



WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

- New Well Re-Entry Workover
- Oil WSW SWD SIOW
- Gas D&A ENHR SIGW
- OG GSW Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

- Deepening Re-perf. Conv. to ENHR Conv. to SWD
- Conv. to GSW
- Plug Back: _____ Plug Back Total Depth _____
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

Spud Date or Recompletion Date Date Reached TD Completion Date or Recompletion Date

API No. 15 - _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(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 #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that 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.

Submitted Electronically

KCC Office Use ONLY

- Letter of Confidentiality Received
Date: _____
- Confidential Release Date: _____
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: _____ Date: _____



Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all final copies of drill stems 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 test, along with final chart(s). Attach extra sheet if more space is needed. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Submitted Electronically <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(If no, Submit Copy)</i> List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> 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

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top 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 <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD: Size: _____ Set At: _____ Packer At: _____ Liner Run: Yes No

Date of First, Resumed Production, SWD or ENHR. _____ Producing Method:
 Flowing Pumping Gas Lift Other (Explain) _____

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
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DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other (Specify) _____	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	Atlas Operating LLC
Well Name	Sanders-Schmisseur 4
Doc ID	1102185

All Electric Logs Run

Dual Induction
Compensated Neutron Density
Microlog
Cbl



PO Box 470308
Fort Worth, TX 76147

Voice: (817) 546-7282
Fax: (817) 246-3361

000875
000876

INVOICE

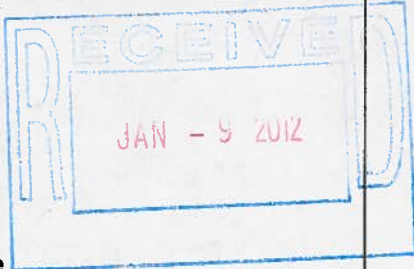
Invoice Number: 129745
Invoice Date: Dec 28, 2011
Page: 1

Bill To:
Atlas Operating
15603 Kuykendahl Suite #200
Houston, TX 77090-3655

Federal Tax I.D.#: 20-5975804

Customer ID	Well Name/# or Customer P.O.	Payment Terms	
Atlas	Sanders Schmisser#4	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Medicine Lodge	Dec 28, 2011	1/27/12

Quantity	Item	Description	Unit Price	Amount
135.00	MAT	Class A Common	16.25	2,193.75
90.00	MAT	Pozmix	8.50	765.00
3.00	MAT	Gel	21.25	63.75
7.00	MAT	Chloride	58.20	407.40
235.00	SER	Handling	2.25	528.75
35.00	SER	Mileage	25.85	904.75
1.00	SER	Surface	1,125.00	1,125.00
35.00	SER	Heavy Vehicle Mileage	7.00	245.00
35.00	SER	Light Vehicle Mileage	4.00	140.00
1.00	EQP	8 5/8 Wooded Plug	92.00	92.00
1.00	EQUIP OPER	Matt Thimesch		
1.00	EQUIP OPER	Ron Gilley		
1.00	EQUIP OPER	Eddie Piper		
1.00	OPER ASSIST	George Wright		



DESCRIPTION _____
ACCOUNT # _____
WELL NAME _____
AFE # _____
DATE _____ APPROVED _____

85/08

ALL PRICES ARE NET, PAYABLE
30 DAYS FOLLOWING DATE OF
INVOICE. 1 1/2% CHARGED
THEREAFTER. IF ACCOUNT IS
CURRENT, TAKE DISCOUNT OF

\$ 1293.08

ONLY IF PAID ON OR BEFORE
Jan 22, 2012

Subtotal	6,465.40
Sales Tax	221.88
Total Invoice Amount	6,687.28
Payment/Credit Applied	
TOTAL	6,687.28



INVOICE

PO Box 31
Russell, KS 67665

Invoice Number: 129801
Invoice Date: Jan 5, 2012
Page: 1

Voice: (817) 546-7282
Fax: (817) 246-3361

000232
000871

Bill To:
Atlas Operating
15603 Kuykendahl Suite #200
Houston, TX 77090-3655

Federal Tax I.D.#: 20-5975804

000872

Customer ID	Well Name# or Customer P.O.	Payment Terms	
Atlas	Sander Schmisser #4	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-02	Medicine Lodge	Jan 5, 2012	2/4/12

Quantity	Item	Description	Unit Price	Amount
285.00	MAT	Class A Premium	19.00	5,415.00
133.00	MAT	FL-160	17.20	2,287.60
1,425.00	MAT	KolSeal	0.89	1,268.25
12.00	MAT	Cla-pro	31.25	375.00
8.00	MAT	Salt	12.00	96.00
376.00	SER	Handling	2.25	846.00
35.00	SER	Mileage	41.36	1,447.60
1.00	SER	Production	2,405.00	2,405.00
35.00	SER	Heavy Vehicle Mileage	7.00	245.00
1.00	SER	Manifold Head Rental	200.00	200.00
35.00	SER	Light Vehicle Mileage	4.00	140.00
1.00	EQP	5 1/2 TRP	73.00	73.00
1.00	EQP	5 1/2 Guide Shoe	240.00	240.00
1.00	EQP	5 1/2 AFU Insert	286.00	286.00
10.00	EQP	5 1/2 Centralizers	49.00	490.00
1.00	CEMENTER	David Felio		
1.00	EQUIP OPER	Jason Thimesch		
1.00	OPER ASSIST	George Wright		

JAN 17 2012

DESCRIPTION _____
ACCOUNT # _____
WELL NAME _____
AGE # _____
DATE _____
APPROVED _____

ALL PRICES ARE NET, PAYABLE
30 DAYS FOLLOWING DATE OF
INVOICE. 1 1/2% CHARGED
THEREAFTER. IF ACCOUNT IS
CURRENT, TAKE DISCOUNT OF

\$ 3162.89

ONLY IF PAID ON OR BEFORE
Jan 30, 2012

Subtotal	15,814.45
Sales Tax	663.44
Total Invoice Amount	16,477.89
Payment/Credit Applied	
TOTAL	16,477.89



CEMENTING LOG

STAGE NO.

Date 01-05-12 District Med. Lodge KS Ticket No. 37869
 Company A+las Oper. Rig Val #5
 Lease Sander Schmirer Well No. _____
 County Harper State KS
 Location A.H. KS 6K 29 15 1/2 S. 1/4 E. 1/4 Field 27-31s-08w

CASING DATA: PTA Squeeze
 Surface Intermediate Production Liner
 Size 5 1/2 Type _____ Weight 15.5 # Collar _____

Casing Depths: Top _____ Bottom _____

Drill Pipe: Size _____ Weight _____ Collars _____
 Open Hole: Size 7 7/8 T.D. 4955 ft. P.B. to 4953 ft.

CAPACITY FACTORS:
 Casing: Bbbls/Lin. ft. .0238 Lin. ft./Bbl. _____
 Open Holes: Bbbls/Lin. ft. _____ Lin. ft./Bbl. _____
 Drill Pipe: Bbbls/Lin. ft. _____ Lin. ft./Bbl. _____
 Annulus: Bbbls/Lin. ft. .0309 Lin. ft./Bbl. _____
 Bbbls/Lin. ft. _____ Lin. ft./Bbl. _____
 Perforations: From _____ ft. to _____ ft. Amt. _____

CEMENT DATA:
 Spacer Type: 10 Bbls Salt flush
 Amt. _____ Sks Yield _____ ft³/sk Density _____ PPG _____

LEAD: Pump Time _____ hrs. Type class H ASC + 5 #
Kilsalt + .5% FC-160 Excess _____

Amt. 235 Sks Yield 1.57 ft³/sk Density 14.5 PPG _____

TAIL: Pump Time _____ hrs. Type A ASC + 5 # KIL +
.5% FC-160 Excess _____

Amt. 50 Sks Yield 1.57 ft³/sk Density 14.5 PPG _____

WATER: Lead 7.23 gals/sk Tail 7.2 gals/sk Total _____ Bbbls _____

Pump Trucks Used 360-265
 Bulk Equip. 381-250

Float Equip: Manufacturer W-G
 Shoe: Type Guide Shoe Depth _____
 Float: Type AFU insert Depth _____
 Centralizers: Quantity 10 Plugs Top TAP Btm. _____
 Stage Collars _____
 Special Equip. _____
 Disp. Fluid Type 2% KCL Water Amt. 117 Bbbls. Weight _____ PPG _____
 Mud Type Native Weight _____ PPG _____

COMPANY REPRESENTATIVE B.B.

CEMENTER D. Felio

TIME AM/PM	PRESSURES PSI		FLUID PUMPED DATA			REMARKS
	DRILL PIPE CASING	ANNULUS	TOTAL FLUID	Pumped Per Time Period	RATE Bbbls Min.	
						Pipe on Bottom, Break Circulation
	400		10		5	Pump Preflush
	100			8 1/2	3	Plug Ret Hole w/ 305x A-ASC
	100		5 1/2		3	Plug Minichute w/ 205x A-ASC
	400 & 250			6 3/4	6	Mix 235x class H ASC cement
	100		10		3	Stop Pump
	100					Work Pump & Lines
	100				6	Release Plug
	500			70	6	Start Displacement w/ 2% KCL water
	1300		100		3	See Steady increase in PSI
3:45 AM	1800			117	3	Slow Rate
						Bump Plug
						Release PSI - Flt Did Hold

FINAL DISP. PRESS: 1300 PSI BUMP PLUG TO 1800 PSI BLEEDBACK 1 BBLs THANK YOU

ALLIED CEMENTING CO., LLC. 037869

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT:
Medicine Lodge, KS

DATE <i>01-05-12</i>	SEC <i>27</i>	TWP. <i>31s</i>	RANGE <i>08W</i>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH <i>3:45 AM</i>
LEASE <i>Sanders Schmirse</i>	WELL # <i>#4</i>	LOCATION <i>Attica, KS, 6 Km, 2 E, 1 S, 4 E</i>		COUNTY <i>Harpark</i>	STATE <i>KS</i>		
OLD OR NEW (Circle one) <input checked="" type="radio"/> OLD		S/A to					

CONTRACTOR *Val #5* OWNER *Atlas Oper.*

TYPE OF JOB *Production Casing*
HOLE SIZE *7 7/8* T.D. *4953'*
CASING SIZE *5 1/2* DEPTH *4953'*
TUBING SIZE DEPTH
DRILL PIPE DEPTH
TOOL DEPTH
PRES. MAX *1800#* MINIMUM *—*
MEAS. LINE SHOE JOINT *43.96*
CEMENT LEFT IN CSG. *44'*

CEMENT AMOUNT ORDERED *285 sacks class "A" ASC + 5# Kaseal + .5% FL-1160 + 12 gals Clapac + 8 sacks salt*

PERFS.
DISPLACEMENT *117 Bbls 2% KCL Water*

COMMON	@		
POZMIX	@		
GEL	@		
CHLORIDE	@		
ASC Class "A"	<i>285 sacks</i>	@ <i>19.00</i>	<i>5415.00</i>
FL-1160	<i>133 gals</i>	@ <i>17.20</i>	<i>2287.60</i>
Kaseal	<i>1425 pds</i>	@ <i>.89</i>	<i>1268.25</i>
Clapac	<i>12 gals</i>	@ <i>31.25</i>	<i>375.00</i>
Salt	<i>8 Sacks</i>	@ <i>18.00</i>	<i>144.00</i>

EQUIPMENT
PUMP TRUCK CEMENTER *D. Felia*
#360-265 HELPER *T. Thimesch*
BULK TRUCK
#381-250 DRIVER *G. Wright*
BULK TRUCK
DRIVER

HANDLING <i>376</i>	@ <i>2.25</i>		<i>846.00</i>
MILEAGE <i>376 x 95 x .11</i>			<i>1447.60</i>
TOTAL			<i>11,735.45</i>

REMARKS:
Pipe on Bottom, Break Circulation, Pump Pre-Flush, Mix 50 sacks Plug Rat & Mouseholes, Mix 235 sacks "A" ASC Cement, Stop Pump, Wash Pump & Lines, Release Plug, Start Displacement w/ 2% KCL Water, See Steady increase in PSI at 70 Bbls, Slowrate, Bump Plug at 117 Bbls total Disp. to 1800#, Release PSE, Float Did not hold.

SERVICE

DEPTH OF JOB	<i>4953</i>		
PUMP TRUCK CHARGE			<i>2405.00</i>
EXTRA FOOTAGE	@		
MILEAGE	<i>35</i>	@ <i>7.00</i>	<i>245.00</i>
MANIFOLD <i>head rental</i>	@		<i>200.00</i>
<i>Light Vehicle</i>	<i>35</i>	@ <i>4.00</i>	<i>140.00</i>

CHARGE TO: *Atlas Oper!*
STREET _____
CITY _____ STATE _____ ZIP _____

TOTAL *\$2990-*

To Allied Cementing Co., LLC.
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PLUG & FLOAT EQUIPMENT

<i>1-TRP</i>	@		<i>73.00</i>
<i>1-Guide Shoe</i>	@		<i>240.00</i>
<i>1-AFU insert</i>	@		<i>286.00</i>
<i>10-centralizers</i>	@ <i>49-</i>		<i>500.00</i>
TOTAL			<i>\$1099-</i>

PRINTED NAME *Bob Younce*
SIGNATURE *Bob Younce*

SALES TAX (If Any) _____
TOTAL CHARGES *\$15,824.45*
DISCOUNT *208* IF PAID IN 30 DAYS
Net \$12,659.56

ALLIED CEMENTING CO., LLC. 037869

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT:
Medicine Lodge, KS

DATE <i>01-05-12</i>	SEC. <i>27</i>	TWP. <i>31s</i>	RANGE <i>09W</i>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH <i>3:45AM</i>
LEASE <i>Sander Schmisser</i>	WELL #		LOCATION <i>Attica, KS, 6 1/2 W, 2 E, 1 S, 1/4 E</i>	COUNTY <i>Harpers</i>		STATE <i>KS</i>	
OLD OR NEW (Circle one)			<i>S/into</i>				

CONTRACTOR *Val #5*

TYPE OF JOB *Production Casing*

HOLE SIZE *7 7/8* T.D. *4955'*

CASING SIZE *5 1/2* DEPTH *4953'*

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX *1800#* MINIMUM *—*

MEAS. LINE SHOE JOINT *43.96*

CEMENT LEFT IN CSG. *44'*

PERFS.

DISPLACEMENT *117 Bbls 2% KCL Water*

OWNER *Atlas Oper.*

CEMENT

AMOUNT ORDERED *2855x class "A" ASC + 5# Kdseal + .5% FL-160 + 12gals Clapro + 8sr salt*

COMMON @

POZMIX @

GEL @

CHLORIDE @

ASC @

HANDLING @

MILEAGE @

EQUIPMENT

PUMP TRUCK CEMENTER *D. Felio*

360-265 HELPER *J. Thimesch*

BULK TRUCK

381-250 DRIVER *G. Wright*

BULK TRUCK

DRIVER

REMARKS:

Pipe on B term, Break Circulation, Pump Rec flush, Mix 505x to Plug Rat & Mouseholes, Mix 2355x "A" ASC cement Stop Pump, Wash Pump & Lines, Release Plug Start Displacement w/ 2% KCL Water, See Steady increase in PSI at 70 Bbls, Slow Rate, Bump Plug at 117 Bbls total Disp. to 1800#, Release PSI, Float did hold

SERVICE

DEPTH OF JOB *4953*

PUMP TRUCK CHARGE

EXTRA FOOTAGE @

MILEAGE @

MANIFOLD *head rental* @

Light Vehicle @

CHARGE TO: *Atlas Oper.*

STREET

CITY STATE ZIP

TOTAL

PLUG & FLOAT EQUIPMENT

5 1/2"

1-TRP @

1-Guide Shoe @

1-AFU insert @

10-centralizers @

To Allied Cementing Co., LLC.

You are hereby requested to rent cementing equipment

GEOLOGIST'S REPORT
DRILLING TIME AND SAMPLE LOG

OPERATOR ATLAS OPERATING, LLC
 LEASE SANDERS-SCHMISSEUR #4
 FIELD SPURV GRAB BASIN
 LOCATION 1500' FWL #2170' FWL (NW.1/4.S4.W)
 SEC 27 TWP 31 S RGE 8 W
 COUNTY HARPER STATE KANSAS
 OPERATOR VAL ENERGY, INC RIG # 5
 UCC# 12-27-11 COM# 1-04-12
 RIG # 4955' LOG TO 4956'
 SAMPLES SAVED FROM N/A TO N/A
 DRILLING TIME KEPT FROM 3600' TO T.O.
 SAMPLES EXAMINED FROM 3900' TO T.O.
 GEOLOGICAL SUPERVISION FROM 4000' TO T.O.
 AND UP 5293' TYPE MUD CHEMICAL
 API # 15-077-21784-00-00

FORMATION	TOP	LOG	DEPTH	THICKNESS	SECTION
LOOSING	3740 (-2145)		3796 (-2142)		
STARK SHALE	4025 (-2469)		4062 (-2468)		
CHEROKEE SHALE	4305 (-2711)		4301 (-2707)		
MISSISSIPPI	4418 (-2824)		4417 (-2825)		
KINDERHOOK SH	4615 (-3021)		4614 (-3020)		
KANDOOK LN	4659 (-3065)		4640 (-3042)		
VIOLA	4760 (-3166)		4760 (-3166)		
VIOLA SS & DUD	4808 (-3214)		4807 (-3213)		
SIMPSON SHALE	4880 (-3286)		4878 (-3289)		
SIMPSON SAND	4905 (-3307)		4902 (-3308)		

ELEVATION
 KB 1594'
 DF 1584'
 Measurements Are All
 From KB 1594'

CASING RECORD
 SURFACE 263' OF 85/8"
 PRODUCTION 5 1/2" STD 2 1/4"

WELL LOG SURVEYS
 CND, DURLIND. MICRO
 & PE.
 SUPERIOR WELL SERVICES



REMARKS IT WAS RECOMMENDED & AGREED UPON ALL PARTIES CONCERNED THAT
5 1/2" CSG BE SET ON THIS WELL TO FURTHER EVALUATE

RESPECTFULLY SUBMITTED,
 BY: PATRICK J. DEEMIHAN
Patrick J. Deemihan

LEGEND

Sandstone	Silt	Sandstone	Shale	Dark sh	Limestone	ool. Lime	Chert	Dolomite

SCALE " = 100'

DRILLING TIME	DEPTH	SAMPLE DESCRIPTION	REMARKS
	3600	7:00 AM DEPTH	
		12-27-11-MIRU	
		12-28-11-263'	
		12-29-11-1300'	
		12-30-11-2380'	
		12-31-11-3080'	
		1-01-12-3905'	
		1-02-12-4185'	
		1-03-12-4720'	
		1-04-12-4955'	

MUD-CO/SERVICE MUD
 VAS: 28 WT: 9.5 WL: 1
 CMC: 106,000 LCM 0"

LANSING
5736 (2142)

50

3800

SH, BLACK CARB

LS, GRM-SING-FN-XLN-POOR
SAMPLES

LS, A)A POOR SAMPLES

LS, V-SHALES-POOR SAMPLES

3900

STARTED SAMPLES-W
BIT

LS, WHIT-CRM-SING-SL-PSL-
NO SHOW

LS, WHIT-CRM-SING-PSL-
NO SHOW

* PLEASE NOTE SAME
DESCRIPTION ARE BE
LAGGED TO USING PL

SH, VARL-CMOR-POOR SAMPLES

LS, WHIT-CRM-SING/MOTT
FN-XLN-FSL-TEE OF CHERT
NO SHOW-POOR SAMPLES

4000

VIS: 46 WT: 9.3 WL: 1
CHL: 7000 LCM: 0"



4000

STARK SHALE
4062 (-24LB)

4100

4200

VIS: 46 WT: 9.3 WL: 1
CHL: 7000 LCM: 04

SH. GRAY-BRN GRN - BETTER SAMPLES

LS. CRM-TAN-SING-FSSL

SH. BLACK CARB

SH. (A) (B) VARI-COLOR-

LS. WHT-CRM-GRY-SING TO 3LL
FSSL-P-INTER-PLAN TO FATHEN
CHALKY W/DEPTH

SH. BLACK CARB.

LS. WHT-CRM-LT GRY-SING/MORT
FSSL-P-INTER-PLAN TO 3LL
CHALKY TO CHALKY W/DEPTH

SH. VARI-COLORED

LS. WHT-CRM-LT GRY-SING/MORT
FSSL-P-INTER-PLAN TO 3LL-FSSL-NO SHAD

SH. VARI-COLOR - PRY DOM-GRY
DR GRY

LS. CRM-TAN-CRY-INT-PLAN-
3LL-FSSL-NO SHAD

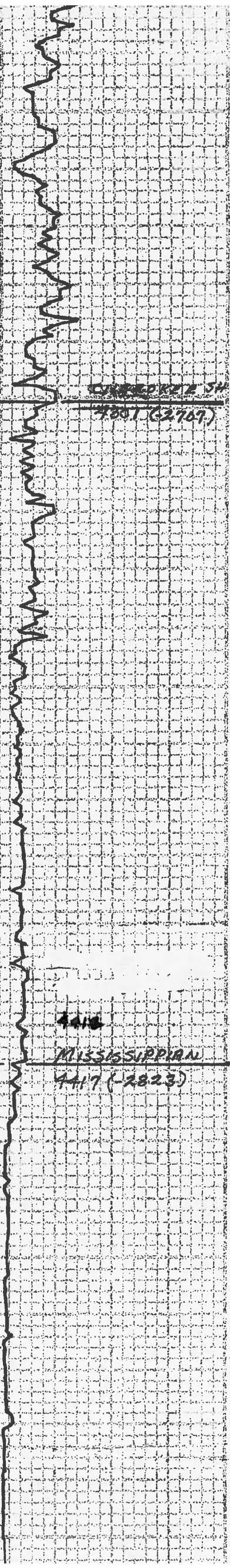
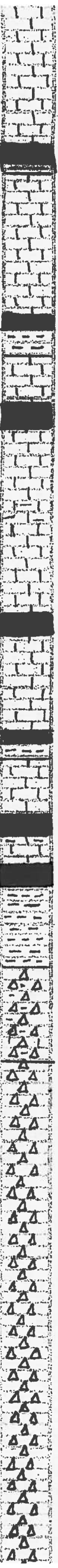
LS. (A) (B) WHT-GRY-TRANSLUCENT
FRESH CURT-NO SHAD

SH. BLACK CARB

SH. VARI-COLOR

LS. WHT-LT GRY-SING-INT-PLAN
TO 3LL-FSSL-SUB-CHALKY
W/DEPTH-NO SHAD

Rig ✓ 57 Vis;



CORRECTED SH
4300 (32707)

MISSISSIPPIAN
4417 (-2823)

4300

4400

4500

SH, BLACK CARB
SH, VARI-COLOR W/DEPTH
LS, LT GRAY-CRM-SING-CRYSTO-
TO MICRO-XLN, SLI-PSL
NO SHOW

Vis: 49 WT: 9.4 WL
CHL: 1,000 LCM: 0

SH, BLACK CARB - VARI-COLOR
W/DEPTH
LS, CRM-GRY-FD-XLN-SUB-CHALKY
NO SHOW
SH, BLACK CARB.

Reg / 49 Vis: 9.4

LS, LT GRAY-CRM-TAN-SING
MICRO-XLN - NO SHOW

SH, BLACK CARB
LS, GRY-TAN-SING-MICRO-XLN
SUB-CHALKY - NO SHOW

SH, BLACK CARB - GRY W/DEPTH
LS, CRM-LT GRAY-FN-XLN-SLI-
CHALKY - NO SHOW

SH, BLACK CARB
LS, LT GRAY-TAN-MICRO-XLN -
NO SHOW
SH, BLACK CARB

SH ABUND VARI-COLOR - YELLOW
GRN, GRY, MAROON & BRN - ABUND

LS, WHT-GRY-SLI-CHARTY-STRONG
ODOR-SLI EDGE STN.

TOTAL GAS = 189-204

CHERT - WHT-LT GRN-SING-FRGN
TO WATNRED - FLY INTER
GRAVURE - V-GOOD SHOW
OF LFO-V-STRONG ODOR - DAN
TO BLACK OIL STN IN DRY SAMPLE
LOOKS SLI-LIFE IN SAMPLE &
VARI-COLOR STN
CHERT - WHT-GRY-LESS SAND - MORE
STN IN DRY SAMPLES.

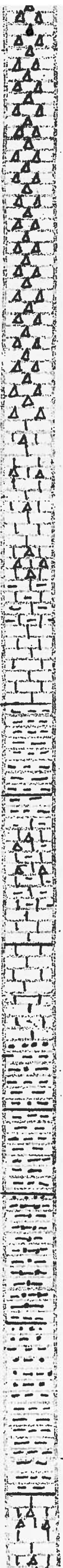
TOTAL GAS = 198-233

CHERT - WHT-CRM-SING/MOXT
TRIPOLITE - SOME SILICA
V-G-SLEG-O-SLN-ROGE
TO SAT.

CHERT - WHT-SLI-SULFUR
ODOR SHOW DECREASING
BECOMING BLACK EDGESTN

CHERT - WHT - BECOMING MORE
CHALKY - STILL HAS ODOR
FLYDR - LAMIN - TRS
OF BLACK EDGE STN IN -
SLI-TRIPOLITE CHERT.

CHERT & LS, SING-FD-XLN
TO SUB-CHERT - STILL
CARRYING SPOTTY BLACK



4500

CHERTS LS. SING. FN. XLA
TO SUB. CHERTY - STILL
CARRYING SPOTTY BLACK
EDGE ST.

LS. GRAY - CRM - SING. FN. XLA
TO SUB. CHALKY - NO FLUA
SIL. ODR - TRC OF SPOTTY
EDGE STA - SIL. CHERTY

LS. A1A

LS. CRM - SING. FN. XLA - CHALKY
NO SIL. ODR - SIL. CHERTY

LS. CRM - TAN - GRAY - SING. (MOTT) - FN. XLA
CHALKY, TRC OF CHERTY NO. 3100

LS. W) INER. INN

LS. A1A CARRYING LOTS OF GRAY
SHALE

4600

SH. DK GRAY - GRAY - TRC OF BLACK

SH. ABUND. GRAY'S ARGIL.

KINDERHOOK SHALE
4612 (-3020)

LS. WHI - CRM - MOTT / SING -
FN. XLA - CHALKY - CHERTY
F. 24 BRN TO BLACK EDGE
STA. 311. ODR

TOTAL GAS = 204-210

LS. WHI - CRM - LT GRAY - FN. XLA - MOTT
IN CHERTY BLENDED F. 3100 ABOVE
BLACK STN. - STRONG ODR

KINDERHOOK LM
4640 (-3040)

LS. A1A

LS. A1A BECOMING V. SHALKY
GRY. CRM. BRN. TRC OF F. 3100
SS CLUSTERS. 27. 3100 - 3400

TOTAL GAS: 187-204

SH. - ABUND. GRYS - TRC OF SS
VARY WLL. RD TO RD V. GRAY
SHALKY - F. 3100

SH. A1A - W) ABUND. SS - AS) ABOVE

SH. GRYS - TRC OF BLACK CARB.

SH. A1A

SH. A1A WITH FN. MED. GRN. SS - SUB
RD TO SUB. ARGILL. F. 3100
VARI. COLOR SAMPLES

TOTAL GAS 192-203

4700

SH. SS. A1A WITH INER. IN -
SH. GRAY TO LT. GRN

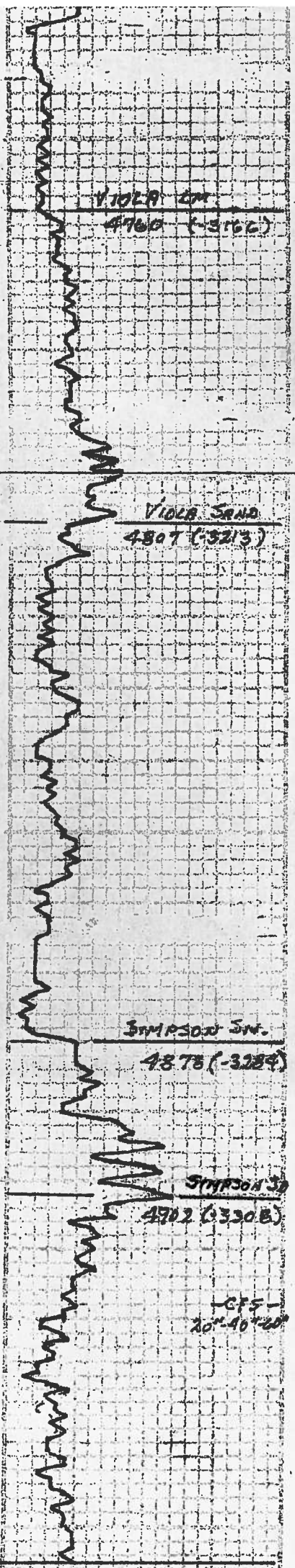
SH. ABUND. BLACK, GRAY DK GRAY

LS. WHI - CRM - SING. MOTT - FN. XLA
SIL. ODR - CHERTY IN PT. ABUND.
BLACK OIL STN. NO. FO - SIL. ODR
LOOK V. TTR

LS. A1A GRINER IN STA - NO FREE OIL
V. SIL. ODR

LS. WHI - CRM - TAN - SING. (MOTT) -
FN. XLA - V. P. F. 3100'S CHERTY
F. 24 BRN TO 207 BRN TO BLACK

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VIOLET CLAY
4760 (-3166)

VIOLET SAND
4807 (-3213)

SIMPSON SW.
4878 (-3284)

SIMPSON SW
4902 (-3308)

CFS
20" 40" 20"

RTD

LOOK V-TITE

LS, R/O WINCR IN STA - NO FERRIC
V-SL OOR

LS, WHI-CRM-TAN-SMG (MATT-
FND-241) - V-P-FERRIC OOR
F-S PGR TO 397 BRNT-GR
STN

LS, A/A N/ DOLA MITK TO WEATH
CLERT - SMOO A/A

LS, CRISTY & LINC AS ABOVE
DECREASE IN SMOO & SMOO

LS, A/A INCR IN GRAY SH & VARI-
COLOR SH

LS, TAN-GRY S-L-DOLA - ABOVE
SS, V-SMOO - R/O SUB RD.
F-S 170 - NO OOR.

SS & SS, WHI-CRM-TAN-SMG TO
SLI-CRACKY & DOLA MITK
SS, CLAR - HAD GRG - SUB ANG
F-SLED - BLACK - FT OOR

SS - A/A LOOKS VELY SMOO
SS DOLA - SS A/A

SS, CLAR - R/O TO SUB RD - F-SLED
F-FLOOR - S-L-OOR - STILL
VARY SMOO

SS, CLAR - R/O TO SUB RD - S-SLED
ABUNDANT BRNT SS - S-L-CRACK
F-SLED IN VARY PCS - SULFUR
OOR.

LS & SS - ABUNDANT SH

SH, ABUND GRAY, BLACK & GRN

SS, CLAR - IN GRN - SUB RD TO SUB
RD - F-S OF LBLANK SH V-FT
OOR

SH, GRYS, GRN - ARGIL

SS, CLAR - P-SOATED - F-SLED, P-FLOOR
V-P-FLOOR - V-S-L OOR

SH, ABUND VARI-COLOR - MUSTARD
PURPLE - GRYS - STILL HAS
SS A/A

SH, ABUND GRAY - WITH VARI-
COLOR - SS - A/A

SH, VARI-COLOR - TRC OF SS
A/A - STILL BRNT SS A/A

SH, PURPLE - YELLOW - GRYS

SH, ABUND VARI-COLOR - A/A

SH, ABUND VARI-COLOR - A/A

VIS; 52 WT: 9.4 W
CHL: 7500 LCM: 4
TOTAL GAS 187-193

TOTAL GAS - 187-201

VIS;