

COMPANY PRESTON OIL COMPANY FIELD GRANNIES CREEK FILE CP-1-7498  
 WELL B. G. S. GEARY NO. 2078 COUNTY CLAY DATE 11-12-71  
 LOCATION \_\_\_\_\_ STATE WEST VIRGINIA ELEV. \_\_\_\_\_

# CORE-GAMMA CORRELATION

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VERTICAL SCALE: 5" = 100'

## CORE-GAMMA SURFACE LOG (PATENT APPLIED FOR)

GAMMA RAY  
RADIATION INCREASE  
→

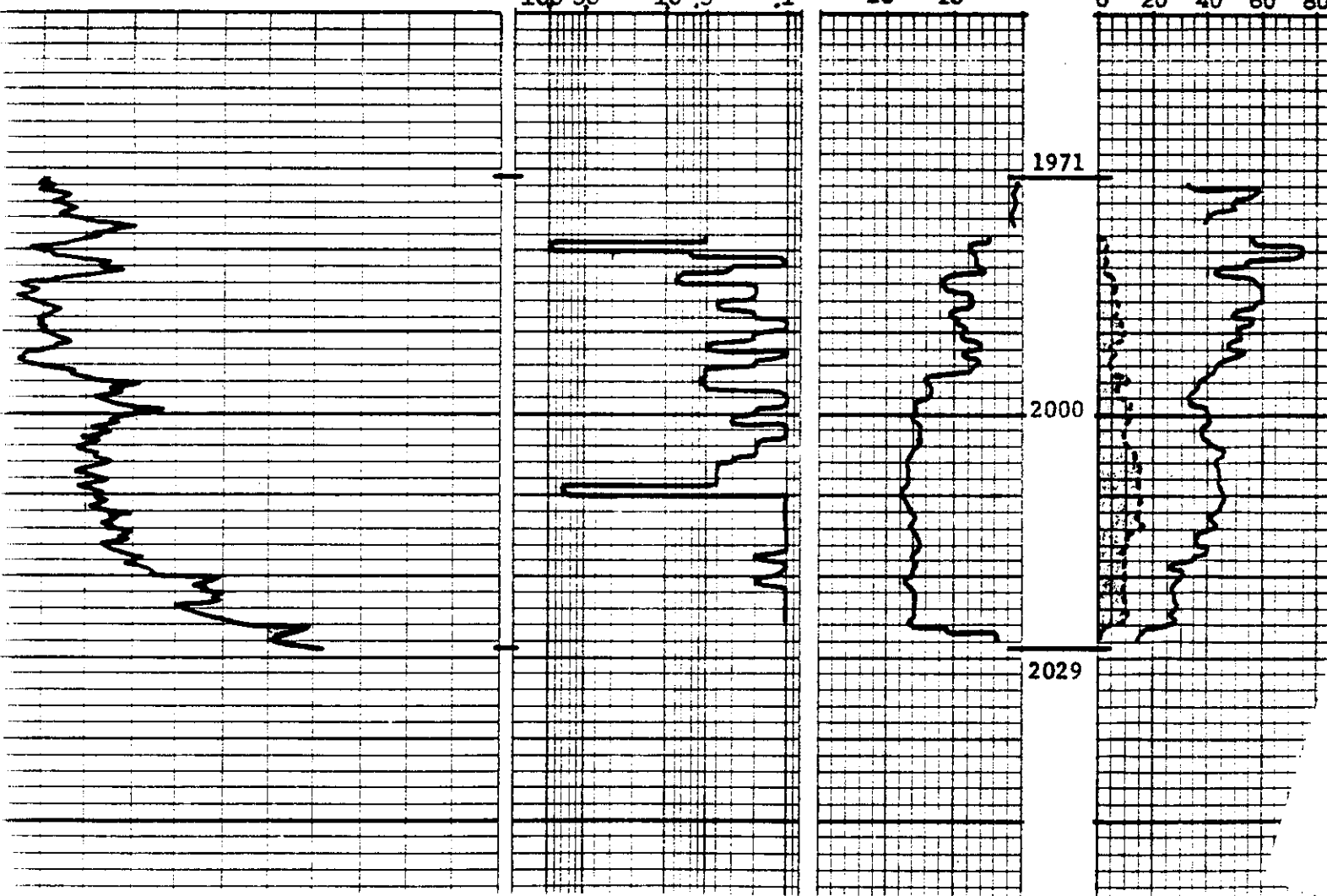
## COREGRAPH

TOTAL WATER \_\_\_\_\_  
PERCENT TOTAL WATER  
80 60 40 20

PERMEABILITY \_\_\_\_\_  
MILLIDARCS  
100 50 10 5 .1

POROSITY \_\_\_\_\_  
PERCENT  
20 10

OIL SATURATION -----  
PERCENT PORE SPACE  
0 20 40 60 80



**CORE LABORATORIES, INC.**  
*Petroleum Reservoir Engineering*  
**DALLAS, TEXAS**

November 12, 1971

REPLY TO  
8 N. W. 42ND ST.  
OKLAHOMA CITY, OKLA.  
73118

Preston Oil Company  
P. O. Box 2319  
Columbus, Ohio 43200

Attn: Mr. Bill Conner

Subject: Core Analysis Data  
B. G. S. Geary No. 2078 Well  
Grannies Creek Field  
Clay County, West Virginia  
CLI File No. CP-1-7498

Gentlemen:

Diamond cores were received via air freight from the subject well at the Oklahoma City laboratory from the interval 1971 to 2029 feet.

A Core Gamma Surface Log was recorded over the cored interval received and is presented on the accompanying Coregraph along with a graphical presentation of the whole core analysis data.

Limestone from 1971 to 1977 feet has poor permeability and porosity development and offers no productive potential to this well.

Low permeability and porosity is measured within the conglomeritic sand interval between 1978 and 1995 feet, along with lower than normal residual oil values.

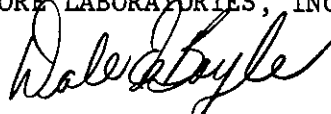
Silty sand analyzed from 1995 to 2026 feet has residual fluid saturations indicative of oil productivity.

Average core analysis data along with calculated oil in place values are presented on the core summary page.

We appreciate this opportunity of serving you.

Yours very truly,

CORE LABORATORIES, INC.



Dale E. Boyle,  
Lab Supervisor

DEB:sh  
10cc: Addressee

**CORE SUMMARY AND CALCULATED RECOVERABLE OIL**

FORMATION NAME AND DEPTH INTERVAL: Big Injun 1978-1995'			
FEET OF CORE RECOVERED FROM ABOVE INTERVAL	17	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	45.8
FEET OF CORE INCLUDED IN AVERAGES	17	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE (e)	37
AVERAGE PERMEABILITY: MILLIDARCYs	MAX. 0.9 90° 0.8	OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	15	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	8.2	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL (e)	1.2
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	5.4	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	334

Calculated maximum solution gas drive recovery is \_\_\_\_\_ barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is \_\_\_\_\_ barrels per acre-foot, assuming full maintenance of original reservoir pressure, 100% areal and vertical coverage, and continuation of production to 100% water cut. (Please refer to footnotes for further discussion of recovery estimates.)

FORMATION NAME AND DEPTH INTERVAL: Big Injun 1995-2026'			
FEET OF CORE RECOVERED FROM ABOVE INTERVAL	31	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	63.4
FEET OF CORE INCLUDED IN AVERAGES	31	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE (e)	50.0
AVERAGE PERMEABILITY: MILLIDARCYs	MAX. 0.4 90° 0.3	OIL GRAVITY: °API	
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	12	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	
AVERAGE POROSITY: PER CENT	15.8	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL (e)	1.2
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	11.1	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	359

Calculated maximum solution gas drive recovery is \_\_\_\_\_ barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is \_\_\_\_\_ barrels per acre-foot, assuming full maintenance of original reservoir pressure, 100% areal and vertical coverage, and continuation of production to 100% water cut. (Please refer to footnotes for further discussion of recovery estimates.)

(c) Calculated (e) Estimated (m) Measured (\*) Refer to attached letter.

These recovery estimates represent theoretical maximum values for solution gas and water drive. They assume that production is started at original reservoir pressure; i.e., no account is taken of production to date or of prior drainage to other areas. The effects of factors tending to reduce actual ultimate recovery, such as economic limits on oil production rates, gas-oil ratios, or water-oil ratios, have not been taken into account. Neither have factors been considered which may result in actual recovery intermediate between solution gas and complete water drive recoveries, such as gas cap expansion, gravity drainage, or partial water drive. Detailed predictions of ultimate oil recovery to specific abandonment conditions may be made in an engineering study.

#932

**CORE ANALYSIS RESULTS**

Company PRESTON OIL COMPANY Formation BIG INJUN File CP-1-7498  
 Well B. G. S. GEARY NO. 2078 Core Type DIAMOND Date Report 11-2-71  
 Field GRANNIES CREEK Drilling Fluid WATER BASE MUD Analysts BOYLE  
 County CLAY State W. VA. Elev. \_\_\_\_\_ Location \_\_\_\_\_

**Lithological Abbreviations**

SAND-SD SHALE-SH LIME-LM	DOLOMITE-DBL CHERT-CH GYPSUM-GYP	ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS	SANDY-SBY SHALY-SHY LIMY-LMY	FINE-FN MEDIUM-MED COARSE-CSE	CRYSTALLINE-XLN GRAIN-GRN GRANULAR-GRNL	BROWN-SBN GRAY-GY YUGGY-VEY	FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY	SLIGHTLY-SL VERT-V/ WITH-W/
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SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCS		POROSITY PER CENT CC31	RESIDUAL SATURATION PER CENT PORE		VERT. PERM.	SAMPLE DESCRIPTION AND REMARKS
		PERM-MAX. CC11	PERM-90° CC22		OIL	TOTAL WATER		
<b>WHOLE CORE ANALYSIS DATA</b>								
1	1971-72	∅.1	∅.1	0.6	0.0	66.7	∅.1	Lm
2	72-73	∅.1	∅.1	1.0	0.0	40.9	∅.1	Lm, sl/shy
3	73-74	∅.1	∅.1	0.9	0.0	51.2	∅.1	Lm, sl/shy
4	74-75	∅.1	∅.1	1.2	0.0	50.4	∅.1	Lm, sl/shy
5	75-76	∅.1	∅.1	1.3	0.0	60.0	∅.1	Lm
6	76-77	∅.1	∅.1	1.3	0.0	61.3	∅.1	Lm, sl/shy
	77-78							Shale
7	78-79	0.5	0.4	5.1	2.3	43.2	0.1	Sd, sl/lmy, sh stks
8	79-80	9.4	8.6	7.9	2.9	26.5	0.7	Sd, sl/lmy, sl/congl
9	80-81	0.7	0.7	7.3	2.4	26.2	0.3	Sd, sl/lmy, sl/congl
10	81-82	0.1	∅.1	6.6	2.5	47.5	∅.1	Sd, sl/lmy, sh stks
11	82-83	0.3	0.2	5.9	2.3	56.8	∅.1	Sd, sl/lmy, shy, w/sh stks, congl
12	83-84	0.9	0.8	11.9	6.3	43.8	∅.1	Sd, sl/congl
13	84-85	0.2	0.2	11.2	6.3	40.6	∅.1	Sd
14	85-86	0.2	0.1	7.5	5.7	40.0	∅.1	Sd, sl/congl
15	86-87	0.4	0.3	7.6	7.4	44.4	0.6	Sd, sl/congl
16	87-88	0.2	0.1	10.7	6.5	51.6	∅.1	Sd, silty, sl/congl
17	88-89	0.1	0.1	9.7	8.1	43.2	∅.1	Sd, sl/silty, sl/congl
18	89-90	0.1	0.1	8.6	9.4	50.0	∅.1	Sd, sl/silty, sl/congl
19	90-91	0.2	0.1	9.1	8.0	48.0	∅.1	Sd, sl/lmy, sl/congl
20	91-92	0.5	0.5	6.1	4.5	54.5	0.4	Sd, sl/lmy, sl/congl
21	92-93	0.1	0.1	9.3	5.9	47.1	0.2	Sd, sl/lmy
22	93-94	0.2	0.2	6.5	4.8	57.1	∅.1	Sd, sl/lmy, sl/congl
23	94-95	0.5	0.4	7.7	6.0	58.0	0.3	Sd, sl/lmy, sl/congl
24	95-96	0.6	0.4	14.6	10.2	64.4	∅.1	Sd, silty
25	96-97	0.5	0.4	13.6	6.4	63.8	∅.1	Sd, silty, sl/congl
26	97-98	0.1	0.1	13.6	7.3	68.3	∅.1	Sd, silty
27	98-99	0.1	0.1	15.4	11.1	66.7	∅.1	Sd, silty
28	1999-00	0.2	0.2	15.9	10.7	60.0	∅.1	Sd, silty
29	2000-01	0.3	0.2	16.0	10.9	59.4	∅.1	Sd, silty
30	01-02	0.1	0.1	14.7	10.0	63.3	∅.1	Sd, silty
31	02-03	0.1	0.1	15.0	9.8	62.7	∅.1	Sd, silty
32	03-04	0.2	0.1	15.0	9.3	59.3	∅.1	Sd, silty
33	04-05	0.2	0.2	16.0	12.9	54.8	∅.1	Sd, silty
34	05-06	0.3	0.3	16.7	13.8	58.6	∅.1	Sd, silty
35	06-07	0.4	0.3	16.7	15.2	56.5	0.2	Sd, silty
36	07-08	0.4	0.3	16.8	14.1	56.3	0.3	Sd, silty
37	08-09	0.4	0.4	17.0	15.0	56.3	0.2	Sd, silty
38	09-10	8.0	3.9	17.8	14.6	54.9	0.5	Sd, silty
39	2010-11	0.1	0.1	17.3	15.6	54.7	∅.1	Sd, silty

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CORE LABORATORIES, INC.  
 Petroleum Reservoir Engineering  
 DALLAS, TEXAS

File CP-1-7498 Page No. 2  
 Well B. G. S. Geary No. 2078

## CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCS		POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		VERT. PERM	SAMPLE DESCRIPTION AND REMARKS
		MAX	90°		OIL	TOTAL WATER		
40	2011-12	0.1	0.1	16.6	14.3	55.1	0.1	Sd, silty
41	12-13	0.1	0.1	15.8	14.0	59.6	0.1	Sd, silty
42	13-14	0.1	0.1	16.3	15.2	57.0	0.1	Sd, silty
43	14-15	0.1	0.1	15.9	10.4	63.6	0.1	Sd, silty
44	15-16	0.1	0.1	14.9	10.2	64.4	0.1	Sd, silty
45	16-17	0.1	0.1	15.0	9.2	60.0	0.1	Sd, silty
46	17-18	0.2	0.1	16.1	9.9	66.2	0.1	Sd, silty
47	18-19	0.1	0.1	15.4	8.7	73.9	0.1	Sd, silty
48	19-20	0.1	0.1	16.0	9.3	69.8	0.1	Sd, silty
49	20-21	0.2	0.1	16.9	9.1	72.7	0.1	Sd, silty
50	21-22	0.1	0.1	16.1	8.3	73.3	0.1	Sd, silty
51	22-23	0.1	0.1	15.7	9.1	72.7	0.1	Sd, silty
52	23-24	0.1	0.1	15.7	10.0	71.7	0.1	Sd, silty
53	24-25	0.1	0.1	15.7	10.3	74.4	0.1	Sd, silty
54	25-26	0.1	0.1	16.1	7.8	72.5	0.1	Sd, silty
55	26-27	0.1*	0.1*	10.3	2.1	83.3	0.1	Sd, v/silty
56	27-28	0.1*	0.1*	3.6	0.0	85.7	0.1	Sd, chy, v/silty
	2028-29							Shale

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