CL-0002

CORE ANALYSIS REPORT

FOR

STERLING DRILLING COMPANY

BAINUN NO. 1-12 WELL

RENO COUNTY, KANSAS

Western Atlas International
A Litton/Dresser Company

CORE LABORATORIES

Western Atlas International
A Litton/Dresser Company

CORE LABORATORIES

September 13, 1993

STERLING DRILLING COMPANY
P. O. Box 129
Sterling, Kansas 67579

Attn: Mr. Steve McClain

Subject: Core Analysis Data
Bainun No. 1-12 Well
Mississippi Chat
Reno County, Kansas
CL File 57182-13681

Dear Mr. McClain:

Core taken in the subject well from the Mississippi Chat formation was received at the Oklahoma City laboratory for analytical testing described on the procedure page.

The accompanying Coregraph presents the Surface Core Gamma-Log and binomially averaged core analysis data in graphical form to aid correlation with downhole electrical surveys.

Tabular presentation of the measured physical properties is presented on page FINAL REPORT 1-1.

A statistical summary of the data and a cross-plot of porosity versus permeability is included.

It is a pleasure to have this opportunity of serving you. Should you have questions regarding these data call (405) 946-5422.

Very truly yours,

Core Laboratories, a division of
WESTERN ATLAS INTERNATIONAL, INCORPORATED

Lynn Antwine
Senior Laboratory Supervisor

CORE LABORATORIES

Company : STERLING DRILLING COMPANY
Well : BAINUN NO. 1-12 WELL

Field :
Formation : MISSISSIPPI CHAT

File No.: 57182-13681
Date : 13-SEP-1993

ANALYTICAL PROCEDURES AND QUALITY ASSURANCE

HANDLING & CLEANING

Core Transportation	: Core Laboratories Vehicle
Solvent	: Toluene
Extraction Equipment	: Dean Stark Apparatus
Extraction Time	: 24 Hours
Drying Equipment	: Convection Oven
Drying Time	: 48 Hours
Drying Temperature	: 250 Deg.F.

ANALYSIS

Pore volume measured by Boyle's Law in a Hassler holder using He
Grain volume measured by Boyle's Law in a matrix cup using He
Bulk volume by Archimedes Principle
Water saturations by Dean Stark
Oil saturations by weight difference in Dean Stark
Core Gamma Composite
Dean Stark grain densities clean, dry solid mineral phase are measured

REMARKS

Air permeability measured in two horizontal directions--not Klinkenberg corrected.
A Surface Core Gamma-Log was recorded to aid correlation with downhole electrical surveys.
The core is temporarily stored in Core Laboratories' Oklahoma City laboratory for a period of thirty days without additional charge.
Please notify us as to disposition of the core within thirty days from date of this report to avoid storage charges of $15.00 per month.

CORE LABORATORIES

Company : STERLING DRILLING COMPANY
Well : BAINUN NO. 1-12 WELL
Location : SEC 12, T25S; R9W
Co,State : RENO COUNTY, KANSAS

Field :
Formation : MISSISSIPPI CHAT
Coring Fluid : WATER BASE MUD
Elevation :

File No.: 57182-13681
Date : 13-SEP-1993
API No. :
Analysts: SB/DF/LA

C O R E A N A L Y S I S R E S U L T S

SAMPLE NUMBER		DEPTH ft	PERMEABILITY (MAXIMUM) (Kair) md	PERMEABILITY (90 DEG.) (Kair) md	POROSITY (BOYLE'S LAW) (Helium) %	SATURATION (PORE VOLUME) (Oil) %	SATURATION (PORE VOLUME) (Water) %	GRAIN DENSITY (Measured) gm/cc	DESCRIPTION
FULL DIAMETER DEAN STARK ANALYSIS									
		3840.0 - 3842.0 - No Analysis - Cht tn/gry slily sh wthd slily frac Tr foss							
#	1	3842.0- 43.0	56.0	42.0	23.0	5.6	84.6	2.66	Cht tn/gry sh wthd brec frac
*	2	3843.0- 44.0		75.0	39.0	20.6	23.2	2.60	Cht tn oomol Qtz ovgth
#	3	3844.0- 45.0	146.	133.	22.0	3.5	89.6	2.70	Cht tn/gry sh whtd brec frac Tr Pyr
		3845.0 - 3846.0 - No Analysis - Cht tn/wht wthd Vert Frac							
#	4	3846.0- 47.0	61.0	13.0	17.6	4.2	72.9	2.62	Cht tn/wht slily sh wthd brec frac pp
		3847.0 - 3848.0 - No Analysis - Cht tn/wht slily whtd frac							
*	5	3848.0- 49.0		0.04	21.4	5.8	74.7	2.62	Cht wht wthd frac
		3849.0 - 3850.0 - No Analysis - Cht tn/wht frac							

\# =Permeability measurement enhanced by shale partings.

* =Plug Analysis

CORE LABORATORIES

Company : STERLING DRILLING COMPANY
Well : BAINUN NO. 1-12 WELL
Field :
Formation : MISS CHAT
File No.: 57182-13681
Date : 13-SEP-1993

TABLE I

SUMMARY OF CORE DATA

ZONE AND CUTOFF DATA

ZONE:
- Identification -------- MISS CHAT
- Top Depth ---------- 3840.0 ft
- Bottom Depth ---------- 3850.0 ft
- Number of Samples -------- 5

DATA TYPE:
- Porosity ------ (BOYLE'S LAW) (Helium)
- Permeability ---------- (E - W) (Kair)

CUTOFFS:

Porosity (Minimum) -------	0.0	%
Porosity (Maximum) -------	100.0	%
Permeability (Minimum) ---	0.0100	md
Permeability (Maximum) ---	100000.	md
Water Saturation (Maximum)	100.0	%
Oil Saturation (Minimum) -	0.0	%
Grain Density (Minimum) --	2.00	gm/cc
Grain Density (Maximum) --	3.00	gm/cc
Lithology Excluded -------	NONE	

CHARACTERISTICS REMAINING AFTER CUTOFFS

ZONE:

Number of Samples -----	5	
Thickness Represented -	5.0	ft

POROSITY:

Storage Capacity ------	123.0	ϕ-ft
Arithmetic Average ----	24.6	%
Minimum ----------	17.6	%
Maximum ----------	39.0	%
Median ----------	22.0	%
Standard Deviation ----	±8.3	%

GRAIN DENSITY:

Arithmetic Average ----	2.64	gm/cc
Minimum ----------	2.60	gm/cc
Maximum ----------	2.70	gm/cc
Median ----------	2.62	gm/cc
Standard Deviation ----	±0.04	gm/cc

PERMEABILITY:

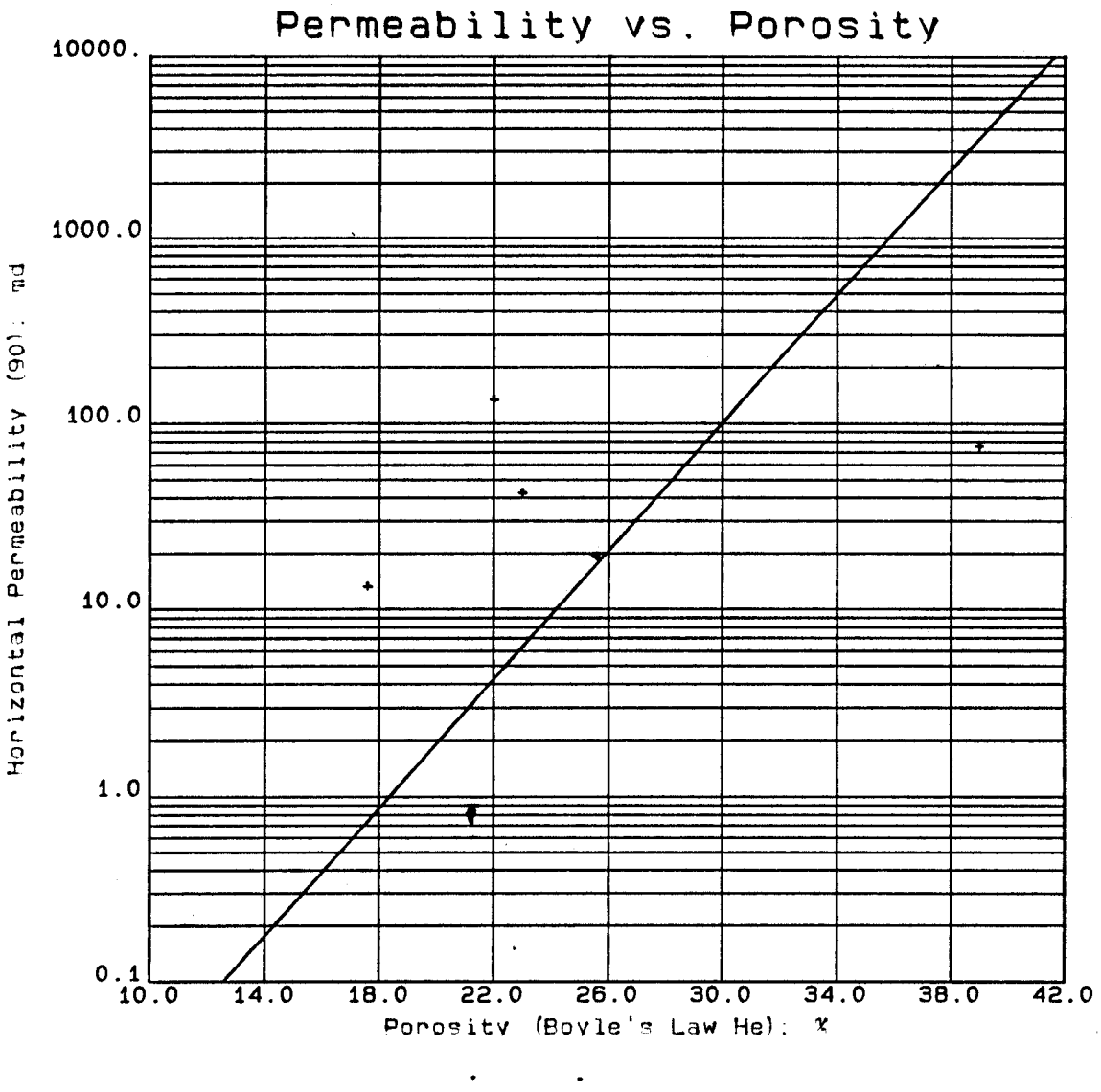
Flow Capacity ---------	263.0	md-ft
Arithmetic Average ----	52.6	md
Geometric Average -----	11.7	md
Harmonic Average ------	0.20	md
Minimum ----------	0.04	md
Maximum ----------	133.	md
Median ----------	42.0	md
Standard Dev. (Geom) --	$K \cdot 10^{\pm 1.428}$	md

HETEROGENEITY (Permeability):

Dykstra-Parsons Var. --	0.796	
Lorenz Coefficient ----	0.495	

AVERAGE SATURATIONS (Pore Volume):

Oil ----------	9.8	%
Water ----------	62.6	%



STERLING DRILLING COMPANY
BAINUN NO. 1-12 WELL
RENO COUNTY, KANSAS

MISSISSIPPI CHAT (3840-3850 feet)

Core Laboratories 13-Sep-1993

- LEGEND -
MISS CHAT

DISTRIBUTION OF FINAL REPORT

STERLING DRILLING COMPANY
Bainun No. 1-12 Well
Reno County, Kansas
CL File 57182-13681

3 cc: **STERLING DRILLING COMPANY**
P. O. Box 129
Sterling, Kansas 67579

Attention: Mr. Steve McClain

CORRELATION COREGRAPH

STERLING DRILLING COMPANY

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MISSISSIPPI CHAT (3840-3850 feet)

Core Laboratories 13-Sep-1993

Vertical Scale
5.00 in = 100.0 ft