ENERGY AND MINERALS DEPARTMENT

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. Operator: Bird Oil Corporation

Address: 717 Seventeenth Street, Ste. 2860, Denver, Colo. 80202

Contact party: John Alexander Phone: 505-326-1135

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.

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DIST. 3

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: John Alexander Title Agent

Signature: John Alexander Date: 8-29-83

* 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. _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division

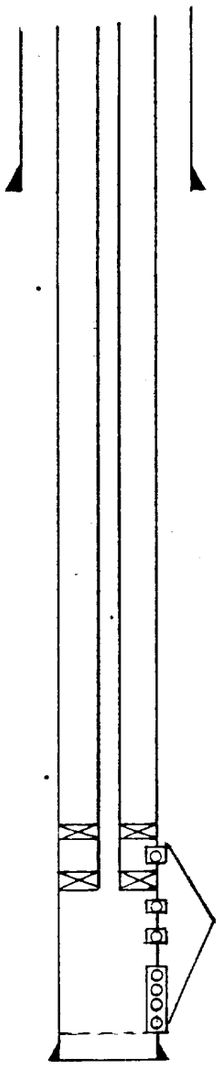
Point No. III

INJECTION WELL DATA SHEET

Bird Oil Corp. (OPERATOR) — Bird Federal 12 (LEASE)

5	2310' FNL & 910' FWL	12	19N	5W
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



perforated interval 2004' to 2175'

Note: the interval 2004 to 2010' was perforated for production prior to conversion to injection, and is isolated here in an attempt to prevent water from entering. However, the primary tubing-casing seal is the packer at 1985' and for the purposes of this application all the perforations shown are considered part of the injection interval.

Tabular Data

Surface Casing

Size 8 5/8" Cemented with 75 sx.

TOC surface feet determined by circulation

Hole size 12¼"

Intermediate Casing

Size _____" Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string

Size 4½" Cemented with 300 sx.

TOC surface feet determined by bond log

Hole size 7½"

Total depth 2200'

Injection interval

2004 feet to 2175 feet

(perforated ~~xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx~~)

Tubing size 2 3/8" EUE lined with not lined (material) set in a

Baker Model C-1 (top) and AD-1 (bottom) (brand and model) packer at 1985' and 2015' feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Mesa Verde

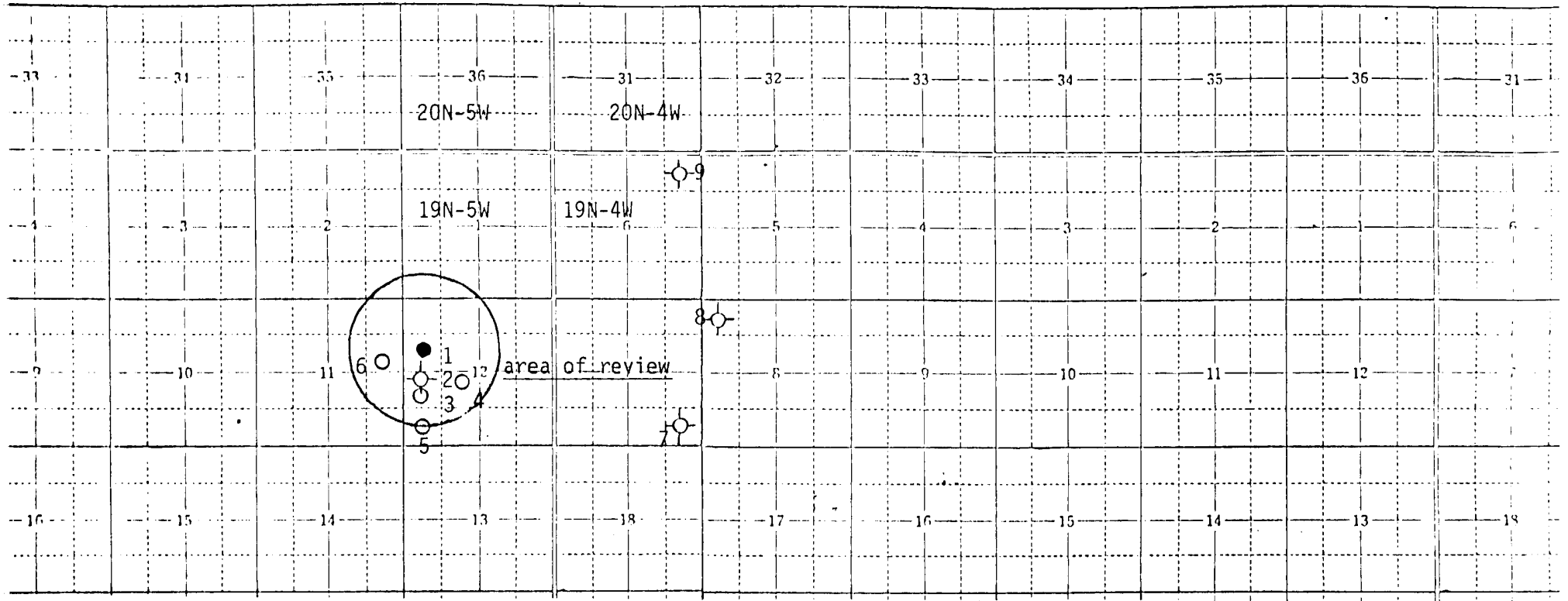
2. Name of Field or Pool (if applicable) Blue Mesa ext.

3. Is this a new well drilled for injection? [ ] Yes [X] No

   If no, for what purpose was the well originally drilled? production

4. 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

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. Entrada at 5500'



WELLS IN AREA OF BIRD FEDERAL 12 No. 5

1. Bird Oil Corp., Bird Federal 12 No. 5, 2310'/N & 910'/W 12-19N-5W
2. Bird Oil Corp. , Brid Federal 12 No. 1, 1980'/S & 880'/W 12-19N-5W
3. Woosley Oil , FBC No. 1, 1870'/S & 860'/W, 12-19N-5W
4. Bird Oil Corp., Bird Federal 12 No. 11, 2310'/S & 1650'/W 12-19N-5W
5. Bird Oil Corp., Bird Federal 12 No. 13, 990'/S & 330'/W 12-19N-5W
6. Woosley Oil, Ptasynski No. 1, 2310'/N & 330'/E, 11-19N-5W
7. Eastern Petroleum Co. , Encino No. 1, 660'/S & 660'/E 7-19N-4W
8. Tesoro Petroleum, Encino No. 1, 990'/N & 790'/W 8-19N-4W
9. Eastern Petroleum Co., Fed.-Silver No. 1, 380'/N & 330'/E 6-19N-4W

Point No..V

Point VI-Bird Oil Corporation

WELL DATA FOR AREA OF REVIEW

Bird Oil Corporation, Bird Federal 12#1, 1980'/S and 880'/W 12-19N-5W.

Spudded 12-8-81. Surface casing was 9 5/8" 36 lb/ft. set at 383', cemented to surface. Drilled 7 7/8" hole to 5525' total depth. Testing indicated non-commercial. Plugged to abandon by setting cement plugs as follows:

5222'-5305'	25 sk.
3217'-3400'	25 sk.
2117'-2200'	25 sk.
300'-380'	25 sk.
Surface	5 sk.

Plugs illustrated in attached schematic.

Bird Oil Corporation, Bird Federal 12 No. 11, 2310'/S and 1650'/W 12-19N-5W.

Spudded 4-6-83, surface casing was 8 5/8" 24lb/ft. set at 92' and cemented to the surface. Total depth was 2200', and 4½ 10.5 lb/ft casing was set at 2197' with cement circulated to surface. Menefee section from 1988 to 2008 was perforated and ~~fractured with 13,~~611 lb. 10-20 sand in foam fluid.

Bird Oil Corporation, Bird Federal 12 No. 13 990'/S and 330'/W 12-19-5W

Spudded 4-10-83. Surface casing was 8 5/8" 24 lb/ft. set at 98' and cemented to surface. Total depth was 2181' and 4½" 10.5 lb/ft casing was set at 2177' with cement circulated to surface. Menefee zone 2064'70 was perforated, and acidized with 800 gal. 15% HCL. A bridge plug was set at 2058'. Menefee zone 2034' to 2040' was perforated but not stimulated. A bridge plug was set at 2013'. Menefee zone 1955 to 1980 was perforated and fractured with 20,000 lb. 10-20 sand in foam fluid. Menefee zone at 1910'-1914 was isolated, perforated, and acidized with 500 gal. 15% HCL Acid. At the writing of this application, menefee perforations 1910'-1914 and 1955-1980' are open to the tubing, with the bridge plugs at 2013' and 2058' still in place.

Woosley Oil Co., FBC #1, 1870'/S & 860'/W 12-19N-5W

Spudded 8-28-92. Surface casing was 7 5/8" 26.4 lb/ft. set at 89' and cemented to surface. Total depth was 2125' with 4½" 10.5 lb/ft. casing set at 2104' and cemented across the pay zone. The menefee interval 1946-2002 was perforated and fractured with 26,000 lb. 10-20 sand in foam fluid.

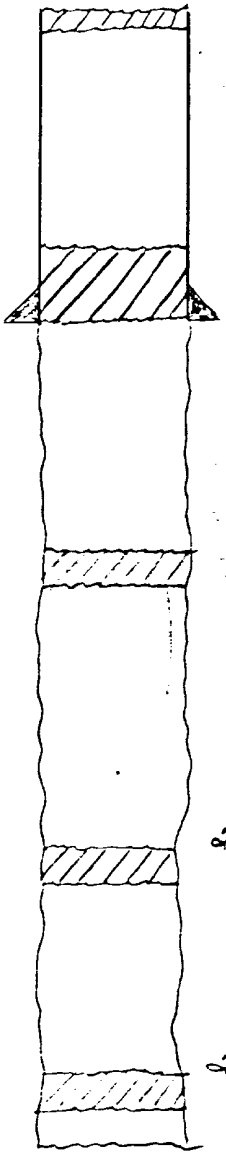
Woosley Oil Co., Ptasynski No. 1 2310' FNL & 330' FEL 11-1 9N-5W

Surface casing was 7" 20 lb/ft set at 94' and cemented to the surface. Production casing was 4½" 9.5 lb./ft set at 2142' and cemented to the surface. Menefee and Point Lookout members of the Mesa Verde were perforated at 2058'-66', 2071'-83', and 2092'-2102'. This zone was fractured with foam fluid containing 32000 lb. 10-20 sand.

attachment to point VI

BIRD OIL CORP.

BIRD FED. 12 No. 1 P&A DETAIL



5 sk. cement plug set at surface

25 sk. cement plug 300'-323'

9 5/8" surface casing set at 323'

25 sk. cement plug 2117'-2200'

25 sk. cement plug 3217'-3400'

25 sk. cement plug 5220'-5305'

T.D = 5525'

Point VII Data on proposed operation

1. Average volume 1000 bbl. daily, maximum rate 2000 bbl. daily.

2. System is closed.

3. Injection pressure maximum to be determined by step-rate test. Average pressure is expected to be 1000 psi.

4. Source of injected fluids is Mesa Verde, which is also the disposal interval. Only water produced from area oil wells will be injected at the subject well.

5. The disposal zone is productive of oil and gas.

Point VIII-
Injection interval is the Mesa Verde, a cretaceous aged sand stone. Thickness is 340', with the top at 1860'. The menefee member top is at 1860' and the Point Lookout member top is at 2020' in this well.
The State Engineers office shows no underground sources of drinking water in the area.

Point IX
The conversion procedure with stimulation design is attached.

Point X
The open hole logs for this well are on file with the NMOCC.

Point XI
The State Engineers office showed only 4 water holes in the area.
These were 6' to 10' deep and obtained their water from wash run off.

Point XII
Available geologic and engineering data have been examined and no evidence of open faults or hydrologic connection between the disposal zone and any underground source of drinking water was found.

Point XIII
"Proof of Notice" is attached.

Point No. IX

BIRD OIL CORPORATION
Bird Federal 12-5
2310' FNL & 910' FWL
S.12-T.19N-R.5W
McKinley Co., N.M

PROCEDURE FOR CONVERSION TO INJECTION

1. Move in pulling unit, install b.o.p.
2. Pull rods and tubing. Lay down rods.
3. Pick up 3 7/8" bit and casing scraper for 4½" 10.5 lb. casing and run on 2 3/8" tubing.
4. Trip in hole and drill float collar and cement in shoe joint to 2180'.
5. Circulate hole clear of cement debris and spot 150 gal. 15% HCL Acid at t.d.
6. Pull tubing, casing scraper and bit.
7. Perforate the following intervals using existing casing collar log as correlated to FDC Log of 4-4-83, using 2 shots/ft., 0.35" to 0.40" i.d in a 3 1/8" hollow carrier:

2024' - 2029'	5'	10 shots
2041' - 2047'	6'	12 shots
2112' - 2175'	65'	130 shots
total	76'	152 shots

8. Acidize perforated interval with 8,000 gal. 15% HCL containing 255 7/8" 1.10 sp.gr. RCN ball sealers at a minimum rate of 10 bpm. Attempt to ball out perforations.
   NOTE: Break down with water and run 27 balls with no acid followed by 5 bbl. water to attempt ot ball out existing perforations prior to starting acid.
9. Flow well back to drop balls off of perforations. If doubt about balls leaving perforations exists, run swage on sand line to remove balls.
10. Run Baker Model AD-1 Packer in tandem with Model C-1 Packer and straddle the perforations 2004' to 2010'. Set the Model AD-1 at approximately 2015' and the Model C-1 at approximately 1985'. These perforations were open in the well prior to perforating for injection.
11. Load annulus with water containing corrosion inhibitors.
12. Land tubing and install Christmas tree.
13. Conduct step-rate test down tubing by pumping water in0.25 bpm steps, each step being 1 hr. in duration until a parting pressure is established.
14. Rig down and prepare surface facilities for injection.

Affidavit of Publication

STATE OF NEW MEXICO,
) ss
COUNTY OF McKINLEY

Linda Williams being duly sworn upon oath, deposes and says:

As legal clerk of the Gallup Independent, a newspaper published in and having a general circulation in McKinley County, New Mexico, and in the City of Gallup, therein: that this affiant makes this affidavit based upon personal knowledge of the facts herein sworn to. That the publication, a copy of which is hereto attached was published in said newspaper during the period and time of publication and said notice was published in the newspaper proper, and not in a supplement thereof,

for one time, the first publication being on the 18 day of August, 19 83 the second publication being on the _____ day of _____, 19____ the third publication on the _____ day of _____, 19____

and the last publication being on the _____ day of _____, 19____

That such newspaper, in which such notice or advertisement was published, is now and has been at all times material hereto, duly qualified for such purpose, and to publish legal notices and advertisements within the meaning of Chapter 12, of the statutes of the State of New Mexico, 1941 compilation.

Linda Williams
Affiant.

Sworn and subscribed to before me this 19 day of August, A.D., 19 83

Margaret McPeek
Notary Public.

My commission expires
8-27-85

LEGAL NOTICE

Bird Oil Corporation intends to convert its Bird Federal 12 No. 5 located 2310' FNL & 910' FWL Sec. 12-Twn. 19N-Rng. 5W McKinley Co., NM to produced water disposal service. Disposal zone will be the Mesa Verde at 2004'. Expected maximum injection pressure 1000 psi at 1000 bbls. of water daily. Interested parties must file objections or requests for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, NM 87501, within 15 days. Local contact for Bird Oil is John Alexander, 3E Company, Inc., P.O. Box 190, Farmington, NM 87499, (505) 326-1135.

Legal #9872 Published in The Gallup Independent Thursday, August 18, 1983.

SERVICES

P.O. Box 1079 • Farmington, NM 87401 • Phone 505 327-4911

KEVIN 3

API WATER ANALYSIS REPORT FORM

DATE 5-25-83
COMPANY Woosley Oil Co.
SAMPLE NO.
DATE SAMPLED 5-25
FIELD Star Lake
COUNTY OR PARISH McKinley, New Mexico
STATE

TYPE SAMPLE Water
DEPTH
FORMATION MENEFEE
WELL NO.
LEASE A-1
SAMPLED BY Jim Woosley
REPORT BY Ricky Kent

DISSOLVED SOLIDS Cations	mg/l	me/l	x Valence	= Product
Sodium, Na & K			1	
Calcium, Ca			2	
Magnesium, Mg			2	
Barium, Ba				
TOTAL				
Anions				
Chloride, Cl	20,920.51		1	
Sulfate, SO_4	1154		2	
Bicarbonate, HCO_3			1	
Carbonate, CO_3			–	
TOTAL				

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DIST. 3

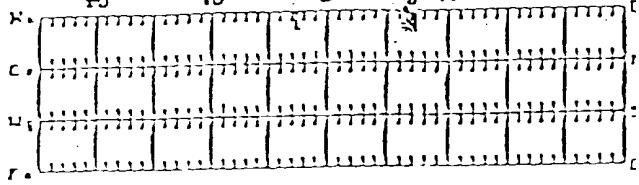
Total Hardness =
Total Dissolved Solids (calc.) 31,514 mg/L

Iron, Fe (total) NONE
Sulfide, as H_2S NONE
Specific Gravity @ 1.021
pH @ Temp. 7.5
Resistivity
BHT °F

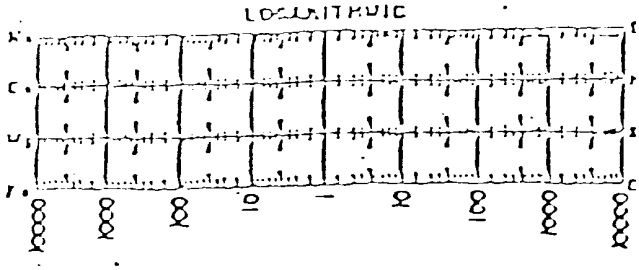
Remarks:

WATER PATTERNS — me/l

STANDARD



LOGARITHMIC



SMITH ENERGY SERVICES

RESEARCH AND DEVELOPMENT

Report No: 1574
Date: 5/17/83

Company: Bird Oil Corporation
Address: Suite 2860, Energy Center One
Denver, CO 80202
Attention: Kevin Weller
Date Sampled:

County: McKinley County, N.M.
Field:
Formation: Meneffe
Lease: SW NW Sec 12, T19N, R5W
Well: Bird Fed. 12-5

WATER ANALYSIS

Specific Gravity:	1.010	pH:	7.6
Chloride:	13,000 mg/l	Calcium:	160 mg/l
Bicarbonate:	854 mg/l	Magnesium:	97 mg/l
Sulfate:	575 mg/l	Total Iron:	trace amount
Sulfide:	N/D	Sodium:	8,649 mg/l
Total Hardness: (As $CaCO_3$)	800 mg/l	Total Dissolved Solids:	23,335 mg/l
Resistivity:	0.4	Ohm Meters @:	60°F

Sample Source:

Remarks:

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OIL CON. DIV.
DIST. 3

Analyst: Melissa Scott
Smith Representative: Theron Strickland

SMITH ENERGY SERVICES

RESEARCH AND DEVELOPMENT

Report No: 1576
Date: 5/17/83

Company: Bird Oil Corporation
Address: Suite 2860, Energy Center One
Denver, CO 80202
Attention: Kevin Weller
Date Sampled:

County: McKinley County, N.M.
Field:
Formation: Meneffe
Lease: SW SW Sec 12, T19N, R5W
Well: Bird Fed. 12-13

WATER ANALYSIS

Specific Gravity:	1.020	pH:	7.1
Chloride:	21,500 mg/l	Calcium:	80 mg/l
Bicarbonate:	3,050 mg/l	Magnesium:	122 mg/l
Sulfate:	25 mg/l	Total Iron:	trace amount
Sulfide:	N/D	Sodium:	14,770 mg/l
Total Hardness: (As $CaCO_3$)	700 mg/l	Total Dissolved Solids:	39,572 mg/l
Resistivity:	0.2	Ohm Meters @:	60°F

Sample Source:

Remarks:

RECEIVED

Analyst: Melissa Scott
Smith Representative: Theron Strickland

SMITH ENERGY SERVICES

RESEARCH AND DEVELOPMENT

Report No: 1575
Date: 5/17/83

Company: Bird Oil Corporation
Address: Suite 2860, Energy Center One
Denver, CO 80202
Attention: Kevin Weller
Date Sampled:

County: McKinley County, N.M.
Field:
Formation: Meneffe
Lease: NE SW Sec 12, T19N, R5W
Well: Bird Fed. 12-11

WATER ANALYSIS

Specific Gravity:	1.015	pH:	7.3
Chloride:	15,000 mg/l	Calcium:	80 mg/l
Bicarbonate:	1,708 mg/l	Magnesium:	73 mg/l
Sulfate:	650 mg/l	Total Iron:	22 mg/l
Sulfide:	N/D	Sodium:	10,426 mg/l
Total Hardness: (As $CaCO_3$)	500 mg/l	Total Dissolved Solids:	27,959 mg/l
Resistivity:	0.3	Ohm Meters @:	60°F

Sample Source:

Remarks:

Analyst: Melissa Scott
Smith Representative: Theron Strickland