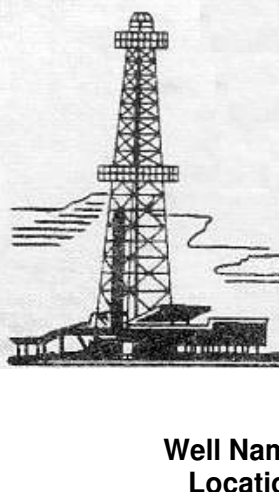


# WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG  
CONSULTANT GEOLOGIST



Scale 1:240 (5"=100') Imperial

Well Name: LOUISE #1-20  
 Location: NW SW SE NW SEC. 20-18S-28W  
 Licence Number: API: 15-101-22497  
 Spud Date: February 22, 2014  
 Surface Coordinates: 2025' FNL & 1602' FWL

Region: Lane Co., KS  
 Drilling Completed: March 3, 2014

Bottom Hole Coordinates:  
 Ground Elevation (ft): 2755' K.B. Elevation (ft): 2762'  
 Logged Interval (ft): 3800' To: RTD Total Depth (ft): 4660'  
 Formation: Mississippi  
 Type of Drilling Fluid: Chemical Premix (Displaced)  
 Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

### OPERATOR:

Company: Larson Engineering Inc.  
 Address: 562 West State Road 4  
 Olin, KS 67564-8561

### DRILLING CONTRACTOR:

H. D. Drilling, LLC, Rig #3 (Co. Tools)

DP 4.5" XH (16.6#); DC 6.25" x 2.25" x 553', hardbanded; Kelly 40.30', Tool Joint 5.5" ; Bit: JZ-HA20-Q, 7-7/8", standard jets 14-15-15; rpm 80, WOB 35k; Kelly Bushing 7' above ground level; LeWayne "Lew" Tresner (tool pusher).

### CASING:

Set 8-5/8" casing at 264'  
 Set 5-1/2" production casing

### CIRCULATION SYSTEM:

Continental EMSCO D-300, duplex, 6 x 14, 56 spm, Chemical, premix, displaced; earth pits, Morgan Mud, Inc., Cade Lines.

### OPEN HOLE LOGS:

DN, DI (SP) (Run-1); ML (Run-2); No Sonic; 5" detail LTD-3600; 2" DI to surface casing; LogTech-Pioneer Wireline, Hays, KS, Jerrod Long, Log total depth (4661') was one foot long to rotary total depth (4660').

### DRILL STEM TEST #1:

LKC "H-zone": Interval: 4155-4190 (35'); Blow: weak surf IFP, no RB, only slight blow at best FFP, no RB; BOB RB 25 min FSIP; Recovery: 30' mud (100%M); Pressures: HP: 2103-2064; SIP: 700-338; FP: 21-22, 35-37; BHT: 111 F; initial buildup is complex w/several rate changes; Trilobite Testing, Inc., Scott City, KS, Chuck Smith.

### DRILL STEM TEST #2:

LKC "K-zone": Interval: 4255-4275 (20'); Blow: incr to 8" IFP, surf RB ISIP, BOB 8 min FFP, 3" RB FSIP; BOB RB 25 min FSIP; Recovery: 140' GIP, 345' TF; Grindouts: 45' CGO (5%G, 95%O, 31 grav.), 62' OCWM (30%O, 10%W, 60%M), 62' OSMW (50%W, 50%M), 176' MW (80%W, 20%M, Rv 0.200 at 40 F, chlorides 67k); Pressures: HP: 2144-2128, SIP: 762-749, FP: 32-84, 92-174; BHT: 127 F; Trilobite Testing, Inc., Scott City, KS, Chuck Smith.

### DRILL STEM TEST #3:

LKC "Middle Creek": Interval: 4288-4296 (8'); Blow: BOB 1-1/2 min IFP, 10" RB ISIP, BOB 1-1/2 min FFP, BOB RB 25 min FSIP; Times: 5-15-15-30; Recovery: 589' GIP, 1205' TF; Grindouts: 310' GO (35%G, 65%O, 35 grav.), 775' GO (30%G, 70%O), 120' GMO (15%G, 60%O, 25%M); Pressures: HP: 2174-2133; SIP: 943-917, FP: 96-201, 210-489; BHT: 130 F; Trilobite Testing, Inc., Scott City, KS, Chuck Smith.

