



# SKELLY OIL COMPANY

P.O. Box 730, Hobbs, New Mexico

December 27, 1963

EST. 1911  
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1963

Re: Gallegos Gallup Sand Unit  
San Juan County, New Mexico

Director (6)  
United States Geological Survey  
P.O. Drawer 1857  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3) ✓  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Working Interest Owners  
(Mailing List Attached)

Gentlemen:

In accordance with Section 10 of the Unit Agreement for the development and operation of the Gallegos Gallup Sand Unit Area, San Juan County, Skelly Oil Company respectfully submits for your approval a report of past operations and a plan of development and operation for the pilot waterflood for 1964.

### Past Development

The Gallegos Gallup Sand Unit became effective February 1, 1963, and water injection began in the pilot area on February 4 and 5, in Wells No. 31, 32, 33 48, 49 and 50.

In March 1963, water production increased in offset producing wells. Tracer surveys indicated that the formation fracture orientation was northeast to southwest. As a result of the early water break through the injection pattern was changed from the five-spot pattern to a line drive method of waterflooding the pilot area. At the present time injection is into Wells No. 25, 31, 33, 38 and 49.

### Development Plans for 1964

Operations under the line drive method of waterflooding appear to have satisfactorily eliminated the problem of water break through.

Water injection into these wells is as follows:

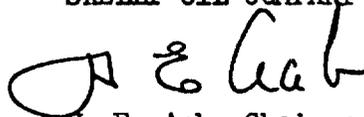
| <u>Unit Well No.</u> | <u>Water Injected<br/>in Nov., Bbls.</u> | <u>Average Well head<br/>Inj. Press. psig.</u> | <u>Cumulative Water Inj.<br/>to December 1, 1963</u> |
|----------------------|--|--|--|
| 25                   | 3,947                                    | 574  | 22,067   |
| 31                   | 4,701                                    | 602  | 75,777   |
| 33                   | 4,864                                    | 577  | 66,626   |
| 38                   | 4,977                                    | 602  | 24,401   |
| 49                   | 5,501                                    | 466  | 74,220   |

Page 2

U. S. Geological Survey  
Commissioner of Public Lands  
Oil Conservation Commission  
All Working Interest Owners

Our plans are to continue injection operations, utilizing the line drive method, and further evaluate the feasibility of expanding to a unit wide injection program.

Yours very truly,  
SKELLY OIL COMPANY

A handwritten signature in cursive script, appearing to read "H. E. Aab".

H. E. Aab, Chairman  
Working Interest Owners Committee

HEA/CJL/pjn

GALLEGOS GALLUP SAND UNIT  
MAILING LIST

---

El Paso Natural Gas Products  
P.O. Box 1161  
El Paso, Texas  
Attention: Mr. Lee Ayers

Gulf Oil Corporation  
P.O. Box 1939  
Roswell, New Mexico  
Attention: District Prod. Manager

J. Felix Hickman  
4245 Park Hill  
El Paso, Texas

Atlas Corporation  
2000 National Bank of Tulsa  
Tulsa 3, Oklahoma  
Attention: Mr. Norman B. Grove

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P.O. Drawer 510  
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Attention: Mr. J. W. George

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Fidelity Union Life Bldg.  
Dallas, Texas

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Farmington, New Mexico  
Attention: Mr. A. R. Greer

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P.O. Box 1515  
Roswell, New Mexico

Mr. William H. Hudson  
1126 Mercantile Securties Bldg.  
Dallas, Texas

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2000 National Bank of Tulsa Bldg.  
Tulsa 3, Oklahoma

Sunray DX Oil Company  
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Fidelity Union Lower  
Dallas 1, Texas

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Roswell Petroleum Bldg.  
Roswell, New Mexico  
Attention: Mr. Charles Hicks

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Burnet, Texas

Skelly Oil Company  
P.O. Box 1650  
Tulsa, Oklahoma  
Attention: Mr. W. P. Whitmore

International Oil and Gas Corp.  
825 Petroleum Club Bldg.  
Denver 2, Colorado  
Attention: Mr. W. B. Macey



# SKELLY OIL COMPANY

P.O. Box 730, Hobbs, New Mexico  
December 27, 1963

RECEIVED  
DEC 27 1963  
24

Re: Gallegos Gallup Sand Unit  
San Juan County, New Mexico

Director (6)  
United States Geological Survey  
P.O. Drawer 1857  
Roswell, New Mexico

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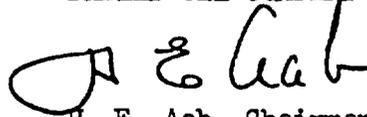
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H. E. Aab, Chairman  
Working Interest Owners Committee

HEA/CJL/pjn

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December 27, 1963

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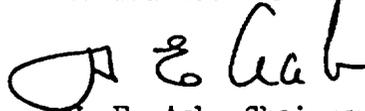
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825 Petroleum Club Bldg.  
Denver 2, Colorado  
Attention: Mr. W. B. Macey

Drawer 1857  
Roswell, New Mexico 88201

September 14, 1964

SEAL  
25  
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1964  
Skelly Oil Company  
P. O. Box 730  
Hobbs, New Mexico

Attention: Mr. H. E. Aab

Gentlemen:

Your July 28 amendment of the 1964 plan of development for the Gallegos Gallup Sand unit area, San Juan County, New Mexico, has been approved on this date subject to like approval by the appropriate State officials.

One approved copy of the plan is enclosed.

Sincerely yours,

(ORIG. SCD) BILLY J. SHOGER

BILLY J. SHOGER  
Acting Oil & Gas Supervisor

cc:

Washington (w/cy plan)  
Farmington (w/cy plan)  
NMDCC - Santa Fe (ltr. only) ✓  
Com. of Pub. Lands - Santa Fe (ltr. only)



2510

# SKELLY OIL COMPANY

TULSA 2, OKLAHOMA

PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT

W. P. WHITMORE, MGR. PRODUCTION

W. D. CARSON, MGR. TECHNICAL SERVICES

ROBERT G. HILTZ, MGR. JOINT OPERATIONS

GEORGE W. SELINGER, MGR. CONSERVATION

February 7, 1964

Re: Gallegos Gallup Sand Unit  
San Juan County, New Mexico

New Mexico Oil Conservation Commission  
P. O. Box 871  
Santa Fe, New Mexico

Attention: Mr. A. L. Porter

Gentlemen:

Attached please find copies of the third revision of Exhibit "C" to the Unit Agreement for the Gallegos Gallup Sand Unit.

This revision has been necessitated by numerous errors in acreage description. Many of the tract descriptions included acreage which was within the Unit Area, but outside the Participating Area. All tracts have been corrected to show only the acreage within the present Participating Area.

In accordance with Section 11 of the Unit Agreement, unless disapproved within thirty (30) days of receipt, this Exhibit will become effective as of the effective date of the Unit.

Very truly yours,

HRW:sw  
Attach.



REVISED EXHIBIT "C" 12-17-63  
 SCHEDULE OF TRACT PERCENTAGE PARTICIPATION  
 GALLEGOS GALLUP SAND UNIT  
 SAN JUAN COUNTY, NEW MEXICO

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| <u>Tract<br/>Number</u> | <u>Description</u>  | <u>Serial No. and<br/>Date of Lease<br/>or Application</u> | <u>Percentage<br/>Participation</u> |
|-------------------------|---|--|-------------------------------------|
| <u>FEDERAL LANDS</u>    |   |  |                                     |
| 1                       | <u>T27N-R13W:</u><br>Sec. 35: NE/4                          | SF-078105<br>12-1-47<br>H.B.P.                             | 0.671851                            |
| 2                       | <u>T27N-R13W:</u><br>Sec. 25: N/2 SW/4<br>Sec. 36: S/2 SW/4 | SF-078391-C<br>6-14-54<br>H.B.P.                           | 0.057624                            |
| 3                       | <u>T27N-R13W:</u><br>Sec. 25: S/2 SW/4<br>Sec. 36: N/2 SW/4 | SF-078391-C<br>6-14-54<br>H.B.P.                           | 1.443535                            |
| 4                       | <u>T27N-R13W:</u><br>Sec. 36: NW/4                          | SF-078391-B<br>6-1-49<br>H.B.P.                            | 1.256399                            |
| 5                       | <u>T27N-R13W:</u><br>Sec. 25: SE/4<br>Sec. 36: SE/4         | SF-078391-A<br>6-1-49<br>H.B.P.                            | 0.845196                            |
| 6                       | <u>T27N-R12W:</u><br>Sec. 30: SW/4                          | SF-078100<br>12-1-47<br>H.B.P.                             | 0.106356                            |
| 7                       | <u>T27N-R12W:</u><br>Sec. 31: NE/4                          | SF-080238<br>4-1-51<br>H.B.P.                              | 1.135652                            |
| 14                      | <u>T27N-R12W:</u><br>Sec. 32: S/2                           | SF-078858<br>4-1-48<br>H.B.P.                              | 2.112104                            |
| 15                      | <u>T27N-R12W:</u><br>Sec. 33: SW/4                          | NM-03413<br>5-1-48<br>H.B.P.                               | 0.476323                            |
| 20                      | <u>T26N-R11W:</u><br>Sec. 6: E/2 SW/4                       | NM-03523<br>7-1-47<br>H.B.P.                               | 0.980533                            |

|    |   |                                   |           |
|----|---|-----------------------------------|-----------|
| 23 | <u>T26N-R12W:</u><br>Sec. 1: S/2<br>Sec. 2: S/2<br>Sec. 11: W/2 | SF-078953<br>2-1-48<br>H. B. P.   | 12.355918 |
| 25 | <u>T26N-R12W:</u><br>Sec. 3: S/2; NW/4<br>Sec. 10: S/2          | SF-080384-B<br>5-1-51<br>H. B. P. | 8.391114  |
| 26 | <u>T26N-R12W:</u><br>Sec. 4: NE/4                               | SF-078286<br>9-1-47<br>H. B. P.   | 1.791245  |
| 27 | <u>T26N-R12W:</u><br>Sec. 4: NW/4                               | SF-078286-B<br>9-1-47<br>H. B. P. | 2.308752  |
| 30 | <u>T26N-R12W:</u><br>Sec. 5: NW/4                               | SF-078286-A<br>9-1-47<br>H. B. P. | 1.569683  |
| 31 | <u>T26N-R12W:</u><br>Sec. 5: SW/4                               | SF-081102-A<br>9-1-47<br>H. B. P. | 0.625959  |
| 32 | <u>T26N-R12W:</u><br>Sec. 8: N/2                                | SF-081100<br>9-1-47<br>H. B. P.   | 0.830293  |
| 34 | <u>T26N-R12W:</u><br>Sec. 8: SE/4                               | SF-080008<br>9-1-47<br>H. B. P.   | 0.399059  |
| 35 | <u>T26N-R12W:</u><br>Sec. 9: N/2                                | SF-078944-A<br>2-1-48<br>H. B. P. | 2.424070  |
| 36 | <u>T26N-R12W:</u><br>Sec. 9: S/2                                | SF-078944<br>2-1-48<br>H. B. P.   | 1.473749  |
| 37 | <u>T26N-R12W:</u><br>Sec. 10: N/2                               | SF-080384<br>5-1-51<br>H. B. P.   | 3.666228  |
| 43 | <u>T26N-R12W:</u><br>Sec. 12: NE/4                              | SF-078918<br>2-1-48<br>H. B. P.   | 1.913564  |

|    |  |                                 |          |
|----|--|---------------------------------|----------|
| 74 | <u>T26N-R11W:</u><br>Sec. 8: W/2 SW/4<br>W/2 SE/4<br>Sec. 18: W/2 SE/4<br>Sec. 20: W/2 NW/4<br>W/2 NE/4<br>Sec. 21: W/2 NW/4         | SF-078899<br>7-1-47<br>H.B.P.   | 4.298366 |
| 75 | <u>T26N-R11W:</u><br>Sec. 8: NW/4<br>E/2 SW/4<br>E/2 SE/4<br>Sec. 18: E/2 SE/4<br>Sec. 20: E/2 NW/4<br>E/2 NE/4<br>Sec. 21: E/2 NW/4 | SF-078899-A<br>7-1-47<br>H.B.P. | 5.296178 |
| 76 | <u>T26N-R11W:</u><br>Sec. 17: A11  | SF-079679<br>12-1-47<br>H.B.P.  | 6.847413 |
| 77 | <u>T26N-R11W:</u><br>Sec. 7: E/2 NW/4<br>E/2 NE/4<br>W/2 SW/4<br>W/2 SE/4<br>Sec. 18: E/2 NE/4                                       | SF-078897<br>7-1-47<br>H.B.P.   | 6.580967 |
| 78 | <u>T26N-R11W:</u><br>Sec. 7: W/2 NE/4<br>Lots 1 and 2<br>E/2 SW/4<br>E/2 SE/4<br>Sec. 18: W/2 NE/4                                   | SF-078897-A<br>7-1-47<br>H.B.P. | 4.520205 |
| 79 | <u>T26N-R11W:</u><br>Sec. 6: W/2 SW/4  | NM-03523<br>7-1-47<br>H.B.P.    | 0.419215 |
| 90 | <u>T27N-R13W:</u><br>Sec. 36: NE/4   | SF-078391<br>6-1-49<br>H.B.P.   | 1.615016 |

| <u>Tract<br/>Number</u> | <u>Description</u> | <u>Serial No. and<br/>Date of Lease<br/>or Application</u> | <u>Percentage<br/>Participation</u> |
|-------------------------|--------------------|--|-------------------------------------|
|-------------------------|--------------------|--|-------------------------------------|

INDIAN ALLOTTED LANDS

|    |                                    |                                    |          |
|----|------------------------------------|------------------------------------|----------|
| 38 | <u>T26N-R12W:</u><br>Sec. 11: NE/4 | 14-20-603-294<br>5-11-54<br>H.B.P. | 2.157640 |
| 39 | <u>T26N-R12W:</u><br>Sec. 11: SE/4 | 14-20-603-295<br>5-11-54<br>H.B.P. | 2.517019 |
| 40 | <u>T26N-R12W:</u><br>Sec. 12: NW/4 | 14-20-603-296<br>5-11-54<br>H.B.P. | 2.646002 |
| 41 | <u>T26N-R12W:</u><br>Sec. 12: SW/4 | 14-20-603-297<br>5-11-54<br>H.B.P. | 2.303519 |
| 42 | <u>T26N-R12W:</u><br>Sec. 12: SE/4 | 14-20-603-298<br>5-11-54<br>H.B.P. | 2.319216 |
| 44 | <u>T26N-R12W:</u><br>Sec. 13: NE/4 | 14-20-603-299<br>5-11-54<br>H.B.P. | 1.561061 |
| 45 | <u>T26N-R12W:</u><br>Sec. 13: SE/4 | 14-20-603-300<br>5-11-54           | 1.067618 |
| 46 | <u>T26N-R12W:</u><br>Sec. 13: NW/4 | 14-20-603-302<br>2-9-54<br>H.B.P.  | 1.543176 |
| 47 | <u>T26N-R12W:</u><br>Sec. 13: SW/4 | 14-20-603-301<br>5-11-54           | 0.937516 |
| 48 | <u>T26N-R12W:</u><br>Sec. 14: NE/4 | 14-20-603-303<br>5-11-54           | 0.892655 |
| 49 | <u>T26N-R12W:</u><br>Sec. 14: SE/4 | 14-20-603-304<br>5-11-54<br>H.B.P. | 0.963094 |
| 57 | <u>T26N-R12W:</u><br>Sec. 24: NW/4 | 14-20-603-306<br>2-9-54<br>H.B.P.  | 0.970675 |
| 59 | <u>T26N-R12W:</u><br>Sec. 24: NE/4 | 14-20-603-309<br>5-11-54           | 0.714041 |

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|----------------------------------|---|--|-------------------------------------|
| <u>STATE OF NEW MEXICO LANDS</u> |   |  |                                     |
| 86                               | <u>T26N-R11W:</u><br>Sec. 16: N/2 NW/4<br>SW/4 NW/4 | E-9895<br>3-20-56<br>H.B.P.                                | 1.231380                            |
| 87                               | <u>T26N-R11W:</u><br>Sec. 16: SE/4 NW/4             | B-11240<br>5-16-44   | 0.374629                            |
| 88                               | <u>T26N-R11W:</u><br>Sec. 16: SW/4                  | E-9989<br>4-17-56  | 1.388192                            |



REVISED EXHIBIT "C" 12-17-63  
 SCHEDULE OF TRACT PERCENTAGE PARTICIPATION  
 GALLEGOS GALLUP SAND UNIT  
 SAN JUAN COUNTY, NEW MEXICO

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| <u>Tract Number</u>  | <u>Description</u>  | <u>Serial No. and Date of Lease or Application</u> | <u>Percentage Participation</u> |
|----------------------|---|--|---------------------------------|
| <u>FEDERAL LANDS</u> |   |  |                                 |
| 1                    | <u>T27N-R13W:</u><br>Sec. 35: NE/4                          | SF-078105<br>12-1-47<br>H.B.P.                     | 0.671851                        |
| 2                    | <u>T27N-R13W:</u><br>Sec. 25: N/2 SW/4<br>Sec. 36: S/2 SW/4 | SF-078391-C<br>6-14-54<br>H.B.P.                   | 0.057624                        |
| 3                    | <u>T27N-R13W:</u><br>Sec. 25: S/2 SW/4<br>Sec. 36: N/2 SW/4 | SF-078391-C<br>6-14-54<br>H.B.P.                   | 1.443535                        |
| 4                    | <u>T27N-R13W:</u><br>Sec. 36: NW/4                          | SF-078391-B<br>6-1-49<br>H.B.P.                    | 1.256399                        |
| 5                    | <u>T27N-R13W:</u><br>Sec. 25: SE/4<br>Sec. 36: SE/4         | SF-078391-A<br>6-1-49<br>H.B.P.                    | 0.845196                        |
| 6                    | <u>T27N-R12W:</u><br>Sec. 30: SW/4                          | SF-078100<br>12-1-47<br>H.B.P.                     | 0.106356                        |
| 7                    | <u>T27N-R12W:</u><br>Sec. 31: NE/4                          | SF-080238<br>4-1-51<br>H.B.P.                      | 1.135652                        |
| 14                   | <u>T27N-R12W:</u><br>Sec. 32: S/2                           | SF-078858<br>4-1-48<br>H.B.P.                      | 2.112104                        |
| 15                   | <u>T27N-R12W:</u><br>Sec. 33: SW/4                          | NM-03413<br>5-1-48<br>H.B.P.                       | 0.476323                        |
| 20                   | <u>T26N-R11W:</u><br>Sec. 6: E/2 SW/4                       | NM-03523<br>7-1-47<br>H.B.P.                       | 0.980533                        |

|    |   |                                 |           |
|----|---|---------------------------------|-----------|
| 23 | <u>T26N-R12W:</u><br>Sec. 1: S/2<br>Sec. 2: S/2<br>Sec. 11: W/2 | SF-078953<br>2-1-48<br>H.B.P.   | 12.355918 |
| 25 | <u>T26N-R12W:</u><br>Sec. 3: S/2; NW/4<br>Sec. 10: S/2          | SF-080384-B<br>5-1-51<br>H.B.P. | 8.391114  |
| 26 | <u>T26N-R12W:</u><br>Sec. 4: NE/4                               | SF-078286<br>9-1-47<br>H.B.P.   | 1.791245  |
| 27 | <u>T26N-R12W:</u><br>Sec. 4: NW/4                               | SF-078286-B<br>9-1-47<br>H.B.P. | 2.308752  |
| 30 | <u>T26N-R12W:</u><br>Sec. 5: NW/4                               | SF-078286-A<br>9-1-47<br>H.B.P. | 1.569683  |
| 31 | <u>T26N-R12W:</u><br>Sec. 5: SW/4                               | SF-081102-A<br>9-1-47<br>H.B.P. | 0.625959  |
| 32 | <u>T26N-R12W:</u><br>Sec. 8: N/2                                | SF-081100<br>9-1-47<br>H.B.P.   | 0.830293  |
| 34 | <u>T26N-R12W:</u><br>Sec. 8: SE/4                               | SF-080008<br>9-1-47<br>H.B.P.   | 0.399059  |
| 35 | <u>T26N-R12W:</u><br>Sec. 9: N/2                                | SF-078944-A<br>2-1-48<br>H.B.P. | 2.424070  |
| 36 | <u>T26N-R12W:</u><br>Sec. 9: S/2                                | SF-078944<br>2-1-48<br>H.B.P.   | 1.473749  |
| 37 | <u>T26N-R12W:</u><br>Sec. 10: N/2                               | SF-080384<br>5-1-51<br>H.B.P.   | 3.666228  |
| 43 | <u>T26N-R12W:</u><br>Sec. 12: NE/4                              | SF-078918<br>2-1-48<br>H.B.P.   | 1.913564  |

|    |  |                                 |          |
|----|--|---------------------------------|----------|
| 74 | <u>T26N-R11W:</u><br>Sec. 8: W/2 SW/4<br>W/2 SE/4<br>Sec. 18: W/2 SE/4<br>Sec. 20: W/2 NW/4<br>W/2 NE/4<br>Sec. 21: W/2 NW/4         | SF-078899<br>7-1-47<br>H.B.P.   | 4.298366 |
| 75 | <u>T26N-R11W:</u><br>Sec. 8: NW/4<br>E/2 SW/4<br>E/2 SE/4<br>Sec. 18: E/2 SE/4<br>Sec. 20: E/2 NW/4<br>E/2 NE/4<br>Sec. 21: E/2 NW/4 | SF-078899-A<br>7-1-47<br>H.B.P. | 5.296178 |
| 76 | <u>T26N-R11W:</u><br>Sec. 17: All  | SF-079679<br>12-1-47<br>H.B.P.  | 6.847413 |
| 77 | <u>T26N-R11W:</u><br>Sec. 7: E/2 NW/4<br>E/2 NE/4<br>W/2 SW/4<br>W/2 SE/4<br>Sec. 18: E/2 NE/4                                       | SF-078897<br>7-1-47<br>H.B.P.   | 6.580967 |
| 78 | <u>T26N-R11W:</u><br>Sec. 7: W/2 NE/4<br>Lots 1 and 2<br>E/2 SW/4<br>E/2 SE/4<br>Sec. 18: W/2 NE/4                                   | SF-078897-A<br>7-1-47<br>H.B.P. | 4.520205 |
| 79 | <u>T26N-R11W:</u><br>Sec. 6: W/2 SW/4  | NM-03523<br>7-1-47<br>H.B.P.    | 0.419215 |
| 90 | <u>T27N-R13W:</u><br>Sec. 36: NE/4   | SF-078391<br>6-1-49<br>H.B.P.   | 1.615016 |

| <u>Tract Number</u>          | <u>Description</u>                 | <u>Serial No. and Date of Lease or Application</u> | <u>Percentage Participation</u> |
|------------------------------|------------------------------------|--|---------------------------------|
| <u>INDIAN ALLOTTED LANDS</u> |                                    |  |                                 |
| 38                           | <u>T26N-R12W:</u><br>Sec. 11: NE/4 | 14-20-603-294<br>5-11-54<br>H.B.P.                 | 2.157640                        |
| 39                           | <u>T26N-R12W:</u><br>Sec. 11: SE/4 | 14-20-603-295<br>5-11-54<br>H.B.P.                 | 2.517019                        |
| 40                           | <u>T26N-R12W:</u><br>Sec. 12: NW/4 | 14-20-603-296<br>5-11-54<br>H.B.P.                 | 2.646002                        |
| 41                           | <u>T26N-R12W:</u><br>Sec. 12: SW/4 | 14-20-603-297<br>5-11-54<br>H.B.P.                 | 2.303519                        |
| 42                           | <u>T26N-R12W:</u><br>Sec. 12: SE/4 | 14-20-603-298<br>5-11-54<br>H.B.P.                 | 2.319216                        |
| 44                           | <u>T26N-R12W:</u><br>Sec. 13: NE/4 | 14-20-603-299<br>5-11-54<br>H.B.P.                 | 1.561061                        |
| 45                           | <u>T26N-R12W:</u><br>Sec. 13: SE/4 | 14-20-603-300<br>5-11-54                           | 1.067618                        |
| 46                           | <u>T26N-R12W:</u><br>Sec. 13: NW/4 | 14-20-603-302<br>2-9-54<br>H.B.P.                  | 1.543176                        |
| 47                           | <u>T26N-R12W:</u><br>Sec. 13: SW/4 | 14-20-603-301<br>5-11-54                           | 0.937516                        |
| 48                           | <u>T26N-R12W:</u><br>Sec. 14: NE/4 | 14-20-603-303<br>5-11-54                           | 0.892655                        |
| 49                           | <u>T26N-R12W:</u><br>Sec. 14: SE/4 | 14-20-603-304<br>5-11-54<br>H.B.P.                 | 0.963094                        |
| 57                           | <u>T26N-R12W:</u><br>Sec. 24: NW/4 | 14-20-603-306<br>2-9-54<br>H.B.P.                  | 0.970675                        |
| 59                           | <u>T26N-R12W:</u><br>Sec. 24: NE/4 | 14-20-603-309<br>5-11-54                           | 0.714041                        |

| <u>Tract<br/>Number</u>          | <u>Description</u>                                  | <u>Serial No. and<br/>Date of Lease<br/>or Application</u> | <u>Percentage<br/>Participation</u> |
|----------------------------------|---|--|-------------------------------------|
| <u>STATE OF NEW MEXICO LANDS</u> |   |  |                                     |
| 86                               | <u>T26N-R11W:</u><br>Sec. 16: N/2 NW/4<br>SW/4 NW/4 | E-9895<br>3-20-56<br>H.B.P.                                | 1.231380                            |
| 87                               | <u>T26N-R11W:</u><br>Sec. 16: SE/4 NW/4             | B-11240<br>5-16-44   | 0.374629                            |
| 88                               | <u>T26N-R11W:</u><br>Sec. 16: SW/4                  | E-9989<br>4-17-56  | 1.388192                            |



REVISED EXHIBIT "C" 12-17-63  
 SCHEDULE OF TRACT PERCENTAGE PARTICIPATION  
 GALLEGOS GALLUP SAND UNIT  
 SAN JUAN COUNTY, NEW MEXICO

| <u>Tract Number</u>  | <u>Description</u>  | <u>Serial No. and Date of Lease or Application</u> | <u>Percentage Participation</u> |
|----------------------|---|--|---------------------------------|
| <u>FEDERAL LANDS</u> |   |  |                                 |
| 1                    | <u>T27N-R13W:</u><br>Sec. 35: NE/4                          | SF-078105<br>12-1-47<br>H.B.P.                     | 0.671851                        |
| 2                    | <u>T27N-R13W:</u><br>Sec. 25: N/2 SW/4<br>Sec. 36: S/2 SW/4 | SF-078391-C<br>6-14-54<br>H.B.P.                   | 0.057624                        |
| 3                    | <u>T27N-R13W:</u><br>Sec. 25: S/2 SW/4<br>Sec. 36: N/2 SW/4 | SF-078391-C<br>6-14-54<br>H.B.P.                   | 1.443535                        |
| 4                    | <u>T27N-R13W:</u><br>Sec. 36: NW/4                          | SF-078391-B<br>6-1-49<br>H.B.P.                    | 1.256399                        |
| 5                    | <u>T27N-R13W:</u><br>Sec. 25: SE/4<br>Sec. 36: SE/4         | SF-078391-A<br>6-1-49<br>H.B.P.                    | 0.845196                        |
| 6                    | <u>T27N-R12W:</u><br>Sec. 30: SW/4                          | SF-078100<br>12-1-47<br>H.B.P.                     | 0.106356                        |
| 7                    | <u>T27N-R12W:</u><br>Sec. 31: NE/4                          | SF-080238<br>4-1-51<br>H.B.P.                      | 1.135652                        |
| 14                   | <u>T27N-R12W:</u><br>Sec. 32: S/2                           | SF-078858<br>4-1-48<br>H.B.P.                      | 2.112104                        |
| 15                   | <u>T27N-R12W:</u><br>Sec. 33: SW/4                          | NM-03413<br>5-1-48<br>H.B.P.                       | 0.476323                        |
| 20                   | <u>T26N-R11W:</u><br>Sec. 6: E/2 SW/4                       | NM-03523<br>7-1-47<br>H.B.P.                       | 0.980533                        |

|    |   |                                 |           |
|----|---|---------------------------------|-----------|
| 23 | <u>T26N-R12W:</u><br>Sec. 1: S/2<br>Sec. 2: S/2<br>Sec. 11: W/2 | SF-078953<br>2-1-48<br>H.B.P.   | 12.355918 |
| 25 | <u>T26N-R12W:</u><br>Sec. 3: S/2; NW/4<br>Sec. 10: S/2          | SF-080384-B<br>5-1-51<br>H.B.P. | 8.391114  |
| 26 | <u>T26N-R12W:</u><br>Sec. 4: NE/4                               | SF-078286<br>9-1-47<br>H.B.P.   | 1.791245  |
| 27 | <u>T26N-R12W:</u><br>Sec. 4: NW/4                               | SF-078286-B<br>9-1-47<br>H.B.P. | 2.308752  |
| 30 | <u>T26N-R12W:</u><br>Sec. 5: NW/4                               | SF-078286-A<br>9-1-47<br>H.B.P. | 1.569683  |
| 31 | <u>T26N-R12W:</u><br>Sec. 5: SW/4                               | SF-081102-A<br>9-1-47<br>H.B.P. | 0.625959  |
| 32 | <u>T26N-R12W:</u><br>Sec. 8: N/2                                | SF-081100<br>9-1-47<br>H.B.P.   | 0.830293  |
| 34 | <u>T26N-R12W:</u><br>Sec. 8: SE/4                               | SF-080008<br>9-1-47<br>H.B.P.   | 0.399059  |
| 35 | <u>T26N-R12W:</u><br>Sec. 9: N/2                                | SF-078944-A<br>2-1-48<br>H.B.P. | 2.424070  |
| 36 | <u>T26N-R12W:</u><br>Sec. 9: S/2                                | SF-078944<br>2-1-48<br>H.B.P.   | 1.473749  |
| 37 | <u>T26N-R12W:</u><br>Sec. 10: N/2                               | SF-080384<br>5-1-51<br>H.B.P.   | 3.666228  |
| 43 | <u>T26N-R12W:</u><br>Sec. 12: NE/4                              | SF-078918                       | 1.913564  |

|    |  |                                 |          |
|----|--|---------------------------------|----------|
| 74 | <u>T26N-R11W:</u><br>Sec. 8: W/2 SW/4<br>W/2 SE/4<br>Sec. 18: W/2 SE/4<br>Sec. 20: W/2 NW/4<br>W/2 NE/4<br>Sec. 21: W/2 NW/4         | SF-078899<br>7-1-47<br>H.B.P.   | 4.298366 |
| 75 | <u>T26N-R11W:</u><br>Sec. 8: NW/4<br>E/2 SW/4<br>E/2 SE/4<br>Sec. 18: E/2 SE/4<br>Sec. 20: E/2 NW/4<br>E/2 NE/4<br>Sec. 21: E/2 NW/4 | SF-078899-A<br>7-1-47<br>H.B.P. | 5.296178 |
| 76 | <u>T26N-R11W:</u><br>Sec. 17: All  | SF-079679<br>12-1-47<br>H.B.P.  | 6.847413 |
| 77 | <u>T26N-R11W:</u><br>Sec. 7: E/2 NW/4<br>E/2 NE/4<br>W/2 SW/4<br>W/2 SE/4<br>Sec. 18: E/2 NE/4                                       | SF-078897<br>7-1-47<br>H.B.P.   | 6.580967 |
| 78 | <u>T26N-R11W:</u><br>Sec. 7: W/2 NE/4<br>Lots 1 and 2<br>E/2 SW/4<br>E/2 SE/4<br>Sec. 18: W/2 NE/4                                   | SF-078897-A<br>7-1-47<br>H.B.P. | 4.520205 |
| 79 | <u>T26N-R11W:</u><br>Sec. 6: W/2 SW/4  | NM-03523<br>7-1-47<br>H.B.P.    | 0.419215 |
| 90 | <u>T27N-R13W:</u><br>Sec. 36: NE/4   | SF-078391<br>6-1-49<br>H.B.P.   | 1.615016 |

| <u>Tract Number</u> | <u>Description</u>                 | <u>Serial No. and Date of Lease or Application</u> | <u>Percentage Participation</u> |
|---------------------|------------------------------------|--|---------------------------------|
|                     |                                    | <u>INDIAN ALLOTTED LANDS</u>                       |                                 |
| 38                  | <u>T26N-R12W:</u><br>Sec. 11: NE/4 | 14-20-603-294<br>5-11-54<br>H.B.P.                 | 2.157640                        |
| 39                  | <u>T26N-R12W:</u><br>Sec. 11: SE/4 | 14-20-603-295<br>5-11-54<br>H.B.P.                 | 2.517019                        |
| 40                  | <u>T26N-R12W:</u><br>Sec. 12: NW/4 | 14-20-603-296<br>5-11-54<br>H.B.P.                 | 2.646002                        |
| 41                  | <u>T26N-R12W:</u><br>Sec. 12: SW/4 | 14-20-603-297<br>5-11-54<br>H.B.P.                 | 2.303519                        |
| 42                  | <u>T26N-R12W:</u><br>Sec. 12: SE/4 | 14-20-603-298<br>5-11-54<br>H.B.P.                 | 2.319216                        |
| 44                  | <u>T26N-R12W:</u><br>Sec. 13: NE/4 | 14-20-603-299<br>5-11-54<br>H.B.P.                 | 1.561061                        |
| 45                  | <u>T26N-R12W:</u><br>Sec. 13: SE/4 | 14-20-603-300<br>5-11-54                           | 1.067618                        |
| 46                  | <u>T26N-R12W:</u><br>Sec. 13: NW/4 | 14-20-603-302<br>2-9-54<br>H.B.P.                  | 1.543176                        |
| 47                  | <u>T26N-R12W:</u><br>Sec. 13: SW/4 | 14-20-603-301<br>5-11-54                           | 0.937516                        |
| 48                  | <u>T26N-R12W:</u><br>Sec. 14: NE/4 | 14-20-603-303<br>5-11-54                           | 0.892655                        |
| 49                  | <u>T26N-R12W:</u><br>Sec. 14: SE/4 | 14-20-603-304<br>5-11-54<br>H.B.P.                 | 0.963094                        |
| 57                  | <u>T26N-R12W:</u><br>Sec. 24: NW/4 | 14-20-603-306<br>2-9-54<br>H.B.P.                  | 0.970675                        |
|                     | <u>T26N-R12W:</u>                  | 14-20-603-309<br>5-11-54                           | 0.714000                        |

| <u>Tract<br/>Number</u>          | <u>Description</u>                                  | <u>Serial No. and<br/>Date of Lease<br/>or Application</u> | <u>Percentage<br/>Participation</u> |
|----------------------------------|---|--|-------------------------------------|
| <u>STATE OF NEW MEXICO LANDS</u> |   |  |                                     |
| 86                               | <u>T26N-R11W:</u><br>Sec. 16: N/2 NW/4<br>SW/4 NW/4 | E-9895<br>3-20-56<br>H.B.P.                                | 1.231380                            |
| 87                               | <u>T26N-R11W:</u><br>Sec. 16: SE/4 NW/4             | B-11240<br>5-16-44   | 0.374629                            |
| 88                               | <u>T26N-R11W:</u><br>Sec. 16: SW/4                  | E-9989<br>4-17-56  | 1.388192                            |

OIL CONSERVATION COMMISSION  
P. O. BOX 871  
SANTA FE, NEW MEXICO

2512

July 11, 1963

Skelly Oil Company  
Tulsa 2, Oklahoma

Attention: Mr. Barton W. Ratliff

Re: Plan of Development and  
Operation of Pilot Waterflood  
Gallegos Gallup Sand Unit,  
San Juan County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the report operation to May 15, 1963, and the revised plan of development and operation dated June 4, 1963, for the Gallegos Gallup Sand Unit, San Juan County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

The approved copy of the plan is being retained for the Commission files, if copies are required for your files, please submit additional copies for signature.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/JEK/og

cc: Commissioner of Public Lands  
Santa Fe, New Mexico

United States Geological Survey  
Roswell, New Mexico

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OIL CONSERVATION COMMISSION  
P. O. BOX 871  
SANTA FE, NEW MEXICO

July 11, 1963

Skelly Oil Company  
Tulsa 2, Oklahoma

Attention: Mr. Barton W. Ratliff

Re: Plan of Development and  
Operation of Pilot Waterflood  
Gallegos Gallup Sand Unit,  
San Juan County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the report operation to May 15, 1963, and the revised plan of development and operation dated June 4, 1963, for the Gallegos Gallup Sand Unit, San Juan County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

The approved copy of the plan is being retained for the Commission files, if copies are required for your files, please submit additional copies for signature.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/JEK/og

cc: Commissioner of Public Lands  
Santa Fe, New Mexico

United States Geological Survey  
Roswell, New Mexico

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# SKELLY OIL COMPANY

TULSA 2, OKLAHOMA

June 4, 1963

PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT

W. P. WHITMORE, MGR. PRODUCTION

W. D. CARSON, MGR. TECHNICAL SERVICES

ROBERT G. HILTZ, MGR. JOINT OPERATIONS

GEORGE W. SELINGER, MGR. CONSERVATION

Re: Gallegos Gallup Sand Unit  
San Juan County, New Mexico

New Mexico Oil Conservation Commission  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

In accordance with Section 10 of the Unit Agreement for the development and operation of the Gallegos Gallup Sand Unit Area, San Juan County, New Mexico, Skelly Oil Company respectfully submits for your approval a report of operation to May 15, 1963, and a revised plan of development and operation for the pilot waterflood.

## PROGRESS REPORT OF THE PILOT WATERFLOOD:

The Gallegos Gallup Sand Unit became effective February 1, 1963, and water injection began in the pilot area on February 4 and 5, in Wells No. 31, 32, 33, 48, 49 and 50.

Water injection for the month of April, 1963, is as follows:

| <u>Unit<br/>Well No.</u> | <u>Water Injected<br/>in April, Bbls.</u> | <u>Average Wellhead Injection<br/>Pressure - p.s.i.g.</u> | <u>Cumulative Water<br/>Injected-May 1-Bbls.</u> |
|--------------------------|---|---|--|
| 31                       | 7,717                                     | 365   | 22,152   |
| 32                       | 3,386                                     | 388   | 17,883   |
| 33                       | 4,572                                     | 396   | 16,402   |
| 48                       | 8,269                                     | 288   | 22,313   |
| 49                       | 8,418                                     | 296   | 22,326   |
| 50                       | <u>8,786</u>                              | 266   | <u>22,230</u>                                    |
| Total                    | 41,148                                    |   | 123,306  |

In March, 1963, water production increased in the pilot area at Wells No. 38, 25, 37, 55 and 26 in that order. To verify water breakthrough and to possibly determine the orientation of the formation fracture system a tracer material was injected into four injection wells. The tracer,

Re: Gallegos Gallup Sand Unit  
San Juan County, New Mexico  
June 4, 1963  
Page 2

ammonia thiocyanate was injected into injection Well No. 32 on April 2, and detected in producing Well No. 26 in two days; injected into injection Well No. 49 on April 19, and detected in producing Well No. 38 in three days; injected into Well No. 48 and 50 on May 7, and detected in producing Well No. 37 in two days, and in producing Well No. 55 in four days. In each case the tracer material was detected on the same pattern, indicating that the formation fractures are on a northeast to southwest trend. This is shown on the attached plat, entitled, "Producing Rates and Water Movement."

A plugging agent, Perma-Plug was injected into injection Well No. 32 to determine if fractures could be effectively plugged in an economical manner. The results of this test indicated that small amounts of the material would not effectively plug the fractures, and larger applications would not be economical.

The results of a May, 1963, bottom hole pressure survey are as follows:

| <u>Unit Well No.</u> | <u>Shut-In Time, Days</u> | <u>Type Survey</u> | <u>BHP, psig</u> |
|----------------------|---------------------------|--------------------|------------------|
| 24                   | 10                        | Bomb               | 580              |
| 25                   | 13                        | Sonolog            | 1032             |
| 26                   | 13                        | Sonolog            | 1408             |
| 27                   | 10                        | Bomb               | 659              |
| 30                   | 13                        | Sonolog            | 315              |
| 36                   | 10                        | Bomb               | 667              |
| 37                   | 9                         | Sonolog            | 471              |
| 38                   | 13                        | Sonolog            | 1816             |
| 39                   | 13                        | Sonolog            | 615              |
| 55                   | 13                        | Sonolog            | 434              |
| 56                   | 13                        | Sonolog            | 467              |
| 57                   | 13                        | Sonolog            | 306              |
| 66                   | 10                        | Bomb               | 346              |

RECOMMENDED CHANGES IN INJECTION PATTERN FOR PILOT AREA:

Since the tracer survey has determined that the formation fracture orientation is northeast to southwest rather than northwest to southeast as was first assumed, it will be necessary to alter the present injection pattern for a more effective waterflood.

Re: Gallegos Gallup Sand Unit  
San Juan County, New Mexico  
June 4, 1963  
Page 3

It is proposed to change from the present five-spot injection pattern to a line drive method of waterflooding the pilot area. The necessary changes in the well status will be as follows:

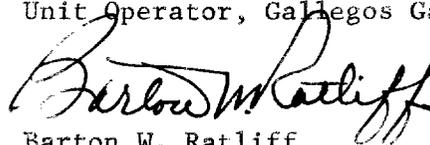
1. Convert producing Well No. 25 to an injection well.
2. Convert injection Well No. 32 to a producing well.
3. Temporarily shut down injection Wells No. 48 and 50.
4. Temporarily shut down producing Well No. 38.
5. If necessary at a later date, convert Well No. 38 to an injection well, and equip to pump Well No. 48 and 50.

It is believed that the revised injection pattern will more effectively waterflood the pilot area, and thereby better evaluate the feasibility of waterflooding the unit area.

Plats of the proposed injection pattern and the present injection pattern are attached.

Yours very truly,

SKELLY OIL COMPANY  
Unit Operator, Gallegos Gallup Sand Unit



Barton W. Ratliff  
Assistant to Manager of Production

Approved..... 19.....

MR:db

.....  
Secretary-Director

NEW MEXICO OIL CONSERVATION COMMISSION



# SKELLY OIL COMPANY

TULSA 2, OKLAHOMA

PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT

W. P. WHITMORE, MGR. PRODUCTION

W. D. CARSON, MGR. TECHNICAL SERVICES

ROBERT G. HILTZ, MGR. JOINT OPERATIONS

GEORGE W. SELINGER, MGR. CONSERVATION

January 24, 1963

Re: Initial Plan of Development and Operation  
Gallegos Gallup Sand Unit  
San Juan County, New Mexico

New Mexico Oil Conservation Commission  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

Pursuant to Section 10, "Plan of Further Development and Operation" of Unit Agreement for the Development and Operation of the Gallegos Gallup Sand Unit Area, County of San Juan, State of New Mexico, Skelly Oil Company, Unit Operator thereunder, respectfully submits for your consideration and approval this Initial Plan of Development and Operation for 1963. Attached, Exhibit No. 1, is a map showing the Unit Area and pertinent facilities discussed herein.

## HISTORY

The Gallegos Gallup Field located approximately 15 miles south of the town of Farmington, San Juan County, New Mexico, was discovered by Skelly Oil Company when they completed the Navajo 1-B as a gas well in September, 1954, in the Gallup Sand. The Gallup Sand was encountered at an approximate depth of 5200 feet. The oil zone was discovered by El Paso Natural Gas Products Company with completion of Sullivan No. 1-F in March, 1957. Today, there are 90 Gallup wells within the Unit Participating Area. 77 of these wells are oil wells and the remaining 13 wells are completed in the gas cap.

Production history of the field follows closely the characteristic pattern of solution gas drive reservoirs. The oil producing rate had declined rapidly from a high of approximately 2,000 barrels per day to the current rate of approximately 200 barrels per day. Cumulative production to January 1, 1963, has been approximately 1,034,000 barrels of oil, 9,500 MMCF of solution gas, and 7,500 MMCF of gas cap gas. Bottom hole pressure in the oil zone has declined from 1525 psig to approximately 250 psig as of January 1, 1963. Bottom hole pressure in the gas cap has declined to approximately 850 psig.

RESERVOIR CONDITIONS

The Gallup Sand underlying the Gallegos Gallup Field is upper cretaceous in age and consists of four zones of laminated, dirty sandstone separated by shale streaks. Exhibit No. 2 is a typical log on which the four zones are identified. Each zone is a separate stratigraphic trap and has an updip gas cap associated with the oil column.

Average properties of the reservoir are as follows:

| <u>Zone</u> | <u>Porosity</u><br>% | <u>Permeability</u><br>md | <u>Water Saturation</u><br>% | <u>Net Pay</u><br>Ft. |
|-------------|----------------------|---------------------------|------------------------------|-----------------------|
| 1           | 3.9                  | 0.12                      | 65                           | 13                    |
| 2           | 4.2                  | 0.33                      | 60                           | 19                    |
| 3           | 5.0                  | 0.32                      | 50                           | 14                    |
| 4           | 7.7                  | 1.45                      | 40                           | 18                    |

Regional dip is to the northeast at the rate of 100 feet per mile. The producing capacity of the reservoir is dependent upon an extensive vertical fracture system which is believed to trend in a northwest-southeast direction.

The original formation volume factor was 1.2929 and the original solution gas-oil ratio was 458 cu. ft. per barrel. The produced oil gravity is approximately 40° API. Ultimate recovery by primary depletion is estimated to be 1,215,000 barrels or about 8.1% of the effective original stock tank oil in place.

Prediction of waterflood performance and oil recoveries from a low permeability reservoir with an extensive vertical fracture system is not practical. For this reason, a pilot waterflood is necessary to supply actual reservoir performance data before developing the entire field for waterflood.

PLAN OF DEVELOPMENT

It is proposed to initiate a pilot water injection project within the participating area by converting six producing wells to water injection as shown in Exhibit No. 1. Locations of the injection wells are as follows:

| <u>Well No.</u> | <u>Location</u>           |
|-----------------|---------------------------|
| 32              | SW/4 SE/4 Sec. 2-26N-12W  |
| 31              | SW/4 SW/4 Sec. 1-26N-12W  |
| 33              | SW/4 SW/4 Sec. 2-26N-12W  |
| 50              | SW/4 NW/4 Sec. 11-26N-12W |
| 48              | SW/4 NW/4 Sec. 12-26N-12W |
| 49              | SW/4 NE/4 Sec. 11-26N-12W |

The six injection wells will form two adjacent 5-spots with producing Wells No. 37, located NE/4 NW/4 Sec. 11-26N-12W, and No. 38, located NE/4 NE/4 Sec. 11-26N-12W in the center of the 5-spots. There will be ten producing wells around the periphery of the two 5-spot injection patterns as follows:

| <u>Well No.</u> | <u>Location</u>           |
|-----------------|---------------------------|
| 24              | NW/4 SE/4 Sec. 3-26N-12W  |
| 25              | NE/4 SW/4 Sec. 2-26N-12W  |
| 26              | NE/4 SE/4 Sec. 2-26N-12W  |
| 27              | NE/4 SW/4 Sec. 1-26N-12W  |
| 30              | SW/4 SE/4 Sec. 1-26N-12W  |
| 39              | NE/4 NW/4 Sec. 12-26N-12W |
| 54              | NE/4 SW/4 Sec. 11-26N-12W |
| 55              | NE/4 SE/4 Sec. 11-26N-12W |
| 56              | NE/4 SW/4 Sec. 12-26N-12W |
| 36              | NW/4 NE/4 Sec. 10-26N-12W |

No new water injection or producing wells will be drilled.

Based on present reservoir voidage in the pilot area, it is desired to inject between 600 barrels to 4,000 barrels water per day into the six injection wells. Initial surface water injection pressure will be about 100 psig. If the injection wells fail to take sufficient water at 100 psig, a pressure plant will be built. The injection pressure used will be based on injection tests. In no event will pressure exceed 2000 psig at the wellhead.

Water supply will be in the Ojo Alamo Sand which is found at a depth of approximately 400 feet. Two water supply wells will be used for the pilot with possibility of a third if the supply proves inadequate. Two wells have been drilled, completed and tested. Water supply Well No. 1 is located SW/4 NW/4 Sec. 2-26N-12W and tested at a rate of 1700 barrels per day. Water supply No. 2 is located NE/4 SW/4 Sec. 2-26N-12W and tested at a rate of 1700 barrels per day.

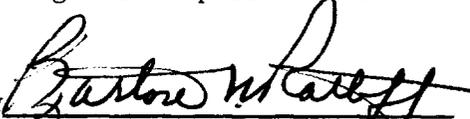
Water supply lines and water injection system are shown in Exhibit No. 1.

It is planned to proceed immediately after the effective date of the Unit, with development of the water supply and injection system, and well conversions, as set forth in this plan.

Your approval of this proposed plan is solicited.

Yours very truly,

SKELLY OIL COMPANY, as  
Unit Operator of the  
Gallegos Gallup Sand Unit

By 

Barton W. Ratliff  
Assistant to Manager of Production  
P. O. Box 1650  
Tulsa 2, Oklahoma

3512 ✓

July 1, 1963

Skelly Oil Company  
P. O. Box 1650  
Tulsa 2, Oklahoma

Re: Plan of Development  
Gallegos Gallup Sand  
Unit, San Juan County,  
New Mexico

Attention: Mr. Barton W. Ratliff

Gentlemen:

The Commissioner of Public Lands has approved as of June 24, 1963 your report of operations to May 15, 1963, and Revised Plan of Development and Operation for the Gallegos Gallup Sand Waterflood Unit, San Juan County, New Mexico.

We have had two copies made of this Plan and we request that in the future your furnish us three copies. We will retain two and return one copy.

We are returning one approved copy of this Plan and also enclose statement in the amount of Three (\$3.00) Dollars.

Skelly Oil Company  
July 1, 1963  
-page 2-

Very truly yours,

E. S. JOHNNY WALKER  
COMMISSIONER OF PUBLIC LANDS

BY:  
(Mrs.) Marian M. Rhea, Supervisor  
Unit Division

ESJW/mmr/m  
encl.

cc: United States Geological Survey  
Roswell, New Mexico  
Attention: Mr. John A. Anderson

Oil Conservation Commission  
Santa Fe, New Mexico



7512

# SKELLY OIL COMPANY

TULSA 2, OKLAHOMA

PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT

W. P. WHITMORE, MGR. PRODUCTION

W. D. CARSON, MGR. TECHNICAL SERVICES

ROBERT G. HILTZ, MGR. JOINT OPERATIONS

GEORGE W. SELINGER, MGR. CONSERVATION

July 9, 1963

Re: Gallegos Gallup Sand Unit  
San Juan County, New Mexico

New Mexico Oil Conservation Commission  
P. O. Box 871  
Santa Fe, New Mexico

Gentlemen:

On June 4, 1963, we wrote you regarding the above captioned unit, submitting for your approval a report of operation to May 15, 1963, and a revised plan of development and operation for the pilot water flood.

Our files do not reflect that we have had any reply from your office as to whether or not your approval has been granted. We would appreciate your consideration in approving this as soon as possible.

Yours very truly,

Barton W. Ratliff  
Asst. to Mgr. Production

BWR:ot

Approved July 11, 1963  
EK

Drawer 1857  
Roswell, New Mexico

June 25, 1963

Skelly Oil Company  
Tulsa 2, Oklahoma

Attention: Mr. Barton W. Ratliff

Gentlemen:

Your June 4 amendment of the 1963 plan of development for the Gallegos Gallup Sand unit area, San Juan County, New Mexico, has been approved on this date subject to like approval by the appropriate State officials.

One approved copy of the plan is enclosed.

Sincerely yours,

(Orig. Sgd.) CARL C. TRAYWICK  
CARL C. TRAYWICK  
Acting Oil & Gas Supervisor

Copy to: Washington (w/cy of plan)  
Farmington (w/cy of plan)  
NMOCC - Santa Fe (ltr. only)  
Com. of Pub. Lands - Santa Fe (ltr. only)



# SKELLY OIL COMPANY

TULSA 2, OKLAHOMA

15  
2512

PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT

W. P. WHITMORE, MGR. PRODUCTION

W. D. CARSON, MGR. TECHNICAL SERVICES

ROBERT G. HILTZ, MGR. JOINT OPERATIONS

GEORGE W. SELINGER, MGR. CONSERVATION

May 21, 1963

Re: Gallegos Gallup Sand Unit  
San Juan County, New Mexico

New Mexico Oil Conservation Commission  
P. O. Box 871  
Santa Fe, New Mexico

Attention: Mr. A. L. Porter

Gentlemen:

Attached please find copies of the second revision of Exhibit "C" to the Unit Agreement for the Gallegos Gallup Sand Unit.

This revision has been necessitated by two errors which have been found to exist in the first revision of this Exhibit. Tract No. 90 was inadvertently excluded from the first revision of Exhibit "C", and participation was incorrectly calculated for Tracts 57 and 59.

In accordance with Section 11 of the Unit Agreement, unless disapproved within thirty (30) days of receipt, this Exhibit will become effective as of the effective date of the Unit.

Very truly yours,

JBC: sw  
Attach.

CERTIFICATE  
 RELATING TO SECOND REVISION OF  
 EXHIBIT "C" ATTACHED TO  
 UNIT AGREEMENT - GALLEGOS GALLUP SAND UNIT  
SAN JUAN COUNTY, NEW MEXICO

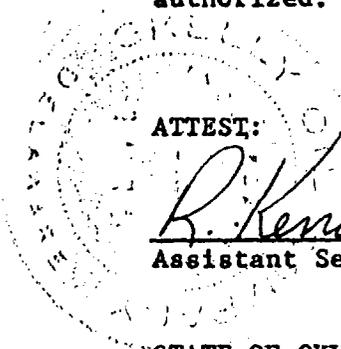
THE STATE OF NEW MEXICO )  
 ) SS  
 COUNTY OF SAN JUAN )

KNOW ALL MEN BY THESE PRESENTS:

THAT, SKELLY OIL COMPANY, in its capacity as Unit Operator of the above described unit and pursuant to the terms and provisions of said Unit Agreement of record in Book 515, Page 124, of the Records of the County Clerk of San Juan County, New Mexico, reference to such agreement and the record thereof being hereby made for all purposes, does hereby certify as follows, to-wit:

1. That it has, in compliance with said agreement, revised Exhibit "C" attached thereto, said revision being occasioned by and in accordance with the provisions thereof;
2. That true and correct copies of said Exhibit "C" as so revised are attached hereto and by reference made a part hereof; and
3. That in accordance with the provisions of said Unit Agreement the said revised Exhibit "C" is to become effective as of 7:00 A.M., February 1, 1963, in lieu of the preceding Exhibit "C" and said revised Exhibit "C" shall thereafter remain in full force and effect until again revised pursuant to the terms and provisions of said Unit Agreement.

IN WITNESS WHEREOF, SKELLY OIL COMPANY, acting in its capacity as Unit Operator, has on this 17<sup>th</sup> day of May, 1963, executed this instrument by and through its Vice President thereunto duly authorized.



ATTEST:

R. Kendall Merrill  
 Assistant Secretary

SKELLY OIL COMPANY

Approved by  
 For [Signature]

By [Signature]  
 Vice President

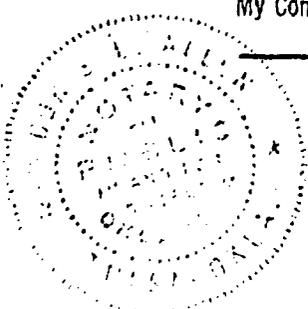
STATE OF OKLAHOMA )  
 ) SS  
 COUNTY OF TULSA )

The foregoing instrument was acknowledged before me this 17<sup>th</sup> day of May, 1963, by C. L. Blackwell, Vice President of SKELLY OIL COMPANY, a Delaware corporation, on behalf of said corporation.

[Signature]  
 Notary Public

My commission expires:

My Commission Expires May 31, 1963



REVISED EXHIBIT "C" 4-27-63  
 SCHEDULE OF TRACT PERCENTAGE PARTICIPATION  
 GALLEGOS GALLUP SAND UNIT  
 SAN JUAN COUNTY, NEW MEXICO

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| <u>Tract Number</u>  | <u>Description</u>  | <u>Serial No. and Date of Lease or Application</u> | <u>Percentage Participation</u> |
|----------------------|---|--|---------------------------------|
| <u>FEDERAL LANDS</u> |   |  |                                 |
| 1                    | <u>T27N-R13W:</u><br>Sec. 26: S/2<br>Sec. 35: N/2           | SF-078105<br>12-1-47<br>H.B.P.                     | 0.671851                        |
| 2                    | <u>T27N-R13W:</u><br>Sec. 25: N/2 SW/4<br>Sec. 36: N/2 SW/4 | SF-078391-C<br>6-14-54<br>H.B.P.                   | 0.057624                        |
| 3                    | <u>T27N-R13W:</u><br>Sec. 25: S/2 SW/4<br>Sec. 36: N/2 SW/4 | SF-078391-C<br>6-14-54<br>H.B.P.                   | 1.443535                        |
| 4                    | <u>T27N-R13W:</u><br>Sec. 36: NW/4                          | SF-078391-B<br>6-1-49<br>H.B.P.                    | 1.256399                        |
| 5                    | <u>T27N-R13W:</u><br>Sec. 25: SE/4<br>Sec. 36: SE/4         | SF-078391-A<br>6-1-49<br>H.B.P.                    | 0.845196                        |
| 6                    | <u>T27N-R12W:</u><br>Sec. 30: S/2                           | SF-078100<br>12-1-47<br>H.B.P.                     | 0.106356                        |
| 7                    | <u>T27N-R12W:</u><br>Sec. 31: NE/4                          | SF-080238<br>4-1-51<br>H.B.P.                      | 1.135652                        |
| 14                   | <u>T27N-R12W:</u><br>Sec. 32: S/2                           | SF-078858<br>4-1-48<br>H.B.P.                      | 2.112104                        |
| 15                   | <u>T27N-R12W:</u><br>Sec. 33: W/2                           | NM-03413<br>5-1-48<br>H.B.P.                       | 0.476323                        |
| 20                   | <u>T26N-R11W:</u><br>Sec. 6: E/2 SW/4                       | NM-03523<br>7-1-47<br>H.B.P.                       | 0.980533                        |

|    |   |                                 |           |
|----|---|---------------------------------|-----------|
| 23 | <u>T26N-R12W:</u><br>Sec. 1: NW/4; S/2<br>Sec. 2: S/2<br>Sec. 11: W/2<br>Sec. 14: W/2<br>Sec. 23: W/2; SE/4 | SF-078953<br>2-1-48<br>H.B.P.   | 12.355918 |
| 25 | <u>T26N-R12W:</u><br>Sec. 3: A11<br>Sec. 10: S/2  | SF-080384-B<br>5-1-51<br>H.B.P. | 8.391114  |
| 26 | <u>T26N-R12W:</u><br>Sec. 4: NE/4   | SF-078286<br>9-1-47<br>H.B.P.   | 1.791245  |
| 27 | <u>T26N-R12W:</u><br>Sec. 4: NW/4   | SF-078286-B<br>9-1-47<br>H.B.P. | 2.308752  |
| 30 | <u>T26N-R12W:</u><br>Sec. 5: NW/4   | SF-078286-A<br>9-1-47<br>H.B.P. | 1.569683  |
| 31 | <u>T26N-R12W:</u><br>Sec. 5: SW/4   | SF-081102-A<br>9-1-47<br>H.B.P. | 0.625959  |
| 32 | <u>T26N-R12W:</u><br>Sec. 8: N/2  | SF-081100<br>9-1-47<br>H.B.P.   | 0.830293  |
| 34 | <u>T26N-R12W:</u><br>Sec. 8: SE/4   | SF-080008<br>9-1-47<br>H.B.P.   | 0.399059  |
| 35 | <u>T26N-R12W:</u><br>Sec. 9: N/2  | SF-078944-A<br>2-1-48<br>H.B.P. | 2.424070  |
| 36 | <u>T26N-R12W:</u><br>Sec. 9: S/2  | SF-078944<br>2-1-48<br>H.B.P.   | 1.473749  |
| 37 | <u>T26N-R12W:</u><br>Sec. 10: N/2<br>Sec. 15: S/2   | SF-080384<br>5-1-51<br>H.B.P.   | 3.666228  |
| 43 | <u>T26N-R12W:</u><br>Sec. 12: NE/4  | SF-078918<br>2-1-48<br>H.B.P.   | 1.913564  |

|    |  |                                 |          |
|----|--|---------------------------------|----------|
| 74 | <u>T26N-R11W:</u><br>Sec. 8: W/2 SW/4<br>W/2 SE/4<br>Sec. 18: W/2 SE/4<br>Sec. 20: W/2 NW/4<br>E/2 SW/4<br>W/2 NE/4<br>E/2 SE/4<br>Sec. 21: W/2 NW/4<br>E/2 SW/4<br>S/2 SE/4 | SF-078899<br>7-1-47<br>H.B.P.   | 4.298366 |
| 75 | <u>T26N-R11W:</u><br>Sec. 8: N/2<br>E/2 SW/4<br>E/2 SE/4<br>Sec. 18: E/2 SE/4<br>Sec. 20: E/2 NW/4<br>E/2 NE/4<br>W/2 SW/4<br>W/2 SE/4<br>Sec. 21: E/2 NW/4<br>W/2 SW/4      | SF-078899-A<br>7-1-47<br>H.B.P. | 5.296178 |
| 76 | <u>T26N-R11W:</u><br>Sec. 17: A11  | SF-079679<br>12-1-47<br>H.B.P.  | 6.847413 |
| 77 | <u>T26N-R11W:</u><br>Sec. 7: E/2 NW/4<br>E/2 NE/4<br>W/2 SW/4<br>W/2 SE/4<br>Sec. 18: E/2 NE/4   | SF-078897<br>7-1-47<br>H.B.P.   | 6.580967 |
| 78 | <u>T26N-R11W:</u><br>Sec. 7: W/2 NE/4<br>Lots 1 and 2<br>E/2 SW/4<br>E/2 SE/4<br>Sec. 18: W/2 NE/4   | SF-078897-A<br>7-1-47<br>H.B.P. | 4.520205 |
| 79 | <u>T26N-R11W:</u><br>Sec. 6: W/2 SW/4  | NM-03523<br>7-1-47<br>H.B.P.    | 0.419215 |
| 90 | <u>T27N-R13W:</u><br>Sec. 36: NE/4   | SF-078391<br>6-1-49<br>H.B.P.   | 1.615016 |

| <u>Tract Number</u> | <u>Description</u> | <u>Serial No. and Date of Lease or Application</u> | <u>Percentage Participation</u> |
|---------------------|--------------------|--|---------------------------------|
|---------------------|--------------------|--|---------------------------------|

INDIAN ALLOTTED LANDS

|    |                                    |                                    |          |
|----|------------------------------------|------------------------------------|----------|
| 38 | <u>T26N-R12W:</u><br>Sec. 11: NE/4 | 14-20-603-294<br>5-11-54<br>H.B.P. | 2.157640 |
| 39 | <u>T26N-R12W:</u><br>Sec. 11: SE/4 | 14-20-603-295<br>5-11-54<br>H.B.P. | 2.517019 |
| 40 | <u>T26N-R12W:</u><br>Sec. 12: NW/4 | 14-20-603-296<br>5-11-54<br>H.B.P. | 2.646002 |
| 41 | <u>T26N-R12W:</u><br>Sec. 12: SW/4 | 14-20-603-297<br>5-11-54<br>H.B.P. | 2.303519 |
| 42 | <u>T26N-R12W:</u><br>Sec. 12: SE/4 | 14-20-603-298<br>5-11-54<br>H.B.P. | 2.319216 |
| 44 | <u>T26N-R12W:</u><br>Sec. 13: NE/4 | 14-20-603-299<br>5-11-54<br>H.B.P. | 1.561061 |
| 45 | <u>T26N-R12W:</u><br>Sec. 13: SE/4 | 14-20-603-300<br>5-11-54           | 1.067618 |
| 46 | <u>T26N-R12W:</u><br>Sec. 13: NW/4 | 14-20-603-302<br>2-9-54<br>H.B.P.  | 1.543176 |
| 47 | <u>T26N-R12W:</u><br>Sec. 13: SW/4 | 14-20-603-301<br>5-11-54           | 0.937516 |
| 48 | <u>T26N-R12W:</u><br>Sec. 14: NE/4 | 14-20-603-303<br>5-11-54           | 0.892655 |
| 49 | <u>T26N-R12W:</u><br>Sec. 14: SE/4 | 14-20-603-304<br>5-11-54<br>H.B.P. | 0.963094 |
| 57 | <u>T26N-R12W:</u><br>Sec. 24: NW/4 | 14-20-603-306<br>2-9-54<br>H.B.P.  | 0.970675 |
| 59 | <u>T26N-R12W:</u><br>Sec. 24: NE/4 | 14-20-603-309                      | 0.714041 |

| <u>Tract<br/>Number</u>          | <u>Description</u>                                  | <u>Serial No. and<br/>Date of Lease<br/>or Application</u> | <u>Percentage<br/>Participation</u> |
|----------------------------------|---|--|-------------------------------------|
| <u>STATE OF NEW MEXICO LANDS</u> |   |  |                                     |
| 86                               | <u>T26N-R11W:</u><br>Sec. 16: N/2 NW/4<br>SW/4 NW/4 | E-9895<br>3-20-56<br>H.B.P.                                | 1.231380                            |
| 87                               | <u>T26N-R11W:</u><br>Sec. 16: SE/4 NW/4             | B-11240<br>5-16-44   | 0.374629                            |
| 88                               | <u>T26N-R11W:</u><br>Sec. 16: SW/4                  | E-9989<br>4-17-56  | 1.388192                            |



# SKELLY OIL COMPANY

P. O. Box 1650  
TULSA 2, OKLAHOMA

## PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT  
W. P. WHITMORE, MGR. PRODUCTION  
W. D. CARSON, MGR. TECHNICAL SERVICES  
ROBERT G. HILTZ, MGR. JOINT OPERATIONS  
GEORGE W. SELINGER, MGR. CONSERVATION

February 18, 1963

Mr. A. L. Porter, Jr.  
New Mexico Oil Conservation Commission  
P. O. Box 871  
Santa Fe, New Mexico

Dear Mr. Porter:

This is to advise that our Gallegos Gallup Sand Unit, which was approved by Order No. R-2207 dated April 4, 1962, went into effect February 1, 1963.

We are attaching a list of the unit well numbers which will hereafter designate each of the wells in this Unit, showing the former operator, former lease and well number, and the location.

Yours very truly,

*George W. Selinger*

NPM:br  
Attach.

January 25, 1963

GALLEGOS GALLUP SAND UNIT  
SAN JUAN COUNTY, NEW MEXICO

| <u>Unit</u><br><u>Well No.</u> | <u>Former Operator</u> | <u>Former Lease and Well No.</u> | <u>Location</u>           |
|--------------------------------|------------------------|----------------------------------|---------------------------|
| 1                              | El Paso                | Hanson "B" No. 1                 | SW/4 SW/4 Sec. 25-27N-13W |
| 2                              | Featherstone           | Roberson No. 4                   | SW/4 SE/4 Sec. 25-27N-13W |
| 3                              | Ben-Mon-Greer          | Warren "C" No. 1                 | SW/4 SW/4 Sec. 30-27N-12W |
| 4                              | Featherstone           | Roberson No. 2                   | NE/4 NE/4 Sec. 36-27N-13W |
| 5                              | El Paso                | Hanson No. 2                     | NE/4 NW/4 Sec. 36-27N-13W |
| 6                              | Sunray                 | Federal "J" No. 1                | NE/4 NE/4 Sec. 35-27N-13W |
| 7                              | El Paso                | Hanson No. 1                     | SW/4 NW/4 Sec. 36-27N-13W |
| 8                              | Featherstone           | Roberson No. 1                   | SW/4 NE/4 Sec. 36-27N-13W |
| 9                              | Featherstone           | Roberson No. 3                   | SE/4 NE/4 Sec. 36-27N-13W |
| 10                             | Gulf                   | Gallegos-Fed No. 1               | SW/4 NE/4 Sec. 31-27N-12W |
| 11                             | Gulf                   | Gallegos-Fed No. 2               | SE/4 NE/4 Sec. 31-27N-12W |
| 12                             | El Paso                | Sullivan "F" No. 2               | NW/4 SW/4 Sec. 32-27N-12W |
| 13                             | El Paso                | Hanson "B" No. 2                 | NE/4 SW/4 Sec. 36-27N-13W |
| 14                             | El Paso                | Sullivan "F" No. 1               | SE/4 SW/4 Sec. 32-27N-12W |
| 15                             | El Paso                | Sullivan "F" No. 4               | SW/4 SE/4 Sec. 32-27N-12W |
| 16                             | El Paso                | Sullivan "F" No. 3               | SE/4 SE/4 Sec. 32-27N-12W |
| 17                             | El Paso                | Eddy No. 1                       | SE/4 SW/4 Sec. 33-27N-12W |
| 18                             | El Paso                | Hickman "A" No. 3                | SE/4 NW/4 Sec. 3-26N-12W  |
| 19                             | Hidden Splendor        | Walker "A" No. 1                 | SE/4 NE/4 Sec. 4-26N-12W  |
| 20                             | Hidden Splendor        | Walker "B" No. 1                 | SE/4 NW/4 Sec. 4-26N-12W  |
| 21                             | Hidden Splendor        | (El Dorado) Walker No. 1         | NE/4 NW/4 Sec. 5-26N-12W  |
| 22                             | El Paso                | Frontier No. 1                   | NE/4 SW/4 Sec. 5-26N-12W  |
| 23                             | El Paso                | Hickman "A" No. 2                | NW/4 SW/4 Sec. 3-26N-12W  |
| 24                             | El Paso                | Hickman "A" No. 5                | NW/4 SE/4 Sec. 3-26N-12W  |
| 25                             | Skelly                 | Goddard No. 5                    | NE/4 SW/4 Sec. 2-26N-12W  |
| 26                             | Skelly                 | Goddard No. 10                   | NE/4 SE/4 Sec. 2-26N-12W  |
| 27                             | Skelly                 | Goddard No. 2                    | NE/4 SE/4 Sec. 1-26N-12W  |
| 28                             | Western Dev.           | Holloway No. 1                   | SE/4 SW/4 Sec. 6-26N-11W  |
| 29                             | Skelly                 | Goddard No. 1                    | SE/4 SE/4 Sec. 1-26N-12W  |
| 30                             | Skelly                 | Goddard No. 11                   | SW/4 SE/4 Sec. 1-26N-12W  |
| 31                             | Skelly                 | Goddard No. 7                    | SW/4 SW/4 Sec. 1-26N-12W  |
| 32                             | Skelly                 | Goddard No. 6                    | SW/4 SE/4 Sec. 2-26N-12W  |
| 33                             | Skelly                 | Goddard No. 8                    | SW/4 SW/4 Sec. 2-26N-12W  |
| 34                             | El Paso                | Hickman "A" No. 4                | SE/4 SW/4 Sec. 3-26N-12W  |
| 35                             | El Paso                | Nelson No. 1                     | NE/4 NE/4 Sec. 8-26N-12W  |
| 36                             | El Paso                | Sullivan "A" No. 1               | NW/4 NE/4 Sec. 10-26N-12W |
| 37                             | Skelly                 | Goddard No. 4                    | NE/4 NW/4 Sec. 11-26N-12W |
| 38                             | Skelly                 | Navajo "J" No. 1                 | NE/4 NE/4 Sec. 11-26N-12W |
| 39                             | Skelly                 | Navajo "F" No. 1                 | NE/4 NW/4 Sec. 12-26N-12W |
| 40                             | El Paso                | Delhi-Taylor "B" No. 2           | NW/4 NE/4 Sec. 12-26N-12W |
| 41                             | El Paso                | Western No. 3                    | NW/4 NW/4 Sec. 7-26N-11W  |
| 42                             | El Paso                | Western No. 5                    | NW/4 NE/4 Sec. 7-26N-11W  |
| 43                             | El Paso                | Western "A" No. 4                | NW/4 NW/4 Sec. 8-26N-11W  |
| 44                             | El Paso                | Western "A" No. 2                | SE/4 NW/4 Sec. 8-26N-11W  |
| 45                             | Gulf                   | Western Fed. No. 5               | SE/4 NE/4 Sec. 7-26N-11W  |

GALLEGOS GALLUP SAND UNIT  
SAN JUAN COUNTY, NEW MEXICO

January 25, 1963

Page 2

| <u>Unit</u><br><u>Well No.</u> | <u>Former Operator</u> | <u>Former Lease and Well No.</u> | <u>Location</u>           |
|--------------------------------|------------------------|----------------------------------|---------------------------|
| 46                             | Gulf                   | Western Fed No. 4                | SE/4 NW/4 Sec. 7-26N-11W  |
| 47                             | El Paso                | Delhi-Taylor "B" No. 1           | SE/4 NE/4 Sec. 12-26N-12W |
| 48                             | Skelly                 | Navajo "F" No. 2                 | SW/4 NW/4 Sec. 12-26N-12W |
| 49                             | Skelly                 | Navajo "J" No. 2                 | SW/4 NE/4 Sec. 11-26N-12W |
| 50                             | Skelly                 | Goddard No. 9                    | SW/4 NW/4 Sec. 11-26N-12W |
| 51                             | El Paso                | Nelson "A" No. 1                 | SE/4 NW/4 Sec. 9-26N-12W  |
| 52                             | El Paso                | Frontier "A" No. 1               | NE/4 SE/4 Sec. 8-26N-12W  |
| 53                             | El Paso                | Sullivan "E" No. 1               | NE/4 SE/4 Sec. 9-26N-12W  |
| 54                             | Skelly                 | Goddard No. 3                    | NE/4 SW/4 Sec. 11-26N-12W |
| 55                             | Skelly                 | Navajo "L" No. 1                 | NE/4 SE/4 Sec. 11-26N-12W |
| 56                             | Skelly                 | Navajo "G" No. 1                 | NE/4 SW/4 Sec. 12-26N-12W |
| 57                             | Skelly                 | Navajo "E" No. 1                 | NE/4 SE/4 Sec. 12-26N-12W |
| 58                             | Gulf                   | Western Fed No. 3                | NW/4 SW/4 Sec. 7-26N-11W  |
| 59                             | Gulf                   | Western Fed No. 2                | NW/4 SE/4 Sec. 7-26N-11W  |
| 60                             | Gulf                   | Blackrock Fed "B" No. 1          | NW/4 SW/4 Sec. 8-26N-11W  |
| 61                             | Gulf                   | Blackrock Fed "B" No. 2          | NW/4 SE/4 Sec. 8-26N-11W  |
| 62                             | El Paso                | Western "A" No. 3                | SE/4 SE/4 Sec. 8-26N-11W  |
| 63                             | El Paso                | Western "A" No. 1                | SE/4 SW/4 Sec. 8-26N-11W  |
| 64                             | El Paso                | Western No. 2                    | SE/4 SE/4 Sec. 7-26N-11W  |
| 65                             | El Paso                | Western No. 1                    | SE/4 SW/4 Sec. 7-26N-11W  |
| 66                             | Skelly                 | Navajo "L" No. 2                 | SW/4 SE/4 Sec. 11-26N-12W |
| 67                             | El Paso                | Hickman "A" No. 1                | SW/4 SW/4 Sec. 10-26N-12W |
| 68                             | Skelly                 | Navajo "D" No. 1                 | NW/4 NW/4 Sec. 13-26N-12W |
| 69                             | Skelly                 | Navajo "H" No. 1                 | NE/4 NE/4 Sec. 13-26N-12W |
| 70                             | El Paso                | Western No. 4                    | NW/4 NE/4 Sec. 18-26N-11W |
| 71                             | El Paso                | Delhi-Taylor No. 3               | NW/4 NE/4 Sec. 17-26N-11W |
| 72                             | El Paso                | Delhi-Taylor No. 4               | SE/4 NE/4 Sec. 17-26N-11W |
| 73                             | El Paso                | Delhi-Taylor No. 2               | SW/4 NW/4 Sec. 17-26N-11W |
| 74                             | Gulf                   | Western Fed. No. 1               | SE/4 NE/4 Sec. 18-26N-11W |
| 75                             | Skelly                 | Navajo "B" No. 1                 | NE/4 SE/4 Sec. 14-26N-12W |
| 76                             | El Paso                | Delhi-Taylor No. 1               | NE/4 SW/4 Sec. 17-26N-11W |
| 77                             | Gulf                   | Blackrock Fed No. 1              | NW/4 NW/4 Sec. 20-26N-11W |
| 78                             | Skelly                 | Navajo "C" No. 1                 | NW/4 NW/4 Sec. 24-26N-12W |



# SKELLY OIL COMPANY

TULSA 2, OKLAHOMA

PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT

W. P. WHITMORE, MGR. PRODUCTION

W. D. CARSON, MGR. TECHNICAL SERVICES

ROBERT G. HILTZ, MGR. JOINT OPERATIONS

GEORGE W. SELINGER, MGR. CONSERVATION

January 24, 1963

Re: Initial Plan of Development and Operation  
Gallegos Gallup Sand Unit  
San Juan County, New Mexico

Regional Oil and Gas Supervisor  
United States Geological Survey  
P. O. Box 6721  
Roswell, New Mexico

Gentlemen:

Pursuant to Section 10, "Plan of Further Development and Operation" of Unit Agreement for the Development and Operation of the Gallegos Gallup Sand Unit Area, County of San Juan, State of New Mexico, Skelly Oil Company, Unit Operator thereunder, respectfully submits for your consideration and approval this Initial Plan of Development and Operation for 1963. Attached, Exhibit No. 1, is a map showing the Unit Area and pertinent facilities discussed herein.

## HISTORY

The Gallegos Gallup Field located approximately 15 miles south of the town of Farmington, San Juan County, New Mexico, was discovered by Skelly Oil Company when they completed the Navajo 1-B as a gas well in September, 1954, in the Gallup Sand. The Gallup Sand was encountered at an approximate depth of 5200 feet. The oil zone was discovered by El Paso Natural Gas Products Company with completion of Sullivan No. 1-F in March, 1957. Today, there are 90 Gallup wells within the Unit Participating Area. 77 of these wells are oil wells and the remaining 13 wells are completed in the gas cap.

Production history of the field follows closely the characteristic pattern of solution gas drive reservoirs. The oil producing rate had declined rapidly from a high of approximately 2,000 barrels per day to the current rate of approximately 200 barrels per day. Cumulative production to January 1, 1963, has been approximately 1,034,000 barrels of oil, 9,500 MMCF of solution gas, and 7,500 MMCF of gas cap gas. Bottom hole pressure in the oil zone has declined from 1525 psig to approximately 250 psig as of January 1, 1963. Bottom hole pressure in the gas cap has declined to approximately 850 psig.

### RESERVOIR CONDITIONS

The Gallup Sand underlying the Gallegos Gallup Field is upper cretaceous in age and consists of four zones of laminated, dirty sandstone separated by shale streaks. Exhibit No. 2 is a typical log on which the four zones are identified. Each zone is a separate stratigraphic trap and has an updip gas cap associated with the oil column.

Average properties of the reservoir are as follows:

| <u>Zone</u> | <u>Porosity</u><br>% | <u>Permeability</u><br>md | <u>Water Saturation</u><br>% | <u>Net Pay</u><br>Ft. |
|-------------|----------------------|---------------------------|------------------------------|-----------------------|
| 1           | 3.9                  | 0.12                      | 65                           | 13                    |
| 2           | 4.2                  | 0.33                      | 60                           | 19                    |
| 3           | 5.0                  | 0.32                      | 50                           | 14                    |
| 4           | 7.7                  | 1.45                      | 40                           | 18                    |

Regional dip is to the northeast at the rate of 100 feet per mile. The producing capacity of the reservoir is dependent upon an extensive vertical fracture system which is believed to trend in a northwest-southeast direction.

The original formation volume factor was 1.2929 and the original solution gas-oil ratio was 458 cu. ft. per barrel. The produced oil gravity is approximately 40° API. Ultimate recovery by primary depletion is estimated to be 1,215,000 barrels or about 8.1% of the effective original stock tank oil in place.

Prediction of waterflood performance and oil recoveries from a low permeability reservoir with an extensive vertical fracture system is not practical. For this reason, a pilot waterflood is necessary to supply actual reservoir performance data before developing the entire field for waterflood.

### PLAN OF DEVELOPMENT

It is proposed to initiate a pilot water injection project within the participating area by converting six producing wells to water injection as shown in Exhibit No. 1. Locations of the injection wells are as follows:

| <u>Well No.</u> | <u>Location</u>           |
|-----------------|---------------------------|
| 32              | SW/4 SE/4 Sec. 2-26N-12W  |
| 31              | SW/4 SW/4 Sec. 1-26N-12W  |
| 33              | SW/4 SW/4 Sec. 2-26N-12W  |
| 50              | SW/4 NW/4 Sec. 11-26N-12W |
| 48              | SW/4 NW/4 Sec. 12-26N-12W |
| 49              | SW/4 NE/4 Sec. 11-26N-12W |

The six injection wells will form two adjacent 5-spots with producing Wells No. 37, located NE/4 NW/4 Sec. 11-26N-12W, and No. 38, located NE/4 NE/4 Sec. 11-26N-12W in the center of the 5-spots. There will be ten producing wells around the periphery of the two 5-spot injection patterns as follows:

| <u>Well No.</u> | <u>Location</u>           |
|-----------------|---------------------------|
| 24              | NW/4 SE/4 Sec. 3-26N-12W  |
| 25              | NE/4 SW/4 Sec. 2-26N-12W  |
| 26              | NE/4 SE/4 Sec. 2-26N-12W  |
| 27              | NE/4 SW/4 Sec. 1-26N-12W  |
| 30              | SW/4 SE/4 Sec. 1-26N-12W  |
| 39              | NE/4 NW/4 Sec. 12-26N-12W |
| 54              | NE/4 SW/4 Sec. 11-26N-12W |
| 55              | NE/4 SE/4 Sec. 11-26N-12W |
| 56              | NE/4 SW/4 Sec. 12-26N-12W |
| 36              | NW/4 NE/4 Sec. 10-26N-12W |

No new water injection or producing wells will be drilled.

Based on present reservoir voidage in the pilot area, it is desired to inject between 600 barrels to 4,000 barrels water per day into the six injection wells. Initial surface water injection pressure will be about 100 psig. If the injection wells fail to take sufficient water at 100 psig, a pressure plant will be built. The injection pressure used will be based on injection tests. In no event will pressure exceed 2000 psig at the wellhead.

Water supply will be in the Ojo Alamo Sand which is found at a depth of approximately 400 feet. Two water supply wells will be used for the pilot with possibility of a third if the supply proves inadequate. Two wells have been drilled, completed and tested. Water supply Well No. 1 is located SW/4 NW/4 Sec. 2-26N-12W and tested at a rate of 1700 barrels per day. Water supply No. 2 is located NE/4 SW/4 Sec. 2-26N-12W and tested at a rate of 1700 barrels per day.

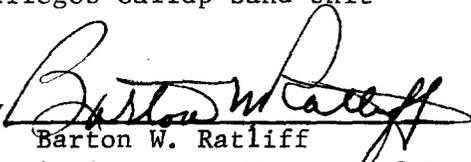
Water supply lines and water injection system are shown in Exhibit No. 1.

It is planned to proceed immediately after the effective date of the Unit, with development of the water supply and injection system, and well conversions, as set forth in this plan.

Your approval of this proposed plan is solicited.

Yours very truly,

SKELLY OIL COMPANY, as  
Unit Operator of the  
Gallegos Gallup Sand Unit

By   
Barton W. Ratliff  
Assistant to Manager of Production  
P. O. Box 1650  
Tulsa 2, Oklahoma



# SKELLY OIL COMPANY

TULSA 2, OKLAHOMA

PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT  
W. P. WHITMORE, MGR. PRODUCTION  
W. D. CARSON, MGR. TECHNICAL SERVICES  
ROBERT G. HILTZ, MGR. JOINT OPERATIONS  
GEORGE W. SELINGER, MGR. CONSERVATION

January 24, 1963

Re: Initial Plan of Development and Operation  
Gallegos Gallup Sand Unit  
San Juan County, New Mexico

Commissioner of Public Lands  
State of New Mexico  
State Land Office  
Santa Fe, New Mexico

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|-----------------|---------------------------|
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| 31              | SW/4 SW/4 Sec. 1-26N-12W  |
| 33              | SW/4 SW/4 Sec. 2-26N-12W  |
| 50              | SW/4 NW/4 Sec. 11-26N-12W |
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| 27              | NE/4 SW/4 Sec. 1-26N-12W  |
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Yours very truly,

SKELLY OIL COMPANY, as  
Unit Operator of the  
Gallegos Gallup Sand Unit

By 

Barton W. Ratliff  
Assistant to Manager of Production  
P. O. Box 1650  
Tulsa 2, Oklahoma