





Gy, mesly, tr org rem, some arg.  
 Sh: Gy dk gy, fis, some stly.

Lt gy tr crm-gy, frly gran, occ amor calc, some arg, gd intgran por, n/s.

V.dk gy, fis.

V.lt gy-wh, vfxin-microxin, some chky, dns, n/s.

Tn-gy, vfxin occ microxin, sli ool, v.dns, n/s.

V.dk gy, thk fis, calc, foss (Crin).

Tn-brn, fxdn, ool pkstn, wl-cmt, n/s.

Rd-brn occ rd-or, some v.lt gn-gy bkly, stly; tr gum.

Crm-gy, fxdn, tr org rem, some dol, pr intxn & pp por, n/s.

Crm fxdn, sil foss (Fus) occ dol, pr pp por, n/s.

V.dk gy-bk, fis, calc pyr, some ool & org rem.

Crm-lt gy, vfxin, occ whd, tr org rem, dns, tr frac, n/s.

Crm, fxdn, ool, occ sbchky, tr org rem, n.v.p, n/s.

Rd-brn occ brn & rd-or, bkly ea stly, some gum, tr dk rd-brn v. arg Ls.

Crm-tn, fn-vfxin, sbchky, tr org rem, r.amor calc, n.v.p.

Crm-lt gy, fn-vfxin, tr org rem, occ sbchky, gen dns.

Dk gy & gy-brn, fis, tr carb mat.

Crm-gy fxdn, r.org rem, some withd-sbchky, n.v.p.

Tn-brn mott w/dk brn inc, fxdn, sil ool, gen dns, sil odor on crush, no shc O, no str.

Wh, some wh-gy mott fxdn, tr gran, sbchky in pt, sil foss, occ ool, pr-fr intgran por, gd odor, NFO, no str.

Crm, frly gran dol, sli chky, tr amor calc, gd intgran por, gd odor, v.sli shw v.lt brn FO, v.lt sly-arg sil sh.

Med gy some carb mat, occ v. arg, gd por, n/s.

Wh-crm, vfnly gran-fxdn, some lmy, tr spr calc, fr-gd intgran por, scat fr vug por, gd sulf odor, NFO, no str.

Crm, tr lt gy, frly gran-suc, occ fxdn, tr rextzd ool, some spr calc, gd intgran & scat vug por, n/s.

Dk gy, fis.

Crm fxdn, v.dol, sli chky, some wh-lt gy trnsil frs cht, fr pp por, n/s.

Crm, fxdn-gran, v.dol, tr wh op cht, some amor calc, gd intgran & vug por, n/s.

V.dk gy dk gy-brn some blk, thn fis, occ carb, tr stly.

Crm-tn fxdn dol, rextzd, tr sbchky, some arg, tr pyr, n/s.

Med gy-lt gy calc, some v. arg, tr pyr.

Crm, fxdn-gran, foss, tr ool, cons sec calc, some sbchky, n.v.p, n/s.

Gy & rd-brn mott, some tn & gy-gn, arg, tr calc-lmy, intbd tn rd-brn & mar sh.

Gy-purp, bkly, v.sly, some calc, tr lmy, intbd rd-or-thk fis sh.

Crm tr crm-tn, fxdn-gran, sil ool, occ sbchky, n.v.p.

Blk thn fis, carb, bcm dk gy fis, occ calc, tr org rem, intbd dk gy-brn mott fn-vfxin, smwt arg Ls, n.v.p.

Wh-crm, fxdn, sbchky-chky, tr org rem, cons spr calc, pr intxn por, n/s.

Tn mott w/dk gy & brn inc, fn-vfxin, sil ool, some arg, intbd dk gy sh, n/s.

Crm, fxdn, sbchky, tr foss (Fus) some amor calc fr intxn & pp por, n/s.

Crm some crm-lt gy, fxdn, chky-sbchky, sil foss, fr pp por, n/s.

Crm-lt gy, fxdn tr gran, chky, some dol, tr foss & spr calc, r.pyr, n/s.

Blk & v.dk gy, fis-thn fis, some carb.

Mott gy-brn fxdn smwt arg, dns.

Gy dk gy & gy-gn fis, intbd gy-gn arg sil calc, silst, some lt gy gum sh.

Gy gy-brn some rd-brn, stly occ gum, tr brn fn-vfxin dns Ls.

Gy dk gy, tr gy-gn, fis.

Lt gy fxdn, tr org rem, some spr calc, n.v.p, n/s.

Crm-lt gy, fxdn, occ sbchky, tr rextzd ool, n.v.p, n/s.

Rd-brn thk fis, ea.

Crm, fxdn-gran, ool, tr sbchky, cons spr calc, fr intxn & intgran por, n/s.

Wh-crm, fxdn & gran, sbchky, cons spr calc, pr fr intgran por, n/s.

Tn fn-vfxin, foss, sil pyr, some spr calc, intbd gy-gn bkly v.sly sh, n.v.p.

Rd-brn bkly ea, tr stly.

Wh-crm, fxdn, sbchky, tr amor calc, n.v.p.

Wh fxdn, sbchky, sil foss (Fus) occ mott w/brn inc, n.v.p.

Dk gy fis, some carb mat.

Wh fxdn, sbchky-chky, cons amor calc, gd intxn & vug por, n/s.

Wh-lt gy, fn-medxin, sbchky, abd amor calc, tr pyr, fr-gd intxn & vug por, n/s.

Crm fn-vfxin, sbchky, tr org rem, cons amor calc, n.v.p.

Gy-gn & dk gy, fis, stly, some calc.

Gy occ tn-gy, fxdn, some sbchky, tr org rem, cons spr calc, pty arg, n/s.

Tn-gy, vfxin, some withd, tr spr calc, dns occ arg.

Wh occ wh-crm, fxdn, sbchky, r.org rem, tr amor calc, n.v.p.

Wh some v.lt gy, fn-vfxin, sbchky, dns, frac, tr spr calc.

Crm tr lt gy, fxdn, tr rextzd org rem, r.pyr, cons spr calc, n.v.p.

V.lt gy-wh, fxdn, tr med xin, chky-sbchky, some pyr & org rem, abd spr calc, gd intxn & vug por, n/s.

Wh-lt gy, fxdn, sbchky, dns, tr spr calc.

Blk thn fis, carb, intbd dk choc brn vfxin sil pyr arg frac Ls, n/s.

Dk gy & gn-gy, fis, occ vgt, tr carb mat & pyr, some stly.

Gy-brn & brn, mott w/dk gy ool & sh inc, fn-vfxin, tr foss (Fus) r.withd, dns, n/s.

Gy dk gy & gn-gy, fis, bkly stly, occ calc-lmy, tr org rem.

Crm-gy, fxdn sil ool, some org rem, occ sbchky, r.pyr, n.v.p.

Crm-gy, fn-vfxin, some ool & org rem, occ mott w/dk gy & brn inc, pt sbchky, n.v.p.

Lt gn-gy bkly, stly-sdy, sil pyr.

Crm some v.lt gy, fxdn, ool, occ sbchky, cons spr calc, tr arg, n.v.p.

Crm-lt gy tr tn, fxdn, ool, occ org rem, tr sbchky, some spr calc, n.v.p.

Blk thn fis, carb, bcm dk gy fis stly occ carb mat, intbd brn xin dns Ls.

Dk gy & gy-brn intbd w/gy & gn-gy arg silst.

Gy dk gy & dk gy-brn, fis, some stly, occ carb mat.

Med gy & gn-gy, bkly v.sly, tr pyr.

Crm, fxdn, ool, sbchky sil foss, occ dk gy sh inc, some spr calc, n.v.p.

Crm-tn, fxdn, ool, foss, some sbchky pyr, occ dk gy & brn sh inc, wh & gy-brn op-trnsil frs cht, n.v.p.

Blk, thn fis, carb.

Gy some gy-brn, fn-vfxin, dns tr org rem, n/s.

Dk gy-brn, calc, occ stly.

Crm-tn fxdn foss, sil ool, tr pyr & wh op frs cht, n.v.p.

Tn & gy-brn fxdn, foss, occ mott w/dk gy sh, some lt gy & gy-brn op-trmsl cht, dk gy intbd sh, n.v.p.

Tn-gy occ mott gy-brn, fxdn foss, some cht, tr sbchky, v.dk gy-bk intbd sh, n/s.

Dk gy & gy-brn, bkly, stly sil pyr.

Crm fxdn, foss, occ mott w/dk gy sh, cons spr calc, n.v.p.

Wh-lt gy, sil calc, occ sdy, tr pyr, some sil arg, n/s.

Crm-tn mott w/dk gy ool & sh inc, fxdn-gran, occ sdy, n.v.p.

Gy dk gy dk gy-brn, tr blk, fis occ stly, r.gum, some carb mat, wh-v.lt gy sdy sil calc silst.

Tn-brn fxdn, tr vfxin, some spr calc, dns, occ arg, n/s.

V.dk gy gy-brn tr gn-gy, fis, occ calc, few org rem, some stly.

Crm gran sil foss, sbchky, tr amor calc, fr intgran por, n/s.

Dk gn-gy & dk gy, fis, some vgt, tr pyr.

Crm fn-vfxin, occ sbchky, tr org rem, n.v.p.

Crm vfnly gran dol, tr chk, fr intgran por, n/s.

Dk gy fis, tr carb mat, intbd med gy bkly v.sly sh.

Tn-brn vfxin, sli withd, some arg, dns.

Gy bkly stly, sil pyr.

Tn fxdn, tr frag, mott w/dk gy ool & foss, r.schky, pr intgran por, n/s.

Gy & dk gy fis, some stly, occ calc, r.pyr.

Crm-tn fxdn ool, some org rem, occ arg, n.v.p.

Tn-brn, fxdn, occ intbd dk gy fis sh, some gy & brn op-trnsil vit cht, n.v.p.

Tn-brn some v.dk gy, fn-vfxin, occ arg, intbd dk gy fis sh, n.v.p.

Tn & v.dk gy, vfxin-microxin, occ silic, dns, frac, some arg.

Brn occ tn-brn, vfxin-crxpin, some arg, dns.

Brn & v.dk gy, fxdn, sil foss, occ arg, some gy & dk gy-brn trnsil cht, n.v.p.

Dk brn fxdn, tr org rem, some arg, dns.

Blk & v.dk gy, fis-thn fis, carb.

Tn-brn, fxdn tr frag, ool sil foss, tr sbchky, some blu-gy & brn mott ool cht, n.v.p, n/s.

Blk thn fis, carb.

Dk gy-v dk brn, fxdn arg, tr org rem, some dk gy fis sh, n.v.p, n/s.

Gy-brn dk gy, fxdn, occ arg, intbd dk gy calc sil foss sh.

Brn-v.dk gy, vfxin tr org rem, some arg, tn-brn op-trnsil cht, n/s.

Crm-tn mott w/dk gy ool & org rem, fxdn, tr frag, arg, n.v.p.

Blk fis carb, some dk gy stly pyr sh.

Tn vfxin, dns frac, bcm crm-gy fxdn chky tr ool, n.v.p, n/s.

V.dk gy & dk gy-brn fis, some calc-lmy, intbd dk gy & brn fxdn Ls, n/s.

Tn & mott gy-brn fxdn foss, some arg-shly, intbd dk gy fis sh, n/s.

Tn-gy occ mott w/dk gy sh, sil pyr, vfxin, dns.

Blk fis carb, bcm dk gy fis sil pyr.

Tn & dk gy mott fxdn, some ool & org rem, tr amor calc, intbd blk carb sh, n.v.p.

Gy dk gy & blk, fis, occ carb mat, some pyr, tr org rem.

Crm-tn frag-gran, ool, sdy, tr sbchky, pr intgran por, n/s.

Tn & gy mott fxdn, sil pyr, tr org rem, smwt arg, n.v.p.

Dk gy & dk gy-gn fis, sil pyr, tr org rem.

V.dk gy-brn blk, fxdn tr vfxin, foss sil arg, intbd w/blk & v.dk gy fis occ carb sh.

Blk v.dk gy dk gy-brn, fxdn some org rem, tr pyr, dns, n/s.

Blk & v.dk gy fis, some carb.

Tn-brn fxdn, sil foss, some withd, bcm lt brn vfxin-microxin frac dns Ls, some intbd dk gy fis sh.

Dk gy-brn & v.dk gy fxdn, tr org rem, some arg, wh & v.dk gy op mott foss cht.

V.dk gy-bk, fxdn foss (Crin, Brach) arg, r.pyr, intbd v.dk gy & dk gy-brn sh.

Brn & mott gy-brn fxdn, tr org rem, r.v.dk gy-brn trnsil cht, intbd dk gy fis sh.

Crm-tn fn-medxin, sli chky, foss (Bry) cons amor calc, tr wh op frs cht, n.v.p, n/s.

Tn & brn mott w/dk gy foss & sh inc, arg, cons wh gy & tn op-trmsl cht, intbd dk gy-bk sh.

Dk gy-brn & v.dk gy, fxdn sil foss, occ arg, wh tn & gy-brn op-trnsil cht, dk gy fis sh.

V.dk gy & dk gy-brn fxdn arg, sil pyr, tr org rem, silstbd w/v.dk gy & blk fis occ carb sh.

Blk dk gy, fis, some carb, occ thn bd w/tn pyr arg Ls, some med gy gum sh.

Wh vfn-vfn sbang glauc, wl-cmt tr sb-fi, pyr, fr intgran por, n/s.

Wh & lt gy, fn-vfn, ang-sbrnd, sb-fi, pyr occ calc, tr glauc, some brn & blk sh inc, gd intgran por, n/s.

Lt gy, fn, sbang-sbrnd, pyr, occ calc, tr glauc, some intbd brn sh, fr intgran por, n/s.

Gy-gn & dk gy, fis, thn bd some dk brn & blk occ carb sh.

V.dk gy-bk, fis, some carb, tr pyr, intbd dk choc brn fxdn pyr Ls, n/s.

Dk gy & blk, tr brn, fis, tr pyr, some carb.

V.dk gy & blk, tr brn, fis, tr pyr, some carb.

V.dk gy dk brn & blk, fis, some vgt & pyr, intbd brn fxdn dns Ls.

Dk gy & blk, fis, intbd w/dk gy stly sh & gy-gn pyr sh, some brn gran arg Ls, tr foss (Bry).

Crm fxdn frag mott w/tn & brn ool, sbchky in pt, occ amor calc, some v. arg-shly, n/s.

Tn-brn fn-frag, ool, sil foss rextzd, cons spr calc, tr wh & dk gy mott op cht, intbd dk gy fis sh.

Crm tn & brn mott fxdn, foss (Bry) cons spr calc, some chky, occ sbchky, n/s.

Brn & tn mott fxdn sbchky, foss (Brach) cons spr calc, intbd gy-gn & dk gy fis thn bd sh.

Tn & gy-brn vfnly gran dol, tr pyr & chk, pr intgran por, n/s.

Tn-dk brn microxin, tr pyr, v.dns, n/s.

Brn, v.lnly gran dol, r.pyr, pr-fr intgran por, n/s.

Crm-tn frag-gran v.ool, tr org rem, some sdy, occ sbchky, tr lt gn sh inc, n.v.p, n/s.

Wh-lt gy vfn, ang-sbang, sbfn, sil arg, fr intgran por, n/s.

Crm some lt gy, fxdn-frag, abd smlt tn ool, occ aren, sbchky, pr por, n/s.

Crm-tn fxdn, ool, occ sbchky, tr med sbrnd fros sdi, n.v.p.

Crm-tn occ tn-gy, fxdn ool, some sbchky, cons sec calc, dns, n/s.

Crm-tn fxdn sbchky, abd lt gy blu-gy & wh op-trnsil vit occ spd cht, n/s.

Dk olv gn, thk fis, vgt w/v dk gy sh.

Dk gy-brn fxdn, dol, arg, sil pyr, mott, n.v.p, n/s.

2:54 PM, 25 April 2014

**TOPEKA**  
 3874 (-3880)

Mud-Co mud check @ 4016'  
 Vis: 68, Wt: 9.0, WL: 8.8  
 Chlor: 3,600 ppm, LCM: 5#

**HEEBNER SHALE**  
 4132 (-338)

**TORONTO**  
 4167 (-373)

**LANSING**  
 4189 (-395)

**STARK SHALE**  
 4440 (-646)

Mud-Co mud check @ 4403'  
 Vis: 95, Wt: 9.3, WL: 8.0  
 Chlor: 3,800 ppm, LCM: 4#

**BASE/KANSAS CITY**  
 4558 (-764)

**MARMATON**  
 4570 (-776)

Mud-Co mud check @ 4701'  
 Vis: 56, Wt: 9.3, WL: 7.2  
 Chlor: 4,000 ppm, LCM: 4#

**CHEROKEE**  
 4766 (-972)

Mud-Co mud check @ 4985'  
 Vis: 61, Wt: 9.2, WL: 7.2  
 Chlor: 3,400 ppm, LCM: 5#

**MORROW SHALE**  
 4971 (-1177)

DST # 1 4949 - 4992  
 w/stredle packers  
 "Adjusted to Rotary Depth"  
 30"-60"-90"  
 IF: Weak 1/2 inch blow, decreasing  
 FF: No Blow  
 RECOVERY:  
 30 Ft. Drilling Mud, no shows  
 IHP: 2641 psi. FHP: 2392 psi.  
 IFP: 47-52 psi. ISIP: 820 psi.  
 FFP: 95-65 psi. FSIP: 807 psi.  
 BHT: 143 deg. F.

**LOWER MORROW LIME**  
 5075 (-1281)

**MISSISSIPPIAN**  
 5110 (-1316)

Mud-Co mud check @ 5210'  
 Vis: 60, Wt: 9.3, WL: 7.2  
 Chlor: 3,200 ppm, LCM: 4#

**TOTAL DEPTH**  
 5210 (-1416)

12:38 AM, 30 April 2014

Operator: WHITE EXPLORATION, INC.

Lease: GUNZELMAN # 1

Location: 670 FNL & 1000 FWL SEC. 20 TWPSP 13S RGE 42W

County: WALLACE State: KANSAS