

!

!

"#\$!"%&'#(!)"%!*)+(#(, - .%/0%#!!!! ! ! ! ! ! 11!2./%!3435! ! !
! ! ! ! ! ! ! ! ! !

!



Y%(?)+/:!=%7U' /7+&+9+8+%7!+ /!8)%! J '##+77%V!* '99% :%! 'R!G#87! d!A?+% /?%7!(8!6 '78' /!* '99% :%!

!

* (U78 ' /%M!G!a+R%! e %99!a+H%>I!W />%# :#(> . (8%! ` 9% ?8+H%!^T! ?#%>+87I!G . : \$!343T, " % ?\$!343T_!
Y)%!] #%%B7!(/>!Y) %+#!] '>7I!W />%# :#(> . (8%! ` 9% ?8+H%!^T! ?#%>+87I!G . : \$!343T, " % ?\$!343T_!
` /> . #+ / :!

!

!
Y%(?)+/:!=%7U' /7+&+9+8+7!+/!8)%! e ' ' >7!* '99% :%! 'R!G>H(/?+/:!A8.>+%7!(8!6 '78' /!* '99% :%!

!
\ /8# '>. ?8+ ' /!8 '! `8)+?7I!W />%# :# (> . (8%!* ' .#7%!^T! ?#%>+87I!2. /%,G. : .78!341L_!
! `8)+?7I!W />%# :# (> . (8%!* ' .#7%!^T! ?#%>+87I! J (V,2. /%!341N_!
!

J *GA! e '#B+ / :!]# ' .U! ' /! `cU (/7+ ' /!'R!8)%!* (U78' /%!S# ' :# (< !^AU#+ / :!3435!8' !U#%7% /8_!
S(#8+?+U (/8!+ /!S# ' :# (< ! ; ' / '#+ / :!G#8) .#! J (>+ : (/!A\$2\$I!(8!6 '78' /!* '99% :%!I!T! J (V!3435!
!

J (j '#!G>H+7 '#!8' !b+H%!A8.>% /87!+ /! J *GA!^3435_!
S#%, J (j '#!d! J (j '#!G>H+7 '#!8' !A+c!A8.>% /87!+ /! J *GA!^b(99!343T_!
G77+78%>!G#8) .#! J (>+ : (/!A\$2\$I!F+8)!8)%!U. &9+?(8+ ' /!'R!) +7!&' 'B!^A. << %#!3431!8' !" %?S!343T_!
Q&7%#H(8+ ' /!d! `H(9. (8+ ' /!'R!8)%!Y%(?) + / :! 'R!2. (/!* (#9 '7! =+H%#(!* (78# 'I!A\$2\$I!^C 'H% < &%#!343T_!
S#%7% /8%#! ' /!Y%(?) + / :!G#+78' 89%h7! `8)+?7I!]# (> . (8%!S) +9 '7'U)V!Y%(?) + / :!A% <+ / (#!^Q?8\$!34I!3T_!
b(? .98V!G>H+7 '#!R' #!b' .#!A. << %#!Q#+% /8(8+ ' /!A%77+ ' /7!+ /! J *GA!^A. << %#!343T_!
S(#8+?+U (/8!+ /!(?8+H+8+7!#%9(8%>!8' !)+# / :! 'R!G#+78' 89%!d!S# 'R\$! 'R!8)%!S#(?8+?%!S '7+8+ ' /7!^AU#!!3T_!
!

S#%, J (j '#!d! J (j '#!G>H+7 '#!8' !k!Y)+#8% /!A8.>% /87!+ /! J *GA!^b(99!3433!d!AU#+ / :!343T_!
G77+78%>!]# (> . (8%!A8.>% /8!F+8)! J (78%#h7! - . (9+RV+ / :!S(U%#!+ /!S)+9 '7'U)V!^b(99!33,AU#+ / :!3T_!
S#%7% /8%#! ' /!Y%(?) + / :!G#+78' 89%h7! `8)+?7I!]# (> . (8%!S) +9 '7'U)V!Y%(?) + / :!A% <+ / (#!^AU8\$!3TI!33_!
b(? .98V!G>H+7 '#!R' #!b' .#!A. << %#!Q#+% /8(8+ ' /!A%77+ ' /7!+ /! J *GA!^A. << %#!3433_!

S#%, J (j '#!d! J (j '#!G>H+7 '#!8' !YF%9H%!A8.>% /87!+ /! J *GA!^b(99!3431!d!AU#+ / :!3433_!
b(? .98V!G>H+7 '#!R' #!b' .#!A. << %#!Q#+% /8(8+ ' /!A%77+ ' /7!+ /! J *GA!^A. << %#!3431_!

J % < &%#! 'R!S#%9+ <+ / (#V! " ' ?8' # (9! * ' <U7!6' (#>!+ /!S)+9 '7'U)V!^ J (V!1@I!3431_!
= % - 0.2(%)500.2(<)0A>TQq0.24000(8)0.2(.>%)0.204(=%597scq07/!S) - 0.265.2+99'!<)+<V!1@.2(8)00.

!

T

! G88% />%>!G?(>%<+?!a%?8.#%7!^A%U8%<&%#1341@!1!"%?%<&%#1341@_!
S(#8+?+U(/8!+!/8)%)! \ /8%#7%?8+' /7!E+99(!b(? .98V! e #+8+ / : !=%8#% (8!^2. /% !14!115!1341@_!
! S(#8+?+U(/8!+!/8)%)! *% /8%#R' #!Y%(?) + / : ! `c?%99% / ?% !b(? .98V!Y%(?) + / : !=%8#% (8!^2. /% !T,NI!341@_!
! S(#8+?+U(/8!+!/Y)%)#% , " (V!S%#7U%?8+H%7! e '#B7) 'U!^ J (V!1D!11NI!341@_!
! !
G88% />%>!G?(>%<+?!a%?8.#%7!^A%U8%<&%#1341L!1! J (V!341@_!
G88% />%>!G)%)! *Y`I! `c?%99% / ?%!+ / !Y%(?) + / : ! " (V!^ J (V!KI!341@_!
G88% />%>! \ /8%#7%?8+' /7!b' #R# /8!A' ?+(9!^b%&#. (#V!5!d!GU#9!B@I!341@_!
S(#8+?+U(/8!+!/G99!" (V!S%# , J (j'#!d!A. <<%#!Q#+% /8(8+' /!G>H+7'#!AV<U'7+. <!^ J (V!35!1341L_!
S(#8+?+U(/8!+!/Y)%)#% , " (V!S%#7U%?8+H%7! e '#B7) 'U!^ J (V!1K!11LI!341L_!
! !
G88% />%>!G?(>%<+?!a%?8.#%7!^A%U8%<&%#1341N!1! J (V!341L_!
G88% />%>!b(? .98V!* ' /7.98(8+' /!]# ' .U!# . /!&V!G77' ?\$!E+?%!S# /H'78! J ?] .+ / %77!^AU#+ / : !341L_!
G88% />%>! * ' .#(: %!8' !i / ' F!b(? .98V!" (V!^2(/ . (#V!@I!341L_!
! S(#8+?+U(/8!+!/G99!" (V!S%# , J (j'#!d!A. <<%#!Q#+% /8(8+' /!G>H+7'#!AV<U'7+. <!^2. /% !KI!341N_!
! S(#8+?+U(/8!+!/Y)%)#% , " (V!S%#7U%?8+H%7! e '#B7) 'U!^ J (V!1N11@I!341N_!
! !
G88% />%>!G?(>%<+?!a%?8.#%7!^A%U8%<&%#1341K!1! J (V!341N_!
S(#8+?+U(/8!+!/G99!" (V! J '##+77%V!* '99% : %! " % (/h7! =%8#% (8!^2(/ . (#V!14!1341N_!
! S(#8+?+U(/8!+!/G99!" (V!S%# , J (j'#!d!A. <<%#!Q#+% /8(8+' /!G>H+7'#!AV<U'7+. <!^2. /% !NI!341K_!
! S(#8+?+U(/8!+!/Y)%)#% , " (V!S%#7U%?8+H%7! e '#B7) 'U!^ J (V!1L1341!341K_!
! !
G88% />%>!G?(>%<+?!a%?8.#%7!^A%U8%<&%#1341D!1! J (V!341K_!
! \ /8%#7%?8+' /7!E+99(!b(? .98V! e #+8+ / : !=%8#% (8!^2. /% !L!113!1341D_!
! S(#8+?+U(/8!+!/G99!" (V!S%# , J (j'#!d!A. <<%#!Q#+% /8(8+' /!G>H+7'#!AV<U'7+. <!^2. /% !5!1341D_!
! S(#8+?+U(/8!+!/Y)%)#% , " (V!S%#7U%?8+G>H+7'#!AV<

!
! b+#78!X%(!S%#7U%?8+H%7!^K!?#%>+87!%(?!7%<%78%#I!A%U8%<&%#!3414,! J (V!3411_gg!

" +7?. 77+ ' /!' R!!mY)%! a+&%#(9!G#+78' 8%9+(/+7 <' R! J (#8) (!C. 77&(. <Io!+/' "#\$%& ' (#)*)+!,)-. %##&/-*\$!
0%I-2.I!S#': #(<!; ' / '#+/:!G#8) .#! J (>+:(/!A\$2\$I!(8!6 '78' /!* '99%:%I!T! J (V!3435\$!
!
m e)V!\7!\8!" +RR+?. 98!8' !QH%#?' <%!6(>!; (&+87!(</>!E+?%7M!a%77' /7!R# ' <!G#+78' 89%Io!S7V?) '9' :V!d!Y)%!
Q8)%#I!6 '78' /!* '99%:%I!K!Q?8' &%#!343T\$!
!
mS9(8'!(/>!G#+78' 89%!' /!E+#8. %Io!S%#7U%?8+H%7!S#': #(<f= '&7)(<!Y)%(8%#I!6 '78' /!* '99%:%I!!
15!A%U8% <&%#!3433\$

!

Z* ' < < % / 8 (# V ! ' / ! b + / % I Z ! S # ' ? % % > + / : 7 ! ' R ! 8) % ! 6 ' 7 8 ' / ! G # % (! * ' 9 9 ' 0 . + . < ! + / ! G / ? + % / 8 ! S) + 9 ' 7 ' U) V I ! % > 7 \$! * 9 % (# V ! (/ > ! e + (/ 7 ! ! 1 4 ! ^ 1 @ @ 5 _ ! 3 5 5 , D T \$!

!

ZY ! ! a + % ! ' # ! C ' 8 ! 8 ' ! a + % M ! ! S 9 (8 ' [7 ! = % U . & 9 + ? I Z ! S ' 9 + 7 ! 1 T M ! / ' \$! ! d ! 3 ! ^ 1 @ @ 5 _ ! T 1 , 5 D \$!

!

ZG ! J % 8) ' > ! R ' # ! S 9 % (7 . # % ! (/ > ! = % (7 ' / M ! ! S 9 (8 ' [7 ! S) + 9 % & . 7 I Z ! G U % + # ' / ! 3 K M ! / ' \$! ! ^ 1 @ @ T _ ! T N , D D \$!

!

= % H + % F ! ' R ! A U + / > % 9 ! * ' / R % # % / ? % ! 1 @ L L M ! ! G # + 7 8 ' 8 9 % [7 ! ` 8) + ? 7 I ! % > \$! Y + < ' 8) V ! " \$! = ' ?) % ! ! G / ? + % / 8 ! S) + 9 ' 7 ' U) V I ! 1 T ! ^ 1 @ @ T _ ! 3 3 3 , 3 D \$!

!

Z* ' < < % / 8 (# V ! ' / ! J + 9 9 % # I Z ! S # ' ? % % > + / : 7 ! ' R ! 8) % ! 6 ' 7 8 ' / ! G # % (! * ' 9 9 ' 0 . + . < ! + / ! G / ? + % / 8 ! S) + 9 ' 7 ' U) V I ! % > 7 \$!

!

@

J (#+/(! J ?* 'VI!S# 'R%77 '#!'R!S)+9'7'U)V!(8!6'78' /!* '99% :%I!*)%78/ .8! ; +99I! J G!435KNI!
 ^K1N_!DD3, TLDLI! < (#+ / (\$ < ?? 'V P & ?\$%> . !
 !
 = ' / (> !Y (?%99+!A\$2\$I!G77' ?+(8%!S# 'R%77 '#!'R!S)+9'7'U)V!(8!6'78' /!* '99% :%I!*)%78/ .8! ; +99I! J G!435KNI!
 ^K1N_!DD3, TLD@I!# ' / (> \$8 (?%99+ P & ?\$%> . !!
 !
 2 (< %7! e % +77I!G77' ?+(8%!S# 'R%77 '#!'R!Y) % '9' :V!d! " + # % ?8 '#!'R!8) % ! * (U78' / % !S# ' : # (< ! (8! J ' ## +77%V!
 * '99% : % !G#87! d !A?+ % / ?%7! (8!6'78' /!* '99% : %I!*)%78/ .8! ; +99I! J G!435KNI!^K1N_!DD3, TL@NI!
 j (< %7\$F% +77 P & ?\$%> . !
 !
 6# + (/ !6# (< (/ I!b '# < %#! " + # % ?8 '#!'R!8) % !S# #7U% ?8+H%7!S# ' : # (< ! (8!6'78' /!* '99% : %I!*)%78/ .8! ; +99I! J G!
 435KNI!^K1N_!DD3, 5433I! & # (< (/ & P & ?\$%> . !
 !
 G#8) . # ! J (> : (/ I!A\$2\$I!b '# < %#!S# 'R%77 '#!d!*) (+#! 'R!8) % !S)+9'7'U)V! "%U(#8 < % / 8! (8!6'78' /!* '99% : %I!
 *)%78/ .8! ; +99I! J G!435KNI!^NL1_!NLL, KL44I! (#8) . # \$ < (> : (/ P & ?\$%> . !
 !
 S (8# + ?B!6V# / % !S# 'R%77 '#! ` < % # +8 .7! d !b '# < %#! *) (+#! 'R!8) % !S)+9'7'U)V! "%U(#8 < % / 8! (8!6'78' /!* '99% : %I!
 *)%78/ .8! ; +99I! J G!435KNI!^NL1_!KLK, 1KL3I!U (8# + ?B\$&V# / % \$1 P & ?\$%> . !!!
 !
 J (#B!Q! [* ' / / '#!S# 'R%77 '#! ` < % # +8 .7! d !b '# < %#! " + # % ?8 '#!'R!8) % ! ; ' / '#7!S# ' : # (< ! (8! J ' ## +77%V! * '99% : %!
 G#87! d !A?+ % / ?%7! (8!6'78' /!* '99% : %I!*)%78/ .8! ; +99I! J G!435KNI!^K1N_!K53, 545NI! < (#B\$ ' ? ' / / '# P & ?\$%> . !
 !
 2 (/ % ! i %99%V! = '> %) %RR%#I!b '# < %#!b%8?) % # !2' / %7! *) (+#! 'R!] % # (8!6' 'B7I!S%UU%#>+ / % !W / +H%#7+8VI! J (9+& . I!
 *G!@43KD!^T14_!D4K, NN4LI!j (/ %B%99%V\$# '> %) %RR%# P U%UU%#>+ / % \$%> . !
 ! !

A8\$!2') / h7!A% < + / (#V! * '99% : % !'R!a+&#(9!G#87!^6#+:)8' / ! J G !

G77' ?+(8%!S# 'R%77 '#!'R!S)+9'7'U)VI!A8\$!2') / [7!A% < + / (#VI! * '99% : % !'R!a+&#(9!G#87!^1@T!8' !344T_!
 G77+78 (/ 8!S# 'R%77 '#!'R!S)+9'7'U)VI!A8\$!2') / [7!A% < + / (#VI! * '99% : % !'R!a+&#(9!G#87!^1@L@, @1I!1@3, @T_!

J % < & % # ! ' R ! * ' 99 % : % ! ' R ! a + & % # (9 ! G # 87 ! b (? . 98 V ! * ' . / ? + 9 !
J % < & % # ! ' R ! * ' 99 % : % ! ' R ! a + & % # (9 ! G # 87 ! G ? (> % < + ? ! * ' . / ? + 9 !
*) (+ # ! ' R ! 8) % ! * ' 99 % : % ! ' R ! a + & % # (9 ! G # 87 ! S) + 9 ' 7 ' U) V ! " % U (# 8 < % / 8 !
b (? . 98 V ! G > H + 7 ' # ! 8 ' ! A 8 . > % / 87 ! + / ! 8) % ! * ' 99 % : % ! (/ > ! S # % , Y) % ' 9 ' : V ! S # ' : # (< 7 !
A + : / + R + ? (/ 89 V ! \ / H ' 9 H % > ! + / ! X % (# 9 V ! b ' # < (8 + ' / (9 ! G 77 % 77 < % / 8 ! ' R ! A 8 . > % / 87 ! + / ! 8) % ! * ' 99 % : % ! S # ' : # (< !
J % < & % # ! ' R ! 8) % ! G > H + 7 ' # V ! 6 ' (# > ! R ' # ! 8) % ! " % (/ ! ' R ! 8) % ! * ' 99 % : % ! ' R ! a + & % # (9 ! G # 87 !
J % < & % # ! ' R ! 8) % ! G > H + 7 ' # V ! 6 ' (# > ! R ' # ! ; . < (/ ! b ' # < (8 + ' / ! J % % 8 + / : 7 ! R ' # ! 8) % ! * ' 99 % : % ! S # ' : # (< !
J % < & % # ! ' R ! 8) % ! b . 8 . # % ! b (? . 98 V ! * ' < < + 88 % % ! R ' # ! 8) % ! * ' 99 % : % ! ' R ! a + & % # (9 ! G # 87 !
J % < & % # ! ' R ! 8) % ! S # % , Y) % ' 9 ' : V ! = % H + % F ! 6 ' (# > ! !
!
W U U % # ! a % H % 9 ! ` 9 % ? 8 + H % 7 ! Y (. .) 8 ! (8 ! A 8 \$! 2 ') / [7 ! A % < + / (# V ! * ' 99 % : % ! ' R ! a + & % # (9 ! G # 87 ! + / ! a (7 8 ! b + H % ! X % (# 7 !
!
b # + % / > 7) + U ! ^ b (99 ! 3443 _ !
G # + 78 ' 89 % [7 ! ` 8) + ? 7 ! ^ b (99 ! 3441 _ !
J % 8 (U) V 7 + ? 7 ! ^ A U # + / : ! 3441 _ !
` 8) + ? (9 ! Y ' U + ? 7 ! + / ! S 9 (8 ' ! (/ > ! G # + 78 ' 89 % ! ^ b (99 ! 3444 I ! 1 @ @ @ _ !
G / ? + % / 8 !] # % % B ! a + 8 % # (8 . # % ! (/ > ! S) + 9 ' 7 ' U) V ! ^ A U # + / : ! 3444 _ !
Y ' U + ? 7 ! + / ! G # + 78 ' 89 % ! ^ A U # + / : ! 1 @ @ @ _ !
!
* ' # % ! * ' . # 7 % 7 Y (. .) 8 ! (8 ! A 8 \$! 2 ') / [7 ! A % < + / (# V ! * ' 99 % : % ! ' R ! a + & % # (9 ! G # 87 ! + / ! a (7 8 ! b + H % ! X % (# 7 !
!
a ' : + ? ! G # + 78 ' 89 % + (/ ! (/ > ! A V < & ' 9 + ? ! ^ A U # + / : ! 344 T I ! 3443 I ! 3441 I ! 3444 I ! 1 @ @ @ I ! 1 @ @ L _ !
\ / 8 % : # (8 + H % ! A % < + / (# ! + / ! S) + 9 ' 7 ' U) V M ! ` 8) + ? 7 ! (/ > ! J % 8 (U) V 7 + ? 7 ! ^ A U # + / : ! 344 T I ! 3443 _ !
G / ? + % / 8 !] # % % B ! S) + 9 ' 7 ' U) V ! ^ b (99 ! 3443 I ! 3441 I ! 3444 I ! 1 @ @ @ I ! 1 @ @ L _ !
\ / 8 # ' > . ? 8 + ' / ! 8 ' ! S) + 9 ' 7 ' U) V ! ^ b (99 ! 1 @ @ L _ !
A % / + ' # ! Y) % 7 % 7 ! + / ! S) + 9 ' 7 ' U) V ! ^ V % (# 19 ' / : ! > + # % ? 8 + ' / ! ' R ! 3 , D ! . / > % # : # (> . (8 % ! 8) % 7 % 7 _ ! ! !

Q 8) % # ! * ' . # 7 % 7 Y (. .) 8 ! (8 ! A 8 \$! 2 ') / [7 ! A % < + / (# V ! * ' 99 % : % ! ' R ! a + & % # (9 ! G # 87 ! !
S 9 (8 ' ! ^ (! H (# + % 8 V ! ' R ! ? ' . # 7 % 7 ! ' / ! % (# 9 V I ! < + > > 9 % I ! (/ > ! 9 (8 % ! > + (9 ' : . % 7 ! ' R ! S 9 (8 ' _ !
G # + 78 ' 89 % ! ^ C + ? ' < (?) % (/ ! ` 8) + ? 7 ! S) V 7 + ? 7 ! (/ > ! J % 8 (U) V 7 + ? 7 !
; + 78 ' # V ! ' R ! S) + 9 ' 7 ' U) V ! ^ J % > + % H (9 I ! J ' > % # / ! (/ > ! * ' / 8 % < U ' # (# V _ !
a V + / : I ! ` U + 78 % < ' 9 ' : V I ! Y) % ' # + % 7 ! ' R ! ` 8) + ? 7 ! Y) % ! ; . < (/ ! S % # 7 ' / I ! ` c + 78 % / 8 + (9 + 7 < !
!

!