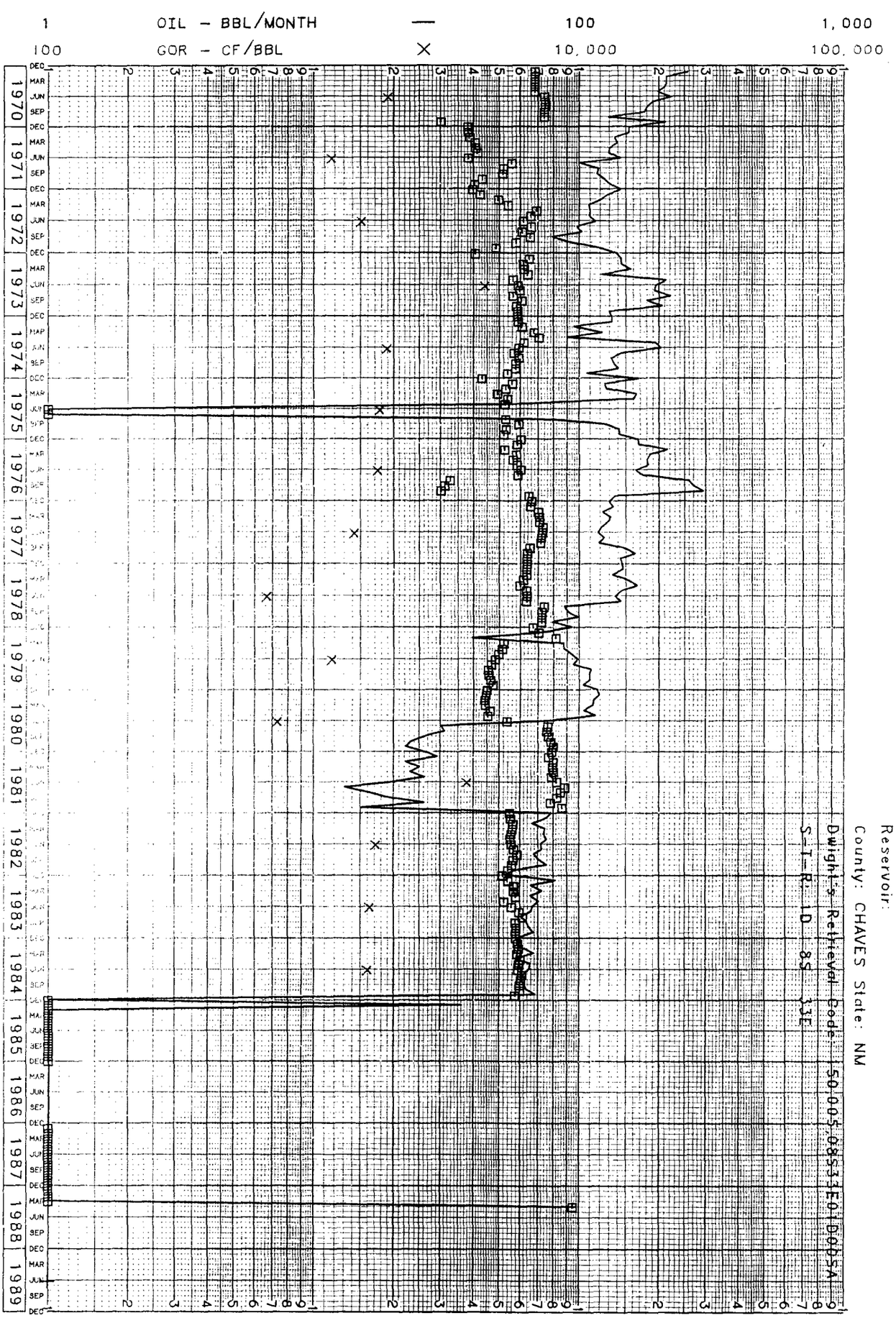
S-T-R: 17M 7S 34E



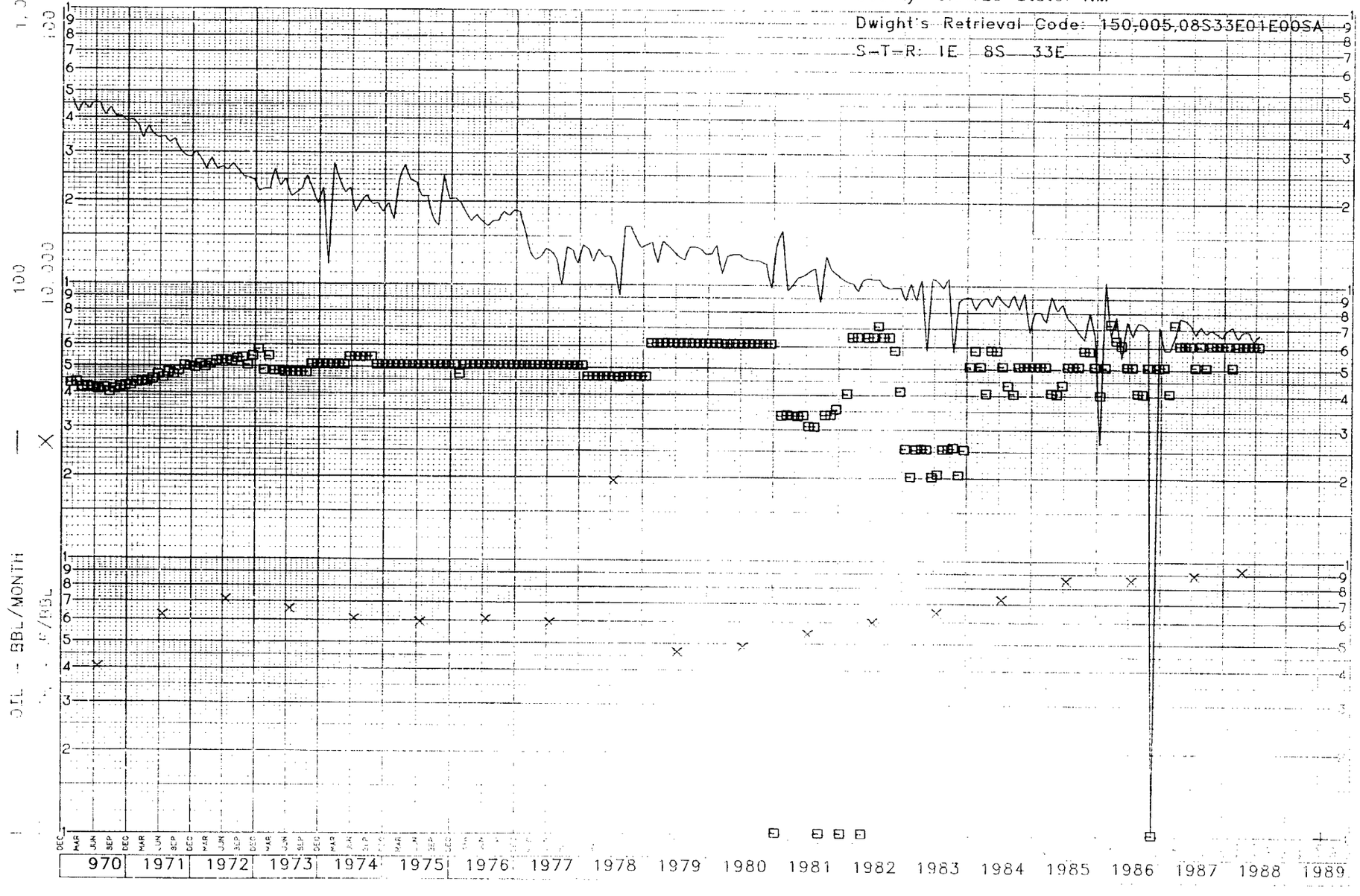
Operator: NATIONAL RESOURCES MGMNT
Lease: ARCHER 17 Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50,041,07S34E17N00SA
S-T-R: 17N 7S 34E



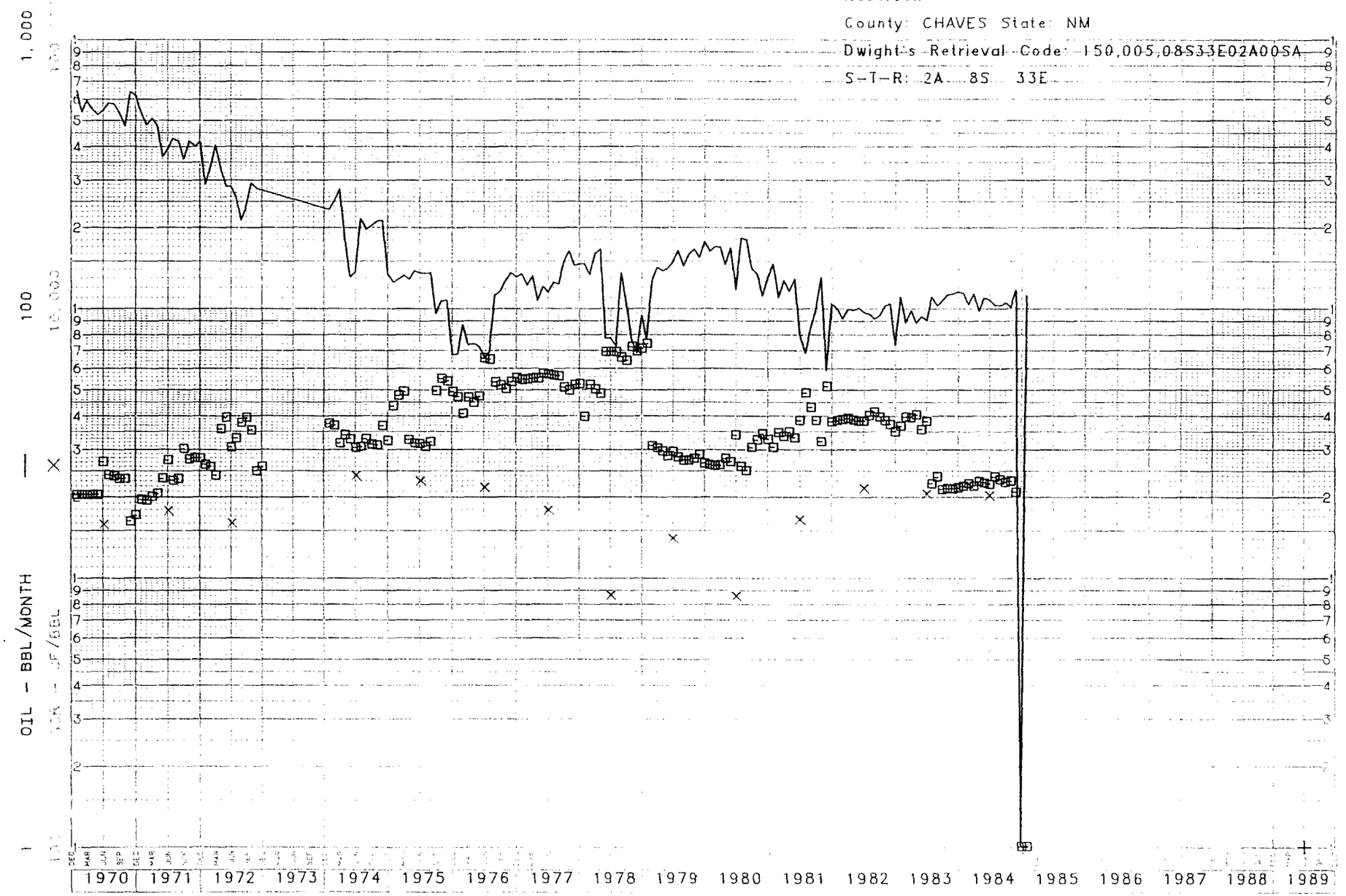

1
OIL - BBL/MONTH
100
1,000
100
GOR - CF/BBL
10,000
100,000
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
WATER - %
100
Operator: NATIONAL RESOURCES MGMNT
Lease: METZGER Well No: 000008
Field: CHAVEROO SAN ANDRES
Reservoir:
County: ROOSEVELT State: NM
Dwight's Retrieval Code: 50104107S34E1700SA
S-T-R: 17S 34E
SA


1
OIL - BBL/MONTH
100
1,000
100
GOR - CF/BBL
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1
WATER - %
100
Operator: MERLIN EXPLORATION INC
Lease: STATE TRACT C Well No: 000004
Field: CHAVEROO SAN ANDRES
Reservoir:
County: CHAVES State: NM
Dwight's Retrieval Code: 50-005-00533E0100SA
S-T-R: 10 8S 33E
SA

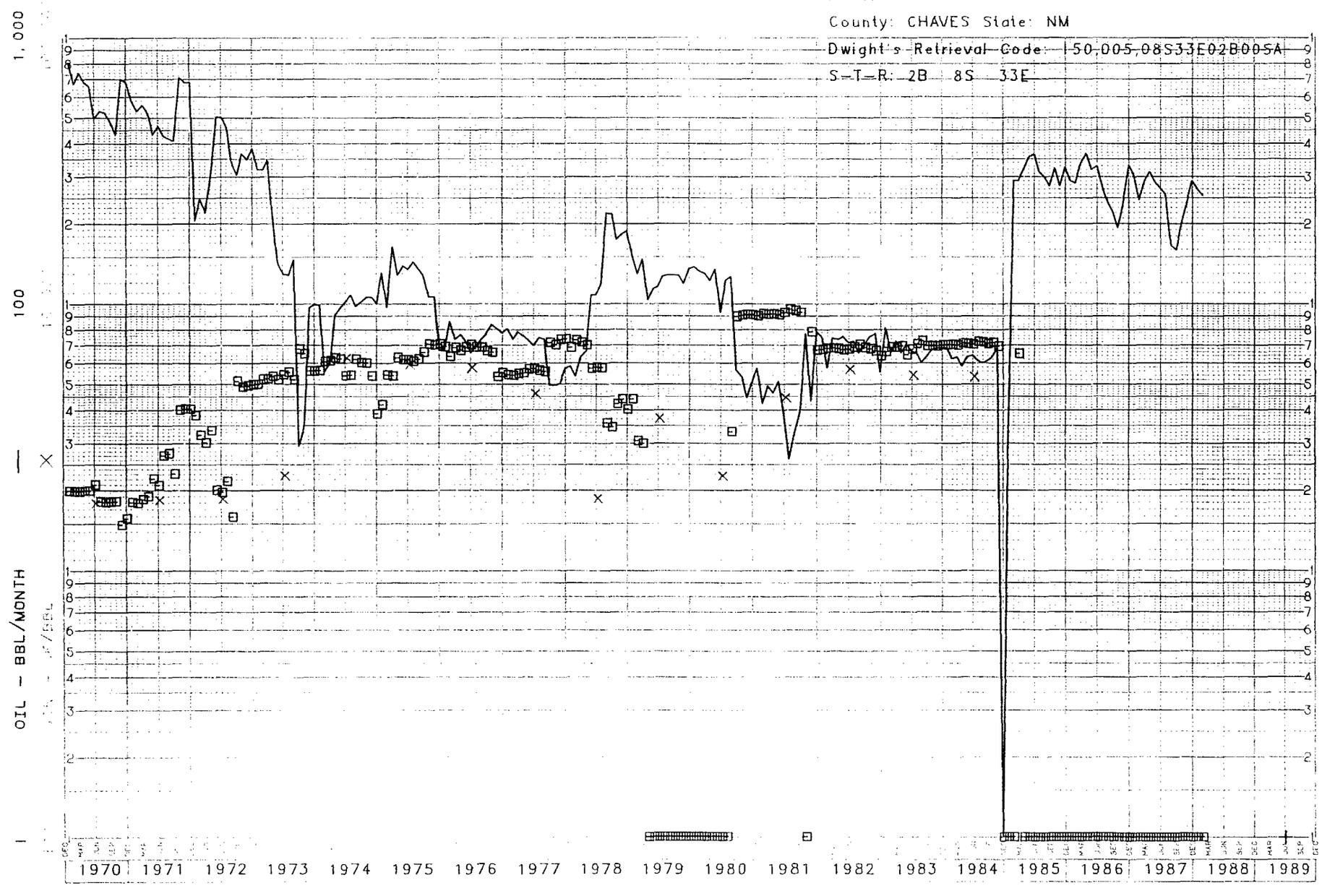
Operator: KERR MCGEE CORP
Lease: STATE FU Well No: 000009
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: CHAVES State: NM
Dwight's Retrieval Code: 150,005,08S33E01E00SA
S-T-R: 1E 8S 33E



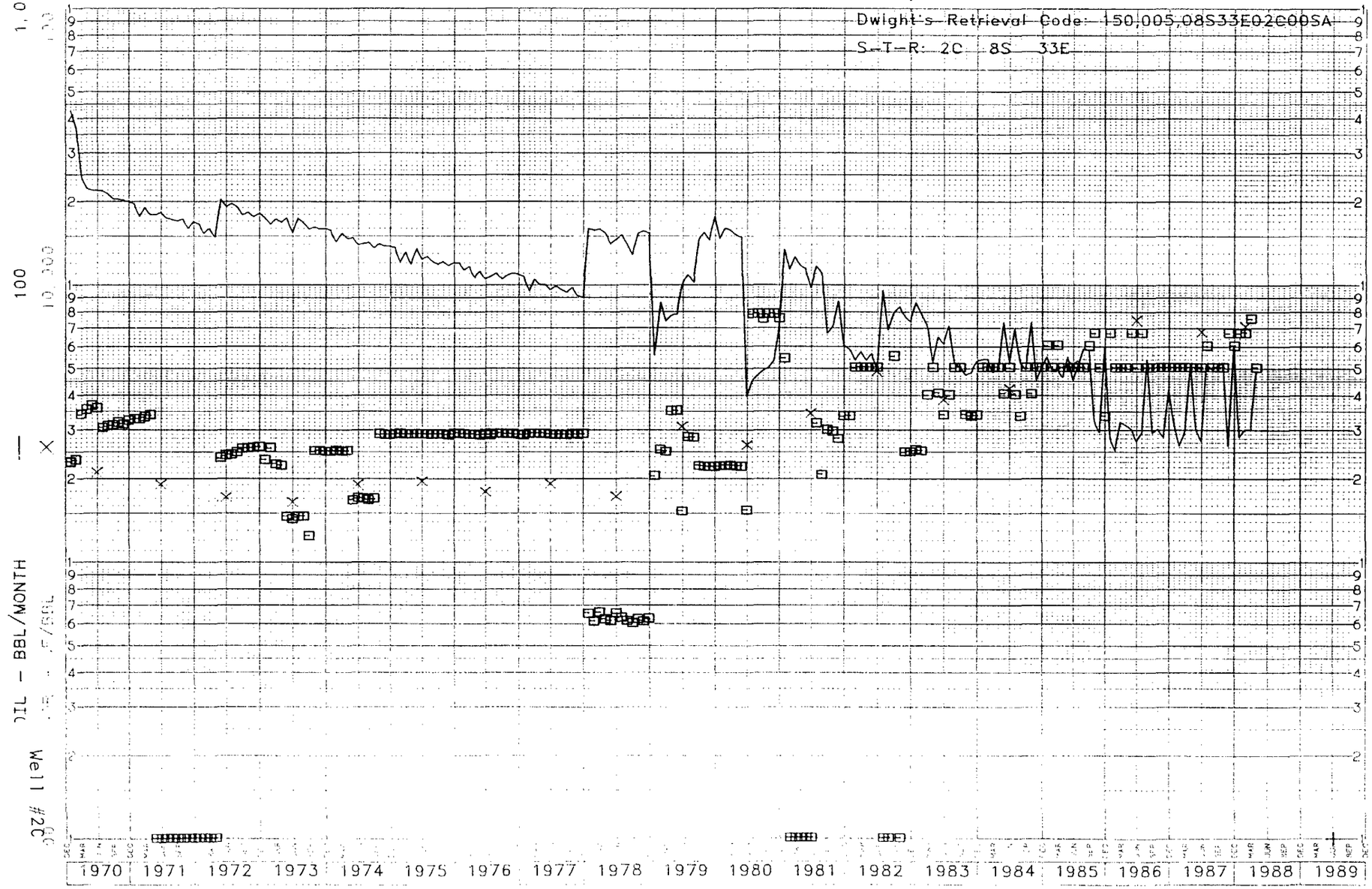
Operator: MERLIN EXPLORATION INC
Lease: STATE TRACT C Well No: 000002
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: CHAVES State: NM
Dwight's Retrieval Code: 150,005,08S33E02A00SA
S-T-R: 2A 8S 33E



Operator: MERLIN EXPLORATION INC
Lease: STATE TRACT C Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: CHAVES State: NM
Dwight's Retrieval Code: 150,005,08S33E02B005A
S-T-R: 2B 8S 33E

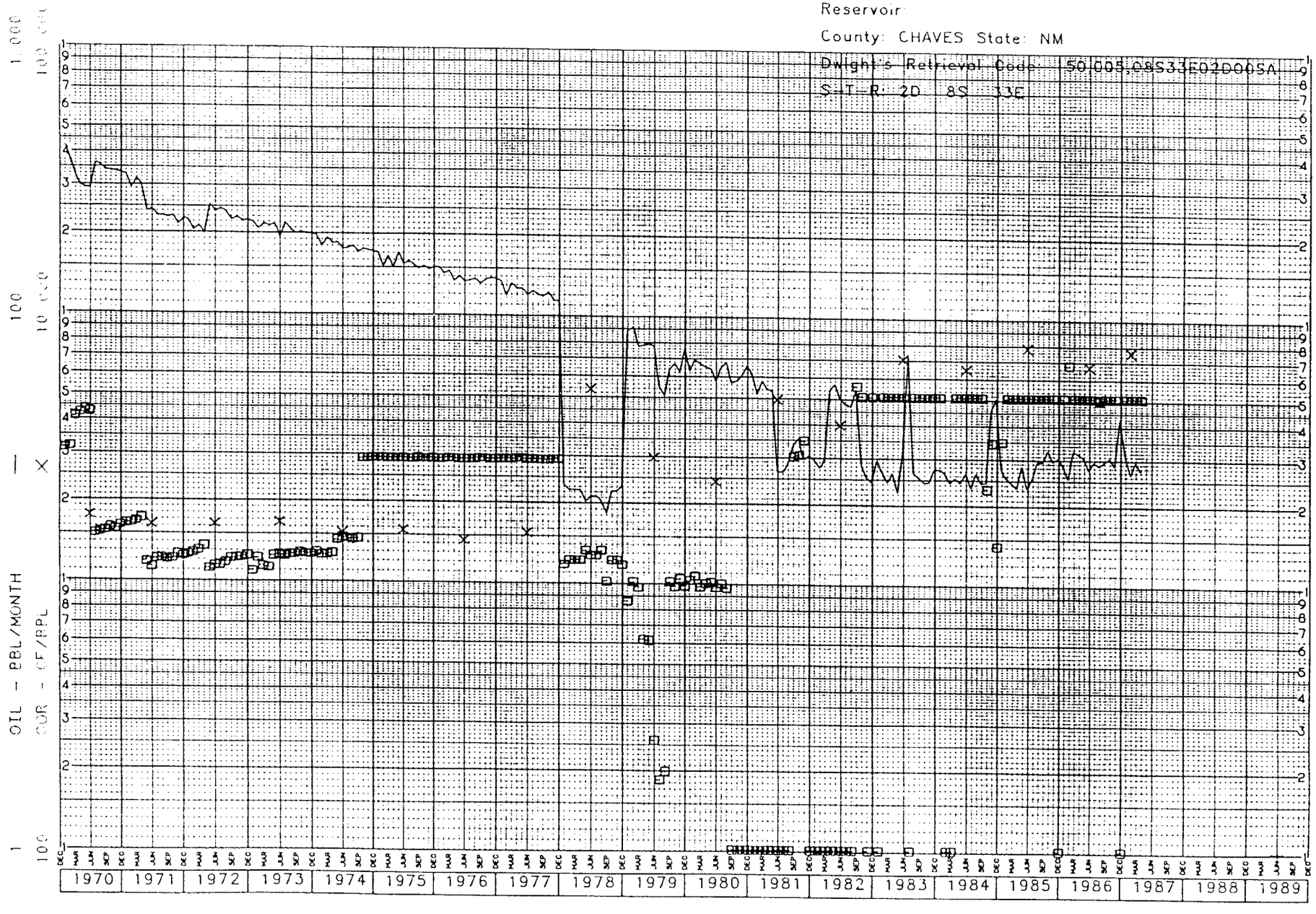


Operator: KERR MCGEE CORP
Lease: STATE F Well No: 000002
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: CHAVES State: NM
Dwight's Retrieval Code: 150,005,08S33E02C00SA
S-T-R: 2C 8S 33E

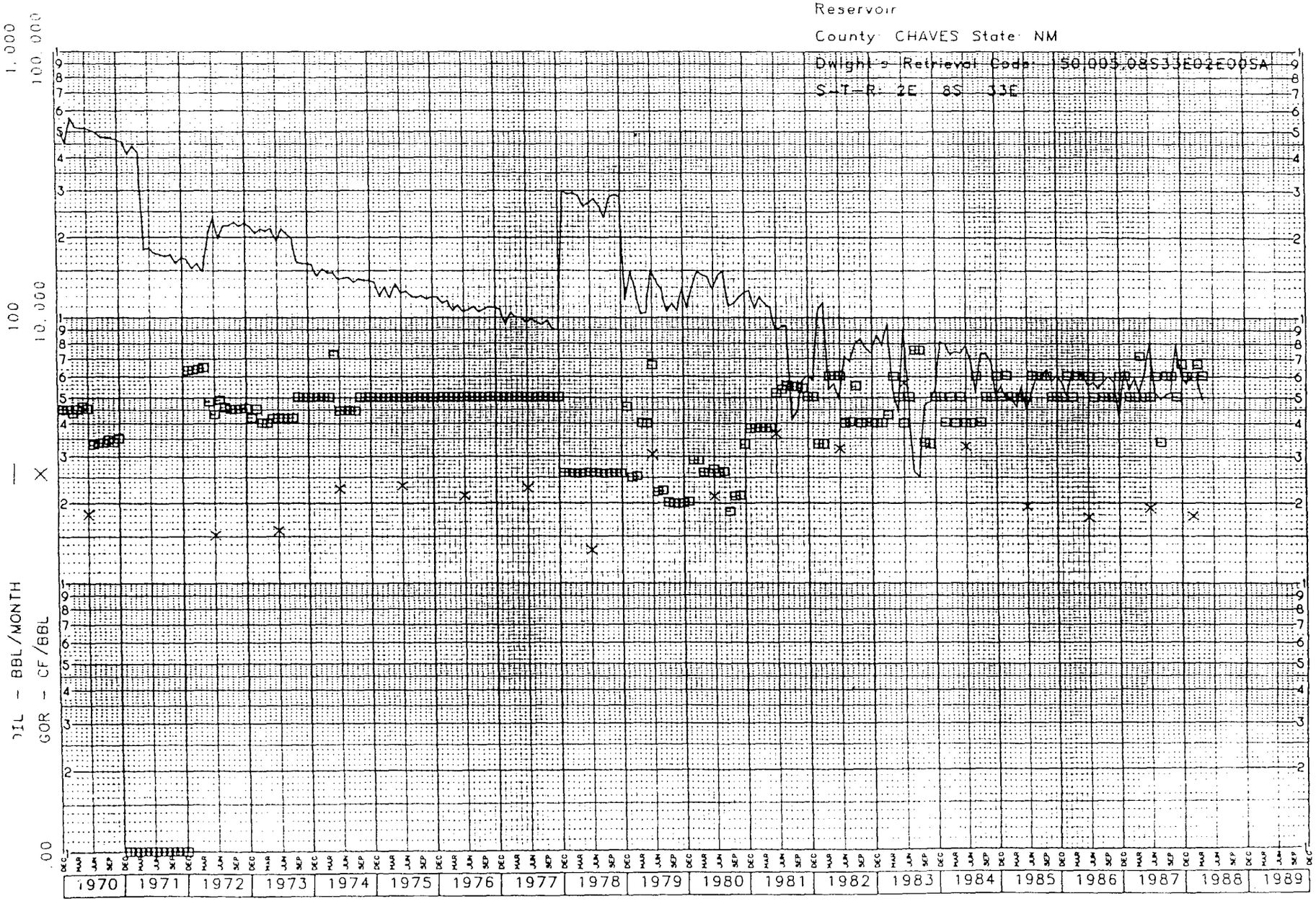


Operator: KERR MCGEE CORP
Lease: STATE F Well No: 000001
Field: CHAVEROO SAN ANDRES
Reservoir:
County: CHAVES State: NM
Dwight's Retrieval Code: 50,005,08S33E02D00SA
S-T-R: 2D 8S 33E

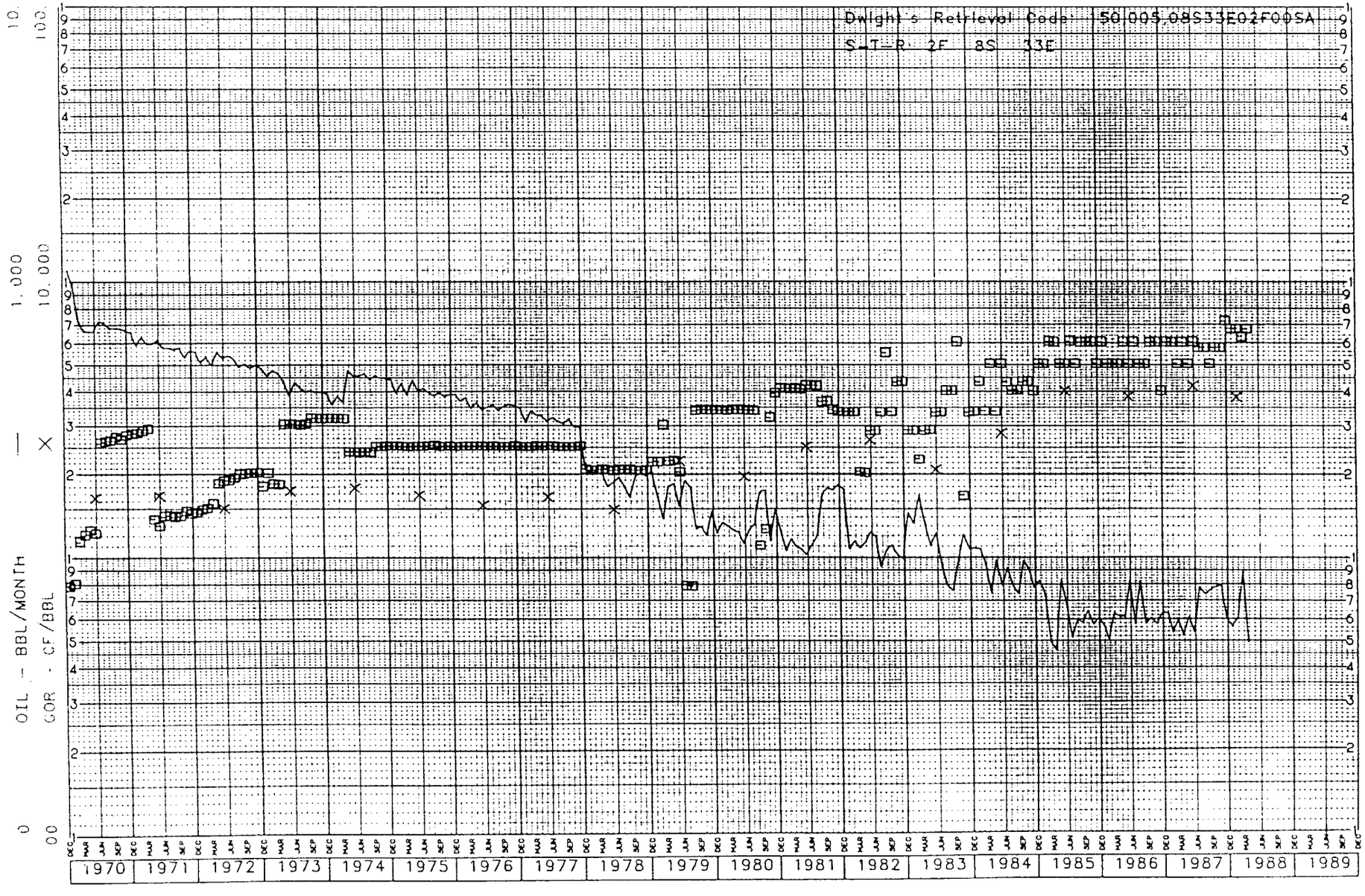
SA



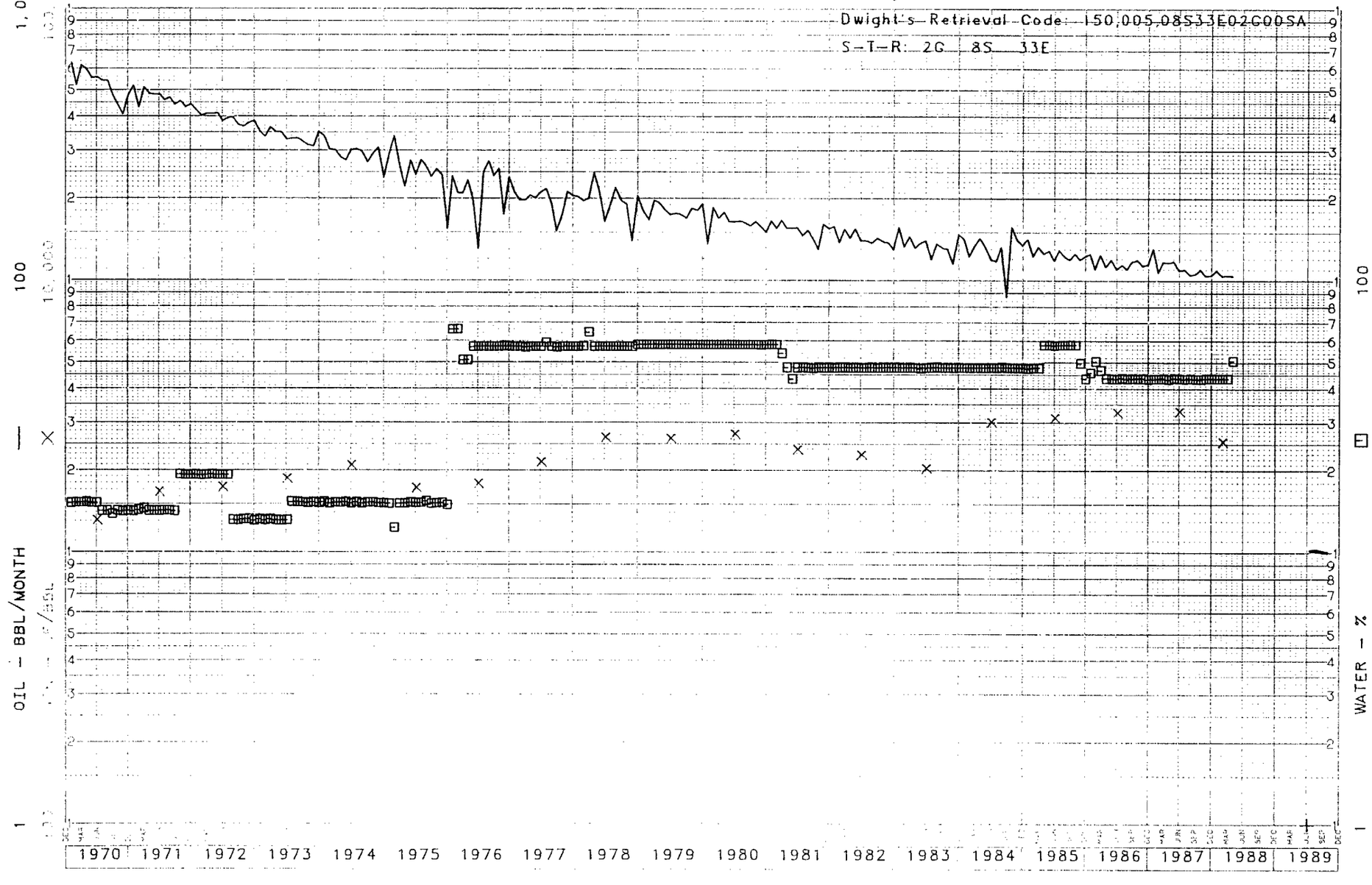
Operator: KERR MCGEE CORP
Lease: STATE F Well No: 000003
Field: CHAVEROO SAN ANDRES SA
Reservoir
County: CHAVES State: NM
Dwight's Retrieval Code: 30 005 08S 33E 02 E 00 SA
S-T-R: 2E 8S 33E



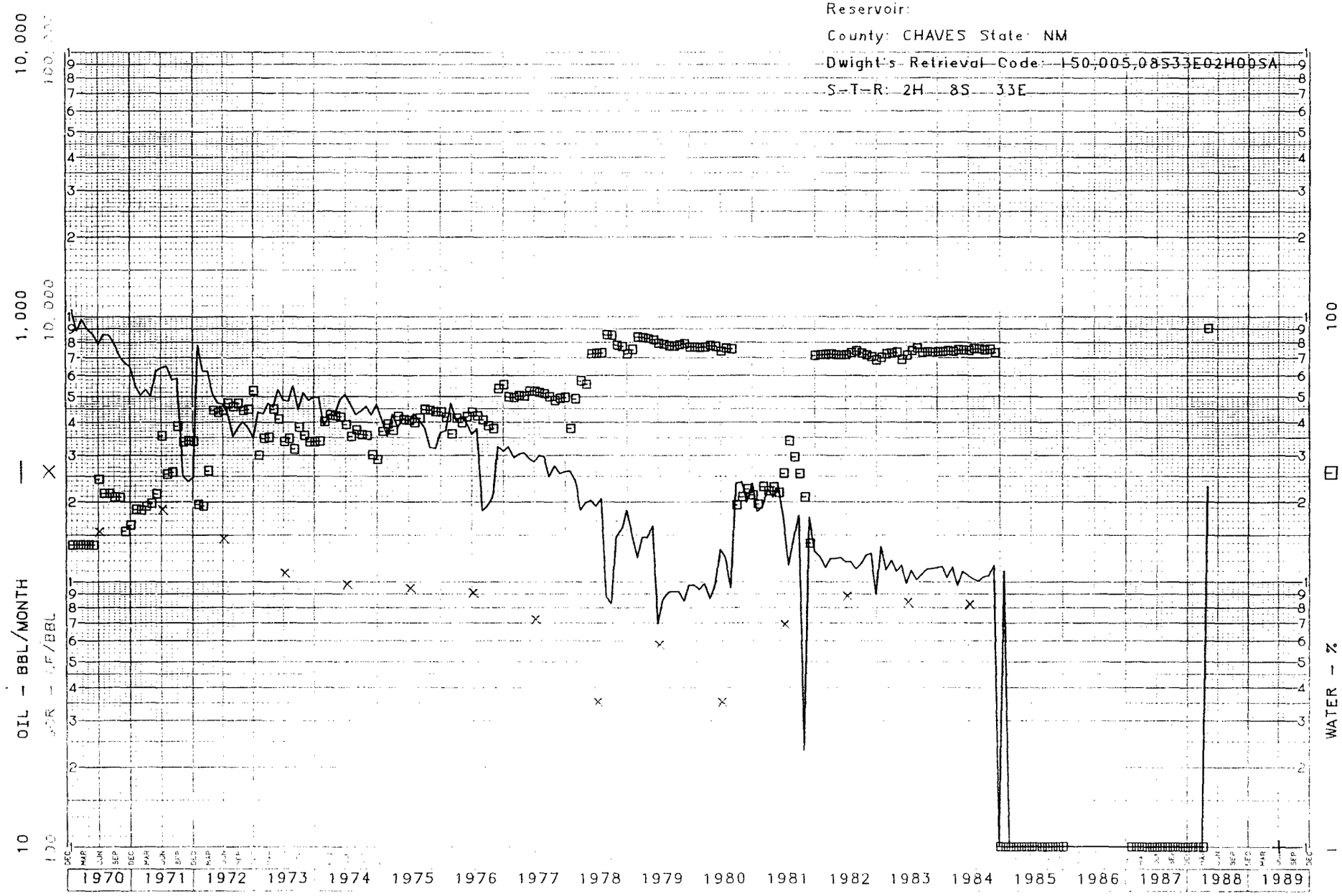
Operator: KERR MCGEE CORP
Lease: STATE F Well No: 000004
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: CHAVES State: NM



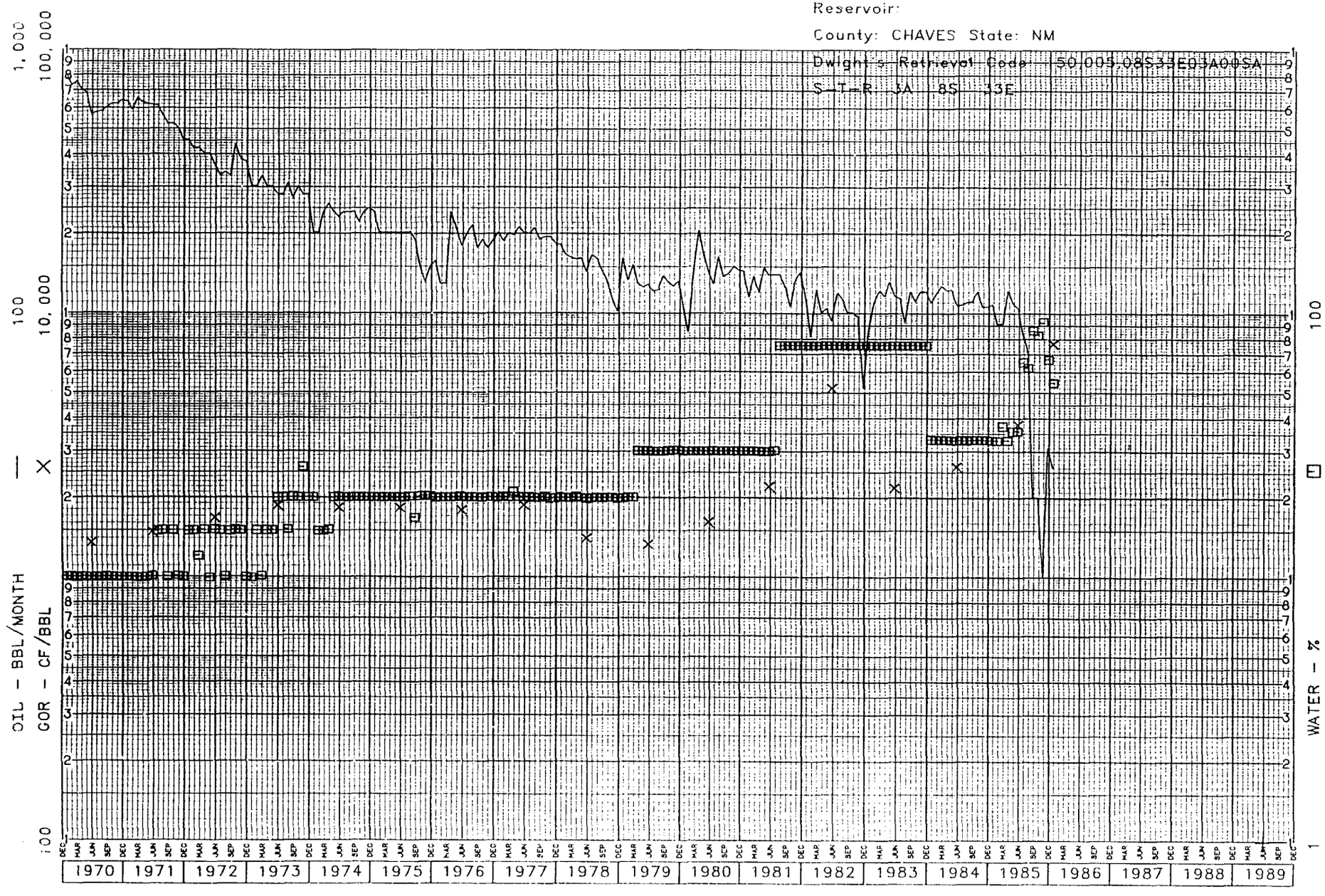
Operator: UNION PACIFIC RESOURCES
Lease: LEVICK STATE 2 Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: CHAVES State: NM
Dwight's Retrieval Code: 150,005,08S33E02C00SA
S-T-R: 2C 8S 33E

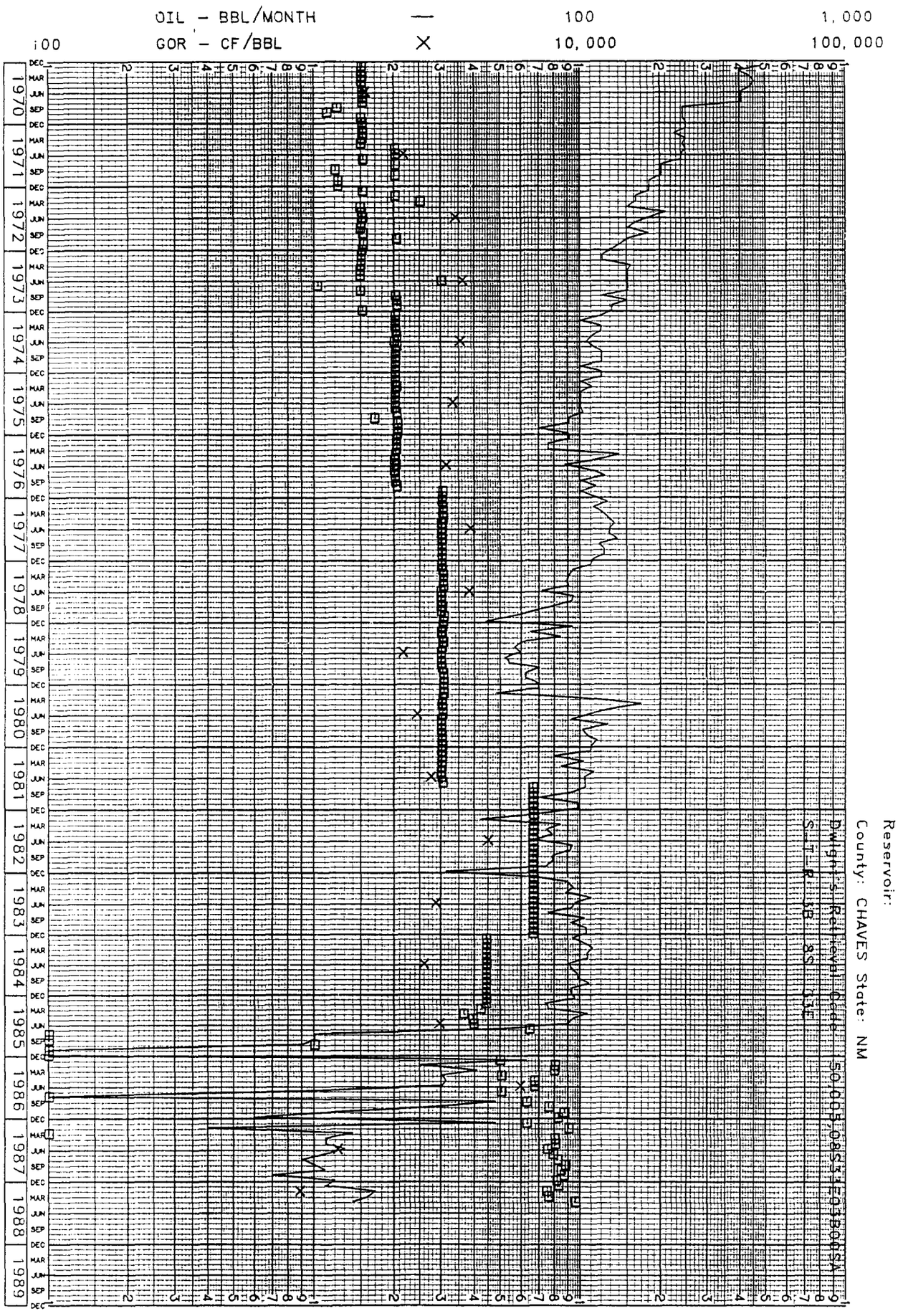


Operator: MERLIN EXPLORATION INC
Lease: STATE TRACT C Well No: 000003
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: CHAVES State: NM
Dwight's Retrieval Code: I50,005,08533E02H00SA
S-T-R: 2H 8S 33E

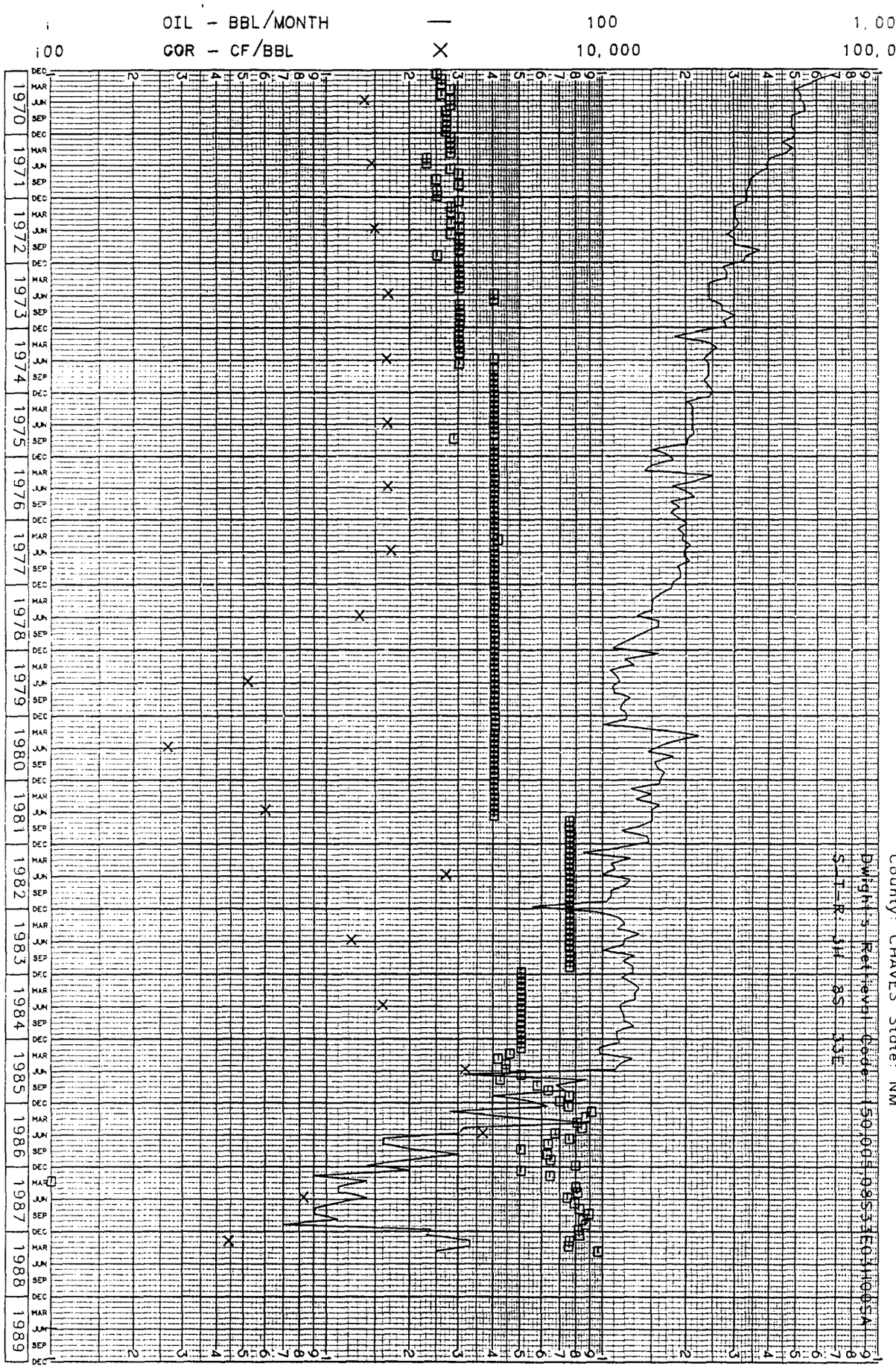


Operator: HONDO O&G CO
Lease: STATE BF Well No: 000001
Field: CHAVEROO SAN ANDRES SA
Reservoir:
County: CHAVES State: NM
Dwight's Retrieval Code: 50,005,08S,33E03A00SA
S-T-R: 3A 8S 33E




OIL – BBL/MONTH
GOR – CF/BBL
WATER – %
100
1,000
10,000
100,000
1
100
Operator: HONDO O&G CO
Lease: STATE BF Well No: 000002
Field: CHAVEROO SAN ANDRES
Reservoir:
County: CHAVES State: NM
Dwight's Retrieval Code: 50005708S31E03900SA
S T R 5B 8S 31E
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989

OIL - BBL/MONTH
GOR - CF/BBL
WATER - %
100
1,000
10,000
100,000
1
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
Operator: HONDO O&G CO
Lease: STATE BF Well No: 000006
Field: CHAVEROO SAN ANDRES
Reservoir:
County: CHAVES State: NM
SA


OIL - BBL/MONTH
GOR - CF/BBL
WATER - %
1
100
1,000
10,000
100,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
Operator: HONDO O&G CO
Lease: STATE BF Well No: 000004
Field: CHAVEROO SAN ANDRES
Reservoir:
County: CHAVES State: NM
SA

MURPHY OPERATING CORPORATION
UNITED BANK PLAZA, SUITE 300
400 NORTH PENNSYLVANIA AVENUE
POST OFFICE BOX 2648
ROSWELL, NEW MEXICO 88202-2648

TELEPHONE
505 623-7210

August 18, 1988

VIA FEDERAL EXPRESS

Mr. Floyd O. Prando
Director, Oil & Gas Division
State of New Mexico
Commissioner of Public Lands
Post Office Box 1148
Santa Fe, New Mexico 87504-1148

Mr. William J. LeMay, Director
State of New Mexico
Energy and Minerals Department
Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico 87504-2088

Re: PLAN OF OPERATION 1988-1989
Proposed Haley Chaveroo San Andres Unit
Chaveroo San Andres Field
Chaves & Roosevelt Counties, New Mexico

Gentlemen:

Pursuant to the provisions of Section 11A. of the Unit Agreement, Murphy Operating Corporation ("MOC"), designated Unit Operator of the proposed Haley Chaveroo San Andres Unit, Chaves and Roosevelt Counties, New Mexico, respectfully submits for your consideration and approval, this Plan of Operation for the secondary recovery of oil by waterflood on the subject unitized land.

I. Proposed Plan of Operation 1988-1989: MOC hereby proposes that the Haley Chaveroo San Andres Unit ("the Unit"), consisting of 1,840.70 acres, as more particularly delineated on the map contained in Exhibit 1 attached hereto, be formed for the purpose of secondary recovery by the waterflood method. This proposed Unit currently consists of a total of forty-four (44) wells (forty (40) producing wells, two (2) salt water disposal wells, and two (2) plugged and abandoned wells). Ultimately, it is planned that the Unit will consist of forty-six (46) wells (twenty-three (23) injection wells, twenty-one (21) producing wells, and two (2) plugged and abandoned wells). The current and corresponding proposed status of each well is listed in Table I below:

TABLE I

Proposed Unit Well No.	Original Operator	Lease Name	Well No.	Current Well Status*	Proposed Well Status*	Remarks
33-01	Texaco	Hobbs "T"	6	PRD	PRD	
33-02	Texaco	Hobbs "U"	2	PRD	INJ	
33-03	Sun Op.	State "AZ"	3	PRD	PRD	
33-04	Sun Op.	State "AZ"	5	SWD	INJ	
33-05	Sun Op.	State "AZ"	1	PRD	PRD	
33-06	Texaco	Hobbs "T"	1	PRD	INJ	
33-07	Texaco	Hobbs "U"	1	PRD	PRD	
33-08	Texaco	Hobbs "T"	5	PRD	INJ	
33-09	Sun Op.	State "AZ"	7	PRD	PRD	
33-10	Texaco	Hobbs "T"	3	PRD	INJ	
33-11	Sun Op.	State "AZ"	2	PRD	PRD	
33-12	Texaco	Hobbs "T"	2	PRD	INJ	
33-13	Sun Op.	State "AZ"	4	PRD	PRD	
33-14	Sun Op.	State "AZ"	6	PRD	INJ	
33-15	Texaco	Hobbs "T"	4	PRD	PRD	
33-16	Texaco	Hobbs "T"	11Y	SWD	INJ	
34-01	Sun Op.	State "AZ"	13	PRD	PRD	
34-02	Sun Op.	State "AZ"	12	PRD	INJ	
34-03	Sun Op.	State "AZ"	11	PRD	PRD	
34-04	Texaco	Hobbs "T"	9	PRD	INJ	
34-05	Sun Op.	State "AZ"	8	PRD	PRD	
34-06	Sun Op.	State "AZ"	9	PRD	INJ	
34-07	Texaco	Hobbs "T"	10	PRD	PRD	

TABLE I
(Continued)

Proposed Unit Well No.	Original Operator	Lease Name	Well No.	Current Well Status*	Proposed Well Status*	Remarks
34-08	Sun Op.	State "AZ"	14	PRD	INJ	
34-09	Texaco	Hobbs "T"	12	PRD	PRD	
34-10	Texaco	Hobbs "T"	8	PRD	INJ	
34-11	Sun Op.	State "AZ"	10	PRD	PRD	
34-12	Texaco	Hobbs "T"	7	PRD	INJ	
34-13	Sun Op.	State "AZ"	16	PRD	PRD	
34-14	Texaco	Hobbs "T"	13	PRD	INJ	
34-15	Texaco	Hobbs "T"	15	PRD	PRD	
34-16	Sun Op.	State "AZ"	15	PRD	INJ	
03-01	ARCO	State "BF"	1	PRD	PRD	
03-02	ARCO	State "BF"	2	PRD	INJ	
03-03	ARCO	State "BF"	3	PRD	PRD	
03-04	ARCO	State "BF"	5	P&A	INJ	Well to be reentered or redrilled
03-06	ARCO	State "BF"	7	PRD	INJ	
03-07	ARCO	State "BF"	6	PRD	PRD	
03-08	ARCO	State "BF"	4	PRD	INJ	
03-10	ARCO	State "BF"	8	PRD	INJ	
03-11	ARCO	State "BF"	11	PRD	PRD	
03-14	Tierra	Annarco	1	P&A	INJ	Well to be reentered or redrilled
03-15	ARCO	State "BF"	10	PRD	PRD	
03-16	ARCO	State "BF"	9	PRD	INJ	

* Well Status: PRD - Producer
INJ - Injector
SWD - Salt Water Disposal
P&A - Plugged and Abandoned

The conversion to injection of certain wells will be undertaken in three (3) phases as proposed below:

Phase I: Subsequent to Unit approval, MOC will initiate injection by gravity into proposed injection Wells #33-8, #34-6, and #34-14. This proposed injection, together with existing injection into Well #33-16 (SWD), will facilitate a 360-acre nine-spot pattern permitting MOC the opportunity to monitor and observe any preferential fracture trends.

Phase II: Upon completion of the injection plant approximately 45 to 90 days after Unit approval, it is proposed that Well #33-10, #34-10, and #34-12 be converted to injection status. The conversion of these wells will modify the above-described nine-spot pattern to two (2) 80-acre five-spot patterns. It is proposed that Phase II be monitored for 12 to 24 months and, subject to reservoir fill up and response, additional development will be implemented as described in Phase III below.

Phase III: Assuming satisfactory response, Phase III will consist of unit-wide development in five-spot injection patterns. The proposed five-spot patterns will utilize the existing salt water disposal wells, protect lease boundaries and provide for the maximum recovery of secondary oil. This will require the conversion to injection of fourteen (14) wells and the drilling of two (2) additional injectors.

As presented in Exhibit 1 attached, MOC plans to construct a water injection plant in the SE/4SE/4, Section 33, Township 7 South, Range 33 East, to service the Unit area. This plant will be constructed in such a manner to provide approximately 4,200 BBLS of water per day for ample injection capability in Phases I and II of the development program. The plant will provide an ultimate injection capability of approximately 13,800 BBLS of water per day in Phase III of the Unit development. The planned location was chosen because of its proximity to existing roads and electrical service and its central location to the proposed injection wells. A series of individual and trunk injection lines will radiate in a northwesterly, northeasterly, and southeasterly direction to provide injection service to the individual injection wells.

Supplemental water will be purchased from the closest and most economical of several commercial sources which are available in this area. All sources are fresh water from the Ogallala formation which is present at an approximate depth of 200 feet below the surface. This water, combined with the San Andres produced water, has been deemed compatible by chemical analysis (submitted under separate cover and previous experience. A water supply line system will be constructed as shown on Exhibit 1.

II. Operating Guidelines: MOC plans to monitor all injection wells through daily rate and pressure checks. After 90 to 120 days of initiation of injection into any given well, a tracer survey will be run in order to insure acceptable injection profiles and to determine if water channeling is occurring. If water channeling or unacceptable injection profiles are observed, appropriate remedial work will be performed. As wells are converted to injection status, the annuluses of each well will be filled with inert ("packer") fluid containing corrosion inhibiting chemicals. The downhole integrity of each injection well will be determined by "pressuring up" the annulus of each well and maintaining a positive pressure of 300 psig for at least thirty (30) minutes. The procedure for conversion to injection status and all remedial and drilling operations will be performed in strict adherence to the Rules and Regulations of the Oil Conservation Division and other regulatory agencies.

III. Modification: Subject to approval, this Plan of Operation may be modified or supplemented during the year to meet changed conditions and to protect the interests of all parties to the Unit Agreement.

Should you have any questions or comments, please contact the undersigned.

Respectfully submitted,

MURPHY OPERATING CORPORATION

Mark B. Murphy
President and Chief Operating Officer

MBM:dr

Enclosure: Proposed Haley Chaveroo San Andres Unit, "Field Map Indicating Proposed Unit Facilities".

cc: Mr. Jerry E. Sexton
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