

SRAP5021

7 ci fgY Cj Yfj]Yk

GHJZZ:7cbHJWh:8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`] m	@cWUh]cb	D\cbY
8Uj]X [.] 7 cca Vg	XUj]X"Wca Vg4 i bgk "YXi "Ui		A cfj Yb 6fck bž ‰&ž &\$- ž cf &&%	

GWXcc``7cbHJWhi±bZcfa Uh]cb

GWXcc``cZGcWJU``GWJYbWYg

Fcca '%) -

A cfj Yb 6fck b 7 &\$

Ya U]`. 'gcgg4 i bgk "YXi "Ui

d\cbY. '\$&'-',) '% \$+

7ci fgY 8YHJ] g

7 fYX]hDc]bhg *

Gi a a UfmcZh\Y 7ci fgY

 $\label{thm:local-controlled} $$H\g'']bffcXi Wg'mci 'hc'h\Ycf]Yg'UbX'WcbW'dhg'cZh\Y'fY`Uh]cbg\]d'VYhk YYb'WJ]' gcWJYmiUXj cWUWnž dc']Wn'UbX'ghUhY']bghJhi hJcbgž'UbX'gcWJU`'W\Ub[Y']b'h\Y'X][]hU`'U[YžV'YbX]b['WUgg!fcca žcb']bYž'UbX YI dYf]YbhJU`''YUfb]b['UbX'hYUW\]b['UWMj]hJYg'''Nci 'k]``k cf_']b'[fci dg'hc'XYg][b'UbX'dfchchmdY'Ub'cb`]bY UXj cWUWnWUa dU][b'cb'U'dc']Wn']ggi Y'cZmci f'W\c]WY'''H\Y']bWfYUg]b[']a dcfhUbW'cZX][]hU`'UXj cWUWn'UbX UWJj]ga 'Zcf'dc']Wn'W\Ub[YžUbX'h\Y'cddcfh b]hmZcf'\][\Yf'cfXYf'Wc[b]hJj Y'Yb[U[Ya Ybh!VYmcbX'XYg_VUgYX'fYgYUfW\'UbX'UbU'mg]g'-'h\UhihYW\bc`c[mbck'cZYfg'a U_Yg'h\]g'Wci fgY'U'hJa Y`m'Wcblf]Vi hJcb'hc'h\Y dfcZYgg]cbU`'XYj Y`cda YbhcZh\cgY'k cf_]b[']b'dc']Wn'UbX'UXj cWUWn'Ug'k Y``'Ug']bZcfa]b['h\cgY']b'fY`UhYX UfYUg'Ug'hc']hj'fc'Y']b'dc']Wn'W\Ub[Y''$

7 ci fgY @YUfb]b['Ci hWca Yg

%" ·5 fflW `UhY ·h\ Y ·fY`Uh|cbg\]d ·VYhk YYb ·UX| cWUWhž dc`]WhidfUW|VW ·UbX ·dc`]WhiW\ Ub[Y"

- '"I gY'dc']\MnUbX'UXj c\WU\miZTUa Yk cf_g'UbX'\\cb\\Wdb\\Wdhg'hc'a Ud\Z'UbU'mgY\Z'UbX'ghTUhY[]nY'ghU_Y\c'\XYf UbX']\bh\fYgh[fci d'dcg]\h\cb\\Z'h\Y]f'fc`Y']\b'h\Y'dc']\\Mndfc\\Wgg'UbX'ci \h\cb\\Z\fi a Yg\Z'UbX'\h\Y'\Z\fi a g'— d\mg]\\W\'\UbX'j]fhi U`-']\b'k\]\\W\\h\YmUfY'a cgh'\]_Y'\mhc'\Y'U\\Mj Y'cf'Yb[U[Y"
- ("8Ya cbghfuh' 'U'ghfcb['Uk UfYbYgg'cZh\Y'Wa d'Yl 'UbX'XmbUa]WbUhi fY'cZUXj cWUWnk cf_fbY[chjUhjcbž'ZJWj]hUhjcbž'Wc``UVcfUhjcbž'UbX'WUa dU][b'Yl YW hjcbŁ'h\fci [\'Wc``UVcfUhj Y'WUa dU][b XYj Y`cda Ybhž']bWi X]b['cb`]bY'ghfUhY[mž'UbX'fYZYWnj Y'WUggfcca 'Yb[U[Ya Ybh'
-) " 7 f]h]wU``mYj U`i UhY`Wj]]``gcW]Yhmdc`]whiUXj cWUwhWUa dU][bg`]b`h\Y`X][]hU``cb`]bY#JfYbU`h\fci [\'h\Y `Ybg`cZUXj cWUwhUbX`gcW]U``W\Ub[Y`h\YcfmUbX`i gY`cZX]ZZYfYbhcb`]bY`ghfUhY[]Yg"
- *" 5dd`mih\Ycfmhc`U`fYU``k cf`X`gcWJU``dc`]Whi]ggi Y`VmWfYUh]b[`U`VUg]WX][]hU``WUa dU][b`ghfUhY[m fdUdYf`XYg][b`cf`dfchchmdYt"

HYUW]b['GhfUhY[]Yg'

H\]g`Wci fgY`i gYg`U`V`YbX`cZWUggfcca ž`cb`]bYž'UbX`YI dYf]Ybh]U```YUfb]b[`UbX`hYUW\]b[`ghfUhY[]Yg`UbX UWij]hjYg"`H\Y`a U]b`UWij]hm]g`h\Y`XYg][b`fUbX`cdh]cbU``dfchchmd]b[Ł`cZUb`cb`]bY`UXj cWUWnWua dU][b"`H\Y WUgg`k]```a YYh]b`k YY_`mgYa]bUfg`cf`Yb[U[Y`]b`cb`]bY`UWij]hjYg"`

H\YfY`UfY`fk c`_Ym]XYUg`VY\]bX`f\]g`fUf]cbU`Y'':]fgftzf\Y`V`YbXYX`XYg][b`dYfa]fg`f\Y`]bWi g]cb`cZU`[fYUf\ff fUb[Y`cZ`YUfb]b[`UWfj]fjYg`UbX`a U_Yg`VYghi gY`cZUj U]`UV`Y`ZUWY!fc!ZUWY`fja Y''`GYWcbXz*f\Y`Wci fgY`]g XYg][bYX`k]f\`U`j YfmdfUWfJWU``ZcW g`cb`f\Y`Uk UfYbYggžXYj Y`cda YbfiUbX`i fj`]gUfjcb`cZX][]fU``UXj cWUWfh fcc`gz`gc`f\Y`cb`]bY`Wca dcbYbfg`Wca d`Ya Ybfif\Y`X][]fU``UbX`dfUWfJWU``ZcW]']b`f\Y`Wci fgY''`

Į.	

F Ygci fWg

DfYgWf]VYX F Ygci fWYg

K YY_`mfYUX]b[g'UfY'Uj U]`UV`Y'cb'@Y[Ubhc'fUVWYggYX'j]U'A ccX`YŁ

FYWca a YbXYX FYgci fWYg

5 ``]ghcZfYWca a YbXYX fYgci fWYg Zcf`gh XYbhg`]g Uj U]`UV`Y`cb`A ccX`Y`fJ]U @Y[UbhcŁ

7ci fgY 9j U'i Uhjcb UbX 8Yj Y'cda Ybh

Gh XYbhYj U`i Uhj Y ZYYXVUW_`]g`[Uh\YfYX`dYf]cX]WU``mi g]b[ž'Ua cb['ch\Yf'a YUbgž I BGK fg`A m9I dYf]YbW'`dfcW'gg"' \darkled Zcfa U``ZYYXVUW_`UbX`WUgg! [YbYfUhYX`ZYYXVUW_`UfY`U`gc']a dcfhUbh' Gh XYbhZYXVUW_`]g`hU_Yb`gYf]ci g`mž'UbX`Wcbh]bi U``]a dfcj Ya Ybhg`UfY`a UXY`hc`h\Y`Wci fgY`VUgYX`]b`dUfh cb`gi W\`ZYYXVUW_"'G][b]Z]WUbhW\Ub[Yg`hc`h\Y`Wci fgY`k]```VY`Wca a i b]WUhYX`hc`gi VgYei YbhWc\cfhg`cZ gh XYbhg`hU_]b['h\Y`Wci fgY"

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

D`U[]Uf]ga i]gii g]b[ih\Yik cfXgicfi]XYUgicZch\YfgiUbXidfYgYbh]b[ih\Ya iUgimci fick b"i=hWbihU_Yia Ubm Zcfa qžZfca iXYi]VYfUhYiWXYUh]b[ihciUWW]XYbhU`mWcdm]b[iZfca iUigci fWYik]h\ci hUW_bck iYX[Ya Ybh'

IBGK '[fci dg'd'U[]Uf]ga ']bhc'h\Y'Zc``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 h'UW_bck `YX[]b['h\Y gci fW'cf'i g]b['ei chUh]cb'a Uf_g"'H\]g'U'gc'Udd`]Yg'hc']a U[Ygž'Ufh'UbX'XYg][b'dfc YWhgž'Ug'k Y``'Ug dfYgYbhUh]cbg'k \YfY'gca YcbY'dfYgYbhg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci h'WfYX]h'

± Uddfcdf]UhY 'dUfUd\fUg]b[.'7\Ub[]b['U'ZYk'k cfXg'UbX'd\fUgYg'k\]'Y 'a cghmfYhU]b]b['h\Y'cf][]bU' ghfi WhifY'UbX#cf'dfc[fYgg]cb'cZ]XYUg'cZh\Y'cf][]bU'žUbX']bZcfa UhJcb'k]h\ci hUW_bck 'YX[Ya Ybh''H\]g'U'gc Udd']Yg']b'dfYgYbhUhJcbg'k\YfY'gca YcbY'dUfUd\fUgYg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci h'WfYX]hUbX'hc d]YW]b['hc[Yh\Yf'ei chYg'UbX'dUfUd\fUgYg']bhc'U'bYk'k\c'Yž'k]h\ci h'Uddfcdf]UhY'fYZYfYbW]b['"

7 c``i g]cb.'k cf_jb['k]h\ch\Yfg'Vi hdUgg]b['cZZh\Y'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'Ubch\Yf'gh XYbhVYZcfY'h\Y'Xi Y'XUhYžcf'Zcf'h\Y'di fdcgY'cZh\Ya d`U[]Uf]g]b['UhUbmhja Yž'dUm]b['Ubch\Yf'dYfgcb'hc'dYfZcfa 'Ub'UWUXYa]WhUg_žghYU`]b['cf'UWei]f]b[Ubch\Yf'dYfgcb'g'UWUXYa]Wk cf_'UbX'Wcdm]b[']hz'cZZYf]b['hc'Wca d'YhY'Ubch\Yf'dYfgcb'g'k cf_'cf'gYY_]b[dUma YbhZcf'Wca d'Yh]b['UWUXYa]Wk cf_"

±DUddfcdf]UhY`W]hUh]cb. '7]h]b['gci fWYg'k \]WX`\Uj Y`bchVYYb`fYUXžk]h\ci hUW_bck `YX[]b['h\Y`″gYWcbXUfm″gci fWY`Zfca 'k \]WX`_bck `YX[Y`cZh\Ya`\Ug'VYYb`cVhJ]bYX"

5WUXYa]W±bZcfaUhjcb

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

• fYei Yghg Zcf Yl hYbg]cb/