



ARTS2876

I bXYfghUbX]b['h\Y'GY`Z

HYfa `C.bY`##`&\$%-



GWcc`cZGcWJU`GWYbWg`##`I BGK ``5ftg`UbX`GcWJU`GWYbWg

7ci fgY`Cj Yfj]Yk

`GHUZZ7cbhUWh8YHJ`g`

`7cbj Ybcfg`

B Ua Y	9a Uj`	5j U]UV]]m	@cWjhcb	D\cbY
A Y`Ub]Y`K \]hY				

7ci fgY'8YHJ]`g

7fYX]hDc]bqg`*`

Gi a a UfmicZ\hY'7ci fgY

Gi VYWh5fYU. EaU[a`aYk S`V 3` fZdaba`aYk

9UW\`cZi g`\Ug`U`gY`ZUbX`Ub`]XYbh]mVmj]fhi Y`cZVY]b[`i a Ub`"6i hXc`c`hYf`"j]b[`VY]b[g`\Uj Y`U`gY`Z3
8c`c`hYf`"j]b[`VY]b[g`\Uj Y`gcWYm]b`hY`gUa Y`k Um\i a Ubg`Xc3`"b`h]g`Vti fgY`z`mci `k]`Wtbg]XYf`gca Y
fUX]h]cbU`Uggi a dh]cbg`cZgY`ZccX`fY"["z`hY`WdUW]m]Zc`f`fYUgcb`z`gdYYW\`z`UbX`a Ya cfm`Z`fca `U`fUb[Y`cZ
X]ZYfYbhgcW]c`c[]W`dYfgdYW]j Yg`"Mci `k]`Wtbg]XYf`\ck `fYW`bh]b`fX]gW]d`]bUfmk cf_`WU`Yb[Yg`gca Y
cZ`hYgY`VUg]WUggi a dh]cbg`"Mci `k]`YI Ua]bY`Uf[i a Ybh]Zc`f`UbX`U[U]bghYI h`bX]b[`gY`ZccX`h`c`hYf

Hi hcf]U'g. 'Hi hcf]U'g'k]''VY'i gYX'hc'cf[Ub]nY'ga U''[fci dg'hc'YghUV'jg\ 'U'Wc''UVcfUHj] Y'k cf_]b[
Ybj]fcbaybhk \YfY'ghi XYbthg'WUb''YUfb'Z'ca 'cbY'Ubc'hYf''Ga U''[fci dg'k]''VY'cf[Ub]nYX'']b'hY'Zfgh
hi hcf]U''b'K YY_'&'cf" ""#h'Y'gYVcbX'\U'ZcZ'hY'gYa YghYfz[fci dg'k]''ZJW']hUH'Ub']b!WUgg'UW'hj]miXi f]b[
hi hcf]U''hja Y''; fci dg'k]''VY'Yi dYW'hX'hc'a YY'hc'X]gW gg'hY'fYUX]b[g'UbX'dfYdUFY'Zcf'hY]f'hi hcf]U'
ZJW']hUH]cb'ci hg]XY'WUgg'hja Y''

F YUX]b['E i Ygh]cbg. 'F YUX]b['ei Ygh]cbg'k]''VY'Uj U]UV'Y'cb!''bY'hc'Ugg]ghgh XYbthg''H\Ymk]''[]j Y
gh XYbthg'U'dc]bhcZfYZfYbVW'Zcf'X]gW gg]cb'jb'hY'hi hcf]U''

5ggYgga Ybh

5ggYgga YbhHUg_g`

5ggYgga YbhHUg_	K Y][\h	8i Y'8UHŸ	Gh XYbh@YUfb]b[Ci hŸa Yg'5ggYggYX
K cf_Vcc_`	(\$i	K YY_`' UbX'K YY_`-	&Ÿ
; fci d': UWŸ]HUŸcb`	&)i	K YY_g')!-]bWŸ g]j Y"	%Ÿ
9ggUmi	')i	\$* #) #&\$%- %%) - 'DA	%Ÿ&Ÿ(

5ggYgga Ybh8YHU]`g

5ggYgga Ybh% 'K cf_Vcc_`

GHUfhXUHŸ.`

@Yb[h. `%&dU[Yg'dYf'k YY_`

8YHU]`g. 'K cf_Vcc_Gh XYbhg'k]`dfYdUfY'k f]HŸb'Ybhf]Yg'cZ%&dU[Yg'cb'hY'Ugg][bYX'fYUX]b[g" H\Y'k cf_k]`VY'gi Va]HŸX'UbX'UggYggYX'dYf]cX]WŸ`mŸfci [\ 'hY'hŸfa "': YYXVUW_`'K f]HŸb'WŸa a Ybhf'UbX'[fUXYX U[U]bghU'WŸ]HŸf]U'g\YYH'

5XX]ŸcbU`XYHU]`g.

Mci 'k]`gi Va]hmcŸ f'k cf_Vcc_`Ybhf]Yg'Zcf'K YY_g`%UbX'&]b'K YY_`' Zcf[fUXYX'ZYXVUW_`"

Mci 'k]`gi Va]hYbhf]Yg'Zcf'K YY_g`" 'hc',]b'K YY_`- 'Zcf[fUXYX'ZYXVUW_`"

Hi fb]Ÿb'gYHŸb[. H\]g'Ugg][ba Ybh]g'gi Va]HŸX'hŸfci [\ 'Hi fb]Ÿb'UbX'gh XYbhg'WŸb'gYY'Hi fb]Ÿb'ga]Uf]m fYdcfŸg"

5ggYgga Ybh&. ; fci d': UWŸ]HUŸcb

GHUfhXUHŸ.`

@Yb[h. `&\$'a]bi HŸg

8YHU]`g. 'Gh XYbhg'k]`XYg][b'Ub]b!WUgg'UWŸj]mŸf&\$'a]bE'hUhVf]b[g']bhc'fY']YZUb]a dcfUbhUgdYWŸcZ'hY HŸI hi bXYf'WŸbg]XYfUŸcb" H\Ymk]`VY'UggYggYX'cb'hY]f'UV]]mŸhc'k cf_`WŸ`UVcfUŸj Y'mUbX'hc'YI Ua]bY'hY dfUWŸ]WŸ`ja d']WŸŸcbg'cZ'hY'fYUX]b['Zcf'Yj YfmXUm']Z]'Gh XYbhg'k]`VY'fYei]fYX'hc'dUfŸ]WŸdUHŸ']b'cbY hi hc'f]U`[fci d':ZUWŸ]HUŸcb']b'hY'gYa YghŸf'9UWŸ [fci d'k]`fYWŸ]j Y'U'WŸ`YWŸj Y' [fUXY"; fUXYX U[U]bgh WŸ]HŸf]U'g\YYhZ'k f]HŸb'WŸa a Ybhf'UbX'j YfVU`ZYXVUW_`cb'hY'XUm'

5XX]ŸcbU`XYHU]`g.

Hi hc'f]U`[fci d':ZUWŸ]HUŸcbg'k]`VY'\Y'X'Xi f]b['K YY_g')!-]bWŸ g]j Y"

Hi fb]Ÿb'gYHŸb[. H\]g'g'bchU'Hi fb]Ÿb'Ugg][ba Ybh

5ggYgga Ybh' . '9ggUm

GHUfhXUHy . '

@Yb[h. '%) \$\$'k cfXg

8YhU]g. 'F YZYWj; Y'YggUmGh XYbhg'k]'k f]h'Ub'YggUmf%) \$\$'k cfXgE'hUh]XYbh]Z]Yg'% & 'W]h]W'YUfb]b[
a ca Ybhg'hYmYI dYf]YbW'X]b'hY'Wci fgY""H\YgY'YI dYf]YbW'g'k]'VY'X]gW'ggYX'YI d']W]hm]b'fY'Uh]cb'hc
Wci fgY'Wcbh]bh]b'cfXYf'hc'XYa cbghfU'h'Ub'i bXYfgfUbX]b['cZ_YmWcbW'dhg"H\]g']g'hY'Z]bU'UggYgga Ybh]b
hY'Wci fgY""

Hi fb]h]b'gYh]b[. 'H\]g'Ugg][ba Ybh]g'gi Va]h'X'h'fci [\ 'Hi fb]h]b'UbX'gh XYbhg'W]b'gYY'Hi fb]h]b'ga]Uf]hm
fYdcfng"

5 hYbXUbW F Yei]fYa YbHg

Gh XYbHg UfY gHfcb[mYbWci fU[YX'hc UHhYbX'U''WUggYg UbX'fYj]Yk ''YWhi fY'fYWc fX]b[g"

7 ci fgY'GWXYXi `Y

		A Ubi gW]dHg' b'8Uj]X'A W@Y`Ub'f9X"Ł=Sd^? Sq , E WwUfW I dff' Yež&bX'9X]hcb" CI ZcFX. CI ZcFX I b]j Yfg]mDfYgg"9I Wfdhg'dd", ' !-) "
	Hi hc]U'	: fci d' : UW]]h]cbg'VY []b'h]g'k YY_ "
K YY_* .&) 'A UfW '! " % A UfW	@YWi fY	H\Y'5b]a U'UbX'h\Y'GY'Z!'8YgWUfhYgž 8Yff]XU'fA UfW '&) Ł
	F YUX]b[8YgWUfhYgžF YbY'f%- , , Ł'8]gWŁi fgY'Cb'H\Y'A YhC X - 'DUfhj' 'Dd'"(\$!(*' b'6 WŁUSd'WŁ, E WwUfW BZ['æabZ[US'ł dff' Ye'fHfUbg"'>c\ b'7 c]h]b[\Ua 5bX'F cVYfhGŁc hC ZŁ" '7 Ua Vf]X[Y. '7 Ua Vf]X[Y I b]j Yfg]mDfYgg"
	Hi hc]U'	: fci d'ZUW]]h]cbg'WŁb]h]bi Y"
	C b]bY'5W]j]m	GYY'A ccX'Y'Zc'f'XYh]]g"
K YY_+ . '%5df]'!' + '5df]`	@YWi fY	A cfU']m]UbX'h\Y'GY'Z!'8Y'K UU'f5df]' '%Ł
	F YUX]b[8Y'K UU'ž: fUbg'f&\$\$' Ł'A cfU']m]UbX'h\Y'GcW]U' b]h]b]WŁg. '7 cb]h]bi]mk]h' h\Y'Ch Y'f'Df]a UH'g' FZW FS` `Wd>WUfgdWŁ a` : g_ S` HS'gWŁž8Y'j YfYX'Uh Df]bWŁhC b' I b]j Yfg]mž Bcj Ya VYf'-% !&\$ž&\$\$' "'Dd" %% !%(' "
	Hi hc]U'	: fci d'ZUW]]h]cbg'WŁb]h]bi Y"
	C b]bY'5W]j]m	GYY'A ccX'Y'Zc'f'XYh]]g"
K YY_ , ; , '5df]'!' % ('5df]`	@YWi fY	H]a Y'UbX'h\Y'GY'Z!'6Yf[gcb'f5df]' , Ł
	F YUX]b[6Yf[gcbž< Yb]f'f0% \$+0% , ' Łž5 dWf[hW7 ha'gf]a` " @cbXcb. 'A UWŁ]`Ub'DfYgg"9I Wfdhg'dd"'] ! ! j ž% +
	Hi hc]U'	: fci d' : UW]]h]cbg'WŁb]h]bi Y"
	C b]bY'5W]j]m	GYY'A ccX'Y'Zc'f'XYh]]g"
K YY_ - . %) '5df]'!' &% 5df]`	@YWi fY	H\]b_]b['Ug'5b]a U'g!'8Yff]XU'f5df]' '% Ł
	F YUX]b[8Yff]XUž>UWŁi Yg'f0% - +Q\$\$ (Ł'H\Y'5b]a U'H\Uh H\YfY'Zc'f' =5a 'fA cfY'hc : c`ck Ł' b' A UH'Yk 7 U'UfWŁ'5bX'DYH'f'5H'f'fcb'f9Xg"Ł'3` [S^ BZ['æabZk"'@cbXcb. '7 cb]h]bi i a 'DfYgg"9I Wfdhg Dd"'%% !%&- "
	Hi hc]U'	@Ughk YY_ 'Zc'f' [fci d'ZUW]]h]cbg"
	5ggYgga Ybh	Mci'f'k cf_Vcc_'Yb]f]Yg'Zc'f'K YY_g" !, ']bWŁ g]j Y'UfY Xi Y']b'K YY_ - "
K YY_ %\$. '&&'5df]'!' & ,	C b]bY'5W]j]m	Bc`'YWi fY'cf'h hc]U'g'h]g'k YY_ 'VYW]i gY'5df]' '&&h

5df]]g'U'di V`]W\c`]XUmif9UghYf'A cbXUnł"'' bghYUX'cZ WUgg'h\]g'k YY_ž'd'YUgY Wca d'YHY'cb`]bY'UWVj]m fgYY'A ccX'Y Zcf'XYHJ]gł"''7'UggYg'k]''VY fYgWXYXi `YX Zcf'5df]'&- 'fK YY_''%ž"
K YY_''%ž '&- '5df]'! '% A Um	@YWh fY	@]j Yg'cZ5b]a U'g!'7cYmYY'f&- '5df]ł .
	F YUX]b[7cYmYYž>"A " f% - - Ł'H\Y'D\]cgc d\Yfg'UbX'hY 5b]a U'g']b'HZWFS` ` Wd >WUfgdVé a` : g_ S` HS'gVé" 8Y']j YfYX'UhDf]bWVhcb' l b]j Yfg]mž'CVk VYf'%) ž %- - +"Dd"%% !%(' " ? UZ Už: fUbn'f% +%ž"5'F Ydcfhk'Ub'5WUXYa m' Dd"&) \$!&) -]b'8dS` l =S\]S, FZW5a_ b'WWE fadVé" BYk 'Mcf_ 'GVWcW_Yb'6cc_g
	Hi hc.f]U'	5g'gWXYXi `YX"

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

Df]bhWcd]Yg`cZhY`k YY`_mUgg][bYX`fYUX]b[g`\\Uj Y`VYb`Wca d]`YX`]bhc`Ub`f5F HG&, +*`Gh`Xm?]frik`\\]Wk`]g Uj U]`UV`Y`Zcf`di fWUgY`UhhY`I` BGK` `6cc_g\cd""`9`YWfcb]Mwcd]Yg`cZhY`fYUX]b[g`UfY`U`gc`Uj U]`UV`Y`cb hY`5F HG&, +*`A`ccX`Y`dU[Y.` [\hfd.#a ccX`Y`h`fi bgk`"YXi`"Ui](#)

F YWca a YbXYX`F Ygci fWg

7ci fgY`9j U`i Uh]cb`UbX`8Yj Y`cda Ybh

Gh`XYbhZYXVUW`_k`]`VY`[UhYfYX`h`fci`[\`a`m9I`dYf]YbW`gi`fj`YmgZ`UbX`mci`k`]`VY`[]j`Yb`cddcfh`b]h]Yg`h`fci`[\`ci`h`hY`gYa`YghY`f`h`c`[]j`Y`]b`Zcfa`U`ZYXVUW`_`H\Y`Ugh]a`Y`=hUi`[\`h5F HG&, +*`I`bXYfghUbX]b[`hY`GY`Zk`Ug`]b`&\$%+`"H\]g`Wc`cfhcZgh`XYbhg`[Uj`Y`dcg]h]`Y`ZYXVUW`_`cb`hY`Wci`fgY`"

6UgYX`cb`h`]g`ZYXVUW`_`z`=\Uj`Y`a`UXY`hY`Z`ck`]b[`WU]b[Yg`h`hY`Wci`fgY`.

%`5ggYgga`YbhGhfi`Wfi`fY`!`=\Uj`Y`a`cX]ZYX`hY`UggYgga`Ybhghfi`Wfi`fY`h`Ybgi`fY`h`Uh`hY`k`cf`_Vcc`_`hUg`_`]g`df]cf]h]gYX`"

&`5bbci`bW`a`Ybhg`!`=k`]`i`d`cUX`j`]XYc`gY`[a`Ybhg`h`c`A`ccX`Y`]b`cfXY`f`h`c`UXXfYgg`]ggi`Yg`fY`U`hYX`h`c`UggYgga`YbhUbX`Wci`fgY`Vi`g]bYgg`"H\]g`k`]`[]j`Y`i`g`a`cfY`h]a`Y`]b`Y`Wfi`fYg`h`c`X]gW`gg`Wci`fgY`Wc`bh`bh`"

=j`Yfma`i`W`UddfYW]U`h`h`]g`ZYXVUW`_`z`UbX`cc`_`Zc`fk`UfX`h`c`]a`d`Ya`Ybh]b[`hYgY`gi`[[Yg]cbg`]b`&\$%-`"6Ygh`k`]g\Yg`Zc`f`hY`bYk`h`fa`"

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

5 WUXYa]W<c bYghmUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b[`hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[`hYa `Ug`mci f`ck b" `hWUb`hU`Y`a Ubm
Zcfa gž`Zca `XY`]VYfUHY`WXYU]b[`hc`UWV]XYbhU`mW`dm]b[`Zca `U`gci fW`k]h`ci hUW_bck`YX[Ya Ybh`

I BGK `[fci dg`d`U[]Uf]ga `]bhc`hY`Zc`ck]b[`WUHY`[cf]Yg.

7 cdm]b[.`i g]b[`hY`gUa Y`cf`j Yfmg]a]Uf`k cfXg`hc`hY`cf][]bU`hYI hcf]XYU`k]h`ci hUW_bck`YX[]b[`hY`
gci fW`cf`i g]b[`ei chU]cb`a Uf_g" `H\]g`U`gc`Udd`]Yg`hc`]a U[YgžUfhUbX`XYg][b`dfc`YWgžUg`k Y`Ug
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hWYX]h`

hUddfcdf]UHY`dUfUd`fUg]b[.`7`U`b[]b[`U`ZYk`k cfXg`UbX`d`fUgYg`k`Y`a cghmifYU]b]b[`hY`cf][]bU`
ghfi W`fY`UbX`#`f`dfc[fYgg]cb`cZ]XYUg`cZ`hY`cf][]bU`ž`UbX`]bZcfa U]cb`k]h`ci hUW_bck`YX[Ya Ybh`H\]g`U`gc
Udd`]Yg`]b`dfYgYbhU]cbg`k \YfY`gca YcbY`dUfUd`fUgYg`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hWYX]hU`bX`hc
d]YW]b[`hc[YhYf`ei chYg`UbX`dUfUd`fUgYg`]bhc`U`bYk`k \c`Yž`k]h`ci hUddfcdf]UHY`fYZYfYbW]b["

7 c`i g]cb.`k cf_]b[`k]h`chYfg`Vi hdUgg]b[`cZ`hY`k cf_]Ug`U`dYfgcb`g`]bX]j]Xi U`k cf_]7 c`i g]cb`U`gc
]bWi XYg`dfcj]X]b[`mci f`k cf_]hc`UbchYf`gh`XYbhVYZc`fY`hY`Xi Y`XUHYž`cf`Zc`f`hY`di fdcgY`cZ`hY`a

- i bXYfghUbx'mci f'f][\hg'UbX'fYgdcbg]V]h]Yg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wc'dmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi W'Ubx'5W'W'dhUV'Y'I gY'cZ I BGK '⇒H'F'Ygci f'W'g'Dc`]W'h
- VY'Uk UfY'cZ'Y'ghUbxUfXg'cZVY\Uj]ci f'YI dY'W'X'cZYj Yfmcby']b'h'Y'I BGK 'W'a a i b]m
- 'cW'W'h'gYfj]W'g'UbX']bZ'fa U]cb'UVci hl BGK 'UbX'I BGK '@]VfUfm

Gca Y'cZ'Y'gY'UfY'Ug'k]''VY'ZJa]]Uf'hc'mci ž'c'h'Yfg'k]''VY'bYk "; U]b]b['U'gc`]X'i bXYfghUbx]b['cZU''h'Y fY'UH'X'UgdY'W'g'cZ9@-G9'k]''\Y'd'mci 'a U_Y'h'Y'a cgh'cZ'mci f'gh X]Yg'Uhl BGK ""

[\h'hd.##gi V'Y'W'i \]X'Yg" \]VfUfm'i bgk "YXi "Ui #' \]gY#\]Vci h' \]gY](#)

