

## PRODUCTION ALLOCATION METHODOLOGY

## New Drill Wells & Recompletions

### Initially Subtraction Method followed by Fixed Allocation (Ratio) Method

### Subtraction Method (Six to Twelve Months)

- Determine stabilized flow rate for existing zone (for recompletion – decline curve) or lower zone (for new drill – initial stabilized rate) and forecast production rate by month
- Subtract forecasted rate from commingled rate to determine production rate on new commingled zone
- Utilize subtraction method for six to twelve months until new zone rate stabilizes, then utilize fixed allocation method with current rates

### Fixed Allocation Method (after Subtraction Method)

- Utilize forecasted rate for existing or lower zone
- Calculate upper zone rate by subtracting existing or lower zone rate from commingled rate
- Lower zone allocation =  $\frac{\text{Lower zone rate}}{\text{Commingled rate}}$
- Upper zone allocation =  $(\text{Commingled rate} - \text{Lower zone rate}) / \text{Commingled rate}$
- Example:  
    Lower or existing zone rate - 400 MCFD (forecast after 6 to 12 months)  
    Commingled rate                 - 1000 MCFD

Lower zone allocation =  $400 / 1000$   
= 40%

Upper zone allocation =  $(1000-400) / 1000$   
= 60%

**PHILLIPS PETROLEUM COMPANY**

San Juan 32-7 Unit

**Application for Downhole Commingling  
Reference Case**

**KELLAHIN AND KELLAHIN**

ATTORNEYS AT LAW

EL PATIO BUILDING

117 NORTH GUADALUPE

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SANTA FE, NEW MEXICO 87504-2265

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W. THOMAS KELLAHIN\*

\*NEW MEXICO BOARD OF LEGAL SPECIALIZATION  
RECOGNIZED SPECIALIST IN THE AREA OF  
NATURAL RESOURCES-OIL AND GAS LAW

JASON KELLAHIN (RETIRED 1991)

February 25, 1999

TO: NOTICE OF THE HEARING OF THE FOLLOWING  
NEW MEXICO OIL CONSERVATION DIVISION CASE:

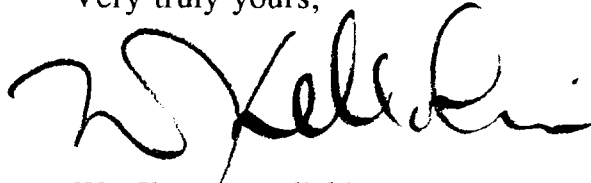
*Re: Application of Phillips Petroleum Company for a downhole  
commingling reference case for its San Juan 32-7 Unit,  
Pursuant to Division Rule 303.E,  
Rio Arriba County, New Mexico*

On behalf of Phillips Petroleum Company, please find enclosed our application which has been set for hearing on the New Mexico Oil Conservation Division Examiner's docket now scheduled for March 18, 1999. The hearing will be held at the Division hearing room located at 2040 S. Pacheco, Santa Fe, New Mexico.

As an interest owner who may be affected by this application, we are notifying you of your right to appear at the hearing and participate in this case, including the right to present evidence either in support of or in opposition to the application. Failure to appear at the hearing may preclude you from any involvement in this case at a later date.

Pursuant to the Division's Memorandum 2-90, you are further notified that if you desire to appear in this case, then you are requested to file a Pre-Hearing Statement with the Division not later than 4:00 PM on Friday, February 26, 1999, with a copy delivered to the undersigned. Please direct any questions to Mr. Scott Prather (505) 599-3410.

Very truly yours,



W. Thomas Kellahin

cc: Phillips Petroleum Company  
Attn: Scott Prather

ALL REFERENCES CONTAINED  
HEREIN TO RIO ARRIBA COUNTY  
ARE INCORRECT AND SHOULD BE  
DEEMED AS SAN JUAN COUNTY

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

**IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:**

**APPLICATION OF PHILLIPS PETROLEUM  
COMPANY FOR DOWNHOLE COMMINGLING  
REFERENCE CASE FOR ITS  
SAN JUAN 32-7 UNIT  
PURSUANT TO DIVISION RULE 303.E  
RIO ARriba COUNTY, NEW MEXICO.**

**CASE NO. \_\_\_\_\_**

**APPLICATION**

Comes now PHILLIPS PETROLEUM COMPANY, by and through its attorneys, Kellahin and Kellahin, and applies to the New Mexico Oil Conservation Division for the establishment of a downhole commingling reference case pursuant to Division Rule 303.E for its San Juan 32-7 Unit and the adoption of special administrative rules therefore, San Juan County, New Mexico. Applicant, in the above-styled cause, in accordance with Division Rule 303.E seeks to establish a downhole commingling reference case to provide for (a) marginal economic criteria, (b) pressure criteria, (c) allocation formulas, and (d) modification of notification rules on an area-wide basis authorization for downhole commingling of Dakota, Mesaverde, Fruitland-Coal and Pictured Cliffs gas production in the wellbores of existing or future wells drilled anywhere within the San Juan 32-7 Unit located in Townships 31 and 32 North, Range 7 West, NMPM, Rio Arriba County, New Mexico.

In support of its application, Phillips Petroleum Company ("Phillips"). states:

(1) Phillips is the operator of the San Juan 32-7 Unit which currently includes 18 Dakota wells, 47 Mesaverde wells, 29 Fruitland-Coal wells and 19 Pictured Cliffs wells all located within an area known as the "San Juan 32-7 Unit" consisting of 17,829 acres, more or less of acreage, as identified on Exhibit "A" attached.

(2) In the absence of the establishment of a "reference case" as provided in Rule 303.E, Division general state-wide Rule 303.C requires that administrative applications for downhole commingling of gas production be submitted, processed and approved on a well by well basis including submittal of the following:

- (a) economic criteria to support that at least one zone to be commingled is marginal.
- (b) pressure criteria to demonstrate that the bottomhole pressure of all zones to be commingled is less than the original bottom hole pressure of the lowest pressures zone,
- (c) allocation formulas,
- (d) notification by certified mail return receipt to each interest owner where ownership is not common in the zones to be commingled, and
- (e) notification by certified mail return receipt to each offset operator

(3) Sufficient data is now available from existing wells in this unit to support the Division approving the downhole commingling of Dakota, Mesaverde, Fruitland-Coal and Pictured Cliffs gas production within this unit on an "area-wide" basis rather than on a "well-by-well basis."

(4) Sufficient data is now available from existing wells in this unit to support the Division adopting a "reference case" for the downhole commingling of Dakota, Mesaverde, Fruitland-Coal and Pictured Cliffs gas production within this unit as to the following criteria:

- (a) **economic criteria:** to support that at least one zone to be commingled is marginal;
- (b) **allocation formulas:** to support that each interest owner shall receive its fair and equitable share of production;

- (c) **elimination of unnecessary notice:** such that any future or further notice concerning downhole commingling applications or orders within this unit shall not be required to (a) any owner (including royalty, overriding royalty or working interest owners) in instances where ownership are not common or percentages are not identical in the zones to be commingled or to (b) each offset operator who is also an interest owner in this unit; but
- (d) **notice to offset operators:** notification by certified mail-return receipt to each offset operator, except as provided in paragraph (c) above, will continue to be made provided those offset operators are operators other than applicant.

(5) Phillips seeks authorization pursuant to Division Rule 303.E that all administrative application for downhole commingling of Mesaverde, Dakota, Fruitland-Coal and Pictured Cliffs gas production within this unit submitted subsequent to the filing of this application in this case shall be authorized to refer to the order entered in this case and will not be required to submit evidence or data for the following criteria (a) marginal economic criteria, (b) pressure criteria, (c) allocation formulas, and (d) notice to owners of any production within spacing units where the ownership is not common and offset operators who also own an interest in this unit.

(6) Production from the various pools in this unit are now either marginal or uneconomic from existing wells within this unit and the economic life of that production is extended if it is downhole commingled with other production in the unit.

(7) The approval of downhole commingling of these formations within this unit will extend the economic life of the existing wells and thereby increase ultimate recovery from these formations.

(8) In addition, any new wells to be drilled or recompleted in this unit should be approved for downhole commingling because either the Dakota, Fruitland coal-gas, Mesaverde, or the Pictured Cliffs zones are marginal based upon criteria which the applicant will submit at the hearing of this case.

(9) It is anticipated that new wells, recompleted wells or existing wellbores in this unit will be most economically completed if there is a summary administrative procedure by which those wells may be downhole commingled.

(10) The processing of downhole commingling application for this unit in the absence of adopting a reference case will be an administrative burden to the Division and to the operator.

(11) Approval of downhole commingling reference case for this unit on an area-wide basis is in the best interest of conservation, the prevention of waste and the protection of correlative rights.

(12) Phillips requests the adoption of a summary administrative procedure with the necessary exceptions to the Division Rule 303.C so that the Supervisor of the Aztec District Office of the Division shall approve the downhole commingling of said production on an area-wide basis for this unit.

(13) The ownership is not common among these four formations within this unit because of differences in participating areas within the unit.

(14) In accordance with Division Rule 303.C(1)(b), the Applicant states and will demonstrate at hearing:

1. That the wells in this unit which are currently single or dual completions are now marginal and production cannot be economically continued nor further developed unless it is done so by downhole commingling that production.

2. That there will be no unrecovered production crossflowing between or among the zones commingled.

3. That the value of the commingled production will not be less than the sum of the values of the individual production.

(15) In order to salvage the remaining production from this unit, Phillips seeks approval to downhole commingle all Dakota, Mesaverde, Fruitland-Coal and Pictured Cliffs production from any existing wells where mechanically feasible and the adoption of a summary procedures for the downhole commingling of future wells to be drilled in the Unit.

(16) Phillips will submit at hearing proposed formulas for the allocation of production to each of the commingled zones and a description of the factors or data used in determining such formulas.

(17) Applicant requests that this matter be docketed for hearing on the Division's Examiner docket now scheduled for March 18, 1999.

(18) Notice of this application has been sent to all interest owners entitled to receive production within the unit and to all offset operators as required by Division Rule 303.

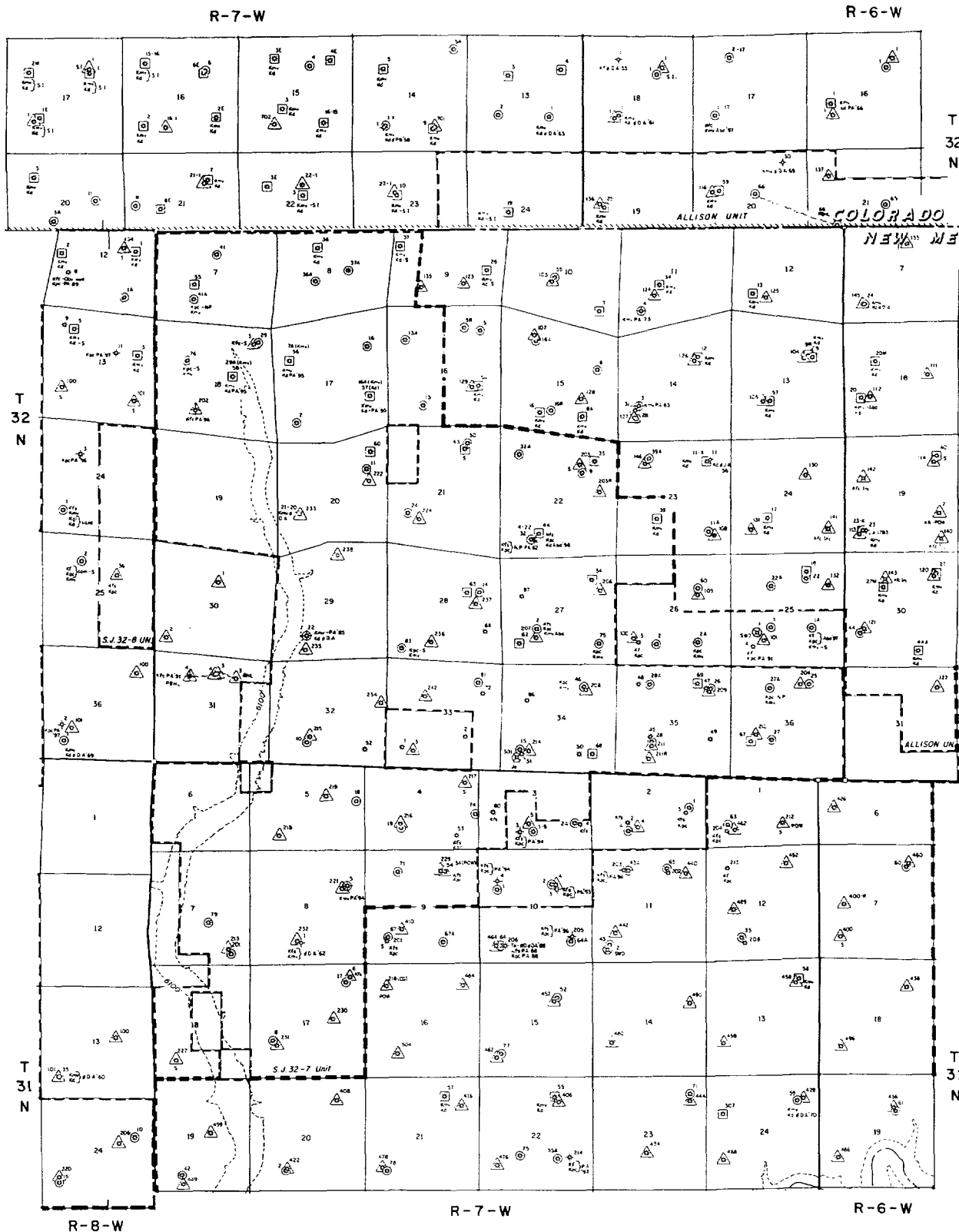
WHEREFORE Applicant requests that this matter be set for hearing on March 18, 1999 before a duly appointed Examiner of the Oil Conservation Division and that after notice and hearing as required by law, the Division enter its order granting this application.

Respectfully submitted

A handwritten signature in black ink, appearing to read 'W. Thomas Kellahin', with a large, stylized initial 'W'.

W. Thomas Kellahin  
KELLAHIN and KELLAHIN  
P. O. Box 2265  
Santa Fe, New Mexico 87501  
(505) 982-4285  
Attorneys for Applicant





PRODUCING INTERVAL

- |     |                                 |    |
|-----|---------------------------------|----|
| 100 | PERMIAN                         | KT |
| 101 | KIPT AND                        | KA |
| 102 | FRUITLAND                       | KT |
| 103 | PICTURED CLIFFS                 | KA |
| 104 | CHICKS                          | KA |
| 105 | LA VENTANA                      | KA |
| 106 | NEVADA                          | KA |
| 107 | SALUD                           | KA |
| 108 | DAKOTA                          | KA |
| 109 | ALL PRODUCTION BELOW CRETACEOUS |    |
| 110 | CLIFFHOUSE                      | KA |
| 111 | PARADOX                         | KA |
| 112 | BARBER CREEK                    | KA |
| 113 | LEADVILLE                       | KA |
| 114 | TOGITO                          | KA |
| 115 | POINT LOOKOUT                   | KA |
| 116 | GREENHORN                       | KA |



PHILLIPS PETROLEUM COMPANY  
FARMINGTON AREA

S.J. 32-7 UNIT  
San Juan County, New Mexico



SAN JUAN 32-7 UNIT  
GWI/NWI/ORRI/RI OWNERS

Amoco Production Company  
Armstrong Revocable Trust  
ATNA/SJ 1993-A  
ATNA/SJFC 1993-A  
Robert Beamon  
Marcia Berger  
Dan P. Black  
Anna Belle Border & David Mathieson  
Herbert R. Briggs  
William C. Briggs  
Gleason E. Brown  
James A. Brown & Judith A. Brown  
Guy R. Campbell  
Ben J. Case & Mary Val Case Revocable Trust  
Case Family Revocable Trust  
Eleanor P. Caughren  
James B. Caylor or Edith Marie Caylor  
Shirley Ann Chouteau Trust, dated 6-10-92  
Katherine F. Clammer Trust  
Elizabeth W. Colburn  
Estate of James A. Collier  
Sheryl Swearingen Johnson Collins  
Conoco, Inc.  
Conoco, Inc. – NM TX Gas  
The Birdie Frances Coryell Revocable Trust, dated 10-2-85  
Frank A. Cronican & Harriett Bates Cronican Revocable Trust, dated 11-19-81  
Wynelle E. Crow  
Mary Ann Isern Deen  
Laura Dichter  
The T. E. Duff Trust  
Duff-Leach Family Trust  
James M. Eakes  
Elliott Hall Company  
Elliott Industries  
Parker F. English  
Estate of Albert E. Fagen  
Barbara W. Frison  
Trust A of Fritts Living Trust No. 2  
Thelma M. Graham Revocable Trust, dated 8-31-81  
Norma Gupton  
Ora R. Hall  
Steele Hannel Group  
C. A. Hanson  
Hanson McBride Petroleum Company  
Meredith E. Hardgrave & Helen Joyce Hardgrave Revocable Living Trust  
Landa M. Harrel & Don Harrel  
Elliot E Hatheway & Charlene M. Hatheway  
George K. Hatheway  
Hatheway Partners, L.L.C.

David W. Hersch  
Richard E. Hersch  
Flora J. Hopkins  
Cyrene L. Inman  
Greg Ireton & Jo Ann W. Ireton  
Edward Isern, Jr.  
Marian Isern Trust C  
Marian Isern Trust D  
E. F. Kalb, deceased  
Leland Stanford University  
Constance A. Lowe  
Lowe Partners, L.P.  
Victoria Lowe  
Arthur D. Lundblade  
Estate of George A. Lundblade  
Marvin L. Lundblade  
Estate of Pattie Ann Beamon Lundell  
Fred C. Luthy, Jr.  
John Charles Major  
Jeanne Scott Mapp  
Helen L. Marcotte  
Helen I. Martin, life estate  
Julie J. Martin  
R. M. Martin  
McCormick & Company, Inc.  
Cipriana M. McCoy  
Geraldine H. McFadden  
Holmes P McLish  
Jeanette Michels  
Herbert J. Necomb  
Commissioner of Public Lands – New Mexico State Land Office  
Roger B. Nielsen  
Julia Page  
Charles L. Parcell  
Parcels Revocable Trust, dated 5-9-91  
Darlene Pearson  
Jonathan J. Peden  
Ralph Peden  
Juanita V. Peterson  
Phillips – New Mexico Partners, L.P.  
Phillips – San Juan Partners, L.P.  
Phillips Petroleum Company  
Robert Pickett  
Cheryl L. Potenziani  
Frank A. Potenziani  
Betty J. Preston Decedent's Trust  
Ernest L. Redford  
Louise M. Richardson  
J. B. Rivers, Jr.  
Ronald Rogers  
San Juan 1990-A, L.P.  
San Juan Basin Partnership  
Sanderson Living Trust  
Milton Schwartz

Neil D. Schwed Family Trust of 1983  
Ralph T. Scott, M.D.  
Scott Family Trust  
Carolyn Nielsen Sedberry  
Larry Simmons  
Stanco Energy Corporation  
Marvin Ben Stark  
Ruthellen Stark  
I. H. Stewart  
Addie Swearingen  
Anna Paul Swearingen  
Evalyn Swearingen  
Glen Swearingen  
Homer A. Swearingen  
Marion L. Swearingen  
T. H. McElvain Oil & Gas Limited Partnership  
Taurus Exploration, USA, Inc.  
Total Minatome Corporation  
George W. Umbach  
Robert Umbach  
Union Oil Company of California  
United, States Department of Interior – MMS  
M. D. Vandever & Lois Vandever  
Lagene E. Verhines  
Chauncey B. Watson, Jr.  
Jack Watson  
Reider Watson  
Edna M. Watt  
Charlotte E. Wells & Kaiulani L. Bumpus  
Terry A. White & Carla K. White  
Marguerite H. Wiley  
Elizabeth Watson Williams  
Williams Production Company  
WWR Enterprises, Inc.