STATE OF NEW MEXICO
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

Date: 8/13/91

Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088

RE: Proposed MC_____ Proposed DHC X
Proposed NSL_____ Proposed SWD_____
Proposed WFX_____ Proposed PMX_____
Proposed NSP_____ Proposed DD_____

Gentlemen:

I have examined the application received on 7/25/91

for the Meridian Standley A #3
OPERATOR LEASE & WELL NO.

G-28-28N-8W and my recommendations are as follows:
UL-S-T-R

Approve

Yours truly,

F. G.

MERIDIAN OIL

July 22, 1991

New Mexico Oil Conservation Division
Attn: Mr. Bill LeMay
P.O. Box 2088
310 Old Santa Fe Trail
Santa Fe, NM 87501

RE: Grambling A #3
Unit G, Section 28, T28N, R08W
San Juan County, New Mexico
Downhole Commingling Request

Dear Mr. LeMay:

Meridian Oil Inc. is applying for an administrative downhole commingling order for the referenced well in the Blanco Mesaverde and the Otero Chacra fields. The ownership of the zones to be commingled is common. The offset operator to the north, east, and south is Amoco and Meridian holds the acreage to the west of this well. The Bureau of Land Management and Amoco will receive notification of this downhole commingling.

The well has produced from the Mesaverde interval since 1951 and currently produces 90 MCFD. The well produces about .5 BOPD and is experiencing some fluid lift problems which is hampering the gas production rate. The addition of the Chacra should add 100 MCFD and move the liquids to allow more efficient production. Based on the Mesaverde production decline, the more efficient fluid lift will result in an additional 150 MMCF of gas reserves from the existing Mesaverde zone that can be produced.

A study of the Chacra production in the 13 closest producers (all within three miles of the subject well) indicated average ultimate reserves of 190 MMCF per well. Although significant gas reserves are in place, new drill wells are not economically justified in the Chacra reservoir. The only feasible way to produce the Chacra at this location and prevent potential waste of these reserves is to commingle with an existing wellbore. It is proposed to pull the tubing, complete the Chacra, and produce the Mesaverde and Chacra through a single string of tubing.

The reservoir characteristics of each of the subject zones are such that underground waste will not be caused by the proposed commingling. The fluids in these reservoirs are compatible and no precipitates will be formed to cause damage to either reservoir (see attached fluid analyses and compatibility tests). The shut-in pressure for the Mesaverde and Chacra are 598 psi and 578 psi; respectively.

New Mexico Oil Conservation Division
Mr. Bill LeMay
Grambling A #3
Downhole Commingling Request

The allocation of the commingled production will be calculated by using flow tests from the Mesaverde and Chacra during workover operations, and the previously established Mesaverde production history. Meridian will consult with the district supervisor of the Aztec NMOCD office for approval of the allocation.

Approval of this commingling application will allow for the prevention of wasted resources and protection of correlative rights. Included with this letter are plats showing ownership of offsetting leases for both the Mesaverde and Chacra, a copy of letters to the BLM and offset operators, wellbore diagrams, production history curve, pertinent data sheet, and a detailed report of fluid compatibility.

Sincerely,

George T. Dunn
Regional Production Engineer

LKS:tt
attachments

cc: Frank Chavez - NMOCD/Aztec

MERIDIAN OIL

July 22, 1991

Amoco Production Company
Attn: Mr. Larry Emmons
P.O. Box 800
Denver, CO 80201

RE: Grambling A #3
Unit G, Section 28, T28N, R08W
San Juan County, New Mexico
Downhole Commingling Request

Gentlemen:

Meridian Oil, Inc. is in the process of applying for a downhole commingling order for the Grambling A #3 well located in Unit G, Section 28, T28N, R08W, N.M.P.M., San Juan County, New Mexico, in the Blanco Mesaverde and Otero Chacra fields.

The purpose of this letter is to notify you of such action. If you have no objections to the proposed commingling order, we would appreciate your signing the attached copy of this letter and returning it to this office.

Your prompt attention to this matter would be appreciated.

Yours truly,

George T. Dunn
Regional Production Engineer

LKS:tt

The above downhole commingling request is hereby approved:

_____

Date: _____

Meridian Oil Inc., 3535 East 30th St., P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-327-0251

MERIDIAN OIL

July 22, 1991

Bureau of Land Management
1235 La Plata Highway
Farmington, NM 87401

RE: Grambling A #3
Unit G, Section 28, T28N, R08W
San Juan County, New Mexico
Downhole Commingling Request

Gentlemen:

Meridian Oil, Inc. is in the process of applying for a downhole commingling order for the Grambling A #3 well located in Unit G, Section 28, T28N, R08W, N.M.P.M., San Juan County, New Mexico, in the Blanco Mesaverde and Otero Chacra fields.

The purpose of this letter is to notify you of such action. If you have no objections to the proposed commingling order, we would appreciate your signing the attached copy of this letter and returning it to this office.

Your prompt attention to this matter would be appreciated.

Yours truly,

George T. Dunn
Regional Production Engineer

LKS:tt

The above downhole commingling request is hereby approved:

_____

Date: _____

Meridian Oil Inc., 3535 East 30th St., P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-327-0251

Pertinent Data Sheet - Grambling A #3

Location: Unit G, Section 28, T-28-N, R-8-W, San Juan County, New Mexico

Field: Blanco Mesaverde

Elevation: 5837'GL
5847'DF

TD: 4658'
PBTD: 4589'

Completed: 6/51

Initial Potential: 1250 MCFD

Casing Record:

Csg. Size	Wt. & Grade	Depth Set	Top/Cement
9 5/8"	36.0#	308'	Surface
7"	23#,N-80 (15 jts)	3817'	2990' (Temp. Survey)
	20#,J-55 (79 jts)	DV @ 2459'	1785' (Temp. Survey)
5 1/2" Liner	15.5#,J-55	3773-4607'	Liner Top

Tubing Record: 2 3/8" set @ 4561.

Formation Tops:

Kirtland	1383'
Fruitland	1935'
Pic. Cliffs	2218'
Lewis	2335'
Chacra	3163'
Cliff House	3862'
Point Lookout	4449'

Logging Record: ES, Induction, Gamma Ray, Temp. Survey

Stimulation: 6/51 - Open hole completion. Shot well w/ 2010 quarts of S.N.G. from 3860-4660'.

Workovers: 11/58 - Sqzd csg leak at 500' w/ 100 sxs, test to 1725 psi - OK.
Cemented 5 1/2" liner in open hole interval and completed as follows:
Point Lookout - Frac from 4456-4586 with 60,000 # 20/40 sand. 500 gal of 7 1/2% MCA for clean up. Tested AOF of 1782 MCFD.
Cliff House - Frac from 3887-3949 with 40,000 # 40/60 sand. Produced water and squeezed with 100 sxs of cmt.

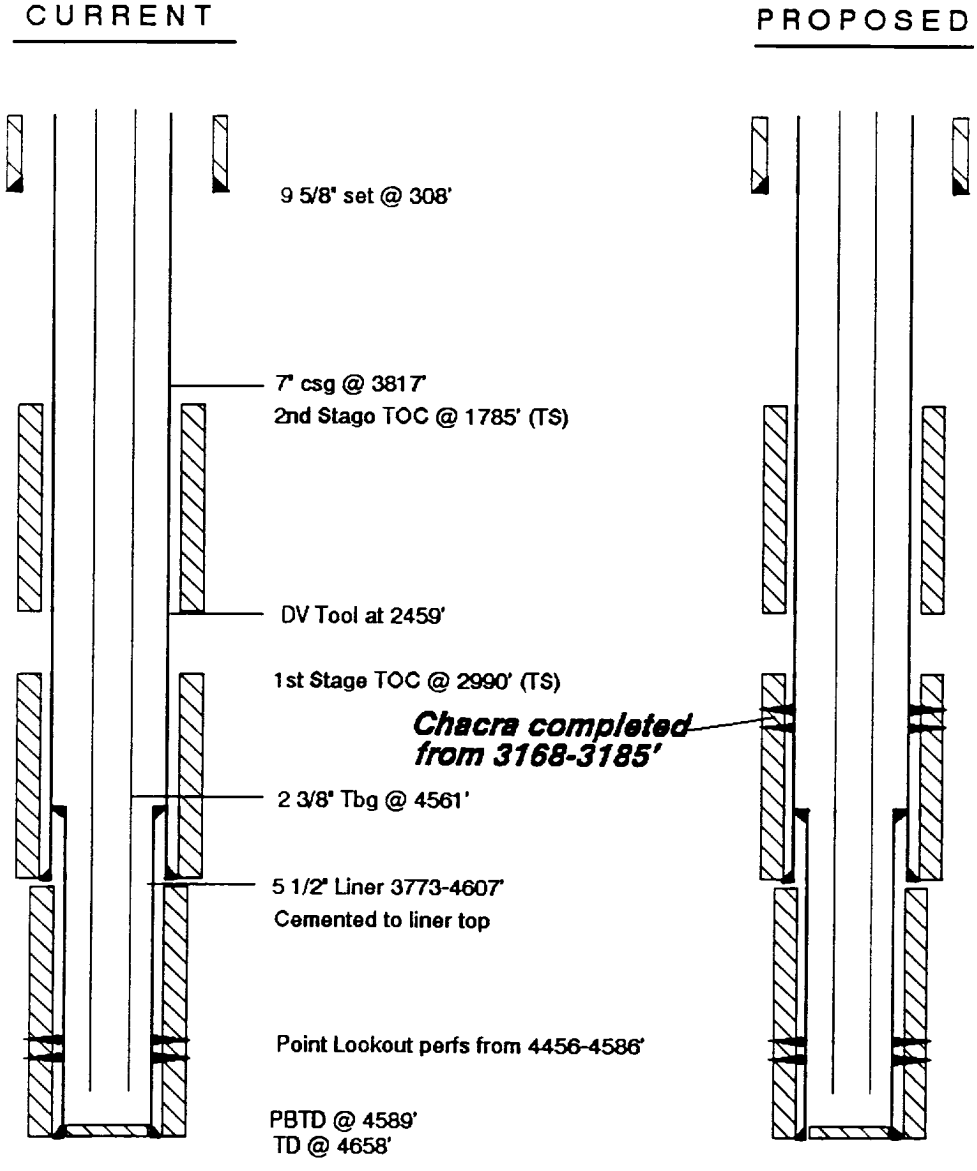
Production History:

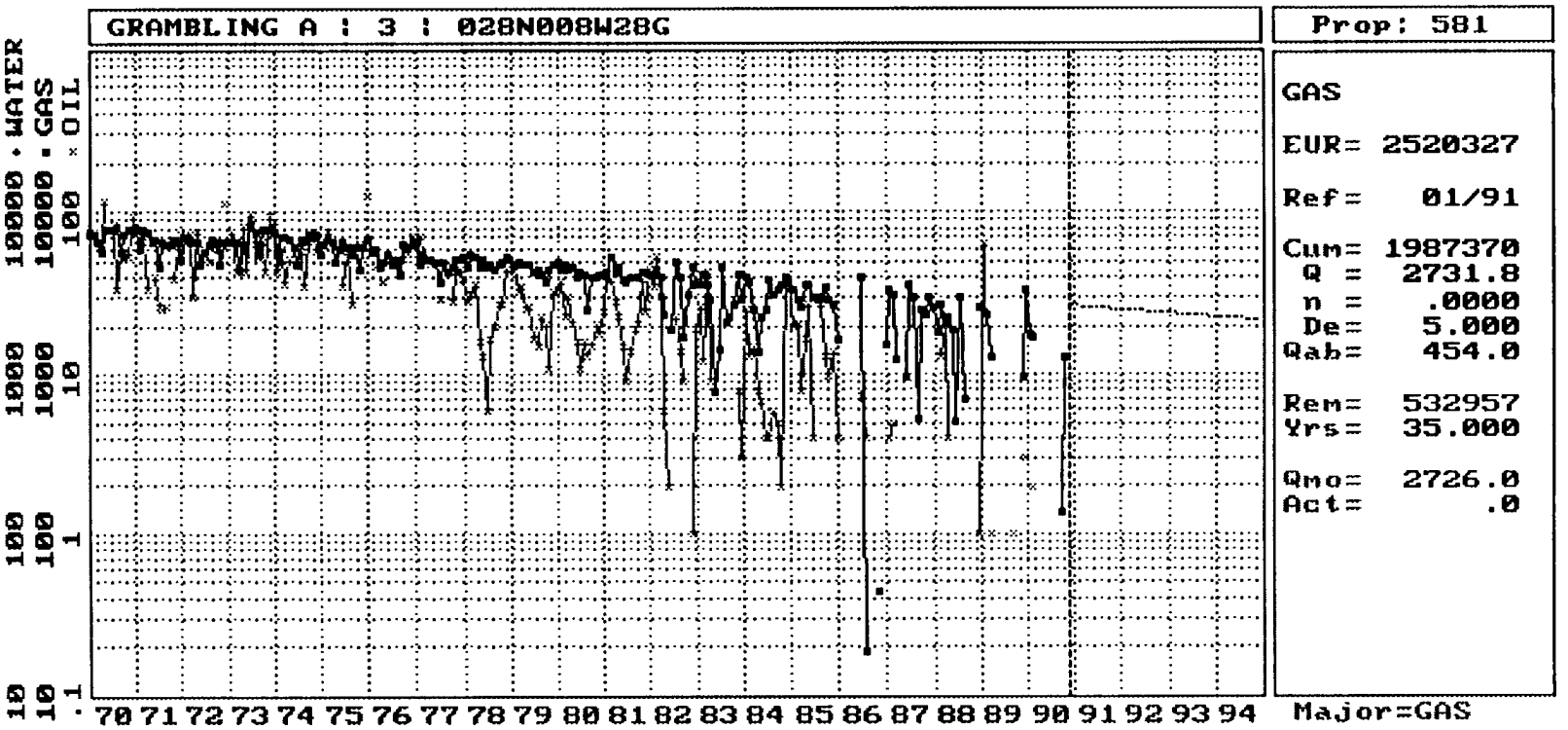
Initial Deliverability -	6/51	702 MCFD
Latest Deliverability -	1/91	90 MCFD
Cumulative Production -	1/91	1987 MMCF

Transporter: EPNG

Grambling A #3
Unit G Sect 28-T28N-R8W
San Juan County, New Mexico

Wellbore Schematic




GRAMBLING A : 3 : 028N008W28G
Prop: 581
10000 • WATER
10000 ▪ GAS
100 × OIL
1000
1000
10
100
100
1
10
.1
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94
GAS
EUR= 2520327
Ref= 01/91
Cum= 1987370
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n = .0000
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MERIDIAN OIL

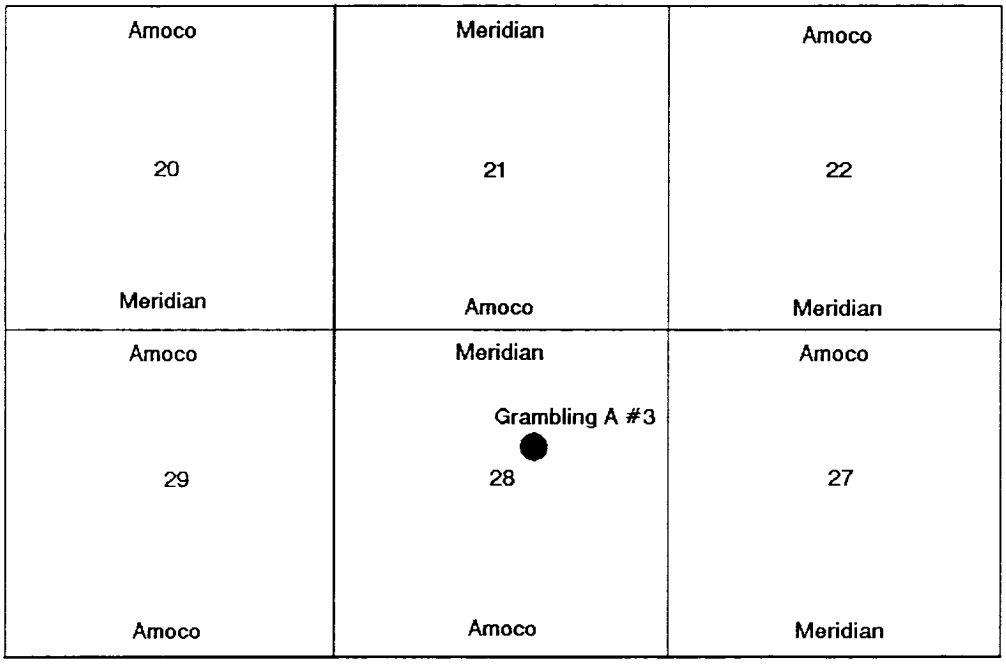
Grambling A #3

San Juan County, N. M.

Chacra - Mesaverde

Commingle Application

Mesaverde Leasehold



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MERIDIAN OIL

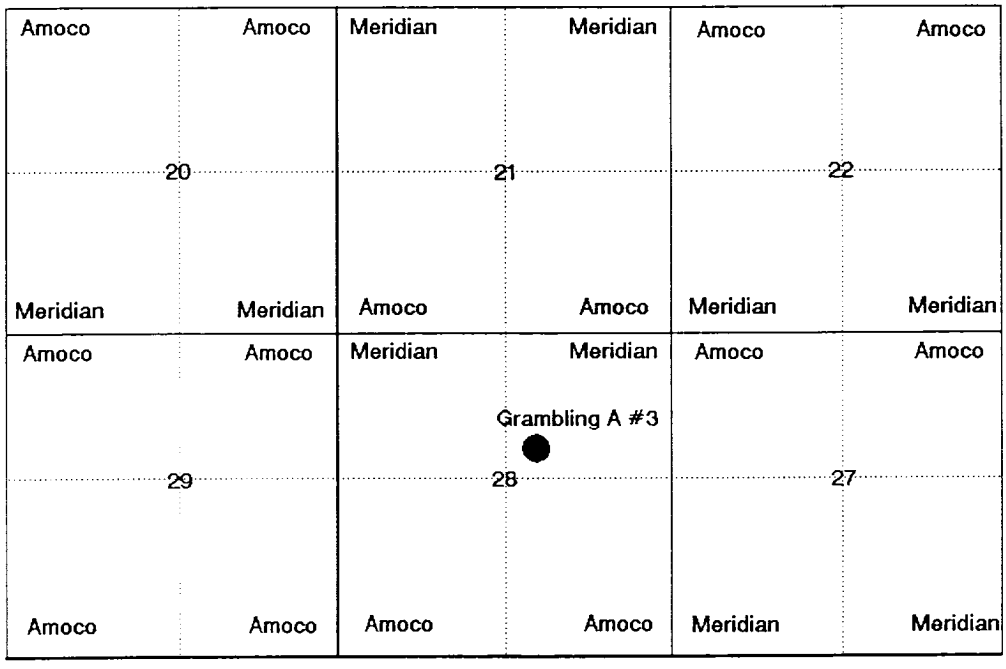
Grambling A #3

San Juan County, N. M.

Chacra - Mesaverde

Commingle Application

Chacra Leasehold



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MERIDIAN OIL

REID 21 WELL OUT OF THE CHACRA FORMATION LOCATED IN SAN JUAN COUNTY, N.M.

PREPARED BY:
J.M. ROUSH

FEBRUARY 7, 1991
WST-91-S-0014

DOWELL SCHLUMBERGER WESTERN DIVISION TECHNOLOGY CENTER

P O. Box 5818
Denver. Colorado
(303) 773-8800

DOWELL SCHLUMBERGER
WESTERN DIVISION LABORATORY REPORT

CLIENT: MERIDIAN OIL
LEASE: UNIT E.
WELL: REID 21
LOCATION: SAN JUAN COUNTY, N.M.
FORMATION: CHACRA
BHT: ±140°F
DEPTH: 3200'

WELL TYPE: OIL AND GAS

SAMPLE TYPE: 1 WATER SAMPLE
1 OIL SAMPLE

FEBRUARY 7, 1991
WST-91-S-0014

DISTRIBUTION: P. GILL, WST
C. DACAR, WST
P. WAREMBOURG, WST
LAB FILE (2X)

I. Backgound:

The Dowell Schlumberger Western Division Technology Center received a water sample out of the Mesa Verde Formation and an oil sample out of the Chacra Formation for analyses and testing. The laboratory was requested to provide a standard API analysis on both the water sample and the oil and to determine whether or not they may be co-mingled.

II. Lab Testing and Results:

a) Water Analysis

The sample of water received in the lab had an obvious presence of iron that had precipitated out because the sample appeared orange in color. This water is from the Hancock #11 MV Lease with the API Water Analysis shown in Table I.

b) Oil Analysis

The oil sample that was received in the lab was from Meridian's Reid #21 E Chacra well which produces out of the Les Hapner Field. The sample had separated out into two phases, oil and water and appeared grayish-green in color. The sample was centrifuged to determine the percent oil, water and solids present. The API oil analysis results obtained are provided in Table II and shows that the oil had 0.5% solids present. The solids were removed and analyzed by X-ray Fluorescence Spectrometry and by Powder X-ray Diffraction. The elemental and mineralogic compositions are provided in Tables III- IV and suggest the solids to be composed mainly of iron in varying forms, as carbonates, oxides and compounds.

c) Emulsion Tendencies

Only the oil phase that was separated when centrifuged was used for the compatibility test by mixing it at a 1:1 ratio with the Mesa Verde formation water. This test is observed visually by noting the breakout with time. The oil & water

SAMPLE WAS HEATED TO ± 140°F. WHEN AT TEMPERATURE THE SAMPLE WAS THEN SHAKEN VIGOROUSLY FOR ONE MINUTE AND BREAKOUT WAS OBSERVED WITH TIME, WHICH WAS 100% AT ONE MINUTE.

THESE TWO FLUIDS DO NOT APPEAR TO HAVE INCOMPATIBLE TENDENCIES OR TO EMULSIFY WHEN ADDED AT A 1:1 RATIO.

THERE WERE NO SIGNS OF A PRECIPITATE FORMING UPON MIXING OF THE TWO FLUIDS NOR WERE THERE ANY OTHER ADVERSE PROBLEMS NOTED. IF AN EMULSION IS SUSPECTED A NON-EMULSIFYING AGENT MAY BE ENCORPORATED INTO THE WATER PHASE AS A PRECAUTIONARY MEASURE.

TABLE I

API WATER ANALYSIS

Description	
DISSOLVED SOLIDS	
Cations	**mg/L**
Sodium, Na (calc.)	22,973
Calcium, Ca	400
Magnesium, Mg	153
Anions	
Chloride, Cl	37,041
Sulfate, SO_4	12
Carbonate, CO_3	0
Bicarbonate, HCO_3	380
Total Dissolved Solids (calc.)	60,962
Iron, Fe (total)	1,396
pH	5.80
Specific Gravity	1.045

TABLE II

API OIL ANALYSIS

PERCENT OIL	=	85
PERCENT WATER	=	15
PERCENT SOLIDS	=	0.5
API GRAVITY CORRECTED 60/60°F = 56°		
PERCENT ASPHALTENES	=	0
PERCENT PARAFFINS	=	0

TABLE III

X-RAY FLUORESCENCE SPECTROMETRY

SEMI-QUANTITATIVE

ELEMENTAL ANALYSIS
(WT. %)

MAJOR			MINOR	LOW	TRACE
30-40	20-30	10-20	6-10	1-5	0.5-1%
IRON	NONE	NONE	SODIUM CALCIUM	MAGNESIUM SILICON SULFUR POTASSIUM CHLORINE	ALUMINUM

TABLE IV

MINERALOGY OF SOLIDS
DETERMINED BY

POWDER X-RAY DIFFRACTION

MAJOR >60%	TRACE <5%
SIDERITE AMORPHOUS IRON OXIDES AND IRON COMPOUNDS	QUARTZ