

7cfYj Ug; a V< / Ua d/Ua d/'7c"?;
Yfk Y]hYfh'HYW\bc`c []YdcfhZc`]c

9a Yf[YbWm9mYf . '8 UhYbVf]`Yb`i bX'8fc\bYb`j cf`Cfh`]YZYfb
6]`XYf`]b`X]Y`GYfj]WnYbhfYb`9a Yf[YbWm9mYf . '8 UhYbVf]`Yb
i bX'8fc\bYb`j cf`Cfh`]YZYfb`6]`XYf`]b`X]Y`GYfj]WnYbhfYb
7cfYj Ug; a V< / Ua d/Ua d/'7c"?; `Yfk Y]hYfh`X]Y
9a Yf[YbWm9mYf!HYW\bc`c []Y`a]h`XYf`9]bV]bXi b[`j cb
8 UhYbVf]`Yb`i bX'8fc\bYb`ni gÄhn`]W`ni `Ga Ufhd\cbYg`]b
9bhgW\Y]Xi b[gZ]bXi b[Yb`; fYj YbVfc]Wž: YVfi Uf'&\$&)
/ Ua d/, , &%%/8]Y`7cfYj Ug; a V< / Ua d/Ua d/'7c"?; ž
VY_Ubbh`Z0f`]fY`k Y[k Y]gYbXY
9a Yf[YbWm9mYf !HYW\bc`c []Yž`Vf]b[h`a]h`XYf`bYi Yb
J Yfg]cb`) "+`VYXYi hYbXY`#bcj Uh]cbYb`Ui ZXYb`A Uf_`h`
BYVYb`XYf`YhUV`]YfhYb`GcZhk UfY`ni f`j YfgW`0ggY`hYb
J YfV]bXi b[`nk]gW\Yb`Ga Ufhd\cbYg`i bX
GYfj]WY]bf]W\hi b[Yb`Yfk Y]hYfh`XUg`l bhYfbY`a Yb`gY]b
DcfhZc`]c`i a `8 UhYbVf]`Yb`i bX'8fc\bYb`hYW\bc`c []Y`8]YgY
bYi Yb`HYW\bc`c []Yb`Yfa `0[`]W\Yb`Y]bY`bcW`VYggYfY
G]hi Uh]cbg!`i bX`@U[YY]bgW\Ähni b[`]b`9W\hnY]h/ Ua d^Y`]d/

9a Yf[YbWm9mYf . '8 UhYbVf]`Yb`i bX'8fc\bYb`j cf`Cfh`]YZYfb
6]`XYf`]b`X]Y`GYfj]WnYbhfYb

9a Yf[YbWm9mYf . '8 UhYbVf]`Yb`i bX'8fc\bYb`j cf`Cfh`]YZYfb
6]`XYf`]b`X]Y`GYfj]WnYbhfYb

7cfYj Ug; a V< / '7c"?; `Yfk Y]hYfh`X]Y`9a Yf[YbWm9mYf!
HYW\bc`c []Y`a]h`XYf`9]bV]bXi b[`j cb`8 UhYbVf]`Yb`i bX'8fc\bYb
ni gÄhn`]W`ni `Ga Ufhd\cbYg`]b`9bhgW\Y]Xi b[gZ]bXi b[Yb
; fYj YbVfc]Wž: YVfi Uf'&\$&) `8]Y`7cfYj Ug; a V< / '7c"?; ž
VY_Ubbh`Z0f`]fY`k Y[k Y]gYbXY`9a Yf[YbWm9mYf !HYW\bc`c []Yž
Vf]b[h`a]h`XYf`bYi Yb`J Yfg]cb`) "+`VYXYi hYbXY`#bcj Uh]cbYb`Ui Z

XYb`A Uf_h`BYVYb`XYf`YhUV`YfhYb`GcZrk UfY`ni f`j YfgWk`ØggY`hYb
J YfV]bXi b[`nk]gWkYb`Ga Ufhd\cbYg`i bX`GYfj]WY]bf]Wk hi b[Yb
Yfk Y]hYfh`XUg`i bhYfbY`a Yb`gY]b`DcfhZc`c`i a`8UhYbVf]`Yb`i bX
8fc\bYbhYkbc`c[]Y`8]YgY`bYi Yb`HYkbc`c[]Yb`Yfa Ò[`]WkYb
Y]bY`bcWk`VYggYfY`G]hi Uh]cbg`! i bX`@U[Y]bgWk`Åhni b[`]b`9WkhnY]h
i bX`cdh]a]YfYb`XUa]h`9bhgWkY]Xi b[gdfcnYggY`i bX`X]Y`<`]Z`]a
BchZU``! i bX`?f]gYba UbU[Ya Ybhi bX`]a `?i bXYbX]Ybghi bX
GYfj]W`"

BYi Y` : i b_h]cbYb`ZØf`Y]bY`bcWk`VYggYfY`GYfj]W`Y]ghi b[
A]h`XYf` ðhY[fUh]cb`j cb`8UhYbVf]`Yb`i bX`8fc\bYb`fYU[]Yfh
7cfYj Ug`Ui Zk UWkgybXY`5bZcfXYfi b[Yb`Ub`9ZZ]n]Ybnž`Df`Ån]g]cb
i bX`G]WkYf`Y]h]b`XYf` : Yfbk Ufhi b[`i bX`GYfj]W`i bhYfghØhni b["
8]Y`9]bZØ\fi b[`X]YgYf`HYkbc`c[]Yb`YfZc`[hY`i bhYf`UbXYfYa
Ui Z[fi bX`j cb`?i bXYbk ØbgWkYb`i bX`dfU[]gbU`Yb
5bk YbXi b[gZ`Ybž`X]Y`Y]bY`ZfY`\ÅbX][Y`Bi hni b[`i bX`Yfk Y]hYfhY
DYfgdY_h]j Ybž`i "U"Ui g`XYf`@ Zh`VY]`XYf`9]bgWk`Åhni b[`j cb
G]hi Uh]cbYb`j cf`CfhYfZcfXYfb"

I bgYfY`9a Yf[YbWm9mY`f`!HYkbc`c[]Y`\Uh]g]Wk`U`g`ni j Yf`Ågg][Yg
Hcc`ZØf`gWkYb`Y`Y`i bX`g]WkYfY`?ca`a`i b[_Uh]cb`]b
BchZU``g]hi Uh]cbYb`i bX`]a`GYfj]W`YhUV`Yfh`A]h`J Yfg]cb`)" +
[Y`Yb`k]f`Y]bYb`GWk]h`k Y]hYf`i bX`V]YhYb`Bchfi Z`i bX
GYfj]WY]bf]Wk hi b[Yb`bcWk`Y]ghi b[gZ`\][YfY`K Yf_nYi [Y`ni f
I bhYfghØhni b[`j cb`Bchfi ZYbXYb`UVYf`Ui Wk` : Yfbk Ufhi b[g`! i bX
9]bgUhdfcnYggYb`ž`Yf`_`Åfh`DfcZ`8f`"; i YbhYf`<i`Y`ž` ð\UVYf`XYf`
7cfYj Ug`; a V`<`/`7c`"?; "

9a Yf[YbWm9mY`i bX`9a`9mY`!H`HYkbc`c[]Yb`ZØf`Bchfi Zi bX
ðXi ghf]Y

8]Y`7cfYj Ug`; a V`<`/`7c`"?; `Uh`X]Y`9a Yf[YbWm9mY`!HYkbc`c[]Y
ZØf`XYb`Bchfi ZYb`hk]W_Y`hž`i a`Y]bY`g]WkYfY`i bX`YZZ]n]Yb`hY
?ca`a`i b[_Uh]cb`nk]gWkYb`Bchfi ZnYbhfU`Yb`i bX`<`]ZYgi WkYbXYb
ni`Yfa Ò[`]WkYb`8]YgY`HYkbc`c[]Y`Yfa Ò[`]Wk`h`9WkhnY]h!
J]XYcØVYfhfU[i b[Ybž`; Yc`c`_U`]g]Yfi b[`i bX`8UhYbØVYfa]h`i b[ž
c\bY`XUgg`Y]bY`5dd! ðghU``Uh]cb`YfZcfXYf`]Wk`]gh`DUfU`Y`XUni
k i fXY`9a`9mY`!H`ZØf`X]Y`ðXi ghf]Y`Yb`hk]W_Y`hž`i a`I bhYfbY`a Yb`]a
GYfj]W`! i bX`?i bXYbX]YbghiVY]`XYf`Cdh]a]Yfi b[`]YfY`DfcnYggYž
FYggci fWkYbYZZ]n]Ybn`i bX`BUWk`U`h][_Y]h`ni`i bhYfghØhnyb"

9b[U[Ya Ybhi]a`Bchfi Z`i bX` ; YZU`fYbUVk Y`fVYfY]Wk

8]Y`7cfYj Ug`; a V`<`/`7c`"?; `]gh`b]Wk`h`bi f`]b`XYf`GYfj]W`! i bX

ϕghUbX\U`hi b[gVfUbWXY`U_hj] ž'gcbXYfb`Yb[U[]Yfh'g]W\`Ui W
]bhYbg]j`ja`6YfY]W`XYf`Bchfi Z_ca a i b]_Uh]cb`i bX
; YZU\fybUVk Y\`f"8]Y`9a Yf[YbWm9mYf !HYW\bc`c[]Y`k]fX`]b
Bchfi ZY]hghY`Yb`Y]b[YgYhnhž`i a`Y]bY`dfÄn]gYfY`@U[YY]bgW\Ähni b[
ni`Yfa Ò[`]W\Yb`i bX`gc`FYhhi b[ga U»bU\ a Yb`YZZ]n]YbhYf`ni
[YghU`hYb"8i fW`X]Y`Bi hni b[`a cXYfbYf
?ca a i b]_Uh]cbg`Ògi b[Yb`hfÄ[h`7cfYj Ug`XUni`VY]ž`9]bgUhnny]hYb
ni`j Yf_ØfnYb`i bX`@YVYb`ni`fYhhYb"
8fc\bYbhYW\bc`c[]Y`ZØf`Yfk Y]hYfhY`9]bgUhma Ò[`]W\`_Y]hYb`]b
Ni gUa a YbUfVY]h`a]h`XYa`?fY]g`?`Yj Y`i bX`K YghbYhn
7cfYj Ug`UfVY]hYhY`a]h`XYa`?fY]g`?`Yj Y`i bX`XYf`K YghbYhn`; a V<
Ub`XYf`ϕhY[fUh]cb`j cb`8fc\bYbhYW\bc`c[]Y`ni`f`l bhYfghØhni b[
j cb`BchZU`Y]bgÄhnyb`i bX`_f]h]gW\Yf`ϕZfUghfi _hi fØVYfk UW`i b["
8]YgY`9bhk]W_`i b[`k Uf`i "U"Y]b`6Y]hfU[`XYf`7cfYj Ug`]b`XYa
@Yi W\hhi fa`dfc`Y`_h`GD9@@fGYa Ubh]gW\Y`D`UhhZcfa`ni`f
]bhY`][YbhYb`9bhgW\Y]Xi b[g!`i bX`9]bgUhni bhYfghØhni b[`]b
@Y]hghY`Yb`i bX`@U[YnYbhYfYb`E`XYg`6i bXYga]b]ghYf]i a g`ZØf
K]fhgW\UZh`i bX`?`]a UgW`i m`j cb`&\$&%V]g`&\$&("8]Y`8fc\bYb
Yfa Ò[`]W\Yb`Y]bY`gW\by`Y`i bX`dfÄn]gY`9fZUggi b[`j cb
; YZU\fyb`U[Yb`Ui g`XYf`@ Zhž`k cXi fW`9]bgUhn_fÄZhY`bcW\`VYggYf
Ui Zi bj cf\Yf[YgY\YbY`9fY][b]ggY`fYU[]YfYb`_ØbbYb"8fc\bYb
V]YhYb`j Ò`][`bYi Y`DYfgdY_h]j Yb`ZØf`GYfj]W`Y]bgÄhnyž
]bgVYgcbXYfY`]b`gW`k Yf`ni [Äb[`]W\Yb`cXYf`[YZÄ`f`]W\Yb
l a [YVi b[Yb"G]Y`Yfa Ò[`]W\Yb`Y]bY`gW\by`Y`i bX`i a ZUggYbXY
9fZUggi b[`XYf`@U[Yž`fYXi n]YfYb`F]g]_Yb`ZØf`9]bgUhn_fÄZhY`i bX
hfU[Yb`ni`f`VYggYfYb`D`Ubi b[`j cb`A U»bU\ a Yb`VY]"8]YgY
HYW\bc`c[]Y`]gh`VYgcbXYfg`j cfhY`\`UZh`ZØf`ϕZfUghfi _hi fk Ufhi b[Ybž
ϕgdY_h]cbYb`i bX`BchZU`Y]bgÄhny"
8UhYbVf]`Yb`ZØf`cdh]a]YfhY`5fVY]hgUV`Äi ZY`]b`?ccdYfUh]cb`a]h
Fc`g!Fc`mW`i bX`XYa`6UmYfbk Yf_
8]Y`ϕhY[fUh]cb`j cb`8UhYbVf]`Yb`Yfa Ò[`]W\h`GYfj]W`hYW\b]_Yfbž
9l dYfhYbi bhYfghØhni b[`]b`9W\hny]h`ni`Yf`U`hYbž`k Ä`fYbX`g]Y
VY]XY`<ÄbXY`ZØf`X]Y`Y][Ybh`]W\Y`HÄh][_Y]h`ZfY`\`UVYb"8]Y
5bk Y]gi b[Yb`k YfXYb`X]fY`_h]a`G]W\hZY`X`Ub[YnY][hž`k Ug`X]Y
9ZZ]n]Ybn`i bX`5fVY]hgg]W\Yf\Y]h`Yf\YV`]W\`ghY][Yfh"NY]h[`Y]W\
_ØbbYb`X]Y`GYfj]W`hYW\b]_Yf`a]h`XYb`9l dYfhYb`ØVYf`X]Y`5i X]c!
: i b_h]cb`XYf`8UhYbVf]`Yb`a]hY]bUbXYf`_ca a i b]n]YfYb`i bX
n]Y`[Yf]W\hYh`Ub[Y`Y]hYh`k YfXYb"8]YgY`5bZcfXYfi b[Yb`k i fXYb

j cb`X ghf]YdUfhbYfb`k]Y`F c`g!F cmW`ZØf`5fVY]hYb`Ub
; fc» a chcfYb`cXYf`XYa`6UmYfbk Yf_`ZØf`5fVY]hYb`]b`[fc» Yf`< Ò\Y
[YÄi » Yfh`i bX`[Ya`Y]bgUa`Ybhk]W_Y`h"
9ZZ]n]Ybnž`G]WXYf\Y]h`i bX`B UWX`U`h][_Y]h]a`i`c`_i`g
8]Y`K`Y]hYfYbhk]W_`i b`[`XYf`7cfYj Ug!HYW`bc`c`[]Yb`n]Y`h`XUfUi`Z`UVž
DfcnYggY`YZZ]n]YbhYf`ni`[YghU`hYbž`?cghYb`ni`gYb`_Yb`i`bX
[`Y]W`nY]h][`X]Y`B UWX`U`h][_Y]h]ni`j`YfVYggYfb`"8Yf`9]bgUhn`j`cb
FYa`chY!HYW`bc`c`[]Yb`a`]b]a`Yfh`i`bb`Øh][Y`5bZU`fhYbž`fYXi`n]Yfh
7C!9a`]gg]cbYb`i`bX`cdh]a`Yfh`XYb`FYggci`fW`bY]bgUhn`"A`h`X]YgYb
`bcj`Uh]cbYb`gYhnh`X]Y`7cfYj Ug;`a`V`<`/`7c`"?;`bYi`Y`A`U»gh`VY
]b`XYf`GYfj`]W!`i`bX``ghUbX`U`h`i`b`[`gVfUbW`Y`i`bX`i`bhYfghfY]W`h
]\fY`F`c`Y`U`g`J`c`ffY]hYf`]b`XYf`9bhk]W_`i b`[`ga`UfhYf
?ca`a`i`b]_Uh]cbg!`i`bX`i`bhYfgh`Ø`hni`b`[`ghYW`bc`c`[]Yb`"
`bcj`Uh]cb`Xi`fW`?`ccdYfUh]cb
7cfYj Ug`j`YfZc`[`h`XUg`N]Y`ž`bcj`Uh]cbYb`Ui`Z`\`ØW`ghYa`B`]j`YUi`ni
Ybhk]W_Y`b`i`bX`a`cXYfbghY`HYW`bc`c`[]Yb`U`hU[`ghUi`[`]W`ni
a`UW`Yb`"8]Yg`[`Y`]b`[`h]a`Yb`[`Yb`8]U`c`[`a`]h`5bk`YbXYfb`gck`Y`]b
Ni`gUa`a`YbUfVY]h`a`]h`DUfhbYfb`Ui`g`X`ghf]Yž`K`]fhgW`UZž
i`b]j`Yfg]h`fYb`i`bX`ØZZYbh]W`Yb`9]bf]W`hi`b`[`Yb`";`Ya`Y]bgUa`a`]h
]bhYfbUh]cbU`ZØ`fYbXYb`gh]hi`h]cbYb`gW`UZž`7cfYj Ug
k`Y`[`k`Y]gYbXY`@Øgi`b`[`Yb`"
K`]f`g]bX`ØVYfnYi`[`hž`XUgg`bcj`Uh]cb`Xi`fW`Ni`gUa`a`YbUfVY]h
i`bX`_fYUh]j`Yb`5i`ghUi`gW`YbhghY`h`Gc`V]YhYb`n`6`"i`bgYfY
<UW_Uh\cbg`Y]bY`Y]bn][`Ufh][`Y`D`UhhZc`fa`ZØf`K`]ggYbgW`UZž`Yfž
9bhk]W_`Yfž`8Yg][`bYfž`GhUfh]i`dg`i`bX`i`bhYfbY`a`Ybž`i`a
[`Ya`Y]bgUa`a`@Øgi`b`[`Yb`ni`Ybhk]W_Y`b`"Gc`J]_hcf`<`i`\`Yž;`fØbXYf
XYf`9a`Yf[`YbWm9mf`!HYW`bc`c`[]Y`"
<YfUi`gfU[`YbXY`6Y]gd]Y`Y`g]bX`XYf`<`57?`5H<`CB`5A`F`B;`ž`XYb`X]Y
7cfYj Ug`Ua`B`ØfVi`f`[`f]b`[`cf`[`Ub]g]Yfhž`i`bX`XYf
<UW_Uh\cb4`DA`F`9I`dc`]b`?`ccdYfUh]cb`a`]h`XYf`?`cY`ba`YggY
k`À`fYbX`XYf`@Y]ha`YggY`DA`F`9I`dc`"8]YgY`<`UW_Uh\cbg`g]bX`k`Y]h
a`Y`f`U`g`K`YhhVYk`YfVY`g]Y`g]bX`bcj`Uh]cbga`chcfYbž`ZØfXYfb
]bhYfX]gn]d`]b`fYb`5i`ghUi`gW`i`bX`gW`UZZYb`Y]bY`bUWX`U`h][`Y
7ca`a`i`b]hm";`Ya`Y]bgUa`a`[`YghU`hYb`k`]f`X]Y`Ni`_i`bZi`a`]h`bYi`Yb
`XYbž`Zf]gW`Yb`DYfgdY`_h]j`Yb`i`bX`VU`bVfYW`YbXYb
hYW`bc`c`[]gW`Yb`@Øgi`b`[`Yb`"
I`bhYfbY`a`YbgdfcZ`
8]Y`7cfYj Ug;`a`V`<`/`7c`"?;`]gh`Y]b`XYi`hgW`Yg

: Ua]Ybi bhYfbY\ a YbžXUg'gY]h&\$%) ']bbcj Uh]j Y
?ca a i b]_Uh]cbghYWXbc`c[]Yb`Ybhk]W_Y`hi bX`VYfY]hghY`h"
8 Ug'I bhYfbY\ a Yb`a]h'G]hn`]b`8Yi hgW\`UbX`]gh`Ui ZX]Y`9bhk]W_`i b[
j cb`GcZhk UfY`ZØf`Bchfi Z_ca a i b]_Uh]cbž?f]gYba UbU[Ya Ybh
gck]Y`GYfj]W!`i bX`?i bXYbX]Ybgh`Øgi b[Yb`gdYn]U`g]Yfh"8 Ug
<Ui dhdfcXi _h`XYf`7cfYj Ugž`9a Yf[YbWm9mYf žk]fX`j cb
FYhhi b[gX]YbghYbž`BchZU`Y]hghY`Ybž`a YX]n]b]gWXYb
9]bf]WXhi b[Yb`gck]Y`I bhYfbY\ a Yb`]b`XYf`bXi ghf]Y`[Ybi hnh"

DfYggY_cbhU_h

DfcZ`8f" a YX"; ØbhYf`<i \`Y

7cfYj Ug; a V< / `7c" ?;

9!A U].` [i YbhYf\ i \ `Y4 WcfYj Ug"XY

HY`YZcb. Ž (- `f\$Ł`%+&`%\$&(&&&

K YVg]hY. `k k k "Ya Yf[YbWmYmY"XY

8]Y`7cfYj Ug; a V< / `7c" ?;]gh`Y]b`XYi hgWXYg
: Ua]Ybi bhYfbY\ a YbžXUg'gY]h&\$%) ']bbcj Uh]j Y
?ca a i b]_Uh]cbghYWXbc`c[]Yb`Ybhk]W_Y`hi bX`VYfY]hghY`h"
8 Ug'I bhYfbY\ a Yb`a]h'G]hn`]b`8Yi hgW\`UbX`]gh`Ui ZX]Y`9bhk]W_`i b[
j cb`GcZhk UfY`ZØf`Bchfi Z_ca a i b]_Uh]cbž?f]gYba UbU[Ya Ybh
gck]Y`GYfj]W!`i bX`?i bXYbX]Ybgh`Øgi b[Yb`gdYn]U`g]Yfh"8 Ug
<Ui dhdfcXi _h`XYf`7cfYj Ugž`9a Yf[YbWm9mYf žk]fX`j cb
FYhhi b[gX]YbghYbž`BchZU`Y]hghY`Ybž`a YX]n]b]gWXYb
9]bf]WXhi b[Yb`gck]Y`I bhYfbY\ a Yb`]b`XYf`bXi ghf]Y`[Ybi hnh"

?cbhU_h

7cfYj Ug; a V< / `7c" ?;

; i YbhYf`<i \`Y

5`h!A Ø\`fUh\`&&

(%)%*`; fYj YbVfc]WX

\$%+&%\$&(&&&

guenterhuhle@corevas.de

\hhd.##k k k "Ya Yf[YbWmYmY"XY

8]Y`6]`XfYWXhY`Y]Y[Yb`VY]`XYa`J YfZUggYf`XYf`A]hY]i b["

6Ygi W\Yb`G]Y`i bg`Ui Z.`b!U["XY