GOOLSBY BROTHERS and associates, inc.
575 Union Blvd, Suite 208
Lakewood, CO 80228
303-945-2860 Office
Geological Wellsite Supervision
www.goolsbybrothers.com
PETCOM

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

Well Name:	Hudson 36N-35HZ (Vertical Hole Section)
Location:	Section 26, T2N, R65W, Weld County, CO.
License Number:	API: 05-123-35948 — Region: Wattenberg
Spud Date:	Febuary 23, 2013 — Drilling Completed: April 1, 2013
Surface Coordinates:	NENW Sec 26 T2N R65W; 352' FNL 2140' FWL Lat N 40.115859 Long W -104.633053
Bottom Hole Coordinates:	SWSE Sec 35 T2N R65W; N-S: -9845.38' FNL; E-W: ' 584.83' FWL
Ground Elevation (ft):	4910' — K.B. Elevation (ft): 4926'
Logged Interval (ft):	6475' To: 16950' — Total Depth (ft): 16,950' DMTD
Formation:	Pierre Shales/Sands, Niobrara "B" Target
Type of Drilling Fluid:	Water & Poly to 6000', LSND 6000'-7425', OBM 7425'- 16,950'

Printed by STRIP.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Kerr-McGee Oil & Gas Onshore LP
Address: Granite Tower - 1099 18th St, Ste 1800
Denver, CO 80202
CO Geologist, Laurence Sones

GEOLOGIST

Name: Ian Harris and Larry Goolsby
Company: Goolsby Brothers & Assoc. (GBA), Inc. (www.goolsbybrothers.com)
Address: 575 Union Blvd.
Suite 208,
Lakewood CO. 80228

E-Logs

MWD GR 6475'-16,908'
MWD Resistivity 7403'-16,901'

Comments

1) Drilling Contractor: Xtreme Drilling, Rig #20
Toolpusher: Tyler Humphrey & Brad Henderson
2) Company Man: Marvin Hackworth, Ricky Carroll, Charlie Diagle & James Adkins
3) Mud Comapny : Newpark Drilling Fluids
Engineer: Seth Martinez
4) Directional Drilling: Baker Hughes
Pulse Tool
Drillers: Barry Combs, Scott Stanford
MWD: Robert Dix, Matt Yule
5) Gas Equipment: Mudlogging Systems Inc.
by Terra Services
Redbox # ML-086 & Ratcliff Agitator
6) Wellsite Geologist: Larry Goolsby & Ian Harris

ROCK TYPES

Anhy, Bent, Brec, Cht, Clyst, Coal, Congl, Dol, Gyp, Igne, Lmst, Meta, Mrlst, Salt, Shale, Shcol, Shgy, Sltst, Ss, Till, Slty sh, Arg ss, Fracture, Chalk, Carb sh, Arg lmy ss, Cmt

ACCESSORIES

MINERAL: Anhy, Arggrn, Arg, Bent, Bit, Brecfrag, Calc, Carb, Chtdk, Chtlt, Dol, Feldspar, Ferrpel, Ferr, Glau, Gyp, Hvymin, Kaol, Marl, Minxl, Nodule, Phos, Pyr, Salt, Sandy, Silt, Sil, Sulphur, Tuff

FOSSIL: Algae, Amph, Belm, Bioclst, Brach, Bryozoa, Cephal, Coral, Crin, Echin, Fish, Foram, Fossil, Gastro, Oolite, Ostra, Pelec, Pellet, Pisolite, Plant, Strom

STRINGER: Anhy, Arg, Bent, Coal, Dol, Gyp, Ls, Mrst, Sltstrg, Ssstrg

TEXTURE: Boundst, Chalky, Cryxln, Earthy, Finexln, Grainst, Lithogr, Microxln, Mudst, Packst, Wackest

OTHER SYMBOLS

POROSITY: Earthy, Fenest, Fracture, Inter, Moldic, Organic, Pinpoint, Vuggy

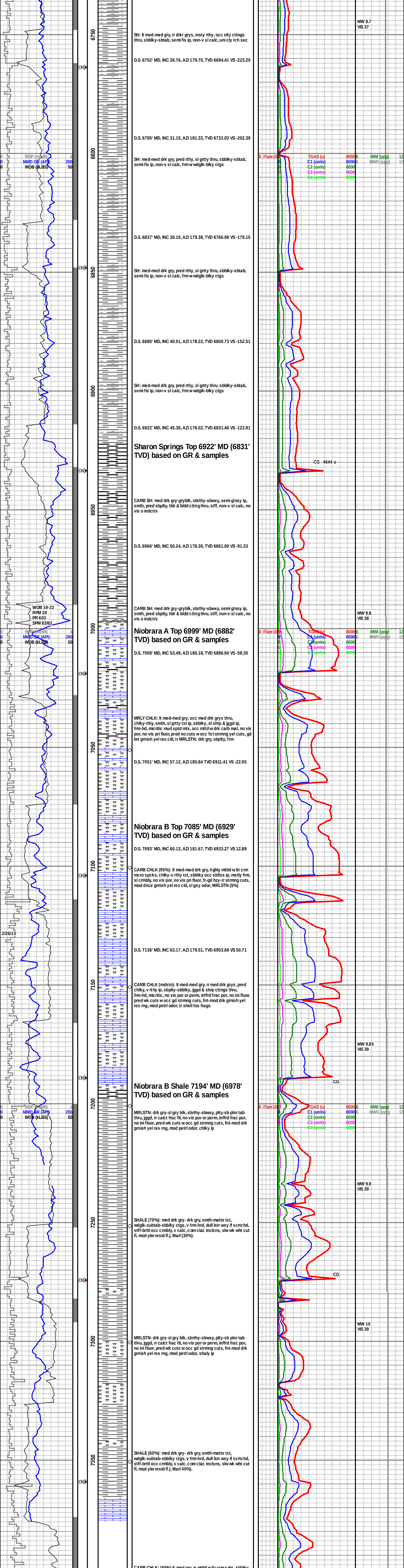
SORTING: Well, Moderate, Poor

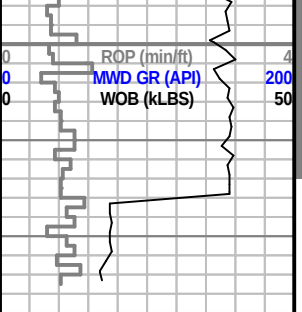
ROUNDING: Rounded, Subrnd, Subang, Angular

OIL SHOW: Even, Spotted, Ques, Dead

INTERVAL: Core, Dst

EVENT: New bit, Rft, Off btm, Conn, Casing, Casing_right


6750
6800
6850
6900
6950
7000
7050
7100
7150
7200
7250
7300
7350
ROP (min/ft)
MWD GR (API)
WOB (kLBS)
WOB 19-22
RPM 20
PR 603
SPM 83/82
2/26/13
SH: lt med-med gry, rr drkr grys, msty rthy, occ slty cttngs thru, sbblky-sbtab, semi fis ip, non-v sl calc, uni cly rch sec
D.S. 6752' MD, INC 26.76, AZI 179.70, TVD 6694.41 VS -223.20
D.S. 6795' MD, INC 31.15, AZI 181.33, TVD 6732.03 VS -202.39
SH: med-med drk gry, pred rthy, sl grtty thru, sbblky-sbtab, semi fis ip, non-v sl calc, frm w wdglk-blky ctgs
D.S. 6837' MD, INC 36.10, AZI 179.38, TVD 6766.99 VS -179.15
SH: med-med drk gry, pred rthy, sl grtty thru, sbblky-sbtab, semi fis ip, non-v sl calc, frm w wdglk-blky ctgs
D.S. 6880' MD, INC 40.51, AZI 178.22, TVD 6800.73 VS -152.51
SH: med-med drk gry, pred rthy, sl grtty thru, sbblky-sbtab, semi fis ip, non-v sl calc, frm w wdglk-blky ctgs
D.S. 6922' MD, INC 45.38, AZI 178.02, TVD 6831.46 VS -123.91
Sharon Springs Top 6922' MD (6831' TVD) based on GR & samples
CARB SH: med drk gry-gryblk, sbrthy-sbwxy, semi glssy ip, smth, pred sbplty, tblr & bldd cttng thru, stff, non-v sl calc, no vis o indctrs
D.S. 6966' MD, INC 50.24, AZI 178.30, TVD 6861.00 VS -91.33
CARB SH: med drk gry-gryblk, sbrthy-sbwxy, semi glssy ip, smth, pred sbplty, tblr & bldd cttng thru, stff, non-v sl calc, no vis o indctrs
Niobrara A Top 6999' MD (6882' TVD) based on GR & samples
D.S. 7008' MD, INC 53.49, AZI 180.18, TVD 6886.94 VS -58.30
MRLY CHLK: lt med-med gry, occ med drk grys thru, chlky-rthy, smth, sl grtty txt ip, sbblky, sl shrp & jggd ip, frm-hd, micritic mud sptd mtx, occ mttd w drk carb mat, no vis por, no vis pri fluor, pred no cuts w occ fs t strmng yel cuts, gd brt grnish yel res cld, tr MRLSTN: drk gry, sbplty, frm
D.S. 7051' MD, INC 57.12, AZI 180.84 TVD 6911.41 VS -22.95
Niobrara B Top 7085' MD (6929' TVD) based on GR & samples
D.S. 7093' MD, INC 60.13, AZI 181.67, TVD 6933.27 VS 12.88
CARB CHLK (95%): lt med-med drk gry, hghly mttld w ltr crm mcro spcks, chlky-v rthy txt, sbblky occ sbfiss ip, mstly frm, sl crmbly, no vis por, no vis pri fluor, fr-gd hzy-rr strmng cuts, mod dnce grnish yel res cld, sl gsy odor, MRLSTN (5%)
D.S. 7136' MD, INC 63.17, AZI 179.51, TVD 6953.69 VS 50.71
CARB CHLK (mdstn): lt med-med gry, rr med drk grys, pred chlky, v rt hy ip, sbplty-sbblky, jggd & shrp cttngs thru, frm-hd, micritic, no vis por or perm, inffrd frac por, no ini fluor, pred wk cuts w occ gd strmng cuts, fnt-mod drk grnish yel res rng, mod petrl odor, tr shell fos frags
Niobrara B Shale 7194' MD (6978' TVD) based on GR & samples
MRLSTN: drk gry-sl gry blk, sbrthy-sbwxy, plty-sb plnr tab thru, jggd, rr calct frac fil, no vis por or perm, inffrd frac por, no ini fluor, pred wk cuts w occ gd strmng cuts, fnt-mod drk grnish yel res rng, mod petrl odor, chlky ip
SHALE (70%): med drk gry- drk gry, smth-matte txt, wdglk-subtab-sbblky ctgs, v frm-hrd, dull lstr wxy if scrtchd, stff-brttl occ crmbly, v calc, com clac inclsns, slw wk wht cut fl, mod ylw resid fl.), Marl (30%).
MRLSTN: drk gry-sl gry blk, sbrthy-sbwxy, plty-sb plnr tab thru, jggd, rr calct frac fil, no vis por or perm, inffrd frac por, no ini fluor, pred wk cuts w occ gd strmng cuts, fnt-mod drk grnish yel res rng, mod petrl odor, shaly ip
SHALE (60%): med drk gry- drk gry, smth-matte txt, wdglk-subtab-sbblky ctgs, v frm-hrd, dull lstr wxy if scrtchd, stff-brttl occ crmbly, v calc, com clac inclsns, slw wk wht cut fl, mod ylw resid fl.), Marl 40%).
CARB CHLK: (50%) lt-med gry, rr mttld w ltr crm smts, sbblky
Flare
TGAS (u)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
MWI (ppg)
MWO (ppg)
MW 9.7
VIS 37
CG - 4644 u
MW 9.8
VIS 38
CG
MW 9.85
VIS 39
MW 9.9
VIS 39
MW 10
VIS 39



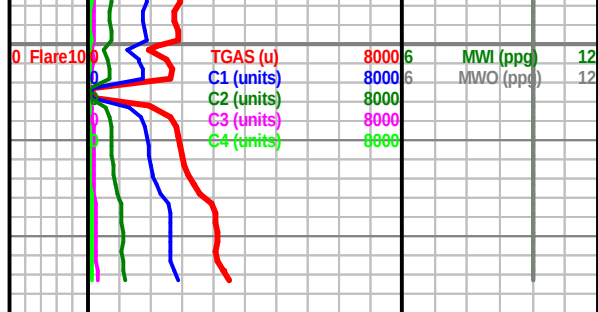
7400

7450

CARB CHER: (50%) lt-med gry, fr-frtld w/ crm-s pts, sbblky, jggd & shrp, mod frm, drty w 20% arg mtx & 5% carb mtrl, o flm w/ HCL, infer mic por, pred no fluor w/ hzy cut - 30% dul yell uni fluor w/ fst blmg strmg cut, gd res rng. Marlstn (50%)

Reached End of curve section @ 7425' 05:02 hrs 2/26/2013.

END Vertical Hole Log Section, Begin Horizontal Log Section

Formation Tops Picked by Wellsite Geologists Larry Goolsby (GBA)

Sharon Springs	6,833' (-1,907')
Niobrara	6,882' (-1,956')
Nio B	6,929' (-2,003')
Nio B Shale	6,978 (-2,052)
DMTD	16,950'
Production csg	16,935'