STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

November 19, 1987

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

Administrative Order No. DHC-681

Union Texas Petroleum
375 U.S. Highway 64
Farmington, NM 87401

RECEIVED
DEC 07 1987
OIL CON. DIV.
DIST. 3

Attention: S. G. Katirgis

Re: Starr Well No. 3-M
Unit E, Section 5, Township 26 North, Range 8 West, NMPM, San Juan County, New Mexico.
Basin Dakota and Blanco Mesaverde Pools

Gentlemen:

Reference is made to your recent application for an exception to Rule 303-A of the Division Rules and Regulations for the subject dually completed well to permit the removal of the down-hole separation equipment and to commingle the production from both pools in the wellbore.

It appearing that the subject well qualifies for approval for such exception pursuant to the provisions of Rule 303-C, and that reservoir damage or waste will not result from such downhole commingling, and correlative rights will not be violated thereby, you are hereby authorized to commingle the production as described above and any Division Order which authorized the dual completion and required separation of the two zones is hereby placed in abeyance.

In accordance with the provisions of Rule 303.C.4., total commingled oil production from the subject well shall not exceed 40 barrels per day, and total water production from the well shall not exceed 80 barrels per day. The maximum amount of gas which may be produced daily from the well shall be determined by Division Rules and Regulations or from the gas allowable for each respective prorated pool as printed in the Division's San Juan Basin Gas Proration Schedule.

In accordance with the provisions of Rule 303-C, the supervisor of the Aztec District Office of the Oil Conservation Division shall determine the proper allocation of the production from the subject well following its completion.

Pursuant to Rule 303-C 5, the commingled authority granted by this order may be rescinded by the Division Director if, in his opinion, conservation is not being best served by such commingling.

Very truly yours,

WILLIAM J. LeMAY,
Director

cc: Gas Co. of N.M.
OCD District Office - Aztec

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

GARREY CARRUTHERS
GOVERNOR

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

Date: 10/28/87

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______

Gentlemen:

I have examined the application dated 10/21/87 for the Union Texas Pet Corp (Operator) Sloan #3M (Lease & Well No.) E-5-26N-8W (Unit, S-T-R) and my recommendations are as follows:

Approve

Yours truly,

[signature]

Rev 1087 Roc
OK 1K

Union Texas Petroleum

375 U.S. Highway 64
Farmington, New Mexico 87401
Telephone (505) 325-3587

October 12, 1987

Mr. William LeMay
N. M. Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501-2088

Re: Starr #3M (SF-078962)
2280' FNL; 1180' FWL
Section 5-T26N-R8W
San Juan County, NM

Dear Mr. LeMay:

Union Texas Petroleum is applying for a downhole commingling order for the referenced well in the Basin Dakota and Blanco Mesaverde fields. The ownership of the two zones to be commingled is common. The Bureau of Land Management and the offset operators indicated in the attached plats will receive notification of this proposed downhole commingling.

The subject well was drilled and completed during September, 1987 in both the Dakota and Mesaverde formations. It has not yet been first delivered. The Dakota formation was tested at 711 MCFD with an AOF of 768 MCFD. Attempts to flow the Mesaverde for a test were unsuccessful. The zone will not flow on its own without help and had to be swabbed daily before it would flow. In order to produce the marginal Mesaverde zone in this well and recover its reserves, it is recommended that both the Mesaverde and Dakota zones be downhole commingled. Commingling will prevent waste and will not violate correlative rights. Liquid production from each zone, based on the marginal nature of both zones and the performance of offset producers, is expected to be low. Total combined production from both zones is estimated to be 4 BOPD and 1 BWPD and, therefore, no producing problems are anticipated. However, if necessary a plunger lift system will be used to produce this well.

Fluid samples which were taken from offset wells (Newsom B #8E Dakota and Starr #4 Mesaverde) indicate the presence of mostly oil and a small amount of water. The attached fluid analysis indicates the total value of the oil will not be reduced by commingling. The reservoir characteristics of each producing zone are such that underground waste would not be caused by the proposed downhole commingling. The calculated bottom hole pressure, based on fluid level measurements and shut in

surface pressure measurements, is 1613 psi in the Mesaverde and 2346 psi in the Dakota, well within the limits of Rule 303-C, Section 1(b), Part (6). The fluids from each zone are compatible and no precipitates or emulsions will be formed as a result of commingling to damage either reservoir. As stated above, the anticipated liquid production of 4 BOPD and 1 BWPD will not exceed the limit of Rule 303-C, Section 1(a), Parts (1) and (3).

The Aztec District Office will be notified any time the commingled well is shut in for seven consecutive days. To allocate the commingled production to each of the zones, Union Texas Petroleum will consult with the supervisor of the Aztec District Office and determine an allocation formula for each of the producing zones.

Included with this letter are two plats showing ownership of offsetting leases, fluid analysis summary report, a wellbore diagram showing the proposed downhole equipment of the subject well, and a completion history of each zone.

Very truly yours,

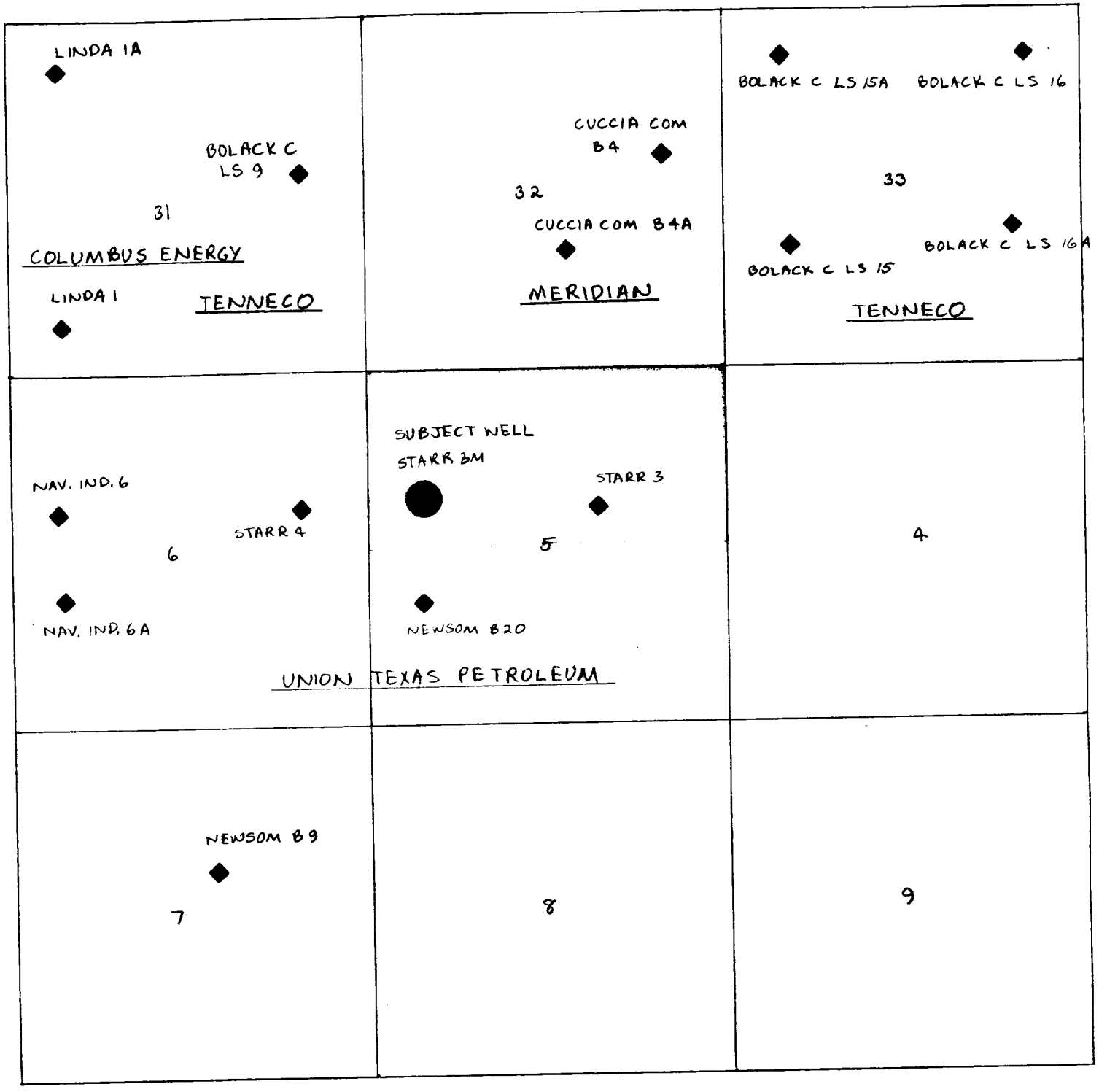
S. G. Katirgis

S. G. Katirgis
Production Engineer

SGK:lmg
attachments

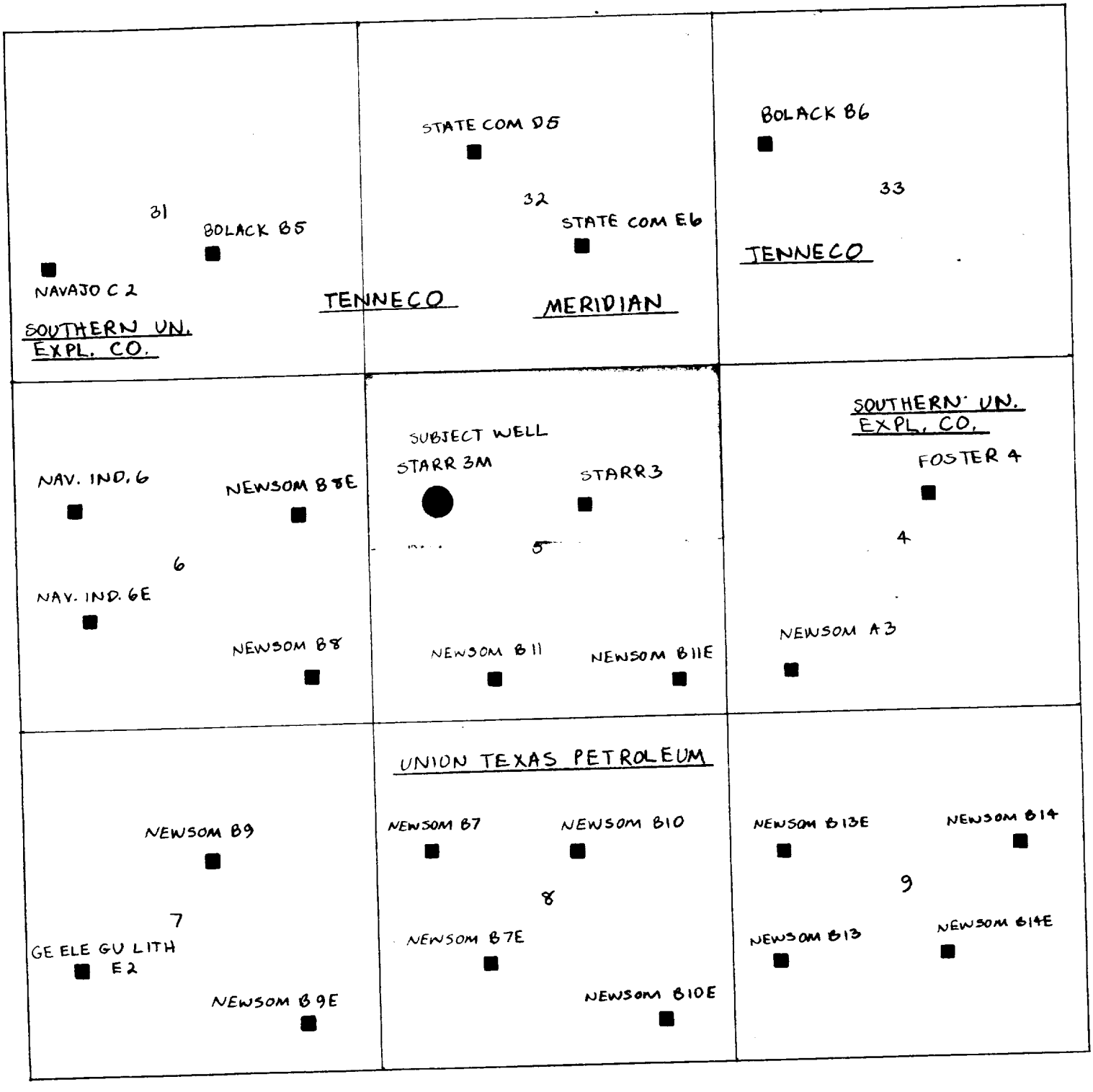
cc: Frank Chavez, Aztec NMOCD
W. K. Cooper
M. R. Herrington

MESAVERDE - OFFSET OPERATORS



———— DEDICATED ACREAGE

DAKOTA - OFFSET OPERATORS



DEDICATED ACREAGE

Union Texas Petroleum

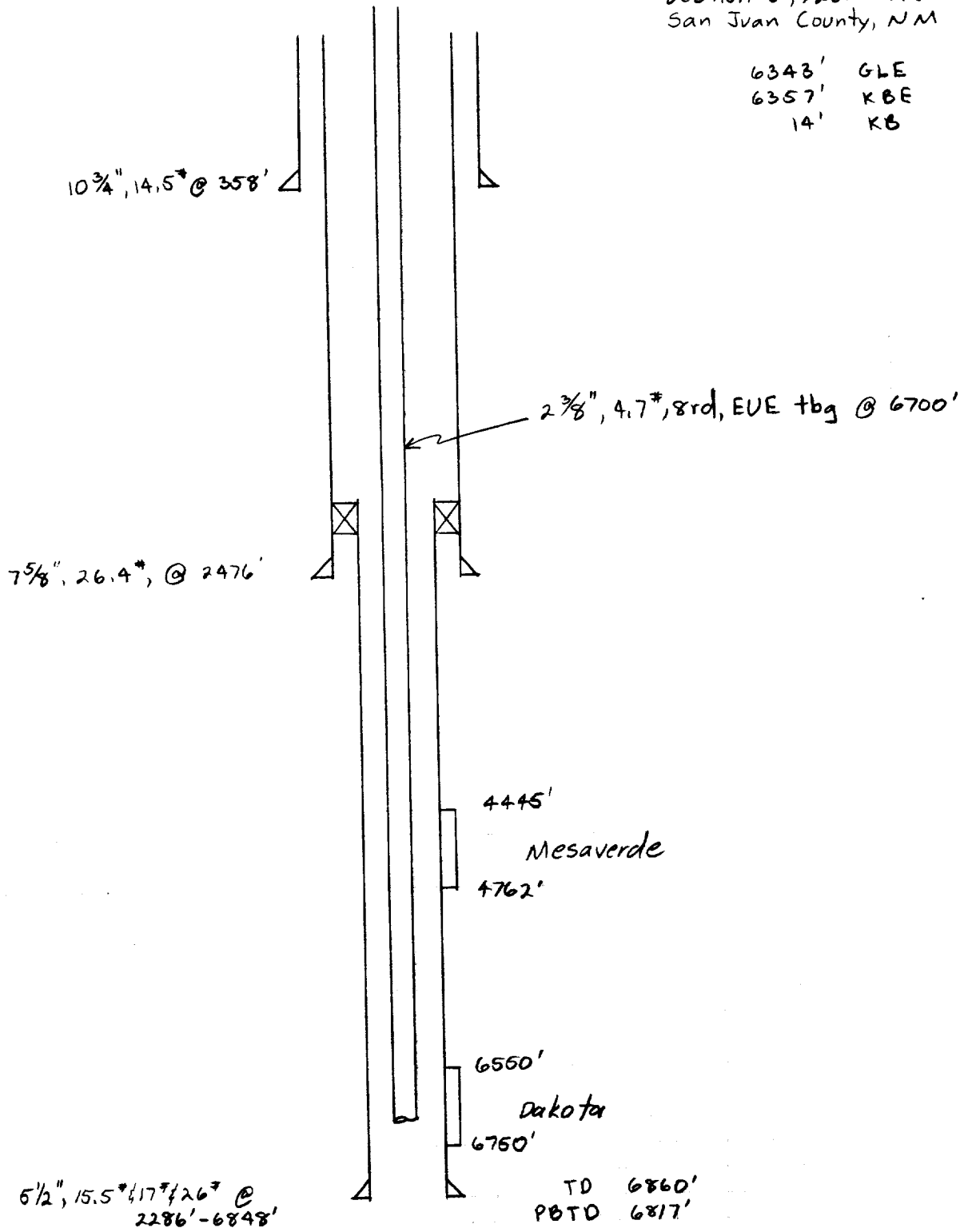
SUBJECT: STARR #3M
PROPOSED WELLBORE DIAGRAM

BY: SGK DATE: 10/12/87

PAGE ____ OF ____

2280' FNL; 1180' FWL
Section 5, T26N-R8W
San Juan County, NM

6343' GLE
6357' KBE
14' KB



STARR #3M

COMPLETION HISTORY

Dakota

Spot 50 gals 7-1/2% HCL across lower Dakota.
Perforated lower Dakota at 6742'-44',46',48',50' w/1 JSPF.
Break down at 3900 psi and pumped 250 gals 15% HCL w/ball sealers.
Knocked off balls and swabbed dry w/slight gas blow.
Perforated upper Dakota at 6550',54',58',62', 6612',14',16',18', 22',24',26',28',30',96', 6706',08',10',12',14',16'.
Spot 150 gals 15% HCL across perfs.
Break down at 3200 psi and pumped 850 gals 15% HCL w/ball sealers.
Knocked off balls.
Fracture stimulated w/120,000# 20/40 Brady sand in 140,000 gals 20# crosslinked gel. ISIP was 1750 psi; after 15 minutes was 1600 psi.
Set bridge plug above Dakota perfs.

Mesaverde

Perforated the Mesaverde at 4445',47',49',51',56',60',64',71', 73',75',80',83',89',91',95', 4511',17',23',34',37',40',44', 4691', 4726',62'.
Spot 350 gals 15% HCL across perfs.
Break down at 1000 psi and pumped 1250 gals 15% HCL w/ball sealers. Recovered balls.
Fracture stimulated w/120,000# 20/40 Brady sand in 145,000 gals slick water. ISIP was 1100 psi; after 15 minutes 770 psi.
Cleaned out Mesaverde. Drilled bridge plug and cleaned out Dakota.
Ran 1-1/2", 2.9#, J-55, 8rd, EUE Dakota tubing and landed at 6723' w/Western Model R packer at 5022'.
Ran 1-1/4", 2.3#, I.J. Mesaverde tubing and landed at 4708'.
S.I. for tests.
DK test: SITP-942 psi; Q-711 MCFD; CAOF=768 MCFD.
MV test: logged off, will not flow without swabbing

Anticipated production from Dakota ±70 MCFD and 3 BOPD
Anticipated production from Mesaverde ±20 MCFD and 1 BOPD

October 8, 1987

Mr. Sterg Katirgis
Union Texas Petroleum
375 U S Highway 64
Farmington, NM 87401

TECH, Inc.
333 East Main
Farmington
New Mexico
87401
505/327-3311

TESTING RESULTS

1. A.P.I. Water Analysis. These analyses are included at the end of this report. Both water samples were of moderate salinity and only mildly akaline. Both waters contained minor amounts of calcium ions and precipitating anions.

2. Emulsification Properties. Equal volumes of the crude petroleum and the accompanying water (100 ml each) were placed in a separatory funnel and shaken vigorously for twenty seconds and allowed to stand. The three samples consisted of the two crudes and their accompanying water samples and a 50:50 crude oil mixture shaken with a 50:50 water mixture. After one minute about 90% separation occurred and after two minutes virtually complete separation of the oil-water phases was observed. The 50:50 mixture separated faster and more efficently than the individual samples. Both salinity and moderate alkalinity favored separation of the two phases.

3. The oil testing results are as follows:

Property	Sample 1 Newsom B-8E	Sample 2 Starr #4	50:50 Mixture
Specific gravity	0.7973	0.7621	.7800
API Gravity (60 F)	46	54	50
Parafin Content	7.1%	4.9%	6.1%
Pour Point	<-25° F	<-25° F	<-25° F

The water sample from Starr #4 has over 92% of the dissolved ions made up of sodium and chloride with only minor amounts of calcium and its precipitating ions, carbonate, sulfate. The Newsom sample is only slightly over 81% sodium chloride. The dissolved calcium concentration and sulfate ion do not approach the limiting solubility of calcium sulfate nor is the alkalinity strong enough to anticipate precipitation of any quantities of calcium carbonate. Mixing of the two water samples will result in a lowering of the concentrations of calcium , sulfate, carbonate and bicarbonate ions which would further minimize any scaling tendencies.

Respectrully submitted,
TECH, Inc.

H. P. Hamlow

Harlan P. Hamlow
Chief Chemist

TECH Inc
333 East Main
Farmington
New Mexico

TECH

API WATER ANALYSIS REPORT FORM

Company		Sample No.	Date Sampled
Field	Legal Description	County or Parish	State
Lease or Unit	Well	Depth	Formation	Water, B/D
Type of Water (Produced, Supply, etc.)	Sampling Point	Sampled By

DISSOLVED SOLIDS

CATIONS	mg/l	me/l
Sodium, Na (calc.)		
Calcium, Ca		
Magnesium, Mg		
Barium, Ba		

ANIONS		
Chloride, Cl		
Sulfate, SO_4		
Carbonate, CO_3		
Bicarbonate, HCO_3		

Total Dissolved Solids (calc.)

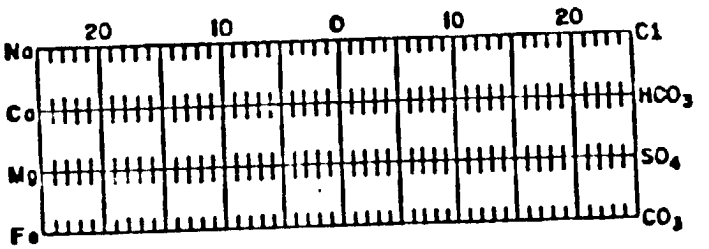
Iron, Fe (total)
Sulfide, as H_2S

OTHER PROPERTIES

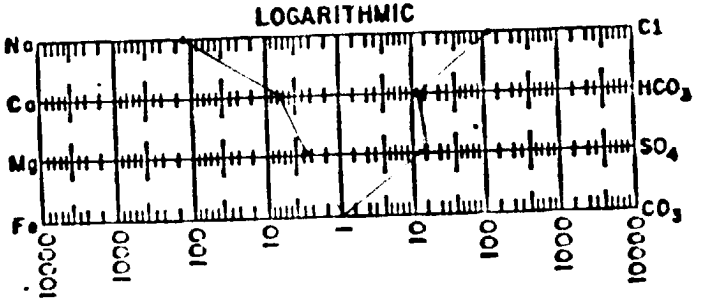
pH
Specific Gravity, 60/60 F.
Resistivity (ohm-meters) ____ F.

WATER PATTERNS — me/l

STANDARD



LOGARITHMIC



REMARKS & RECOMMENDATIONS:

TECH Inc
333 East Main
Farmington
New Mexico

TECH

API WATER ANALYSIS REPORT FORM

Company		Sample No.	Date Sampled
		1	10-2-87
Field	**Legal Description**	**County or Parish**	**State**
Lease or Unit	**Well**	**Depth**	**Formation**	**Water, B/D**
Type of Water (Produced, Supply, etc.)	**Sampling Point**	**Sampled By**

DISSOLVED SOLIDS

CATIONS	*mg/l*	*me/l*
Sodium, Na (calc.)		
Calcium, Ca		
Magnesium, Mg		
Barium, Ba		

ANIONS		
Chloride, Cl		
Sulfate, SO_4	9	
Carbonate, CO_3		
Bicarbonate, HCO_3	1129	18.5

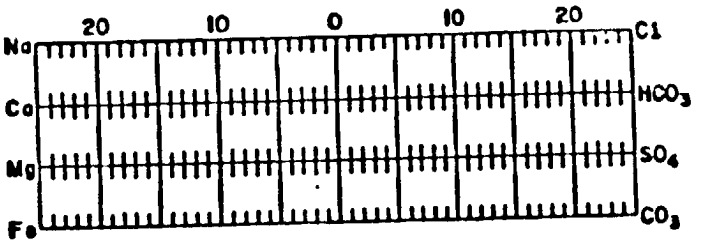
Total Dissolved Solids (calc.)	1540
Iron, Fe (total)	
Sulfide, as H_2S	

OTHER PROPERTIES

pH	
Specific Gravity, 60/60 F.	
Resistivity (ohm-meters) ___ F.	

WATER PATTERNS — *me/l*

STANDARD



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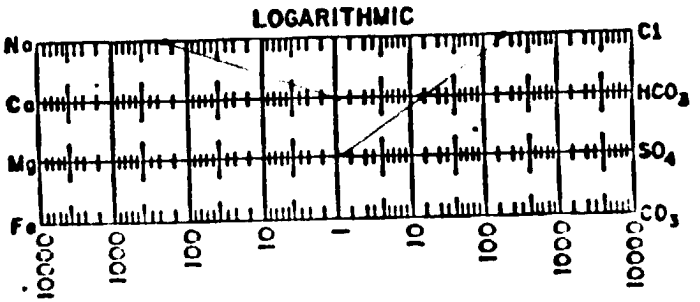

REMARKS & RECOMMENDATIONS: