

ROUGH DRAFT
FINAL WILL BE SENT AS IT BECOMES AVAILABLE
KCS

AMOCO PRODUCTION COMPANY
Tulsa, Oklahoma
February 21, 1983

DRAFT 30520214

FILE: T.S. 825370PS
TO: C. F. Upshaw
SUBJECT: Calcareous Microfossils in Mississippian Core from the Hugoton Embayment, Southwestern Kansas

The following calcareous microfossils were found in Hugoton Mississippian cores supplied to us by the Kansas Geological Survey. The Denver Southern Division will forward these identifications to the Survey as part of our agreement for ^{their} use of the cores. The ages of most of these microfossils have been outlined in my memorandum of November 18, 1982, and discussed at the Hugoton Core Evaluation meeting in Denver on December 9-10. Since the meeting, samples from the previously unstudied M.L.B. Maune 9 have been processed and supplemental thin sections made from the Pan Am Block A-7 and S.W. Maune 4 wells. Identifications from all these new samples are included in this report.

<u>Sample (depth in ft)</u>	<u>Identification</u>
Pan Am Block A-7, 18-30N-33W, Haskell Co. 5501	indet. Endothyridae, indet. Aoujgaliaceae, indet. Archaeodiscidae, <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Stacheoides tenplus?</u> , <u>Stacheoides</u> sp., <u>Pronionella</u> sp., indet. Dasycladaceae.

Proprietary Statement

<u>Sample (depth in ft)</u>	<u>Identification</u>
5504	indet. Aoujgaliaceae, <u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Stacheoides tenuis?</u> , <u>Stacheoides</u> sp.
5505-06	<u>Proninella?</u> sp., <u>Endothyra</u> sp., " <u>Stacheoides</u> " <u>spissa?</u>
5508	<u>Diplosphaerina inaequalis</u> .
5511	<u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , cal- citornellid?, <u>Earlandia elegans</u> gp.
5516	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera</u> sp., indet. Salebriidae, <u>Archaediscus</u> sp., calcitornellids.
5517-18	indet. Aoujgaliaceae, <u>Pseudoammodiscus</u> sp., <u>Sta-</u> <u>cheoides</u> sp., <u>Endostaffella</u> sp., <u>Neoarchaediscus?</u> sp., <u>Earlandia moderata</u> gp., <u>Archaediscus</u> sp.
5523	indet. Aoujgaliaceae, <u>Endostaffella discoidea?</u> , <u>Brunsia?</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Litos-</u> <u>troma</u> sp., indet. Tournayellidae?
5529	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera</u> sp.

<u>Sample (depth in ft)</u>	<u>Identification</u>
5529.5-30.5	indet. Archaediscidae, <u>Pseudoammodiscus?</u> sp., <u>Calcisphaera</u> sp., indet. Asteroarchaediscinae?, <u>Diplosphaerina inaequalis</u> , <u>Stacheoides</u> sp. ^
5537	indet. Endothyridae, indet. Aoujgaliaceae, <u>Nodosarchaediscus</u> sp., <u>Brunsia?</u> sp., indet. Archaediscidae, <u>Calcisphaera</u> sp., indet. Salebriidae, <u>Archaediscus</u> sp., <u>Diplosphaerina inaequalis</u> .
5538	indet. Endothyridae, indet. Aoujgaliaceae.
5543	indet. Aoujgaliaceae, <u>Nodosarchaediscus?</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Endostaffella discoidea?</u> , <u>Brunsia</u> sp., <u>Calcisphaera laevis?</u> , <u>Planoarchaediscus?</u> sp.
5544-45	indet. Archaediscidae, indet. Aoujgaliaceae, <u>Pseudoammodiscus?</u> sp., <u>Eoendothyranopsis</u> sp.
5545-46	indet. Endothyridae, indet. Aoujgliaceae, <u>Pseudoammodiscus</u> sp., <u>Aoujgalia richi</u> , <u>Nodosarchaediscus</u> sp., <u>Proninella?</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Endothyra</u> sp., indet. Archaediscidae.

Shallow Water Maune No. 4, 31-21^S-33W, Finney Co.
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Sample (depth in ft)	Identification
4633	Barren
4671-72	<u>Endothyra</u> ? sp., indet. <u>Archaediscidae</u> ?, <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Nodosarchaediscus</u> sp.
4676	indet. <u>Endothyridae</u> ^e , <u>Calcisphaera</u> sp., indet. <u>Salebridae</u> , <u>Diplosphaerina inaequalis</u> _^
4683	indet. <u>Endothyridae</u> , <u>Calcisphaera</u> sp.,
4689	indet. <u>Endothyridae</u> , <u>Aoujgalia richi</u> , <u>Archaeodiscus</u> sp., <u>Diplosphaerina inaequalis</u> , calcitor-nellids?, <u>Endothyra</u> sp., indet. <u>Archaediscidae</u> , <u>Eoendothyranopsis</u> ? sp., <u>Diplosphaerina inaequalis</u> , <u>Stacheoides</u> sp., <u>Nodosarchaediscus</u> ? sp.
4692-93	<u>Endothyra</u> sp., <u>Eoendothyranopsis</u> ? sp., <u>Archaeodiscus</u> sp., <u>Nodosarchaediscus</u> sp., <u>Stacheoides meandriformis</u> , <u>Koninckopora minuta/pruvosti</u> _^
4696	indet. <u>Endothyridae</u> , indet. <u>Aoujgaliaceae</u> , <u>Eoendothyranopsis</u> ? sp., <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Globoendothyra</u> ? sp., <u>Tetrataxis</u> sp.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4699	<u>Proninella</u> sp., <u>Euendothyranopsis</u> sp., ^r [^] <u>Koninckopora minuta/pruvosti</u> , [^]
4749	<u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Pron-</u> <u>inella</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Ear-</u> <u>landia clavatula</u> gp., <u>Globoendothyra</u> sp.
4764-65	<u>Endothyra</u> sp., <u>Euendothyranopsis</u> sp., <u>Diplos-</u> <u>phaerina inaequalis</u> , <u>Stacheoides</u> sp., <u>Archae-</u> <u>discus</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Epista-</u> <u>cheoides</u> sp., <u>Aoujgalia variables</u> , <u>Skippella</u> sp., ^{i i} ^{^ ^} <u>Euendothyranopsis scitula</u> , <u>Globoendothyra</u> sp.
4766.5	<u>Euendothyranopsis</u> sp., <u>Archaediscus</u> sp., <u>Diplos-</u> <u>phaerina inaequalis</u> , <u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Koninckopora</u> sp., <u>Stacheoides</u> <u>meandriformis</u> , <u>Euendothyranopsis scitula</u> , <u>Kon-</u> <u>inckopora minuta/pruvosti</u> .
4777	indet. Endothyridae, <u>Pseudoammodiscus?</u> sp., <u>Nodo-</u> <u>sarchaediscus</u> sp., <u>Euendothyranopsis?</u> sp., <u>Endos-</u> <u>taffella discoidea?</u> , <u>Planoarchaediscus?</u> sp., <u>Cal-</u> ⁱ [^] <u>cisphaera</u> sp., <u>Endothyra</u> sp., <u>Koninckopora</u> <u>minuta/pruvosti</u> .

M. L. Brown Maune No. 8, 31-21^S~~8~~-33W, Finney Co.
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<u>Sample (depth in ft)</u>	<u>Identification</u>
4732	<u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Stacheoides</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Globoendothyra</u> sp., <u>Globoendothyra</u> placae? placae? , <u>Koninckopora tenuiramosa?</u>
4739.5	indet. Endothyridae, <u>Calcisphaera</u> sp., <u>Archaeodiscus</u> sp., <u>Endothyra</u> sp., <u>Earlandia clavatula</u> gp., <u>Earlandia moderata</u> gp., <u>Tubisalebrea?</u> sp.

M. L. Brown Maune No. 9, 31-21^S~~8~~-33W, Finney Co.
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<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>Archaeodiscidae</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>

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<u>Sample (depth in ft)</u>	<u>Identification</u>
	<u>Earlandia moderata</u> gp., <u>Earlandia vulgaris</u> gp., <u>Rectangulina</u> sp.
4737	<u>Eoendothyranopsis</u> sp., <u>Archaediscus</u> sp., <u>Endo-</u> <u>thyra</u> sp., <u>Stacheoides tenuis</u> ?
4739	indet. Aoujgaliaceae, <u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis</u> ? sp., <u>Archaediscus</u> sp. <u>Endo-</u> <u>thyra</u> sp.
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 sci-</u> <u>tula</u> ?, <u>Tubisalebra</u> sp.
	M. L. Brown Crust No. 3, 31-21 ^S -33W, Finney Co. Λ Λ

<u>Sample (depth in ft)</u>	<u>Identification</u>
4688	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera</u> sp., <u>Diplos-</u> <u>phaerina inaequalis</u> . Λ

<u>Sample (depth in ft)</u>	<u>Identification</u>
⁹ 4685.8 ^	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</u> ^o <u>obseleta</u> . ^ ^
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~~M. L. Brown Crust No. 3, 31-215-33W, Finney Co.~~
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<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</u> <u>obseleta</u>

M. L. Brown Crst No. 4R, 31-21^S_^-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>Koninckopora minuta/pruvosti</u> , <u>Koninckopora tenuiramosa?</u>

<u>Sample (depth in ft)</u>	<u>Identification</u>
5518	<u>Calcisphaera laevis</u> , indet. Endothyridae, <u>Archaeodiscus?</u> sp., <u>Diplosphaerina</u> sp., <u>Pseudoammodiscus</u> sp., indet. Salebriidae.
5523	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera laevis</u> , indet. Endothyridae, <u>Archaeodiscus?</u> sp., <u>Pseudoammodiscus?</u> sp., indet. Salebriidae.
5541	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera laevis</u> , indet. Endothyridae, <u>Archaeodiscus?</u> sp., <u>Diplosphaerina</u> sp., <u>Priscella?</u> sp.
5561	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera laevis</u> , indet. Endothyridae, <u>Archaeodiscus</u> sp., <u>Earlandia?</u> sp., [^] <u>Planoarchaediscus?</u> sp., <u>Diplosphaerina</u> sp., <u>Archaeodiscus pauxillus</u> . ^

^r
^
Anadarko Low G-1, 6-33S-40W, Morton Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
5364	Barren
5369	Barren
5375.8	Barren

<u>Sample (depth in ft)</u>	<u>Identification</u>
5379	Barren
5393.7	Barren
540 ⁴ ₈ ^	Barren
5407	Barren
5407.1	Barren
5408	Calcivertellid, ^
5409.2	indet. foram
5410	Barren

Paul L. Brenckle

PLB:sdg

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

AMOCO PRODUCTION COMPANY
Tulsa, Oklahoma
February 22, 1983

83053ART0085

FILE: T.S. 825370PS

TO: C. F. Upshaw

SUBJECT: Calcareous Microfossils in Mississippian Core from the Hugoton Embayment, Southwestern Kansas

The following calcareous microfossils were found in Hugoton Mississippian cores supplied to us by the Kansas Geological Survey. The Denver Southern Division will forward these identifications to the Survey as part of our agreement for their use. The ages of most of these microfossils have been outlined in my memorandum of November 18, 1982, and discussed at the Hugoton Core Evaluation meeting in Denver on December 9-10. Since the meeting, samples from the previously unstudied M.L.B. Maune 9 have been processed and supplemental thin sections made from the Pan Am Black A-7 and S.W. Maune 4 wells. Identifications from all these new samples are included in this report.

Pan Am Black A-7, 18-30N-33W, Haskell Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
5501 <i>chester</i>	indet. Endothyridae, indet. Aoujgaliaceae, indet. Archaediscidae, <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Stacheoides tenuis?</u> , <u>Stacheoides</u> sp., <u>Proninella</u> sp., indet. Dasycladaceae.
5504 <i>chester</i>	indet. Aoujgaliaceae, <u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Stacheoides tenuis?</u> , <u>Stacheoides</u> sp.
5505-06	<u>Proninella?</u> sp., <u>Endothyra</u> sp., " <u>Stacheoides</u> " <u>spissa?</u>
5508	<u>Diplosphaerina</u> <u>inaequalis</u> .
5511	<u>Calcisphaera</u> sp., <u>Diplosphaerina</u> <u>inaequalis</u> , calcitornellid?, <u>Earlandia</u> <u>elegans</u> gp.
5516	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera</u> sp., indet. Salebriidae, <u>Archaediscus</u> sp., calcitornellids.
5517-18	indet. Aoujgaliaceae, <u>Pseudoammodiscus</u> sp., <u>Stacheoides</u> sp., <u>Endostaffella</u> sp., <u>Neoarchaediscus?</u> sp., <u>Earlandia</u> <u>moderata</u> gp., <u>Archaediscus</u> sp.

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<u>Sample (depth in ft)</u>	<u>Identification</u>
5523	indet. Aoujgaliaceae, <u>Endostaffella discoidea?</u> , <u>Brunsia?</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Litostroma</u> sp., indet. Tournayellidae?
5529	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera</u> sp.
5529.5-30.5	indet. Archaediscidae, <u>Pseudoammodiscus?</u> sp., <u>Calcisphaera</u> sp., indet. <u>Asteroarchaediscinae?</u> , <u>Diplosphaerina inaequalis</u> , <u>Stacheoides</u> sp.
5537	indet. Endothyridae, indet. Aoujgaliaceae, <u>Nodosarchaediscus</u> sp., <u>Brunsia?</u> sp., indet. Archaediscidae, <u>Calcisphaera</u> sp., indet. Salebriidae, <u>Archaediscus</u> sp., <u>Diplosphaerina inaequalis</u> .
5538	indet. Endothyridae, indet. Aoujgaliaceae.
5543	indet. Aoujgaliaceae, <u>Nodosarchaediscus?</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Endostaffella discoidea?</u> , <u>Brunsia</u> sp., <u>Calcisphaera laevis?</u> , <u>Planoarchaediscus?</u> sp.
5544-45	indet. Archaediscidae, indet. Aoujgaliaceae, <u>Pseudoammodiscus?</u> sp., <u>Eoendothyranopsis</u> sp.
5545-46	indet. Endothyridae, indet. Aoujgaliaceae, <u>Pseudoammodiscus</u> sp., <u>Aoujgalia richi</u> , <u>Nodosarchaediscus</u> sp., <u>Proninella?</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Endothyra</u> sp., indet. Archaediscidae.

Shallow Water Maune No. 4, 31-21S-33W, Finney Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4633	<i>morrow*</i> Barren
4671-72	<i>Chester*</i> <u>Endothyra?</u> sp., indet. Archaediscidae?, <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Nodosarchaediscus</u> sp.
4676	<i>chest*</i> indet. Endothyridae, <u>Calcisphaera</u> sp., indet. Salebriidae, <u>Diplosphaerina inaequalis</u> .
4683	<i>chest*</i> indet. Endothyridae, <u>Calcisphaera</u> sp.,
4689	<i>chest*</i> indet. Endothyridae, <u>Aoujgalia richi</u> , <u>Archaediscus</u> sp., <u>Diplosphaerina inaequalis</u> , calcitornellids?, <u>Endothyra</u> sp., indet. Archaediscidae, <u>Eoendothyranopsis?</u> sp., <u>Stacheoides</u> sp., <u>Nodosarchaediscus?</u> sp.

*Age from DZ from core.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4692-93	<i>chest*</i> <u>Endothyra</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Archae-</u> <u>discus</u> sp., <u>Nodosarchaediscus</u> sp., <u>Stacheoides</u> <u>meandriformis</u> , <u>Koninckopora minuta/pruvosti</u> .
4696	" indet. Endothyridae, indet. Aoujgaliaceae, <u>Eoen-</u> <u>dothyranopsis?</u> sp., <u>Calcisphaera</u> sp., <u>Diplos-</u> <u>phaerina inaequalis</u> , <u>Globoendothyra?</u> sp., <u>Tetra-</u> <u>taxis</u> sp.
4699	" <u>Proninella</u> sp., <u>Eoendothyranopsis</u> sp., <u>Konincko-</u> <u>pora minuta/pruvosti</u> .
4749	<u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Pron-</u> <u>inella</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Ear-</u> <u>landia clavatula</u> gp., <u>Globoendothyra</u> sp.
4764-65	<u>Endothyra</u> sp., <u>Eoendothyranopsis</u> sp., <u>Diplos-</u> <u>phaerina inaequalis</u> , <u>Stacheoides</u> sp., <u>Archae-</u> <u>discus</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Epista-</u> <u>cheoides</u> sp., <u>Aoujgalia variabilis</u> , <u>Skippella</u> sp., <u>Eoendothyranopsis scitula</u> , <u>Globoendothyra</u> sp.
4766.5	<u>Eoendothyranopsis</u> sp., <u>Archaediscus</u> sp., <u>Diplos-</u> <u>phaerina inaequalis</u> , <u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Koninckopora</u> sp., <u>Stacheoides</u> <u>meandriformis</u> , <u>Eoendothyranopsis scitula</u> , <u>Kon-</u> <u>inckopora minuta/pruvosti</u> .
4777	indet. Endothyridae, <u>Pseudoammodiscus?</u> sp., <u>Nodo-</u> <u>sarchaediscus</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Endos-</u> <u>taffella discoidea?</u> , <u>Planoarchaediscus?</u> sp., <u>Cal-</u> <u>cisphaera</u> sp., <u>Endothyra</u> sp., <u>Koninckopora</u> <u>minuta/pruvosti</u> .

M. L. Brown Maune No. 8, 31-21S-33W, Finney Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4732	<i>chest</i> <i>Glen Dale</i> <i>Paint Creek</i> <u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Sta-</u> <u>cheoides</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Glo-</u> <u>boendothyra</u> sp., <u>Globoendothyra piasae?</u> , <u>Koninck-</u> <u>opora tenuiramosa?</u>
4739.5	" indet. Endothyridae, <u>Calcisphaera</u> sp., <u>Archae-</u> <u>discus</u> sp., <u>Endothyra</u> sp., <u>Earlandia clavatula</u> gp., <u>Earlandia moderata</u> gp., <u>Tubisalebrea?</u> sp.

P. Cantala or P. kentuckyensis

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>Calcis- phaera</u> sp.
4650	<u>Endothyra</u> sp., indet. <u>Archaediscidae</u> , <u>Diplos- phaerina 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 varia- bilis</u> , <u>Asphaltina?</u> <u>cordillerensis?</u>
4661-62	<u>Endothyra</u> sp., <u>Stacheoides</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Tubisalebrea?</u> sp., <u>Salebrea</u> sp.
4668-69	Barren
4688-89	<u>Endothyra</u> sp., <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> .
4753-54	<u>Endothyra</u> sp., indet. <u>Aoujgaliaceae</u> , <u>Eoendothyra- nopsis</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Sta- cheoides</u> sp., <u>Archaediscus</u> sp., <u>Nodararchaediscus</u> sp., <u>Stacheoides meandriformis</u> , <u>Koninckopora minuta/pruvosti</u> , <u>Aoujgalia 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	<i>check</i> <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 moderata</u> gp.
4735	<u>Diplosphaerina inaequalis</u> , <u>Endothyra</u> sp., <u>Asphal- tina?</u> <u>cordillerensis?</u> <u>Globoendothyra piasae?</u> <u>Earlandia moderata</u> gp., <u>Earlandia vulgaris</u> gp., <u>Rectangulina</u> sp.
4737	<u>Eoendothyranopsis</u> sp., <u>Archaediscus</u> sp., <u>Endo- thyra</u> sp., <u>Stacheoides tenuis?</u>
4739	indet. <u>Aoujgaliaceae</u> , <u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Archaediscus</u> sp. <u>Endo- thyra</u> sp.

*Paint Creek**P. tantala*

<u>Sample (depth in ft)</u>	<u>Identification</u>
4742.5	<u>Endothyra</u> sp., <u>Earlandia elegans</u> gp.
4762 <i>Chester</i>	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>Tubisalebra</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 <i>Chester</i>	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 <i>Chester</i>	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> .

4714-15. P. Kentuckyensis
Gleason *Paramulicella* *Mullerella scitula??*
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 <i>Chester</i>	<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>

<u>Sample (depth in ft)</u>	<u>Identification</u>
	<u>inckopora minuta/pruvosti</u> , <u>Koninckopora tenuiramosa?</u>
Superior H. L. Tucker 68A4, 4-29S-42W, Stanton Co.	
<u>Sample (depth in ft)</u>	<u>Identification</u>
5469	indet. Endothyridae.
5470	<u>Calcisphaera laevis</u> , indet. Endothyridae, indet. Archaediscidae.
5481	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera laevis</u> , <u>Diplosphaerina</u> sp., indet. Aoujgaliaceae, <u>Stacheoides meandriformis</u> , indet. Stacheiinae?, <u>Endothyra</u> sp., indet. Archaediscidae.
5499	<u>Nodosarchaediscus</u> sp., <u>Planoarchaediscus?</u> sp., <u>Aoujgalia</u> sp., <u>Endostaffella</u> sp., indet. Aoujgaliaceae, <u>Stacheoides meandriformis</u> , <u>Endothyra</u> sp., <u>Eoendothyranopsis?</u> sp.
5505	<u>Calcisphaera laevis</u> , <u>Archaediscus</u> sp., <u>Diplosphaerina</u> sp., <u>Pseudoammodiscus?</u> sp., <u>Endothyra bowmani</u> gp.
5510	<u>Diplosphaerina</u> sp., <u>Aoujgalia?</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u>
5518	<u>Calcisphaera laevis</u> , indet. Endothyridae, <u>Archaediscus?</u> sp., <u>Diplosphaerina</u> sp., <u>Pseudoammodiscus</u> sp., indet. Salebriidae.
5523	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera laevis</u> , indet. Endothyridae, <u>Archaediscus?</u> sp., <u>Pseudoammodiscus?</u> sp., indet. Salebriidae.
5541	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera laevis</u> , indet. Endothyridae, <u>Archaediscus?</u> sp., <u>Diplosphaerina</u> sp., <u>Priscella?</u> sp.
5561	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera laevis</u> , indet. Endothyridae, <u>Archaediscus</u> sp., <u>Earlandia?</u> sp., <u>Planoarchaediscus?</u> sp., <u>Diplosphaerina</u> sp., <u>Archaediscus pauxillus</u> .

Anadarko Low G-1, 6-33S-40W, Morton Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
5364	Barren
5369	Barren
5375.8	Barren
5379	Barren
5393.7	Barren
5404	Barren
5407	Barren
5407.1	Barren
5408	Calcivertellid.
5409.2	indet. foram
5410	Barren

Paul Brenckle

Paul L. Brenckle

PLB:sdg

~~G. W. Henderson~~
Denver

4-29 5-42 W
Williams

140
CNR

83011ART0061

AMOCO PRODUCTION COMPANY
RESEARCH CENTER

SOURCE ROCK EVALUATION

Mississippian and Pennsylvanian Cores, Seven Wells,
Hugoton Embayment, Western Kansas

Geochemistry Services Group

R. J. Harwood

Technical Service 825396CS
Requested by K. C. Sawyer
APC (USA) DENVER SOUTHERN

R. J. Harwood (1/12/83)
RRJ

Distribution: R. C. Brooke, Denver
G. W. Henderson, Denver
O. R. Hille, Denver
K. C. Sawyer, Denver
J. A. Babcock
R. R. Thompson/E. R. Michaelis



Amoco Production Company

Denver Bldg 17
Amoco Bldg 309
1670 Broadway
Denver, Colorado 80202
303-838-3540

See Pan Am Black A-7, 18-30N-33W,
Haskell Co., for full report

March 23, 1983

Mr. K. David Newell
KANSAS GEOLOGICAL SURVEY
1930 Avenue A, Campus West
University of Kansas
Lawrence, Kansas 66044

Dear David,

Enclosed are the calcareous microfossil data from Paul Brenckle's work. You received a rough copy of his data in my February letter. This enclosure represents a final copy.

Sincerely,

Chuck Sawyer

CS:dh

Enclosure

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

AMOCO PRODUCTION COMPANY
Tulsa, Oklahoma
February 11, 1983

83042ART0110

TO: K. C. Sawyer, Denver

SUBJECT: Processing of Conodont Samples - Deep Hugoton Project

The following wells associated with the deep Hugoton project have been processed for conodonts. This memorandum serves as a summary of my work on this project to date. Appropriate information contained herein may be extracted at your discretion and sent to the Kansas Geological Survey in fulfillment of our agreement with them to provide conodont identifications.

Plate 1.

2. Locality 12433 - Pan American No. 7-A Black, Sec. 18, T30S, R33W, Haskell Co., Kansas

<u>Footage</u>	<u>Sample No.</u>	<u>Taxon No.</u>	<u>Conodont</u>	<u>Count</u>
5501	1	2828	<u>Cavusgnathus unicornis</u>	1
		2827	<u>Cavusgnathus altus</u>	2
		4489	<u>Magnilaterella sp.</u>	2
5517	2	0501	Barren of conodonts	
5547	3	2816	Indet. conodonts	5
5505-06	4	2829	<u>Cavusgnathus "offset"</u>	1
		23003	<u>Cavusgnathus charactus</u>	2
		2828	<u>Cavusgnathus unicornis</u>	4
		2741	<u>Spathognathodus cristulus</u>	1
5517-18	5	0501	Barren of conodonts	
5544-45.0		2618	Indet. conodonts	2
5545-46.0		2618	Indet. conodonts	9

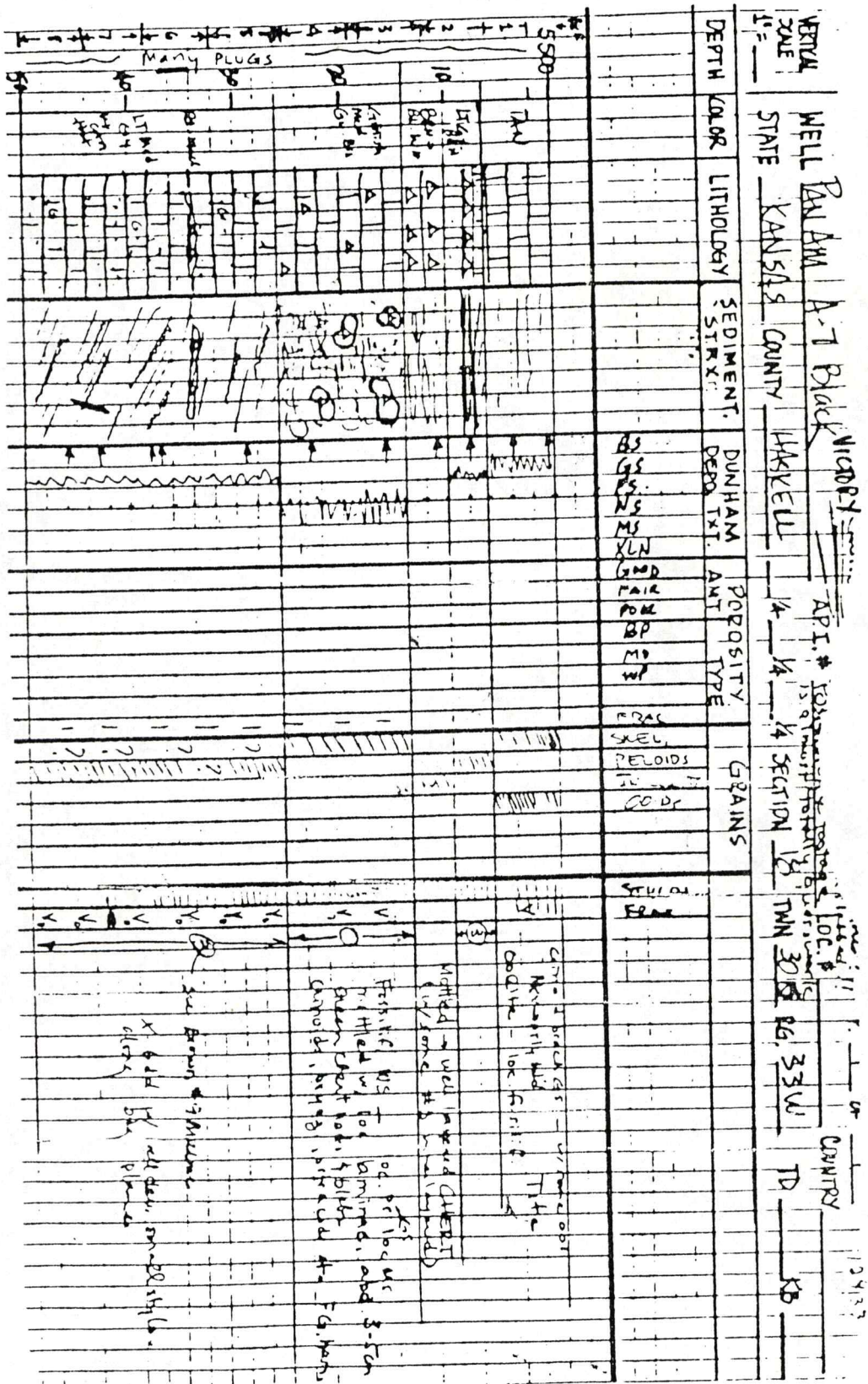


FIGURE 1: LOCALITY 12433

CONODONT ZONATION

SYSTEM	STAGES EUR	SERIES NA	ZONES (of authors)	F.U. LANE 1977 & 82		
MISSISSIPPIAN	LOWER PENNSYLVANIAN	WEST.	<i>convexus</i>	21		
			<i>klapperi</i>	20		
			NAMURIAN	MORROWAN	<i>sinuosis</i>	19
					<i>bassleri</i>	18
					<i>symmetricus</i>	17
					<i>sinuatus-minutus</i>	16
					<i>primus</i>	15
	VISEAN	CHESTERIAN			<i>muricatus</i>	U
			L	13		
			<i>C. unicornis</i>	12		
			<i>naviculus</i>	11		
			<i>G. bilineatus-C. altus</i>	10		
			<i>G. bilineatus-C. charactus</i>	9		
			<i>A. scalenus</i> <i>Carusgnathus</i>	8		
			<i>D. texanus</i>	7		
				6		
			TOURNAISIAN	OSAGEAN	<i>anchoralis</i>	5
					<i>latus</i>	4U
					Upper <i>typicus</i>	4L
					Lower <i>typicus</i>	3
					<i>isosticha</i>	2
Upper <i>crenulata</i>	1F					
Lower <i>crenulata</i>	1E					
<i>sandbergi</i>	1D					
Upper <i>duplicata</i>	1C					
Lower <i>duplicata</i>	1B					
KINDERHOOKIAN	OSAGEAN	<i>sulcata</i>	1A			

Neognathodus 2

Gnathodus 6

AMOCO PRODUCTION COMPANY
Tulsa, Oklahoma
October 4, 1982

82277ART0112

TO: W. S. Davis, Denver Region

ATTN: J. A. Babcock
C. Conrad
M. Frye
G. Henderson
A. R. Ormiston
J. W. Parks
C. Sawyer
R. Sherwood
C. F. Upshaw

SUBJECT: Mississippian Conodont Collections, Kansas Geological Survey

During a recent visit to the Kansas Geological Survey, it was discovered that a large collection of Mississippian conodonts from the subsurface of central and western Kansas is stored there. These well documented faunas were originally processed at the Kansas Survey in the 1960's. Because this information may be useful in our exploration effort in the Hugoton and Las Animas regions of Kansas and Colorado, I spent several hours scanning the collections and taking notes on their age and stratigraphic position which is summarized below. Although part of the collection had been the subject of an earlier Research Department report by Gilbert Klapper (M65-G-36), it was necessary that these faunas be reinterpreted in terms of the modern conodont zonation. A diagram illustrating the currently employed numbered conodont faunal unit (FU) zonation and its relation to standard Mississippian stratigraphic nomenclature is included herewith for your ease of interpretation. Should additional information be necessary, I have permission from authorities at the Kansas Survey to borrow the collections.

The following wells and their respective conodont faunas are in the collection.

Well	Location	Footage	Age
Wright No. 1		4950	Desmoinesian
Moore "A" No. 1		4400	FU 7
No. 4 Rockwell		3081	FU 9-10
No. 1 Matkin	CNENW 16-27-21W	4910-30	FU 7
No. 1 Elsasser Heirs	CSESW 29-18-22W	4320-50	FU 7
Sinclair Prairie No. 1 Exchange Bank	CSESW 27-33-19W	5375-415 5415-45 6011-90 6092-94 6227	FU 8 FU 7 FU 4-5 FU 3 Ordovician
No. 1 L. P. Helmlly	SWSWSE 3-35-10W	4710-95	FU 7
No. 1 Colburn "A"	NESWNE 9-33-11W	4387 4455-68	FU 8 or younger FU 6
Western Pet. No. 1 Dalton B	SWNESE 11-24-12E	1750-70 1775-94	FU 8 FU 7
No. 1 Wolfje	CSWSWNE 17-33-6W	4425-40	FU 8
X No. 1 Winans	CSENEW 32-20-27W	4487 4558-79 4775	FU 8 FU 7 Ordovician
X No. 1 Collins	CNWNW 24-20-26W	4437-42 4555-450	Late Morrow or younger FU 7 - all Penn. basal congl.
No. 12 Headley "A"	CW/2SENEWNW 32-23-14E	1686-95 1700-1714	FU 8 FU 7
Sinclair No. 6 H. G. Collins	CSENE 30-23-14E	1661-90 1693	FU 8 FU 7
Anderson No. 1 Bradley	9-23-22E	849.3-52.3	FU 7
X No. 1-A Mark	SESESE 28-20-33W	4760-4870 4930-5218	FU 8 FU 7
X No. 1 Kells "B"	CNWNW 5-28-34W	5605-55 5655-5710	FU 9- FU 8
No. 1 Alice Gentry	1-33-15W	4885 4911-15	FU 7 FU 4-5

*this is Cherokee shale
Penn. basal congl.
Ordovician (Viola) is Viola on log*

*Late Morrow or younger
FU 7 - all Penn. basal congl.*

PBC?

*5630 - Chesteran - DZ
5700 - Meramec?
5700 - Meramec?*

Well	Location	Footage	Age
		4943	FU 3
No. 1 Bates		3734-36	FU 7
No. 1 Harris		4677	Desmoinesian? Missourian
		4730-47	L, Desmoines-Atoka
Wykoff No. 1 Teeter A	26-13-30W	4513-28	FU 7
		4522-44	FU 6
		4547-50	FU 2
Rutherford		5816-24	FU 6
Sinclair-Wilhelm		4284-308	Atoka-Des Moines
		4640	M. Ordovician
No. 1 Kimel	NWNW 4-29-2W	3657-3716	FU 7
No. 1 Hoffman	8-25-17W	4528-39	Kinderhookian
		4540-43	U. Devonian
No. 1 J. A. Circle	SWSWSW 14-33-11W	4525-65	FU 7
		4589 98	FU 4-5
No. 2A Fralick	14-27-20W	4824-70	FU 7
X No. 1 Cunningham Estate	CSWSE 13-34-37W	6745-60 ^{check} 6790-95 ^{mer.}	FU 9 ^{6760 Chesteran} FU 8 ^{this is Chesteran also T.L. Thompson agrees}
Alma and McNeely No. 1 Watchorn	CSWNE 13-15-33W	4479-4595 4582 4646	FU 8 FU 7
Texas No. 1 Smith	30-11-36W	4977-79 5185-99	FU 7 Kinderhookian
Phillip No. 1 Monument Prospect	8-12-34W	5290-316 5231	Kinderhookian Ordovician
+ Sinclair No. 1 Mercer	28-10-40W	5460-75 5590	U. Devonian ⁵⁴⁶⁰⁻⁵⁴⁶⁷ Ordovician ^{this is Kinderhookian} ← Arbuckle L. Ord

Additional pertinent information can be found in the following company reports and publications. I can supply copies of most of the old company reports if they cannot be located in company files.