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TELECOPIER: (505) 983-6043

November 16, 1992

HAND-DELIVERED

William J. LeMay, Director
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
State Land Office Building
Santa Fe, New Mexico 87503

RECEIVED

NOV 17 1992

OIL CONSERVATION DIVISION

10640

Re: Application of Arapaho Oil & Gas for Approval of Salt Water Disposal,
Eddy County, New Mexico

Dear Mr. LeMay:

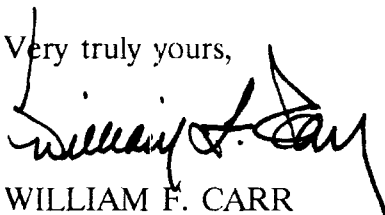
Enclosed is an original and one copy of completed Oil Conservation Division Form C-108 which is the application of Arapaho Oil & Gas in the above-referenced matter.

Arapaho requests that this case be set for hearing before a Division Examiner on December 17, 1992.

By copy of this letter we are sending a copy of this application to the Oil Conservation Division's District Office in Artesia, New Mexico.

Your attention to this matter is appreciated.

Very truly yours,



WILLIAM F. CARR

WFC:mlh

Enclosures

cc w/o enc.: Mr. Randall L. Harris

NOV 11 1992 Case 10640

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☒ no

II. Operator: ARAPAHO OIL & GAS

Address: P.O. Dwr. 9 Carlsbad New Mexico 88221

Contact party: Randall L. Harris Phone: (505) 365-2237

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

* VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Randall L. Harris Title Agent-Geologist

Signature: [Signature] Date: 11/2/92

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. _____

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

III. WELL DATA

OPERATOR		LEASE		
Araphoe Oil & Gas		Cave State #3		
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
3	1650 FNL & 330 FWL	4	17 South	29 East

Schematic

Tubular Data

2 3/8" PLASTIC COATED TUBING
 8 5/8" C 320' CMT CIRCULATED
 BAKER LOC SET C 2400'
 PERF 2449'-2464' PROPOSED INJECTION INTERVAL
 5 1/2" C 2564' CMT CIRCULATED
 TD 2564'

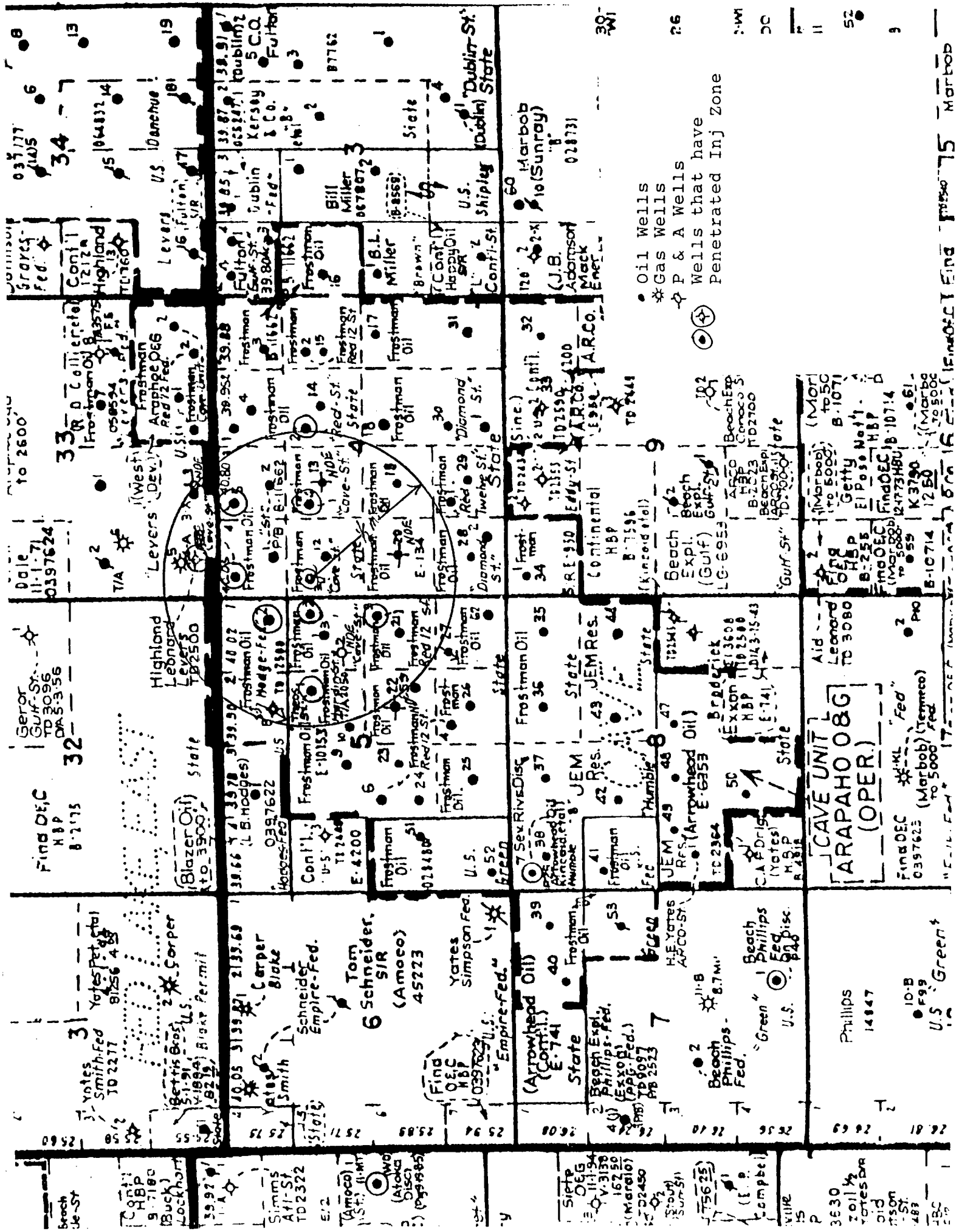
Surface Casing
 Size 8 5/8" " Cemented with 320 sx.
 TOC Circulated feet determined by visual
 Hole size 12 1/4"
Intermediate Casing
 Size _____ " Cemented with _____ sx.
 TOC _____ feet determined by _____
 Hole size _____
Long string
 Size 5 1/2" " Cemented with 925 sx.
 TOC circulated feet determined by visual
 Hole size 7 7/8"
 Total depth 2564
 Injection interval
2449 feet to 2464 feet perforated
 (perforated or open-hole, indicate which)

Tubing size 2 3/8 lined with plastic set in a
 (material)
 Baker Loc Set
 (brand and model) packer at 2400 feet
 (or describe any other casing-tubing seal).

Other Data

- Name of the injection formation San Andres
- Name of field or Pool (if applicable) Cave Grayburg-SanAndres
- Is this a new well drilled for injection? ☐ Yes ☒ No
 If no, for what purpose was the well originally drilled? Oil Production
- Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) No other zones
have been perforated
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
Grayburg 2360'-2390

V. AREA OF REVIEW & LEASES



IV. Nine wells have penetrated the proposed injection zone within the $\frac{1}{2}$ mile radius of the proposed injection well, with one well plugged. Well data attached.

VII. The average daily volume of 300 BWPD at 2 BPM.
Expected maximum of 400 BWPD.

The system will be closed.

Average injection pressure of 150#, maximum of 450#.

Source of injection water is from the SanAndres Formation.
Analysis of the water is attached.

The disposal zone does produce within one mile of the proposed injection well. Water analysis is attached.

VII. The proposed injection zone is the Lovington Sand of the SanAndres Formation. The Lovington Sand is a fine-grained Quartz sand with varying amounts of shales. It is 26 feet thick, at a depth of 2448-2474'. There is no sources of drinking water overlying or underlying the injection interval.

IX. No stimulation of the injection zone is proposed.

X. Well history is attached.

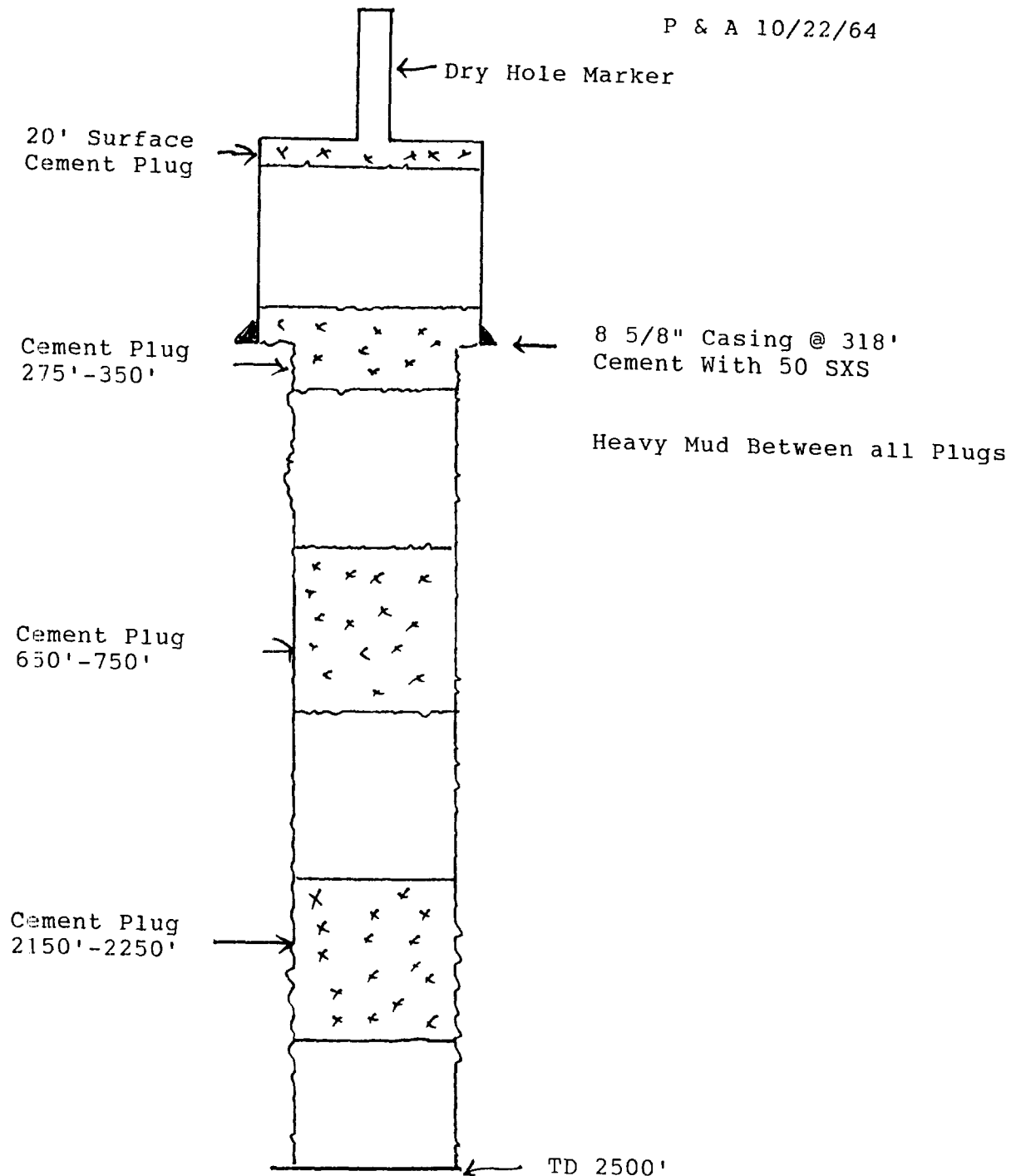
XI. There is no producing fresh water wells within one mile of the proposed disposal well.

XII. All available geologic and engineering data has been examined. No evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water has been found.

VI. WELL HISTORIES IN AREA OF REVIEW

Highland Corp.
4-Levers
330 FSL & 660 FWL
T16S-R29E

P & A 10/22/64



ALL MAR 27 1959

RECEIVED
UNITED STATES
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

SUNDAY NOTICES AND REPORTS ON GEOLOGICAL SURVEYS

LOG OF OIL OR GAS WELL

LOCATE WELL CORRECTLY (CONT'D)

Company **Highland Corporation**

Lessor or Tractor to Leverage

Well No. 4 Sec. 33 T. 16S. 29E. Meridian NMPM County Eddy

Location 330 ft. N. of South and 66 ft. E. of W Line of Sec. 33 Elevation
(Derrick spot relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Date 16 March 1959 Signed W. J. Pennington
ft. from S Title Agent

The summary on this page is for the condition of the well at above date.

Commenced drilling ----- January 24, 1959 Finished drilling ----- February 20, 1959

OIL OR GAS SANDS OR ZONES

No. 1, from _____ to _____ No. 4, from _____

No. 1, from _____ to _____ No. 4, from _____ to _____

No. 2, from _____ to _____ No. 5, from _____ to _____

No. 3, from _____ to _____ No. 6, from _____ to _____

IMPORTANT WATER SANDS

No. 1, from 1175 to 1192 No. 3, from 1193 to 1210

No. 2, from _____ to _____, No. 4, from _____ to _____

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated		Purpose
							From—	To—	
B 5/8				318					
It broke or picked more out in to for water and to king of water and bog and some of binding or pulling or pulled out in the mesh and the size and location. It the mesh was pulled of material. Has quite a few binding and material in the reasons for the work and the reason. It there was a change made in the casing, size 1011 and it was casing was it of the reason for the change to have a complete history of the mesh. Please state in the on the date of requiring for casing									
HISTORY OF OIL OF GAS WELL									

MUDDING AND CEMENTING RECORD

[illegible]

PLUGS AND ADAPTERS

later than twenty days after completion of well. Follow instructions in Rules and Regulations of the Commission. Submit in QUINTUPLICATE. If State Land submit 6 Copies

AREA 640 ACRES
LOCATE WELL CORRECTLY

Casidrental Oil Company

State P-5

(Company or Operator)

(Leave)

Well No. 23, in NE $\frac{1}{4}$ of SE^V $\frac{1}{4}$, of Sec. 5, T. 17S, R. 22E, NMPM.

have

Pool,

Falsy

County.

Well is 1000 feet from South line and 600 feet from East line

of Section 5 If State Land the Oil and Gas Lease No. is 87536

Drilling Commenced.....March 14....., 1957..... Drilling was Completed.....March 24....., 1957.....

Name of Drilling Contractor..... Denver Drilling Company

Address.....Odessa, Texas.....

Elevation above sea level at Top of Tubing Head..... 3416 The information given is to be kept confidential until
....., 19.....

OIL SANDS OR ZONES

No. 1, from 2570 to 2583 No. 4, from _____ to _____

No. 2, from.....to..... No. 5, from.....to.....

No. 3, from.....to..... No. 6, from.....to.....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from to feet.

No. 2, from.....to.....feet.

No. 3, from.....to.....feet.

No. 4, from to feet.

CASING RECORD

SIZE	WEIGHT PER FOOT	NEW OR USED	AMOUNT	KIND OF SHOE	CUT AND PULLED FROM	PERFORATIONS	PURPOSE
7 5/8	210	New	720	Grain Shoe			
6 1/2	505	New	2195	Grain Shoe & Float	Collar		

MUDDING AND CEMENTING RECORD

SIZE OF HOLE	SIZE OF CASING	WHERE SET	NO. SACKS OF CEMENT	METHOD USED	MUD GRAVITY	AMOUNT OF MUD USED
	7 5/8	710	350	Pump & plug		
	4 1/2	2409	50	Pump & plug		

RECORD OF PRODUCTION AND STIMULATION

(Record the Process used, No. of Qts. or Gals. used, interval treated or shot.)

See attached sheet.

Form 9-501a
(Feb. 1961)

(SUBMIT IN TRIPLICATE)

Land Office

Las Cruces

Lease No.

LC 037777A

Unit

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....	SUBSEQUENT REPORT OF WATER SHUT-OFF.....
NOTICE OF INTENTION TO CHANGE PLANS.....	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....	SUBSEQUENT REPORT OF ALTERING CASING.....
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL.....	SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR.....
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....	SUBSEQUENT REPORT OF ABANDONMENT.....
NOTICE OF INTENTION TO PULL OR ALTER CASING.....	SUPPLEMENTARY WELL HISTORY.....
NOTICE OF INTENTION TO ABANDON WELL.....	

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Well No. 4-Lever is located 330 ft. from [S] line and 660 ft. from [W] line of sec. 33
16 - 29
 (Sec. and Sec. No.) (E) (Meridian)

Cave Pool

Body or Subdivision

New Mexico

The elevation of the derrick floor above sea level is _____ ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Mudded hole from 2500' to 2850' - set 100' cement plug from 2250' to 2150' - set 100' cement plug from 750' to 650' set cement plug 350' to 375' Set 20' plug at surface. Heavy mud placed between all plugs.
 Back filled pit, cleaned location & Set regulation Marker

RECEIVED

JAN 14 1965

O. C. C.
ARTESIA, OFFICE

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Highland Corp.Address 3926 Wilshire Blvd.Los Angeles 8, Calif.

By

Title

W. J. Pennington
 Agent

DISTRIBUTION	
SANTA FE	☒
FILE	☒
U.S.G.S.	☒
LAND OFFICE	☒
OPERATOR	☒

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form 7-101
Revised 10-1-78

C. C. D.
ARTESIA, OFFICE

5a. Indicate Type of Lease
State ☒ New ☐
5. State Oil & Gas Lease No.
B 11662

SUNDY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE APPLICATION FOR PERMIT - 77 (FORM C-101) FOR SUCH PROPOSALS.)

OIL WELL ☒ GAS WELL ☐ OTHER ☐

Name of Operator
J E M Resources, Inc.

Address of Operator
P. O. Box 648 Artesia, New Mexico 88210

Location of Well
UNIT LETTER C 1980 FEET FROM THE W LINE AND 990 FEET FROM
THE N LINE, SECTION 4 TOWNSHIP 17 RANGE 29 N.M.P.M.

7. Unit Agreement Name
CAVE POOL UNIT
8. Farm or Lease Name
CAVE POOL UNIT
9. Well No.
5
10. Field and Pool, or Well Unit
Cave Pool G-SA
11. Elevation (Show whether DF, RT, GR, etc.)
GR 3582
12. County
Eddy

Check Appropriate Box To Indicate Nature of Notice, Report or Other Data
NOTICE OF INTENTION TO:

APPROPRIATE REMEDIAL WORK ☐
MODERATELY ABANDON ☐
PLUG OR ALTER CASING ☐

PLUG AND ABANDON ☐
CHANGE PLANS ☐

OTHER ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☒
COMMENCE DRILLING OPERATIONS ☐
CASING TEST AND CEMENT JOBS ☐
OTHER ☐

ALTERING CASING ☐
PLUG AND ABANDONMENT ☐

Deepen and change designation from
CPU #5 to State #2

Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

Well was drilled out from original TD of 2417 to 2519. Lovington sand of the San Andres Formation was encountered at 2455-2465. Set packer at 2391 and treated with 10,000 gal. gelled water and 10,000 # sand. Swabbed back most of treatment and installed pump. 24 hour test 7-1-82 - 4 bbls oil and no water, gas TSTM. Left packer set at 2391- open hole 2417 -2519.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED Dalton Bell TITLE President

DATE 7-2-82

APPROVED BY Mike Walker TITLE OIL AND GAS INSPECTOR

DATE AUG 2 1982

ADDITIONS OF APPROVAL, IF ANY:

GEOLOGICAL SURVEY

Artesia, N.M.

NM 011331

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

1a. TYPE OF WELL OIL WELL ☒ GAS WELL ☐ DRY ☐ Other _____		6. IF INDIAN, ALLOTTEE OR TRIBE NAME	
b. TYPE OF COMPLETION: NEW WELL ☐ WORK OVER ☐ DEEP-EN ☒ PLUG BACK ☐ DIFF. RESVR. ☐ Other <u>DEC 11 1981</u>		7. UNIT AGREEMENT NAME <u>Cave Pool Unit</u>	
2. NAME OF OPERATOR <u>J E M Resources, Inc.</u>		8. FARM OR LEASE NAME <u>Hodges Federal</u>	
3. ADDRESS OF OPERATOR <u>Fox 648 Artesia, N. Mex. 88210</u>		9. WELL NO. <u># 2</u>	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)* At surface <u>99C Fr N. & 330 Fr E Sec. 5-17-29</u> At top prod. interval reported below <u>Same</u> At total depth <u>Same</u>		10. FIELD AND POOL, OR WILDCAT <u>Cave Grbg-San Andres</u>	
14. PERMIT NO.		11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA <u>Sec 5 17 29 NMPM</u>	
DATE ISSUED		12. COUNTY OR PARISH <u>Eddy</u>	
15. DATE SPUDDED <u>5-5-80</u>		13. STATE <u>N. Mex.</u>	
16. DATE T.D. REACHED <u>7-24-80</u>		19. ELEV. CASINGHEAD <u>3601</u>	
17. DATE COMPL. (Ready to prod.) <u>9-1-81</u>		18. ELEVATIONS (DF, BBL, BT, GR, ETC.)* <u>3603 DF</u>	
20. TOTAL DEPTH, MD & TVD <u>2505 (old TD 2426)</u>		23. INTERVALS DRILLED BY <u>77'</u>	
21. PLUG, BACK T.D., MD & TVD		CABLE TOOLS <u>2'</u>	
22. IF MULTIPLE COMPL., HOW MANY*		24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* <u>2450-2460 San Andres (Lovington)</u>	
25. WAS DIRECTIONAL SURVEY MADE <u>No</u>		26. TYPE ELECTRIC AND OTHER LOGS RUN <u>Gamma Ray-Neutron</u>	
27. WAS WELL CORED <u>No</u>		28. CASING RECORD (Report all strings set in well) CASINO SIZE WEIGHT, LB./FT. DEPTH SET (MD) HOLE SIZE <u>Old Casings Info On File. New is Open Hole 79'</u>	
29. LINER RECORD SIZE TOP (MD) BOTTOM (MD) DEPTH SET (MD) SCREEN (MD) <u>PETER W. CHESTER</u>		30. TUBING RECORD SIZE DEPTH SET (MD) PACKER SET (MD)	
31. PERFORATION RECORD (Interval, size and number) <u>Open Hole 2426-2505</u>		32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC. DEPTH INTERVAL (MD) AMOUNT AND KIND OF MATERIAL USED <u>2450-60 500 Gal Mud Acid</u> <u>" 30,000 Gal Gel. H₂O &</u> <u>30,000 # Sand</u>	
33. PRODUCTION DATE FIRST PRODUCTION PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) WELL STATUS (Producing or shut-in) <u>9-2-81 F1. S.I.</u>			
DATE OF TEST HOURS TESTED CHOKES SIZE PROD'N. FOR TEST PERIOD OIL—BBL. GAS—MCF. WATER—BBL. GAS-OIL RATIO <u>9-2-81 24 16/64 ————— 150 MCFD 0</u>			
FLOW. TUBING PRESS. CASING PRESSURE CALCULATED 24-HOUR RATE OIL—BBL. GAS—MCF. WATER—BBL. OIL GRAVITY-API (CORR.) <u>150 0(Pack) ————— Same</u>			
34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) TEST WITNESSED BY <u>Sold Bell & Logsdon.</u>			
35. LIST OF ATTACHMENTS <u>Gamma Ray- Neutron Logs, Explanation of Number & Lease Designation</u>			
36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records			
SIGNED _____ TITLE <u>Pres.</u> DATE _____			

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

NO. OF COPIES RECEIVED	
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FILE	
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LAND OFFICE	
OPERATOR	

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

State	____	Fed	____
5. State Oil & Gas Lease No.			
B-7596			

1a. TYPE OF WELL ☒ OIL WELL ☐ GAS WELL ☐ DRY ☐ OTHER _____

b. TYPE OF COMPLETION
NEW WELL ☒ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER _____

7. Unit Agreement Name _____

8. Farm or Lease Name _____

9. Well No. _____

2. Name of Operator
J.E.M. Resources Inc. ✓

3. Address of Operator
P.O. Box 2938 Ruidoso, N.M. 88345

10. Field and Pool, or Wildcat
Cave GB/SA

4. Location of Well
UNIT LETTER I LOCATED 2310 FEET FROM THE South LINE AND 330 FEET FROM East THE LINE OF SEC. 5 TWP. 17S RGE. 29E NMPM

12. County
Eddy

15. Date Spudded 9-5-84	16. Date T.D. Reached 9-12-84	17. Date Compl. (Ready to Prod.) 10-3-84	18. Elevations (DF, RKB, RT, GR, etc.) 3603 GR	19. Elev. Cushinghead 3604
20. Total Depth 3550	21. Plug Back T.D. 3528	22. If Multiple Compl., How Many	23. Intervals Drilled By Rotary Tools All	Cable Tools

24. Producing Interval(s) of this completion - Top, Bottom, Name
3004-3434 San Andres

25. Was Directional Survey Made
NO

26. Type Electric and Other Logs Run
CNL/FDC/DLC

27. Was Well Cored
NO

28. CASING RECORD (Report all strings set in well)					
CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8	24#	350	12 1/4	350 sxs	None
5 1/2	17#	3550	7 7/8	850 sxs	none

29. LINER RECORD					30. TUBING RECORD		
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
					2 5/8	3450	Free

31. Perforation Record (Interval, size and number) 3004-3434 37 0.36 cal. shots	32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.	
	DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
	3004-3434	5500 gal 15% HCL
		130,000 gal gel wtr.
	243,000 # 20/40 sd	

33. PRODUCTION

Date First Production 10-20-84	Production Method (Flowing, gas lift, pumping - Size and type pump) Pump	Well Status (Prod. or Shut-in) Prod
Date of Test 11-28-84	Hours Tested 24	Choke Size 7/8"
Flow Tubing Press. 0	Casing Pressure 20#	Calculated 24-Hour Rate →
Oil - Bbl. 60	Gas - MCF 200	Water - Bbl. 250
Gas - Oil Ratio 40:1 3333:1	Oil Gravity - API (Corr.)	

34. Disposition of Gas (Sold, used for fuel, vented, etc.)
Sold

Test Witnessed By
Rex Glenn

35. List of Attachments
Logs Deviation Survey

35. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED _____ TITLE Geologist DATE 12/14/84

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

NO. OF COPIES RECEIVED	
DISTRIBUTION	
SANTA FE	
FILE	
U.S.G.S.	
LAND OFFICE	
OPERATOR	

5a. Indicate Type of Lease	
State ☒	Fee ☐
5. State Oil & Gas Lease No.	
B 7017	

1a. TYPE OF WELL *begin*

b. TYPE OF COMPLETION

OIL WELL ☒GAS WELL ☐DRY ☐OTHER ☐NEW ☒WORK OVER ☐DEEPEN ☐PLUG BACK ☐DIFF. RESV. ☐OTHER ☐

2. Name of Operator

JEM Resources Inc. ✓

3. Address of Operator

P.O. Box 2938 Ruidoso NM. 88345

4. Location of Well

UNIT LETTER F LOCATED 1650 FEET FROM THE North LINE AND 1650 FEET FROMTHE West LINE OF SEC. 4 TWP. 17 S. RGE. 29 E. NMPM

15. Date Spudded

2/14/84

16. Date T.D. Reached

2/19/84

17. Date Compl. (Ready to Prod.)

3/25/84

18. Elevations (DF, RKB, RT, GR, etc.)

3589 Gr.

19. Elev. Casinghead

3590

20. Total Depth

2556

21. Plug Back T.D.

2545

22. If Multiple Compl., How

Many

23. Intervals

Drilled By

Rotary Tools

all

Cable Tools

24. Producing Interval(s) of this completion - Top, Bottom, Name

2421-2500

Grayburg/Sanandres

25. Was Directional Survey

Made

no

26. Type Electric and Other Logs Run

CNL/FDC GRN/CCL

27. Was Well Cored

no

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

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8	24	355	12 1/4	225 Circulated	none
5 1/2	15.5	2556	7 7/8	550 Circulated	none

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
					2 3/8	2510	free

30. TUBING RECORD

31. Perforation Record (Interval, size and number)

2421-2500 24 .42 cal.

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

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
2421-2500	5250 gal 15% HCl
	35,000 gal KCl wtr
	50,000# 20/40 sd

33. PRODUCTION

Date First Production <u>3-26-84</u>		Production Method (Flowing, gas lift, pumping - Size and type pump)				Well Status (Prod. or Shut-in)	
<u>2421-2500</u>		pump 1.75" loco				prod	
Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio
4/1/84	24	7/8"		48	62	20	1.29
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.)

vented

Test Witnessed By

Jay Royce

35. List of Attachments

Deviation survey logs

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED

TITLE

Geologist

DATE

4/26/84

DISTRIBUTION		
SANTA FE		
FILE		
U.S.G.S.		
LAND OFFICE		
OPERATOR		

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5a. Indicate Type of Lease
State ☒ Fee ☐
5. State Oil & Gas Lease No.
B-11662

1a. TYPE OF WELL				7. Unit Agreement Name					
OIL WELL ☐ GAS WELL ☐ DRY ☐ OTHER ☐				8. Farm or Lease Name					
b. TYPE OF COMPLETION				cave state					
NEW WELL ☒ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER ☐				9. Well No.					
2. Name of Operator				1					
J.E.M. Resources Inc.				10. Field and Pool, or Wildcat					
3. Address of Operator				Cave-Grbg-SA					
P.O. Box 2938 Ruidoso, N.M. 88345									
4. Location of Well				12. County					
UNIT LETTER <u>D</u> LOCATED <u>330</u> FEET FROM THE <u>North</u> LINE AND <u>330</u> FEET FROM				Eddy					
THE <u>West</u> LINE OF SEC. <u>4</u> TWP. <u>17S</u> RGE. <u>29E</u>									
15. Date Spudded		16. Date T.D. Reached		17. Date Compl. (Ready to Prod.)		18. Elevations (DF, RKB, RT, GR, etc.)		19. Elev. Casinghead	
11-15-83		12-9-83		12-27-83		3602.2 GR		3604	
20. Total Depth		21. Plug Back T.D.		22. If Multiple Compl., How Many		23. Intervals Drilled By		Rotary Tools Cable Tools	
2540		2504				2540			
24. Producing Interval(s), of this completion - Top, Bottom, Name								25. Was Directional Survey Made	
2464- ²⁴⁷⁵ 2465 San Andres								NO	
26. Type Electric and Other Logs Run								27. Was Well Cored	
CNL/FDC GRM CMT. BOND								NO	

28. CASING RECORD (Report all strings set in well)					
CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8	24#	338	12 1/4	220 SXS	0
5 1/2	15.5	2540	7 7/8	1320 SXS	0
29. LINER RECORD					
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	PACKER SET
30. TUBING RECORD					
SIZE	DEPTH SET	PACKER SET			
2 3/8	2403				
31. Perforation Record (Interval, size and number)					
2464-75					
Total 28 .40 cal.					
32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.					
DEPTH INTERVAL		AMOUNT AND KIND MATERIAL USED			
2464-75		1250 gal 15% HCl			
"		60,000 gal Gel H2O			
		125,000 #sd.			

33. PRODUCTION							
Date First Production		Production Method (Flowing, gas lift, pumping - Size and type pump)				Well Status (Prod. or Shut-in)	
12-27-83		Pump 15" Loc No				Prod.	
Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio
1-15-84	24	7/8		42	110	20	2682
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.)							
vented							
Test Witnessed By							
Herb Spencer							

35. List of Attachments	
Logs Deviation Survey	

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.		
SIGNED	TITLE	DATE
	Geologist	1/20/84

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

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LAND OFFICE	☒
OPERATOR <i>B. J. M.</i>	☒

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5a. Indicate Type of Lease

State ☒ Fee ☐

5. State Oil & Gas Lease No.

7. Unit Agreement Name

C.P.U.

8. Farm or Lease Name

Cave Pool Unit

9. Well No.

64

10. Field and Pool, or Wildcat

Cave GB/SA

12. County

Eddy

1a. TYPE OF WELL

OIL WELL ☒GAS WELL ☐DRY ☐

OTHER

b. TYPE OF COMPLETION

NEW WELL ☒WORK OVER ☐DEEPEN ☐PLUG BACK ☐DIFF. RESVR. ☐

OTHER

2. Name of Operator

J.E.M. Resources Inc. ✓

3. Address of Operator

P.O. Box 2938, Ruidoso NM 88345

4. Location of Well

UNIT LETTER C LOCATED 330 FEET FROM THE North LINE AND 1650 FEET FROMTHE West LINE OF SEC. 4 TWP. 17 S RGE. 29 E NMPM

15. Date Spudded

4/9/84

16. Date T.D. Reached

4/15/84

17. Date Compl. (Ready to Prod.)

5/11/84

18. Elevations (DF, RKB, RT, CR, etc.)

3588 Gr.

19. Elev. Casinghead

3589

20. Total Depth

2683

21. Plug Back T.D.

2550

22. If Multiple Compl., How Many

23. Intervals Drilled By Rotary Tools

all

Cable Tools

24. Producing Interval(s), of this completion - Top, Bottom, Name

2212-2262, 2458-2519 Grayburg/SanAndres

25. Was Directional Survey Made

no

26. Type Electric and Other Logs Run

CNL/FDC/GR. CBL/CCL

27. Was Well Cored

no

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

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8	24#	345	12 1/2	275 <i>Annulated</i>	none
5 1/2	15.5#	2683	7 7/8	950 <i>Annulated</i>	none

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
					2 3/8	2520	free

30. TUBING RECORD

31. Perforation Record (Interval, size and number)

2458-2519, 20, .40 cal
2212-2262, 20, .40 cal

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

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
2458-2519	3000 gal 15% HCl
2212-2262	1500 gal 15% HCl
all Perfs	30,000 gal gel KCl+
	42,000# 20/40 sd

33. PRODUCTION

Date First Production		Production Method (Flowing, gas lift, pumping - Size and type pump)					Well Status (Prod. or Shut-in)	
5/1/84		Pump and Flow					Prod	
Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas-Oil Ratio	
6/1/84	24 Hr.	7/8"	→	45	175	15	3.8:1	
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.)

Vented

Test Witnessed By

Jay Royce

35. List of Attachments

Deviation survey

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED

TITLE

Geologist

DATE

6/7/84

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

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OPERATOR	☒

5a. Indicate Type of Lease
State ☒ Fee ☐

5. State Oil & Gas Lease No.

B-7596

7. Unit Agreement Name

8. Farm or Lease Name

RED STATE

9. Well No.

2

10. Field and Pool, or Wildcat

CAVE GB/SA

12. County

EDDY

1a. TYPE OF WELL

OIL WELL ☒ GAS WELL ☐ DRY ☐ OTHER ☐

b. TYPE OF COMPLETION

NEW WELL ☒ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER ☐

2. Name of Operator

J.E.M. RESOURCES INC.

3. Address of Operator

P.O. BOX 2938, RUIDOSO NM 88345

4. Location of Well

UNIT LETTER G LOCATED 1650 FEET FROM THE NORTH LINE AND 2310 FEET FROM

THE EAST LINE OF SEC. 4 TWP. 17 S RGE. 29 E NMPM

15. Date Spudded

6/25/84

16. Date T.D. Reached

7/1/84

17. Date Compl. (Ready to Prod.)

7/9/84

18. Elevations (DF, RKN, RT, GR, etc.)

3585 BR.

19. Elev. Casinghead

3587

20. Total Depth

3118

21. Plug Back T.D.

3075

22. If Multiple Compl., How Many

23. Intervals Drilled By

Rotary Tools

Cable Tools

ALL

24. Producing Interval(s), of this completion - Top, Bottom, Name

2621-2999 SAN ANDRES

25. Was Directional Survey Made

N/O

26. Type Electric and Other Logs Run

CNL/FDC DLL/RXO

27. Was Well Cored

N/O

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

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8	24 #	350	12 1/4	250 SXS CIR	NONE
5 1/2	15.5 #	3118	7 7/8	800 SXS CIR	NONE

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
					2 3/8	3005	N6 PER

30. TUBING RECORD

31. Perforation Record (Interval, size and number)

2621-2999 25 140 CAL

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

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
2621-2999	3300 GAL 15% HCFE
	140,000 GAL 6EL H ₂ O +
	195,000 # 20/40 SD

33. PRODUCTION

Date First Production 7/14/84		Production Method (Flowing, gas lift, pumping - Size and type pump) Pump				Well Status (Prod. or Shut-in) Prod	
Date of Test 7/16/84	Hours Tested 24 hr.	Choke Size 7/8	Prod'n. For Test Period →	Oil - Bbl. 100	Gas - MCF 300	Water - Bbl. 200	Gas - Oil Ratio 300
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.)

SOLD

Test Witnessed By

REX GLEN

35. List of Attachments

LOGS DEVIATION SURVEY

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED

TITLE CONSULTING GEOLOGIST

DATE

8/6/84

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

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U.S.G.S.	
LAND OFFICE	
OPERATOR	

50. Indicate Type of Lease
State ☒ Fee ☐
5. State Oil & Gas Lease No.
E4200

1. TYPE OF WELL	OIL WELL ☐	GAS WELL ☐	DRY ☐	OTHER ☐
-----------------	-----------------------------------	-----------------------------------	------------------------------	--------------------------------

2. TYPE OF COMPLETION	NEW WELL ☒	WORK OVER ☐	DEEPEN ☐	PLUG BACK ☐	DIFF. RESVR. ☐	OTHER ☐
-----------------------	--	------------------------------------	---------------------------------	------------------------------------	---------------------------------------	--------------------------------

Name of Operator
J.E.M. Resources Inc.Address of Operator
P.O. Box 2938 Ruidoso, N.M. 88345

Location of Well

UNIT LETTER H LOCATED 1650 FEET FROM THE North LINE AND 330 FEET FROMTHE east LINE OF SEC. 5 TWP. 17S RGE. 29E NMPM

13. Date Spudded	16. Date T.D. Reached	17. Date Compl. (Ready to Prod.)	18. Elevations (DF, RKB, RT, GR, etc.)	19. Elev. Casinghead
12-11-83	12-16-83	1-5-84	3406 GR	3408

20. Total Depth	21. Plug Back T.D.	22. If Multiple Compl., How Many	23. Intervals Drilled By	Rotary Tools	Cable Tools
2530	2505			2530	

24. Producing Interval(s), of this completion - Top, Bottom, Name

2447-2468 San Andres

26. Type Electric and Other Logs Run

CNL / FDC / Cmt. Bond CCL

27. Was Well Cored

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

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8	24#	327	12 1/4	481 SXS	none
5 1/2	15.5 #	2530	7 7/8	875 SXS	none

LINER RECORD				TUBING RECORD		
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET
					2 3/8	2420

29. Perforation Record (Interval, size and number)

447-2468 28 .40 cal shots.

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

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
2447-2468	2500 gal 15% HCl
" "	70,000 gal Gel Wtr.
" "	120,000 # sd.

33. PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)
-5-84	PUMP 1 1/2" Lx NO	Prod.

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio
-15 84	24	7/8"		411	111	18	2707

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

Herb Spencer

35. List of Attachments

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED _____ TITLE GEOLOGIST DATE 1-20-84

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

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LAND OFFICE	☒
OPERATOR	☒

50. Indicate Type of Lease
State ☒ Fee ☐

51. State Oil & Gas Lease No.

E 10163

A. TYPE OF WELL

150m

OIL WELL ☒GAS WELL ☐DRY ☐

OTHER

B. TYPE OF COMPLETION

NEW WELL ☒WORK OVER ☐DEEPEN ☐PLUG BACK ☐DIFF. RESVR. ☐

OTHER

C. Name of Operator

J.E.M. Resources INC.

D. Address of Operator

P.O. Box 2938 Ruidoso, NM

88345

E. Location of Well

UNIT LETTER G LOCATED 1650 FEET FROM THE North LINE AND 1650 FEET FROM

THE East LINE OF SEC. 5 TWP. 17 S. RGE. 29 E NMPM

12. County

Eddy

13. Date Spudded

12/29/83

16. Date T.D. Reached

1/4/84

17. Date Compl. (Ready to Prod.)

1/12/84

18. Elevations (DF, RKB, RT, GR, etc.)

3613 Gr.

19. Elev. Casinghead

3615

20. Total Depth

2550

21. Plug Back T.D.

2522

22. If Multiple Compl., How Many

23. Intervals Drilled By Rotary Tools

2550

Cable Tools

24. Producing Interval(s), of this completion - Top, Bottom, Name

SanAndres 2453-2467

25. Was Directional Survey Made

no

26. Type Electric and Other Logs Run

GrN CBL CCL

27. Was Well Cored

no

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

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8	24	324	12 1/4	350 sxs Circulated	none
5 1/2	15.5	2550	7 7/8	735 sxs Circulated	none

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
					2 3/8	2400	

30. TUBING RECORD

31. Perforation Record (Interval, size and number)

2453-2467 28 .40 cal shots

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

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
2453-2467	2500 gal 15% HCl
	40,000 gal gel KCl wtr.
	76,000# sd

33. PRODUCTION

Date First Production 1/14/84		Production Method (Flowing, gas lift, pumping - Size and type pump) Pump					Well Status (Prod. or Shut-in) Prod	
Date of Test 1/24/84	Hours Tested 24	Choke Size 7/8	Prod'n. For Test Period →	Oil - Bbl. 50	Gas - MCF 285	Water - Bbl. 12	Gas - Oil Ratio 5700	
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.)

vented

Test Witnessed By

Herb Spencer

35. List of Attachments

Logs Deviation survey

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED

TITLE Geologist

DATE 1/27/84

VII. SOURCE & ANALYSIS OF INJECTION FLUID

WATER ANALYSIS REPORT
furnished by TRETOLITE CHEMICALS

COMPANY: ARAPAHO
LEASE: C. P. U.
SAMPLE POINT: S. W. D.
SAMPLE DATE: 4-23-90
SAMPLE TEMP.: N/A

pH: 7.0
H2S: POS
SPECIFIC GRAVITY: 1.095

TITRATED AND CALCULATED IONS

	MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER
HCO3	366.00	6.00
Cl	76254.00	2148.00
SO4	3500.00	72.92
Ca	46800.00	2340.00
Mg	0.00	0.00
Na	0.00	0.00

IONIC STRENGTH = 3.48
TOTAL HARDNESS = 18500.0 mg/ltr.
TOTAL DISSOLVED SOLIDS = 124663.7 mg/ltr.

PROBABLE MINERAL COMPOSITION AND ION PAIRING

	MILLIEQUIVALENTS PER LITER	MILLIGRAMS PER LITER
Ca (HCO3)2	6.00	486.24
CaSO4	72.92	4963.44
CaCl2	2148.00	119214.00
Mg (HCO3)2	0.00	0.00
MgSO4	0.00	0.00
MgCl2	0.00	0.00
NaHCO3	0.00	0.00
Na2SO4	0.00	0.00
NaCl	0.00	0.00

CALCULATED SCALING TENDENCIES

SCALING INDEX

CaCO3 @ 80 DEG F. = 2.0
CaCO3 @ 120 DEG F. = 2.5

SATURATION POINT

CaSO4 @ 70 DEG F. = 368.3 MG/LTR.
CaSO4 @ 110 DEG F. = 365.7 MG/LTR.

(THIS SAMPLE CONTAINED 4963.4 MG/LTR. CaSO4)

WATER ANALYSIS REPORT
furnished by TRETOLITE CHEMICALS

COMPANY: ARAPAHO
LEASE: CAVE #2
SAMPLE POINT: WATER TANK
SAMPLE DATE: 4-23-90
SAMPLE TEMP.: N/A

pH: 7.0
H2S: POS
SPECIFIC GRAVITY: 1.07

TITRATED AND CALCULATED IONS

	MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER
HCO3	793.00	13.00
Cl	41535.00	1170.00
SO4	625.00	13.02
Ca	35600.00	1780.00
Mg	9963.00	816.64
Na	0.00	0.00

IONIC STRENGTH = 3.20
TOTAL HARDNESS = 130000.0 mg/ltr.
TOTAL DISSOLVED SOLIDS = 66874.8 mg/ltr.

PROBABLE MINERAL COMPOSITION AND ION PAIRING

	MILLIEQUIVALENTS PER LITER	MILLIGRAMS PER LITER
Ca (HCO3)2	13.00	1053.52
CaSO4	13.02	886.33
CaCl2	1170.00	64935.00
Mg (HCO3)2	0.00	0.00
MgSO4	0.00	0.00
MgCl2	0.00	0.00
NaHCO3	0.00	0.00
Na2SO4	0.00	0.00
NaCl	0.00	0.00

CALCULATED SCALING TENDENCIES

SCALING INDEX

CaCO3 @ 80 DEG F. = 2.1
CaCO3 @ 120 DEG F. = 2.6

SATURATION POINT

CaSO4 @ 70 DEG F. = 473.5 MG/LTR.
CaSO4 @ 110 DEG F. = 469.3 MG/LTR.

(THIS SAMPLE CONTAINED 886.3 MG/LTR. CaSO4)

X. DATA ON INJECTION WELL

WATER ANALYSIS REPORT
furnished by TRETOLITE CHEMICALS

COMPANY: ARAPAHO
LEASE: CAVE POOL UNIT #3
SAMPLE POINT: WATER TANK
SAMPLE DATE: 4-23-90
SAMPLE TEMP.: N/A

pH: 7.0
H2S:

POS.

SPECIFIC GRAVITY: 1.03

TITRATED AND CALCULATED IONS

	MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER
HCO3	451.40	7.40
Cl	21726.00	612.00
SO4	2500.00	52.08
Ca	2480.00	124.00
Mg	947.70	77.68
Na	10805.47	469.80

IONIC STRENGTH = 0.80

TOTAL HARDNESS = 10100.0 mg/ltr.

TOTAL DISSOLVED SOLIDS = 38889.5 mg/ltr.

PROBABLE MINERAL COMPOSITION AND ION PAIRING

	MILLIEQUIVALENTS PER LITER	MILLIGRAMS PER LITER
Ca(HCO3)2	7.40	599.70
CaSO4	52.08	3545.31
CaCl2	64.52	3580.67
Mg(HCO3)2	0.00	0.00
MgSO4	0.00	0.00
MgCl2	77.68	3699.14
NaHCO3	0.00	0.00
Na2SO4	0.00	0.00
NaCl	469.80	27464.68

CALCULATED SCALING TENDENCIES

SCALING INDEX

CaCO3 @ 80 DEG F. = 0.3

CaCO3 @ 120 DEG F. = 0.8

SATURATION POINT

CaSO4 @ 70 DEG F. = 3405.1 MG/LTR.

CaSO4 @ 110 DEG F. = 3419.3 MG/LTR.

(THIS SAMPLE CONTAINED 3545.3 MG/LTR. CaSO4)

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

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LAND OFFICE	
OPERATOR	

5a. Indicate Type of Lease
State ☒ Fee ☐
5. State Oil & Gas Lease No.
B-7956 B7596

1a. TYPE OF WELL <i>Oil Well</i>		7. Unit Agreement Name					
b. TYPE OF COMPLETION NEW WELL ☒ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER ☐		8. Farm or Lease Name Cave State Pool Unit					
2. Name of Operator J.E.M. Resources Inc.		9. Well No. #56					
3. Address of Operator P.O. Box 2938 Ruidoso NM. 88345		10. Field and Pool, or Wildcat Cave Gb/Sa					
4. Location of Well		12. County Eddy					
UNIT LETTER <u>E</u> LOCATED <u>1650</u> FEET FROM THE <u>North</u> LINE AND <u>330</u> FEET FROM THE <u>West</u> LINE OF SEC. <u>4</u> TWP. <u>17 S</u> RGE. <u>29 E</u> NMPM							
15. Date Spudded 1/4/84	16. Date T.D. Reached 1/9/84	17. Date Compl. (Ready to Prod.) 1/17/84	18. Elevations (DF, RKB, RT, CR, etc.) 3600 Gr.	19. Elev. Casinghead 3602			
20. Total Depth 2564	21. Plug Back T.D. 2514	22. If Multiple Compl., How Many	23. Intervals Drilled By Rotary Tools 2564	Cable Tools			
24. Producing Interval(s) of this completion - Top, Bottom, Name SanAndres 2449-2464				25. Was Directional Survey Made no			
26. Type Electric and Other Logs Run Gr/N CCL CBL				27. Was Well Cored no			
28. CASING RECORD (Report all strings set in well)							
CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED		
8 5/8	24	340	12 1/2	320 sxs Circulated	none		
5 1/2	15.5	2564	7 7/8	925 sxs Circulated	none		
29. LINER RECORD					30. TUBING RECORD		
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
					2 7/8	2525	
31. Perforation Record (Interval, size and number) 2449-2464 30 .40 cal shots				32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.			
				DEPTH INTERVAL			AMOUNT AND KIND MATERIAL USED
				2449-2464			2000 gal 15% HCl
							25,000 gal gel KCl wtr
							35,000# sd
33. PRODUCTION							
Date First Production 1/18/84		Production Method (Flowing, gas lift, pumping - Size and type pump) Pump				Well Status (Prod. or Shut-in) prod	
Date of Test 1/24/84	Hours Tested 24	Choke Size 7/8	Prod'n. For Test Period	Oil - Bbl. 62	Gas - MCF 385	Water - Bbl. 30	Gas - Oil Ratio 6210
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.) vented						Test Witnessed By Herb Spencer	
35. List of Attachments Deviation Survey Logs							
36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.							
SIGNED <i>[Signature]</i>		TITLE Geologist			DATE 1/27/84		

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico

Northwestern New Mexico

T. Anhy _____	T. Canyon _____	T. Ojo Alamo _____	T. Penn. "B" _____
T. Salt <u>306</u>	T. Strawn _____	T. Kirtland-Fruitland _____	T. Penn. "C" _____
D. Salt <u>660</u>	T. Atoka _____	T. Pictured Cliffs _____	T. Penn. "D" _____
T. Yates _____	T. Miss _____	T. Cliff House _____	T. Leadville _____
T. 7 Rivers <u>1088</u>	T. Devonian _____	T. Menefee _____	T. Madison _____
T. Queen <u>1647</u>	T. Silurian _____	T. Point Lookout _____	T. Elbert _____
T. Grayburg <u>2040</u>	T. Montoya _____	T. Mancos _____	T. McCracken _____
T. San Andres <u>2392</u>	T. Simpson _____	T. Gallup _____	T. Ignacio Qtzite _____
T. Glorieta _____	T. McKee _____	Base Greenhorn _____	T. Granite _____
T. Paddock _____	T. Ellenburger _____	T. Dakota _____	T. _____
T. Blinbry _____	T. Gr. Wash _____	T. Morrison _____	T. _____
T. Tubb _____	T. Granite _____	T. Todillo _____	T. _____
T. Drinkard _____	T. Delaware Sand _____	T. Entrada _____	T. _____
T. Abo _____	T. Bone Springs _____	T. Wingate _____	T. _____
T. Wolfcamp _____	T. _____	T. Chinle _____	T. _____
T. Penn. _____	T. _____	T. Permian _____	T. _____
T. Cisco (Bough C) _____	T. _____	T. Penn. "A" _____	T. _____

OIL OR GAS SANDS OR ZONES

No. 1, from _____ to _____	No. 4, from _____ to _____
No. 2, from _____ to _____	No. 5, from _____ to _____
No. 3, from _____ to _____	No. 6, from _____ to _____

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from _____ to _____	feet. _____
No. 2, from _____ to _____	feet. _____
No. 3, from _____ to _____	feet. _____
No. 4, from _____ to _____	feet. _____

FORMATION RECORD (Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	306	306	Red clay + Calichie				
306	660	354	Salt				
660	1088	428	Red sand + anhy.				
1088	1647	559	Red sand + Dolo.				
1647	2040	393	Anhy + sands				
2040	2392	352	Dolo + sands				
2392	2564	172	Dolo.				

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

Form C-103
Revised 10-1-78

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5a. Indicate Type of Lease	
State ☒	Fee ☐

5. State Oil & Gas Lease No.
B-7596

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR.
USE "APPLICATION FOR PERMIT -" (FORM C-101) FOR SUCH PROPOSALS.)

1. OIL WELL ☒ GAS WELL ☐ OTHER ☐		7. Unit Agreement Name
2. Name of Operator J.E.M. Resources Inc		8. Farm or Lease Name Port Unit Cave State
3. Address of Operator P.O. Box 2938 Ruidoso NM, 88345		9. Well No. 856
4. Location of Well UNIT LETTER E 1650 FEET FROM THE North LINE AND 330 FEET FROM West LINE, SECTION 4 TOWNSHIP 17 S RANGE 29 E N.M.P.M.		10. Field and Pool, or Wildcat Cave Gb/Sa
15. Elevation (Show whether DF, RT, GR, etc.) 3600 Gr.		12. County Eddy

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data
NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐	CHANGE PLANS ☐
PULL OR ALTER CASING ☐	OTHER ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐	ALTERING CASING ☐
COMMENCE DRILLING OPS. ☐	PLUG AND ABANDONMENT ☐
CASING TEST AND CEMENT JOBS ☒	OTHER Perf and Frac ☐

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

1/13/84 Run GrN CBL CCL logs

1/14/84 Pressure test csng to 1000# held for 30 min

Perf 2449-2464 2 spf .40 cal (30 shots)

Acid w/ 2000 gal 15% HCl 3.6 BPM @ 1900 PSI ISDP 1100# 15 min 0#

Swab well back

1/16/84 Frac perf 2449-2464 w/25,000 gal Gel KCl Wtr 35,000# 20/40

27 BPM @ 2400# ISDP 2100 15 min 1600#

1/17/84 Swab well back

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED [Signature] TITLE Geologist DATE 1/24/84APPROVED BY [Signature] TITLE OIL AND GAS INSPECTOR DATE FEB 06 1984

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LAND OFFICE		
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P.O. BOX 2038
SANTA FE, NEW MEXICO 87501

Revised 10-1-78

5a. Indicate Type of Lease	
State ☒	Fee ☐
5. State Oil & Gas Lease No. B 7596	

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR.
USE "APPLICATION FOR PERMIT -" (FORM C-101) FOR SUCH PROPOSALS.)

1. ☐ OIL WELL ☒ GAS WELL ☐ OTHER-		7. Unit Agreement Name
2. Name of Operator J.E.M. Resources Inc		8. Farm or Lease Name Cave State
3. Address of Operator P.O. Box 2938 Ruidoso NM 88345		9. Well No. 3
4. Location of Well UNIT LETTER E , 1650 FEET FROM THE North LINE AND 330 FEET FROM THE West LINE, SECTION 4 TOWNSHIP 17 S RANGE 29 E NMPM.		10. Field and Pool, or Wildcat Cave - G-SA
15. Elevation (Show whether DF, RT, GR, etc.) 3600 gr.		12. County Eddy

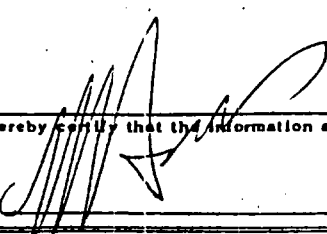
16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data
NOTICE OF INTENTION TO: SUBSEQUENT REPORT OF:

PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☐	ALTERING CASING ☐
TEMPORARILY ABANDON ☐	CHANGE PLANS ☐	COMMENCE DRILLING OPNS. ☐	PLUG AND ABANDONMENT ☐
PULL OR ALTER CASING ☐	OTHER ☐	CASING TEST AND CEMENT JOBS ☒	OTHER ☐

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

1/7/84 Hit water flow @ 1745 est 40 Gal per min
1/9/84 TD 2564 Water flow died
Ran 73 Jts. 5 1/2" 15.5# csng set at 2564
Cmt: W/ 650 SXS Pacesetter lite 2% CaCl2 Tailed in W/
275 SXS 50/50 poz 4# Hiseal 1/4 Celloseal 3% KCl
Plug down @ 12:37 AM 1/10/84 Circulated 168 SXS to pit.
Woc 18 Hrs.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED 	TITLE Geologist	DATE 1/12/84
APPROVED BY _____	TITLE Supervisor District II	DATE JAN 25 1984
CONDITIONS OF APPROVAL, IF ANY:		

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501Form C-103
Revised 10-1-74

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LAND OFFICE	
OPERATOR	

5a. Indicate Type of Lease
State ☒ Fee ☐5. State Oil & Gas Lease No.
B 7596SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR.
USE "APPLICATION FOR PERMIT -" (FORM C-101) FOR SUCH PROPOSALS.)

1. OIL WELL ☒ GAS WELL ☐ OTHER ☐	7. Unit Agreement Name
2. Name of Operator Diamondback Petroleum Inc.	8. Farm or Lease Name Cave State
3. Address of Operator P.O. Box 2938, Ruidoso, NM.	9. Well No. 5
4. Location of Well UNIT LETTER E , 1650 FEET FROM THE North LINE AND 330 FEET FROM West LINE, SECTION 4 TOWNSHIP 17S RANGE 29E NMPM.	10. Field and Pool, or Wildcat Cave 9-2H
15. Elevation (Show whether DF, RT, GR, etc.) 3600 GR.	12. County Eddy

Check Appropriate Box To Indicate Nature of Notice, Report or Other Data
NOTICE OF INTENTION TO: SUBSEQUENT REPORT OF:

PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☐	ALTERING CASING ☐
TEMPORARILY ABANDON ☐	CHANGE PLANS ☐	COMMENCE DRILLING OPS. ☒	PLUG AND ABANDONMENT ☐
PULL OR ALTER CASING ☐	OTHER ☐	CASING TEST AND CEMENT JOBS ☒	OTHER ☐

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1-08.

1/4/84 Spud 12½" hole @ 10:00 PM

1/5/84 TD 340' Ran 340' 8 5/8" 24# csng
Cmt W/ 225 sxs class "C" 2% CaCl2 95 sxs class "C" neat
Pd @ 9:31 PM WOC 18 hrs Nipple up BOP Pressure test Csng to
800 PSI held 30 min

1/6/84 Drilled out W/ 7 7/8" bit

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED

TITLE **Geologist**DATE **1/10/84**Original Signed By
Leslie A. Clements
Supervisor District II

APPROVED BY

TITLE

DATE **JAN 25 1984**