

KELLAHIN AND KELLAHIN

ATTORNEYS AT LAW

EL PATIO BUILDING

117 NORTH GUADALUPE

POST OFFICE BOX 2265

SANTA FE, NEW MEXICO 87504-2265

TELEPHONE (505) 982-4285

TELEFAX (505) 982-2047

W. THOMAS KELLAHIN*

*NEW MEXICO BOARD OF LEGAL SPECIALIZATION
RECOGNIZED SPECIALIST IN THE AREA OF
NATURAL RESOURCES-OIL AND GAS LAW

JASON KELLAHIN (RETIRED 1991)

February 4, 2000

HAND DELIVERED

Ms. Lori Wrotenbery, Director
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

12348

00 FEB -7 PM 2:41

OIL CONSERVATION DIV.

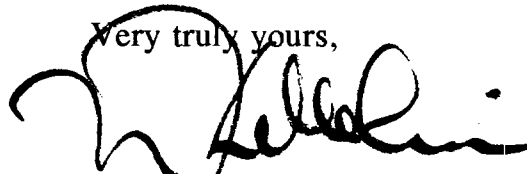
Re: Application of David H. Arrington Oil & Gas,
Inc. for an unorthodox injection well location
and for approval of its Mayfly "14" State
Leasehold Pressure Maintenance Project,
Lea County, New Mexico.

Dear Ms. Wrotenbery:

On behalf of David H. Arrington Oil & Gas, Inc., please find
enclosed our application in the referenced case which we request be set on
the next available examiner's docket now scheduled for March 2, 2000.

Also enclosed is our proposed notice for publication.

Very truly yours,



W. Thomas Kellahin

cfx: David H. Arrington Oil & Gas, Inc.
Attn: Bill Baker

PROPOSED ADVERTISEMENT

CASE 12348 Application of David H. Arrington Oil & Gas, Inc. for an unorthodox injection well location, ~~and~~ approval of its Mayfly "14" State Leasehold pressure maintenance project, ^{and to qualify this project} Lea County, New Mexico. ^{for the Recovered Oil Tax Rate pursuant to the Enhanced Oil Recovery Rate} Applicant seeks approval of its gas injection pressure maintenance project within the Strawn formation of the North Shoe Bar-Strawn Pool to be located within the NE/4 of Section 14, T16S, R35E, NMPM and to qualify this project for the recovered oil tax rate pursuant to the Enhanced Oil Recovery Act (Sections 7-29A-1 through 7-29A-5, NMSA, 1978). Applicant also seeks approval to drill its injection well at an unorthodox well location 2300 feet from the east line and 535 feet from the north line of this section. This project is located approximately 4 miles southeast from Lovington, New Mexico.

**STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION**

**IN THE MATTER OF THE APPLICATION
OF DAVID H. ARRINGTON OIL & GAS, INC.
FOR AN UNORTHODOX INJECTION WELL LOCATION
AND FOR APPROVAL OF ITS MAYFLY "14" STATE
LEASEHOLD PRESSURE MAINTENANCE PROJECT
AND TO QUALIFY THIS PROJECT FOR THE
RECOVERED OIL TAX RATE PURSUANT TO THE
"NEW MEXICO ENHANCED OIL RECOVERY ACT,"
LEA COUNTY, NEW MEXICO**

CASE NO 12348

A P P L I C A T I O N

Comes now David H. Arrington Oil & Gas, Inc. ("Arrington"), by its attorneys, Kellahin & Kellahin, and pursuant to the New Mexico "Enhanced Oil Recovery Act" and to Division Rule 701(G) applies to the New Mexico Oil Conservation Division for approval of its Mayfly "14" State Pressure Maintenance Project and for the recovered oil tax rate for enhanced oil recovery for the use of enhanced oil recovery technology within said pressure maintenance project, a new EOR project. Applicant also seeks approval to drill its injection well, the Mayfly "14" State Well No. 6, at an unorthodox well location 2300 feet FEL and 535 feet FNL of Section 14, T16S, R35E, and in support states:

(1) Arrington is the proposed operator of the proposed Mayfly "14" State Leasehold Pressure Maintenance Project ("new EOR Project") for gas injection in the Strawn formation.

(2) The Project Area will contain 160-acres with one injection well and one producing well within the following described area:

Township 16 South, Range 35 East, NMPM
Section 14: NE/4

NMOCD Application

David H. Arrington Oil & Gas, Inc.

-Page 2-

(3) As of November 30, 1999 primary oil recovery from the Area has been 44,000 barrels of oil from one well. Under the current primary production phase (without pressure maintenance), ultimate oil recovery is estimated to be approximately 260,000 barrels of oil.

(4) The Project is currently producing at 600 BOPD, 900 MCFG and -0- BWPD from one active producer. Approximately 216,000 barrels of oil remain to be recovered under the current mode of operations.

(5) Arrington seeks to increase ultimate oil recovery in this Project by means of a significant change in the process used for the displacement of crude by the initiation of the injection of gas under the following described method: pressure maintenance.

(6) The estimated amount of recoverable oil attributable to a Positive Production Response from the use of enhanced oil recovery technology for this EOR Project is 200,000 barrels of additional oil.

(7) The unorthodox location of the injection well is based upon an attempt to place it at the top of the Strawn structure for this reservoir which is the optimum location for a gas injection well.

(8) In accordance with Division Order R-9708, the following is submitted:

a. Operator's name and address:

David H. Arrington Oil & Gas, Inc.
P. O. Box 2071
Midland, Texas 79702

b. Description of the Use area:

(1) Plat outlining Use area:

See Exhibit "A"

(2) Description of the Use Area:

T16S, R35E NMPM
Sec 14: NE/4

(3) Total acres in Use Area:

160 acres, more or less

(4) Name of the subject Pool and formation:

Strawn formation of the North
Shoe Bar-Strawn Pool

c. Status of operations in the project area:

(1) N/A

[if unitized, name of unit, date of
unit approval and order number]

(2) N/A

[if application for unit approval
pending supply date of filing]

(3) Mayfly "14" State Lease:

NE/4 Section 14, T16S, R35E

d. Method of recovery to be used:

(1) injected substances: gas

(2) N/A

[order/dates of prior approvals]

(3) February 4, 2000

[if project not approved provide
date application was filed]

e. Description of the Use Area:

(1) a list of producing wells:

Mayfly "14" Well No. 2
Unit A & B, Sec 14, T16S, R35E

(2) a list of injection wells:

Mayfly "14" Well No. 6
Unit B, Sec 14, T16S, R35E

(3) Capital cost of additional facilities:

\$1,500,000.

(4) Total Project Costs:

\$1,500,000.

(5) Estimated total value of the additional
production that will be recovered:

An additional 200,000 barrels of
oil with a current undiscounted
value of \$3,000,000 dollars

(6) Anticipated date of commencement of
injection:

as soon as possible after
OCD approval, if granted.

(7) the type of fluid/substances to be injected
and the anticipated volumes:

1662 MCFPD @
600 BOPD rate

(8) Explanation of changes in technology:

- (a) [proposed well status]
- (b) [summary of changes in technology and the process to be used for displacement of oil]

pressure maintenance by injection of gas into the Mayfly "14" State Well No. 6 and with production from the Mayfly "14" State Com Well No. 2.

f. Production data: See Exhibit "B"

[attach graphs, charts and supporting data to show the production history and production forecast of oil, gas, casinghead gas and water from the project area]

g. Division Form C-108 (attached).

See Exhibit "C"

Wherefore, Applicant requests that this application be set for hearing and that after said hearing, the Division enter its order approving this application.

Respectfully submitted

A handwritten signature in black ink, appearing to read 'W. Thomas Kellahin', written over the typed name.

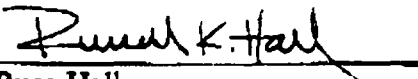
W. Thomas Kellahin
KELLAHIN & KELLAHIN
P.O. Box 2265
Santa Fe, New Mexico 87504
(505) 982-4285

NMOCD Application
David H. Arrington Oil & Gas, Inc.
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CERTIFICATION

STATE OF TEXAS)
) SS.
COUNTY OF MIDLAND)

I, Russ Hall, having been first duly sworn, state that I am a petroleum engineer, a duly authorized representative of David H. Arrington Oil & Gas, Inc. have knowledge of the facts herein and therefor certify that the facts set forth in this Application are true and accurate to the best of my own knowledge and belief.


Russ Hall

NOTICE LIST

Chesapeake Operating, Inc.
P. O. Box 18496
Oklahoma City, OK 73154
Attn: Lynda Townsend

Yates Petroleum Corporation
105 South Fourth Street
Artesia, New Mexico 88210
Attn: Randy Patterson

Merit Energy Company
12222 Merit Dr. Ste 1500
Dallas, Texas 75251

Commissioner of Public Lands
P. O. Box 1148
Santa Fe, New Mexico 87504
Attn: Pete Martinez

DISTRICT I
P. O. Box 1980
Hobbs, NM 88241-1980

State of New Mexico
Energy, Minerals, and Natural Resources Department

Form C-102
Revised 02-10-84

Instructions on back

DISTRICT II
P. O. Drawer DD
Artesia, NM 88211-0719

OIL CONSERVATION DIVISION

P. O. Box 2088
Santa Fe, New Mexico 87504-2088

Submit to the Appropriate
District Office
State Lease - 4 copies
Fee Lease - 3 copies

DISTRICT III
1000 Rio Brazos Rd.
Aztec, NM 87410

DISTRICT IV
P. O. Box 2088
Santa Fe, NM 87507-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
4 Property Code	5 Property Name MAYFLY '14' STATE COM	6 Well Number 2
7 OGRID No.	8 Operator Name DAVID H. ARRINGTON OIL & GAS, INC.	9 Elevation 3978'

10 SURFACE LOCATION

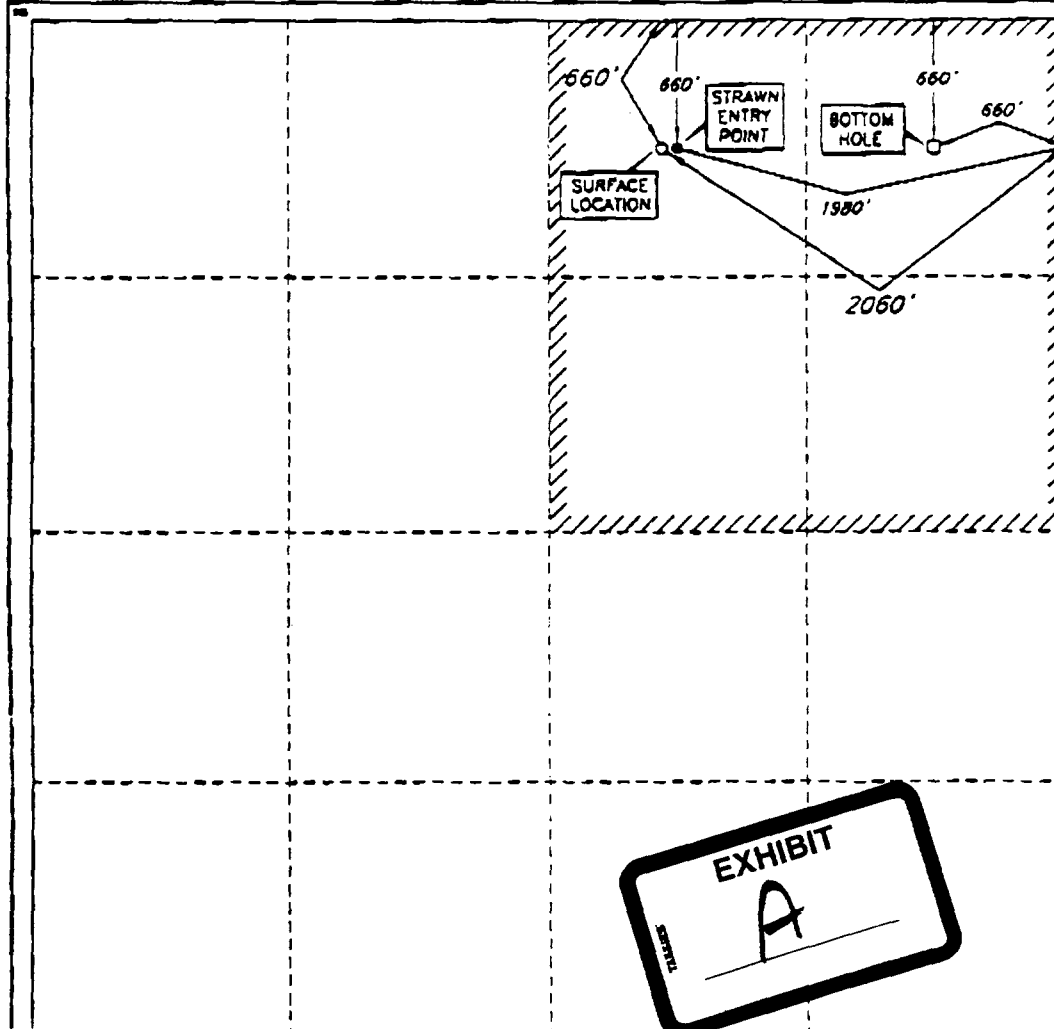
UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
B	14	16 SOUTH	35 EAST, N.M.P.M.		660'	NORTH	2060'	EAST	LEA

"BOTTOM HOLE LOCATION IF DIFFERENT FROM SURFACE

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
A	14	16 SOUTH	35 EAST, N.M.P.M.		660'	NORTH	660'	EAST	LEA

12 Dedicated Acres 13 Joint or Infill 14 Consolidation Code 15 Order No.

NO ALLOWABLE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

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

Signature: *Bill Baker Jr.*
Printed Name: *Bill Baker Jr.*
Title: *Exploration Manager*
Date: *5-20-99*

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey: *MAY 18, 1999*
Signature and Seal: *ROGER M. ROBBINS*
Professional Surveyor: *ROGER M. ROBBINS*
Certificate No.: *12128*
Job #: *463596*
V.H.B.

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 SOUTH PACHECO
SANTA FE, NEW MEXICO 87505

FORM C-108
Revised 4-1-98

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: Secondary Recovery ☒ Pressure Maintenance Disposal Storage
Application qualifies for administrative approval? Yes No
- II. OPERATOR: David H. Arrington, Oil & Gas, Inc.
ADDRESS: 214 W. Texas, Suite 400, Midland, Texas 79701
CONTACT PARTY: Steve Scott or Bill Baker PHONE 915-682-6685
- 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 geologic data on the injection zone including appropriate lithologic detail, geologic 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 sources 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 sources 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: Bill Baker, Jr. TITLE Exploration Manager
SIGNATURE: _____ DATE: _____
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

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



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 the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

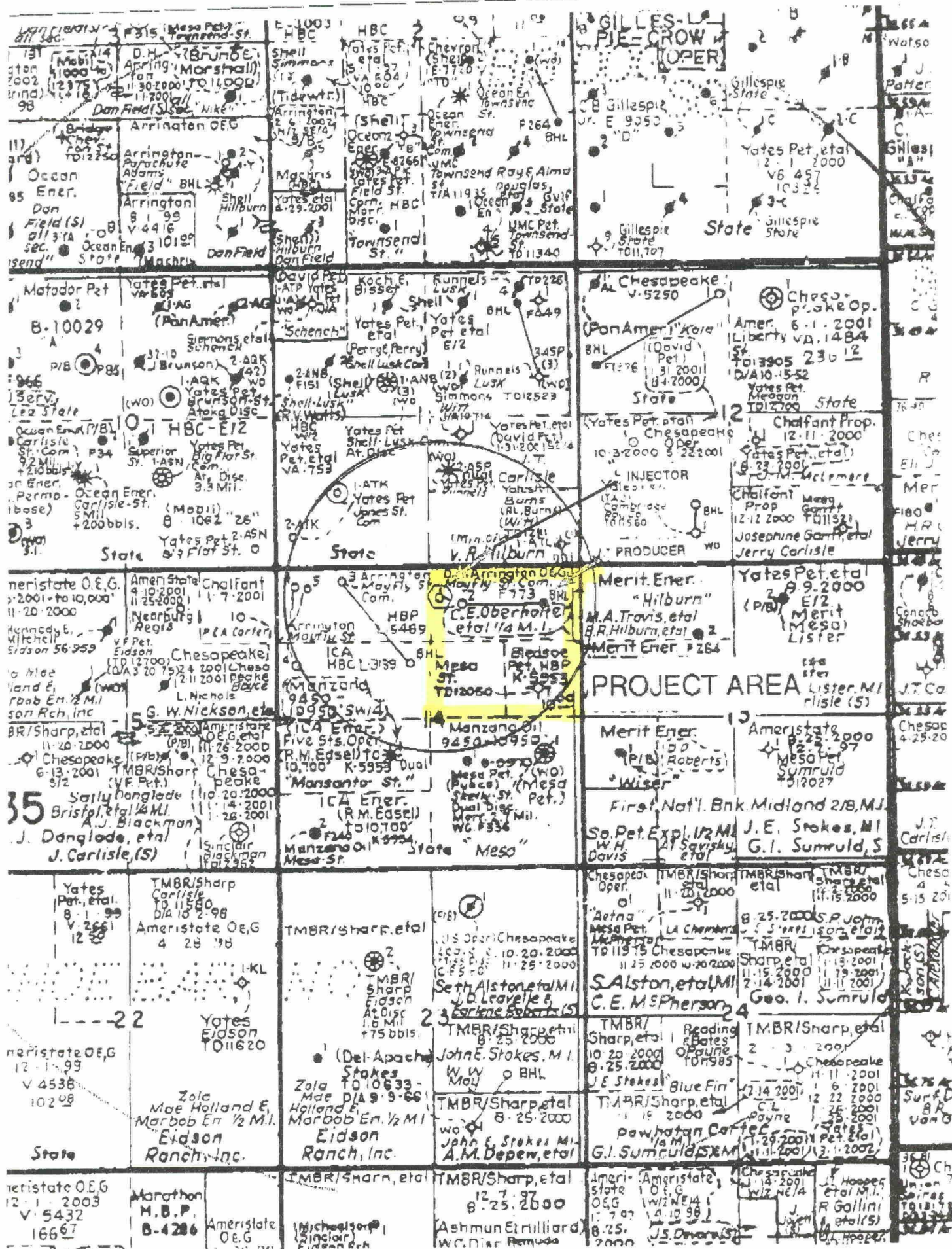
All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

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, 2040 South Pacheco, Santa Fe, New Mexico 87505, 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.



Mayfly "14" #2
AREA OF REVIEW

OPERATOR	LEASE	WELL NO.	LOCATION	DATE DRILLED	TD	PPRFS	CASING-CEMENT	STATUS	API NO.
YATES PETROLEUM	RUNNELS "ASP"	2	1650 FSL 2770 FBL SEC. 14, 16-35	10-6-98	12620	11380-11460 12 -12032	11 3/8 @ 429 W/380 SX TOC SURF-CIRCULATED 8 5/8 @ 4760 W/1550 SX TOC SURF-CIRCULATED 5 1/2 @ 12620 W/1828 SX TOC	ACTIVE	34443
YATES PETROLEUM	JONES STATE COM 1-AIK	1	1050 FWL 1250 FSL SEC. 14, 16-35	LOCATION	N/A	N/A	N/A	LOCATION	N/A
R. L. BURNS	WITT	1	330 FSL 330 FBL SEC. 14, 16-35	1974	12111	NONE	13 3/8 @ 375 W/325 SX TOC SURF-CIRCULATED 8 5/8 @ 4762 W/500 SX TOC SURF-CIRCULATED	P&A	24559
MESA PETROLEUM	STATE COM	1	2086 FNL 766 FBL SEC. 14, 16-35	4-6-75	12050	NONE	13 @ 370 W/420 SX TOC SURF-CIRCULATED 9 5/8 @ 4100 W/350 SX TOC 3006	P&A	24963
David H. Arrington Oil & Gas, Inc.	MAYFLY "14" ST. COM	1	330 FWL 330 FNL SEC. 14, 16-35	11-4-99	12477	12040 47	13 3/8 @ 490 W/500 SX TOC SURF-CIRCULATED 8 5/8 @ 4775 W/1325 SX TOC SURF-CIRCULATED 5 1/2 @ 12477 W/1440 SX TOC -9000'	ACTIVE	34695
David H. Arrington Oil & Gas, Inc.	MAYFLY "14" ST. COM	2	660 FNL 2060 FBL SEC. 14, 16-35	9-22-99	11568	11330-12544 OPEN HOLE	13 3/8 @ 477 W/450 SX TOC SURF-CIRCULATED 8 5/8 @ 4770 W/1350 SX TOC SURF-CIRCULATED 5 1/2 @ 11330 W/550 SX TOC 8910'	ACTIVE	34630
David H. Arrington Oil & Gas, Inc.	MAYFLY "14" ST. COM	3	228 FNL 1654 FWL SEC. 14, 16-35	12-29-99	11620	COMPLETING	13 3/8 @ 470 W/500 SX TOC SURF-CIRCULATED #4 SX 8 5/8 @ 4825 W/1350 SX TOC SURF-CIRCULATED 5 1/2 @ 11320 W/250 SX TOC 8900'	ACTIVE	34696
David H. Arrington Oil & Gas, Inc.	MAYFLY "14" ST. COM	5	530 FWL 330 FNL SEC. 14, 16-35	2-3-00	11475	COMPLETING	13 3/8 @ 465 W/500 SX TOC SURF-CIRCULATED 9 5/8 @ 4795 W/400 SX TOC 870' -1" TO SURF 7 @ 11475 W/	ACTIVE	34815

Side 1

INJECTION WELL DATA SHEET

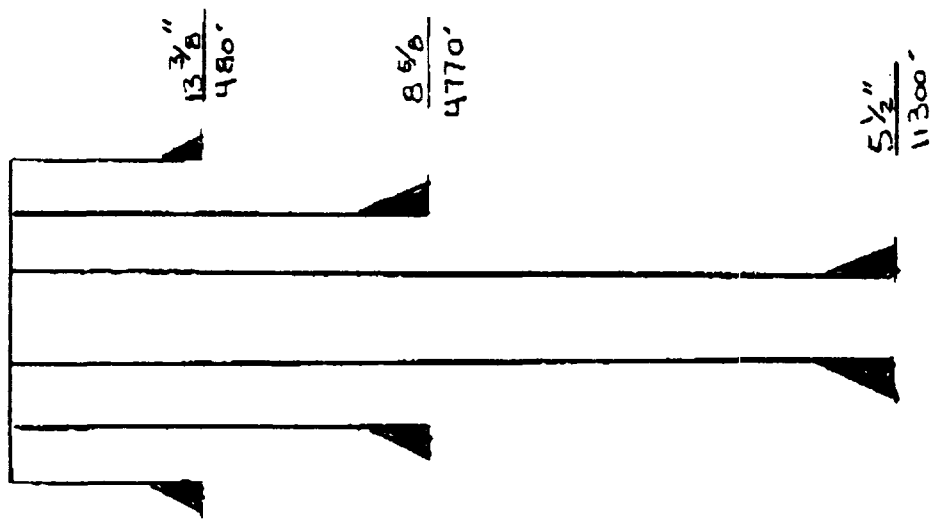
OPERATOR: David U. Arrington Oil & Gas, Inc.

WELL NAME & NUMBER: Mayfly "14" State #6

WELL LOCATION: 2300' FEL & 535' PNL
FOOTAGE LOCATION

UNIT LETTER: B

SECTION: 14 TOWNSHIP: T16S RANGE: R35E

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface Casing

Hole Size: 17 1/2 Casing Size: 13 3/8
 Cemented with: 500 sx or 670 ft³
 Top of Cement: Surface Method Determined: Circulated
Intermediate Casing

Hole Size: 11 Casing Size: 8 5/8
 Cemented with: 1350 sx or 3020 ft³
 Top of Cement: Surface Method Determined: Circulated
Production Casing

Hole Size: 7 7/8 Casing Size: 5 1/2
 Cemented with: 700 sx or 1090 ft³
 Top of Cement: 9000 Method Determined: CBLOG
 Total Depth: 11500'

Injection Interval

11300 feet to 11400

(Perforated or Open Hole, indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2 1/8 Lining Material: Plastic Coated

Type of Packer: 5 1/2 x 2 7/8 Arrowset 1-X 10K Packer

Packer Setting Depth: 11,100'

Other Type of Tubing/Casing Seal (if applicable): N/A

Additional Data

1. Is this a new well drilled for injection? X Yes No

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

2. Name of the Injection Formation: Strawn

3. Name of Field or Pool (if applicable) North Shoobar Strawn

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. No

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: Lower Wolfcamp 10360

Geological Data

Injection Formation

Geologic Formation Name: Pennsylvanian Strawn

Formation Thickness: ~ 100 Feet

Formation Depth: ~ 11,300 Feet

Formation Description: Limestone - Off white, cream, mottled very fine crystalline, dense, firm, slightly argileous, slightly chalky, abundance of calcite crystals & vuggy porosity.

Underground Freshwater Aquifers

Geologic Formation Name: O Gallala

Formation Depth: ± 160

Formation Thickness: $\pm 55' - 160'$

Area of Review

Section 11, T 16S - R35E

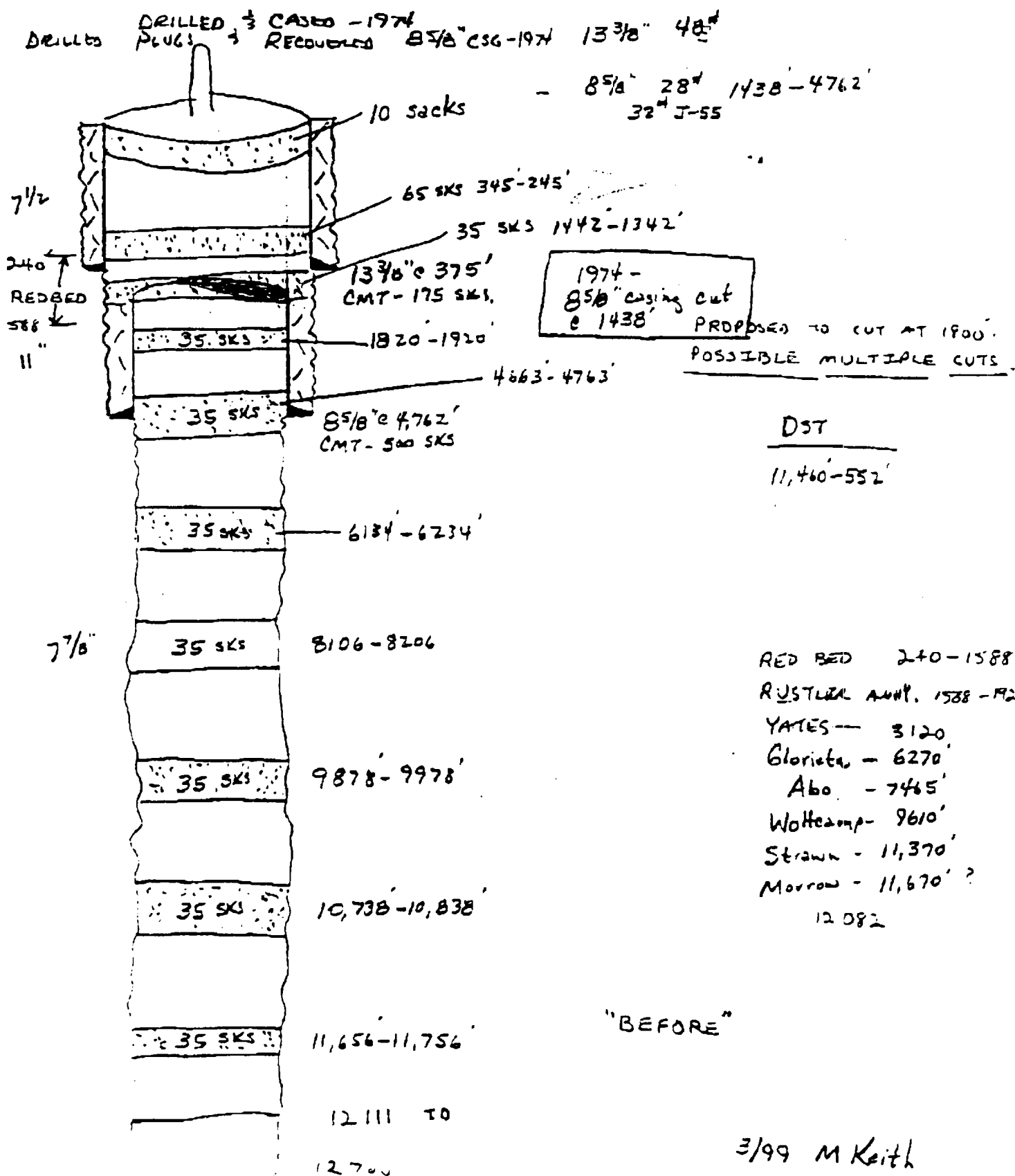
1. Yates Runnels ASP #2
Location: 1650' FSL & 2270' FEL (unit J)
Depth: 12620'
Record of Completion: Dual oil & gas from Strawn (11380-11460)
& Atoka Sand (1206-12032)
2. R.L. Burns #1
Location: 330' FSL & 330' FEL (unit P)
Depth: 12111'
Record of Completion: Drilling & abandoned (see plugging detail)

Section 14, T16S - R35E

1. David H. Arrington Oil & Gas, Inc.
Mayfly "14" State #3
Location: 228' FWL & 1654' FWL (unit C)
Depth: ~ 11545'
Record of Completion: Completing in Strawn
2. Mesa State Com #1
Location: 2086' FWL & 766' FEL (unit H)
Depth: 12050
Record of Completion: Plugged and abandoned (see plugging detail)

R.L. Burns

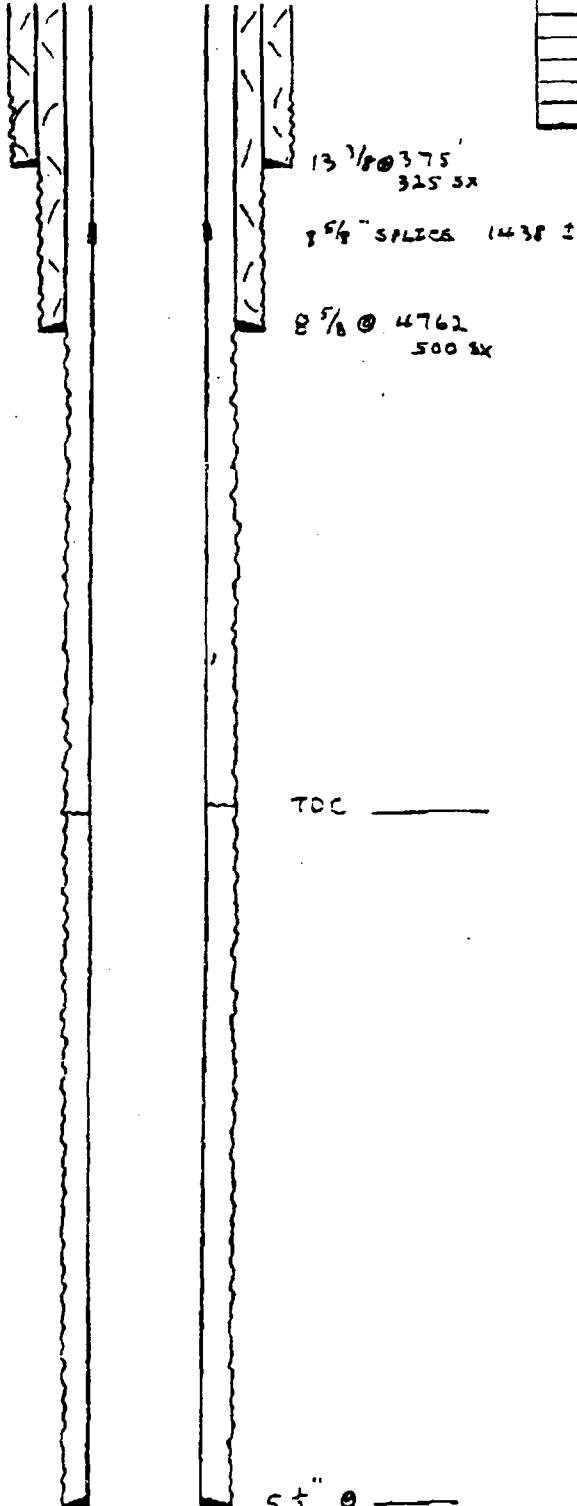
330' FSL + 330' FEL SEC 11 T16S R35E



WELL NAME: R. L. BURNS ATL #1 FIELD AREA: SHORE BAR N., PENN
 LOCATION: 330' ESE, 330' FEL, SEC 11 - T 16 S - R 35 E
 :3972' ZERO: _____ AGL: _____
 :3985' ORIG. DRILLG./COMPL. DATE: 1974
 COMMENTS: PLUGGED 73' RE-PLUGGED 1974

CASING PROGRAM:

SIZE/WT./GR./CONN.	DEPTH SET
13 7/8 48 #	375
8 5/8 28 # 32 #	4762
5 1/2	



DST #1 11460 - 11552

IFD 699-701

ISDP 5181

FAD 717-724

FSZD 3147

REC: 42' DRUG MUD &
1192' WTR GLAUCET

"AFTER"

5 1/2 @ _____
 CMT W _____ SX
 SKETCH NOT TO SCALE -

REVISED: _____