

!"#\$%

&'##'(%)'(*\$(+,#'"-%!

&./01234%251/ 637812!!

"#\$%&'!()*(*!%

+##%,-.%%!"//0.%%1!! !2.340&5.-&!67!8%9:;6<6\$9!!
+,-\$;45&6-!=-,>.0%,&9?@=AB!!
@:,. - : !CD!E 5!*FF!+,-\$;45&6-'!
AB!G*H)(?F))!
\$.0;40/ I J,-\$;45&6-K./#!!

'9:;37812%

GHH*!!!!8;2'!=-,>.0%,&9!67!L,--.%6&4K!!L4M60!7,./!!N03.0,5.-&4<18%9:;6<6\$9K!!
L,-60!7,./!!P6\$-,&,>.!@:,. - : .K!!"/>,%60!CO>,-\$!+,. / .054-'18;2K!!
GHQF!!!!+ "'P40<.&6-!P6<.\$.'!A60&7,./!!LAK!!8%9:;6<6\$9!P653#&.0!@:,. - : .K!!

&/15.0081234%&10878120%WWW

- ()GR?!! L . 5 J .0!'"/!;6:!:65 5 ,&&..!4- /!&; . - !%& . .0,-\$!:65 5 ,&&..!&6!.%&4J<,%;!&; !!
+04,-14- /!+ . ; 4>,60!C 5 4\$, -\$!P . -&.0!4&!+,-\$;45&6-!=-,>.0%,&9!!
- ()GR?!! "%%6: ,4&.!P ;4,0'!P . -&.0!760!C 5 4\$, -\$!4- /!8.0: .3<!@:,. - : .'14-!60\$4-,S. /!
0.%40: ; !: . -&.0!4&!+,-\$;45&6-!=-,>.0%,&9K!!
- ()GF?!! P ;4,0'!+,-\$;45&6-!=-,>.0%,&9!C-%&,&#&,6-4<!E.>,. T!+640 /!760!U#54-!
@#JM. : &%!E . % .40: ; !!
- ()GH?(*!2,0. : &60'!P6\$-,&,>.!8%9:;6<6\$9!306\$045 '!+,-\$;45&6-!=-,>.0%,&9K!!
- ()GQ?GH!=- / .0\$04 /#4&.!2,0. : &60'!2 .340&5.-&!67!8%9:;6<6\$9!+,-\$;45&6-!=-,>X!!
- ()G*?!! 8067.%%60'!2.340&5.-&!67!8%9:;6<6\$9!+,-\$;45&6-!=-,>.0%,&9K!!
- ()G(?GV!P ;4,0'!2.340&5.-&!67!8%9:;6<6\$9!+,-\$;45&6-!=-,>.0%,&9K!!
- ()G)?G(!2,0. : &60'!P6\$-,&,>.!8%9:;6<6\$9!306\$045 '!+,-\$;45&6-!=-,>.0%,&9K!!
- ()F?)H!P ;4,0'!2.340&5.-&!67!8%9:;6<6\$9!+,-\$;45&6-!=-,>.0%,&9K!!
- ()W?G*!" "%%6: ,4&.!8067.%%60'!2.3&&!67!8%9:;6<6\$9!+,-\$;45&6-!=-,>.0%,&9K!!

&:>48;378120%

U,33'!2K'+<4g<.9'!NK'!d .0;40/%&.,-'!8K'!U,33'!AK'! j .--./9'+K!X!L40g<.K!eK!^,-!30.%%_K!!
e;.!/,,\$,&4<!5./,4!6>.0#%.!%:4<.!^/ 56%k_!"!56/#<40'!.0&.-/,J<.!4- /!
1#.%&,6--4,0.!760!,-/.0,-\$!/,,\$,&4<!5./,4!6>.0#%.K!e.;;-6<6\$9'!L,-/'!4- /!
+.;4>,60K!!

2#\$\$4-'!AK'!X!d .0;40/%&.,-'!8K!^)(*_K! [.>.<%!67!60,..&4&,6-!J,4%!/ ,77.0!4:06%%!/,,\$,&4<!
:6-&.-&! :4&.\$60,.%!C 5 3<,:4&,6-%!760!>,%#4<!3.0:.3&,6-K!8.0:.3&,6-'!V('!(G?(*RK!!

+<4g<.9'!NK'!d4%3.<-'!AK'!X!d .0;40/%&.,-'!8K!^)((_K!!e;.!/ .>.<635.-&!67!6:#<656&60!
%#330.%%,6-!67!%4<,-&!/,,%&04:&60%!, -! : ; ,</0.-K!b6#0-4<!67!

n4:g'!NK'!d.0;40/%&.,-'!8K'!L.<&S677'!"KLK'!X!+400'!EK!^()G*_K!GV?56-&;?6</%i!
&04-%7.0!67!<.40-,-\$!J.&T...!&6#:;!%:0..-!4-!/0.4<?T60</!/,%3<49%1!![4-\$#4\$.!
:#.%!4-!/!:6\$-,&,>.!<64/K!@:4-/-,-4>,4-!b6#0-4<!67!8%9:;6<6\$9'!VW'!()?(VK!s!!
!!
2,:g.0%6-'!jK'!d.0;40/%&.,-'!8K'!n4:g'!NK!X!+400'!EK!^()G*_K!"\$.?0.<4&./!/:;4-\$.%!,-!
<.40-,-\$!4:06%%!.40<9!::,</;66/1!!"- .T!,5,&4&,6-!&4%gK!!2.>.<635.-&4<!
8%9:;6J,6<6\$9'!VV'!RGH?R*(K!!
!!
d.0;40/%&.,-'!8K'!e%.'!bK'!2,:g.0%6-'!jK'!U,33'!2K'!X!L6%.0!"K!^()G(_K!e;.!;#54-!
>,%#4<!%9%&.5!#% .%!4!\$<6J4<!:<6%#0!.5.:;4-,%5K!!D,%6-!E.% .40:;'!RG'!GQ?(RK!!
!!
d.0;40/%&.,-'!8K'!2,:g.0%6-'!jK'!L,<<.0'!@K'!X!U,33'!2K'^()G(_K!!N40<9!63.04-&!<.40-,-\$!
,%!#-477.:&./!J9!%6:,6?:-6-65,:!&4&#%!4-!/16&:.0!/.56\$043;,:!74:&60%1!!"
5.&44-4<9%,%K!!C-74-&!+.:;4>,60!4-!/!2.>.<635.-&!*V'!WR(?WRQK!!
!!
n;4-\$!rK'!B,-!'!K'!d.0;40/%&.,-'!8K'!X!U,33K!2K'^()G)_K!!N030.%%,6-?/0,>.-!%4<,-&!
7.4�.%1!!+#JJ<.?J4%./!74:,4<!030.%%,6-!%&#/9!J9!;#54-!4-!/!54:;,-.K!!C-!
806:.. /,-\$!%67!C!N!N!C-&.0-4&,6-4<!P6-7.0.-:!.16-!L#&,5./,4!4-!/!N036!'CP LN!!
()G)!!P6-7.0.-:!.18#J<,4&,6-_'!@,-\$4360.'!GGQW?GGQHk s !!!
!!
n4:g'!NK'!+400'!EK'!d.0;40/%&.,-'!8K'!2,:g.0%6-'!jK'!X!L.<&S677'!"KAK!^()H_K!!C-74-&!
,5,&4&,6-!7065!&.<.>,%6-!#%,-\$!-6>.<!&6#:;?%:0..-!&.:; -6<6\$9K!!+0,&,%;!b6#0-4<!
67!2.>.<635.-&4<8%9:;6<6\$9'!(R'!G*?(FK!!
!!
d.0;40/%&.,-'!8K'!dK!@;0677'!jK!2,:g.0%6-'!X!@K!"K!" /<.0!^()H_K!!e;./!/>.<635.-&!67!
6JM.:&!0.-6\$-,&,6-!&06#\$;!,-74-:9K!!C-!^N/K%_!'!+K!PK!d<.-9-!X!EK!8K'n,-!'!A.T!
2,0.:&,6-%!,-!2.>.<635.-&4<8%9:;6J,6<6\$9'!P;K!VK!!A6>4!@:.,.-:!.18#J<,%;.0%1!
U4#334#\$.!AB'!=@ "K!!
!!
[,#'"K'!B4,-\$!2Kb'!d.0;40/%&.,-'!8K'!X!U%#!'!@K!^()Q_K!!E.<43%.!67!4:-.!76<<6T,-\$!
,%6&0.&,-6,-!&0.4&5.-&!!"!0.&06%3.:&,>.!%&#/9!67!W)V!34&,-&%K!!b6#0-4<!67!20#%\$!,-!
2.054&6<6\$9'!R'!GVVW?HFGFK!!
!!
+4g.0'!e'K!e%.'!bK'!d.0;40/%&.,-'!8K'!X!" /<.0'!@K!^()Q_K!!P6-&6#0!,-&.\$04&,6-!J9!
F56-&;?6</!, -74-&%1!!2,%:0,5,-4&,6-!67!/,%&,-: &!:-6-&6#0!%;43.%K!!D,%6-!
E.% .40:;'!WQ'!G*F?GWQK!!

8.&.0%6-'!L K!" K'!d .0;40/%&.,-'!8X!L .-- . 5 ., .0!L K'!X!E43:%4g'!@K!nK!^GHHQ_K!!h JM. :&?
:.-&.0./!4&&. -&,6-4!J,4%.%14-!/6JM. :&!0. :6\$- ,&,6-! :6-&0,J#&,6-%!&6!% :.-.!
%.\$5 .-&4&,6-!, -!<.7&?14- /!0,\$;&?; . 5,%3; .0. :?/45 4\$. /!34&., -&%K!!8%9: ;6J,6<6\$9!
(F!*VR?*R)K!!

d .0;40/%&.,-'!8X!8.&.0%6-'!L K!8X!X!E43:%4g'!@K!nK!^GHHQ_K!!" \$.?0.<4&. /!; . 5,%3; .0. :!
4%95 5 .&09!,-!6JM. :&!/,% :0, 5, -4&,6-K!!b6#0-4<167!P<,-, :4<14- /!N03.0, 5 .-&4<!
A.#063%9: ;6<6\$9'()'!GRW?GQVK!!

d .0;40/%&.,-'!8X! [,#!'bK'!X!E6>..?P6<<,.0!PK!^GHHQ_K!!8.0: .3<!:6-%&04,-&%!6-!, -74-&!
5 . 5 609!0.&0, .>4<K!!b6#0-4<167!N03.0, 5 .-&4<!P; ,</!8%9: ;6<6\$9'!FH!G)HG*GK!!

U40&% ;60-'!j K'!E6>..?P6<<,.0!PK'!d .0;40/%&.,-'!8X!+; 4&&'!EK!@K'!j <.,-'!8X!" 406-'!K!
c 6- /6<6%g,'!eK'!X! c #0&S.<'!AK!^GHHQ_K!!2 .>.<63 5 .-&4<!:; 4-\$.%!,-!&; :!
%3.: ,7, :&9!67!5 . 5 609!6>.0!&; :!7,0%&!9.40!67!<,7.K!!2 .>.<63 5 .-&4<18%9: ;6J,6<6\$9!
**!FG?RQK!!

" /<.0!'@K!" K'!C-%<; ;&'!@K!@K'!E6>..?P6<<,.0!PK'!X!d .0;40/%&.,-'!8X!^GHHQ_K!!8.0: .3<!
4%95 5 .&0, .%14- /!5 . 5 609!0.&0, .>4<!, -!&; 0. .? 5 6-& ;?6</!, -74-&%K!!C-74-&!+ . ;4>.60!
4- /!2 .>.<63 5 .-&!'(G'!(V*?(R(K!!

U40&% ;60-'!j K'!E6>..?P6<<,.0!PK'!d .0;40/%&.,-'!8X!+; 4&&'!EK'! c 6- /6<6%g,'!eK'!j <.,-'!
8X'!d ,<; :!'bK'!X! c #0&S.<'!AK'!X!P45 36%?/ .?P40>4<; 6'!L K!^GHHQ_K!!e ; :!6-&6\$. -9!
67!<.40-, -\$!4- /!5 . 5 609!6>.0!&; :!7,0%&!9.40?4- /?4; 4<7!67!<,7.K!!2 .>.<63 5 .-&4<!
8%9: ;6J,6<6\$9'*(!FH?QHK!!

" /<.0!'@K!" K'!d .0;40/%&.,-'!8X!X!E6>..?P6<<,.0!PK!^GHHQ_K!! [.>.<%?67?306: .%%, -\$!
.77. :&!,-!, -74-&!5 . 5 609K!!P; ,</!2 .>.<63 5 .-&'!FH'!(Q)?(HWK!!

E6>..?P6<<,.0!PK'!X!d .0;40/%&.,-'!8X!!^GHR_K!!e ; :!/.>.<63 5 .-&!67!, -74-&!5 . 5 609K!!!
C-!AK!P6T4-!^N/K_!e ; :!/.>.<63 5 .-&!67!5 . 5 609!, -!; :</; 66/!^: ;K!(!33K!V?W)_K!!
U6>.!N4%&!@#% .0'!= j !!8%9: ;6<6\$9!80.%%K!!

+ ,./ .054-'!CK!d .0;40/%&.,-'!8X!P663.0!NK!NK'!X!A.<%6-'!PK!" K!^GHR_K!!U,\$; ?<.>.<!
6JM. :&!0. :6\$- ,&,6-!T,& ;6#&14-!4-&.0,60!&. 5 3604<!6J.K!!A.#063%9: ;6<6\$4!*V'
(RG?(QRK!!

+ ,./ .054-'!CK'!X!d .0;40/%&.,-'!8X!!^GHHV_K!!D. T36,-&?/ .3.- /.-&!5 . :; 4-, %5%!, -!
>,%#4<!6JM. :&!0. :6\$- ,&,6-!E.3<9!&6!e400!4- /!+ #<& ;677!^GHHV_K!!b6#0-4<167!
N03.0, 5 .-&4<18%9: ;6<6\$9!U# 54-!8.0: .3&,6-!4- /!8.076054- :.'!(G'!GV)F?GVGWK!!

+ ,./ .054-'!CK!X!d .0;40/%&.,-'!8X!^GHH*_K!!E. :6\$- ,S, -\$! / .3& ;?06&4&. /!6JM. :&%!!
N> ,/ .- :!4- /! :6- / ,&,6-!760!& ;0. .? / , 5 .-%,6-4<!, . T36,-&!, ->40,4- :.K!!b6#0-4<167!
N03.0, 5 .-&4<18%9: ;6<6\$9!U# 54-!8.0: .3&,6-!X!8.076054- :.'!GH'!GGF(?GQ(K!!

+ ,./ .054-'!CK'!U# 5 5 .<'!bK!NK'! P663.0!NK!NK'! X! d .0;40/%&.,-'! 8X! PK! ^GHH*_K!!@ ;43. !
0. :6\$- ,&,6-!, -!5, - /!J04, -!4- /!54 ; ; , - .K!!C-!8X!E#/65 .-!X!\K!P.0>4-&. %!^N/%K_!

A.#06%:,.-:!!!\065!-.#04!-.&T60g%!\&6!40&7,,:4<!,-&.<<,\$.-:!!^33k!(Q(?H*_K!!
+ .0<,-1!!@30,-\$.0?D.0<4\$K!!

+,./ .054-'!CK'!U#5 5 .<'!bK!NK'!d .0;40/%&.,-'!8K!PK!X!P663.0'!NK!NK!^GHH(_K!!\065!
,54\$!. /\$. %!\&6!\$.6-%!\&6!>,. T36,-&!,-->40,4-&!6JM. :&!5 6/ .<%1!!"!"!- .#04!- .&!
,53<. 5 .-&4&,6-K!!C-!" 33<,:4&,6-%!67!40&7,,:4<!,-&.<<,\$.-:!!r1!!L4:;,-. !>,%6-!
4- /!06J6&,:%!\^33K!VR)?VRQ_K!!+ .<<,-\$;4 5 1!!@8CNK!!

U#5 5 .<'!bK!NK'!+,./ .054-'!CK'!d .0;40/%&.,-'!8K!PK!X!U,<&6-'!UK!bK!^GHQK!!\065!,54\$!.!
./\$. %!\&6!\$.6-%!1!!"!"!:-6--.:&,6-%&!433064:;K!!C-!2K!e6#0.&%g9'dK!U,-&6-'!X!eK!
@.M-6T%g,!^N/%K_!'!806:.. /,-\$%!67!&:;!GHQH!P6--.:&,6-%&!L6/ .<%!@#5 5 .0!
@: ;66<!\^33K!WF(?WRG_K!!@4-!L4&0.61!!L 60\$4-!j 4#7 5 4-K!!

? 32:0;/8@70%A29./% (.<8.B%C%"2%&/.@3/37812%%

e49<60'!dK'!d .0;40/%&.,-'!8K'!j 6<4gK!bK'!@4<4'!dK!X![,-\$T66/'!b!^#- / .0!0.>,. T_K!!
[.40,-,\$!4- /! :6?

^())*!h:&6J.0_K!e;./!>.<635.-&167!>,.T36,-&!,->40,4-:!.!->.09!96#-\$!,-74-&%K!!
C->,&./!:6<<61#,#5!30.%.-&4&,6-'!2.340&5.-&167!8%9:;6<6\$9!'B60g!=-,>.0%,&9!
e606-&6!'P4-4/4K!!

^())('!@.3&.5J.0_K!C->.%&,\$4&,-\$!6JM.:&!3.0:3&,6-!,-!,-74-:9K!!C->,&./!:6<<61#,#5!
30.%.-&4&,6-'!2.340&5.-&167!8%9:;6<6\$9!'=-,>.0%,&9!67!@6#&;!\<60,/4!'e4534'\ [K!!

^())G!'A6>.5J.0_K!!d4J60!34&;.%!4-!/,-74-&%i!/.&.:&,6-!67!:6-&6#0%K!!C->,&./!
:6<<61#,#5!30.%.-&4&,6-'!D,%6-!c60g\$06#3!2.340&5.-&167!8%9:;6<6\$9!'P60-.<!!
=-,>.0%,&9!'C&;4:4!'ABK!!

D125./ .2;.%&/ .0.27378120%

e49<60!'dK!'@4<4K!'dK!'j6<4g!'bK!'d.0;40/%&.,-'!8K!X![,-\$T66/'!bK!^())(*!@.3&_K!!26.%!
4/#&?;,<!/!:6?#%./!/#0,-\$!/\$,&4<!5./,4!#%!.!,5306>.!:;,</0.-7%<.40-,-\$p!'!5.&4?
4-4<9%,&%K!!86%&.0!&6J.!30.%.-&./!4&!&;.!4--#4<!5..&,-\$!67!&;.!!+0,&,%;!
8%9:;6<6\$,4<!@6:.,&9!'[6-/6-'!N-\$4-/K!!

2#\$S4-'!AK!'!+<4g<.9!'NK!'!U4:g.0&'!DX!'!d.0;40/%&.,-'!8K!'!^A6>.5J.0!()((_K!!
C-/,>./#4<!/77.0.-:.%!,!-!;,</0.-i%!60,.-&4&,6-!4-,%6&0639!4-!/!/\$,&4<!5./,4!
:6-%#53&,6-K!!86%&.0!30.%.-&./!4&!&;.!4--#4<!5..&,-\$!67!&;.!C-&.0-4&,6-4<!
@6:.,&9!760!2.>.<635.-&4<!8%9:;6J,6<6\$9!'@4-!2,.\$6!'P"K!!

+<4g<.9!'NK!'!U4:g.0&'!DX!'!2#\$S4-'!AK!'!X!d.0;40/%&.,-'!8K!'!^A6>.5J.0!()((_K!!e;./!
,-7<#.-:!.!67!.5.0\$.&!<,&.04:9!6-!&;.!\$<6J4!30.:./.-:!.!77.:&K86%&.0!30.%.-&./!
4&!&;.!4--#4<!5..&,-\$!67!&;.!C-&.0-4&,6-4<!@6:.,&9!760!2.>.<635.-&4<!
8%9:;6J,6<6\$9!'@4-!2,.\$6!'P"K!!

2#\$S4-'!AK!'!+<4g<.9!'NK!'!U4:g.0&'!DX!'!d.0;40/%&.,-'!8K!'!^() (G_K!P;4-\$,-\$!60,.-&4&,6-!
4-,%6&0639!,-7<#.-:./!J9!&;.!!/\$,&4<!4\$.K!!86%&.0!30.%.-&./!4&!&;.!4--#4<!5..&,-\$!
67!&;.!C-&.0-4&,6-4<!@6:.,&9!760!2.>.<635.-&4<!8%9:;6J,6<6\$9!'P;:,4\$6!'C [K!!

2,;g.0%6-'!jK!'!2#77!'!LK!'!L6%.0!'!K!'!h<%.-!'!8K!'!X!&!!d.0;40/%&.,-'!^A6>.5J.0!() (G_K!
@3...;!4-!/!@6#-!/!P#.%!806>,/.!P653404J<.! [.>.<%!67!\4:,<,&4&,6-!T;.-!
P6-&06<<,-\$!760!@&,5#<#%!= -: .0&4,-&9!N77.:&%K!!86%&.0!30.%.-&./!4&!&;.!4--#4<!
5..&,-\$!67!&;.!8%9:;6-65,:%!@6:.,&9!'A.T!h0<.4-%K!!

+<4g<.9!'NK!'!d4%3.<,-!'!AK!'!X!d.0;40/%&.,-'!8K!'!^L49!'() (G_K!!e;./!>.<635.-&167!
6:#<656&60!#330.%&,6-!67!4<,-&!/\$,&04:&60%!,!-!;,</0.-K!!86%&.0!30.%.-&./!4&!&;.!!
4--#4<!5..&,-\$!67!&;.!D,%6-!@:.,-:.%!@6:.,&9!'D,0<L&\$K!!

8<4S4!'DX!'!0-4<![K"KLK!'d.0;40/%&.,-'!8K!'!+.<<4?\ .0-4-/.S!'LK!X![.6-'!bK!^"30,<!

+<4g<.9'!NK!2#\$\$4-!X!d.0;40/%&.,-'!8K^()_K!!e;.!\$<6J4<30.:./.-:!.77.:&!&;06#;\$;6#&!;,</;66/K 86%&.0!30.%.-&./!4&!&;.!4--#4<!5..&,-\$!67!&;.!C-&.0-4&,6-4!@6:,.&9!760!2.>.<635.-&4<!8%9; ;6J,6<6\$9'D,0<L&\$K!!

+<4g<.9'!NK!@&6:gT.<<!j K'!2#\$\$4-'!AK!d4%3.<-'!AK!X!d.0;40/%&.,-'!8K!!^h :&6J.0'!!()GH_K!!P4-!;,</0.-!%#330.%%!4&&. -&,6-4!<43�.!J9!%4<.-&!/%&04:&60%p!!86%&.0!!30.%.-&./!4&!&;.!4--#4<!5..&,-\$!67!&;.!C-&.0-4&,6-4!@6:,.&9!760!2.>.<635.-&4<!8%9; ;6J,6<6\$9'P;,:4\$6'!C[K!!

2#\$\$4-'!2K'!NK!+<4g<.9'!NK!B454S4g,!j K!@&6:gT.<<!'!K!L6%.0!X!8K!d.0;40/%&.,-'!^L49'!()GH_K!@4:4/, :!30.?4&&.-&, >.!5.4%#0.%!306>, / .!, -%, \$;&!,-&6!,<<#%609! :6-&6#0!/.&.:&,6-!,-!;,</0.-K!!86%&.0!30.%.-&./!4&!&;.!4--#4<!5..&,-\$!67!&;.!D,%6-!@:,. - :.%!@6:,.&9!e4534'!\ [K!!

+<4g<.9'!NKPK'!2#\$\$4-'!AKPK'!h<%.-'!@K'!L6%.0!'!K'!X!d.0;40/%&.,-'!8K!!^L49'!()GH_K!!e;.!\$<6J4<30.:./.-:!.77.:&!,-!;,</0.-!T,&;!4-!/!T,&;6#&!&;.!#%.!67!:653<.0!,-%&0#:&,6-%K!!86%&.0!30.%.-&./!4&!&;.!4--#4<!5..&,-\$!67!&;.!D,%6-!@:,. - :.%!@6:,.&9!e4534'!\ [K!!

h<%.-'!LK'!2#77'!'!K!L6%.0!'!j K!2,:g.0%6-!X!8K!d.0;40/%&.,-'!^A6>.5J.0'!()GQ_K!!@6#-!/\$#, /,-\$!>,%6-!#%, -\$!&;.!>,%#4!T60</!3404/,\$5!&6!/0.:&9!:65340.!%3...;!4-!/!6#-!/!:#.,-\$!,54\$!.!%.40; ;K!!86%&.0!30.%.-&./!4&!&;.!4--#4<!5..&,-\$!67!&;.!8%9; ;6-65,:!@6:,.&9!A.T!h0<.4-%!'! [K!!

U,33'!2K'!@K!h<%.-'!'!K!L6%.0!'!X!8K!d.0;40/%&.,-'!^h :&6J.0'!()GQ_K!!L,-/? :047&!U6T! /,\$&4<!5./,4!.03.0,.-:!.!;4-\$.%!&;.!>,%#4!5,-/K!!86%&.0!30.%.-&./!4&!&;.!(-/!

5..&,-\$!67!&;.!C-&.0-4&,6-4!@6:,.&9!760!2.>.<635.-&4!8%9:;6J,6<6\$9
c4%;,-\$&6-'!2PK!!

!!

n,55.054--'[K'L6%.0'"K'!2,:g.0%6-'!jK'd0.-.<<'! "K'+400!EK!'d.0;40/%&.,-'!8X!!
^()GW!b#<9_!!!=%,-\$!3#SS<.!&6!4%%.%%!&;!.!77.:&%!67!3.0:.3<!:#.%!6-!%6:,4<!
<.40-,-\$!%&04&.\$9!,-!(W?56-&;?6</%K!!86%&.0!30.%.-&./!4&!&;.!J,?4--#4!5..&,-\$!67!
&;.!C-&.0-4&,6-4!P6-7.0.-:!.!6-!C-74-&!@&#/,.%'+.0<,-'!2EdK!!

!!

L6%.0!' "K'! 2,:g.0%6-'! jK'! L6-.<<'! "K'! [..!' UK'! n,55.054-'! [K'! +400! EK'! X!
d.0;40/%&.,-'!8X!!^()G*!h:&6J.0_K!!e04-%7.0!<.40-,-\$!4:06%%!%6:,4<!.40-,-\$!:6-&.0&!,-!
(KV?4- /!*?

2,,:g.0%6-'!j K'd.0;40/%&.,-'!8K'!X!+400'!EK!^()G('!b#- ._K!!e ; !.77. :&!67!,-%&0#:&,6-%!
6-!,5,&4&,6-!7065!<,>.!4- /!>, / .6! / .5 6-%&04&,6-%K!!86%&.0!30.% -&./!4&!&; !
J,4-#4<!5 . .&,-\$!67!&; !.C-&.0-4&,6-4<!P6-7.0.-: .!6-!C-74-&!&#/,.%!
L,-.436<,%!'!LAK!!

!!

U,33'!2K'!L6%.0!'K[K'!hiP6--.0'!L K!X!d.0;40/%&.,-'!8K!^()G('!L49_K!!e ; !,5 34:&!67!
:<6%#0.!6-!:6-&6#0! / .&.:&,6-!&;0.% ;6</%!, -!; ;</0.-!4- /!4/#<&%K!!86%&.0!30.% -&./!
4&!&; !.4-#4<!5 . .&,-\$!67!&; !.D,%6-!@:.,-: .%!!@6:.,&9'!A43<.%'\ [K!!

!!

U,33'!2K'!d.0;40/%&.,-'!8K'!n;4-\$!r K'!B,-'[K'![4\$#,6'!bK!X!b4-g6T'!PK!^()GG'!
A6>.5 J.0_K!N%&,5 4&,-\$!3.0: .3<!J,4% .% !5 ./,4&,-\$!74:,4<!.030.%%,6-!
:<4%7,;4&,6-!, -!4/#<&%!4- /!; ;</0.-!#%, -\$!0.>.0% !:600.<4&,6-K!!86%&.0!30.% -&./!
4&!&; !.4-#4<!5 . .&,-\$!67!&; !.C-&.0-4&,6-4<!@6:.,&9!760!2 .>.<63 5 . -&4!
8%9: ;6J,6<6\$9! c 4% ;,-\$&6-!2 PK!!

!!

2,,:g.0%6-'!j K'!L :C-&90.'!8K'!h6&'!NK'!B46'!PK'!d.0;40/%&.,-'!8K'!X!+400'!EK!^()GG'
A6>.5 J.0_K!!@&04&.\$,%!760!.-;4-:,-\$!.-:6/,-\$!67!,-760 5 4&,6-!706 5 !%:0.-!
5 ./,4K!!86%&.0!30.% -&./!4&!&; !.4-#4<!5 . .&,-\$!67!&; !.C-&.0-4&,6-4<!@6:.,&9!760!
2.>.<63 5 . -&4<!8%9: ;6J,6<6\$9! c 4% ;,-\$&6-!2 PK!!

!!

2,,:g.0%6-'!j K'!L :C-&90.'!8K'!+400'!EK!X!d.0;40/%&.,-'!8K!^()GG'!L49_K!!e ; !.77. :&!67!
0.3.&,6-!4- /!.036%#0.!/#04&,6-!6-!&; !>, / .6! / .7,;,&!77. :&K!!86%&.0!30.% -&./!4&!&
&; !.4-#4<!5 . .&,-\$!67!&; !." 5.0,;4-!8%9: ;6<6\$,;4<!@6:.,&9! c 4% ;,-\$&6-!2 PK!!

+400'!EK'!2,,:g.0%6-'!j K'!d.0;40/%&.,-'!8K'!n4:g'!NK'\!04-g'!UK'!L :C-&90.'!8K'!X!@;#<.0'
bK!^()GG_K!!e ; !306&04:&./!>, / .6! / .7,;,&!N04 5 ,,-\$!G?&6!W?9.40?6</%i!,5,&4&,6-!
67!4!3#SS<.!&4%gK!!86%&.0!30.% -&./!4&!&; !.4-#4<!5 . .&,-\$!67!&; !.N4%&.0-!
8%9: ;6<6\$,;4<!"%&6:,4&,6-!+6%&6-'!L " K!!

2,,:g.0%6-'!j K'!d.0;40/%&.,-'!8K'!n4:g'!NK'+400'!EK!^()G)'!A6>.5 J.0_K!e ; !>, / .6!
/ .7,;,&!77. :&! [.40-,-\$!&; !.5 .4-%!4- /!&; !.- /%!706 5 !<,>.!4- /!>, / .6!
/ .5 6-%&04&,6-%K!!86%&.0!30.% -&./!4&!&; !.4-#4<!5 . .&,-\$!67!&; !.C-&.0-4&,6-4<
@6:.,&9!760!2 .>.<63 5 . -&4<!8%9: ;6J,6<6\$9!@4-!2,.\$6'!P " K!!

U,33'!2K'!L,<<.0'!@K'!d.0;40/%&.,-'!8K'!X!2,,:g.0%6-'!j K!^()G)'!A6>.5 J.0_K!!e ; !
0.<4&,6-!67! / .5 6\$043;,:!>40,4J<.%!&6!4%%6:,4&,6-!&40-,-\$!,-!, -74-:9K!!86%&.0!
30.% -&./!4&!&; !.4-#4<!5 . .&,-\$!67!&; !.C-&.0-4&,6-4<!@6:.,&9!760!2 .>.<63 5 . -&4!
8%9: ;6J,6<6\$9!@4-!2,.\$6'!P " K!!

U,33'!2K'!d.0;40/%&.,-'!8K'!P60J.&&'!EK'!n;4-\$!r K'!X!B,-'[K!^()G)'!L49_K!!e.%&,-\$!
.5 6&,6-4<!.030.%%,6-!0: .6\$-,&,6-!T,&;!4-!4/43&4&,6-!67!&; !.' +#JJ<.%a!5 4%g,-\$!
433064: ;K!!86%&.0!30.% -&./!4&!&; !.4-#4<!:6-7.0.-: .!67!&; !.D,%6-!@:.,-: .%!
@6:.,&9'!A43<.%'\ [K!!

!!

2,:g.0%6-!'j k'!8k!d.0;40/%&.,-'!NK!n4:g'!X!EK!+400K!^()G)!L40:;_K!e:;!>./ .6!/ .7,:;&!
,-!6</ .0!::;</0.-!N03<60,-\$!&4%g!/,77,:#<9!4%!4!3.076054-: .?<,5 ,&,-\$!74:&60K!!
86%&.0!30.%.-&./!4&!&;;!J,?4--#4<!5 . .&,-\$!67!&;;!C-&.0-4&,6-4!P6-7.0.-:;!6-!
C-74-&!@&#/,.%!'!+4&,560.'!L 2K!!

!!

d.0;40/%&.,-'!8K'!j k!2,:g.0%6-!'NK!n4:g'!X!EK!+400K!^()H)!h:&6J.0_K!! [.40-,-\$!7065!
%:0..-!5./,4!,-!6</ .0!,-74-&%1!!" -!.0&.-%,6-!67!&;;!>./ .6!/ .7,:;&! .77.:&K!!e4<g!
30.%.-&./!4&!&;;!4--#4<!5 . .&,-\$!67!&;;!C-&.0-4&,6-4!@6:,.&9!760!2.>.<635 . -&4!
8%9:;6J,6<6\$9!P;,:4\$6!C [K!!

!!

n4:g'!NK'!bK!n6::4!'EK!+400!'X!8K!d.0;40/%&.,-K!^()H)!h:&6J.0_K!!L 6&;.0%!. -;4-:!
,-74-&%i!(2? * 2 !&04-%7.0!67!<.40-,-\$K!86%&.0!30.%.-&./!4&!&;;!4--#4<!5 . .&,-\$!67!
&;;!C-&.0-4&,6-4!@6:,.&9!760!2.>.<635 . -&4!8%9:;6J,6<6\$9!P;,:4\$6!C [K!!

!!

2,:g.0%6-!'j k'!d.0;40/%&.,-'!8K'!n4:g'!NK'!+400!'EK'!X!L.<&S677!'!K!^()H)!h:&6J.0_K!
e:;!>./ .6!/ .7,:;&! .77.:&K!86%&.0!% .%,6-!30.%.-&./!4&!&;;!b6,-&! " &&. -&,6-!
P6-7.0.-:.'!+6%&6-!L " K!!

!!

@;0677!'dK'!"K!L,04J.<'X!8K!d.0;40/%&.,-!^()H)!L49_K!!P4-!56&,6-!:#%!74:;<,&4&!
:6-7,\$#04<!74:;!306: .%, -\$, -!::;</0.-p!!86%&.0!30.%.-&./!4&!&;;!4--#4!
:6-7.0.-:;!67!&;;!D,% ,6-!@:,. -: .%!@6:,.&9!A43<.%'\ [K!!

!!

hZE,60/4-!'L k'!j k!8.4J6/9!PK!"<<,6-!'@K!+406-?P6; .-'!8K!d.0;40/%&.,-!X!dK!C406:; .!
^()H)!L49_K!!@#3.0,60!>,%#4<!% .40:;!,-!*!9.40!6</!/:;,</0.-!T,&;;!4#&,5K!!86%&.0!
30.%.-&./!4&!&;;!4--#4!C-&.0-4&,6-4!L . .&,-\$!\ 60!"#&,5!E.% .40:;!'P;,:4\$6!
C [K!!

!!

n4:g'!NK'!EK!+400!' [K!@;#;g'!NK!@3.0<.'!j k!2,:g.0%6-!'8K!d.0;40/%&.,-!'X!"K!L.<&S677!
^()Q'!A6>.5J.0_K!!26!<4-\$#4\$!:#.%!74:;<,&4&!.!:06%?/,5 . -%,6-!&04-%7.0!,-!
GV56-&;?6</%p!!86%&.0!30.%.-&./!4&!&;;!4--#4<!5 . .&,-\$!67!&;;!C-&.0-4&,6-4!
@6:,.&9!760!2.>.<635 . -&4!8%9:;6J,6<6\$9!c4%;,-\$&6-!'2PK!!!

!!

@;0677!'dK'!d.0;40/%&.,-'!8K'!X!B,-!' [K!^()Q'!"#\$%&_K!P;,</0.-Z%!%.-%,&,>,&9!&6!
:6-7,\$#04<!:#.%!, -!74: .%!#-/.0\$6,-!\$06&4&,6-4!56&,6-K!!86%&.0!30.%.-&./!4&!&;;!!
Q&;!C-&.0-4&,6-4!P6-7.0.-:;!6-!"#&654&,:!\4: .!4-!/!d.%�.!E.:6\$-,&,6-!
^ \ dE)Q_!@.3&K!()Q'!" 5%&.0/45!'e:;!A.&;.0<4-/%K s !!

!!

n4:g'!NK'!EK!+400!' [K!@;#;g'!NK!@3.0<.'!dK!@;0677!'j k!2,:g.0%6-!'@K!L,<<.0!'8K!
d.0;40/%&.,-!'X!"K!AK!L.<&S677!^()Q'!L40:;_K!SC-74-&%!74,<!4&!4!&04-%7.0!67!
<.40-,-\$!&4%g!7065!(2!&6!*2!4-/*2!&6!(2K!!86%&.0!30.%.-&./!4&!&;;!J,?4--#4!
5 . .&,-\$!67!&;;!C-&.0-4&,6-4!P6-7.0.-:;!760!C-74-&!@&#/,.%!'!D4-:6#>.0!P4-4/4K!!

!!

E.,<<9!'dK'!j k!2,:g.0%6-!'dK!@:;0677!'bK!A.<%. -!'X!8K!d.0;40/%&.,-!^()Q'!L40:;_K!e:;!>!
.77.:&!67!% ;40./!340&%!4- /!%34&,4!<:6-7,\$#04&,6-!6-!>,%#4<!% .40:;!3.076054-: .!,-!

96#-\$!; ;</0. -K!!86%&.0!30.% -&. /!4&!&; ;!J,?4--#4<!5 .&,-\$!67!&; ;!C-&.0-4&,6-4<!
P6-7.0.-:;!760!C-74-&!@&#/ ,.%!'D4-:6#>.0!'P4-4/4K!!

!!

d .0;40/%&.,-'!8K!!^())R!'A6>. 5 J.0_K!!C-74-&%Z!3.0.:3&,6-!67!:6-&6#0%!, -!&; ;!4J%. -:;!67!
:6-&04%&!60!J0,\$;&- .%#!:#.%K!!C->,&. /!30.% . -&4&,6-1!!@ .>. -&; !C-&.0-4&,6-4<!!
P6-7.0.-:;!6-!N3,\$. -&.,:;!E6J6&,:%1!! L6/ .<,-\$!P6\$-,&,>.!2 .>.<635 .-&!,-!!
E6J6&,;!@9%&. 5 %!'E#&\$.0%!=,->.0%,&9!'A. T!+0#-%T,:g!'AbK s !!

!!

n4:g!'NK'+400!'EK'!@;#;g!'[K'!2,:g.0%6-'!j K'!L,<<.0!'@K'!d .;40/%&.,-'!8K'!X!L .&S677!
"K!AK!!^())R!'h:&6J.0_K!!P06%?/,5 .-%,6-4<!&04-%7.0!, -!GV?56-&;?6</%1!!C5,&4&,6-!
7065!*2!&6!(2!X!(2!&6!*2K!!86%&.0!30.% -&. /!4&!&; ;!4--#4<!5 .&,-\$!67!&; ;!
C-&.0-4&,6-4<!@6:.,&9!760!2 .>.<635 .-&4<!8%9; ;6J,6<6\$9'!@4-!2. \$6!'P " K!!

@;0677!'dK'!E.,<<9!'dK'!A.<%6-'!bK'!2,:g.0%6-'!j K'!X!d .0;40/%&.,-'!8K!!^())R!'L49_K!!
e; ;!77.:&!67!%;40./!340&%!4- /!%34&,4<!6-7,\$#04&,6-!6-!>,%#4<!% .40: ;!
3.076054-:;!,-!96#-\$!; ;</0. -K!!86%&.0!30.% -&. /!4&!&; ;!4--#4<!6-7.0.-:;!67!&; ;!
D,%6-!@:.,-: .%#@6:.,&9'!@404%6&4'! \ [K!!

e% .K'!bK'+4g.0!'eK'!" /<.0!'@K'!X!d .0;40/%&.,-'!8K!!^())R!'L49_K!!e; ;!06<.!67!4T40.-.%%!
,-!%4: :4/ ,:!:6- / ,&,6-,-\$K!!86%&.0!30.% -&. /!4&!&; ;!4--#4<!6-7.0.-:;!67!&; ;!
D,%6-!@:.,-: .%#@6:.,&9'!@404%6&4'! \ [K!!

L,<<.0!'@K'!@;0677!'dK'!d .0;40/%&.,-'!8K'!n4:g!'NK'!hi+0.,-'!NK'!L .&S677'"K'!X'+400!'EK!!
^())R!'L40: ;_K!!C5,&4&,6-!7065 !&6#; ;%:0 .-%!J9!H?!4- /!GV?56-&;?6</%K!!86%&.0!
30.% -&. /!4&!&; ;!4--#4<!5 .&,-\$!67!&; ;!@6:.,&9!760!E.% .40: ;!,-!P; ;</!
2 .>.<635 .-&!+6%&6-'!L " K!!

e%.'!bK'!X!d .0;40/%&.,-'!8K!!^())V'!L49_K!!"!;,\$; .0?60/.0!5 .:;4-,%5!J.96-/\$66/!
:6-&,-#4.0

j 04. J .<! j K!X!d .0;40/%&.,-'!8K!!^())('!" 30,<_K!!D,. T36,-&!,->40,4-:!.!760!5#<&,?340&!
6JM.:&%!4&!*!56-&;%!67!4\$.K!!86%&.0!30.%.-&./!4&!&;.!!C-&.0-4&,6-4<!P6-7.0.-:!.!6-!
C-74-&!@&#/,.%!'!e606-&6'!P4-4/4K!!

d .0 ;40/%&.,-'!8K'![4%%&.0!'@K'!X!P64&.%!'2K!!^GHHH'" 30,<_K!!2 .>.<63 5 .-&4<!74:&60%!, -!
: ;,</0.-i%!>,%#4<!%.40: ;K!!86%&.0!30.%.-&./!4&!&; .!4--#4<!5 . .&,-\$!67!&; .!N4%&.0-!
8%9: ;6<6\$, :4<!" %%6: ,4&,6- '!806>,/ .-: .!'ECK!!

2,&0.'!bK'!X!d .0 ;40/%&.,-'!8K!!^GHHH'" 30,<_K!!e ;0. .? 5 6-&;?6</%i!/.&. :&,6-!67!:<6%#0.!, -!
&; .!4J% .-: .!67!<6:4<!:#.%K!!86%&.0!30.%.-&./!4&!&; .!4--#4<!5 . .&,-\$!67!&; .!N4%&.0-!
8%9: ;6<6\$, :4<!" %%6: ,4&,6- '!806>,/ .-: .!'ECK!!

d .0 ;40/%&.,-'!8K'!E.--.0!'8K'!X!E6>..?P6<<,.0!'PK!!^GHHQ'" 30,<_K!!C-74-&%!/,%:0, 5,-4&!
:6<60%!6-!&; .!J4%,%!67!3.0: .3!/,%&4-: .!'!-6&! :4&.\$609K!!86%&.0!30.%.-&./!4&!&; .!
5 . .&,-\$!67!&; .!C-&.0-4&,6-4!P6-7.0.-: .!6-!C-74-&!@&#/, .%!'! "&<4-&4'!d " K!!

8.&.0%6-!'L K " K'!/ .!d .</.'0!'!+K'!E43: %4g'!@KnK'!d .0 ;40/%&.,-'!8K'!X!+4: ;6#/? [.>,'! K!!
^GHHQ'" 30,<_K!!" !/6#J<.!/,%%6: ,4&,6-!J.&T..-!, 5 3<:, &!4- /!.03<:, &!6JM. :&!
0. :6\$-,&,6-!306: .% .%10.>.4<./!J9!7,\$#0.? \$06#- /!% . \$0.\$4&,6- K!!86%&.0!30.%.-&./!
4&!&; .!4--#4<!5 . .&,-\$!67!&; .!" %%6: K!760!E.% .40: ;!,-!D,% ,6-!4- /!h3;&; 4<5 6<6\$9!
\&K! [4#/ .0/4<.'!\ [K!!

d .0 ;40/%&.,-'!8K'!E6>..?P6<<,.0!'PK'!X!" /<.'0!'@K! " K!!^GHHR'" 30,<_K!!*? 5 6-&;?6</%!%; 6T!
4!/,%%6: ,4&,6-!, -!5 . 5 609!760!%,S.K!!843.0!30.%.-&./!4&!&; .!4--#4<!5 . .&,-\$!67!&; .!
N4%&.0-!8%9: ;6<6\$, :4<!" %%6: ,4&,6-!' c 4% ;,-\$&6- '!2 PK!!

d .0 ;40/%&.,-'!8K!!^GHHR'" 30,<_K!!E.4:&,6-!&, 5 .!5 .4%#0.%!67!>,%#4<!%.40: ;!4&!G'(!'4- /!*!
9.40%!67!4\$.K!!86%&.0!30.%.-&./!4&!&; .!5 . .&,-\$!67!&; .!@6: ., &9!760!E.% .40: ;!,-!
P ;,</!2 .>.<63 5 .-&! c 4% ;,-\$&6- '!2 PK!!

&10791;71/34\F.441B0%

%!

!! L4&&;.T!c,-/%60!8;2!!()GW?GV!!

!! d.554!e49<60!8;2!!()G*?GW!!

!! j,5J.0<9!j04.J.<!8;2!!()G?)W!!

%!

(.5./2;.0%

!! E.7.0.-:.%!">4,<4J<.! =36-!E.1#.%&!!