



# SKELLY OIL COMPANY

P.O. Box 730, Hobbs, New Mexico

December 27, 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:

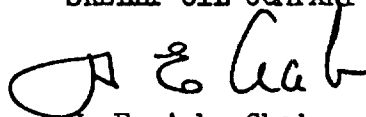
<u>Unit Well No.</u>	<u>Water Injected in Nov., Bbls.</u>	<u>Average Well head Inj. Press. psig.</u>	<u>Cumulative Water Inj. to December 1, 1963</u>
25	3,947	574	22,067
31	4,701	602	75,777
33	4,864	577	66,626
38	4,977	602	24,401
49	5,501	466	74,220

Page 2

U. S. Geological Survey  
Commissioner of Public Lands  
Oil Conservation Commission  
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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 dark ink, appearing to read 'H. E. Aab', written in a cursive style.

H. E. Aab, Chairman  
Working Interest Owners Committee

HEA/CJL/pjn

GALLEGOS GAILUP 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

Skelly Oil Company  
P.O. Drawer 510  
Farmington, New Mexico  
Attention: Mr. J. W. George

Mr. W. W. Lynch  
Fidelity Union Life Bldg.  
Dallas, Texas

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158 Petroleum Center Bldg.  
Farmington, New Mexico  
Attention: Mr. A. R. Greer

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P.O. Box 1565  
Farmington, New Mexico  
Attention: Mr. Ewell N. Walsh

Mr. Earnest A. Hanson  
P.O. Box 1515  
Roswell, New Mexico

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

Shiprock Industries, Inc.  
2000 National Bank of Tulsa Bldg.  
Tulsa 3, Oklahoma

Sunray DX Oil Company  
P.O. Box 2692  
Denver 1, Colorado

Delhi-Taylor Oil Corporation  
Fidelity Union Lower  
Dallas 1, Texas

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

Mr. O. J. Lilly  
P.O. Box 248  
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



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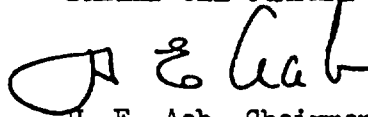
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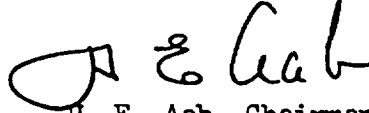
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HEA/CJL/pjn



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Attention: Mr. W. B. Macey

272  
Drawer 1857  
Roswell, New Mexico 88201

September 14, 1964

SEP 26 12 13 PM '64  
Skelly Oil Company  
P. O. Box 730  
Hobbs, New Mexico

Attention: Mr. R. 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)

NRDCC - Santa Fe (ltr. only) ✓

Com. of Pub. Lands - Santa Fe (ltr. only)



257

# 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.

52

hereby certify this instrument was filed for record on the 20 day of January 1964 at 9:00 o'clock P.M., and duly recorded in Book 510 page 52 of the Records of said County.

Probate Clerk and ex-officio Recorder

Deputy

754274

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

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

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 10<sup>th</sup> day of January, 1964, executed this instrument by and through its Vice President [Signature] thereunto duly authorized.

SKELLY OIL COMPANY

ATTEST:

B. Kendall Sherrill  
Assistant Secretary

By E. L. Blacksher  
Vice President

STATE OF OKLAHOMA )  
COUNTY OF TULSA ) SS

The foregoing instrument was acknowledged before me this 10<sup>th</sup> day of January, 1964, by E. L. Blacksher, 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, 1967

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> Sec. 35: NE/4	SF-078105 12-1-47 H.B.P.	0.671851
2	<u>T27N-R13W:</u> Sec. 25: N/2 SW/4 Sec. 36: S/2 SW/4	SF-078391-C 6-14-54 H.B.P.	0.057624
3	<u>T27N-R13W:</u> Sec. 25: S/2 SW/4 Sec. 36: N/2 SW/4	SF-078391-C 6-14-54 H.B.P.	1.443535
4	<u>T27N-R13W:</u> Sec. 36: NW/4	SF-078391-B 6-1-49 H.B.P.	1.256399
5	<u>T27N-R13W:</u> Sec. 25: SE/4 Sec. 36: SE/4	SF-078391-A 6-1-49 H.B.P.	0.845196
6	<u>T27N-R12W:</u> Sec. 30: SW/4	SF-078100 12-1-47 H.B.P.	0.106356
7	<u>T27N-R12W:</u> Sec. 31: NE/4	SF-080238 4-1-51 H.B.P.	1.135652
14	<u>T27N-R12W:</u> Sec. 32: S/2	SF-078858 4-1-48 H.B.P.	2.112104
15	<u>T27N-R12W:</u> Sec. 33: SW/4	NM-03413 5-1-48 H.B.P.	0.476323
20	<u>T26N-R11W:</u> Sec. 6: E/2 SW/4	NM-03523 7-1-47 H.B.P.	0.980533

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

74	<u>T26N-R11W:</u> Sec. 8: W/2 SW/4 W/2 SE/4 Sec. 18: W/2 SE/4 Sec. 20: W/2 NW/4 W/2 NE/4 Sec. 21: W/2 NW/4	SF-078899 7-1-47 H.B.P.	4.298366
75	<u>T26N-R11W:</u> Sec. 8: NW/4 E/2 SW/4 E/2 SE/4 Sec. 18: E/2 SE/4 Sec. 20: E/2 NW/4 E/2 NE/4 Sec. 21: E/2 NW/4	SF-078899-A 7-1-47 H.B.P.	5.296178
76	<u>T26N-R11W:</u> Sec. 17: A11	SF-079679 12-1-47 H.B.P.	6.847413
77	<u>T26N-R11W:</u> Sec. 7: E/2 NW/4 E/2 NE/4 W/2 SW/4 W/2 SE/4 Sec. 18: E/2 NE/4	SF-078897 7-1-47 H.B.P.	6.580967
78	<u>T26N-R11W:</u> Sec. 7: W/2 NE/4 Lots 1 and 2 E/2 SW/4 E/2 SE/4 Sec. 18: W/2 NE/4	SF-078897-A 7-1-47 H.B.P.	4.520205
79	<u>T26N-R11W:</u> Sec. 6: W/2 SW/4	NM-03523 7-1-47 H.B.P.	0.419215
90	<u>T27N-R13W:</u> Sec. 36: NE/4	SF-078391 6-1-49 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> Sec. 11: NE/4	14-20-603-294 5-11-54 H.B.P.	2.157640
39	<u>T26N-R12W:</u> Sec. 11: SE/4	14-20-603-295 5-11-54 H.B.P.	2.517019
40	<u>T26N-R12W:</u> Sec. 12: NW/4	14-20-603-296 5-11-54 H.B.P.	2.646002
41	<u>T26N-R12W:</u> Sec. 12: SW/4	14-20-603-297 5-11-54 H.B.P.	2.303519
42	<u>T26N-R12W:</u> Sec. 12: SE/4	14-20-603-298 5-11-54 H.B.P.	2.319216
44	<u>T26N-R12W:</u> Sec. 13: NE/4	14-20-603-299 5-11-54 H.B.P.	1.561061
45	<u>T26N-R12W:</u> Sec. 13: SE/4	14-20-603-300 5-11-54	1.067618
46	<u>T26N-R12W:</u> Sec. 13: NW/4	14-20-603-302 2-9-54 H.B.P.	1.543176
47	<u>T26N-R12W:</u> Sec. 13: SW/4	14-20-603-301 5-11-54	0.937516
48	<u>T26N-R12W:</u> Sec. 14: NE/4	14-20-603-303 5-11-54	0.892655
49	<u>T26N-R12W:</u> Sec. 14: SE/4	14-20-603-304 5-11-54 H.B.P.	0.963094
57	<u>T26N-R12W:</u> Sec. 24: NW/4	14-20-603-306 2-9-54 H.B.P.	0.970675
59	<u>T26N-R12W:</u> Sec. 24: NE/4	14-20-603-309 5-11-54	0.714041



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

Received at Boston May 31, 1937

REVISED EXHIBIT "C" 12-17-63  
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 GALLEGOS GALLUP SAND UNIT  
SAN JUAN COUNTY, NEW MEXICO

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4	<u>T27N-R13W:</u> Sec. 36: NW/4	SF-078391-B 6-1-49 H.B.P.	1.256399
5	<u>T27N-R13W:</u> Sec. 25: SE/4 Sec. 36: SE/4	SF-078391-A 6-1-49 H.B.P.	0.845196
6	<u>T27N-R12W:</u> Sec. 30: SW/4	SF-078100 12-1-47 H.B.P.	0.106356
7	<u>T27N-R12W:</u> Sec. 31: NE/4	SF-080238 4-1-51 H.B.P.	1.135652
14	<u>T27N-R12W:</u> Sec. 32: S/2	SF-078858 4-1-48 H.B.P.	2.112104
15	<u>T27N-R12W:</u> Sec. 33: SW/4	NM-03413 5-1-48 H.B.P.	0.476323
20	<u>T26N-R11W:</u> Sec. 6: E/2 SW/4	NM-03523 7-1-47 H.B.P.	0.980533

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

74	<u>T26N-R11W:</u> Sec. 8: W/2 SW/4 W/2 SE/4 Sec. 18: W/2 SE/4 Sec. 20: W/2 NW/4 W/2 NE/4 Sec. 21: W/2 NW/4	SF-078899 7-1-47 H.B.P.	4.298366
75	<u>T26N-R11W:</u> Sec. 8: NW/4 E/2 SW/4 E/2 SE/4 Sec. 18: E/2 SE/4 Sec. 20: E/2 NW/4 E/2 NE/4 Sec. 21: E/2 NW/4	SF-078899-A 7-1-47 H.B.P.	5.296178
76	<u>T26N-R11W:</u> Sec. 17: All	SF-079679 12-1-47 H.B.P.	6.847413
77	<u>T26N-R11W:</u> Sec. 7: E/2 NW/4 E/2 NE/4 W/2 SW/4 W/2 SE/4 Sec. 18: E/2 NE/4	SF-078897 7-1-47 H.B.P.	6.580967
78	<u>T26N-R11W:</u> Sec. 7: W/2 NE/4 Lots 1 and 2 E/2 SW/4 E/2 SE/4 Sec. 18: W/2 NE/4	SF-078897-A 7-1-47 H.B.P.	4.520205
79	<u>T26N-R11W:</u> Sec. 6: W/2 SW/4	NM-03523 7-1-47 H.B.P.	0.419215
90	<u>T27N-R13W:</u> Sec. 36: NE/4	SF-078391 6-1-49 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> Sec. 11: NE/4	14-20-603-294 5-11-54 H.B.P.	2.157640
39	<u>T26N-R12W:</u> Sec. 11: SE/4	14-20-603-295 5-11-54 H.B.P.	2.517019
40	<u>T26N-R12W:</u> Sec. 12: NW/4	14-20-603-296 5-11-54 H.B.P.	2.646002
41	<u>T26N-R12W:</u> Sec. 12: SW/4	14-20-603-297 5-11-54 H.B.P.	2.303519
42	<u>T26N-R12W:</u> Sec. 12: SE/4	14-20-603-298 5-11-54 H.B.P.	2.319216
44	<u>T26N-R12W:</u> Sec. 13: NE/4	14-20-603-299 5-11-54 H.B.P.	1.561061
45	<u>T26N-R12W:</u> Sec. 13: SE/4	14-20-603-300 5-11-54	1.067618
46	<u>T26N-R12W:</u> Sec. 13: NW/4	14-20-603-302 2-9-54 H.B.P.	1.543176
47	<u>T26N-R12W:</u> Sec. 13: SW/4	14-20-603-301 5-11-54	0.937516
48	<u>T26N-R12W:</u> Sec. 14: NE/4	14-20-603-303 5-11-54	0.892655
49	<u>T26N-R12W:</u> Sec. 14: SE/4	14-20-603-304 5-11-54 H.B.P.	0.963094
57	<u>T26N-R12W:</u> Sec. 24: NW/4	14-20-603-306 2-9-54 H.B.P.	0.970675
59	<u>T26N-R12W:</u> Sec. 24: NE/4	14-20-603-309 5-11-54	0.714041

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

I hereby certify this instrument was filed for record on the 20 day of January 1964 at 7:00 o'clock A.M., and duly recorded in Book 570 page 52 of the Records of said County.

Probate Clerk and ex-officio Recorder

Deputy

*4274*

**CERTIFICATE  
RELATING TO THIRD 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 in 4 day of January, 1964, executed this instrument by and through its Vice President thereunto duly authorized.

SKELLY OIL COMPANY

ATTEST:

B. Randall Sherrill  
Assistant Secretary

By L. L. Blacksher  
Vice President

*from the Review*

STATE OF OKLAHOMA )  
 ) SS  
COUNTY OF TULSA )

The foregoing instrument was acknowledged before me this 10<sup>th</sup> day of January, 1964, by L. L. Blacksher, Vice President of SKELLY OIL COMPANY, a Delaware corporation, on behalf of said corporation.

Doris L. Allen  
Notary Public

My commission expires:

My Commission Expires May 31, 1967



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> Sec. 35: NE/4	SF-078105 12-1-47 H.B.P.	0.671851
2	<u>T27N-R13W:</u> Sec. 25: N/2 SW/4 Sec. 36: S/2 SW/4	SF-078391-C 6-14-54 H.B.P.	0.057624
3	<u>T27N-R13W:</u> Sec. 25: S/2 SW/4 Sec. 36: N/2 SW/4	SF-078391-C 6-14-54 H.B.P.	1.443535
4	<u>T27N-R13W:</u> Sec. 36: NW/4	SF-078391-B 6-1-49 H.B.P.	1.256399
5	<u>T27N-R13W:</u> Sec. 25: SE/4 Sec. 36: SE/4	SF-078391-A 6-1-49 H.B.P.	0.845196
6	<u>T27N-R12W:</u> Sec. 30: SW/4	SF-078100 12-1-47 H.B.P.	0.106356
7	<u>T27N-R12W:</u> Sec. 31: NE/4	SF-080238 4-1-51 H.B.P.	1.135652
14	<u>T27N-R12W:</u> Sec. 32: S/2	SF-078858 4-1-48 H.B.P.	2.112104
15	<u>T27N-R12W:</u> Sec. 33: SW/4	NM-03413 5-1-48 H.B.P.	0.476323
20	<u>T26N-R11W:</u> Sec. 6: E/2 SW/4	NM-03523 7-1-47 H.B.P.	0.980533

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

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

<u>Tract Number</u>	<u>Description</u>	<u>INDIAN ALLOTTED LANDS</u>	<u>Serial No. and Date of Lease or Application</u>	<u>Percentage Participation</u>
38	<u>T26N-R12W:</u> Sec. 11: NE/4		14-20-603-294 5-11-54 H.B.P.	2.157640
39	<u>T26N-R12W:</u> Sec. 11: SE/4		14-20-603-295 5-11-54 H.B.P.	2.517019
40	<u>T26N-R12W:</u> Sec. 12: NW/4		14-20-603-296 5-11-54 H.B.P.	2.646002
41	<u>T26N-R12W:</u> Sec. 12: SW/4		14-20-603-297 5-11-54 H.B.P.	2.303519
42	<u>T26N-R12W:</u> Sec. 12: SE/4		14-20-603-298 5-11-54 H.B.P.	2.319216
44	<u>T26N-R12W:</u> Sec. 13: NE/4		14-20-603-299 5-11-54 H.B.P.	1.561061
45	<u>T26N-R12W:</u> Sec. 13: SE/4		14-20-603-300 5-11-54	1.067618
46	<u>T26N-R12W:</u> Sec. 13: NW/4		14-20-603-302 2-9-54 H.B.P.	1.543176
47	<u>T26N-R12W:</u> Sec. 13: SW/4		14-20-603-301 5-11-54	0.937516
48	<u>T26N-R12W:</u> Sec. 14: NE/4		14-20-603-303 5-11-54	0.892655
49	<u>T26N-R12W:</u> Sec. 14: SE/4		14-20-603-304 5-11-54 H.B.P.	0.963094
57	<u>T26N-R12W:</u> Sec. 24: NW/4		14-20-603-306 2-9-54 H.B.P.	0.970675
	<u>T26N-R12W:</u>		14-20-603-309 5-11-54	0.71404

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

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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 Well No.</u>	<u>Water Injected in April, Bbls.</u>	<u>Average Wellhead Injection Pressure - p.s.i.g.</u>	<u>Cumulative Water 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	8,786	266	22,230
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:

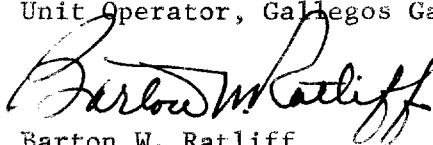
1. Convert producing Well No. 25 to an injection well.
2. Convert injection Well No. 32 to a producing well.
3. Temporarily shut down injection Wells No. 48 and 50.
4. Temporarily shut down producing Well No. 38.
5. If necessary at a later date, convert Well No. 38 to an injection well, and equip to 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> %	<u>Permeability</u> md	<u>Water Saturation</u> %	<u>Net Pay</u> 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.

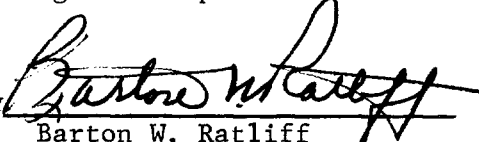
Water supply lines and water injection system are shown in Exhibit No. 1.

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 you 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/mm/m  
encl.

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

Oil Conservation Commission  
Santa Fe, New Mexico



# 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*



Brewer 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

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 Genta

By C. L. Blackwell  
Vice President

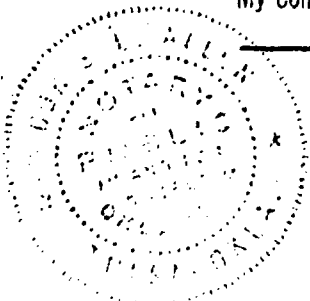
STATE OF OKLAHOMA   )  
                                  ) SS  
COUNTY OF TULSA     )

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.

Marie L. Allen  
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

<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> Sec. 26: S/2 Sec. 35: N/2	SF-078105 12-1-47 H.B.P.	0.671851
2	<u>T27N-R13W:</u> Sec. 25: N/2 SW/4 Sec. 36: N/2 SW/4	SF-078391-C 6-14-54 H.B.P.	0.057624
3	<u>T27N-R13W:</u> Sec. 25: S/2 SW/4 Sec. 36: N/2 SW/4	SF-078391-C 6-14-54 H.B.P.	1.443535
4	<u>T27N-R13W:</u> Sec. 36: NW/4	SF-078391-B 6-1-49 H.B.P.	1.256399
5	<u>T27N-R13W:</u> Sec. 25: SE/4 Sec. 36: SE/4	SF-078391-A 6-1-49 H.B.P.	0.845196
6	<u>T27N-R12W:</u> Sec. 30: S/2	SF-078100 12-1-47 H.B.P.	0.106356
7	<u>T27N-R12W:</u> Sec. 31: NE/4	SF-080238 4-1-51 H.B.P.	1.135652
14	<u>T27N-R12W:</u> Sec. 32: S/2	SF-078858 4-1-48 H.B.P.	2.112104
15	<u>T27N-R12W:</u> Sec. 33: W/2	NM-03413 5-1-48 H.B.P.	0.476323
20	<u>T26N-R11W:</u> Sec. 6: E/2 SW/4	NM-03523 7-1-47 H.B.P.	0.980533

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

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

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

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

NPM:br  
Attach.

January 25, 1963

GALLEGOS GALLUP SAND UNIT  
SAN JUAN COUNTY, NEW MEXICO

<u>Unit</u> <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> <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 "Q" 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> <u>%</u>	<u>Permeability</u> <u>md</u>	<u>Water Saturation</u> <u>%</u>	<u>Net Pay</u> <u>Ft.</u>
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.

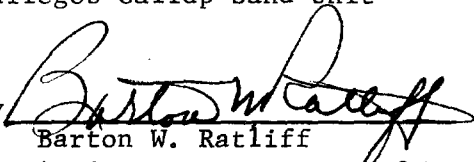
Water supply lines and water injection system are shown in Exhibit No. 1.

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

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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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