



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1138666
OIL & GAS CONSERVATION DIVISION

Form ACO-1
August 2013

Form must be Typed
Form must be Signed
All blanks must be Filled

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
- Plug Back Conv. to GSW Conv. to Producer
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

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

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical 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

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



1138666

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

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

INSTRUCTIONS: Show important tops 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.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

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 List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
--	---

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
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

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: <input type="checkbox"/> Yes <input type="checkbox"/> No
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Date of First, Resumed Production, SWD or ENHR.	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____
---	--

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

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> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802



Phone: 316-337-6200
Fax: 316-337-6211
<http://kcc.ks.gov/>

Mark Sievers, Chairman
Thomas E. Wright, Commissioner
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

May 09, 2013

John Washburn
Range Oil Company, Inc.
9412 E. Central
PO BOX 781775
WICHITA, KS 67278-1775

Re: ACO1
API 15-035-24494-00-00
Hale 13
NW/4 Sec.27-34S-03E
Cowley County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,
John Washburn

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY Range Oil Co, Inc.

LEASE Hale #13

FIELD Black Creek

LOCATION 1650' ENL # 1320' FWL, NW/4

SEC 27 TWP 34s RGE 3e

COUNTY Cowley STATE KS

CONTRACTOR Summit Drlg Co - Rig #1

SPUD 2/28/2013 COMP 3/9/2013

RTD 3452' LTD 3452'

MUD UP 1300' TYPE MUD Chem

SAMPLES SAVED FROM 1800 TO RTD

DRILLING TIME KEPT FROM 1800 TO RTD

SAMPLES EXAMINED FROM 1800 TO RTD

GEOLOGICAL SUPERVISION FROM 1800 TO RTD

GEOLOGIST ON WELL Ken Wallace

ELEVATIONS

KB 1156'

DF _____

GL 1146'

Measurements Are All From KB

CASING SURFACE 8 5/8" @ 320'

PRODUCTION 4 1/2" @ 3450'

ELECTRICAL SURVEYS

CN/C&L
DITL

FORMATION TOPS

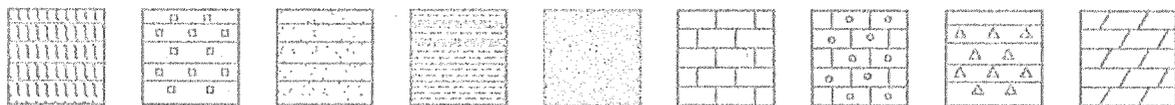
FORMATION TOPS	LOG	SAMPLES	
<u>Heebner</u>			
<u>Kafan</u>	<u>2166 (-1004)</u>	<u>2161 (-1005)</u>	
<u>Stalaker</u>	<u>2178 (-1022)</u>	<u>2176 (-1020)</u>	
<u>Layton</u>	<u>2642 (-1486)</u>	<u>2642 (-1486)</u>	
<u>Kansas City</u>	<u>2842 (-1686)</u>	<u>2844 (-1688)</u>	0
<u>Cleveland</u>	<u>2954 (-1798)</u>	<u>2954 (-1798)</u>	27
<u>Ft. Scott</u>	<u>3123 (-1967)</u>	<u>3123 (-1967)</u>	
<u>Cherokee</u>	<u>3154 (-1998)</u>	<u>3152 (-2000)</u>	
<u>Miss ct</u>	<u>3401 (-2245)</u>	<u>3401 (-2245)</u>	
<u>RTD</u>	<u>3452 (-2296)</u>	<u>3452 (-2296)</u>	

REMARKS Production casing set to further evaluate Cleveland zone.

Ken Wallace

- 2-28-13 MIRT
- 3-1-13 8 AM - Drlg @ 185', 3/4" @ 326'
- 3-2-13 7 AM - Drlg @ 449', 8 5/8" set @ 320'
- 3-3-13 7 AM - Drlg @ 1121', 3/4" @ 703', 1/2" @ 1109'
- 3-4-13 8 AM - Drlg @ 1732', 3/4" @ 1517'
- 3-5-13 8 AM - Drlg @ 2267', 3/4" @ 1922'
- 3-6-13 8:30 AM - Drlg @ 2822', 3/4" @ 2583'
- 3-7-13 8 AM - PTD 2994' Preparing for DST #1 (Cleveland Sd)
- 3-8-13 7:45 AM - Drlg 3156', 3/4" @ 2994'; DST #1 completed
- 3-9-13 8 AM - RTD 3417', 3/4" @ 3417', Running DST #2 (Miss ct)
- 3-11-13 8 AM - RTD 3452', Running e-logs set 4 1/2" @ 3450', completed 5:30 pm

LEGEND



Anhydrite Salt Sandstone Shale Carb sh Limestone Ool. Lime Chert Dolomite

SCALE " = 100'

DRILLING TIME - Minutes Per Foot
Rate of Penetration Decreases

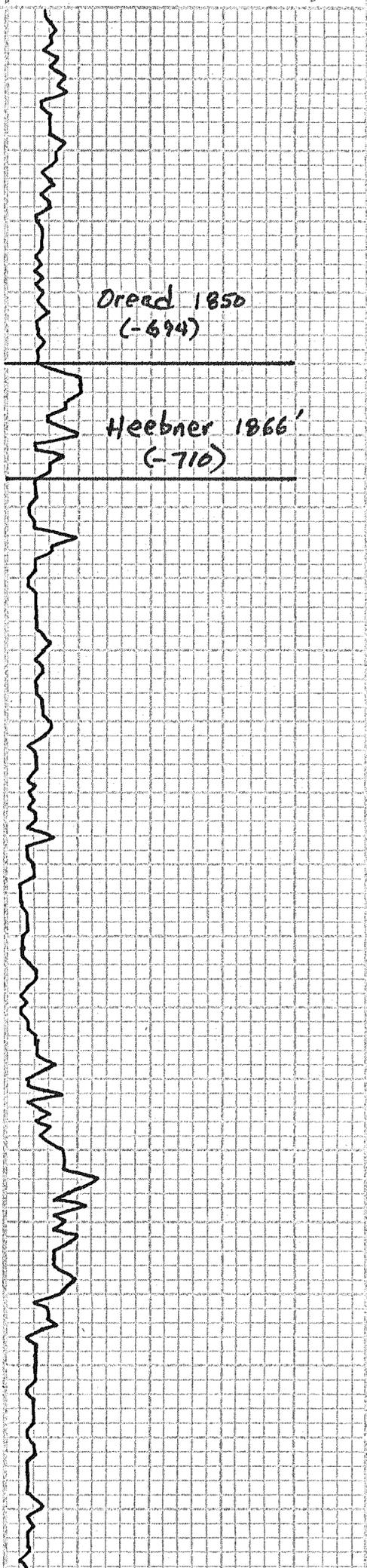
SAMPLE DESCRIPTIONS

REMARKS

LCC

SO = show oil/gas

1800'
20
40
60
80
1900
20
40
60
80
2000



Dread 1850
(-694)

Heebner 1866'
(-710)

sh, rd, lt grn

Ls, tan-brn, ool, dse-exly,
sl foss, NS

sh, bl

sh, gy, calc, foss, sm rd sh

ss, gy, vgrd, fsortd, NS

sh, red, gy

ss, wh-gy, f-mdgrd, gsortd,
wrnd, NS

sh, red, sm gy, pyrite

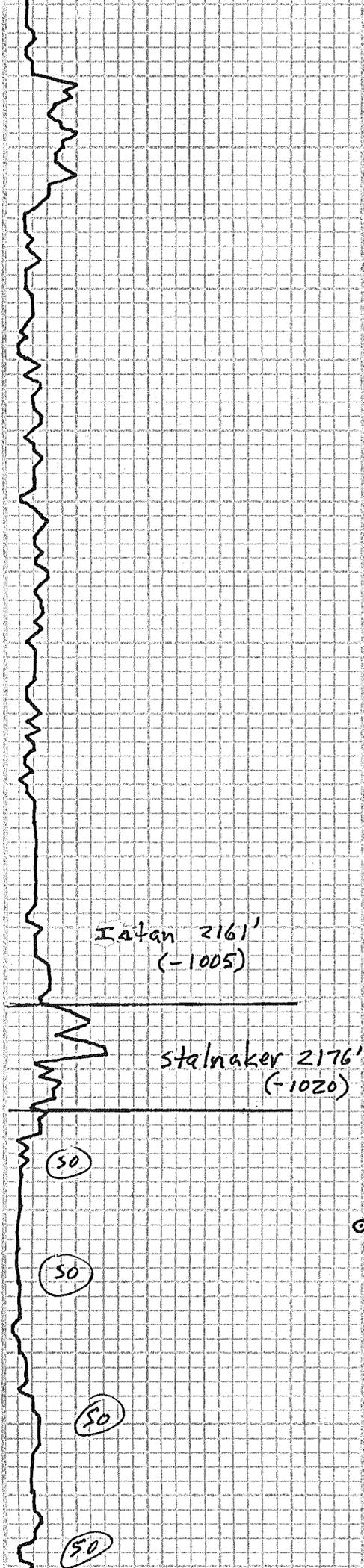
Ls, bn fl, ool, foss, sm dk gy,
exln, Ls

sh, brickrd, sm gy

ss-slst, v-fngd, w sortd, NS

sh, VC

20
40
60
80
2100
20
40
60
80
2200
20
40



Ls, dk gy-brn, foss, motld,
sm tan, cky Ls, NS

sh, VC

SS, ltgy, fgrd, wrd, s&ptex,
NFL, NO, NS

sh, VC

SS, AA

Sh, silty, gy, micace

sh, gy

Iatan 2161'
(-1005)

Ls, slty dol, cxln, slsuro,
min FL, NO, NS

Stalaker 2176'
(-1020)

sh, gy

2192"
15/30" ss, ltgy, fgrd, w
sortd, w rnd, galodor,

⊙ CFS 2192' brite FL (10%), get
ppt φ, NFO, no gas bub
30" sl less FL
AA.

sh, gy, sm red

SS, AA, sl FL (1%), NFO,
NO

AA

(50)

(50)

(50)

(50)

AA

sh, gy, red

ss, tan-ltgy, v-fgrd, wrd,
f sortd, NF, NO, NSFO

ss, medgy, med-fgrd,
p sortd, well cementd,
dkgy inclusions, NF,
NO, NSFO

ss, cl/sm dkgy, egrd,
p sortd, p cement, lss
gy inclusions, NF, NO,
NSFO

sh, gy, sm red

ss, cl, egrd, p sortd, fld,
argl, NF, NO, NSFO

sh, gy, micace

Perry Lm 2430'
(-1274)

ls, tan, exln, NS

ss, ltgy, fgrd, f sortd,
w rd, SFL(1%), sl odor,
NSFO

50

sh, gy

AA sm slst, micace

80

2500

sh, AA

20

40

sh, AA

60

80

sh, bl

2600

sh, gy

20

AA

Layton 2642'
(-1486)

40

2650' 15" - ss, wh-lt gy,
CFS 2650' f-vfgrd, f-sortd, frd,
gd odor, gd FL (75%)
VSSFO on bk, slstn, gpptφ
30" AA, sl g/auco

60

AA, 30% FL

80

AA, 5% FL

(50)

(50)

(50)

2700

(SSO)

AA, tr FL

20

(SSO)

AA

40

ss, buff. vfgd, fsortd,
f rd, NF, No, NSFO

60

sh, gy

SS, AA, N Dd, NSO, NFL

80

sh, gy, pyrite

2800

sh, gy, sm brick red

20

AA w/ red/grn lamin

Kansas City 2844'
(-1688)

40

(SD)

15" ss, mgy, fgrd, psortd,
p-f rd, gd odor, gd FL (20%),
VSSFO on bk, sm bl inclusions
© CFS 2856'

60

30" Ls, brn, foss, dse-
cxln, NS

© CFS 2870' 15" - Ls, brn, ool,
cky, foss (brn oolts), NFL, NS

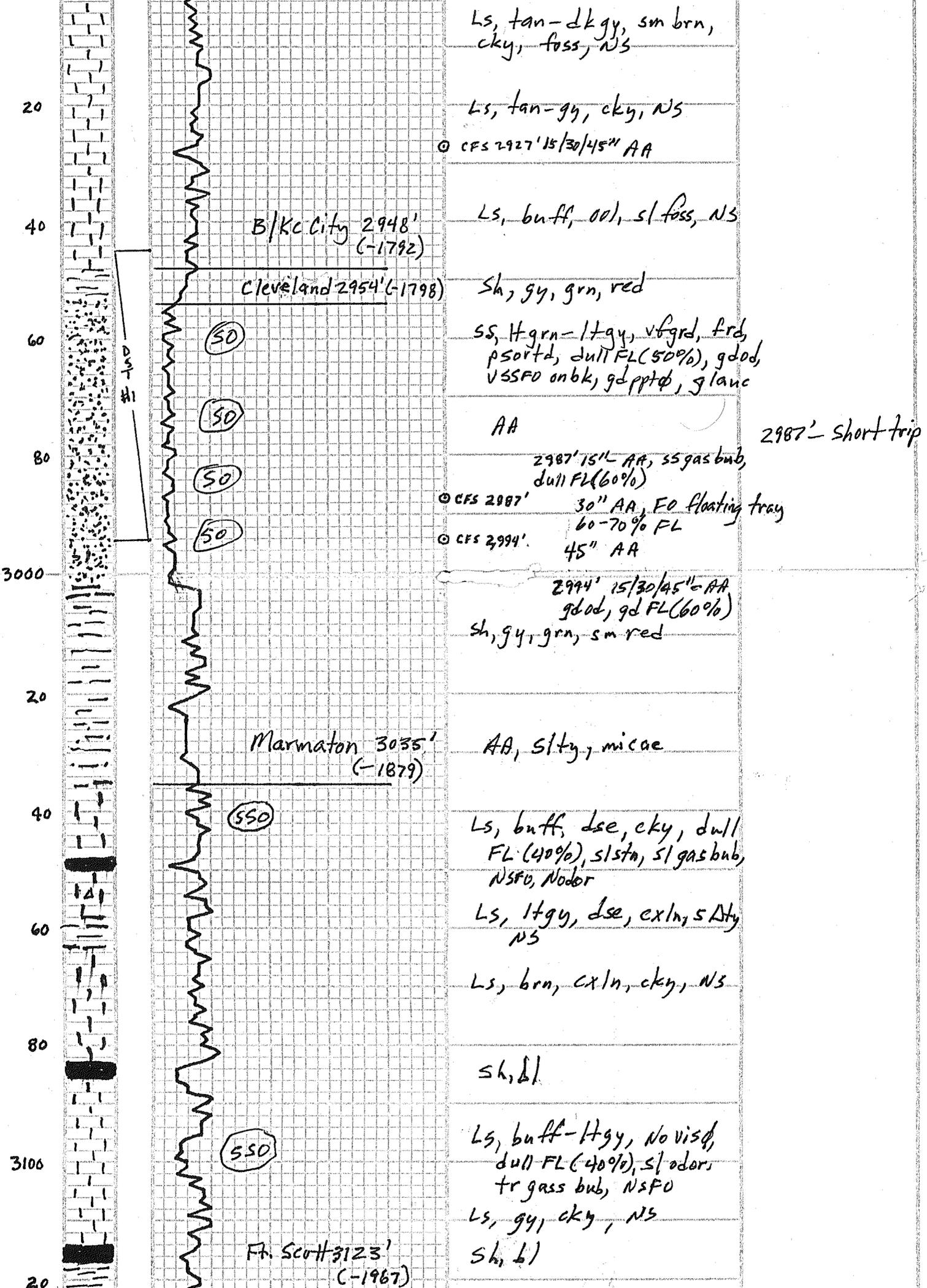
80

30" Ls, tan, dse, tr
edge FL, NV is φ, NSFO,
no odor, sl ool

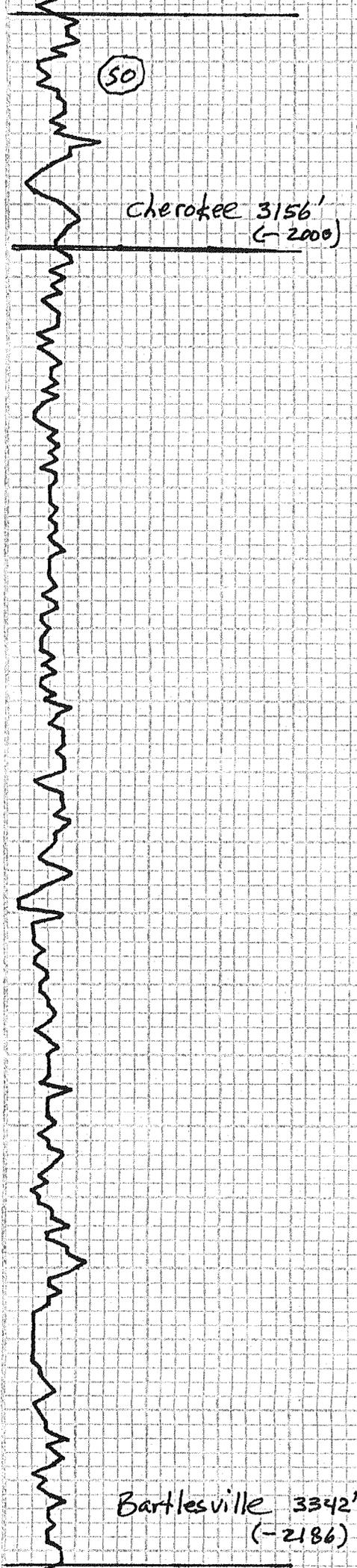
sh, bl

sh, gy, limy, sl foss, NS

2900



40
60
80
3200
20
40
60
80
3300
20
40



Ls, tan, sm litgy, cky, NS

3139' 15" - Ls, buff

○ CFS 3139' cky, ppt, brit FL (700%),
gd odor, ss gas bub, tr Fo
on bk, sl edge stn

30" Ls, tan, dse, sl cky,
NS

Cherokee 3156'
(-2000)

sh/slt, gy, set P tex

sh, ve

AA

AA sm pyrite

AA sl sandy

sh, bl

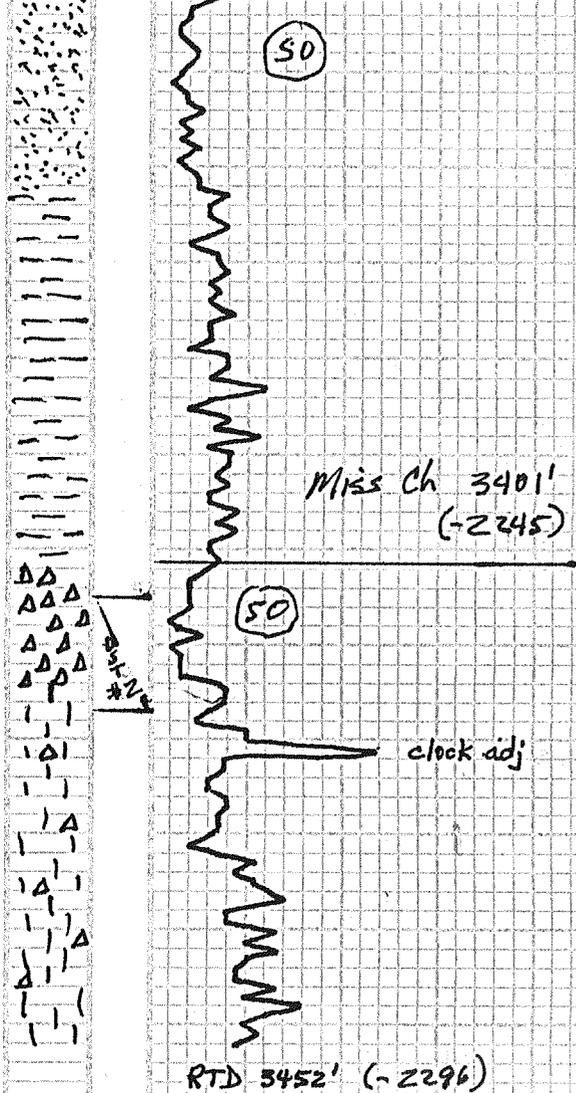
sh, gy, foss, pyrite

sh, gy, sm red

AA of bronze color sh

Bartlesville 3342'
(-2186)

60
80
3400
20
40
60



ss, ltgy-grn, f-mgrd,
psortd, prd, brite FL (10%),
vssfo on bk, no odor, ss gas bub,
sl glauc

sh, brn, red, gy

AA w/ pyrite

Miss Ch 3401'
(-2245)

3417' 15" - Δ, mstly wh & fresh,
sm weath Δ (30%), gdstn on
weath Δ, ssfo w/ gas bub, sl odor,
brite FL (10%)

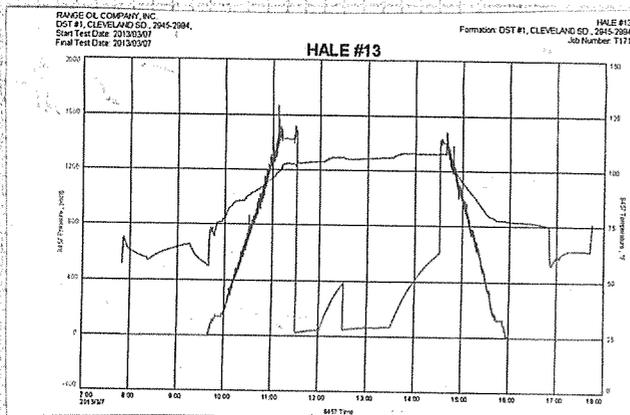
⊙ CFS 3417' 30" AA, sm fo in tray,
15% brite FL, lpc vgs fo,
sm ltgy/grn Δ

45" Ls, tan, exln, cky
vca (tan, brn, dk blu/bl)
NS

Ls, buff, slool, sl sty, NS

⊙ CFS 3452' - 15/30/45" AA

RTD 3452' (-2296)



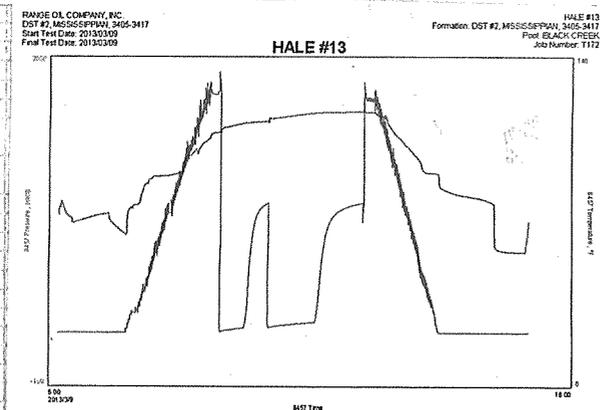
DST #1 2945-2994 (Clev Sd)

30-30-60-60; IF BOB 2 min, FF BOB 1 min

Rec: 1365' GIP, 35' mud, 30' GSWCM (5% wtr, 90% mud)

65' GSOWCM (6% oil, 14% wtr, 75% mud)

IF 24-46#, FF 46-70# / ISIP 387# FSIP 605#



DST #2 3405-3417' (Miss Ct)

30-30-60-60; IF BOB 16 min, FF BOB 22 min

Rec: 655 GIP, 1' CO, 40' GOWCM (20% oil, 15% wtr, 63% mud)

30' SOMCW (4% oil, 59% wtr, 37% mud)

65' S)MCW (6% oil, 83% wtr, 11% mud)

IF 10-35#, FF 37-76# / ISIP 941#, FSIP 940#



CONSOLIDATED
Oil Well Services, LLC

ENTERED

API# 15-035-24494

TICKET NUMBER 41336

LOCATION Fureka

FOREMAN Rick Ladford

PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

FIELD TICKET & TREATMENT REPORT
CEMENT

[Signature]

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
3-1-13	6942	Hale # 13	27	343	3E	Cowley
CUSTOMER <u>Range Oil Company Inc.</u>			Summit Drigs			
MAILING ADDRESS <u>125 N. Market Suite 1120</u>			TRUCK #	DRIVER	TRUCK #	DRIVER
CITY <u>Wichita</u> STATE <u>Ks</u> ZIP CODE <u>67202</u>			<u>520</u>	<u>John</u>		
			<u>667</u>	<u>Chris B.</u>		

JOB TYPE surface 0 HOLE SIZE 12 1/4" HOLE DEPTH 326' CASING SIZE & WEIGHT 8 5/8"
 CASING DEPTH 325' KB DRILL PIPE _____ TUBING _____ OTHER _____
 SLURRY WEIGHT 15* SLURRY VOL 48 bbl WATER gal/sk 6.5 CEMENT LEFT in CASING 20'
 DISPLACEMENT 19 1/2 bbl DISPLACEMENT PSI 250* MIX PSI _____ RATE _____

REMARKS: Safety meeting - Rig up to 8 5/8" casing. Break circulation w/ 5 bbl fresh water
Mixed 200 sxs class A cement w/ 3% cacl2, 2% gel + 1/4" flocc/px @ 15#/gal yield
1.35 Displace w/ 19 1/2 bbl fresh water. Shut casing in w/ good cement returns to surface =
10 bbl slurry to pit. Job complete. Rig down.

.. Thank You ..

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
54013	1	PUMP CHARGE	825.00	825.00
5406	70	MILEAGE	4.00	280.00
11043	200 sxs	class A cement	14.95	2990.00
1102	565*	3% cacl2	.74	418.10
1118B	375*	2% gel	.21	78.75
1107	50*	1/4" flocc/px	2.35	117.50
5407A	9.4	tax mileage bulk tax	1.34	881.72
4411	1	8 5/8" wooden plug	108.00	108.00
4132	2	8 5/8" centralizers	69.00	138.00
			subtotal	5837.07
			6.8% SALES TAX	261.82
			ESTIMATED TOTAL	6098.89

Ravin 3737 257191 DATE _____

AUTHORIZATION Don Cox TITLE _____

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form



CONSOLIDATED
Oil Well Services, LLC

PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

ENTERED

API # 15-035-24494

FIELD TICKET & TREATMENT REPORT
CEMENT

TICKET NUMBER 41368

LOCATION Eureka KS

FOREMAN Shannon Feck

[Handwritten signatures]

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
3-10-13	6942	Hale # 13	2.7	345	3E	Cowley
CUSTOMER Range Oil Company Inc			Summit Drly			
MAILING ADDRESS 125 N Market Suite 1120			TRUCK #	DRIVER	TRUCK #	DRIVER
CITY Wichita			445	Dave G		
STATE KS			515	chn's m		
ZIP CODE 67202			667	chris B		
			637	Allen B		

JOB TYPE L/S HOLE SIZE 7 7/8" HOLE DEPTH 3452' CASING SIZE & WEIGHT 4 1/2" @ 10.50 #
 CASING DEPTH 3450' DRILL PIPE --- TUBING --- OTHER ---
 SLURRY WEIGHT 13.2 Lead 13.6 Tail SLURRY VOL Lead 44 Bbl Tail 40 Bbl WATER gal/sk Lead 7.66 Tail 9.0 CEMENT LEFT in CASING 5.48'
 DISPLACEMENT 55 3/4 Bbl DISPLACEMENT PSI 800 MIX PSI 1200 Bump Plug RATE Displace @ 5 BPM

REMARKS: Safety Meeting, Rig up to 4 1/2" casing. Break circulation w/ 10 Bbl water, mixed 100# metasilicate pre flush w/ 15 Bbl H2O, 10 Bbl H2O spacer. Mixed 140 SKS 60/40 pozmix cement with 6% gel, 1# phenoseal/sk, & 1% calcium @ 13.2 #/gal as our lead cement. Tailed in with 110 SKS Thickset cement with 5# Kolseal/sk @ 13.6 #/gal, shut down wash out pump & lines displace 4 1/2" Latch down plug w/ 55 Bbl H2O. Final pumping pressure 800 psi, bumped plug @ 1200 psi. Plug & float held. Good circulation @ all times. Job Complete.

"Thanks Shannon & Crew"

Ran 9 centralizers on Joint # 1, 3, 5, 7, 9, 11, 13, 15, 17 Basket stacked on top of # 3 centralizer

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5401	1	PUMP CHARGE	1030.00	1030.00
5406	70	MILEAGE	4.00	280.00
4226	1	4 1/2" AFV Float valve	161.00	161.00
1126 A	110 SKS	Thickset cement	19.20	2112.00
1110 A	550 #	Kol-seal @ 5#/sk	.46	253.00
1111 A	100 #	metasilicate pre-flush (15 Bbl)	2.00	200.00
1131	140 SKS	60/40 Pozmix Cement	12.55	1757.00
1118 B	725 #	Gel @ 6%	.21	152.25
1107 A	140 #	phenoseal @ 1#/sk	1.29	180.60
1102	120 #	Calcium @ 1%	.74	88.80
5407 A	6.02 Tons	Ton mileage bulk Truck # 667	1.34	564.68
5407 A	6.05 Tons	Ton mileage bulk Truck # 515	1.34	567.49
1123	3000 gal	city water	16.50/1000	49.50
5502 C	6 Hrs	80 Bbl Vac Truck	90.00	540.00
4129	9	4 1/2" centralizers	42.00	378.00
4103	1	4 1/2" Basket	218.00	218.00
4453	1	4 1/2" Latch down Plug	232.00	232.00
		Sub Total		8764.32
		6.8%	SALES TAX	593.19
			ESTIMATED TOTAL	9157.51

Ravin 3737

AUTHORIZATION Doug Reed TITLE 201030 DATE _____

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.



DIAMOND TESTING, LLC
P.O. Box 157
HOISINGTON, KANSAS 67544
(620) 653-7550 • (800) 542-7313
HALE13DST1

Company Range Oil Company, Inc. Lease & Well No. Hale No. 13
Elevation 1156 KB Formation Cleveland Sand Effective Pay Ft. Ticket No. T171
Date 3-7-13 Sec. 27 Twp. 34S Range 3E County Cowley State Kansas
Test Approved By John M. Washburn Diamond Representative Tim Venters

Formation Test No. 1 Interval Tested from 2,945 ft. to 2,994 ft. Total Depth 2,994 ft.
Packer Depth 2,940 ft. Size 6 3/4 in. Packer Depth ft. Size in.
Packer Depth 2,945 ft. Size 6 3/4 in. Packer Depth ft. Size in.
Depth of Selective Zone Set ft.

Top Recorder Depth (Inside) 2,926 ft. Recorder Number 8457 Cap. 10,000 psi.
Bottom Recorder Depth (Outside) 2,991 ft. Recorder Number 11030 Cap. 5,025 psi.
Below Straddle Recorder Depth ft. Recorder Number Cap. psi.

Drilling Contractor Summit Drilling Company - Rig 1 Drill Collar Length 283 ft I.D. 2 1/4 in.
Mud Type Chemical Viscosity 60 Weight Pipe Length ft I.D. in.
Weight 9.4 Water Loss 8.6 cc. Drill Pipe Length 2,629 ft I.D. 3 1/2 in.
Chlorides 1,600 P.P.M. Test Tool Length 33 ft Tool Size 3 1/2-IF in.
Jars: Make Sterling Serial Number 4 Anchor Length 18' perf. w/31' drill collars Size 4 1/2-FH in.
Did Well Flow? No Reversed Out No Surface Choke Size 1 in. Bottom Choke Size 5/8 in.
Main Hole Size 7 7/8 in. Tool Joint Size 3 1/2-XH in.

Blow: 1st Open: Weak, 1 in., blow increasing. Off bottom of bucket in 2 mins. No blow back during shut-in.

2nd Open: Strong, 6 in., blow increasing. Off bottom of bucket in 1 min. No blow back during shut-in.

Recovered 1,365 ft. of gas in pipe
Recovered 35 ft. of mud = .172200 bbls.
Recovered 30 ft. of gas & slightly water cut mud = .147600 bbls. (Grind out: 5%-gas; 5%-water; 90%-mud)
Recovered 65 ft. of gas & slightly oil & water cut mud = .319800 bbls. (Grind out: 5%-gas; 6%-oil; 14%-water; 75%-mud) Chlorides: 36,000 Ppm PH: 7.0 RW: .27 @ 82°
Recovered 130 ft. of TOTAL FLUID = .639600 bbls.
Recovered ft. of
Remarks Tool Sample Grind Out: 3%-gas; 9%-oil; 29%-water; 59%-mud

Time Set Packer(s) 11:29 A.M. Time Started off Bottom 2:29 P.M. Maximum Temperature 108°
Initial Hydrostatic Pressure.....(A) 1422 P.S.I.
Initial Flow Period.....Minutes 30 (B) 24 P.S.I. to (C) 46 P.S.I.
Initial Closed In Period.....Minutes 30 (D) 387 P.S.I.
Final Flow Period.....Minutes 60 (E) 46 P.S.I. to (F) 70 P.S.I.
Final Closed In Period.....Minutes 60 (G) 605 P.S.I.
Final Hydrostatic Pressure.....(H) 1420 P.S.I.



DIAMOND TESTING, LLC
 P.O. Box 157
HOISINGTON, KANSAS 67544
 (620) 653-7550 • (800) 542-7313
 HALE13DST2

Company Range Oil Company, Inc. Lease & Well No. Hale No. 13
 Elevation 1156 KB Formation Mississippi Effective Pay Ft. Ticket No. T172
 Date 3-9-13 Sec. 27 Twp. 34S Range 3E County Cowley State Kansas
 Test Approved By Ken Wallace Diamond Representative Tim Venters

Formation Test No. 2 Interval Tested from 3,405 ft. to 3,417 ft. Total Depth 3,417 ft.
 Packer Depth 3,400 ft. Size 6 3/4 in. Packer Depth ft. Size in.
 Packer Depth 3,405 ft. Size 6 3/4 in. Packer Depth ft. Size in.
 Depth of Selective Zone Set ft.

Top Recorder Depth (Inside) 3,386 ft. Recorder Number 8457 Cap. 10,000 psi.
 Bottom Recorder Depth (Outside) 3,414 ft. Recorder Number 11030 Cap. 5,025 psi.
 Below Straddle Recorder Depth ft. Recorder Number Cap. psi.

Drilling Contractor Summit Drilling Company - Rig 1 Drill Collar Length 314 ft. I.D. 2 1/4 in.
 Mud Type Chemical Viscosity 60 Weight Pipe Length ft. I.D. in.
 Weight 9.4 Water Loss 8.6 cc. Drill Pipe Length 3,058 ft. I.D. 3 1/2 in.
 Chlorides 1,600 P.P.M. Test Tool Length 33 ft. Tool Size 3 1/2-IF in.
 Jars: Make Sterling Serial Number 4 Anchor Length 12 ft. Size 4 1/2-FH in.
 Did Well Flow? No Reversed Out No Surface Choke Size 1 in. Bottom Choke Size 5/8 in.
 Main Hole Size 7 7/8 in. Tool Joint Size 3 1/2-XH in.

Blow: 1st Open: Weak, 1/2 in., blow increasing. Off bottom of bucket in 16 mins. No blow back during shut-in.
 2nd Open: Weak, 1/2 in., blow increasing. Off bottom of bucket in 22 mins. No blow back during shut-in.

Recovered 655 ft. of gas in pipe
 Recovered 1 ft. of clean oil = .004920 bbls. (Grind out: 100%-oil)
 Recovered 40 ft. of gas, water & oil cut mud = .196800 bbls. (Grind out: 2%-gas; 15%-water; 20%-oil; 63%-mud)
 Recovered 30 ft. of slightly oil & mud cut water = .147600 bbls. (Grind out: 4%-oil; 37%-mud; 59%-water)
 Recovered 65 ft. of slightly oil & mud cut water = .319800 bbls. (Grind out: 6%-oil; 11%-mud; 83%-water) Chlorides: 152,000 Ppm PH: 6.5 RW: .07 @ 87°
 Recovered 136 ft. of TOTAL FLUID = .669120 bbls.

Remarks Tool Sample Grind Out: Trace-oil; 8%-mud; 92%-water

Time Set Packer(s) 8:35 A.M. Time Started off Bottom 11:35 A.M. Maximum Temperature 117°
 Initial Hydrostatic Pressure.....(A) 1727 P.S.I.
 Initial Flow Period.....Minutes 30 (B) 10 P.S.I. to (C) 35 P.S.I.
 Initial Closed In Period.....Minutes 30 (D) 941 P.S.I.
 Final Flow Period.....Minutes 60 (E) 37 P.S.I. to (F) 76 P.S.I.
 Final Closed In Period.....Minutes 60 (G) 940 P.S.I.
 Final Hydrostatic Pressure.....(H) 1726 P.S.I.