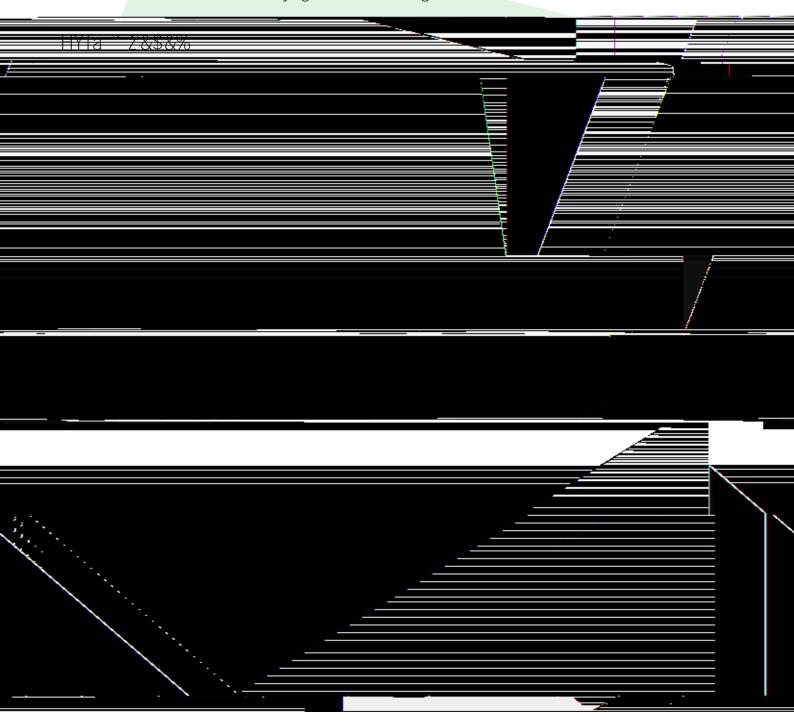


MDIA5002

Ai`hjd`Uhzcfa 'UbX'5iX]cj]giU``>cifbU`]ga



7ci fgY⁻Cj Yfj]Yk

GHJZ7cbHJWh8YHJ]`g

7cbj Ybcfg

| B Ua Y | 9a U]` | 5j U]`UV]`]m | @cWUhjcb | D\cbY |
|----------------|----------------------------------|----------------|---------------------------|-------|
| 5bXfYk '6fcc_g | <u>U"Vfcc_g4_i_bgk_"YXi_"Ui_</u> | 6mUddc]bha Ybh | FcVYfh KYVghYf '%%8 | b#J |

GWXcc`7cbHJWhi±bZcfa Uh]cb

GWXcc``cZfXY`5ffg`UbX`AYX]U

Fcca " ‰ž@Yj Y`" žFcVYfhK YVghYf'6i]`X]b[fl %(Ł

D\cbY.'f\$&E'-',)'(,)*

9a U]`. 'gUa 4 i bgk "YXi "Ui

K YVg]hY. k k k "Ufhg"i bgk "YXi "Ui #gUa

5W_bck `YX[Ya YbhcZ7ci bhfm

 $\label{eq:localized-loca$

7ci fgY 8YHJ] g

$I b hg c Z 7 f Y X h^*$

Gi a a UfmcZh\Y 7ci fgY

Mci 'k]```ghi Xmih\Y`fYgYUfW\ž]bhYfj]Yk 'UbX`dfYgYbhUh]cb`g_]``g`fYei]fYX`Zcf`VfcUXWUgha YX]U`UbX`k]````YUfb\ck 'hc`gWf]dhighcf]Yg`Zcf`Vch\`fUX]c`UbX`hY`Yj]g]cb"'Mci 'k]````YUfb`h\Y`VUg]\\g`cZa]\\fcd\cbYž\\Ua YfU`UbX\YX]h]b['g_]``g"'\Mci 'k]````YUfb`\ck 'h\Y`a YX]i a 'X]\\fu\hYg`h\Y`\\c]\\Y`UbX`dfYgYbhUh]cb`cZbYk gž`UbX`\ck dfcXi \\fo\farthermallimity Zy\\h\Y`Z]bU``dfcXi \\fo\farthermallimity Zy\\h\Y`Z]bU``dfcXi \\fo\farthermallimity \fo\farthermallimity Zy\\h\Y`Z]bU``dfcXi \\fo\farthermallimity \fo\farthermallimity \fo

Mci 'k]``'Wf]h]WU``mYb[U[Y`k]h\ 'h\Y`gcW]U`žYWcbca]WUbX`dc`]h]WU``fc`Y`cZUi X]c'UbX`Ui X]cj]gi U``a YX]UžUbX k]h\ 'h\Y`Yh\]WU``UbX`dfcZYgg]cbU``Wcbj Ybh]cbg`cZh\Y`VfcUXWUgh]bXi ghfm'

7 ci fgY @YUfb]b[Ci hWca Yg

%" F YgYUfW.ž']bhYfj]Yk ž'UbX'dfcXi Wgcb'cZghcf]Yg'Zcf'VfcUXWUgha YX]U &" 8 Ya cbghfUhY'U'Wf]hJWU''Uk UfYbYgg'cZh\Y'df]bWJd'Yg'UbX'dfUWJWYg'cZVfcUXWUgh'ci fbU']ga ' ": cfa i `UhY'UbX'UggYgg'ghfUhY[]Yg'Zcf'dfcXi WJb['VfcUXWUgha YX]U

HYUWX]b[GlfUhY[]Yg

HYUW]b['GhfUhY[]Yg.

H\]g`Wci fgY`k]````Uf[Y`mVY`HUi [\hZJVW`hc`ZJVW`]b`U``YWi fY`h\YUhY`Ybj]fcba YbhVi hh\YfY`k]``VY`gca Y dfUWf)WU``gYgg]cbg`]bWi X]b[`]b`h\Y`Ui X]c`ghi X]c`UbX`i g]b[`j]XYc`WJa YfUg"`H\YfY`k]```VY`U`ghfcb[Ya d\Ug]g`cb`YbWci fU[]b[`ghi XYbhdUfh]W]dUh]cb`]b`h\Y`dfcW\gg`cZ`YUfb]b["`Ghi XYbhg`k]```VY`UWfj Y`m Yb[U[YX`]b`gc`j]b[`dfcV`Ya g`dcgYX`Vmh\Y``YWi fYf"`Ghi XYbh`YUfb]b[`k]```VY`Yb\UbWX`Vmh\Y`i gY`cZWJgY ghi X]Yg"

5ggYgga Ybh

| 5ggYgga Ybh'hJg_ | K Y][\h | 8iY'8UHY | 7 ci fgY @YUfb]b[Ci HWca Yg 5ggYggYX |
|---------------------------------------|---------|------------------------|--|
| %"`5bU`mg]g`cZVfcUXWJgh ci fbU`]ga | (\$1 | \$, #%\$#&\$&%`%%)) DA | &ž' |
| &"`>ci fbU`]gh]Wa YX]U`gWf]dh | * \$1 | %#%#&\$&%`%%)) | %ž'&ž'' |

5ggYgga Ybh% 5bU`mg]g cZVfcUXWUgh'ci fbU`]ga

8i Y'XUhY. '\$, #%\$#&\$&%'%%)) 'DA

%) \$\$ k cfXg

FYZYWNJb['cb'h\Y'df]bW]d`Yg'UbX'dfUWNJWYg'cZVfcUXWUgh'cifbU`]ga ž'gh XYbhg'UbU`mgY'gY`YWNYX'VfcUXWUgh cifbU`]ga 'hYl hg"

: YYXVUW_'j]U'@A G

H\]g`Ugg][ba Ybh']g`gi Va]hhYX`h\fci [\`Hi fb]h]b`UbX`ghi XYbhg`WUb`gYY`Hi fb]h]b`g]a]`Uf]hmifYdcfhg"

5XX]h]cbU`XYhJ]`g

Mci 'UfY'fYei]fYX'hc'UbU'mgY'U'd]YWY'cZVfcUXWUgh'ci fbU']ga 'cZmci f'Wkccg]b["'\dot\h\]g'Wci fgY'k Y'UfY

H\]g`Ugg][ba Ybh]g`gi Va]h\YX`h\fci [\`Hi fb]h]b`UbX`gh XYbhg`Wb`gYY`Hi fb]h]b`g]a]`Uf]hmfYdcfhg"

5XX]h]cbU`XYhU]`g

Mci 'UfY 'hc'dfcXi W' 'U''' \$\$ 'ci fbU']gh]Wa YX]U'gWf]dhZcf'U'ZYUhi fY 'ghcfm' H\Y'gWf]dhWb' VY 'Zcf'UbmZcfa 'cZ VfcUXWJgh'ci fbU']ga ž']bWi X]b[.'fUX]cž'hY'Yj]g]cbž'dcXWJghž'hk]hhYf#gcW]U'`a YX]U'fYdcfhU[Y'''Mci 'UfY fYei]fYX'hc'fYgYUfW\žXYj Y`cdžXfUZhž'UbX'dfYdUfY'mci f'ZYUhi fY 'ghcfmgWf]dhk]h\'UhhYbh]cb'hc'h\Y'ghm]gh]W Wcbj Ybh]cbg'UbX'hYW\b]WU``Wcbg]XYfUh]cbg'cZmci f'W\cgYb'VfcUXWJgha YX]U'''H\Y'gWf]dha i ghVY'dfcdYfm fYZYfYbWYX'''+b'UXX]h]cbz'mci 'UfY'fYei]fYX'hc'gi Va]h'U') \$\$'k cfX'YIY[Yg]g'k\]W 'fYZYWg'cb'h\Y'dfcWYgg'cZ fYgYUfW\'UbX'Ufh]W'`UhYg'\ck'h\Y'gWf]dhk Ug'hU]'cfYX'hc'h\Y'W\cgYb'VfcUXWJgha YX]U''

 $\label{lem:hamber} H\YfY'k\]^*`VY'Ub'cddcfhi\ b] mhc'k\ cf_g\cd'h\] g'UggYgga\ Ybh] b'WUgg'] b'h\Y'`YUX! i\ d'hc'gi\ Va\]gg] cb''$

Gh XYbhg k]``VY dfcj]XYX k]h\ k f]hhYb ZYYXVUW_j]U h\ Y @YUfb]b[A UbU[Ya YbhGmghYa "

5 hmy b X Ub WY F Yei] f Ya Yb hg

7ci fgY'GWXYXi `Y

J]Yk 'WUgg'ha YHUV'Y

H]a YtUV`Y

| 8 UhY | HmdY | 7 cbhYbh |
|--|----------|---|
| K YY_"%"% "GYdhYa VYf !"%+"GYdhYa VYf | GYa]bUf | ⇒hfcXiWh]cb. K \Uh]g VfcUXWUgha YX]U3 |
| K YY_"&."&\$"GYdhYa VYf !"&("GYdhYa VYf | GYa]bUf | A YX]U'dUghg'UbX'Z hi fYg. VfcUXWUgh'ci fbU']ga]b'U'WXUb[]b['a YX]U``UbXgWUdY |
| K YY_" ."&+"GYdhYa VYf !"%"C WcVYf | GYa]bUf | FYgYUfW.`aYh\cXc`c[]Yg.`Yh\]Wg`UbX`dc`]h]Wg cZWfYUh]b[`WcbhYbh |
| K YY_'(.'('C WcVYf'!', C WcVYf | GYa]bUf | GWf]dh]b['UbX'9X]h]b[|
| K YY_")."%%"C WhcVYf"! %)"C WhcVYf | GYa]bUf | 7]h]nYb^>ci fbU^]ga |
| K YY_'*.'% 'C WhcVYf'! &&'C WhcVYf | GYa]bUf | GHI 8MK 99?. Bc GYa]bUf |
| K YY_"+."&) "C WhcVYf"! &- "C WhcVYf | GYa]bUf | HJ 'UbX'F UX]c |
| K YY_', .'%Bcj Ya VYf'!) Bcj Ya VYf | GYa]bUf | DcXWUgh]b[|
| K YY_'', 'Bcj Ya VYf'! ‰'Bcj Ya VYf | GYa]bUf | A cV]`Y`>ci fbU`]ga |
| K YY_"%\$."%) "Bcj Ya VYf !"%-"Bcj Ya VYf | GYa]bUf | K cf_g\cd |

Fygci fWyg

DfYgWf]VYX F Ygci fWYg

GYY'A ccX`Y

FYWca a YbXYX FYgci fWYg

GYY 'A ccX`Y

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

 $\label{eq:continuous} Ghi XYbhiZYYXVUW_`WUb``VY`[]j Yb'`h\fci [\``A m9I dYf]YbW'``UbX'`h\fci [\``X]fYWhgi [[Ygh]cbg'hc'`h\Y'`Wci fgY Wcbj Ybcf''`$

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Hi fb]h]b Gi Va]gg]cb

Image: Ybwei bhyfu'dfcv'ya k \yb'uhhya dhjb['hc'gi va]hmci f'Ugg][ba Ybhh\fci [\ 'Hi fb]h]bž'd'YUgY

Hy'Yd\cby'9| hy'fbu''Gi ddcfhcb'-',) '' ' ' %cf'Ya U]''h\Ya 'cb'Y! hy'fbu'hy'hgi ddcfh4 i bgk "YXi "Ui "''Gi ddcfh
\ci fg'UfY', .\$\$Ua '-'%\$.\$\$da 'cb'k YY_XUmg'UbX'-.\$\$Ua '-').\$\$da 'cb'k YY_YbXg'fl *) 'XUmg'U'mYUft"'=Z'mci
UfY'i bUV'Y'hc'gi va]hmci f'Ugg][ba YbhXi Y'hc'U'ZJi 'hk]h\ 'Hi fb]h]b'mci 'a UmUdd'mZcf'Ub'Y! hy'bg]cbž'Vi hmci
a i ghfYhJ]b'mci f'h]W_Yhbi a VYf'Zfca '9! hy'fbU''Gi ddcfhfU'cb['k]h\ 'Ubmch\Yf'fy'Yj UbhXcW a Ybhgt'hc
]bWi XY'Ug'Yj]XYbW' hc'gi ddcfhmci f'Y! hy'bg]cb'Udd']WUh]cb"'=Zmci 'Ya U]''9! hy'fbU''Gi ddcfhmci 'k]'`
Ui hca Uh]WJ'`mfYW']j Y'U'h]W_Yhbi a VYfZ'Vi h]Zmci 'hy'Yd\cby'mci 'k]``bYYX'hc'gdYW]Z]WJ'`mUg_'Zcf'cby''
Hi fb]h]b'U'gc'dfcj]XYg'i dXUhy'g'cb'h\Y]f'gmghYa 'ghUh' g'cb'Hk]hyf''

; YbYfU`mž'UggYgga YbhiHug_g'a i ghVY'gi Va]hhYX'Y`YVWfcb]\WJ``mij]U'Y]h\Yf'Hi fb]h]b'cf'U'A ccX`Y Ugg][ba Ybh''=b']bgHJb\W'g'k \YfY'h\]g']g'bchdcgg]V`Yž']hk]```VY'gHJhYX'cb'mci f'\\circ i fgY'g'A ccX`Y'g]hY'k]h\U`hYfbUh]j Y'gi Va]gg]cb'XYHJ]`g"

cfi]bZcfa Uhjcbicbi\ckihcigi Va]hUgg][ba Ybhgicbi]bYij]UiA ccXiY.i\hdg.#gh XYbhi bgk "YXi "Ui #\ck! gi Va]hUgg][ba Ybha ccXiY

5 WUXYa]W<cbYghmUbX D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b['h\Y`k cfXg`cf`]XYUg`cZch\Yfg`UbX'dfYgYbh]b['h\Ya 'Ug`mci f`ck b"'=h\Wb'hU_Y`a Ubm Zcfa qžZfca 'XY`]VYfUhY'W\YUh|b['hc`UWW]XYbhU`mWcdm]b['Zfca 'U'gci fW'k]h\ci h'UW_bck 'YX[Ya Ybh'

IBGK [fcidgdu[]Uf]ga]bhch\YZc``ck]b[WUhY[cf]Yg.

7 cdm]b[. `I g]b['h\Y'gUa Y'cf'j Yfmg]a]`Uf'k cfXg'hc'h\Y'cf][]bU`'hYl hcf']XYU'k]h\ci hUW_bck `YX[]b['h\Y gci fW'cf'i g]b['ei chUh]cb'a Uf_g"'H\]g']bWi XYg'Wcdm]b['a UhYf]U`gž']XYUg'cf'WcbW'dhg'Zfca 'U'Vcc_ž'Ufh]WYž fYdcfhcf'ch\Yf'k f]hhYb XcW a Ybhz'dfYgYbhUh]cbž'Wca dcg]h]cbž'Uffk cf_ž'XYg][bž'XfUk]b[ž'WfW]hfmž'Wca di hYf dfc[fUa 'cf'gcZk UfYž'k YVg]hYž']bhYfbYhz'ch\Yf'Y`YWfcb]WfYgci fW'z'cf'Ubch\Yf'dYfgcbfg'Ugg][ba Ybhk]h\ci h Uddfcdf]UhY'UW_bck `YX[Ya Ybh''

buddfcdf]UhY dufud\fug]b[...7\ub[]b[...12\k...k.cfXg.UbX.d\fugYg.k.\]Y a cghmfYhJ]b]b[...h\Y.cf][]bU`]bZcfa UhJcbžghfi Wh fY UbX#cfdfc[fYgg]cb.cZ]XYUg.cZh\Y.cf][]bU`k]h\ci hUW_bck `YX[Ya Ybh'.h\]g.U`gc Udd`]Yg.]b.dfYgYbhJhJcbg.k.\YfY.gca YcbY.dUfUd\fUgYg.Ubch\Yf'g.]XYUg.cf.k.cfXg.k.]h\ci hWfYX]h\UbX.hc d]YWJb[...hc[Yh\Yf.ei chYg.UbX.dUfUd\fUgYg.]bhc.U.bYk.k.\c`Yžk]h\ci h\Uddfcdf]UhY.fYZfYbWJb[...

7 c``i g]cb. K cf_]b[[kk]jhhcbhhfgfgiVidhighghg]bc[Zb\Z'hh\dfk'dg_UUbyfGd\fgd\fgd\x] j\ji]b\Xk cf_k'] c``i zf]ca'U`gc
]b\Wi XYg'dfcj]\X]b['mci f'k cf_'hc'Ubch\Yf'gh XYbhZcf'h\Y'di fdcgY'cZh\Ya 'd`U[]Uf]g]b['zdUm]b['Ubch\Yf'gh XYbhZcf'h\Y'di fdcgY'cZh\Ya 'd`U[]Uf]g]b['zdUm]b['Ubch\Yf'dYfgcb'g'U\\XYa]\Wk cf_'UbX'\dm]b['cf'U\\delta']f]b['Ubch\Yf'dYfgcb'g'U\\XYa]\Wk cf_'UbX'\dm]b['\delta']\fizcZYf]b['hc'\delta'a d`Yh\Y'Ubch\Yf'dYfgcb'g'k cf_'cf'gYY_]b['d\ma YbhZcf'\ka d`Yh\b['U\\XYa]\Wk cf_''

buddfcdf]uhr Wjhuhjcb. 7 jhjb['gci fwrg'k \]ww\uj Y'bchVYYb'fYUXžk jh\ci huw_bck `YX[]b['h\Y "gYwbbXufm" gci fwr Zfca 'k \]ww_bck `YX[Y'cZh\Ya \ug'VYYb'cVhJ]bYX"

7 cffYWhfYZY& W Yj \$

5 WUXYa]W + DZcfa Uhjcb

8 i Y 'hc 'Yj c'j]b['UXj]WY 'VmB GK '< YU'th žighi XYbhg'a i gh'WkYW_'Zcf'i dXUhYX']bZcfa Uh]cb 'fY[UfX]b['cb`]bY 'YUfb]b['Zcf'U``'5fhgž'8Yg][b 'UbX'5fWk]hYWhi fY 'Wci fgYg'th]g'thYfa 'fJ]U'A ccX'Y'cf'Wci fgY']bZcfa Uh]cb dfcj]XYX"Ł

: cf'YggYbhJU`'ghi XYbh]bZcfa UhJcb'fY`UhJb['hc.

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