B+C2+7$','P$#&$+*!'&!*/!'//,7*('7$!#*-!(,!%.'+5!2$*5'/>!
6,302$)$/&',/!#'()!/,/1'6(',/!()*(R&!*+#*-&!2$+$7*/(S!5*'+-!
/$#&?!
!
8$:+-/$#+-!,!*!12$$:!#$%J%*&$5!&$27'6$!()*(!*/*+-Q$&!-,.2!
#2'('/>!*/5!,11$2&!1$$5%*64!,/!-,.2!>2*3 3*2:!&0$++'/>:!*/5!
3,2$!#'()'/!&$6,/5&?!
!
/+0(1!J!<)$!12$$!(,,+!(,!62$*($!6'(*(',/&:!2$1$2$/6$!+'&(&!*/5!
%'%+',>2*0)'$&!'/!*/-!1,23*(?!T$/$2*($!6'(*(',/&!'/!&$6,/5&!
.&'/>!-,.2!0),/$U&!6*3$2*?!"++!-,.2!02,B$6(&!*/5!6'(*(',/&!*2$!
&-/6$5!*62,&&!-,.2!5$7'6$&?!V$1 8 M!O$%=+'00$2!'&!()$!1*&($&(!
#*-!(,!6'($!#$%!0*>$&:!*2('6+$&:!7'5$,&!*/5!%,,4&!,/+'/$?!<)$!
=)2,3$!$D($/&',/!+$(&!-,.!*55!/,($&!*/5!&*7$!-,.2!6'(*(',/&!
#)'+&(!-,.!%2,#&$!()$!#$%?!!
!
DE/D'/+2+$-)*+-','@(!02,7'5$&!%*64>2,./5!*/5!6.22$/(!
/+-&'&!/6&&*2-!1,2!2$&$*26)!*/5!.5$2&(*/5'/>!,1!HWFX!
6.22$/(!*/5!0$27*&'7$!+$*5'/>!@&&.$&?!
!
F%-7.'4$&A',!<)'&!&'($!#*&!Tf1(2)2(-T2660 8 660 3 0 0Tm2400Tm(')1(/5!)3

'

17+)#-%&")'4%%A2'$&.'D#-+$;"&H'I".+%!

!

6"7;2'G&'@+;$&.'D#-+$;"&H'(+."$'9<;$&"#"+2'J'B<-2"&H'

!%77+)#"%&2','

)'>)!A.*+'(-!$J%,,4&$!"++!,1!()$'2!$J%,,4&!#2!02$7',.&+-!
0.%+'&)$5!%-!!"#$%&'()!0.%+'&)$2&:!5'>'('Q$5!*/5!5'+'>$/(+-!
02,,12$*5!#'()!()$!)$+0!,1!(),.&*/5&!,1!7,+./($$2&?!
!
O1@'I".+%2','

!

L'&(,2-!*/5!=.+(.2*+!I(.5'$&!

>H+'%0'1Q:7%-$#"%&','"!%',>2*0)-:!('3$+'/$:!1*6(&:!O'6(.2$&!*/5!
'/1,23*(',/!)*&!%$$/!'/6+.5$5!*%,.(!()$!3,&(!1*3,.&!
MDO+,2$2&!*/5!()$'2!$DO+,2*(',/&!#),!3*5$!&.6)!3,3$/(,.&!
7,-*>$&!5.2'/>!()$!">$!,1!MDO+,2*(',/?!!

!

>#%R#*+F%-7.',"=,./(2-J%-J6,./(2-!2$&,.26$!1,2!+$*2/'/>!
%,.(!6.+(.2$!*/5!6.&(,3&!#,2+5#'5$!()(!6,/&'&(&!,1!GbE!
=,./(2-!T.'5$&!,1!GFFX!(,0'6&!$*6)?!!

!

4+2#'%0'9"2#%-3'F+52"#+2',"//,(*($5!+'/4&!(,!,7$2!GWFF!
)'&(,2-!#$%&'($&!*2$!1$*(.2$5!)$2$?!I'($&!12,3!>$/$2*+!)'&(,2-!
(,!*/6'$/(!%'%+'6*+!)'&(,2-!(,!3,5$2/!)'&(,2-?!<)'&!&'($!*+&,!
,11$2&!/.3$2,.&!2$&,.26$&:!3*0&!*/5!>*3$&?!

!

4"%H-$:*3'/+0+-+&)+'4$&A','O'()!+'/4&!(,!$7$2-!*2('6+$!
1,6.&$5!,/!*/-!'/5'7'5.*+!'/!/$*2+-!$7$2-!O'+&,/O$%!5*(*%*&$:!
\',>2*0)-!V$1$2$/6$!*/4!,11$2&!*!%2$*5()!*/5!5$0()!,1!
'/1,23*(',/!-,.U++!1'/5!'/!/,!,()$2!%',>2*0)-!5*(*%*&$?!@(!
6,7$2&!,7$2!EFF:FFF!0$,0+$!*/5!'/6+.5$&!,7$2!Hc:FFF!'3*>$&?!

!

!E>'F%-7.'6$)#5%%A','<)$!N*6(%,,4!02,7'5$&!'/1,23*(',/!,!/!
()$!)'&(,2-:!0$,0+$:!>,7$2/3$/(:!$6,/,3-:!$/$2>-:!>$,>2*0)-:!
6,33./'6*(',/&:!(2*/&0,2(*(',/:!3'+'(*2-:!*/5!(2*/&/*(',/*+!
'&&.$&!1,2!Wcb!#,2+5!$/('('$&?!

!

!"K"7'F$-'E&0%-;$#"%&'>K$"7$57+'%&'E&#+-&+#','@/5$D!,1!='7'+!
O*2!'/1,23*(',/!,/!()$!'($2/$(?!

!

!%7%&"$7'>;+-")$!,'"!6,302$)$/&'7$!'++.&(2*($5!>.'5$!(,!
=,+,/'*+!"3$2'6*!()*(!6,/(*'/&!1*6(&!*/5!'/1,23*(',/!*%,.(!()$!
1,./5'/>!*/5!$&(*%+'&)3$/(!,1!()$!GH!=,+,/'$&!*/5!()$!
&(2.>>+$&!,1!()$!$*2+-!6,+,/'&(&?!

!
64E'I$<7#','<)$!`*.+(!'&!,.2!/$#!NZ@"!9'%2*2-:!6,/(*'/'/>!
c:bFF!5,6.3$/(&!*/5!,()$2!3$5'*!()*(!)*7$!%$$/!&6*//$5!
12,3!0*0$2!'/(,!5'>'(*+!6,0'$&?!
!
9"2#%-3'L<".+','YI.%B$6(!>*($#*-!(,!&6),+*2+-!2$+$7*/(!
'/1,23*(',/!'/!)'&(,2-!#'()!*!1,6.&!,/!"/>+,J"3$2'6*/!
)'&(,2-?Y!
!
9"2#%-3'/+0+-+&)+'!+&#+-','@(!,11$2&!1.++!($D(!12,3!3,2$!()*/!
G:cWF!2$1$2$/6$!%,,4&:!$/6-6+,0$5'*&!*/5!/,/J

I ")#%-"$&' F +5','Z . (&(* / 5' / >!&'($!() *(!6 , 7$2&!$7$2 - !&'> / '1'6* / (!
*&O$6(! , 1! ` '6(, 2'* / !+'1$?!
!
F %-7 . '4$&A'@$#5&A',!N2$$!* / 5! , O$ / !*66$&&!(, !5*(*!*% , . (!
5$7$+ , 0 3 $ / (!' / !6 , . / (2'$&!*2 , . / 5!() $!>+ , %$?

8 *()!

!

8-" ; +'8$H+2',!<)$!;2'3$!;*>$&!1$*(.2$&!*/-!*/5!$7$2-()'/>!
()*(!-,.!/$$5!(,!4/,#!*%,.(!;2'3$!P.3%$2&?!Z11$2'/>!,/$!,1!
()$!+*2>$&(!;2'3$!5*(*%*&$&!*/5!+'&(&!,1!;2'3$&?!

!

I"2<$7'!$7)<7<2',!`'&.*+!=*+6.+.&!,11$2&!(.(,2'*+&!,/!;2$J
=*+6.+.&:!9'3'(&!*/5!=,/('/.'(-:!]$2'7*('7$&:!"00+'6*(',/&!,1!
]'11$2$/('*(',/:!IA.$/6$&!*/5!I$2'$&?!"!6,++$6(',/!,1!3,5.+$&!
6*/!%$!.&$5!'/!&(.5-'/>!,2!($*6)'/>!=*+6.+.&?!!

!

F%70-$;'>7:*$','<)'&!&'($!,11$2&!'/1,23*(',/!,/!(,0'6&!12,3!
"&(2,/,3-!(,!O$%!*/5!=,30.($2!I-&($3&?!<,0'6&!*2$!
22/>$5!'/!$*&-!(,!2$*5!%,D$&!()*(!6,//$6(!&(.5$/(&!(,!3,2$!
'/J5$0()!2$&,.26$&?!

!

F%70-$;'($#* F%-7.','<)'&!0*>$!6,7$2&!"+>$%2*:!"00+'$5!
8*()$3*('6&:!=*+6.+.&!*/5!"/*+-&'&:!]'&62$($!
8*()$3*('6&:!N,./5*(',/&!,1!8*()$3*('6&:!T$,3$(2-:!L'&(,2-!
/5!<$23'/,+,>-:!P.3%$2!<)$,2-:!;2,%%'+'(-!*/5!
I(*('&('6&:!V62*(',/*+!8*()$3*('6&:!*/5!<,0,+,>-?

I6'$/6$!*/5!<$6)/,+,>-!

!
! *+ ; "2#-3'6<&)#"%&2!,!=, /7$2&', /!, 1!6*+6.+*(', /&!2$+*($5!(,!
6)$3'&(2-?!
!
1&)3)7%:+."$'%0'1$-#*',!<)$!>, *+!, 1!()'&!6, ++$6(', /!'&!(,!
O2, 7'5$!*!&$*26)*%+$!5*(*%*&$!, 1!*.(), 2'(*('7$!$/7'2, /3$/(*+!
2$&, .26$&!'/!/, /J($6)/'6*+!+*/>.*>$?!=, /($/(!, 2'>'/*($&!12, 3!
O$$2J2$7'$#$5!*2('6+$&!#2'(($/!%-!1'$+5!$DO$2(&:!6, /($/(!
O*2(/$2&:!&.6)!*&!()$!C?I?!T$,+, >'6*+!I.27$-!*/5!6, /($/(!
&, .26$&!&.6)!*&!()$!M/7'2, /3$/(*+!;2, ($6(', /!">$/6-?!
!
1&)3)7%:+."$'%0'M"0+',!'I'($!O2, 7'5$&!>+, %*+!*66$&&!(,!
4/, #+$5>$!*%, .(!+'1$!, /!M*2()!(,!'/62$*&$!*#*2$/$&&!*/5!
./5$2&(*/5'/>!, 1!+'7'/>!/*(.2$!()*(!'&!>*()$2$5:!>$/$2*($5:!*/5!

!

($-#"& . $7+?2'9+$7#*'D)"+&)+'L<" . +','<) '&!&'($!'&!&$+1!
5$&62'%$5!*&!()$!Y7'2(. *+Y! 8 $5'6*+!=$ / ($2! , 11$2' / >!&O$6'*+'Q$5!
6$ / ($2&!* / 5!(, 0'6&!12 , 3 !" / *(, 3 -!(, !O , 3 $ / R&! L $*+()?!<) $!&'($!
+& , ! , 11$2&! / . 3 $2 , . &!2$& , . 26$&!1 , 2!++!) $*+()!(, 0'6&?!

!

( )L -$C , 9"77' I "-#<$7'M$5',!<) '&!'&!*!%*&'6!O*>$!() *(!O2 , 7'5$&!
+' / 4&!(, !7*2' , . &!7'2(. *+!+*%&!() *(!O2$&$ / (!*!A . $&(' , / :!*!
5$&62'O(' , / !* / 5!* / !*6('7'(-!(, !O2$&$ / (!() $!* / &#$2?!

!

G00")"$7'D#-"&H'O*+%-3' F +5'D"#+',! I '($!$DO+*' / &!%*&'6&! , 1! I (2' / >!
<) $, 2-:!() $! 3 *() $ 3 *('6&!' / 7 , +7$5!' / !&(2' / >!() $, 2-:!6 , & 3 , + , >-:!
O$, O+$!*&& , 6'*($5!#'() !&(2' / >!() $, 2-:!$DO$2' 3 $ / (&!*% , . (!&(2' / >!
() $, 2-:!* / 5!'(&!) '&(, 2-?!

!

8$-#")7+'> . K+&#<-+',!<) $! ; *2('6+$!"57$ / (. 2$!'&!*!6 , / &(* / (+-!
$7 , +7' / >!$5 . 6*(' , / *+!O2 , B$6(!&O , / & , 2$5!%-!() $! ; *2('6+$!] *(*!
T2 , . O! , 1!() $!9*#2$ / 6$! \ 24+$-!P*(' , / *+!9*% , 2*(, 2-!

!

8*32")$7'D)"+&)+' / +2%<-)+'! +&#+-','<) '&!'&!*!#$%!%*&$5!5*(*!
%* / 4!() *(!O2 , 7'5$&!' / 1 , 2 3 *(' , / !1 , 2!+7+&!gJWF?!9' / 4&!1 , 2!
($*6) ' / >!* / 5!+$*2 / ' / >!2$& , . 26$&!' / !O) -&'6*+!&6'$ / 6$?!<) $!
3 *($2'*+&!*2$!6+*&&'1'$5!%-!>2*5$!+7+&:!(, O'6&!* / 5!*6('7'(-!
(-O$&?!

!

87$&#2'@$#$5$2+','] *(*%*&$!O2 , 7'5$&!&(* / 5*25'Q$5!
' / 1 , 2 3 *(' , / !*% , . (!() $!7*&6 . +*2!O+* / (&:! 3 , &&$&:!+'7$2# , 2(&:!
) , 2 / # , 2(&:!* / 5!+'6) $ / &! , 1!() $!C? I ?!* / 5!'(&!($22'(, 2'$&?

O2'(' / >i!9* / >. *>$i!9'($2*(. 2$!

4$5+70"2*',' " / ! , / +' / $!(2* / &+*(, 2!6 , / (*' / ' / >!5 , Q$ / &! , 1!
+* / >. *>$&?!

!

'

1&)3)7%:+."$'(3#*")$','"/!,/+'/$!$/6-6+,0$5'*!5$5'6*($5!(,!
3-(),+,>-:!1,+4+,2$:!*/5!2$+'>',/!'/!&'D!3*B,2!>$,>2*0)'6*+!
2$>',/&?!
!
L$7+'M"#+-$-3'E&.+Q','@/5$D!,/+-!(,!T*+$!9'($2*(.2$!I$2'$&?!!
=)$64!#'()!+'%2*2-!1,2!1.++J($D(!'/1,23*(',/?!
!
L<".+'#%'L-$;;$-'$&.'F-"#"&H','<)'&!+'/4!,11$2&!52,0!5,#/!
3$/.&!1,2!&0$6'1'6!+7+&!()*(!&(.5$/(&!3'>)(!/$$5!>2*33*('6*+!
&&'&(/6$?!@(!,11$2&!(,0'6&!,/!#,25!*/5!&$/($/6$!+$7$+&:!
A.'QQ$&:!&$/($/6$!0*2(&!*/5!1./6(',/&:!$&&*-!*/5!2$&$*26)!
0*0$2!*&&'&(*/6$!*/5!),#!(,!1,23!>,,5!0*2*>2*0)&?!
!
EM%K+M$&H<$H+2','8$>*J&'($!,1!+*/>.*>$!+'/4&?!
!
E&#+-&+#'!7$22")2'>-)*"K+','<)'&!&'($!,11$2&!+'/4&!(,!*!6,++$6(',/!
,1!6+*&&'6*+!9'($2*(.2$!#2'(($/!%-!Ef!*.(),2&?!<)$2$!'&!*+&,!*!
&$6(',/!,1!.&$2!6,33$/(*2-!*&!#$++!*&!+'/4&!(,!0.26)*&$!3,2$!
6+*&&'6*+!('(+$&?!
!
M$53-"&#*','V$&,.26$&!1,2!3$5'$7*+!+'($2*(.2$!&(.5'$&?!
!
M"#+-$-3'!-"#")"2;'G&7"&+','<)'&!&'($!,11$2&!+'($2*2-!62'('6'&3&!
,1!#,24!12,3!()$!Gf()!*/5!WF()!=$/(.2'$&?!<)$2$!'&!*+&,!
'/(2,5.6(',/&!,1!()$!*.(),2&!,1!()$!#,24&!*&!#$++!*&!62'('6'&3&!
,1!()$!*.(),2&?!
!
M"#+-$-39"2#%-3P)%;','"6*5$3'6:!&6),+*2+-:!*/5!62'('6*+!
2('6+$&!,/!\2'('&)!*/5!"3$2'6/!+'($2*(.2$!,1!()$!/'/$($$/()!
*/5!(#$/('$()!6$/(.2'$&?!
!
M"#+-$-3'/+0+-+&)+'!+&#+-'5*(*%*&$%6,/(*'/&!1.++!($D(!1,2!
3,2$!()*/!HE:FFF!0+,(!&.33*2'$&:!&-/,0&$&!*/5!#,24!
,7$27'$#&:!/$*2+-!GFF:FFF!*2('6+$&i$&&*-&!,1!+'($2*2-!62'('6'&3&:!

3 , 2$!( ) * / !WEH:FFF!* . ( ) , 2!%' , >2*0) '$&:! 3 , 2$!( ) * / !hcF!+'($2*2-!
B , . 2 / *+&:! / $*2+-!b [:FFF!6+*&&'6!* / 5!6 , / ($ 3 0 , 2*2-!0 , $ 3 &:! 3 , 2$!
( ) * / !G f :cFF!6+*&&'6!* / 5!6 , / ($ 3 0 , 2*2-!&) , 2(!&(, 2'$&:! 3 , 2$!( ) * / !
c:EFF!* . ( ) , 2!' / ($27'$#&:! 3 , 2$!( ) * / ! [:WFF!6+*&&'6!($D(&!* / 5!
3 . 6) ! 3 , 2$?!
!
M< ; "&$-"< ; ',' 8 $5'$7*+:!2$ / *'&&* / 6$:!* / 5!&$7$ / ($$ / ( ) J

!

!

"2(!*/5!8.&'6!

>-#)3)7%:+."$','Z7$2!E:FFF!*2('&(&!*2$!+'&($5!%.(:!3,&(!
.&$1.++-:!'(!>.'5$&!-,.!(,!()$!,/+'/$!6,++$6(',/&!()*(!),.&$!*!
>'7$/!#,24?!!
!
>-#'9"2#%-3'/+2%<-)+2','T*($#*-!,1!+'/4&!6,7$2'/>!*++!0$2',5&!
,1!*2(!*/5!'(&!)'&(,2-?!!=2$*($5!%-!*!02,1$&&,2!*(!I#$$(!\2'*2!
=,++$>$?!
!
>-#'D%<-)+','T*($#*-!#$%&'($!5'7'5$5!%-!6*($>,2-?!
!
>'#%'R'%0'(<2")$7'E&2#-<;+&#

O

!
E&07$#"%&'!$7)<7$#%-','<)'&!&'($!#*&!62$*($5!*&!*!2$&,.26$!1,2!
'/1+*(',/!*/5!'/1+*(',/!2$+*($5!/$#&?!\.(!3,&(!'30,2(*/(+-:!(,!
02,7'5$!*!&'30+$!*/5!*+#*-&!.05*($5!CI!@/1+*(',/!=*+6.+*(,2?!
!
B>D@>X'L7%22$-3'%0'D#%)A'($-A+#'O+-;2','T+,&&*2-!,1!
1'/*/6'*+!*/5!'/7$&('/>!($23&!*++,#&!-,.!&$*26)!%-!($23!,2!
%2,#&$!%-!+$(($2!3,2$!()*/![:FFF!($23&!*/5!5$1'/'(',/&!2$+*($5!
(,!()$!&(,64!3*24$(?!!
!
B+C'Y%-A'D#%)A'1Q)*$&H+

6 , 3 02$) $ / &'7$! 3 $5'6*+!2$& , . 26$&!1 , 2!02 , 1$&&' , / *+&!* / 5!
6 , / & . 3 $2&?!
!
("22"22" : : "'D#$#+'@+ : $-# ; +&#'%0' 9 +$7#* ',! I '($!6 , / (*' / &!
' / 1 , 2 3 *(' , / !2$+*($5!(, ! 3 * / -!(, 0'6&!' / !( ) $!) $*+( ) !* / 5! / . (2'(' , / !
1'$+5&:!*&!#$++!*&!' / 1 , 2 3 *(' , / ! , / !L$*+( ) !=*2$!N*6'+'('$&!* / 5!
9'6$ / &$&:!] '&$*&$!= , / (2 , +:!5*(*!* / 5!&(*('&('6&!&O$6'1'6*++-!1 , 2!
0$, 0+$!' / !( ) $! I (*($! , 1! 8 '&&'&&'00'?!!
!
B<-2"&H' / +0+-+&)+' ! +&#+-',' <) '&!5*(*%*&$!6 , / (*' / &! , 7$2!
H:FFF!A . '64!+$&& , / &!* / 5!$7'5$ / 6$J%*&$5!6*2$!&) $$(&:! , 7$2!
W:WFF! / . 2&' / >!&4'++&!* / 5!&4'++!6 , 3 0$($ / 6 - !6) $64+'&(&:! , 7$2!G:HFF!
6 , / (' / . ' / >!$5 . 6*(' , / ! 3 , 5 . +$&:! , 7$2!bEF!+$>*+!6*&$&:!* / 5! , 7$2!
HEF!2$&$*26) !' / &(2 . 3 $ / (&?!!
!
[ℙD℘'B$#"%&$7'M"5 - $ - 3'%0' (+ . ")"&+',' &'($!6 , / (*' / &!*!6 , ++$6(' , / !
, 1!' / 1 , 2 3 *(' , / ! , / ! 3 , 2$!( ) * / !WFFF!5'$(*2 - !& . 00+$ 3 $ / (&:!* / 5!
6 , 3 %' / $&!&$7$2*+!> , 7$2 / 3 $ / (!52 . >!2$& , . 26$&!(, !
02 , 7'5$!6 , / &. 3 $2!' / 1 , 2 3 *(' , / :!6) $ 3 '6*+!&(2 . 6(. 2$:!(, D'6 , + , >-!
' / 1 , 2 3 *(' , / !* / 5! 3 . 6) ! 3 , 2$?!
!
F *%7+'4 - $"&'>#7$2',!" / !' / 1 , 2 3 *(' , / !2$& , . 26$! , 1!' 3 *>' / >! , 1!( ) $!
6$ / (2*+! / $27 , . &!& - &($ 3 :!' / 6+ . 5' / >! 3 *> / $('6!2$& , / * / 6$:!DJ2* - !
6 , 3 0 . ($5!(, 3 , >2*0) - !* / 5! / . 6+$*2! 3 $5'6' / $!' 3 *>$&?
!