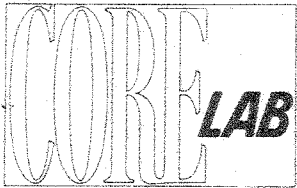


Data to be released Sept. 27, 1984



CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

COMPANY	AMOCO PRODUCTION COMPANY	FILE NO.	RP-2-6923
WELL	CRIST NO. 3	DATE	8-2-82
FIELD		FORMATION	
COUNTY		STATE	
LOCATION		DRLG. FLD.	
		ELEV.	
		CORES	

CORRELATION COREGRAPH

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc., (all errors or omissions excepted); but Core Laboratories, Inc., and its officers and employees, assume no responsibility and make no warranty or representations as to the productivity, proper operation, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

VERTICAL SCALE: 5" = 100'

Total Water

PERCENT PORE SPACE

100 80 60 40 20 0

Gamma Ray

RADIATION INCREASE

Permeability

MILLIDARCIES

Porosity

PERCENT

Oil Saturation

PERCENT PORE SPACE

100 10 1.0 .1

Depth Feet

30 20 10

0 0 20 40 60 80 100

4680

4700

4729

Kansas Cores

PETROLEUM RESERVOIR ENGINEERING
WICHITA, KANSAS

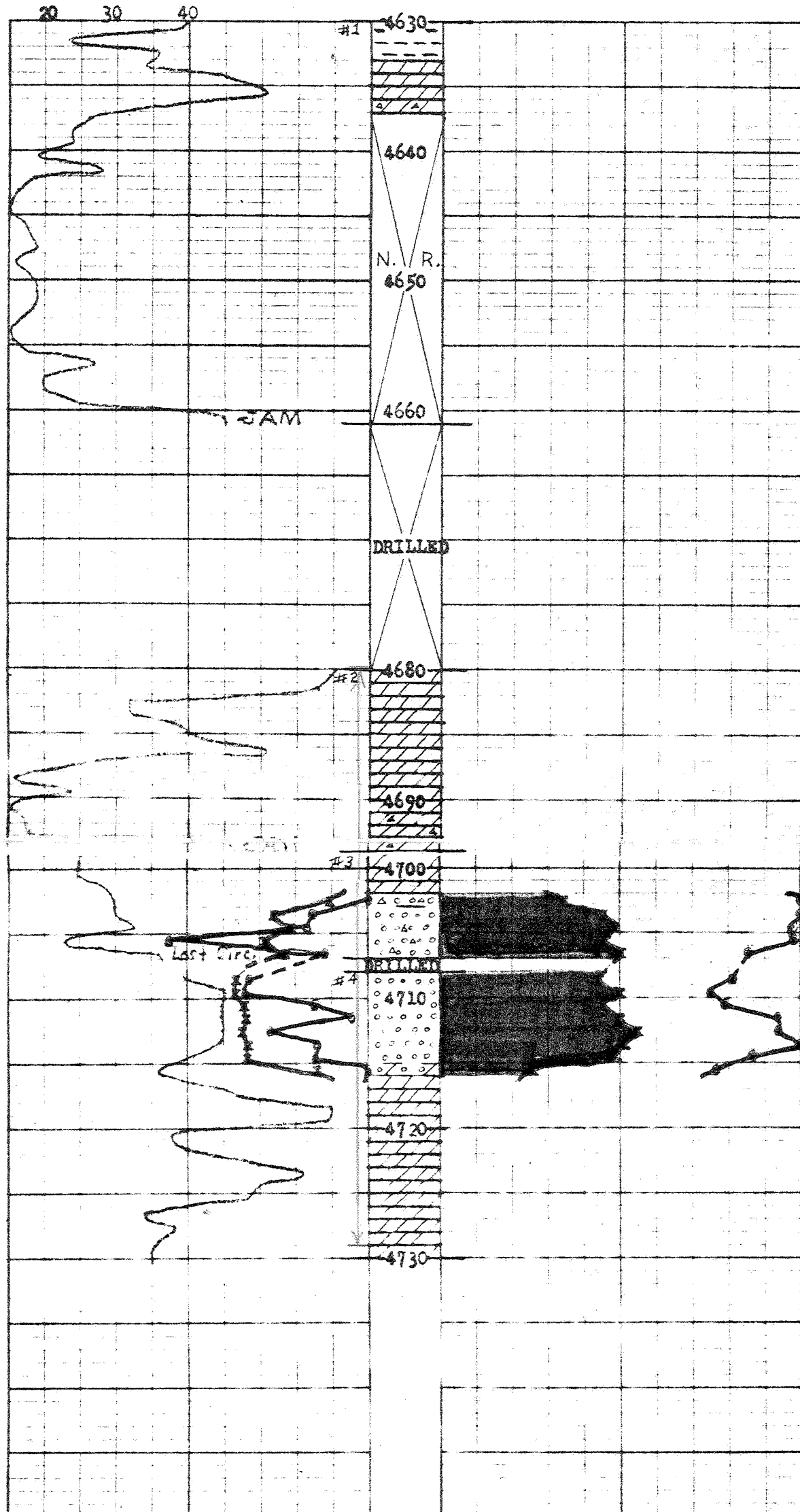
COMPANY Maurice L. Brown DATE 7-6-74
WELL R. Crist #3 CNE SE 31-21-33W ANALYST IS
FIELD _____
COUNTY Finney STATE Kansas ELEVATION: Ground 2895'

The analyses and interpretations are based on material brought to Kansas Cores by the client, and such data and interpretations are accessible only to that company which the client represents. Kansas Cores makes no warranty and makes no guarantee for the interpretations and opinions of the data. Our opinions of an analysis are placed at the discretion of the operator.

PERMEABILITY MILLIDARCYS $\bigcirc$ — $\bigcirc$

CONNATE WATER % SATURATION

POROSITY—% $\times$ — $\times$
CORING TIME MIN/FT
OIL % PORE SATURATION $\times$ — $\times$



Kansas Cores

PETROLEUM RESERVOIR ENGINEERING

CORE ANALYSIS

July 6, 1974

1026 NORTH LIGHTNER
WICHITA, KANSAS 67208

Re: CORE ANALYSIS REPORT
Maurice L. Brown
R. Crist #3
Finney County
Kansas

Maurice L. Brown
Vickers-KSBT Bldg.
Wichita, Kansas

Gentlemen:

The cores from your well, R. Crist #3, Finney County, Kansas have been analysed for permeability, porosity, and residual saturation of oil and water. The data will be found tabulated on the following pages and indicated on the coregraph. The data averages and recovery figures will be found at the end of this report.

The following is a short discussion of the section cored and analysed.

4703' to 4715' - Oil Productive

This section in the Mississippian formation was composed mainly of a finely oolitic limestone with some fresh chert and some fine crystalline limestone throughout. Good permeabilities and fair porosities were measured. Very good oil saturation and waters well in line for water-free production was also measured. It is noted here that the vertical permeabilities were greater than the horizontal in the zone where lost circulation occurred, from 2705-09'. A good, commercial well can be expected from this section.

Yours very truly,

KANSAS CORES

Ivan L. Stuber
Ivan L. Stuber

Attachments

cc: 6 copies to Maurice L. Brown, Wichita, Kansas

Re: CORE DESCRIPTION
Maurice L. Brown
R. Crist #3
Finney County, Ks.

CORE #1 4630' to 4661' Cut 31' Rec. 7'

4630--33 Soft slightly rotten dark grey-black shale

4633--37 Hard white fine crystalline limestone with traces shale laminations,
some fresh dark grey-black chert bottom: No show

CORE #2 4680' to 4694' Cut 14' Rec. 14'

4680--94 Dense light to medium grey limestone becoming slightly sandy and more
fine crystalline toward bottom, light grey to white bottom, some fresh
dark grey & blue-grey chert toward bottom: No show

CORE #3 4694' to 4707' Cut 13' Rec. 13'

4694--95 Dense grey limestone & cherty limestone, trace chert bands: No show

4695--97 Very fine crystalline to slightly sandy light grey limestone: No show

4697--4701 Hard very finely crystalline light grey limestone, vertically fractured
with fractures more open top 1', well closed bottom: Bleeding some oil
from fractures, lost circulation material noticed in top 1' fracture

4701--02½ Hard fine crystalline light grey limestone: No show

4702½-03 Hard very finely oolitic to fine crystalline limestone with much fresh
light to dark grey & blue chert: Good stain & odor in limestone

4703--07 Finely oolitic to some medium crystalline limestone, traces chert
bands: Good stain and odor, bleeding some oil

CORE #4 4708½ to 4730' Cut 22' Rec. 22'

4708--12 Soft fine to medium oolitic limestone with few dense dark grey limestone
inclusions, some fine crystalline limestone throughout: Good stain and
odor, bleeding some oil

4712--15 Oolitic limestone, slightly larger than above, with few bands of light
grey to white hard very finely oolitic limestone, stylolitic in part:
Good stain and odor, streaked bleeding some oil

4715--15½ Very hard light grey fine crystalline limestone with few streaks of hard
very finely oolitic limestone: Streaked stain & bleeding oil

4715½-30 Very hard dense medium to dark grey limestone with few thin dark grey
shale laminations & streaks throughout: No show

Kansas Cores

PETROLEUM RESERVOIR ENGINEERING
WICHITA, KANSAS 67208

WELL R. Crist #3 COUNTY Finney STATE Kansas
COMPANY Maurice L. Brown DATE 7-6-74 FILE NO. 8-1216
FIELD _____ TYPE CORES Diamond ANALYST IS

ANALYSIS DATA AND INTERPRETATIONS

SAMPLE No.	DEPTH	PERMEABILITY MILLIDARCYs		POROSITY %	SATURATION WATER % PORE SPACE	SATURATION OIL % PORE SPACE	PROBABLE PRODUCTION	REMARKS
		HORIZONTAL	VERTICAL					
1	4702	0.0	0.0	5.3	29.6	17.4	No Perm	
	03							
2	4703	165	130	13.0	23.8	22.9	Oil	
	04							
3	4704	180	84.6	10.7	30.5	24.6	Oil	
	05							
4	4705	565	590	14.4	30.3	23.9	Oil	
	06							
5	4706	110	145	11.6	37.6	25.1	Oil	
	07							
6	4708	330	520	13.8	39.4	22.2	Oil	
	09							
7	4709	350	100	12.5	42.4	25.0	Oil	
	10							
8	4710	150	140	12.0	40.4	22.3	Oil	
	11							
9	4711	53.8	22.7	11.8	33.4	25.1	Oil	
	12							
10	4712	280	9.6	12.4	33.3	27.4	Oil	
	13							
11	4713	145	79.5	11.7	26.8	25.7	Oil	
	14							
12	4714	150	39.7	11.8	36.6	24.4	Oil	
	15							
13	4715	0.0	0.0	7.3	41.6	13.9	No Perm	
	16							

Kansas Cores

PETROLEUM RESERVOIR ENGINEERING
WICHITA, KANSAS

DATA AVERAGES AND OIL RECOVERY FIGURES

DEPTH	4703'-4715' *			
FEET OF PRODUCTION FORMATION OF SECTION ANALYZED	12 *			
AVERAGE PERMEABILITY IN MILLIDARCYS	225			
AVERAGE POROSITY, PER CENT	12.3			
AVERAGE TOTAL WATER % OF PORE SPACE	34.0			
AVERAGE RESIDUAL OIL % OF PORE SPACE	24.4			
AVERAGE CONNATE WATER CALCULATED % OF PORE SPACE	27.2			
ESTIMATED FORMATION VOLUME FACTOR -- USED IN CALCULATING RECOVERABLE OIL	1.20			
PRODUCTIVE CAPACITY -- PRODUCTIVE FEET X AVERAGE PERMEABILITY IN MILLIDARCYS	2,479			
RECOVERABLE OIL BY WATER DRIVE -- BBLs. PER ACRE FOOT	261 **			
RECOVERABLE OIL BY GAS EXPANSION -- BBLs. PER ACRE FOOT	145 ***			

* Includes 1' drilled from 4707-08'

** 45% of the oil in place

*** 25% of the oil in place

3. M.L. Brown

C NE SE 31-21S-33W

#3 R. Crist

Mississippian 4680-4706; 4708-4730

Core Available In: 14 three-foot boxes

Condition: Whole Core

Coverage: Incomplete

Available Footage (By Box):

4680-83		4708-15½	Incomplete
4683-86		4715½-18½	
4686-89		4718½-21½	
4689-90	Missing	4721½-24½	
4690-93		4724½-27	
4693-96		4727-29	Missing
4696-99			
4699-4702			
4702-4706	Incomplete		

NOTES: Core samples (for Ø, k, Srw, Sro) taken at 1' intervals from 4702'-3' to 4715-16'; 5 samples from 4680'-4706'; 8 samples from 4708'-4730'; samples probably account for part of missing intervals.

M. L. Brown #3 R. Crust

4-18-83
A. Zeller

31 215 33W

4688. - Fine sand bed

4695.8 - Mostly layers of fine sand with few pockets of
oolitic - plectogypid - fossil mat. all extremely fine for
advance of the stage

4703. oolites, & P.S., no calcification advanced, no plectogypids or
almost insignificant to identify

4712. oolites, & plectogypids. Oolites, pressure not, stylolites
& oil? in them

4714. - Some oolites, algal blades, much recrystallization
P. kentuckyensis

4715.5 - Some oolites, finer grain size than below
conglomerate P. kentuckyensis Zone? only a couple other types Paramillarella
Millerella
corallina corallina???

4721. - Bioherms. Same as below

4728.5 - Chesteran P., Archaeosclerids, Plectogypids, bryz., Utricularia
Alga, alga? alga, Ammonites, broken pieces of coral.

M. L. Brown #8 Marine

4732 - Lag. fossils & oolites, much recrystallization. Stylolites full?
Poor preservation, but P. kentuckyensis & P. kentuckyensis.
4737.5 - oil

Quest #3

AMOCO PRODUCTION COMPANY
Tulsa, Oklahoma
February 22, 1983

83053ART0078

FILE: Technical Service 825370PS

TO: O. R. Hille, Denver Region

ATTN: C. W. Sawyer

SUBJECT: Calcareous Microfossil Identifications from Mississippian Core,
Hugoton Embayment, Southwestern Kansas.

Attached is a list of Mississippian calcareous microfossils identified by P. L. Brenckle from nine wells in the Hugoton area. The Kansas Geological Survey supplied all the core for this study with the provision that Amoco provide microfossil identifications for any material used. The enclosed list contains identifications only of literature taxa and no confidential Amoco paleo data are included. Transmission of the identifications to the Kansas Survey would be appropriate.

ERIC R. MICHAELIS

By *Charles F. Upshaw*
Charles F. Upshaw

PLB:sdg
Attachment

cc: J. A. Babcock
L. C. Babcock
W. S. Davis, Denver Region
H. R. Lane
A. R. Ormiston
J. W. Parks, Denver Region
R. W. Sherwood, Denver Region

<u>Sample (depth in ft)</u>	<u>Identification</u>
4742.5	<u>Endothyra</u> sp., <u>Earlandia elegans</u> gp.
4762	indet. Aoujgaliaceae, <u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis</u> sp., <u>Brunsia?</u> sp., <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Endothyra</u> sp., <u>Stacheoides meandriiformis</u> , <u>Eoendothyranopsis scitula?</u> , <u>Tubisalebrea</u> sp.

M. L. Brown Crist No. 3, 31-21S-33W, Finney Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4688	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> .
4695.8	indet. Endothyridae, indet. Aoujgaliaceae, <u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis?</u> sp. <u>Calcisphaera</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Globoendothyra?</u> sp.
4728.5	indet. Endothyridae, indet. Aoujgaliaceae, <u>Aoujgalia richi</u> , <u>Eoendothyranopsis</u> sp., <u>Brunsia?</u> sp., <u>Archaediscus</u> sp., <u>Eoendothyranopsis scitula</u> , <u>Koninckopora minuta/pruvosti</u> , <u>Endothyra obsoleta</u> .

M. L. Brown Crist No. 4R, 31-21S-33W, Finney Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4650.2	Barren
4656.8	indet. Endothyridae.
4661	indet. Endothyridae, indet. Aoujgaliaceae, <u>Nodosarchaediscus</u> sp., <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Endothyra</u> sp.
4672	indet. Endothyridae, <u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis</u> sp., <u>Endostaffella discoidea?</u> , <u>calcitornellid</u> , <u>Stacheoides</u> sp.
4712.5	indet. Palaeotextulariidae.
4716.9	<u>Archaediscus</u> sp., <u>Endothyra</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Globoendothyra</u> sp.
4721	<u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis</u> sp., <u>Planoarchaediscus</u> sp., indet. Salebriidae, <u>Archaediscus</u> sp., <u>Endothyra</u> sp., <u>Stacheoides</u> sp., <u>Kon-</u>

AMOCO PRODUCTION COMPANY
Tulsa, Oklahoma
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By Charles F. Upshaw
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Attachment

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W. S. Davis, Denver Region
H. R. Lane
A. R. Ormiston
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R. W. Sherwood, Denver Region

M. L. Brown Maune No. 9, 31-21S-33W, Finney Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4639-40	<u>Endothyra</u> sp., <u>Calcisphaera</u> sp., indet. <u>Aster-oarchaediscinae?</u> , <u>Nodosarchaediscus?</u> sp.
4644-45	<u>Endothyra</u> sp., <u>Pseudoammodiscus?</u> sp., <u>Calcisphaera</u> sp.
4650	<u>Endothyra</u> sp., indet. <u>Archaediscidae</u> , <u>Diplosphaerina</u> <u>inaequalis</u> , <u>Nodasperodiscus</u> sp.
4657	<u>Endothyra</u> sp., " <u>Stacheoides</u> " <u>spissa?</u> , indet. <u>Aoujgaliaceae</u> , <u>Stacheoides</u> sp., <u>Aoujgalia</u> <u>variabilis</u> , <u>Asphaltina?</u> <u>cordillerensis?</u>
4661-62	<u>Endothyra</u> sp., <u>Stacheoides</u> sp., <u>Koninckopora</u> <u>minuta/pruvosti</u> , <u>Tubisalebra?</u> sp., <u>Salebra</u> sp.
4668-69	Barren
4688-89	<u>Endothyra</u> sp., <u>Calcisphaera</u> sp., <u>Diplosphaerina</u> <u>inaequalis</u> .
4753-54	<u>Endothyra</u> sp., indet. <u>Aoujgaliaceae</u> , <u>Eoendothyranopsis</u> sp., <u>Diplosphaerina</u> <u>inaequalis</u> , <u>Stacheoides</u> sp., <u>Archaediscus</u> sp., <u>Nodararchaediscus</u> sp., <u>Stacheoides</u> <u>meandriiformis</u> , <u>Koninckopora</u> <u>minuta/pruvosti</u> , <u>Aoujgalia</u> <u>variabilis</u> , indet. <u>Salebridae</u> .

M. L. Brown Maune No. 11, 32-21S-33W, Finney Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4728	<u>Brunsia</u> sp., <u>Planoarchaediscus?</u> sp., <u>Archaediscus</u> sp., <u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Globoendothyra</u> sp., <u>Earlandia</u> <u>moderata</u> gp.
4735	<u>Diplosphaerina</u> <u>inaequalis</u> , <u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> <u>Globoendothyra</u> <u>piasae?</u> <u>Earlandia</u> <u>moderata</u> gp., <u>Earlandia</u> <u>vulgaris</u> gp., <u>Rectangulina</u> sp.
4737	<u>Eoendothyranopsis</u> sp., <u>Archaediscus</u> sp., <u>Endothyra</u> sp., <u>Stacheoides</u> <u>tenuis?</u>
4739	indet. <u>Aoujgaliaceae</u> , <u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Archaediscus</u> sp. <u>Endothyra</u> sp.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4742.5	<u>Endothyra</u> sp., <u>Earlandia elegans</u> gp.
4762	indet. Aoujgaliaceae, <u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis</u> sp., <u>Brunsia?</u> sp., <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Endothyra</u> sp., <u>Stacheoides meandriformis</u> , <u>Eoendothyranopsis scitula?</u> , <u>Tubisalebrea</u> sp.

M. L. Brown Crist No. 3, 31-21S-33W, Finney Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4688	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> .
4695.8	indet. Endothyridae, indet. Aoujgaliaceae, <u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis?</u> sp. <u>Calcisphaera</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Globoendothyra?</u> sp.
4728.5	indet. Endothyridae, indet. Aoujgaliaceae, <u>Aoujgalia richi</u> , <u>Eoendothyranopsis</u> sp., <u>Brunsia?</u> sp., <u>Archaediscus</u> sp., <u>Eoendothyranopsis scitula</u> , <u>Koninckopora minuta/pruvosti</u> , <u>Endothyra obsoleta</u> .

M. L. Brown Crist No. 4R, 31-21S-33W, Finney Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4650.2	Barren
4656.8	indet. Endothyridae.
4661	indet. Endothyridae, indet. Aoujgaliaceae, <u>Nodosarchaediscus</u> sp., <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Endothyra</u> sp.
4672	indet. Endothyridae, <u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis</u> sp., <u>Endostaffella discoidea?</u> , calcitornellid, <u>Stacheoides</u> sp.
4712.5	indet. Palaeotextulariidae.
4716.9	<u>Archaediscus</u> sp., <u>Endothyra</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Globoendothyra</u> sp.
4721	<u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis</u> sp., <u>Planoarchaediscus</u> sp., indet. Salebriidae, <u>Archaediscus</u> sp., <u>Endothyra</u> sp., <u>Stacheoides</u> sp., <u>Kon-</u>

H. C. Brown

S. P. Crist

Tinner, Co, Kansas

DATE _____

5. 100.8

MEASURED BY

Ho. a Gra

[illegible]

M.L. Brown

DATE _____

[illegible]

DATE: 12-14-82
STRATIGRAPHIC UNIT: S. 1000
MEASURED BY: M. A. Horn

[illegible]