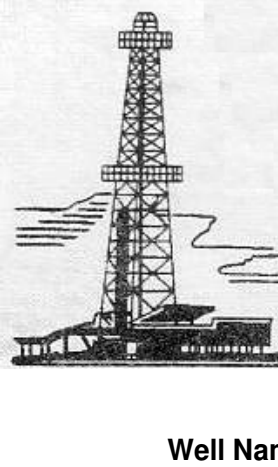


# WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG  
CONSULTANT GEOLOGIST



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

Well Name: **Hineman Ranch #1-31**  
 Location: **SW SW SE of Sec. 31-18s-28w**  
 Licence Number: **API: 15-101-22512**  
 Spud Date: **May 19, 2014**  
 Surface Coordinates: **330' FSL & 2310' FEL**

Region: **Lane Co., KS**  
 Drilling Completed: **May 29, 2014**

Bottom Hole Coordinates:  
 Ground Elevation (ft): **2739'** K.B. Elevation (ft): **2746'**  
 Logged Interval (ft): **3800'** To: **RTD** Total Depth (ft): **4648'**  
 Formation: **D&A 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**  
**Olmits, KS 67564-8561**

### DRILLING CONTRACTOR:

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

DP 4.5" XH (16.6#); DC (brand new) 6.25" x 2.25" x 556'; Kelly 40.30'; Tool Joint 5.5" ; Bit: JZ-HA20-Q, 7-7/8", standard jets 15-15-15; rpm 80, WOB 35k; Kelly Bushing 7' above ground level; LeWayne "Lew" Tresner (tool pusher).

### CASING:

Set 8-5/8" casing at 262'

### CIRCULATION SYSTEM:

Continental EMSCO D-300, duplex, 6 x 14, 60 spm, Chemical, premix, steel 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 (4646') was two feet short to rotary total depth (4648').

### DRILL STEM TEST #1:

LKC (K-zone): Interval: 4264-4284 (20'); Blow: weak incr 2.5" IFP, no RB, weak incr 8.5" FFP, no RB; Times: 5-15-30-60; Recovery: 243' TF, no GIP; Grindouts: 57' MW (56%W, 44%M), 62' MW (88%W, 12%M), 124' MW (93%W, 7%M, Rw 0.175 at 68 F, 42k Cl-); Pressures: HP: 2113-1969, SIP: 586-579, FP: 20-58, 60-126; BHT: 125 F; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

### DRILL STEM TEST #2:

LKC (L-zone): Interval: 4296-4315 (19'); Blow: weak incr 3/4" IFP, no RB, weak incr 1.5" FFP, no RB; Times: 5-15-30-60; Recovery: 144' TF, no GIP; Grindouts: 20' MW (56%W, 44%M), 124' MW (86%W, 14%M, Rw 0.198 at 74F, 32k Cl-); Pressures: HP: 2149-2108; SIP: 603-570; FP: 18-33, 38-89; BHT: 125 F; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

### DRILL STEM TEST #3:

Pleasanton: Interval: 4349-4385 (36'); Blow: weak inc 2.5" IFP, no RB, weak inc 6" FFP, no RB; Times: 5-15-30-60; Recovery: 211 TF, no GIP; Grindouts: 25' WM w/oil spots (16%W, 84%M), 62' WM w/oil spots (39%W, 61%M), 124' MW (82%W, 18%M, Rw 0.271 at 65 F, 26k Cl-); Pressures: HP: 2178-2103, SIP: 377-361, FP: 22-58, 109-361; BHT: 126 F; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

### DRILL STEM TEST #4:

Marmaton thru Ft. Scott: Interval 4383-4544 (161'); Blow: weak incr 1" IFP, no RB, weak incr to 1/4" FFP, no RB; Times: 5-15-30-60; Recovery: 67' TF, no GIP; Grindouts: 5' mud w/oil spots (100%M), 62' SWM (2%W, 98%M); Pressures: HP: 2194-2137; SIP: 986-1032; FP: 24-37, 85-63; much plugging action on FFP chart; BHT: 118 F; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

### DRILL STEM TEST #5:

Cherokee: Interval: 4542-4602 (60'); Blow: weak incr 1/4" IFP, no RB, no blow FFP, no RB; Times: 5-15-30-60; Recovery: 5' mud w/few oil spots in tool; Pressures: HP: 2273-2255; SIP: 366-573; FP: 19-20, 21-24; plugging action on FF chart; BHT: 116; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

