

**BASS ENTERPRISES PRODUCTION CO.**

FIRST CITY BANK TOWER

201 MAIN ST.

FORT WORTH, TEXAS 76102

817/390-8400

February 9, 1994

Bureau of Land Management  
P. O. Box 1397  
Roswell, New Mexico 88201

Attention: Mr. Armando Lopez

Commissioner of Public Lands  
State of New Mexico  
P. O. Box 1148  
Santa Fe, New Mexico 87504-1148

Attention: Mr. Jim Baca

New Mexico Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico

Attention: Mr. William LeMay

Re: 1994 Plan of Development  
Poker Lake Unit  
Eddy County, New Mexico

FEB 14 1994

Gentlemen:

In accordance with Section 10 of the Poker Lake Unit Agreement dated March 18, 1952, Bass Enterprises Production Co., Operator of the referenced unit, hereby submits a Plan of Development for the Poker Lake Unit for the year 1994.

**HISTORY OF PAST DEVELOPMENT**

We refer to our previous Plans of Development for a detailed description of the operations conducted in this Unit in prior years.

**1993 ACTIVITY**

Poker Lake Unit Well No. 78 - This well was drilled at a location 660' FNL and 660' FEL in Section 25, T24S-R30E, Eddy County, New Mexico. The well was drilled to a total depth of 8,080' and completed in the Delaware formation in the interval 7,856' - 7,964'. This well will be submitted during the calendar year 1994 for a commercial determination.

Poker Lake Unit Well No. 79 - This well was drilled and is currently being completed at a location 660' FSL and 660' FWL in Section 2, T25S-R30E, Eddy County, New Mexico. The results of this well will be on the 1995 Plan of Development.

February 9, 1994

Page 2

Poker Lake Unit Well No. 80 - This well was drilled on a location 660' FSL and 660' FWL in Section 19, T24S-R31E, Eddy County, New Mexico. The well was drilled to a total depth 8,200' and completed in the Delaware formation and an oil well in the intervals 7,864' through 8,044'. This well will be submitted during the calendar year 1994 for commercial determination.

Poker Lake Unit Well No. 82 - This well is being drilled at a location 660' FSL and 660' FEL, Section 24, T24S-R30E, Eddy County, New Mexico. The well was drilled to a total depth of 8,295' is currently being completed in the Delaware formation. The results will be reported in the 1995 Plan of Development.

### PARTICIPATING AREAS

Bass Enterprises Production Co. has submitted all wells drilled to date where adequate production information is available for commercial determination and participating areas. In the event you have not received commercial determination for the wells drilled to date, and proposed participating area when appropriate, please advise at your convenience and we will submit same to you.

### FUTURE DEVELOPMENT

Poker Lake Unit Well No. 84 - This well will be drilled at a legal location within the unit to a depth sufficient to test unitized substances.

### OFFSET OBLIGATIONS

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands covered by Poker Lake Unit Agreement or pursuant to applicable regulations.

### MODIFICATIONS

In accordance with the terms and provisions of the Poker Lake Unit Agreement, this Plan of Development may be modified from time to time as a result of changing conditions.

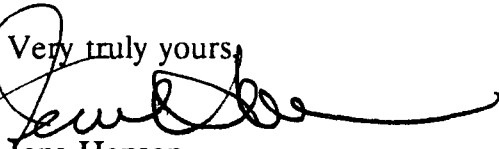
### EFFECTIVE DATE

This Plan of Development shall become effective on January 1, 1994.

February 9, 1994  
Page 3

If this Plan of Development meets with your approval, please so indicate by signing in the appropriate space provided below and return one (1) signed original to us for our records.

Very truly yours,

  
Jens Hansen  
Division Landman

JH:ca

ACCEPTED AND AGREED this 24<sup>th</sup> day of FEB., 1994

BUREAU OF LAND MANAGEMENT

By: \_\_\_\_\_

COMMISSIONER OF PUBLIC LANDS

By: \_\_\_\_\_

NEW MEXICO OIL CONSERVATION DIVISION

By:  \_\_\_\_\_

*Poker Lake Unit Outline*

# LEGEND

- Initial Delaware "B" Participating Area (9-5-93) - 40 Acres
- 1st Revision to Initial Delaware "B" Participating Area (9-5-93) - 164.90 Acres
- 2nd Revision to Initial Delaware "B" Participating Area (6-1-94) - 324.90 Acres
- 3rd Revision to Initial Delaware "B" Participating Area (11-1-94) - 484.90 Acres
- 4th Revision to Initial Delaware "B" Participating Area (7-1-95) - 771.57 Acres
- 5th Revision to Initial Delaware "B" Participating Area (8-1-95) - 931.57 Acres

11

14

R30E

13

Meridian  
Gila '13' Fed. 1

Hill-Simon

1  
4325

Santa Fe  
Palladium '13' Fed.

2

1

18

1 Meridian  
Poker Lake '18' Fed.

R31E

C.B. Read  
Ritchie-Fed.  
4368 1

23

T  
24  
S

24  
TR 36

TR 32

TR 26A

26

107

Hill & Meeker  
Bass-Fed.  
4201

TR 26A

TR 2A  
30

TR 26B

TR 58A

TR 68

35

124

31



**Bass Enterprises Production Co.**

**POKER LAKE UNIT (Delaware) Field  
Eddy County, New Mexico**

**EXHIBIT "A"**

El Paso Nat. Gas  
Poker Lake Unit  
13792

2

DATE: 3-15-96	SCALE: 1" = 2000'
DEPT: Land	DWG: exhibit.dwg
ENTERED BY: W. Carlin	DRAFTED BY: P. Ortiz



366

RAY POWELL, M.S., D.V.M.  
COMMISSIONER

State of New Mexico  
Commissioner of Public Lands

310 OLD SANTA FE TRAIL P.O. BOX 1148

SANTA FE, NEW MEXICO 87504-1148

(505) 827-5760  
FAX (505) 827-5766

SLO REF NO. OG-1371

March 21, 1994

Bass Enterprises Production Company  
1st City Bank Tower  
201 Main Street  
Ft. Worth, Texas 76102

Attn: Mr. Jens Hansen

Re: 1994 Plan of Development  
Poker Lake Unit  
Eddy County, New Mexico

Gentlemen:

The Commissioner of Public Lands has this date approved the above captioned Plan of Development. Our approval is subject to like approval by all other appropriate agencies.

The possibility of drainage by wells outside of the Unit Area and the need for further development of the unit may exist. You will be contacted at a later date regarding these possibilities.

If you have any questions, or if we may be of further help, please contact Pete Martinez at (505) 827-5791.

Very truly yours,

RAY B. POWELL, M.S., D.V.M.  
COMMISSIONER OF PUBLIC LANDS

BY: *Floyd O. Prando*  
FLOYD O. PRANDO, Director  
Oil and Gas Division  
(505) 827-5744

RBP/FOP/pm  
cc: OCD-Roy Johnson  
BLM

# 366

FORTSON OIL COMPANY

301 COMMERCE STREET

SUITE 3301

FORT WORTH, TEXAS 76102-4133

(817) 335-5641

May 6, 1994

New Mexico Oil Conservation Division  
P.O. Box 2088  
Santa Fe, New Mexico 87504

MAY 9 1994

Attn: William LeMay

This letter is sent as a supplement to the Application for Approval of Initial Participating Area for the Delaware "B" in the Poker Lake Unit submitted by Bass Enterprises on March 24, 1994. The discovery well for the PA was the Fortson Oil Company #78 Poker Lake Unit, completed September 9, 1993. Five wells have been drilled to date in the immediate area, four have been completed from the Lower Brushy Canyon Delaware sands, and the fifth is awaiting completion.

Fortson Oil's original prospect idea in this area was to drill along the depositional axis of a large fairway of Lower Brushy Canyon sands. These same sands produce on trend four miles to the northeast in the Sand Dunes field. The initial location was picked to be close to the updip pinchout of the sand bodies located on a structural nose. The updip permeability pinchout to the west is frequently abrupt. The best example of this is along the western edge of the Sand Dunes field in Sections 31 and 32 of T23-R31. Wells in this area go from strong producers to dry holes in only one location.

Bass Enterprises submitted isopachs of the Lower Brushy Canyon W, Y, and Z sands in addition to a structure map contoured on the top of the Lower Brushy Canyon shale interval located above the productive zones. It should also be noted that the P.L.U. #80 and P.L.U. #83 wells also contain a basal sand below the "Z" sand that has been perforated and found productive.

Fortson Oil believes the most relevant map for the determination of field boundaries is an isopach map which includes all the sands located between the Lower Brushy Canyon shale and the Bone Springs Lime. The Fortson Oil Company isopach map included is a net isopach of the W, Y, Z, and the sub-Z zones superimposed over the Bass Enterprises structure map. The net isopach number is calculated by adding the number of feet of porosity greater than or equal to 12%. The water saturations in the lower Brushy Canyon are difficult to calculate due to the presence of numerous thin beds. Also, examination of core data indicates water-bearing beds interposed with oil zones resulting in water production along with the oil after frac treatment.

The 12% cutoff which Fortson uses was obtained by analyzing full core data from the P.L.U. #80 (the W and Z sands), the P.L.U. #89 (the X sand), and sidewall core data in the P.L.U. #78 (W, Y, Z, sands). A plot of porosity versus permeability (included) shows 12% porosity to correspond to about .5 md permeability. Since visual comparisons of the cores with calculated permeabilities indicate approximately .3 md is needed for significant oil saturation values, it is felt that the 12% cutoff is generous. Mudlog shows, especially fluorescence, seem to also be limited to those zones with electric log porosity values in excess of 11%.

Due to the techniques used in well completions in the Delaware, Fortson believes the Lower Brushy Canyon should be treated as one unit. Typically, the entire sand section is fractured in one treatment. After frac surveys and production test data taken before and after the frac indicate it is difficult, if not impossible, to contain a fracture treatment in just one or two sands. Since the fracture created generally propagates upward, the best wells in the Lower Brushy Canyon are those with limited perforations in the lower sands where the

frac grows into the upper sands but not too high as to open water bearing sands above the Lower Brushy Canyon Shale Marker.


As to the commercially productive area, several facts can be determined. In this area most locations will make at least an uneconomic Lower Brushy Canyon completion. Examples of these are the Meridian #1 Poker Lake (18F-24-31), the Bass #41 P.L.U. (21G-24-30), and the Fortson #79 P.L.U. (2M-25-30). Since the Lower Brushy Canyon, similar to all the Delaware sands, is deposited in a northeast-southwest trend, the field size seems to relate to the presence and extent of structural nosing. In most cases, the distribution of economic wells mimics the structural nosing with uneconomic wells in the lows. The poorer wells are due to probable cementation and the resultant porosity and permeability reduction.

In conclusion, we feel prediction of the ultimate field boundaries is premature at this time. Additional drilling planned for this summer by both Fortson Oil and Bass Enterprises will assist in more accurately defining the economic limits of the reservoir. Fortson Oil feels that the initial PA created should not be too large as to encompass uneconomic acreage. Therefore Fortson supports Bass's request for the initial four well PA.

Should you require any additional information, please feel free to contact us.

Regards,

**FORTSON OIL COMPANY**

  
Mike Kulenguski

MK/cr

cc: John S. Simitz, Bureau of Land Management (w/Enclosures)  
Les Babyak, Bureau of Land Management  
Floyd Prondo, Commissioner of Public Lands

**BASS ENTERPRISES PRODUCTION CO.**

201 MAIN ST.

FORT WORTH, TEXAS 76102-3131

817/390-8400

OIL CONSERVATION DIVISION  
RECEIVED

SEP 14 1994 10 50

September 14, 1994

Bureau of Land Management  
Department of Interior  
P. O. Box 1397  
Roswell, New Mexico 88201

Attention: Mr. John Simitz

Commissioner of Public Lands  
State of New Mexico  
P. O. Box 1148  
Santa Fe, New Mexico 87504-1148

Attention: Floyd Prando

New Mexico Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico 87504

Attention: Mr. Roy Johnson

Re: Initial Delaware "B" Participating Area  
NE/4 NE/4 Section 25, T24S-R30E  
Poker Lake Unit  
Eddy County, New Mexico

Gentlemen:

Bass Enterprises Production Co., as Unit Operator of the Poker Lake Unit Agreement, pursuant to the provisions of Section 11 thereof, respectfully submits for your approval the selection of the following described lands to comprise the Initial Participating Area for the Delaware "B" Formation:

NE/4 NE/4 Section 25, T24S-R30E containing 40.00 acres of land.

In support of this application the following numbered items are attached hereto and made a part hereof:

1. An ownership map (Exhibit "A") depicting the boundaries of the proposed initial participating area for the Delaware "B" formation.
2. A schedule (Exhibit "B") identifying the lands entitled to participation in the unitized substances produced from the Delaware "B" formation with the percentage of participation of each lease or tract indicated thereon.

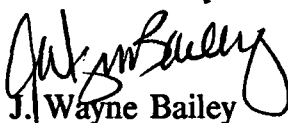
This proposed initial participating area is predicated upon the knowledge and information first obtained upon the completion of Unit Well No. 78 (located in the NE/4



September 14, 1994  
Page 2

NE/4 of Section 25, T24S-R30E) on September 5, 1993. It should be noted that the No. 78 has been previously determined as capable of producing in commercial quantities. According to the Unit Agreement it is our understanding that the effective date of this initial participating area will be September 5, 1993. Therefore, Bass respectfully requests your approval of the hereinabove selection of lands to constitute the Initial Delaware "B" Participating Area to be effective September 5, 1993. Thank you very much for your cooperation in this regard and should you require additional information concerning same, please don't hesitate to contact the undersigned.

Very truly yours,

  
J. Wayne Bailey

JWB:ca

cc: Fortson Oil Company

ACCEPTED AND AGREED this 22<sup>nd</sup> day of Sept., 1994

BUREAU OF LAND MANAGEMENT

By: \_\_\_\_\_

COMMISSIONER OF PUBLIC LANDS

By: \_\_\_\_\_

NEW MEXICO OIL CONSERVATION DIVISION

By:  \_\_\_\_\_

R-30-E

Eloise  
Miller  
8-1-88  
33670

R-31-E

C.B. Rega  
Pitche Fed.  
TO 4368  
OAB 21 61

640 ac.

030453

(9171)

24

U.S.

1730.31 ac. tot.

(O.R.R.  
4913)

061705

HBP  
061705

Tr. 26-A

25

Hill & Meekery  
Bass Fed.  
El 3428  
TO 4201  
OAB 12 18-61

0157779

(A  
4328)

U.S.

Mobil

B-10685

(4655)

E-2206

36

El Paso Nat.  
Poker Lake  
TO 13792  
OAB 9-5-55

State

030456

(9173)

Devon

42.07

324.37 ac.

025533

(9205)

1730.31 ac. tot.

061795

0157566

U.S.

1845.12 ac. tot.

0506

42.62

(4321)

42.74

(X  
4328)

42.86

061705  
(12)

30

Devon En.

0506

(Pauley Petr 1/2)

U.S.

42.33

1031.87 ac. tot.

43.01

43.08

(9172)

43.61

43.75

43.87

43.91

80 ac.  
Ralph Shugart  
1-1-61

0522

(4323)

030454

31

(Pauley Petr)

Devon En.

Bass Ent.  
Poker Lk.  
Del. Div.  
P14

(X  
4328)

(O.R.R.  
4913)

061705

Panther City Inv. - 3/1

2C

O Fasken  
Poker Lake, Wyo  
TO 4423  
OAB 9-72

1845.12 ac

0506

(4321)

29

U.S.

Mobil

B-10684

(4582)

40 ac.

E-5897

32

Bass Enterprises Production Co.

POKER LAKE UNIT

Eddy County, New Mexico

EXHIBIT A



Delaware "B" Participating Area  
All Federal Lands - 40 Acres

SCALE IN FT. 0 2000 4000

3/94

EXHIBIT "B"

Initial Delaware "B" Participating Area  
Poker Lake Unit  
Eddy County, New Mexico

<u>Unit Tract No.</u>	<u>Lease No.</u>	<u>Description</u>	<u>Participating Acres</u>	<u>Percentage of Participation</u>	<u>Working Interest Owner</u>
26-A	LC 061705	Section 25, T24S-R30E: NE/4 NE/4	<u>40.0</u>	<u>100.00%</u>	Fortson Oil Company - 100%
Totals			40.0	100.00%	
Total Federal Lands:			40.00 ac.		
Total:			40.00 ac.		

**BASS ENTERPRISES PRODUCTION CO.**

201 MAIN ST.

FORT WORTH, TEXAS 76102-3131

817/390-8400

RECEIVED  
DIVISION  
SEP 16 1994 3 50

September 14, 1994

Bureau of Land Management  
Department of Interior  
P. O. Box 1397  
Roswell, New Mexico 88201

Attention: Mr. John Simitz

Commissioner of Public Lands  
State of New Mexico  
P. O. Box 1148  
Santa Fe, New Mexico 87504-1148

Attention: Floyd Prando

New Mexico Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico 87504

Attention: Mr. Roy Johnson

Re: Revision of Participating Area  
Initial Delaware "B" Participating Area  
Poker Lake Unit  
Eddy County, New Mexico

Gentlemen:

Bass Enterprises Production Co., as unit operator of the Poker Lake Unit Agreement pursuant to the provisions of Section 11 thereof, respectively submits for your approval the selection of the following described lands to constitute the first revision to the Initial Delaware "B" Participating Area based on Poker Lake Unit Well Nos. 78 and 80. The revised participating area consists of 164.90 acres to be comprised of the lands indicated on the plat attached hereto and further described as follows:

SW/4 SW/4 (Lot 4) Section 19, T24S-R31E  
NW/4 NW/4 (Lot 1) Section 30, T24S-R31E  
SE/4 SE/4 Section 24, T24S-R30E  
NE/4 NE/4 Section 25, T24S-R30E  
All in Eddy County, New Mexico and containing exactly 164.90 acres of land.

In support of this application, the following numbered items are attached hereto and made a part hereof:

1. An ownership map (Exhibit "A") depicting the boundaries of the proposed first revision to the Initial Delaware "B" Participating Area.
2. A schedule (Exhibit "B") identifying the lands entitled to participation in the revised participating area with the percentage of participation of each lease or tract indicated thereon.

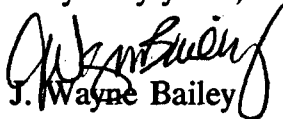
September 14, 1994  
Page 2

3. A geological report with accompanying geological maps submitted in triplicate supporting and justifying the proposed selection of the revised area based on the results obtained from the Poker Lake Unit No. 78 and 80.

This proposed revision to the Initial Delaware "B" Participating Area is predicated upon the knowledge and information first obtained from the Poker Lake Unit No. 80 Well on September 29, 1993. According to Section 11 of the Unit Agreement, the effective date of the subject revision should be the first of the month in which the above information was obtained or September 1, 1993. However the Unit Agreement also provides for a more appropriate date to be indicated by the Unit Operator and, inasmuch as the effective date for the Initial Delaware "B" Participating Area is September 5, 1993, we request September 5, 1993, as the effective date for the subject revision. It should be noted that Poker Lake Unit Well Nos. 78 and 80 have been previously determined to be capable of production in commercial quantities according to the Unit Agreement. Therefore, Bass respectfully requests your approval of the hereinabove described 164.90 acres of land to constitute the First Revision to the Initial Delaware "B" Participating Area, to be effective September 5, 1993.

Thank you very much for your cooperation in this regard and should you have any questions or comments concerning same, please don't hesitate to contact the undersigned.

Very truly yours,

  
J. Wayne Bailey

JWB:ca

ACCEPTED AND AGREED this 22<sup>nd</sup> day of Sept., 1994.

BUREAU OF LAND MANAGEMENT

By: \_\_\_\_\_

COMMISSIONER OF PUBLIC LANDS

By: \_\_\_\_\_

NEW MEXICO OIL CONSERVATION DIVISION

By:   
\_\_\_\_\_

R-30-E

R-31-E

Eloise Miller  
8-1-88  
33670

C B Reps  
Pitchie Fed.  
TO 4368  
OAB 21 61

640 ac.

030453

(9171)

24

Tr. 36

U.S.

1730.31 ac. tot.

(O.R.R. 4913)

061705

HSP  
061705

Tr. 26-A

25

Hill & Meekery  
Bass Fed.  
EI 3428  
TO 4201  
OAB 12 18-61

(A 4328)

U.S.

Mobil

8-10685

(4655)

E-7206

(X 4328)

of 1% O.R.R.

Mobil

12-1-71

157779

36

42.14

324.37 ac.

025533

(9205)

22.23

22.23

1730.31 ac. tot.

061705

80  
42.10 ac.

83  
42.50 ac.

22.74

(X 4328)

22.86  
061705  
(12)

42.33

1031.87 ac. tot.

43.01

43.08

43.61

0157566

Tr. 26-A

1845.12 ac. tot.

0506

Tr. 2-A

(4321)

30

Devon En.

0506

(Pauley Petr 1/2)

U.S.

Ralph Shugart

1-1-61 (8)

0522

(4323)

030854

31

(Pauley Petr)

Devon En.

(9172)

Bass Ent.  
Poker Lk.  
Del. Disc.  
914

(X 4328)

(O.R.R. 4913)

061705

Panther City Inv. - 3/1

20

O. Fashen  
Poker Lk. Inv.  
TO 4423  
OAB 9-72

1845.12 ac.

0506

(4321)

29

Mobil

8-10684

(4582)

40 ac.

1E-5897

32

EXHIBIT A



Initial Delaware "B" Participating Area  
All Federal Lands - 40 Acres



1st Revision to Initial Delaware "B" Participating Area  
All Federal Lands - 164.9 Acres

Bass Enterprises Production Co.

POKER LAKE UNIT

Eddy County, New Mexico

3/94

SCALE IN FT. 0 2000 4000

# EXHIBIT "B"

## First Revision to Initial Delaware "B" Participating Area Poker Lake Unit Eddy County, New Mexico

<u>Tract No.</u>	<u>Lease No.</u>	<u>Description</u>	Participating <u>Acres</u>	Percentage <u>of Participation</u>	Working <u>Interest Owner</u>
2-A	NM 0506-A	Section 30, T24S-R31E: NW/4 NW/4 (Lot 1)	42.5	25.774%	Bass Enterprises Production Co. - 100%
36	NM 030453	Section 24, T24S-R30E: SE/4 SE/4	40.0	24.257%	Bass Enterprises Production Co. - 100%
26-A	LC 061705-B	Section 19, T24S-R31E: SW/4 SW/4 (Lot 4)	42.4	25.712%	Fortson Oil Company - 100%
26-A	LC 061705-B	Section 25, T24S-R30E: NE/4 NE/4	<u>40.0</u>	<u>24.257%</u>	Fortson Oil Company - 100%
Totals			164.9	100.00%	
Total Federal Lands:			164.9 ac.		
Total:			164.9		

# CORE LABORATORIES

FORTSON OIL COMPANY

POKER LAKE NO. 80

660' FSL & 660' FWL, SEC. 19, T-24-S, R-31-E

EDDY COUNTY, NEW MEXICO

Field : POKER LAKE FIELD

Formation : DELAWARE

Coring Fluid : BRINE WATER

Elevation : 3473' KB

File No.: 57181-16921

Date : 9-28-93

API No. :

Analysts: OLSON

## CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH ft	PERMEABILITY (HORIZONTAL) Kair md	POROSITY (HELIUM) %	SATURATION		GRAIN DENSITY gm/cc	DESCRIPTION
				(PORE VOLUME) OIL %	WATER %		

CORE NO. 1 7860-7904 CUT 44' REC 46'

	7860.0- 64.0						NA Sltstn, lam
	7864.0- 66.0						NA Sd, calc, lam
1	7866.8	0.35	10.6	10.6	53.5	2.66	Sd, gray, vf-gr, calc
5	7867.4	0.53	11.5	13.0	51.1	2.66	Sd, gray, vf-gr, calc
3	7868.2	0.34	11.1	10.7	60.1	2.66	Sd, gray, vf-gr, calc
4	7868.9	<.01	3.2	0.0	68.1	2.71	Sd, gray, vf-gr, v/calc
5	7869.9	3.40	14.5	24.5	37.6	2.65	Sd, gray, vf-gr, calc
6	7870.7	1.03	12.4	18.5	43.7	2.65	Sd, gray, vf-gr, calc
7	7871.5	1.08	13.5	18.2	45.5	2.65	Sd, gray, vf-gr, calc
	7872.0- 73.5						NA Sltstn, calc
	7873.5- 74.0						NA Sd, calc
8	7874.4	0.01	5.5	0.0	72.6	2.67	Sd, gray, vf-gr, v/calc
9	7875.0- 76.0						NA Sd, v/calc
	7877.0	0.01	4.9	0.0	79.1	2.69	Sd, gray, vf-gr, v/calc
	7878.0- 84.0						NA Sd, calc, lam
	7885.0- 87.0						NA Sd, lam
10	7885.0	0.03	5.3	0.0	66.9	2.66	Sd, gray, vf-gr, v/calc, sli/turb
11	7887.4	0.09	8.6	0.0	74.2	2.65	S
12	7888.7	0.15	9.3	0.0	84.1	2.64	Sd, gray, vf-gr, calc, sli/turb
	7889.0- 91.0						NA Sd, calc, lam
13	7891.7	2.15	12.9	15.8	49.9	2.65	Sd, gray, vf-gr, calc, sli/turb
14	7892.5	0.03	5.1	0.0	73.2	2.66	Sd, gray, vf-gr, v/calc
15	7893.2	1.54	12.3	14.1	47.9	2.65	Sd, gray, vf-gr, sli/calc, sli/turb
	7894.0- 95.0						NA Sd
16	7895.3	0.14	9.7	0.0	74.5	2.65	Sd, gray, vf-gr, calc, sli/turb



# CORE LABORATORIES

FORTSON OIL COMPANY  
POKER LAKE NO. 80

Field : POKER LAKE FIELD  
Formation : DELAWARE

File No.: 57181-16921  
Date : 9-28-93

## CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH ft	PERMEABILITY (HORIZONTAL) Kair md	POROSITY (HELIUM) %	SATURATION		GRAIN DENSITY gm/cc	DESCRIPTION
				OIL %	(PORE VOLUME) WATER %		
17	7896.8	0.15	10.0	0.0	73.4	2.65	Sd, gray, vf-gr, calc, sli/turb
18	7897.9	0.54	10.4	14.2	47.6	2.65	Sd, gray, vf-gr, calc
S 19	7898.7	0.80	12.2	14.7	49.5	2.65	Sd, gray, vf-gr, calc
	7899.0- 04.5						NA Sltstn, sdy, lam
	7904.5- 05.0						NA Sd, calc
20	7905.6	0.01	5.0	7.1	53.8	2.65	Sd, gray, vf-gr, v/calc
	7906.0- 50.0						Drilled interval
CORE NO. 2 7950-8006 CUT 56' REC 57.5'							
21	7950.0- 51.0	0.02	7.3	12.7	62.3	2.69	NA Sd, shlam
	7951.5						Sd, gray-black, vf-gr, sli/calc, lam
	7952.0- 57.0						NA Sd, shlam
22	7957.6	0.13	10.1	15.8	52.9	2.67	Sd, gray, vf-gr, calc, sli/turb
S 23	7958.3	0.16	10.0	18.5	51.3	2.67	Sd, gray, vf-gr, calc, sli/turb
24	7959.1	0.01	5.5	0.0	79.8	2.67	Sd, gray, vf-gr, v/calc
25	7960.3	<.01	6.5	0.0	74.6	2.68	Sd, gray-black, vf-gr, sli/calc, lam
26	7961.4	0.03	7.7	0.0	78.4	2.67	Sd, gray, vf-gr, calc, sli/turb
27	7962.4	0.01	6.9	7.9	68.7	2.68	Sd, gray-black, vf-gr, sli/calc, lam
S 28	7963.4	0.65	12.5	15.3	53.8	2.66	Sd, gray, vf-gr, calc
29	7964.9	0.54	12.1	17.0	56.8	2.66	Sd, gray, vf-gr, calc
S 30	7965.2	0.48	11.3	13.0	54.3	2.65	Sd, gray, vf-gr, sli/calc
31	7966.9	0.49	12.1	16.2	53.8	2.66	Sd, gray, vf-gr, calc, sli/turb
S 32	7967.8	0.40	11.9	17.6	57.0	2.66	Sd, gray, vf-gr, calc, sli/turb
33	7968.6	0.69	12.9	15.3	54.9	2.65	Sd, gray, vf-gr, sli/calc
34	7969.3	0.01	3.6	4.9	68.7	2.67	Sd, gray, vf-gr, v/calc, lam
35	7970.9	0.37	11.4	13.2	60.9	2.65	Sd, gray, vf-gr, calc
36	7971.5	0.22	10.4	5.9	69.8	2.65	Sd, gray, vf-gr, calc
37	7972.3	0.07	7.5	0.0	79.1	2.66	Sd, gray, vf-gr, calc

# CORE LABORATORIES

FORTSON OIL COMPANY  
POKER LAKE NO. 80

Field : POKER LAKE FIELD  
Formation : DELAWARE

File No.: 57181-16921  
Date : 9-28-93

## CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH ft	PERMEABILITY (HORIZONTAL) Kair md	POROSITY (HELIUM) %	SATURATION		GRAIN DENSITY gm/cc	DESCRIPTION
				(OIL %)	(PORE VOLUME) WATER %		
38	7973.5	0.09	9.3	0.0	77.3	2.65	Sd, gray, vf-gr, calc
39	7974.1	0.22	11.0	12.4	60.5	2.65	Sd, gray, vf-gr, calc
40	7975.2	0.35	11.8	12.7	55.4	2.65	Sd, gray, vf-gr, calc
S	7976.1	0.32	11.6	10.9	56.6	2.65	Sd, gray, vf-gr, calc
42	7977.2	<.01	1.7	0.0	75.3	2.68	Sd, gray dark-gray, vf-gr, v/calc lam
43	7978.3	0.12	9.1	0.0	78.2	2.65	Sd, gray, vf-gr, calc
44	7979.1	0.13	9.8	0.0	75.3	2.65	Sd, gray, vf-gr, calc, sli/turb
45	7980.1	0.07	8.8	0.0	76.4	2.65	Sd, gray, vf-gr, calc
46	7981.1	0.13	10.1	0.0	75.1	2.65	Sd, gray, vf-gr, calc, sli/turb
47	7982.8	0.44	12.7	13.4	54.9	2.65	Sd, gray, vf-gr, calc, sli/turb
S	7983.6	0.52	13.8	11.7	51.6	2.65	Sd, gray, vf-gr, calc, sli/turb
49	7984.6	0.20	12.1	7.2	63.9	2.65	Sd, gray, vf-gr, calc, sli/turb
50	7985.6	0.12	11.8	0.0	77.3	2.64	Sd, gray, vf-gr, calc, sli/turb
51	7986.5	0.11	9.9	11.3	53.9	2.66	Sd, gray, vf-gr, calc
S	7987.4	0.23	10.5	11.1	51.9	2.65	Sd, gray, vf-gr, calc
53	7988.4	0.19	14.2	8.3	63.6	2.68	Sd, gray, vf-gr, sli/calc
54	7989.5	0.09	10.0	9.2	53.6	2.66	Sd, gray, vf-gr, calc, vf
S	7990.6	0.28	11.1	10.4	52.0	2.65	Sd, gray, vf-gr, calc
56	7991.3	<.01	4.6	0.0	68.4	2.67	Sd, gray-black, vf-gr, sli/calc, lam
57	7992.3	<.01	4.4	0.0	74.8	2.67	Sd, gray-black, vf-gr, sli/calc, lam
58	7993.6	0.28	10.5	15.3	46.3	2.65	Sd, gray, vf-gr, sli/calc
59	7994.5	0.26	10.1	23.0	45.5	2.66	Sd, gray, vf-gr, calc
60	7995.2	0.18	9.6	17.3	49.9	2.65	Sd, gray, vf-gr, sli/calc, lam
S	7996.5	0.49	11.3	17.7	42.0	2.65	Sd, gray, vf-gr, calc
62	7997.6	0.25	10.5	19.1	45.3	2.65	Sd, gray, vf-gr, calc
63	7998.6	0.01	2.3	0.0	65.9	2.69	Sd, gray, vf-gr, v/calc
64	7999.1	0.10	9.9	22.1	44.7	2.67	Sd, gray, vf-gr, calc, lam
65	8000.2	<.01	5.9	0.0	70.7	2.66	Sd, gray-black, vf-gr, sli/calc, lam
66	8001.5	0.01	6.3	0.0	62.0	2.65	Sd, dark-gray, vf-gr, sli/calc, sli/turb

# CORE LABORATORIES

FORTSON OIL COMPANY  
POKER LAKE NO. 80

Field : POKER LAKE FIELD  
Formation : DELAWARE

File No.: 57181-16921  
Date : 9-28-93

## CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH ft	PERMEABILITY (HORIZONTAL) K <sub>air</sub> md	POROSITY (HELIUM) %	SATURATION		GRAIN DENSITY gm/cc	DESCRIPTION
				(PORE VOLUME) OIL %	WATER %		
67	8002.5	0.01	4.1	0.0	74.4	2.64	Sd, black, vf-gr, sli/calc
68	8003.6	0.03	7.3	8.6	51.6	2.67	Sd, gray, vf-gr, calc
69	8004.3	0.01	6.6	10.8	53.6	2.67	Sd, gray, vf-gr, calc, lam
70	8005.6	0.01	6.2	0.0	66.2	2.67	Sd, gray-black, vf-gr, sli/calc, lam
71	8006.5	0.02	6.4	0.0	65.4	2.66	Sd, gray-black, vf-gr, sli/calc, lam
	8007.0 - 07.5						NA Sd, shlam

S INDICATES PRESERVED SAMPLE

**CHRONOLOGY FOR THE LOWER BRUSHY CANYON RESERVOIR  
WITHIN THE POKER LAKE UNIT 78 & 80**

**Background Data**

PLU 78	-Perfs 8/29 thru 8/31/93 -Frac'd 9/1/93 -Initial production 9/5/93 -Produced for 10 days prior to PLU 80 being logged
PLU 80	-Cores 1 & 2 9/27 thru 9/28/93 -Logged 9/29/93 (24 days after initial prod. from No. 78) -Perfs & frac 10/12 thru 10/27/93 -Initial production 11/3/93

**Pertinent Points**

1. Upon logging the No. 78 and incorporating the data from that well into geological studies of the area, it was believed that the No. 80 location would be analogous to the No. 78.
2. Examination of the core taken on the No. 80, 23 days after initial production on the No. 78, showed excellent reservoir rock conditions (for example, excellent fluorescence under U/V light).
3. The log suite ran on the No. 80, 24 days after the initial production on the No. 78, showed an equivalent (quantitative) reservoir interval when compared to the No. 78.
4. Reservoir continuity between the 78 & 80 is very good (Ref. cross section).
5. Because of the detailed completion technique utilized on the No. 80 it took 15 days to complete the well and an additional 7 days to reach the initial production stage. Compare this to the 4 days it took to complete the No. 78 and then the 4 days to reach the initial production stage. In other words it took 8 days to bring the No. 78 on line but 22 days for the No. 80!
6. Upon logging the No. 80 well it was believed, due to the better development of the "Z" sand, that the well was better than the No. 78. Production has supported this belief.

**Summary**

The PLU 80 location was selected based on the results from logging the PLU NO. 78. Core taken on the No. 80, 23 days after initial production on the No. 78, confirmed reservoir conditions analogous to the No. 78. Logs ran one day later supported this finding. Thus it was known at the time of coring and logging that

the PLU No. 80 would be a commercial well like the PLU No. 78. The fact that the PLU No. 80 was not "on line" until 11/3/93 is heavily influenced by the fact that it took 22 days to complete this well, while it only took 8 days to complete the No. 78. Part of the reason for the delay on the No. 80 was to separately perf, frac, and test the "Z" sand as part of optimum lease development.

**BASS ENTERPRISES PRODUCTION COMPANY**

**POKER LAKE UNIT (DELAWARE)**

**PROPOSED PARTICIPATING AREA**

Please find attached a net sand isopach and structure map for the above proposed Delaware participating area within Poker Lake Unit and encompassing Poker Lake wells # 78 and 80.

The subject wells contain reservoir sands within the Lower Brushy Canyon "Marker", "W", "Y", and "Z" sand intervals. As point of reference the following are the depth indicators for these sands as encountered on the neutron-density log run dated 8/19/93, for the PLU No. 78. The top of the Lower Brushy Canyon in this well is @ 7746, the "Marker Sand" @ 7762, the "W" Sand @ 7840, the "Y" Sand @ 7922, and the "Z" Sand @ 7998.

These reservoir sands are best characterized as thinly bedded sandstones and siltstones deposited within a submarine fan complex where the reservoir quality rock is contained within stacked channel sandstone sequences developed within incomplete turbidite sequences.

At this time it is believed that porosity enhancement in these sands within the proposed participating area is due to draping of the intervals across subtle NW-SE structural nosing. It is also felt that the paleotopographic surface of the Bone Springs may have allowed for optimum reservoir quality sands to have been deposited within this area. Either way, the trapping mechanism is most probably stratigraphic to combination in style.

Although additional data is desired, it appears at this time that the porosity cut-off needed for commercial reservoir quality sand is 12% (sandstone porosity - 2.66 gm/cc). It is also believed that 10'-15' of reservoir quality sand is required for commercial production. It must be emphasized that sand in the 10%-12% porosity range appears to also be oil-bearing and contributes significantly to each well's cumulative production due to the amount of rock within these intervals. In fact the H ( $\geq 10\%$  porosity) is approximately three times the H ( $\geq 12\%$  porosity) within the proposed participating area. In that context we believe we need to have 10-15' of rock w/ $\geq 12\%$  porosity (sandstone) for adequate permeability but also accept that this relates to a thick section of rock with porosity in the 10-12% porosity range (sandstone). Water saturations within the reservoir sands are typically  $\leq 60\%$ .

Finally, of note, is the fact that although perforations during completion may be limited to one sand they are selected such that when the well is frac'd, all the reservoir sands within the Lower Brushy Canyon thru Top of the Bone Spring interval contribute to the well's production.

Of additional interest is the fact that upon observing the initial production from the P.L.U. 78 (date of first production 9/5/93) and realizing the well would be commercial, we were then able to determine upon coring the reservoir sands in the P.L.U. 80 and upon examining the logs ran later on 9/29/93 that the P.L.U. 80 would also be commercial. An isopach of the reservoir interval as interpreted by the data from the P.L.U. 78 & 80 wells in 9/93 is attached. Also attached is a cross section for the PLU 78 & 80, illustrating the continuity of the reservoir sands, and a chronology of data supporting the fact that upon coring and logging the PLU 80, it was known that the well was analogous to the PLU 78.

Poker Lake Unit Outline

R 30 E

R 31 E

24

19

T  
24  
S

25

30

Hill, et al  
Bass-Fed.  
4201'

Net Sand Isopach  
**LOWER BRUSHY CANYON**  
(Porosity cut-off = 12% sst)  
C.I. = 5'

Bass Enterprises Production Co.

**POKER LAKE UNIT**  
Eddy County, New Mexico

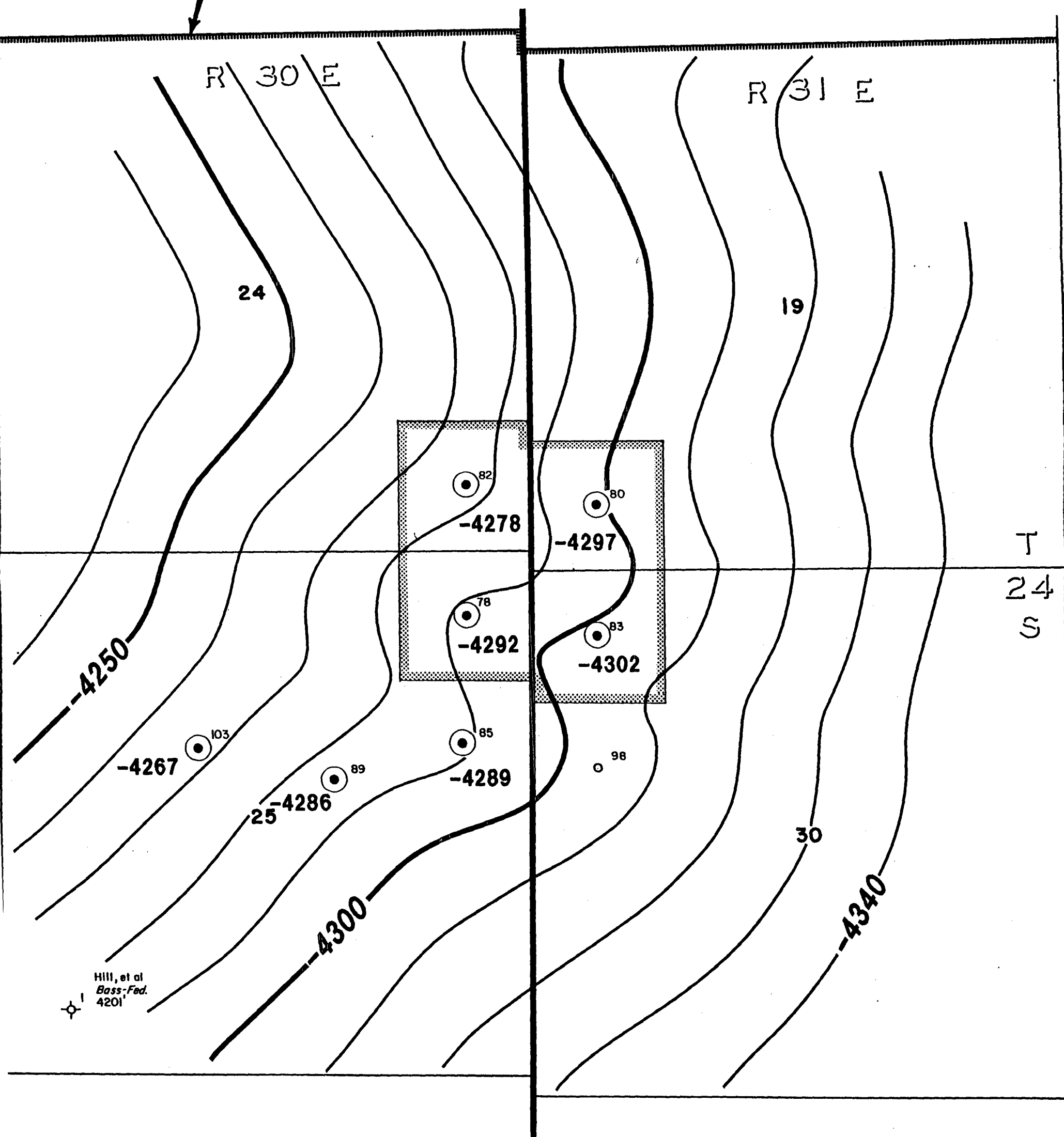
 Proposed Participating Area

SCALE IN FT. 0 1000 2000

8/84



Poker Lake Unit Outline



Structure Map  
TOP LOWER BRUSHY CANYON  
C.I. = 10'

Bass Enterprises Production Co.

**POKER LAKE UNIT**  
Eddy County, New Mexico

Proposed Participating Area

SCALE IN FT. 0 1000 2000

8/94



RAY POWELL, M.S., D.V.M.  
COMMISSIONER

State of New Mexico  
Commissioner of Public Lands

310 OLD SANTA FE TRAIL P.O. BOX 1148

SANTA FE, NEW MEXICO 87504-1148

(505) 827-5760  
FAX (505) 827-5766

September 28, 1994

Bass Enterprises Production Co.  
201 Main Street  
Fort Worth, Texas 76102-3131

Attn: Mr. J. Wayne Bailey

Re: Poker Lake Unit  
Initial Delaware "B" Participating Area  
NE/4NE/4 Sec. 25-24S-30E  
Eddy County, New Mexico

Dear Mr. Bailey:

This office is in receipt of your letter application of September 14, 1994 requesting approval of the Initial Delaware "B" Participating Area for the Poker Lake Unit, Eddy County, New Mexico.

The Bureau of Land Management has advised this office of their approval to the Initial Delaware "B" Participating Area by their letter of September 15, 1994.

The Commissioner of Public Lands concurs with Bass Enterprises and the Bureau of Land Management that the Poker Lake Unit Well No. 78 located in the NE/4NE/4 Sec. 25-24S-30E is a commercial well pursuant to section 9 of the unit agreement.

Please be advised that the Commissioner of Public Lands concurs with the Bureau of Land Management and has also this date approved the Initial Delaware "B" Participating Area effective September 5, 1993.


The Initial Delaware Participating Area contains 40.00 Acres described as the NE/4NE/4, Section 25-24S-30E.

Bass Enterprises Production Co.  
September 27, 1994  
Page 2

If you have any questions, or if we may be of further help, please contact Pete Martinez at (505) 827-5791.

Very truly yours,

RAY POWELL, M.S., D.V.M.  
COMMISSIONER OF PUBLIC LANDS

BY:   
FLOYD O. PRANDO, Director  
Oil/Gas and Minerals Division  
(505) 827-5744

RP/FOP/pm

cc: Reader File  
BLM-Roswell Attn: John S. Simitz  
OCD-Santa Fe Attn: Mr. Roy Johnson  
TRD-Santa Fe Attn: Mr. Mike Holden



RAY POWELL, M.S., D.V.M.  
COMMISSIONER

State of New Mexico  
Commissioner of Public Lands

310 OLD SANTA FE TRAIL P.O. BOX 1148

SANTA FE, NEW MEXICO 87504-1148

(505) 827-5760  
FAX (505) 827-5766

September 28, 1994

Bass Enterprises Production Co.  
201 Main Street  
Fort Worth, Texas 76102-3131

Attn: Mr. J. Wayne Bailey

Re: Poker Lake Unit  
First Revision of Delaware "B" Participating Area  
Eddy County, New Mexico

Dear Mr. Bailey:

This office is in receipt of your letter application of September 14, 1994 requesting approval of the First Revision to the Delaware "B" Participating Area for the Poker Lake Unit, Eddy County, New Mexico.

The Bureau of Land Management has advised this office of their approval to the First Revision to the Delaware "B" Participating Area by their letter of September 15, 1994.

The Commissioner of Public Lands concurs with Bass Enterprises and the Bureau of Land Management that the Poker Lake Unit Well Nos. 80, 82 and 83 are commercial wells pursuant to section 9 of the unit agreement.

Please be advised that the Commissioner of Public Lands concurs with the Bureau of Land Management and has also this date approved the Initial Delaware "B" Participating Area effective September 5, 1993.

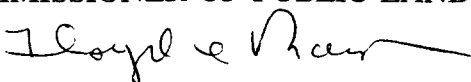
The First Revision of the Delaware Participating Area contains 124.90 acres described as the SE/4SE/4 Sec. 24 Township 24S Range 30 East, SW/4SW/4 Sec. 19 and the NW/4NW/4 Sec. 30, Township 24 South Range 31 East.

Bass Enterprises Production Co.  
September 28, 1994  
Page 2

If you have any questions, or if we may be of further help, please contact Pete Martinez at (505) 827-5791.

Very truly yours,

RAY POWELL, M.S., D.V.M.  
COMMISSIONER OF PUBLIC LANDS

BY: 

FLOYD O. PRANDO, Director  
Oil/Gas and Minerals Division  
(505) 827-5744

RP/FOP/pm

cc: Reader File

BLM-Roswell Attn: John S. Simitz

~~OCD-Santa Fe Attn: Mr. Roy Johnson~~

TRD-Santa Fe Attn: Mr. Mike Holden