FORM MUST BE TYPED **ORIGINAL**

SIDE ONE

STATE CORPORATION COMMISSION OF KANSAS
OIL & GAS CONSERVATION DIVISION
WELL COMPLETION FORM
ACO-1 WELL HISTORY
DESCRIPTION OF WELL AND LEASE

RECEIVED STATE CORPORATION COMMISSION SEP 14 1998 CONSERVATION DIVISION Wichita, Kansas

API NO. 15- 15-007-22,285-00-00

Operator: License # 3532

Name: CMX, Inc.

Address 150 N. Main, Suite 1026

City/State/Zip Wichita, Kansas 67202

Purchaser: Vesta

Operator Contact Person: Douglas H. McGinness II

Phone (316) 269-9052

Contractor: Name: Duke Drilling Company, Inc.

License: 5929

Wellsite Geologist: Douglas H. McGinness II

County Barber

C SE SW Sec. 7 Twp. 35S Rge. 13W E X W

660 Feet from (S) N (circle one) Line of Section

3300 Feet from (E) W (circle one) Line of Section

Footages Calculated from Nearest Outside Section Corner:
NE, SE, NW or SW (circle one)

Lease Name #5 Sternberger Well # _____

Field Name Aetna SE Ext.

Producing Formation MISSISSIPPI

Elevation: Ground 1515 KB 1523

Total Depth 4920 PBTD 4896

Amount of Surface Pipe Set and Cemented at 389.13 Feet

Multiple Stage Cementing Collar Used? ____ Yes X No

If yes, show depth set _____ Feet

If Alternate II completion, cement circulated from _____

feet depth to _____ w/ _____ sx cmt.

Designate Type of Completion
X New Well ____ Re-Entry ____ Workover

X Oil ____ SWD ____ SIOW ____ Temp. Abd.
X Gas ____ ENHR ____ SIGW
____ Dry ____ Other (Core, WSW, Expl., Cathodic, etc)

If Workover:

Operator: _____

Well Name: _____

Comp. Date _____ Old Total Depth _____

____ Deepening ____ Re-perf. ____ Conv. to Inj/SWD
____ Plug Back _____ PBTD
____ Commingled Docket No. _____
____ Dual Completion Docket No. _____
____ Other (SWD or Inj?) Docket No. _____

1/6/90 Spud Date
1/16/90 Date Reached TD
1/16/90 Completion Date

Drilling Fluid Management Plan ALT 1 9K 9-16-98
(Data must be collected from the Reserve Pit)

Chloride content _____ ppm Fluid volume _____ bbls

Dewatering method used _____

Location of fluid disposal if hauled offsite:

Operator Name _____

Lease Name _____ License No. _____

_____ Quarter Sec. _____ Twp. _____ S Rng. _____ E/W

County _____ Docket No. _____

INSTRUCTIONS: An original and two copies of this form shall be filed with the Kansas Corporation Commission, 130 S. Market - Room 2078, Wichita, Kansas 67202, within 120 days of the spud date, recompletion, workover or conversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 apply. Information on side two of this form will be held confidential for a period of 12 months if requested in writing and submitted with the form (see rule 82-3-107 for confidentiality in excess of 12 months). One copy of all wireline logs and geologist well report shall be attached with this form. ALL CEMENTING TICKETS MUST BE ATTACHED. Submit CP-4 form with all plugged wells. Submit CP-111 form with all temporarily abandoned wells.

All requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Signature _____

Title President Date 9/14/98

Subscribed and sworn to before me this 14th day of September, 19 98.

Notary Public _____

Date Commission Expires 2/7/2000

DONNA L. JESPERSEN
Notary Public - State of Kansas
My Appt. Expires 2/7/2000

K.C.C. OFFICE USE ONLY
F ✓ Letter of Confidentiality Attached
C ✓ Wireline Log Received
C ____ Geologist Report Received

Distribution
✓ KCC ____ SWD/Rep ____ NGPA
____ KGS ____ Plug ____ Other (Specify)

Form ACO-1 (7-91)

SIDE TWO

Operator Name CMX, Inc. Lease Name Sternberger Well # 5

Sec. 7 Twp. 35S Rge. 12 ☐ East ☒ West County Barber

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all drill stem tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface during test. Attach extra sheet if more space is needed. Attach copy of log.

Drill Stem Tests Taken (Attach Additional Sheets.) ☒ Yes ☐ No

Samples Sent to Geological Survey ☐ Yes ☒ No

Cores Taken ☐ Yes ☒ No

Electric Log Run (Submit Copy.) ☒ Yes ☐ No

List All E.Logs Run: CEMENT BOND
LONG-SPACED SONIC
DUAL INDUCTION
DUAL SPACED NEUTRON
MICRO

☒ Log Formation (Top), Depth and Datums ☐ Sample

Name	Top	Datum
Kanwaka SHale	3739'	(-2216)
Elgin Sandstone	3745	(-2222)
Heebner SHale	3953	(-2430)
Toronto Limestone	3962	(-2439)
Douglas Shale	4017	(-2494)
Lansing-Kansas City	4137	(-2614)
Stark Shale	4612	(-3089)
Cherokee SHale	4798	(-3275)
Mississippi	4809	(-3286)
Total Depth	4920	(-3397)

CASING RECORD ☒ New ☐ Used

Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs./Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface	12 1/4"	8 5/8"	24	389.13	60/40 poz	260	2% gel 3% CaCL2
Production	7 7/8"	4 1/2"	10.5	4919	Thixatropic	150	2% Gel 8# gilsoni

ADDITIONAL CEMENTING/SQUEEZE RECORD

Purpose:	Depth Top	Depth Bottom	Type of Cement	#Sacks Used	Type and Percent Additives
☒ Perforate					
☐ Protect Casing					
☐ Plug Back TD					
☐ Plug Off Zone					

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record (Amount and Kind of Material Used) Depth
2	4811-4815	
2	4817-4819	1500 gals 15%
2	4822-4828	100 X 100 Mft-gel frac
2 4838-4868	4838-4868	

TUBING RECORD	Size	Set At	Packer At	Liner Run
	2 3/8"	4790	none	☐ Yes ☒ No

Date of First, Resumed Production, SWD or Inj.	Producing Method
2/8/90	☒ Flowing ☐ Pumping ☐ Gas Lift ☐ Other (Explain)

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	3	12,000	10		

Disposition of Gas: METHOD OF COMPLETION

☐ Vented ☒ Sold ☐ Used on Lease (If vented, submit ACO-18.)

☐ Open Hole ☒ Perf. ☐ Dually Comp. ☐ Commingled

☐ Other (Specify) _____

Production Interval

4811'-4815'
4817'-4819'
4822'-4828'
4838'-4868'

Complete Geological Services
•
Drlg. & Comp. Supervision

DOUGLAS H. McGINNESS II
CERTIFIED PETROLEUM GEOLOGIST

AAPG # 3962
KGS
SIPES

ORIGINAL

DAILY DRILLING REPORT

15-007-22285

#5 Sternberger
C SE SW of 7-35S-13W
Barber County, Kansas
Douglas H. McGinness II, Drilling Supervisor

12-28-89 Central Kansas Survey staked location & ran elevation.

01-03-90 Inslee built location and dug pits.

01-06-90 Duke Drilling moved in rotary tools (rig #2) and rigged up. Spud 12-1/4" hole at 2:40 pm. Drilled hole to 390', dropped survey, pulled bit, 1/2° vertical deviation at 350'. Tripped in with 7-7/8" retooth bit. Drilled hole to 965' with no loss circulation. Dropped survey, 1-3/4° vertical deviation at 925'. Ran 9 jts of new API 8-5/8" x 24 ppf (tallied 379.13') surface casing with cement basket on bottom of second jt. Set at 389.13'. Rigged up Howco pump truck and started mixing 260 sx of pox mix cement with 40% Pozzolan & 60% Class A Common, containing 2% gel & 3% $CaCl_2$. Slurry volume totaled 58.3 bbls, slurry density was 14.5 ppg. Cement mixed, released plug and started displacement. Displaced plug with 22 bbls of fresh water, plug down with 600#/square inch at 3:30 am. Cement circulated to surface.

01-07-90 7:00 am Depth - Waiting on cement. Vertical deviation of 1° at 1500'

01-08-90 7:00 am Depth - 1821', drilling. Vertical deviation of 3/4° at 2461'.

01-09-90 7:00 am Depth - 2727', drilling. Vis. 37 sec/qt, wt. 9.0 ppg, filtrate N/C.

01-10-90 7:00 am Depth - 3517', drilling. Vis. 37 sec/qt, wt. 9.0 ppg, filtrate 12.8 cm^3/30 min., PV/YP 8/6, gel strengths 4/12, chloride 4,000 ppm, daily cost $2,238.50, cumulative mud cost $3,116.60.

01-11-90 7:00 am Depth - 4287', drilling. Vis. 39 sec/qt, wt. 9.0 ppg, filtrate 12.0 cm^3/30 min., PV/YP 9/7, gel strengths 7/16, chloride 4,200 ppm, daily cost $542.40, cumulative cost $3,659.20.

01-12-90 7:00 am Depth - 4520', tripping in hole with bit after DST #1. Western DST #1, 4148' to 4164' (356' tail pipe), see geological completion report for details. Pipe strap at 4520, 1.51' short to board, no correction; vis. 55 sec/qt, wt. 9.4 ppg, filtrate 10.4 cm^3/30 min., PV/YP 17/21, gel strengths 16/40, chloride 6,000 ppm, daily cost $512.80, cumulative cost $4,172.00

01-13-90 7:00 am Depth - 4806', tripping in hole with core bit. 3/4 degree vertical deviation at 4806'; vis. 47 sec/qt, wt. 9.3 ppg, filtrate 6.8 cm^3/30 min., PV/YP 12/13, gel strengths 11/27, chloride 5,600 ppm, daily cost $478.00, cumulative cost $4,650.00; Core Mississippian 4806' to 4821.75', core barrel jammed, pull bit, recover 15' of core.

01-14-90 7:00 am Depth - 4835', tripping out of hole with core bit. Vis. 45 sec/qt, wt. 9.4 ppg, filtrate 8.8 cm^3/30 min., PV/YP 14/14, gel strengths 10/26, chloride 5,600 ppm, LCM 1#/bbl, daily cost $0.00, cumulative cost $4,878.00; Core Mississippian 4821.75' to 4835', core barrel jammed, pull bit, recover 14+' of core.

01-15-90 7:00 am Depth - 4888', drilling. Western DST #2, 4814' to 4865', plugged tool, misrun; vis. 48 sec/qt, wt. 9.4 ppg, filtrate 10.4 cm^3/30min., PV/YP 14/16, gel strengths 8/26, chloride 6,000 ppm, LCM 4#/bbl, daily cost $606.40, cumulative cost $5,484.40 RTD 4920'; condition hole 1 hour, trip out of hole for logs, rig up HLS, LTD 4914, 6' of fill up, run DIGL, SDL/DSN II, ML, FWS, LSS, CORAL; trip in hole after logs, condition hole 1 hour, LDDP, run in 12.68' shoe jt & 116 jts of new API 4-1/2" x 10.5 ppf casing (tally 4626.55') HOWCO centralizers on top of 2nd, 4th, 6th & 9th collars, land casing on bottom, hook up to rig pump, circulate for 25 min. with good returns, land casing at 4919', hook up to HOWCO, pump 5 bbls fresh water spacer, pump 500 gals of Super-flush polymer removal sweep, pump 5 bbls fresh water spacer start mixing cement; mix 150 sx of Thixotropic Cement, containing 8# gilsonite/sx, 5# Cal-Seal/sx, 1/2# Flocele/sx & 2% gel, slurry density 14.12 ppg, slurry volume 42.4 bbls, finish mixing cement, wash out pump & lines; release plug & start displacement.

01-16-90	7:00 am Depth - 4920', cementing production casing. Pump plug down with 78 barrels of fresh water, plug down at 7:12 AM with 1000 psi, release pressure, float held; release Duke Drilling Rig #2.

CMX, Inc.

MAIN OFFICE:
1026 UNION CENTER BLDG.
WICHITA, KS 67202
(316) 269-9052
DOUGLAS H. McGINNESS II

ROCKY MOUNTAIN OFFICE:
2966 E. NICHOLS CIRCLE
LITTLETON, CO 80122
(303) 290-0630
CURTIS F. CLARK

ORIGINAL

15-007-22285

DAILY COMPLETION REPORT

#5 Sternberger
100' East C SE SW of 7-35S-13W
Barber County, Kansas
Curtis F. Clark, Completion Foreman
Douglas H. McGinness II, Completion Foreman

1/26/90: Rig up HLS, run Acoustic Cement Bond Log; PBTD at 4896', Top of Cement @ 4068', very low pipe amplitude readings across the Mississippian, excellent cement bonding below, across and above the zone.

1/29/90: Review core results with Halliburton technical personnel in Wichita and Ft. Worth. A sample examined from the Upper Mississippian chert zone at 4827' had a permeability range of 111 to 133 millidarcies. Mississippi chert in this area rarely exceeds 50 millidarcies.

1/30/90: Reviewed Full Wave Sonic Log, Frac Pressure Rock Properties Log and Frac Pressure Fracture Height Log with HLS and Halliburton Senior Engineers. The logs indicated that the lower siliceous dolomite zone is highly fractured. The acid and frac treatments were designed utilizing much of the quantitative information derived from the above well logs. 1/31/90: Move in Clarke Corp rig; rig up casing swab tools, swab hole down to 2900'; rig up HLS, run in 20' casing gun, perforate Mississippian from 4811' to 4815', 4817' to 4819' and 4822' to 4828', all 2 shots/foot; running in casing with second gun, hit fluid at 700' DFS, blew perforating gun out of hole, well momentarily out of control, get perforating gun out, close mastergate; ISIP 755 psi; open 2" flow line, flow well to pit at an estimated volume of 850 MCFG/day natural, close mastergate and flow line, SDFN.

2/01/90: SICP--1300 psi/14 hours; rig up Halliburton, pump in 65 bbls of Clay-Stay treated freshwater, pressure decreased to 0 psi, pump in 15 additional bbls; rig up HLS, perforate Mississippian from 4838' to 4868', all 2 shots/foot; pump in 40 additional bbls of treated freshwater to keep well under control; run in Halliburton PPI treating packer and 47 joints of new, 2 3/8" tubing, pump 40 more bbls to keep well under control; resume running tubing, land tubing at 4798'; pressure test tubing and tool to 2500 psi; release tool and drop RFC valve, spot acid, individually treat each foot of perforations with 50 gallons of Fe acid per foot; maximum breakdown pressure 1900 psi, average breakdown pressure 1700 psi, average treating pressure 1250 psi at 1 BPM; 2100 gallons (50 barrels) of acid release tool and fish RFC valve; pull tubing and packer; rig up casing swab, make 4 swab runs, well kicked off flowing, flow back acid and load water, flowing an estimated volume of 1,250 MCFG/day, shut-in well, SDFN.

2/02/90: SICP--1500 psi/10 hours; rig up Halliburton, start 3000 gallons of Fe acid, start flush, acid on bottom/ establish rate of 34 BPM at 1600 psi, flush in, ISIP 140 psi; swab back acid and load, well kicked off flowing back acid and load, shut in well in order to gell frac tanks without interference from acid/load water spray off swab tank; rig up Halliburton, frac well down casing with 10,000 lbs of Oklahoma #1 100 mesh sand, 54,000 lbs of 20/40 Ottowa frac sand, 98,000 lbs of 12/20 Brady frac sand and 77,000 gallons of My-T-Gelled treated freshwater; frac treatment breakdown as follows:

BPM	VOLUME (GAL)	PRESSURE (PSI)	DESCRIPTION
16	0	1140	Start pad to kill well
16	3,000	0	Well dead, change valve on wellhead.
32	3,400	3500	Pressure test lines
32	3,400	850	Restart pad, establish rate.
32	7,500	850	Start 10,000 gal w/0.5 ppg 100 mesh sand
32	17,500	840	Start 5,000 gal w/1 ppg 100 mesh sand
32	22,500	760	Start 3,500 gal pad
32	26,000	890	Start 4,000 gal w/1 ppg 20/40 sand
32	29,250	810	1 ppg 20/40 sand on bottom

BPM	VOLUME (GAL)	PRESSURE (PSI)	DESCRIPTION
32	30,000	790	Start 4,000 gal w/2 ppg 20/40 sand
32	34,000	660	Start 6,000 gal w/2.5 ppg 20/40 sand
32	40,000	630	Start 9,000 gal w/3 ppg 20/40 sand
32	49,000	620	Start 6,000 gal w/3 ppg 12/20 sand
32	55,000	590	Start 8,000 gal w/3.5 ppg 12/20 sand
32	63,000	590	Start 13,000 gal w/4 ppg 12/20 sand
32	76,000	670	Start 4,000 gal gel flush
32	79,800	1100	Sand clear
32	80,500	1100	Flush in

ISIP 550 psi, 40 psi in 15 minutes; change out Halliburton head with Clarke Corp mastergate, SDFN.

2/3/90: Zero pressure on well; run in 147 joints of new 2 3/8" tubing, seating nipple on top of 1st collar, land tubing at 4798', rig up tubing swab, hit fluid 1300' DFS, well kicked off flowing after 1st swab run; flow well into swab tank until out of tank room, shut well in to hook up test separator and test storage tank; put on adjustable choke and gas prover, test well as follows;

TIME	BPH	TOTAL LOAD	OIL %	TBG	CSG	GAS VOLUME
1700	73	150 bbls	5	560	320	1,020 MCF
1800	61	211 bbls	5	600	400	1.147 MCF
1900	57	268 bbls	5	650	500	1,314 MCF
2000	22	290 bbls	8	950	590	1,185 MCF
2100	28	318 bbls	10	935	680	1,185 MCF
2200	34	352 bbls	12	920	760	1,370 MCF
2300	15	367 bbls	15	915	840	1,475 MCF
2400	19	386 bbls	15	930	905	1,475 MCF
0100	13	399 bbls	16	930	970	1,540 MCF
0200	28	427 bbls	17	925	1000	1,576 MCF
0300	28	455 bbls	17	930	1070	1,576 MCF
0400	28	483 bbls	20	940	1150	1,750 MCF
0500	27	510 bbls	20	940	1225	1,990 MCF
0900	15	711 bbls	20	945	1380	2,010 MCF

2/7/90: 1550 psi SITP & SICP; hooking up surface equipment and tying in gas sales line; preparing calculated gas open flow to determine allowable. 2/8/90: Began producing gas into CMX line.

2/9/90: Well producing 1,827 MCFG/day, 1350 psi FTP, 1520 psi FCP, produced 280 bbls of total fluid in 16 hours, oil percentage not known at this time.

Complete Geological Services
•
Drlg. & Comp. Supervision

DOUGLAS H. McGINNESS II
CERTIFIED PETROLEUM GEOLOGIST

AAPG # 3962
KGS
SIPES

January 17, 1990

CMX, Inc.
150 N. Main, Suite 1026
Wichita, Kansas 67202

Re: CMX, Inc.
#5 Sternberger
100' E. C SE SW
7-35S-13W
Barber County, Kansas

GEOLOGICAL COMPLETION REPORT

OPERATOR:	CMX, Inc.
CONTRACTOR:	Duke Drilling Company, Rig #2
SPUD DATE:	January 6, 1990
COMPLETION DATE:	January 16, 1990
SURFACE CASING:	8 5/8" x 24 ppf @ 389.13' w/260 sx.
PRODUCTION CASING:	4 1/2" x 10.5 ppf @ 4919' w/150 sx.
ELEVATIONS:	1515' G.L., 1523' K.B. (All Measurements from K.B.)
TOTAL DEPTH:	4920' RTD, 4914' LTD
DRILL STEM TESTS:	2 - Western Testing Company
WELL LOGS:	HLS---DIGL,SDL/DSN II,ML,FWS,LLS,CORAL
FULL HOLE CORE:	2 - HOMCO; Liberal, Kansas
CORE ANALYSIS:	Douglas H. McGinness II, HLS and HOWSCO
REFERENCE WELL:	Sternberger #4, C E/2 SE of 7-35S-13W

An unmanned Chromatograph and Hot Wire gas detector unit (Payne) were on location and in working order from 1800' to RTD. A 1' drilling time log and 10' samples were saved from 2200' to RTD. Geological wellsite and drilling supervision by Douglas H. McGinness II. Drilling samples were turned into the Kansas Geological Survey Well Sample Library in Wichita, Kansas.

FORMATION TOPS

FORMATION	WELL LOG (DATUM)	SAMPLES (DATUM)	S.C.
Kanwaka Shale	3739 (-2216)	3743 (-2220)	-15'
Elgin Sandstone	3745 (-2222)	3749 (-2226)	- 2'
Heebner Shale	3953 (-2430)	3955 (-2432)	+ 2'
Toronto Limestone	3962 (-2439)	3964 (-2441)	+ 3'
Douglas Shale	4017 (-2494)	4017 (-2494)	+ 5'
Lansing-Kansas City	4137 (-2614)	4139 (-2616)	+10'
Stark Shale	4612 (-3089)	4617 (-3094)	+ 9'
Cherokee Shale	4798 (-3275)	4800 (-3277)	+ 8'
Mississippian	4809 (-3286)	4811 (-3288)	+ 8'
Total Depth	4920 (-3397)	4914 (-3391)	N/A

DESCRIPTION OF ZONES OF INTEREST

Elgin Sandstone Member --- 3795' to 3804' (HLS)

Sandstone, light gray, some silt material and clay minerals in matrix, fine to medium grained, sub-rounded to sub-angular, fair sorting, fair inter-granular porosity, no shows or gas detector increases.

Lansing "A" Zone Equivalent --- 4143' to 4158' (HLS)

Limestone, light gray to tan, fine to medium crystalline, oolitic, oocastic, some fossil fragments, fair to good interparticle and intercrystalline porosity, fair show of gas bubbles on break, bright gold florescence, positive CCl_4 test, 100 unit chromatograph increase, 15 unit hot wire increase.

DST #1 - 4148' to 4164' (Straddle Test)
356' Tail Pipe
30-45-45-60
Strong Blow Initial Flow & Final Flow Periods
GTS/immediately on second opening
Gauged 5.05 MCFG pd/45 minutes
Recovered: 120' Muddy Water
240' Salt Water
Sample - 110,000 ppm [Cl]

ISIP:	1610 psi	FSIP:	1610 psi
FFP:	101-111 psi	FFP:	172-203 psi
IHP:	2125 psi	FHP:	2105 psi
BHT:	117 degrees F		

Mississippian --- 4809' to 4832' (HLS)

Chert, white to tan, opaque, fresh to weathered, fractured, scattered vuggy porosity, good show of gas emitting from rock, good show of free oil oozing from pore spaces and fractures, bright gold florescence, positive CCl_4 test, good odor; some interbedded shale, gray-green.

Note: This interval was cored. The core analysis will be forthcoming from HLS and HOWSCO.

Mississippian --- 4834' to 4862' (HLS)

Decrease in Chert, white to tan, fresh to weathered, fractured, still carrying good oil and gas show; bulk lithology change to siliceous dolomite, cherty, granular, fair to good inter-granular and vuggy porosity, good show of gas bubbles on break, fair to good show of free oil and condensate on break, good odor, bright gold florescence, positive CCl_4 test, 100 unit chromatograph increase, 45 unit hot wire increase.

DST #2 - 4814' to 4865'
30-45-45-60
Hit bridge going to bottom
Plugged Tool---Misrun

Mississippian --- 4874' to 4920' (HLS)

Slight increase in percentage of fresh chert in siliceous dolomite, samples still carrying good show of hydrocarbons and odor.

WELL LOG ANALYSIS

Interval	Acou. Poro	Rt	Rw	Sw
4810' - 4815'	16 to 23%	17 ohms	0.05	30%
4818' - 4820'	20%	15 ohms	0.05	30%
4822' - 4829'	17 to 19%	15 ohms	0.05	30%
4832' - 4866'	12 to 14%	10 ohms	0.05	50%

REMARKS AND RECOMMENDATIONS

Structurally, the #5 Sternberger ran regionally low to the #4 Sternberger from Mid-Permian to Upper Pennsylvanian sediments. However, once the mid-Pennsylvanian was penetrated, an abrupt change in structural position was encountered. The top of the Lansing-Kansas City Group was encountered 10' structurally high to the #4 well. A small amount of gas was recovered on drill stem test of the "A" zone equivalent member, however, the results were non-commercial.

The top of the Mississippian was encountered 8' structurally high, to the #4 Sternberger. The top 29' of Mississippian was cored in 2 runs. Due to excessive fracturing of the formation and wedging problems in the core barrel, it was necessary to cancel the coring of the lower siliceous dolomite zone. Visual observation of the core indicates that the top zone has excellent shows of gas and oil emitted from natural fractures and pore spaces. Sample examination of the lower siliceous dolomite zone shows the zone to be quite similar to the zone in the #4 Sternberger. A drill stem test was attempted over the 2 zones; however, drill cuttings entered into the test tool ports resulting in a plugged tool.

The upper portion of the Mississippian is represented by 3 lenses of chert with a net thickness of 15' of pay. Based upon core and well log analysis, these 3 lenses should be gas productive. The telemetric Spectral Density/Dual Spaced Neuron log shows excellent cross-over, or gas effect. Cross-over of this magnitude in the Mississippian in this area is generally a sign of a quality gas bearing reservoir.

The lower zone appears to have a net thickness of 36', which is about 10' to 15' thicker than the #4 Sternberger. Further, the resistivity is about 3 to 4 ohms higher, which is an indication of a higher bulk volume of hydrocarbons.

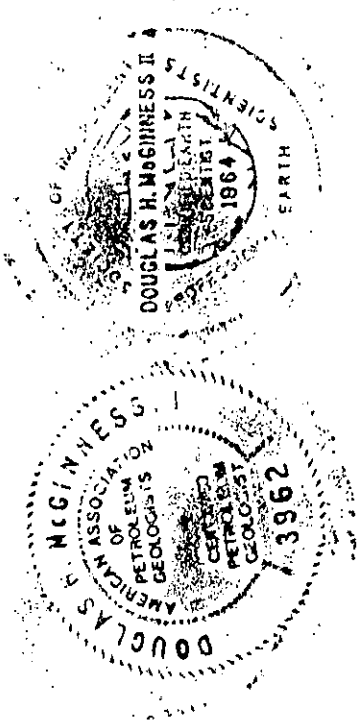
Based upon core, sample and well log analysis, it was recommended that 4-1/2" casing be set 1' off bottom and the Mississippian be perforated and completed as necessary to obtain commercial production.

The interruption of the regional dip-off of the basal Pennsylvanian and Mississippian strata indicates that the #5 Sternberger was drilled on a paleo-structure. This condition probably accounts for the excellent upper chert zone and lower siliceous dolomite zone development. In addition to enhancing the Mississppian reservoir, the presence of a paleo-structure on the southwestern portion of the acreage could lead to a commercial Lansing-Kansas City gas discovery and possibly, deeper, Ordovician discoveries. It is recommended that the #6 Sternberger be taken to the top of the Ordovician, estimated at 5350', to test for possible hydrocarbon accumulations. Overall, the preliminary results of the #5 Sternberger increases the value and potential of the existing and additional acreage around the location.

In conclusion, upon receipt of the petrographical and petrophysical analysis of the core, CMX will commence completion of the #5 Sternberger in the upper chert and lower siliceous dolomite zones. The specific perforation intervals will be decided once the frac height predictions and Young's Modulus programs are finished.

Respectfully Submitted,

Douglas H. McGinness II
Certified Petroleum Geologist
Certified Earth Scientist
DPA/AAPG #3962
SIPES #1964



HALLIBURTON SERVICES — JOB SUMMARY

HALLIBURTON DIVISION: Wichita KS
HALLIBURTON LOCATION: Pratt KS
BILLED ON TICKET NO.: 851578

CUSTOMER: CMX
LEASE: Stephesreer
WELL NO.: 5
JOB TYPE: 4½ LS
DATE: 1-16-90

WELL DATA

FIELD: ______ SEC. 7 TWP. 35 RNG. 13 W COUNTY: Barber STATE: KS

FORMATION NAME ______ TYPE ______
FORMATION THICKNESS ______ FROM ______ TO ______
INITIAL PROD: OIL ______ BPD, WATER ______ BPD, GAS ______ MCFD
PRESENT PROD: OIL ______ BPD, WATER ______ BPD, GAS ______ MCFD
COMPLETION DATE ______ MUD TYPE ______ MUD WT. ______
PACKER TYPE ______ SET AT ______
BOTTOM HOLE TEMP. ______ PRESSURE ______
MISC. DATA: 4926 Ttl. Csg. TOTAL DEPTH: 4920

	NEW/USED	WEIGHT	SIZE	FROM	TO	MAXIMUM PSI ALLOWABLE
CASING	N	10.5	4½	KB	4919	
LINER						
TUBING						
OPEN HOLE						SHOTS/FT.
PERFORATIONS						
PERFORATIONS						
PERFORATIONS						

JOB DATA

CALLED OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE 1-15-90	DATE 1-16-90	DATE 1-16-90	DATE 1-16-90
TIME 1900	TIME 0030	TIME	TIME

TOOLS AND ACCESSORIES

TYPE AND SIZE		QTY.	MAKE
FLOAT COLLAR			
FLOAT SHOE AFE	4½	1	Howco
GUIDE SHOE	"	1	Howco
CENTRALIZERS S-4	"	4	Howco
BOTTOM PLUG			
TOP PLUG 5-W	"	1	Howco
HEAD PC	"	1	Howco
PACKER			
OTHER			

PERSONNEL AND SERVICE UNITS

NAME	UNIT NO. & TYPE	LOCATION
D. Bigler C1890	Pickup 33148	Pratt KS
D. King 36633	Pump 3016	Pratt KS
D. DeBartz 80029	Bulk Truck 1340-5601	G. Bend KS

MATERIALS

TREAT. FLUID ______ DENSITY ______ LB/GAL.-°API
DISPL. FLUID ______ DENISTY ______ LB/GAL.-°API
PROP. TYPE ______ SIZE ______ LB.
PROP. TYPE ______ SIZE ______ LB.
ACID TYPE ______ GAL. ______ %
ACID TYPE ______ GAL. ______ %
ACID TYPE ______ GAL. ______ %
SURFACTANT TYPE ______ GAL. ______ IN
NE AGENT TYPE ______ GAL. ______ IN
FLUID LOSS ADD. TYPE ______ GAL.-LB. ______ IN
GELLING AGENT TYPE ______ GAL.-LB. ______ IN
FRIC. RED. AGENT TYPE ______ GAL.-LB. ______ IN
BREAKER TYPE ______ GAL.-LB. ______ IN
BLOCKING AGENT TYPE ______ GAL.-LB.
PERFPAC BALLS TYPE ______ QTY. ______
OTHER ______
OTHER ______

ORIGINAL

DEPARTMENT: CEMENT
DESCRIPTION OF JOB: CEMENT 4½ PRODUCTION CSG

JOB DONE THRU: TUBING ☐ CASING ☒ ANNULUS ☐ TBG./ANN. ☐

CUSTOMER REPRESENTATIVE X [signature]
HALLIBURTON OPERATOR [signature] COPIES REQUESTED ______

CEMENT DATA

STAGE	NUMBER OF SACKS	CEMENT	BRAND	BULK/SACKED	ADDITIVES	YIELD CU.FT./SK.	MIXED LBS./GAL.
	150	Thixotropic	Howco	B	... Gel, 2% ..., 5% Calseal, ½ # Flocele	1.54	14.12

PRESSURES IN PSI

CIRCULATING ______ DISPLACEMENT ______
BREAKDOWN ______ MAXIMUM ______
AVERAGE ______ FRACTURE GRADIENT ______
SHUT-IN: INSTANT ______ 5-MIN. ______ 15-MIN. ______

HYDRAULIC HORSEPOWER

ORDERED ______ AVAILABLE ______ USED ______

AVERAGE RATES IN BPM

TREATING ______ DISPL. ______ OVERALL ______

CEMENT LEFT IN PIPE

FEET 12.65 REASON AFE

SUMMARY

VOLUMES

PRESLUSH: GAL. 500 gal TYPE Salt Flush
LOAD & BKDN: BBL.-GAL. ______ PAD: BBL.-GAL. ______
TREATMENT: BBL.-GAL. ______ DISPL: BBL. 78.6
CEMENT SLURRY: BBL. 42.4
TOTAL VOLUME: BBL.-GAL. ______

REMARKS

See Job Log

Thanks

Doug

HALLIBURTON SERVICES
Duncan, Oklahoma 73536
A Division of Halliburton Company

TICKET NO. 851572-7

FORM 1906 R-11

WELL NO. — FARM OR LEASE NAME	COUNTY	STATE	CITY / OFFSHORE LOCATION	DATE
5 [illegible]	[illegible]	KS		1-16-90

CHARGE TO: [illegible] X
OWNER: [illegible]
TICKET TYPE (CHECK ONE): SERVICE [X] SALES [ ]
NITROGEN JOB: YES [ ] NO [X]
ADDRESS
CONTRACTOR: [illegible]
1 LOCATION: [illegible] KS CODE: [illegible]
CITY, STATE, ZIP
SHIPPED VIA: [illegible]
FREIGHT CHARGES: [ ] PPD [ ] COLLECT
2 LOCATION: [illegible] CODE: [illegible]
WELL TYPE: 01
WELL CATEGORY: 01
WELL PERMIT NO.
DELIVERED TO: [illegible]
3 LOCATION
CODE
TYPE AND PURPOSE OF JOB: 035
B- 879218
ORDER NO.
REFERRAL LOCATION

As consideration, the above-named Customer agrees to pay Halliburton in accord with the rates and terms stated in Halliburton's current price lists. Invoices payable NET by the 20th of the following month after date of invoice. Upon Customer's default in payment of Customer's account by the last day of the month following the month in which the invoice is dated, Customer agrees to pay interest thereon after default at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event it becomes necessary to employ an attorney to enforce collection of said account, Customer agrees to pay all collection costs and attorney fees in the amount of 20% of the amount of the unpaid account. These terms and conditions shall be governed by the law of the state where services are performed or equipment or materials are furnished.

Halliburton warrants only title to the products, supplies and materials and that the same are free from defects in workmanship and materials. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE WHICH EXTEND BEYOND THOSE STATED IN THE IMMEDIATELY PRECEDING SENTENCE. Halliburton's liability and customer's exclusive remedy in any cause of action (whether in contract, tort, product liability, breach of warranty or otherwise) arising out of the sale or use of any products, supplies or materials is expressly limited to the replacement of such products, supplies or materials on their return to Halliburton or, at Halliburton's option, to the allowance to the customer of credit for the cost of such items. In no event shall Halliburton be liable for special, incidental, indirect, punitive or consequential damages.

PRICE REFERENCE	SECONDARY REF OR PART NO.	LOC.	ACCOUNT	DESCRIPTION	UNITS 1 QTY	UNITS 1 MEAS	UNITS 2 QTY	UNITS 2 MEAS	UNIT PRICE	AMOUNT
000-117		1		MILEAGE	30	mi	1	[illegible]	2.20	66.00
001-016		1		Pump Charge	4926	FT	8	hrs	935.00	1155.00
030-016		1		Top Plug	1	EA	4½	in		32.00
[illegible]	815-19101	1		Insert Float Valve	1	EA	4½	in		73.00
27	8151911[illegible]	1		Fill-up Unit	1	EA	4½	in		27.50
40	807-93004	1		Centralizers	4	EA	4½	in	41.00	164.00
018-317		1		Superflush	12	sks	500	gal	74.00	888.00

ORIGINAL
THIS IS NOT AN INVOICE

AS PER ATTACHED BULK MATERIAL DELIVERY TICKET NO. B- 879218 — 1321.55

WAS JOB SATISFACTORILY COMPLETED?
WAS OPERATION OF EQUIPMENT SATISFACTORY?
WAS PERFORMANCE OF PERSONNEL SATISFACTORY?

WE CERTIFY THAT THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED HAS BEEN COMPLIED WITH IN THE PRODUCTION OF GOODS AND OR WITH RESPECT TO SERVICES FURNISHED UNDER THIS CONTRACT.

X D. McGinness II
CUSTOMER OR HIS AGENT (PLEASE PRINT)
X [signature]

[signature]
HALLIBURTON OPERATOR

HALLIBURTON APPROVAL

SUB TOTAL

APPLICABLE TAXES WILL BE ADDED ON INVOICE.

HALLIBURTON SERVICES
Duncan, Oklahoma 73536
A Division of Halliburton Company

BULK MATERIALS DELIVERY AND TICKET CONTINUATION

FOR INVOICE AND TICKET NO. 851573

DATE	CUSTOMER ORDER NO.	WELL NO. AND FARM	COUNTY	STATE
1-16-90		Sternberger #5	Barber	Ks.

CHARGE TO	OWNER	CONTRACTOR	No. B 879218
C.M.X. Incorporated	C.M.X. Inc.	Duke Drlg.	

MAILING ADDRESS	DELIVERED FROM	LOCATION CODE	PREPARED BY
	Great Bend, Ks.	50320	S. C. Henry

CITY & STATE	DELIVERED TO	TRUCK NO.	RECEIVED BY
	Location	1540-5621	BISLER

PRICE REFERENCE	SECONDARY REF. OR PART NO.	CODE L	CODE D	DESCRIPTION	UNITS 1 QTY.	UNITS 1 MEAS.	UNITS 2 QTY.	UNITS 2 MEAS.	UNIT PRICE	AMOUNT
504-308	516.00261	2	B	Standard Cement	150	sk			5.35	802.50
507-277	516.00259	2	B	3 Halliburton Gel 2%W/150	3	sk			13.00	39.00
508-291	70.15573	2	B	Gilsonite Blended 8#W/150	1200	lb.			.35	420.00
507-210	890.50071	2	B	Flocele Blended 1/2#W/150	75	lb.			1.23	92.25
508-127	890.50131	2	B	Cal Seal Blended 5#W/150	8	sk			14.90	119.20

ORIGINAL

THIS IS NOT AN INVOICE

			Returned Mileage Charge	TOTAL WEIGHT	LOADED MILES	TON MILES		
			SERVICE CHARGE ON MATERIALS RETURNED			CU. FEET		
500-207		2	B	SERVICE CHARGE		CU. FEET 185	.95	175.75
500-306		2	B	Mileage Charge	16,457 TOTAL WEIGHT	30 LOADED MILES	246.86 TON MILES	.70	172.80
No. B 879218				CARRY FORWARD TO INVOICE		SUB-TOTAL		1821.50

FORM 1911 - R6 REV. 8-85

CUSTOMER