

Colin Higgins & Associates



Scale 1:500 Metric

Well Name: BOUNDARY CREEK 2
 Location: GIPPSLAND
 Licence Number: PEP157
 Spud Date: 10/10/05
 Surface Coordinates: LAT 38-11-30 S
 LONG 147-07-49 E

Region: VICTORIA
 Drilling Completed: 17/11/05

Bottom Hole
 Coordinates:
 Ground Elevation (m): 74 m K.B. Elevation (m): 77.65 m
 Logged Interval (m): 15 To: 2341 Total Depth (m): 2341
 Formation: STREZLECKI
 Type of Drilling Fluid: KCI Polymer

Printed by MUD.LOG from WellSight Systems Inc. 1-800-447-1534 www.wellsight.com

OPERATOR

Company: LAKES OIL NL
 Address: Level 11, 500 Collins St, Melbourne, 3000

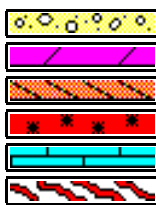
GEOLOGIST

Name: DAVE HORNER
 Company: ECL
 Address:

ROCK TYPES



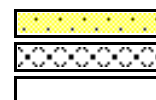
Anhy
 Bent
 Brec
 Cht
 Clyst
 Coal



Congl
 Dol
 Gyp
 Igne
 Lmst
 Meta



Mrlst
 Salt
 Shale
 Shcol
 Shgy
 Slst



Ss
 Till
 Blank

ACCESSORIES

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brefracg
- 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 TYPE

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint

Vuggy

Vuggy

SORTING

- Well
- Moderate
- Poor

ROUNDING

- Rounded
- Subrnd

Subang

Subang

Angular

Angular

OIL SHOWS

- Even
- Spotted
- Ques
- Dead

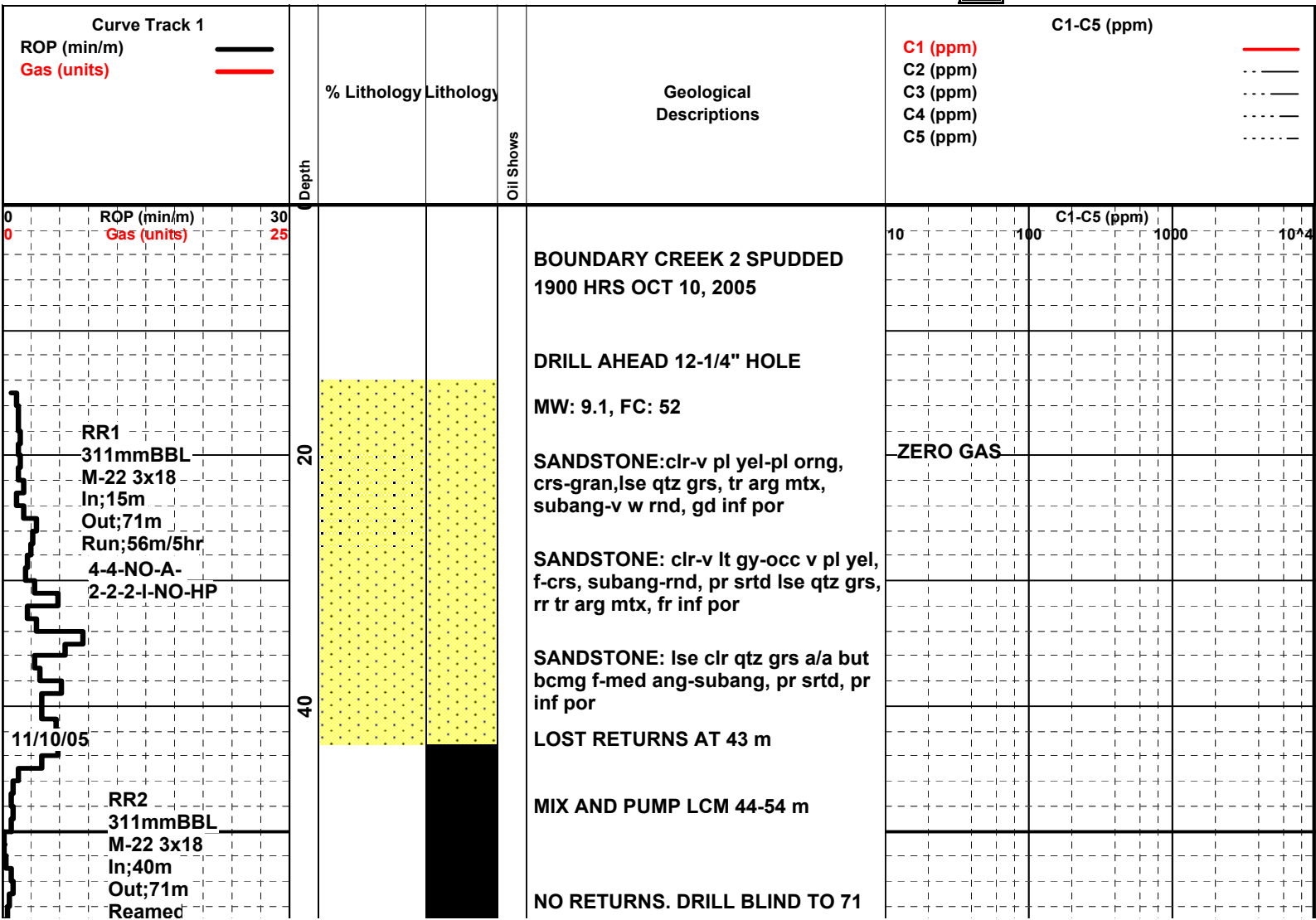
INTERVALS

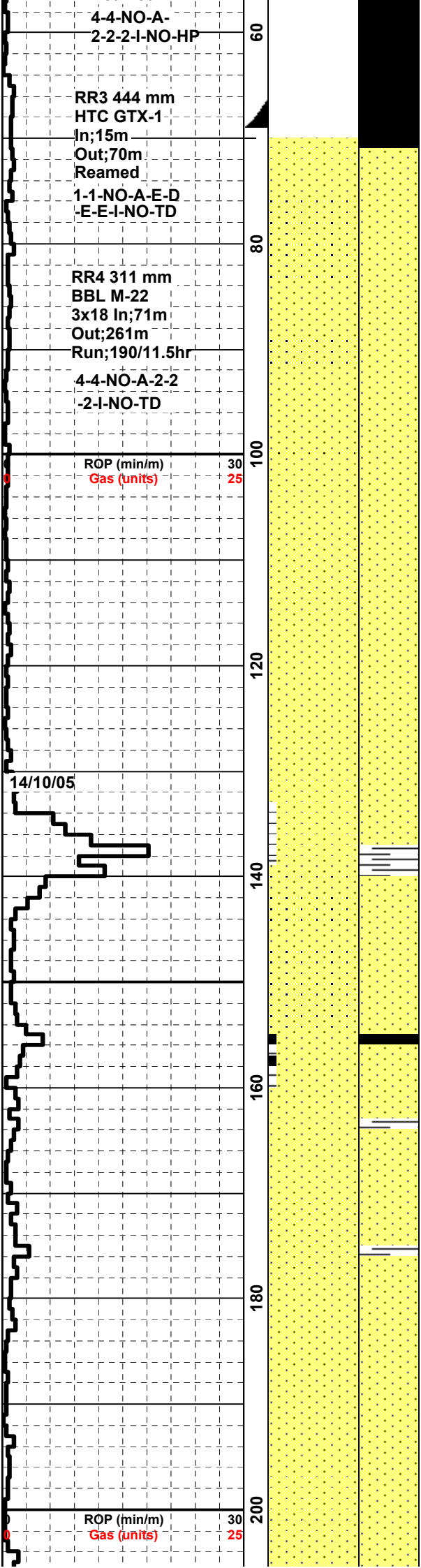
None

- Core
- Dst
- Csg2

EVENTS

- Rft
- Sidewall
- Csg13





m

CEMENT OPEN HOLE

RUN 13-3/8 CSG AS CONDUCTOR TO 69 M. DRILL AHEAD WITH FULL RETURNS

SANDSTONE: clr-v lt gy-clss, trnsl-opq, occ sli frsty, med-v crs, dom crs, mod srtd, subang-subrnd, lse, tr pyr, tr mic, rr tr arg mtl, gd inf por

SANDSTONE: clr-v lt gy-clss, trnsl-opq, occ sli frsty, med-v crs, dom crs, mod srtd, subang-subrnd, lse, tr pyr, tr mic, rr tr arg mtl, gd inf por

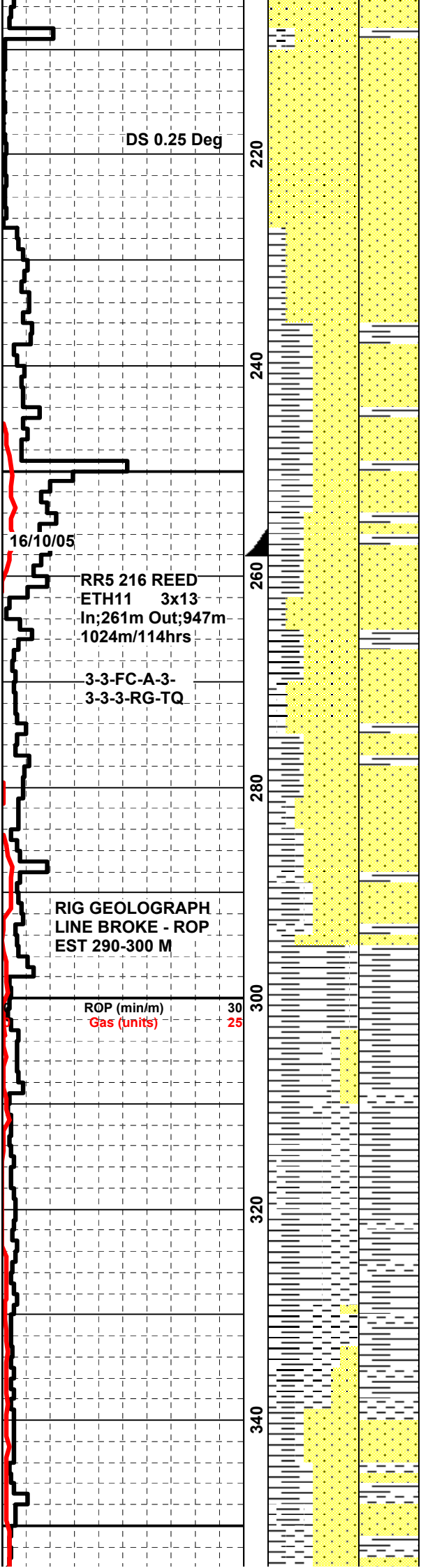
MW 8.6, FV 40, PV 12, YP 6, Gel 4/8/10, WL 21, Sol 2.1, pH 11.2, CL 6500.

SANDSTONE: clr-v lt gy-clss, trnsl-opq, occ sli frsty, med-v crs, bec finer w dpth, mod srtd, subang-subrnd, lse, tr pyr, tr mic, rr tr arg mtl, gd inf por

SANDSTONE: clr-v lt gy-clss, trnsl-opq, occ sli frsty, pred f, mod srtd, subang-subrnd, lse, tr pyr, tr mic, rr tr arg mtl, gd inf por

SANDSTONE: clr-v lt gy-clss, trnsl-opq, occ sli frsty, pred m, mod srtd, subang-subrnd, lse, tr pyr, gd inf por

NO RETURN FLOW	
NIL GAS	
NIL GAS	
NIL GAS	
C1-C5 (ppm)	
10 100 1000 10 ⁴	
NIL GAS	
NIL GAS	
NIL GAS	
NIL GAS	
C1-C5 (ppm)	
10 NIL GAS 100 1000 10 ⁴	



SANDSTONE: as 30%lse qtz gns, clr, trns, crs, w srtd,rnd-sbrnd, occ orng gns and 50% SS, lt gy-gy, m grn, w srtd, consists of qtz, feld, mic, tr py, arg mtx & SLTST: 20 % lt bn gy, sft-frm, sbblky

SANDSTONE: lt-med gy-med grn gy, vf-crs dom med, subang-subrnd, mod srt, wk sil cmt, com wh arg mtx, abnt fels & liths, com qtz grs, tr blk carb mtl, pr-fr vis por, no fluor

CLAYSTONE: lt gy-med grn gy, mod silty, tr blk carb flecks, tr pyr, sft, v disp, non-fiss

RUN 95/8 CASING, FIT AT 264m with 8.55ppg mud EMW=12.5ppg

MW 8.55, FV 42, PV 15, YP 24, Gel 3/3/, WL 10,Sol 1.0, pH 10.9, CL 9000.

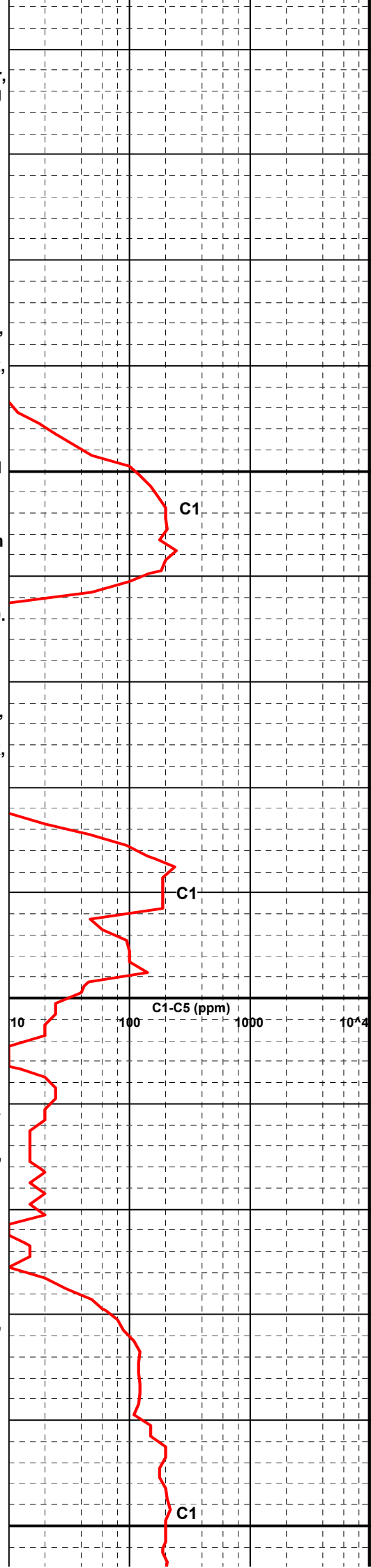
SANDSTONE: lt-med gy-med grn gy, vf-crs dom med, subang-subrnd, mod srt, wk sil cmt, com wh arg mtx, abnt fels & liths, com qtz grs, tr blk carb mtl, pr-fr vis por, no fluor

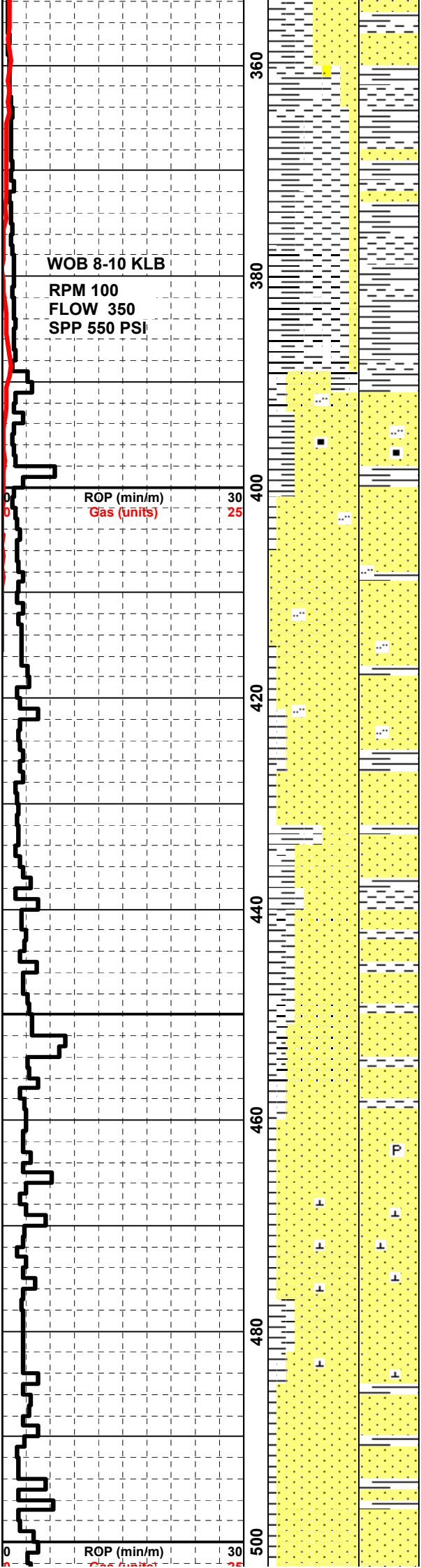
CLAYSTONE: lt gy-dk gy, pred mod frm, blk-sbblcky, sl micr mic, occ carb flecks

CLAYSTONE: lt gy-med gy-grn gy, v silty i/p, sft-frm, subblky, com brn carb mtl, flecs & lamin, vf sst inclus, sli micmic,

CLAYSTONE: lt gy-med lt gy-grn gy, sft-frm, amorph-sbblky, v silty, brn carb flecs & mtl, vf sand inclus, incr wh vf-f sand w/wh arg mtx

SANDSTONE: v lt gy-off wh, vf-med dom f-med, ang-subrnd, w-v w srtd,





com arg mtx, tr sil cmt, tr calc vns, pyr nod, gd inf por, no fluor

CLAYSTONE: lt gy-med lt gy-grn gy, sft frm, amorph-sbbkly, v silty, brn carb flecs & mtl, vf sand inclus, incr wh vf-f sand w/wh arg mtx

SANDSTONE: lt-med grn gy, vf-med dom f, subang-subrnd, mod srt, wk sil cmt, abnt wh arg mtx, abnt fels & liths, tr brn/blk liths, tr crs mica, tr blk carb mtl, tr pyr, pr vis por, no oil fluor

SANDSTONE: varicol clr-v lt gy-off wh-pl grn-grn gy-brn, vf-crs dom med, subang-rnd dom subang, w-v w srt, tr gy wh arg mtx, tr pyr cmt, tr calc, tr lith frags, gd inf por, no fluor

SANDSTONE: lt-med grn gy, vf-crs dom med, subang-subrnd, mod-w srt, wk sil cmt, com wh arg mtx, abnt alt fels & grn lith gr, tr brn/blk liths, com qtz grs, tr blk carb mtl, tr pyr, fri, fr-gd vis por, no oil fluor

CLAYSTONE: lt grn gy-grn gy-med gy, frm, silty, carb flecs & mtl, tr calc vns, sbbkly, vf-f sand inclus

SANDSTONE: varicol clr-v lt gy-off wh-pl grn-grn gy-brn, vf-crs dom med, subang-rnd dom subang, w-v w srt, tr gy wh arg mtx, tr pyr cmt, tr calc, tr lith frags, gd inf por, no fluor

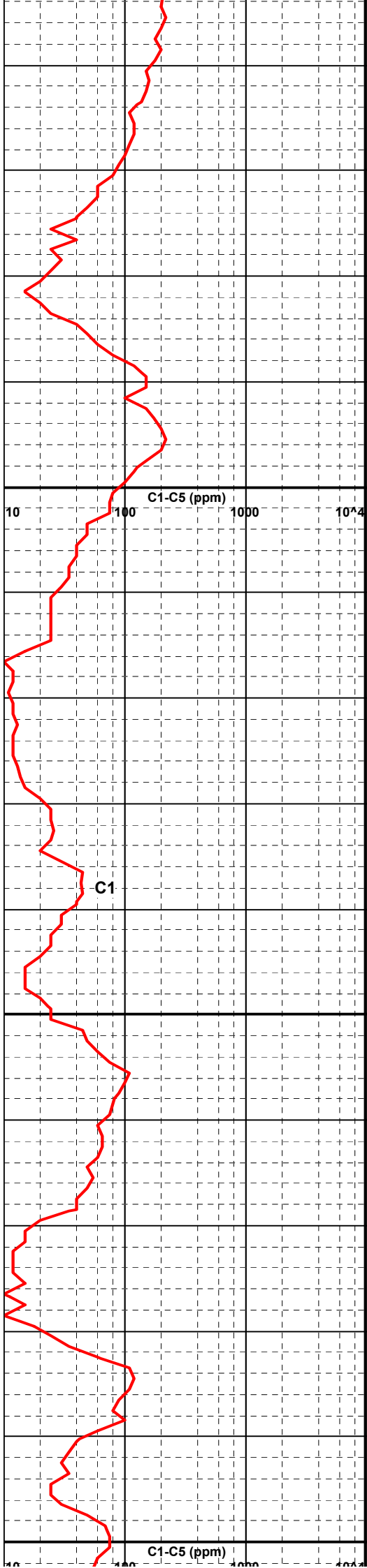
SANDSTONE: varicol gen a/a bcmg dom grn-grn gy f grs, wk-mod sil cmt, com calc cmt, wh arg mtx i/p, pr-v pr vis por, no oil fluor

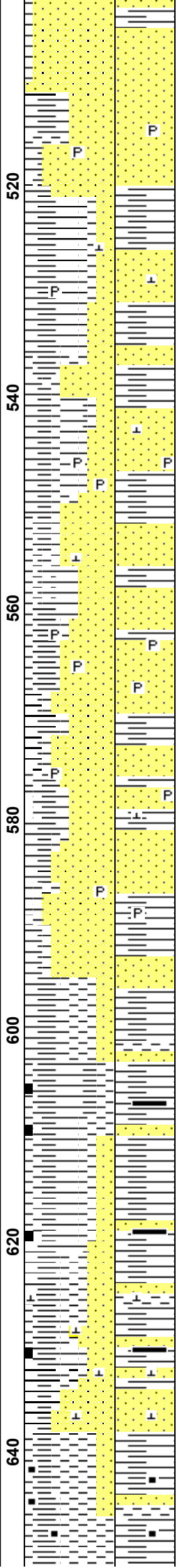
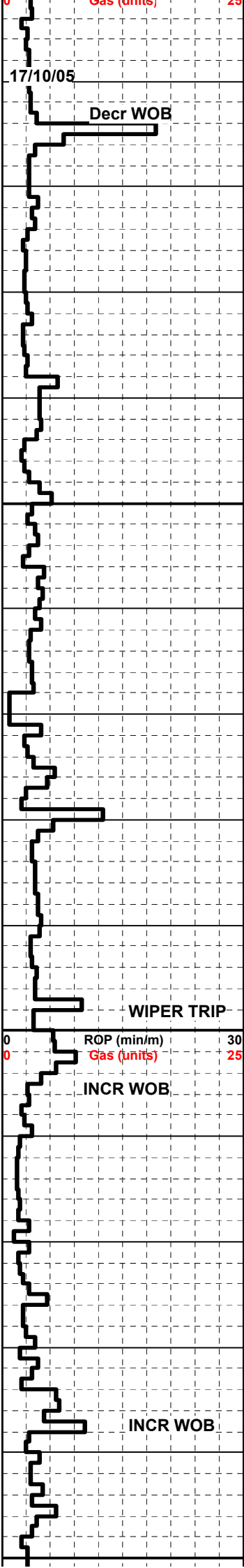
SANDSTONE: varicol volcaniclast dom grn - pl grn, w/wk calc & sil cmt, f-med aggs, pr-v pr por

SANDSTONE: gen a/a decr calc cmt

CLAYSTONE: med gy-grn gy, v silty, frm, sbbkly-blky, tr carb mtl

SANDSTONE: varicol volcaniclast dom grn - pl grn, w/wk calc & sil cmt, f-med aggs, pr-v pr por inf por, no fluor





SANDSTONE: varicol volcanoclast
lt-med grn gy,v f - med, dom f,
subang-subbrnd, mod srtd, wk sil &
calc cmt, comn wh arg mtx, abndt
alt feld & gy gn lith gns, tr blk carb
ficks, tr py, fri, pr vis por, nil oil fluor

MW 8.85, FV 38 , PV 10, YP 8, Gel
1/2/2, WL 6.8, Sol 6.9, pH 9.0, CL
9500.

CLAYSTONE: med gy-med brn
gy-occ gn gy, v slty, occ aren w alt
lith gns, tr blk carb ficks, tr py, sft,
sl disp, non fiss

SANDSTONE: varicol volcanoclast
lt-med grn gy,v f - med, dom f,
subang-subbrnd, mod srtd, wk sil &
calc cmt, comn wh arg mtx, abndt
alt feld & gy gn lith gns, tr blk carb
ficks, tr py, fri, pr vis por, nil oil fluor

CLAYSTONE: med gy-med brn
gy-occ gn gy, v slty, occ aren w alt
lith gns, tr blk carb ficks, tr py, sft,
sl disp, non fiss

SANDSTONE: varicol volcanoclast
lt-med grn gy,v f - med, dom f,
subang-subbrnd, mod srtd, wk sil &
calc cmt, comn wh arg mtx, abndt
alt feld & gy gn lith gns, tr blk carb
ficks, tr py, fri, pr vis por, nil oil fluor

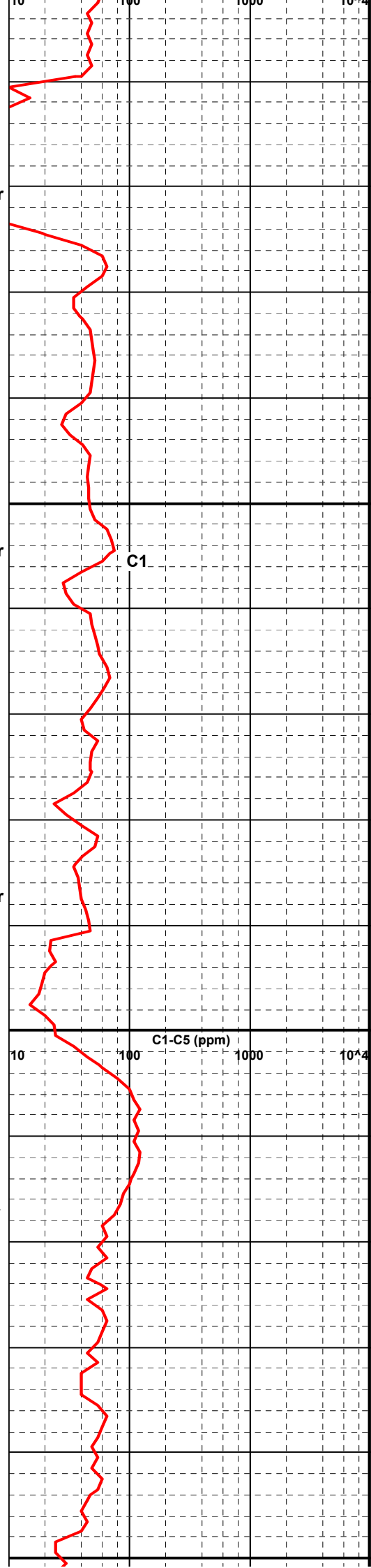
SURVEY = 1 deg @ 600m

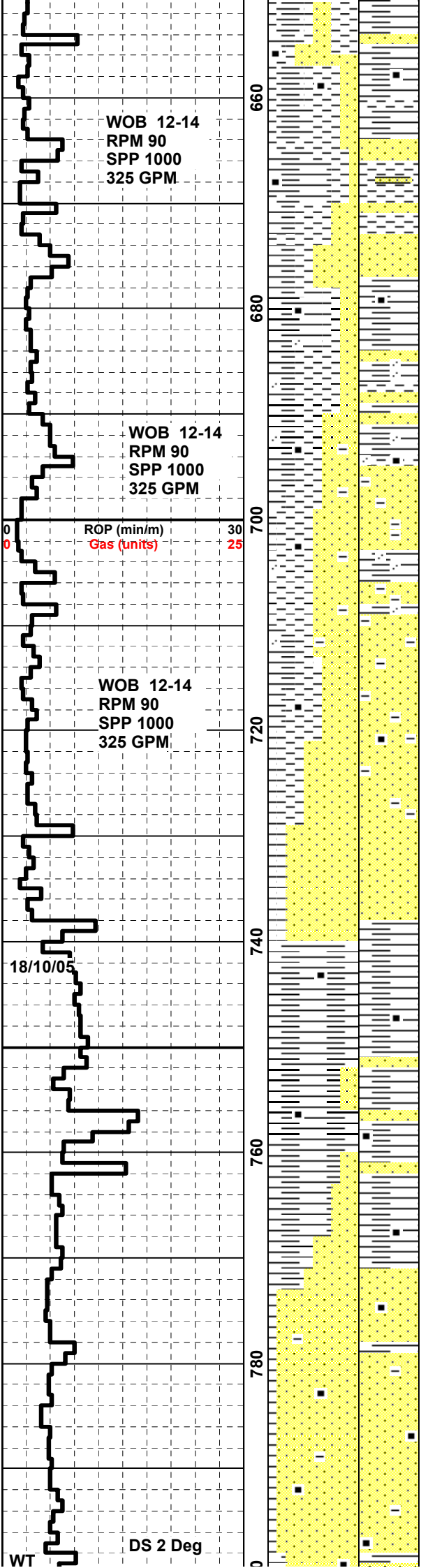
SANDSTONE: lt-med grn gy, vf-crs
dom med-crs, subang-subbrnd, mod
srt, wk sil & mod calc cmts,
com-abnt wh arg mtx, abnt alt fels &
gy gn lith, tr brn-blk liths, com qtz
grs, tr crs brn mica, tr pyr, fri-mod
hd, com blk coal detritus, pr vis por,
no oil fluor

CLAYSTONE: gen a/a incr silty &
frm-hd, blk

SANDSTONE: gen a/a w/incr sil &
calc cmt i/p, hd, v pr vis por

CLAYSTONE: lt-med gy-med gy-grn
gy, v silty, incr carb flecks & lam,
frm, non fiss





SANDSTONE: lt-med grn gy, vf-med dom f, subang-subrnd, mod srt, wk sil & mod cal cmts, abnt wh arg mtx, abnt alt fels & gy grn lithics, tr brn/blk lith grs, tr qtz, tr crs brn mica, tr blk coal, tr pyr nod, fri-mod hd, pr-v pr vis por, no oil fluor

CLAYSTONE: med gy-med brn gy-med grn gy, v silty, vf aren w/alt lith grs & qtz inclus, tr blk coal, v carb i/p, sft frm, non fiss

CLAYSTONE: lt-med gy-med gy-grn gy, v silty, incr carb flecks & lam, frm, non fiss

SANDSTONE: lt-med grn gy, vf-med dom f, subang-subrnd, mod srt, wk sil & mod cal cmts, abnt wh arg mtx, abnt alt fels & gy grn lithics, tr brn/blk lith grs, tr qtz, tr crs brn mica, tr blk coal, tr pyr nod, fri-mod hd, pr-v pr vis por, no oil fluor

SANDSTONE: lt gy-off wh, vf-f grs, v silty, mtx spt, abnt wh arg mtx, gen lse grs in abnt wh arg mtx, tr carb detr, pr vis por, no oil fluor

SANDSTONE: lt gy-pl grn-off wh, f-med grs, mod sil cmt i/p, com lith frags, fri-hd, v pr vis por

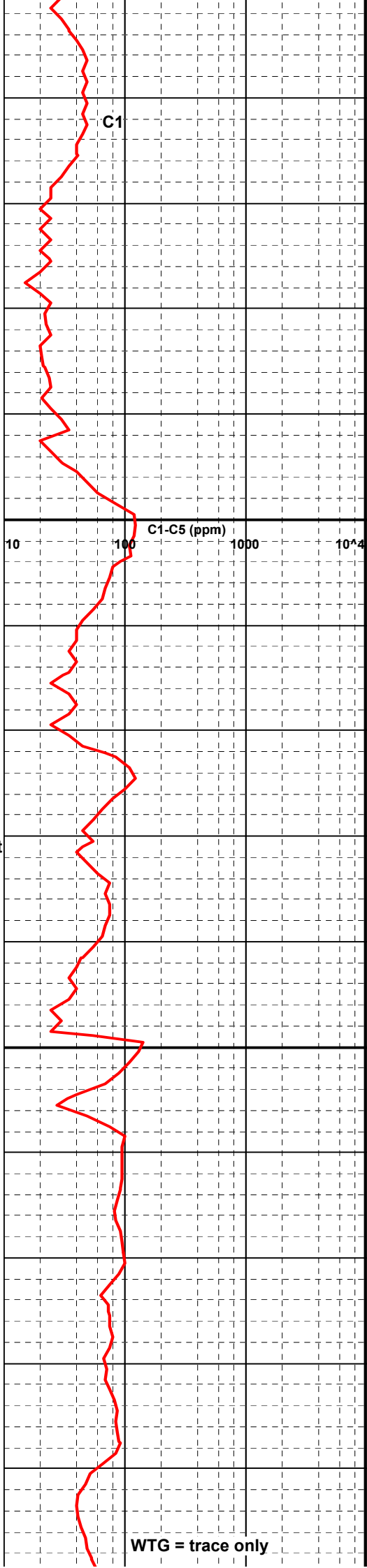
CLAYSTONE: lt gy-med gy, gen a/a, sft frm, com-abnt silt-vf sand inclus, amorph-subblky, carb i/p

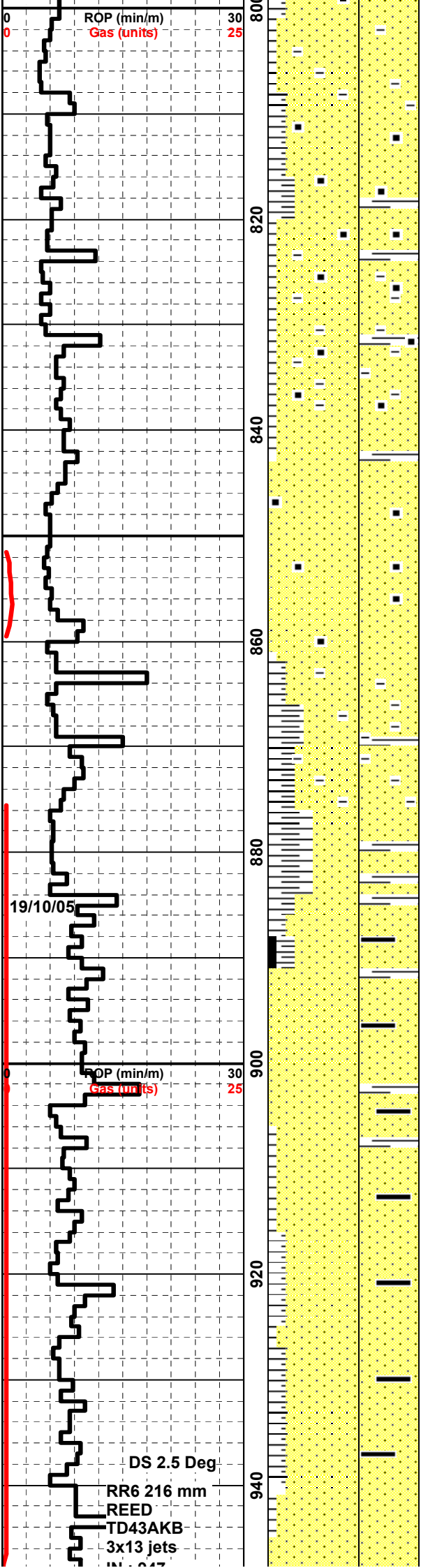
SANDSTONE: volcanoclastics, lt gy-lt grn-off wh, f-med dom f, subang-subrnd, w srt, gen lse w/tr arg mtx, com liths, tr sil cmt, pr inf por, no oil fluor

CLAYSTONE: lt gy-gy-occ dk gy w/ blk flcks, abndt wh arg mat, abnd alt feld & gn gy lith, tr or & brn lith gns, tr blk carb mat, v sft, occ frm, grd to f snd, com lith frags, amorph-sb blkky, carb i/p

SANDSTONE: lt-med gn gy, occ wh-off wh, vf-med, dom f, sbang-sbrnd, mod srt, v hd, wk calc & mod sil cmnt, qtz gns, no por, no oil fluor

MW 8.85, FV 38, PV 10, YP 8, Gel 1/2/2, WL 6.8, Sol 1.0, pH 9.0, CL 9500.





SANDSTONE: lt-med gn gy, occ wh-off wh,vf-med,dom f, sbang-sbrnd, mod srted, v hd,wk calc & mod sil cmnt, qtz gns, no por, no oil fluor

SANDSTONE: lt - med grn gy, vf-crs srted med, subang-subrnd, mod-w srted, mod sil & wk calc cmnts, abnt wh arg mtx, abnt alt fels & gy grn lith grs, tr brn, orng, blk liths, com lse qtz grs, tr brn mica flks, tr-com blk carb mtl, hd, v pr vis por, no oil fluor

CLAYSTONE: off wh-med brn gy-med grn gy, v silty, occ vf aren w/alt lith grs, tr blk carb flk & lam, tr micmic, sft-occ frm, non fiss

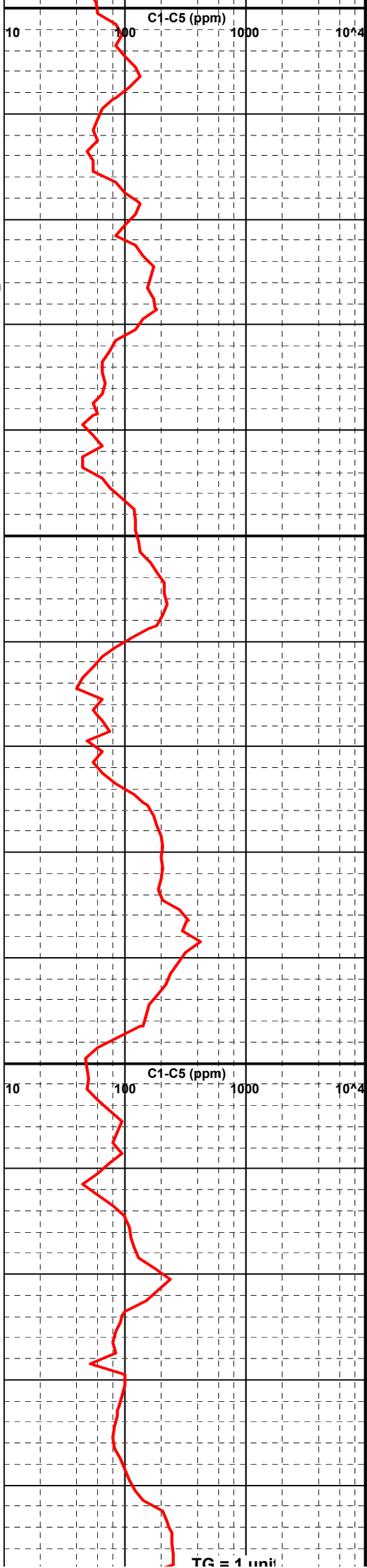
SANDSTONE: v lt gy-off wh-pl grn gy, vf-crs dom med, mod-w srted, tr mod sil & wk calc cmnts, decr wh arg mtx, abnt alt fels & gy grn lith grs, tr brn, orng, blk liths, com as lse qtz grs, tr brn mica flks, tr-com blk carb mtl, com coal detritus, hd, v pr vis por, no oil fluor

SANDSTONE: gen a/a volcanoclastic w/incr wh arg mtx, v pr inf por, no oil fluor

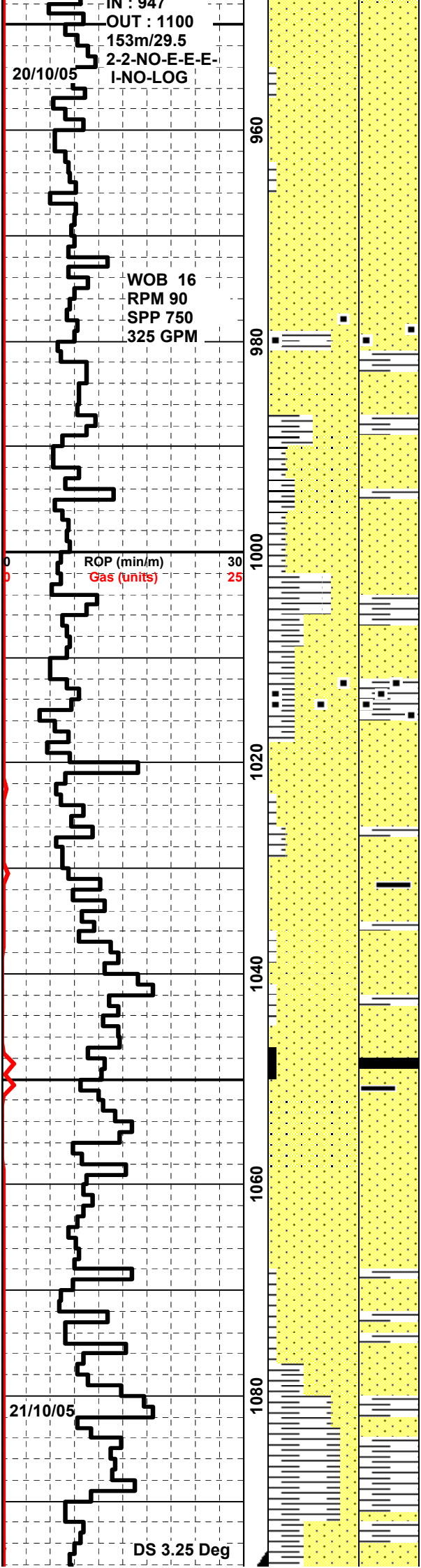
CLAYSTONE: m gy-m bn gy-med bn-med gn gy, occ v fn aren w alt lith gns, tr blk carb flcks, tr blk coal, tr micmic, frm, sl sbfiss

SANDSTONE:lt-m gn gy, vf-c, dom m, sbrnd-sbang, mod srted, mod sil & wk calc cmt, comn-abnt wh arg mtx, abndt alt feld & gy gn lth gns, tr or bn & blk lith gns, comn qtz gns, tr crs brn mic flks, tr blk coaly dtrs, hd, v pr-pr vis por, no oil fluor

SANDSTONE:lt-m gn gy, vf-c, dom m, sbrnd-sbang, mod srted, mod sil & wk calc cmt, comn-abnt wh arg mtx, abndt alt feld & gy gn lth gns, tr or bn & blk lith gns, comn qtz gns, tr crs brn mic flks, tr blk coaly dtrs, hd, v pr-pr vis por, no oil fluor



TG = 1 unit



CLAYSTONE:lt gy, lt brn, sft frm, tr-mod carb spks and lams, aren i/p, non calc, sbly

SANDSTONE:lt- gy, lt gn, med -crs, sbrnd, occ sbang, wl srtd, mod calc cmt, abndt alt feld & gy gn lith gns, mod qtz gns, frm-hd, v gd vis por, no oil fluor.

SANDSTONE:lt-med gy, vf-occ m, sbang-sbrnd, mod w srtd, mod sil & calc cmt, abndt wh arg mtx, abndt alt deld & gr gn lith gns, tr or & bn lith gns, cmn qtz gns, tr blk coal, tr py, hd, no vis por, no oil fluor

CLAYSTONE: off wh-lt bn-med bn gy, mod-v slty, pred vf aren w alt lith gns, tr black carb flicks, tr blk coal, tr micrmic, frm, sl sbfiss

CLAYSTONE: off wh-lt bn-med bn gy, mod-v slty, pred vf aren w alt lith gns, tr black carb flicks, tr blk coal, tr micrmic, frm, sl

SANDSTONE: lt-m gn gy, vf-c, dom m, sbang-sbrnd, mod srtd, mod sil & calc cmt, abndt wh arg mtx, abnt alt feld & gy gn lith gns, tr or bn & blk lith gns, com qtz gns, tr blk coal, tr py, hd, v pr vis por, nil oil fluor

SANDSTONE; a/a incr wl cmt, no vis por.

CARBIDE @ 1042m TG 10 Units Hole 8% O'Guage

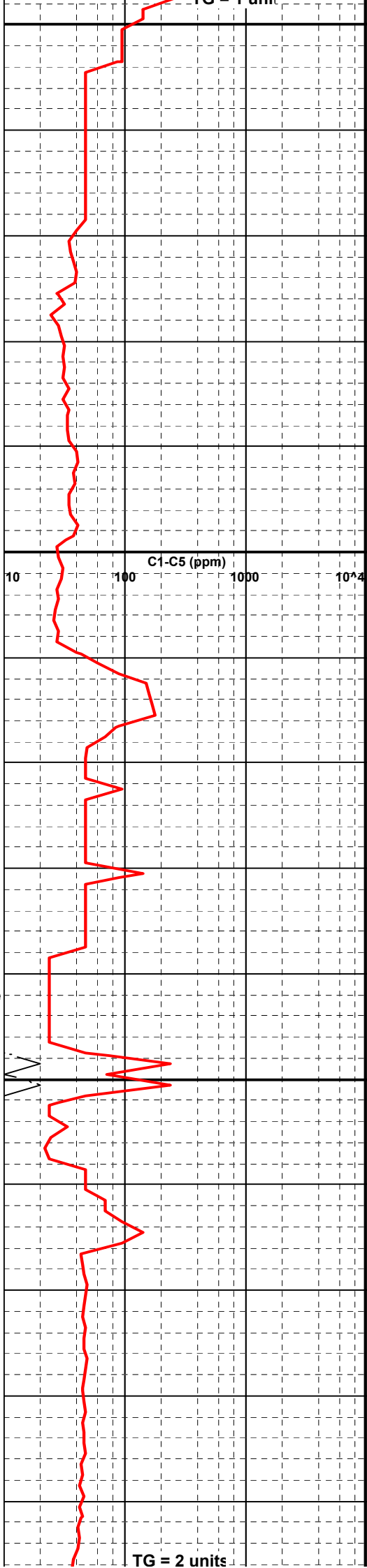
COAL: brn-blk,hd, brttl, sbvit, sng to sub conc frac-cleated, sbly.

SANDSTONE: lt to med grn gy, vf-c, pred m, sbang-sbrnd, mod srtd, mod sil and str calc cmt, cmn wh arg mtx, abund alt fldspr and gy gn lith gns, tr orn brn and blk lith gns, cmn qtz grns, tr com blk coaly detritus, hd, v por vis por, no flu.

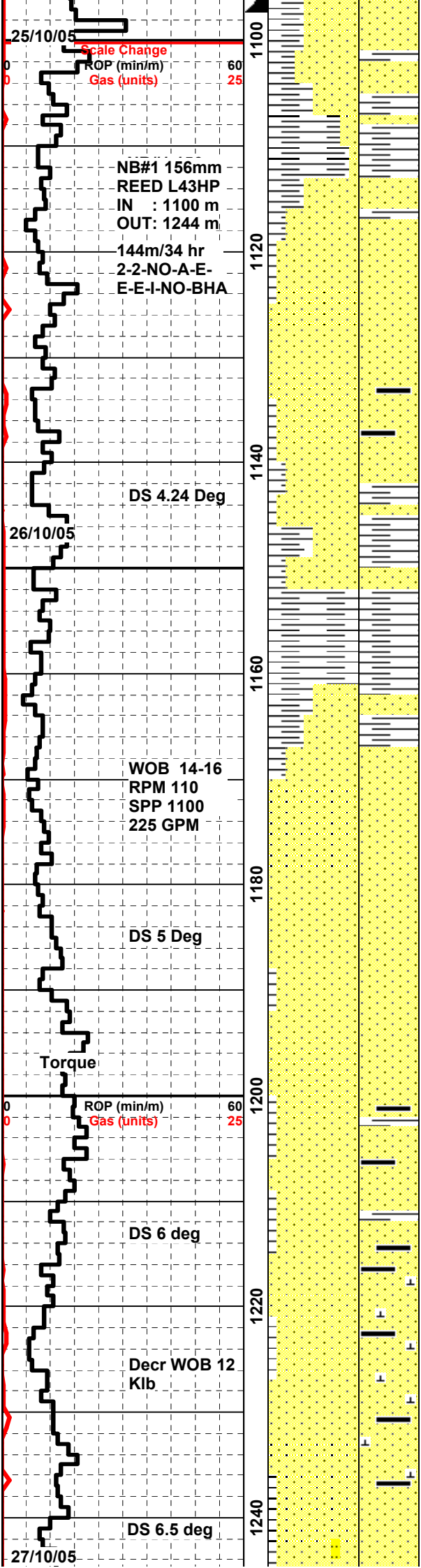
CLAYSTONE: med gy - med bn - med gn gy, mod-v slty, ot v aren w alt lith gns

Wireline Log Run1;
 MLL\DLL\XMAC\ZDL\CN\GR\IRMT
 Run2; RCLR: CUT 21, REC 21

7" CSG SFT SHOF @ 1097r



TG = 2 units



FIT@1103m EMW=13 ppg

NOTE: ROP SCALE CHANGE

CARBIDE @ 1112m 35 Units Hole in gauge

SANDSTONE: lt gy, frm-hd, vf, sbang, wl srted, cmn brn lith grns, mod abund sil cmt, calc cmt i/p, n vis por, no fluor.

MW 9.95, FV 37, PV 11, YP 4, Gel 1/2/ , WL 8.2, Sol 2.5, pH 11.4, CL 8000.

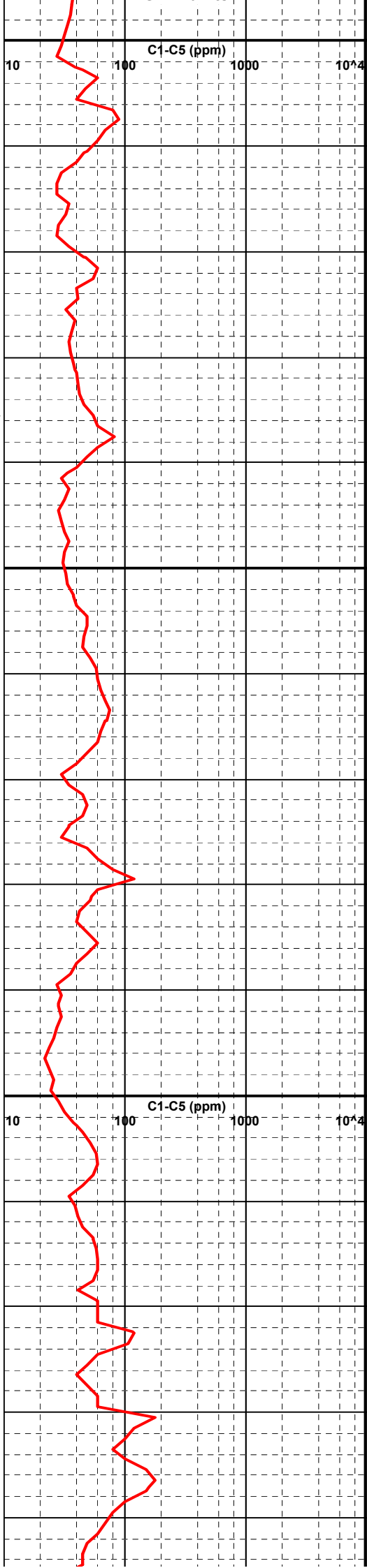
CLAYSTONE: dk brn-blk, carb, frm, tr micmic, fiss, no fluor, wk-mod br v pl yel wh crsh cut fluor

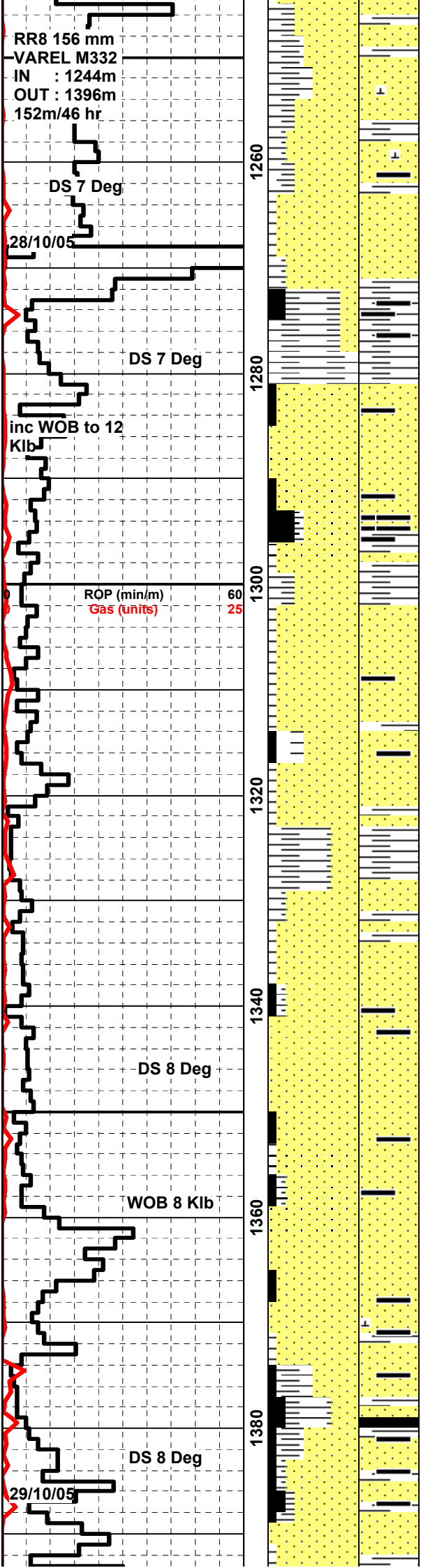
CLAYSTONE: med gy, sft-frm, slty i/p, cmn vf qtz incl, tr brn lith incl, tr micmic, sblky.

SANDSTONE: lt-m gn gy, vf-m, dom f, sbang-sbrnd, mod srted, mod sil & calc cmt, abnt wh arg mtx, abndt alt feld & gy gn lith gns, tr or bn & blk lith gns, tr qtz gns, tr blk coal, hd, nil-v pr vis por, no oil fluor

SANDSTONE: lt-m gn gy, vf-m, dom f, sbang-sbrnd, mod srted, mod sil & calc cmt, abnt wh arg mtx, abndt alt feld & gy gn lith gns, tr or bn & blk lith gns, tr qtz gns, tr blk coal, hd, cmn vng filled w sft lt brn spy min & mnr brk rd min & clac, nil-v pr vis por, no oil fluor

SANDSTONE: lt-m gn gy, vf-m, dom m, sbang-sbrnd, mod srted, str sil & calc cmt, cmn wh arg mtx, abndt alt feld & gy gn lith gns, tr or brn & blk lith gns, tr qtz gns, cmn blk coaly mt, hd, abund veins w/ sft lt brn soapy min & tr brk rd min, cmn xln cal, nil-v pr, no oil flu.





CLAYSTONE: ol gy, gy, blk-brn, slty i/p, tr-mod carb spk & lams, tr-mod micmic, frm, sblky.

SANDSTONE: lt-m gn gy, vf-m, dom m, sbang-sbrnd, mod srtd, str sil & calc cmt, cmn wh arg mtx, abndt alt feld & gy gn lith gns, tr or brn & blk lith gns, tr qtz gns, cmn blk coaly mt, hd, abund veins w/ sft lt brn soapy min & tr lt brn soapy min & tr brk rd min, cmn xln cal, nil-v pr, no oil flu.

COAL: blk-dk gy, earthy-sbvitr lustr, blkcy-sbconch frac, cln-dom v arg, hd, brttl, no fluor

CLAYSTONE: m-dk gy - med gn gy, v slty ip, occ v f aren w alt lith gns, tr blk carb flcks, cmn blk coal, tr micmic, mod hd, subfiss

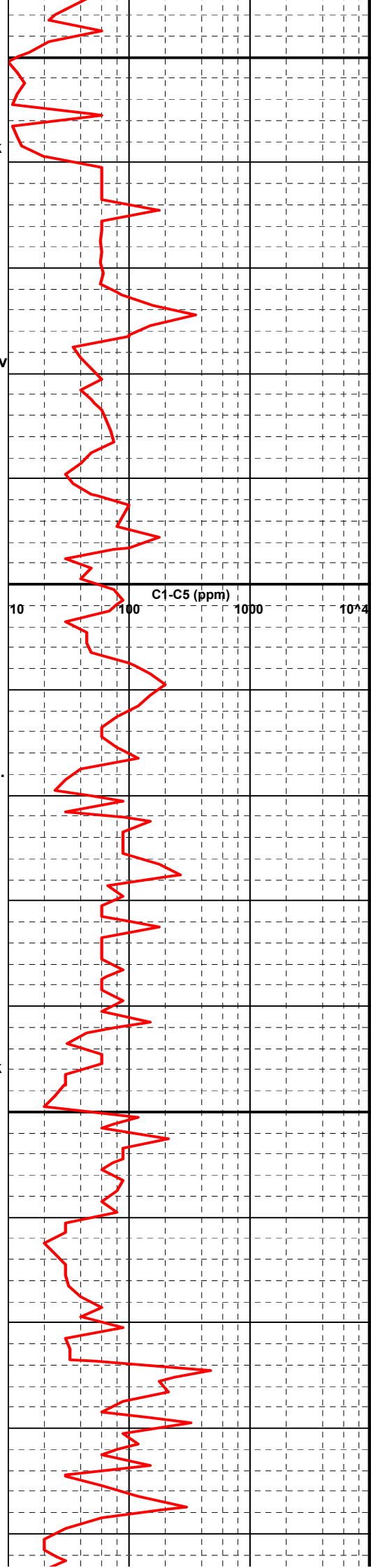
COAL: blk-dk gy, earthy-sbvitr lustr, blkcy-sbconch frac, cln-dom v arg, hd, brttl, wk dull yel crsh cut fluor

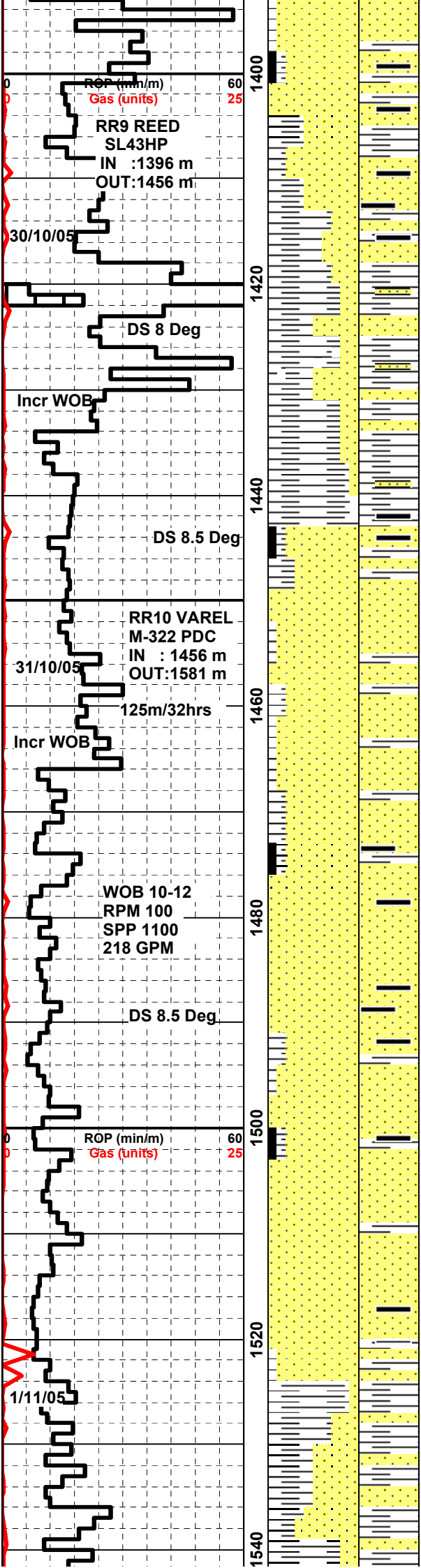
MW 9.3, FV 39, PV 12, YP 7, Gel 2/4/5, WL 7, Sol 7, pH 10.8, CL 9,800.

SANDSTONE: lt-m gn gy, vf-m, dom m, sbang-sbrnd, mod srtd, str sil & calc cmt, cmn wh arg mtx, abndt alt feld & gy gn lith gns, tr or brn & blk lith gns, tr qtz gns, cmn blk coaly mt, hd, abund veins w/ sft lt brn soapy min & tr lt brn soapy min & tr brk rd min, cmn xln cal, nil-v pr, no oil flu.

COAL: dk brn-blk, frm-hd, sub vitr-dull lustre, fiss, dull wh c cut, thn yl-wh sptd res ring.

CLAYSTONE: m-dk gy - med brn gy, v slty ip, occ v f aren w alt fldspr gns, tr blk carb flcks, cmn blk coal, tr micmic, mod hd, subfss.





SANDSTONE: lt-m gy, vf-m, dom f, sbang-sbrnd, mod srted, mod sil & str calc cmt, abund wh arg mtx, abund altr fldspr, cmn gy gn liths, tr orn brn & blk liths, tr qtz gns, cmn blk coaly mt, cmn to abnd veining infld w/ sft lt brn soapy mt & br rd min, cmn xln cal, abund slicksides, hd, no vis por, no oil flu.

CLAYSTONE: lt-dk gy, med brn gy, slty ip, occ v f aren, occ blk coal, tr micmic, sft - mod hd, subfss

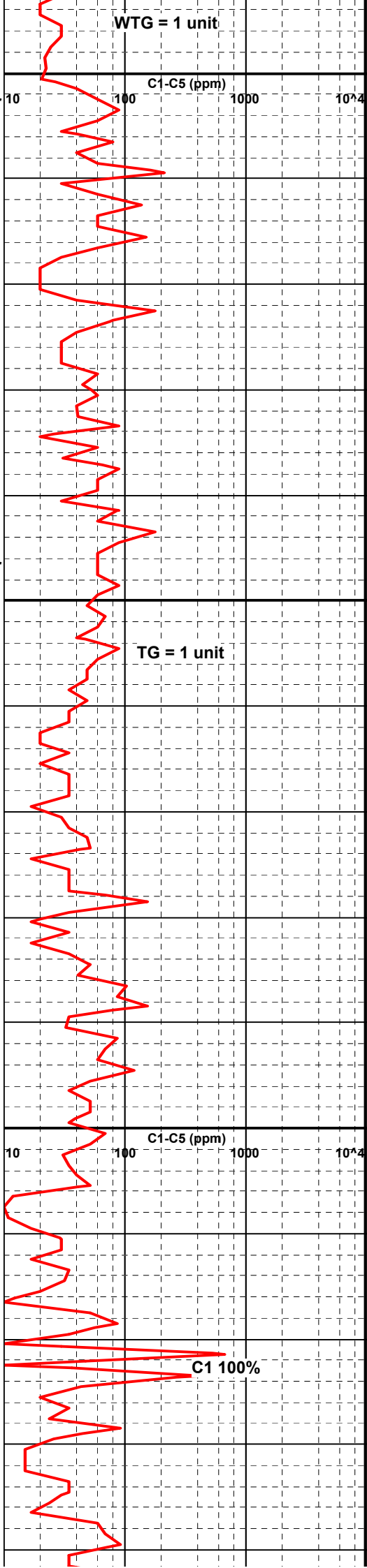
SANDSTONE: lt-m gy, vf-m, dom f, sbang-sbrnd, mod srted, mod sil & str calc cmt, abund wh arg mtx, abund altr fldspr, cmn gy gn liths, tr orn brn & blk liths, tr qtz gns, cmn blk coaly mt, tr-mod xln cal, hd, no vis por, no oil flu.

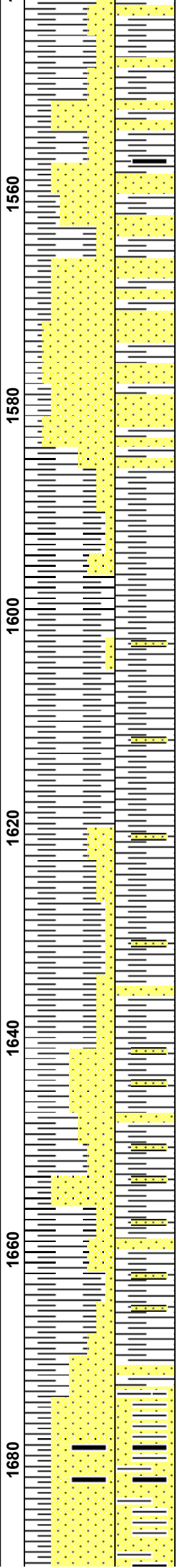
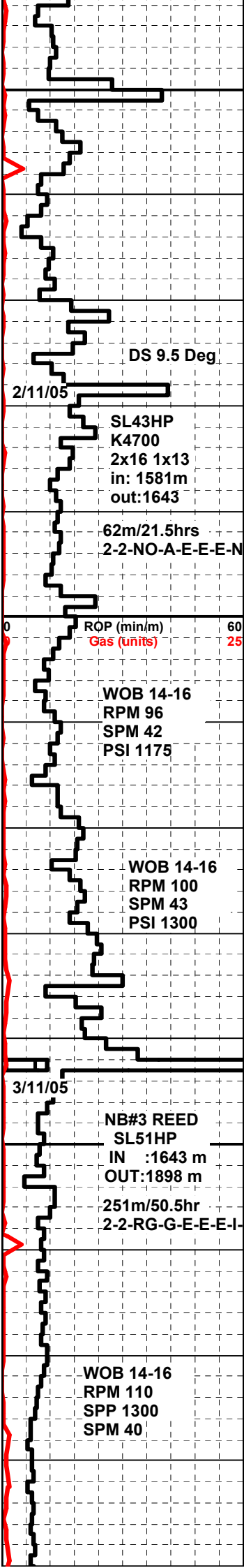
SANDSTONE: lt-m gy, vf-m, dom m, sbang-sbrnd, mod srted, mod sil cmt, abund wh arg mtx, abund altr fldspr, cmn gy gn liths, tr qtz gns, hd, no vis por, no oil flu.

SANDSTONE: lt-m gy, vf-m, dom f, sbang-sbrnd, mod srted, str sil cmt, abund wh arg mtx, abund altr fldspr, cmn gy gn liths, tr qtz gns, cmn to abnd veining infld w/ sft lt brn soapy mt, hd, no vis por, no oil flu.

SANDSTONE: lt-m gy, vf-m, dom m, sbang-sbrnd, mod srted, mod sil cmt, abund wh arg mtx, abund altr fldspr, cmn gy gn liths, tr qtz gns, hd, no vis por, no oil flu.

CLAYSTONE: pred lt-dk gy, m brn gy, bcm v slty ip-grdg to sltst, aren ip, tr coal flecks, tr mic mica, tr xln calc, frm-mod hd, sub fiss





SANDSTONE: lt-m gn gy, vf-f, dom vf, sbang-sbrnd, mod srtd, strng sil & mod calc cmt, abnt wh arg mtx - mtx sprtd, abnt alt fldspr, cmn grn gy liths, tr orng brn & blk liths, tr qtz gr, cmn blk coal det, hd, no vis por, no oil flu

MW 9.25, FV 38 , PV 14, YP 5, Gel 1/2/4/ , WL 7, Sol 7, pH 9.8, CL 9,500.

CLAYSTONE: m dk gy-m brn gy, v slty i/p, grdg i/p to sltst, cmn vf aren w/ alt feld grs - grdg to sst, tr blk carb flecks, tr mic mica, mod hd, subfiss

SANDSTONE: lt-m gn gy, vf-f, dom f, sbang-sbrnd, strng sil & wk calc cmt, abnt alt feld, cmn gy gn liths, tr orng brn & blk liths, tr qtz grs, tr blk coaly det, hd, v pr vis por, no oil fluor

CLAYSTONE: m dk gy-m brn gy, v slty i/p, grdg i/p to sltst, cmn vf aren w/ alt feld grs - grdg to sst, tr blk carb flecks, tr mic mica, mod hd, subfiss

CLAYSTONE: med-dk gy, mod silty i/p, rare vf-f aren w/ alt feld grs, tr blk carb flecks, tr mic mic, mod calc, mod hd, subfiss

SANDSTONE: lt-med grn gy, silty-f, dom vf, subang-subrnd, mod srt, strng sil & wk calc cmts, abnt wh arg mtx, mtx spt, abnt alt fels com gy grn liths, tr orng & blk liths, tr qtz grs, tr blk coal detrit, hd, no vis por, no oil fluor

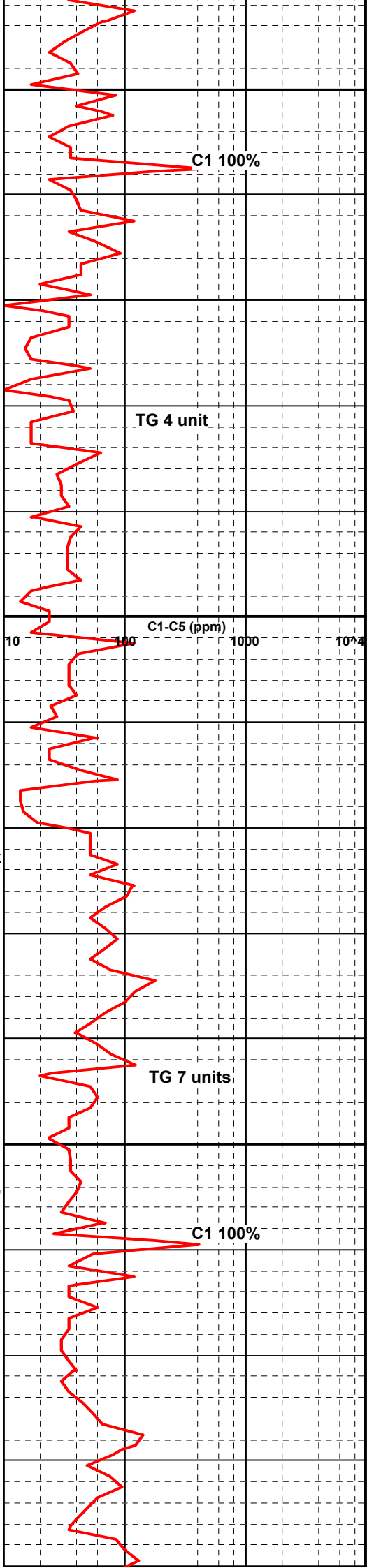
SANDSTONE: lt-med grn gy, vf-f dom f, subang-subrnd, mod srtd, strng sil & mod incr calc cmt, abnt wh arg mtx, abnt alt fels grs, com grn liths, tr orng-brn liths, tr qtz grs, tr blk coal detritus, hd, vp-nil vis por, no oil fluor

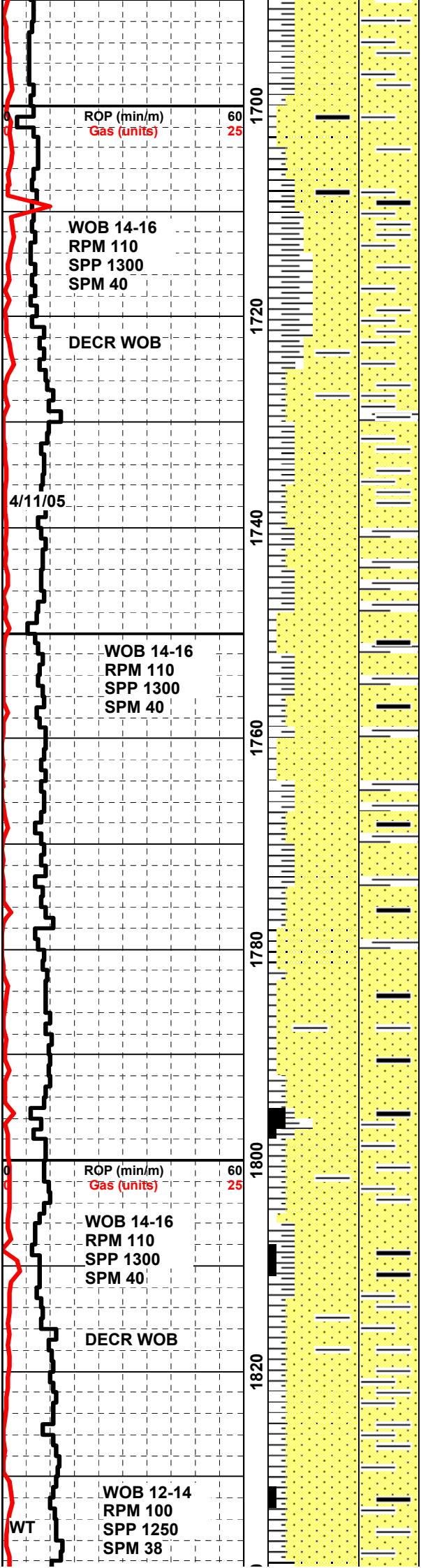
CLAYSTONE: lt gy-med dk gy-med brn gy, v slty grdg Siltst, vf aren w/alt fels grs-grdg i/p Sst sli calc, tr blk carb flecs, tr micmic, mod hd, subfiss

SANDSTONE: lt-med grn gy, vf-med dom f-med, subang-sub- rnd, mod srtd, strng sil & mod calc cmts, abnt wh arg mtx, abnt alt fels, tr liths & qtz grs, tr blk coal, v pr vis por, no oil fluor

COAL: tr-10% blk-v dk brn gy, earthy-subvit, platy-subconc frac, v arg i/p, hd, brit. No fluor but wk dull pale yell crush cut

CLAYSTONE: lt-med dk gy-med brn gy, v slty i/p, grdg i/p to sltst, cmn vf aren w/ alt feld grs - grdg to sst, tr blk carb flecks, tr mic mica, mod hd, subfiss





SANDSTONE: lt-med dk gy-med brn gy, dom med gy, v silty grdg Sltst, vf aren w alt fels grs, tr vn infill sft lt soapy mnrl & bri red mnrl, mod hd, subfiss

SANDSTONE: lt-med grn gy, vf-occ med, dom f, subang-subrnd, mod srt, strng sil & wk calc cmts abnt wh arg mtx, abnt alt fels, com grn liths, tr orng-brn liths, com blk coal detrit, tr vn infill w/ sft lt brn soapy mnrl & bri red mnrl, hd, v pr vis por, no oil fluor

CLAYSTONE: lt-med dk gy-med brn gy, dom med gy, v silty grdg Sltst, vf aren w alt fels grs, tr vn infill sft lt soapy mnrl & bri red mnrl, mod hd, subfiss

MW 9.30, FV 46 , PV 18, YP 16, Gel 3/4/5 , WL 7, Sol 7, pH 10.5, CL 9,800.

CLAYSTONE: lt-med dk gy-med brn gy, dom lt - med gy, v silty i/p grdg to Sltst, vf aren w alt fels grs, tr vn infill sft lt soapy mnrl & bri red mnrl, frm- mod hd, subfiss

SANDSTONE: lt-med grn gy, vf-m, dom f-m, subang-subrnd, mod srt, strng sil & wk-mod calc cmts, abnt wh arg mtx - mtx sprtd, abnt alt fels, com grn liths, tr orng-brn liths & blk liths, tr blk coal detrit, tr qtz gr, hd, v pr vis por, no oil fluor

CLAYSTONE: off wh - m dk gy - m brn gy, v slty i/p, often aren w/ alt feld grs, sl calc where aren, tr carb flks, tr blk coal det, tr mic mica, mod hd, sbfiss

SANDSTONE: lt-med grn gy, vf-m, dom f-m, subang-subrnd, mod srt, strng sil & wk-mod calc cmts, abnt wh arg mtx - mtx sprtd, abnt alt fels, com grn liths, tr orng-brn liths & blk liths, tr blk coal detrit, tr qtz gr, hd, v pr vis por, no oil fl

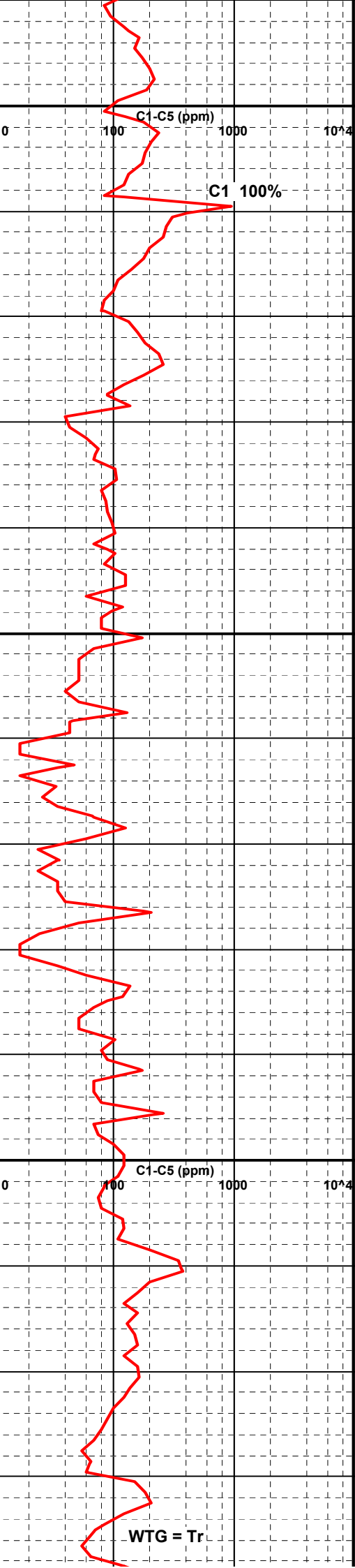
COAL: tr-10% blk-v dk brn gy, earthy-subvit, platy-subconc frac, v arg i/p, hd, brit. No fluor but wk dull pale yell crush cut

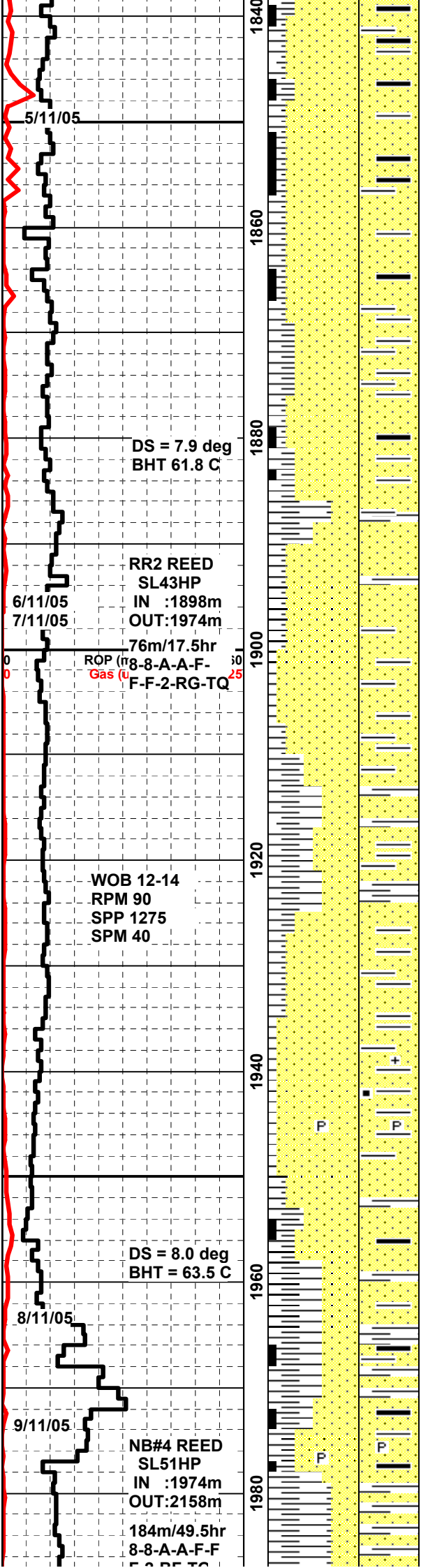
CLAYSTONE: off wh - m dk gy - m brn gy, v slty i/p, often aren w/ alt feld grs, sl calc where aren, tr carb flks, tr blk coal det, tr mic mica, mod hd, sbfiss

MW 9.3, FV 43 , PV 17, YP 12, Gel 3/4/4 , WL 5.6, Sol 7.1, pH 10.1, CL 9,200.

SANDSTONE: lt-med grn gy, vf- occ m, dom f, subang-subrnd, mod srt, strng sil & wk- calc cmts, abnt wh arg mtx - mtx sprtd, abnt alt fels, com grn liths, tr orng-brn liths & blk liths, tr blk coal detrit, tr qtz gr, hd, no vis por, no oil fluor

COAL: tr-10% blk-v dk brn gy, earthy-subvit, platy-subconc frac, v





arg i/p, hd, brit. No fluor but wk dull pale yell crush cut

CLAYSTONE: off wh - m dk gy - m brn gy, dom lt-m gy, v slty i/p grdg to sltst, often vf aren w/ alt feld grs - grdg to ssd, sl calc where aren, tr carb flks, tr blk carb flks, cmn blk coal det, tr mic mica, mod hd, sbfiss

SANDSTONE: lt-med grn gy, vf- occ m, dom f, subang-subrnd, mod srt, strng sil & wk-mod calc cmts, abnt wh arg mtx - mtx sprtd, abnt alt fels, com gy grn liths, tr orng-brn liths & blk liths, tr blk coal detrit, tr qtz gr, hd, no vis por, no oil fluor

CLAYSTONE: lt-med dk gy-med brn gy, dom med gy, v silty grdg sltst i/p, vf aren w/alt fels, sli calc when aren, tr blk carb flecs/lam, com blk coal debris, com micmic mod hd, blk-subfis

SANDSTONE: lt-med grn gy, vf-m dom f, subang-subrnd, mod srt strng sil & wk calc cmts, abnt wh arg mtx, mtx sptd, abnt alt fel & com gy grn liths, hd, nil vis por, no oil fluor

MW 9.2, FV 45 , PV 15, YP 10, Gel 2/3/4 , WL 7.0, Sol 6.2, pH 8.5, CL 9,400.

SANDSTONE: lt-med grn gy, vf- occ m, dom f, subang-subrnd, mod srt, strng sil & wk-mod calc cmts, abnt wh arg mtx - mtx sprtd, abnt alt fels, com gy grn liths, tr orng-brn liths & blk liths, tr blk coal detrit, tr qtz gr, hd, no vis por, no oil fluor

CLAYSTONE: lt-m dk gy-m brn gy, v slty i/p grdg to sltst, vf aren w/ alt feld gr i/p, sl calc where aren, tr blk carb flks, cmn blk coal det, cmn micmica, mod hd, sbfiss

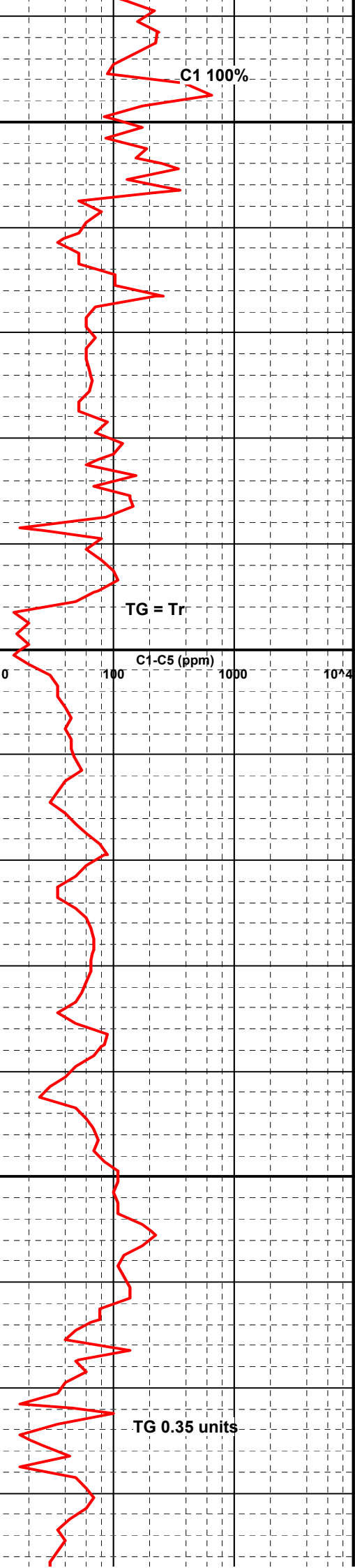
MW 9.35, FV 39 , PV 11, YP 8, Gel 1/2/2 , WL 7.6, Sol 7.9, pH 11.6, CL 9,500.

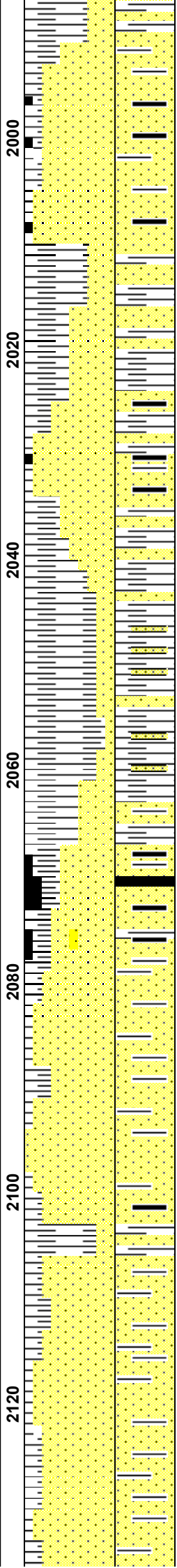
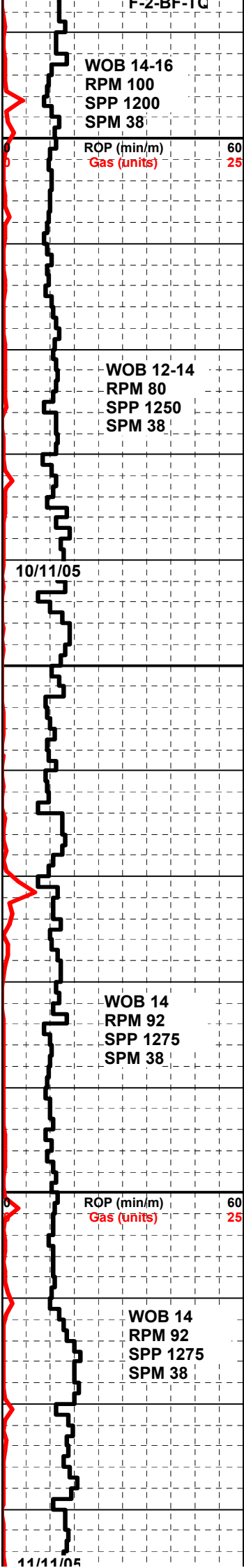
SANDSTONE: lt-med grn gy, vf- m, dom f-m, subang-subrnd, mod srt, strng sil & wk-mod calc cmts, abnt wh arg mtx - mtx sprtd, abnt alt fels, com gy grn liths, rr-tr orng-brn liths & blk liths, tr blk coal detrit, tr qtz gr, hd, no vis por, no oil fluor

CLAYSTONE: lt-med gy-brn-grn gy, v silty i/p, vf aren inclus w/ alt feld gr i/p, sl calc where aren, com carb lam & specs, cmn micmic, tr pyr, mod hd, sbfiss

COAL: blk-dk brn gy, earthy where arg, subvit where clean, plty - subconch fract, v arg i/p, hd, brit, no fluor but v wk dull pale yel crush cut

SANDSTONE: lt-med grn gy, vf- m, dom f-m, subang-subrnd, mod srt, strng sil & wk-mod calc cmts, rr pyr cmt, abnt wh arg mtx - mtx sprtd, abnt alt fels, com gy grn liths, rr-tr orng-brn liths & blk liths, tr blk coal detrit, tr qtz gr, hd, no vis por, no oil fluor





CLAYSTONE: lt-med gy-brn-grn gy, v silty i/p, vf aren inclus w/ alt feld gr i/p, sl calc where aren, com carb lam & specs, cmn micmic, tr pyr, mod hd, sbfiss

COAL: tr thin stringers of blk-dk brn gy, earthy where arg, subvit where clean, plty - subconch fract, v arg i/p, hd, brit, no fluor but v wk dull pale yel crush cut

CLAYSTONE: lt-med gy-brn-grn gy, v silty i/p, vf aren inclus w/ alt feld gr i/p, sl calc where aren, com carb lam & specs, cmn micmic, tr pyr, mod hd, sbfiss

SANDSTONE: lt-med grn gy, vf- m, dom f, subang-subrnd, mod-w srt, strng sil & wk-mod calc cmts, abnt wh arg mtx - mtx sprtd, abnt alt fels, com gy grn liths, rr-tr orng-brn liths & blk liths, tr blk coal detrit, tr qtz gr, hd, no vis por, no oil fluor

MW 9.4, FV 39 , PV 11, YP 10, Gel 2/3/3 , WL 7.4, Sol 7.9, pH 11.1, CL 9,200.

CLAYSTONE: pred lt-med gy, also brn-grn gy, v silty i/p grdgd to sltst, vf aren inclus w/ alt feld gr i/p, sl calc where aren, com carb lam & specs, cmn micmic, rr pyr, mod hd, blkly - sbfiss, occ plty

SANDSTONE: lt-med grn gy, vf-f, dom f, subang-subrnd, mod-w srt, strng sil & wk-mod calc cmts, abnt wh arg mtx - mtx sprtd, abnt alt fels, com gy grn liths, rr-tr orng-brn liths & blk liths, tr blk coal detrit, tr qtz gr, tr blk coal det, hd, no vis por, no oil fluor

COAL: blk-dk brn gy, earthy where arg, subvit where clean, plty - subconch fract, v arg i/p, hd, brit, no fluor but wk dull pale yel crush cut

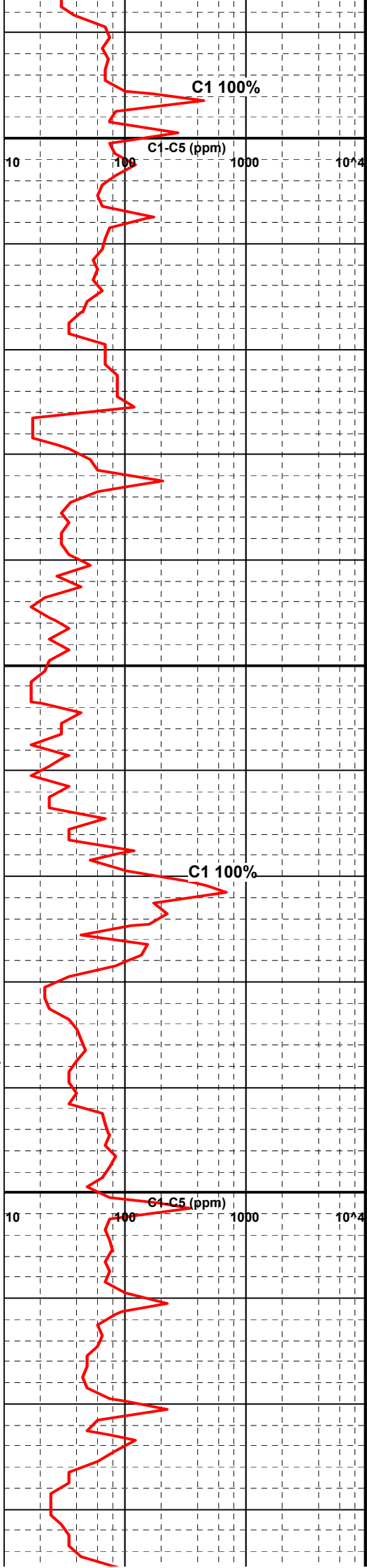
SANDSTONE: lt-med grn gy, vf-m, dom f, subang-subrnd, mod srt, strg sil & mod calc cmts, abnt wh arg mtx, mtx spt, abnt alt fels, com gy grn liths, rr orng brn & blk liths, tr qtz grs, tr blk coal detrit, no vis por or oil fluor

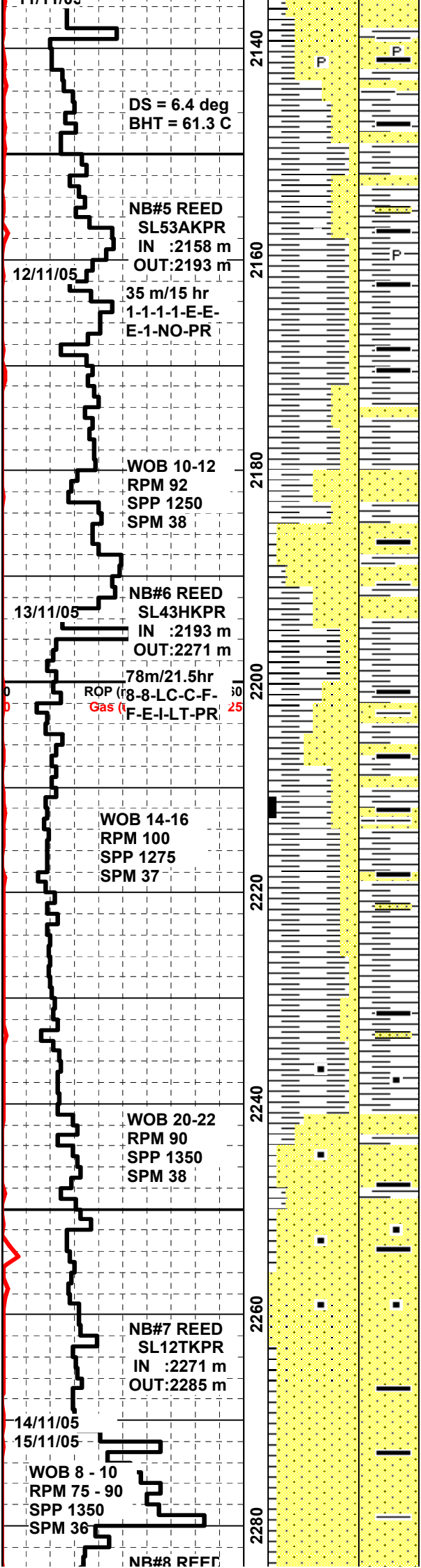
MW 9.45, FV 41 , PV 14, YP 13, Gel 2/3/5 , WL 7.2, Sol 8.3, pH 10.1, CL 9,900.

CLAYSTONE: lt-med dk gy-med brn gy, v slty i/p vf aren w/alt fels grs i/p, sli calc where aren, tr blk carb flecs, com blk coal detrit, com micmic, mod hd-hd, subfiss

SANDSTONE: lt-med grn gy, vf-m, dom f, subang-subrnd, mod srt, strg sil & mod calc cmts, rr pyr cmt, abnt wh arg mtx, mtx spt, abnt alt fels, com gy grn liths, rr orng brn & blk liths, tr qtz grs, tr blk coal detrit, no vis por or oil fluor

MW 9.5, FV 43 , PV 18, YP 14, Gel 2/4/6 , WL 7 , Sol 8.7 , pH 8.8 , CL 9,900





2140/6 , WL 8.7, Sol 8.7, pH 8.8, Cl 10,000.

CLAYSTONE: off wh- lt-med dk gy-med brn gy, v slty i/p vf aren w/alt fels grs i/p, sli calc where aren, tr blk carb flecs, com blk coal detrit, com micmic, mod hd-hd, blkly-subfiss

COAL: blk-dk brn gy, earthy where arg i/p, subvit where clean, plty - subconch fract, hd, brit, no fluor but wk dull pale yel crush cut

CLAYSTONE: pred lt-med dk gy-med brn gy, also off wh, v slty i/p grdg to sltst, vf aren w/alt fels grs i/p, sli calc where aren, rr pyr, tr blk carb flecs, com blk coal detrit i/p, com micmic, mod hd-hd, plty-subfiss

SANDSTONE: lt-med grn gy, vf-f dom f, subang-subrnd, mod srt, strg sil & wk calc cmts, abnt wh arg mtx-mtx sptd, abnt alt fels, com gy grn liths, rr orng, brn, blk liths, tr qtz grs, tr blk coal detrit, hd, no vis por, no oil fluor

MW 9.5, FV 42 , PV 17, YP 14, Gel 3/5/8 , WL 7.2, Sol 8.6, pH 8.8, CL 10,200.

SANDSTONE: lt-med grn gy, tr lt brn & v calc, vf, subang-subrnd, mod srt, strg sil & wk calc cmts, abnt wh arg mtx-mtx sptd, abnt alt fels grs, com gy grn liths, tr brick red mnrl, tr blk coal detrit, hd, no vis por, no oil fluor

CLAYSTONE: lt-med dk gy-med brn gy-occ dk gy & mod carb, com v slty grdg Siltst i/p, vf aren w/alt fels grd i/p, sli calc where aren, tr blk coal flecs & detrit, com micmic, hd-v hd, subfiss

MW 9.6, FV 43 , PV 16, YP 15, Gel 3/6/8 , WL 7.0, Sol 9, pH 10.3, CL 11,200.

SANDSTONE: lt-med grn gy, tr lt brn & v calc, vf, subang-subrnd, mod srt, strg sil & wk calc cmts, abnt wh arg mtx-mtx sptd, abnt alt fels grs, com gy grn liths, tr brick red mnrl, tr blk coal detrit, hd, no vis por, no oil fluor

COAL: blk-dk brn gy, earthy where arg i/p, subvit where clean, plty - subconch fract, hd, brit, no fluor but wk dull pale yel crush cut

SANDSTONE: lt-med grn gy-pl grn gy, vf-f, gen a/a w/incr carb mtl & lam, v w cmt, rr pyr cmt, hd, no vis por, no oil fluor

SANDSTONE: lt-med grn gy, slty- vf, subang-subrnd, mod srt, v strg sil & mod calc cmts, rr pyr cmt, abnt wh arg mtx-mtx sptd, abnt alt fels grs, com gy grn liths, rr orng brn & blk liths, tr blk coal detrit, tr qtz gr, tr calcite lined fract, v hd, no vis por, no oil fluor

MW 9.45, FV 37 , PV 12, YP 9, Gel 2/4/5 WL 7.6 Sol 8.3 pH 10.3 Cl

