BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
EXHIBIT NO. 4
CASE NO. 9738

WATERFLOOD FEASIBILITY AND UNITIZATION STUDY

PROPOSED CATO SAN ANDRES UNIT

KELT OIL & GAS, INC.

WATERFLOOD FEASIBILITY

AND UNITIZATION STUDY

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CHAVES COUNTY, NEW MEXICO

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TABLE OF CONTENTS

FIGURES

PLATS

APPENDICIES

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PURPOSE

The purpose of this report is to determine the feasibility of waterflooding the P1, P2 and P3 dolomites of the San Andres Formation in the Cato field, Chaves County, New Mexico and to present a proposed waterflood and unitization plan for secondary recovery.

CONCLUSIONS

1. Based on a pilot flood in the northern part of Cato field, a VIP reservoir simulation study and an analogous field study; the P1, P2 and P3 dolomites of the San Andres Formation in the Cato field can be successfully water flooded.

2. Remaining primary oil recovery is estimated at 730,000 barrels of oil for proved developed and undeveloped reserves (446 MBO and 284 MBO respectively). This would give Cato an ultimate recovery of 10 % without flooding.

3. Estimated proven undeveloped secondary reserves are 11.687 MMBO which is an increase in recovery of 7 % over primary and gives a secondary to primary recovery ratio of 0.8. This ratio is within the proven range of secondary to primary ratios known for the San Andres Formation, 0.6 to 1.4.

4. Total estimated initial investment for the waterflood project is $13.6 million. Ultimate capitol expenditures could approach $20.0 million. This includes drilling of new wells, conversion of wells, re-perforating and squeezing, surface facilities installation/renovation and power plant installation.

5. Present net worth for secondary proved undeveloped reserves, discounted at 10 % is $26.9 million as compared to a 10 % discounted present net worth of developed producing reserves of only $0.96 million.

6. The most efficient way to economically recover both remaining primary and secondary reserves is to unitize the Cato field.

1.0 **FIELD HISTORY**

1.1 Location

The Cato Field, Chaves County, New Mexico, is located approximately fifty miles east, north-east of the city of Roswell, on the Northwestern Shelf of the Permian Basin in T8S and T9S, R30E. The field lies near the western edge of the east-west San Andres fairway that begins with the giant Slaughter-Leveland field 60 miles east in Texas. The fairway includes Bluitt, Milenesand, Chaveroo, Tom Tom, Tomahawk, Siete, Cato and Twin Lakes San Andres fields (Figure 1).

1.2 Producing Zones

Cato's productive reservoirs are in three lower San Andres Formation anhydritic fractured dolomites locally named P1, P2, and P3 (increasing depth). The zones occur at a depth of 3100 to 3700 feet with gross thicknesses ranging from 10 to 60 feet per zone. The P1 is the primary productive zone being completed in all wells except for those on the extreme northwest edge of the field where the P3 zone was the primary target and initial completion interval.

There are three Devonian wells offsetting Cato to the northwest by 1/2 mile in sections 6, 7 and 8 of T8S-R30E. These constitute the Lightcap field and are not considered either part of the Cato San Andres field or part of the proposed unit.

1.3 Discovery and Development

Cato Baskett #1, located in the NW/4 SW/4 Sec11 T8S-R30E drilled by Pan American Petroleum Corporation, discovered the Cato field in June 1966. Amoco, Shell, Mobil and Union Texas all played an integral part in the development of the Cato and the field was developed over the next four years on 40-acre spacing with 250 wells covering 10,500 productive acres. A typical 3,400 foot San Andres well potentialed for 60 barrels of oil per day (BOPD), 30,000 cubic feet of gas per day (MCFPD) and no water. The average field water cut increased to about 50 percent in the early 1970's yet total fluid rates fell dramatically indicating field wide pressure depletion. In January, 1968 primary oil production peaked at 10,000 BOPD from 205 wells. In 1970 maximum gas production was reached at 14.3 MMCFPD (Figure 6). As of January 1, 1988 production from the 130 active wells was 300 BOPD, 1.14 MMCFPD, and approximately 2,000 BWPD. Cumulative field production as of the same date was 15.3 MMBO, 29.8 BCFG, and 23.5 MMBW.

Fourteen step-out and 40 acre in-fill locations and one 20 acre in-fill location were drilled after 1970 bringing the total producer count to 265. The proposed unit contains 259 or 98% of the total produced San Andres wells drilled in the field. A total of 268 wells (producers plus dry holes) were drilled in defining the field limits. Of these, 261 wells were drilled within the proposed unit boundary. Thirteen wells within the proposed unit were converted into injectors in two pilot floods. Two wells outside of the unit were used as disposal wells. The chart below summarizes the current well status.

WELLS	PROD	IDLE	INJ	P&A	D&A
IN UNIT	123	71	13	54	12
OUT OF UNIT	2	4	2	0	7

The 20 acre in-fill location, New Mexico State H #17, was drilled and completed in the center of the NE/4 of section 16 T8S-R30E during June, 1979. It had an initial production of 5 BOPD, 6 MCF, and 12 BWPD from 38 feet of perforations in the P1 interval. Production rates from this well confirmed that the reservoir had suffered pressure depletion and had been adequately drained on primary. Furthermore this well verified lateral reservoir continuity.

At present much of Cato is at or below its economic limit. Low production rates per well and persistently low product prices in conjunction with increasing operating expenses necessitate the unitization of Cato for the economic recovery of remaining primary and undeveloped secondary reserves.

1.4 Log and Core Data

Over 50% of the wells were logged with either compensated density porosity, sidewall neutron porosity or bore hole compensated sonic logs. The remainder of the wells were logged with cased hole gamma ray neutron logs or simply gamma ray logs for perforating. Laterlogs or guard logs were also run on the wells with open hole porosity logs.

Thirty-one wells were cored and of this total seventeen had a routine complete core analysis performed. The open hole logs were calibrated to the routine core analysis for water saturation and petrophysical analysis.

Nine of the cores were examined by Kelt to determine lithology, heterogeneity, fracture orientation and density, solution porosity distribution and intercrystalline porosity distribution. Core plugs from one core were submitted for thin section petrographic analysis.

1.5 Completions

Typically, 4 1/2" production casing was set through the P1 and P2 pay zones and cemented with 300 sacks. The wells were acid stimulated through perforations with 1000 to 5000 gallons of 15-28% HCL. The majority of the original wells were completed flowing and field pressure and hence rates declined, the wells were converted to artificial lift. The P3 was found to be productive only in the northwest corner of the field.

2.0 GEOLOGY

2.1 Stratigraphy

Cato oil reservoirs are divided into three zones separated by two major interzones. The reservoirs are three lower San Andres fractured anhydritic dolomites locally termed, from highest to lowest stratigraphically, P1, P2 and P3. The two interzones are termed P1-P2 interzone and P2-P3 interzone. The P1-P2 is a dense blue-grey anhydrite with thin interbedded dolomite layers. The P2-P3 is a dense non-porous, non-permeable tan to brown limestone. The P1 is capped by a slightly dolomitic anhydrite (Figure 2).

The general stratigraphic column from the upper most P3 dolomite to the cap rock anhydrite above the P1 is as follows: P3 anhydritic dolomite overlain by a dense and impermeable P2-P3 limestone grading upward into a limey dolomite to P2 anyhdritic dolomite overlain by the blue-grey P1-P2 anhydrite overlain by P1 anhydritic dolomite capped by anhydrite. This cyclical depositional pattern is common for the lower San Andres. It is the result of deposition in a prograding sabkha environment that was interrupted by periodic transgressions.

Reservoir continuity is illustrated by the three restored cross sections (Plats 1,2,3). Consistent log correlations in the northern part of the field (north of section 27, T8S-R30E) indicate good lateral continuity in the P1 and P2. To the south a lateral facies change results in the thinning of the P1-P2 anhydrite and the resultant thickening of the P1 dolomite. The P1 porosity breaks in the southern part of the field are separated by thin beds of increased anhydrite volume. These porosity breaks can be correlated from well to well again implying reservoir continuity. The P2 is also mappable yet thinner in the southern portion.

2.2 Productive Zone Porosity Evaluation

Porosity values for the three productive zones were determined primarily from routine core analysis calibrated to the various porosity logs. The core porosity values were taken as given (no correction has been made for overburden) but log derived values were calculated by standardizing each log to consistent lithologic units; i.e. the anhydrite cap and P1-P2 interzone. A reasonable correlation between core porosity versus log porosity was achieved with this technique (Figure 3). On the average log porosity was found to be 1-2% higher than core porosity.

The sidewall neutron porosity (SNP) logs corrected for lithology were found to have the best agreement with the core. Similarly the compensated density porosity (FDC) logs matched the core, but to a lesser degree. Matrix density values of 2.83 gm/cc for P1 and P3 and 2.76 gm/cc for P2 were selected as representative. The sonic logs lacked sensitivity and were used only when a SNP or FDC was not available. Based on a weighted average (by thickness) distribution of porosity a log calculated porosity cutoff of 4% was selected as reasonable. That is, 80% of the rock showing log porosity had a porosity greater than 4%. This criterion was used in all isopach mapping of porous rock.

From the 17 routine core analysis the average porosity of all zones is about 6% and average permeability is 20 millidarcy (md) for all rock greater than 2% porosity and/or greater than 1 md (Table 1). This is the criterion used for determining net porous and permeable rock from the core data. It is, within the accuracy of the correlation between log and core porosity, identical to the log porosity cutoff used.

Thin section analysis using the Swift Automatic Point Counter for volume percentages on 18 slides covering the P1 through P3 from the Crosby 7 well, SW SW sec. 9, T8S-R30E, yielded an average porosity of 8.6%.

2.3 Porosity versus Permeability

Porosity versus permeability cross plots were prepared for each zone (P1, P2, P3) and for each rock type - dolomite, fractured dolomite, vuggy dolomite, limestone and fractured limestone. With the exception of the vuggy dolomite (Figure 4) the plots showed no correlation between porosity and permeability.

Examination of 9 cores by Kelt revealed three types of porosity; solution, intercrystalline, and fracture. The vuggy (solution) dolomite has a minimum of 3% porosity with the vug diameter ranging from 0.09 mm to .65 mm. The vuggy intervals occur in 6 inch to 1 foot thick intervals. It is present in all three zones but due to limited core data it is not mappable. The average porosity is 9% and the average permeability is about 10 md.

The vugs are dissolved from a dolomite matrix with intercrystalline porosity. The matrix permeability (intercrystalline as opposed to solution) is 1-2 md. Individual crystals range in size from very fine to medium grained.

The fractures are predominantly vertical with occasional horizontal and 10-20 degrees to vertical fractures intersecting them. The 20 md average permeability measured in the cores is due to fracture permeability yet fracture porosity is roughly only 1% of the total porous volume. Fractures within several feet of the over and underlying anhydrite beds are usually filled with anhydrite but most of those within the porous section are naturally open.

Core measured permeabilites exhibited a wide distribution (.1 to over 100 md) which reflects the triple porosity model and hence the heterogeneity of the reservoirs. Diverse permeability distributions are common in many San Andres dolomite reserviors and are seldom used to influence waterflood performance predictions.

2.4 Water Saturation Analysis

Water saturations (Sw) were calculated with Archie's equation:

$$Sw = (a * Rw/PHI^m * Rt)^{1/n}$$

Petrophysical parameters n=2.0 and a=1.0 were used since no special core analysis were available for determination of the saturation exponent or the porosity intercept. Data supporting a cementation factor (m) are not available either, therefore a series of Sw sensitivity calculations and Picket plots with m varying from 2.0 to 2.4 were done. Results indicated that m = 2.1 yielded the most reasonable results. For m > 2.2 Sw was often larger than 100% which is never true. The generally low core porosities and Picket plots both suggest that m is greater than 2.0 which is the norm for "typical" porous carbonates.

An Rw = 0.032 ohm-m was used in all Sw calculations. It is based on water analysis reports of the P1 and P2 zones from three wells over a period of 12 years. The ionic concentrations were converted to equivalent NaCl concentrations by the Variable Dunlap Multiplier Method. The Rw values were then selected from standard temperature versus salinity charts as per a bottom hole temperature of 95 to 103 degrees F.

True resistivity (Rt) values used are direct focused resistivity log readings (Ra) - either laterlogs or guard logs. Focused resistivities approach Rt where the borehole contains a salt water mud (Rmf < 3Rw) and the zone of interest is greater than the measure electrode spacing. Mud filtrate resistivities (Rmf) on Cato wells were near 0.033 ohm-m at 100 degrees F which is less than 3Rw and the zones of interest (10 to 60 feet) exceed measured electrode spacing which is usually 32 inches. This assumption (Ra approaching Rt) was substantiated by Sw calculations accounting for borehole diameter, mud resistivity, shoulder effect and invaded zone corrections. This indicates that focused log resistivities are acceptable as Rt values for Cato wells.

Initial water saturation calculations were made from digitized log values in 45 wells for the P1, P2 and P3. The average connate water saturation is about 32 %. Structural elevation versus water saturation plots were used to determine original oil water contacts (OWC) (Figure 5). These plots give an OWC of about 625 feet amsl for the P1, P2 and P3 and are substantiated by production data.

The merging of the P1 and P2 water saturation versus structural elevation curves suggest that the two reservoirs have a common down dip aquifer. This is in agreement with the lateral facies change noted in the P1-P2 interzone - anhydrite wedging out to the south of the field. With consideration given to geologic time and the regional concept of a prograding sabka system it is reasonable for the P1 and P2 dolomites to be hydraulically connected. However, the two zones must be considered as separate reservoirs for the successful implementation of a secondary development program. This is particularly true for the northern portion of the field.

2.5 Definition of Net Pay

Based on the extensive core and log evaluations and their comparison to actual primary production response net pay was defined for primary and secondary reserves as P1, P2 and P3 dolomite greater than 2% core porosity (4% log porosity) and/or greater than 1 md permeability and above the oil/water contact of 625 feet amsl.

2.6 Description of Reservoirs

The P1 can be divided into a upper and a lower member. The upper member is a dense, grey, very anhydritic and sightly argilliaceous dolomite with poor porosity and permeability development. It has an occasional porosity break (log porosity > 4%) that was perforated by the original operators but these breaks are not correlative on a field wide basis. Most of the fractures in the upper P1 are sealed by anhydrite.

The lower P1 is a grey anhydritic dolomite with vertical fractures, solution and intercrystalline porosity. Based on perforation frequency it is the major producing reservoir accounting for an estimated 75% of primary production. This zone is correlative through out the northern part of the field as a single reservoir. Field wide pressure depletion and the formation of a P1 secondary gas cap confirm its continuity. The P1-P2 interzone lateral facies change to the south results in the subsequent thickening of the P1. Although the P1 log signature is quite different in the southern part of the field its individual porosity lenses are still correlative. The P1 is the most frequently fractured reservoir, 75% of the P1 core feet examined by Kelt exhibited natural vertical fractures. This would explain its steep water saturation profile with respect to structural elevation.

The P1 average porosity is 5% (9% when vugs are present), its average permeability is 25 md with an average net thickness of 25 feet.

The P2 is a tan-grey anhydritic dolomite that grades downward into a dolomitic, impermeable limestone. P2 dolomite development is found at the base of the P1-P2 interzone in the northern part of the field. The contribution of vugs to total porosity is greater in the P2 than in the P1 but the P2 is less fractured. Thus the P2 has a higher average porosity but a lower average permeability. This gives the P2 a flatter water saturation profile. Log correlations and an original gas-oil-water segregated reservoir indicate its lateral continuity. In the southern and eastern portions of the field much of the P2 is below the original OWC and was not considered as net pay. Sixty-three percent of the P2 core examined was naturally fractured. It has an average porosity of 10 % and average permeability of 10 md with an average net thickness of 15 feet.

The P3 is only productive in the northwest corner of the field. It is a grey, slightly anhydritic and argillaceous dolomite. Its downdip limits are defined by two "wet" production tests. The UT Winkler-Fed 1 (SE NE 9-T8S-R30E) and the State H-5 (NE NW 16-T8S-R30E) both recovered only water in the P3. It has an average porosity of 8 % and a 10 foot average net thickness.

Isopachs of the P1, P2, P3 and total reservoir thickness for log porosity greater than 4% are enclosed as Plats 4, 5, 6 and 7.

2.7 Structure

The geologic structure (Plat 8) is a gently southeast dipping monocline. The map is drawn on top of the P1 with a mean sea level datum.

The strike is north-northeast to south-southeast. Dip averages 1 degree across the field giving a vertical relief of 380 feet. The dip angle increases up structure to 3 degrees at about the 760 foot contour interval. Two minor structural features are present. One is the east-west trending low near the northern edge of the field. The second is a south to southeast plunging structural nose in section 8, T8S-R30E. Both are low amplitude folds not associated with faulting.

The extreme southern tip of the field (section 7, T9S-R30E) is separated by a strong structural low perpendicular to regional strike. This area is 50 to 75 feet low on structure yet had initial rates indicative of virgin pressures. The Yates 2-Y (SE SW 7-T9S-R30E) had an initial IP of 125 BOPD in 1985, 15 years after the rest of the field had already suffered pressure depletion. This area is undoubtedly tapping a separate pool and is therefore not recommended for inclusion in the unit.

2.8 Field Limits

The north and west field limits are set by an updip porosity / permeability barrier likely caused by anhydrite plugging the pore throats and fractures in the dolomite reservoirs. These limits are best illustrated by the cumulative production isopach (Plat 9) which shows decreasing productivity to the north and west. Nine wells reported as dry holes were drilled around the west and north perimeter of the field. In most cases however the north and west limits were set when early development drilling ceased as pay quality deteriorated around the periphery of the current field development.

From a log evaluation point of view, the west and north limits are less clear. There is no true zero porosity line mappable; however the net reservoir thickness does decrease to the north and west. The poor relationship between core porosity and permeability contributes to the difficulty of establishing a field limit based on log porosity. This problem is compounded by the lack of wells actually penetrating the updip trapping mechanism.

A primary gas cap in the P2 and a secondary gas cap forming in the P1 were also used in defining field limits. The P2 is the only zone which exhibited an original gas cap from the production data. This cap was confined to the northwest corner of the field and is considered the updip limit for the P2. There was no gas cap in the P1 since the crude oil was slightly undersaturated at initial reservoir pressure. However, increasing P1 GOR's are evidence for a secondary gas cap forming in the northwest corner of the field - implying both reservoir continuity and an updip field limit.

In summary, the current north and west field limits are primarily a function of 1968 economics and are suggested, yet not completely defined, by current data. To this end and to protect the north and west boundaries the proposed unit outline was selected one 40 acre location both north and west of areas not limited by an offsetting dry hole.

The southeast and east field limits are established by an oil/water contact defined by production testing and open hole log water saturation analysis. The structural elevation of the OWC is at about 625 feet amsl for all three reservoirs. The southern limit is defined by a structural low separating section 7, T9S-R30E from the rest of the field as stated above in section 2.4.

3.0 ENGINEERING

3.1 Determination of Primary Reserves

Production histories on a well by well basis were generated from previous operators records, state documents and reports and commercial reporting companies (PI). Although the data from the various sources was not 100 % consistent, reliable production histories on a per well basis could be generated. Individual well performances were plotted on similog paper and remaining primary reserves were calculated using classic decline curve analysis. Such calculations were performed for each well within the proposed unit boundary. Remaining primary reserves were summed on a lease/tract basis and subsequently on a field wide basis.

A combination of hyperbolic and exponential declines were used to forecast remaining primary reserves. Decline rates (and hence type, either hyperbolic or exponential) were chosen on a well by well basis. Field wide decline rates were not force fit onto individual wells (this practice tends to penalize "good" wells and benefit "poor" wells). An economic limit of 1 BOPD per well was assumed as a measure of ultimate remaining primary production. Although the actual current economic limit is slightly higher than 1 BOPD, this figure was chosen to provide as fair an estimate as possible. Figure 9 is an example calculation for the Crosby 4 tract.

3.2 Determination of Secondary Reserves

In order to determine the secondary reserves per tract when waterflooding is initiated, a fairly extensive reservoir engineering study was carried out using reservoir simulation. The following steps were performed:

- Determine oil/water contact and water saturation at depth related to every lease/tract. This calculation was repeated for every lease.

- Determine gas saturation from production tests for each lease and each zone (P1, P2 and P3).

- Determine average porosity for each lease and each zone.

- Construct and perform a one quarter five-spot reservoir simulation using the VIP three phase, three dimensional, EPIS reservoir simulation model. The model included Cato fluid properties, relative permeabilities from a nearby field, core permeability and represented a 40 acre pattern.

Separate simulation runs were conducted for each of the three main zones. The model/simulation was initialized using porosity, water and gas saturation for each individual lease. Primary production prior to water injection was history matched to actual rates by adjusting well parameters. The simulations were run under water injection until economic limits and secondary reserves were obtained by subtraction of cumulative produced oil and calculated primary production. Figure 10 is a plot of oil production, water/oil ratio, gas/oil ratio and average pressure if initial water saturation is 20% and gas saturation is 3%.

Estimated secondary reserve results from the stimulation study were compared to actual field responses from the pilot injection program on the North part of the Cato and analogous field results. Waterflood response rates and recoviers were reviewed and limited, subjective engineering analysis was applied to smooth the data and provide a most likely response to field wide waterflooding.

3.3 Original Oil In Place and Remaining Primary

Cumulative oil, gas, and water production maps are enclosed as Plats 9, 10 and 11. These maps and Figure 6 (Full Field Historical Production) illustrate the primary performance of the Cato field.

A total of 159 million barrels of developed original oil in place is contained in the P1, P2 and P3. With primary recovery at 15.3 MMBO gives Cato a 9.6 % recovery factor. Unperforated intervals in existing wells contain 42 million barrels of oil in place. Remaining primary proved developed producing and non-producing reserves are 284,000 and 446,000 BO, respectively. This represents only a 0.3 % increase in ultimate recovery under primary conditions.

The oil in place values above were calculated using all of the available geologic and engineering data for the field. A gross thickness map was constructed for each of the three San Andres pay zones. Open hole porosity logs were calibrated to core data resulting in net to gross pay thickness ratios, average porosity and average water saturation values assigned to each productive zone at each well location. The resultant bulk volume oil map yielded initial oil in place.

There is one fluid analysis available in the field from a bottom hole sample taken in January 1968, and should accurately represent the Cato crude. The analysis of this sample indicated an original reservoir pressure of 1138 psig, a bubble point pressure of 1014 psig, a 1.18 formation volume factor (res. bbl/stock tank bbl), a solution gas-oil ratio of 370 scf/bbl, and stock tank oil gravity of 25 degree API.

3.4 Secondary Recovery

Secondary reserves from field wide water injection are based on the results of a small pilot flood in the northern part of the field and on a reservoir simulation study performed using the VIP package. Proved undeveloped secondary reserves for the proposed unit area resulting from field wide water injection are 11,687,000 barrels of oil. Probable and possible undeveloped secondary reserves are 14,062,000 and 2,735,000 barrels of oil, respectively. If all secondary reserve classifications hold true an additional 18 % of the original oil in place will be recovered under field wide water flooding. This would give Cato an ultimate recovery (primary plus secondary) of 44 MMBO or 27 % of the original oil in place.

Based on the stratigraphic nature of the field, the production history and fluid analysis, it is obvious that the primary San Andres producing mechanism is solution gas drive. Field operators recognized the potential of waterflooding Cato field and in the early 1970's installed two pilot floods in two parts of the field; one in the southern part in section 33, T9S-R30E for which there is little documentation. The other was in the northern part of the field, sections 11 and 14, T8S-R30E, its results are fairly well documented (Plat 12).

This northern project involved injecting limited amounts of water into seven wells on a rough incomplete 80 acre 5 spot pattern. Only about 2 % of a pore volume of water was injected yet measurable response in the offset producers was noted (Figure 7 and Table 2). The injection of roughly 2 million barrels of water resulted in the incremental recovery due to waterflood of 350,000 barrels of oil from a portion of the reservoir containing 54 million barrels of original oil in place for a secondary recovery factor of 0.65 % of original oil in place. Based on this pilot project and also on the reservoir simulation study described below, roughly 50 percent of the secondary reserves predicted to be recovered as a result of a field water injection project have been classified as proven.

3.5 Reservoir Simulation

To establish the magnitude of secondary oil recovery from waterflooding Cato field, a reservoir simulation study was performed using the VIP package. A typical San Andres pay section with proper porosity and permeability profiles was employed. A quarter of an 80 acre 5 spot pattern was utilized, as well as relative permeability curves representative of the mixed-wettability San Andres in this area were used for all runs. The variables in the various cases were initial water and gas saturation at the start of injection. Water saturation varied from 20 to 48 percent of pore volume and gas saturation varied from 3 to 8 percent of pore volume. The results of these runs indicate a secondary recovery of zero to 40 percent of the oil in place. The average recovery at about 30 percent water saturation was 20-25 percent of oil in place. The array of recovery factors thus generated were then applied to each zone in each 40 acre tract in the field based on its current estimated water and gas saturation, and its current oil in place to calculate recoverable secondary oil. Results of the simulation are shown on Figure 8.

This analysis indicates total remaining recoverable oil from waterflooding Cato field is 26.0 million barrels. Of this total 0.7 million barrels would have been recovered by currently producing wells under primary drive over the next 12 years. As previously mentioned, about 12 million barrels of undeveloped secondary reserves have been classified as proven. This results in an estimated secondary to primary ratio of 0.8 which is well within the 0.6 to 1.4 range observed for nearby San Andres waterfloods. This indicates a primary plus secondary recovery factor of 15 percent of oil in place for proven developed and undeveloped reserves. The remaining waterflood reserve has been classified as probable and represents an additional 7 percent recovery.

3.6 Flood Pattern

An additional 56 wells will be drilled on undeveloped acreage to complete a 5-spot flood pattern (Plat 13). These wells will develope an estimated 25 million barrels of oil in place which is directly offset by productive San Andres wells. An additional contiguous area containing 12.2 million barrels of oil in place is also included in the proposed unit. This area requires drilling an additional 54 wells. The unit outline was drawn around 40-acre locations with a producer, around recommended and probable undrilled locations and around the open undrilled spots deemed reasonable by geology and to protect the unit.

3.7 Estimated Project Costs

Secondary recovery cash flow projections (Section 5.0) are started 1/1/89 (investments) with water injection commencing immediately thereafter in selected portions of the field. The total project installation will be completed in 1990. Partial oil production response should occur in late 1989 with peak response in 1994.

Total initial investment for the Cato waterflood project is estimated to be $13.6 million as shown in the cashflow projections and Tables 3 and 4. Compared to incremental proven secondary recovery project reserves of 12.0 million barrels, the cost per barrel is $1.13.

Waterflooding operating cost has been projected based on historical lifting cost and water handling cost per barrell. A sample of operating cost items is shown in the attachments for year 1990. The waterflood project will include installation of an electrical power generating unit to be run with field gas. This unit is cheaper to purchase and operate than to purchase electrical power from outside sources. The $1.7 million power unit cost pays out in the second year of the project.

3.8 <u>Unitization Parameters</u>

Fifty nine individual tracts have been created to form the proposed Cato Unit. The proposed Cato Unit Boundaries are outlined on Plat 14 as well as Exhibit A in the Cato Unit Agreement and Cato Unit Operating Agreement. Several various parameters have been considered in the calculations to define individual tract participation in the proposed unit. The tract participation formula and participation parameters are defined below:

Phase I Tract Participation =
5% A/B + 18% C/D + 5% E/F + 2% G/H + 5% I/J + 15% K/L + 50% M/N

Phase II Tract Participation =
5% A/B + 10% C/D + 5% {(G+I)/(H+J)} + 10% K/L + 20% M/N + 45% O/P

A = The tract gross acreage.

B = The unit total gross acreage.

C = The tract current (as of 6-1-88) active producing well count.

D = The unit total active producing well count.

E = The tract current temporarily shut in producing well count.

F = The unit total temporarily shut in producing well count.

G = The tract current temporarily abandoned producing well count.

H = The unit total current temporarily abandoned producing well count.

I = The tract current active injection well count.

J = The unit total active injection well count.

K = The tract cumulative oil production from the unitized formation from 1960 through 6-1-88.

L = The total unit cumulative oil production from the unitize formation from 1960 through 6-1-88.

M = The remaining primary oil reserves from the unitized formation for the tract as of 6-1-88.

N = The remaining primary oil reserves from the unitized formation for all unit tracts as of 6-1-88.

O = The remaining secondary oil reserves from the unitized formation for the tract as of 6-1-88.

P = The remaining secondary oil reserves from the unitized formation for all tracts as of 6-1-88.

The tract participation calculations have been separated into two distinct phases or time periods. Phase I and Phase II are designed to more accurately distribute the ownership of the unit based upon the quantity and producibility of the recoverable hydrocarbons as a function of the timing of the development. Phase I calculations are designed to reflect the relative values of the individual tracts early in the life of the unit while the project is producing remaining primary reserves. Phase II calculation are intended to reflect the value of the respective tracts after extensive renovation and capitol expenditures enable the exploitation of additional secondary reserves.

Phase I Tract Participation shall apply from the Effective Date until the earlier of (a) 447,000 barrels of oil have been produced from the Unit, or (b) 3,000,000 barrels of incremental (makeup) water have been injected into wells in the Unit, at which time Phase II Tract Participation shall apply.

Phase I participation figures are heavily weighted by the parameter: remaining primary reserves. Fifty percent of the weighting to determine Phase I tract participation has been assigned to this parameter. Although all available data has been carefully examined, the primary reserves per tract remains a scientific and engineering estimate of the amount of primary oil remaining under the individual tract. The estimate of remaining primary reserves does not reflect the tracts ability to exploit these reserves; thus, remaining primary reserves should not be used as the sole criterium. Thirty percent of the weighting used to calculate Phase I tract participation has been assigned to the mechanical ability of the individual tract to physically exploit these remaining reserves. The remaining twenty percent weighting has been assigned to parameters for which actual / precise values can be determined. Gross acreage has been assigned a weighting factor of five percent and the cumulative production, (the cumulative of the tracts production from Jan '60 to Jun '88) has been assigned a weighting of fifteen percent. These two parameters provide an accurate balancing / averaging to the previous parameter weightings. The previous cum production per tract is a historical value, which can be determined precisely, which provides an excellent correlation to reservoir quality and its ability to produce, and hence tract value. Gross acreage is a weighting factor which provides an estimation of value to leases / tract which provide speculative additional stepout drilling, infill drilling. Gross acreage also provides value to tracts which lie on the edge of the know reservoir and were included in the unit because of geologic unknown and uncertainty to protect the units boundaries / borders.

Phase II tract participation figures are more heavily weighted by engineering and scientific approximations. Sixty five percent of the weighting of the Phase II calculations is assigned to estimates of future production. Twenty and fortyfive percent to remaining primary and estimated secondary respectively. Fifteen percent weighting factor has been assigned to the "known quantity" parameters of previous tract cumulative production (ten percent) and gross acreage (five percent). Parameters representing the mechanical ability of the individual tracts ability to produce has been weighted by fifteen percent.

ROBIN B. LeBLEU
PETROLEUM ENGINEER

March 15, 1988

Kelt Energy
3878 Carson Street - Suite B 200
Torrance, California 90503

Attention: Mr. John Crick

Gentlemen:

At your request, an estimate has been made of the reserves and future cash flow as of January 1, 1988, attributable to the leasehold interests of certain properties located in the Cato Field, Chaves County, New Mexico. A discussion of the details of this study immediately follow this letter and are illustrated by the figures and tables which follow the discussion. In this report, M stands for thousands of units, MM stands for millions of units, and B stands for billions of units. The summarized results of this study are as follows:

	Proved			
	Developed		Undeveloped	Total
	Producing	Non-Producing		
Gross Oil, MBBL	284	446	11,687	12,418
Gross Gas, MMCF	1,137	1,785	(2,456)	466
Net Oil, MBBL	242	379	9,934	10,555
Net Gas, MMCF	966	1,517	(2,087)	396
Net Revenue, M$	4,412	6,927	143,902	155,241
Net Expense, M$	3,317	3,320	52,680	59,319
Net Income, M$	1,094	3,607	91,222	95,922
Net Investment,M$	-0-	47	18,461	18,508
Net Oper. Income,M$	1,094	3,559	72,759	77,414
Present Worth,10%,M$	910	2,470	26,931	30,312

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	Probable Undeveloped	Possible Undeveloped
Gross Oil, MBBL	14,062	2,735
Gross Gas, MMCF	-0-	-0-
Net Oil, MBBL	11,953	2,324
Net Gas, MMCF	-0-	-0-
Net Revenue, M$	175,392	34,109
Net Expense, M$	50,814	12,042
Net Income, M$	124,577	22,067
Net Investment, M$	-0-	8,510
Net Oper. Income, M$	124,577	13,557
Present Worth,10%,M$	51,935	2,351

Liquid hydrocarbons are expressed in standard U.S. 42 gallon barrels. Gas volumes are expressed in cubic feet at standard conditions of 60°F and 15.025 psig. All monetary amounts are expressed in $U.S.

The above reserve and cash flow projections are estimates made according to accepted petroleum engineering practices and should not be construed to be the fair market value of these properties. The proved developed producing projection is based on production from Kelt owned leases at an assumed working (expense) interest of 100 percent and a net revenue interest of 85 percent. The undeveloped secondary projections include all Cato Field leases required to efficiently waterflood the San Andres reservoir, whether currently owned by Kelt or not. These latter projections assume 100 percent Kelt working interest and 85 percent net revenue interest. The actual interests Kelt will have depends on the results of unitization negotiations prior to waterflood if all outstanding field interests are not purchased by Kelt.

<u>Reserve Definitions</u>

Proven reserves are estimated quantities of crude oil and natural gas, calculated using engineering and geological data, which with reasonable certainty can be recovered from known reservoirs under existing economic and operating conditions. These proven reserves are, in general, supported by actual production or test volumes, but may be based in some instances on well log or core analysis which indicate the reservoir in question is similar to known productive reservoirs in the same field. The area of a proven reservoir includes that portion delineated by drilling and also includes those areas immediately adjoining the developed area which can reasonably be judged economically productive based on available geologic and engineering data.

Proven reserves can be further subdivided as follows:

<u>Developed Reserves</u> are those reserves expected to be recovered from existing wellbores.

Producing reserves are expected to be recovered from completed intervals producing at the time of the reserve report.

Non-Producing reserves are to be recovered from intervals not yet on production, but which can be converted to producing status with an expenditure which is small compared to the drilling and completion cost of a well drilled to the interval in question. These productive, but non-producing intervals can be awaiting completion, awaiting a market, awaiting repairs, or be behind pipe in a wellbore in which another interval is now producing.

Undeveloped reserves require a capital outlay which is significant when compared to the reserve value to be recovered.

Primary Recovery reserves require a large expenditure to rework an existing well, or require a new wellbore in order to be recovered.

Secondary Recovery reserves are based on application of an established improved recovery method (waterflood) when successful testing by a pilot project in the subject reservoir, or in one in the immediate area with similar rock and fluid properties, provides support for the engineering analysis on which the project is based; and; it is reasonably certain the project will proceed. New wellbores may be required to efficiently effect the project. Such new wellbores must meet the requirements for proven reserves as outlined above.

Probable reserves are based on engineering and geologic data similar to those used in estimates of proved reserves, but these data lack the certainty and definitiveness required to classify the reserves as proved.

Possible reserves appear commercially recoverable from known accumulations but are based on engineering and geologic data which are less complete and less conclusive than the data used in estimates of probable reserves.

Proven, probable, and possible reserves are shown separately in this report. No attempt has been made to assess the probability of occurrence or risk of each category in order for them to be compared.

Future producing rates were projected from past history for proven producing reserves. For non-producing and undeveloped reserves, future producing rates were derived by analogy to similar producing intervals in the same wellbore, or in immediately adjoining wellbores. Secondary revovery rates were predicted by a reservoir simulation study based on the rock and fluid characteristics of the reservoir in question.

Hydrocarbon Prices ($U.S.)

The initial product prices used in this report are $15.92 per barrel of oil and $1.06 per MCF of gas. These values are the volume weighted average of prices actually received at Cato Field for the last half of 1987. No price escalation was used in the cash flow projections.

Taxes

State of New Mexico and local taxes included in this report include (1) oil severance tax of 4.5 percent of oil value (2) gas severance tax of $0.163 per MCF (3) school tax of 3.15 percent of oil value (4) conservation tax of 0.19 percent of oil value and (5) ad valorem tax of 0.144 percent of total oil plus gas value. No U.S. Federal or State Income Tax was applied to the cash flow runs included herein.

Operating Costs

Operating cost, used in this report, is based on data supplied by Kelt. It should be noted that the waterflood project includes the installation of an on-site electrical generating unit that will supplant electrical power now purchased from outside sources. Field gas will be used to power this unit, hence, the gas will not be sold except in the early years of the project. This results in a negative gas reserve for the waterflood project when compared to the proven producing (primary) and proven non-producing cases.

The reserve estimates contained in this report are based upon a detailed study of the properties owned by Kelt using engineering and geological data supplied by Kelt. A field examination of the properties was not made. The ownership, interests, prices, and other factual data furnished by Kelt regarding these properties were accepted without verification.

The reserves included in this report are estimates only and should not be construed as being exact quantities. The actual reserves recovered, the related revenue received and the actual costs incurred may be more or less than predicted and are a function to some extent of future operations.

Neither Robin B. LeBleu or any of his associates has any interest in the subject properties and neither the employment to make this study nor the compensation is contingent on the estimates of reserves or future income from the subject properties.

The work papers used in the preparation of this report are available for examination in the office of Robin B. LeBleu.

Very truly yours,

Robin B. LeBleu

Robin B. LeBleu, P.E.

REGISTERED PROFESSIONAL ENGINEER
ROBIN BOYCE LeBLEU
14934
OKLAHOMA

RBL:sp
Enclosures

ROBIN B. LEBLEU - PETROLEUM ENGINEER
SUMMARY FORECAST OF INCOME, PRODUCTION, AND NET REVENUE, AS OF JANUARY 1, 1988

RUN DATE: 3/15/88

KELT ENERGY
CATO FIELD (SEC)

ALL PROVED RESERVES

DISCOUNTED AT 10.00%

YR	GROSS PRODUCTION MBBLS	GROSS PRODUCTION MMCF	NET PRODUCTION MBBLS	NET PRODUCTION MMCF	OIL INCOME M$	GAS INCOME M$	W-P-T M$	SEVER-ANCE TAX M$	OPER-ATING INCOME M$	OPER-ATING EXP M$	FUTURE EXP M$	NET REV M$	CUM NET REV M$	DISC REV M$	CUM DISC REV M$
88	92.424	369.708	78.561	314.252	1250	333.107	.000	149.152	1434.646	553.805	47.000	833.841	833.841	795.035	795.035
89	352.532	95.998	299.652	81.598	4770	86.494	.000	386.828	4470.126	4757	11992	12279-	11446-	10643-	9848.904-
90	718.190	.000	610.462	.001	9718	.001	.000	760.962	8957.594	2557	1569.200	4831.314	6614.706-	3807.027	6041.877-
91	772.476	.000	656.605	.000	10453	.000	.000	818.483	9634.669	2414	.000	7219.753	605.047	5171.870	870.007-
92	781.846	.000	664.570	.000	10579	.001	.000	828.410	9751.546	2428	.000	7323.485	7928.532	4769.274	3899.267
93	781.854	.000	664.577	.000	10580	.000	.000	828.419	9751.647	2447	.000	7304.587	15233	4324.534	8223.801
94	781.870	.000	664.590	.000	10580	.000	.000	828.435	9751.838	2471	.000	7280.777	22513	3918.515	12142
95	769.052	.000	653.694	.000	10406	.000	.000	814.853	9591.955	2495	700.000	6396.092	28909	3129.480	15271
96	756.304	.000	642.858	.000	10234	.000	.000	801.346	9432.953	2522	.000	6910.285	35820	3073.695	18345
97	716.842	.000	609.316	.000	9700	.000	.000	759.534	8940.777	2547	700.000	5693.719	41513	2302.312	20647
SUB	6523.390	465.706	5544	395.851	88274	419.603	.000	6976	81717	25195	15008	41513	41513	20647	20647
98	670.680	.000	570.078	.000	9075	.000	.000	710.623	8365.018	2573	.000	5791.672	47305	2129.019	22776
99	629.626	.000	535.183	.000	8520	.000	.000	667.125	7852.988	2600	700.000	4552.275	51857	1521.279	24298
00	600.425	.000	510.361	.000	8124	.000	.000	636.183	7488.764	2628	.000	4860.502	56718	1476.621	25774
01	582.175	.000	494.849	.000	7877	.000	.000	616.847	7261.149	2656	700.000	3904.168	60622	1078.253	26852
02	542.750	.000	461.338	.000	7344	.000	.000	575.074	6769.427	2688	.000	4081.054	64703	1024.671	27877
SUB	9549.046	465.706	8116	395.851	129217	419.603	.000	10182	119455	38342	16408	64703	64703	27877	27877
REM	2869.255	.000	2438	.000	38826	.000	.000	3040	35786	20976	2100.000	12710	77414	2434.998	30312
TOT	12418	465.706	10555	395.851	168044	419.603	.000	13222	155241	59319	18508	77414	77414	30312	30312

TOTAL NET REVENUE	77414.044
DISCOUNTED AT 5.00%	47292.386
DISCOUNTED AT 10.00%	30312.644
DISCOUNTED AT 15.00%	20097.632
DISCOUNTED AT 20.00%	13613.456
DISCOUNTED AT 30.00%	6361.424
DISCOUNTED AT 40.00%	2766.629

ROBIN B. LEBLEU - PETROLEUM ENGINEER
FORECAST OF INCOME, PRODUCTION, AND NET REVENUE, AS OF JANUARY 1, 1988

RUN DATE: 3/15/88

KELT ENERGY
CATO FIELD (SEC)

CATO FIELD
T8S R30E; T9S R30E
NEW MEXICO
CHAVES

PROVED DEVELOPED PRODUCING RESERVES

YR	GROSS PRODUCTION MBBLS	GROSS PRODUCTION MMCF	NET PRODUCTION MBBLS	NET PRODUCTION MMCF	GROSS PRICES OIL $/BBL	GROSS PRICES GAS $/MCF	OIL INCOME M$	GAS INCOME M$	W-P-T M$	SEVERANCE TAX M$	OPERATING INCOME M$	OPERATING EXP M$	DISCOUNTED AT 10.00 PERCENT: FUTURE EXP M$	NET REV M$	CUM REV M$	DISC REV M$	CUM DISC REV M$
88	57.768	231.072	49.103	196.411	15.92	1.060	781.720	208.196	.000	93.224	896.692	553	.000	343	343	327	327
89	53.148	212.580	45.176	180.693	15.92	1.060	719.202	191.535	.000	85.767	824.970	553	.000	271	615	235	563
90	48.900	195.576	41.565	166.240	15.92	1.060	661.715	176.214	.000	78.909	759.020	552	.000	206	821	162	725
91	44.988	179.928	38.240	152.939	15.92	1.060	608.781	162.115	.000	72.597	698.299	552	.000	145	966	104	829
92	41.388	165.540	35.180	140.709	15.92	1.060	560.066	149.152	.000	66.789	642.429	552	.000	89.621	1056	58.364	888
93	38.076	152.292	32.365	129.448	15.92	1.060	515.251	137.215	.000	61.444	591.022	552	.000	38.279	1094	22.662	910
TOT	284.268	1136.988	241.629	966.440	15.92	1.060	3846	1024	.000	458	4412	3317	.000	1094	1094	910	910

15322 29840 CUMULATIVE
15606 30976 ULTIMATE

107 KELT WELLS ACTIVE

INTEREST: TYPE	AMOUNT	WORKING	OIL	GAS
INITIAL		1.0000000	.8500000	.8500000

AVERAGE NET OIL PRICE: 14.655 $/BBL
AVERAGE NET GAS PRICE: .896 $/MCF
EQUIVALENT BBL FACTOR: 16.356 MCF/BBL

	OIL	GAS
SEVERANCE TAX:	7.830 %	$ .163
DIRECT COST:	.114 %	.114 %

TIER: 1 WPT RATE: 0
GAS CODE: 1 OPEX BASIS: 0
NGPA: 001 DEPTH: 3,400
OPERATOR: KELT OIL & GAS
PRODUCING ZONE: SAN ANDRES
DATE FIRST PROD: JANUARY 1966

OPER COST ESCALATION ● .00%
RESERVE LIFE, YEARS 6
IDENT: 30 00001 A

TOTAL NET REVENUE 1094.881

DISCOUNTED AT 5.00% 994.246
DISCOUNTED AT 10.00% 910.855
DISCOUNTED AT 15.00% 840.865
DISCOUNTED AT 20.00% 781.448
DISCOUNTED AT 30.00% 686.346
DISCOUNTED AT 40.00% 613.899

ROBIN B. LEBLEU - PETROLEUM ENGINEER
FORECAST OF INCOME, PRODUCTION, AND NET REVENUE, AS OF JANUARY 1, 1988

RUN DATE: 3/15/88

KELT ENERGY
CATO FIELD (SEC)

CATO FIELD
T8S R30E; T9S R30E
NEW MEXICO
CHAVES

PROVED DEVELOPED NON-PRODUCING RESERVES

YR	GROSS PRODUCTION MBBLS	GROSS PRODUCTION MMCF	NET PRODUCTION MBBLS	NET PRODUCTION MMCF	GROSS PRICES OIL $/BBL	GROSS PRICES GAS $/MCF	OIL INCOME M$	GAS INCOME M$	W-P-T M$	SEVERANCE TAX M$	OPERATING INCOME M$	OPERATING EXP M$	FUTURE EXP M$	DISCOUNTED AT 10.00 PERCENT NET REV M$	CUM REV M$	DISC REV M$	CUM DISC REV M$
88	34.656	138.636	29.458	117.841	15.92	1.060	468.971	124.911	.000	55.928	537.954	.677	47.000	490	490	467	467
89	31.884	127.548	27.101	108.416	15.92	1.060	431.448	114.921	.000	51.454	494.915	.623	.000	494	984	428	895
90	29.340	117.348	24.939	99.746	15.92	1.060	397.029	105.731	.000	47.346	455.414	.574	.000	454	1439	358	1254
91	26.988	107.964	22.940	91.769	15.92	1.060	365.205	97.275	.000	43.554	418.926	.527	.000	418	1857	299	1554
92	24.828	99.324	21.104	84.425	15.92	1.060	335.976	89.491	.000	40.068	385.399	.485	.000	384	2242	250	1804
93	22.848	91.380	19.421	77.673	15.92	1.060	309.182	82.333	.000	36.870	354.645	.446	.000	354	2596	209	2014
94	56.040	224.136	47.634	190.516	15.92	1.060	758.333	201.947	.000	90.431	869.849	553	.000	316	2913	170	2184
95	51.552	206.208	43.819	175.277	15.92	1.060	697.598	185.794	.000	83.192	800.200	553	.000	247	3160	120	2305
96	47.424	189.708	40.310	161.252	15.92	1.060	641.735	170.927	.000	76.532	736.130	552	.000	183	3344	81.489	2387
97	43.632	174.528	37.087	148.349	15.92	1.060	590.425	157.250	.000	70.411	677.264	552	.000	124	3468	50.307	2437
SUB	369.192	1476.780	313.813	1255	15.92	1.060	4995	1330	.000	595	5730	2215	47.000	3468	3468	2437	2437
98	40.140	160.572	34.119	136.486	15.92	1.060	543.174	144.675	.000	64.778	623.071	552	.000	70.287	3538	25.838	2463
99	36.936	147.720	31.396	125.562	15.92	1.060	499.824	133.096	.000	59.603	573.317	552	.000	20.595	3559	6.882	2470
TOT	446.268	1785.072	379.328	1517	15.92	1.060	6038	1608	.000	720	6927	3320	47.000	3559	3559	2470	2470

446.268 1785.072 ULTIMATE

REPAIR OF PRODUCING WELLS REQUIRED

INTEREST: TYPE	AMOUNT	WORKING	OIL	GAS
INITIAL		1.0000000	.8500000	.8500000

AVERAGE NET OIL PRICE: 14.655 $/BBL
AVERAGE NET GAS PRICE: .896 $/MCF
EQUIVALENT BBL FACTOR: 16.356 MCF/BBL

	OIL	GAS
SEVERANCE TAX:	7.830 % $	.163
DIRECT COST:	.114 %	.114 %

TIER: 1 WPT RATE: 0
GAS CODE: 1 OPEX BASIS: 0
NGPA: 001 DEPTH: 3,400
OPERATOR: KELT OIL & GAS
PRODUCING ZONE: SAN ANDRES

OPER COST ESCALATION ● .00%
RESERVE LIFE, YEARS 12
IDENT: 30 00002 B

TOTAL NET REVENUE	3559.366
DISCOUNTED AT 5.00%	2928.323
DISCOUNTED AT 10.00%	2470.336
DISCOUNTED AT 15.00%	2128.186
DISCOUNTED AT 20.00%	1865.959
DISCOUNTED AT 30.00%	1496.002
DISCOUNTED AT 40.00%	1251.528

ROBIN B. LEBLEU - PETROLEUM ENGINEER
FORECAST OF INCOME, PRODUCTION, AND NET REVENUE, AS OF JANUARY 1, 1988

RUN DATE: 3/15/88

KELT ENERGY
CATO FIELD (SEC)

CATO FIELD
T8S R30E; T9S R30E
NEW MEXICO
CHAVES

PROVED UNDEVELOPED SECONDARY RESERVES

YR	GROSS PRODUCTION MBBLS	GROSS PRODUCTION MMCF	NET PRODUCTION MBBLS	NET PRODUCTION MMCF	GROSS PRICES OIL $/BBL	GROSS PRICES GAS $/MCF	OIL INCOME M$	GAS INCOME M$	W-P-T M$	SEVER-ANCE TAX M$	OPER-ATING INCOME M$	OPER-ATING EXP M$	FUTURE EXP M$	NET REV M$	CUM REV M$	DISC REV M$	CUM DISC REV M$
													DISCOUNTED AT 10.00 PERCENT				
88	.000	.000	.000	.000	15.92	1.060	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
89	267.500	244.130-	227.375	207.511-	15.92	1.060	3619	219.962-	.000	249	3150	4203	11992	13046-	13046-	11308-	11308-
90	639.950	312.924-	543.958	265.985-	15.92	1.060	8659	281.944-	.000	634	7743	2003	1569	4170	8875-	3286	8021-
91	700.500	287.892-	595.425	244.708-	15.92	1.060	9479	259.390-	.000	702	8517	1861	.000	6655	2219-	4767	3253-
92	715.630	264.864-	608.286	225.134-	15.92	1.060	9683	238.642-	.000	721	8723	1874	.000	6848	4629	4460	1206
93	720.930	243.672-	612.791	207.121-	15.92	1.060	9755	219.548-	.000	730	8805	1893	.000	6912	11541	4092	5298
94	725.830	224.136-	616.956	190.516-	15.92	1.060	9821	201.947-	.000	738	8881	1917	.000	6964	18505	3748	9046
95	717.500	206.208-	609.875	175.277-	15.92	1.060	9709	185.794-	.000	731	8791	1942	700	6148	24654	3008	12055
96	708.880	189.708-	602.548	161.252-	15.92	1.060	9592	170.927-	.000	724	8696	1969	.000	6727	31381	2992	15047
97	673.210	174.528-	572.229	148.349-	15.92	1.060	9109	157.250-	.000	689	8263	1994	700	5569	36950	2252	17299
SUB	5869.930	2148.062-	4989	1825-	15.92	1.060	79431	1935-	.000	5921	71574	19662	14961	36950	36950	17299	17299
98	630.540	160.572-	535.959	136.486-	15.92	1.060	8532	144.675-	.000	645	7741	2020	.000	5721	42672	2103	19402
99	592.690	147.720-	503.787	125.562-	15.92	1.060	8020	133.096-	.000	607	7279	2047	700	4531	47203	1514	20916
00	600.425	.000	510.361	.000	15.92	1.060	8124	.000	.000	636	7488	2628	.000	4860	52064	1476	22393
01	582.175	.000	494.849	.000	15.92	1.060	7877	.000	.000	616	7261	2656	700	3904	55968	1078	23471
02	542.750	.000	461.338	.000	15.92	1.060	7344	.000	.000	575	6769	2688	.000	4081	60049	1024	24496
SUB	8818.510	2456.354-	7495	2087-	15.92	1.060	119332	2213-	.000	9003	108115	31704	16361	60049	60049	24496	24496
REM	2869.255	.000	2438	.000	15.92	.000	38826	.000	.000	3040	35786	20976	2100	12710	72759	2434	26931
TOT	11687	2456.354-	9934	2087-	15.92	1.060	158158	2213-	.000	12043	143902	52680	18461	72759	72759	26931	26931
	11687	2456.354-	ULTIMATE														

REQUIRES 55 NEW WELLS, 110 CONVERSIONS

INTEREST: TYPE	AMOUNT	WORKING	OIL	GAS
INITIAL		1.0000000	.8500000	.8500000

AVERAGE NET OIL PRICE: 14.655 $/BBL
AVERAGE NET GAS PRICE: .896 $/MCF
EQUIVALENT BBL FACTOR: 16.356 MCF/BBL

	OIL	GAS
SEVERANCE TAX:	7.830 % $	.163

TIER: 1 WPT RATE: 0
GAS CODE: 1 OPEX BASIS: 0
NGPA: 001 DEPTH: 3,400
OPERATOR: KELT OIL & GAS
PRODUCING ZONE: SAN ANDRES

OPER COST ESCALATION @ .00%
RESERVE LIFE, YEARS 21
IDENT: 30 00003 D

TOTAL NET REVENUE	72759.797
DISCOUNTED AT 5.00%	43369.817
DISCOUNTED AT 10.00%	26931.453
DISCOUNTED AT 15.00%	17128.581
DISCOUNTED AT 20.00%	10966.049
DISCOUNTED AT 30.00%	4179.076
DISCOUNTED AT 40.00%	901.202

ROBIN B. LEBLEU - PETROLEUM ENGINEER
FORECAST OF INCOME, PRODUCTION, AND NET REVENUE, AS OF JANUARY 1, 1988

RUN DATE: 3/15/88

KELT ENERGY
CATO FIELD (SEC)

CATO FIELD
T8S R30E; T9S R30E
NEW MEXICO
CHAVES

PROBABLE UNDEVELOPED SECONDARY RESERVES

YR	GROSS PRODUCTION MBBLS	GROSS PRODUCTION MMCF	NET PRODUCTION MBBLS	NET PRODUCTION MMCF	GROSS PRICES OIL $/BBL	GROSS PRICES GAS $/MCF	OIL INCOME M$	GAS INCOME M$	W-P-T M$	SEVER-ANCE TAX M$	OPER-ATING INCOME M$	OPER-ATING EXP M$	DISCOUNTED AT 10.00 PERCENT: FUTURE EXP M$	NET REV M$	CUM REV M$	DISC REV M$	CUM DISC REV M$
88	.000	.000	.000	.000	15.92	1.060	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
89	352.590	.000	299.702	.000	15.92	1.060	4771	.000	.000	373	4397	405	.000	3992	3992	3460	3460
90	717.955	.000	610.262	.000	15.92	1.060	9715	.000	.000	760	8954	2061	.000	6893	10885	5432	8892
91	772.705	.000	656.799	.000	15.92	1.060	10456	.000	.000	818	9637	1915	.000	7721	18607	5531	14423
92	781.830	.000	664.556	.000	15.92	1.060	10579	.000	.000	828	9751	1929	.000	7822	26429	5094	19517
93	781.830	.000	664.556	.000	15.92	1.060	10579	.000	.000	828	9751	1947	.000	7804	34233	4620	24138
94	781.830	.000	664.556	.000	15.92	1.060	10579	.000	.000	828	9751	1972	.000	7779	42013	4186	28325
95	769.055	.000	653.697	.000	15.92	1.060	10406	.000	.000	814	9591	1995	.000	7596	49609	3716	32041
96	756.280	.000	642.838	.000	15.92	1.060	10233	.000	.000	801	9432	2024	.000	7407	57017	3295	35336
97	716.860	.000	609.331	.000	15.92	1.060	9700	.000	.000	759	8940	2049	.000	6891	63909	2786	38123
SUB	6430.935	.000	5466	.000	15.92	.000	87023	.000	.000	6813	80209	16300	.000	63909	63909	38123	38123
98	670.688	.000	570.085	.000	15.92	1.060	9075	.000	.000	710	8365	2073	.000	6291	70201	2312	40436
99	629.625	.000	535.181	.000	15.92	1.060	8520	.000	.000	667	7852	2101	.000	5751	75952	1921	42358
00	600.425	.000	510.361	.000	15.92	1.060	8124	.000	.000	636	7488	2128	.000	5360	81312	1628	43986
01	582.175	.000	494.849	.000	15.92	1.060	7877	.000	.000	616	7261	2158	.000	5102	86414	1409	45396
02	542.755	.000	461.342	.000	15.92	1.060	7344	.000	.000	575	6769	2188	.000	4581	90996	1150	46546
SUB	9456.603	.000	8038	.000	15.92	.000	127966	.000	.000	10019	117946	26950	.000	90996	90996	46546	46546
REM	4605.804	.000	3914	.000	15.92	.000	62325	.000	.000	4880	57445	23864	.000	33581	124577	5389	51935
TOT	14062	.000	11953	.000	15.92	.000	190292	.000	.000	14899	175392	50814	.000	124577	124577	51935	51935

14062 ULTIMATE

INCREASED WATERFLOOD RESPONSE
AVERAGE NET OIL PRICE: 14.655 $/BBL

INTEREST: TYPE	AMOUNT	WORKING	OIL	GAS
INITIAL		1.0000000	.8500000	.8500000

SEVERANCE TAX: OIL 7.830 % $ GAS .163

TIER: 1 WPT RATE: 0
GAS CODE: 1 OPEX BASIS: 0
NGPA: 001 DEPTH: 3,400
OPERATOR: KELT OIL & GAS
PRODUCING ZONE: SAN ANDRES

OPER COST ESCALATION @ .00%
RESERVE LIFE, YEARS 24
IDENT: 30 00004 H

TOTAL NET REVENUE 124577.703

DISCOUNTED AT 5.00% 76670.929
DISCOUNTED AT 10.00% 51935.451
DISCOUNTED AT 15.00% 37757.959
DISCOUNTED AT 20.00% 28905.631
DISCOUNTED AT 30.00% 18822.722
DISCOUNTED AT 40.00% 13436.218

ROBIN B. LEBLEU - PETROLEUM ENGINEER
FORECAST OF INCOME, PRODUCTION, AND NET REVENUE, AS OF JANUARY 1, 1988

RUN DATE: 3/15/88

KELT ENERGY
CATO FIELD (SEC)

CATO FIELD
T8S R30E; T9S R30E
NEW MEXICO
CHAVES

POSSIBLE UNDEVELOPED SECONDARY RESERVES

DISCOUNTED AT 10.00 PERCENT

YR	GROSS PRODUCTION MBBLS	GROSS PRODUCTION MMCF	NET PRODUCTION MBBLS	NET PRODUCTION MMCF	GROSS PRICES OIL $/BBL	GROSS PRICES GAS $/MCF	OIL INCOME M$	GAS INCOME M$	W-P-T M$	SEVERANCE TAX M$	OPERATING INCOME M$	OPERATING EXP M$	FUTURE EXP M$	NET REV M$	CUM REV M$	DISC REV M$	CUM DISC REV M$
88	.000	.000	.000	.000	15.92	1.060	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
89	.000	.000	.000	.000	15.92	1.060	.000	.000	.000	.000	.000	.000	8510	8510-	8510-	7376-	7376-
90	165.600	.000	140.760	.000	15.92	1.060	2240	.000	.000	175	2065	502	.000	1562	6947-	1231	6144-
91	165.600	.000	140.760	.000	15.92	1.060	2240	.000	.000	175	2065	502	.000	1562	5384-	1119	5025-
92	165.600	.000	140.760	.000	15.92	1.060	2240	.000	.000	175	2065	502	.000	1562	3821-	1017	4007-
93	165.600	.000	140.760	.000	15.92	1.060	2240	.000	.000	175	2065	502	.000	1562	2258-	925	3082-
94	165.600	.000	140.760	.000	15.92	1.060	2240	.000	.000	175	2065	502	.000	1562	695-	841	2240-
95	165.600	.000	140.760	.000	15.92	1.060	2240	.000	.000	175	2065	502	.000	1562	867	764	1476-
96	165.600	.000	140.760	.000	15.92	1.060	2240	.000	.000	175	2065	502	.000	1562	2430	695	781-
97	165.600	.000	140.760	.000	15.92	1.060	2240	.000	.000	175	2065	502	.000	1562	3993	631	149-
SUB	1324.800	.000	1126	.000	15.92	.000	17927	.000	.000	1403	16523	4020	8510	3993	3993	149-	149-
98	158.967	.000	135.122	.000	15.92	1.060	2151	.000	.000	168	1982	502	.000	1480	5473	544	394
99	145.295	.000	123.501	.000	15.92	1.060	1966	.000	.000	153	1812	502	.000	1309	6783	437	832
00	132.800	.000	112.880	.000	15.92	1.060	1797	.000	.000	140	1656	502	.000	1154	7937	350	1183
01	121.379	.000	103.172	.000	15.92	1.060	1642	.000	.000	128	1513	501	.000	1012	8949	279	1462
02	110.941	.000	94.300	.000	15.92	1.060	1501	.000	.000	117	1383	501	.000	881	9831	221	1684
SUB	1994.182	.000	1695	.000	15.92	.000	26985	.000	.000	2112	24872	6530	8510	9831	9831	1684	1684
REM	740.589	.000	629.499	.000	15.92	.000	10021	.000	.000	784	9236	5511	.000	3725	13557	667	2351
TOT	2734.771	.000	2324	.000	15.92	.000	37006	.000	.000	2897	34109	12042	8510	13557	13557	2351	2351

2734.771 ULTIMATE

REQUIRES 54 ADDITIONAL WELLS
AVERAGE NET OIL PRICE: 14.655 $/BBL

INTEREST: TYPE	AMOUNT	WORKING	OIL	GAS
INITIAL		1.0000000	.8500000	.8500000

SEVERANCE TAX: OIL 7.830 % $ GAS .163

TIER: 1 WPT RATE: 0
GAS CODE: 1 OPEX BASIS: 0
NGPA: 001 DEPTH: 3,400
OPERATOR: KELT OIL & GAS
PRODUCING ZONE: SAN ANDRES

OPER COST ESCALATION @ .00%
RESERVE LIFE, YEARS 24
IDENT: 30 00005 M

TOTAL NET REVENUE	13557.074
DISCOUNTED AT 5.00%	6234.387
DISCOUNTED AT 10.00%	2351.820
DISCOUNTED AT 15.00%	164.969
DISCOUNTED AT 20.00%	1120.847-
DISCOUNTED AT 30.00%	2370.471-
DISCOUNTED AT 40.00%	2822.817-

CATO FIELD
SAN ANDRES CORE ANALYSIS
16 WELLS
(Permeability greater than or equal to 0.1 md.)

Porosity

#Cores	Avg ,%
80	1.0
82	2.5
69	3.5
61	4.5
73	5.5
51	6.5
50	7.5
48	8.5
38	9.5
24	10.5
20	11.5
17	12.5
20	13.5
9	14.5
8	15.5
3	16.5
653	6.04

***Permeability**

#Cores	Avg , md
101	0.1
151	0.3
81	0.75
174	3.0
28	7.5
71	30.0
21	75.0
17	300.0
6	750.0
650	21.7

* Eliminated 3 samples 1000 md. from average

Subject: Cato Waterflood Response

Northern Waterflood
Sections 11 & 14 Injection

Sect's with Known Response	Incemental Prod. due to WF (Barrels)	Original PV (Barrels)	Original Oil in Place (Barrels)	Incr. Prod. as Percent of OOIP
02	10 081	3 342 348	2 203 132	0.5 %
03	17 900	7 932 909	5 445 097	0.3 %
10	35 300	16 901 880	10 952 752	0.3 %
11	76 500	7 345 951	4 807 258	1.6 %
13	34 100	181 388	89 205	38.2 %
14	62 700	9 605 037	6 289 499	10.0 %
15	45 800	17 633 605	11 250 057	0.4%
22	26 800	16 108 919	10 524 397	0.3%
23	44 100	4 125 850	2 632 714	1.7%
Total Incre.	353,281	83 177 807	54 194 111	0.65%

Net Pore Volume Injected = 1,935,669 / 83,117,807 = 2.3 %

SECTION 11 & 14 CALCULATIONS
Net Pore Volume Injected = 1,935,669 / 83,117,807 = 2.3 %
Total PV sections = 16,950,000 Bbls
Total OOIP = 11,096,000 STB
Total Increm. oil = 139,200 STB
Percent incremental oil = 1.25 %
Percent PV's injected = 17.7 %

TABLE 2

CATO WATERFLOOD INVESTMENT
($ 1000's)

ITEM	1989		1990		TOTAL	
• Drill (24) Injection Wells @ $140 M each	(23)	3220	(1)	140	(24)	3360
• Drill (31) Producing Wells @ 150 M each	(27)	4050	(4)	600	(31)	4650
• Convert (110) producers to injectors @ $4.3 M each	(60)	258	(50)	215	(110)	473
• Re-perforate (148) wells @ $8.3 M each	(74)	614	(74)	614	(148)	1228
• Squeeze (29) wells @ $8.3 M each	(29)	241			(29)	241
• Modify Tank Batteries		73				73
• Upgrade Injection Facilities		90				90
• Install Production Pipelines		463				463
• Install Injection Pipelines		1284				1284
• Install Power Plant		1700				1700
TOTAL		11993		1569		13562

TABLE 3

CATO FIELD
SECONDARY RECOVERY PROJECT
OPERATING COSTS
EXAMPLE YEAR - 1991

	$ 1,000's Per Year
(143 producing wells, 143 injection wells active during year)	
Consumables - 32¢/BBL fluid lifted (oil & water) from producing wells	7,396
Surface services $788/well/year (all wells)	225
Downhole services $340/well/year (producing wells only)	49
Operator Fees	175
Other expenses - $179/well/year (all wells)	51
Water injection cost - 3¢/BBL injected	708
Make-up water cost - 16¢/BBL	326
Sub Total	8,930
Outside electrical power cost savings	(4,623)
Sub Total	4,659
Less 1991 proven producing expenses	(553)
1991 Grand Total Incremental Expenses	(1) 4,106

(1) NOTE: These costs split roughly 50% to proven reserves and 50% to probable reserves.

CATO DATA SHEET TABLE 5

origin =
SW corner
of T8S-R30E

CATO CUMULATIVE PROD
1967 THRU JUNE 1988

H > 4% LOG PHI
FEET

	X ft	Y ft	CPS SYM	WELL No	of sec. FWL	FSL	LOCATION 1/4	1/4	sec	twn	rng	MBO	MMCF	MBW	MBW INJ	KB ELEV	TOP P1	STR P1	P1	P2	P3	P1+P2 +P3
1	660	36300	12	1	660	4620	NW	NW	31	7	30	0	0	0	0		9999	9999	9999	9999	9999	9999
2	16500	36300	12	1	660	4620	NW	NW	34	7	30	0	0	0	0		9999	9999	9999	9999	9999	9999
3	25740	32340	12	1	4620	660	SE	SE	35	7	30	0	0	0	0		9999	9999	0	0	0	0
4	28380	33660	16	2	1980	1980	NE	SW	36	7	30	9999	9999	9999	9999		9999	9999	9999	9999	9999	9999
5	27060	36300	18	1	660	4620	NW	NW	36	7	30	0	0	0	0		9999	9999	9999	9999	9999	9999
6	27060	32340	16	1	660	660	SW	SW	36	7	30	9999	9999	9999	9999		9999	9999	9999	9999	9999	9999
7	28380	34980	16	3	1980	3300	SE	NW	36	7	30	9999	9999	9999	9999		9999	9999	9999	9999	9999	9999
8	31020	36300	12	1	4620	4620	NE	NE	36	7	30	0	0	0	0		9999	9999	9999	9999	9999	9999
9	27060	27060	12	B-1	660	660	SW	SW	1	8	30	0	0	0	0	4191	3482	709	2	20	0	22
10	31020	29700	16	2	4620	3300	SE	NE	1	8	30	3	8	10	0		9999	9999	9999	9999	9999	9999
11	29700	29700	16	1	3300	3300	SW	NE	1	8	30	5	10	17	0		9999	9999	9999	9999	9999	9999
12	24420	27060	13	5	3300	660	SW	SE	2	8	30	5	2	3	0		9999	9999	9999	9999	9999	9999
13	21780	27060	16	1	660	660	SW	SW	2	8	30	35	41	57	0		9999	9999	9999	9999	9999	9999
14	23100	27060	16	2	1980	660	SE	SW	2	8	30	20	27	36	0		9999	9999	9999	9999	9999	9999
15	21450	28050	16	4	330	1650	NW	SW	2	8	30	13	25	44	0		9999	9999	9999	9999	9999	9999
16	20460	27060	16	2	4620	660	SE	SE	3	8	30	52	66	44	0	4059	3307	752	28	14	9999	42
17	19140	27060	16	1	3300	660	SW	SE	3	8	30	22	20	77	0	4093	3268	825	8	13	5	26
18	16500	29700	12	C-1	660	3300	SW	NW	3	8	30	0	0	0	0		9999	9999	9999	9999	9999	9999
19	16500	27060	35	1	660	660	SW	SW	3	8	30	0	0	0	0		9999	9999	9999	9999	9999	9999
20	20460	28380	16	B1	4620	1980	NE	SE	3	8	30	74	78	41	0	4104	3305	799	17	12	2	31
21	19140	29700	13	1	3300	3300	SW	NE	3	8	30	0	0	0	0		9999	9999	9999	9999	9999	9999
22	20460	29700	16	2	4620	3300	SE	NE	3	8	30	47	25	409	0	4066	3294	772	17	13	3	33
23	11220	29700	16	4	660	3300	SW	NW	4	8	30	6	0	4	0		9999	9999	9999	9999	9999	9999
24	13860	28380	18	2	3300	1980	NW	SE	4	8	30	0	0	0	0		9999	9999	9999	9999	9999	9999
25	11220	27060	18	1	660	660	SW	SW	4	8	30	25	541	36	0	4049	3087	962	19	8	10	37
26	9900	27060	12	1	4620	660	SE	SE	5	8	30	0	0	0	0		9999	9999	9999	9999	9999	9999
27	5940	27060	35	1	660	660	SW	SW	5	8	30	0	0	0	0		9999	9999	0	0	0	0
28	8580	28380	13	1	3300	1980	NW	SE	5	8	30	0	46	0	0		9999	9999	9999	9999	9999	9999
29	4620	27060	16	1 DEV	4620	660	SE	SE	6	8	30	33	160	14	0		9999	9999	9999	9999	9999	9999
30	4620	25740	16	1 DEV	4620	4620	NE	NE	7	8	30	9999	9999	9999	9999		9999	9999	9999	9999	9999	9999
31	4620	24420	35	2 DEV	4620	3300	SE	NE	7	8	30	0	0	0	0		9999	9999	9999	9999	9999	9999
32	8580	24420	16	6	3300	3300	SW	NE	8	8	30	21	648	37	0	4081	3053	1028	7	17	12	36
33	9900	25740	16	1	4620	4620	NE	NE	8	8	30	51	918	0	0	4036	3045	991	11	20	16	47
34	8580	25740	16	2	3300	4620	NW	NE	8	8	30	26	457	2	0		9999	9999	9999	9999	9999	9999
35	5940	24420	20	1 DEV	660	3300	SW	NW	8	8	30	94	265	25	0		9999	9999	0	0	0	0
36	9900	21780	16	1	4620	660	SE	SE	8	8	30	24	464	6	0		9999	9999	9999	9999	9999	9999
37	7260	21780	12	1	1980	660	SE	SW	8	8	30	0	0	0	0		9999	9999	0	0	0	0
38	9900	23100	16	2	4620	1980	NE	SE	8	8	30	19	246	40	0	4040	3098	942	17	16	13	46
39	9900	24420	16	4	4620	3300	SE	NE	8	8	30	39	892	41	0	4039	3076	963	8	14	12	34
40	8580	23100	16	5	3300	1980	NW	SE	8	8	30	25	827	54	0	4081	3090	991	7	10	9	26
41	8580	21780	18	2	3300	660	SW	SE	8	8	30	77	360	16	0	4065	3138	927	18	10	5	33
42	13860	24420	16	1	3300	3300	SW	NE	9	8	30	56	93	52	0	4057	3195	862	11	16	14	41
43	12540	24420	16	8	1980	3300	SE	NW	9	8	30	120	1212	28	0	4050	3145	905	20	15	10	45
44	11220	23100	16	9	660	1980	NW	SW	9	8	30	94	733	15	0	4044	3114	930	14	9	11	34
45	11220	24420	16	1	660	3300	SW	NW	9	8	30	187	674	13	0	4046	3097	949	14	14	13	41
46	11220	25740	16	2	660	4620	NW	NW	9	8	30	49	453	12	0	4050	3094	956	30	10	12	52
47	15180	23100	18	5	4620	1980	NE	SE	9	8	30	60	121	41	0	4068	3234	834	19	18	14	51
48	13860	23100	16	2	3300	1980	NW	SE	9	8	30	68	68	52	0	4054	3193	861	25	14	11	50
49	12540	25740	16	10	1980	4620	NE	NW	9	8	30	87	622	72	0	4051	3156	895	19	14	12	45
50	13860	21780	16	1	3300	660	SW	SE	9	8	30	172	120	527	0	4071	3220	851	18	13	2	33
51	12540	21780	16	1	1980	660	SE	SW	9	8	30	93	346	16	0	4058	3169	889	30	22	10	62
52	11220	21780	16	7	660	660	SW	SW	9	8	30	71	624	10	0	4066	3158	908	20	16	10	46
53	15180	25740	16	2	4620	4620	NE	NE	9	8	30	41	77	50	0	4063	3214	849	20	20	6	46
54	15180	21780	16	6	4620	660	SE	SE	9	8	30	103	495	108	0	4067	3259	808	18	26	9999	44
55	13860	25740	16	2	3300	4620	NW	NE	9	8	30	23	56	43	0		9999	9999	9999	9999	9999	9999
56	12540	23100	16	2	1980	1980	NE	SW	9	8	30	69	264	12	0	4044	3146	898	25	20	20	65
57	15180	24420	16	1	4620	3300	SE	NE	9	8	30	97	163	77	0	4065	3232	833	24	15	9	48
58	20460	24420	18	1	4620	3300	SE	NE	10	8	30	75	73	42	0	4118	3316	802	25	19	14	58
59	17820	21780	18	2	1980	660	SE	SW	10	8	30	76	221	30	0	4096	3360	736	13	16	9	38
60	19140	23100	16	2	3300	1980	NW	SE	10	8	30	57	53	32	0	4093	3313	780	23	15	9999	38
61	19140	24420	16	2	3300	3300	SW	NE	10	8	30	61	80	33	0	4092	3288	804	17	13	9	39
62	16500	24420	16	2	660	3300	SW	NW	10	8	30	82	102	118	0	4071	3242	829	33	22	9999	55
63	17820	25740	16	1	1980	4620	NE	NW	10	8	30	47	47	39	0	4077	3247	830	19	12	9999	31
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93	28050	20130	16	2	1650	4290	NE	NW	13	8	30	1	0	0	0		9999	9999	9999	9999	9999	9999
94	26730	17820	13	1	330	1980	NW	SW	13	8	30	18	8	44	0		9999	9999	9999	9999	9999	9999
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97	21780	17820	18	1	660	1980	NW	SW	14	8	30	75	146	31	0	4127	3429	698	20	14	9999	34
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115	19140	19140	16	3	3300	3300	SW	NE	15	8	30	62	95	28	0	4098	3374	724	26	14	9999	40
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218	9900	7260	16	8	4620	1980	NE	SE	29	8	30	77	92	38	0		9999	9999	9999	9999	9999	9999
219	8910	9570	16	13	3630	4290	NW	NE	29	8	30	17	30	20	0		9999	9999	9999	9999	9999	9999
220	9900	5940	16	1	4620	660	SE	SE	29	8	30	60	58	36	0		9999	9999	9999	9999	9999	9999
221	8580	5940	16	12	3300	660	SW	SE	29	8	30	73	85	36	0		9999	9999	9999	9999	9999	9999
222	9900	9900	16	5	4620	4620	NE	NE	29	8	30	5	5	5	0	4130	3318	812	9	5	9999	14
223	8580	7260	16	9	3300	1980	NW	SE	29	8	30	57	56	46	0		9999	9999	9999	9999	9999	9999
224	9900	8580	16	3	4620	3300	SE	NE	29	8	30	58	64	26	0	4138	3324	814	20	6	0	26
225	7260	7260	18	14	1980	1980	NE	SW	29	8	30	0	0	0	0		9999	9999	0	0	0	0
226	4620	660	12	36-1	4620	660	SE	SE	31	8	30	0	0	0	0	4114	3308	806	22	8	0	30
227	660	660	12	1	660	660	SW	SW	31	8	30	0	0	0	0	4095	3222	873	33	6	0	39
228	8580	4620	13	1	3300	4620	NW	NE	32	8	30	59	67	25	0		9999	9999	9999	9999	9999	9999
229	5940	660	18	1	660	660	SW	SW	32	8	30	6	2	11	0		9999	9999	9999	9999	9999	9999
230	7260	660	18	21-C	1980	660	SE	SW	32	8	30	0	0	0	0		9999	9999	9999	9999	9999	9999
231	9900	3300	18	1	4620	3300	SE	NE	32	8	30	42	15	32	0	4141	3363	778	20	9	9999	29
232	7260	3300	18	11	1980	3300	SE	NW	32	8	30	28	46	36	0		9999	9999	9999	9999	9999	9999
233	8580	1980	18	2	3300	1980	NW	SE	32	8	30	0	0	1	0		9999	9999	9999	9999	9999	9999

234	8580	3300	18	10	3300	3300	SW	NE	32	8	30	108	152	51	0		9999	9999	9999	9999	9999	9999
235	9900	4620	13	1	4620	4620	NE	NE	32	8	30	85	127	102	0		9999	9999	9999	9999	9999	9999
236	9900	1980	13	1	4620	1980	NE	SE	32	8	30	54	39	6	0		9999	9999	9999	9999	9999	9999
237	9900	660	13	3	4620	660	SE	SE	32	8	30	36	12	49	0		9999	9999	9999	9999	9999	9999
238	12540	1980	13	5	1980	1980	NE	SW	33	8	30	81	77	179	0	4137	3392	745	18	8	9999	26
239	15180	1980	18	9	4620	1980	NE	SE	33	8	30	128	116	1406	0	4167	3455	712	26	12	9999	38
240	11220	3300	3	7	660	3300	SW	NW	33	8	30	61	78	29	1491	4142	3390	752	10	4	9999	14
241	15180	660	16	13	4620	660	SE	SE	33	8	30	99	116	1005	0	4129	3421	708	16	9	9999	25
242	12540	3300	13	10	1980	3300	SE	NW	33	8	30	109	126	279	0	4151	3418	733	9999	9999	9999	9999
243	15180	3300	13	2	4620	3300	SE	NE	33	8	30	49	24	94	0		9999	9999	9999	9999	9999	9999
244	11220	4620	13	3	660	4620	NW	NW	33	8	30	65	64	182	0	4148	3387	761	19	2	9999	21
245	15180	4620	13	1	4620	4620	NE	NE	33	8	30	56	12	187	0		9999	9999	9999	9999	9999	9999
246	13860	1980	16	11	3300	1980	NW	SE	33	8	30	103	105	818	0	4154	3421	733	15	11	9999	26
247	13860	660	3	6	3300	660	SW	SE	33	8	30	99	90	179	3638	4138	3407	731	20	11	9999	31
248	11220	1980	13	14	660	1980	NW	SW	33	8	30	57	41	42	0	4133	3388	745	8	6	9999	14
249	13860	3300	3	4	3300	3300	SW	NE	33	8	30	98	100	275	2592	4166	3447	719	9	8	9999	17
250	11220	660	3	8	660	660	SW	SW	33	8	30	73	53	25	4204	4127	3383	744	6	0	9999	6
251	12540	660	13	12	1980	660	SE	SW	33	8	30	82	72	365	0	4133	3387	746	7	7	9999	14
252	13860	4620	13	1	3300	4620	NW	NE	33	8	30	132	156	437	0	4166	3465	701	41	4	9999	45
253	12540	4620	13	2	1980	4620	NE	NW	33	8	30	109	117	20	0	4154	3424	730	17	4	9999	21
254	16500	660	3	4	660	660	SW	SW	34	8	30	41	35	173	3132	4126	3441	685	35	9	9999	44
255	16500	1980	13	3	660	1980	NW	SW	34	8	30	35	11	14	0	4139	3450	689	29	9	9999	38
256	16500	4620	16	1	660	4620	NW	NW	34	8	30	86	77	349	0	4177	3492	685	17	3	9999	20
257	17820	4620	13	2	1980	4620	NE	NW	34	8	30	40	62	68	0	4179	3504	675	9999	9999	9999	9999
258	20460	1980	35	1	4620	1980	NE	SE	34	8	30	0	0	0	0		9999	9999	9999	9999	9999	9999
259	16500	3300	13	5	660	3300	SW	NW	34	8	30	40	121	469	0	4157	3475	682	25	10	9999	35
260	25740	4620	8	WD-1	4620	4620	NE	NE	35	8	30	0	0	0	0	4185	3581	604	17	10	9999	27
261	16500	-660	16	1	660	4620	NW	NW	3	9	30	60	30	395	0	4105	3422	683	6	9999	9999	6
262	17820	-660	16	2	1980	4620	NE	NW	3	9	30	21	5	1	0		9999	9999	9999	9999	9999	9999
263	20460	-660	12	1	4620	4620	NE	NE	3	9	30	0	0	0	0		9999	9999	9999	9999	9999	9999
264	12540	-660	13	1	1980	4620	NE	NW	4	9	30	64	32	145	0	4103	3385	718	17	6	9999	23
265	11220	-1980	16	4	660	3300	SW	NW	4	9	30	104	45	574	0	4095	3369	726	10	7	9999	17
266	11220	-660	13	6	660	4620	NW	NW	4	9	30	1	7	25	0	4135	3397	738	10	0	9999	10
267	15180	-660	13	3	4620	4620	NE	NE	4	9	30	145	89	1265	0	4108	3409	699	23	7	9999	30
268	15180	-1980	12	8	4620	3300	SE	NE	4	9	30	0	0	0	0	4090	3409	681	20	8	9999	28
269	13860	-1980	18	2	3300	3300	SW	NE	4	9	30	84	33	310	0	4088	3387	701	20	4	9999	24
270	12540	-1980	13	7	1980	3300	SE	NW	4	9	30	3	12	59	0	4078	3370	708	19	9999	9999	19
271	13860	-660	13	5	3300	4620	NW	NE	4	9	30	122	58	440	0	4107	3388	719	28	6	9999	34
272	12540	-3300	35	1-A	1980	1980	NE	SW	4	9	30	0	0	0	0	4071	3374	697	16	6	9999	22
273	11220	-3300	16	5	660	1980	NW	SW	4	9	30	18	4	198	0	4063	3342	721	18	9	9999	27
274	7260	-1980	16	1	1980	3300	SE	NW	5	9	30	173	35	102	0	4079	3303	776	19	2	9999	21
275	8580	-3300	16	2	3300	1980	NW	SE	5	9	30	22	64	312	0	4075	3305	770	37	4	9999	41
276	5940	-4620	16	3	660	660	SW	SW	5	9	30	23	36	28	0	4056	3257	799	28	5	9999	33
277	8580	-1980	16	2	3300	3300	SW	NE	5	9	30	75	62	295	0	4080	3313	767	17	9999	9999	17
278	9900	-660	13	1	4620	4620	NE	NE	5	9	30	101	50	416	0		9999	9999	9999	9999	9999	9999
279	5940	-1980	16	3	660	3300	SW	NW	5	9	30	111	68	644	0	4111	3292	819	25	2	9999	27
280	9900	-3300	16	1	4620	1980	NE	SE	5	9	30	56	37	180	0	4067	3322	745	22	3	9999	25
281	5940	-3300	16	2	660	1980	NW	SW	5	9	30	102	64	152	0	4070	3276	794	24	4	9999	28
282	7260	-660	16	4	1980	4620	NE	NW	5	9	30	29	60	43	0	4119	3304	815	21	4	9999	25
283	9900	-1980	16	4	4620	3300	SE	NE	5	9	30	25	9	289	0	4100	3357	743	34	4	9999	38
284	8580	-660	13	3	3300	4620	NW	NE	5	9	30	9999	9999	9999	9999	4119	9999	9999	9999	9999	9999	9999
285	5940	-660	16	2	660	4620	NW	NW	5	9	30	49	31	249	0	4119	3338	781	18	9999	9999	18
286	7260	-3300	16	1	1980	1980	NE	SW	5	9	30	69	51	97	0	4066	3282	784	7	9999	9999	7
287	4620	-1980	16	1	4620	3300	SE	NE	6	9	30	67	81	13	0	4079	3264	815	10	9999	9999	10
288	3300	-1980	13	2	3300	3300	SW	NE	6	9	30	5	6	0	0	4115	3279	836	21	9999	9999	21
289	2970	-4950	12	1	2970	330	SW	SE	6	9	30	0	0	0	0	4056	3238	818	4	9999	9999	4
290	4950	-4290	16	2	4950	990	SE	SE	6	9	30	3	9	18	0		9999	9999	9999	9999	9999	9999
291	4950	-2970	16	1	4950	2310	NE	SE	6	9	30	60	132	170	0	4099	9999	9999	9999	9999	9999	9999
292	3300	-3300	16	1	3300	1980	NW	SE	6	9	30	33	15	43	0	4089	3262	827	14	9999	9999	14
293	3300	-8580	18	1	3300	1980	NW	SE	7	9	30	1	0	2	0	4031	3208	823	24	9	9999	33
294	4620	-7260	16	1	4620	3300	SE	NE	7	9	30	12	0	63	0	4042	3222	820	40	6	0	46
295	3300	-7260	12	1	3300	3300	SW	NE	7	9	30	0	0	0	0	4052	3216	836	6	9	9999	15
296	4620	-9900	12	1	4620	660	SE	SE	7	9	30	0	0	0	0		9999	9999	9999	9999	9999	9999
297	1980	-7260	35	1	1980	3300	SE	NW	7	9	30	0	0	0	0		9999	9999	0	9999	9999	0
298	1980	-9900	16	2-Y	1980	660	SE	SW	7	9	30	6	9	7	0	4041	3293	748	9999	9999	9999	9999
299	1980	-8580	16	1-Y	1980	1980	NE	SW	7	9	30	19	12	2	0	4051	3280	771	9999	9999	9999	9999
300	660	-5940	35	1	660	4620	NW	NW	7	9	30	0	0	0	0		9999	9999	0	9999	9999	0
301	7260	-5940	16	1	1980	4620	NE	NW	8	9	30	4	0	2	0	4048	3263	785	22	9999	9999	22
302	5940	-5940	16	1	660	4620	NW	NW	8	9	30	12	0	0	0	4047	3235	812	45	10	9999	55
303	9900	-5940	16	1	4620	4620	NE	NE	8	9	30	13	17	697	0	4045	3313	732	25	2	9999	27
304	9900	-12540	8	SWD1	4620	3300	SE	NE	17	9	30	0	0	0	0	4035	3368	667	57	0	9999	57
305	1980	-11220	12	1	1980	4620	NE	NW	18	9	30	0	0	0	0	4028	3236	792	46	6	9999	52
306	4620	-12540	12	1	4620	3300	SE	NE	18	9	30	0	0	0	0	4001	3266	735	24	4	0	28

DOCUMENT LEDGER FOR ROBIN LEBLEU

PROJECT	LEASE	DOC. ID#	PAGES	DOCUMENT DESCRIPTION
CATO		NC-87-1	1	X-SECTION A-A'
CATO		NC-87-2	1	X-SECTION B-B'
CATO		NC-87-3	1	X-SECTION C-C'
CATO		NC-87-4	1	X-SECTION D-D'
CATO		NC-87-5	1	X-SECTION E-E'
CATO		NC-87-6	1	X-SECTION F-F'
CATO		NC-87-7	1	X-SECTION G-G'
CATO		NC-87-8	1	X-SECTION H-H'
CATO		NC-87-9	1	X-SECTION I-I'
CATO		NC-87-10	1	X-SECTION J-J'
CATO		NC-87-11	1	ISOPACH MAP P1T AND P1
CATO		NC-87-12	1	ISOPACH MAP P2 DOLOMITE
CATO		NC-87-13	1	ISOPACH MAP P3
CATO		NC-87-14	1	ISOPACH MAP P1-P2 INTERZONE
CATO		NC-87-15	1	ISOPACH MAP P1+P2+P1-P2IZ
CATO		NC-87-16	1	CATO BASE MAP LARGE
CATO		NC-87-17	1	STRUCTURE MAP TOP P1
CATO		NC-87-18	1	CATO BASE MAP SMALL
CATO		NC-87-19	1	KELT ACREAGE MAP
CATO		NC-87-20	1	CATO GEOLOGIC EVALUATION AREA
CATO		NC/OL/1	1	T CROSBY B1,MLL
CATO		NC/OL/2	1	T CROSBY B1,LL
CATO		NC/OL/3	1	CROSBY 3 1,FDC
CATO		NC/OL/4	1	CROSBY 3 1,LL
CATO		NC/OL/5	1	CROSBY 3 1,MLL
CATO		NC/OL/6	1	BAXTER FED 2,DENSITY
CATO		NC/OL/7	1	BAXTER FED 2,GUARD
CATO		NC/OL/8	1	BAXTER FED 2,FORXO
CATO		NC/OL/9	1	BAXTER FED 5,DENSITY
CATO		NC/OL/10	1	BAXTER FED 5,GUARD
CATO		NC/OL/11	1	BAXTER FED 5,FORXO
CATO		NC/OL/12	1	CROSBY B FED 1,FDC
CATO		NC/OL/13	1	CROSBY A 1,FL
CATO		NC/OL/14	1	CROSBY A 1,MFL
CATO		NC/OL/15	1	CROSBY A 1,MOP
CATO		NC/OL/16	1	CROSBY A 1,DENSILOG
CATO		NC/OL/17	1	WINKLER FED 2,GUARD
CATO		NC/OL/18	1	WINKLER FED 2,DENSITY
CATO		NC/OL/19	1	WINKLER FED 2,FORXO
CATO		NC/OL/20	1	GRIMM FED 1,FDC
CATO		NC/OL/21	1	GRIMM FED 1,LL
CATO		NC/OL/22	1	GRIMM FED 1,MLL
CATO		NC/OL/23	1	GRIMM FED 1,COMPUTED POR.
CATO		NC/OL/24	1	CROSBY 1, FDC
CATO		NC/OL/25	1	CROSBY 1, MLL
CATO		NC/OL/26	1	QUEEN 2, DENSILOG
CATO		NC/OL/27	1	QUEEN 2, FL
CATO		NC/OL/28	1	QUEEN 2, MFL
CATO		NC/OL/29	1	QUEEN 2, MOVABLE OIL PLOT
CATO		NC/OL/30	1	CATO 2, FDC
CATO		NC/OL/31	1	CATO 2, SNP
CATO		NC/OL/32	1	CATO 2, BSGR
CATO		NC/OL/33	1	CATO 2, ILL
CATO		NC/OL/34	1	CATO 2, LL
CATO		NC/OL/35	1	CATO 2, MLL
CATO		NC/OL/36	1	CATO 2, MOVABLE OIL PLOT
CATO		NC/OL/37	1	ABKO FED 1, FDC
CATO		NC/OL/38	1	ABKO FED 1, LL
CATO		NC/OL/39	1	ABKO FED 1, MLL
CATO		NC/OL/40	1	ABKO FED 2, FDC
CATO		NC/OL/41	1	ABKO FED 2, SNP
CATO		NC/OL/42	1	ABKO FED 2, BSGR
CATO		NC/OL/43	1	ABKO FED 2, LL
CATO		NC/OL/44	1	ABKO FED 2, MLL
CATO		NC/OL/45	1	ABKO FED 2, MOVABLE OIL PLOT
CATO		NC/OL/46	1	ABKO FED 3, FDC
CATO		NC/OL/47	1	ABKO FED 3, LL
CATO		NC/OL/48	1	ABKO FED 3, MLL
CATO		NC/OL/49	1	BASKETT C 2, FDC
CATO		NC/OL/50	1	BASKETT C 2, LL
CATO		NC/OL/51	1	BASKETT C 2,MLL
CATO		NC/OL/52	1	CROSBY E 1, FDC
CATO		NC/OL/53	1	CROSBY E 1, LL
CATO		NC/OL/54	1	CROSBY E 1, MLL
CATO		NC/OL/55	1	DAPHNE CATO BASKETT 1,FDC
CATO		NC/OL/56	1	DAPHNE CATO BASKETT 1,LL

TABLE 6

CATO	NC/OL/57	1	DAPHNE CATO BASKETT 1,MLL
CATO	NC/OL/58	1	BASKETT 2, FDC
CATO	NC/OL/59	1	BASKETT 2, IL
CATO	NC/OL/60	1	BASKETT D 3, DENSILOG
CATO	NC/OL/61	1	BASKETT D 3, FL
CATO	NC/OL/62	1	BASKETT D 3, MFL
CATO	NC/OL/63	1	BASKETT D 3, MOVABLE OIL PLOT
CATO	NC/OL/64	1	BASKETT D 5, FDC
CATO	NC/OL/65	1	BASKETT D 5, LL
CATO	NC/OL/66	1	BASKETT D 5, MLL
CATO	NC/OL/67	1	FISCHER FED 1, FDC
CATO	NC/OL/68	1	FISCHER FED 1, LL
CATO	NC/OL/69	1	FISCHER FED 1, MLL
CATO	NC/OL/70	1	FISCHER FED 2, FDC
CATO	NC/OL/71	1	FISCHER FED 2, LL
CATO	NC/OL/72	1	FISCHER FED 2, MLL
CATO	NC/OL/73	1	CATO FED B 1, FDC
CATO	NC/OL/74	1	CATO FED B 1, LL
CATO	NC/OL/75	1	CATO FED B 1, MLL
CATO	NC/OL/76	1	CATO FED B 2, FDC
CATO	NC/OL/77	1	CATO C 1, FDC
CATO	NC/OL/78	1	CATO C 1, LL
CATO	NC/OL/79	1	CATO C 1, MLL
CATO	NC/OL/80	1	CATO C FED 4, DENSILOG
CATO	NC/OL/81	1	CATO C FED 4, BHC ACOUSTILOG
CATO	NC/OL/82	1	CATO C FED 4, LL
CATO	NC/OL/83	1	CATO C FED 4, MLL
CATO	NC/OL/84	1	BASKETT PMP 6,FDC
CATO	NC/OL/85	1	BASKETT PMP 6, LL
CATO	NC/OL/86	1	BASKETT PMP 6, MLL
CATO	NC/OL/87	1	WASLEY 2, FDC
CATO	NC/OL/88	1	WASLEY 2, LL
CATO	NC/OL/89	1	WASLEY 2, MLL
CATO	NC/OL/90	1	CATO BASKETT PMP 7, DENSILOG
CATO	NC/OL/91	1	CATO BASKETT PMP 7, FL
CATO	NC/OL/92	1	CATO BASKETT PMP 7, MFL
CATO	NC/OL/93	1	CATO BASKETT PMP 7, MOV OIL PLOT
CATO	NC/OL/94	1	WASLEY 5, FDC
CATO	NC/OL/95	1	CROSBY D 1, FDC
CATO	NC/OL/96	1	CROSBY D 1, SNP
CATO	NC/OL/97	1	CROSBY D 1, BSGR
CATO	NC/OL/98	1	CROSBY D 1, LL
CATO	NC/OL/99	1	CROSBY D 1, IL
CATO	NC/OL/100	1	CROSBY D 1,MLL
CATO	NC/OL/101	1	CATO A FED 1, FDC
CATO	NC/OL/101A	1	CATO A FED 1, LL
CATO	NC/OL/102	1	CATO A FED 1, MLL
CATO	NC/OL/103	1	CATO A FED 2, DENSILOG
CATO	NC/OL/104	1	CATO A FED 2, FL
CATO	NC/OL/105	1	CATO A FED 2, MFL
CATO	NC/OL/106	1	CATO A FED 2, MOV OIL PLOT
CATO	NC/OL/107	1	CATO 3, DENSITY
CATO	NC/OL/108	1	CATO 3, GUARD
CATO	NC/OL/109	1	CATO 3, FoRxo
CATO	NC/OL/110	1	CROSBY 4, FDC
CATO	NC/OL/111	1	CROSBY 4, LL
CATO	NC/OL/112	1	CROSBY 4, MLL
CATO	NC/OL/113	1	STATE H 1, DENSILOG
CATO	NC/OL/114	1	STATE H 1, FL
CATO	NC/OL/115	1	STATE H 1, MFL
CATO	NC/OL/116	1	STATE H 1, MOV OIL PLOT
CATO	NC/OL/117	1	STATE H 2, DENSILOG
CATO	NC/OL/118	1	STATE H 2, ACOUSTILOG
CATO	NC/OL/119	1	STATE H 2, FL
CATO	NC/OL/120	1	STATE H 4, DENSILOG
CATO	NC/OL/121	1	STATE H 4, FL
CATO	NC/OL/122	1	STATE H 5, DENSILOG
CATO	NC/OL/123	1	STATE H 7, DENSILOG
CATO	NC/OL/124	1	STATE H 7, FL
CATO	NC/OL/125	1	STATE H 7, MFL
CATO	NC/OL/126	1	STATE H 7, MOV OIL PLOT
CATO	NC/OL/127	1	STATE H 10, DENSILOG
CATO	NC/OL/128	1	STATE H 12, DENSILOG
CATO	NC/OL/129	1	STATE H 13, DENSILOG
CATO	NC/OL/130	1	STATE H 13, FL
CATO	NC/OL/131	1	STATE H 14, DENSILOG
CATO	NC/OL/132	1	STATE H 16, DENSILOG
CATO	NC/OL/133	1	THELMA CROSBY 1, FDC
CATO	NC/OL/134	1	THELMA CROSBY 1, LL
CATO	NC/OL/135	1	THELMA CROSBY 1, MLL

ATO	NC/OL/136	1	CROSBY F 1, FDC
ATO	NC/OL/137	1	CROSBY F 1, MLL
ATO	NC/OL/138	1	CROSBY F 1, LL
CATO	NC/OL/139	1	BAXTER FED 1, DENSITY
ATO	NC/OL/140	1	BAXTER FED 1, GUARD
ATO	NC/OL/141	1	BAXTER FED 1, FoRxo
ATO	NC/OL/142	1	CROSBY 17 1, DENSITY
CATO	NC/OL/143	1	CROSBY 17 1, GUARD
CATO	NC/OL/144	1	CROSBY 17 1, FoRxo
ATO	NC/OL/145	1	CROSBY 12, DENSITY
ATO	NC/OL/146	1	CROSBY 12, GUARD
ATO	NC/OL/147	1	HODGES FED C 1, BSGR
CATO	NC/OL/148	1	HODGES FED C 2, BSGR
ATO	NC/OL/149	1	HODGES FED C 2, SNP
ATO	NC/OL/150	1	HODGES FED C 3, DENSILOG
ATO	NC/OL/151	1	HODGES FED C 3, ACOUSTILOG
CATO	NC/OL/152	1	HODGES FED C 3, LL
CATO	NC/OL/153	1	HODGES FED C 3, MLL
ATO	NC/OL/154	1	BROWN FED 1, SNP
ATO	NC/OL/155	1	BROWN FED 1, LL
ATO	NC/OL/156	1	BROWN FED 1, MLL
CATO	NC/OL/157	1	BROWN FED 2, SNP
ATO	NC/OL/158	1	BROWN FED 2, FDC
ATO	NC/OL/159	1	BROWN FED 2, LL
ATO	NC/OL/160	1	BROWN FED 2, MLL
CATO	NC/OL/161	1	BROWN FED 3, FDC
CATO	NC/OL/162	1	BROWN FED 3, SNP
ATO	NC/OL/163	1	BROWN FED 3, LL
ATO	NC/OL/164	1	BROWN FED 3, MLL
ATO	NC/OL/165	1	WINKLER FED 3, DENSITY
CATO	NC/OL/166	1	WINKLER FED 3, GUARD
ATO	NC/OL/167	1	WINKLER FED 3, FoRxo
ATO	NC/OL/168	1	CATO B FED 3, FDC
ATO	NC/OL/169	1	CATO B FED 3, DENSILOG
CATO	NC/OL/170	1	CATO B FED 3, SNP
CATO	NC/OL/171	1	CATO B FED 3, BSGR
ATO	NC/OL/172	1	CATO B FED 3, LL
ATO	NC/OL/173	1	CATO B FED 3, FL
ATO	NC/OL/174	1	CATO B FED 3, MLL
CATO	NC/OL/175	1	CATO B FED 3, MFL
ATO	NC/OL/176	1	CATO B FED 3, COMP. LOG
ATO	NC/OL/177	1	CATO B FED 3, MOV OIL PLOT
ATO	NC/OL/178	1	HODGES FED 2, SNP
CATO	NC/OL/179	1	HODGES FED 3, SNP
CATO	NC/OL/180	1	HODGES FED 1, SNP
ATO	NC/OL/181	1	HODGES FED 1, BSGR
ATO	NC/OL/182	1	HODGES FED 1, LL
ATO	NC/OL/183	1	HODGES FED 1, MLL
CATO	NC/OL/184	1	BROWN FED A 1, SNP
ATO	NC/OL/185	1	BROWN FED A 1, LL
ATO	NC/OL/186	1	BROWN FED A 1, MLL
ATO	NC/OL/187	1	BROWN FED A 2, SNP
CATO	NC/OL/188	1	BROWN FED A 2, BSGR
CATO	NC/OL/189	1	BROWN FED A 4, SNP
ATO	NC/OL/190	1	BROWN FED A 4, BSGR
ATO	NC/OL/191	1	BROWN FED A 4, LL
ATO	NC/OL/192	1	BROWN FED A 4, MLL
CATO	NC/OL/193	1	BROWN FED A 6, LL
ATO	NC/OL/194	1	BROWN FED A 6, SNP
ATO	NC/OL/195	1	BROWN FED A 6, BSGR
ATO	NC/OL/196	1	BROWN FED A 6, MLL
CATO	NC/OL/196	1	HODGES FED A 1, FDC
CATO	NC/OL/197	1	HODGES FED 3, SNP
ATO	NC/OL/198	1	HODGES FED 3, BSGR
ATO	NC/OL/200	1	HODGES FED 3, LL
ATO	NC/OL/201	1	HODGES FED 4, SNP
CATO	NC/OL/202	1	HODGES FED 4, BSGR
ATO	NC/OL/203	1	HODGES FED 4, LL
ATO	NC/OL/204	1	HODGES FED 4, MLL
ATO	NC/OL/205	1	HODGES FED 5, SNP
CATO	NC/OL/206	1	HODGES FED 5, BSGR
CATO	NC/OL/207	1	HODGES FED 5, LL
ATO	NC/OL/208	1	HODGES FED 5, MLL
ATO	NC/OL/209	1	HODGES FED 2, SNP
ATO	NC/OL/210	1	SHELL FED A 1, ACOUSTIC
CATO	NC/OL/211	1	SHELL FED A 1, FoRxo-GUARD
ATO	NC/OL/212	1	HODGES FED A 2, DENSILOG
ATO	NC/OL/213	1	HODGES FED A 5, ACOUSTILOG
ATO	NC/OL/214	1	HODGES FED A 5, FL
CATO	NC/OL/215	1	AMCO FED 1, SNP

CATO	NC/OL/216	1	AMCO FED 1, BSGR
CATO	NC/OL/217	1	AMCO FED 1, LL
CATO	NC/OL/218	1	AMCO FED 1, MLL
CATO	NC/OL/219	1	AMCO FED 2, SNP
CATO	NC/OL/220	1	AMCO FED 2, BSGR
CATO	NC/OL/221	1	AMCO FED 2, LL
CATO	NC/OL/222	1	AMCO FED 2, MLL
CATO	NC/OL/223	1	AMCO FED 3, SNP
CATO	NC/OL/224	1	AMCO FED 3, LL
CATO	NC/OL/225	1	AMCO FED 3, BSGR
CATO	NC/OL/226	1	AMCO FED 4, GR/N
CATO	NC/OL/227	1	AMCO FED 4, ACOUSTILOG
CATO	NC/OL/228	1	AMCO FED 4, FL
CATO	NC/OL/229	1	AMCO FED 4, MFL
CATO	NC/OL/230	1	AMCO FED 5, SNP
CATO	NC/OL/231	1	AMCO FED 5, BSGR
CATO	NC/OL/232	1	AMCO FED 5, LL
CATO	NC/OL/233	1	AMCO FED 5, MLL
CATO	NC/OL/234	1	AMCO FED 6, SNP
CATO	NC/OL/235	1	AMCO FED 6, BSGR
CATO	NC/OL/236	1	AMCO FED 6, LL
CATO	NC/OL/237	1	AMCO FED 6, MLL
CATO	NC/OL/238	1	AMCO FED 7, SNP
CATO	NC/OL/239	1	AMCO FED 7, BSGR
CATO	NC/OL/240	1	AMCO FED 7, LL
CATO	NC/OL/241	1	AMCO FED 8, SNP
CATO	NC/OL/242	1	AMCO FED 8, BSGR
CATO	NC/OL/243	1	AMCO FED 8, LL
CATO	NC/OL/244	1	AMCO FED 8, MLL
CATO	NC/OL/245	1	AMCO FED 9, SNP
CATO	NC/OL/246	1	AMCO FED 9, BSGR
CATO	NC/OL/247	1	AMCO FED 9, LL
CATO	NC/OL/248	1	AMCO FED 9, MLL
CATO	NC/OL/249	1	AMCO FED 10, ACOUSTILOG
CATO	NC/OL/250	1	AMCO FED 10, FL
CATO	NC/OL/251	1	AMCO FED 11, SNP
CATO	NC/OL/252	1	AMCO FED 12, BSGR
CATO	NC/OL/253	1	AMCO FED 12, LL
CATO	NC/OL/254	1	AMCO FED 13, SNP
CATO	NC/OL/255	1	AMCO FED 13, BSGR
CATO	NC/OL/256	1	AMCO FED 13, MLL
CATO	NC/OL/257	1	AMCO FED 14, SNP
CATO	NC/OL/258	1	AMCO FED 14, LL
CATO	NC/OL/259	1	HODGES FED B 1, BSGR
CATO	NC/OL/260	1	HODGES FED B 4, SNP
CATO	NC/OL/261	1	HODGES FED B 4, BSGR
CATO	NC/OL/262	1	HODGES FED B 4, LL
CATO	NC/OL/263	1	HODGES FED B 4, MLL
CATO	NC/OL/264	1	HODGES FED B 5, SNP
CATO	NC/OL/265	1	HODGES FED B 5, BSGR
CATO	NC/OL/266	1	HODGES FED B 5, LL
CATO	NC/OL/267	1	HODGES FED B 5, MLL
CATO	NC/OL/268	1	SHELL FED 1, SNP
CATO	NC/OL/269	1	SHELL FED 1, BSGR
CATO	NC/OL/270	1	SHELL FED 1, LL
CATO	NC/OL/271	1	SHELL FED 1, MLL
CATO	NC/OL/272	1	HODGES D 1, SNP
CATO	NC/OL/273	1	HODGES D 1, BSGRR
CATO	NC/OL/274	1	AMCO FED A 1, SNP
CATO	NC/OL/275	1	AMCO FED A 1, BSGR
CATO	NC/OL/276	1	AMCO FED A 1, LL
CATO	NC/OL/277	1	AMCO FED A 1, MLL
CATO	NC/OL/278	1	AMCO FED A 2, SNP
CATO	NC/OL/279	1	AMCO FED A 2, BSGR
CATO	NC/OL/280	1	AMCO FED A 2, LL
CATO	NC/OL/281	1	AMCO FED A 2, MLL
CATO	NC/OL/282	1	AMCO FED A 3, SNP
CATO	NC/OL/283	1	AMCO FED A 3, BSGR
CATO	NC/OL/284	1	AMCO FED A 3, LL
CATO	NC/OL/285	1	AMCO FED A 4, SNP
CATO	NC/OL/286	1	AMCO FED A 4, BSGR
CATO	NC/OL/287	1	AMCO FED A 4, LL
CATO	NC/OL/288	1	AMCO FED A 4, MLL
CATO	NC/OL/289	1	AMCO FED A 5, SNP
CATO	NC/OL/290	1	AMCO FED A 5, LL
CATO	NC/OL/291	1	AMCO FED A 6, SNP
CATO	NC/OL/292	1	AMCO FED A 6, BSGR
CATO	NC/OL/293	1	AMCO FED A 6, DLL
CATO	NC/OL/294	1	AMCO FED A 6, MLL
CATO	NC/OL/295	1	AMCO FED A 7, SNP

CATO	NC/OL/296	1	AMCO FED A 7, BSGR
CATO	NC/OL/297	1	AMCO FED A 7, DLL
CATO	NC/OL/298	1	AMCO FED A 7, MLL
CATO	NC/OL/299	1	AMCO FED A 8, SNP
CATO	NC/OL/300	1	AMCO FED A 8, BSGR
CATO	NC/OL/301	1	AMCO FED A 8, DLL
CATO	NC/OL/302	1	AMCO FED A 8, MLL
CATO	NC/OL/303	1	CORDER FED A 1, SNP
CATO	NC/OL/304	1	CORDER FED A 1, BSGR
CATO	NC/OL/305	1	CORDER FED 5, SNP
CATO	NC/OL/306	1	CORDER FED 5, BSGR
CATO	NC/OL/307	1	CORDER FED 5, DLL
CATO	NC/OL/308	1	CORDER FED 5, MLL
CATO	NC/OL/309	1	SHELL T.CROSBY 1, SNP
CATO	NC/OL/310	1	SHELL T.CROSBY 1, BSGR
CATO	NC/OL/311	1	SHELL T.CROSBY 2, SNP
CATO	NC/OL/312	1	SHELL CROSBY 2, BSGR
CATO	NC/OL/313	1	SHELL CROSBY 2, DLL
CATO	NC/OL/314	1	SHELL CROSBY 2, MLL
CATO	NC/OL/315	1	CROSBY B 1, SNP
CATO	NC/OL/316	1	CROSBY B 1, BSGR
CATO	NC/OL/317	1	CROSBY B 2, SNP
CATO	NC/OL/318	1	CROSBY B 3, SNP
CATO	NC/OL/319	1	CROSBY B 3, BSGR
CATO	NC/OL/320	1	CROSBY B 3, DLL
CATO	NC/OL/321	1	CROSBY B 3, MLL
CATO	NC/OL/322	1	CROSBY B 4, SNP
CATO	NC/OL/323	1	CROSBY B 4, BSGR
CATO	NC/OL/324	1	CROSBY B 4, DLL
CATO	NC/OL/325	1	CROSBY B 4, MLL
CATO	NC/OL/326	1	CORDER FED 2, SNP
CATO	NC/OL/327	1	CORDER FED 4, SNP
CATO	NC/OL/328	1	CORDER FED 4, BSGR
CATO	NC/OL/329	1	CORDER FED 4, DLL
CATO	NC/OL/330	1	CORDER FED 4, MLL
CATO	NC/OL/331	1	McGRAIL 1, SNP
CATO	NC/OL/332	1	McGRAIL 1, BSGR
CATO	NC/OL/333	1	McGRAIL 2, SNP
CATO	NC/OL/334	1	McGRAIL 2, BSGR
CATO	NC/OL/335	1	McGRAIL 2, MLL
CATO	NC/OL/336	1	McGRAIL 2, DLL
CATO	NC/OL/337	1	McGRAIL 3, SNP
CATO	NC/OL/338	1	McGRAIL 3, BSGR
CATO	NC/OL/339	1	McGRAIL 3, MLL
CATO	NC/OL/340	1	McGRAIL 3, DLL
CATO	NC/OL/341	1	CROSBY C 1, SNP
CATO	NC/OL/342	1	CROSBY C 1, BSGR
CATO	NC/CL/1	1	T. CROSBY B 1,GR
CATO	NC/CL/2	1	CROSBY B 2,GR/N
CATO	NC/CL/3	1	CROSBY 3 #2,GR/N
CATO	NC/CL/4	1	BARHYTE 1,GR/N
CATO	NC/CL/5	1	BAXTER FED 2,GR
CATO	NC/CL/6	1	BAXTER FED 1,GR/N
CATO	NC/CL/7	1	BAXTER FED 5,GR/N
CATO	NC/CL/8	1	CROSBY FED A1,GR
CATO	NC/CL/9	1	CROSBY FED G1,GR/N
CATO	NC/CL/10	1	CROSBY G 2,GR/N
CATO	NC/CL/11	1	CROSBY B FED 1,GR
CATO	NC/CL/12	1	CROSBY H 1,GR
CATO	NC/CL/13	1	CROSBY H 2,GR/N
CATO	NC/CL/14	1	WINKLER FED 1,GR/N
CATO	NC/CL/15	1	GRIMM FED 1,GR
CATO	NC/CL/16	1	GRIMM FED 2,GR/N
CATO	NC/CL/17	1	CROSBY 10,GR/N
CATO	NC/CL/18	1	CROSBY 9, GR/N
CATO	NC/CL/19	1	CROSBY 8, GR/N
CATO	NC/CL/20	1	CROSBY 7. GR/N
CATO	NC/CL/21	1	CROSBY 6, GR/N
CATO	NC/CL/22	1	CROSBY 5, GR/N
CATO	NC/CL/23	1	CROSBY 1, GR (UT)
CATO	NC/CL/24	1	CROSBY 2, GR/N (UT)
CATO	NC/CL/25	1	QUEEN 1, GR/N
CATO	NC/CL/26	1	QUEEN 2, GR
CATO	NC/CL/27	1	QUEEN 3, GR/N
CATO	NC/CL/28	1	CATO 1, GR/N
CATO	NC/CL/29	1	ABKO FED 1, GR
CATO	NC/CL/29A	1	ABKO FED 2, GR
CATO	NC/CL/30	1	ABKO FED 3, GR
CATO	NC/CL/31	1	ABKO FED 4, GR/N
CATO	NC/CL/32	1	BASKETT C 1, GR/N

CATO	NC/CL/33	1	BASKETT C 2, GR
CATO	NC/CL/34	1	CROSBY E 1, GR
CATO	NC/CL/35	1	CROSBY E 2Y, GR/N
CATO	NC/CL/36	1	BASKETT B 1, GR/N
CATO	NC/CL/37	1	DAPHNE CATO BASKETT 1, GR
CATO	NC/CL/38	1	BASKETT B 2, GR/N
CATO	NC/CL/39	1	BASKETT PMP 1, GR/N
CATO	NC/CL/40	1	BASKETT D 1, GR/TEMP
CATO	NC/CL/41	1	BASKETT D 2, GR/N
CATO	NC/CL/42	1	BASKETT D 3, GR
CATO	NC/CL/43	1	BASKETT D 4, GR/N
CATO	NC/CL/44	1	BASKETT D 5, GR
CATO	NC/CL/45	1	BASKETT D 6, GR/N
CATO	NC/CL/46	1	BASKETT D 7, GR/N
CATO	NC/CL/47	1	BASKETT D 8, GR/N
CATO	NC/CL/48	1	FISCHER FED 1, GR
CATO	NC/CL/49	1	FISCHER FED 2, GR
CATO	NC/CL/50	1	CATO FED B 1, GR
CATO	NC/CL/51	1	CATO FED B 2, GR/N
CATO	NC/CL/52	1	CATO FED B 4, GR/N
CATO	NC/CL/53	1	CATO FED B 6, GR/N
CATO	NC/CL/54	1	CATO C FED 1, GR
CATO	NC/CL/55	1	CATO C FED 2, GR/N
CATO	NC/CL/56	1	CATO C FED 3, GR/N
CATO	NC/CL/57	1	CATO C FED 4, GR
CATO	NC/CL/58	1	WASLEY 2, GR
CATO	NC/CL/59	1	CATO BASKETT PMP 7, GR
CATO	NC/CL/60	1	WASLEY 4, GR/N
CATO	NC/CL/61	1	WASLEY 5, GR
CATO	NC/CL/62	1	WASLEY 6, GR/N
CATO	NC/CL/63	1	WASLEY 7, GR/N
CATO	NC/CL/64	1	WASLEY 8, GR/N
CATO	NC/CL/65	1	BASKETT E 1, GR/N
CATO	NC/CL/66	1	BASKETT E 2, GR/N
CATO	NC/CL/67	1	CROSBY D 1, GR
CATO	NC/CL/68	1	CROSBY D 2,GR/N
CATO	NC/CL/69	1	CATO A FED 1, GR
CATO	NC/CL/70	1	CATO A FED 2, GR
CATO	NC/CL/71	1	CATO A FED 3, GR/N
CATO	NC/CL/72	1	CROSBY 3, GR/N
CATO	NC/CL/73	1	CROSBY 4, GR/N
CATO	NC/CL/74	1	STATE H 1, GR
CATO	NC/CL/75	1	STATE H 1, RAD. PERF.
CATO	NC/CL/76	1	STATE H 3, GR/N
CATO	NC/CL/77	1	STATE H 4, GR
CATO	NC/CL/78	1	STATE H 4, DRESSER GR
CATO	NC/CL/79	1	STATE H 5, GR (3/3/67)
CATO	NC/CL/80	1	STATE H 5, GR (2/27/67)
CATO	NC/CL/81	1	STATE H 6, GR/N
CATO	NC/CL/82	1	STATE H 7, GR
CATO	NC/CL/83	1	STATE H 9, GR/N
CATO	NC/CL/84	1	STATE H 10, GR
CATO	NC/CL/85	1	STATE H 11, GR/N
CATO	NC/CL/86	1	STATE H 11, GR
CATO	NC/CL/87	1	STATE H 13, GR
CATO	NC/CL/88	1	STATE H 14, GR
CATO	NC/CL/89	1	STATE H 15, GR/N
CATO	NC/CL/90	1	STATE H 16, GR/N
CATO	NC/CL/91	1	STATE H 17, GR/COMP.N
CATO	NC/CL/92	1	CROSBY 1, GR/N
CATO	NC/CL/93	1	THELMA CROSBY 1, GR (PAN AM)
CATO	NC/CL/94	1	CROSBY F 1, GR
CATO	NC/CL/95	1	CROSBY F 1, GR (LANE WELLS)
CATO	NC/CL/96	1	BAXTER FED 1, GR/N
CATO	NC/CL/97	1	BAXTER FED 3, GR/N
CATO	NC/CL/98	1	CROSBY 17 2, GR/N
CATO	NC/CL/99	1	CROSBY 1, GR/N (NC/CL/92)
CATO	NC/CL/100	1	CROSBY 17 3, GR/N
CATO	NC/CL/101	1	CROSBY 11, GR/N
CATO	NC/CL/102	1	HODGES FED C 2, GR (5/7/85)
CATO	NC/CL/103	1	HODGES FED C 2, GR (2/11/68)
CATO	NC/CL/104	1	HODGES FED C 3, GR
CATO	NC/CL/105	1	BROWN FED 2, GR
CATO	NC/CL/106	1	CROSBY C FED 1, GR/N
CATO	NC/CL/107	1	WINKLER FED 3, TEMP.
CATO	NC/CL/108	1	WINKLER FED 3, GR
CATO	NC/CL/109	1	CATO B FED 3, GR
CATO	NC/CL/110	1	CATO B FED 5, GR/N
CATO	NC/CL/111	1	CATO B FED 7, GR/N
CATO	NC/CL/112	1	CATO B FED 8, GR/N

CATO	NC/CL/113	1	CATO D FED 1, GR/N
CATO	NC/CL/114	1	CATO D FED 2, GR/N
CATO	NC/CL/115	1	CATO D FED 3, GR/N
CATO	NC/CL/116	1	HODGES FED 2, GR/N
CATO	NC/CL/117	1	HODGES FED 3, GR/N
CATO	NC/CL/118	1	HODGES FED 1, GR
CATO	NC/CL/119	1	BROWN FED A 1, GR
CATO	NC/CL/120	1	HODGES FED A 3, GR
CATO	NC/CL/121	1	HODGES FED A 6, GR
CATO	NC/CL/122	1	HODGES FED 3, GR
CATO	NC/CL/123	1	HODGES FED 4, GR
CATO	NC/CL/124	1	HODGES FED 5, GR
CATO	NC/CL/125	1	HODGES FED 2, GR
CATO	NC/CL/126	1	HODGES FED A 2, GR
CATO	NC/CL/127	1	FISHER B FED 1, GR/N
CATO	NC/CL/128	1	AMCO FED 4, GR
CATO	NC/CL/129	1	AMCO FED 6, "F" OVERLAY
CATO	NC/CL/130	1	AMCO FED 6, TDT
CATO	NC/CL/131	1	AMCO FED 8, GR
CATO	NC/CL/132	1	AMCO FED 9, "F" OVERLAY
CATO	NC/CL/133	1	AMCO FED 9, TDT
CATO	NC/CL/134	1	AMCO FED 11, GR
CATO	NC/CL/135	1	AMCO FED 13, GR
CATO	NC/CL/136	1	HODGES FED B 1, GR
CATO	NC/CL/137	1	SHELL EASTLAND FED 1, GR
CATO	NC/CL/138	1	AMCO FED A 2, GR
CATO	NC/CL/139	1	CORDER FED A 1, GR
CATO	NC/CL/140	1	SHELL T. CROSBY 1, GR
CATO	NC/CL/141	1	SHELL CROSBY 2, GR
CATO	NC/CL/142	1	CROSBY B 1, GR
CATO	NC/CL/143	1	CROSBY B 2, GR
CATO	NC/CL/144	1	CROSBY B 3, CBL
CATO	NC/CL/145	1	CROSBY B 4, GR
CATO	NC/CL/146	1	CORDER FED 2, GR/N
CATO	NC/CL/147	1	McGRAIL 1, GR/N
CATO	NC/CL/148	1	McGRAIL 2, GR
CATO	NC/CL/149	1	McGRAIL 3, GR
CATO	NC/CL/150	1	CROSBY C 1, GR

Tract / Sub-Tract Participation
Weighting Factors ....

	Percent Phase I	Phase II
WF1 = Surface Acreage	0.05	0.05
WF2 = Active Well Count	0.18	0.10
WF3 = Shut-In Well Count	0.05	0.05
WF4 = Temporaryly Abandoned Well Count	0.02	0.05
WF5 = Plugged & Abandoned Well Count	0.00	0.00
WF6 = Injection Well Count	0.05	0.00
WF7 = Cumm Production	0.15	0.10
WF8 = Estimated Remaining Primary Production	0.50	0.20
WF9 = Estimated Remaining secondary Production	0.00	0.45

** Note: During phase II calculations, injection wells are included in the temporarly abandoned well count.

Formula (%) = WF1*(1) + WF2*(2) + ... + WF9*(9)

Last Revision: 1 Feb 89

Tr.	Tract / Lease	Acreage Gross	Acreage (1) Unit	TB	Well Count Producer (2) Active	(3) SI	(4) TA'd	(5) P&A'd	(6) Injec	Total	Cum Oil thru 6/30/88 (STB)	(7) Unit %	Est. Remain. Primary (STB)	(8) Unit %	Est. Secondary Reserves (STB)	(9) Unit %	Phase I %	Phase II %
	******* Federal Leases *******																	
1	Fed 13		80	--	0	0	0	1	0	1	17449	0.12	0	0.00	0	0.00	0.04166349	0.03590574
2	Fed 21		80	--	0	0	0	1	0	1	193	0.00	0	0.00	0	0.00	0.02458130	0.02451761
3	Abko Fed		160	Cato III	1	2	1	0	0	4	211187	1.39	23946	5.35	201845	1.76	3.41386205	2.45896965
4	Alexander Fed		200	--	0	0	0	1	0	1	57362	0.38	0	0.00	5736	0.05	0.11775983	0.12130801
5	Alexander YPC Fed		40	--	0	0	0	1	0	1	319	0.00	0	0.00	0	0.00	0.01251091	0.01240565

EXH 1.6

6	Alexander Crist Fed		40	--	0	0	0	0	0	0		0	0.00	0	0.00	0	0.00	0.01219512	0.01219512
7	Amco Fed	880																	
	Amco Fed		560	Amoco Cen	2	1	0	7	4	14		1301656	8.59	2666	0.60	462906	4.03	3.86819052	3.56837514
	Amco A Fed		320	Amoco Cen	0	1	1	5	0	7		528603	3.49	0	0.00	167479	1.46	0.76011978	1.27330705
											Tr. Tot.	1830259	12.08	2666	0.60	630385	5.49	4.62831029	4.84168219
8	Anderson Fed		80	Amoco Cen	0	1	0	0	0	1		11794	0.08	3557	0.79	12228	0.11	0.54450728	0.35013197
9	Brown Fed	800																	
	Brown Fed		160	Brown Fed	1	0	0	2	0	3		201012	1.33	0	0.00	328462	2.86	0.47853704	1.59670696
	Brown A Fed		640	Brown Fed	1	0	0	2	0	3		120012	0.79	3027	0.68	0	0.00	0.88282203	0.53778027
											Tr. Tot.	321024	2.12	3027	0.68	328462	2.86	1.36135907	2.13448723
10	Cato A & B Fed	640																	
	Cato A Fed		160	Cato II	3	0	0	0	0	3		124455	0.82	5365	1.20	272520	2.37	1.46358096	1.82310370
	Cato A1 Fed		160	Cato II	0	0	0	0	0	0		0	0.00	0	0.00	0	0.00	0.04878049	0.04878049
	Cato B Fed		320	Cato II	2	2	4	0	0	8		661463	4.37	1418	0.32	252108	2.20	1.70719428	2.30205429
											Tr. Tot.	785918	5.19	6783	1.52	524628	4.57	3.21955573	4.17393847
11	Cato C Fed		160	Cato II	1	0	3	0	0	4		253290	1.67	5501	1.23	195131	1.70	1.22927859	1.53312123
12	Coll Fed		40	Coll Fed	1	0	0	0	0	1		29578	0.20	3876	0.87	0	0.00	0.70520869	0.33310601
13	Amoco Coll Fed		40	--	0	0	0	1	0	1		1234	0.01	0	0.00	0	0.00	0.01341669	0.01300950
14	Conley Fed		40	--	0	1	0	0	0	1		30059	0.20	0	0.00	59934	0.52	0.15306247	0.37799232
15	Arco Conley Fed		40	--	0	0	0	1	0	1		58502	0.39	0	0.00	17551	0.15	0.07010786	0.11957640

16	Corder Fed		480	Amoco Cen	2	2	0	1	0	5		221746	1.46	3238	0.72	229418	2.00	1.41131181	1.81495827
17	Crosby A Fed	640																	
	Crosby A Fed		80	Cato III	0	2	0	0	0	2		44137	0.29	4224	0.94	50209	0.44	0.76214211	0.66121728
	Baxter Fed		480	UT Bax Fed	3	3	0	0	0	6		208631	1.38	5758	1.29	247643	2.16	2.02170304	2.22963058
	No Wells		80	--	0	0	0	0	0	0		0	0.00	0	0.00	0	0.00	0.02439024	0.02439024
											Tr. Tot.	252768	1.67	9982	2.23	297852	2.59	2.80823540	2.91523810
18	Crosby B Fed	320																	
	Crosby B Fed		80	Cato III	0	0	2	0	0	2		80080	0.53	9565	2.14	113373	0.99	1.22844934	1.06791271
	UT Winkler Fed		160	--	2	1	0	0	0	3		141459	0.93	961	0.21	222861	1.94	0.86881166	1.42586744
											Tr. Tot.	221539	1.46	10526	2.35	336234	2.93	2.09726100	2.49378015
19	Crosby C, Grimm and Cato D Fed	400																	
	Crosby C Fed		80	Cato II	0	0	1	0	0	1		25853	0.17	0	0.00	109487	0.95	0.07815186	0.52999552
	Grimm Fed		80	Cato III	2	0	0	0	0	2		241045	1.59	62954	14.06	113373	0.99	7.75675226	3.69700799
	Cato D Fed		160	Cato II	2	0	1	0	0	3		168059	1.11	2689	0.60	56977	0.50	1.00522595	0.81903581
			.								Tr. Tot.	434957	2.87	65643	14.67	279837	2.44	8.84013006	5.04603933
20	Fischer Fed	400																	
	Fischer Fed		320	Cato II	1	0	1	0	0	2		22147	0.15	6265	1.40	0	0.00	1.07824799	0.57983580
	Fischer B Fed		40	--	0	0	1	0	0	1		41575	0.27	0	0.00	34151	0.30	0.08152037	0.23297553
											Tr. Tot.	63722	0.42	6265	1.40	34151	0.30	1.15976837	0.81281134
21	Hodges Fed	1760																	
	Hodges Fed		240	Brown	2	0	0	1	0	3		363759	2.40	22494	5.03	42733	0.37	3.40747147	1.74215853
	Hodges 1 Fed		0	.	0	0	0	0	0	0		0	0.00	0	0.00	0	0.00	0.00000000	0.00000000
	Hodges A Fed		480	HodgesA&B	3	0	0	3	0	6		448325	-2.96	18102	4.04	306756	2.67	3.30452218	2.83766437
	Hodges B Fed		320	HodgesA&B	1	0	0	3	1	5		244786	1.62	0	0.00	265088	2.31	0.95526600	1.48557190
	Hodges C Fed		160	Brown	3	0	0	0	0	3		165810	1.09	5325	1.19	328462	2.86	1.50005126	2.06781487
	Eastland Hodges Fed (N)		80	Eastland	0	1	0	0	0	1		38131	0.25	0	0.00	14244	0.12	0.17324828	0.21648043
	Eastland Hodges Fed (S)		160	Eastland	3	0	0	1	0	4		139961	0.92	7359	1.64	204504	1.78	1.70166833	1.65591438
											Tr. Tot.	1400772	9.24	53280	11.90	1161787	10.12	11.04222752	10.00560448

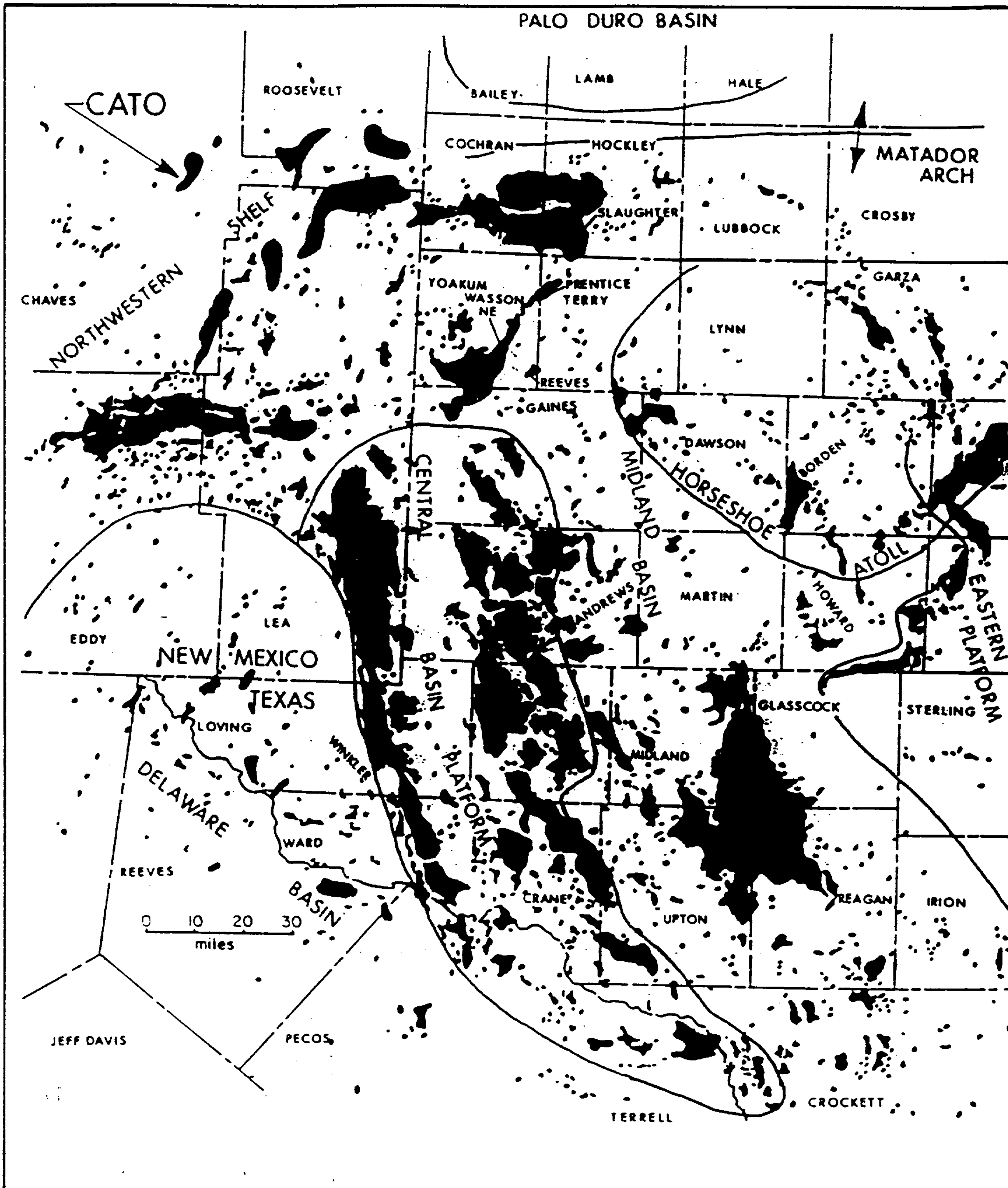
22	Hodges D Fed	640	Amoco Cen	1	0	0	0	0	1	59876	0.40	0	0.00	41590	0.36	0.48516408	0.52581084
23	Mac Fed	160	Mac	1	0	0	0	1	2	62191	0.41	28162	6.29	62682	0.55	3.87153454	1.78149093
24	Packer Fed	80	--	0	0	1	1	0	2	106889	0.71	0	0.00	10689	0.09	0.15837162	0.19633998
25	Packer A Fed	40	--	0	0	0	1	0	1	35787	0.24	0	0.00	3579	0.03	0.04762166	0.04983696
26	Peterson Fed	80	--	0	1	0	1	0	2	32696	0.22	0	0.00	31341	0.27	0.16786803	0.27988739
27	East Sinclair Fed	40	--	0	0	0	1	0	1	548	0.00	0	0.00	0	0.00	0.01273760	0.01255678
28	West Sinclair Fed	40	--	0	0	0	0	0	0	0	0.00	0	0.00	0	0.00	0.01219512	0.01219512
29	Skinner Fed	240	--	0	2	0	0	0	2	77588	0.51	0	0.00	15518	0.14	0.37219945	0.40740385
30	Smith Fed	40	Smith Fed	1	0	0	0	0	1	112220	0.74	28230	6.31	0	0.00	3.50745474	1.47582032
31	Winkler Fed	480	Winkler	0	1	11	0	0	12	843652	5.57	0	0.00	530554	4.62	1.40246609	3.54793532
32	Arco Winkler Fed	200	--	0	0	0	2	0	2	16069	0.11	0	0.00	3214	0.03	0.07688276	0.08417428
33	Woodman Fed	280	Woodman	2	2	3	1	0	8	181158	1.20	0	0.00	316722	2.76	1.03296688	2.10318577

34	*Amoco Woodman Fed*		80	--	0	0	0	1	0	1		2233	0.01	0	0.00	0	0.00	0.02660075	0.02586392
35	Arco Woodman Fed		160	--	0	0	0	4	0	4		217124	1.43	0	0.00	43425	0.38	0.26371752	0.36223069
36	Horward Smith		40	--	0	0	0	1	0	1		0	0.00	0	0.00	0	0.00	0.01219512	0.01219512
37	A State		40	--	0	0	0	1	0	1		86022	0.57	0	0.00	8602	0.07	0.09735067	0.10267203
38	H State		640	State H	0	7	10	0	0	17		921085	6.08	4494	1.00	1933753	16.84	2.66839456	9.95412988
39	Bell State		80	--	0	0	0	1	0	1		58589	0.39	0	0.00	5859	0.05	0.08238911	0.08601437
40	Cato State (MWJ Producing Co.)		640	--	3	0	1	0	0	4		72776	0.48	3625	0.81	21833	0.19	1.39256821	0.93481202
41	Barhyte		160	Cato IV	0	1	0	0	0	1		24679	0.16	0	0.00	29185	0.25	0.18432202	0.29053862
42	Daphne C. Baskett 1	640																	
	Cato Baskett		80	Cato I	1	0	1	0	0	2		161474	1.07	0	0.00	0	0.00	0.44317605	0.31868422
	Baskett B		80	Cato I	0	0	1	0	1	2		160762	1.06	0	0.00	0	0.00	0.59631738	0.24953302
											Sub-Tot.	322236	2.13	0	0.00	0	0.00	1.03949343	0.56821724

	Baskett C		80	Cato I	0	0	2	0	0	2		124097	0.82	0	0.00	100923	0.88	0.20357531	0.62079799
	Baskett E		80	Cato I	0	0	2	0	0	2		131822	0.87	0	0.00	181680	1.58	0.21122250	0.94233868
											Sub-Tot.	255919	1.69	0	0.00	282603	2.46	0.41479781	1.56313667
	UT Baskett		160	Cato IV	0	1	2	1	0	4		324444	2.14	0	0.00	0	0.00	0.53740568	0.49305659
	UT JE Cato		160	UT JE Cato	1	1	2	0	0	4		324493	2.14	0	0.00	282603	2.46	0.76822342	1.72866082
											Tr. Tot.	1227092	8.10	0	0.00	565206	4.92	2.75992034	4.35307131
43	Daphne C. Baskett 2	320																	
	Baskett D		320	Cato I	3	1	0	0	4	8		599396	3.96	2736	0.61	0	0.00	3.33842177	1.34920385
44	Marie Crosby	1920																	
	Crosby B		80	Cato I	1	1	0	0	0	2		127082	0.84	5821	1.30	24089	0.21	1.14230088	0.70205742
	Crosby D		80	Cato I	1	0	1	0	0	2		130717	0.86	0	0.00	181680	1.58	0.41272885	1.01029075
	Crosby E		80	Cato I	1	1	0	0	0	2		103749	0.68	3550	0.79	100923	0.88	0.86552338	0.88625743
	Crosby F		80	Cato IV	1	0	1	0	0	2		95463	0.63	6797	1.52	147225	1.28	1.13708126	1.15571502
	Crosby G		80	Cato IV	2	0	0	0	0	2		162672	1.07	31031	6.93	113373	0.99	4.11324550	2.21891633
	Crosby H		80	Cato IV	2	0	0	0	0	2		237613	1.57	6054	1.35	113373	0.99	1.39740369	1.15236258
											Sub-Tot.	857296	5.66	53253	11.90	680663	5.93	9.06828355	7.12559954
	UT Crosby 1		240	UTCrosby1	1	0	5	0	0	6		440980	2.91	3200	0.71	395976	3.45	1.23877572	2.48461499
	UT Crosby 2		160	UTCrosby2	4	0	0	0	0	4		376314	2.48	66863	14.94	226747	1.97	8.81323796	4.68599046
	UT Crosby 3		160	UTCrosby3	2	0	0	0	0	2		69696	0.46	8352	1.87	24089	0.21	1.51226380	0.81875871
	UT Crosby 3A		200	-	0	0	0	1	0	1		0	0.00	0	0.00	12044	0.10	0.06097561	0.10816947
	UT Crosby 17		160	UTCrosb17	0	1	2	0	0	3		237237	1.57	0	0.00	220838	1.92	0.45107707	1.30084765
	UT Crosby 18		0	-	0	0	0	0	0	0		0	0.00	0	0.00	0	0.00	0.00000000	0.00000000
	UT Crosby 21		160	-	0	0	0	2	0	2		0	0.00	0	0.00	18964	0.17	0.04878049	0.12309004
											Sub-Tot.	1124227	7.42	78415	17.52	898658	7.83	12.12511065	9.52147133
	Annek Crosby		40	Cato IV	1	0	0	0	0	1		84397	0.56	0	0.00	73613	0.64	0.32651127	0.48454732
											Tr. Tot.	2065920	13.63	131668	29.42	1652934	14.39	21.51990548	17.13161819
45	Crosby (Seville-Trident Corp.)		40	--	0	0	1	0	0	1		393	0.00	0	0.00	0	0.00	0.04075318	0.07197829
46	Crosby (Eugene E. Nearburg)		80	--	0	0	0	1	0	1		460	0.00	0	0.00	0	0.00	0.02484561	0.02469382
47	Crosby (Tamarack Petroleum Co. Inc.)		40	--	0	0	0	1	0	1		1496	0.01	0	0.00	0	0.00	0.01367605	0.01318241

48	Thelma Crosby	640																
	T Crosby A1		40	T Crosby	0	1	0	0	0	1		57521	0.38	0	0.00	46887	0.41	0.18024786	0.34499185
	T Crosby A2		120	T Crosby	1	0	0	0	0	1		22163	0.15	22354	4.99	46887	0.41	2.78632304	1.36195301
	T Crosby A3		160	-	0	0	0	0	0	0		0	0.00	0	0.00	0	0.00	0.04878049	0.04878049
	T Crosby B		160	T Crosby	4	0	0	0	0	4		365710	2.41	16914	3.78	187548	1.63	3.22324335	2.29359390
											Sub-Tot.	365710	2.41	16914	3.78	187548	1.63	3.27202384	2.34237439
	T Crosby C		160	T Crosby	1	0	0	0	0	1		12847	0.08	3492	0.78	20953	0.18	0.68233729	0.42359536
											Tr. Tot.	458241	3.02	42760	9.55	302275	2.63	6.92093202	4.47291462
49	D.H. Fowler		40	T Crosby	0	1	0	0	0	1		4197	0.03	0	0.00	20953	0.18	0.12746096	0.20817941
50	L.C. Harris		320	LC Harris	0	4	4	0	0	8		547687	3.61	0	0.00	801310	6.98	1.19685193	4.28144374
51	Marshall		160	Marshall	1	0	0	1	0	2		72265	0.48	0	0.00	62682	0.55	0.35108683	0.47029354
52	McGrail		160	T Crosby	3	0	0	0	0	3		198253	1.31	5053	1.13	140661	1.22	1.50178403	1.34118278
53	North Cato (Yates Energy Corp.)		480	--	1	0	1	0	0	2		5924	0.04	1080	0.24	1777	0.02	0.53178424	0.39319913
54	Queen		160	Cato I	2	1	0	0	0	3		173059	1.14	1514	0.34	151384	1.32	0.96186562	1.19135150
55	Rector		40	--	0	1	0	0	0	1		11845	0.08	0	0.00	20953	0.18	0.13503192	0.21322672
56	Sellers (Pan American Corp.)		160	--	0	0	0	1	0	1		74	0.00	0	0.00	0	0.00	0.04885374	0.04882932
57	Calla Cato Wasley		320	Cato I	0	0	5	0	2	7		671468	4.43	0	0.00	390262	3.40	1.67234149	2.48658766
58	FEE 21		160	--	0	0	0	0	0	0		0	0.00	0	0.00	0	0.00	0.04878049	0.04878049
59	FEE 07		80		0	0	0	0	0	0		0	0.00	0	0.00	0	0.00	0.02439024	0.02439024

	=======	====	====	====	====	====	====		===========	=====	========	=====	===========	=====	=========	=========
UNIT TOTALS =========>	16400	78	45	71	54	13	261		15,152,624	100.00	447,612	100.00	11,484,122	100.00	100.00000000	100.00000000
								Totals Check	15,152,624		447,612		11,484,122		100.00000000	100.00000000

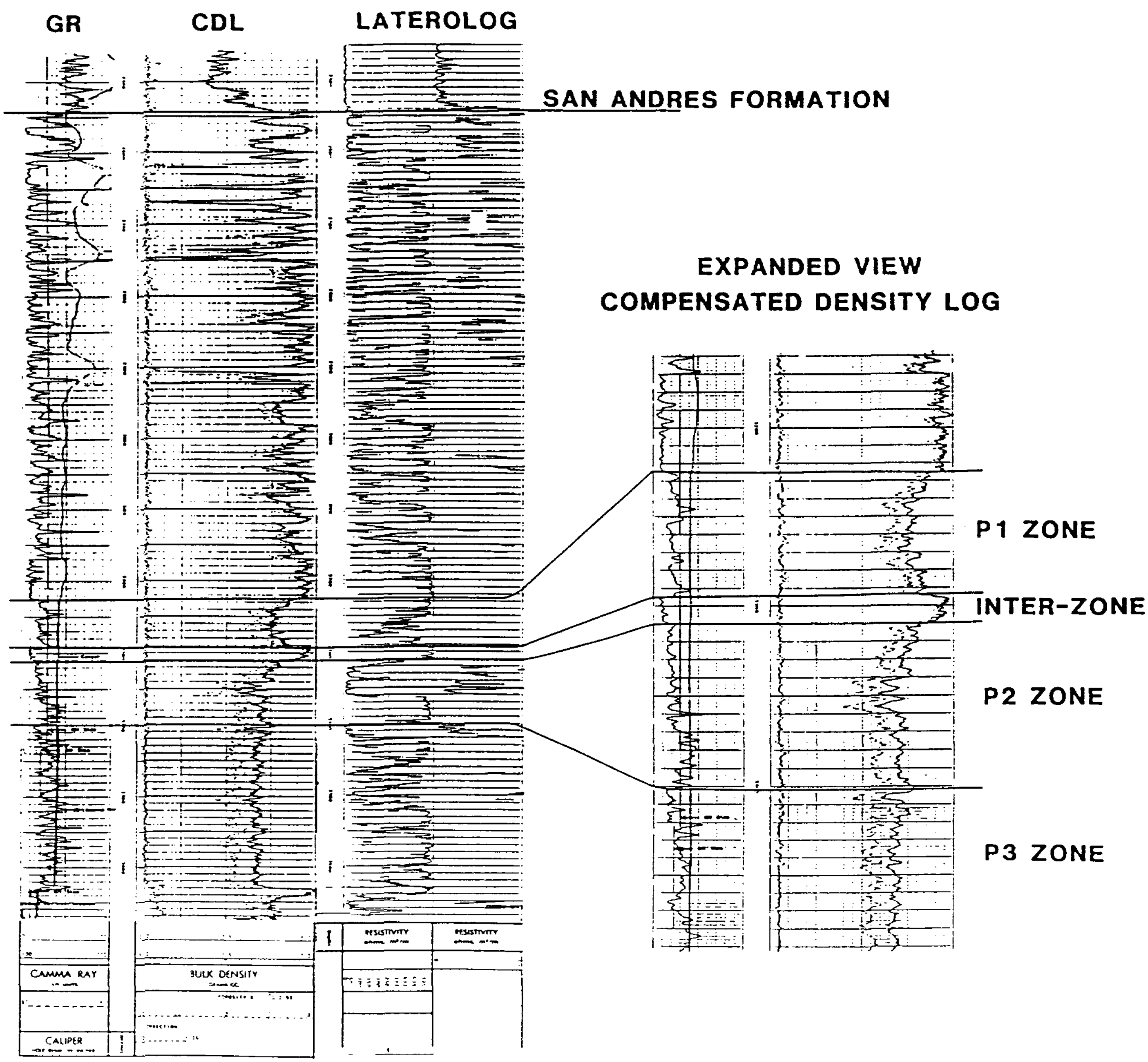


PERMIAN BASIN FIELD MAP

SOUTHEAST NEW MEXICO & WEST TEXAS

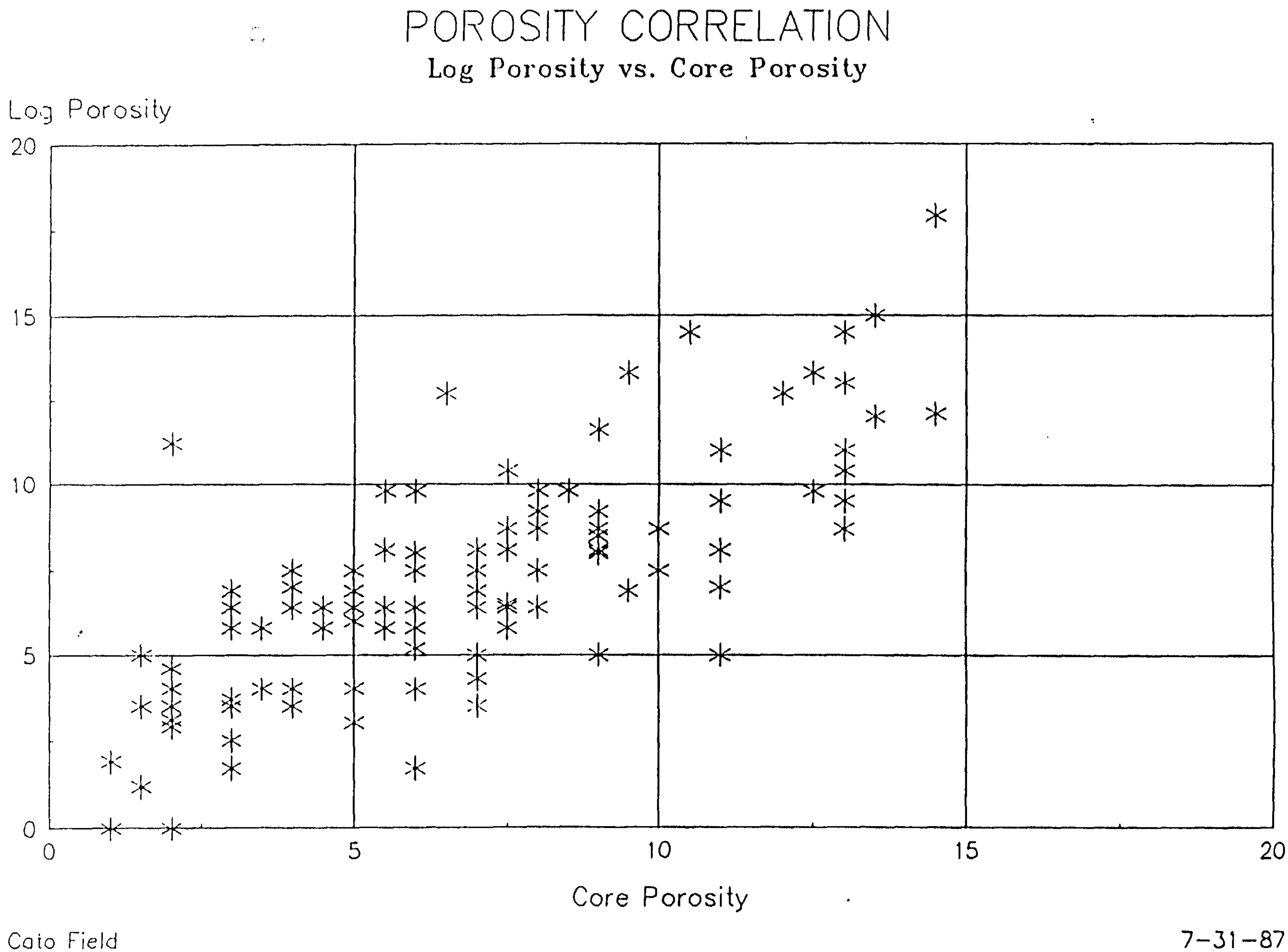
FIG. 1

THELMA CROSBY #1
SW NE
SEC. 17-T8S-R30E
CHAVES CO., N. MEX.
KB 4120'



TYPE LOG

FIG. 2

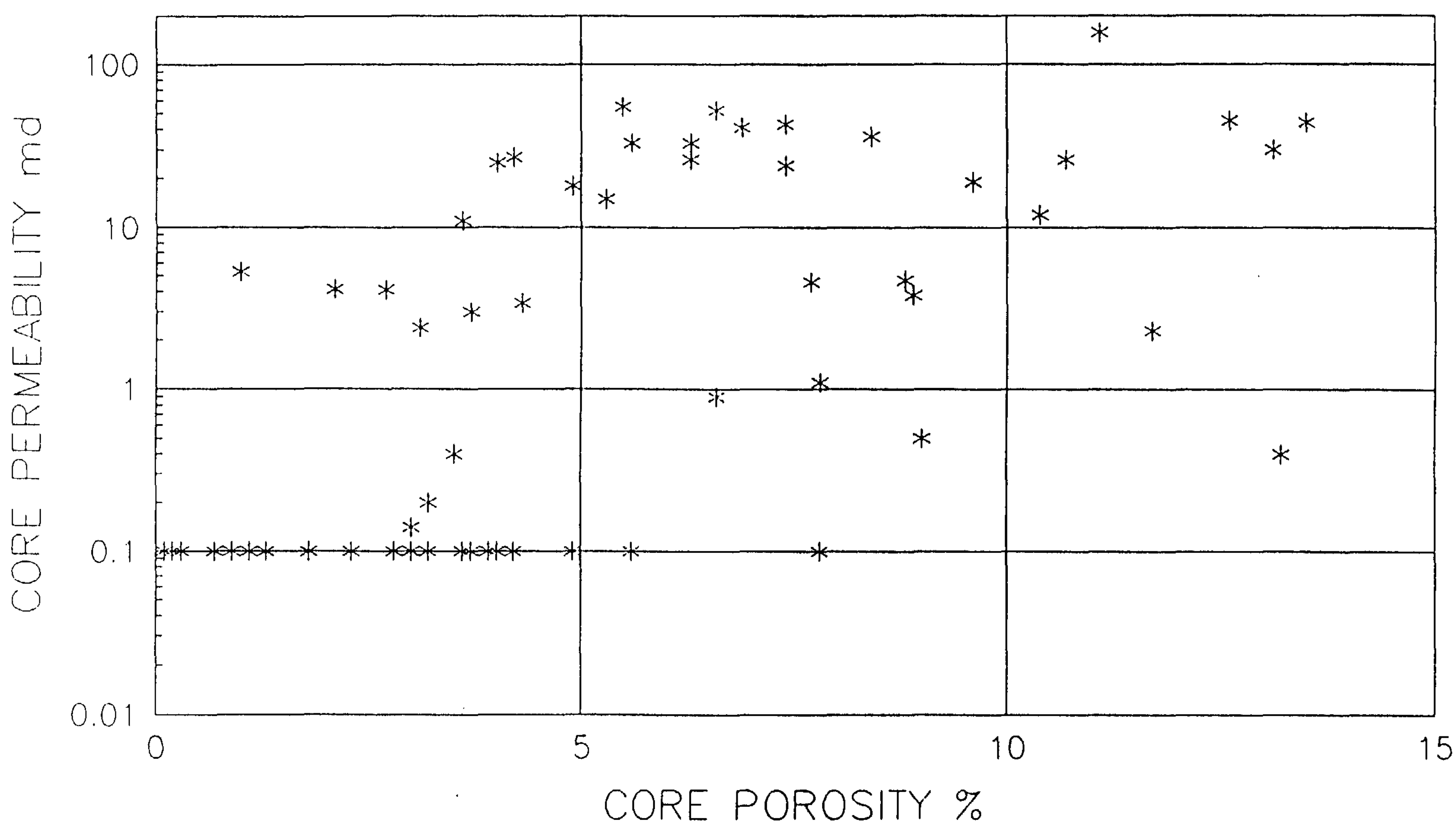


POROSITY CORRELATION
Log Porosity vs. Core Porosity
Log Porosity
20
15
10
5
0
0
5
10
15
20
Core Porosity
Caio Field
7-31-87

FIG 3

CORE POROSITY % VS. CORE PERMEABILITY MD.

VUGGY DOLOMITE INTERVALS–SAN ANDRES FM
CATO FIELD, CHAVES CO., NM

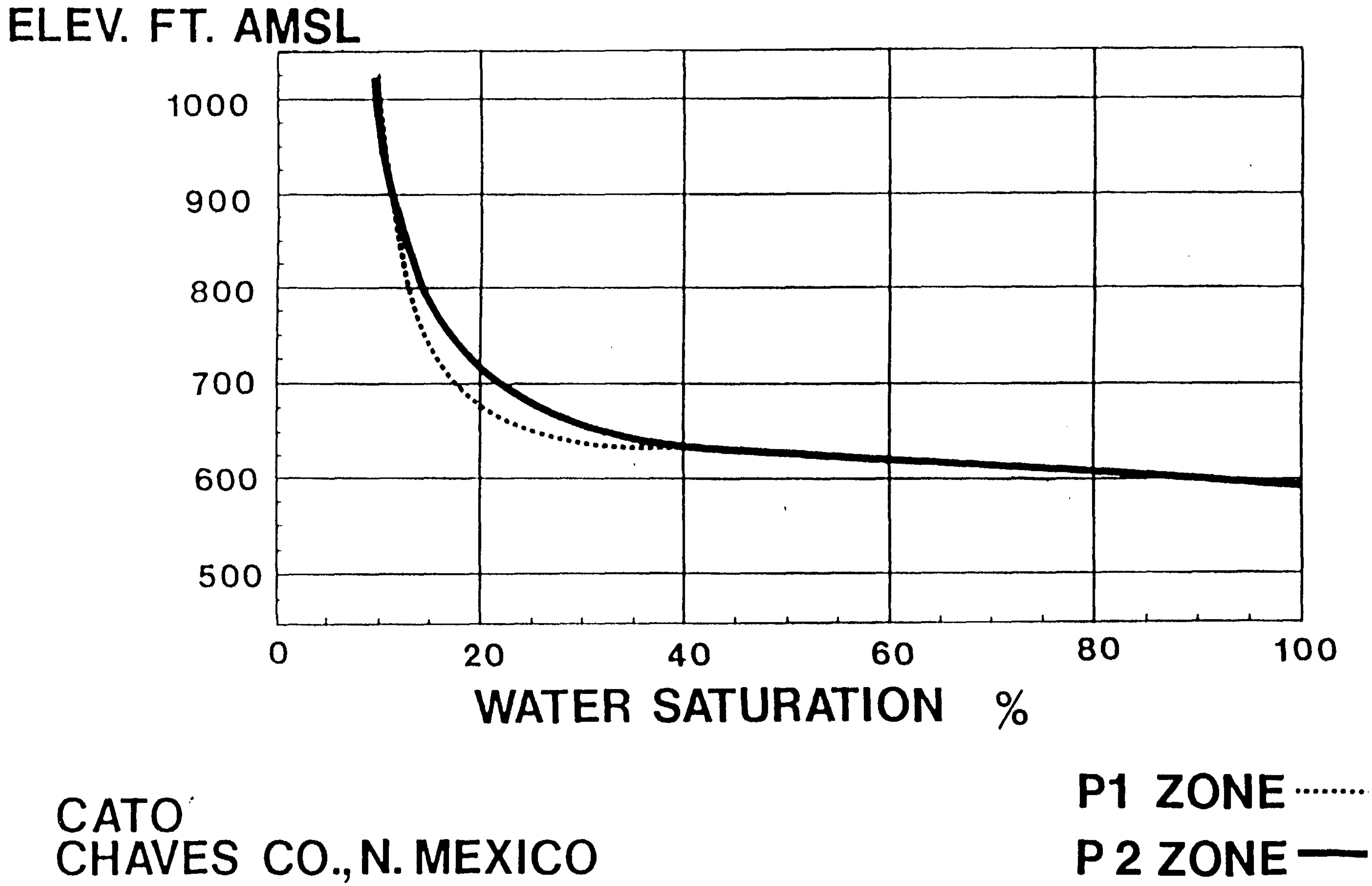


KELT OIL AND GAS

FIG. 4

KELI OIL AND GAS

CATO WATER SATURATION RESULTS
ELEV. FT. AMSL vs SW %

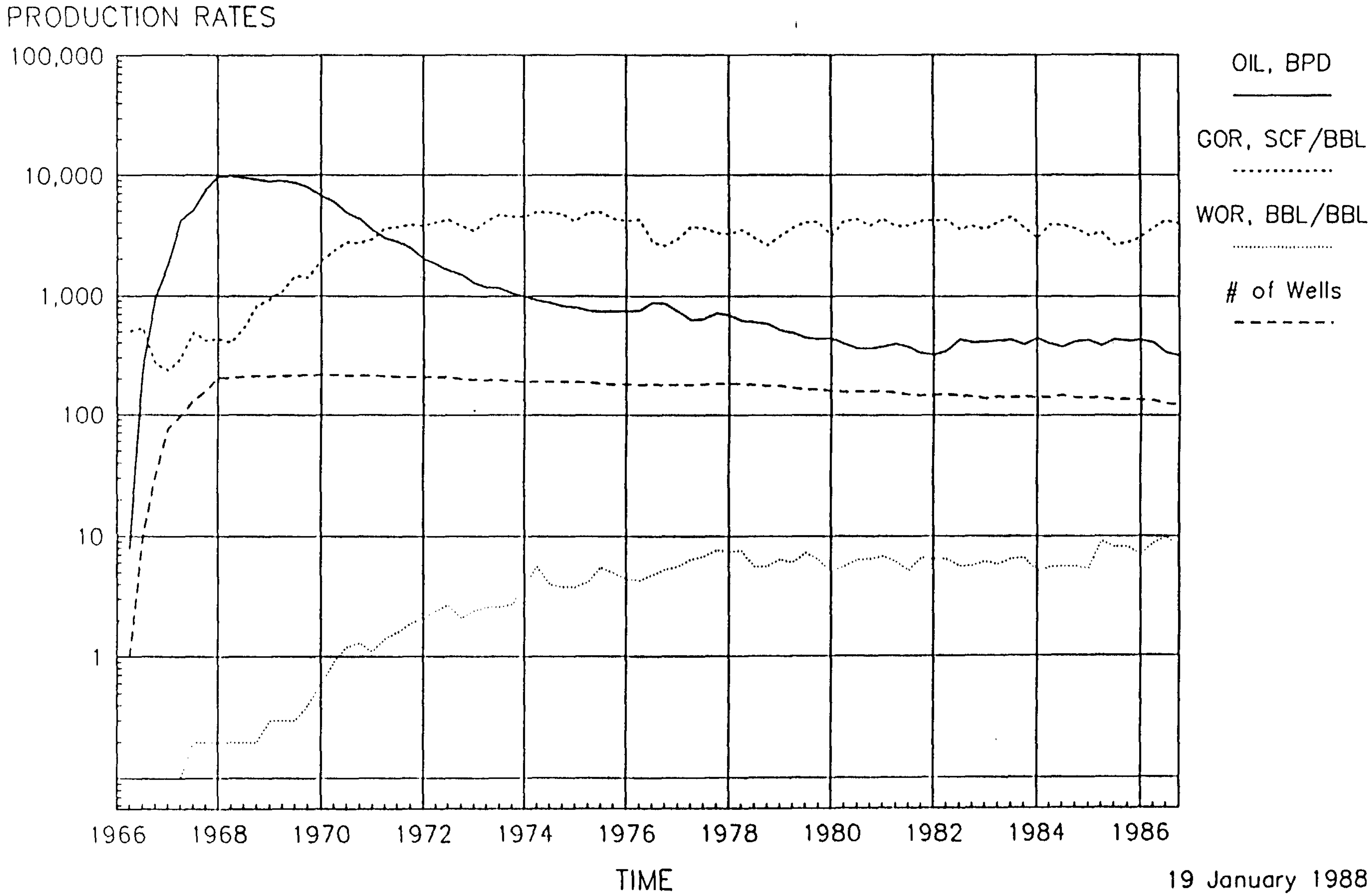


CATO
CHAVES CO., N. MEXICO

FIG. 5

CATO TOTAL FIELD

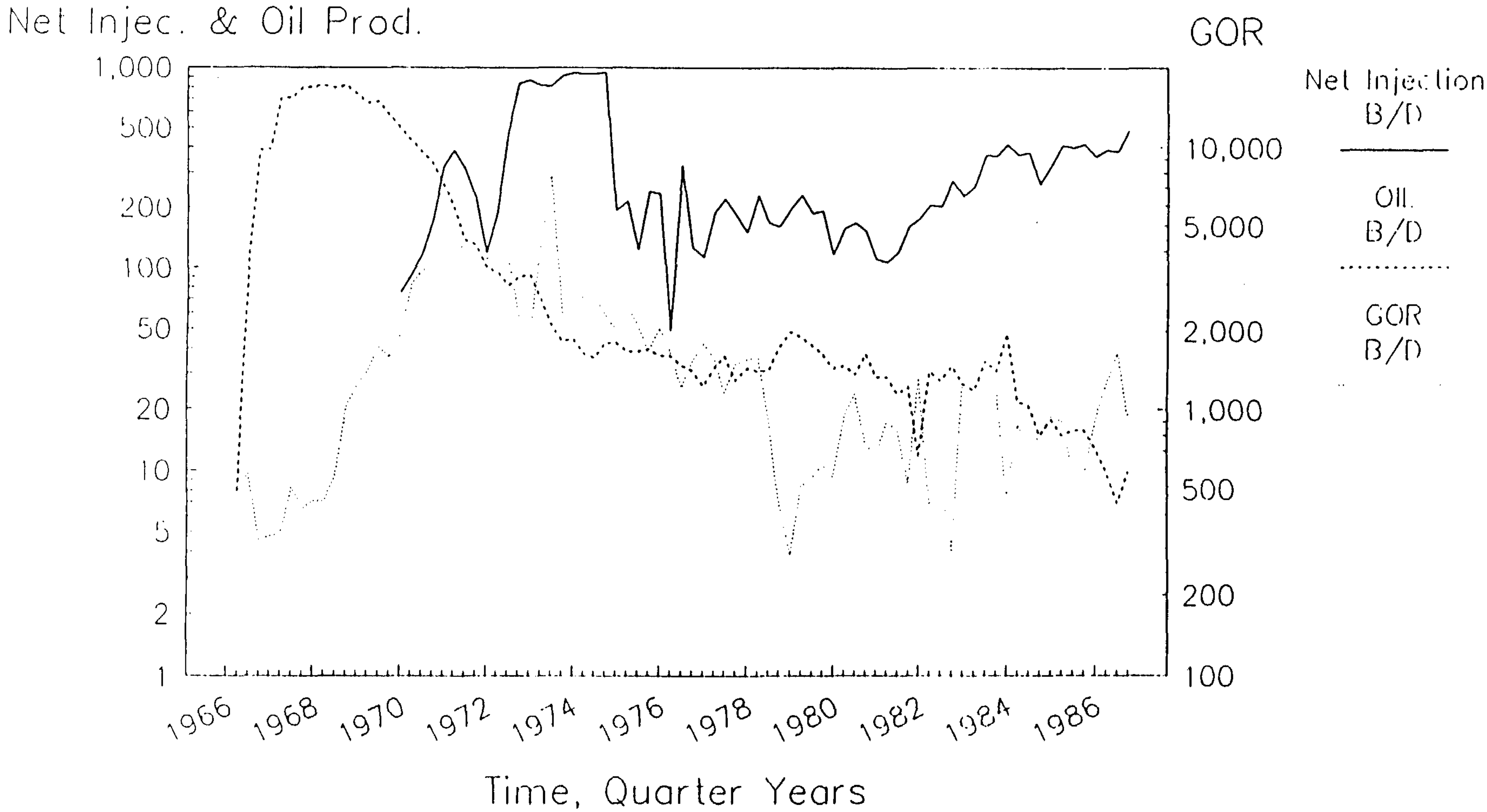
OIL, GOR, WOR & Number of Wells vs. TIME



19 January 1988

Waterflood Evaluation -- CATO FIELD

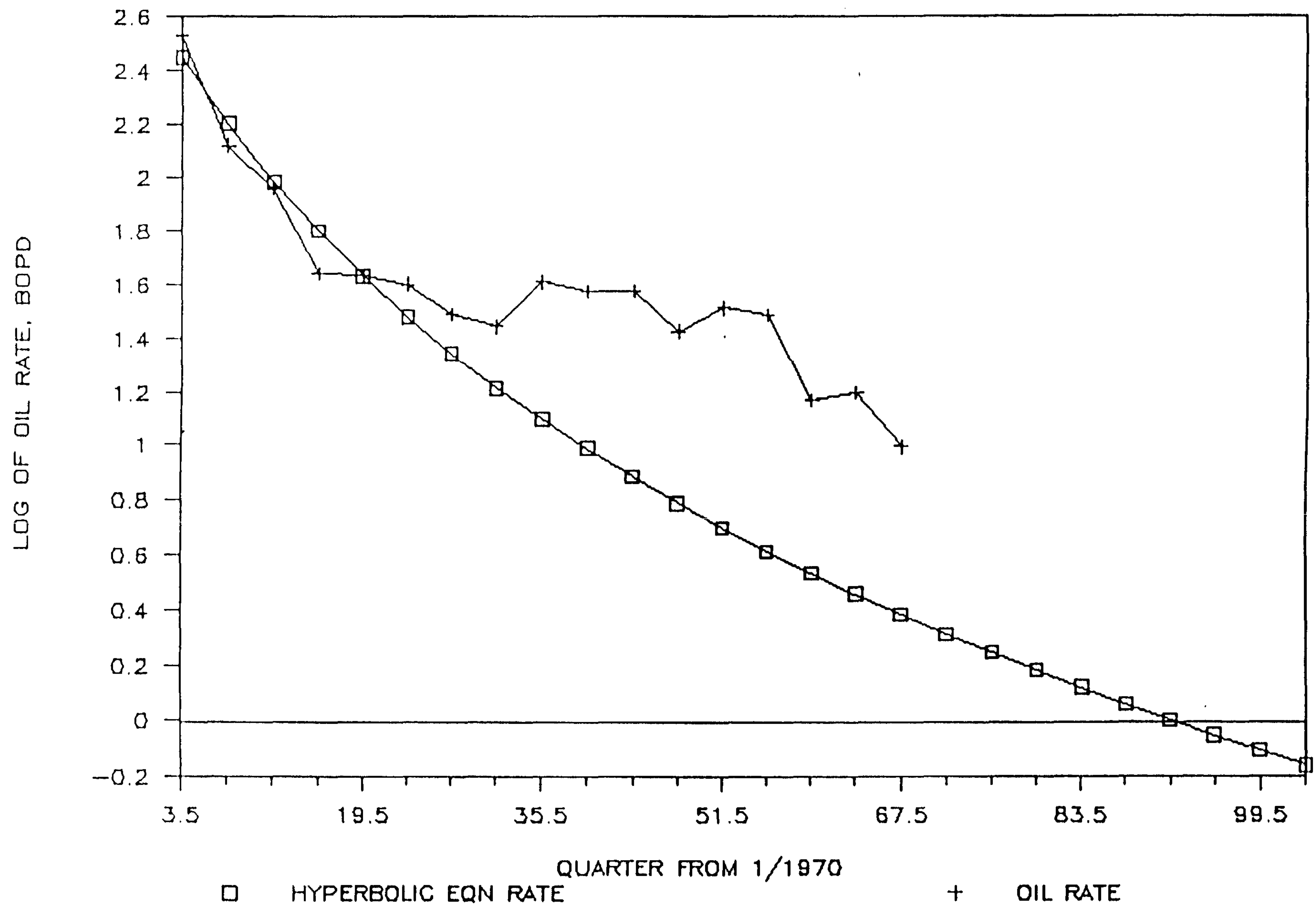
SECTION 11 & 14 NET INJECTION vs. TIME
SECTION 11 OIL,GOR vs. TIME



08 October 1987
Net Injection = Water Prod. – Water Injection

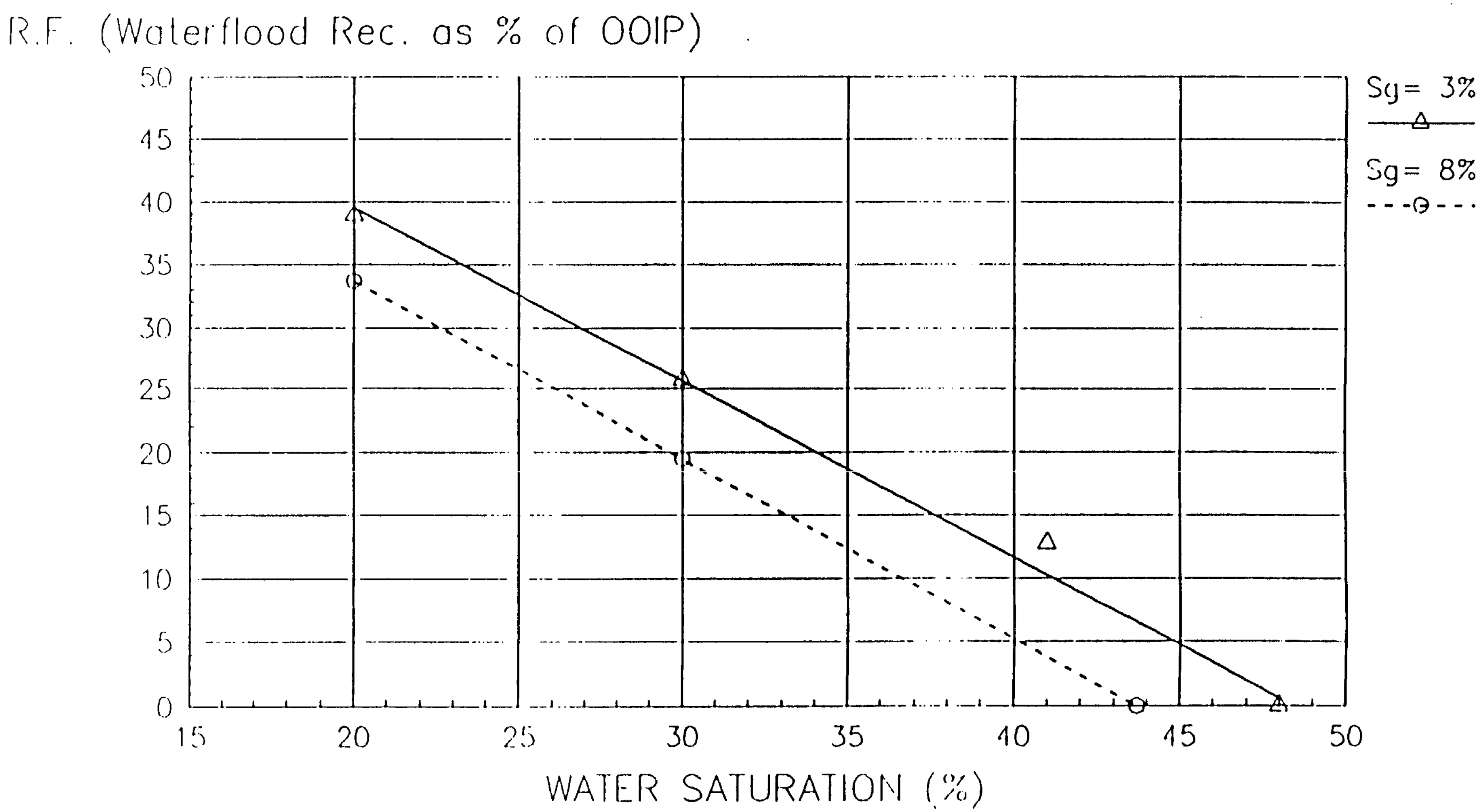
Kelt Oil & Gas

SECTION 1108 OIL RATE MATCH



CATO RESERVOIR SIMULATION

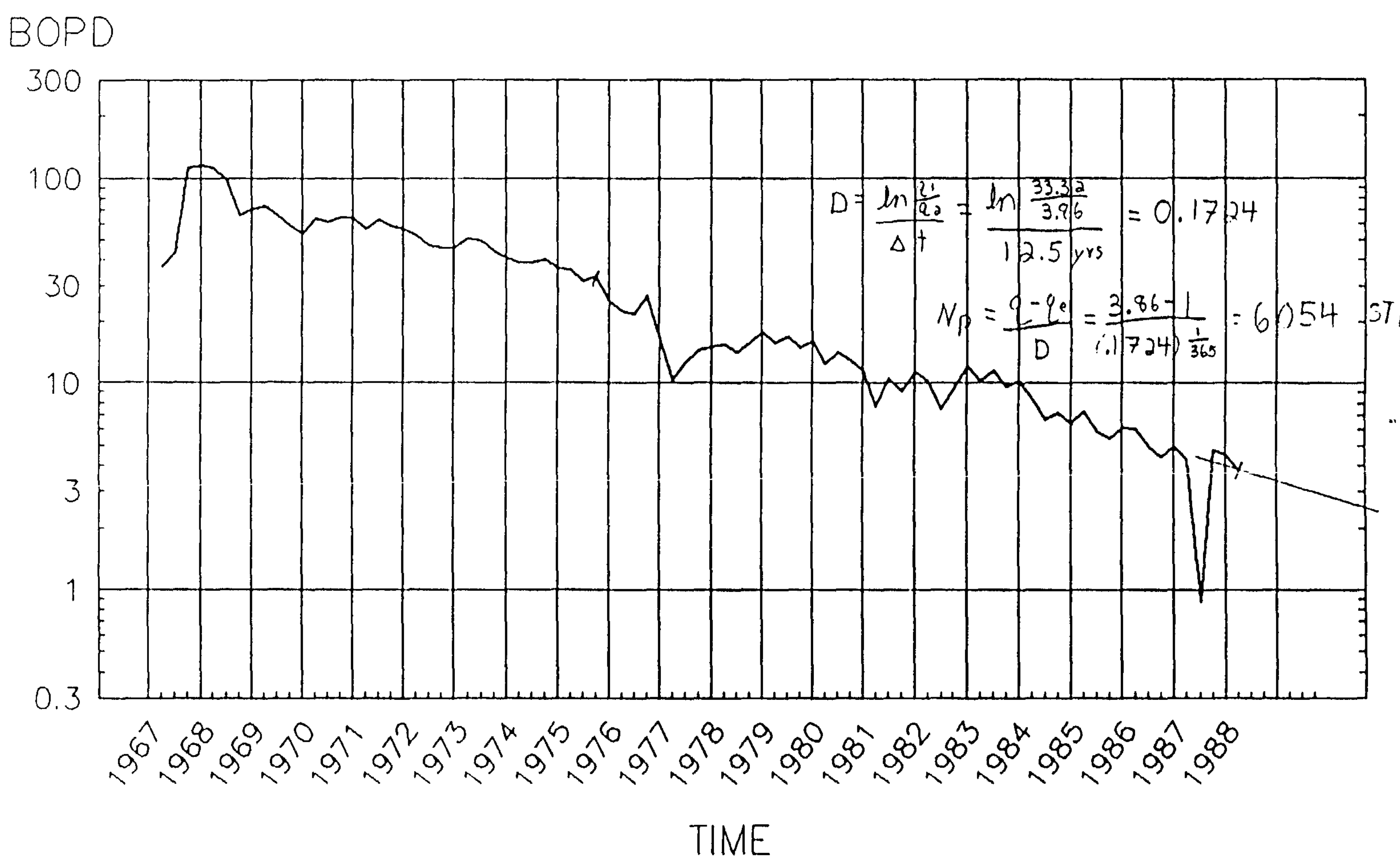
RECOVERY FACTOR AS A FUNCTION OF Sw & Sg



KELT OIL & GAS
11-12-87

FIELD-WIDE APPLICATION
WATER CUT= 98%

NC3H CROSBY H LEASE
OIL RATE -vs- TIME

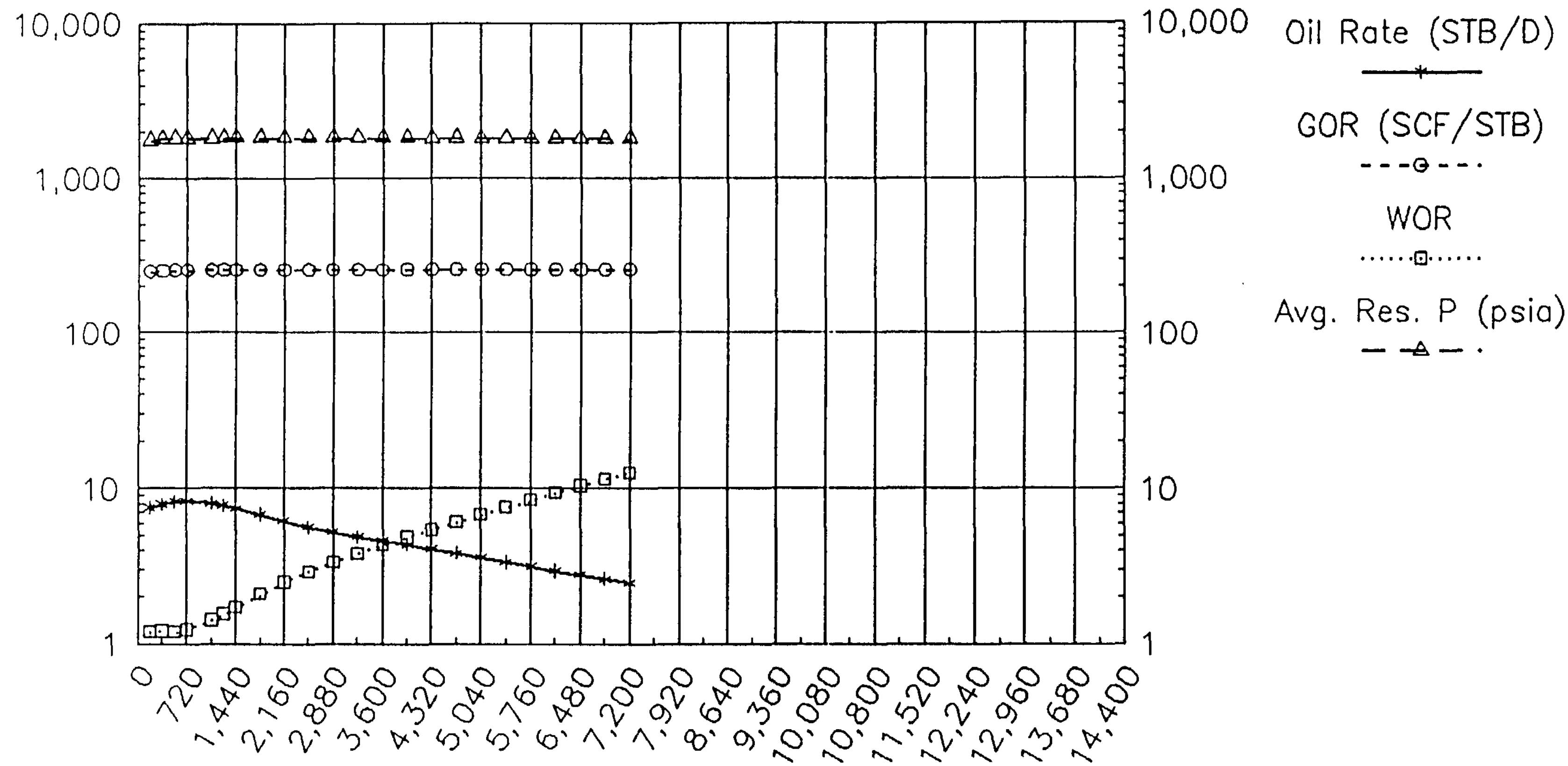


Kelt Oil & Gas
August 1988

2 active producers on lease

CATO--Sect. 11 Twp. 08 P1 ZONE

5-SPOT WATERFLOOD
SENSITIVITY RUN



20 YR. RUN
Sw= 20%
Sg= 3%

Kelt Oil & Gas
11-11-87