Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☒ Other

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

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2. NAME OF OPERATOR: Cities Service Oil Company

3. ADDRESS OF OPERATOR: Box 4906 - Midland, Texas 79701

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface: 1980' FSL & 1980' FWL of Sec.21-T25S-R24E, Eddy Co., New Mex.
At top prod. interval reported below: Same as above
At total depth: Same as above

5. LEASE DESIGNATION AND SERIAL NO.: NM 0512668

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: South Caverns Unit A

9. WELL NO.: 1

10. FIELD AND POOL, OR WILDCAT: Undes. Washington Ranch Morrow

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 21-T25S-R24E

14. PERMIT NO. / DATE ISSUED

12. COUNTY OR PARISH: Eddy

13. STATE: New Mexico

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
1-23-74	3-21-74	--	3795' GR	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
7550'			→	0-T.D. 7550'	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN: Bore Hole Compensated Sonic-Gamma Ray, Dual Induction - Laterolog, Dipmeter - Deviation Tests

27. WAS WELL CORED: No

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13-3/8"	48 & 54#	940'	17-1/2"	710 Sacks	--

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)

31. PERFORATION RECORD (*Interval, size and number*)

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32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED

33.* PRODUCTION

DATE FIRST PRODUCTION: Plugged & Abandoned | PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*) | WELL STATUS (*Producing or shut-in*)

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*)

TEST WITNESSED BY

35. LIST OF ATTACHMENTS: Deviation Tests

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED [signature] TITLE Region Oper. Mgr. DATE March 27, 1974

*(See Instructions and Spaces for Additional Data on Reverse Side)

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: *"Sacks Cement":* Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.

38. GEOLOGIC MARKERS

NAME	TOP	
	MEAS. DEPTH	TRUE VERT. DEPTH
Delaware Ls.	636'	
Delaware SD.	690'	
Bone Springs	3684'	
Dean	5525'	
Wolfcamp	5830'	
Canyon	6060'	
Strawn	6152'	
Atoka	6604'	
Atoka SD.	6703'	
Morrow	7006'	
1st SD.	7228'	
2nd SD.	7348'	
3rd SD.	7369'	
Chester	7450'	
	T.D.7550'	

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CITIES SERVICE OIL COMPANY
#1 South Caverns Unit A
Sec. 21-T25S-R24E
Eddy County, New Mexico

DST No. 1

1--1,550-1,708' (158') Delaware SS., 5/8" BHC, no water blanket, Tool opened with a poor to fair blow through blow hose. No gas to surface and no surface pressure for 15 min. preflow. Closed tool for 90 min. FSIP. Released packers POOH. Did not reverse out. Recovered 210' water that titrated 3000 ppm chlorides. Pit sample titrated 8000 ppm chlorides, Rw 1.0 at 66°F. Sample chamber at 1,530' contained 2490 cc water at 0 psig. Chlorides 5000 ppm with Rw 2.6 at 62°F.

	Top Chart At 1697	Bottom Chart At 1703
IMCP	754 psig	754 psig
IF (15 min)	88-119 psig	88-117 psig
ISIP (90 min)	667 psig	667 psig
FF (60 min)	83-187 psig	83-182 psig
FSIP (90 min)	593 psig	591 psig
FMCP	754 psig	754 psig
BHT		92° F.

DST No. 2

6035-6090' (55') Strawn Dolomite, 5/8" BHC, No water blanket. Tool opened with a poor blow on blow hose. No gas to surface and no surface pressure during 15 min. preflow. Tool closed for 90 min. ISIP. Tool reopened for 90 min. final flow with a very poor blow through blow hose for 5 mins. and died. No gas to surface and no surface pressure. Closed tool for 90 min. FSIP. Pulled tool loose. Did not reverse out. Recovered 10' drilling fluid 7200 ppm chlorides. Pit sample 7200 ppm with Rw 0.58 at 60°. Sample chamber at 6012 contained 1660 cc drilling fluid at zero psig that titrated 8000 ppm chlorides with Rw 0.48 at 76°. BHP's as follows:

	Top Chart at 6078'	Bottom Chart at 6084'
IMCP	2831 psig	2832 psig
IF (15 min.)	65-78 psig	83-97 psig
ISIP (90 min.)	227 psig	193 psig
FF (90 min.)	65-65 psig	69-69 psig
FSIP (90 min.)	289 psig	262 psig
FMCP	2831 psig	2832 psig
BHT	125° F.	

DST No. 3

6162-6312' (150') Strawn Ls, 5/8" BHC, no water blanket. Tool opened with a good blow on 1/8" blow hose with pressure increasing to max. 5 psig in 15 min. preflow. No gas to surface on preflow. Tool closed for 90 min. ISIP. Gas to surface in 8 min at 0730. Tool reopened for 90 min. final flow with good blow on 3/8" choke. Pressures and gas volumes as follows:

Time	Choke	Flowing Pressure	Gas Volume
5 min.	3/8"	0 psig	TSTM
10 min.	3/8"	1 psig	17720 cfd
15 min.	3/8"	2 psig	25340 cfd
20 min.	3/8"	2 psig	25340 cfd
25 min.	3/8"	2 psig	25340 cfd
30 min.	3/8"	2 psig	25340 cfd
35 min.	3/8"	1.75 psig	23000 cfd
40 min.	3/8"	1.50 psig	22000 cfd
45 min.	3/8"	1.50 psig	21820 cfd
50 min.	1/4"	2.00 psig	11930 cfd
55 min.	1/4"	2.50 psig	13410 cfd
60 min.	1/4"	2.50 psig	13410 cfd
65 min.	1/4"	2.50 psig	13410 cfd
70 min.	1/4"	2.50 psig	14000 cfd
75 min.	1/4"	3.00 psig	14760 cfd
80 min.	1/4"	3.00 psig	14760 cfd
85 min.	1/4"	3.00 psig	14760 cfd
90 min.	1/4"	3.00 psig	14760 cfd

Closed tool for 90 min. FSIP. Pulled tool loose. Did not reverse out. Recovered 270' gas cut drlg. mud and 990' salt water 108,000 ppm chlorides. Pit sample 6800 ppm chlorides. Sample chamber at 6137' contained .06 cu ft. gas and 1980 cc salt water 96,000 ppm chlorides at zero psig. BHP's as follows:

	Top Chart at 6298'	Bottom Chart at 6304'
IMCP	2956 psig	2956 psig
IF (15 min.)	190-351 psig	180-331 psig
ISIP (90 min.)	2650 psig	2667 psig
FF (90 min.)	363-797 psig	358-751 psig
FSIP (90 min.)	2559 psig	2571 psig
FMCP	2956 psig	2956 psig
BHT	125° F.	

DST No. 4

6675-6715' (40')Pennsylvanian Sd., 5/8" BHC, no water blanket. Tool opened with a good blow. Surface choke 1/2". Max. 9 psig in 15 min. preflow. No gas to surface on pre-flow. Tool closed for 90 min. ISIP. Tool re-opened for 90 min. final flow. Good blow on 1/4" choke. Pressures and gas volumes as follows:

DST No. 4

Time	Choke	Flowing Pressure	Gas Volume
5	1/4"	13 psig	air
10	1/4"	13 psig	air
15	1/4"	13 psig	air
20	1/4"	13 psig	air
25	1/4"	13 psig	air
30	1/4"	13 psig	air
35	1/4"	13 psig	air
40	1/4"	13 psig	air
45	1/4"	18 psig	gas to surface
50	1/4"	18 psig	gas to surface
55	1/4"	18 psig	gas to surface
60	1/4"	18 psig	gas to surface
65	1/4"	18 psig	gas to surface
70	1/4"	22 psig	--
75	1/4"	22 psig	--
80	1"	4 psig	64,000 CFPD
85	1"	4 psig	64,000 CFPD
90	1"	4 psig	64,000 CFPD

Closed tool for 90 min. FSIP. Pulled tool loose. Did not reverse out. Recovered 30' of drilling mud. Chlorides 68,000 ppm. Pit sample chlorides 68,000 ppm. Sample chamber at 6640' contained 2.5 cu. ft. gas and 920 cc drilling mud at 450 psig. BHP's as follows:

	Top Chart at 6704'	Bottom Chart at 6710'
IMCP	3193 psig	3159 psig
IF (15 min.)	47-47 psig	36-36 psig
ISIP (90 min.)	2083 psig	2054 psig
FF (90 min.)	47-57 psig	24-36 psig
FSIP (90 min.)	2011 psig	2004 psig
FMCP	3193 psig	3159 psig
BHT	135° F.	135° F.

DST No. 5

Straddle test 7220'-7342' (142') Morrow, 1" BHC, No WB. TO 75 min. with poor blow, 1/8" surface ch. Rec. 180' SW cut mud and 2020' SW BHP at 7210: IMCP 3892, 15 min. IF 186-433#, 90 min. ISIP 2814#, 60 min. FF 495-1179#, 90 min. FSIP 2814#, FMCP 3533.

AFFIDAVIT

State of Texas

County of Midland

Cities Service Oil Company

Lease Name S. Caverns Unit A Well No. 1

In Sec. 21 Twp. 25S Rge. 24E

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MAR 29 1974

O. C. C.
ARTESIA, OFFICE

County of Eddy

State of New Mexico

E. Y. Wilder of lawful age being first duly sworn deposes and says:

That he supervises development and operation of the captioned lease and is duly qualified and authorized to make this affidavit and is fully acquanited with all facts herein set out concerning Deviation test and Directional drilling.

Degrees	Depth	Degrees	Depth	Degrees	Depth
.75	276'	3.00	7184'		
1.00	605'	3.50	7550'		
1.50	654'				
2.25	940'		T.D. 7550'		
1.50	1430'				
1.00	1912'				
.50	2300'				
.00	2645'				
.00	2897'				
1.00	3139'				
.75	3360'				
.25	3590'				
1.00	3958'				
1.25	4410'				
1.25	4876'				
1.25	5060'				
2.00	5296'				
1.25	5460'				
1.75	5704'				
1.50	6020'				
1.75	6334'				
2.50	6715'				

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Further affiant saith not.

E. Y. Wilder

Subscribed and sworn to before me this 27th day of March, 19 74

My Commission Expires June 1, 1975

Christine Hanken Notary Public
Midland County, Texas