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: '-5-!*G&)+*%('8!*(%+'-!&@! I 1=!*\$*!C+5%')\$(6!O&D-G-'6!%O-'-!(!-'(!7'&D\$*7!*+ . F-'!&@!
-*%\$%\$-5!%O(%!'-!& : %\$*7!%&!F- , & . -!5\$7*(%&'\$-5!@&'!%O-!,&#-M¹³!!

?%\$!5!%O-! !*(%+'-!&@!%O-! I 1=5!5 : +' '-#F8!%O-! 1 1 J !%O(%!\$5!%O-! @& , +5!&@!%O\$5!('%\$,)-M!
?*! : ('%\$, +) ('6!%O-!(+%O&'5!-9(. \$* -!5\$7*(%&'\$-5!%&!%O-! 1 1 J !%&!\$#- *%\$@8!DO-%O-'!%O-!)-G-)!
&@! : +F)\$, ! -9 : &5+'-! Q5 , '+%\$*%\$5-#)&D! 5 , '+%\$*8R! ('\$5\$*7! @' & . ! < 1=5! \$. : (, %5! %O-!
'-(#(F)\$8!(*%#!%&*-'!&@! I 1=5M! 10-!%- ' ! ! !' -@-'5!%&!%O-!)-G-)!&@!& : (W+-*-556!&'!
&F@+5 , (%\$&*6! \$*! %O-! \$*!&' . (%\$&*! - *G\$' &* . - *%[! \$*! DO\$,O! (*! (+%O&'! : '- : ('-5! . &' -!
, & . :)-96! 6!\$*!&' . (%\$&*M¹⁴!C5! / -+5-)\$* , N!(*#! , &2(+%O&'5!5(%-6! , & . :)-9\$8!
D\$O\$*!%O-!\$*!&' . (%\$&*! - *G\$' &* . - *%!' -#+ , -5!%('5 : ('- * , 8!(5!b . &' -!%\$. -!(*#!-@&'!%&' & . !
&+%5\$#-'5!%&!F- , & . -! : '& : -')8!\$*!&' . -#0!\$5! '-W+\$' -#6!%O-'-F8!&F5 , +\$*7!%O-!(F)\$8!%&!
+*#-'5%(*#!¹⁵! !' -@-'5!%&!%O-!5- *%\$. - *%!&@!%O-!#5\$,)&5+'-56!F-\$*7!%O-!-9%- *%!%&!DO\$,O!
'- : &'5! , &*%(\$*!%- ' . 5!D\$O!& : %\$. \$5\$, !&'! : -55\$. \$5\$, !5- *%\$. - *%!%O(%! , (: %+'-!b!%O-!(@@- , %!
&'!@--)\$*7!&@!(, & . . +*\$, (%\$&*O¹ !!

10-! . &%SG(%\$&*! @&'! %O\$5! 5%+#8! \$5! F(5-#!&*! %O--! : '\$. ('8!@ , (%&'5! (5! @&))&D5M! 4\$5%6!
, &' : &'(%-!% (9(%\$&*!O(5!7(\$*-#15+F5%(*%\$!)5 : &%)\$70!\$*!' - , - *%!%\$. -5M! ?*!(!' - , - *%!&+%)\$*-6!
%O-! / & ('#!&@! 1 (9(%\$&*!%&#-#! , &* , - *%!(F&+%!(9(%\$&*!(*%\$2(G&\$#(* , -!\$*15(%\$*7!%O(!bm%no-!
(, %\$&*5!&@!(!-D!F+5\$*-55-56! : ('%\$, +)(')8!('7-! . +)%\$*(%\$&*!)5! - *7(7\$*7!\$*(77-55\$G-!% (9!
(G&\$#(* , -6!O(G-!%('*\$50-#!%O-'- : +(%\$&*5!&@! . (*8!F+5\$*-55-5!%O(%!'-!#&\$*7!%O-!'\$70!
%O\$*70M¹ ! ?*! (##\$%\$&*! %&! 5- , %\$&*! ` J ! &@! %O-! ! Q J %OR!
'-W+\$*\$*7!%O-! (**+!) : '- : ('(%\$&*! &@! (! = - : &'%! &@! " *%\$8! 1 (9! ?*!&' . (%\$&*! @&'! , - '%(\$*!
, &' : &'(%-!% (9! - *%\$%\$-56!@(\$* -55! (*#!% ' (*5 : ('- * , 8!O(G-!F- * ! , &'* - '5%&*-'!\$*! C+5%')\$(M!
10-ID(G-!&@! , &*#- . *(%\$&*!(\$5\$*7!@' & . !%O-lbS(* (. (! : (: -'50!\$*!] ^_1!(*#!%O-lbS(#\$5-!
: (: -'50!\$*!] ^_g6¹ !&'! . +)%\$*(%\$&*!) , & . : (*\$-5!5+ , 0!(5!C :)-6! ('-!P+5!5& . -!-9(. :)-5!
&@!%O-!7'&D\$*7! : +F)\$, ! , &* , - *%!&G-'!@(\$* -55!(*#!% ' (*5 : ('- * , 8!\$*!%O-!C+5%')\$(*%!(9(%\$&*!
585%- . M¹ !!

C)%O&+70!(!@\$' . 05!@*\$* (* , \$!)5%(%- . - *%5!(' -!5- - *!(5!(*!\$. : &'%(%!5&+' , -!&@!\$*!&@' . (%\$&*6!
%O-!+5-@+)*-55!&@!% (9!#5\$,)&5+'-5!O(5!F- - *!&@! , &* , - *%!&@!5& . -!%\$. -M²⁰! ?%!O(5!) - (#8!

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¹³ #: : ") *9,D3'-3+" n &M:D+L : +, / " dm&*'+,3D; " 234" 2D3+9K3D; +\$; " X&O:Y" m22X"] : K&D,9N" EB=" ` 3; " AFA=J/"
% , , K9Vkt03,3P . &MP3*kt03,39 : ,kt09@O . 3@(h=hFC3?@A : : Q@>cCA@30=(@>>B(h(cAF=?Gkt0-9,D-Q* , -&+k0-9,@O . 3@
: >>: ChAC@BF(c

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6³⁰!(*#!%O-'-@&'-'!,&. :(*\$-5! . (8!+5-!#5\$,)5+ '-5! (5!\$*5%' + . - *%5!@&'!5&,\$()!
,&*%&'&!&@!(*#!&G- '!%O-!*('(%\$G-M³¹!!

L \$%O!%O-!(@&' - . - *%\$&* - #!\$*! . \$*#6!%O\$!('%\$,)-!-9(. \$* - 5!\$7*(%&'\$-5!%&!%O-!1 1 J !%&!(55-55!
DO-%O- ' ! , (%-7&'\$5\$*7! ,&. : (*\$-5! (5! ! Q, &. : '\$5\$*7!
,&. : (*\$-5! O(G\$*7!)&D! ,&. : ('(%\$G-!%(9! : (8(F)-! (5! :- ' ! . (*#(%-#!%(9!%'(*5: ('-* , 8!
'- : &'%R6!, &. : ('-#%&! !QO\$70-'!, &. : ('(%\$G-!%(9! : (8(F)-!(5!
:- ' !%O-! . (*#(%-#!%(9!%'(*5: ('-* , 8!'- : &'%R6!D\$))!)- (#!%&!#5@- '- * , -5!\$*!' - (#(F)\$8!(*#!
%&* - ! \$*! I 1 = 5M! / 8! #&\$*7! 5&6! %O-! (+%O&'5! (5N6!

10-! (+%O&'5! : &\$5\$!%O'--!N-8!& : &'%+*\$5\$-5!%O(%! - *%\$5\$-5! O(G-! \$*! , &*%&'&))\$*7!%O-\$'!(9!
*('(%\$G-!G\$(! I 1 = 5!!!

_M 10-!7-*-'(!)(,N!&@(G(\$)(F)-!%(9!\$*%&' . (%\$&*!#+-!%&! : '\$G(, 8!' - 7+)(%\$&*5i!!

]M 10-!)(,N!&@!(\$7* . - *%!F-%D--*%O-!(, , &+*%\$*7!(*#!%(9(%\$&*!585%- . 5!)-(#\$*7!%&!
(!#5\$, &*% - , %-#* - 55!\$*!(G(\$)(F)-!%(9!\$*%&' . (%\$&*!i(*#!

`M 10-!7-*-'(!)(%\$%+#!(G(\$)(F)-!\$*!G&)+*%('8!#5\$,)5+ '- 5M!!!

1D&!08 : &%0-5-5! ('-! . (#-M!4\$'5%6!%O(%! , &. : (*\$-5!D\$%O! !
: '- : ('-! I 1 = 5! DO\$, 0! ('-! - (5\$- ' ! %&! ' - (#i! (*#6! 5- , &*#6! %O(%! , &. : (*\$-5! D\$%O!
! : '- : ('-! . &'-! & : %\$. \$5\$, ! G&)+*%('8!%(9! '- : &'%5M! c - 5 : \$%-! %O-!
(% - . : %5! @&'! , &. : (*\$-5! %&! , &*%&'&!)%O-!*('(%\$G-!%O'&+70!&F@+5, (%\$&*6³³!7&G- '* . - *%!
(% - *%\$&*! . (8!h!(*#!*%\$*7!' - 5- (' , O!F8! / - + 5-)\$* , N!(*#! , &2(+%O&'5³⁴!(*#!E& - 6! < (!(*#!
10& . (5³⁵!h!)- (#!%&!\$. : ' &G- . - *%5!\$*!' - (#(F)\$8M!!!

10\$5! ('%\$,)-! \$5! 5% '+ , %+ - #! (5! @&))&D5! 5- , %\$&*!]! &+%)\$* - 5! %O-! F(, N7' &+*#6! F'\$-@)8!
, &*5\$#- '\$*7!%O-!*- - #!%&!F()(* , -! : '\$G(, 8!(*#!%(9!%'(*5: ('-* , 8!(*#!%O-!#-G-)& : . - *%5!\$*!
C+5%'(\$(!D\$%O!' - 5 : - , %!%&! . (*#(%&'8!(*#!G&)+*%('8!%(9!#5\$,)5+ '- 5M!B- , %\$&*!`15-5!&+&!
%O-!)\$%- '(%+ - !(*#!\$#- *%\$@S-#!7(: 5!\$*!-9%(*%!' - 5- (' , O!(*#!\$*!#&\$*7!5&6! ,)('\$@S-5!%O-! : '- 5- *%!
5%+ #805!@& , +5M!B- , %\$&*!q!@&))&D5!F8!('%, +)(%\$*7!%O-! - 5- (' , O!W+ - 5%\$&*!(*#!08 : &%0-5-5M!
B- , %\$&*!k! : '- 5- *%5!%O-! - 5- (' , O!#- 5\$7*6!@&))&D-#!F8!%O-!N-8!@S*#5*756!#5\$, +55\$&*!(*#!
(*)85\$5!\$*!5- , %\$&*!1M!B- , %\$&*!g!5+ . . ('\$5-5!(*#! , &* ,)+ # - 5!%O-! ('%\$,)-6!D\$%O!%O-! . (\$*!
@S*#5*756!%(9! : &)\$, 8!\$. :)\$, (%\$&*56!()5&!)\$. \$(%\$&*5!(*#!@+ + ' - ! - 5- (' , O!M!

30" #: : "+" = c/"3Q&M:P"
31" T3K%+ : ") e3L : 9&+/"d2 : ' + . " , % : "<+M:9, L : + , "#, &D ; Y") " 63DD3, -M : ") +3' ; 9-9" & (" #3D : %&'O : D"] : K&D, 9" EAF F F J"
BhE = J "< / \$ % 2 = -) / >) C \$ O & 2 " O O / * * \$ 2 & G # # & / 2 9 & " U - / " 3 Q & M : " + = c I " \ : + D ; / " 3 Q & M : " + = G I ") K & 9 , &' : 9 ") "
83' ' 39" d2 % : " X D : 3 , - & + " & (" , % : ") * O , - , + . " a D & (: 99 - & + " - + " n D : : \$: N " E = C C ? J " A B E ? J " E # # / \$ 2 ' & 2 6 :) W V % 6 = 2 & X = ' & / 2 O) = 2 3)
! / # & " (" h = c P"
32" 7 % - ' : " , % : D : "

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10-!(<+)\$*(%\$&*!)C*\$2CG&\$\$(*,->(D!Q<CC>R!O(5!()5&!'-5+)%-#!\$*!'-5%'+,++'\$*7!&@!
5&.-!7)&F(!-*\$%\$-5!(*#!\$5!-9:-,%-#!%&!'-5+)%!\$*!F\$))\$&*5!&@!#&))('5!\$*!5()-5!F-\$*7!
b!'-%+*'-#!%&!%O-!C+5%')(\$(*!%(9!F(5-0!(5!D-))!(5!(##\$%\$&*!)7&#&5!(*#15-'G\$, -5%(9!Q f B 1R!
:(8.-*\$5M⁴⁵!!

L \$%O!%O-5-!#-G-)&:.-*\$5!\$*!. \$*#6!%O-'-!\$5!(15+F5%(*%\$()!'-7+)(%&'8!50\$@!\$*!C+5%')(\$(%O(%!
\$5!@&, +5-#!&*!. &'!-!:+F)\$,)8!%'*5:(-'*%!(#*#15, '+%\$*5-\$#!%9!(@(\$'5!D\$%O!'-5:-,%!%&!('7-'
F+5\$*-55-5M!10-!:'-5-*%15%+#8!5:-,\$@\$,())8!,&*5\$#-'5!%O-!,&*%-. :&'(*-&+5!#-G-)&:.-*\$!
&@!G&)+*%('8!%(9!#\$5,)&5+'-5!('\$5\$*7!(5!(!'-(5&*(F)8!*-D!(: '&(,O!%&!'-5:&*#!%&!%O-!
\$*,'-(5\$*7!,&*,-'*!&G-'!%(9:(8-'50!:(8\$*7!%O-\$!b@(\$!50('0!&@!%(9!,&*% '\$F+\$&*56!(*#!
%O-!. (*#(%-#!'-)-(5-!&@!%O-!(**+!)%9!%'*5:(-'* ,8!'-:&'%5M⁴ !10-!(+%O&'5!,&*5\$#-'6!\$*!
:('%\$,+)'6!%O-!'-)-(5-!&@! I 1=5!:+5+(*%!%&!%O-!11 J M⁴ !"

565! ")-9\$'*8G!'>!8&@)8'#F!#\$!W9:'8*-*!

C5! *%&-#6! G&)+*%('8!%(9!'-:&'%\$*7! \$*! C+5%')(\$(! \$5! 5\$))! \$*! \$%5! \$*@(,* ,8M! L O\$)-! 5&.-!
,&':&'(%\$&*5! O(G-6! &G-'!%O-!:(5%!#-, (#-6!F--*!+*#-'%(N\$*7!(!)-G-)!&@!G&)+*%('8!%(9!
'-:&'%\$*76!(!N-8! . &G-!%&D('#5!-* ,&+!(7\$*7! ,&':&'(%\$&*5! %&! #&! 5&! ('&5-! D\$%O! %O-!
\$*%&'&#+, %\$&*! &@!(!@'(-D&'N!@&'!G&)+*%('8!%(9!'-:&'%\$*7!\$*%\$%(\$-#!F8!%O-!C+5%')(\$(*!
7&G-'* . -*%M! 10\$5!F-7(*!D\$%O!%O-!]^_k! / +#7-%M!;&-!E&,N-86!%O-!%O-!*!1'-(5+!'-6!D'&%-!
%&!%O-! / &('#!&@! 1 (9(%\$&*!'-W+-5\$*7!%O-!#-G-)&:.-*\$!&@!(!,&#-!(5!:('%!&@!%O-!]^_k!
/ +#7-%M⁴ !

C!G&)+*%('8!,&#-!D\$))!:'&G\$#-!(!@'(-D&'N!@&'!('7-!F+5\$*-55-5!%&!%(N-!%O-!
)-(#6!%&!F-,&.-! . &'!-%'(*5:(-'*%!(#*#0-):-!#+, (%-!%O-!:+F)\$,!(F&+%!%O-\$'
,&. :)\$(*,-!D\$%O!C+5%')(\$05!%(9!)(D5M⁴ !

4&))&D\$*7!\$*%\$%\$(),&*5+)%(%\$&*!D\$%O!(!L &'N\$*7! f '&+:⁵⁰!\$*!B-:%- . F-'!]^_k6!%O-!'-,-,\$:!
&@!_a15+F. \$55\$&*56⁵¹!(*#%O-!'-)-(5-!&@!(!,&*5+)%(%\$&*!:(-'!\$*!c-, - . F-'!]^_k6!%O-!,&#-!
D(5!5+F5-W+-*%)8!@\$(%)\$5-#!\$*!4-F'+('8!]^_1M! 10-!]^_12_g! J &. . &*D-(%)O! / +#7-%!
(*&+*, -#!%O-!*-D!G&)+*%('8!11 J 6!O\$70)\$70%\$*7!%O(%!

10-!f &G-'* . -*%\$5!,&. . \$%-#%&!-* ,&+!(7\$*7!7'-(%-'!%(9!%'*5:(-'* ,8!D\$%O\$*!
%O-!,&':&'(%-!5-, %&'6! -5:-,\$())8! F8! . +)\$*%(%\$&*!) ,&':&'(%\$&*5M! 10-!
!D\$))!-* ,&+!(7-!F+5\$*-55-5!D\$%O!(*! (**+!)%+*'&G-'!&@!
|^_^^! . \$))\$&*!&'! . &'!%&!:+F)\$50!\$*%&' . (%\$&*!%&!5+ :&'%!7'-(%-'!(*#!F-%-!'

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c \$5,) &5+'-5!F8!5\$7*(%&'\$-5!%&!%0-!11J!, (*!&, , +'!D\$%0\$*!5-G-'!), &*%-9%56!\$*,)+#\$*7!\$*!
%0-!7-*-'(): +': &5-!@\$*(, \$!)!5%(- . - *%5!Q f S4B5R6!\$*!%(9-5!:(\$#!'- : &'%56!(*#!, &': &'(-!
5&, \$()!' -5: &*5\$F\$)\$%8!QJB=R!' - : &'%56!@&'!-9(. :)-6!(*#!(' -!*&'!-W+\$' -#!%&!F-!-9%- '*())8!
(+#\$-#%⁴A*)\$N-!%0-!())\$7* . - *%\$55+-5!%0!(('\$5-!D\$%0!%0-! . (*#!(-#!%(9!%' (*5: ('-*, 8!
'- : &'%5!'-)- (5-#!(*#+())86⁵!%0-! / &('#!&@!1(9(%\$&* !*\$#\$, (%-#!%0(%!#\$5,) &5+'-5!50&+)#!
F-!, (: (F)-!&@!F-\$*7!' - , &*, \$)-#!%&!%0-!\$*, & . -!%(9!' -+*!(*#!@\$*(, \$!)!5%(- . - *%5M!10-!
/ &('#! &@!1(9(%\$&*! \$56! *%*-%0-)-556! (D(' -! &@! %0-! #5, '- : (*, 8! F-%D-- *! \$%5!)\$5%! &@!
5\$7*(%&'\$-5! (*#!%0-!C1p! : +F)\$50-#!#(('\$5\$*7!@' & . !%0-!@)-9\$F\$)\$%8! +*#- '!%0-!11J6!
DO\$,0!+)\$\$. (%-)8!b . (N-5!, & . : ('\$5&*5!)-55! . - (*\$*7@+)OM !10-! / &('#!&@!1(9(%\$&*!0(5!

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&@%O-!%,O*\$W+-5!@&'!5+F%)-!:'& . &%\$&*!D&+)#!,'-(%-(!:&5\$%\$G-!%&*-M!!1O\$5!5%+#8!
#&-5!*&%!#\$'-,%!)8!(##'-55!%O-!\$*%-*%!&@!%O-!(+%O&'!F+!'(%O-'!DO-%O-'!(! . &'!-!
:&5\$%\$G-!%&*-!(@@-,%5!\$*G-5%&'5M⁴!

"9%(*%!'-5-(',O!-9(. \$*-5!)\$*7+\$5\$,\$!(%%'\$F+%5!&@!G('\$&+5!' - :&'%5!(*#!#5\$,)&5+'-5M! 6!
&'!%O-!5-*\$%\$. - *%!&@!%O-!#5\$,)&5+'-5!h!%O-!(@@-,%!&'!@--)\$*7!&@!(!,& . . +*\$,\$(%\$&*⁵!h!O(5!
F--*!@&+*#!%&!O(G-!\$*%&' . (%\$&*!G()+-i !*\$@)+-*,-!*G-5%&'50!(*#!(*()85!G\$-D5!(*#!F-!
(55&,\$(%-#!D\$%O!-,&*& . \$,!&+%,& . -5i !F-!:&5\$%\$G-)8!(55&,\$(%-#!D\$%O!5%&,N!\$55+(* , - !
(*#! @'\$. ! :-'@&' . (*,-i ! (*#6! . (8! '-@)-,%! . (* (7-'\$!)! F-0(G\$&+!'! 5+,O! (5! %(9!
(77'-55\$G-*55M¹⁰⁰!!

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-('*\$*75! (*#!, (50!@)&D! :- '@&' . (*, -M!B\$. \$)(')86!E- *'8¹⁰ !@&+*#!%O(%!%&*-!&@! - ('*\$*75!
: '-55! '-) - (5-5! \$*@)+-*, -5! \$*G-5%&'50! '-(, %\$&*5! (*#!)&*7- '!' -) - (5-5! '-#+, -#! . ('N-%!
\$. : (, %M!>&+70' (*! (*#!<, c &*()#¹⁰ !&F5- 'G-#!%O(%!#\$, %\$&*!\$5!\$*(: : '& : '\$(%-!@&'!7(+7\$*7!
%O-!%&*-!&@!@\$(* , \$()!#5,)&5+'-5M! 10(%!5%+#8!@&, +5-#!&*!4&' . !_^2 j !'- : &'%5!' -G-()\$*7!
%O(%! @' -W+-*%)8! &, + '\$*7! %- ' . 5! %O(%! ('-! & : %\$. \$5%\$, ! \$*! #\$, %\$&*! 5+, O! (5! b'-5 : - , %06!
b5- , + '\$806!b : &D- '06! (*#!b(+%O&'\$%80!D\$))!*&%!F-!, &*5\$#- '-#!*!&'! : -', -G-#! : &5\$%G-)8!F8!
'- (#- '5! &@! F+5\$*-55! #&, + . -*%5M! 10-! (+%O&'5! '-@S*-#!%O-!7- *-')2 : + ' : &5-! E('G('#05!
f- *-')! ?*W+\$'- '!D&'#!)\$5%5!D0\$, O! 1-%)&, N!+%\$)\$5-#6¹⁰ ! (*#!,) (55\$@S-#!D&'#5!\$*!)\$5%5!5&!
%O(%!%O-!D&'#5!\$*#-#!(' -6!@'& . !(!@S*(* , -! : -'5 : - , %\$G-6! : &5\$%G-!&'!*-7(%\$G-M!10-!(+%O&'5!
#-()!D\$%O!%O-!@S)\$*750!-@@- , %5!&*!5%&, N5!#+ '\$*7!%O-!q2#(85!D\$*#&D! : '\$&'! (*#!5+F5-W+-*%!
%&!%O-!@S)\$*7!#(%-!&@!(!_^2 j M!!'

B\$. \$)('!%&%&*-6!(!7'&D\$*7!F!&@!@S*(* , -!(*#!(, , &+*\$*7!' -5- (' , O!+5-5% -9%+()!(*)85\$5!
%&! -9(. \$*-'! %O-! ! &@! , &' : &'(%-! '- : &'%5! Q : '\$. ('\$)8! _^2 j !'- : &'%5R6! \$5!
#-%-' . \$*(*%56! (*#!\$%5! , &*5-W+-* , -5M! = - (#(F)\$%8!' -@- '5!%&!%O-!) -G-) !&@!& : (W+-*-556!&'!

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G&)+ . -6¹¹ !(*#!\$*G-5% . -*%!-@@\$, \$-* , 86¹²⁰!D0\$)-!\$%!\$5!*-7(%\$G-)8!(55&,\$(%-#!D\$%0!%0-!,&5%!
&@!#-F%!(*#!%O-!5%&,N!:'\$, -!, '(50!'\$5N!¹²¹!>&+70'(*!(*#! < , c &*()#¹²²!

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'-#+,-5! : '&F(F)\$%8! &@! (+#\$%6! : '-G-*%5! (##\$%\$&*!) @&'-\$7*! 5(*,%\$&*5! &'! : -*%)\$-5! &'!
#-@)-,%5! : +F)\$,! , '\$%\$, \$5 . 6! G&)+*%('8! #5\$,) &5+'-5! D&+)#! F-! (G&\$#-#! 10\$5! D(56!
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! ! %0-!#5\$,) &5+'-!, 0&\$, -5!@!& . !%0-!+*#-'!)8\$*7!-, &* & . \$, 5M!

L \$%0!%0\$5!\$*! . \$*#6! f +(8!(##!,&2(+%0&'5!0\$70)\$70%0-!&%0-'!#5\$,) &5+'-! . -#\$+ . 5!F-8&*#!
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\$* , & . -! %&! (G&\$#! #5\$,)&5+ ' -6¹ !%O+5! (*%\$, \$: (%\$*7!%O-! , &5% ! & @! #5\$,)&5+ ' -M! B\$. \$) (') 86!%O-!
5%+ #8! F8! JO- *^{1 2}! \$*# \$, (% -5! %O(! () %O&+70! \$*G-5%&'5! (*%\$, \$: (%-#! (*! &G- ' ()) * - %! F- * - @ \$ %!
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%&! @ (, - ! \$* , ' - (5-#! 5 , '+%\$*8! D- ' - ! @ &+*#! %&! O(G-! 5 . ()) * -7(%\$G-! . ('N- %! ' - (, %\$&*5M!
J & . : (' (F) - ! @ \$ * # \$ *75! O(G-! () 5&! F- - *! -5% (F) \$50-#! \$*! ; (: (*6! DO- ' - ! (* & *2% \$G\$() * + . F- ' !
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C5!5+ , O6!%O-!)\$%-'(%+' -!5+77-5%5!%O(%!5 , '+%\$*8! (*#! : +F)\$, !-9 : &5+ ' - ! (' - !) \$*N-#!%&!\$. : (, %5!
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%O-! & : : &' %+ *\$*8! %&!5% ' (% -7\$, ()) 8! &F@+5 , (%-! DO(%! \$5! (! * -D! #5\$,)&5+ ' - ! ' -7\$. -! &'!5- %! %O-!
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, & . : (*\$-5! DO\$, O! (' - ! : +F)\$,)8! -9 : &5-#! h! #+ - ! %&! %O-! \$* , ' - (5-#! (G- * + -5! @ &'!5 , '+%\$*8! F% \$5\$) [(# + -5) - F - - 1

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%(9!\$*@&' . (%\$&*! 10\$5!\$5! ,& . : ('(F)-!%&!%0-! ('7+ . -*%! :&5-#!F8! / -+5-)\$* ,N! (*#! ,&2 (+%0&'5[^{1 5!}

1&!%0-!-9%-*%!%0(%!*&*2#5\$,&G-'8!&@!(77'-55\$G-!%(9! :)(*%\$*7!(,%\$G\$-5!\$5!(! ,&*5\$#-'(F)-!F-*-%\$6!D-! ,&*P- ,%+-!%0(%! . &'-%(9!(77'-55\$G-!@\$. 5!D\$))!+5-! . &'-%! @\$*(, \$()! '- :&'%\$*7! &F@+5, (%\$&*! 5%'(%-7\$-5! %0'+70! &G-'!8! ,& . :)-9! @\$*(, \$()! '- :&'%\$*7M!

E&D-G-'6!\$#!#&-5!*&%!*--#!%&!F-!&*)8!@&'!%0-! : + ' : &5-!&@!%(9!(77'-55\$G-* -556!(5!5--*!\$*! %0-!5%+#8!F8! / -+5-)\$* ,N!(*#! ,&2(+%0&'5i!\$%!, (*!)5&!F-!@&'!%0-! : + ' : &5-1&@!, &*% '&))\$*7!%0-! *('(%\$G-M¹ !10-!%0\$'#!& : :&'%+*\$%8!())&D\$*7!@&'!%0-! ,&*% '&)!&@%0-!*('(%\$G-!\$5%0-!)(%\$%+#!-! D\$%0\$*!G&)+*%('8!#\$5,) &5+'-5!7-*-'())8M¹ !!

4&))&D\$*7!%0-!)&7\$,!&@! f+(8! (*#! ,&2(+%0&'5¹ !(*#! < &'%&*6¹ ! ,& . :)-9\$%8!\$*! I 1=5! ('\$5-5! @'& . ! %0-!)(,N! &@! ()\$7* . -*%! F-%D--*! %(9! (*#! (, ,&+*\$*7! #5,) &5+'-56! %0-! ,& . :)-9\$%8!&@!(!@\$. 05!F+5\$*-55!%'(*5(,%\$&*5! (*#!)(,N!&@!N*&D)-#7-!D\$%0!' -7('5!%&! -9%-!*()! '- :&'%\$*7! (*#! #5,) &5+'-! '+)-5M! ?*! %0\$5! 5-*5-6! 6!(*#! !

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&F5-'G(%\$&*5!#' (D*!@' & . ! (**+()! '- : &' %5!&@!*&*2@\$*(*, \$()!@\$' . 5!)\$5%-#!&*!%0-!C+5%')\$(*!
B%&,N!"9,0(*7-!QCB eR!@&'!%0-! : - '\$&#!@' & . !]^^]!%&!]^_q! (*#! : '&G\$#-#!%0-!%& : !D&' #5!
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< , c&*()#)1 1! 10-!D&' #5!b>&5506!b>&55-506!b? . : (\$' . - *%06! bC7(\$*5%0! (*#! b c \$5 ,)&5-#0!
'- : '-5- *%!%0-!@\$G-! . &5%!@' -W+- *%)8!+5-#!* -7(%\$G-!D&' #5!\$*!C+5%')\$(*! (**+()! '- : &' %5! (*#!
'`g!kk! : -'! , - *%! &@! %0-! %&%()! @' -W+- * , 8! &@! * -7(%\$G-! D&' #5! +5-#!i! %0-! %& : ! @\$G-! . &5%!
@' -W+- *%)8!+5-#! : &5\$%\$G-!D&' #5!\$*!C+5%')\$(*! (**+()! '- : &' %5!D- ' -!b''@@- , %\$G-06!b / - * - @ \$%06!
bB% '&*706!b p+%5% (*#*\$*70! (*#!b f (\$*506! '- : '-5- *%\$*7!]]]k! : -'! , - *%!&@!%0-!%&%()!@' -W+- * , 8!
&@! : &5\$%\$G-!D&' #5!+5-#!C5!D&'#!@' -W+- * , 8!\$5! , (, +)(% -#!F8!#\$G\$#\$*7!%0-!%&%()!*+ . F- '!
&@!D&' #5!F-)&*7\$*7!%&!(!5 : - , \$@ \$, !D&'#!)\$5%F8!%0-!%&%()!*+ . F- '!&@!D&' #5!\$*!%0-!#& , + . - *%6!
%&*-!\$56!%0-!@&' -6! . - (5+ -#!(5!%0-!@' -W+- * , 8!&@! : &5\$%\$G-!D&' #5! . \$*+5!%0-!@' -W+- * , 8!&@!
* -7(%\$G-!D&' #5!+5-#!\$*! (! '- : &' %1 2! B+ , 0! (! . - (5+ '-! , (: %+ '-5! %0-! * -%! +5-!&@! D&' #5!
, 0(' (, % - '\$5\$*7!%0-!%&*-!F-%D-- *!& : % \$. \$5\$ \$, !Q\$-6!(!O\$70- '!* -%!G()+-R!(*#! : -55\$. \$5\$ \$, !Q\$-6!(

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E*;-&!HB!N)88&-*'#)\$:!

R5(%51<\$!	S&.T4(\$U! V,('06!	4,>!	4<\$0)#? W%&)5% '!	" ,&\$!	S&. " ,*5<! =& , :\$!X6!	S&. " 5851<\$! =& , :\$!X6!	S&. " 58! P5G51<\$!X6!	S&. Y5(O\$*! 95; *5<05% ,& 6!	Z++\$)%3\$!" 58! M5*\$!
S&.T4(\$U! V,('06!	D!	?AD[\!!	?AD[B!!	?AD[J!!	AJJI!!	A@BC!	A@]\!	AJJQ!!	?A@]\!
4,>!	?AD[\!!	D!	A[\Q!!	?ADBQ!	A@]@!	?A@II!	?AQQ\!!	A@Q@!	?AQIB!!
4<\$0)#?W%&)5% '!	?AD[B!!	A[\Q!!	D!	?AQDD!!	A@\I!	?A@]J!	?AQJ@!!	A@IB!	?AQJQ!!
" ,&\$!	?AD[J!!	?ADBQ!	?AQDD!!	D!	?A@CQ!	AJJI!!	AQ\C!!	A@[D!	AJ]]!!
S&. " ,*5<!=& , :\$!X6!	AJJI!!	A@]@!	A@\I!	?A@CQ!	D!	AJJJ!!	AQJD!!	A@[!!	A@ \J!
S&. " 5851<\$!=& , :\$!X6!	A@BC!	?A@II!	?A@]J!	AJJI!!	AJJJ!!	D!	ACD@!!	AQ[B!!	A \I!!
S&. " 58!P5G51<\$!X6!	A@]\!	?AQQ\!!	?AQJ@!!	AQ\C!!	AQJD!!	ACD@!!	D!	A\D!!	A\BC!!
S&. Y5(O\$*!95; *5<05% ,& 6!	AJJQ!!	A@Q@!	A@IB!	A@[D!	A@[!!	AQ[B!!	A\D!!	D!	AQ@!
Z++\$)%3\$!" 58!M5*\$!	?A@]\!	?AQIB!!	?AQJQ!!	AJ]]!!	A@\J!	A \I!!	A\BC!!	AQ@!	D!

uuJ&'')(%\$&*!\$5!\$7*\$@\$, (*!(%!%O-!^!^_!)-G-)!Q]2%(\$)-#RM!

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\$* , '-(5-#15, '+%\$*8! (*#! : +F)\$, ! : '-55+ '-! &G- '!)('7-! , &' : &' (%\$&*5! \$*! C+5%)\$(6! 0(5!)-#!
: ('%\$, +)('!, & . : (*\$-5! %&! '-5 : &*#! F8! : '&#+, \$*7! G&)+*%('8! %(9! '- : &'5! %0(! - * , & . : (55!
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?*!)\$*-!D\$%0!B\$#0+!(*#! L O\$%% '-#6¹ !%0-!(+%0&'5!5:)%)%0-!5(. . :)-!+5\$*7!D0(%!%0(%!5%+#8!
#-5, '\$F-#! (5! (!b:&)\$%\$, ())8! (, , - : %(F)-!%0'-50&)#06! : -'0(:5!0-'-!F-%%-'!#-5, '\$F-#! (5! (!
M! 10-!(+%0&'5!' (*N!%0-!, & . : (*\$-5!F(5-#!&*!%0-'! " 1=6!(*!
(: : '&(, 0! , &*5\$5%-*%! D\$%0! \$*@&' . (%\$&*! 5&+', -#! @'& . ! '-5: -, %\$G-! . (*#(%&'8! %(9!
%' (*5: ('-*, 8! '- : &'56!(*#!%0-*!O(G-!#-@*\$-#! : +F)\$,)8!-9: &5-#!, & . : (*\$-5! (5!%0&5-!D\$%0!
(*! " 1=!) -55! %0(*! %0-! . -#\$(*M! 10&5-! F-)&D! %0-! . -#\$(*! ('-!, (%-7&'5\$-#! (5!
6!D0)\$5!%0&5-!%0(%!O(G-!(!0\$70-'! " 1=!('-!, (%-7&'5\$-#! (5!
M! C'7+(F)86!%0\$5! , &+)%#!F-!5- *! (5! (*! ('F\$%' ('8!%0'-50&)#! (5!\$%!
'-5+)%5!\$*!0()@!&@!%0-!5(. . :)-!F-\$*7! : &)\$%\$, ())8!-9: &5-#!(*#!%0-!&%0-'!0()@!*&M!!!

C*! -9(. \$*(%\$&*!&@!%0-!, &' '-)(%\$&*!F-%D--*!%0-!G('\$ (F)-5!50&D5! *%!0\$70! , &' '-)(%\$&*!
(. &*7!%0-!G('\$ (F)-5!+5-#!\$*!-(, 0!&@!%0-! : '& : &5-#! . &#-)56!5+77-5\$*7! *%!\$55+-5!D\$%0!
G('\$ (F)-50! #5\$, '\$. \$*(*%! G()\$#%8!200! C! *%&-! 50&+)%#! F-! . (#-! '-7('#\$*7! %0-! 4&7! (*#!
4)-5, 02 j \$* , (\$#! \$*#-9-56! F&%0! F-\$*7! +5-#! (5! : '&9\$-5! @&'! '- (#(F\$)\$%8! (*#! %0- '-@&' -!
#5\$:)(\$8\$*7!(!0\$70! , &' '-)(%\$&*!A5\$*7!%D!#5@- '- *%! : '&9\$-5!@&'! . -(5+'\$*7!' - (#(F\$)\$%8!h!
D\$%0! 5\$. \$)('!@*\$*#75! h! \$. : '&G-5! %0-!' -)\$ (F\$)\$%8! &@! %0-! . &#-)! DO- *! -9(. \$*7! %0-!
' - (#(F\$)\$%8! = -7('#\$*7!%0-!G()\$#%8!&@!%0-! . &#-)56!%0-!(*)85-5!50&D!%0-!, &-@@\$, \$- *%5!&@!
%0-!\$*#- : - *#- *%!(*#!, &*% '&)G('\$ (F)-5! (#& : %-#!\$*%0-! . &#-)5! ('-! *%&!)D(85!5(%\$5\$, ())8!
5\$7*\$@\$, (*%M! 10-'-@&'-6! %0-! '-7'-55&\$*5! : '-5- *%!)&D! @2G()+-5! (*#!)&D! (#P+5%-#! =²M!
pG-'())6! (*! (*)85\$5! &@! %0-!, &' '-)(%\$&*5! F-%D--*! %0-! 5+F25(. . :)-50! #- : - *#- *%!(*#!
\$*#- : - *#- *%!G('\$ (F)-5!D\$))!5+@@\$, -!@&'! '- (, 0\$*7!%0-!@*\$*#75!&@!%0\$5!5%+#8M!

%) (%%! " + - " ' + - " - . 2%*%+! 7+# , \$:7*" ' *' 1%

M67! /8&-# ?#\$*8G!=\$+\$F:!

10-! : '-)\$. \$*('8!@*\$*#75!-9(. \$*-#!%0-!' -)(%\$&*50\$: !F-%D--*!())!_^!1!&F5-'G(%\$&*5!(*#!
'-G-()-#!(5--!, &' '-)(%\$&*! . (%\$9!&*!1 (F)-!`R!O(%!

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O-):\$*7!%&!--#+, (%-!%O-!:+F)\$,(F&+%!\$%5!,& . :)\$(*,-!D\$%O!%O-!%(9!)(D5!M²⁰¹!10-!,& . :>(*805!
%&*-\$!\$5!:\$&5\$G-\$!%&D('#5!%O-!b\$*%&&' . -#!:\$+F)\$,!5,'+\$*80²⁰²!(*#!%&D('#5!\$%5!'-\$+%(%)\$&*M²⁰³!!

=-7'-55\$&*! (*())85\$5! +5\$*7! '-(#(F)\$%8! \$*#-9-5! (5! \$*#- : - *#- *%! G('\$ (F)-5! (*#! (5!
#- : - *#- *%!G('\$ (F)-5! " 1=6!>*Q< ('N-%!J (: \$%)\$5(%)\$&*R!(*#!>*Q;4'-W!L &'#5R!Q<&#-)5!_6!
]6!(*#!`R!,&*%\$' . 5!%O(#!(!O\$70!" 1=!\$5!(55&,\$(%-#!D\$%O!' - :&'%5!%O(#!(' -!-(5\$-'!%&'!- (#!Q\$-6!
)&D!'-(#(F)\$%8!\$*#-9-5R!10-!,&-@@\$, \$- *%5!@&'!%O-!" 1=!('-!2^M]q1!Q s]M_`1R6!+5\$*7!4&7!
(5! (*! \$*#- : - *#- *%! G('\$ (F)-! (*#! 2^M]k_! Q s2]M_o1R6! +5\$*7! 4)-5,02j \$*,\$(#! (5! (*!
\$*#- : - *#- *%!G('\$ (F)-M!!!

L \$%O!%O-5-!@*\$*#*\$*75!\$*! . \$*#6!%O-!O\$70-'!%O-!" 1=6!%O-! . &'-'!(*5: ('- *%!(*#!+5-'!@'\$- *#)8!
%O-!' - :&'!h!F-\$*7!%O-!(\$. !&@!%O-!1 1 J!(*#!&+%)\$* -#!F8!%O-! / &('#!&@!1 (9(%)\$&*M²⁰⁴!10-!
,)- ('-'!%O-!#5,)&5+'-56!%O-! . &'-'!-(5\$)8!+*#- '5%&&#!%O-!,&*%-*%M! 10-5-'-5+)%5! ()\$7*!
F'&(#)8!%&!-9%(*#!'-5-(',O!&*!5,'+\$*8!(*#!:\$+F)\$,!-9:&5+'-!F-\$*7!)\$*N-#!%&!%&*-!(*#!
'-(#(F)\$%8!M²⁰⁵! E&D-G-'6!%O\$5!'(\$5-!W+-5%\$&*5! (5! %&! DO-%O-'!%O-!G&)+*%('8!5,0- . -!\$5!
O(G\$*7!%O-!-@@-,%!&@!\$*,-*%G\$5\$*7!,& . :(*\$-5!%&D('#5!%O-!5:\$'\$%!&@!%O-!)(D6!(5!%O-!B-*(%-!
,&*% . \$,5!=-@-'-*,-5!J& . . %%%-!-*W+\$'8!#55,+55-#M²⁰ !1O\$5!\$5!:(('\$,+)(')8!5&6!7\$G-*!

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(*#14)-5,02 j \$*, (\$#!Q\$-6!' - :&'%5!&@!, & . : (*\$-5!D\$%0!0\$70-'!" 1=!('-!-(5\$- '!&!'-(#R!D\$%0!
!&!(55&,\$(%\$&!D0(%5&-G-'!' -7('#\$*7!%&*-!(*#!" 1=!!

B+ . . ('\$5\$*76!+5\$*7!%0-!, '\$%- '\$(!&!5:)\$%%\$*7!%0-!5(. :)-!F-%D--*!, & . : (*\$-5!D\$%0!)&D!
" 1=!(*#!0\$70!" 1=!(5!(! : '&98!@&'! : +F)\$, !-9: &5+'-!(*#!5, '+%\$*86²²⁰!

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E*;-&!IB!39 ? ? *8G!)=!N)&=#%#&\$':!:=)8!0EC!

\$%&% ' (% ')" *+,+./%"	01)+/"2+ 3 &/%" 4!56789!"	#: ./-;"!<&1=:,%" >"?1@"2;,:)-'A" ;13 &+ '-%="4' 5B79"	#: ./-;"!<&1=:,%"C" 2;,:)-'=" (" " ;13 &+ '-%="4' 5BD9"
" ,&\$!	AIDI^^^!. _IA@@]6!	A@[B!. _A]]]6!	AJCD^^^!. _QA]CI6!
4<\$0)#?W%&)5% "!	?AQ]D^^!. _?QAD\B6!	?AJD]^!. _?DA[@\6!	?AQD\!. _?DAJ@D6!
4 ,>!	?AQIB^^!. _?QADJB6!	?AQ\Q^!. _?DhC@\6!	?AQI]!. _?DhICQ6!

5!"#\$(!5(\$!J! : %00%&>!35<2\$0!(\$>5(' %&>!Z"ME!#\$&)\$!#\$* ,*5<105 : ;<\$!,+!D@B!), : ;(%\$0!
,+!]@! ;21<%)!\$8 ; ,02(\$!`!<, F!0)(2*%&G!) , : ;5&%\$0E!]J! ;21<%)!\$8 ; ,02(\$!`!0)(2*%&h0\$'
) , : ;5&%\$0E!5&'!J! : %00%&>!35<2\$0A!
^^^!N%>&%+%)5&*!5*!#\$!@A@D!<\$3\$<!^^^!N%>&%+%)5&*!5*!#\$!@A@]!<\$3\$<!^!N%>&%+%)5&*!5*!#\$!
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pG-'())6!%0-!@S*#\$*75!\$*#\$, (%-!%0(%!
%&*-!&@!%0-!' - : &'%6! D0-' - (!%0&5-!D\$%0!)&D-'!5, '+%\$*8! '-)8! &*!%0-!' - (#(F)\$%8!&@! \$%5!
' - : &'%5M! p*!%0\$5!F(5\$56!%0-!08 : &%0-5-5!('-!5+ : : &'% -#M!!!

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^67! L*#\$!=\$+\$#F:!

10\$5!('\$,)-!' -G- ()5!%O(%!
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 L O\$)-! : '-5-*\$!)\$%- '(%+'-!, &* , - '*\$*7!G&)+*%('8!' - : & '%\$*7!*&%-5!%O(%!%&*- !\$* , '- (5-5!(5!@S' . !
 : - '@&' . (* , - !\$* , '- (5-56²³⁰!%O-!(+%O&'5!@S*#!%O(%!(5!%O-!" 1=!\$* , '- (5-56!%O-!%&*- !&@!' - : & '%5!
 F- , & . -! . &' -! : &5\$%G-M! 10\$56!&*!5-7'-7(%\$*7!%O-!#(%(!F(5-#!&*! : +F)\$, !-9 : &5+'-6!\$5! . &5%!
 (: : ('-*%! @&'! , & . : (*\$-5! '(%O-!' !%O(*! !
 , & . : (*\$-5M! L \$%O!' -7('#5!%&'! - (#(F\$)\$%86!%O-!(+%O&'5!@S*#!%O(%!' - : & '%5!(' -! . &' -!' - (#(F)-!
 (5!%O-!" 1=!\$* , '- (5-5M! p *!5-7'-7(%\$*7!%O-!#(%(!F(5-#!&*! : +F)\$, !-9 : &5+'-6!%O\$5!\$5!5--*(5!
 -G\$#-*%!5 : - , \$@\$, ()8!@&'!)&D!5, '+%\$*8! , & . : (*\$-56!\$*@- '\$*7!' - (#(F\$)\$%8!\$5!(55& , \$(% -#!D\$%O!
 O\$70-!' " 1=M! 10\$5!@S*#!\$*7!\$5! , &*5\$5%-*%!D\$%O!%O-!5%+#8!F8! / -+5-)\$* , N!(*#! , &2(+%O&'56²³¹!

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10-!@\$\$*#*7!%0(%
!,& . : (*\$-5!' -5&'!%&!%0-!+5-!&@! : &5\$%SG-!
%&* -!\$*!%(9!' - : &'%\$*7!D0\$)5%!%0&5-!D\$%0!)&D- '!5, '+%\$*8!' -)8!&*!%0-!' - (#(F\$)\$8!&@!' - : &'%5!
'(\$5-5! 5& . -! W+-5\$%\$&*56! (*#! \$5! ,&*5\$5% - *%! D\$%0! %0-! B-*(% -! " ,&* & . \$,5! = -@- '* , -5!
J & . . \$% - -05! ,&* , - '*5!%0(%!@!' . 5!%0(%!b : +50!%0-!) - % - ' ! (*#!5 : '\$\$%!&@!%0-!) (D0!D\$)! *%&!F-!
\$* , - *%SG\$5-#!b%&! : +F)\$50! % (9! \$*%&' . (%\$&*0)²³ ! 10-!%0-! -!& : &'%+*\$%\$-5!%0(%!%0\$5! ('%\$,)-!
&+%)\$* -5!%0- ' -@&' -!0\$70)\$70%!%0-!, 0() - *7-5!%0(%! : &)\$, 82 . (N- '5!@ (, -!\$*!F() (* , \$*7!%0-! * - #!
@&'! , &*@\$#- *%\$(%)\$8! (*#!% ' (*5 : (' - * , 8!D0- *!5- -N\$*7!%&!F+\$)#! , &*@\$#- * , -!\$*!%0-! , &' : &' (% -!
% (9!585% - .)²⁴⁰!

c -5 : \$% -!%0-!%&* -! (*#!' - (#(F\$)\$8! , &* , - '*5!Q (*#! : +%\$\$*7! (5\$#-! , &*@\$#- *%\$(%)\$8! , &* , - '*5R6!
%0-!W+-5\$%\$&*! ('\$5-5! (5!%&!D0-!%0-! '%0-!' - : &'%5! (' -! (F) -!%&!&G- ' , & . -!%0-!#\$@- ' - * , -5!%0(%!
('\$5-!@' & . !%0-!) (, N!&@! () \$7* . - *%F-#D- *%!%0-! (, , &+*\$%\$*7! (*#!% (9(%\$&*!585% - . 5! L \$%0&+%!
%0-! , &* * - , %\$&*!F- \$*7! ' - (#)\$8! +*#- '5%&! \$! \$5! W+-5\$%\$&* (F) -!D0-!%0-! < 1 =5! ! I 1 =5!
- * (F) -!% '+-! !%&!F-! (, 0\$-G-#M! E&D-G- '6!%0-! (+%0&'5!#&! *%&!5- -!%0\$5! (5!F- \$*7!
+)%\$. (%-)8! (!7&!)&@!%0-! : &)\$, 82 . (N- '5!&'!F+5\$* -55-56! (5!%0-!F(5\$, ! : &5\$%\$&*!\$*!C+5% ' () \$!
&@!'% (9! (@@ ('\$!F-7\$*5!D\$%0! (! : &5\$%\$&*!&@! , &*@\$#- *%\$(%)\$8M!!!

C5! c -G&5! (*#!z (, N'\$55&*!0(G-!\$*#\$, (%-#⁶²⁴¹!%0-!% (92, +)%+ ' -15-%%\$*7!\$5!0\$70)8!\$. : &' (%%!
%&!%0-!' -5 : &*5-!%&!\$* , ' - (5-#!#\$5 ,)&5+ ' -M!C5!5+ , 06!% (9! : &)\$, 8! * - -#5!%&'! -@) - , %!%0\$5!5-%%\$*7!
D\$%0! (*8! (##\$%\$&* () #5\$,)&5+ ' -5! (%! '\$5N!&@! (##\$*7!%&! (!D-F!&@! : &% - *%\$())8!#\$5 , &* * - , %-#!
(*#! \$* , & . :) - % - ! : \$, %+ ' -M! E&D-G- '6!%0-! < 1 =5! , &+#! F-! 5- - *! (5! \$. : &G\$*7! %0-! % (9!
#\$5 ,)&5+ ' -5!QG\$ (! I 1 =5R6! (*#! (F- \$!D\$%0!%0-! (F\$)\$8!&@!F+5\$* -55-5!%&! , &*%&'&)!%0-! * (' ' (%SG-!
%0'&+70!%&* -! (*#!' - (#(F\$)\$86! (##!G() + -!%&!%0-!\$*%&' . (%\$&*! - *G\$' &* . - *%M!!!

^6H! Y#? #'*#) \$:

10- ' -! (' -! (! * + . F- ' ! & @!) \$. \$% (%\$&*5!%&!%0\$5!5%+ #8M! 10- ' -! \$5! (!) \$. \$% -#! (F\$)\$8!%&! (55-55!%0-!
\$*%)+ - * , -!Q(5!& : : &5-#!%&! (55& , \$ (%\$&*R!&@!%0-!\$. : (, %!&@! < 1 =1&*!%0-!%&* -! (*#!' - (#(F\$)\$8!
&@! %0-! I 1 =5! #+ -! %&! %0-! %\$. \$*7! &@! , & . . - * , - . - *%! *%&! ())&D\$*7! (! @&' . () : ' - \ : &5%!
(55-55 . - *%!%&!F-! , (' '\$-#!&+M! L \$%0!%0-!\$*%&'&# , %\$&*!&@!%0-! 1 1 J! (*#! I 1 =56!D0(%!\$5! ,) - (' !
\$5!%0-!) (, N!&@! , & . . \$% . - *%!@' & . !F+5\$* -55-5! ' -@) - , %-#!\$*!%0-!5 . () ! * + . F- ' ! & @! 5\$7* (%&'\$-5!
%&!%0-! 1 1 J 6! () %0&+70!\$!\$5! ('7+(F)8!5\$%)!\$*!\$5!\$*% (* , 8!D\$%0!%0-! * + . F- ' ! \$* , ' - (5\$*7M! C!
5 . () ! 5 (. :) -!5\$H-! (*#!\$*2F+\$)%!5-) - , %\$&*!F\$ (5! , ' - (%-! (*! + * (G&\$#(F-!) \$. \$% (%\$&*!%&!%0\$5!
5%+ #8M!!!

4+ ' %0- ' . &' -6!%0-!D(8!\$*!D0\$, 0!%0-! < 1 =!#((%!\$5!#5\$,)&5-#! , ' - (%-5!@+ '%0- ') \$. \$% (%\$&*5!&@!
5 , & : -6!\$*!%0(

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\$. : (, %5!\$*%&' . (%\$&*!#5\$,)&5+!'!h! : ('%\$,+)(')8!\$*!%0-! J p I ? c 2 _a! (*#! :&5%! J p I ? c 2 _a!
-*G\$*&' . -*%M! 10-!' (*5 : ('-* , 8!&@! ,&' :&'(%-!%(9!\$*%&' . (%\$&*!\$!F- ,& . \$*7!\$* , '-(5\$*7)8!
\$. : &'(%!%&!5(%\$5@8!F&%0!7&G- '* . -*%!(*#! ,& . . +*\$%8!' -W+\$' - . -*\$%M! 10-!(+%0&'5!*&-6!
0&D-G- '6!%0(%!%0-!(: : '&(, 0!\$*!D0\$, 0!%0\$!\$5!(, 0\$-G-#!* - -#5!%&!F-! , ('-@+))8!(55-55-#!%&!&
#-%- ' . \$* -!D0-%0-!'#5\$,)&5+!'-5!(' -!(: : '& : '\$(%-!(*#!@%\$!@&'! : + : &5-6!&@- '\$*7!*+ . - '&+5!
(G- *+ -5!@&'!@+%' -!' -5- (' , OM!!!

4+ '%0-!' -5- (' , 0!50&+)#! ,&*5\$#-!'%0-!()\$7* . -*%!F-%D--*!%0-!(, , &+*\$%7!(*#!%(9(%\$&*!
585%- . 56!@&'! -9(. :)-!F8!(55-55\$*7! I 1 =!&+% : +%!'\$(*7+)(% -#!D\$%0!%0-! f S4B!(*#! < 1 =!
&+% : +%M! 10\$! D&+)#! (55\$5!\$*! (55-55\$*7!%0-! -9%-*%!%&! D0\$, 0! , & . :)-9\$%8!&@!#5\$,)&5+!' -!
'-7\$. -5!\$. : (, %5!%0-!W+()\$%8!&@!\$*%&' . (%\$&*!\$*!(! I 1 =M! < &' -&G- '6! -9(. \$*\$*7! , & . : (*8!
\$* , -*%\$G-5!F-0\$*#!5\$7*\$*7!&*!%&!%0-! 1 1 J !D\$))!()5&F-!\$. : &'(%!\$* ,)+*\$*7!#-%- ' . \$*\$*7!
%&! D0(%! -9%-*%!%0-8!5- -N!%&! ,&*%!'&!%0-!'(' (%\$G-!Q@&'! -9(. :)-6!\$*!&'#-!'!%&! . (* (7-!
'- : +%(%\$&*!) 0(' . ! (*#!%&! D0(%! -9%-*%!%0-! 1 1 J ! ()&D5! @&'! ,&*5- 'G(%\$G-! G&)+*% ('8!
#5\$,)&5+!'-5!%&!F-! . (#-²⁴³R6!D0-%0-!'%0-8! : - , -G-!%0-!#5\$,)&5+!'-5!(5!-@- , %\$G-!\$*!F-%-!'!
\$*%&' . \$*7! : +F)\$, !5 , '+*\$%8²⁴⁴!(*#!D0-%0-!'%0-! : & , -55!+*#- : \$*\$*7!%0-! 1 1 J !\$!@&5% - '\$*7!
(*!\$*% - '* () , +)%+!'!%0(%!\$5!50\$@%\$*7!%&D('#5! : +F)\$, !% ('*5 : ('-* , 8!)²⁴⁵!!

C##\$%\$*()86!-9 : (*\$*7!%0-!(* ()85\$5!%&!-9(. \$* -!%0-!5&+ , -!&@!)&D!Q0\$70R!) -G-)5!&@!(9!
: (8(F)-!\$!D(' (*% -#6!\$-6!-9(. \$*\$*7!D0-%0-!' : '&9\$-5!@&'! (9!(77' -55\$G- * -55!\$. : (, %!%0-!
(55& , %\$&*!\$!\$#- *%\$@S-#M!C5! () - (#8!\$*#5\$, (%-#6!%0\$5!('%\$,)-!#&-5!%&!-9%-*%!%0-!(* ()85\$5!%&!&
,&*5\$#-!'! (9!(77' -55\$G- * -55!&!%0-!@S' . 56! (5!+*)\$N-!\$*!%0-!5%+#8!F8! / - +5-)\$* , N! (*#! , &2
(+%0&'5²⁴ ! \$! \$! , &*5\$#- '\$*7!
! ' -5 : &*5-M! 4+ '%0-!' -5- (' , 0! 50&+)#!
,&*5\$#-!'!%0-!\$. : (, %!&!%&* -! (*#! - (#(F)\$%8!\$*!' -) (%\$&*!%&!%0-! < 1 = \ I 1 = ! , & . : ('\$5&*6!
F'\$*7\$*7!\$*!%0-!(77' -55\$G- * -55!G('\$(F)-M!

?*!%0-!(F&G-! ,&*% -9%6!%0\$5! ' -5- (' , 0! . (N-5!%0-! --! , &*% '\$F+%\$&*5!%&!%0-!)\$%- '('+-M!4\$5!6!%0-!
('%\$,)-! -9%-*%5! -9\$5\$*7! ' -5- (' , 0! -9 :)&'\$*7! , & . :)-9\$%8! (*#! I 1 =6! @ ()\$*7! D\$%0\$*! (!
,&*% -*\$%&+5! (*#! , '\$%\$, ()! (' -!&@!%0&+70%!'%0-! , &' : &'(%-!%(9!585% - . M! 10-! 1 1 J ! (*#!\$%5!
5\$7*(%&'\$-5! , '-(%-! (! * &G-)!#(% (! 5-6! : ' -G&+5)8! * & % ! (G (\$) (F) - ! # - () \$ * 7 ! D \$ % 0 ! (* ! (' - (! & @ !
F + 5 \$ * - 5 5 ! % 0 (! @ (, - 5 ! : ('%\$, +) (') 8 ! 5 % ' & * 7 ! 5 , '+*\$%8!D0-%0-!' , & . : (*\$-5! (' - ! !Q&'!
R! , &*% '\$F+%\$*7!%0-\$'!b(\$'!50(' -0!&@!%0-!'! (9!F+ '#- *M!B- , &*#)86!%0-!('%\$,)-! -9%-*%5!
-9\$5\$*7! ' -5- (' , 0! -9 :)&'\$*7! ' - (#(F)\$%8! (*#! %&* -! D\$%0\$*! %0-! , &*% -9%! &@! G&)+*% ('8!
'- : &'\$*7!M! 10-! (+%0&'5! @S*#! %0(%!%0-!)-G-)!&@! : +F)\$, ! -9 : &5+!' -!\$. : (, %5!%0-!\$*% - ' :) (8!
F-%D--*! ' - (#(F)\$%8! (*#! %&* -! &@! I 1 =5M! 10\$'#)86! %0\$5! -9%-*%5!%0-!' -5- (' , 0! %0' &+70!
,&*5\$#- '\$*7!0&D!(% - *%\$&*6!5+ , 0!(5!7&G- '* . -*%!\$*% - 'G- *%\$&*6!\$. : (, %5!5+ , 0!\$*%&' . (%\$&*!
#5\$,)&5+!'-M! 10-! (+%0&'5! : &5\$%!%0(%!%0-!'\$*% - ' :) (8! F-%D--*! < 1 =! (*#! I 1 =! , '-(% -5! (!
: &5\$%G-!&+ , & . -1@&'!)\$. \$*\$*7!& : : &'%+*\$%\$-5!@&'!&F@+5 , (%\$&*6!5+ : : &'\$*7!%0-!08 : &%0-5-5!
&@!%0-!5%+#8! L 0\$) -!%0-!('%\$,)-15-%5!&+%!%0-! --!N-8!& : : &'%+*\$%\$-5!@&'! , & . : (*\$-5!%&! , &*% '&!)
%0-! * (' (%\$G-6! < 1 =5! , &+*% -!'%0-5-!& : : &'%+*\$%\$-56! (*#! # -5 : \$% -!%0-!)(, N!&@! ()\$7* . -*%!
F-%D--*! < 1 =5!(*#! I 1 =5! , '-(%-!()-G-)!&@!(% - *%\$&*!&%0- 'D\$5-!'&%! : '-5- *%M!

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243" nD3%3L " : , "3"/"3Q&M : "+"=cC/"=FFFP"
244" "9,D3'-3+"2D:39*D ;/"3Q&M : "+"cA/"==P"
245" 8&3D0"&("2343,-&+/"3Q&M : "+"==P"
24 " # : : . . + : D3 " ; " 8 : * 9 : ' + \$ ^ " ; " 3 / " 3 Q & M : " + " = > P "

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@!\$!\$!&5%!"!&!"!\$!\$!&5%!"9&2

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