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

!

" #$%&' (#)'!*+!, *-.*/*01!!   !   !   ! $23!45678897: ;84!

<*='*)!>*//#0#!!   !   !   !   !   # (%./3!?@/.#'A=-2*&B C-A#D@!   !

8E5! F -G@.))!H%//!   !   !

5: ;!>* ((*) I #%/'2! J K#)@#!

>2#=')@'!H.//L! F J !;9:46!

!

/ % . * - 0 1 #' 2 1 & 1' <*&)!M*K# (C#&!NL!5N880!-.'.P#)=2.$L!QA , A J A!

'

/ - *$&$ - 0 *'

!

R&*+#==*&!*+!, *-.*/*01L!<*='*)!>*//#0#!L!S@/1!9 ; ;57$&#=#) 'A! " #$%&' (#)'!>2%.&L!S@/1!9 ; ;87

9 ; ;TA! " .&#-'*&!*+!G&%D@%'#! , '@D.#=L!S@/1!9 ;557S%)@%&1!9 ; 5EA!

!

J ==*-.%'#!'#!U#//* I L!V#//@=!W)=!'@'#!A!9 ; 9 ; 7$&#=#) 'A!

!

F %'.)%!, A!H*&)#&! " .=',)0@.=2#D!X.=. ',)0!R&*+#==*&!L!Y%D-/.++#!W)=!'@'#!+*&&! J DK%)-#D!

, '@D.#=!L!H%&K%&D!Q).K#&=.'1L!9 ; 5 :79 ;58A!

!

X.=. ',)0!R&*+#==*&!L! Z * (#)L!G#)D#&!%)D!, #[@%/.'1L!H%&K%&D!Q).K#&=.'1L!9 ; 5EA!

!

X.=. ',)0!R&*+#==*&!L! \ %/#!, -2**/!*+/!*+!])K.&*) (#)'%/, '@D.#=L!9 ;59L!, $&.)0!9 ; 5 ;A!

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!

V#%-2.)0!U#//* I L!Q).K#&=.'1!*+! F %==%-2@=#''=L!5N6476NA!

'

'

% 2 '' + 1 &$ - 0'

!

R2A '' AL!] -*)* (.-=L!Q).K#&=.'1!*+! F %==%-2@=#''=L!5NT9A!!

'' .==#&'%'.*)3!d

"

F%- J&'2@&!U*@)D%'.*)L!9;5579;5EL!+*&!$&*?#-'!*)!>*))#-'#D!>*)=@ ($'.*)L!i948L;;;A!

Y#=#%&-2!W)-#)'.K#!G&%)'L!<*='*)!>*//#0#L!9;5;L!+*&!$&*?#-'!*)!,@='%.)%C/#!
>*)=@ ($'.*)L!i58L;;;A!

V2#!R2./%)'2&*$.-!>*//%C*&%'.K#L!W)-A!5NNN79;;NL!+*&!$&*?#-'!*)!2#!>* ((#&-.%/.P%'.*)!*+!
>2./D2**DL!i9;L;;;A!

F#&-c!U% (./1!U@)DL!5NN:7N8L!+*&!$&*?#-'!*)!J (#&.-%)!>*)=@ (#&= (L!i9;L;;;A!

G/*C%/!,'# I %&D=2.$!W).'.%'.K#L!R# I !>2%&.'%C/#!V&@='=L!5NN:7N8L!+*&!$&*?#-'!*)!J (#&.-%)!
>*)=@ (#&= (L!i98L;;;A!

>@&&.-@/@ (!W))*K%'.*)!U@)DL!H%&K%&D!Q).K#&=.'1L!5NNEA!

J (#&.-%)!][$&#==!U@)D!+*&!>@&&.-@/@ (%&! " #K#/*$ (#)'!.)!]'2.-=!L!H%&K%&D!Q).K#&=.'1L!5NN;A!

]-*)* ((.-!R*/.-1!W)='.'@'#L!5NTNA!

Z%&C@&&0!U@)DL!H%&K%&D!Q).K#&=.'1L!5NT6A!

H%&K%&D!W)='.'@'#!]-*)* ((.-!Y#=#%&-2L!H%&K%&D!Q).K#&=.'1L!5NT4A!

>/%&c!U@)DL!H%&K%&D!Q).K#&=.'1L!5NT875NTNL!5NN5L!5NNEA!

(- - 6*'

I-.%&J0?3&!&F$$A8&#'$&l)"$K6'O/*)/*&3-1.#)-/&"-%&%$B.6)/*&$4<l-?$$&3#%$33+&)4<%-;)/*&
@$llKH$)/*&O/B&@-%A)/*&34O%#$%+!aM\3!H%&$#&!<@=.)#==bL!+*&!'2-*((.)0!S@)#!9;98A!
S%$%)#=#!#D.'.*)!aV*1*!g#.P%.!R@C/.=2#&=bA!!

%)D!g%&#)!H%)=#)L!*I04*)l)$3L&_)/3')<&O/B&J-4$3#)6&>-l)#)63&)/&#'$&P7N\mathbb{A}L!aR2./%D#/$2.%3!
V#($/#!Q).K#&=.'1!R&#==b!5NN6A!][-#&$'#D!.)!H#)&.!M*@I#)!#'!%/L!N)4<1$%&G);)/*&
2-4<O33)-/O#$&G)"$&a"#)K#&3!^.K.)0!'2#!G**D!M#I=b!5NNNA!][-#&$'#D!.)!,*).%!F%%=.c!
%)D!S%-c!,*/*(*)L!#D=AL!N)*/3&-"&G)"$&)/&#'$&P7N7!7L&5$0B)/*3&-/&>-<.lO%&2.l#.%$&"-%&
F%)#$%3!aM#I!*&c3<#D+*&Dj,'A!F%&'.)_=!R&#==L!9;;EL!$$A!4;47456bL!%)D!1ASA!g#))#D1L!
"*&*'21!FA!g#))#D1!%)D!F%&-.%!UA!F@'2L!#D=AL!9'$&E$B"-%B&(.)B$&"-%&2-ll$*$&F%)#$%3&
@#'&5$0B$%&\$L!M#I!*&c3<#D+*&Dj,'A!F%&'.)_=!R&#==L!9;5;bA!!
!
2O<)#Ol+&#'$&N#O#$&O/B&GOH-.%L&!&(1-HOl&>$%3<$6#);#L!#D=AL!S@/.#'!<A!,-2*&!%)D!S*)07./!
*@L!a>2#/'#)2%(3!]DI%&D!]/O%&bL!5NN8A!
!
I)/0/6)Ol&:<$//$33&O/B&CO#)-/Ol&>-l)6?&!.#-/-41L!#D=AL!V%&.k!<%)@&.!%)D!S@/.#'!<A!
,-2*&L!af[+*&D3!f[+*&D!Q).K#&=.'1!R&#==L!>/%&#)D*)!R&#==!W($&.)'bL!5NN9A!
!
9'$&(-lB$/&!*$&-"&2O<)#Ol)34L&5$)/#$%<%$#)/*&#&'&>-3#@O%&=^<$%)$/6#L!#D=AL!,'#$2#)!JA!
F%&0/.)!%)D!S@/.#'!<A!,-2*&L!af[+*&D3!f[+*&D!Q).K#&=.'1!R&#==L!>/%&#)D*)!R&#==!W($&.)'bL!
5NTN\mathbb{A}!!R%$#&C%-c!#D.'.*)!5NN9A!S%$%)#=#!#D.'.*)!5NNEA!
!
!
!-".01#'1.&$+#%*'

'

dV2#!U*@&!"%1!Z##cLe!9;98L!C$@&GOH-%&I-%.4L!F%1A!
!

'

dV2#!M#I!]-*)*(.=!*+!Y#)#I%C/#=Le!9;98L!<**c!,1($*=.@(!*)*!!S#)=!<#-c#&#'_=![-@&
F$&N-lB&:.%&I.#.%&$L!9'$&N-6)-K=6-/-4)6&5$;)$@L!+*&'2-*(.)0A!
'

d>*)=#)'!%)D!>*)'#='%'.*)3!H* I !R/%'+*& (!Z *&c#&=!Y#-c*)!I .'2!'2#!Y.=c=!*+!G.0!
^%C*&Le!9;9:L!F -%A+&=4<l-?4$/#&O/B&N-6)$#?+&a I .'2!, '#K#)!RA!X%//%=!%)D!>2&.='*$2#&!
V.&&#//b!ETa8b35:9E75:::A!

2''$=3jj?*@&)%/=A=%O#$@CA-*(jD*.j#$@Cj5;A5566j;N8;;56;9E55NN:;:!
!
d>*((#&-.%/.P%'.*)!*)!d,2%&.)0!R/%'+*& (=e3!'2#!-%=#!*+!J .&C)C!2*='.)0Le!9;9:L!! 4$%)6O/&
E$'O;)-%Ol&   N6)$/#)3#L!   a I .'2!   F #2 (#'!   >%)=*1bA!   4TaTb3NTE75;;4A!
2''$=3jj?*@&)%/=A=%O#$@CA-*(jD*.j%C=j5;A5566j;;;964:99E5588E44A!
'
d " #/.K#&.)O!" .++#&#)-#3!doQ)C#/*)0.)0_!%(*)0!QA,A!$/%'+*& ((!$%&-#/!D#/.K#&1!I *&c#&=Le!
9;9EL!2O4H%)B*$&, -.%/Ol&-"&5$*)-/3+&=6-/-4?&O/B&N-6)$#?+&

dV2#!F@/'.$/.-%'.K#!W ($%-'=!*+!Z *&c.)0!H*@&=!%)D!U.)#!R%&'.-@/%'#!F%''#&!>*)-#)'&%'.*)!

!

dU&* (! f C=-@&.'1!'*!>$-<l$&X0*0W)/$Le!-*)'&.C@'.*)!'*!R@C/.-!, *-.*/*0.#=3! J !, 1 ($*=.@ (!
+&* (!<*='*)!>*//#0#L!/#%D!%@'2*&! F .-2%#/!<@&% I *1L!N-6)0l&>%-Hl$43+!85a5b3595759:L!
U#C&@%&1!9;;:A!

!

d f /D#&!>*)=@ (#&=!%)D!'2#!] -*/*0.-%/!" ./# ((%Le!V2#! J 0#!] [$/*=.*)3!<%C1!<** (#&=!
%)D!<#1*)DL! [0%;0%B&($/$%O#)- /3&>-1)6?&, -.%/0lL!536N7N;L! Z .)'#&!9;;:A!

!

dV2#!>* ((*D.+.-%'.*)!*+!>2./D2**D3!V%/#=!+&* (!'2#! J DK#&'.=.)0!U&*)'!^.)#=Le!
[$B*$' -*&5$;)$@L!8a9b3!679EL!,@ ((#&!9;;E3!!

!

dQ)D#&='%)D.)0!'2#!M# I !>*)=@ (#&.= (3!W)#k@%/.'1L!] (@/%'.*)!%)D!'2#!] &*=.*)!*+! Z #//7
<#.)0Le!9)llB36'%)"#&;--%&N-6)-1-*)$L!9Ea5b35;79;L!9;;9A!a.)!U/# (.=2!'&%)=/%'.*)!bA!
Y#$&.)'#D!.)!5-#40/&X0*0W)/$L!aQ).K#&=.'1!*+!V*&*)'*'*!<@=.)#==!, -2**/bL!=$#-.%/!.==@#!
#)'.'/#D!dV2#! J //7>*)=@ (.)0!W==@#Le!,$&.)0!9;;:TA!

!

dV2#!V&.$/#!W ($#&%'.K#3!G/*C%/!] -*/*01L!R*K#&'1%')D! Z *&c'. (#!Y#D@-'.*)Le!E$%A$l$?&
, -.%/0l&-"&N-6)-1-*1L!:839756L!9;;5A!

!

dV2#!M# I !R*/.'.-=!*+!>*)=@ ($'.*)Le!E-3#-/&5$;)$@!9:aE7:b3:7NL!,@ ((#&!5NNNA!
Y#$&.)'#D!.)!9'$&2-/#$4<-%0%?&5$0B$%L!#.02'2!#D.'.*)L!G%&1!G*=20&&.%)L!L!^*)0 (%)!
9;;:0!Q-1./#0%?&N)4<l)6)#?L&5$3<-/B)/*&#-&2-/3.4$%2.l#.%$L!#D=A!"%).#/!"2&&'1!%)D!
J (.'%.!]'P.*).!a^%)2%(LF "3!Y* I (%)!%)D!^.''/#+.#/Db!9;;E3487T90!Q-1./#0%?&
N)4<l)6)#?L&9'$&>-$#)&!l#$%/0#);$&&2-/3.4$%2.l#.%$+!!#DAL!!,%(@#/! J /#[%)D#&!
a J @-c/%)DL!M s3!, '#%D!%))D!"%@02'#&_=!bL!9;;NL!$$A!98E796;0!,*-.%/!,-.#)-#!^.CT5000!2 (-)0.2 (.)0.2 (#)0.2

w Z *&cL!V. (#!%)D! F *)#13!M# I !R*/.-.#=!+*&! J (#&.-%Lw!Q%)M$#)MB&$/&NO4$/1$;)/*+&59aEb3N7 99L!M*K# (C#&!5NN8A!

!

w Z *&c'. (#!.)!>*)'# ($*&%&1!>*)'#['3! J (#)D.)0!'2#!U%.&!^%C*&! , '%)D%&D=! J - 'Lw! *2 ')60*-K_$/#&G0@&5$;)$ I L!6;a5;;b35;;7558L!5NN8A!

!

w J ==#==.)0!'2#!V. (#!, k@##P#!H1$*'2#=.=3!]=', (%'#=!*+! F %&c#'!%)D!M*)7 (%&c#'!H*@&=!.)! '2#!Q).'#D!, '%'#=L!5N4N75NTNLw!a/B.3#%)O1&5$lO#)-/=L!EEa5b3987:EL!5NN:L!a I .'2!^%@&%! ^##'#7G@1bA!

!

wG/*C%/!W)#k@%/.'1!%)D!]])K.&*)(#)'%/!>&.=.=3! J)! J &0@ (#)'!+*&!Y#D@-.)0! Z *&c.)0!H*@&=! .)!'2#!M*&'2Lw! F -%lB&J$;$l-<4$/#L!5Na5b36E7T:A!S%)@%&1!5NN5A!Y#$&.)'#D!.)!'2%$O#)/*&O& C$@&F-%lB&=6-/-41L!#D=&L!G#&%/D!]$='#.)L!S@/.#!G&%2% (!%)D!S#==.-%!M# (C2%&DL! aR2./%D#/$2.%3!V# ($/#!Q).K#&=.'1!R&#==bL!5NNEA!

!

w] ($/*1 (#)'!Y#)'=!%)D!'2#!W)-.D#)-#!*!*+!, '&.c#=Lw!5$;)$@&-"&=6-/-4)63&O/B&N#O#)3#)6=L! ^ 1W1 a:b38T:78N9L!M*K# (C#&!5NT6!a I .'2!,% (@#/!<* I /#=bA!

!

w>2%)0#=!.)!'2#!>1-/.-%/!R%''#&)!*+!Y#%/! Z %O#=3!]K.D#)-#!+*& (!M.)!#!>*@)'&.#=L!5N887 5NT;Lw!=6-/-4)6&,-.%/O1+!N83:897:4TL!S@)#!5NT8A!

!

!

! - " . 0 1 #' 1 . &$+ #%*'" 0 2%. '. %9$% 3 ' - . '$0'/ . - +%'**

!

dM%K.0%'.)0!^.+#!Q)D#&!%!!U*@&7 "%1! Z *&c I ##c3! J ! F @/'. (#'2*DL!G#)D#&&D!.^.+#!>*@&=#!!][% (.)%'.*)!*!*+!V. (#7Z *&c!<*@)D%&1! , '&%'#0.#$/.)!D! Z *&c7^.+#!U.'Le!.)!$&#$%&%'.*)!L! a I .'2!D-../*4)/&2'.L!R21//.=!F *#)L!%)D! Z #)!U%)bA!

!

d ".='.)-'.*)!%'! Z *&c3! ,'%'@=!R&&%-'.-=!.).)!%%!'#!>* ((@).'1!R&*D@-.*)!]])K.&*) (#)'=3Lw!99L! a I .'2!F)ll&2'0%1$3`+! (.)*&!&K.=.*)!%'!2 - /#$4<-%0%?&=#'/-*%0<'?7&

'

dV2#!Y%-.%!/!R/%'+*&&((!*!*+!V&%$3!>* ((@).'1!/=&-"&X0/0*4/#a/c.)%?L!@)D#&!&&.K.#=! &#K.# I A!

!

d "*#=! I *&c!'. (#!&#D@-'.*)!. ($*&K#! I *&c#&=`! I #//7C#.)0h!]K.D#)-#!+*&((*&*C%/!+*@&7D%1! I *&c I ##c!'&.&=!%/=Le!9;9:L!C0#.%$&[.40/&E$'0;)-%+!@)D#&!&#K.# I !a I .'2!F $/&I0/L! f &/%! g#//1!%)D!D!G@*/.)!G@bA

dZ 2*!G#'=!'*!, 2%&#!.)!'2#!d , 2%&.)0!] -*)* (13!Q)D#&='%)D.)0!'2#!R%''#&)=!*+!
R%&'.-.$%'.*)!%)D!] [-2%)0#!.)!'2#!J .&C)Cle!9 ; 5NL!a I .'2!

d^#==*)=!.)!'2#!'. (#!*+!> f XW " Le!9 ; 9 ; L!!#==%1!+*&!N6 ' . 4 06 ' $%&2 - ll$*$+&YS'"& ! / /) ; $%3O%?&
E - - AL!#DA! , %'.=2! g @ (%&A!

!

dU*& I %&DLe!9 ; 9 ; L!N 'O%)/ *&X - H)l)#)$3L&O . $3#) - /)/ *& : . %&5)* '#&# - &# ' $&2)#?&)/&# ' $&
2 - llOH - %O#) ; $&=6 - / - 4 ?+&C1! " %K.D#! J &-.D.% - *)*!%)D! F .c#! " @OO%)!a^*)D*)3!Y*@'/#DO#bA!

!

dV2#! , 2%&.)O!] - *)* (1Le!9 ; 5NL!9 '$& : ^"-%B& [O/BH - -A& - "&2 - /3 . 4 <#) - /L!#D=AL!U&#D#&.-c!UA!
 Z 2#&&1!%)D!W%)!Z **D I %&DL!aM# I ! \ *&c3! f [+*&D!Q).K#&=.'1!R&#==bL!a I .'2! F #2 (#'!
>%)=*1bA!!

!

dV2#!R/%'+*& (!] - *)* (13!-*)=#k@#) -#=!+*&!/%C*@&L!.)#k@%/.'1!%)D!'2#!#)K.&*) (#)'Le!9 ; 5TL!

d>/. (%'#!%)D!>*)=@ ($'.*)Le!.)!21)40#$&2 '0/*$&O/B&N-6)$#?L&&N-6)-1-*)60l&>$%3<$6#);$3L!
Y./#1!]A! " @)/%$!%)D!Y*C#&'!SA!<&@//#L!#D=&L!aM# I ! \ *&c3! f [+*&D!Q).K#&=.'1!R&#==bL!a I .'2!
g%&#)!]2&2%&D'7 F %&'.)#PbL!9;58A!
!
Y#$/1!'*!gA!,%C##/!Y%2 (%)L!d>*)'#='.)0!R&.K%'#!R* I #&Le!

V2* ($=*)L!aM# I !H%K#)3! \ %/#!Q).K#&=.'1!R&#==bL!a I .'2!] (./.#!J A!'" @C*.=!%)D!^.)D=#1!<A!
>%&+%O))%bL!9;5:L!$$A!N8759:A!
!
dZ*&c=2%&.)0Le!.)!J$*%-@#'L&O&;-6OH.10%?&"-%&O&/$@&$%O+!#D=L!G.%-* (*!'" `%/.=%L!U#D#&.-*!
'" # (%&.%!%)D!G.*&0*=!g%//.=L!aM# I ! \ *&c3!Y*@'/#D0#bL!9;5:A!
!
dZ21!,*/K.)0!>/.(%'#!>2%)0#!Y#k@.&#=!Z*&c.)0!^#==Le!.)&9)4$&-/&: .%&N)B$L&F ' ?&F$&
!ll&C$$B&O&N '-%#$%&F-%A)/*&F$$A+!#D=A!J))%!>**'#!%)D!S%)#!SA!U&%)c/.)L!a^*)D*)3!)#I !
#-*)*(.-=!+*@)D%'.*)bL!9;5EA!
!
!dU&*(!U%='!U%=2.*)!'*!>*))#-'#D!>*)=@ ($'.*)3!,/*I .)0!" *I)!'2#!,$#)D.)0!
V&#%D (./Le!.)!2 .l#.%$&-"&' $&Nl-@L&N-6)Ol&J$6l%O#)-/&)/&O/&! 66l%O#$B&F -%IBL!#DAL!
M.-c! f =C%/D.='*)!a<%=.)0='*c#LQg3!R%/0&%K#!F %-(.//%)bL!9;5EA!
!
dF *&#!*+!^#==3!S@/.#'!,-2*&!>%//=!+*&!%!F *&#!>*)=-.*@=!^.+#='1/#L!W)'#&K.#I ! I .'2!S@/.#'!
,-2*&!C1!>2&.=".)%!J=k@.'2L!9'$&N-1.#)-/3&,-.%/OlL!:a5b3!U#C&@%&1!9;5EA!!
!
dV2#!R%&%D*[!*+!F %'#&.%/.'13!U%=2.*)!L!F %&c#'.)0L!%)D!'2#!R/%)#'!] -*/*01Le!5-.#l$B*$&
2-4<O/)-/&#-&!B;$%#)3)/*&O/B&>%-4-#)-/&Ol2.l#.%$L!#D=L!F %''2#I !F -J//.='#&!%)D!] (./1!
Z#='L!a^*)D*)3!Y*@'/#D0#bL!9;5EA!
!
!dY#D@-.)0!0!0&*I '2!'*!%-2.#K#!#)K.&*(#)'!*+!I *&c!2*@&=Le!.)!
20<)#Ol)34&-/&9%)OlL&=^<l-%O#)-/3&/&'&l%'$9%%OB#)-/&)-/-"l&' '$l%%OB#)-/&)-/-"L!Y*C#&'!R*//.)!%)D!
S#%))#!Z.-c=7^.(L!#D=A!a>2#/'#)2%(3!D I %D!]/O%&b!a I .'2!g1/#!g).02'!%)D!] @O#)#!J A!
Y*=%bL!9;5EA!
!
d>*))#-'#D!^#*#%&.))03!J)!J 0#)D%!+*&!Y#=#%&-2!.)%)D!" #=.0)Le!J !Y#$*&&!+&* (!'2#!
F %-J&'2@&&!>*))#-'#D!^#*#%&.)03!0!Y#=#%&-2!R%-J&'2@&&!U*@)D%'.*)!D%'.*)%bL!
a I .'2! F .P@c*!W'*L! g&.=!G@'.#&&#PL! ,*).%!^.K.)0='*&)#@#/L!S#%)!Y2*D#=L! g%'.#!
,%/#)!L!S@/.#&)!,#+'%)7G&##)!%))%)D!, A!>&%.0!Z%'c.)=L!bL!9;5EA!
!
!d<@./D.)0!0!%!@='%.)%(/#!" #=.0)*/#] -*)*(./] -*)*( )7M%'@&#!
Le!.)!'N9!9=&: I&9[=&F :5GJ&RSVYL!Z*&/D!Z%'-2!W)='.'@'#!aM \ 3!M*&'*)!bL!9;5EA!a I .'2!
5-H$%#&2-3#O/WOL!G%&!J /$#&K'.'L!'Pl!H#&( )!'" %/1L!S*=2@%!U%&/#!L>%&*/!U&%)*-*L!V. (!
S%-c=*)L!WD%!g@C.=P#I .=c.L!#D!R#'#&&X.-'&bL!9;5EA!Y#$&.)'#D!.)!2%$O#)/*&O&N.3#O)/OBl$&
0/B&J$3)%OHl$&I .#.%$L&a/3)*'#3&"&4&hT&*l-HOl&'-.* '#lOB%3&%3+!#D=AL!Y*C#&'!>*=*='%!%)D!
%)D!WD%!g@C.=P#I =c.!aM# I !S#&=#=13!Z*&/D!,-.#)'.+.-!bL!9;5:A!
!
>*))'&.C@'.*)!'*!'*!U*&@@((!'*&!F '0#&X-/$?&20/]#&E.?L![$B*$'-*&5$;)$@L!
9;59A!
!
dR&#+%-#Le!

d f K#&'@&).)0!'2#! F *D#&).='!R&#D.-'.*)=3!Y#-#)'!V&#)D=!.)! Z *&c!%)D!^#.=@&#Le! *[0/BH- -A&-"&G$)3.%$&N#. B)$3*L!#D=AL!>2&.=!Y*?#cL!,@=%)!,2% I !%)D!V*)1!X#%/L!aH*@)D (.//=L!
<%=.)0='*c#3!R%/0&%K#! F%-(.//%)b!9;;6A!

!

d>2./D&#)!%)D!>*)=@ (#&.=(Le!=/6?6l-<$B)O&-/&2 ')lB%$/+&! B-l36/#3&O/B&#' $&X $B)O*L!#DA!S#++&#1! J &)#''L!a,%O#bL!9;;6A!

!

!d>*)=$.-@*@=!>*)=@ ($'.*)Le!=/6?6l-<$B)O&-"&N-6)-l-*?L!#DA!G#*&0#!Y.'P#&!a f [+*&D3!</%-c I #//bL!9;;6*4T5*4T4A!Y#$&.)'#D!.)!'2#! F)l$?*KEl06A@$ll&=/6?6l-<$B)O&-"&2-/3.4<#)-/&O/B&2-/3.4$%&N#.B)$3*L!#D=L!"%).#/!>**c!%)D! F.-2%#/!Y1%)A!9;58A!!

!

d,$#)D.)0!M%'.*)3!>*)=@ (#&.=(!%)D!'2#!U@'@&#!*+!^.C#&%/!X%/@#=Le!.)! *[)*'$%&=B.60#)-/L&:<$/&"-%&E.3)/$33+&#DAL!>2&.=''.%)!G./D#!a^#[.)0'*)!<**c=bL!9;;6*359875ETA!

!

d>*)=@ (#&!>@/'@&#Le!#)'&1!+*&!a/#$%/0#)-/0&=/6?6l-<$B)O&-"&=6-/-4)6&N-6)-l-*?

dQA,A!>*)=@（#&=L!>2#%\$!F%）@+%-'@&#=L!%）D!'2#!G/*C%/!，I#%'=2*\$Le!.）!N#O#\$&-"&#'\$&F-%lB&
RSSh+&N<\$6)Ol&I-6.3L&9'\$&2-/3.4\$%&N-6)\$#?!aZ%=2.)O'*)L!"">3!Z*&/DI%'-2!W)='.'@'#bL!
9；；：A!

!

!d>*)=@（#&.=（!%）D!>*（（@).'1Le!.)!"%)!，2.//.)OL!#D.'*&L!2-/;\$%3O#)-/3&-/&2-44./)#?L!
aR2*#).[L!Js3!J&.P*)%!H@（%).'.#=!>*@)-./bL!9；；E3：6784A!

!

dV2#!a#K#)!（*&#b!fK#&I*&c#D!J（#&.-%）Le!.)!S*2)!D#!G&%++L!#D.'*&L!90A\$&E06A&D-.%&
9)4\$L&I)*'#)/*&：；\$%@-%A&O/B&9)4\$&>-；\$%#?&)/&!4\$%)60!a,%)!U&%）-.=-*3!<#&&#''7g*#2/#&3b!
9；；EA!a#[-#&\$'#D!.)!E-3#-/&2-ll\$*\$&X0*OW)/\$+!Z.)'#&!9；；：L!\$A!58Ab!

!

d^#==!，'@++L!F*&#!U@)3!W)'#&K.#I!I.'2!S@/.#'!，-2*&Le!a/B)60#-%3L!9a5b3575；L!Z.)'#&!9；；97
EA!

!

!w>/#%).)O!'2#!>/*=#'3!V*I%&D!%!M#I!]'2.-!*+!U%=2.*)Lw!.)!N.3#O)/OHl\$&>lO/\$#L&N-1.#)-/3&
"-%&#'\$&RV3#&2\$/#.%?&a<*='*)3!<#%-*)!R&#==b!M*K#（C#&!9；；9A!Y#\$&.)'#D!.)!
=/;)%-/4\$/#Ol&N-6)-1-*?L&"-4&/Ol?3)3&#-&!6#)-/L!V2.&D!]D.'.*)!#D=L!^#=/.#!g.)O!%)D!
"#C*&%2!F->J&'21!J@&.++#.//#!a^%)2%（L!F"3!Y*（%)!%)D!.)D!^.''/#.#/DbL!9；5：A!

!

d]#)!I#0#)c%%&'!K**&!D#!95='#!##@I3!%&C#.D='.?D!#)!D@@&P%（#!-*)=@（\$'.#Le!：）A-3&
95a9b3647N；L!9；；9A!

!

wY*@)D'%C/#!*)!JDK#&'.=.)O!%)D!X%/@#=Lw!!B;\$%#)3)/*&O/B&N-6)-1-*?&\$#?&5\$;)\$I L!zE35L!9；；9A!

!

dV.（#!>&@)-2!J（*)O!J（#&.-%）!R%&#)'=L!.)!90A)/*&>O%\$/#)/*&>.H l)-L!#D=L!，1/K.%!

9 '%)"#L&#'$&')3#-%?&-"&O/&! 4$%)60/&6.1#.%Ol&4-;4/#L!C1!J)D&#I !^A! \ %&&* I L!C$@&D-%A&
9)4$3&N./B0?&E--A&5$;)$@+!S%)@%&1!9;58A!
&
9'$&C$@&2-/3.4$%3L!C1!M*&(%)!F#1#&=!%)D!S#))+#&!g#)'L!=6-1-*)60l&=6-/-4)63L!
88aEbL!M*K#(C#&!9;;8A!
'
:;$%&#'$&=B*$!C1!^#*!<*0%&'!%)D!N0;0*$&>03#)4$3!C1!H%&*/D!,-2#-2'#&L!F03')/*#-/&
>-3#&E--A&F-%lBL!F%1!58L!9;;8L!$A:A!
!
>-)/#&-"&>l$03.%$L&[-@&N'-<<)/*&2'0/*$B&!4$%)60/&2.1#.%$L!C1!,2%&*)!s@c.)L!
2-/#$4<-%0%?&N-6)-1-*?L!E:a5bL!:E7::L!9;;8A!
'

!

dG.0! Z *&c#&=! J &#!] ($/*1##=A! , '%&'!V&#%'.)0!V2# (!V2%'!Z %1Ae!C$@&D-%A&9)4 $3L! f $7#DL!
S%)@%&1!5NL!9;95!a I .'2!X##)%!" @C%/bA!

2''$=3jj I I I A)1'. (#=A-* (j9;95j;5j5Tj*$.).*)j$&*$*=.'.*)7997-%/.+*&).%7C.D#)A2' (/!!

!

dG.0! I *&c#&!# ($/*1 (#)'!+.02'=!/.c#!'2*=#!.)!>%/.+*&).%!$.'!+/#[.C./.'1!%0%.)='!%!/.K%C/#!
 I %0#!t!C@'!o$/%'+*& (!-**$#&%'.K#=_!-*@/D!#)=@&#! I *&c#&=!0#'!C*'2Le!V2#!>*)K#&=%'.*)L!
 f -'*C#&!9;9;A!

2''$=3jj'2#-*)K#&=%'.*)A-* (j0.07 I *&c#&7# ($/*1 (#)'7+.02'=7/.c#7'2*=#7.)7-%/.+*&).%7$.'7
+/#[.C./.'17%0%.)='.)='='7%7/.K%C/#7 I %0#7C@'7$/%'+*& ((

d59!u @#='.*)=!'* p Ⅷ)'#&K.# I ! I .'2!S@/.#'!, -2*&Le! (*!a! &K&

dG/*C%/!G&* I '2L! J (#&.-%)!V2&.+'Le!*5 - - 4&"-%&*J $HO#$&E1- *+&C$@&D-%A&9)4 $3&-/1)/$L!
,#$'# (C#&!9:L!9; ;N&!
!
d]%'!^#==! F #%'Le!*5 - - 4&"-%&*J $HO#$&E1- *+&C$@&D-%A&9)4 $3&-/1)/$L!U#C&@%&1!98L!9; ;N&!
'
7H*/.D%1!,2*$$.)0 | S@='!"*)_'Le!*G-3&!/*$1$3&9)4 $3L!M*K# (C#&!9TL!9; ;T&!
!
d J @!R%1=!"#=!Z *&c%2*/.-=Le!R2./*=*$2.#! F %0%P.)#L!R%&.=L!M*K# (C&#!9; ;T&!!
!
dV2#!]&%!*+!>2#%$!G**D=!.=! f K#&Le!*E-3#-/&(1-H$L!,@)D%1L! J $&./!9TL!9; ;T!a I .'2!
R&%=%))%)!R%&'2%=%&%'2.b&'
'
d J !>/#%)#&L!G&##)#&!>2&.=' (%=Le!*E-3#-/&(1-H$L!,@)D%1L!"#-# (C#&!5;L!9; ;4&!
'
d J DK#&'.=.)0!Q)+%.&/1!V%&0#'=! g .D=Le!.)!*! B;$%#)3)/*L!#D!]/#%)*&!, '%)+*&DL!aU%& (.)0'*)!
H.//=L! F W3!G&##)2%K#)!R&#==bL!9; ;43!8E74;A!a#[-#&$'!+&* (!d " # (%'#&.%/.P.)0! f @&! g .D=3!%)!
.)'#&K.# I ! I .'2!S@/.#'!<A!, -2*&&L!.)! [-<$!M*K# (C#&j "#-# (C#&!9; ;:&b!
'
dS@)c!U**D!M%'.*)Le!*9 '$&CO#)-/L! J @0@='!9; ;8L!$$A!58756A!a I .'2!G%&1!Y@=c.)bA!
'

w J &#! I #!Y#%//1!V2%'!^%P1Lw!.)'#&K.# I L!C$@3@$$A+&U#C&@%&1!56L!5NN9A!Y#$&.)'#D!.)!9'$&
2%-33")%$&5$0B$%+&#DAL!F 1&*)!V@=(%)!a J//1)!%)D!<%-*)bL!S%)@%&1!5NN9!%)D!.)!G$0%/)/*&
=6-/-4)63L&!&>%06#)60l&F-%AH--cL!#DAL!J C2%1!<A!G2.%&%!a J DD.=*)!Z #=/#1!^*)0(%)bL!
S@/1!5NN6A!
!
wW+!*@!V2.)c!*@`&#!Z *&c.)0!F *&#!%)D!F *&#!H*@&=L!\*@`&#!Y.02'Lw!G-3&!/*l3&
9)4$3+S%)@%&1!5NL!5NN9A!
!
w Z *&cL!,$#)DL!Z *&cL!,$#)D3!W=!V2.=!J)1!Z %1!'*!^.K#hw!9'$&F03')/*#-/&>-3'L!S%)@%&1!
5NL!5NN9A!
!
w Z *&c#&=!*+!'2#!Z *&/DL!Q) I .)DLw!9$6'/-1-*?&5$;)$ I L!M*K#(C#&j!"#-#(C#&!5NN5A!
] [-#&$'#D!.)!,-.%/0l&-"&a/3#)#.#$&"-%&>-1)#)60l&=6-/-4 1L!S%S%$%)L!S@)#!5NNE0!%)D!.)!>-1)#)60&
$B&=6-/-4)0+&W'%/1L!"#-#(C#&!5NNEA!
!
w J(#&.-%)=!Z *&c!V**!H%&DLw!C$@&D-%A&9)4$=L!*$7#DL!S@/1!98L!5NN5A!] [-#&$'#D!.)!9'$&
N'-%#&>%-3$&5$0B$&&L!#D=A!GAHA!F .//#&!%)D!HA!,A!Z .#)#&L!aM# I !*&c3!F-G&% I 7H.//bL!
S%)@%&1!5NN:!%)D!.)!2'$6A<-)/#3L&J$;$l-<)/*&2-ll$*$&=/*1)3'&NA)ll=L!E&D!#D.'.*)L!S%S%-c!
R%0#L!a J DD.=*)!Z #=/#1!^*)0(%)bA!
!
w Z 21!W!%(!M*!^*)0#&!%!R&*0&#==.K#Lw!l$#0& (%0%P.)#L!J $&./!5NTNA!
!
wV2#!J &'!*+!,#&K.-#Lw!l$#0& (%0%P.)#L!S%)@%&1!5NTNA!
!
w F%)@+%-'@&.)0!>&.=.=hw!l$#0& (%0%P.)#L!M*K#(C#&!5NTTA!
!
wR#%-#!V2&*@02!] -*)*(.-!>**$#&%'.*)3!F*K.)0!<#1*)D!F./.'%1!%)D!] -*)*!
"*(.)%)-#L!>l-@3'O%$+&K*/A!5EL!zEL!,@((#&!5NTTA!
!
w^#''#&=!'*!F .==!F *)#1$)))1Lw!l$#0&(%0%P.)#L!S@/17J@0@='!5NTTA!
!
wV2#!G&#%'!V&%D#!"#C%'#=Lw!l$#0& (%0%P.)#L!F%&-2!5NTTA!Y#$&.)'#D!.)!>&#%'.)0!%!M# I !
Z *&/D!] -*)*((1L!#D=L!] $='#.)#)D!M#(C2%%DL!aR2./%D#/$2.%3!V#($/#bL!5NNEA!
!
wV&.%//=!*+!%)D!V&%D#@/'.*)%'.*)=Lw!l$#0& (%0%P.)#L!S%)@%&1!5NTTA!
!
wH*=./#'./#!V%&c#**@&*K#=3!V2#!0.2(/)0.2(!V02(#64Tm/TT71Tf%)6aTf(!)T2(D=)-0-2(')00.2(-)0.2(0.2Q)0!

, > f Y J W L!9 ; 5N7$&#=#) 'A!
<**'='&%$$.)0!'2#!>*//%C*&%'.K#!] -*)* (1L!U.K#!1#%&!] Q!&#=#%&-2!$&*?#-'L!9 ; 5T7$&#=#) 'A!
V2#!^% I !%)D!<@=.)#==!*+!'2#!, 2%&.)0!] -*)* (1! I #C=.'#L!9 ; 547$&#=#) 'A!
W)='.'@'#!+*&!^.C#&%/! J &'=L!<*='*)!>*//#0#L!9 ; 5 ; 79 ; 56A!] [#-@'.K#!>* ((.''##!9 ; 567
$&#=#) 'A!
 f)#!] %&'2!U*@)D%'.*)L!M*K# (C#&!9 ; 5 ; 7$&#=#) 'A!
 F #D.%!] D@-%'.*)!U*@)D%'.*)L!S@)#!9 ; ; 47$&#=#) 'A!
R&*?#-'!*)!d Z *&cL! Z #/+%&#L! Z *&c!%)D! Z #%/'2!+*&!] @&*$#!L e! J @='&.%.*) !W)='.'@'#!*+!
 ] -*)* ((.-!Y#=#%&-2L!9 ; 5579 ; 54A!
, #).*&! J DK.=*&1!>*@) -./L!V2#! J //.%) -#!+*&!%!H#%/'21!V* (*&&* I L!S%)@%1!9 ; ; 87$&#=#) 'A!
<*%&D!*+! J DK.=#=L! J -'.*)!>*%/.'.*)!+*&! F #D.%!] D@-%'.*)L!, @ ((#&!9 ; ; 7$&#=#) 'A!
W) '#&)%'.*)%/! J DK.=*&1!<*%&DL!R&*O&% ((#!*)!] !, *-.%/!7] -*)* ((.-!, #-@&.'1L!*)!%/!
^%C*&! f &0%).P%'.*)L!5NNN79 ; ; 8A!!
G/*C%/! " #K#/*$ (#) '!%)D!]))K.&*) (#) '!L!V@+'=!Q).K#&=.'1L!5NN67$&#=#) 'A!
>*//#0#!%)D!Q).K#&=.'1!Z *&cjU% (./1! J ==*-.%'.*)L!5NN875NN6A!
U*@)D.)0!<*%&DL!R]G, !a>* ((.''##!*)!'2#!R*/.-%/] -*)* ((.-!G**D!, *-.#'1bL!
5NN : 7$&#=#) 'A!
>#) '#&!+*&!'2#!, '@D1!*+!D1!*+! (L! Z %=2.)0'*)!L " A>AL!5NN979 ; ; ;A!
Y#=#%&-2! J DK.=*&1!>*@) -./L!] -*)* (.-!R*/.-1!W)='.'@'#!L !#$'# (C#&!5NT475NN8A!
!
!

J , J !Y#$&#=#) '%'.K#!'*!'2#!*&0%).P.)0!'#% (L! I *&c.)0!*)!=*-.%/!=-.#)-#=!*+!'2#!Q).'#D!
, '%'#=!G/*C%/!>2%)0#!Y#=#%&-2!R&*0&% (L!0&*@$!EL! " &.K#&=!*+!>/. (%'#!>2%)0#L!9;547
9;56ᴀ!
!
R%&'.-.$%)'L!Y%D-/.++#! J -%D# (.-!X#)'@&#=!,# (.)%&!*)!V2#!,2%&.)0!]-*)* (1L! " #-# (C#&!
9;54ᴀ!
'
Y#K.# I #&L! " .==#&'%'.*)!U#//* I =2.$L!>#)'#&!+*&!])0%0#D!,-2*/%&=2.$!9;54!
!
,-.#)'.+.-!>* ((.''##L!QM] ,> f !<#&)%&D! F %&.=!]-*)* (1!%)D!,*-.#'1!>2%.&L!9;54ᴀ!
'
f &0%).P#&L!Y#0@/%&!,#==.*)!*)!,*)!>*)=@ (#&=!%)D!*>@ ($'.*)L! J , J ! (##'.)0=L!9;54ᴀ!
!
Z *&c=2*$!R%&'.-.$%)'L!d>*)=@ ($'.*)!%)D!,*-.%/!>2%)0#!Le!V] ^^Q, !ᴡ)='.'@'#L! f -'*C#&!
9;58ᴀ!
!
Z *&c=2*$!R%&'.-.$%)'L!d, *-.%/!^.+#!*+!>/. (%'#!>2%)0#!Le!>#) '#&!+*&! J DK%)-#D!, '@D.#=!.)!
'2#!<#2%K.*&%/!,-.#)-#=L!,'%)+*&DL! f -'*C#&!9;58ᴀ!
!
R%&'.-.$%)'L!L! f $#)!,*-.#'1!U*@)D%'.*)!>*)=@ ($'.*)!K#).)0!*)!!dV2#!U@'@&#!*+!Z *&c!Le!M# I ! \ *&cL!
J $&./!9;58ᴀ!
!
R&*0&% ((!>* ((.''##L! J , J !>)=@ ($'.*)!>*)=@ ($'.*)!>@($'.*)L! F .).7-*)+#&#)-#L!
<#&c#/#1L! J L! J @0@=''9;5:ᴀ!
!
FᴡV!>/. (%'#!>2%)0#!*7^%C!>*)=@ ($'.*)!'#='!S@D0#L!9;5:ᴀ!!
!
f &0%).P#&L!Y#=#%&-2! Z *&c=2*$!*)!G&%D@%'#!,'@D#)'!>*=('!.) (>*&c=2*$=!+&# ( )#.-L!M# I !
]-*)* (1!%)%/1'.%/!L!M*&'2# ('2%&.)0!#Q).K#&=.'1!<'=='*)L!S@)#!9;5:ᴀ!
!
X.=.'.)0!R*'U%-@/'1!L!<%D! F <J!.)!, @='%.)%C./.'1L! F %1!9;5:ᴀ!!
!
,-.#)'.+.-!>* ((.''##L! QM] L!:ᵎ!

!

f&0%).P#&L!V2#(%'.-!,#==.*)!*)!>*)=@ (#&!Q'*$.%=L! J , J ! J))@%/! F ##'.)0L! " #)K#&!9;59A!

!

>*)'&.C@'*&L!G@%&D.%)!,@='%.)%C/#!<@=.)#==!R%0#=L!9;59A!

!

W)K.'#D!R%&'.-.$%)'L!d>2%//#)0.)0!>*)=@ (#&.=(?!V* I %&D!^.K.)0! Z #//!,@='%.)%C/1Le!!
>*)+#&#)-#L!,>f Y J Wj f)#!]%&'2L!Q).K#&=.'1!*+!<&.'.=2!>*/@ (C.%L! F %&-2!9;59A!

'

f&0%).P#&L!R&%-'.-.)0!R/#).'] -*)*(1L!W)='.'@'#!+*&!^.C#&%/! J &'=!L!<*='*)!>!>*//#0#L!
f -'*C#&!9;55A!

'

F # (C#&L! Z *&/D!] -*)*((.-=! J ==*-.%'.*)A!

'

F # (C#&L! F %- J &'2@&!U*@)D%'.*)!>*))#-'#D!^#%&).)0!Y#=#%&-2!M#' I *&cL!9;5;79;56A!

!

,'##&.)0!G&*@$! F # (C#&!L!R&*?#-'!*)!'2#!E F .//#).@ (!]-*)*(1L!9;5;7$&#=#)')A!

!

'

!dV2#!R%&%D*[!*+!J++/@#)-#Le!U%-@/'1!,-2*/%&!>*)+#&#)-#!+*&!R2.!V2#'%!g%$$%!M%'.*)%/!
H*)*&=!,'@D1!V*$.-L!S%)@%&1!9;;TA!
'

Y#=#%&-2!,-2*/%&L!R*/.'.-%/!]-*)*(1!Y#=#%&-2!W)='.'@'#!L!Q).K#&=.'1!*+!F%==%-2@=#''=L!
F%&-2!9;;67$&#=#)'A!
'

W)K.'#D!R%&'.-.$%)'L!dM#I!]-*)*(1!V2.)c!V%)c!>*)+#&#)-#!+*&!R2.!9;;6A!
"#K*)L!QgL!M*K#((C#&!9;;6A!
'

W)K.'#D!R%&'.-.$%)'L!dV*I%&D!%!M#I!>*)=-.*@=)#==e!>*)+#&#)-#!f&0%).P#D!C1!\%/#!
Q).K#&=.'1L!J=$#)L!>*/*&%D*L!f-'*C#&!9;;6A!
'

F#(C#&L!]['#&)%/!Y#K.#I!>*((.''##L!V@+'=!"#$%&'#)'!*-.*/*01L!f-'*C#&!9;;6A!
'

G@#='!R&*+#==*&&L!W)='.'@'#!+*&!*-.%/!]-*)*(01L!Q).K#&=.'1!*+!g/%0#)+#/DL!X.#))%L!J@='&.%L!
S@)#!9;;4A!
!

WD%!>*&D#/.!<#%(!".=='.)0@.=2#D!X.=.'.)0!R&*+#==*&L!Q).K#&=.'1!*+!W%/#!f-'*C#&!9;;:A!
!

,#/#-'.*)!>*((.''##L!Y%/$2!]#&=*)!J&I%&DL!R2.!<#%!g%$$%L!9;;:A!
!

JDK.=*&1!G&*@$L!dV2#!Z*&c7U%(./17>*((#).'1!M#[@=Le!,/*%)!U*@)D%'.*)!Y#=#%&-2!
R&*?#-'L!H%&K%&D!g,G!%&)D!(,G!%)D!,RHA!
!

,#/#-'.*)!>*((.''##L!J(#&.-%)!>*)-/*+!#'!^#%&)D!",-.#'.=.$=L!>E7;4A!!
!

U%-@/'1L!Z2.DC#1W)='.'@'#!>*((@).'1!)>2%//#)0.)0!0!G/*C%/.P%'.*)L!J@0@='!9;;:A!
!

U%-@/'1L!-2@(%-2#&!>*((@).'1!>*//#0#L!"&.>*((@).'1!)>2%//#)0.)0!0!G/*C%/.P%'.*)L!EL!
9;;8A!
!

U%-@/'1L!V#%-2#&%&=#&%'.*)*/%&.%-2#R*&*%D#%'.*)+*&%**/!D@-%'.*)L!>/%=='.)0!57
$&#=#)'A!
!

X.=.'.)0!R&*+#==*&!] [-2%)0#L! J DK#&'.=.)0!] D@-%'.*)!U*@)D%'.*)L!S@/1!9;;5A!
!
R%&'.-.$%)'L! Z *&cL!U% (./1!%)D! " # (*-&%-1!W).'.%'.K#L!V2#!S*2)=*)!U*@)D%'.*)L!9;;;75A!
!
U%-@/'1L!,-2@ (%-2#&!>*//#0#L!])0/%)DL!S@/1!5NNNA!
!
J DK.=*&1!<*%&DL!G/*C%/! " #K#/*$ (#)'!%)D!])K.&*) (#)'!W)='.'@'#L!V@+'=!Q).K#&&=.'1L!5NN67
$&#=#) ' A!
!
>*)=@/'%)'L!Q).'#D!M%'.*)=!" #K#/*$ (#)'!R&*0&% ((#L!

'

2 - + " 4 % 0 & 1 . ?'>\$# 4 '1 0 2'9\$2% - '1 / /%1 . 1 0 +%*'@AВCВDEBFG'

!

\ *@!M##D!V2.=A!9 ; 9EA!

V2#!U*@&! " %1! Z ##cL!V] " !'%/cL!9 ; 99A!

•] - *€)* (. -=3!U*@&!\$%&'!=#&.#=!W!D#K#/*\$#D!*)!'2#!-/. (%'#!-&.=.=L!9 ; 99A!

" *!W!M##D!V2.=h!9 ; 99A!

V2#!R#*\$/#!K=A! J (#&.-%L! J /7S%P##&%! (@/'.\$%&'!=#&.#=L!9 ; 56!a *(- lB&F - %lB&X \$B0l&@)//\$%+&C\$@&D - %A&I \$3#);0l&" - %&I)l 4 &O / B&9Q+&>-1)#)63bA!*

F .) . (%/.= (L!9 ; 54A!

G&* I '2<@='#&=L!9 ; 54A!

J J YR! , %K.)0!U./ (L!9 ; 58A!

Q=#^#==L!+*&'2-* (.)0A!

, 2%&#-*)* (1L!+*&'2-* (.)0A!

F *)*-@/'@&#L!+*&'2-* (.)0A!

Y#=./.#) -#L!+*&'2-* (.)0A!

G**D! f /D!G&* I '2L!9 ; 58A!

^.K.)0! I .'2!R/#).'@D#L!V&.).'1! Z %//! , '&##'L!M \ L!9 ; 58A!

^%@&#)!G&##)+.#/D!Y#'&*=\$#-'.K#L!9 ; 5 :A!

<<>! , #&.#=!*)!>*)=@ (#&!>@/'@&#L!9 ; 5 :A!

M# I !] - *)* (. -=!5 ; 5L! F #D.%!] D@-%'.*)!U*@)D%'.*)!U./ (L!9 ; 5EA!

" *!V2#! F %'2L!E8 ; A*&0!9 ; 5EA!

F *)#1!%)D!^.+#L!9 ; 5EA!

H**c#D!*)!G&* I '2L!9 ; 5 ;A!

R/%1! J 0%.)L!9 ; 5 ;A!

dV2#!U@'@&#!*+!Z*&c!%)D!'2#!U*@&!"%1!Z##c!F*K#(#)'Le!R/#)%&1!R%)#/!*)!V2#!U@'@&#!
+!Z&cL!J ,]!Z*&/D!>*)0&#==!*+!'2#!J==*-.%'.*)!+*&!,*-.%/!]-*)*(.-=L!Q F%==j<*='*)L!
S@)#!9;9:A!

'

d"*#=!'2#!U@'@&#!*+!Z*&c!F#%)!^#==!Z*&ch3!'2#!(*K#(#)'!+*&!%!+*@&!D%1!I##cLe!
g#1)*'#L!](#&0.)0!V#-2)*/*0.#=!%)D!'2#!U@'@&#!*+!Z*&c!>*)+#&#)-#L!Q F%==j<*='*)L!
M*K#(C#&!9;9EA!

!

dV2#!U*@&!"%1!Z##cLe!g#1)*'#L!,2.)#!,@((.'9;9EL!,2.)#!%)D!H@(%)!U/*@&.=2.)0!
R&*0&%(L!H%&K%&D!Q).K#&=.'1L!f-'*C#&!9;9EA!

'

dV2#!Y*/#!*+!R@C/.-!,#&K.-#=!%)D!Y#D@-#D!Z*&c.)0!V.(#!'*!J-2.#K#!>/.(%'#!S@='.-#Le!
]@&*$#%)!R@C/.-!,#&K.-#=!Q).*)L!R@C/.-!,#&K.-#!"%1L!S@)#!9;9EA

dG#)#&%'.*)!Z#%/'2Le!W&.=!M.02'=!^#-'@&#L!J))#)C#&0!,$%-#!+*&!R2*'*0&%$21L!^*=!
J)0#/#=L!S@)#!9;56A!
!
dV2#!0.0!#-*)*(1!.=j.=!)*'!&#K*/@'.*).P.)0!'2#!I*&/D!*+!I*&cLe!R/#)%&1!$%)#/!Z*(#)_=!
U*&@(L!"#%@K.//#L!M*K#(C#&!9;54A!
!
dG#''.)0!'*!R/#).'@D#Ae!g#1)*'#!J DD&#==L!J +'#&!U*==./!U@#/=3!V2#!M#['!]-*)*(1!
-*)+#&#)-#L!f C#&/.)L!f-'*C#&!9;54A!
!
dV*I%&D!%!M#I!]-*)*(13!V.(#L!>&#%'.K.'1!%)D!>*((@).'1Le!R&#7-*)+#&#)-#!R/#)%&1L!
<@./D.)0!G**D!]-*)*(.#=!>*)+#&#)-#!U*&D2%(!Q).K#&=.'1L!J$&./!9;54A!
!
dQC#&.+.-%'.*)!*&!,*/.D%&.'13!K.D#)-#!+&*(!!2#!,2%&.)0!]-*)*(1Le!W)K.'#D!#D!^#-'@&#L!
Y2*D#!W=/%)D!,-2**/!*+!"#=.0)L!M*K#(C#&!9;58A!
'
d>**$#&%'.*)3!'2#!,*/.D%&.'1!*+!'2#!U@'@&#Le!>*)+#&#)-#!U**D!-*)+#&#)-#!Z#!M*'!F#L!'2#!U**D!*+!J //L!
M%'.*)%/!J ==*-.%'.*)!*+!>*((@).'1!K#=L!F./%)!]l R f 9;58L!S@/1!9;58A!!
'
d,2%&.)0!'*!]-*)*(1Le!D!'2#!U@'@&#!*+!Z*&cLe!,$%P.*!^%K*&!&*!)+#&#)-#L!G.%)0.%/!@&/!=-** *!
U#/'&.)#//.U*@/#)D%'.*)L!F./%)!]l R f 9;58A!
!
dV2#!=2%&.)0!0!#-*)*-*)3!21$#&7-$.'%/.= (!*&!%&#!=@=$#=='!%)C/#%/'#&)%'.K#='!%.K#he!U.&='!W)'#&)%'.*)%/!
Z*&c=2*$!*)'2#!,2%&.)0!]-*)*(1Le!>*$#&%)-#!=@='%.)%C/#-*)=@($'.*)L!F./%)!]l R f 9;58A!
Q'&#-2'!Q).K#&=.'1!V2#!M#'2#&c/%'D=L!S@)#!9;58A!
!
dH*(*!X%&.%'.=3!"K#&=.'1!F*'.K#=!%)D!"!-*)=@-!<#2%K.*&!.)!'2#!,2%&.)0!]-*)*(1Le!
,2%&.)0!]-*)*(1Le!U@'@&#!*+!U**D!*+!J //L!F*#/1!I*&c=2*$!F*C./.'1!^.'2!>#&)*#D!*(#&#)-#!%%&K*&DL!W>L!
,'%-c2*/(L!S@)#!9;58A'
!
dY#+&%&%-%'3*)'2#!>%'2#&!=-*%&=#*#L!"K.D!F.A!G**D*'!^#-'@&#L!?*&.)'!J (#&.-%)!.
]-*)*(1Le!J ==*-.%'.*)!=@$*=.)jQ).%)*'!+*&!Y%D.-%//1!R*/.'.-=/!]-*)*(1Le!W+==.*)%&/!J,,J!(#-%/.=0=L!
S%)@%&1!9;58A!
'
dV*I%&D!%!M#I!>*/%C*&%'.K#!U@'@&#!%D*$'.*)!U@'@&#!F@==@#=L!U@'@&#!J))@%/!F*C./.'1!=&@=0=L!
>%($%.0)!F*&!J L!M*K#(C#&(C#&!9;5:A!
!
dZ*&cL!F@'-)!%)D!'2#!V&%)=.'.*)!'*!%!,@='%.)%C/#!]-*)*(1Le!W)K.'#D!R%)#/!",-@==.*)L!"R**I#&!I#D!
^#-'@&#L!Q).K#&=.'1!Q).*)!>%($%.0)!'*!=@=2!'2#!]-*)*(1!I*&c=2*$!C#&/.)L!9;5:A!
!
dV2#!M#I!]-*)*(1!*+!W*&c3!'2#!,2%&.)0!]-*)*(1Le!,2%&.)0!]-*)*(1Le!>*&#!M*'!Fe!,>Y f Y J W!

7>&#%'.)0!%!R/#).'@D#!] -*)* (1ʒ!$%'2 I %1=!'*!/* I

!

d<#1*)D!E4;!G&* I '2e!R/#)%&1!,#==.*)L! Z * (#)_=!U*&@ (L! " #%@K.//#L!U&%)-#L! f -'*C#&!
9;59ᴀ!

!

d Z *&c!%)D! " #7G&* I '2Le!Ⓦ)'#&)%'.*)%/!>*)+#&#)-#!*)! " #7G&* I '2!.)!'2#! J (#&.-%=L!
 F *)'&#%/L! F %1!9;59ᴀ!

!

dV&@#! Z #%/'23! f)7&% ($!'*!%!)# I !#-*)* (1Le! g #1)*'#!,$#%c#&L!<*='*)!<@./D.)0!
Y#=*@&-#=! J))@%/! F ##'.)0L!S@)#!9;59ᴀ!

'

7G#''.)0!'*!R/#).'@D#3!<@./D.)0!%!, (%//7,-%/#L!^* I 7

d Z 2%'! Z #! J &#!^.c#3!>*)=@ (#&.= (!.)!>*)'# ($*&%&1!>*)'#['e! g#1)*'#!%DD&#==!%'!
d,#''.)0!'2#!-*@&=#3!$%'2=!'*!=@='%.)%C/#! I %1=!*+!/.+#!d,1 ($*=.@ (L! " #)c I #&c!s@c@)+'!
U*@)D%'.*)!+*&!-@/'@&%/!&#)# I %/L!<#&/.)L!S%)@%&1!9;55A!
!
dR/#).'@D#!%)D!<@=.)#==!%=!,*-.%/!W))*K%'.*)Le! g#1)*'#!%! J DD&#==L! " *.)0!G**D!%)D! " *.)0!
 Z #//!>*)+#&#)-#L!W],]!<@=.)#==!,-2**/L!<%&-#/*)%L!,$%.)L!U#C&@%&1!9;55A!
!
d>*)=@ ($'.*)!%)D!,@='%.)%C./.'13!V* I %&D!'2#!R/#).'@D#!]-*)* (1Le!>*//#0#!*+!
>2%&/#='*)L!W)K.'#D!^#-'@&#L!M*K# (C#&!9;5;A!
!
d Z *&cL!U% (./1!%)D!'2#!R/#).'@D#!]-*)* (1Le! g#1)*'#!%! J DD&#==L!<%/%)-#!-#D!^.K#=!
,1 ($*=.@ (L!Q).K#&=.'1!*+!W* I %L!R@C/.-!R*/.-1!>#)'#&!9;5;A!
!
dR/#).'@D#!Le!W)K.'#D!^#-'@&#!'@&#!W)='.'@'#'!+*&! J DK%)-#D!,'@D1L!Q).K#&=.'1!*+!F.))#=*'%'%L!!
 f -'*C#&!9;5;A!
'
dR/#).'@D#!3!#!)K.=.*).)0!%!=@='%.)%C/#!#-*)* (1Le! g#1)*'#!%'#L! g.-c7 f ++!>*)+#&#)-#!-#!+*&!>9>L!
 Z .//.% (=!>*//#0#!]]K.&*) (#)'%/!,'@D.#=!R&*0&% (L!#$'#! C#&!9;5;A!
'
dR/#).'@D#!3!'* I %&D!%!=@='%.)%C/#!#-*)* (1Le! g#1)*'J))@%/!,,Y>!^#-'@&#!Q).K#&=.'1!*+!
G%/ I %1L!G%/ I %1L!W&#/%)DL!S@)#!9;5;A!!
'
dU&* ((!]-*-.D#!'*'!R/#).'@D#Le!R.'P#&!>*//#0#!>)#!#&!'*,*-.%/!W)k@.&1Le! J $&./!9;5;A!
'
d J DD&#==.)0!0!'2#!' I .)!-&.=#3!+&* ((!%@='#&.'1'*!$/#).'@D#Le! F - J @/#1!^#-'@&#L!'A!S*=#$2_=!
 >*//#0#L!>*))#-'.-@'L! J $&./!9;5;A!
'
dR/#).'@D#!%)D!D!>*)=@ (#&!>@/'@&#Le! " #).=*)!Q).K#&=.'1!U#C&@%&1!9;5;A!
'
d F %-&*#-*)* (.-=* ((.-!.*-!!>*)=@ (#&!D.'.*)!*)+&% ((,.*)%C/.'1Le!G&* I '2!]1.)0!V&%)=.'.*)'*)L! J @='&%/.%!^WU]]!
 (.).=&%'.K#=!%)D)##D!-L!S%)@%&1!9;5;A!
'
d,*-.%/!<#2%K.*&!%)D!'2#!V&%)=.'.*)'*!,@='%.)%C./.'1Le!H#&C#&'!,$#)-#&!^#-'@&#L! f [+*&D!
 Q).K#&=.'1L!F%&-2!9;;NA!
!
dU%='!U%=2.*)3! J !F%-&*#-*)* (.-7 F %'#&.%/.='!J)%/1=.=!*+!+%='!U%=2.*)Q,!>*)=@ (#&!L!5NNT79;;8Le!
 F%)-2#='#&!Q).K#&=.'1L!>#)'&#!+*&!>@/'@&%/!,*-.*/*01L!F%&-2!9;;NA!
!
d>*)=@ (#&!>@/'@&#!%)D!D!G&##DLe!>*)=@ (#&!K#&=@=!>.'.'#)'!I .'2! " %K.#!F&#!^1L! J @*&%!U*&@ ((L!,%)+&%)-.=-*L!
 Q).K#&=.'1L!F%&-2!9;;TA!
!
d,@='%.)%C/#!>*)=@ ($'.*)!@ (($'.*)Le!R2./R*//@'.*)R&*D@-'.*)!J)D*K#&!L!U).K# ((1L! f -'*C#&!9;;TA!!
!
dV2#!R%&%D*[!*+! J ++/@#)-# J)D!-#Le! g#1)*'#!%! J DD&#==L!M%'.*)%/!F%''#&=*+!K#1!H*)*&%)D!-!*#=!*+!'@D1L! ']*C@=.)#==L!
 V*$.-=!.)! I *&c!2.=!'*&1!%)D!-@/'@&#L!F%&c2!9;;TA!
!

] -*)* (.-!%)D!G#*7R*/.'.-%/!V&%)=+*& (%'.*)Le! f $#).)0! g#1)*'#! J DD&#==L!,.['2!M*&D.-!
>*)+#&#)-#!*)!])K.&*) (#)'%/!,*-.%/!,-.#)-#=L!V@&c@j J C*L!U.)/%)DL!S@)#!9;;EA!
!
d,@='%.)%C/#!>*)=@ ($'.*)!%)D! J (#&.-%)!W ($#&.%/.= (Le! g#1)*'#! J DD&#==L!Q,!]-*/*0.-%/!

d<#1*)D!%)!]-*)*(1!*+!Z*&c!%)D!,$#)DLe!^.C#&%/!J&'=!%)D!,-.#)-#=!>#)'#))).%/!
,-2*/%&!W)K.'#D!^#-'@&#L!"#R%@/!Q).K#&=.'1L!M*K#(C#&!9;;;A!
!
dV2#!M#I!>*)=@(#&.=(Le!J))@%/!>*)+#&#)-#!*+!Y#=$*)=.C/#!Z#%/'2L!<*='*)L!J$&./!
9;;;A!
!
dM#0*'.%'.)0!'2#!>*)=@(#&!>@/'@&#3!>2./D&#)!%)D!R%&#)'=Le!,/*%)j<#&c#/#/#1j<YZU!
,$*)=*&#D!>*)+#&#)-#!*)!!dZ*&c!%)D!U%(./13!][$%)D.)0!'2#!H*&.P*)=Le!,%)!U&%)-.=-*L!
F%&-2!9;;;A!
!
dV2#!fK#&I*&c#D!J(#&.-%)Le!>*//#0#7Z.D#!^#-'@&#L,I%&'2(*&&!>*//#L!f-'*C#&!
5NNNA!
!
dV.(#L!+*&!%!>2%)0#3!V&%)=+*&( ).)0!'2#!'&@&-*(').,&@-'@&#=!%+!Le!g#1)*'#!JDD&#==!%'!
"@c#!Q).K#&=.'1!Z*(#)_=!,'@D.#=!>*)+#&#)-#!-#!9:j6Y#='!%)D!Q)&#='L!f-'*C#&!5NNNA!
!
G&%D@%'.*)!JDD&#==L!Y%D-/.++#!,#(.)%&L!Y%D-/.++#!>*//#&L!S@)#!5NNNA!
!
dV.(#L!'2*)D!F*)#13!H*=#2*#2*2/D=!Q)D#&!R#&#==@&#L!g#1)*'#!%DD&#==!%'!Y%D-/.++#!R@C/.-!
R*/.-1!W)='.'@'#jU*&D!U*@)D%'.*)L!Z*&c!%)D!U%(./13;;;!Y*@)D'%C/#!M#I!\ *&c!>.'1L!F%1L!
5NNNA!
!
F.//#).@(7V%0#!>*)+#&#)-#!-#L!g%==#/!G#&&(%)1L!1L!5NNTA!
!
wV2#!fK#&=$#)!J(#&.-%)Le!Lw!J&'=!%))D!H@(%).'.#=!^#-'@&#L,#&.#=!U%% (./1L,#..-!
>*//#0#!5NNTA!
!
w<#1*)D!%)!-*)*(1!*+!Z*&c!%))D!,$#)DLw!W)%@0%&%/!f&&.#!V./C@&0!Q).K#&=.'1L!5NN6A!!
wV2#!fK#&=$#)!J(#&.=$#)!Lw!<*='*&%)>*//##)'=2//#U@@ ./1L5NNTA!
!
d<#1*)D!Z*&c!%)D!,$#)DLw!M#I!,&%&'%0#U.#=!=*/%+*&#+!]K#&=.&D%1!^#-'@&#L!V./C@&0!
Q).K#&=.'1L!5NN4A!
!
wV2#!W)-&#%=.)0!R%)-!*+!^#-#Lw!"**&&=!*+!R#&.#$&.*)!:L!M#'2#&/%)D=L!5NN4A!
!

J)).K#&=%&1!>*)+#&#) -#L!W)='.'@'#!+*&!U@)D% (#)'%/!R*/.'.-%/!] -*)* (1L!g%)=%.!
Q).K#&=.'1L! f =%c%L!5NNEL!a$@C/.=2#D!.)!, - .%/Ol&-"&>-)#)6Ol&=6- / - 4 1L!z64L! F%1!5NN:bA!!
!
w] -*)* (.-! " .=-*@&=#!%)D!'2#!u @%/.'1!*+!^.+#Lw! " #C=7V2* (%=7<#&)='#.)!J I%&D! " .))#&L!
<*='*)L!5NNEA!
!
 F#)L!Z * (#)!%)D! Z *&c3!V. (#=!J&#!>2%)0.)0Lw!S#==#!" %).#/!J (#=!^#-'@&#!,#&.#=L!
,*@'2 I #='#&)!Q).K#&=.'1L!5NNEA!!
!
wV2#! f K#& I *&c#D!J (#&.-%)Lw! " .=.)0@.=2#D!X.=.'*&!^#-'@&#!,#&.#=L!Q).K#&=.'1!*+!
 " %1'*)L!5NNEA!
!
wY#+/#-'.*)=!*)!V2#! f K#& I *&c#D!J (#&.-%)Lw!^*@! " *@0/%=!^#-'@&#!,#&.#=L! g%)=%=! , '%'#!
Q).K#&=.'1L!5NN9A!!
!
>*)+#&#) -#!*)!w Z *&c.)0! Z *)D##&=3! Z * (#)`=!R##&=*)%/L!R&*+#==.*)%/!%)D!R%@C/.-!Y*/#=Lw!
Y%D-/.++#!>*//#0#L!5NN9A!
!
wV2#! f K#& I *&c#D!J (#&.-%)Lw! (#&.-%)3!W ($/.-%'.*)=!+*&!Y#-&@.'.)0.*)%/=.*)L!M%'.*)%/!
Y#-&@%'.*)!%)D!R%&=c=!J==*-.%'.*)!J))@%/!F##'.)0L!5NN9A!
!
dV2#! f K#& I *&c#D!J (#&.-%)Lw!J))@%/!>*)+#&#) -#!-#L!H@ (%)!Y#=*@&-#!F %)%0# (#)'!
J==*-.%'.*)L!*)!*2.-%0*L!5NN9A!
!
>* ((#)-# (#)'!!JDD&#==L!Z .)-2#='#&7V2@&='*)!, -2**/!+*&!G.&/=L!R.''=C@&02L5NN9A!
!
!
!
!
/ . %%0&%2'/ 1 /%. *;'&1#6*;'HIF'9$.&"1#'1//%1.10+%*'*
!
d F#0%/*$*/.=Le!$*='7+./ (!D.=-@==.*)=.*)! I .'2!U&%) -.=!U*&D!>*$$*%/! J #&*!V2#%'&#!&#L!,%)'%!
F*).-%L!S%)@%&1!5L!9;98A!!
!
dU.K#!, '#$=!!'*#!%!, @='%.)%C/#!>*#%)%0#=='&@-'@&#!+*&! (1Le!! F%==!R#%-#!J -'.*)!!Z#C.)%&L!
 " #-#(C#&!9;9:A!
!
dV2#!U*@&7 " %1!Z *&c I ##c!%)D!'2#!U@'@&#!*+!Z *&c.Le!>&#.02'*)=!Q).K#&=.'1L!M*K# (C#&!
9;9:A!
!
>*)K#&=%'.*)!*)!'2#!, 2%&.)0!!0!] -*)* (1L!R&**0&#==.K#, # (.)%&L!J (2&='!>*//#-'.K#L!M*K# (C#&!
9;9:A!
!
dV2#!+*@&!D%1! I ##c.%)'0!*+!Z *&c.%)#) '3! I #//7C#=.)'0L!#-*)* (1!%)D!'2#!=@%&-.)0!%K%./%C./.'1Le!

d>%)!'2#!+*@&!D%1! I ##c!%DD&#==!C@&)*@'he!'%/c!'*!V2.=!>%)!H%$$#)!>*)+#&#)-#L! f -'*C#&!
9;9:A!
'
d,@--##D.)0!%)D!U%./.)0! I .'2!'2#!U*@&!"%1!Z ##cLe!, J ,]!J))@%/!F ##'.)0L!^.(#&.-cL!
S@)#!9;9:A!
'
d " *#=!'2#!U@'@&#!*+!Z *&c!F #%)!^#==!Z *&cLe!'%/c!'*!H%&K%&D!V&%D#!Q).*)!R&*0&%(L!
VQ>!^#%D.)0!>2%)0#!R&*0&%(L!H%&K%&D!Q).K#&=.'1L!S@)#!9;9:A!
!
dV2#!] [$#&.#)-#!*+!G.0!Z *&c3!<#1*)D!R/%'+*&(!"#'#&(.).=(Le!$%)#!/!*)!Z *&c#&=_!
] [$#&.#)-#!=!%'!>@/(.)%'.)0!Z *&c=2*$!*+!M,U!U Z 7HVU!$&*?#-'!*)!dV2#!J /0*&.'2 (.-!
Z *&c$/%-#!Le!M*&'2#%='#&)'#&)!Q).K#&=.'1L!F %1!9;9:A!
!
dZ 2%'!H%$$#)=!'*!,*-.*/*01_=!o<.0!u @#='.*)=_!.)!%)!J 0#!*+!])K.&*) (#)'%/!
Q)-#&'%.)'1.)'1hLe!J , J !V2#*&1!,#-'.*)L!" .=-@==%)')'L!F %1!9;9:A!
!
F *D#&%'*&!*&L!V2#!H *''#='!#=!'! \ #%&3!.)!*@&!%' (*=$2#&#%)D!*@&!$%*/.'.-=L!.=-@==.*)!I .'2!

!
d f I) !V2.={3!H* I !R/%'+*& (!>**$#&%'.K#=!H#/$! Z *&c#&=!<@./D!%! " # (*-&%'.-!W)'#&)#'Le!.)!

dV2#!"#C%'#!JC*@'!G.0!^%C*&3!M#Ⅰ!Z%1!'*!Z*&c!*&!M#Ⅰ!Z%1!'*!][$/*.'hLe!>*++##!%)D!
>*)K#&=%'.*)!,#&.#=L!>*)'.)@.)0!]D@-%'.*)!R&*0&%(L!<*='*)!>*//#0#L!J$&./!9;99ᴀ!
!
dF#%=@&.)0!'2#!>%&C*)!%)D!Z#//7C#.)0!W($%-'=!*+!%!U*@&!"%1!Z*&c!Z##c3!V&.%/=!+&*(!
W&#/%)D!%)D!2#!'2#!QᴀLe!U%-@/'1!Y#=#%&-2!,#&.#=!*)!>/.(%'#!>2%)0#L!,-2.//#&!W)='.'@'#L!
<*='*)!>*//#0#L!J$&./!9;99ᴀ!!
'

dV2#!G.0!]-*)*(1Le! Z*&c$/%-#!V2#*&1!%)D!R*/.-1! Z*&c=2*$3!Y#.(%0.).)0! Z*&c! J+'#&!
9;9;L!\%/#!Q).K#&=.'1L!U#C&@%&1!9;95A!

!

d Z*&c.)0!V.(#!Y#D@-'.*)!+*&!%!U%.&L!,@='%.)%C/#L!%)D!R&*=$#&*@=!,*-.#'1LeL!R%)#/!
" .=-@==.*)!%'!']VQ₩7]VQ>!V* I %&D!%!M# I !,*-.*7]-*/*0.-%/!>*)'&%-'!>*)+#&#)-#L!
U#C&@%&1!9;95A!

!

d " #$#)D#)-#!%)D!R&#-%&.'1!.)!'2#!G.0!]-*)*(1Le!F%&c#'$/%-#L!J/0*&.'2(=!%)D!"#=.0)!
,#(.)%&L!>*/@(C.%!Q).K#&=.'1L!J@0@='!9;9;A!
!
d>/.(%'#!>2%)0#L!W)#k@%/.'1!%)D!'2#!G&##)!M#I!"#%/Le!R&#=#)'%'.*)!'*!,@((#&!,-2**/!
QM>V J"jWM]VL!J@0@='!9;9;A!
!
dZ2%'!D*!R/%'+*&(=!"*he!]@&*$#%)!%)D!G/*C%/!,'@D.#=L!Q).K#&=.'1!*+!R%D@%L!S@)#!9;9;A!
!
dZ*&c.)0!V.(#!Y#D@-'.*)Le!g#1)*'#!R%)#/L!"#G&*I'2!>*)+#&#)-#!X.#))%L!S@)#)%L!9;9;A!
!
dZ2%'!>%)!>*f XW"75N!V#%-2!Q=hLe!

d>%$.'%/.= (3!'2#!+@'@&#!*+!%)!.//@=.*)Le!R/#)%&1!R%)#/L!]%='#&)!, *-.*/*0.-%/!, *-.#'1L!
J))@%/! F ##'.)0L! F %&-2!9 ; 5NA!
'

dY#=#%&-2!*)!'2#!, 2%&.)0!] -*)* (1Le!$&#=#)'%'.*)!'*!"#$%&' (#)'!*+!>* ((@).-%'.*)=!
>*//*k@.@ (L!<*='*)!>*//#0#L!U#C&@%&1!5TL!9 ; 5NA!
'

" .=-@==%)'L!, # (.)%&!*)!'2#!H.='*&1!*+! Z * (#)L!G#)D#&L! ~ !, #[@%/.'1L!, -2/#=.)0#&!
^.C&%&1L!H%&K%&D!%)D! F %==%-2@=#''=!!H.='*&.-%/!, *-.#'1L!U#C&@%&1!9 ; 5NA!
!

dV2#!, 2%&.)0!0!] -*)* (1L!R/%'+*& (!>*7*$=!%)D!'2#.&!^. (.'=e!>*)+#&#)-#!*)!!>/. (%'#!
U@'@&#=L!"#=.0)!%)D!'2#!S@='!V&%)=.'.*) | J !, 1 ($*=.@ (jYW, "7<&* I)L!M*K# (C#&!9 ; 5TA&#!*+!%)!.//@=L (.+*& (

d>%)!F%&c#'.)0!F%c#!%!" .++#&#)-#he!\ %/#!,1 ($*=.@ (!*)!>*)=@ (#&=!%)D!>*)=@ ($'.*)L!
F%&-2!9﹔56A!

!

d>*)=@ ($'.*)!.)!'2#!J)'2&*$*-#)#Le!Y#'2.)c.)0!] -*)* (.-!H.='*&1!.)!'2#!J)'2&*$*-#)#!
Z *&c=2*$L!<*='*)!>*//#0#L!F%&-2!9﹔56A!

!

d>/. (%'#!%)D! Z *&c.)0!H*@&=Le!,#==.*)!*)!>/. (%'#!>2%)0#L!]%='#&)!,*-.*/*0.-%/!
J ==*-.%'.*)!F##'.)0=L!R2./%D#/$2.%L!U#C&@%&1!9﹔56A!

!

d]'2.-%/!>*)=@ ($'.*)Le!]%='#&)!,*-.*/*0.-%/!J ==*-.%'.*)!F##'.)0=L!R2./%D#/$2.%L!
U#C&@%&1!9﹔56A!

!

 F*)#1!V%/c=L!J @'2*&! F##'=!>&.'.-=!,#==.*)L!]%='#&)!,*-.*/*0.-%/!J ==*-.%'.*)!F##'.)0=L!
R2./%D#/$2.%L!U#C&@%&1!9﹔56A!

!

dW)#k@%/.'1!%)D!R&#-%&.'1!.)!'2#!R/%'+*& (!]-*)* ((1Le!".0.'%/!W).'.%/.K#!,# (.)%&L!H%&K%&D!
<@=.)#==!,-2**/L!U#C&@%&1!9﹔56A!

!

d "#$#)D#)-1!%)D!R&#-%&.'1!.)!'2#!R/%'+*& ('&((1Le!>QM\!,*-.*/*0.-%/01! "#$%&' (#)'L!
M# I !\ *&cL!U#C&@%&1!9﹔56A!

!

d>2&.=' (%=L!>*)=@ ($'.*)=@ (#&.=(L!%)D!^%@D%'*&1!*!,.Le!R%)#/.='!+*&!G/*C%/!>%/!>%'2*/.>/. (%'#!>2%)0#'2*/.!>/. (%'#!>2%)0#L! (%'#!>2%)0#L!
 F*K# ((#)'!Z #C.)%%L!"#-# (C#&!9﹔54A!
!

dR&%-'.-.)0!'2#!-* ((@).'17C%=#D!)#I !#-*)* ((1Le!Z * (#)_=!U*&@ ((L!"#%@K.//#L!
M*K# ((C#&!9﹔54A!
!

d]-*/*01L!Y#/.0.*)!%)D!]'2.-=3!V2#!Y*/#!*+!Y#/.0.*)!%)D!]-*/*01Le!Y#/.0.*)!L!] -*/*01!
%)D!f @&!R/%)#'%&1!U@'@&#L!>#)'#&!+*&!'2#!, @D1!*+!Z *&/D!Y#/.0.*)=L!H%&K%&D!Q).K#&=.'1L!
 f -'*C#&!9﹔54A!!
!

dY#'0#)#&%'.K#!>%$.'%/.= ($. ((/. (= ((!%)D!>/. (%'#!>2%)0#Le!>K#&=%'.*)!I .'2!S*2) !U@//#&'*)L! J +'#&!
U*==./!U@#/=3V2#!M#['!] -*)* ((1Le! (1!-*)+#&#)-#!-L!f C#&/.)L!f -'*C#&!9﹔54A!
!

dJ @'2*&!F##'=!>&.'.-=!,#==.*)L!S@D.'2!Z %-? (%)L!R&#-==#D!+*&!V. (#!L!J)@%/!F##'.)0L!J (#&.-%)!
,*-.*/*0.-%/0.-%/!J ==*-.%'.*)L!#%''/#!J @0@='!9﹔54A!
!

d "#70&*I '2!%))D!2*@&=!&#D@-'.*)=3!%!)#-#==%&1 (((!. ((0%'.*)!$*/.-1!&#!$&*0&#==.K#!+%)'%=1he!
R%)#/!*+/!=#==.*)!%%!J))@%/!F##'.)0L!,,,RL!#%''/#L!J @0@='!9﹔54A!
!

dZ 2*!G#'=!'*!, 2%&#!.)!'2#!d, 2%&.)0!0! -*)* (((13!Q)D#&='%)D.)0'2#!R%''#&)=)=!*+!
R%&'.-.$%'.*)!)D! [-2%)0#!.)!J .&C)C)Cle!a I .'2!F#2 (#'!>%=2.!>%)=%*$&0%')+&&(#&)-#!f $#)!)%)D!
Q=#&!W))*K%'.*)L!H%&K%&%%&%D!<@=.)#==!,-2**/L!J @0@=='!9﹔54A'
!

dV%%&.$*)#!$@% (C/%'+*& ('2#!, 2%&.)0!] -*)* ((13!Q)D#&='%)D.)0'2#!R%''#&)=!*+!
R%&'.-.$%'.*)!)D [-2%)0#!.)!J .&C)CLe!I .'2 F#2 (#'!V%&%WVL! F%1!9﹔54A!

!

dV%/#=!+&* (!'2#! , 2%&.)0!] -*)* (1Le!Y%D-/.++#!]K#)'L!H%&K%&D!U%-@/'1!>/@CL!M# I ! \ *&cL!
 F%1!9;54ᴀe!!

!

d_[- 4 -&Q0%)0/33! " .K#&=#!] -*)* (.-!<#2%K.*&=!*)! , 2%&.)0!R/%'+*& (=Le!<#&c (%)!>#)'#&!
*)!W)'#&)#'!%)D! , *-.#'1L!H%&K%&D!Q).K#&=.'1L!J $&./!9;54ᴀ!

dY# (%&c=!*)!'2#! f --%=.*)!*+!'2#!W)%@O@&%'.*)!*+!'2#!<#&)%&D! F %&.=!QM],>f !>2%.&.)!
]-*)* ((1!, *-.#'1Le!R%&.=!H*'#/! " #!X.//#L!,%/*)!D_H*))#@&L!!S%)@%&1!9;54ᴀ!!
!

dR%&%D*[#=!*+! f $#))#==!%)D! " ." .='.*)Le!>@%&X&X&X&X&X&X&X&X&X&X&X&XX=

dR&* (*'.)0!]-*)* (.-!J/'#&)%'.K#=!K.%!R@C/.-!, *-.*/*01Le!J , J!,#==.*)L!,#-'.*)!*)!
, *-.*/*0.-%/!R&%-'.-#!%)D!R@C/.-!, *-.*/*01Le!J))@%/!F##'.)0L!>2.-%0*L!W^L!J @0@='!9;58A!
!
d "#C%'.)0!'2#!, 2%&.)0!]-*)* (1Le!f Wg f ,!V2.)c!V2%)cL!J)' I #&$#)L!<#/0@. (L!S@)#!9;58A!
!
d, .'@%'.)0!'2#!]'2.-%/!>*)=@ (#&3!.)D.K.D@%/!%-'.*)!%)D!=1='# (.-!2%)0#!=*)=@ (#&e!>*)=@ (#&
] '2.-=!.)!, *-.#'1!, #(.)%&L!] , Y>!R&*?#-'!*)!]'2.-=!.)!>*)=@ (#&$'.*)3!W)'#&D.=-.$/.)%&1!
R#&=$#-'.K#=L!Q).K#&=.'1!*+!^#.-#='#&L!S@)#!9;58A!
!
R%)#/.='L!d<%=#C%//!%)D!J (#&.-%)!^.+#Le!V2#!G&#%'!U#) I %1!R%&c! Z &.'#=!, #&.#=L!U#) I %1!
R%&cL!<*=='*)!L!F%1!5NL!9;58A!
!
u ~ JL!>/. (%'#!>2%)0#!J -'.*)!]K#) 'L!Q).'#D!M%'.*)=L! > f , f >L!=$*)=*&#D!C1!U&#)-2!
(.==.*)!'*!'2#!QML!%+'#&!=2* I .)!*!'2#!+./ (L!(- -B&: lB&(%-@# 'L!J $&./!9;58A!!
!
dR&* (*'.)0!]-*)* (.-!J/'#&)%'.K#=!K.%!R@C/.-!, *-.*/*01Le!W)K.'#D!K.'#D!,#==.*)!)#)'.'/#D!
".==#(.)%'.)0!Y#=#%&-2!<#1*)D!'2#!J -%D# (1L!J (&.-%)!, *-.*/*0.-%/!J ==*-.%'.*)!*)!
F##'.)0=L!>2.-%0*L!W%1!5NL!9;58A!
!
d, .''.)0!'2#!Y#=#%&-2!J 0#)D%!Le!Y# (%&c='! *!V2#!M#[', 1='# (!R&*?#-'!F##'.)0L!FWV!
F#D.%!^%CL!" Q,Rj FWVL!" #-# (C#&!9;5:A!
!
dR%%D*[#=!*+!f $#))#==!%)D!" .='.)-'.*)!*)!'2#!, 2%&.)0!]-*)* (1Le!H%&K%&Dj FWV!
]-*)* (.-!, *-.*/*01!, #(.)%&L!M*K# (C#&!9;5:A!
!
d \ *@&!M#['!<.0!, '%&'@$!W&#%3!Z 21!W)'#&)#'!R&*.-1! F%''#&=!Le!Y*@)D'%C/#!*)!=*-.%/
W)'#&)#'!R&*.-1!, 1 ($*=.@ (L!H%&c%&D!W)='.'@'#!+*&!W)'#&)#'!, *-.#'1!<#-c (%)!>#)'#&L!#$'# (C#&!
9;5:A!
!
dH%)D (%D#!F%''#&=!Le!%)Y%CC(%0.-!*+!, *-.%/!M#D.%!R&*?#-'L!W)='.'@'#!+*&!, *-.%/!M#D.%L!I %$!
>.&-@/.'1='#!Le!R%&'.=%)='2.$!%)D!'2#!R*/.'.-=!*+!, *-.%/!M#D.%L!J)'.=*-.%/!,#==.*)!)#)'.'/#D!
U&%0 (#)'%'.*)!L!J @0@='!9;5:!a I .'2!>*=='#&)!F*&%/!R%)#/L!M* (# (C#&A!
!
d>%)!F%&c#'!'!<%=#D!J /'#&)%'.K#=!=*/K#!'2#!, *-.%/!M#D.%!>&.=.=3!Le!, '%)+*&D!, *-.%/!F%&c#'!'#=!
%)D!Y2.P* (%'.-!Y#=#%&-2!-#)'#&L!J (J&L!,#==.*)!)#)'.'/#D!Y&%0 (#)'%'.*)!L!J @0@='!9;5:A!!
!
J!" ##$#&!^^**c!%!'!'2#!^. (.'=!*+!'2#!G&* I'2!M*D#/!] -*)* (.-!J @0 (#)'%'.*)!L!V%/@%C/#!
R*/.-1!L!'@D.#=!L!Z %-2.)0!0*'*)'%/!L!A>AL!S@)#!9;5:A!
!
!dM# I !Z %1=!*+!+!^.K.)0!.)!%!(%&c#'!]-*)* (13!Le!V%/@%C/#!Z *&/DLe!5='!*))@%/!^**c!%)#0*%/!
Z *&c=2*$!L!<#+*&#!'2#!)#>//#0#!U)#=L!S@)#!9;5:A!
!
dV2#!, 2%&.)0!]-*)* (1Le!R%)#/!*)!'2#!, 2%&.)0!]-*)* (1!%)D!'2#!U@'@&#!*+!Z *&cL!,#==.*)!)#)'.'/#D!
>*%/.'.*)!<@./D.)0!'2&*@02!, 2%&.)0!]-*)* (1L!<*=='*)!L!,#$'# (C#&!9;5:A!

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!
d J)!# (#&0.)0!#-*72%C.'@=3!'2#!&#-*)+.0@&%'.*)!*+!2.02!-@/'@&%/!-%$.'%/!$&%-'.-#=!% (*)0!
#'2.-%/!-*)=@ (#&=Le!,> f Y J W!>*)+#&#)-#L!>/%&c!Q).K#&=.'1L!S@)#!9 ; 5EA!
!
d] -*/*01!%)D!V. (#!.)!'2#!>&.=.=!*+! Z *&cLe!G/*C%/!>%$.'%/.= (!%)D!'2#!>&.=.=!*+! Z *&c!
>*)+#&#)-#L!Q).K#&=.'1!*+!>2.-%0*L! J $&./!9 ; 5EA!
!
!dR&%-'.-%/!='#$=!+*&!&!&#D@-.)0!2*@&=!*+! I *&cLe!M# I !] -*)* (.-=!W)='.'@'#!>*)+#&#)-#L!
Q).K#&=.'1!*+!<&.'.=2!>*/@ (C.%L! J $&./!9 ; 5EA!!
!
!dR&.)-.$/#=!*+!M# I !] -*)* (.-=Le!U@)D##=_!>%//!+*&! Z *&c.)0!G&*@$!**)!M# I !] -*)* (.-=L!
J $&./!9 ; 5EA!
!
dM# I ! (*D#/=!*+!$&*D@-'.*)!%)D!-*)=@ ($'.*)Le! F WV!M# I !] -*)* (.-=! ".=-@==.*)!,#&.#=L!
J $&./!9 ; 5EA!
!
dM# I !] -*)* (.-=Le!>*)+#&#)-#!*!Y#7. (%0.).)0! f @&!] -*)* (.-!,1='# (L F .-2.0%)!,'%'#!
Q).K#&=.'1L! F %&-2!9 ; 5EA!
!
dQ)D#&='%)D.)0!,@=%.)%C/#!>*)=@ ($'.*)Le! J)@%/!R&#==!>*)+#&#)-#L!-@L< F Z L! F @).-2L!
G#&(%)1L! F %&-2!9 ; 5E!
!
d Z 2%'!=*-.%/!=-.#)-#!-%)!-*)'&.C@'#!'*!-/. (%'#!-2%)0#Le!H%&K%&D!>*)+#&#)-#L ((.''##!

!
d ".=-@==%)'Le! J , J !R%$#&!=#==.*)!*)!>*)=@ ($'.*)!%)D!W)#k@%/.'1L! " #)K#&L! J @0@='!9;59A!
!
,$*'/.02'!R%)#/!R%&'.-.$%)'L! F .).7-*)+#&#)-#!*)!G/*C%/.P%'.*)!%)D!>*)=@ ($'.*)!L! J , J !
>*)=@ ($'.*)!,#-'.*)7.)7U*&(%'.*)!L!Q).K#&=.'1!*+! " #)K#&L! J @0@='!9;59A!
!
dV&@#! Z #%/'2Le!R@C/.-!^#-'@&#!=$*)=*#&#!D!C1!, (.'2!>*//#0#! " #$%&' (#)'!*+!, *-.*/*01!%)D!
 F #D.%!] D@-%'.*)!U*@)D%'.*)!L!M*&'2% ($'*)!L! F J L!S@/1!9;59A!
!
d , '&%'#0.#=!+*&!G*.)0!G&##)Le!^@)-2#*)!V%/c!'*!<*='*)!>*)=*//#0#!^.C&%&.%!>=!G&*@$L! J $&./!
9;59A!
!
d Z *&c.)0!H*@&=!%)D!M#['!^#+'Le!>*)+#&#)-#!*)!2#!M#['!^#+'3!<@./D.)0!M# I !
>*((@).'.#=Le!H%&K%&D!^% I !,-2**/L!>% C&.D0#!L! F J L! J $&./9;59A!
!
dR/#).'@D#!Le!V&%)=.'.*)!!%!M# I !] -*)*(1!>*)+#&#)-#!L!H%&K%&D!Q).K#&=.'1L! F %-2!9;59A!
!!
dR/#).'@D#3!'2#!$%'2 I %1!'*!=@='%.)%C./.'1Le! F #//*)!U#//*!I =!,# (.)%&!%)!%)D!D!R@C/.-!V%/cL!
<&*I)!Q).K#&=.'1L!U#C@%&%1!9;59A!
!
d Z *&c.)0!H*@&=!%)D!D! " #7G&*((I '2Le! Z *&c=2*$!'*!*!'*$.%L!<&@==#/L!S%)@%&1!5:L!9;59A!!
!
d Z *&c.)0!H*@&=!.)!'2#!"#C%'#!%C*@'!G&*((I '2!%)D!, @='%.)%C./.'1Le!)# I !+#-*)(((-#!
+*@)D%'.*)!L*)!-*)+#&#)-#-#!L!V* I %&D=!95!H*@&=3!,#'',")0!'2#!J 0#)D%!!*!&!2*&'!, 2&%&#! Z *&c.)0!
 Z ##cL!^*')D**')(-*)'&.C@'.*)=!'*!(-*=L!S%)@%&159L!9;59A!
!!
d] -*)*(1>* (.-=!+*&!'2#!NN•Le!H%&K%&D!Q).K#&=.'1L!+ --@$1!V#%-27.)L!M*K# (C#&!9;55A!
!d>*)=@ ($'.*)!D!, @='%.)%C./.'1Le! R J !Z #C.)%&L!&!D!!&#0.*)%/!%#=*0@&#=!)5;L!M*K#!K!5L!9;55A!
!
d , 2%&.)0!'2#!D!>%&.)03!M# I !>*)=@($'.*)!+*&!#&%!R%&-'.-#!.)!%!" .0.'%/!% I *&/DLe!R%&-'.-#!
>*)+#&#)-#-#!L!<*='*)!!*!>//#0#!L! f -'*C#&!9;55A!
!
dR%&-'.-#3.-.-.)0!R/#)'0.'@D#!Le!R%&#=#&K.)0!*.'%!)%&&%'.K#.)%.&%.)!D.0.'%/!% I *&/D!Le!D!M%&c.)0!
>2.-%0*=L! f -'*C#&!9;55A!
!
d<@./D.)0!D!>*((@).'0!M%&c.)0'>%&%&!R%&-'.-#!Le!<-//#0#!, @=#='%.)%C./.'1!.)%.&!=-2**/=!)#! I *&/DL!
,-2**/!/-<//#0#!L! f -'*C#&!9;55A!
!
d Z *&c!H*@&=L!'*)=@($'.*)!>*)+#&#)-#!Le!!'2#/%&0#0=!D!>*)=@($'.*)!.)%!D.0.'%/!% I *&/DL!, 2&%&#!
 f]>" !>*)+#&#)-#!L!.#-&#/5N6;79;;6Le!'#%-2.)0=.'%!)%..'D.%>=.%-(((*)%!V&%.%/%R] YWL!Q F %=L! f -'*C#&!9;55!
!
d>*)).)#-'#D!D!>*)=@($'.*)Le!V%/c!'*!'G@00#)2#!((.((j<! F Z !^%CL!M# I ! \ *&cL! f -'*C#&!9;55A!
!
dV&@#! Z #%/'2Le! J !>*)=@($'.*)K#&=%-2..*)%.&%.)%.&%!=.%=@('@.%#%*)L! " #(*=jZ *&/D!R*/.-1!
W)='.'@'#!L!M# I ! \ *&cL! f -'*C#&!9;55A!
!

!

dW=!G&* I '2!, @='%.)%C/#he!V%$&**'=!>*//*k@.@ (L!>#)'#&!+*&!>* ((@).'1!>2%)0#L!Y*C#&'!
UA! Z %0)#&!G&%D@%'#!, -2**/!*+!R@C/.-!, #&K.-#L!M# I ! \ *&c!Q).K#&=.'1L! " #-# (C#&!9; ; 4A!
!
dV&#)D=!.)!'2#!>* ((#&-.%/.P%'.*)!*+!>2./D2**DLe!, # (.)%&!$&#=#)'#D!%'!M%'.*)%/!
>*)=@ (#&=!>*@)-./L!^*)D*)L!M*K# (C#&!9; ; 4A!
!
dV2#*&#'.-%/!W==@#=!.)!'2#!>* ((#&-.%/.P%'.*)!*+!>2./D2**DLe!R%$#&!$&#=#)'#D!%'!M%'.*)%/!
)!'2#!H.='&1!*+!>2./D2**DL! F %0D%/#)!)>*//#0#L! f [+*&D!Q).K#&=.'1L!M*K# (C#&!9; ; 4A!
!

!

!
d>/#%).)0!'2#!>/*=#'3!V* I %&D!%!M# I !] '2.-!*+!U%=2.*)Le!U#%'@&#D!^#-'@&#!%'!>2.-%0*!
H@ (%).'.#=!U#='.K%/!1 WXL!,%K.)0},$#)D.)0L!M*K# (C#&!9;;EA!
!
 f $#).)0!,$#%c#&L!V%c#!<%-c!*@&!V. (#!"%1!,$#%c7 f @'L!U%)#@./!H%//L!<*='*)L! f -'*C#&!
9:L!9;;EA!
!
dV2#!>* ((*D.+.-%'.*)!*+!>2./D2**DLe!$%$#&!$&#=#)'#D!%'!=#==.*)!*)!>*)=@ (#&=!%)D!
>*)=@ (.)0!WL! J (#&.-%)!,*-.*/*0.-%/! J ==*-.%'.*)!F##'.)0=L! J '/%)'%L! J @0@='!9;;EA!
!
d<#1*)D! Z *&c!%)D!,$#)DLe! F # (*&.%/!^#-'@&#!L! J ==*-.%'.*)!*+!W)D#$#)D#)*)'!W)+*&(%'.*)!
R&*+#==.*)%/=L!56!"! J))@%/!>*)+#&#)-#L!R&*K.D#)-#L!Y2*D#!W=/%)DL! F %1!9;;EA!
!
d<#1*)D!D!'2#!>1-/#!*+! Z *&c!%)D!,$#)D3! J -2.#K.)0!<%/%)-#L!^@)-2#*)!JDD&#==!'*! Z W"!
a Z * (#)!.)!"#K#/*$ (#)'!*+!G&#%'&!<*=('*)*)bL! J $&./!9;;EA!
!
d>%)! J (#&.-%)=!>*)=@ (#!, @=''.*)%C/1h!]-*/*0.-%/!^.+#='1/#=!U*&!]K#&1*)#Le!
])K.&*) (#)'%/!'@D.#=!"#$%&'(#)'L! F .DD/#C@&1!>*//#0#L! F %&-2!9;;EA!
!
w F %'#&.%/.= (!%)D! Z #//)#==w! Z *&c=2*$!R&#&#)'#D!%'!'#D!%'!R&*?#-'! Z #//)#==3!>&#%'.)0!
>*))#-'.*)=L! J -'*)7<*[C*&*@02!, -2**/!".=&.-'>*)+#&#)-#)+##&)-#L! F #&&. (%-c!>*//#0#L! F %&-2!
9;;E!a%/=*!$&#=#)'#D!'#D! F %&-2!9;;9bA!
!
dV2#!>* ((*D.+.-%'.*)!*+!>2./D2**D3!V%/#=!+&* ((!'2#! J DK#&'.=.)0!0!U&*)'!'!^.)#=Le!
>*//*k@.@ ((!*)!'2#!>* ((*D.+.-%'.*)!*+!>2./D3! K#&1'2.)0!0!0L!W)='.@'#@%&1!9;;EA!
!
d] (#&0.)0!0!V&#)D=!.)!>*)=@ (#&Le!g#1)*'#!*)K)#3#)-#!Y#'%./.)0!0!>*&&.-!Y#'%./.)0L!
,-*''=D%/#L! J &.P*)%L!U#C@%&1!9;;E!
!
d>2./D&#)!)%)D!>*)=@ (#&Le!R@C/.-!^#-'@&#!L! J ==.-.%'.*)!*+!>*)=@ (#&L!"#$%&',-./*01L!"#-#(C#&!9;9A!
'
d>&.'.-%/!R#&=$#-'.K#=!*)!>.*!]-*/*0.-%/Le!H%&K%&D!Q).K#&=.'1L!M*K# (C#&!9;9A!
'
dU&.D%1!U*&@!'*)!D.'2#! Z *&/D!<%)c!.)!>*)=@ (#&L!'*&#L!,$#'&#*=.D#&%'.*)=.)!H%&K%&D!Q).K#&=.'1!M*K# (C#&!9;9A!
'
dV2#!WF U!U%)'*)!D!'2#! Z *&/D!<%)c!.)>@ (#&*&Le!V#%-27.)*)!'2#!WF U!U%)'*)!D!'2#! Z *&/D!<%)c!L!
=$*)=*&#D!C1!H%&K%&D!D! J .D=!>*%/.'.*)L!H%&K%&D!Q).K#&=.'1M*K# (C#&!9;9A!
!
dM%'.*)%/!,#-@&.'1!,@=@''1%)D!>*)=@ (#&Le!R@C/.-!^#-'@&#!L!=*-.%/!'&@='L!>*))#-'#D!Le!
G%&)#&'!>*&$*&%'#L! J ==*-.%'*)L!M*K# (C#&!9;9A!
!
dV. (#!*)!'2#!D!*+!>*)=@ (#&L!=*-.%/L! J @=='1Le!$%&#*&'.*)!.)='.'@'*)!)#K#/*$ (#)'!*+!
 f (#0%!WXU!3'.@.#&2.)'!!,&1'*/*0.%/!F%0&*P.)!H%&K%&DM*K# (C#&9;9A!
!
70

d,#%&-2!+*&!WD#)'.'1!.)!'2#!W)'#&)#'!J0#Le!R%)#/!R%&'.-.$%)'L!>*)+#&#)-#!*)!W)'#&)#'!~!
,*-.#'1!9;;;3!>2%)0.)0!f@&!^.K#=L!H%&K%&D!Q).K#&=.'1L!S@)#!9;;;A!
!
dV&#)D=!.)!V.(#!Q=#3!J==#==.)0!'2#!>*)'&*K#&=1Le!"#$%&'(#)'!*+!^#.=@&#!,'@D.#=L!
Q).K#&=.'1!*+!W//.)*.=L!J$&./!9;;;A!
!
dV2#!M#I!>*)=@(#&.=(Le!</%c#!^.C&%&1L!".=-@==.*)!,@)D%1!,#&.#=L!'@%&'!U/*&.D%L!J$&./!
9;;;A!
!
dV&#)D=!.)!V.(#!Q=#3!J==#==.)0!'2#!>*)'&*K#&=1Le!>#)'#&!*)!W)+*&(%##=L!>*&)#//!Q).K#&=.'1L!
S%)@%&1!9;;;A!
!
dJDD&#==.)0!]-*)*(.-%/.'1!'!H*(#!%)'D!JC&*%*DLe!M#I!!H%($=-2.&#!Q).'%&.%)L
Q).K#&=%/.='!,*-.%/!Y#=$*)=.C./.'1!>*)+#&#)-#L!M%=2@%L!M#I!!H%($=-2.&#!f-'*C#&!5NNNA!
!
dV2#!fK#&=$#)'!J(#&.-%)Le!<*='*)!^#%&).)0!S*-.#'1L!F%AL!f-'*C#&!5NNNA!
!
dH*@=#2*/D=/D=!Q)D#&!R#==@&#Le!$&#=#)'%'.*)!'*!'2#!$0#)D%!Z*&c.)0!D!
U%(./1L!S*-.%/!$&%&'.')#!Z*&c.)0!D!U%(./1L!S*-.%/!F##'.)0L!>%(.DO#L!F%AL!#$'#(C#&!
5NNNA!
!
dV2#!M#I!>*)=@(#&.=(Le!>#)'#&!*)!W)+*&(%##=L!Z.//.#=/#1L!F%AL!#$'#(C#&!5NNNA!
!
d>*)=@(#&.=(Le!J(#&.-%)!Q).K#&=.'1!^=*-.%/!Z*&c!=*-.#'1L!'*&'.)0.'*)L!>*))#-'.-@'L!
>*)+#&#)-#L!J$&./!5NNNA!
!
dW)'#&)%'.*)%/!>*)=@(#&.=(Le!%&'.-@/%'.*)!*+!'2#!>*)=@(#&!F%&c#'&*L!U&##D*(!#$&.)0L!
^%C*&!>&%#=!F%)%0#(#)'L!J$&./!5NNNA!
!
dZ*&c.)0!D!>*)=@(#(.)'!*+!'2#!>*)=@(#&!F%&c#'L!J@0@='!5NNNA!
!
dV2#!M#I!>*)=@(#&.=(Le!>#)'#&!*)!W)+*&(%##=L!Q).K#&=.'1L!H%($=-2.&#L!Q).K#&=.'1L!J$&./!5NNNA

wZ*&c'.(#!%)D!'2#!"#-/.)#!.)!>.K.-!])0%0#(#)'Lw!>*)+#&#)-#!*)!>.K.-!])0%0#(#)'!.)!
J(#&.-%)!"#(*-&%-1L!Y@==#//!,%0#!U*@)D%'.*)L!5NN6A!
!
wX*/@)'%&1!"*I)=2.+'#&=!.)!'2#!Q,L!5NN;75NN4Lw!J))@%/!F##'.)0L!J-%D#(1!*+!
F%)%0#(#)'L!,1($*=.@(L!5NN6A!!
!
w"*!J(#&.-%)=!g##$!@$!I.'2!'2#!S*)#=#=h3!V2#!W($%-'!*+!>*)=@($'.*)!J=$.&%'.*)=!*)!
,%K.)0=!<#2%K.*@&Lw!,#(.)%&L!u@##)=!>*//#0#L!>%(C&.D0#!Q).K#&=.'1L!5NN6A!
!
w"*!J(#&.-%)=!g##$!@$!I.'2!'2#!S*)#=#=3!V2#!W($%-'!*+!>*)=@($'.*)!J=$.&%'.*)=!*)!
,%K.)0=!<#2%K.*@&!F%-&*!,#(.)%&L!>]])'#&L!V./C@&0!Q).K#&=.'1L!5NN6A!
!
wY#+@0##=!+&*(!'2#!,U%'!%)D!F#%)`!]-*)*(13!"*I)=2.+'.)'2#!5NN;=Lw!"%K.D!G*&D*)!
F#(*&.%/!>)+&&#)-#!M#I!,-2**/!+*&&!,*-.%/!Y#=#%&-2L!5NN6A!
!
w<#1*)D!Z*&c!%)D!,$#)D3!M#I!J''.'@D#=!'*!Z*&cL!(#L!^#.=@&#!%)D!>*)=@($'.*)Lw!
R@C/.-!^#-'@&#!M#I!Z%1=!'*!Z*&cL!^#*)D*)L!5NN4A!
!
V*I%&D!%!M#I!V2#*&1!*+!>*)=@($'.*)!=@($'.*)=!+#.+V2&##!^#-'@&#=!L!H%K#)=!'>#)'#&L!
,*-.*/*01!"#$%&(#)'L!Q).K#&=.'1!*+!Z.=-*)=.)L!5NN4A!
!
w<#1*)D!Z*&c!%)D!,$#)D3!M#I!J&.P*)%!H@(%)#=!'>*)-./.%'.)!V&%)=.'.*)!
R&*?#-'L!5NN4A!
!
wZ*&c!%)D!V.(#Lw!Z*&/D!]-*)*(.-=!^#-'@&#!,#&.#=L!I.'P#&%%Lw!5NN4A!!
!
wM#I!Y#=#%&-2!*)!,$#)D.)0!%)D!]-*)*(.-=3!J!DD&#=.)0!,$#)D.)0!u@%/.'1!*+!^.+#!Lw!
>*)+#&#)-#!*)!,=@#D!S*@&)%/.=(!*+!^.+#L!J'2@&!U*@)D%'.*)L!5NN8A!
!
w>*)=@($'.*)!%)D!,$#)D!"#-/.)#!*+!U%($).01!%)D!H%K%K#)'!.)!'1!*+!^.+#!
H%&K%&D!"#.K.).'1!-2**/L!5NN8A!
!
wG#)D##=!%)D!V.(#!%)D!,$#)D!F*)#13!M#I!]($/*1(#)'!F*&D/%-!*+&!(#)!L+**#!'>#)'@&!Lw!
Q).K#&=.'1!*+!M*&'2>%-*.*)%&(.%)!G&#)-#=C*&L!"#$%&(#)'!.+&!.@&!=$#)D.)0!D!Z*(#)`=!
,@&D.=.@).*+!^.+#!5NN8A!
!
U%-@/'1!J DD&#==!^!S@).@&!R%&#!'=!Z##c!DL!H%K#&K%&D!>*/*//#0#L!5NN8A!
!
wV*I%&D!,#@='.%&!%1C/#!>*)=@($'.*)!+*L!]($/*1#&)'!Z*(#)!*+!@D.#=!.)!'2@&!>*/#0#L!
Q).K#&=.'1!*+!M*&'2#&)!I*I%!=$#)D.)0!^L!5NN8A!
!
wQ)#k@%/!"#-/.)#!*+!>*)=@($'.*)=3!V.(#!@=#!*+!,$#)D.)0!.)!'2#!>*@)'&1!%)D!'>#)'.&'@!%)D!
,-2**/!*+!>*(&@).-%'.*)!Lw!@)D!.+&!.@&!=$#)D.)0!L!5NN8A!
!
w](($/*1(#)'!=@==.+'=!+.)*I!+&!$-%#-#=!.)!,%*/#!,2.+'!$*$#&+*&!&]($!L!5NN8A!

w Z *&c'. (#!.)! J (#&.-%3!V2#!>2%//#)0#!+*&!R*/.-1 (%c#&=Lw!^%C*&!W==@#=! ,# (.)%&L!
M%'.*)%/!>*)+#&#)-#!*+! , '%'#!^#0.=/%'@&#=Lw! ,%)!S@%)L!5NN : A!
!
wM# I ! F *D#/=!*+!] ($/*1 (#)'!+*&!'2#!V I #)'17U.&='!>#)'@&1Lw!<*='*)!H@ (%)!Y#=*@&-#=!
J ==*-.%'.*)L!5NN : A!
!
d Z * (#)!%)D!>2%)0#3!] =-%$.)0!'2#!>1-/#!*+!Z *&c7%)D7 , $#)DLw! Z * (#)!%)D!Y#-*K#&1!
>*)+#&#)-#L!G&##)K.//#! , A>AL!5NN : A!
!
wV2#!>2%//#)0#!*+!>*)=@ ($'.*)3! , '%%'#0.#=!+*&!*!W)D.K.D@%/!%)D!W)=.'@'.*)%/!Lw!
R/#)%&1! ,#==.*)L!])K.&*) (#)'!%/!<&#''*)!Z **D=L!<&#%'.)0!%!Z **D#=L!
5NN : A!

!
wW=! F *&#!<#''#&h! Z *&c!%)D!R&*D@-'.K.'1!.)!'2#!5NN;=Lw!H%&K%&D!Q).K#&=.'1!^.C&%&1!
R&*+#==.*)%/!''#K#/*$ (#)'!>* ((.''##L!5NN:A!

!

w Z 21! , 2*&'#&!H*@&=! J &#!R&*+.'%C/#Lw!^#-'@&#!'*! g] W " J MY] ML!aU#D#&%'.*) !*+!S%$%) #=#!

] ($/*1#&=bL!V*c1*L!5NNEA!

!

wV2#! f K#& I *&c#D! J (#&.-%)3!V2#!S%$%)7QA , A!>* ($%&.=*)Lw!R@C/.-!^#-'@&#L!V*c1*!

wV2#! f K#& I *&c#D! J ''*&)#13!Y#-*K#&.)0!V. (#!+*&!, #/+!%)D!U% (./1Lw!H%&K%&D!^% I !
, -2**/L!5NNEᴀ!
!
w Z *&c.)0!H*@&=!%)D!Qᴀ,ᴀ!Q).*)=Lw!H%&K%&D!V&%D#!Q).*)!R&*0&% (L!H%&K%&D!Q).K#&=.'1L!
5NNEᴀ!
!
w Z *&c.)0!, 2*&'#&!H*@&=3!W=!W'!] -*)* (.-%//1!U#%=.C/#h!H* I !>%)!W'!<#! " *)#hLw!<*='*)!
Z *&c7U% (./1!U*&@ (L!5NNEᴀ!
!
wV2#! f K#& I *&c#D! J (#&.-%)Lw!<#='!*+! J (#&.-%!>*)+#&#) -#L!V% ($%L!U/*&.D%L!5NNEᴀ!
!
w Z *&cL!^#.=@&#!%)D!>*)=@ ($'.*)3!V2#!R*=' I %&!Qᴀ,ᴀ!] [$#&.#)-#Lw!^%C*&!, '@D.#=!
" #$%&' (#)'L! F - F %='#&!Q).K#&=.'1L!5NNEᴀ!
!
wV&#)D=!.)!Qᴀ,ᴀ! Z *&c.)0!H*@&=3! J ==#==.)0!'2#!>*)'&*K#&=1Lw!M# I !, -2**/!+*&!, *-.%/!
Y#=#%&-2L!5NNEᴀ!
w J ==#==.)0!'2#!] -*)* (.-!, '&@-'@&#!Z * (#)Lw! Z *&/D!] -*)* (.-!U*&@ (L! J))@%/! F ##'.)0L!
" %K*=L!, I .'P#&%)D!DL!5NNEᴀ!
!
w<*@=.)#==!^%&C*&@&&!%)D!D!'2#!, '#'Lw! Z *&/D!] -*)* (.-!U*&@ (L! J))@%/! F ##'.)0L! " %K*=!
, I .'P#&%)D!DL!5NNEᴀ!
!
wV2#! f K#& I *&c#D! J (#&.-%)Lw!V2#!>% (C&.D0#!U*&@ (L!>%&.D0#!F%==%-2@=#''=L!5NN9ᴀ!
!
wR@C/.-!R*/.-1!%)D! Z *&c.)0!H*@&=w!, */.-.'*&7G#)#&%/=!#&.=!, # (.)%&L! " #$%&' (#)'!!*+!
^%C*&L!5NN9ᴀ!
!
w J &#! Z * (#)!, k@##P#D!+*&!V. (#h3!V&#)D=!.)!Qᴀ,ᴀ! Z *&c.)0!H*@&=Lw!W)K.'#D!D!, #==.*)L!
J (#&.-%)!, '%'.='.-%/! J ==*-.%'.*)! F ##'.)0=L! F J L! J @0@='!5NN9ᴀ!
!

wZ*&c.)0!H*@&=!%)D!^#.=@&#!V.(#!.)!'2#!R*=' I%&!Q).'#D!,'%'#=Lw!]-*)*(.-=!
"#$%&'(#)'L!Z#//#=/#1!>*//#O#L!5NN;A!

!

wW=!V2#&#!%!V.(#!,k@##P#hw!W)D@='&.%/!Y#/%'.*)=!,#(.)%&L!F%==%-2@=#''=!W)='.'@'#!*!+!
V#-2)*/*01L!5NTNA!

❗!

wV2#!"#C%'#!*K#&!F%)@+%-'@&.)0!K#&=@=!,##K.-#=Lw!,2.+'.)0!G#%&=L!>*)+#&#)-#!-#!=$*)=*&#D!
C1!'2#!F%==%-2@=#''=!U*@)D%'.*)!*)!'2#!H@(%).'.#=!%)D!R@C/.-!R*/.-1L!Z*&-#='#'#&L!

!