SHELL–AMCO–HODGES–FEDERAL
WATERFLOOD PROJECT

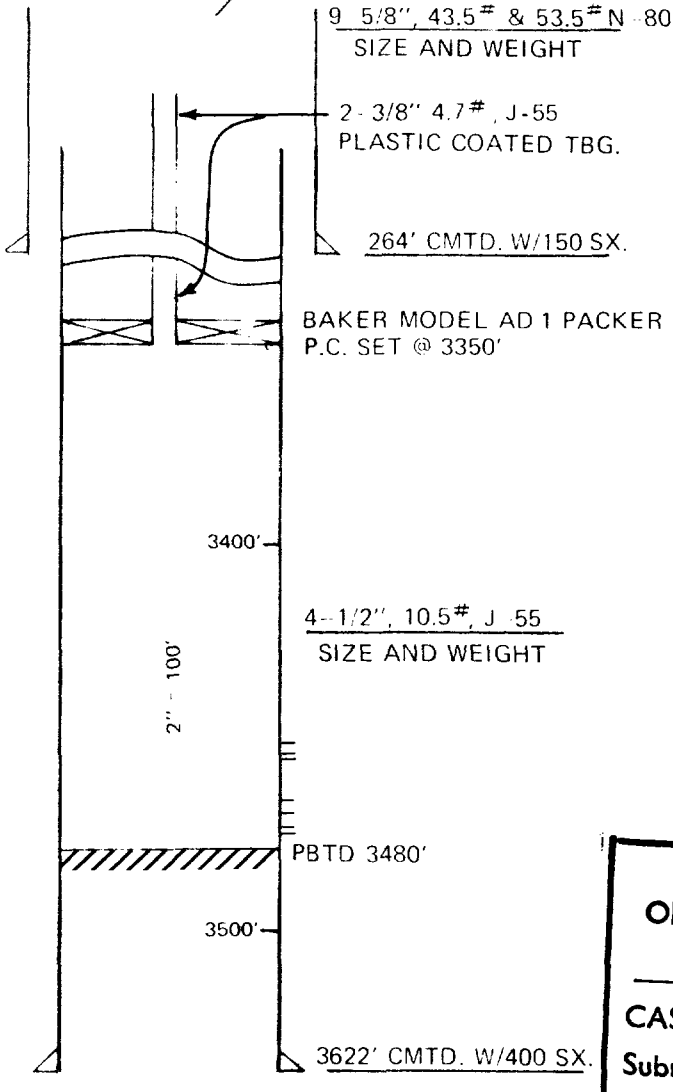
CATO FIELD

HODGES FEDERAL "B" WELL NO. 4

660' FSL & 660' FWL, SEC. 34, T-8-S, R-30-E

CHAVES COUNTY, NEW MEXICO

DOWNHOLE DRAWING
OF PROPOSED COMPLETION



COMPLETION DATE: 3-17-68

ELEVATION: 4116' DF

TD: 3623', PBTD: 3480'

PERF: 3452', 3455', 3465', 3470', 3474', 3476', 3479', 3481', 3498', 3499', 3503', 3506', 3512', 3515', (14 HOLES)
SQUEEZED W/400 SX. CEMENT.

PERF: 3452', 3455', 3465', 3470', 3474', 3476', 3479', 3481' (8 HOLES)
SQUEEZED W/375 SX. CEMENT.

PERF: 3451', 3454', 3456', 3466', 3469', 3473', 3475' (7 HOLES)

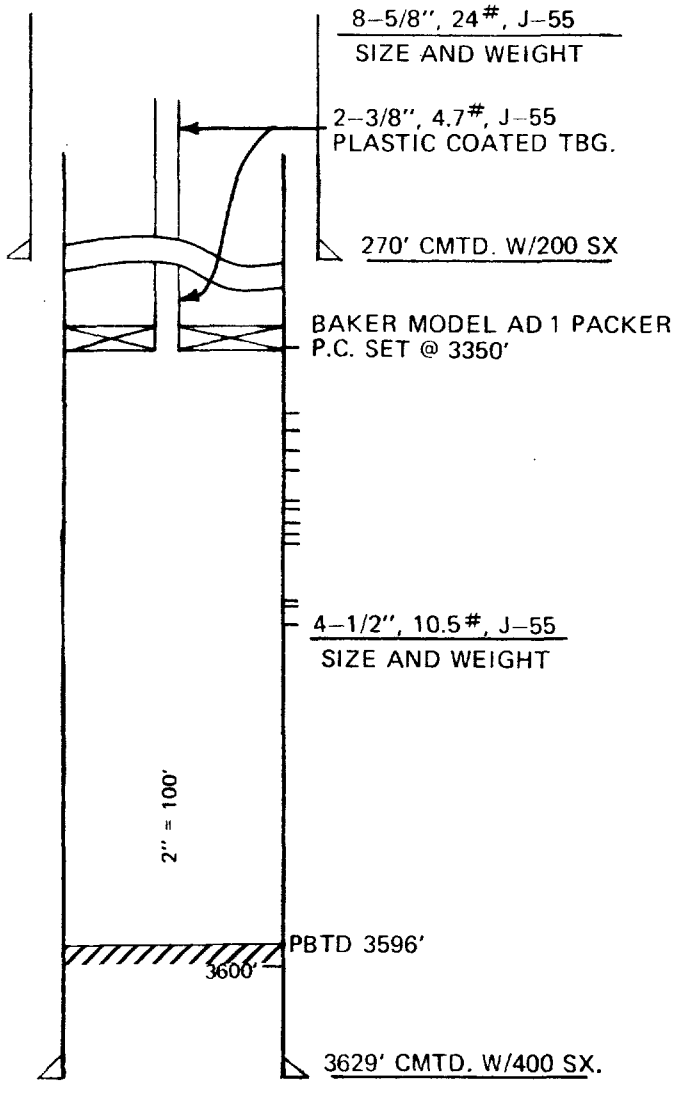
9-5/8" CSG. CEMENT CIRCULATED

4-1/2" CSG. CALCULATED CEMENT TOP 1700'

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2
CASE NO. 4882
Submitted by Shell Oil Co.
Hearing Date 12-19-72

SHELL–AMCO–HODGES–FEDERAL
WATERFLOOD PROJECT
CATO FIELD
AMCO FEDERAL WELL NO. 4
1980' FNL & 1980' FEL, SEC. 33, T-8-S, R-30-E
CHAVES COUNTY, NEW MEXICO

DOWNHOLE DRAWING
OF PROPOSED COMPLETION



COMPLETION DATE: 11–6–67

ELEVATION: 4165' DF

TD: 3600', PBTD: 3596'

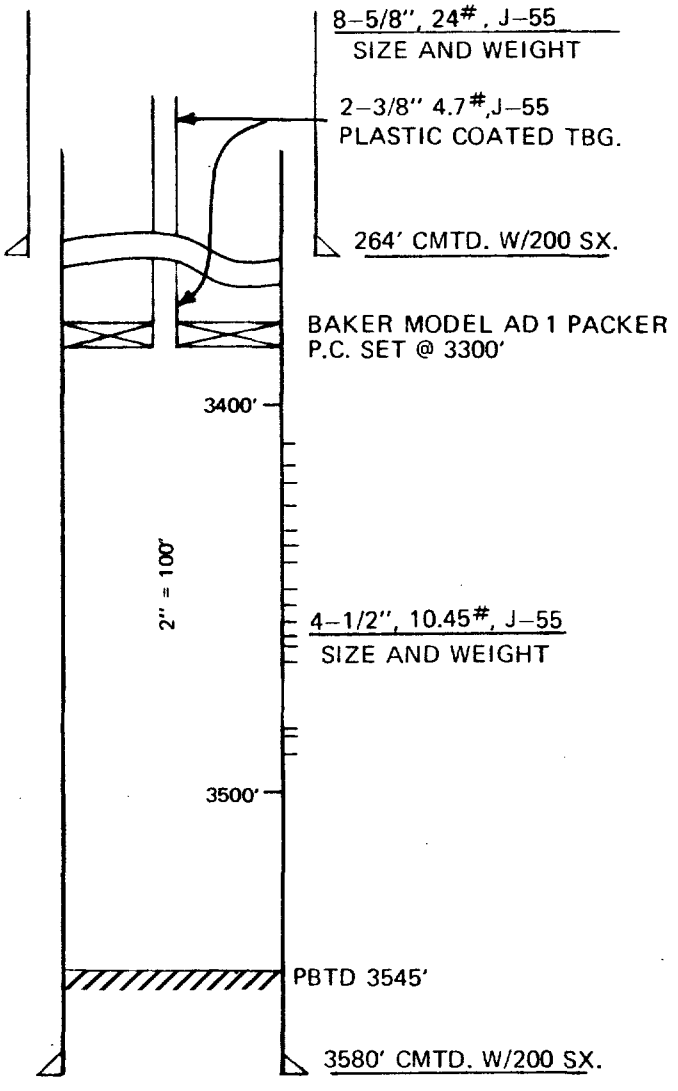
PERF: 3457', 3461', 3466', 3471', 3479', 3481', 3485', 3488', 3490', 3505', 3508', 3511', (12 HOLES)

8–5/8" CSG. CEMENT CIRCULATED

4–1/2" CSG. CALCULATED CEMENT TOP 1700'

SHELL–AMCO–HODGES–FEDERAL
WATERFLOOD PROJECT
CATO FIELD
AMCO FEDERAL WELL NO. 6
660' FSL & 1980' FEL, SEC. 33, T-8-S, R-30-E
CHAVES COUNTY, NEW MEXICO

DOWNHOLE DRAWING
OF PROPOSED COMPLETION



COMPLETION DATE: 11–21–67

ELEVATION: 4138' DF

PBTD: 3545', TD: 3580'

PERF: 3410', 3416', 3420', 3426', 3432', 3436', 3441', 3448', 3452', 3456', 3460', 3463', 3467', 3484', 3486', 3492', (16 HOLES)

8–5/8" CSG. CEMENT CIRCULATED

4–1/2" CSG. CALCULATED CEMENT TOP 2600'

SHELL–AMCO–HODGES–FEDERAL
WATERFLOOD PROJECT

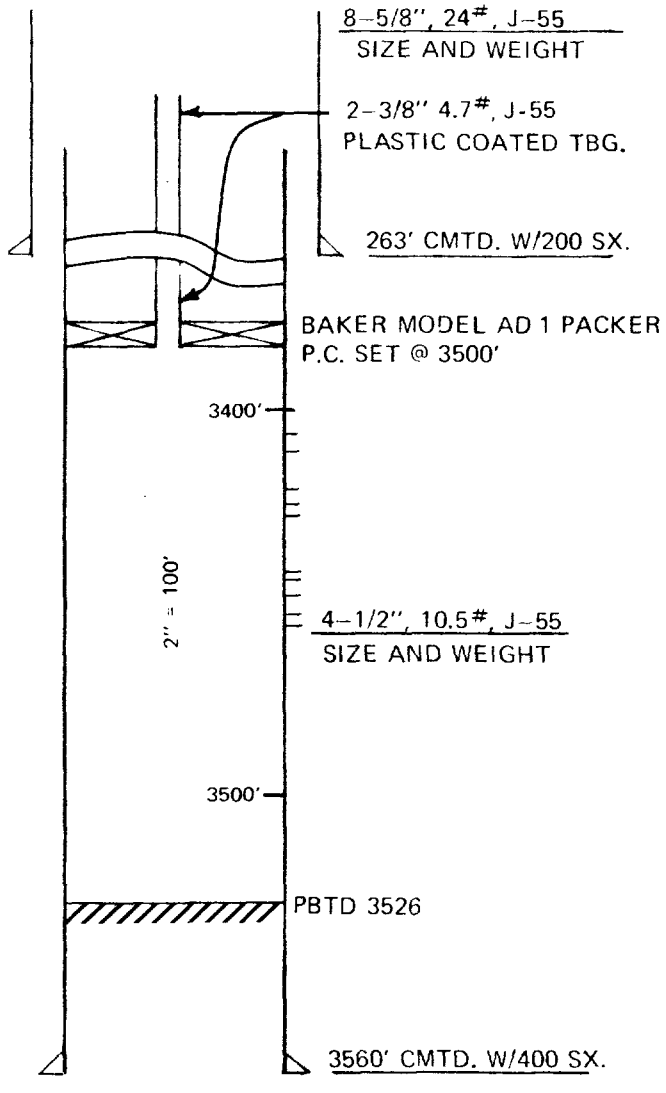
CATO FIELD

AMCO FEDERAL WELL NO. 7

660' FWL & 1980' FNL, SEC. 33, T-8-S, R-30-E

CHAVES COUNTY, NEW MEXICO

DOWNHOLE DRAWING
OF PROPOSED COMPLETION



COMPLETION DATE: 11–29–67

ELEVATION: 4142' DF

TD: 3560', PBTD: 3526'

PERF: 3400', 3406', 3411', 3420', 3424', 3427', 3442', 3444', 3448', 3453', 3456', (11 HOLES)

8–5/8" CSG. CEMENT CIRCULATED

4–1/2" CSG. CALCULATED CEMENT TOP 1700'

SHELL–AMCO–HODGES–FEDERAL
WATERFLOOD PROJECT

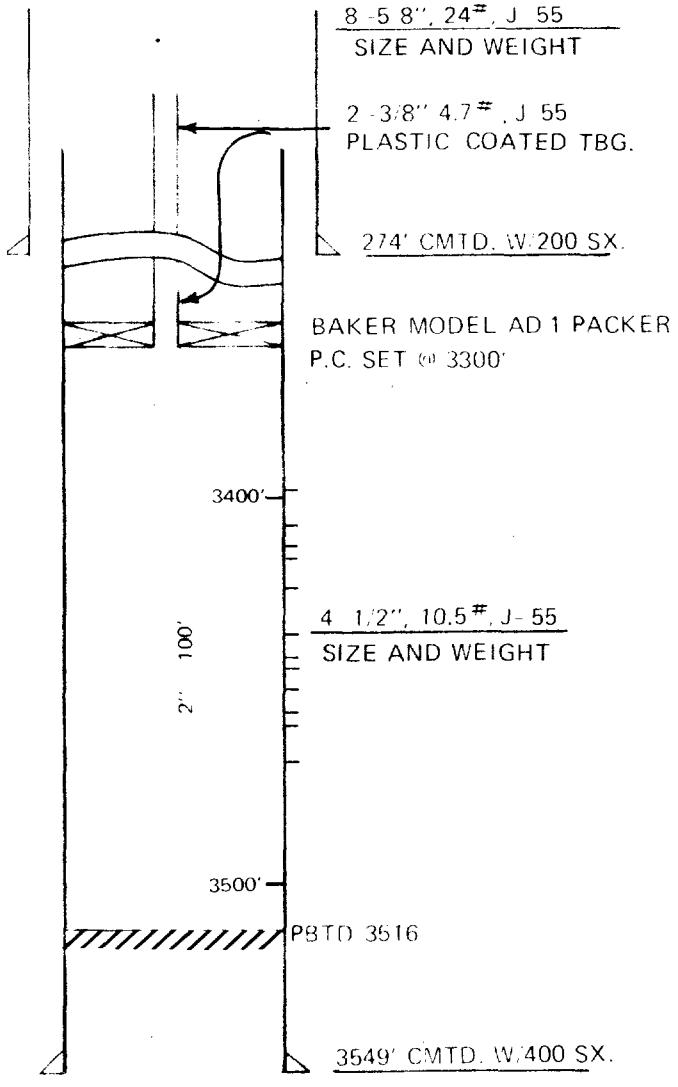
CATO FIELD

AMCO FEDERAL WELL NO. 8

660' FSL & 660' FWL, SEC. 33, T-8-S, R-30-E

CHAVES COUNTY, NEW MEXICO

DOWNHOLE DRAWING
OF PROPOSED COMPLETION



COMPLETION DATE: 12–13 67

ELEVATION: 4127' DF

TD: 3550', PBTD: 3516'

PERF: 3398', 3408', 3413', 3416', 3424', 3436', 3442', 3445', 3450', 3456', 3459', 3469' (12 HOLES)

8-5/8" CSG. CEMENT CIRCULATED

4-1/2" CSG. CALCULATED CEMENT TOP 1650'

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 4882
Submitted by Shell Oil Co.
Hearing Date 12-19-72

SHELL AMCO - HODGES - FEDERAL
WATERFLOOD PROJECT

The Shell Amco-Hodges-Federal Waterflood Project is a proposed waterflood project which is presently producing from the San Andres formation in the Cato Field in Chaves County, New Mexico.

LEASE:	LOCATION:
Shell's Amco-Federal	W/2 NE/4, NW/4 and S/2 of Section 33, T-8-S, R-30-E, Chaves County, New Mexico
Shell's Amco-Federal "A"	N/2 Section 4, T-9-S, R-30-E, Chaves County, New Mexico
Shell's Hodges-Federal "B"	W/2 Section 34, T-8-S, R-30-E, Chaves County, New Mexico

FORMATION: San Andres

DEPTH: Approximate 3350'-3550' (+800 to +600)

INJECTION RATE: Approximately 3000 BWPD (5 wells)

INJECTION PRESSURE: Approximately 500 psi (Wellhead)

WATER SOURCE: Produced water and convert salt water disposal to source wells.

	WELL:	UNIT LETTER	LOCATION	COUNTY & STATE	FORMATION	PERF'D. INTERVAL
1.	Shell Federal No. 1	A	330' FNL, 990' FEL Sec. 36, T-8-S, R-30-E	Chaves, N.M.	Cato - San Andres	3581'-3680'
2.	Thelma Crosby "F" No. 1	H	1980' FNL, 660' FEL Sec. 17, T-9-S, R-30-E	Chaves, N.M.	Cato - San Andres	3414'-3485'

ADDITIONAL RECOVERY: 543,000 bbld., estimated by reservoir calculations

PARAMETERS:

AVERAGE POROSITY	WATER SATURATION	HEIGHT	AREA	VOLUME FACTOR	OIL GRAVITY	BUBBLE POINT	SOLUTION GAS
7%	30%	22'	760 acres	1.199	24° API	1014 psia	377 SCF/Bbl.

PROJECT INSTALLATION COST $150,000 estimated

SHELL OIL COMPANY

PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

Subject: Shell Amco-Hodges-Federal
Waterflood Project
Cato (San Andres) Field
Sections 33 and 34, T-8-S, R-30-E
Chaves County, New Mexico

TO ALL OPERATORS
(See Attached List)

Gentlemen:

On December 19, 1972, Shell Oil Company will submit to the New Mexico Conservation Commission an application to waterflood the subject properties. Our plan of waterflooding will consist of converting initially five San Andres producing wells to water injection at the location shown on the attached plat. Water for injection will be produced water from these properties and from Shell-operated salt water disposal units.

If any additional information is needed, please advise.

Yours very truly,

Jack L. Mahaffey
Production Manager
Mid-Continent Division

JES:SH

Attachments

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 6
CASE NO. 4882
Submitted by Shell Oil Co
Hearing Date 12-19-72

SHELL OIL COMPANY

PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 7
CASE NO. 4882
Submitted by Shell Oil Co.
Hearing Date 12-19-72

Subject: Shell Amco-Hodges-Federal
Waterflood Project
Cato (San Andres) Field
Sections 33 and 34, T-8-S, R-30-E
Chaves County, New Mexico
Federal Lease No. NM-0155254-A

United States Department of the Interior
Geological Survey
P. O. Drawer "U"
Artesia, New Mexico 88210

Attention Mr. Knauf, District Engineer

Gentlemen:

Shell Oil Company requests your approval, as royalty owner, to conduct a Waterflood Project in Sections 33 and 34, T-8-S, R-30-E, Chaves County, New Mexico. As you are aware, a severe decline in production has taken place in the past few years. To arrest this decline and to realize the maximum recovery possible, Shell Oil Company is instigating a program to waterflood the Cato (San Andres) Reservoir underlying these properties.

On December 19, 1972, we plan to submit to the New Mexico Conservation Commission our application to waterflood these properties. Our plan of waterflooding will consist of converting initially five San Andres producing wells to water injection at the location shown on the attached plat. Water for injection will be produced water from these properties and from Shell-operated salt water disposal wells.

The initial conversion of producing wells to injection wells will result in a reduction of production from these properties of approximately 65 barrels of oil per day. However, we believe that the reservoir is amenable to secondary recovery operations and that this reduction will be more than offset by the arresting of decline and a possible increase in the rate of production as the reservoir responds to waterflood efforts.

Attached is a list of all injection wells and a map indicating injection lines and amount of surface area needed for facilities. If we can be of any further assistance, please advise.

Yours very truly,

W. J. Mahaffey

for Jack L. Mahaffey
Production Manager
Mid-Continent Division

JES:SH

Attachments