APPENDIX 1

MACINTYRE-2H
COMPOSITE LOG
# Well Data Summary for Horizontal Leg

<table>
<thead>
<tr>
<th>WELL TYPE:</th>
<th>Unconventional Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY TARGET(S):</td>
<td>Lower Arthur Creek Basal ‘Hot Shale’</td>
</tr>
<tr>
<td>DRILLING CONTRACTOR</td>
<td>Ensign Drilling</td>
</tr>
<tr>
<td>CASING</td>
<td>7” Main Casing, Shoe at 502m</td>
</tr>
<tr>
<td></td>
<td>4 1/2” Completion, Landed at ____m</td>
</tr>
<tr>
<td>MUDLOGGING</td>
<td>GeoServices</td>
</tr>
<tr>
<td>DIRECTIONAL / LWD</td>
<td>Baker Hughes / BHI</td>
</tr>
</tbody>
</table>

**BHT = 58.1°C**

### Prognosed Depths vs. Actual Depths

<table>
<thead>
<tr>
<th>Formation Name</th>
<th>Prognosed Depths</th>
<th>Actual Depths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MD (m) TVDRT (m) TVDAHD (m)</td>
<td>MD (m) TVDRT (m) TVDAHD (m)</td>
</tr>
<tr>
<td>Hagen Member</td>
<td>560.5 560.4 (174.6)</td>
<td>560.5 560.2 (174.4)</td>
</tr>
<tr>
<td>Arthur Creek</td>
<td>585.3 584.8 (199.0)</td>
<td>586.0 585.3 (199.5)</td>
</tr>
<tr>
<td>Oolitic Reef</td>
<td>646.1 642.6 (256.8)</td>
<td>646.0 642.5 (256.7)</td>
</tr>
<tr>
<td>Lower Arthur Creek</td>
<td>663.9 658.7 (272.9)</td>
<td>664.6 659.3 (273.5)</td>
</tr>
<tr>
<td>Top of Basal Hot Shale</td>
<td>835.2 780.3 (394.5)</td>
<td>834.5 780.6 (394.8)</td>
</tr>
<tr>
<td>Thorntonia Formation</td>
<td>1017.8 818.5 (432.7)</td>
<td>1130.0 817.5 (431.7)</td>
</tr>
<tr>
<td>Base of Basal Hot Shale</td>
<td>N/A N/A N/A</td>
<td>1184.0 817.6 (431.8)</td>
</tr>
</tbody>
</table>
### MWD-LWD BHA Record

<table>
<thead>
<tr>
<th>BHA #</th>
<th>DEPTH IN</th>
<th>DEPTH OUT</th>
<th>MWD-LWD TOOLS RUN</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>495</td>
<td>540</td>
<td>Neutron Porosity-Density-OnTrac MWD-Resistivity-GR-Annular Pressure-Near bit Inclination + AutoTrak Rotary Steerable System</td>
<td>Failed to kick-off with RSS @ 100% due to soft cement.</td>
</tr>
<tr>
<td>2</td>
<td>540</td>
<td>546</td>
<td>OnTrac MWD + Motor set at 2.12°</td>
<td>Kick-off successful with motor and bent-sub</td>
</tr>
<tr>
<td>3</td>
<td>546</td>
<td>989</td>
<td>OnTrac MWD-Resistivity-GR-Annular Pressure-Near bit Inclination + AutoTrak Rotary Steerable System</td>
<td>Resistivity Tool Failure</td>
</tr>
<tr>
<td>4</td>
<td>989</td>
<td>1192</td>
<td>Neutron Porosity-Density-OnTrac MWD-Resistivity-GR-Annular Pressure-Near bit Inclination + AutoTrak Rotary Steerable System</td>
<td>Resistivity Tool Failure</td>
</tr>
<tr>
<td>5</td>
<td>1192</td>
<td>1916</td>
<td>OnTrac MWD-Resistivity-GR-Annular Pressure-Near bit Inclination + AutoTrak Rotary Steerable System</td>
<td>Resistivity Tool Failure</td>
</tr>
<tr>
<td>6</td>
<td>LWD / Reamer Run at TD</td>
<td>LithoTrak: Neutron Porosity-Density-Caliper</td>
<td>Logged 830 - 973m Logged 1175 - 1900m</td>
<td></td>
</tr>
</tbody>
</table>

### BIT RECORD

<table>
<thead>
<tr>
<th>BIT RUN</th>
<th>SIZE</th>
<th>BIT TYPE</th>
<th>BIT COMPANY</th>
<th>BIT NAME</th>
<th>DEPTH IN</th>
<th>DEPTH OUT</th>
<th>METRES DRILLED</th>
<th>HRS</th>
<th>AVG ROP</th>
<th>CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6 ¼”</td>
<td>PDC</td>
<td>SEC</td>
<td>FXD65</td>
<td>495</td>
<td>540</td>
<td>Failed to Kick-off ST #1 due to soft cement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>6 ½”</td>
<td>TCI</td>
<td>HCC</td>
<td>STX-66DX2</td>
<td>540</td>
<td>546</td>
<td>6</td>
<td>5.3</td>
<td>1.13</td>
<td>1-1-WT-A-E-0-NO-BHA</td>
</tr>
<tr>
<td>3 (RR1)</td>
<td>6 ¼”</td>
<td>PDC</td>
<td>SEC</td>
<td>FXD65</td>
<td>546</td>
<td>989</td>
<td>443</td>
<td>62.3</td>
<td>7.11</td>
<td>3-2-CT-S-X-0-WT-BHA</td>
</tr>
<tr>
<td>4</td>
<td>6 ½”</td>
<td>PDC</td>
<td>HCC</td>
<td>FX65</td>
<td>989</td>
<td>1192</td>
<td>203</td>
<td>32.0</td>
<td>6.34</td>
<td>1-3-WT-S-X-0-CT-PR</td>
</tr>
<tr>
<td>5</td>
<td>6 ¼”</td>
<td>PDC</td>
<td>BAKER</td>
<td>QT406F</td>
<td>1192</td>
<td>1916</td>
<td>724</td>
<td>127.7</td>
<td>6.67</td>
<td>1-1-WT-A-X-0-NO-TD</td>
</tr>
<tr>
<td>6 (RR2)</td>
<td>6 ¼”</td>
<td>TCI</td>
<td>HCC</td>
<td>STX-66DX2</td>
<td>LWD / REAMER RUN AT TD</td>
<td>GOOD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MacIntyre 2H kicked-off from 540m using a motor set @ 2.12 degrees and TCI bit

Initial attempt to kick-off MacIntyre 2H at 531-540m with BHI’s rotary steerable BHA failed due to soft cement.
DOLOMITIC SALTST: lt grey, sl arg, dolc, mod hd.

DOL: crm-lt gysh brn, mx, mudst tex, ip slty, dism lt cold cly.

In solvent.

Hagen Mbr 560.5 mMD 560.2 mTVD
DOL: variably cold, ip crm-v pale grey, ip bf-tan-lt greyish brn, microxin, originally mudst tex, ip slyt, locally grdg-dolg sltst, tty packed & dns, sb-plty-pitty, no visible mtx por, p mmr flur, n/s.

DOLOMITIC SLTST: lt grey, sl arg, dolc, mod hd.

Dol wi Dolomitie Marstone Interbeds
DOL: variably cold, ip crm-v pale grey, ip bf-tan-lt greyish brn, microxin, originally mudst tex, ip slyt, locally grdg-dolg sltst, ip arg wi dism lt cold cly, lochy grdg-dolg mrlst, tty packed & dns, sb-plty-pitty, no vis mtx por, p mmr flur, n/s.

Arthur Creek 586 mMD 585.3 mTVD
DOL: crm-lt gysh brn, mx, mudst tex, ip slyt, dism lt cold cly, no vis mtx por, p mmr flur, n/s.

CLYST: whsh gy, ivory - v pale yelsh white, sly earthy lst, water reactive, dol lams, v soft & mushy.

MRLST: dolomitie, med-dk brn-yelsh brn, mic-v-f xl, mudst tex, mod-v arg, no vis mtx por, no apr stng, no flur, no florg cut in solvent.

Intbnd Limestone, Dolomite & Marstone

LST: offwht-crm wi sl chky luster due-desm lt cold cly, mudst tex, v sft (cly is wtr-reactive & washable), no visible por, no stng, n/s; predy lt gysh brn-med brn, mudst tex, comly mod-v arg, ip grdl wi calc mrlst, ip dolc, ip slyt, mod hd, dns, no vis por, no stng, no shows.

DOL: lt greyish brn where cin grdg-med brn-locally dk brn wi inarg arg matter, mod-v arg & grdg-dolg mrlst, original mudst tex, mod hd, plty, no visible por, no stng, n/s.

DOLOMITIC MRLST: med-dk brn-yelsh brn, mic-v-f xl, mudst tex, mod-v arg, no vis mtx por, no apr stng, no flur, no florg cut in solvent.

SS: crm-lt greyish brn, qtzs, crq qtz gns wi abnt dol cmt, gradational wi v sdy dol, l v-f grn, w srt, rd gns, mod w cons, no vis por, no stng, n/s.

Oolitic Reef 646 mMD 642.5 mTVD
DOL: pale yelsh brn, lt gray brn, met with sh (seas) dol cmt.
lofty mot wi sl calc cly, rr cly lam, sl 'rns' luster due-abnt dism bits matter, clr qtz grs wi lt brn (relc hydc) stng, ip gdll betw slt-sz grs & l-vf grs, ip sdy wi fltg v-f grs, typ v arg wi dk bit-rich arg matter, ip gdrv-g-v slyt bits sh, sl-mod calc, sl-mod hd, v slight oily film on acid aft effervescence, petrolif od, no fluor, no fluorig cut in solvent.

BITUMINOUS SLTST: dk gys-blk-bmsh blk due to abnt dism blk bits matter & org arg matter, patchy tty grey motting wi wh calc cly & cly-rich ls, clq qtz grs commonly wi lt-med brn org stng, rr pyr xls, sl calc, sl-mod hd, sb bilky-pilty, v slight oily film on acid aft crushing & effervescence, fnt pet od, no fluor, no fluorig cut in solvent.

BITUMINOUS SLTST: bcm mainly med-dk gys-blk-bmsh blk due-abnt dism blk bits matter & org arg matter, patchy tty grey motting wi wh calc cly & cly-rich ls, clq qtz grs commonly wi lt-med brn org stng, rr pyr xls, sl calc, sl-mod hd, sb bilky-pilty, v slight oily film on acid aft crushing & effervescence, fnt pet od, no fluor, no fluorig cut in solvent.

BITUMINOUS SLTST: med gys brn, predy rthic lst, locally mot wi wh calc cly & mic cal xls, tr mic mica fiks & pyr mic xls, abnt dism dk org matter & org arg matter, ip gdrv-g-v slyt sh, sl calc chips, mod calc upon crushing, v slyt oily film on acid aft crushing & effervescence, fnt pet od, no fluor, no fluorig cut in solvent.

DOL: wh-lt orang, v-l-med xl, indst biolc deb includign spic-like frags, mnr pyr inclusions, w cmdt wi no visible mtx por, n/s.

SLTST: dk grey-bik, clr qtz grs, v arg & comly grdl wi slyt sh, arg matter appears bitsn, mnr pyr xls, mod hd, sl calc & posy sl dolc, no por, n/s.

SLTST: med gys brn, predy rthic lst, locly mot wi wh calc cly & mic cal xls, tr mic mica fiks & pyr mic xls, abnt dism dk org matter & org arg matter, ip gdrv-g-v slyt sh, sl calc chips, mod calc upon crushing, v slight oily film on acid aft crushing & effervescence, fnt pet od, no fluor, no fluorig cut.

ARGILLACEOUS SLTST: dk brnsh, yr dlk gys brn, rthy luster,
ARGILLACEOUS SLTST: dk brnsh gy-dk gysh brn, rthy luster, abnt dism arg matter & pos blk bitns matter, clrq qtz grs, tr mic-mica, tr ppy xls, sl calc, sl grdg-v hd, sb pthy, v slight petf od, no fluor, no fluorg cut in solvent.

ARGILLACEOUS SLTST: dk brnsh grey-dk gysh brn, rthy luster, abnt dism arg matter & pos blk bitns matter, clrq qtz grs, tr mic-mica, tr ppy xls, sl calc, sl grdg-v hd, sb pthy, v sl petf od, no fluor, no fluorg cut in solvent.

ARGILLACEOUS SLTST: dk brnsh grey-dk gysh brn, rthy luster, abnt dism arg matter & pos blk bitns matter, clrq qtz grs, tr mic-mica, tr ppy xls, sl calc, sl grdg-v hd, sb pthy, v sl petf od, oily bubbles on acid aft crushing, no fluor, no fluorg cut in solvent.

THORNTONIA 1130 mMD 817.5 mTVD
SILICEOUS DOL: clrtms-lv pale yelsh brn (by) mttx wi f-med brn dolmtdz bioclic deb (mnl spicule-like frags 1-2mm long), ool & f-med grn rd bioclic grs (calcarenite), wkctk-pckts pos gmst, mic-yx tltly packed mttx, ip mttx dol has been repl wi crypto-xl sil, grdg locly-fous chit, tr mic ppy xl inclts in mttx & occlty qtz alloches, no vis por, no stng, n/s.

Scat clq evhed prismatic ANHY xls-2mm long.
DOL: whv-pale yelsh brn (by)-lt brn-locly med gysh brn, predy fosus mudst-wkctk wi pckst 8/or gmst strg, v-fy xl mttx wi fltg bioclic deb (f-med rd bioclic grs, spic-like frags-2mm, filme-c ool), locly sclc wi wh crptxl sil rplgl dol mttx, occ fosus chit strg, mnl v clín, vis plsn wh clst lams 0.1 - 0.2mm thk,
rr sl wvy bkl bit-filled stlyls, tr ppy: mic-xl mas inclts & occ evhed xls filling mic vugs, no vis inttx mttx por, scat non-effective mic vugs filled wi bkl bit., frac eredence: tr bit filled hairline fracs, rr frac surf wi evhed v-f dol xls, tr bkl bld cld planar frac surf, tr ppy zn frags, no apr live stng, no flor, no fluorg cut.

DOL: it gy & trmsl-mnly whv-pale yelsh brn wi fltg bioclic grs, spic-like frags, rd f bioclic grs, pos f-med gm ools, indst frags,
spic-like frags, rd f bioclc grs, pos f-med grn ools, indst frags,

Trace evidence of fracturing: healed cal planar veins usually

Base of the BASAL HOT SHALE 1184mTVD
817.6mTVD
SLSTST: med-dk gysr brnsh blik, rth lstr, clr qtz gsr wi abnt
dism arg mat, grdl wi v sily sh, ptc h dk org mat, sl calc, ip
sl-mod dolc, sl-mod fmm, sb bliky.

SLSTST: dk gysr brnh, occly mot pale whtish gy wi ire,
disturbed & discnt calcs clty partings (disturbed bedding
gives the impression they re incs rather than prob originally
bdg lam), rth lstr, clr slt-sz qtz gsr ns trs dk thc gsr & mic
mica fiks, typ v arg, grdl wi v sily sh, arg mat ip org-rich, mod
calc, posy sl dolc, mod fmm, sb-bliky-plyt.

SLSTST: dk gysr brnh, rth lstr, clr slt-sz qtz gsr ns trs of It
(slt-sz) cht gsr, dk thc gsr & mic mica fiks, v arg, grdl wi v sily
sh, arg mat ip org rich, mod calc, posy sl dolc, mod fmm,
sb-bliky-plyt v fnt petf od, no ffluor, no ffluor cut in solvent.

Sh: dk grey-bkl, rsns luster due-dism bitsn org matter, tr
mic-mica fiks, mod-v sily, cmy grdl wi v arg slts, sl dolc, ip sl
dolc, v fmm-sl h
d.

Sh: dk gy-bkl, rsns luster due-dism bitsn org matter, tr
mic-mica fiks, mod-v sily, cmy grdl wi v arg slts, sl dolc, ip sl
dolc, v fmm-sl h
d.

Sh: v dk gysr brnsh brnh blik, sl rsns lstr due-dism bitsn org
matter, locally wi dism pyr xrs, rr fltg euhed, f fyr crystal, tr
micromica, slyt, sl grdg-locally v calc, sl-modly hd & brit, sl
dolc, plyt

Trace evidence of fracturing: healed cal planar veins usually
Trace evidence of fracturing: healed cal planar veins usually

TVD: 816.32m

Azm: 98.67

SLTST: dk greyish brn, rthy luster to lesser rsns wi increased bitsns matter, typically v arg & grdl v slty bitsns clst or sh, sl-mod calc, v fm-si hd, sb blky- pyt, fnt petf od, no fluor, no fluorg cut in solvent.
Resistivity Tool Failure.


SLTST: dk glysh brn, rhy luster-occassonaly rsns wi locally increased bitns matter, typically v arg & grdl wi v sity bitns clyst or sh, sl-mod calc, v frm-si hd, sb blyk-plyt, fnt petf od, no flor, no fluorg cut in solvent.


SH: dk brn-glysh brn wi an rthy luster where siltier, v dk glysh brn-bmsh blk wi incr dism bitns matter, mic-mics, sl grdg-v sity, ip grdl wi v arg stlst, sl-mod calc, sl-mod hd, pty, tr frac evidence: tr healed cal veins, r ppyr, v fnt petf od, no flor, no fluorg cut in solvent.

SH: v dk glysh brn-bmsh blk, bcmg mainly rsns wi dism bitns matter, locally rthy where siltiest, sl grdg-v sity, ip grdl wi v arg stlst, mod calc, sl-mod hd, sb blyk-plyt, tr frac evidence: tr cal veins, pr yrr xincl frags, r ppyr planar frac surfl, v fnt petf od, no flor, no fluorg cut in solvent.

SLTST: dk glysh brn, rthy luster-occy rsns wi locly incr bitns matter, clr silt-sized quartz, typ v arg & grdl wi v sity bitns clyst or sh, sl-mod calc, v frm-si hd, sb blyk-plyt, fnt petf od, no flor, no fluorg cut in solvent.
SLTST: med-dk brn-gysih brn, rhy luster, v arg, comly grdl wi v slty sh or clyst, sl-mod calc & dolc, mod-v frmr-sl hhd, sb-blyk-plyt, v fnt petf od, no fluor, no fluorg cut in solvent, tr fracs.

SH: dk grey-blyk wi a rsns-sb-vit luster wi incr dism bitsn matter, mod-v slty, ip grdl wi bitsn arg stlst, sl calc & dolc, sl fis, sl-mod hd, tr mic-l v cal xl inclds, rr pyr crystal ctd surf, v fnt petf od, no fluor, no fluorg cut in solvent.

SLTST: med-dk chocolate brn-gysih brn-olv brn wi an rhy luster, locally mot dk grey-blyk wi patchy bitsn matter, v arg, comly grdl wi v slty sh or clyst, mod-v calc, ip dolc, mod-v frmr-sl hhd, sb-blyk-plyt, v fnt petf od, no fluor, no fluorescing cut in solvent, tr frac evidence: tr mic-l v cal xl incclusions, rr pyr crystal ctd surf.

SH: dk grey-blyk wi a rsns-sb-vit luster wi dism bitsn matter, scat mic mica flks, mod-v slty, ip gradational wi bitsn arg stlst, sl calc & dolc, sl fis, sl-mod hd, tr mic-l v cal xl incclusions, rr pyr crystal ctd surf, v fnt petf od, no fluor, no fluorg cut in solvent.

SLTST: med-dk brn-gysih brn, rhy luster, locally mot dk grey-blyk wi bitsn matter, v arg, comly grdl wi v slty sh or clyst, sl-mod calc & dolc, mod-v frmr-sl hhd otherwise, sb-blyk-plyt, v fnt petf od, no fluor, no fluorg cut in solvent, tr frac evidence as previously described.


SLTST: med-dk gysih brn-olv brn, rhy lst, clr sft sized qtz grs wi scat dk angl & or lihc pars & occ flit frags, v arg & grdl wi v slty clyst or sh, scat thin sh partings, mod-v calc, v frmr-sl hhd, sb-blyk-sb-plyt.

rich patches ip, blk w/ rsns-sb vit luster ip even dism blk bits mat, scat mic mica flks, sly-v sly, ip grdl w/ bits arg-slt, sl calc & dolc, sl fis, sl-mod hd, tr frac evidence: tr mic-l vf cal x incl, rr pyr crystal ctd surf, v fint petf od, no fluor, no fluorg cut in solvent.

MacIntyre 2H reached TD of 1916 mMD (815.4 mTVD) 23-June-2012 @ 08:15hrs