!"#$%"&$'()'*(+,-."/'0/+#1'*+/"-#'2&$ '

40!*3#'>#>!?@!A=1=!,*B!;C D

5334-$0!2'!>#.2?#&*$#!2&Q*'-#!(L!$J#!$&%$J!(&!L*.02$@!(L!$J#!2'L(&3*$2('R!(&

5334-$0!2'!&#-].#00!>20&#Q*&>!(L!$J#!$&%$J!(&!L*.02$@!(L!$J#!2'L(&3*$2('=

596WJ#!$#&30!N]'(B2'QN!*'>!N]'(B2'Q.@N!>(!'($!&#O%2&#!K&((L!(L!0K#-2L2-!2'$#'$!$(!>#L&*%>=

5,6Na*$#&2*.N!3#*'0!J*T2'Q!*!'*$%&*.!$#'>#'-@!$(!2'L.%#'-#F!(&!?#!-*K*?.#!(L!2'L.%#'-2'QF!$J#
K*@3#'$!(&!&#-#2K$!(L!3('#@!(&!K&(K#&$@=

5>6N^?.2Q*$2('N!3#*'0!*'!#0$*?.20J#>!>%$@F!BJ#$J#&!(&!'($!L2b#>F!*&202'Q!L&(3!*'!#bK&&#00!(
23K.2#>!-('$&*-$%*.F!Q&*'&Q&*'$##F!(&!.2-#'0(B2-#'0##!&#.*$2('0J2KF!L&(3!*!LB#*0#>!(&!0232.*&!
&#.*$2('0J2KF!L&(3!0$*$%$#!(&!&#Q%.*$2('F!(&!L&(3!$J#!&#$#'$2('!(L!*'@!(T#&K*@3#'$=

5-. 6N^&2Q2'*.!0(%&-#N!3#*'0!*'!2'>2T2>%*.!BJ(M

576`*0!T(.%'$*&2.@!>20-.(0#>!$(!$J#!A20$&2-$F!?#L(&#!*!K%?.2-!>20-.(0%&#!%D#,&97!H D\Z;\F
$J#!2'L(&3*$2('!('!BJ2-J!*..#Q*$2('0!(&!$&*'0*-$2('0!2'!*!-.*23!*&#!?*0#>R!(&!

596`*0!]'(B.#>Q#!$J*$!20!2'>#K#'>#'$!(L!*'>!3*$#&2*..@!*>>0!$(!$J#!K%?.2-.@!>20-.(0#>
..#Q$2('0!(&!$&*'0*-$2('0F!*'>!BJ(!J*0!T(.%'$*&2.@!K&(T2>#>!$J#!2'L(&3*$2('!$(!$J#!A20$&2-$!?#L(&#!L2.2'Q!
'!-$2('!%'>#&!$J20!0#-$2('=

5-- 6NU#&0('N!2'-.%>#0!*'@!'*$%&*.!K#&0('F!-(&K(&*$2('F!L2&3F!*00(-2*$2('F!(&Q*'2c*$2('F
K*&$'#&0J2KF!?%02'#00F!(&!$&%0$=

5-)

5,6 P0!*!?#'#L2-2*&@!(L!*'!2'*>T#&$#'$!0%?32002('!(L!*!L*.0#!(&!L&*%>%.#'$!-.*23!$(!$J#!K20$&2-0%?0#O%#'$.@!>20-(T#&0!$J#!L*.02$@!(L!$J#!-.*23F!*'>!L*2.0!$(!>20-.(0#!$J#!L*.0#!(&!L&*%>%.#'$!-.*23!$(!$J#!A20$&2-$R!(&

5>6 P0!$J#!?#'#L2-2*&@!(L!*'!>T#&$#'$!K*@3#'$!(&!(T#&K*@3#'$!?@!$J#!A20$&2-$!(L!3('2#0!'($!>%#*'>!]'(B2'Q.@!L*2.0!$(!&#K*@!$J#!2'*>T#&$#'$!K*@3#'$!(&!(T#&K*@3#'$!$(!$J#!A20$&2-$=

5D6 e($B2$J0$*'>2'Q!0%?0#-$2('!Z*\!(L!$J20!0#-$2('F!$J#!-(%&$!3*@!*00#00!'($!3(&#!$J*'!$B(!$23#0!$J#* 3(%'$!(L!>*3*Q#0!BJ2-J!$J#!A20$&2-$!0%0$*2'0!?#-*%0#!(L!$J#!*-$!(L!$J#!K#&0('F!*'>!$J#&#!0J*..!?#!'(!-2T2.!K#'*.$@F!2L!$J#!-(%&$!L2'>0!*..!(L!$J#!L(!.(B2'QM

5-6 WJ#!K#&0('!-(332$$2'Q!$J#!T2(.*$2('!L%&'20J#>!(LL2-2*.0!(L!$J#!A20$&2-$!&#0K('02?.#!L(&2'T#0$2Q*$2'Q!L*.0#!-.*230!T2(.*$2('0!B2$J!*..!2'L(&3*$2('!]'(B'!$(!$J*$!K#&0('!*?(%$!$J#!T2(.*$2('!B2$J2'!79!>*@0!*L$#&!$J#!>*$#!('!BJ2-J!$J#!K#&0('!L2&0$!(?$*2'#>!$J#!2'L(&3*$2('R!

5)6 WJ#!K#&0('!L%..@!-((K#&*$#>!B2$J!*'@!2'T#0$2Q*$2('!?@!$J#!A20$&2-$R

5+64$!$J#!$23#!$J#!K#&0('!L%&'20J#>!$J#!A20$&2-$!B2$J!2'L(&3*$2('!*?(%$!$J#!T2(.*$2('F!'(!-&232'*.K&(0#-%$2('F!-2T2.!*-$2('F!(&!*>32'20$&*$2T#!*-$2('!J*>!-(33#'-#>!B2$J!&#0K#-$!$(!$J#!T2(.*$2('F!*'>!$J#!K#&0('!>2>!'($!J*T#!*-$%*.!]'(B.#>Q#!(L!$ J#!#b20$#'-#!(L!*'!2'T#0$2Q*$2('!2'$(!$J#!T2(.*$2('=

5B6

5:6V2$J2'!;:9!>*@0!*L$#&!&#-#2T2'Q!*!-(3K.*2'$!*..#Q2'Q!T2(.*$2('0!2'T(.T2'Q!A20$&2-$!L%'>0F!$J#
4$$(&'#@!X#'#&*.!L(&!$J#!A20$&2-$!(L!1(.%3?2*!0J*..!>(!#2$J#&!(L!$J#!L(!.(B2'QM

576e($2L@!$J#!-(%&$!$J*$!J#!(&!0J#!2'$#'>0!$(!K&(-##>!B2$J$2(F!2'!BJ2-J!-*0#!$J#!0#*.
3*@!?#!.2L$#>!%'.#00F!L(&!Q((>!-*%0#!0J(B'F!$J#!-(%&$!-('$2'%#0!$J#!0#*.R!(&

596

5#66K('!*!0J(B2'Q!?@!$J#!A20$&2-$!$J*$!%'&#0$&2-$#>!K*&$2-2K*$2('!>%&2'Q!$J#!-(%&0#!(L!$J#
.2$2Q*$2('!?@!$J#!O%2!$*3!K.*2'$2LL!B(%.>!2'$#&L#&#!B2$J!(&!%J#A20$&2-$!$J*$!%'&#0$&2-$#>!K*&(0#-%$2('!(L!$J#!-*0#F!
(&!B(%.>!?#!&#K#$2$2(%0F!2&&#.#T*'$F!(&!L(&!K%&K(0#0!(LJ*&*003#'$F!$J#!-(%&$!3*@F!2'!2$0!>20-&#$2('F
.232$*$2('0!('!$J#!O%2!$*3!K.*2'$2LLS0!K*&$2-2K*$2('F!0%-J!*0M

5&3,232$2'Q!$J#!'%3?#&!(L!B2$J#!#0!$J#!O%2!$*3!K.*2'$2LL!3*@!-*..R

5&3,232$2'Q!$J#!.#'Q$J!(L!$J#!$#0$23('@!(L!0%-J!B2$'#00#0R

5&3,232$2'Q!$J#!O%2!$*3!K.*2'$2LL!S0!#&(0!*$2('!(L!B2$'#00#0R!(&

5&6^$J#&B20#!.232$2'Q!$J#!K*&$2-2K*$2('!2'!O%2!$*3!K.*2'$2LL!2'!$J#!.2$2Q*$2('=

5!66K('!*!0J(B2'Q!?@!$J#!>#L#'>*'$!$J*$!%'&#0$&2-$#>!K*&$2-2K*$2('!>%&2'Q!$J#!-(%&0#!(L!$J#
.2$2Q*$2('!?@!$J#!O%2!$*3!K.*2'$2LL!B(%.>!?#!L(&!K%&K(0#0!(LJ*&*003#'$!(&!B(%.>!-*%0#!$J#!>#L#'>*'$!
%'>%#!?%&>#'!(&!%"#-#00*&@!#bK#'0#F!$J#!-(%&$!3*@F!2'!2$0!>20-&#$2('F!.232$!$J#!K*&$2-2K*$2('!?@!$J#
$*3!K.*2'$2LL=

5'6 5-6$PL!$J#!A20$&2-$!#.#-$0!'($!$(!K&(-##>!*'>!$J#!O%2!$*3!*-$2('!B*0!K&(K#&!K%&0%*'$!$(!0%?0#-$2('
Z-\ (L!$J20!0#-$2('F!$J#!O%2!$*3!K.*2'$2LL!*T#!$J#!0*3#!&2QJ$!$(!-('>%-$!$J#!*-$2('!*0!$J#!4$$(&@
X#'#&*.!L(&!$J#!A20$&2-$!(L!1(.%3?2*!B(%.>!J*T#!J*>!2L!J#!(&!0J#!J*>!-J(0#'!$(!K&(-##>!K%&0%*'$!$(
0%?0#-$2('!Z?\!(L!$J20!0#-$2('=!PL!$J#!A20$&2-$!0(!&#O%#0$0F!$J#!A20$&2-$!0J*$J?#K2#0T#L>*B2
K.#*>2'Q0!L2.#>!2'!$J#!*-$2('=

5)6VJ#'!$J#!O%2!$*3!K.*2'$2LL!K&(-##>0!B2$J!$J#!*-$2('F!$J#!-(%&$F!B2$J(%$!.232$2'Q!$J#!0$*$%0!*'
&2QJ$0!(L!$J#!O%2!$*3!K.*2'$2LLF!3*@!'#T#&$J#.#00!K#&32$!$J#!A20$&2-$!$(!2'$#&T#'#!*$!*!*$#&!>*$#!%K(
0J(B2'Q!(L!Q((>!-*%0#=!

526 5-6$$57#6$!$J#!A20$&2-$!K&(-##>0!B2$J!*'!*-$2('!?&(%QJ$!?@!*!O%2!$*3!K.*2'$2LL!K%&0%*'$!$(!0%?0
Z?\ (L!$J20!0#-$2('F!$J#!O%2!$*3!K.*2'$2LLF!0%?[#-$!$(!0%?K*&*Q&*KJ!Zg\!(L!$J20!K*&*Q&*KJF!0J*..!&#-#2T#
.#*0$!;<hF!?%$!($!3(&#!$J*'!H<hF!(L!$J#!K&(-##>0!(L!$J#!*-$2('!(&!0#$$.#3#'$!(L!$J#!-.*23F!>#K#'>2Q
%K('!$J#!#b$#'$!$(!($!(BJ2-J!$J#!O%2!$*3!K.*2'$2LL!0%?0$*'$2*..@!-('$&2?%$#>!$(!($!J#!K&(0#-%$2('!(L!$J#!*-$2('=

596VJ#&#!$J#!*-$2('!20!('#!BJ2-J!$J#!-(%&$!L2'>0!$7#!?*0#>!K&23*&2.@!('!>20-.(0%&#0!(L
0K#-2L2-!2'L(&3*$2('F!($J#&!$J*'!2'L(&3*$2('!K&(T2>#>!?@!$J#!O%2!$*3!K.*2'$2LLF!&#.*$2'Q!$(!*..#Q*$2('0!(&!
$&*'0*-$2('0!2'!*!-&232'*.F!-2T2.F!(&!*'>32'20$&*$2T#!J#*&2'QF!2'!*!&#K(&$F!J#*&2'QF!*%>2$F!(&!2'T#0$2Q*$2(
-(' >%-$#>!?@!*!A20$&2-$!*Q#'-@F!(&!L&(3!$J#!'#B0!3#>2*F!$J#!-(%&$!3*@!*B*&>!0%-J!0%30!*0!2$!-('02>#&
KK&(K&2$#F!?%$!2'!'(!-*0#!3(&#!$J*'!;9h!(L!$J#!K&(-##>0F!$*]2'Q!2'$(!*--(%'$!$J#!02Q'2L2-*'-#!(L!$J#!
2'L(&3*$2('!*'>!$J#!&(.#!(L!$J#!O%2!$*3!K.*2'$2LL!2T*'-2'Q!$J#!-*0#!$(!.2$2Q*$2('=

5#64'@!K*@3#'$!$(!(!*!O%2!$*3!K.*2'$2LL!%'>#&!$J20!K*&*Q&*KJ!0J*..!?#!3*>#!L&(3!$J#!K&(-##>0!(L
$J#![%>Q3#'$!(&!$J#!0#$$.#3#'$!(L!$J#!-.*23=!4'@!O%2!$*3!K.*2'$2LL!&#-#2T2'Q!*!K*@3#'$!%'>#&!$J20!
K*&*Q&*KJ!0J*..!*.0(!&#-#2T#!*'!*3(%'$!L(&!*0('*?.#!#bK#'0#!0BJ2-J!$J#!-(%&$!L2'>0!$(!J*T#!?##'!
'#-#00*&2.@!2'-%&&#>F!K.%0!&#*0('*?.#!*'$$(&'#@S0!L##0!*'>!-(0$0=!4..!0%-J!#bK#'0#F!L##0F!*'>!-(0$0!0J*..!
?#!*B*&>#>!*Q*2'0$!$J#!>#L#'>*'$=

5)6 576#PL!$J#!A20$&2-$!>(#0K(!K&(-##>!B2$J!*'!*-$2('!?&(%QJ$!?@!*!O%2!$*3!K.*2'$2LL!K%&0%*'$!$
0%?0#-$2('!Z?\!(L!$J20!0#-$2('F!$J#!O%2!$*3!K.*2'$2LL!0J*..!&#-#2T#!*'!*3(%'$!BJ2-J!$J#!-(%&$!>#-2>#0!20!
&#*0('*?.#!L(&!-(..#-$2'Q!$J#!-2T2.!K#'*.$@!*'>!>*3*Q#0R!K&(T2>#>!F!$J*$!$J#!*3(%'$!2'!$J#!($.#00!$J*'!
H<hF!*'>!'($!3(&#!$J*'!79hF!(L!$J#!K&(-##>0!(L!$J#!*-$2('!(&!0#$$.#3#'$!(L!$J#!-.*23=!

5964'@!K*@3#'$!$(!(!*!O%2!$*3!K.*2'$2LL!%'>#&!$J20!K*&*Q&*KJ!0J*..!?#!3*>#!L&(3!$J#!K&(-##>0!(L
$J#![%>Q3#'$!(&!$J#!0#$$.#3#'$!(L!$J#!-.*23=!

'#-#00*&2.@!2'-%&&#>F!K.%0!&#*0('*?.#!*$$(&'#@S0!L##0!*'>!-(0$0=!4..!0%-J!#bK#'0#0F!L##0F!*'>!-(0$0!0J*..
?#!*B*&>#>!*Q*2'0$!$J#!>#L#'>*'$‡

5+6WJ#!K(&$2('!(L!$J#!&#-(T#&@!'($!>20$&2?%$#>!K%&0%*'$!$(!K*&*Q&*KJ0!Z;\!*'>!ZH\!(L!$J20
0%?0#-$2('!0J*..!?#!K*2>!$(!$J#!A20$&2-$!$&#!*0%&@=

5:6 576¥J#$J#&!(&!'($!$J#!A20$&2-$!K&(-##>0!B2$J!$J#!*-$2('F!2(L!&#L2'>0!$J*$!$J#!*-$2('!B*

L%&$J#&*'-#!(L!*'!*-$2('!%'>#&!$J20!0%?-J*K$#&!(&!($J#&!#LL(&$0!$(!0$(K!('#!(&!3(&#!T2(.*$2('0!(L!$J20!0%?-J*K$#&=

5D6WJ#!&#.2#L!*%$J(&2c#>!%'>#&!0%?0#-$2('!Z*\!(L!$J20!0#-$2('!0J*..!2'-.%>#M

5-6"#2'0$*$#3#'$!B2$J!$J#0*3#!0#'2(&2$@!0$*$%0!$J*$!$J#!#3K.(@##F!-('$&*-$(&F!(&!*Q#'$!B(%.>J*T#!J*>!?%$!L(&!$J#!>20-&232'*$2('R

5)6WB(!$23#0!$J#!*3(%'$!(L!?*-]!K*@R

( )* +,-".<"$$Q'C'&3'0$JMG0M@4/$/%$%/O'G$A@N0K$0'I'G@[illegible]303%40K$A3D'G@A3/E$%2$@G/3BA'
B%40/GMB/3%4"

WJ#!K&(T202('0!(L!$J20!-J*K$#&!*&#!'($!#b-.%02T#F!*'>!$J#!&#3#>2#0!K&(T2>#>!L(&!0J*..!?#!2'!*>>2$2('!$(!*'@
($J#&!&#3#>2#0!K&(T2>#>!L(&!2'!*'@!($J#&!.*B!(&!*T*2.*?.#!K%&0%*'$!$(!-(33('!.*B=

( )* +,-".=" $$#3I3A$34I'0/3H@/3I'$&'C@4&0"

5@ 5-6$VJ#'#T#&!$J#!4$$(&'#@!X#'#&*.!L(&!$J#!A20$&2-$!(L!1(.%3?2*!J*0!&#*0('!$(!?#.2#T#!$J*$!*'@!K#&0('
3*@!?#!2'!K(00#002('F!-%0$(>@F!(&!-('$&(.!(L!*'@!>(-%3#'$*&@!3*$#&2*.!(&!2'L(&3*$2('!&#.#T*'$!$(!*!L*.0#
-.*230!.*B!

5:6PL!0%-J!>#3*'>!20!L(&!$J#!Q2T2'Q!(L!(&*.!$#0$23('@F!$J#!>#3*'>!0J*..!>(!$J#!Q2T2'Q!(M
576U&#0-&2?#!$J#!>*$#F!$23#F!*'>!K.*-#!*$!BJ2-J!(&*.!$#0$23('@!0J*..!-(33#'-#R
596P4T$24@539.570-8 2.14#*B!3!T53*2Q3 1 69.849.8 0Td 0.8Td 4.7d 21*$2(!$#94 2$)(J*$d 0Td 00000

*%$J(&2c#>!?@!*KK(2'$3#'$!(&!?@!.*B!$(!&#-#2T#!0#&T2-#!(L!K&(-#00!('!?#J*.L!(L!0%-J!K*&$'#&0J2KF!
-(&K(&*$2('F!*00(-2*$2('F!(&!#'2@R

596A#.2T#&2'Q!*'!#b#-%$#>!-(K@!(L!0%-J!>#3*'>!(&!K#$2$2('!$(!$J#!K&2'-2K*.!(LL2-#!(&!K.*-#!(L
?%02'#00!(L!$J#!K*&$'#&0J2KF!-(&K(&*$2('F!*00(-2*$2('F!(&!#'2@R!(&

5#6A#K(02$2'Q!*'!#b#-%$#>!-(K@!(L!0%-J!>#3*'>!(&!K#$2$2('!2'!$J#!6'2$#>!)$*$#0!3*2.!?@
&#Q20$#&#>!(&!-#&$2L2#>!3*2.F!B2$J!*!&#$%&'!&#-#2K$!&#O%#0$#>F!*>>&#00#>!$(!0%-J!K*&$'#&0J2KF!-(&
*00(-2*$2('F!(&!#'$2$@!*$!2$0!K&2'-2K*.!(LL2-#!(&!K.*-#!(L!?%02'#00=

5)6)#&T2-#!(L!*'@!0%-J!>#3*'>!(&!K#$2$2('!3*@!?#!3*>#!%K('!*'@!'*$%&*.!K#&0('R!?@!$J#!L(..(B2Q
3#$J(>0M

576A#.2T#&2'Q!*'!#b#-%$#>!-(K@!(L!0%-J!>#3*'>!(&!K#$2$2('!$(!$J#!K#&0('R!(&

596A#K(02$2'Q!*'!#b#-%$#>!-(K@!(L!0%-J!>#3*'>!(&!K#$2$2('!2'!$J#!6'2$#>!)$*$#0!3*2.!?@
&#Q20$#&#>!(&!-#&$2L2#>!3*2.F!B2$J!*!&#$%&'!&#-#2K$!&#O%#0$#>F!*>>&#00#>!$(!$J#!K#&0('!*$!$J#!K#&0('S0!
&#02>#'-#!(&!K&2'-2K*.!(LL2-#!(&!K.*-#!(L!?%02'#00=

526!T#&2L2#>!&#$%&'!?@!$J#!2'>2T2>%*.!0#&T2'Q!*'@!-2T2.!2'T#0$2Q*$2T#!>#3*'>!(&!*'@!K#$2$2('!L2.#
K%&0%*'$!$(!0%?0#-$2('Z*\!(L!$J20!0#-$#2($2'Q!L(&$J!$J#!3*''#&!(L!0%-J!0#&T2-#!0J*..!?#!K&((L!(L!0%-J!
0#&T2-#=!!P'!$J#!-*0#!(L!0#&T2-#!?@!&#Q20$#&#>!(&!-#&$2L2#>!3*2.F!0%-J!&#$%&'!0J*..!?#!*--(3K*'2#>!?@!$
&#$%&'!K(0$!(LL2-#!&#-#2K$!(L!>#.2T#&@!(L!0%-J!>#3*'>=

5H6 5-6$WJ#!K&(>%-$2('!(L!>(-%3#'$*&@!3*$#&2*.!2'!&#0K('0#!$(!*!-2T2.!2'T#0$2Q*$2T#!>#3*'>!0J*..!
3*>#!%'>#&!*!0B(&'!-#&$2L2-*$#F!2'!0%-J!L(&3!*0!$J#!>#3*'>!>#02Q'*$#0F!?@!$J#!L(..(B2'QM

576P'!$J#!-*0#!(L!*'!*$%&*.!K#&0('F!?@!$J#!K#&0('!$(!BJ(3!$J#!>#3*'>!20!>2&#-$#>R!(&

596P'!$J#!-*0#!(L!*!K#&0('!($J#&!$J*'!*'!*$%&*.!K#&0('F!?@!*!K#&0('!J*T2'Q!]'(B.#>Q#!(L!$J#
L*-$0!*'>!-2&-%30$*'-#0!&#.*$2'Q!$(!0%-J!K&(>%-$2('!*'>!*%$J(&2c#>!$(!*-$!('!?#J*.L!(L!0%-J!K#&0('=

5)6WJ#!-#&$2L2-*$#!0J*..!0$*$#!$J*$!*..!(L!$J#!>(-%3#'$*&@!3*$#&2*.!&#O%2&#>!?@!$J#!>#3*'>!*'>!2'
$J#!K(00#002('F!-%0$(>@F!(&!-('$&(.!(L!$J#!K#&0('!$(!BJ(3!$J#!>#3*'>!20!>2&#-$#>!J*0!?##'!K&(>%-#>!
'>!3>#!*T*2.*?.#!$(!$J#!L*.0#!-.*230!.*B!2'T#0$2Q*$(&!2>#'$2L2#>!2'!$J#!>#3*'>=

5+64'@!K#&0('!%K('!BJ(3!*'@!-2T2.!2'T#0$2Q*$2T#!>#3*'>!L(&!$J#!K&(>%-$2('!(L!>(-%3#'$*&@
3*$#&2*.!J*0!?##'!0#&T#>!0J*..!3*]#!0%-J!3*$#&2*.!*T*2.*?.#!L(&!2'0K#-$2('!*'>!-(K@2'Q!$(!$J#!L*.0#!
-.*230!.*B!2'T#0$2Q*$(&!2>#'$2L2#>!2'!0%-J!>#3*'>!*$!$J#!K&2'-2K*.!K.*-#!(L!?%02'#00!0%-J!K#&0('F!(&!*$!
0%-J!($J#&!K.*-#!*0!$J#!L*.0#!-.*230!.*B!2'T#0$2Q*$(&!*'>!$J#!K&#0('!$J#&#*L$#&!3*@!*Q&##!*'>!K&#0-&2?#!
2'!B&2$2'QF!(&!*0!$J#!-(%&$!3*@!>2&#-$!K%&0%*'$!$(!0%?0#-$2('Z[\Z;\!(L!$J20!0#-$2('=!)%-J!3*$#&2*.!0J*..!?
3*>#!0(!*T*2.*?.#!('!$J#! &#$%&'!>*$#!0K#-2L2#>!2'!0%-J!>#3*'>F!(&!('!0%-J!.*$#&!>*$#!*0!$J#!L*.0#!-.*230!
.*B!2'T#0$2Q*$(&!3*@!K&#0-&2?#!2'B&2$2'Q=!!)%-J!K#&0('!3*@F!%K('B&2$$#'!*Q&##3#'$!?#$B##'!$J#!K#&0
'>!$J#!L.0#!-.*230!.*B!2'T#0$2Q*$(&F!0%?0$2$%$#!-(K2#0!L(&!(&2Q2('(@!K*&$!(L!0%-J!3*$#&2*.=

5G6 5-6$*-J!2'$#&&(Q*$(&@!2'!*!-2T2.!2'T#0$2Q*$2T#!>#3*'>!0J*..!?#!*'0B#&#>!0#K*&*$#.@!*'>!L%..@!2'
B&2$2'Q!%'>#&!(*$J!*'>!0J*..!?#!0%?32$$#>!%'>#&!*!0B(&'!-#&$2L2-*$#F!2'!0%-J!L(&3!*0!271*.63(F)K&3!*'>!

5,64'@!K#&0('!*KK#*&2'Q!L(&!(&*.!$#0$23('@!K%&0%*'$!$(!*!-2T2.!2'T#0$2Q*$2T#!>#3*?#0J*..!
#'2.#>!$(!$J#!0*3#!L##0!*'>!*..(B*'-#0!$J*$!*&#!K*2>!$(!B2$'#00#0!2'!$J#!)%K#&2(&!1(%&$!(L!$J#!A20$&2-$!(L
1(.%3?2*=!

5P 5-6$WJ#!4$$(&'#@!X#'#&*.!L(&!$J#!A20$&2-$!(L!1(.%3?2*!0J*..!>#02Q'*$#!*!L*.0#!-.*230!.*B
2'T#0$2Q*$(&!$(!0#&T#!*0!-%0$(>2*'!(L!>(-%3#'$*&@!3*$#&2*.F!*'0B#&0!$(!2'$#&&(Q*$(&2#0F!*'>!$&*'0-&2K$0
(&*.!$#0$23('@!&#-#2T#>!K%&0%*'$!$(!$J20!0#-$2('F!*'>!0J*..!>#02Q'*$#!0%-J!*>>2$2('*.!L*.0#!-.*230!.*B!
2'T#0$2Q*$(&!0*!$J#!4$$(&'#@!X#'#&*.!L(&!$J#!A20$&2-$!(L!1(.%3?2*!>#$#&32'#0!L&(3!$23#!$(!$23#!$(!?#!
'#-#00*&@!$(!0#&T#!*0!>#K%$2#0!$(!$J#!-%0$(!>2*'=

5)6 576$!L*.0#!-.*230!.*B!2'T#0$2Q*$(&!BJ(!&#-#2T#0!*'@!>(-%3#'$*&@!3*$#&2*.F!*'0B#&0!$(
2'$#&&(Q*$(&2#0F!(&!$&*'0-&2K$0!(L!(&*.!$#0$23('@!K%&0%*'$!$(!$J20!0#-$2('!0J*..!$&*'032$!$J#3!$(!$J#!
-%0$(>2*'=!!WJ#!-%0$(>2*'!0J*..!$*]#!KJ@02-*.!K(00#002('!(L!0%-J!3*$#&2*.F!*'0B#&0F!(&!$&*'0-&2K$0!*'>!
0J*..!?#!&#0K('02?.#!L(&!$J#!%0#!3*>#!(L!$J#!3!*'>!L(&!$J#!&#$%L&(-%3#'$*&@!3*$#&2*.!K%&0%*'$!$(!
K*&*Q&*KJ!Z8\!(L!$J20!0%?0#-$2('=

596WJ#!-%0$(>2*'!3*@!-*%0#!$J#!K&#K*&*$2('!(L!0%-J!-(K2#0!(L!0%-J!>(-%3#'$*&@!3*$#&2*.F
'0B#&0!$(!2'$#&&(Q$(&2#0F!(&!$&*'0-&2K$0!(L!(&*.!$#0$23('@!*'!0J*..!?#!&#O%&2&2*.!L(&#(L?@!*'@!L*.0#!
-.*230!.*B!2'T#0$2Q*$(&F!(&!*'@!($J#&!(LL2-#&!(&!#3K.(@##!(L!$J#!^LL2-#!(L!$J#!4$$(&'#@!X#'#&*.!L(&!$J#!
A20$&2-$!(L!1(.%3?2*!BJ(!20!*%$J(&2c#>!L(&!0%-J!%0#!?@!$J#!4$$(&'#@!X#'#&*.!L(&!$J#!A20$&2-$!(L!1(.%3
)%-J!3*$#&2*.F!*'0B#&0F!*'>!$&*'0-&2K$0!3*@!?#!%0#>!?@!*'@!*'%$J(&2c#>!L*.0#!-.*230!.*B!2'T#0$2Q*$(&!(&!
($J#&!(LL2-#&!(&!#3K.(@##!2'!-("#-$2(!B2$J!$J#!$*]2'Q!(L!(&*.!$#0$23('@!K%&0%*'$!$(!$J20!0#-$2('=!

5#6fb-#K$!*0!($J#&B20#!K&(T2>#>!2'!$J20!0%?0#-$2('F!'(!>(-%3#'$*&@!3*$#&2*.F!*'0B#&0!$(
2'$#&&(Q*$(&2#0F!(&!$&*'0-&2K$0!(L!(&*.!$#0$23('@F!(&!-(K2#0!$J#&#(LF!BJ2.#!2'!$J#!K(00#002('!(L!$J#!
-%0$(>2*'F!0J*..!?#!*'T*2.*?.#!L(&!#b*32'*$2('!?@!*'@!2'>2T2>%*.!($J#&!$J*'!*!L*.0#!-.*230!.*B!2'T#0$2Q*$(&!
(&!(LL2-#&!(&!#3K.(@##!$U#!^LL2-#!(L!$J#!4$$(&'#@!X#'#&*.!L(&!$J#!A20$&2-$!(L!1(.%3?2*!*%$J(&2c#>!
K%&0%*'$!$(!0%?K*&*Q&*KJ!Zg\!(L!$J20!K*&*Q&*KJR!K&(T2>#>!$J*$!'($J2'Q!2'!$J20!0%?K*&*Q&*KJ!20!2'$#>
K&#T#'$!M

53WJ#!*T*2.*?2.2$@!(L!3*$#&2*.F!*'0B#&0F!(&!$&*'0-&2K$0!2L!-('0#'$!20!Q2T#'!?@!$J#!K#&0('!BJ(
K&(>%-#>!0%-J!3*$#&2*.F!*'0B#&0F!(&!$&*'0-&2K$0R

533A20-.(0%&#!$(!$J#!1(%'-2.F!2'-.%>2'Q!*'@!-(332$$##!(L!$J#!1(%'-2.R

5338A20-.(0%&#!$(!$J#!6'2$#>!)$*$#0!4$$(&'#@S0!^LL2-#R

536A20-.(0%&#!$(!*'@!($J#&!L#>#&*.!(&!0$*$#!*Q#'-@!L(&!%0#!?@!0%-J!*Q#'-@!2'!L%&$J#&*'-#!(L
2$0!0$*$%$(&@!&#0K('02?2.2$2#0R!K&(T2>#>F!$J*$!>20-.(0%&#!(L!2'L(&3*$2('!$(!*'@!$J#&!$J*'!$J#!1
(&!$J#!6'2$#>!)$*$#0!4$$(&'#@S0!^LL2-#!0J*.!.!?#>!(.@!%K('!*KK.2-*$2('F!3*>#!?@!$J#!4$$(&'#@!
X#'#&*.!L(&!$J#!A20$&2-$!(L!1(.%3?2*!$(!$J#!)%K#&2(&!1(%&$!(L!$J#!A20$&2-$!(L!1(.%3?2*F!0J(B2Q!0%?0$*
'##>!L(&!$J#!%0#!(L!$J#!2'L(&3*$2('!?@!0%-J!*Q#'-@!2'!L%&$J#&*'-#!(L!2$0!0$*$%$(&@!&#0K('02?2.2$2#&!
Q2T2'Q!$J#!2'>2T2>%*.0!BJ(!K&(T2>#>!$J#!2'L(&3*$2('!*'*'!(KK(&$%'2$@!$(!?#!J#*&>!('!$J#!&#.#*0#!(L!$J#!
2'L(&3*$2('R!(&

5I6A20-.(0%&#!$(!*'@!L#>#&*.!(&!0$*$#!*Q#'-@!2'!-("#-$2('!B2$J!$J#![(2'$!-*0#!(&!2'T#0$2Q*$2('
B2$J!$J#!^LL2-#!'5 T6(R)-1(!)-1(()-6(&)]TJ 0 Tc 6.542-6(d (!)Tj /TT1 ! Tf 0.0062 Tc -1.1607.975 T151.68I)Tj 10.8

6

5336W&*'0-&2K$0!(L!(&*.!$#0$23('@!0J*..!?#!*T*2.*?.#!L(&!#b*32'*$2('!?@!$J#!K#&0('!BJ(
K&(>%-#!0%-J!$#0$23('@F!(&!?@!*!&#K&#0#'$*$2T#!(L!$J*$!K#&0('!*%$J(&2c#>!?@!$J*$!K#&0('!$(!#b*32'#!
0%-J!$&*'0-&2K$0=

5+6

"#$%&'!$(!)$*$#!+!,(-*.!/*.0#!1.*230!4-$0