



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

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

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501

DATE Sept 20, 1983

RE: Proposed MC _____
Proposed DHC α _____
Proposed NSL _____
Proposed SWD _____
Proposed WFX _____
Proposed PMX _____

Gentlemen:

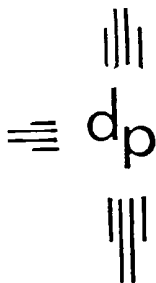
I have examined the application dated Sept 16, 1983
for the Dynex Prod. Corp. Marybarr L-9-24-9
Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

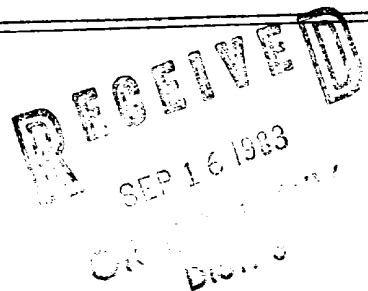
Approve

Yours truly,

Eric J. Day



dugan production corp.



September 15, 1983

Joe D. Ramey
Oil Conservation Division
P O Box 2088
Santa Fe, NM 87501

RE: Request for Administrative Approval to Commingle Downhole
Bisti Gallup and Basin Dakota Fields
Dugan Production Corp.'s Mary Anne Well No. 3
Unit L, Sec. 9, T24N R9W, NMPM
Federal Lease No. NM 10089
San Juan County, NM

Dear Mr. Ramey:

We hereby request administrative approval to commingle production from the Gallup and Dakota formations within the well bore of the captioned well.

The Mary Anne #3 was spudded on December 22, 1982 and 4½" casing was cemented at 6409'. The Dakota formation was perforated 6328-42', acidized with 250 gal. 15% HCL and then fraced with 19,000 gal. gelled water and 24,000 lb. of 20/40 sand. The Gallup formation was perforated 4891-5365' with a total of thirty-three holes. The Gallup interval was then balled off and fraced using 52,000 gal. of slick water and 85,000 lb. of 20/40 sand.

Based upon our experience with other wells in this general area and the open hole log analysis, we anticipated marginal productivity from this well. Subsequent swab testing of the Gallup and Dakota resulted in a combined rate of approximately 35 BOPD, 40 BWPD and 160 MCFGPD and neither zone would flow. A pump unit has been installed and it is our plan to pump the well with the bottom hole pump approximately 6340'.

With reference to the attached map on which current daily production rates for Gallup and Dakota wells in the general area of the Mary Anne #3 are indicated, it can be seen that both horizons are of marginal productivity. The nearest Dakota completion with any substantial production history is located approximately two miles to the southwest. The Dakota is open for production approximately one half mile to the west and approximately three quarters of a mile to the south; however, it should be noted that these are both fairly new wells and that the Dakota is commingled with

September 15, 1983

the Gallup at both locations. The Dakota has recently been tested approximately one and one half miles to the northwest in Dugan Production Corp.'s Big Bird #1; however, this well is currently shut in awaiting a pipeline connection, having tested a rate of 110 MCFD at 15 psi FTP. The data regarding productivity in this area is very limited and as a result, we have utilized production data from Dakota wells as close as possible within a four mile radius of the well. With reference to the attached production graph, production data for six Dakota wells is presented and based upon our experience in the area, we have indicated the anticipated production forecast for the Dakota in the Mary Anne #3 as a dashed line. An initial rate of 4300 MCF/mo. (141 MCFPD) will decline at an annual rate of 40% for two and one half years and then stabilize at 7%. The condensate will initially produce at 17.4 bbl./MMCF and average 13.9 bbl./MMCF over the life of the Dakota. Based upon an analysis and the open hole logs within the perforated interval 6328-42', a total of nine feet of pay, averaging 12.2% porosity and 45% water saturation exists; using volumetric calculations, reserves are approximately the same as would be indicated from the production performance projection, 260 MMCF. The bottom hole pressure in the Dakota was not measured; however, a measurement in the offsetting Holly #1, indicated the bottom hole pressure in the Dakota to be approximately 1400 psi.

With reference to the attached production map, it can be seen that the Gallup is the predominate producing horizon in the area and that we are on the edge of established production. The Gallup zone is also of fairly marginal productivity, as can be seen from the production rates and cumulatives of wells in the area. Because of marginal productivity, we again made use of production performance of six Gallup wells in the general area within a four mile radius in order to make a projection of anticipated production from the Gallup in the Mary Anne #3. This production data is presented on the same graph as was the Dakota data with our predicted performance of the Mary Anne #3 being indicated with a dashed line. As can be seen, we are predicting an initial rate of 290 BO/mo. (9.5 BOPD), declining at an annual rate of 40% for two years and stabilizing at 9%. The initial gas-oil ratio of 2500 SCF/BBL was determined from production performance of offsetting wells. Utilizing this production forecast, it is estimated that ultimate recovery from the Gallup will be 14,000 BO and 48.4 MMCFG. Analysis of the open hole logs over the 474' perforated interval, 4891-5365', indicates that a total of 56' of possible pay exists with an average porosity of 9.2%. A volumetric calculation using this data indicated reserves substantially higher than is practical for this area and therefore, reliance upon the predicted production forecast based reserves is necessary. The reserves for each zone and the percentage that each zone bears to the total are summarized as follows:

	<u>Gallup</u>	<u>Dakota</u>	<u>Total</u>
Gas	48.4 (16%)	260 (84%)	308.4 MMCF
Oil	14,000 (80%)	3,600 (20%)	17,600 Bbls.

We propose to use the above percentages, based upon ultimate recoveries, to allocate production between the two zones. With reference to the attached

September 15, 1983

Joe D. Ramey
Mary Anne #3 Downhole Commingling
Page 3

production map, we have indicated six wells in the general area of the Mary Anne #3 which have previously been authorized to commingle the Gallup and Dakota production within the well bore. These six wells and their allocation formulations are summarized in Table #1. As can be seen, our proposed allocation factors based on ultimate recovery from each zone is consistent with the previously authorized allocation factors of the wells in this area.

The ownership, both working interest and royalty interest, of each zone is common since lease No. NM 10089 held by Dugan Production Corp. comprises all of section 9. The production unit for the Gallup is eighty acres, comprising the N/2 SW/4, while the Dakota production unit comprises the S/2 of section 9. We have attached a sketch on which the offsetting lease ownership is indicated.

Fluids from the Gallup and Dakota formations are compatible and based upon our experience with commingling the six other wells in this area, there will be no adverse effects to either formation as a result of commingling production within the well bore. The value of the commingled streams will be equal to the value of the individual streams; however, it should be noted that neither zone will justify dual production equipment and should this commingling not be authorized, productivity from the Dakota will likely never be realized and thus, from a practical standpoint, the commingled stream will actually generate a higher revenue than will producing the individual zones separately.

In summary, production from the Gallup and Dakota in the Mary Anne #3 is anticipated to be fairly marginal and thus, it is requested that Dugan Production Corp. be permitted to commingle production in the well bore. It is our belief that the requested commingling will result in increased recoveries of hydrocarbons from this lease and will not violate correlative rights.

Should you have any questions regarding this application, please feel free to contact us.

By copy of this letter we have notified the Bureau of Land Management of our proposed commingling. We have also notified the offsetting operators by separate letter, a copy of which is attached.

Sincerely,

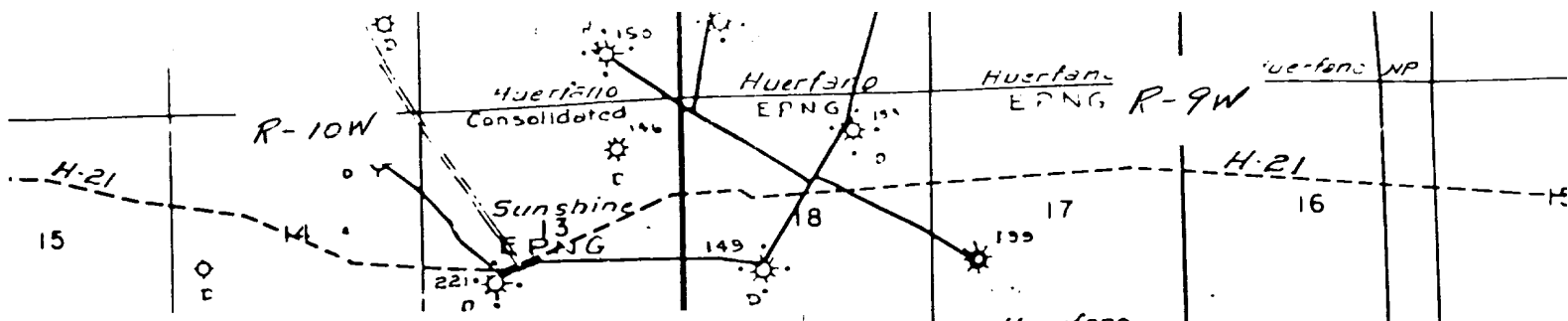
John D. Roe

John Roe
Petroleum Engineer

JDR:fp
Attachments

cc: Frank Chavez, NMOCD, Aztec, NM
BLM, Farmington, NM

RECEIVED
SEP 16 1983
OIL CON. DIV.
DIST. 3

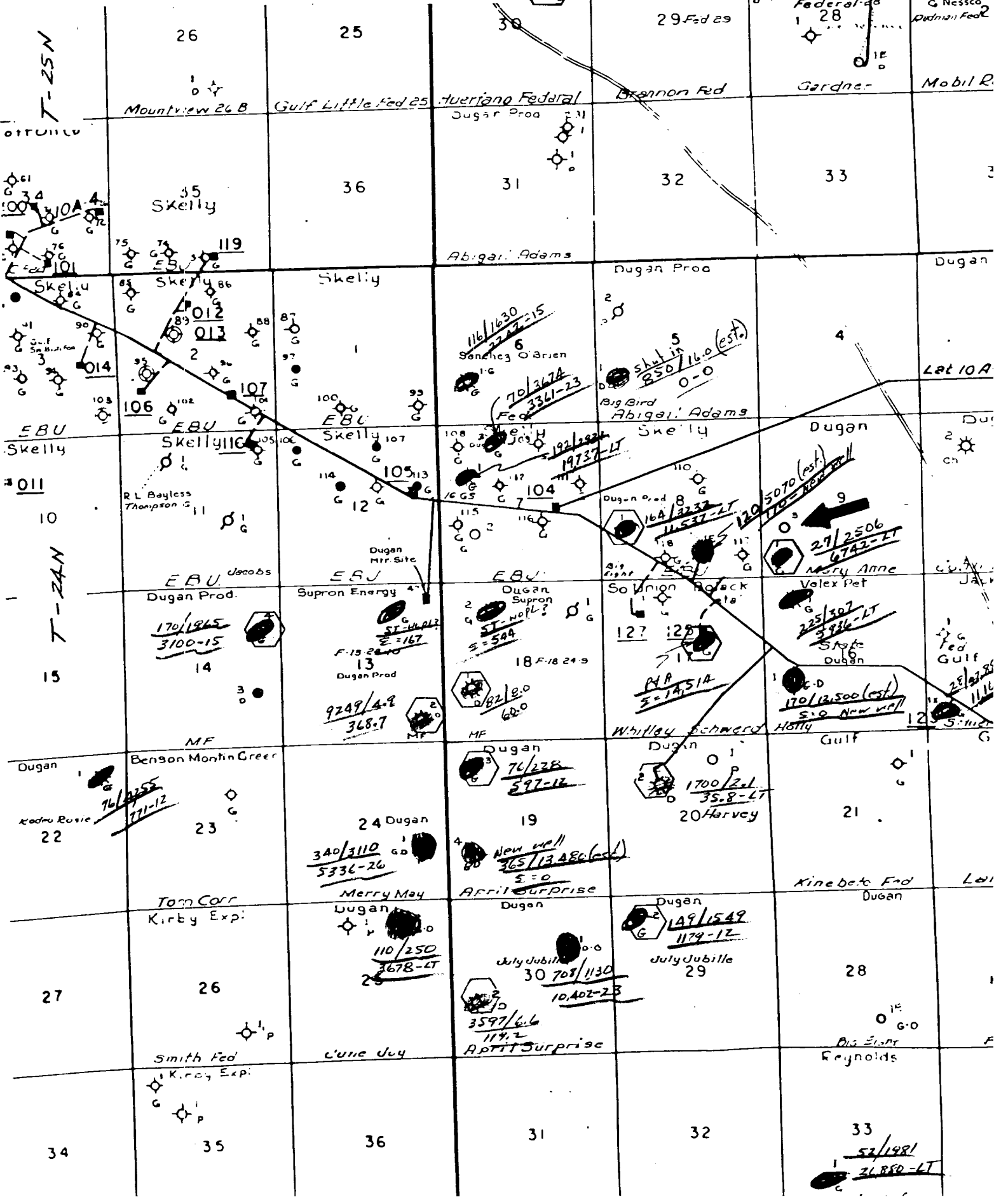


● Gallup well:
 Current avg. BO per mo. / avg. GOR
 Cum. bbl. oil 8-1-83 - # mo. on prod.
 LT = longer than 2 yr. of prod.

● Dakota well:
 Current avg. MCF per mo. / avg. bbl. cond. per mm
 Cum. MMCF gas 8-1-83

● Commingled Gallup-Dakota well:
 Current avg. BO per mo. / avg. GOR
 Cum. bbl. oil 8-1-83 - # mo. on prod.

○ Well used for production analogy



Predicted Production for Commenced Gallipoli Dakota in Dizon Production's May ANNE-3

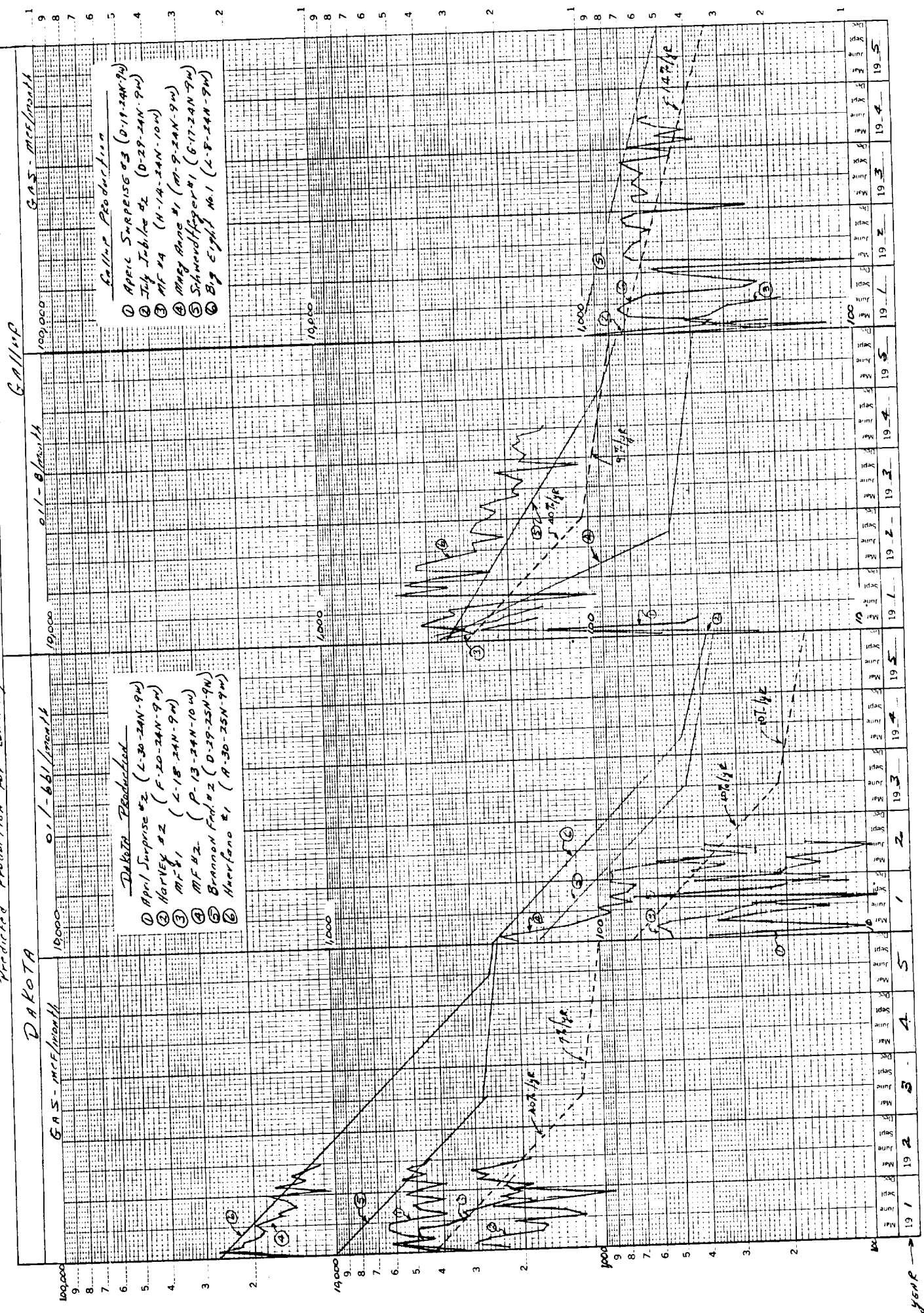


Table No. 1

Allocation Factors for Commingled Gallup-Dakota Wells

Operated by Dugan Production Corp.

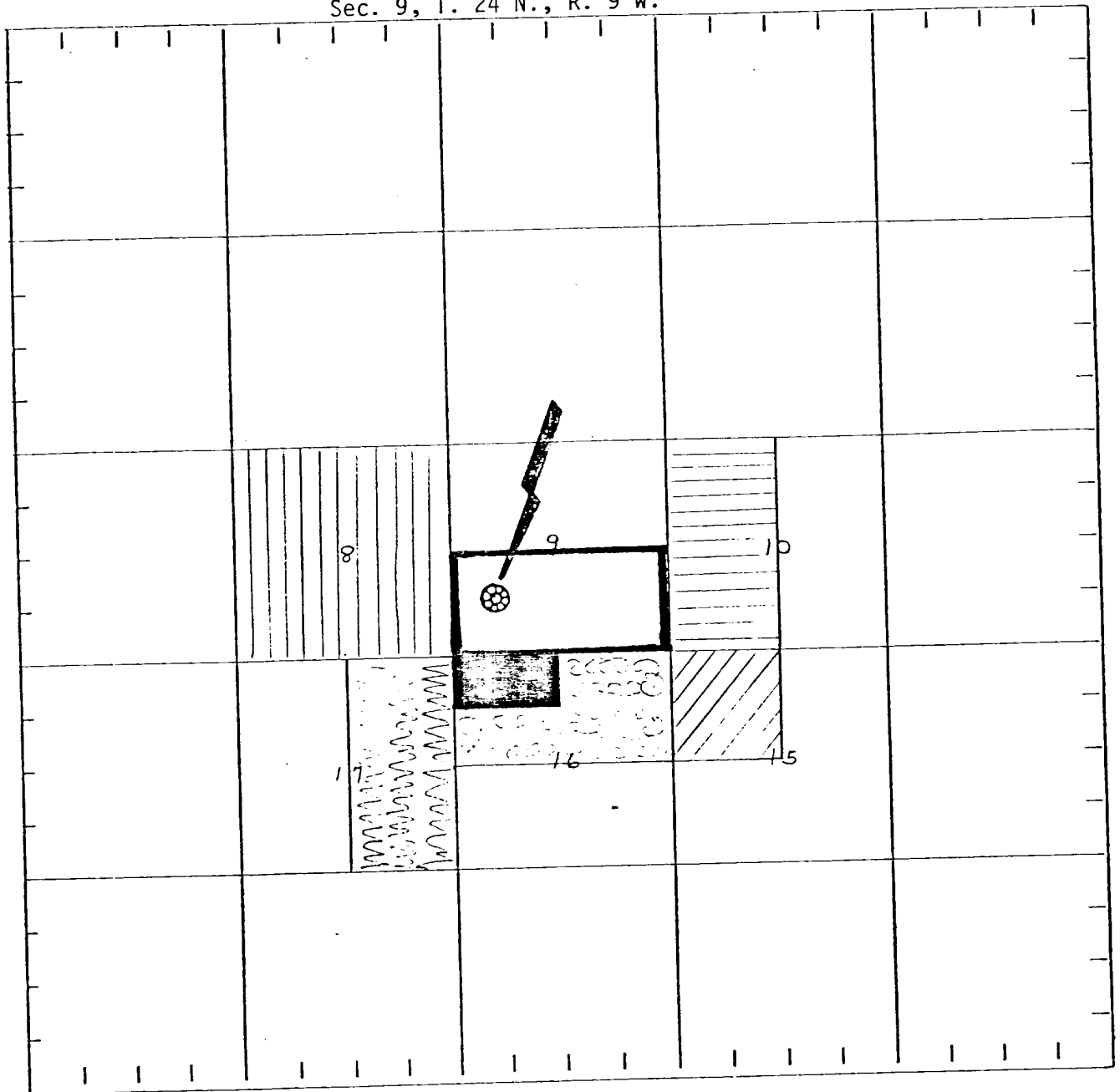
Township 24 North, Ranges 8 and 9 West
San Juan County, New Mexico








	April Surprise #4 R-7210	Holly #1 R-7143	Merry May #1 R-6571	July Jubilee #1 R-6826	June Joy #2 R-6396*	Big Eight #1E R-6825
<u>Oil</u>						
Gallup	85%	95%	85%	90%	80%	90%
Dakota	15%	5%	15%	10%	20%	10%
<u>Gas</u>						
Gallup	15%	80%	15%	10%	80%	13%
Dakota	85%	20%	85%	90%	20%	87%

*Allocation factors in the order are transposed from that which was testified at the hearing. We are working to get this resolved.

DUGAN PRODUCTION CORP.
Mary Anne #3

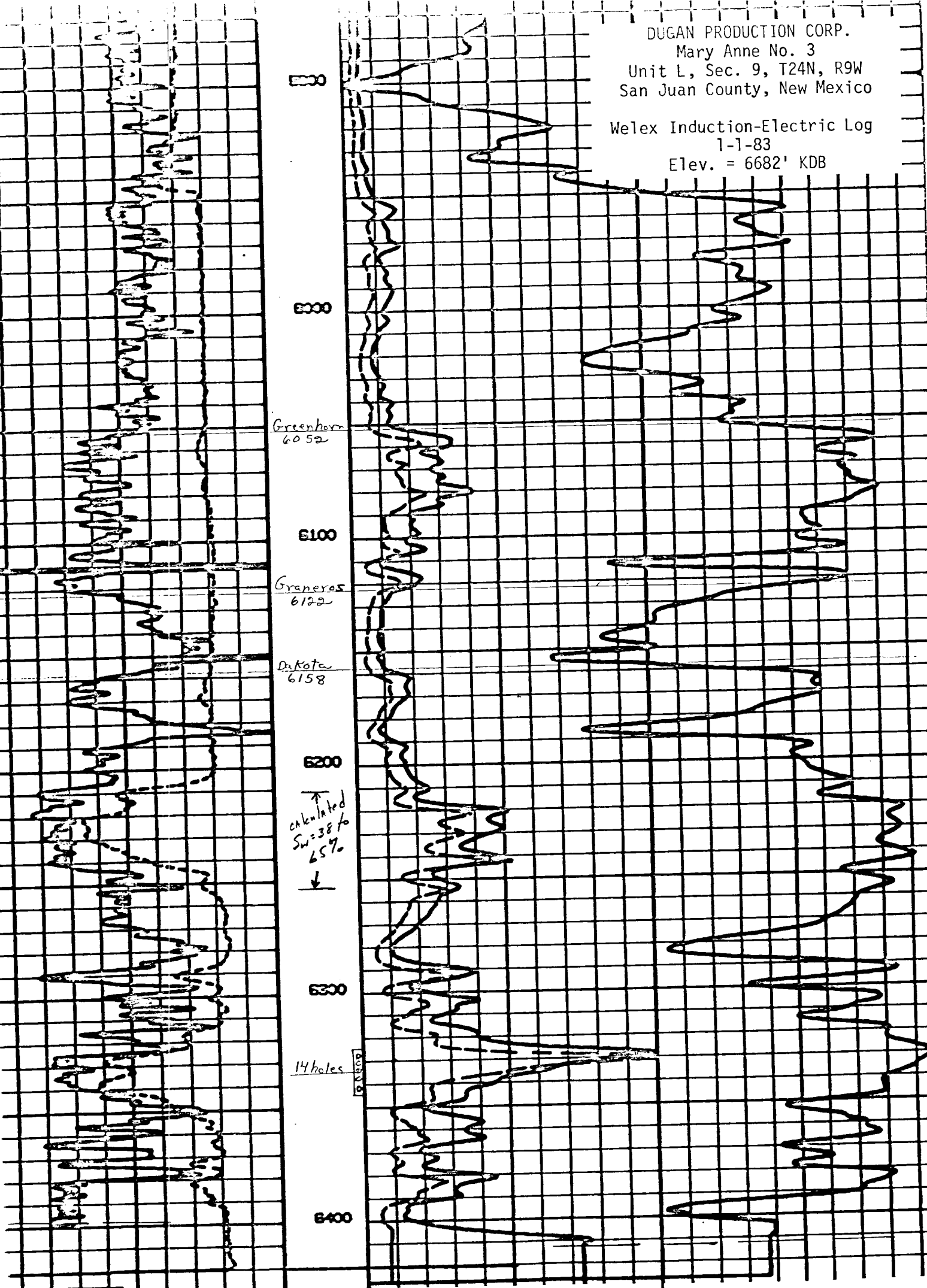
Sec. 9, T. 24 N., R. 9 W.



- | | | | |
|---|-----------------|---------------------------------|---|
|  | Sec. 9: A11 | NM 10089 | - Dugan Production Corp. |
|  | Sec. 8: A11 | NM 25440 | - Dugan Production Corp. |
|  | Sec. 10: W/2 | SF 078859 | - Reynolds Mining Corp. 50%
Box 9911
Corpus Christi, TX 78048
Conoco, Inc. 50%
Attn: C E Stark
555 17th St., 9th Floor, Anaconda Twr
Denver, CO 80202 |
|  | Sec. 15: NW/4 | SF 078859-D | - Benjamin Elenbogen
3450 S. Poplar St., Suite 104
Denver, CO 80224 |
|  | Sec. 16: N2 NW4 | NM State #E6644 | - Valex - 1980 Oil & Gas Program
1580 Lincoln St.
Denver, CO 80203 |
|  | S2 NW4,
NE4 | NM State #E6644 | - Valex Petroleum Corp.
1580 Lincoln St.
Denver, CO 80203 |
|  | Sec. 17: E/2 | U S Minerals, no existing lease | |

DUGAN PRODUCTION CORP.
Mary Anne No. 3
Unit L, Sec. 9, T24N, R9W
San Juan County, New Mexico

Welex Induction-Electric Log
1-1-83
Elev. = 6682' KDB



Greenhorn
6052

Graneros
6122

Dakota
6158

↑
calculated
Sw = 38%
65%
↓

14 holes

2" = 100'

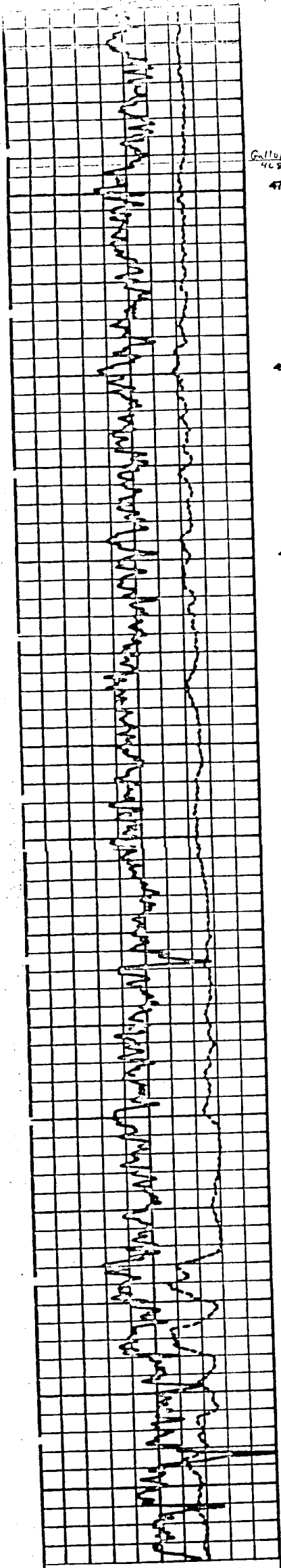
0 GAMMA RAY 200

400 CONDUCTIVITY

0 IND. RES. 100

0 SHORT NORMAL 100

S.P. 10 +



Gallup
4684

4700

4800

4900

5000

5100

5200

5300

5400

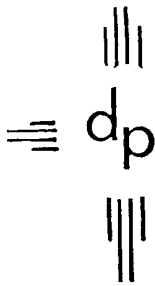
2"=100'

0 GAMMA RAY 200

400 CONDUCTIVITY

0 IND. RES 100

DUGAN PRODUCTION CORP.
Mary Anne No. 3
Unit L, Sec. 9, T24N, R9W
San Juan County, New Mexico
Welex Induction-Electric Log
1-1-83
Elev. = 6682' KDB



dugan production corp.

September 15, 1983

TO: Operators of Leases Offsetting
Dugan Production Corp.'s Mary Anne #3 Well

RE: Request for Administrative Approval to Commingle Downhole
Bisti Gallup and Basin Dakota Fields
Dugan Production Corp.'s Mary Anne Well No. 3
Urit L, Sec. 9, T24N R9W, NMPM
San Juan County, NM

Gentlemen:

We are writing to notify you of Dugan Production Corp.'s application to the New Mexico Oil Conservation Division to commingle production from the Gallup and the Dakota formations within the well bore of the captioned well.

We are making this application because of marginal productivity indicated during our recent completion efforts of the Mary Anne #3, which was spudded on December 22, 1982. To date, no substantial production has occurred and we are currently testing the well which will likely potential for a total of approximately 35 BOPD and 40 BWPD and 160 MCFD from both zones. We have installed a rod pump on the well and expect this well to always be a marginal producer. Attached for your reference is a map on which we have indicated the location of the Mary Anne #3. The proposed commingling is similar to six other wells in the area that have been authorized to commingle Gallup and Dakota production in the well bore.

Should you have any questions regarding this matter, please feel free to contact us.

Sincerely,

John D. Roe

John D. Roe
Petroleum Engineer

JDR:fp
Attachment

cc: Joe D. Ramey, NMOCD
See attached distribution list

Operators of Leases Offsetting
Dugan Production Corp.'s Mary Anne #3 Well

Benjamin Elenbogen
3450 S. Poplar St., Suite 104
Denver, CO 80224

Valex Petroleum Corp.
1580 Lincoln St.
Denver, CO 80203

Conoco, Inc.
Attn: C E Stark
555 17th St., 9th Floor, Anaconda Twr
Denver, CO 80202

Reynolds Mining Corp.
Box 9911
Corpus Christi, TX 78048