

Dune Ridge  
"D" sand

Application. Unit Agreement  
Commission Order

Volume 3500 bbl/day



BEFORE THE OIL AND GAS CONSERVATION COMMISSION  
OF THE STATE OF COLORADO

IN THE MATTER OF THE APPLICATION  
OF SHELL OIL COMPANY FOR APPROVAL  
OF PROPOSED WATER FLOOD OPERATION  
IN THE DUNE RIDGE FIELD, LOGAN  
COUNTY, COLORADO.

CAUSE NO. 54  
FILE NO. \_\_\_\_\_  
HEARING SET 12/10/57

A P P L I C A T I O N

Comes now SHELL OIL COMPANY, and respectfully shows to the  
Oil and Gas Conservation Commission of the State of Colorado, as  
follows:

1. That applicant is a Delaware corporation duly authorized  
to transact business as a foreign corporation in the State of  
Colorado.

2. That the subject matter of this application is the fol-  
lowing described land located in Logan County, Colorado:

The SE $\frac{1}{4}$ SW $\frac{1}{4}$  and the SW $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 29, E $\frac{1}{2}$ SE $\frac{1}{4}$   
of Section 31, E $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ , and  
NW $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 32, all in Township 7 North,  
Range 52 West, 6th P. M.

3. That attached hereto and made a part hereof and marked  
Exhibit "A" is a plat showing the area involved, together with the  
wells located thereon properly designated.

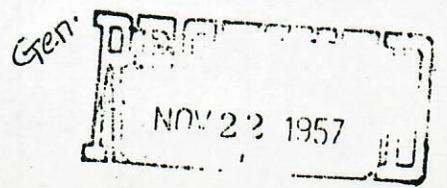
4. That the locations of the five proposed intake wells are  
shown on Exhibit "A". The location of the present gas injection  
well is also shown on Exhibit "A".

5. That the names and addresses of lease owners other than  
applicant within one mile of the intake wells are as follows:

Olen Featherstone  
Midland Savings Bank Building  
Denver, Colorado

E. L. Doheny and Patrick A. Doheny  
9463 Charleville Boulevard  
Beverly Hills, California

*Memo  
Unit 4  
cl  
Geni 5010*



All State Oil Company *N.E.*  
1217 Mile High Center  
Denver, Colorado

Skelly Oil Company *GEN.*  
Suite 900  
655 Broadway  
Denver, Colorado

Excelsior Oil Company  
c/o Kansas-Nebraska Natural Gas Company, Inc.  
300 North ~~Street~~ *Joseph Ave.*  
~~St. Joseph, Missouri~~ *Hastings, Neb.*

C. L. Lough  
5157 Shore Drive  
Carlsbad, California

Pan American Petroleum Corporation *Gen.*  
Denver Club Building  
Denver, Colorado

*1121* Samuel Gary  
Mile High Center  
Denver, Colorado

Ryan Oil Company *Gen.*  
Midland Savings Building  
Denver, Colorado

6. That the operation proposed by applicant for which approval is required is that of injecting water into the Muddy or "D" Sandstone reservoir of Cretaceous Age which occurs at the approximate depth of 4450 feet in the Dune Ridge Field. Injection will occur in five down dip or flank wells resulting in a peripheral type water flood. Casing-head gas is presently being reinjected in one well near the crest of the structure at the rate of approximately one MMCF per day. This practice will be continued and supplemented by water flooding.

7. That attached hereto and made a part hereof and marked Exhibit "B" is a copy of the Unit Agreement dated October 1, 1957, between Shell Oil Company and the royalty owners under leases covering the above-described land. Shell Oil Company owns the full working interest in all the land covered by this application.

8. That the wells in the area involved are producing from the Muddy Sandstone reservoir.

9. That attached hereto and made a part hereof and marked Exhibits "C-1" through "C-5" are the logs of all the intake wells.

10. That in addition to the information contained in paragraph 9, Exhibits "C-1" through "C-5" contain descriptions of the casing of the intake wells. Applicant proposes to test the casing in each intake well by setting a packer on tubing above the casing shoe, filling the annulus with oil, and pressure testing to 1500 pounds per square inch guage.

11. That water, the sources of which are shallow water sands occurring from approximately 150 to 550 feet below the surface, will be used for injection purposes. It is estimated that 3500 barrels of water will be injected daily.

12. That the applicant, Shell Oil Company, is the sole operator of the proposed project and that the address of the applicant is 1700 Broadway, Denver 2, Colorado.

13. That applicant has given notice of this application to each owner of record of leases within one mile of the proposed intake wells by mailing a copy of this application, together with exhibits, to such owners at the addresses shown in paragraph 5, and that attached hereto is an affidavit showing the parties on whom the notice has been served and their addresses.

14. That the intake wells are cased with safe and adequate casing so as to prevent leakage and are so cemented that damage will not be caused to oil, gas, or fresh water resources.

15. That applicant believes and therefore alleges that in the interest of conservation, to prevent waste as defined in the Colorado Oil and Gas Conservation Act of 1951, as amended, this Commission should enter its order approving the proposed water flood operation.

WHEREFORE, APPLICANT PRAYS that this matter be set down for hearing, that notice be given as provided by the Colorado Oil and

Gas Conservation Act and the Rules and Regulations of the Oil and Gas Conservation Commission for the State of Colorado, and that upon such hearing, this Commission enter its order approving the proposed water flood operation.

SHELL OIL COMPANY - Applicant

By Frederick J. Toth  
Frederick J. Toth

STATE OF COLORADO }  
CITY & COUNTY OF DENVER } SS

FREDERICK J. TOTH, being first duly sworn on oath, states that he is the Division Production Manager for SHELL OIL COMPANY; that he has read the foregoing application and that the matters and things therein contained are true of his own knowledge.

Frederick J. Toth  
Frederick J. Toth

Subscribed and sworn to before me this 21<sup>st</sup>  
day of November, 1957.

My Commission Expires:  
March 4, 1958

George M. Moacham  
Notary Public

SHELL OIL COMPANY

By R. T. Robertson  
Its Attorney

BEFORE THE OIL AND GAS CONSERVATION COMMISSION  
OF THE STATE OF COLORADO

IN THE MATTER OF THE INVESTIGATION )  
TO TAKE MEASURES TO PREVENT WASTE ) CAUSE NO. 54  
OF OIL AND GAS IN THE DUNE RIDGE FIELD, )  
LOGAN COUNTY, COLORADO ) CAUSE NO. 54-4

REPORT OF THE COMMISSION

This cause came on for hearing before the Commission on December 10, 1957, at 10:00 A. M., in Room 330 State Office Building, Denver, Colorado, after publication of Notice of Hearing as required by law, on the application of the Shell Oil Company, as operator of the Dune Ridge "D" Sand Unit, for an order permitting Applicant to institute a water injection method of pressure maintenance in said Unit.

FINDINGS

The Commission finds as follows:

1. That due notice of the time, place and purpose of the hearing has been given in all respects as required by law.
2. That the Commission has jurisdiction over the subject matter embraced in said Notice, and of the parties interested therein, and jurisdiction to promulgate the hereinafter prescribed order.
3. That the "D" sand formation underlying the Dune Ridge Unit Area, as set forth in the Unit Agreement presented by the applicant, constitutes a common source of supply of oil and gas, and that said Unit Area is composed of the following lands in Logan County, Colorado, to-wit:

Township 7 North, Range 52 West, 6th P. M.

Section 29: SE/4 SW/4,  
SW/4 SE/4,

Section 31: E/2 SE/4

Section 32: E/2 NW/4,  
SW/4 NW/4,  
W/2 NE/4,  
SW/4 and  
NW/4 SE/4

4. That the Unit Agreement, as presented by the applicant, is necessary to increase the ultimate recovery of oil and gas from said Unit Area, and should therefore be approved as being in the public interest for conservation.
5. That the pressure maintenance program by water injection into the "D" sand underlying the Dune Ridge Unit Area, as presented by the applicant, will increase the ultimate recovery of oil and gas from said Unit Area, and should therefore be approved as being in the public interest for conservation.

6. That avoidable waste of oil and gas will be prevented by the operations proposed by the applicant, and the correlative rights of all parties in the Dune Ridge Unit Area, as herein defined, will not be adversely affected and will be reasonably protected under such plan of operation; and that in the interest of securing the greatest ultimate recovery of oil and gas from said pool, the prevention of waste and protection correlative rights, this application should be granted.

#### ORDER

NOW, THEREFORE, IT IS ORDERED, that the following rules and regulations shall apply hereafter to the lands set forth in this order, in addition to other applicable rules and regulations and orders of the Commission, if any, heretofore adopted and not in conflict herewith:

Rule 1. The "D" sand formation underlying the Dune Ridge Unit Area as set forth in the Unit Agreement dated October 1, 1957, constitutes a common source of supply of oil and gas. Said Unit Area is composed of the following lands in Logan County, Colorado, to-wit:

Southeast Quarter of the Southwest Quarter (SE/4 SW/4), and the Southwest Quarter of the Southeast Quarter (SW/4 SE/4) of Section 29; East Half of the Southeast Quarter (E/2 SE/4) of Section 31; East Half of the Northwest Quarter (E/2 NW/4), Southwest Quarter of the Northwest Quarter (SW/4 NW/4), West Half of the Northeast Quarter (W/2 NE/4), Southwest Quarter (SW/4), and the Northwest Quarter of the Southeast Quarter (NW/4 SE/4) of Section 32, all in Township Seven (7) North, Range Fifty-two (52) West of the 6th P. M.

Rule 2. The Unit Agreement covering the Dune Ridge Unit Area herein defined, and providing for Unit operations of the "D" sand underlying said Unit Area, is hereby approved.

Rule 3. The pressure maintenance program by the injection of water into the "D" sand of the Dune Ridge Unit Area is hereby approved, and Applicant is authorized to inject water into said formation through the wells designated in its application in such quantities as shall be reasonably determined by Applicant to best achieve the maximum recovery of oil and gas without waste.

IT IS FURTHER ORDERED, that the Commission expressly reserves its right, after notice and hearing, to alter, amend or repeal any and/or all of the above orders, rules and regulations.

ORDERED THIS 10th day of December, 1957.

OIL AND GAS CONSERVATION COMMISSION  
OF THE STATE OF COLORADO

By Annabel Hogsett  
Annabel Hogsett, Secretary