

MUSC3706

HYfa 'Hk c''#'&\$&%

7ci fgY[·]Cj Yfj]Yk

GhJZZ 7 cbhJWh 8 YhJ] `g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]lm	@cWJhjcb	

7 ci fgY 8 YHJ]`g 7 fYX]hDc]bhg (' Gi a a UfmcZh\Y 7 ci fgY

5ggYgga Ybh

; YbYfU``]bZcfa Uh]cb'UVci hYl Ua]bUh]cb'fYei]fYa Ybhg']g'Uj U]`UV`Y'cb'h\Y'A ccX`Y'g]hY'Zcf'h\]g'Wci fgY''

5ggYgga Ybh'HUg_g

5ggYgga Ybh'hUg_	K Y][\h	8iY'8UHY	Gh XYbh@YUfb]b[Ci hWca Ygʻ5ggYggYX
9bgYa V`Y`Wcblf]Vi l]cbž dYfZcfa UbWYgždUfhWXYW_]b[lYgh	&\$I	9bgYa V`Y`dUfh'W\YW <u>]</u> b[

5XX]h]cbU`'XYhU]`g.

FYZYf'hc'h\Y'bchYg'Zcf'h\]g'hUg_'cb'A ccX'Y

5ggYgga Ybh' . DfUWhJWU Yl Ua]bUhJcb

8 YW] g.

H\Y'YI Ua]bUhjcb'cZdYfZcfa UbW'\Ug'lk c'fY`UhYX'dUffg"' \ bgffi a YbhU``UbX'j cWU``ghi XYbhg`k]```VY'YI Ua]bYX cb'hYWb]WU``fYdYfrc]fY'UbX'g][\hfYUX]b['Uddfcdf]UhY'hc'h\Y]f']bgffi a YbhU``cf'j cWU``gdYWJU`]gUhjcb'fJ | \ \ Xi f]b['H&"'5hh\Y'YbX'cZH' ž'&) !a]bi hYgficZfYdYfrc]fY'k]```VY'dYfZcfa YX']b'U'gYa]! \ Zcfa U``WcbW'fh Ybj]fcba Ybhf&& \ \ \ \ \ ''7 ca dcg]hjcb'ghi XYbhg`k]```dfYgYbhilk c'dcfhZc`]cg'cZk cf_. 'h\Y'\ ZfghUhil\Y'YbX'cZH&/h\Y'gYWcbX'Uhil\Y'YbX'cZH' "'

 $: YYXVUW\underline{\hspace{-0.05cm}/}\underline{\hspace{-0.05cm}}. K f] \underline{\hspace{-0.05cm}/}\underline{\hspace{-0.05cm}}\underline{\hspace{-0.05cm}/}\underline$

•

5XX]h]cbU`XYhU]`q.

 $\label{thm:local_state} $$HYY'H\&'UggYgga\ Ybhifty][\hiftyUX]b[\ensuremath{\,\dot{z}'}\ Y'giV'gi\ Va\]hhYX'Y'YWfcb]WU'`m''I\ b`Ygg'7cj\]X'fYghf]Wf]cbg'fYh fbžH'\ dYfZcfa\ UbW'g'k\]``'VY'`]j\ Y'UbX'ZUW''hc'ZUW'''$

5ggYgga Ybh(. DYfZcfa UbWY#dfYgYbHJh]cb

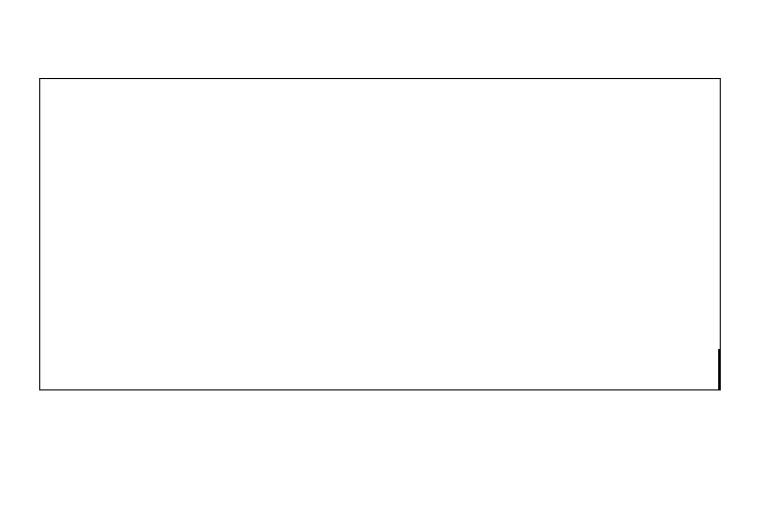
8YW]`q.

 $H\fYY\dYfZcfa\ UbWY\#dfYgYbfUf]cbg\k\]``VY\WcbXi\ WfYX\Xi\ f]b[\k\cf_g\cd\gYgg]cbg\]b\H\%Z\H\&\UbX\H'\"`$

Gdc_Yb^ZYXVUW_k]``VY^[]j Yb^Vmh\Y^YWh fYf^]b^WUggžUbX`k f]hhYb^ZYYXVUW_j]U^@A G

5XX]hcbU`XYHJ]`q.

Ghi XYbhgʻk]``XcʻUʻa]b]a i a ʻcZ&ʻ]b!WUggʻdYfZcfa UbWYgʻ]bʻH&ʻUbXʻ%ʻ]b!WUggʻdYfZcfa UbWYʻ]bʻH'ʻ!'h\]g cj Yff]XYgʻh\Yʻ]bZcfa Uhjcbʻ]bʻh\Y`XYgWf]dh]cbʻUVcj Y"'H\Y`gYWcbXʻcZh\Y`hk cʻH&`dYfZcfa UbWYgʻk]``VY`UbUqq][bYX`[fci dʻdYfZcfa UbWY"



FYgci fWyg

DfYgWf]VYX F Ygci fWYg

Bch'Uj U]`UV`Y

FYWca a YbXYX FYgci fWYg

BchUj U]`UV`Y

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

: YYXVUW_cb^h\Y`Wci fgY`k]``VY`a UXY`h\fci [\h\Y`a m9I dYf]YbWY`E i Ygh]cbbU]fY"'H\Y`WcbhYbhUbX
Yb&]b[`a Yh\cXg`\Uj Y`VYYb`g\UdYX`dUfhm]b`fYgdcbgY`hc`Yj U`i Uh]cb`cZYUf`]Yf`DYfZcfa UbWY`@UVcfUhcfm
7 ci fgYg`Uhh\]g``Yj Y`"'7\Ub[Yg`]bWi XY`U`ga U``Yf`WUgg`g]nYžYb\UbWYX`]b!WUgg`dYfZcfa UbWV
cddcfhi b]h]Ygž'h\Y`d`Ubb]b[`cZ]bZcfa Uh]cbU```YWi fYg`]bj c`j]b[`dYfZcfa UbWY`]ggi Ygž'U`ghfYb[h\YbYX
WcbXi Wh]b[`Wca dcbYbhzX]gW gg]cbg`cZ]bXi ghfmg_]``g"'\d\UXX]h]cb`a cfY`X]gW fg]j Y`Uddfc& 'hc`a UbU[]b[
ghi XYbh[c& g`UbX`ZYYXVUW_\Ug`VYYb`XYj Y`cdYX"'H\Y`Z]bU``YI Ua `\Ug`VYYb`fYZcfa UhhYX`hc`U``ck 'Zcf`U
a cfY`fY`UI YXz'di V`]WdYfZcfa UbWY`cf]YbhUh]cb"`

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"`±hWJb`hU_Y`a Ubm Zcfa gžZfca `XY`]VYfUhY`W\YUh]b['hc`UWW]XYbhJ``mWcdm]b['Zfca `U`gci fWY`k]h\ci hUW_bck `YX[Ya Ybh'

IBGK [fcidg'd'U[]Uf]ga]bhc'h\Y'Zc``ck]b['WUhY[cf]Yg.

 $7 \text{ cdm}b[...i g]b[...h\Y.gUa Y.cf.j Yfmig]a] \Uf'k cfXg'hc'h\Y.cf][]bU''hYl h'cf']XYU'k]h\ci h'U\V_bck `YX[]b[...h\Y.cf][]bU''hYl h'cf']XYU'k]h'cf']$