NMOCD CASE NO. 9671
May 10, 1989
Dugan/Sun Exhibit No. 1

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

REOPENED CASES NOS. 7980,
8946 and 8950
ORDER NO. R-7407-F
ORDER NO. R-6469-F

REOPENING OF CASES 7980, 8946 and 8950 FOR FURTHER TESTIMONY AS PROVIDED BY ORDER R-7407-E IN REGARD TO THE GAVILAN-MANCOS OIL POOL AND ORDER R-6469-D IN REGARD TO THE WEST PUERTO CHIQUITO-MANCOS OIL POOL IN RIO ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:00 a.m. on June 13, 1988, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 5th day of August, 1988, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Commission has jurisdiction of these causes and the subject matter thereof.

(2) At the time of the hearing, Cases 7980 (reopened), 8946 (reopened), 8950 (reopened), 9111 (reopened) and 9412 were consolidated for purposes of testimony. Separate orders are being entered in Cases 9111 and 9412.

(3) Case 7980 was called and reopened by the Commission to determine appropriate spacing and enter permanent orders establishing spacing and proration units in the Gavilan-Mancos Oil Pool (hereinafter "Gavilan") pursuant to Order R-7407-E (Rule 2a) which rule increased spacing from 320-acre to 640-acre spacing units.

(4) Case 8946 was re-opened to determine what top oil allowable and limiting gas-oil ratio should be established in the Gavilan-Mancos Oil Pool to provide waste and protect correlative rights.

(5) Case 8950 was re-opened to determine what top oil allowable and limiting gas-oil ratio should be established for the West Puerto Chiquito Mancos Oil Pool (hereinafter "WPC").

(6) Orders R-7407-E and R-6469-C were entered by the Commission to direct operators within Gavilan and WPC, respectively, to conduct tests on wells within the pools to determine the optimal top allowable and limiting gas-oil ratio for each of the pools. Pursuant to those orders, the pools were produced with a top allowable of 1280 barrels of oil per day for a standard 640-acre proration unit with a limiting gas-oil ratio of 2,000 cubic feet of gas per barrel of oil for the period July 1 until November 20, 1987, referred to as the "high rate test period" and were produced with a top oil allowable of 800 barrels of oil per day for a 640-acre proration unit with a limiting gas-oil ratio of 600 cubic feet of gas per barrel of oil from November 20, 1987 until February 20, 1988, referred to as the "low rate test period". Operators were directed to take bottomhole pressure surveys in selected wells within both pools at the start of and end of each test period. Subsequent to the test period, the top oil allowable remained at 800 barrels of oil per day for a 640-acre proration unit with a limiting gas-oil ratio of 600 to 1.

(7) Data collected by the operators during the test period pursuant to Orders R-7407-E and R-6469-C were submitted to the Division's Aztec district office and were available to all parties in this matter. At the request of the Commission, Petroleum Recovery Research Center at Socorro, New Mexico, made an independent evaluation of the data as a disinterested, unbiased expert and its report was entered into evidence by testimony and exhibit.

(8) Mallon Oil Company, Mesa Grande Resources, Inc., Mobil Texas-New Mexico Producing et al, collectively called "proponents", advocate return to special allowable of at least 1280 barrels of oil per day for 640-acre units with limiting gas-oil ratio of 2000 cubic feet per barrel whereas Benson-Montin-Greer Drilling Co., Sun Exploration and Production Company, Dugan Production Corporation et al, collectively called "opponents", advocate allowable and gas limits no higher than the current special allowable of 800 barrels of oil per day for 640-acre units and limiting gas-oil ratio of 600 cubic feet per barrel.

(9) Proponents presented testimony and exhibits intended to demonstrate:

(a) Gavilan and WPC pools are separate sources of supply separated by a permeability barrier approximately two miles east of the line separating Range 1 West from Range 2 West which is the present common boundary between the two pools.

(b) Insignificant oil has moved across the alleged barrier.

(c) Gas-oil ratio limitations are unfair to Gavilan operators.

(d) Wells were not shut in following the high rate testing period for sufficient time to permit accurate BHP measurement following the high rate testing period.

(e) The high-rate/low-rate testing program prescribed by Order R-7407-E demonstrated that high producing rates prevented waste as evidenced by lower gas-oil ratios during that phase of the test period.

(f) Irreversible imbibition of oil into the matrix during shut-in or low-rate production causes waste from reduced recovery of oil.

(g) Pressure maintenance in Gavilan would recover no additional oil and would actually reduce ultimate recovery.

(h) The most efficient method of production in Gavilan would be to remove all production restrictions in the pool.

(10) Opponents presented testimony and exhibits intended to demonstrate:

(a) There is pressure communication throughout the Gavilan-WPC pools which actually comprise a single reservoir.

(b) Directional permeability trending north-south with limited permeability east-west, together with gas reinjection, has worked to improve oil

recovery in the COU located wholly within the WPC pool.

(c) Success of the pressure maintenance project is shown by the low gas-oil ratio performance of structurally low wells in the unit.

(d) Oil has moved across the low permeability area east of the Proposed Pressure Maintenance Expansion Area to the Canada Ojitos Unit as pressure differentials have occurred due to fluid withdrawal or injection.

(e) Although lower gas-oil ratios were observed during the high-rate production test period, reservoir pressure drop per barrel of oil recovered increased indicating lower efficiency.

(f) Gravity segregation was responsible for the lower GOR performance during high-rate production.

(g) The effects of the pressure maintenance project were shown, not only in the expansion area but even into the Gavilan pool.

(h) The reservoir performance during the test period shows pronounced effects of depletion.

(i) The higher allowables advocated by proponents would severely violate correlative rights.

(11) Substantial evidence indicated, and all parties agreed, that 640 acres is the appropriate size spacing and proration unit for Gavilan.

(12) Eminent experts on both sides interpreted test data including gas-oil ratios, bottomhole pressures, and pressure build-up tests with widely differing interpretations and conclusions.

(13) The preponderance of the evidence demonstrates the Gavilan and WPC pools constitute a single source of supply which can continue to be regulated effectively as two separate pools with uniform rules for spacing and allowables.

(14) No well produced the top oil allowable during any month of the test period; no well produced the gas limit during the high rate test period; 30 wells produced the gas limit at the beginning of the low rate test period but eight wells produced that limit at the conclusion of the test period.

(15) There is substantial evidence that lower gas-oil ratios observed during the high-rate test period are due to a number of factors including reduced oil re-imbibition, gravity segregation of fluids within the reservoir, and greater pressure differential between fractures and matrix reservoir rock.

(16) A preponderance of evidence shows that both Gavilan and WPC exhibit a very high degree of communication between wells, particularly in north-south directions, and as a result the 72-hour shut in prior to BHP tests may not have been sufficient to permit pressures to completely stabilize. However, such pressure measurements were adequate to provide useful data for reservoir evaluation.

(17) Substantial evidence shows that some wells demonstrated a reduced gas-oil ratio with a high rate of production and that increased production limits should prevent waste.

(18) Substantial evidence also demonstrated that high deliverability wells have intersected a high capacity fracture system and therefore drain distant tracts better than low deliverability wells which have been drilled on those distant tracts. The evidence also indicates that high production rates result in the reduced oil recovery per pound of pressure drop. As a result a top oil allowable and limiting gas-oil ratio is necessary to prevent waste and protect correlative rights.

(19) A top oil allowable of 800 barrels per day per 640 acres with a limiting gas-oil ratio of 2,000 to 1 will enable high productivity wells to produce at more efficient rates without significantly impairing correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) Rule 2 (a) of the temporary special rules and regulations for the Gavilan-Mancos Oil Pool as promulgated by Order R-7407 is hereby amended as follows:

> Rule 2 (a). A standard proration unit shall consist of between 632 and 648 acres consisting of a governmental section with at least one and not more than two wells drilled or recompleted thereon; provided that if the second well is drilled or recompleted on a standard unit it shall not be located in the same quarter section, nor closer than 1650 feet to the first well drilled on the unit; and provided further that proration units formed prior to the date of this order are hereby approved as non-standard, provided however, that operators have the option to file Form C-102 to form standard units.

(2) Effective August 1, 1988 the allowable for a standard 640-acre spacing and proration unit in the Gavilan-Mancos Oil Pool shall be 800 barrels of oil per day and the limiting gas-oil ratio shall be 2000 cubic feet of gas per barrel of oil. Non-standard units shall receive allowables in the same proportion of 800 barrels of oil per day that the acreage in the spacing and proration unit bears to 640 acres.

(3) Effective August 1, 1988, the allowable for a standard 640-acre spacing and proration unit in the West Puerto Chiquito-Mancos Oil Pool shall be 800 barrels of oil per day and the limiting gas-oil ratio shall be 2000 cubic feet of gas per barrel of oil. Non-standard units shall receive allowables in the same proportion of 800 barrels of oil per day that the acreage in the spacing and proration unit bears to 640 acres.

(4) Jurisdiction of these causes is retained for entry of such further orders as the Commission deems necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

WILLIAM R. HUMPHRIES, Member

ERLING A. BROSTUEN, Member

WILLIAM J. LEMAY, Chairman and Secretary

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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

REOPENED CASES NO. 7980, 8946 AND 8950
ORDER NO. R-7407-F-1
ORDER NO. R-6469-F-1

REOPENING CASES 7980, 8946 AND 8950
FOR FURTHER TESTIMONY AS PROVIDED BY
ORDER R-7407-E IN REGARD TO THE
GAVILAN-MANCOS OIL POOL AND ORDER R-6469-D
IN REGARD TO THE WEST PUERTO CHIQUITO-MANCOS
OIL POOL IN RIO ARRIBA COUNTY, NEW MEXICO.

NUNC PRO TUNC ORDER

BY THE COMMISSION:

It appearing to the Oil Conservation Commission of New Mexico (Commission) that the combined order (Order Nos. R-7407-F and R-6469-F) issued in Reopened Case Nos. 7980, 8946 and 8950 and dated August 5, 1988, does not correctly state the intended order of the Commission;

IT IS THEREFORE ORDERED THAT:

(1) Division Order No. R-7407-F being inadvertently issued twice, the first in Reopened Case 7980 heard before the Commission on March 17, 1988, and the second being erroneously issued in the immediate case as described above; therefore, all references to "Order No. R-7407-F" throughout said order issued in Reopened Case Nos. 7980, 8946 and 8950, dated August 5, 1988, are hereby amended to read "Order No. R-7407-G."

(2) The corrections set forth in this order be entered nunc pro tunc as of August 5, 1988.

DONE at Santa Fe, New Mexico, on this 17th day of August, 1988.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

WILLIAM R. HUMPHRIES, Member

ERLING A. BROSTUEN, Member

WILLIAM J. LEMAY, Chairman and
Secretary

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 9111
Order No. R-3401-B

APPLICATION OF BENSON-MONTIN-GREER
DRILLING CORPORATION FOR EXPANSION OF
THE PROJECT AREA FOR ITS WEST PUERTO
CHIQUITO-MANCOS PRESSURE MAINTENANCE
PROJECT, RIO ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:00 a.m. on March 18, 1988, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission." Decision on the case was deferred until possibly related testimony in Cases 7980, 8946, 8950 and 9412 was received at the hearing held June 13, 1988.

NOW, on this 5th day of August, 1988, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Commission has jurisdiction of this cause and tne subject matter thereof.

(2) Applicant requests expansion of the West Puerto Chiquito-Mancos Pressure Maintenance Project area to include the below-described area which would make the project area coterminous with the Canada Ojito Unit area and the Mancos Participating Area of the unit:

TOWNSHIP 24 NORTH, RANGE 1 WEST, NMPM
Sections 5 through 8

TOWNSHIP 25 NORTH, RANGE 1 WEST, NMPM
Sections 5 through 8
Sections 17 through 20
Sections 29 through 32

TOWNSHIP 26 NORTH, RANGE 1 WEST, NMPM
W/2 Sections 5, 8, 17, and 20
Sections 6, 7, 18, 19, 29, 30, 31 and 32

All in Rio Arriba County, New Mexico

(3) The expanded project area would abut the Gavilan-Mancos Pool boundary at the West line of Range 1 West.

(4) Applicant was supported in its application by Sun Exploration and Production Company and was opposed by Mallon Oil Company, Mesa Grande Resources, Inc., Mobil Texas-New mexico Producing, Koch Exploration and others.

(5) Critical to the case is the degree, if any, of pressure communication across a low permeability zone at or near the present western boundary of the project area which is approximately two miles east of the western boundary of the unit.

(6) The two westernmost rows of sections inside the unit area are in effective pressure communication with the Gavilan-Mancos pool as demonstrated by shut in pressure measurements.

(7) The unit area east of the proposed expansion of the area described above exhibits a significantly greater pressure than the proposed expansion area and the adjacent Gavilan area, as a result of gas injection at the structurally higher and more easterly portion of the unit.

(8) The pressure differential across the low-permeability area which resides in the third row of sections east of the western boundary of the unit is in the range of 350-400 psi, and thus indicates limited pressure communication between the injection wells and the proposed expansion area.

(9) Limited transmissibility across the low-permeability zone has been shown by (1) transmission of a pressure pulse from a hydraulically fractured well to wells across the low permeability zone, (2) failure to increase the average pressure east of the zone by overinjection of gas, and (3) the lower gas-oil ratio of wells in the proposed expansion area as compared to adjacent Gavilan-Mancos wells.

(10) The gas credit provided by Rule 7 of Order R-3401, as amended, in the project area provides a reduced GOR penalty for wells in the project area because the pressure maintenance process results in a smaller reservoir voidage per barrel of oil produced than would occur if the gas were not reinjected.

(11) The permeability restriction described in Finding No. (5) limits the benefit which the proposed expansion area can receive from the pressure maintenance gas injection.

(12) There is evidence that wells within both the WPC and the Gavilan Pools are in communication with areas outside of those pools, particularly in a north-south direction. As a result there may be gas flow and repressurization from the pressure maintenance project in a northerly and southerly direction and that it may extend beyond the northern and southern boundaries of the pressure maintenance project.

(13) Because of Findings (11) and (12), giving full injection credit to those wells in the proposed expansion area would give those wells an advantage over the adjacent wells in the Gavilan-Mancos Pool and would impair the correlative rights of the owners in the Gavilan-Mancos Pool.

(14) Limited expansion of the project area, and reduced credit to wells in the expansion area for reinjected gas in the project area will encourage continued gas injection, will increase the ultimate recovery of oil in the West Puerto Chiquito-Mancos Oil Pool and will also protect correlative rights in the Gavilan- Mancos Pool wells offsetting the unit.

(15) The project area should be expanded only one tier of sections to the west leaving one tier of sections between the expansion area and Gavilan.

(16) The evidence is not conclusive as to the amount of injection credit which the wells in the expansion area of the project should receive, and pending further data evaluation, a 50% injected gas credit is reasonable.

(17) The gas credit amount in the expansion area granted by this order should be modified upon presentation of evidence that an advantage is gained by either pool over the other.

(18) The Aztec district office of the Division, in consultation with the operators in the two pools should determine the wells and procedures to be employed to obtain accurate, representative BHP's on either side of the common pool boundary on a semi-annual basis for detection and evaluation of any drainage across the said boundary and a basis for adjusting the gas injection credit assigned the wells in the expansion area.

IT IS THEREFORE ORDERED THAT:

(1) The Project Area of the West Puerto Chiquito-Mancos Pressure Maintenance Project is hereby expanded to include the following described area:

TOWNSHIP 24 NORTH, RANGE 1 WEST, NMPM
Sections 5 and 8

TOWNSHIP 25 NORTH, RANGE 1 WEST, NMPM
Sections 5, 8, 17, 20, 29 and 32

TOWNSHIP 26 NORTH, RANGE 1 WEST, NMPM
W/2 Sections 5, 8, 17 and 20 and all of Sections 29 and 32

All in Rio Arriba County, New Mexico.

(2) Rule 6 and Rule 7 of the Special Rules for the West Puerto Chiquito-Mancos Pressure Maintenance Project established by Order No. R-3401, as amended, are hereby amended to read in their entirety as follows:

"Rule 6. The allowable assigned to any well which is shut-in or curtailed in accordance with Rule 3, shall be determined by a 24-hour test at a stabilized rate of production, which shall be the final 24-hour period of a 72-hour test throughout which the well should be produced in the same manner and at a constant rate. The daily tolerance limitation set forth in Commission Rule 502 1 (a) and the limiting gas-oil ratio for the West Puerto Chiquito-Mancos Oil Pool shall be waived during such tests. The project operator shall notify all operators offsetting the well, as well as the Commission, of the exact time such tests are to be conducted. Tests may be witnessed by representatives of the offsetting operators and the Commission, if they so desire."

"Rule 7. The allowable assigned to each producing well in the Project shall be equal to the well's ability to produce or top unit allowable for the West Puerto Chiquito-Mancos Oil Pool, whichever is less, provided that any producing well in the project area which directly or diagonally offsets a well outside the Canada Ojitos Unit Area producing from the same common source of supply shall not produce in excess of top unit allowable for the pool. Production of such well at a higher rate shall be authorized only after notice and hearing. Each producing well shall be subject to the limiting gas-oil

ratio for the West Puerto Chiquito-Mancos Oil Pool except that any well or wells within the project area producing with a gas-oil ratio in excess of the limiting gas oil ratio may be produced on a "net gas-oil ratio" basis, which shall be determined by applying credit for daily average gas injected, if any, into the West Puerto Chiquito-Mancos Oil Pool within the project area to such high gas-oil ratio well. The daily adjusted oil allowable for any well receiving gas injection credit shall be determined in accordance with the following formula:

$$A_{adj} = TUA \times F_a \times \frac{GOR}{\frac{P_g - I_g}{P_o}}$$

where A_{adj} = the well's daily adjusted allowable.

TUA = top unit allowable for the pool.

F_a = the well's acreage factor (1.0 if one well on a 640 acre proration unit or 1/2 each if two wells on a 640 acre unit, and 1/2 for a well in a section along the Gavilan boundary which lies closer than 2310' from the Gavilan boundary).

P_g = average daily volume of gas produced by the well during the preceding month, cubic feet.

I_g = the well's allocated share of the daily average gas injected during the preceding month, cubic feet.

P_o = average daily volume of oil produced by the well during the preceding month, barrels.

GOR = limiting gas-oil ratio for the West Puerto Chiquito-Mancos Oil Pool.

In no event shall the amount of injected gas being credited to a well be such as to cause the net gas-oil ratio, $\frac{P_g - I_g}{P_o}$ to be less than the limiting gas-oil ratio for the West Puerto Chiquito Mancos Oil Pool.

Provided however, that wells located in the area described as: Sections 5 and 8, Township 24 North, Range 1

West; Sections 5, 8, 17, 20, 29 and 32, Township 25 North, Range 1 West; Sections 29 and 32 and W/2 of Sections 5, 8, 17 and 20, Township 26 North, Range 1 West

shall be limited to 50% of the allocated share of injection gas in the I_g term of the formula above.

(3) The Aztec district office of the Division, with due counselling and advice from pool operators, shall, by October 1, 1988, develop a program for semi-annual bottomhole pressure surveys of wells in both pools located not less than 3/8 mile and not more than 1 1/2 miles from the common pool boundary, designed to measure accurately the pressure differential across the pool boundary and to be used as a basis for adjusting the gas injection credit to wells in the expansion area. The program shall be presented for approval to the Commission Conference on October 6, 1988.

(5) This order may be modified, after notice and hearing, to offset any advantage gained by wells on either side of the common boundary of the Gavilan and West Puerto Chiquito Oil Pools, as a result of this order.

(6) Jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

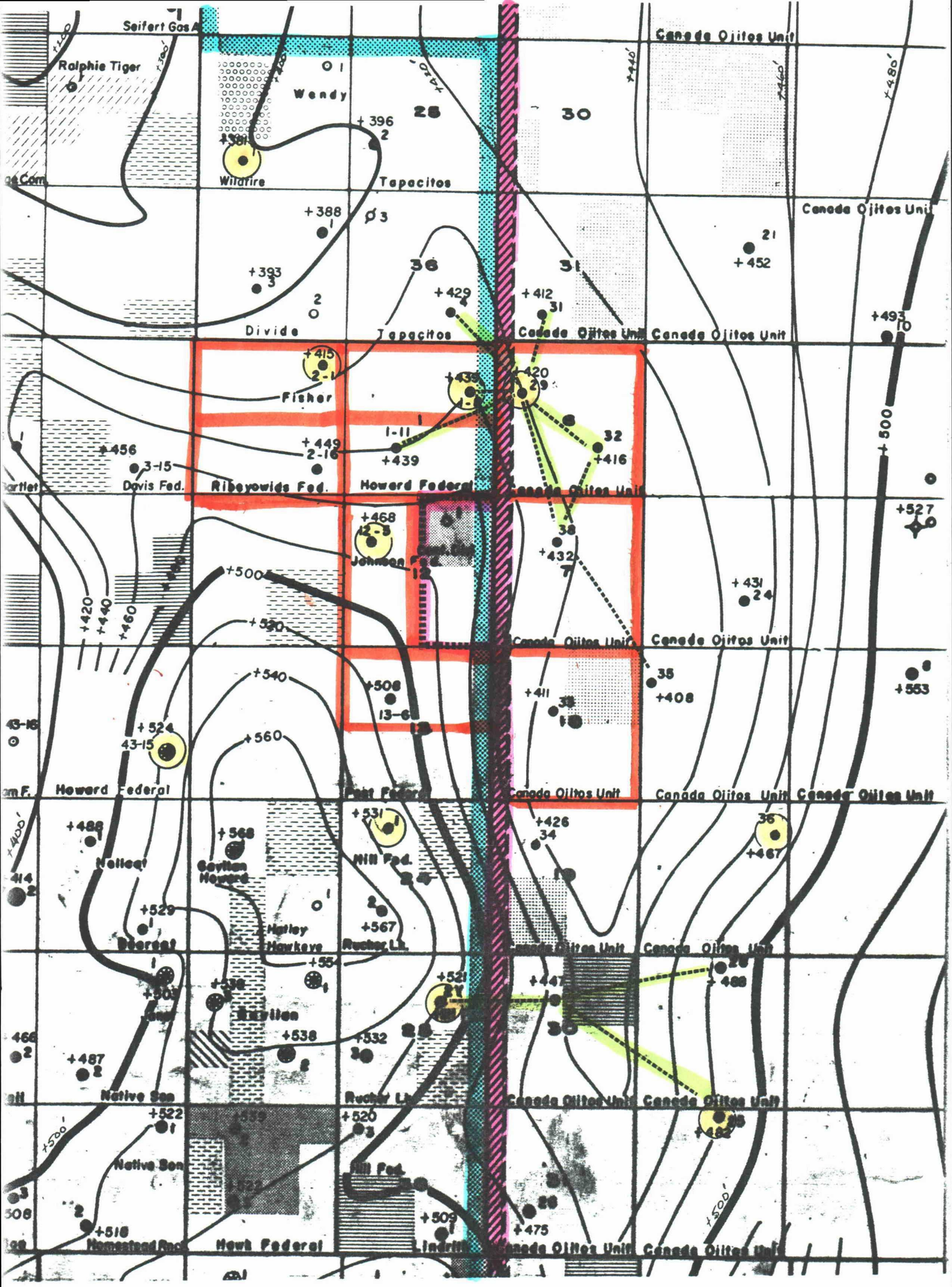
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

WILLIAM R. HUMPHRIES, Member

ERLING A. BROSTUEN, Member

WILLIAM J. LEMAY, Chairman and Secretary

S E A L



Legend

- Gavilan Mancos Pool Boundry
- West Puerto Chiquito Mancos Pool & Canada Ojitos UNIT Boundry
- Proposed Addition to C.O.U.
- Wells with demonstrated pressure communication
- Wells with BHP Data plotted on Dugan Ex. #4 - CASE 7980 (6/88)

CONTOURED ON Top of Niobrara A

NMOCD CASE NO. 9671

May 10, 1989

Dugan/Sun Exhibit No. 2

Form 3160-3 (November 1983) (formerly 9-331C) 6 BLM, Fmr 1 DE 1 File 1 Dugan SUBMIT TRIPLICATE* (Other instructions on reverse side) Form approved. Budget Bureau No. 1004-013(Expires August 31, 1985

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: NM 58855

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Continental Divide

9. WELL NO.: 1

10. FIELD AND POOL, OR WILDCAT: Gavilan G-G-G Mancos Ext. & Dakota Ex

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 12, T25N, R2W, NM

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] OTHER SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: JEROME P. McHUGH

3. ADDRESS OF OPERATOR: P O Box 809, Farmington, NM 87499

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 790' FNL - 1650' FEL
At proposed prod. zone:

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 8½ mi. N NE of Lindrith

12. COUNTY OR PARISH: Rio Arriba

13. STATE: NM

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
790'	320	320*
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
½ mi. W	8270'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 7530' GL; 7542' KB

22. APPROX. DATE WORK WILL START*: 11-1-85

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12-1/4"	9-5/8"	36#	250' KB	125 cf circ. to surface
7-7/8"	5-1/2"	15.5 & 17#	8270' KB	2100 cf in 3 stages

Plan to drill with spud mud to 250' and set 9-5/8" surface casing. Then plan to drill a 7-7/8" hole with water-gel-chem mud to 8270' to test the Mancos and Dakota formations. Will run DIL, FDC & CNL logs to TD. If well appears productive, will run 5½" casing, ce in 3 stages, then selectively perforate, frac and complete using 2-7/8" tubing.

NMERB Requirement: Gas is not dedicated.

NMOCD CASE NO. 9671
May 10, 1989
Dugan/Sun Exhibit No. 3

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED James S. Hazen TITLE Field Supt. DATE 11/21/85

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

OIL CONSERVATION DIVISION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Jerome P. McHugh	Continental Divide	1

Unit Letter	Section	Township	Range	County
B	12	25 North	2 West	Rio Arriba

Actual Footage Location of Well:
790 feet from the North line and 1650 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
7530	Mancos/Dakota	Gavilan Mancos Ext./G-G-G Dakota	Ext. 320. Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

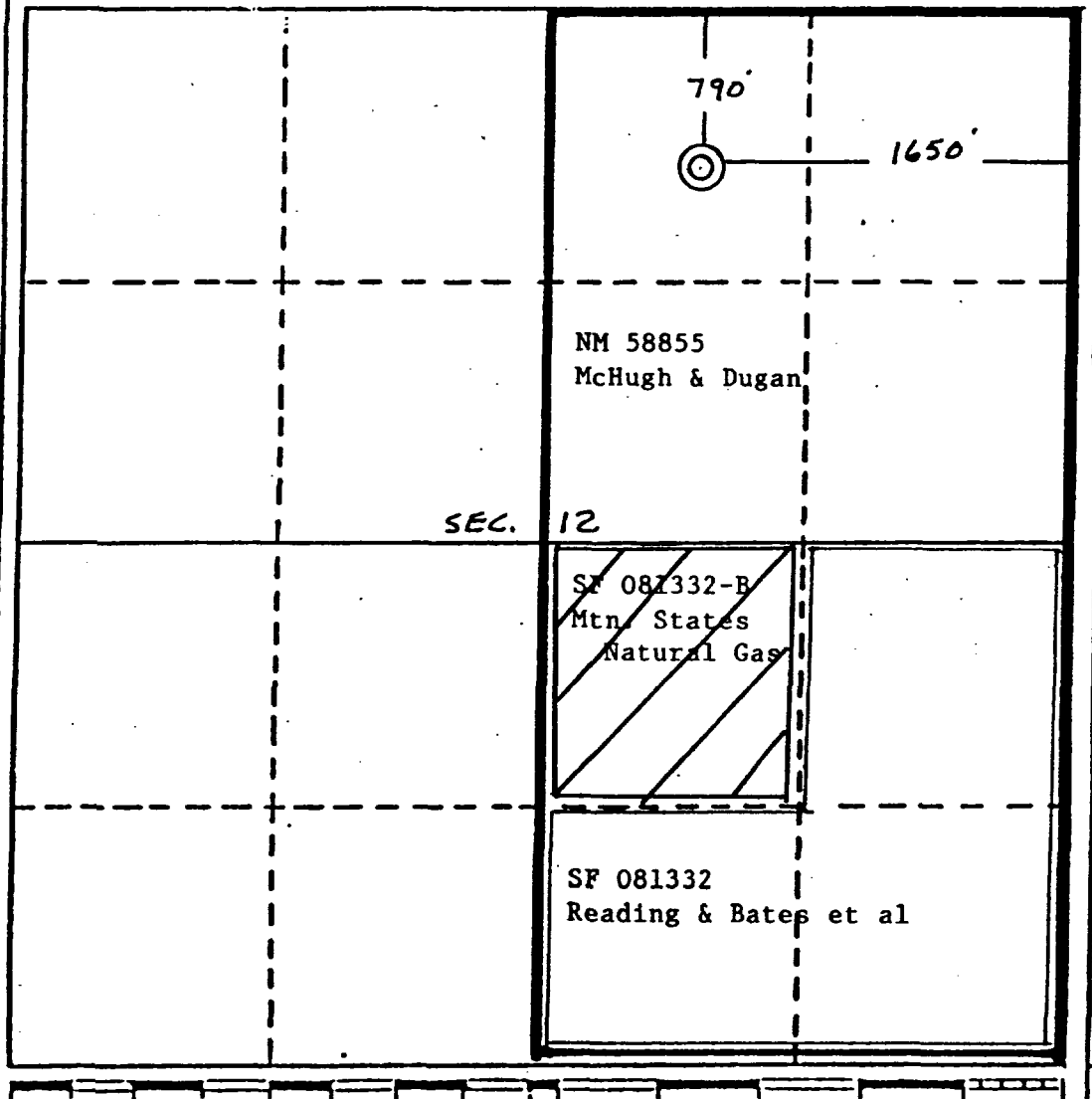
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling: etc?

☐ Yes ☒ No If answer is "yes," type of consolidation Will be communitized

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



CERTIFICATION

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

Name: James S. Hazen

Position: Field Supt.

Company: JEROME P. McHUGH

Date: 11/21/85

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

EDGAR L. RISENHOOVER
NEW MEXICO
5979
REGISTERED LAND SURVEYOR

Date Surveyed: September 10, 1985

Registered Professional Engineer and/or Land Surveyor

Edgar L. Risenhoover

Certificate No. 5979

NMOCD CASE NO. 9671
May 10, 1989
Dugan/Sun Exhibit No. 4

Rec. 11-17-86

November 14, 1986

To: All Working Interest Owners
(See Addressee List Attached)

Re: Continental Divide #1
E/2 Sec. 12-T25N-R2W
Rio Arriba County, New Mexico

Gentlemen:

Reference is made to the captioned well which we originally proposed in November of 1985.

As you may recall, we were initially delayed by having to force pool Mountain States Natural Gas on January 22, 1986 as to their working interest.

Our next hurdle was to negotiate a right-of-way agreement with the Santa Fe National Forest people which was our only public access into the location. Those negotiations lasted until the latter part of July when we agreed to a mutually acceptable route.

In the interim, our force pooling order against Mountain States expired on May 1 as we were unable to commence our well by said date as required by the order.

On July 23, 1986, I again appeared before the Oil and Gas Commission in an effort to have the forced pooling against Mountain States reinstated. Said order was issued effective August 8, 1986 with a commencement date for our well no later than November 1, 1986 (copy attached).

Following our successful negotiations with the Forest Service, we let out bids to contractors with the Forest Service criteria. Our lowest bid to date is in excess of $100,000.

As noted in my letter of October 24th to the Oil and Gas Commissioner, Mr. Stamets, the excessive cost of the access road and the onset of winter has delayed our plans indefinitely. Mr. Stamets did grant us a continuation on our forced pooling until May 1, 1987 (copy attached).

Our plans are to put this well on hold until late spring or early summer and review the situation at that tiime. We are also in constant conversation with the Forest people as to granting some relief on their requirements but those efforts do not appear promising at this time.

Jerome P. McHugh & Associates
Operating Affiliate: Nassau Resources, Inc.
650 South Cherry, Suite 1225
Denver, Colorado 80222
(303) 321-2111

I wanted to update each of you as to the status of this proposed well in the event you needed to amend your budgets prior to year end.

Thank you for your continued cooperation and feel free to contact me should you have any questions.

Very Truly Yours,

Kent

Kent C. Craig

KCC/rm

enclosures

ADDRESSEE LIST

P C, Ltd.
IBEX Partnership
P. O. Box 911
Breckenridge, Texas 76024

Mr. Greg Owens
Hooper, Kimball & Williams, Inc.
320 South Boston Avenue, Suite 1222
Tulsa, Oklahoma 74103

Ms. Carolyn Clark Oatman
Warren Clark Trust
Testamentary Trust under the
Will of Warren Clark
P. O. Box 1846
Austin, Texas 78767

Mr. Ralph Gilliland
7420 Caruth
Dallas, Texas 75225

Mr. Eric Koelling
Reading & Bates Petroleum Co.
3200 Mid-Continent Tower
Tulsa, Oklahoma 74103

Mr. Robert G. Stovall
Dugan Production Corp.
P. O. Box 208
Farmington, New Mexico 87499

Mr. Duer Wagner, III
Mr. Duer Wagner, Jr.
1420 Continental Plaza
777 Main Street
Ft. Worth, Texas 76102

Form 3160-5
(November 1983)
(Formerly 9-331)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Budget Bureau No. 1004-0135
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

5. LEASE DESIGNATION AND SERIAL NO.: NM 58855

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

1. OIL WELL [XX] GAS WELL [ ] OTHER

2. NAME OF OPERATOR: JEROME P. McHUGH

8. FARM OR LEASE NAME: Continental Divide

3. ADDRESS OF OPERATOR: P O Box 809, Farmington, NM 87499

9. WELL NO.: 1

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 790' FNL - 1650' FEL

10. FIELD AND POOL, OR WILDCAT: Gavilan & G-G-G Mancos Ext. Dakota

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 12, T25N, R2W, NMPM

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 7530' GL; 7542' KB

12. COUNTY OR PARISH: Rio Arriba

13. STATE: NM

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other) Access Road Change			[XX]
(Other)			[ ]	(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Access road changes to satisfy Santa Fe National Forest Service are shown on attached map. Also ~~attached are copies of easement agreement~~ from private surface owner and road engineering report as approved by the Santa Fe National Forest Service Engineer and Cuba District Ranger.

Access road on Section 12, T25N, R2W, NMPM, remains unchanged.

Cultural Resources report for changes on the Santa Fe National Forest were approved in the process of approving access route.

NMOCD CASE NO. 9671
May 10, 1989
Dugan/Sun Exhibit No. 5

18. I hereby certify that the foregoing is true and correct

SIGNED Skip Fraker TITLE Landman DATE 8/4/86

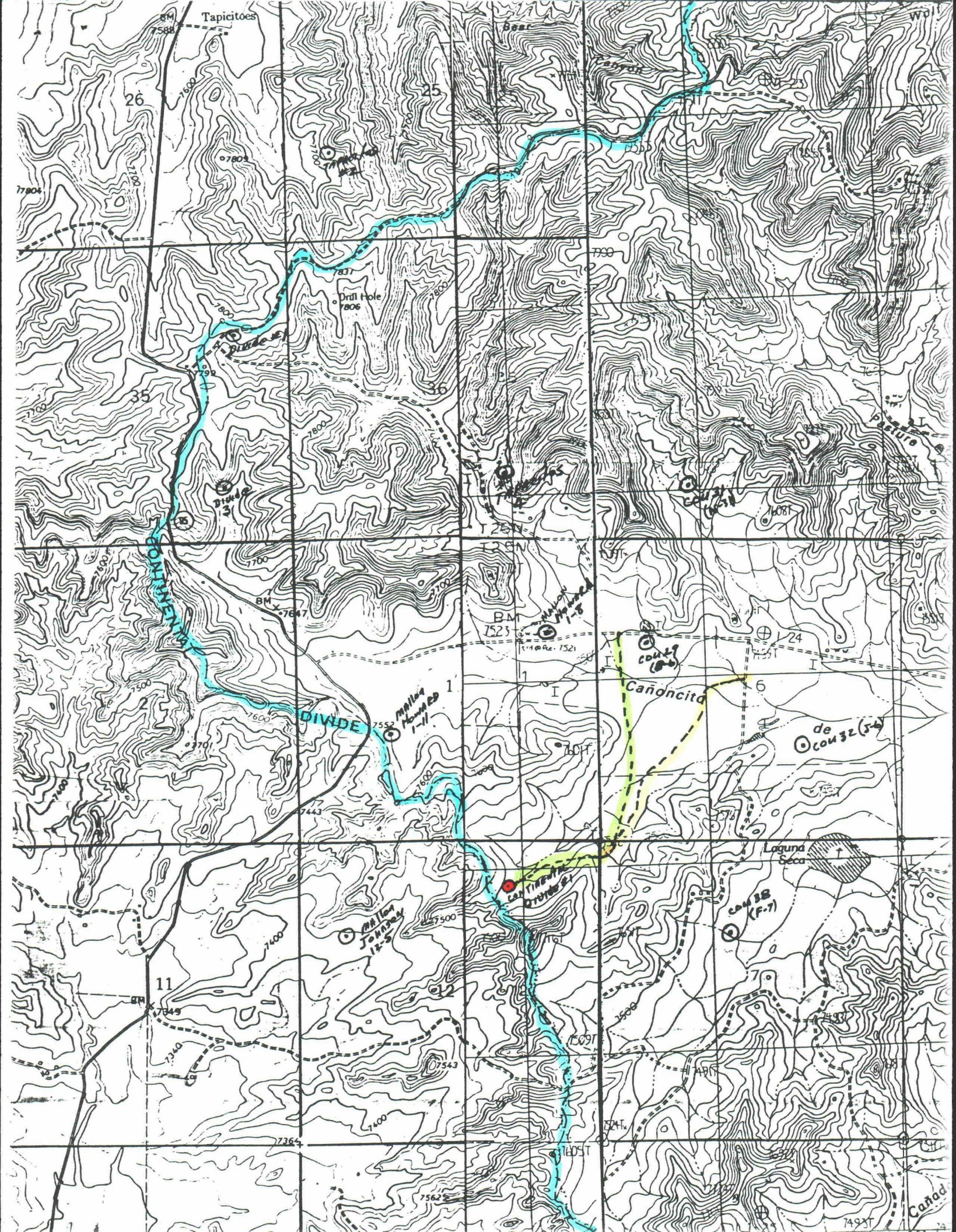
(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.


Tapicitoes
Bear
Canyon
Drill Hole
7806
Divide
CONTINENTAL
DIVIDE
Candoncito
Laguna
Seca
Pasture
Cañad
T 25N
T 24N
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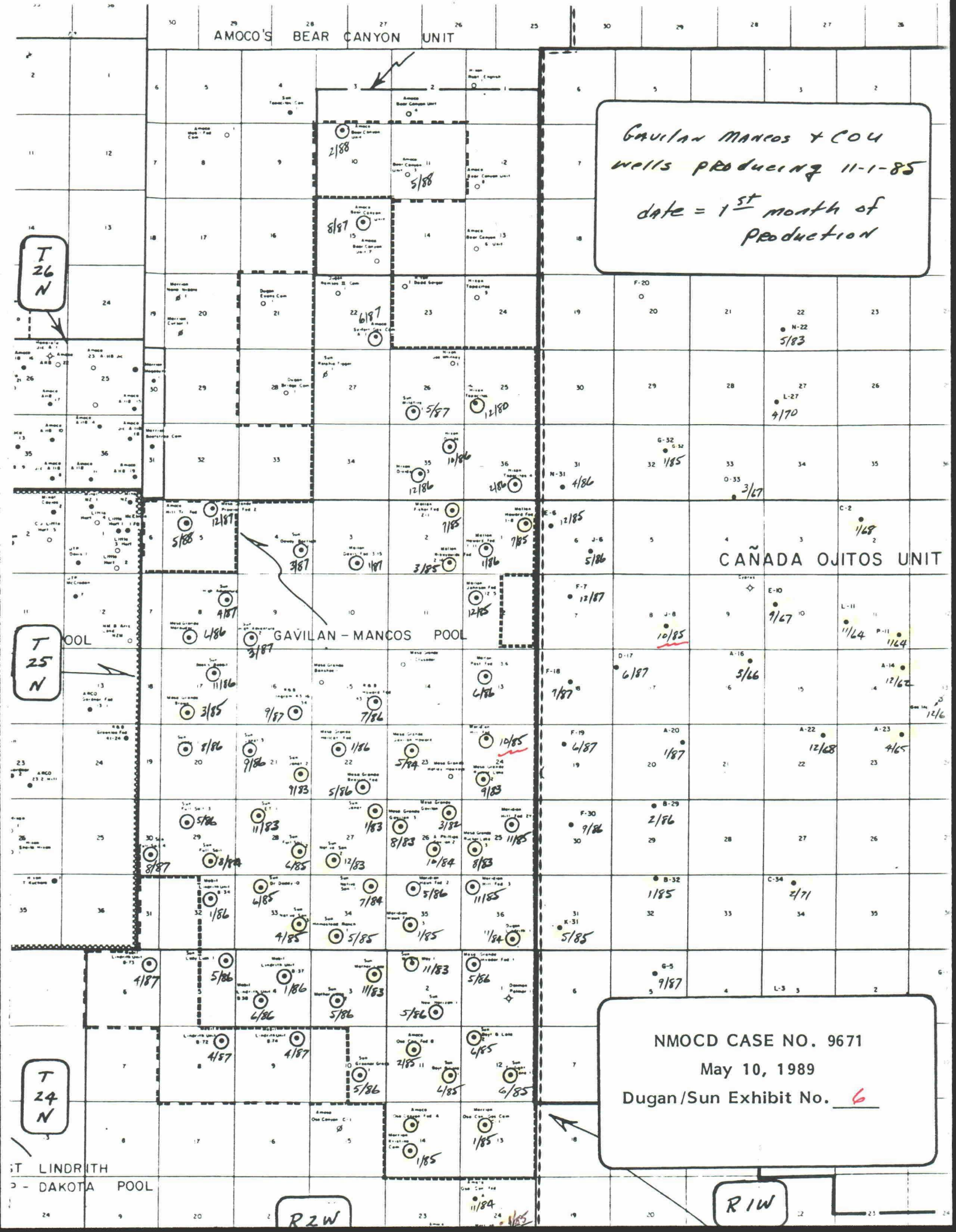
25
35
36
1
2
11
12
6
7
24


AMOCO'S BEAR CANYON UNIT
Gavilan Mancos + COU wells producing 11-1-85
date = 1st month of production
T 26 N
T 25 N
T 24 N
GAVILAN - MANCOS POOL
CAÑADA OJITOS UNIT
R2W
R1W
NMOCD CASE NO. 9671
May 10, 1989
Dugan/Sun Exhibit No. 6

WELL COMPLETION & PRODUCTION DATA
Gavilan Mancos Oil Pool
and 1 Mile Extension
Rio Arriba County, New Mexico

NMOCD CASE NO. 8713
Dugan Production Corp.
Exhibit No. 3
October 9, 1985

OPERATOR / Well Name	Well Location U- S- T- R	Completion Date	Perforated Interval	Initial Potential BOPD	Initial Potential GOR	Prod.During 8/85 BOPD	Prod.During 8/85 GOR	Cumulative Prod. 9-1-85 Bbls Oil	Cumulative Prod. 9-1-85 MCF Gas	Remarks
AMOCO PRODUCTION CO.										
Oso Canyon Fed. A #1	F-14-24N-2W	2-3-85	6710-6982	27	4,444	SI	---	-0-	-0-	Waiting on gas PL Connection
Oso Canyon Fed. B #1	F-11-24N-2W	2-5-85	6756-6998	137	1,475	SI	---	2,167	-0-	Waiting on gas PL Connection
Oso Canyon Gas Com C#1	F-15-24N-2W	Location				SI	---			Waiting on gas PL Connection
Company Total						SI		2,167	-0-	
DUGAN PRODUCTION CORP.										
Lindrith #1	O-36-25N-2W	11-19-84	6905-7586	171	719	13	4,140	2,321	9,019	Remarks No. 1
JEROME P. McHUGH										
Beek's Babbit #1	G-17-25N-2W	Completing	6959-7237	Testing		--	---	---	---	
Boyt & Lola #1	I-11-24N-2W	12-3-84	6720-7475	144	833	15	7,234	1,134	6,295	
Boyt & Lola #2	D-12-24N-2W	1-10-85	6778-7456	150	600	20	1,768	1,977	3,001	
Dr. Daddy-O #1	C-33-25N-2W	5-16-85	6747-7409	432	463	SI	---	1,035	479	Waiting on PL Connection
E.T. #1	C-28-25N-2W	9-19-83	6643-7025	96	5,219	63	492	43,655	16,280	Remark #3 - DK=8315/1015
Full Sail #1	O-29-25N-2W	6-15-84	6745-7409	216	1,444	204	1,083	61,610	34,691	
Full Sail #2	I-28-25N-2W	5-24-85	6791-7437	376	979	SI	---	1,249	1,223	Waiting on PL Connection
Full Sail #3	F-29-25N-2W	Completing	---	---	---	--	---	---	---	
Greener Grass #1	J-10-24N-2W	Completing	6703-6932	Testing		--	---	---	---	
Homestead Ranch #2	N-34-25N-2W	5-16-85	6698-6946	700	371	SI	---	3,313	850	Waiting on PL Connection
Janet #1	A-27-25N-2W	2-17-83	6689-7000	73	2,753	102	571	68,412	54,414	Remark #3-DK=24599/11092
Janet #2	I-21-25N-2W	9-1-83	6657-7055	60	3,000	61	822	41,007	29,142	Remark #3-DK=13669/3247
Janet #3	E-21-25N-2W	Location								
Lady Luck #1	A- 5-24N-2W	Location								
Loddy #1	F-20-25N-2W	Completing	6866-7122	Testing		--	---	---	---	
Mother Lode #1	H- 3-24N-2W	9-2-83	6765-7070	63	5,190	95	874	83,833	55,860	Remark #1&3-DK=15898/11848
Mother Lode #2	K- 3-24N-2W	Location								
Native Son #1	A-34-25N-2W	6-7-84	6765-7443	198	1,636	436*	462	97,384	22,817	
Native Son #2	N-27-25N-2W	11-18-83	6802-7485	233	1,882	504	933	190,788	126,019	Remark #1 & #2
Native Son #3	I-33-25N-2W	2-21-85	6714-7375	512	655	SI	---	713	329	Waiting on PL Connection
New Horizon #1	O- 2-24N-2W	Completing	6732-6979	Testing		--	---	---	---	
Twilight Zone #1	J-12-24N-2W	1-21-85	6819-7563	135	511	7	2,213	677	1,078	
Wright Way #1	C- 2-24N-2W	9-29-83	6760-7072	51	6,000	85	776	59,220	42,913	Remarks #1&3-DK=17386/7588
Company Total						1,592		656,007	395,391	

→ 11 well Avg = 142 BOPD, 9 well Avg = 72 BOPD (*Excluding NS 14

WELL COMPLETION & PRODUCTION DATA
Gavilan Mancos Oil Pool
and 1 Mile Extension
Rio Arriba County, New Mexico

OPERATOR / Well Name	Well Location U- S- T- R	Completion Date	Perforated Interval	Initial Potential BOPD	Initial Potential GOR	Prod. During 8/85 BOPD	Prod. During 8/85 GOR	Cumulative Prod. 9-1-85 Bbls Oil	Cumulative Prod. 9-1-85 MCF Gas	Remarks
MERRION OIL & GAS										
Krystina #1	K-14-24N-2W	1-7-85	6691-6939	12	5,500	23	3,668	2,702	11,090	
Oso Canyon Gas Com C #1	F-13-24N-2W	1-11-85	6807-7067	53	1,302	5	2,208	1,747	3,968	
Company Total						28		4,449	15,058	
						2 well Avg = 14 BOPD				
MESA GRANDE RESOURCES										
Brown #1	N-17-25N-2W	3-20-85	7340-7530	55	721	83	284	4,966	2,525	Remarks#1&4 - DK=517/700
Gavilan #1	A-26-25N-2W	3-21-82	6821-7562	62	8,790	61	6,064	66,939	392,114	Remarks#4&5 - DK=2823/7223
Gavilan #3	E-26-25N-2W	7-23-83	6804-7366	32	11,700	49	3,812	19,375	203,857	Remarks #1 & 5
Gavilan Howard #1	F-23-25N-2W	4-23-84	6659-7370	75	36,160	173	6,987	30,124	192,390	Remark #4 - DK=3321/167889
Hellcat #1	F-22-25N-2W	Completing								
Company Total						366		121,404	790,886	Remark #6
						4 well Avg = 92 BOPD				
E.ALEX PHILLIPS (same as Mesa Grande Resources)										
Gavilan #2	J-26-25N-2W	2-14-85	6872-7127	23	6,522	SI	---	255	1,800	Won't Produce
MOBIL PRODUCING TX & NM										
Lindrith B Unit #37	G- 4-24N-2W	Location								
Lindrith B Unit #34	G-32-25N-2W	Location								
Lindrith B Unit #38	K- 4-24N-2W	Location								
NORTHWEST PIPELINE										
Rucker Lake #2	K-24-25N-2W	8-26-83	6825-7484	193	1,200	117	466	89,121	50,558	Remark #1
Rucker Lake #3	L-25-25N-2W	8-10-83	6808-7538	145	2,089	80	781	67,662	68,354	
Company Total						197		156,783	118,912	
						2 well Avg = 99 BOPD				
SOUTHLAND ROYALTY										
Hawk Federal #2	C-35-25N-2W	3-25-84	6766-7448	215	2,447	150	3,079	25,204	57,764	
Hawk Federal #3	K-35-25N-2W	1-3-85	6742-6999	163	3,012	233	1,294	41,432	71,547	
Hill Federal #1	F-24-25N-2W	Completing	6963-7596	Testing		---	---	---	---	
Hill Federal #2Y	G-25-25N-2W	Completing								
Hill Federal #3	D-36-25N-2W	Location								
Company Total						383		66,636	129,311	
						2 well Avg = 192 BOPD				

Gavilan Pool Total
2 well Avg
= 2579 BOPD / 22 wells =
117 BOPD / well

WELL COMPLETION & PRODUCTION DATA
Gavilan Mancos Oil Pool
and 1 Mile Extension
Rio Arriba County, New Mexico

REMARKS:

1.) Production rate & GOR indicated for 8/85 is actually an average of 6, 7 & 8/85 since production varies month to month.

2.) Dakota is T.A. but produced 1015 BO + 2608 MCF during testing prior to T.A.

3.) This well is commingled downhole with Gavilan Greenhorn, Graneros & Dakota Oil Pool. Production rates for 8/85 & cumulatives to 9-1-85 reflect Mancos allocations only. Dakota cumulative oil & gas as of 9-1-85 is indicated under Remarks Column as DK = Cum.BO/ Cum. MCF.

4.) Dual completion. Production rates for 8/85 & cumulatives to 9-1-85 reflect Mancos production figures only. Cumulative oil & gas from the Gavilan Greenhorn, Graneros, Dakota Oil Pool is indicated under Remarks Column as DK=Cum.BO/ Cum. MCF.

5.) Wells actually drilled, completed by Northwest Exploration. Operations assumed by Mesa Grande Resources approximately 10-17-84 at which time Mancos cumulative production was 45,665 BO + 256,028 MCF in Gavilan #1 & 13,503 BO + 91,313 MCF in the Gavilan #3 (old #1E).

6.) Approximately 59,168 BO + 347,341 MCF of gas was produced by Northwest Exploration prior to Mesa Grande assuming operations of the Gavilan No. 1 & 1E wells during 10/84.

NMOCD CASE NO. 8713
Dugan Production Corp.
Exhibit No. 4
October 9, 1985

WELL COMPLETION & PRODUCTION DATA
Proposed Gavilan Mancos Oil Pool Extension to North
Rio Arriba County, NM

OPERATOR / Well Name	Well Location U- S- T- R	Completion Date	Perforated Interval	Initial Potential BOPD	Initial Potential GOR	Prod. During 8/85 BOPD	Prod. During 8/85 GOR	Cumulative Prod. 9-1-85 Bbls Oil	Cumulative Prod. 9-1-85 MCF Gas	Remarks
DUGAN PRODUCTION CORP.										
Divide #1	H-35-26N-2W	5-13-83	7266-7670	25	32,880	SI	---	-0-	-0-	Remark A
Divide #2	P-35-26N-2W	Location								
Tapacitos #2	L-25-26N-2W	10-30-80	7368-7556	12	15,250	42	632	15,426	9,749	Remark B
Tapacitos #3	D-36-26N-2W	Location								
Tapacitos #4	O-36-26N-2W	Location								
Wendy #1	A-26-26N-2W	Location								
Company Total						42		15,426	9,749	
MALLON OIL										
Fisher Fed. 2#1	A- 2-25N-2W	6-17-85	7066-7862	220	NR	339	NR	8,381	NR	
Howard 1-Well #8	H- 1-25N-2W	7-16-85	6909-7722	226	NR	420	NR	10,258	NR	
Howard Fed. 11-#1	K- 1-25N-2W	Waiting on Completion								
Howard Fed. Com 1-7	G- 1-25N-2W	Abandoned Location								
Howard Fed. Com 1-11	K- 1-25N-2W	Abandoned Location								
Johnson Fed. 12-#5	E-12-25N-2W	Waiting on Completion								
Ribeyowids Fed. 2-16	P- 2-25N-2W	2-04-85	6784-7618	110	NR	154	NR	11,157	NR	
Company Total						913		29,796		
JEROME P. McHUGH										
Continental Divide #1	B-12-25N-2W	Location								
SOUTHLAND ROYALTY										
Hawk Federal #4	F-13-25N-2W	Location								

4 well Avg = 183 BOPD

Total Area - 26 wells = 3534 BOPD / 26 wells = 136 BOPD/well

WELL COMPLETION & PRODUCTION DATA
Proposed Gavilan Mancos Oil Pool Extension to North
Rio Arriba County, NM

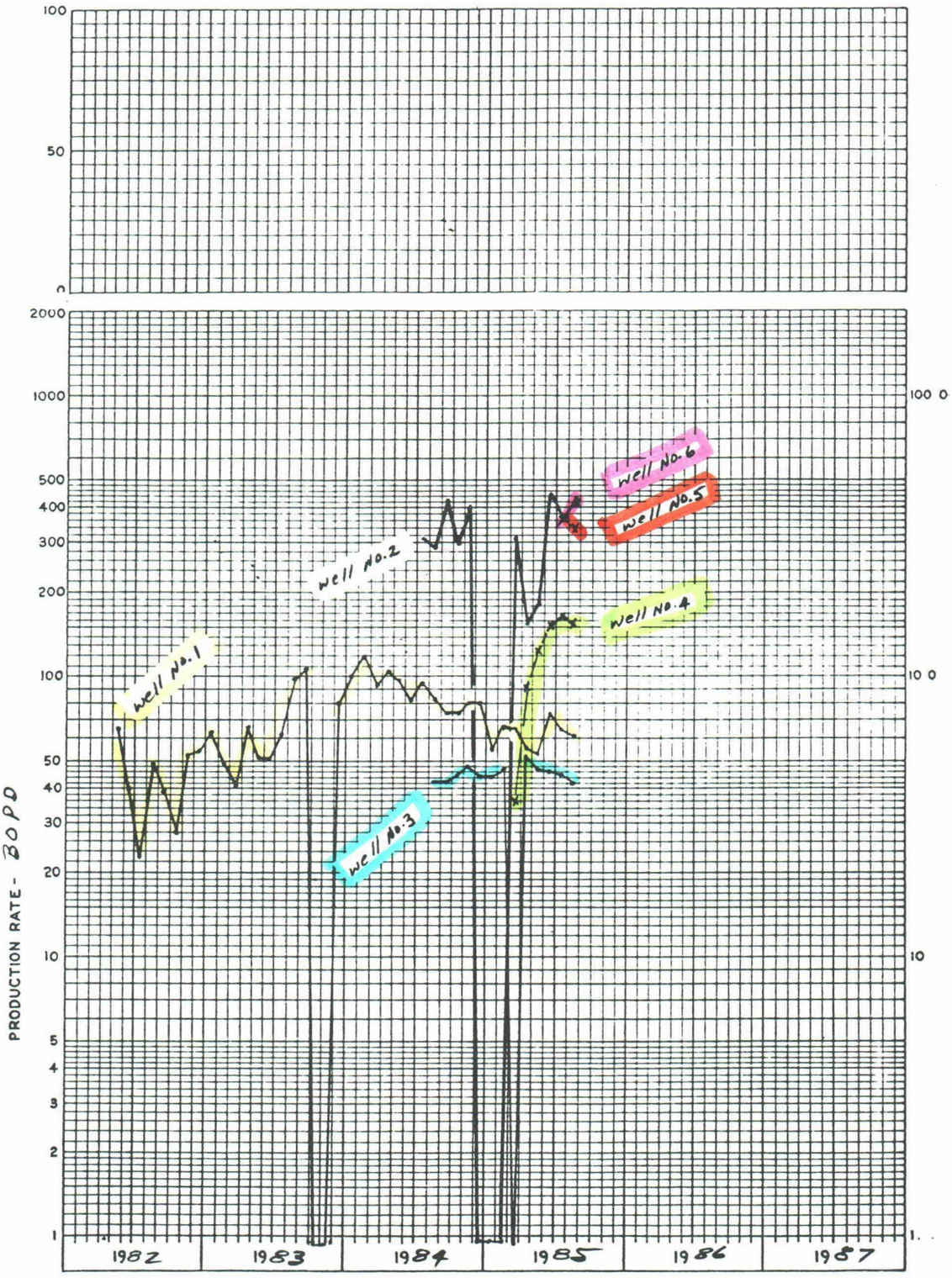
REMARKS

A - Mancos perfs 7266-7670 are downhole commingled with Blanco Mesaverde perfs 5862-74 & 6234-44. The IP tested & reported of 25 BOPD & 822 MCFD is for the commingled stream.

B - IP reflects an unstabilized flowing test. Well would not sustain a flow and would log off very quickly. Rod pumping equipment was installed in the well during 8/84 at which time cumulative production was 277 BO.

NR - None Reported.

DAILY AVERAGE MANCOS PRODUCTION
Gavilan Mancos Oil Pool and Proposed Northern Extension Areas
Rio Arriba Co., New Mexico
(all data from NMOCD form C-115)



Well #1-Northwest Exploration (Mesa Grande Resources as of approx. 10/84)
Gavilan #1 - A-26-25N-2W

Well #2-Jerome P. McHugh
Native Son #1 - A-34-25N-2W

Well #3-Dugan Production Corp.
Tapacitos #2 - L-25-26N-2W

Well #4-Mallon Oil Co.
Ribeyowids #2-16 - P-2-25N-2W

Well #5-Mallon Oil Co.
Fisher Fed. #2-1 - A-25-25N-2W

Well #6-Mallon Oil Co.
Howard Fed. #1-8 - A-1-25N-2W

Dugan
Ex #5
Case #8713
10-9-85

EVALUATION GAVILAN.3

DUGAN PRODUCTION CORP.
P.O. Box 420
Farmington, New Mexico 87499

RUN DATE: 05-08-1989
RUN TIME: 08:04:19

AS OF DATE: JAN86

NAME: CONTINENTAL DIVIDE NO. 1
FIELD: GAVILAN MANCOS
LOCATION: E-2, SEC.12, T-25-N, R-2-W
FORMATION: MANCOS
OPERATOR: J.P. MCHUGH

ECO. RUN 5-89 TO PRESENT
GAVILAN MANCOS DEV. ECON.AS OF
11-1-85 WHEN DRLG AFE SIGNED.
TIER 3-$.50-BBL WPT,SEC.103GAS

NPV 5.0%	1095.585	BFIT
NPV 10.0%	1027.205	BFIT
NPV 15.0%	969.815	BFIT
NPV 20.0%	920.972	BFIT
NPV 25.0%	878.886	BFIT
IRR	>100%	BFIT

==INTERESTS AND EFFECTIVE DATE==

COST	REVENUE	DATE
1.000000	0.875000	JAN86

	PRICES BEGINING	PRICES ENDING	PRICES AVERAGE	GROSS RESERVES CUMULATIVE	GROSS RESERVES REMAINING	GROSS RESERVES ULTIMATE	GROSS RESERVES %REMAINING	
OIL	27.25	27.25	27.25	0.000	68.662	68.662	100.00	OIL
GAS	3.80	3.80	3.80	0.000	240.318	240.318	100.00	GAS
COND	0.00	0.00	0.00	0.000	0.000	0.000	0.00	COND

YEAR	GROSS OIL PRODUCTION ===MBBLS===	NET OIL PRODUCTION ===MBBLS===	NET OIL SALES =====M$=====	GROSS GAS PRODUCTION ===MMSCF===	NET GAS PRODUCTION ===MMSCF===	NET GAS SALES =====M$=====	NET TOTAL REVENUE =====M$=====	NET TOTAL PROD TAX =====M$=====	NET TOTAL LOE =====M$=====	NET TOTAL OPER EXP =====M$=====
1986(12Mo)	28.190	24.666	672.147	98.664	86.331	328.057	1000.205	86.578	30.000	116.578
1987	16.914	14.800	403.289	59.198	51.799	196.834	600.123	51.947	30.000	81.947
1988	10.148	8.880	241.973	35.519	31.079	118.101	360.074	31.168	30.000	61.168
1989	6.089	5.328	145.184	21.311	18.647	70.860	216.044	18.701	30.000	48.701
1990	3.653	3.197	87.110	12.787	11.188	42.516	129.627	11.220	30.000	41.220
1991	2.192	1.918	52.266	7.672	6.713	25.510	77.776	6.732	30.000	36.732
1992	1.315	1.151	31.360	4.603	4.028	15.306	46.666	4.039	30.000	34.039
1993(2 Mo)	0.161	0.141	3.839	0.564	0.493	1.874	5.713	0.495	5.000	5.495
1994	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1995	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1996	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1997	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1998	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SUBTOTAL	68.662	60.080	1637.168	240.318	210.279	799.058	2436.227	210.879	215.000	425.879
REMAINING	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOT 7.2 Yr	68.662	60.080	1637.168	240.318	210.279	799.058	2436.227	210.879	215.000	425.879

YEAR	NET LOAN INT =====M$=====	NET LOAN PRIN =====M$=====	NET BFIT CASHFLOW =====M$=====	CUM BFIT CASHFLOW =====M$=====	BFIT CF DISC @ 12% =====M$=====	CUM BFIT CF DISC @ 12% =====M$=====				
1986(12Mo)	69.309	180.291	634.027	634.027	600.698	600.698	0.000	0.000	0.000	0.000
1987	47.674	201.926	268.576	902.603	227.841	828.538	0.000	0.000	0.000	0.000
1988	23.443	226.157	49.306	951.909	38.163	866.702	0.000	0.000	0.000	0.000
1989	1.937	81.263	84.144	1036.053	54.869	921.571	0.000	0.000	0.000	0.000
1990	0.000	0.000	88.406	1124.459	53.205	974.775				
1991	0.000	0.000	41.044	1165.503	22.095	996.871				
1992	0.000	0.000	12.626	1178.129	6.116	1002.987				
1993(2 Mo)	0.000	0.000	0.218	1178.347	0.098	1003.084				
1994	0.000	0.000	0.000	0.000	0.000	0.000				
1995	0.000	0.000	0.000	0.000	0.000	0.000				
1996	0.000	0.000	0.000	0.000	0.000	0.000				
1997	0.000	0.000	0.000	0.000	0.000	0.000				
1998	0.000	0.000	0.000	0.000	0.000	0.000				
1999	0.000	0.000	0.000	0.000	0.000	0.000				
2000	0.000	0.000	0.000	0.000	0.000	0.000				
SUBTOTAL	142.363	689.636	1178.347	1178.347	1003.084	1003.084	0.000	0.000	0.000	0.000
REMAINING	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOT 7.2 Yr	142.363	689.636	1178.347	1178.347	1003.084	1003.084	0.000	0.000	0.000	0.000

P/I = 1.71 1.45

NMOCD CASE NO. 9671
May 10, 1989
Dugan/Sun Exhibit No. 7

EVALUATION GAVILAN.3 05-08-1989 08:03:38

```
10        START     JAN86
20        ECON      ELIM
30        NAME      CONTINENTAL DIVIDE NO. 1
40        FIELD     GAVILAN MANCOS
50        LOC       E-2, SEC.12, T-25-N, R-2-W
60        FORM      MANCOS
70        OPER      J.P. MCHUGH
80        OWN       1.0000 0.8750
90        SUB1      ECO. RUN 5-89 TO PRESENT
100       SUB2      GAVILAN MANCOS DEV. ECON.AS OF
110       SUB3      11-1-85 WHEN DRLG AFE SIGNED.
120       SUB4      TIER 3-$.50-BBL WPT,SEC.103GAS
130       ITAX      50 5 * * * N
140       OPROD     JAN86 EXP 3000 40
150       GOR       JAN86 CON 3500
160       OTAX%     JAN86 CON 8.000
170       GTAX%     JAN86 CON 10.0
180       LOE$      JAN86 CON 2500
190       CUMULATIVED 0 0
200       O$        JAN86 CON 27.25
210       G$        JAN86 CON 3.80
220       LOAN      JAN86 20800 12 40
```

AUTHORITY FOR EXPENDITURE

DATE: 28 OCT 1985
AFE NO.: 0410010
LEASE NAME CONTINENTAL DIVIDE
WELL NO.: 1
LOCATION: NW NE SEC 12 T25N R2W
COUNTY: RIO ARRIBA
OPERATOR: JEROME P. McHUGH AND ASSOC.
STATE: NEW MEX.
DESCRIPTION: 8200' DAKOTA TEST

ACCOUNTING CODE	EXPENDITURE DESCRIPTION	TANGIBLE COST	INTANGIBLE COST
	LEGAL COSTS/SURFACE DAMAGES	XXXXXXXXX	6,000
	SURVEYOR/ARCHEOLOGIST/ROADS/LOCATION	XXXXXXXXX	54,000
	CONTRACT DRILLING	XXXXXXXXX	175,500
	MUD/CHEMICALS/ADDITIVES	XXXXXXXXX	INCL
	WATER/PURCHASE/TRANSPORTATION	XXXXXXXXX	INCL
	OPEN HOLE LOGGING	XXXXXXXXX	11,250
	MUD LOGGING	XXXXXXXXX	2,500
	DST/FORMATION TESTING	XXXXXXXXX	0
	CORING/CORE ANALYSIS	XXXXXXXXX	0
	TRUCKING/HAULING/CATWORK	XXXXXXXXX	5,000
	CEMENTING SERVICES	XXXXXXXXX	2,500
	RENTAL TOOLS AND EQUIPMENT	XXXXXXXXX	2,500
	PROFFESIONAL SERVICES AND EXPENSES	XXXXXXXXX	5,000
	SUPERVISION/OVERHEAD	XXXXXXXXX	4,500
	CONTRACT SERVICES/SUPPLIES	XXXXXXXXX	5,000
	PLUG/ABANDON/CLEANUP	XXXXXXXXX	6,500
	MISCELLANEOUS/CONTINGENCIES	XXXXXXXXX	18,500
	CASING, SURFACE &/OR CONDUCTOR	INCL	XXXXXXXXX
	CASING, INTERMEDIATE	0	XXXXXXXXX
	FLOAT EQUIPMENT & CENTRALIZERS	INCL	XXXXXXXXX
	CASING HEAD/ DRILLING FLANGE	1,200	XXXXXXXXX
	NON-CONTROLLABLE EQUIPMENT	500	XXXXXXXXX
	DRY HOLE COST: TOTAL $300,450 <<<	1,700	298,750
	CEMENTING SERVICES	XXXXXXXXX	22,000
	COMPLETION UNIT/POWER SWIVEL/PUMP/PITS	XXXXXXXXX	20,000
	PERFORATING AND CASED HOLE LOGGING	XXXXXXXXX	5,000
	FORMATION TREATING/FRAC/ACID	XXXXXXXXX	25,000
	RENTAL TOOLS & EQUIPMENT	XXXXXXXXX	3,500
	DIRT WORK/CONSTRUCTION	XXXXXXXXX	3,500
	CONTRACT SERVICES/SUPPLIES	XXXXXXXXX	13,000
	SUPERVISION/OVERHEAD	XXXXXXXXX	3,000
	PROFESSIONAL SERVICES & EXPENSES	XXXXXXXXX	4,000
	MISCELLANEOUS/CONTINGENCIES	XXXXXXXXX	9,000
	CASING, PRODUCTION &/OR LINER	45,000	XXXXXXXXX
	FLOAT EQUIPMENT & CENTRALIZERS	6,500	XXXXXXXXX
	TUBING/PACKER/SPECIAL SUBSURFACE EQUIP	27,000	XXXXXXXXX
	RODS/PUMP/AUXILLARY EQUIP	14,000	XXXXXXXXX
	TUBING HEAD/CHRISTMAS TREE	5,300	XXXXXXXXX
	PUMPING UNIT/PRIME MOVER	45,000	XXXXXXXXX
	TANKS/STAIRWAY/WALKWAY	13,200	XXXXXXXXX
	SEPARATOR/TREATOR/PRODUCTION UNIT	10,000	XXXXXXXXX
	PIPELINE/POWERLINE	42,000	XXXXXXXXX
	VALVES/FITTINGS/LINE PIPE	6,000	XXXXXXXXX
	NON-CONTROLLABLE EQUIP/MISC EQUIP	2,000	XXXXXXXXX
	TRUCKING/HAULING/TRANSPORTATION	5,000	XXXXXXXXX
	COMPLETION COSTS: TOTAL $329,000 <<<	221,000	108,000
	TOTAL WELL COSTS: $629,450 <<<	222,700	406,750

+60,000 for Road To Forest Service Requirements

+60,000 Total well cost Est. $689,450

PARTNER APPROVALS:

WI %	COMPANY	BY	TITLE	DATE
43.750000	Jerome P. McHugh	Kent C. Cleary	Land Mgr.	11/14/85
6.250000	Dugan Production Corp.	Thomas A. Dugan	President	11/14/85
12.500000	Reading & Bates O&G Co.	Thomas A. Dugan		
5.853274	PC, Ltd.			
5.853273	IBEX Partnership			
12.500000	Hooper, Kimball & Williams			
.328063	Carolyn Clark Oatman			
.305176	Warren Clark Trust, by Mable Reed, Trustee			
.160214	Testamentary Trust under the Will of Warren Clark			
6.250000	Mountain States Natural Gas			
3.125000	Ralph Gilliland			
2.906250	Duer Wagner, Jr.			
.218750	Duer Wagner III			

November 4, 1985

Dugan Production Corp.
P. O. Box 208
Farmington, New Mexico 87499

Attention: Robert G. Stovall

Re: Continental Divide #1
E/2 Section 12 - T25N-R2W
Rio Arriba County, New Mexico

Gentlemen:

Enclosed is the Operating Agreement, Communitization Agreement and AFE on the captioned property.

We have attached twelve additional signature pages to the Operating Agreement and four additional signature pages to the Communitization Agreement and the Ratification of Lessee of Record. We ask that you execute all additional pages and return them to our office.

We have enclosed two copies of the AFE. Please return one executed copy.

If you should have any questions, please feel free to contact me.

Very Truly Yours,

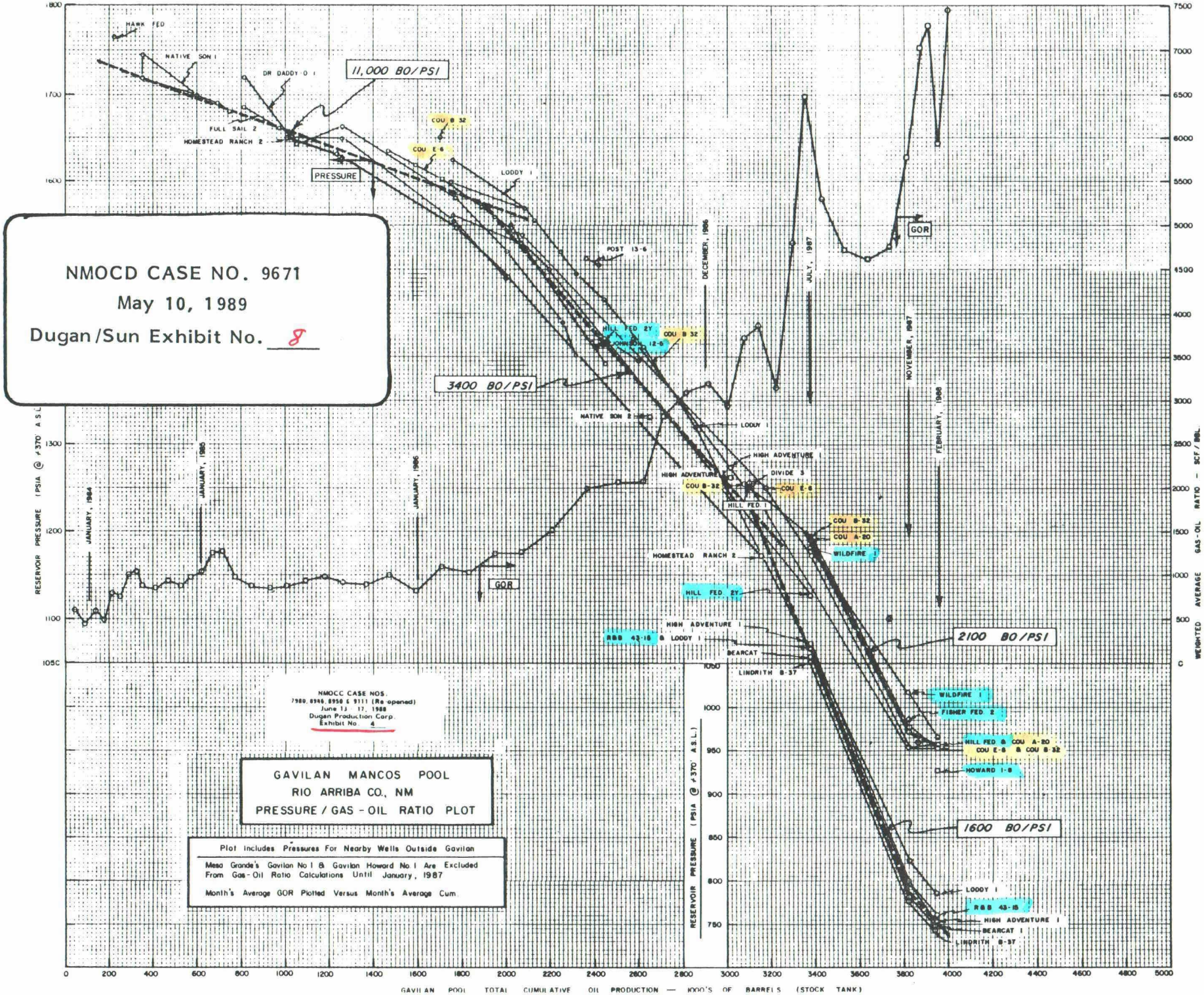
Randi E. Martin

Randi E. Martin

/rm

enclosures

Jerome P. McHugh & Associates
Operating Affiliate: Nassau Resources, Inc.
650 South Cherry, Suite 1225
Denver, Colorado 80222
(303) 321-2111


NMOCD CASE NO. 9671
May 10, 1989
Dugan/Sun Exhibit No. 8
11,000 BO/PSI
3400 BO/PSI
2100 BO/PSI
1600 BO/PSI
PRESSURE
GOR
HAWK FED
NATIVE SON 1
DR DADDY O 1
FULL SAIL 2
HOMESTEAD RANCH 2
COU E 6
COU B 32
LODDY 1
POST 13-6
HILL FED 2Y
JOHNSON 12-8
DECEMBER, 1986
JULY, 1987
NOVEMBER, 1987
FEBRUARY, 1988
JANUARY, 1984
JANUARY, 1985
JANUARY, 1986
HIGH ADVENTURE 1
DIVIDE 3
HILL FED 1
COU A-20
WILDFIRE 1
RBB 43-18
BEARCAT 1
LINDRITH B-37
FISHER FED 2
HILL FED & COU A-20
COU E-6 & COU B-32
HOWARD 1-8
RBB 43-15
NMOCC CASE NOS. 7980, 8946, 8958 & 9111 (Re-opened) June 13 17, 1988 Dugan Production Corp. Exhibit No. 4
GAVILAN MANCOS POOL
RIO ARRIBA CO., NM
PRESSURE / GAS - OIL RATIO PLOT
Plot Includes Pressures For Nearby Wells Outside Gavilan
Mesa Grande's Gavilan No 1 & Gavilan Howard No 1 Are Excluded From Gas-Oil Ratio Calculations Until January, 1987
Month's Average GOR Plotted Versus Month's Average Cum.
RESERVOIR PRESSURE (PSIA @ +370' A.S.L.)
WEIGHTED AVERAGE GAS-OIL RATIO - SCF/BBL.
GAVILAN POOL TOTAL CUMULATIVE OIL PRODUCTION — 1000'S OF BARRELS (STOCK TANK)

NMOCD CASE NO. 9671
May 10, 1989
Dugan/Sun Exhibit No. 9

PRODUCTION STATISTICS
GAVILAN & WEST PUERTO CHICQUITO MANCOS POOLS
Rio Arriba County, New Mexico

	GAVILAN					CAÑADA OJITOS UNIT (WEST PUERTO CHIQUITO)				
Cum. Oil Range	# of Wells	Cum. MBO	Cum. MMCF	Average Per Well MBO	MMCF	# of Wells	Cum. MBO	Cum. MMCF	Average Per Well MBO	MMCF
0-50 mbbl	53	880	4,979	17	94	12	151	1,072	13	89
50-100 mbbl	8	694	2,564	87	320	3	211	205	70	68
100-150 mbbl	7	867	1,559	124	223	4	472	370	118	93
150-200 mbbl	7	1,175	2,377	168	340	2	345	509	173	255
> 200 mbbl	3	871	1,320	290	440	11	8,973	10,250	816	914
Total	78	4,487	12,799	58	164	32	10,152	12,406	317	388
				Average GOR = 2852					Average GOR = 1222	
Best Well	Sun's Native Son #2					COU #11 (3 wells with cum. oil more than 1,000,000 bbls)				
Cum. of Best Well	407 MBO + 764 MMCF					2299 MBO + 1916 MMCF				
Current Rate of Best Well BOPD @ GOR	60 BOPD @ 12,569 SCF/STB					99 BOPD @ 25,849 SCF/STB				

Footnote: Gavilan data thru 12/88

COU (West Puerto Chiquito) data thru 12/88.

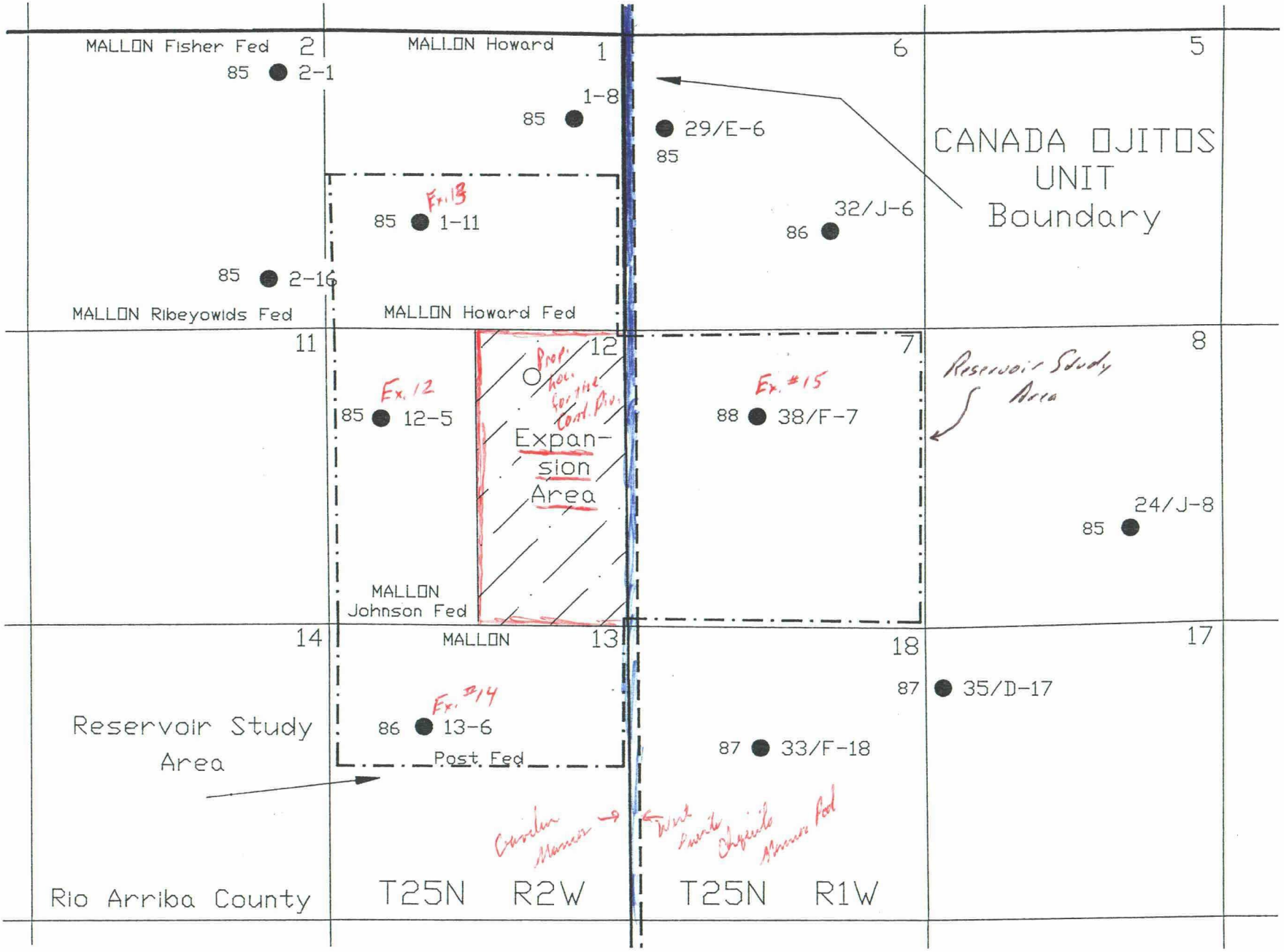
SUN EXPLORATION & PRODUCTION CO.

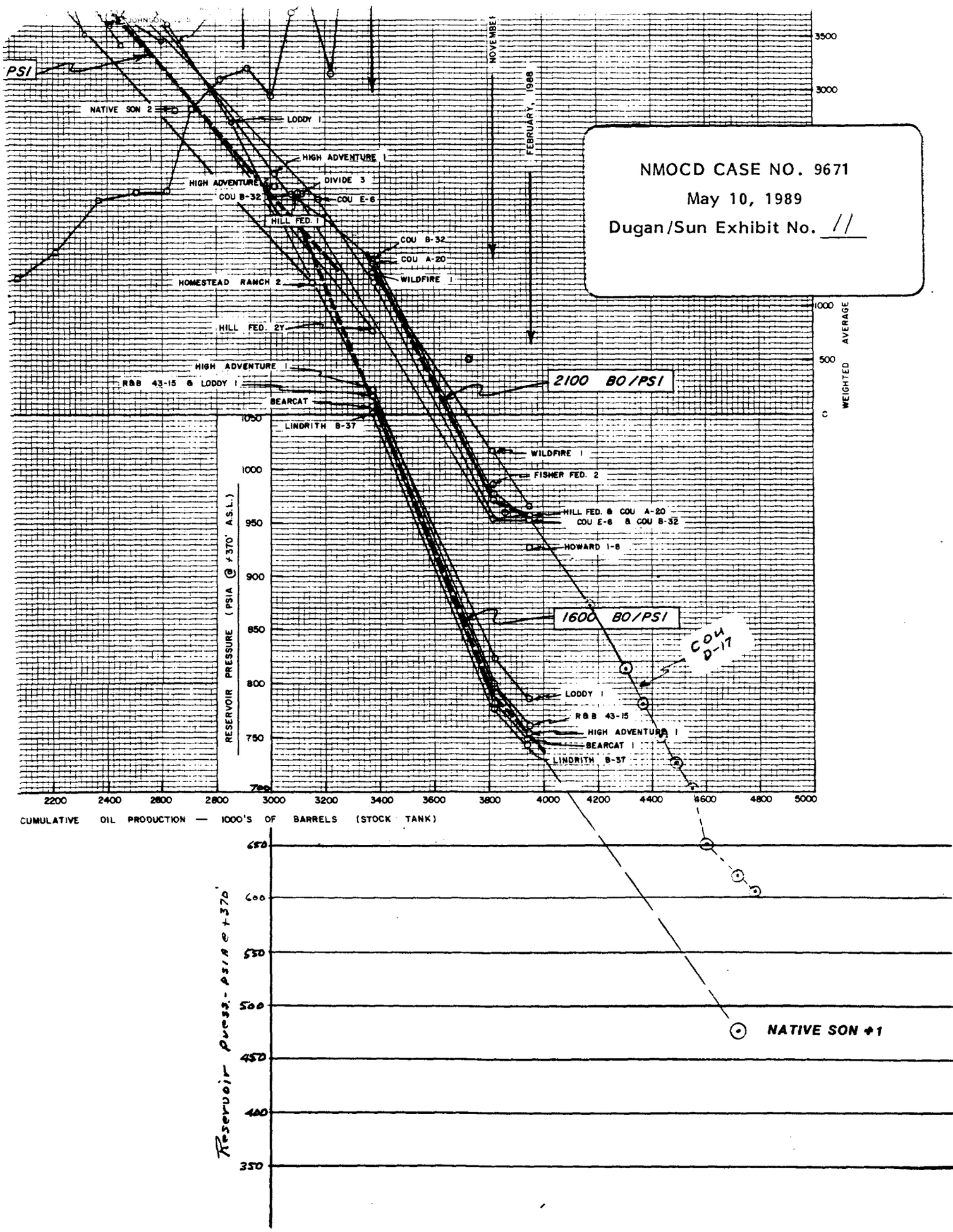
ORYX

NMOCD CASE NO. 9671

May 10, 1989

Dugan/Sun Exhibit No. 10

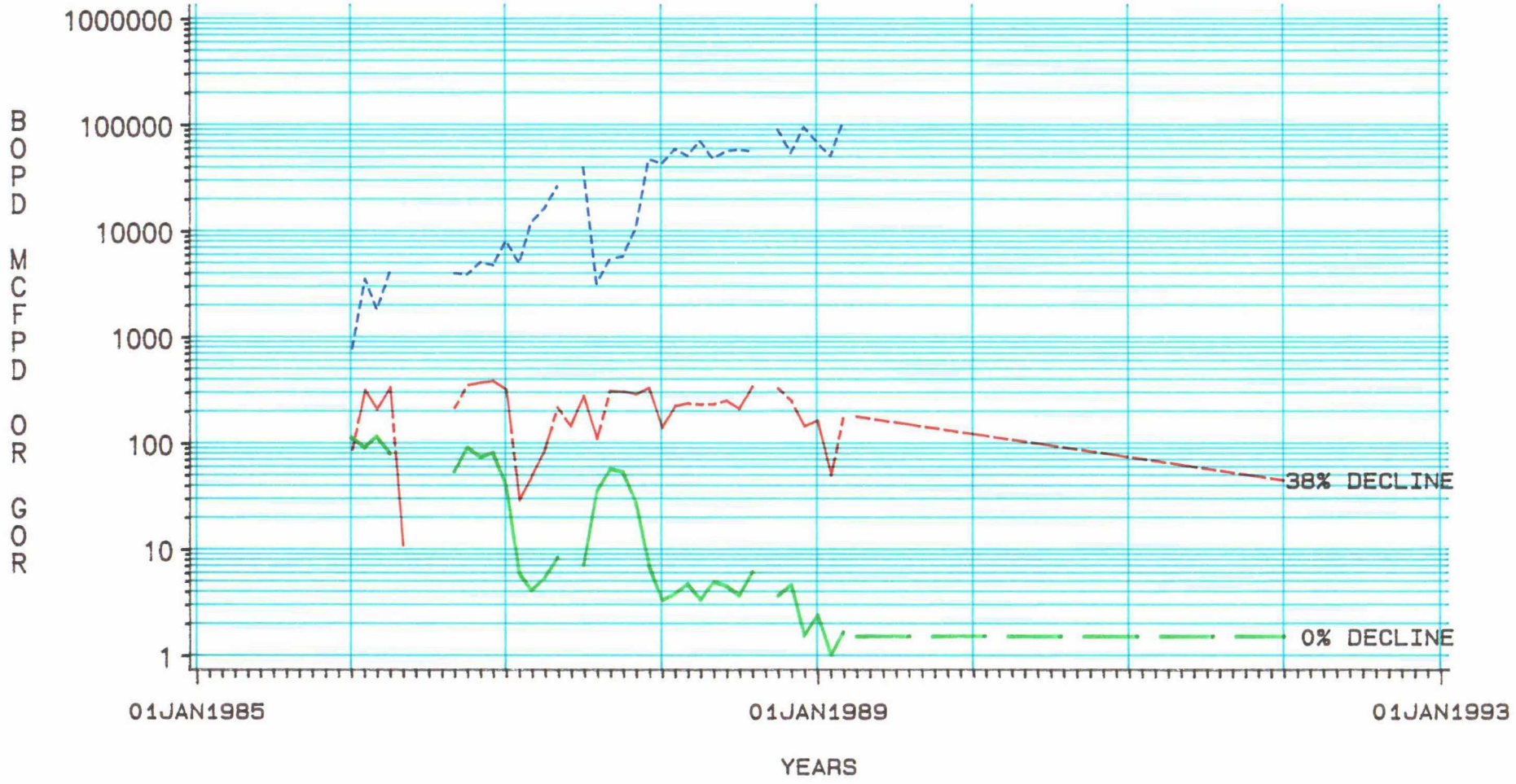



NMOCD CASE NO. 9671
May 10, 1989
Dugan/Sun Exhibit No. //
PSI
NATIVE SON 2 FED
LODDY 1
HIGH ADVENTURE 1
HIGH ADVENTURE 2
DIVIDE 3
COU B-32
COU E-6
HILL FED. 1
COU B-32
COU A-20
WILDFIRE 1
HOMESTEAD RANCH 2
HILL FED. 2Y
HIGH ADVENTURE 1
R&B 43-15 & LODDY 1
BEARCAT
LINDRITH B-37
NOVEMBER
FEBRUARY, 1988
2100 BO/PSI
WILDFIRE 1
FISHER FED. 2
HILL FED. & COU A-20
COU E-6 & COU B-32
HOWARD 1-6
1600 BO/PSI
COU D-17
LODDY 1
R&B 43-15
HIGH ADVENTURE 1
BEARCAT 1
LINDRITH B-37
NATIVE SON #1
RESERVOIR PRESSURE (PSIA @ +370' A.S.L.)
WEIGHTED AVERAGE
CUMULATIVE OIL PRODUCTION — 1000'S OF BARRELS (STOCK TANK)
Reservoir Press. - psia @ +370'

W/2 Sec. 12

JOHNSON FEDERAL 12-5

PRODUCTION HISTORY



OIL ___ GAS ___ GOR

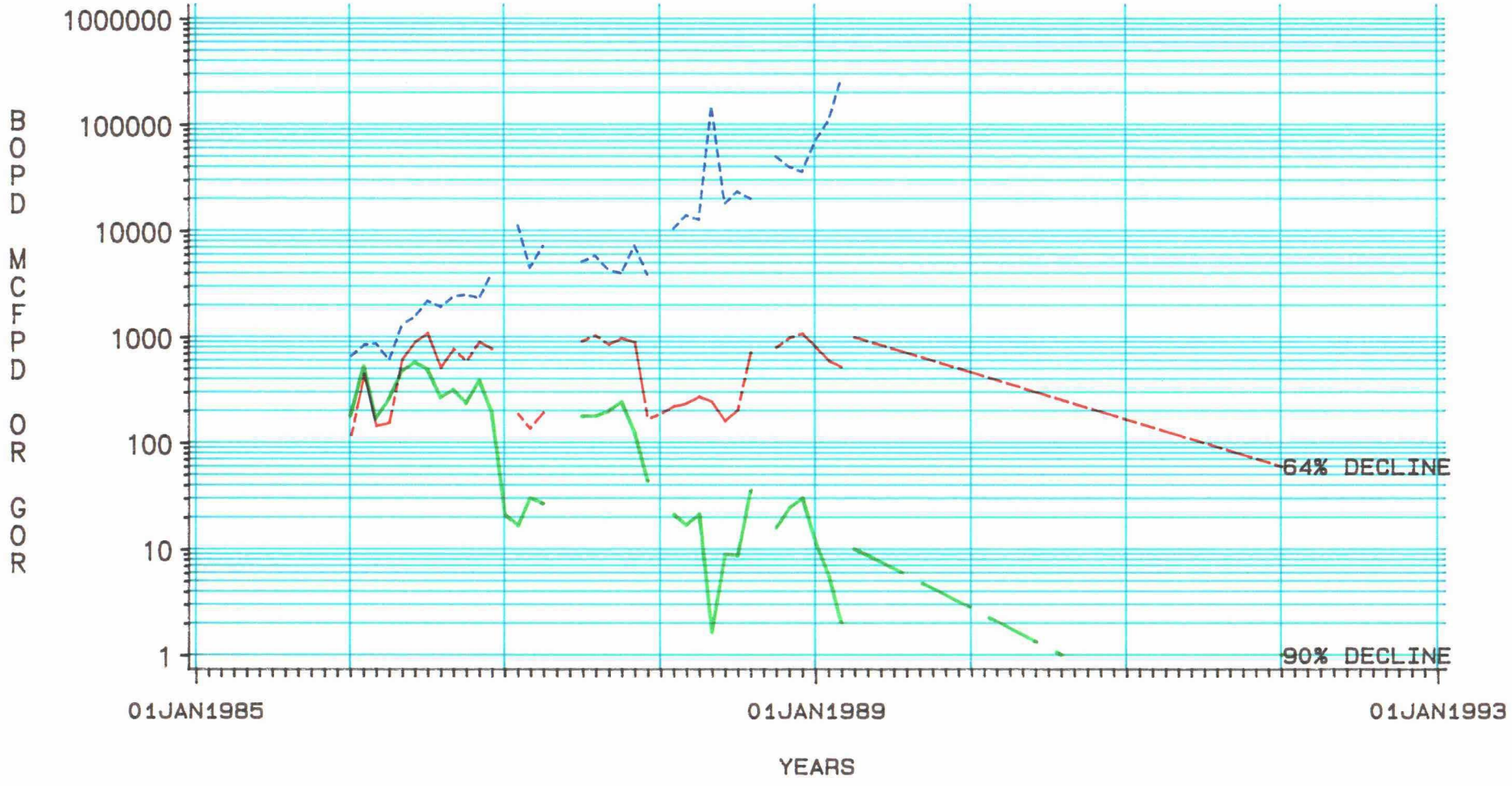
NMOCD CASE NO. 9671
MAY 10, 1989
DUGAN/SUN EXHIBIT NO. 12

	OIL	GAS
INITIAL RATE	1.5 BOPD	180.0 MCFPD
ECONOMIC LIMIT	1.5 BOPD	45.0 MCFPD
REMAINING RESERVES	1.5 MBO	105.0 MMCF

As of April 1, 1989

HOWARD FEDERAL 1-11

PRODUCTION HISTORY



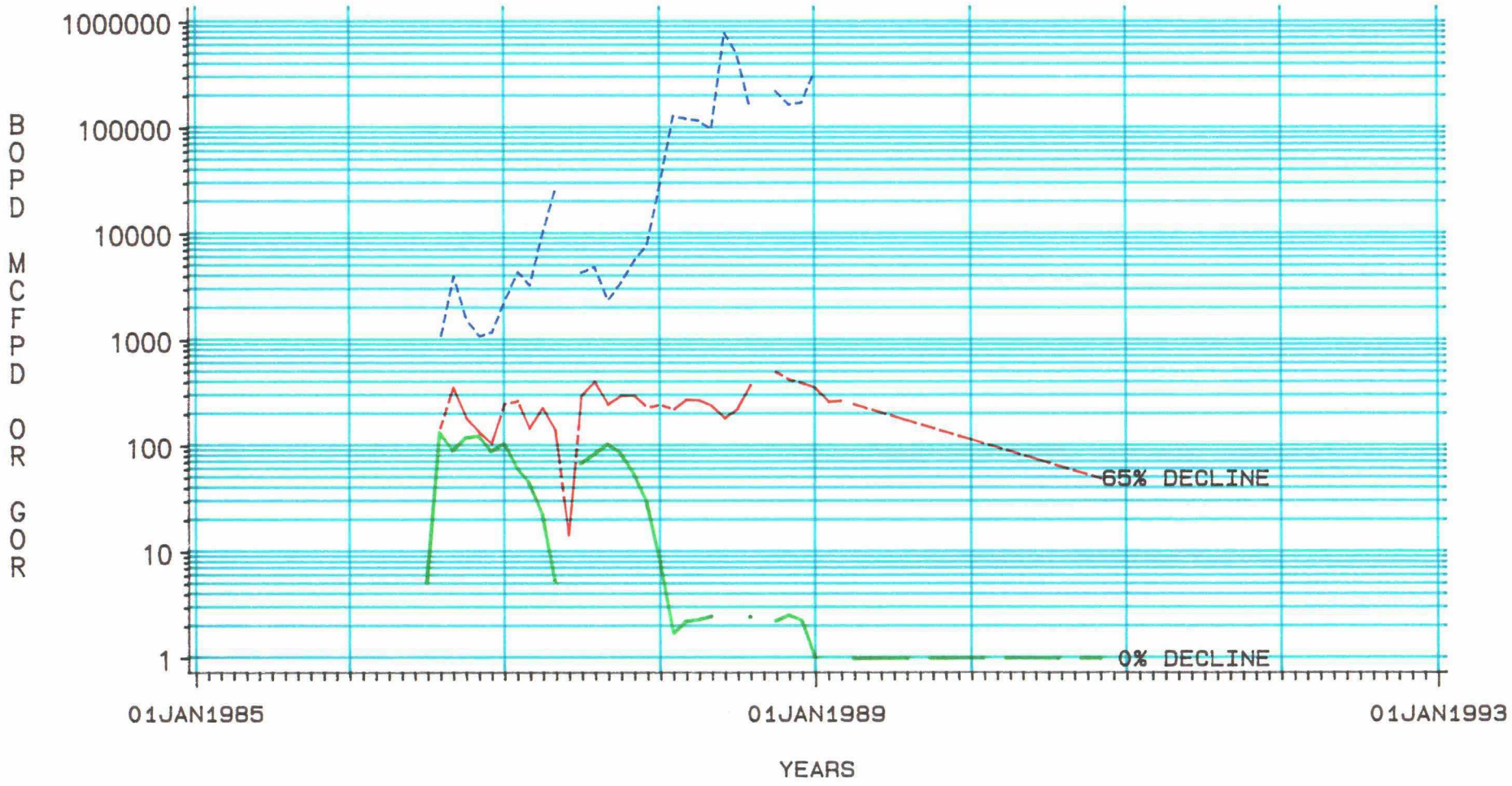
OIL ___ GAS ___ GOR - - -

NMOCD CASE NO. 9671
MAY 10, 1989
DUGAN/SUN EXHIBIT NO. 13

	OIL	GAS
INITIAL RATE	10.0 BOPD	1000.0 MCFPD
ECONOMIC LIMIT	1.0 BOPD	60.0 MCFPD
REMAINING RESERVES	1.6 MBO	335.8 MMCF

POST FEDERAL 13-6

PRODUCTION HISTORY



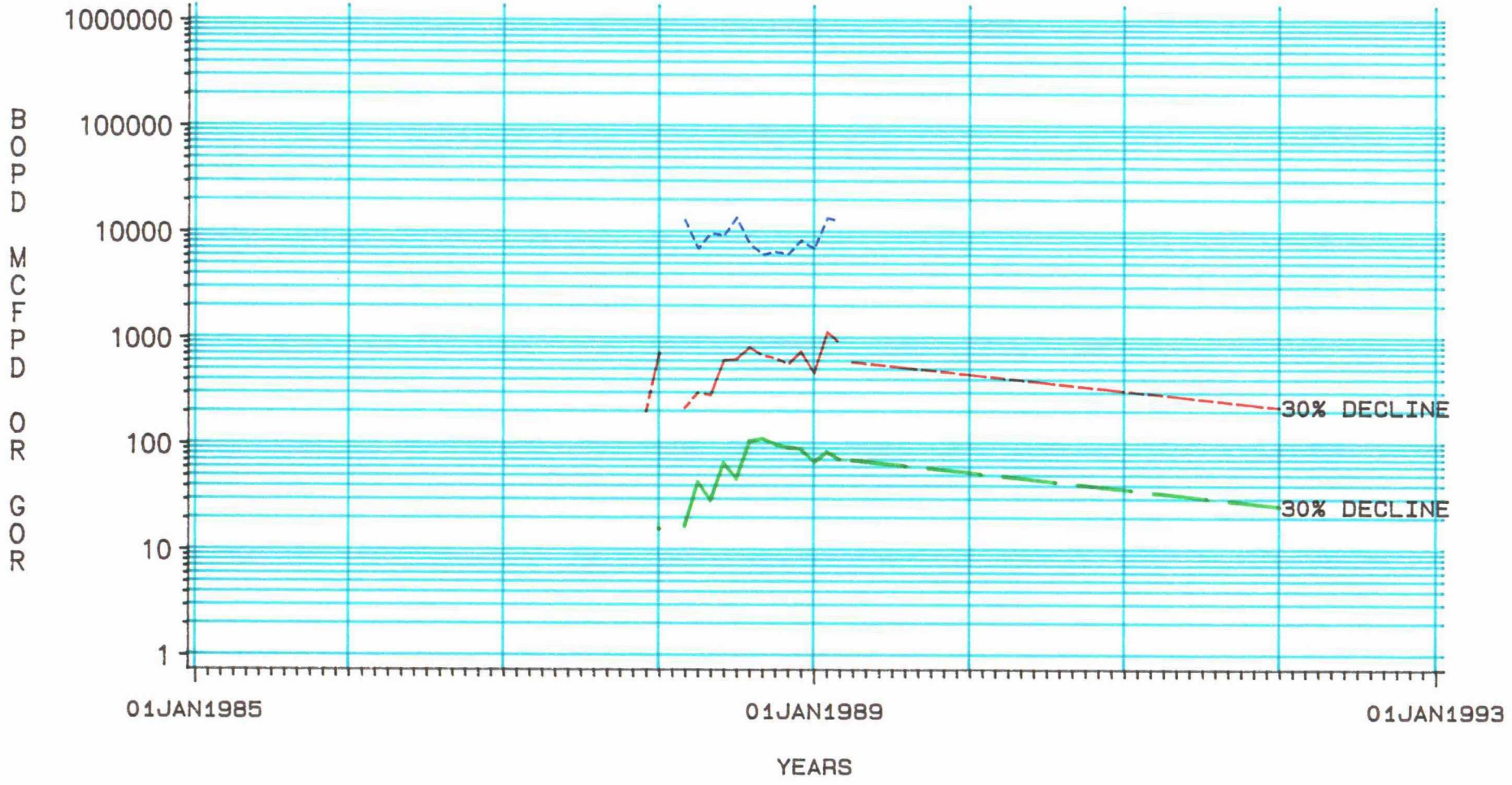
OIL GAS GOR

NMOCD CASE NO. 9671
MAY 10, 1989
DUGAN/SUN EXHIBIT NO. 14

	OIL	GAS
INITIAL RATE	1.0 BOPD	250.0 MCFPD
ECONOMIC LIMIT	1.0 BOPD	50.0 MCFPD
REMAINING RESERVES	0.5 MBO	69.5 MMCF

CANADA OJITOS UNIT F-7

PRODUCTION HISTORY



OIL ___ GAS ___ GOR

NMOCD CASE NO. 9671
MAY 10, 1989
DUGAN/SUN EXHIBIT NO. 15

	OIL	GAS
INITIAL RATE	70.0 BOPD	600.0 MCFPD
ECONOMIC LIMIT	3.2 BOPD	28.0 MCFPD
REMAINING RESERVES	68.4 MBO	585.4 MMCF

NMOCD CASE NO. 9671
MAY 10, 1989
DUGAN/SUN EXHIBIT NO. 16

REMAINING RESERVE CALCULATION

ASSUMPTIONS: OPERATING EXPENSE = $3000/MONTH
OIL PRICE = $17.00/STB, GAS PRICE = $1.70/MCF
THUS 10 MCF = 1 EQUIVALENT STB OIL
ECONOMIC LIMIT = ($3000/MO)/($17/STB)/(30 DAYS/MO)
= 6 EQ. BOPD

	OIL				GAS			
WELL	DECLINE (%/YR)	INIT RATE (BOPD)	ECON LIMIT (BOPD)	REMAIN RESERVES (MBO)	DECLINE (%/YR)	INIT RATE (MCFPD)	ECON LIMIT (MCFPD)	REMAIN RESERVES (MMCF)
JOHNSON FED 12-5	0	1.5	1.5	1.5	38	180	45	105.0
HOWARD FED 1-11	90	10.0	1.0	1.6	64	1000	60	335.8
POST FED 13-6	0	1.0	1.0	0.5	65	250	50	69.5
TOTAL				3.6				510.3
AVERAGE				1.2				170.1

INITIAL POTENTIAL CALCULATION
(FROM LATEST C-115)

WELL	POTENTIAL OIL (BOPD)	POTENTIAL GAS (MCFPD)
JOHNSON FED 12-5	1.9	195
HOWARD FED 1-11	5.1	1325
POST FED 13-6	<1	305
TOTAL	7.0	1825
AVERAGE	2.3	608

NMOCD CASE NO. 9671
MAY 10, 1989
DUGAN/SUN EXHIBIT NO. 17

REMAINING RESERVE CALCULATION

ASSUMPTIONS: OPERATING EXPENSE = $3000/MONTH
OIL PRICE = $17.00/STB, GAS PRICE = $1.70/MCF
THUS 10 MCF = 1 EQUIVALENT STB OIL
ECONOMIC LIMIT = ($3000/MO)/($17/STB)/(30 DAYS/MO)
= 6 EQ. BOPD

	OIL				GAS			
WELL	DECLINE (%/YR)	INIT RATE (BOPD)	ECON LIMIT (BOPD)	REMAIN RESERVES (MBO)	DECLINE (%/YR)	INIT RATE (MCFPD)	ECON LIMIT (MCFPD)	REMAIN RESERVES (MMCF)
JOHNSON FED 12-5	0	1.5	1.5	1.5	38	180	45	105.0
HOWARD FED 1-11	90	10.0	1.0	1.6	64	1000	60	335.8
POST FED 13-6	0	1.0	1.0	0.5	65	250	50	69.5
C. O. U. F-7	30	70.0	3.2	68.4	30	600	28	585.4
TOTAL				70.0				1095.7
AVERAGE				18.0				273.9

INITIAL POTENTIAL CALCULATION
(FROM LATEST C-115)

WELL	POTENTIAL OIL (BOPD)	POTENTIAL GAS (MCFPD)
JOHNSON FED 12-5	1.9	195
HOWARD FED 1-11	5.1	1325
POST FED 13-6	<1	305
C. O. U. F-7	72.6	939
TOTAL	79.6	2764
AVERAGE	19.9	691

NMOCD CASE NO. 9671
MAY 10, 1989
DUGAN/SUN EXHIBIT NO. 18

NEW WELL ECONOMICS
CONTINENTAL DIVIDE #1
E/2 SECTION 12 T25N, R2W

PARAMETERS:

BEFORE TAX, NO ESCALATIONS, RESERVES BASED ON JOHNSON FED 12-5, HOWARD FED 1-11, AND POST FED 13-6

RESERVES	=	1.2	MBO	170.1	MMCF
INITIAL RATE	=	2.3	BOPD	608	MCFPD
DECLINE RATE	=	30	%/YEAR, OIL	69	%/YEAR,GAS
PRICES (CONSTANT)	=	17.00	$/BBL	1.70	$/MCF
DRILLING COST (INVESTMENT)	=	750	M$		
OPERATING EXPENSE	=	3000	$/MONTH		
NET REVENUE INTEREST	=	87.5	%		

MONTH	OIL PROD (STB)	GAS PROD (MCF)	OIL REVENUE (M$)	GAS REVENUE (M$)	OPER EXPENSE (M$)	NET REVENUE (M$)	INVEST-MENT (M$)	CASH FLOW (M$)	CUMUL CASH FLOW (M$)
1	69	17633	1.17	29.98	3.00	24.63	750.00	-725.37	-725.37
2	67	15993	1.14	27.19	3.00	22.16		22.16	-703.21
3	65	14506	1.11	24.66	3.00	19.92		19.92	-683.29
4	63	13157	1.07	22.37	3.00	17.89		17.89	-665.40
5	61	11934	1.04	20.29	3.00	16.04		16.04	-649.37
6	59	10824	1.01	18.40	3.00	14.36		14.36	-635.01
7	58	9818	0.98	16.69	3.00	12.84		12.84	-622.17
8	56	8905	0.95	15.14	3.00	11.45		11.45	-610.71
9	54	8077	0.92	13.73	3.00	10.20		10.20	-600.52
10	53	7326	0.90	12.45	3.00	9.06		9.06	-591.46
11	51	6644	0.87	11.30	3.00	8.02		8.02	-583.44
12	50	6027	0.85	10.25	3.00	7.08		7.08	-576.36
13	48	5466	0.82	9.29	3.00	6.22		6.22	-570.13
14	47	4958	0.80	8.43	3.00	5.45		5.45	-564.69
15	46	4497	0.77	7.64	3.00	4.74		4.74	-559.95
16	44	4079	0.75	6.93	3.00	4.10		4.10	-555.85
17	43	3699	0.73	6.29	3.00	3.52		3.52	-552.33
18	42	3355	0.71	5.70	3.00	2.99		2.99	-549.35
19	40	3043	0.69	5.17	3.00	2.50		2.50	-546.84
20	39	2760	0.67	4.69	3.00	2.06		2.06	-544.78
21	38	2504	0.65	4.26	3.00	1.67		1.67	-543.11
22	37	2271	0.63	3.86	3.00	1.30		1.30	-541.81
23	36	2060	0.61	3.50	3.00	0.97		0.97	-540.84
24	35	563	0.59	0.96	1.54	0.00		0.00	-540.84
TOTAL	1201	170100	20.42	289.17	70.54	209.17	750.00	-540.84	-540.84

From Ex. 16

Net

289.17
20.02
209.59

NMOCD CASE NO. 9671
MAY 10, 1989
DUGAN/SUN EXHIBIT NO. 19

NEW WELL ECONOMICS
CONTINENTAL DIVIDE #1
E/2 SECTION 12 T25N, R2W

PARAMETERS:
BEFORE TAX, NO ESCALATIONS, RESERVES BASED ON JOHNSON FED 12-5, HOWARD FED 1-11, POST FED 13-6, AND COU F-7

RESERVES	=	18.0	MBO	273.9	MMCF
INITIAL RATE	=	20	BOPD	691	MCFPD
DECLINE RATE	=	12	%/YEAR, OIL	57	%/YEAR,GAS
PRICES (CONSTANT)	=	17.00	$/BBL	1.70	$/MCF
DRILLING COST (INVESTMENT)	=	750	M$		
OPERATING EXPENSE	=	3000	$/MONTH		
NET REVENUE INTEREST	=	87.5	%		

MONTH	OIL PROD (STB)	GAS PROD (MCF)	OIL REVENUE (M$)	GAS REVENUE (M$)	OPER EXPENSE (M$)	NET REVENUE (M$)	INVEST-MENT (M$)	CASH-FLOW (M$)	CUMUL CASH-FLOW (M$)
1	606	20311	10.29	34.53	3.00	36.60	750.00	-713.40	-713.40
2	599	18932	10.19	32.18	3.00	34.45		34.45	-678.96
3	593	17646	10.08	30.00	3.00	32.44		32.44	-646.51
4	587	16448	9.97	27.96	3.00	30.57		30.57	-615.95
5	580	15331	9.87	26.06	3.00	28.81		28.81	-587.14
6	574	14290	9.76	24.29	3.00	27.17		27.17	-559.97
7	568	13319	9.66	22.64	3.00	25.64		25.64	-534.33
8	562	12415	9.55	21.10	3.00	24.20		24.20	-510.13
9	556	11571	9.45	19.67	3.00	22.86		22.86	-487.27
10	550	10786	9.35	18.34	3.00	21.60		21.60	-465.66
11	544	10053	9.25	17.09	3.00	20.43		20.43	-445.24
12	539	9370	9.16	15.93	3.00	19.33		19.33	-425.91
13	533	8734	9.06	14.85	3.00	18.29		18.29	-407.62
14	527	8141	8.96	13.84	3.00	17.33		17.33	-390.29
15	522	7588	8.87	12.90	3.00	16.42		16.42	-373.87
16	516	7073	8.77	12.02	3.00	15.57		15.57	-358.30
17	511	6592	8.68	11.21	3.00	14.78		14.78	-343.52
18	505	6145	8.59	10.45	3.00	14.03		14.03	-329.49
19	500	5727	8.50	9.74	3.00	13.33		13.33	-316.16
20	495	5338	8.41	9.08	3.00	12.67		12.67	-303.49
21	489	4976	8.32	8.46	3.00	12.06		12.06	-291.43
22	484	4638	8.23	7.88	3.00	11.48		11.48	-279.95
23	479	4323	8.14	7.35	3.00	10.93		10.93	-269.02
24	474	4029	8.06	6.85	3.00	10.42		10.42	-258.60
25	469	3756	7.97	6.38	3.00	9.94		9.94	-248.67
26	464	3501	7.89	5.95	3.00	9.48		9.48	-239.18
27	459	3263	7.80	5.55	3.00	9.06		9.06	-230.13
28	454	3041	7.72	5.17	3.00	8.66		8.66	-221.47
29	449	2835	7.64	4.82	3.00	8.28		8.28	-213.19
30	445	2642	7.56	4.49	3.00	7.92		7.92	-205.28
31	440	2463	7.48	4.19	3.00	7.58		7.58	-197.69
32	435	2295	7.40	3.90	3.00	7.26		7.26	-190.43
33	431	2140	7.32	3.64	3.00	6.96		6.96	-183.47
34	426	1994	7.24	3.39	3.00	6.68		6.68	-176.79
35	422	1859	7.17	3.16	3.00	6.41		6.41	-170.38
36	213	338	3.69	0.57	3.00	1.11		1.11	-169.27
TOTAL	18000	273900	306.06	465.63	108.00	580.73	750.00	-169.27	-169.27

From Ex. No. 17

NMOCD CASE NO. 9671
MAY 10, 1989
DUGAN/SUN EXHIBIT NO. 20

PRESENT VALUE ECONOMICS
JOHNSON FEDERAL 12-5

PARAMETERS:

BEFORE TAX, NO ESCALATIONS,
POOLING COST (M$)= 758 ($500M + 44 MO. INTEREST @ 12 %/YEAR)

RESERVES	=	1.5	MBO	105.0	MMCF
INITIAL RATE	=	1.5	BOPD	180	MCFPD
DECLINE RATE	=	0	%/YEAR, OIL	34	%/YEAR,GAS
PRICES (CONSTANT)	=	17	$/BBL	1.70	$/MCF
OPERATING EXPENSE	=	3000	$/MONTH		
NET REVENUE INTEREST	=	87.5	%		

MONTH	OIL PROD (STB)	GAS PROD (MCF)	OIL REVENUE (M$)	GAS REVENUE (M$)	OPER EXPENSE (M$)	NET REVENUE (M$)	POOLING COST (M$)	CASH FLOW (M$)	CUMUL CASH FLOW (M$)
1	47	5385	0.80	9.16	3.00	6.08	757.59	-751.51	-751.51
2	47	5202	0.80	8.84	3.00	5.81		5.81	-745.70
3	47	5025	0.80	8.54	3.00	5.55		5.55	-740.15
4	47	4854	0.80	8.25	3.00	5.29		5.29	-734.85
5	47	4689	0.80	7.97	3.00	5.05		5.05	-729.80
6	47	4529	0.80	7.70	3.00	4.81		4.81	-724.99
7	47	4375	0.80	7.44	3.00	4.58		4.58	-720.41
8	47	4226	0.80	7.18	3.00	4.36		4.36	-716.05
9	47	4082	0.80	6.94	3.00	4.15		4.15	-711.90
10	47	3943	0.80	6.70	3.00	3.94		3.94	-707.96
11	47	3809	0.80	6.48	3.00	3.74		3.74	-704.22
12	47	3680	0.80	6.26	3.00	3.55		3.55	-700.67
13	47	3554	0.80	6.04	3.00	3.36		3.36	-697.31
14	47	3433	0.80	5.84	3.00	3.18		3.18	-694.13
15	47	3317	0.80	5.64	3.00	3.01		3.01	-691.12
16	47	3204	0.80	5.45	3.00	2.84		2.84	-688.29
17	47	3095	0.80	5.26	3.00	2.68		2.68	-685.61
18	47	2989	0.80	5.08	3.00	2.52		2.52	-683.09
19	47	2888	0.80	4.91	3.00	2.37		2.37	-680.72
20	47	2789	0.80	4.74	3.00	2.22		2.22	-678.49
21	47	2694	0.80	4.58	3.00	2.08		2.08	-676.41
22	47	2603	0.80	4.42	3.00	1.95		1.95	-674.47
23	47	2514	0.80	4.27	3.00	1.81		1.81	-672.65
24	47	2429	0.80	4.13	3.00	1.69		1.69	-670.97
25	47	2346	0.80	3.99	3.00	1.56		1.56	-669.40
26	47	2266	0.80	3.85	3.00	1.44		1.44	-667.96
27	47	2189	0.80	3.72	3.00	1.33		1.33	-666.63
28	47	2114	0.80	3.59	3.00	1.22		1.22	-665.41
29	47	2042	0.80	3.47	3.00	1.11		1.11	-664.30
30	47	1973	0.80	3.35	3.00	1.01		1.01	-663.29
31	47	1906	0.80	3.24	3.00	0.91		0.91	-662.38
32	47	854	0.80	1.45	2.25	0.00		0.00	-662.38
TOTAL	1504	105000	26.57	178.50	95.25	95.22	757.59	-662.38	-662.38

/2 = -331.19

NMOCD CASE NO. 9671
MAY 10, 1989
DUGAN/SUN EXHIBIT NO. 21

ECONOMICS FOR EXPANSION OF
CANADA OJITOS UNIT
FOR E/2 SECTION 12 T25N, R2W

CANADA OJITOS UNIT:

LAST 12 MONTHS (APRIL 1988 - MARCH 1989)
(FROM SUN E & P BOOKS)

NRI = 84.68%
AREA = 51231 ACRES

- REVENUE (12 MO., 8/8) = $11,962,195
  AVERAGE REVENUE = $ 996,850/MO

- COSTS (12 MO. OPERATING EXPENSE, TAXES, AND MAINTAINANCE CAPITAL, 8/8) = $ 3,713,274
  AVERAGE COSTS = $ 309,440/MO

- DRILLING CAPITAL (12 MO.) = $ 586,549
  AVERAGE CAPITAL = $ 48,879/MO

- CASH FLOW (W/O DRLG CAP) = $ 562,803/MO

  (W/ DRLG CAP) = $ 513,925/MO

EXPANSION AREA:

AREA = 320 ACRES

ESTIMATED W.I. = (320) / (51231+320) = 0.006207 = 0.6207%

ESTIMATED I.I. = 0.6207% * 87.5% NRI = 0.005432 = 0.5432%

- CASH FLOW TO EXPANSION AREA:
  (W/O DRLG CAP) = $996,850 * 0.005432
  - $309,440 * 0.006207 = $ 3,494/MO

  (W/ DRLG CAP) = $996,850 * 0.005432
  - $358,319 * 0.006207 = $ 3,192/MO

- INVESTMENT ADJUSTMENT = $600/ACRE = $192,000/320 ACRES

- ESTIMATED PAYOUT:
  (ASSUMING CONSTANT REVENUE AND COSTS)

  (W/O DRLG CAP) = $192,000 / $3,494/MO = 55.0 MO = 4.6 YRS

  (W/ DRLG CAP) = $192,000 / $3,192/MO = 60.2 MO = 5.0 YRS